OFFICIAL GAZETTE

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MICRO PHOTO DIVISION
BELL & HOWELL COMPANY

U.S. DEPARTMENT OF COMMERCE

OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

May 2, 1967 Volume 838 Number 1

PATENTS

NOTICES

Board of Appeals Decisions Rendered in the Month of March 1967

Examiner affirmed	269
Examiner affirmed in part	35
Examiner reversed	71
Total	375

Adjudicated Patents

(C.A. Wis.) Kesling Patent No. 2,467,432 (32—14), for ORTHODONTISTS' TOOTH POSITIONER AND METHOD FOR MANUFACTURING POSITIONER, *Held* invalid. *T. P. Laboratories, Inc.* v. *Huge*, 371 F.2d 231; — USPQ —.

(C.A. Wis.) Kesling Patent No. 2,531,222 (32—14), for ORTHODONTISTS' TOOTH POSITIONER AND METHOD FOR MANUFACTURING POSITIONER, *Held* invalid. *Id.*

(C.A. Ill.) Miller Patent No. 2,592,449 (297—429), for REMOVABLE FOOTREST FOR WHEEL CHAIRS, *Held* invalid. *Everest & Jennings, Inc.* v. *Colson Corporation*, 371 F.2d 240; 152 USPQ 209.

(C.A. Ark.) Ents Patent No. 2,762,359 (125—23), for STONE CUTTING MACHINE. Claims 10 and 11 *Held* invalid. *Imperial Stone Cutters, Inc.* v. *Schwartz*, 370 F.2d 425; 152 USPQ 91.

(C.A. Ky.) Alexander Patent No. 2,827,935 (144—327), for METHOD FOR TREATING WOOD SURFACES, *Held* valid but not infringed. *U.S. Plywood Corp.* v. *General Plywood Corp.*, 370 F.2d 500; 152 USPQ 80.

(C.A. Ind.) Williams Patent No. 2,968,256 (103—202), for PUMP ADAPTER, *Held* valid but not infringed. *Williams* v. *V. R. Myers Pump & Supply Inc.*, 371 F.2d 192; 152 USPQ 1.

(C.A. Ill.) Holt and Erickson Patent No. 2,999,136 (179—107), for SPECTACLE HEARING AID. Claims 1, 2, 8 and 18 *Held* invalid. *Strzalkowski* v. *Beltone Electronics Corp.*, 371 F.2d 237; 151 USPQ 675.

(C.A. Ill.) Strzalkowski Patent No. 3,035,127 (179—107), for HEARING AIDS. Claim 18 *Held* not infringed. *Id.*

Effective Date of United States Patent

In section 706.02, delete penultimate paragraph.

Rewrite section 715.01 to read:

The effective date of a United States Patent for use as a prior art reference is not affected by the foreign filing date to which the patentee may be entitled under 35 U.S.C. 119. *In re Hilmer*, 833 O.G. 13, 149 USPQ 480 (CCPA 1966); *Lilly et al.* v. *Brenner*, 153 USPQ 95 (C.A.D.C. 1967). The reference patent is effective as of the date the application for it was filed in the United States (35 U.S.C. 102(e) and 108). *Haseltine Research, Inc. et al.* v. *Brenner*, 824 O.G. 8 (U.S. Supreme Court 1965).

Apr. 5, 1967.

RICHARD A. WAHL,
Assistant Commissioner.

Foreign Patents Received in the Scientific Library as of March 31, 1967

Source	Date received	Highest number
Australia:		
(*Aostracts*)	Dec. 15, 1966	39,266/66
(*Patents*)	Mar. 16, 1967	264,567
Austria	Mar. 16, 1967	252,000
Belgium	Mar. 31, 1967	655,500
Canada	Mar. 31, 1967	755,785
Czechoslovakia	Mar. 18, 1967	119,000
Denmark	Mar. 21, 1967	105,519
East Germany	Mar. 18, 1967	58,971
Egypt	Dec. 14, 1965	5,228
Finland	Feb. 27, 1967	35,748
France:		
(*Patents*)	Mar. 29, 1967	1,461,850
(*Additions*)	Mar. 9, 1967	88,050
(*Medicaments*)	Feb. 10, 1967	3,900 M
(*Additions*)	Apr. 18, 1966	88 CAM
Germany:		
(*Auslegeschriften*)	Mar. 10, 1967	1,282,580
(*Patents*)	Mar. 10, 1967	1,220,270
Great Britain	Mar. 21, 1967	1,060,340
India	Dec. 16, 1966	98,890
Ireland	Nov. 4, 1966	26,048
Italy	Dec. 27, 1965	650,000
Japan	Mar. 22, 1967	5,400/67
Netherlands:		
(*Octrooiaanvragen*)	Mar. 10, 1967	16,803/66
(*Patents*)	Mar. 10, 1967	121,741
Norway	Feb. 27, 1967	110,084
Pakistan	Feb. 3, 1964	112,446
Philippine Republic	Apr. 13, 1962	458
Poland	Mar. 14, 1967	52,617
Rumania	Oct. 26, 1966	43,699
Sweden	Mar. 30, 1967	210,789
Switzerland	Mar. 21, 1967	419,378
U.S.S.R.	Mar. 20, 1967	189,270

Australia: First 2,000 incomplete
Belgium: First printed 493,079/1950
Canada: First printed 445,931/1948
Czechoslovakia: Not received between 81,800/1952 and 91,901/1959
Finland: First printed 19,428/1941
First 500 incomplete
Hungary: First received 5,792/1896
Latest 140,582/1951
Ireland: First received 10,000/1929
Italy: First 243,000 incomplete
Rumania: First received 40,380/1957
U.S.S.R.: Not received between 2,496/1928 and 116,000/1958
Yugoslavia: First received 10,001/1938
Latest 16,461/1941

New Applications Received During March 1967

Patents	8024
Designs	478
Plant Patents	9
Reissues	25
Total	8536

Issue—May 2, 1967

Patents	1865	No. 3,316,556 to No. 3,317,920, incl.
Designs	50	No. 207,527 to No. 207,576, incl.
Plant Patents	4	No. 2,784 to No. 2,787, incl.
Total	1419	

Dedication

3,277,942.—*James J. Dwyer*, deceased, by *Marion Dwyer*, executrix, Clark, N.J. LOCK NUTS HAVING REDUCED SINGLE HEXAGON WRENCHING SURFACES. Patent dated Oct. 11, 1966. Dedication filed Jan. 11, 1967, by the assignee, *Elastic Stop Nut Corporation of America*.

Hereby dedicates to the Public the remaining term of said patent.

Disclaimers

3,087,404.—*Leopold Hase*, Brooklyn, N.Y., and *Donald F. Othmer*, Coudersport, Pa. PHOTOGRAPHIC METHOD. Patent dated Apr. 30, 1963. Disclaimer filed Jan. 20, 1967, by the assignee, *Polytechnic Institute of Brooklyn*.

Hereby enters this disclaimer to claim 1 of said patent.

3,243,096.—*Kenneth L. Crabtree*, Fairfield, Maine. PULP PARTITION MOLDING. Patent dated Mar. 29, 1966. Disclaimer filed Jan. 19, 1967, by the assignee, *Keyes Fibre Company*.

Hereby enters this disclaimer to claims 18, 19, 20 and 21 of said patent.

Patents Available for Licensing or Sale

3,230,952. ORTHOPEDIC APPARATUS HAVING AN IMPROVED JOINT CONSTRUCTION. Candido Reyes Terron, Madrid, Spain. Correspondence to: Imirie and Smiley, Munsey Building, 1329 E St. NW., Washington, D.C., 20004.

3,250,239. AMPHIBIOUS VEHICLES. Juan Jose Chico Garate, Madrid, Spain. Correspondence to: Imirie and Smiley, Munsey Building, 1329 E St. NW., Washington, D.C., 20004.

3,310,162. WIG CASE. Pater Bayer, 1053 Las Palmas Ave., North Sacramento, Calif., 95815.

The following 3 patents are offered by: Charles Swenson, P.O. Box 83, Madison Square Station, New York, N.Y., 10010.

3,055,997. TURN SIGNAL CONTROLLING SWITCH FOR VEHICLES.

3,175,056. TURN SIGNAL SWITCH FOR VEHICLES WITH TEMPERATURE RESPONSIVE DE-ENERGIZING MEANS.

Re.26,118. TIMER WITH REVERSIBLE MOTOR.

Mine Safety Appliances Company is prepared to grant a license under the following patent.

Applications for license may be directed to: Frank E. Foote, Corporate Patent Counsel, Mine Safety Appliances Company, 201 N. Braddock Ave., Pittsburgh, Pa., 15208.

3,304,161. SPONTANEOUSLY COMBUSTIBLE CHARCOAL BRIQUETTE.

British Titan Products Company Ltd., is willing to grant non-exclusive licenses under the following patents upon reasonable terms.

Applications for licenses may be directed to: Mr. J. Russell, Deputy Patents Manager, British Titan Products Co., Ltd., Billingham Co., Durham, England.

3,260,467. STRAIGHT THROUGH FLUID ENERGY PULVERIZERS.

3,315,900. APPARATUS FOR PULVERISING.

The Radio Corporation of America offers to grant non-exclusive licenses on reasonable terms and conditions under the patent listed below.

Inquiries respecting licenses under this patent should be addressed to: Radio Corporation of America, Staff Vice President, Domestic Licensing, 30 Rockefeller Plaza, New York, N.Y., 10020.

3,276,915. STRESS EQUALIZED THERMOELECTRIC DEVICE.

Owens-Illinois, Inc., is prepared to grant non-exclusive licenses under the following 2 patents upon reasonable terms to domestic manufacturers.

Applications for license may be addressed to: Owens-Illinois, Inc., P.O. Box 1035, Toledo, Ohio, 43601. Attn: Patent Counsel.

2,687,289. APPARATUS FOR HEAT-TREATING ON THERMOMETERS.

2,793,480. METHOD OF AND APPARATUS FOR PRODUCING THERMOMETERS.

General Electric Company is prepared to grant non-exclusive licenses under the following 6 patents upon reasonable terms to domestic manufacturers.

Applications for license under the following patent may be addressed to: General Electric Company, Patent Counsel, Silicone Products Department, Chemical and Metallurgical Division, Waterford, N.Y., 12188.

3,231,575. 1-METHYL - 1,3,3 - TRIPHENYLDISILOXANE-1,3-DIOL AMINE COMPLEXES.

Applications for license under the following 2 patents may be addressed to: Division Patent Counsel, Missile and Space Division, General Electric Company, Valley Forge Space Technology Center, P.O. Box 8555, Philadelphia, Pa., 19101.

3,302,905. STABILIZED SATELLITE.

3,302,463. SPACE ENVIRONMENT SIMULATOR.

Applications for license under the following 3 patents may be addressed to: Patent Counsel, Construction Industries Division, General Electric Company, 1285 Boston Ave., Bldg. 1–B, Bridgeport, Conn., 06602.

3,218,519. PROTECTIVE DEVICE PANEL ASSEMBLY.

3,309,478. MULTI-POLE ELECTRIC CIRCUIT BREAKER AND FUSE COMBINATION WITH SINGLE BLOWN-FUSE SENSING SOLENOID FOR ALL POLES.

3,309,637. CIRCUIT BREAKER WITH IMPROVED TRIP ADJUSTMENT.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF MARCH 27, 1967

PATENT EXAMINING OPERATIONS AND GROUPS	Actual Filing Date of Oldest Case Awaiting Action: New	Amended
CHEMICAL EXAMINING OPERATION—I. MARCUS, Director.		
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—R. L. CAMPBELL, Manager. Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	8-27-63	4-27-62
GENERAL ORGANIC CHEMISTRY, GROUP 120—G. D. MITCHELL, Manager. Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	7-25-63	9-12-61
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING, GROUP 140—M. STERMAN, Manager. Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping and Treating Processes.	1-15-64	1-16-62
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—J. R. LIBERMAN, Manager. Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	12-11-63	3-28-62
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Manager. Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	9-16-63	12-12-61
ELECTRICAL EXAMINING OPERATION—N. H. EVANS, Director.		
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—M. L. LEVY, Manager. Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	7- 9-63	9-21-62
SECURITY, GROUP 220—S. BOYD, Manager. Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedos, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	3-17-65	9- 9-63
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—E. J. SAX, Manager. Communications; Multiplexing Techniques; Facsimile; Date Processing, Computation and Conversion; Storage Devices and Related Arts.	8-22-63	7-20-61
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—F. M. STRADER, Manager. Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	9- 3-63	11- 3-61
PHYSICS, GROUP 260—R. L. EVANS, Manager. Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	2- 3-64	6-24-63
DESIGNS, GROUP 290—S. BOYD, Manager. Industrial Arts; Household, Personal and Fine Arts.	10-22-65	6-10-65

Total number of pending applications (excluding Designs)	188,923
Total number of Design applications pending	4,080
Total number of applications awaiting action (excluding Designs)	139,029
Total number of Design applications awaiting action	2,368
Date of oldest new application awaiting action	July 9, 1963
Date of oldest amended application awaiting action	July 20, 1961

EXPIRATION OF PATENTS

The patents within the range of numbers indicated below expire during May 1967, except those which may have been extended under the provisions of the Veterans Patent Extension Act (64 Stat. 316 as amended by 66 Stat. 321) and those which may have expired earlier due to shortened terms under the provisions of Public Law 600. A list of Veterans' patents which have been extended appears in the *Annual Index of Patents—1963*.

Patents..... Numbers 2,505,748 to 2,510,050, inclusive

Plant Patents..... Numbers 938 to 945, inclusive

PATENT EXAMINING OPERATIONS AND GROUPS (Continued)	Actual Filing Date of Oldest Case Awaiting Action	
	New	Amended
MECHANICAL EXAMINING OPERATION—F. H. BRONAUGH, Director.		
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Manager. Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid, Flexible and Special Receptacles and Packages.	4-19-65	9-26-63
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—N. BERGER, Manager. Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders; Woodworking; Tools; Cutlery; Jacks; Fasteners.	1-15-65	10-25-62
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Manager. Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, Etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	9-18-64	7-17-62
HEAT AND POWER ENGINEERING, GROUP 340—C. F. GARBAU, Manager. Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission.	7-16-65	6-23-64
FIXED CONSTRUCTIONS, SUPPORTS, AND HARDWARE, GROUP 350—T. J. HICKEY, Manager. Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures.	5- 4-65	4-26-63
TEXTILES, CLEANING AND FLUID HANDLING, GROUP 360—W. S. COLE, Manager. Fluid Handling, including Valves; Conduits; Filling Receptacles; Lubrication; Joint Packing; Bathroom Fixtures; Centrifugal Separators; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes and their Manufacture; Sewing Machines; Winding and Reeling.	2-16-65	7-25-62

DECISIONS IN PATENT AND TRADEMARK CASES

U.S. Court of Customs and Patent Appeals

IN RE HABET M. KHELGHATIAN

No. 7606. Decided August 4, 1966

[53 CCPA —; 364 F.2d 870; 150 USPQ 661]

1. PATENTABILITY—OBVIOUSNESS—ALL RECORD EVIDENCE SHOULD BE CONSIDERED.

"There appears to be agreement of the parties that essential to the proper resolution of this issue [obviousness from the prior art] is a consideration of *all* the record evidence, including an affidavit filed under Rule 132. Such has been the law in this court for several years, and that regardless of whether any 'doubt' as to patentability exists upon an examination of the prior art alone."

2. SAME—PROCESS—OBVIOUSNESS—IMPROVED RESULT.

"While the Schulze et al. disclosure undoubtedly says that linear velocity and apparatus *must be altered* in going from liquid to vapor phase operation, and presumably vice versa, to obtain *equivalent* results, we think that is all that it says. We find no disclosure or suggestion that liquid phase operation would give *more efficient* COS removal. That, however, is what appellant claims to have found. While a teaching that another, albeit related, process can be carried out in both gas and liquid phases may suggest the possibility of carrying out the Karchmer et al. process in liquid phase, by making certain alterations, this is not tantamount to a disclosure of how to make those alterations and, more importantly, *that a substantially improved efficiency will result.*"

3. SAME—SAME—SAME—SAME—CHANGE FROM VAPOR TO LIQUID PHASE REACTIONS.

"We have considered the Solicitor's reliance upon *In re Leum*, 34 CCPA 762, 158 F.2d 311, 72 USPQ 127 * * * for the proposition that because 'the use of liquid phase in a known vapor phase process is well known to the chemical engineer,' a disclosure of one type of process renders the other unpatentable. However, we find those arguments unpersuasive. Here the invention is more than a mere change from the vapor to the liquid phase; it also includes the discovery that by so doing, a much greater efficiency is obtained."

4. SAME—OBVIOUSNESS—UNDISCLOSED ADVANTAGES COMPARED WITH THOSE WHICH "WOULD INHERENTLY FLOW" FROM DISCLOSURE—*In re Herr* CONSTRUED.

"We think *Herr* not to be support for an affirmance for two reasons: (1) what was said there was *not* that the affidavit was *entitled to no weight*, but only that if the advantage is not disclosed in the application appellant is 'not in a *favorable position* to urge it as a basis for the allowance of claims' (emphasis ours), citing *In re Lundberg*, 45 CCPA 838, 253 F.2d 244, 117 USPQ 190; (2) here we think the affidavit is directed to that which 'would inherently flow' from what was originally disclosed, which is an interpretation we put on *Herr* in *In re Zenitz*, 52 CCPA 746, 333 F.2d 924, 142 USPQ 159."

5. SAME—PROCESS—OBVIOUSNESS—IMPROVEMENT NOT SUGGESTED BY THE PRIOR ART.

"Since we find the improvement appellant found has not been suggested by the prior art, we hold the claims to be patentable."

6. SAME—PARTICULAR SUBJECT MATTER—"PROCESS FOR REMOVING CARBONYL SULFIDE FROM NORMALLY GASEOUS HYDROCARBONS."

The refusal of certain claims in an application entitled "Process for Removing Carbonyl Sulfide From Normally Gaseous Hydrocarbons," as unpatentable over the prior art, is reversed.

APPEAL from the Patent Office. Serial No. 52,211.

REVERSED.

Dos T. Hatfield, J. Edward Hess for appellee.

Joseph Schimmel (*Raymond E. Martin* of counsel) for the Commissioner of Patents.

Before RICH, *Acting Chief Judge*, and MARTIN, SMITH, and ALMOND, JR., *Associate Judges*

RICH, *Acting Chief Judge*, delivered the opinion of the court.

This appeal is from the unanimous decision of the Patent Office Board of Appeals[1] affirming the Examiner's rejection of process claims 1–3, 5, 7, and 8 in application Serial No. 52,211, filed August 26, 1960, for "Process for Removing Carbonyl Sulfide From Normally Gaseous Hydrocarbons." No claim is allowed.

The invention relates to the removal of carbonyl sulfide (COS) from *normally gaseous* hydrocarbons, obtained from refining and cracking processes and employed in numerous conventional applications. COS is an impurity frequently found in such hydrocarbons and often has a deleterious effect on their use, as, for example, in the polymerization of propylene to polypropylene where the COS, if present even in small amounts, poisons the polymerization catalyst.

Appellant invented a method for lowering the COS concentration in such hydrocarbons to levels less than 0.5 p.p.m. (parts per million) by treating the hydrocarbons *in liquid phase* with soda-lime, defined in the specification as "lime which has added thereto sodium hydroxide * * *." The term "lime" is said to include quicklime and hydrated lime, the former being the product of calcining limestone, i.e., calcium oxide and magnesium oxide primarily, the latter being a dry powder obtained by treating quicklime with enough water to satisfy its chemical affinity therefor. The hydrocarbons may be "scrubbed" with a monoethanolamine (MEA) solution, prior to contacting with soda-lime, to remove "the acid gases, H_2S, CO_2, etc. and part (from 20% to 90%) of the carbonyl sulfide."

Claim 1 reads:

1. Process for purify [sic] liquefied normally gaseous hydrocarbons containing carbonyl sulfide which comprises contacting the liquid hydrocarbons with soda-lime.

Claims 2 and 7 are dependent on claim 1 and define preferred embodiments of the invention there defined, claim 2 being limited to propylene and claim 7 being limited to hydrocarbons containing from 34–167 p.p.m. COS. Claim 3 recites a polymerization process in which liquid propylene is first treated with soda-lime to remove COS and is then polymerized. Claim 5 recites a process in which a liquid mixture of normally gaseous hydrocarbons is first treated with MEA to remove some of the COS after which propylene is separated from the mixture and the separated propylene is then treated in liquid phase with soda-lime to remove the remaining COS therefrom. Claim 8 recites a process in which liquefied propylene having a specified COS content is treated with soda-lime to reduce the COS content to 0–5 p.p.m.

The references are:

Karchmer et al., 3,000,988, September 19, 1961.
Fleming et al., 2,959,627, November 8, 1960.
Schulze et al., 2,301,588, November 10, 1942.

The U.S. filing dates of the first two antedate appellant's filing date.

Karchmer et al. disclose the removal of COS from *gases* containing same by contacting the gas with soda-lime, which, according to the patentees, "is a very good absorption material." Light, olefinic gases obtained from the catalytic cracking of petroleum, particularly ethylene, are disclosed, and it is stated that the purified ethylene is such as to be usable in the production of polyethylene. Preferably the gas is pretreated to remove various acidic gases by scrubbing, for example with an aqueous solution of sodium hydroxide, and to remove moisture, for example by passing the gas through a bed of activated alumina. Karchmer et al. make no mention of using soda-lime to remove COS from materials in liquid phase.

Fleming et al. disclose an "improved method for purifying olefins [obtained from pyrolyzing refinery gas, kerosene, gas oil, etc.] which are contaminated with highly unsaturated compounds and compounds of sulfur." The patentees first selectively hydrogenate the acetylenic and diolefinic compounds in the gas mixtures without appreciably converting the monoolefins such as propylene and butylene, and then pass the treated gas over "an organic sulfur conversion catalyst," disclosed in the specification as comprising "the oxides or sulfides of iron or copper separately or in admixture with the oxides of the metals of the left hand side of the 6th group of the periodic table," namely, chromium, molybdenum, tungsten, etc., "to selectively convert the carbonyl sulfide to hydrogen sulfide" again without substantially destroying the low molecular weight monoolefins. The desirability of removing COS from both ethylene and propylene is discussed, it being also pointed out that:

The problem of removal of carbonyl sulfide was not serious in the purification of ethylene for the production of polyethylene since the carbonyl sulfide was removed with the C_3 fraction in the ethylene concentration procedure. Both carbonyl sulfide and propylene have a boiling point of about −50° C. which renders removal by fractionation essentially impossible. Thus propylene separated from pyrolysis mixtures by conventional procedures will contain high percentages of carbonyl sulfide which must be reduced to a concentration of about 10 p.p.m. to be suitable for use in the production of plastics.

Schulze et al. disclose the removal of COS from hydrocarbon fluids such as the normally gaseous hydrocarbons by treating the fluid with an adsorbent material impregnated with an organic base such as monoethanolamine. In a preferred embodiment the adsorbent is also impregnated with a lead salt in addition to the monoethanolamine. The patentees say:

We usually prefer to treat in liquid phase since the volume of reagent required for nominal flow rates, say 0.5 to 5 volumes per hour per volume of reagent is not excessive. However, gas or vapor phase treating of normally gaseous hydrocarbons is satisfactory if provision is made in the size of the reagent bed to allow contact times corresponding to linear vapor velocities under five feet per minute.

The issue therefore is: would it be obvious to treat normally gaseous hydrocarbons in liquid phase with soda-lime to remove COS therefrom when the prior art shows the treatment of such hydrocarbons in vapor phase with soda-lime for the same purpose and the prior art also shows the treatment of such hydrocarbons in both liquid and vapor phase with a MEA type treating agent for the same purpose?

[1] There appears to be agreement of the parties that essential to the proper resolution of this issue is a consideration of *all* the record evidence, including an affidavit filed under Rule 132. Such has been the law in this court for several years, and that regardless of whether

[1] Consisting of Examiners-in-Chief Magil and Lidoff, the latter writing the opinion, and Acting Examiner-in-Chief Behrens.

any "doubt" as to patentability exists upon an examination of the prior art alone.[a] The aforesaid affidavit purports to establish as fact that appellant's treatment of hydrocarbons in the liquid phase rather than the gas phase taught by Karchmer et al. gives "vastly superior results" in treatment of the same hydrocarbons. It is admitted that "essentially the entire case of appellant is based on the affidavit," and so it seems to us. We are concerned primarily with (1) whether these superior results have been shown and (2) if so, whether they would be unexpected.

What the affidavit shows is a comparison of two experiments, in each of which a charge stock consisting of propylene containing 250 p.p.m. COS was passed through a reactor consisting of a two-inch diameter steel pipe, three feet in length, containing 3.1 pounds of commercial soda-lime. In "Run A—Vapor Phase Operation," the charge stock was passed through the reactor at a temperature of 15° F., a pressure of 50 p.s.i.g., and a rate of 4.4 pounds propylene per hour per pound soda-lime; in "Run B—Liquid Phase Operation," the charge stock was at a temperature of 75° F., a pressure of 140 p.s.i.g., and was passed through the reactor at a rate of 4.8 pounds propylene per hour per pound soda-lime. The effluents were periodically analyzed for COS content, it being explained in the affidavit that for polymerization of propylene to solid polymers the maximum tolerable COS content is 5 p.p.m.—a so-called "break-through" value. This value was reached in Run A (gas phase) after a little more than one hour's operation and was reached in Run B (liquid phase) only after about 12 hours' operation.

Regarding this work, affiant Duff, a chemical engineer under whose supervision the experiments were performed said:

> The data for these runs * * * clearly demonstrates the unexpectedly superior carbonyl sulfide removal efficiency of the liquid phase process when compared to the vapor phase process. In his opinion those skilled in the art would have been surprised to find that the liquid phase operation was significantly more efficient than the vapor phase operation, particularly, when the amount of propylene charged to the process was somewhat greater for the liquid phase run (4.8 #/hr./#) than for the vapor phase run (4.4 #/hr./#). The fact that applicant's liquid phase process is almost ten to twelve times more efficient than the prior art vapor phase process is striking proof that such liquid phase operation is not merely a matter of choice available to one skilled in the art.

[a] See, for example, *In re Crounse*, 53 CCPA —, — F.2d —, — USPQ —; *In re Legator*, 53 CCPA —, — F.2d —, 147 USPQ 322; *In re deMontmollin*, 52 CCPA 1287, 344 F.2d 976, 145 USPQ 416; *In re Graf*, 52 CCPA 1206, 343 F.2d 774, 145 USPQ 197; *In re Lohr*, 50 CCPA 1274, 317 F.2d 388, 137 USPQ 548; *In re Papesch*, 50 CCPA 1084, 315 F.2d 881, 137 USPQ 43, and cases there cited.

We note, in this regard, an address by the Commissioner of Patents before the Patent Professional Staff of the Patent Office on March 30, 1966, 825 O.G. 825 (April 19, 1966), wherein it was said:

> * * * if the Examiner is satisfied that the claimed invention is clearly obvious in view of the teachings of the prior art, to a person having ordinary skill in the pertinent art, then a patent should not be granted even if affidavits, terminal disclaimers, and the like are presented by the applicant, since such papers cannot change what is obvious so it may become unobvious and therefore a patentable invention. The Supreme Court, however, points out that commercial success, long felt but unsolved needs, failure of others, etc., may have relevancy as indicia of obviousness or unobviousness, but they are of *secondary* importance. These factors may be helpful in resolving the question of obviousness or unobviousness *in doubtful cases*, since in each case where this question is pertinent, *the examiner must resolve this question one way or the other to his satisfaction*. [Second emphasis ours.]

We are familiar with the views of the Supreme Court there referred to as expressed in *Graham v. John Deere Co.*, 383 U.S. 1, 15 L.Ed.2d 545, 148 USPQ 459, and *United States v. Adams*, 383 U.S. 39, 15 L.Ed.2d 572, 148 USPQ 479. In our view the Court there said nothing at all about "doubtful cases," nor in any way suggested that any record evidence should not be accorded its full probative weight in particular situations, such as where the examiner "is satisfied" the prior art makes the invention "clearly obvious." Such an approach is reminiscent of the proverbial "don't bother me with the facts, my mind is made up" method of decision and has, we think, no place in the application of 35 U.S.C. 103. We therefore remain of the view that the law requires consideration of *all evidence* properly submitted, bearing on the question of obviousness.

Further, we do not understand the Commissioner's attempt to relate terminal disclaimers to rejections based on section 103. See, in this regard, *In re Bowers and Orr*, 53 CCPA —, — F.2d —, 149 USPQ 570.

Affiant also states that the process claimed in the subject application is used in a propylene purification plant having a capacity of 120,000,000 pounds of purified propylene per year and that, in his opinion, "similar superior results would be found when charging other normally gaseous hydrocarbons in liquid phase to applicant's process."

It is against this background that the Examiner, in his answer to appellant's brief before the Board, said:

> Applicant argues the unexpected result using liquid phase contact by referring to an affidavit under Rule 132 (Paper No. 16) submitted to show a comparison between liquid and vapor phase contact. This data is in part reproduced on pages 13 and 14 of applicant's brief. Such a showing is not convincing of the patentability of liquid over vapor phase contact. It merely discloses that over an *extended* period of time, liquid phase contact is more efficient than vapor phase contact. However, applicant's claims are silent as to the length of time of contact so that any advantage of using liquid over vapor phase does not appear in the claims.
>
> It is further noted that the comparative results are merely a comparison of a *single* temperature and pressure with another *single* temperature and pressure. To conclude from such a showing that alleged unexpected results are dependent on a difference in *phase*, which includes many different temperatures and pressure variations, would appear to be a stretch of *inductive* conclusions. Upon viewing the Karchmer et al. data (columns 3 and 4) it is seen that C.O.S. concentrations are obtained in the gas phase which vary from 0.2 p.p.m. to 74.8 p.p.m., the former being less than that in either phase of applicant's affidavit tests.
>
> Notwithstanding the fact that applicant may obtain an *improved efficiency* using particular conditions such a showing cannot lend patentability to the present claims for a more basic reason. Schulze et al. disclose the fact that liquid phase contact is known in carbonyl sulfide removal systems. Accordingly, it would be *obvious to try* liquid phase contact in the Karchmer et al. carbonyl sulfide removal process, so that no matter what result was obtained thereby, such a feature would not be patentable. It is noted that by using liquid as opposed to vapor phase, applicant merely obtained the *expected result*, namely, removal of carbonyl sulfide. To obtain even an improved efficiency is a matter of *degree* not a difference in *kind*.

The essence of the Board's position is:

> While we disagree with the Examiner and do consider that the Rule 132 affidavits [sic: affidavit], on the basis presented, demonstrate an apparent improved result, this improvement is not an unexcepted one in view of the differences to be anticipated between vapor and liquid-phase operations at the same throughput. As is evidenced by Schulze et al. (page 3, column 1, last paragraph) linear velocities and apparatus must be altered to obtain equivalent results in vapor-phase operation as compared with liquid-phase operation.
>
> We agree with the Examiner's position as expressed in his answer except for his interpretation of the affidavit results noted above, and possibly with the choice of language in the expression "obvious * * * to try." In our opinion it would be obvious to substitute, in the Karchmer et al. vapor-phase contact of olefinic hydrocarbons with soda-lime, the known engineering alternative of liquid-phase operation. This substitution with the requisite alteration of apparatus and process parameters to obtain equivalent results is clearly taught in the above-indicated paragraph in Schulze et al.

We think a reasonable interpretation of the Board's position is that appellant's affidavit does establish his process to be more efficient than that of the prior art, but that such an improved efficiency would have been expected from a reading of the Schulze et al. disclosure and therefore does not put appellant in a more favorable position on the question of patentability.

While much theoretical discussion has been presented, for the first time in the three briefs filed here, about the true nature of the phenomenon occurring within the "reactor"; about the effect or effects thereon resulting from changes in temperature, pressure, through-

put, etc.; about what this phenomenon has been *labeled* in appellant's specification, in both its original and amended form; about the nature of the phenomena occurring in the prior art processes; about the necessity, or lack of it, for the number of variations in conditions between Run A and Run B reported in the affidavit; and about the significance of variations in conditions between Run B (the liquid phase operation) and those reported in an example in the specification; we find the arguments on most of these points of little help in drawing conclusions about the issues there discussed. What we have been able to conclude from this discussion, however, is that what appellant attempted to compare in his affidavit was the effect on COS removal of liquid *vs.* vapor phase, and that what he had hoped to do was to maintain temperature, through-put, and all other parameters except pressure constant, the variation in pressure being necessary and responsible for the difference in phase. Instead, because of "unforeseen mechanical limitations in the equipment in which the experiments were performed," appellant says, temperature and through-put were not held constant. Whether the effect of these variations was to decrease rather than increase the efficiency of liquid phase operation, as contended by appellant, is a point we feel it unnecessary to decide since we have not been persuaded by the Patent Office arguments that "an apparent improved result," to quote the Board, does not in fact exist. Thus we, like the Board, believe the important consideration is whether such an improvement in efficiency was to be expected. We think it was not.

As we recently said in *In re Neely*, 53 CCPA —, — F.2d —, 149 USPQ 839:

> The appealed claims are all method claims, but, so far as the issue of obviousness is concerned, the considerations applicable are no different from [those pertaining to] claims for physical structures or arrangements.

We therefore agree with appellant that:

> The improved results achieved in the soda-lime treatment of normally gaseous hydrocarbons in liquid phase as opposed to vapor phase is a property of appellant's process which is to be considered in determining the obviousness of appellant's claimed invention. *In re Papesch*, 50 CCPA 1084, 137 USPQ 43, 315 F.2d 381.

In support of its position that appellant's *improvement* would be expected in view of "the differences to be anticipated between vapor and liquid-phase operations at the same through-put," the Board pointed to the passage in Schulze et al. which we have set out above in discussing that reference. This is all the evidence the Board provides, and, after a diligent search of the record and briefs, we find it is all the Examiner and Solicitor have provided.

[2] While the Schulze et al. disclosure undoubtedly says that linear velocity and apparatus *must be altered* in going from liquid to vapor phase operation, and presumably, vice versa, to obtain *equivalent* results, we think that is all that it says. We find no disclosure or suggestion that liquid phase operation would give *more efficient* COS removal. That, however, is what appellant claims to have found. While a teaching that another, albeit related, process can be carried out in both gas and liquid phases may suggest the possibility of carrying out the Karchmer et al. process in liquid phase, by making certain alterations, that is not tantamount to a disclosure of how to make those alterations and, more importantly, *that a substantially improved efficiency will result.*

[3] We have considered the Solicitor's reliance upon *In re Leum*, 34 CCPA 762, 158 F.2d 311, 72 USPQ 127; and Ex parte Appeal No. 13,231 [3] for the proposition that because "the use of liquid phase in a known vapor phase process is well known to the chemical engineer," a disclosure of one type of process renders the other unpatentable. However, we find those arguments unpersuasive. Here the invention is more than a mere change from the vapor to the liquid phase; it also includes the discovery that by so doing, a much greater efficiency is obtained.

We also find unpersuasive the Solicitor's contention that the affidavit "is entitled to no weight whatsoever" because it is not directed to an unexpected property "within the ambit of the original disclosure," quoting from *In re Herr*, 50 CCPA 705, 304 F.2d 907, 134 USPQ 176, which opinion had in turn quoted the Board. [4] We think *Herr* not to be support for an affirmance for two reasons: (1) what was said there was *not* that the affidavit was *entitled to no weight*, but only that if the advantage is not disclosed in the application appellant is "not in a *favorable position* to urge it as a basis for the allowance of claims" (emphasis ours), citing *In re Lundberg*, 45 CCPA 838, 253 F.2d 244, 117 USPQ 190; (2) here we think the affidavit is directed to that which "would inherently flow" from what was originally disclosed, which is an interpretation we put on *Herr* in *In re Zenitz*, 52 CCPA 746, 333 F.2d 924, 142 USPQ 159.

[5] Since we find the improvement appellant found has not been suggested by the prior art, we hold the claims to be patentable. *In re Carabateas*, 53 CCPA —, — F.2d —, 149 USPQ 44.

[6] The decision of the Board is reversed.

REVERSED.

SMITH, *J.*, concurring.

The legal conclusion of obviousness required by 35 U.S.C. 103 must be predicated on factual considerations. *Graham* v. *John Deere Co.* 383 U.S. 1, 148 USPQ 459. Included among such considerations are the results which are achieved by the invention in issue. *United States* v. *Adams* 383 U.S. 39, 148 USPQ 479. The further command of section 103 is that we consider the invention as a whole. This requires a factual assessment of such factors as the existing problem in the art towards which the invention in issue is directed; the respective contributions of the art and the applicant towards the solution of that problem; a consideration of the differences between the prior art and the invention in issue; and, finally, a determination of what would have been obvious to one of ordinary skill in the art at the time of appellant's invention.

Here appellant has asserted the factual aspects of the problem facing the art; has disclosed a factual solution for this problem and has submitted evidence of facts from which it appears that the differences between the prior art and the invention claimed produced improved results of a magnitude that raises serious doubts as to the factual basis for the Examiner's finding of obviousness. Considering the record as a whole it seems to me the Examiner's position as affirmed by the Board must fail for want of factual support. Viewed with hindsight after appellant's disclosure it seems obvious indeed to sub-

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[3] The Board also relied upon both of these cases, and the Examiner relied upon Ex parte Appeal No. 13,231 only. That Board opinion was not published and was apparently unavailable to appellant except in its abstracted form appearing in 30 JPOS (January, 1948). We find it unnecessary to resolve a dispute over the propriety of relying on that case as precedent since, as we view the case before us, our decision is controlled by law in this court.

stitute the claimed liquid phase operation for the vapor phase operation of the prior art. The appealed claims, however, are claims to a process and thus necessarily involve more than the mere substitution of a liquid phase for a vapor phase operation in an otherwise old process. Operational differences over the prior art and new parameters of operation are clearly required before appellant's liquid phase process is operational.

A process is a unitary concept which does not lend itself to the type of dissectional analysis here employed by the Examiner and the Board. In *Cochrane* v. *Deener*, 94 U.S. 780, 788 (1876), Mr. Justice Bradley pointed out:

> A process is a mode of treatment of certain materials to produce a given result. It is an act, or series of acts, performed upon the subject matter to be transferred and reduced to a different state or thing.

The unitary nature of the claimed process does not appear to have been considered here by the Examiner and the Board. Instead, the rationale of the appealed decision appears to be simply that it would have been obvious for one of ordinary skill in this art to substitute a liquid phase reaction for the vapor phase reaction of the prior art. The error here in so considering appellant's process is the old error of considering the separate steps of the process rather than considering the process as a whole.

To here give effect to the mandate of 35 U.S.C. 103, we must start with a unitary process, which is the invention as a whole, and then consider the factual significance of the claimed portions thereof as they contribute to the "effect" by which the obviousness of the process is to be measured. Thus when appellant submitted affidavit proof of this "effect" and related it to the differences between the claimed process and the prior art processes, I think much more is required of the Examiner than a reiteration of his subjective opinion concerning the obviousness of the invention even though stated in terms of criticism of the averments in the affidavit. At this level both the applicant and the Examiner should be concerned with development of facts on which the ultimate legal conclusion of obviousness can be grounded. Here the office position fails because the Examiner did not come forward with *factual* support for his position after appellant had factually supported the contrary position. If the office position is to be sustained, when challenged it must be supported by factual data from the technical literature or references which would have made obvious to one of ordinary skill in this art, at the time of appellant's invention, that the change from vapor phase to liquid phase operation would produce the results appellant has shown to flow therefrom.

I do not consider that the Examiner has here discharged the obligations imposed on the Patent Office by the *Deere* case. The legal conclusion of obviousness under 35 U.S.C. 103 must be based on factual consideration which I find to be missing from the present record.

MARTIN, *J.*, dissenting.

The key question here is whether the improvement in efficiency, which I assume arguendo is shown by the affidavit, was to be expected.[4] The majority is of the view that it was not; I think it was

[4] That is the key question as noted by the majority, and it is founded on the view that without a showing of improved results, or if the results were to be expected the combination of references would render the claimed process obvious within the meaning of 35 U.S.C. 103.

expected from the teaching of Schulze et al. that:

> * * * gas or vapor phase treating of normally gaseous hydrocarbons is satisfactory if provision is made in the *size of the reagent bed to allow contact times corresponding to linear vapor velocities under five feet per minute.* [Emphasis added.]

The improved result alleged by appellant here is one of efficiency: i.e., a savings of time, or as Schulze et al. say, "contact times." In my view, the above quoted passage of Schulze et al. teaches that one must adjust the size of the COS reagent bed so that the linear vapor velocity through it is not over 5 feet per minute. This is in contrast to the liquid phase requirement of .5 to 5 volumes of liquid propylene per hour per volume of reagent. Regardless of the exact figures that one of ordinary skill in the art could determine on the basis of the relationships explicitly taught by Schulze et al., it is clear that in going from say .5 volume *liquid* propylene per hour per 1 volume of reagent to the volume of gas corresponding to the 15 volumes of liquid at a rate such that the gas passes through a five foot long bed in no less than one minute, *more* reagent bed will be required. That means if the same *amount* of reagent, "1 liquid volume" in the example above, is to be used, the *times* will be *longer*, and *correspondingly the efficiency less.*

Thus, while I do not view the exact efficiency alleged to be shown, 12 hrs. *vs.* 1 hr., as being necessarily predictable, I do not think such absolute predictability to be required by the law, where *an improvement* in efficiency is to be expected from the teachings in the art.

I note also that there is no convincing argument that the resultant p.p.m. value of COS left in the propylene is any improvement in view of the Karchmer et al. (gas process) data showing .2 p.p.m. The *problem* of removal of COS from propylene was recognized by Fleming.

Thus I would affirm.

U.S. Court of Customs and Patent Appeals

IN RE ARTHUR R. TOMLINSON, HARRY H. HALL AND WILLIAM F. GEIGLE

No. 7500. Decided August 4, 1966

[58 CCPA —; 368 F.2d 928; 150 USPQ 623]

1. PATENTABILITY—OBVIOUSNESS—EVIDENCE—BACKGROUND OF INVENTION.
   "We agree with appellants that claims should not be considered in the abstract, particularly when the invention is the result of a selection or screening process. While the ultimate question, of course, is whether the invention defined by the claims is patentable over the art, frequently evidence on background and the circumstances surrounding the making of the invention is helpful in deciding that question."

2. SAME—SAME—"OBVIOUSNESS TO TRY" IRRELEVANT—35 U.S.C. 103.
   "As we see it, appellant's invention is the *discovery* of *what* stabilizers for other materials, known in the art, *will*, and which *will not*, stabilize *polypropylene* against degradation by *light*. The Solicitor asserts that one skilled in the art 'would expect an[y] ultraviolet light stabilizer for polyethylene to be effective as an ultraviolet stabilizer in polypropylene.' If this be true, then appellants have clearly discovered, uncovered, or invented the unobvious for the *record* shows that *many* which they tested were found *not* to be effective. The Examiner, with whom the Board expressed 'total agreement,' did not go that far, saying 'it would be obvious for a skilled chemist to try to stabilize polypropylene with a known stabilizer for polyethylene,' and that it would be 'routine experimentation for a skilled chemist to attempt to stabilize polypropylene against the deteriorative effect of light by first trying the known stabilizers for polyethylene such as the nickel and cobalt dialkyldithiocarbamates,' citing *In re Morston*, 48 CCPA 928, 288 F.2d 940, 129 USPQ 288,

for the proposition that obviousness does not require absolute predictability. Our reply to this view is simply that it begs the question, which is obviousness under 103 of *compositions* and *methods*, not of the direction to be taken in making *efforts* or *attempts*. Slight reflection suggests, we think, that there is usually an element of 'obviousness to try' in any research endeavor, that it is not undertaken with complete blindness but rather with some semblance of a chance of success, and that patentability determinations based on that as the test would not only be contrary to statute but result in a marked deterioration of the entire patent system as an incentive to invest in those efforts and attempts which go by the name of 'research.'"

3. SAME—SAME—EVIDENCE—PRIOR ART CITED BY APPELLANT MUST BE CONSIDERED.

"Appellants contend that the combined effect of *all* the art of record, including that cited by them, shows the invention to be unobvious. Certainly they are entitled to cite art for this purpose, which must be considered."

4. SAME—ANTICIPATION—NOT USEFUL FOR PURPOSE OF REFERENCE.

"In finding anticipation of some claims by Tholstrup, however, we stress three points: (1) that polypropylene and *nickel* salts have each been clearly singled out by Tholstrup from classes of materials, (2) that the negative aspect of Tholstrup's disclosure go not to the making of the composition here claimed, but rather to its use for Tholstrup's purpose, and (3) that appellants have made no statement tending to establish the incorrectness of that disclosure.

5. SAME—COMPOSITION—CLAIMED PROPERTY.

"As to the claim expression 'light-stable composition,' we think it immaterial that Tholstrup does not *in haec verba* make that disclosure. The claims as a whole must be analyzed to see if the composition defined thereby is distinguished in terms from the prior art. *In re Neugebauer*, 51 CCPA 1138, 330 F.2d 53, 141 USPQ 205. Since we think those composition claims reading on nickel dithiocarbamates are not so distinguishable, the rejection of those claims is affirmed."

6. SAME—PROCESS—OBVIOUSNESS—ADMIXING AN OLD COMPOSITION.

"We likewise must affirm the rejection of process claims 18–20, notwithstanding appellants' urgings that those claims 'stand in a different position regarding obviousness' than the composition claims by setting forth 'a use and the means whereby such new use is obtained,' thus coming 'within the definition of a process set forth in 35 U.S.C. 100(b)' and that this 'new use of the nickel and cobalt dithiocarbamates as an ultraviolet stabilizer for polypropylene constitutes one of the fundamental aspects of appellants' invention.' As indicated, Tholstrup shows the combination of polypropylene with nickel dithiocarbamates to be old. While the method of combining is not clear, we think it conventional, and therefore obvious, to do so by 'admixing,' as claimed. We therefore find process claims 18–20 unpatentable by reason of their reading on an obvious process, the admixing of polypropylene and a nickel dithiocarbamate, an old mixture."

7. SAME—SAME—FINDING A PROPERTY IN AN OLD COMPOSITION.

"As to the introductory language, 'A process of inhibiting degradation of polypropylene caused by exposure to light,' again we do not think these words can serve to patentably distinguish the claimed process from the prior art. That language, in effect, states the *result* of admixing the two materials. While the references do not show a specific recognition of that result, its discovery by appellants is tantamount only to finding a property in the *old composition*, not in the nickel compound for which, it is argued, a new use has been found."

8. SAME—ANTICIPATION—NOT USEFUL FOR PURPOSE OF REFERENCE—TECHNICAL REJECTION.

"Reference to the Tholstrup disclosure on which we feel compelled to affirm the rejection of claims reading on compositions stabilized with the nickel salts will show, in view of its negative character which says, in effect, that the patentee does *not* favor the use of nickel salts for any purpose, the rejection to be a highly technical one for lack of novelty and not based on any real teaching of the effect of nickel salts on stabilization against ultraviolet light. For this reason we do not believe this rejection should carry with it the claims limited to the use of cobalt salts on a theory that the nickel salts and cobalt salts are closely related in chemical properties. In view of the empirical nature of this invention, as above analyzed, and in view of the lack of *any* teaching in the prior art about the light-stabilizing effect of the nickel salts *in polypropylene*, we think that portion of appellants' invention concerned with cobalt salts remains patentable notwithstanding our partial affirmance of the rejection."

9. SAME—PARTICULAR SUBJECT MATTER—"STABILIZED POLYPROPYLENE."

The refusal of certain claims in an application entitled "Stabilized Polypropylene," as unpatentable over the prior art, is reversed as to certain claims and affirmed as to the others.

APPEAL from the Patent Office. Serial No. 34,384.

MODIFIED.

Charles E. Feeny, *Dos T. Hatfield* for appellants.

Clarence W. Moore (*J. F. Nakamura* of counsel) for the Commissioner of Patents.

Before WORLEY, *Chief Judge*, and RICH, MARTIN, SMITH, and ALMOND, JR., *Associate Judges*

RICH, *J.*, delivered the opinion of the court.

This appeal is from the decision of the Patent Office Board of Appeals[1] affirming the Examiner's rejection of product claims 1 through 17 and process claims 18 through 20 in application Serial No. 34,384, filed June 7, 1960, for "Stabilized Polypropylene." No claim has been allowed.

The issue is patentability over the prior art and, in order to develop a clearer picture of what the invention is, its background, and its relation to the art, we shall first present a chronological discussion of that art. The references relied on by the Examiner and Board are:

Naunton et al. (British),[2] 684,976, December 31, 1952.
Imperial Chemical (Italian), 495,814, June 25, 1954.
Tholstrup et al., 3,001,969, September 26, 1961 (filed July 8, 1957).
Hawkins et al., 2,889,306, June 2, 1959 (filed July 15, 1957).

Additional references relied on by appellants are:

Hardy et al.,[3] 2,976,259, March 21, 1961 (filed September 5, 1956).
Belgian patent, 579,636, published December 1959.
"Modern Plastics," vol. 37, page 192, January 1960.

Naunton discloses that "the degradation effect of bright sunlight on polythene [4] may be minimised or obviated by incorporating with the polythene a nickel salt of certain dialkyldithiocarbamic acids" in amounts preferably between 0.5% and 5.0% by weight of polymer. Lesser amounts are said not to appreciably improve stability, and amounts greater than 5.0% "have very little additional effect." The two alkyl groups together contain at least 8 carbon atoms—one of the lowest members of that series, nickel dibutyldithiocarbamate, being specifically disclosed.

The Italian patent is also directed to the reduction or elimination of *polyethylene* degradation due to direct sunlight by incorporating therein a dialkyldithiocarbamate. The specification is in many respects similar to that of the Naunton British patent to I.C.I., just discussed, one difference being a preferred upper limit of stabilizer of 3 instead of 5% by weight of polymer, another being no express upper carbon atom limitation of the alkyl substituent, still another and more important difference being that a dithiocarbamate of *any* of 56 elements can be used, viz, those of atomic numbers 21 to 34,

[1] Consisting of Examiners-in-Chief Duncombe and Asp and Acting Examiner-in-Chief Rosdol who wrote the opinion.
[2] Application filed by Imperial Chemical Industries, Ltd. ("I.C.I.").
[3] This patent was apparently first cited at oral hearing before the Board.
[4] Term used by Naunton to designate high molecular weight solid polymers of ethylene.

89 to 52, and 57 to 84. Nickel, iron, cobalt, copper, cadmium, lead, bismuth, selenium, and zinc dithiocarbamates are specifically disclosed among some 28 examples.

Tholstrup relates to the stabilization of thermoplastic hydrocarbons such as polyethylene, polypropylene, etc., against *heat degradation* during extrusion, melt spinning, and other high temperature operations by incorporating a zinc dialkyldithiocarbamate in which the alkyl radicals are lower alkyl containing at least 2 carbon atoms. The polypropylene polymers which can be stabilized include "high density hard solids and crystallizable polymers which can be spun to form useful textile fibers or oriented film."

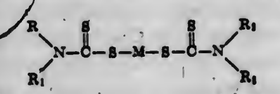
Hawkins discloses the stabilization of polypropylene, polyethylene, and other specifically listed hydrocarbon polymers against both "thermal oxidation," by which Hawkins means oxidation independent of ultraviolet absorption, and oxidation due to ultraviolet absorption. The rather scholarly discussion points out that whereas both influences are believed to be due primarily to the same oxidation mechanism, different kinds of materials are required to effectively retard each type of deterioration. For example, carbon black is disclosed as a conventional retardant for ultraviolet oxidation while "a general requirement of * * * antioxidants [for thermal oxidation] is that they contain an antioxidant group such as the secondary amino or phenolic group attached to an aromatic ring * * *." It is said that great difficulty had been encountered in attempts to prepare polymeric compositions which are at the same time stabilized against *both* influences. For example, since certain carbon blacks had been known to have a mild thermal antioxidant effect in addition to shielding the substance against ultraviolet radiation, it was expected that the incorporation of the usual thermal antioxidants into polymeric materials containing such carbon blacks would result in increased stability against thermal oxidation. It was found, however, that not only is the effect not additive, but that the effectiveness of the antioxidant in the presence of carbon black is reduced several fold—in many instances being rendered completely ineffective. Hawkins discovered that a class of materials, thiuram disulfides bearing four N-aliphatic radicals, could be combined with carbon black in his contemplated polymeric materials to obtain a product which "compares favorably" in stabilization characteristics with that same material containing the most effective commercially available antioxidants in the absence of carbon black. These thiuram disulfides, says Hawkins, are "for the most part ineffectual in the absence of carbon black * * *."

The Patent Office analysis of this art and conclusions as to what would be suggested thereby to one of ordinary skill in the art can be summarized thus: Polyethylene is "closely related" to polypropylene. One skilled in the art, accordingly, would expect an ultraviolet light stabilizer for polyethylene to be effective as an ultraviolet stabilizer in polypropylene. There can be little doubt about this similarity in behavior of stabilizers in polyethylene and polypropylene for both Tholstrup and Hawkins teach the stabilization of hydrocarbon polymers as a class, which class includes both polyethylene and polypropylene. Heat stabilization of the polymers as a class is taught by Tholstrup, and light stabilization of the polymers as a class using carbon black is taught by Hawkins. Furthermore, since Naunton discloses nickel dialkyldithiocarbamates and the Italian patent teaches metal (including nickel) dialkyldithiocarbamates broadly to

be ultraviolet light stabilizers for polyethylene, use of these compounds in polypropylene as ultraviolet light stabilizers would be suggested. In brief, it would be entirely obvious, say the Examiner and the Board, for a skilled chemist at least "to try to stabilize polypropylene with a known stabilizer for polyethylene." We will return to these points of the Patent Office argument later.

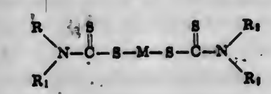
We now turn to what appellants claim as their invention. Claims 1 and 18 are illustrative:

1. A light-stable composition comprising solid, isotactic, substantially crystalline polypropylene and a stabilizing quantity of a dithiocarbamate having the general formula:



wherein each of R, R_1, R_2, and R_3 is a hydrocarbon radical containing 1 to about 18 carbon atoms and M is selected from the group consisting of nickel and cobalt.

18. A process of inhibiting degradation of polypropylene caused by exposure to light which comprises admixing solid, isotactic, substantially crystalline polypropylene and a stabilizing quantity of dithiocarbamate having the general formula:



wherein each of R, R_1, R_2, and R_3 is a hydrocarbon radical containing 1 to about 18 carbon atoms and M is selected from the group consisting of nickel and cobalt.

Claims 2 through 17 are dependent on claim 1 and more specifically define M, the various R groups, and "stabilizing quantity," the largest recited range for the latter being "from about 0.05% to about 5% by weight of said composition." Claims 19 and 20 are similarly dependent on claim 18, differing therefrom only in the amount of stabilizer.

Appellants' class of dithiocarbamates, while quite extensive, is so only by reason of the broad definition of the R substituents; it is quite limited in the definition of M. There is no dispute about breadth or operability. To the contrary, the attention of both parties has been centered on only so much of appellants' class of dithiocarbamates as is disclosed in the above discussed prior art to be useful as light stabilizers for polyethylene, viz, those compounds wherein the R groups are alkyl, particularly lower alkyl. We will treat the case accordingly.

The issue therefore is: would *nickel* and *cobalt* dialkyldithiocarbamates be obvious *effective* light stabilizers for *polypropylene* in view of the array of known stabilizers for polyethylene?

The parties pursue two distinct, but related, analyses of the case. One reason for this is that each provides, and of course stresses, its chosen body of prior art. Another derives from what appear to be divergent views about the nature of appellants' invention. The Patent Office looks strictly to what is claimed; appellants stress the surrounding circumstances and background of their invention as well, pointing out what they *did* as well as what is ultimately claimed. [1] We agree with appellants that claims should not be considered in the abstract, particularly when the invention is the result of a selection or screening process. While the ultimate question, of course, is whether the invention defined by the claims is patentable over the art, frequently evidence on background and the circumstances surrounding the making of the invention is helpful in deciding that question.

[2] As we see it, appellants' invention is the *discovery* of *what* stabilizers for other materials, known in the art, *will*, and which *will not*, stabilize *polypropylene* against degradation by *light*. The Solicitor asserts that one skilled in the art "would expect an[y] ultraviolet light stabilizer for polyethylene to be effective as an ultraviolet stabilizer in polypropylene." If this be true, then appellants have clearly discovered, uncovered, or invented the unobvious for the *record* shows that *many* which they tested were found *not* to be effective. The Examiner, with whom the Board expressed "total agreement," did not go that far, saying "it would be obvious for a skilled chemist to try to stabilize polypropylene with a known stabilizer for polyethylene," and that it would be "routine experimentation for a skilled chemist to attempt to stabilize polypropylene against the deteriorative effect of light by first trying the known stabilizers for polyethylene such as the nickel and cobalt dialkyldithiocarbamates," citing *In re Moreton*, 48 CCPA 928, 288 F.2d 940, 129 USPQ 288, for the proposition that obviousness does not require absolute predictability. Our reply to this view is simply that it begs the question, which is obviousness under section 103 of *compositions* and *methods*, not of the direction to be taken in making *efforts* or *attempts*. Slight reflection suggests, we think, that there is usually an element of "obviousness to try" in any research endeavor, that it is not undertaken with complete blindness but rather with some semblance of a chance of success, and that patentability determinations based on that as the test would not only be contrary to statute but result in a marked deterioration of the entire patent system as an incentive to invest in those efforts and attempts which go by the name of "research."

[3] Appellants contend that the combined effect of *all* the art of record, including that cited by them, shows the invention to be unobvious. Certainly they are entitled to cite art for this purpose, which must then be considered. See *In re McKenna*, 40 CCPA 937, 203 F.2d 717, 97 USPQ 348. Principal reliance is placed on "Modern Plastics," which says:

> Of all the problems that polypropylene producers have faced, stabilization has been perhaps the most difficult. Polypropylene, when it is unstabilized, deteriorates rapidly upon exposure to heat or ultra-violet light. The difficulty with proper stabilization of polypropylene is that, in general, *the vast numbers of stabilizers developed for other polyolefins, vinyl chlorides, and the like proved ineffective for polypropylene.* [Emphasis ours.]
>
> *It was necessary to develop* unique systems for specific end uses.

Hardy and the Belgian patent, also relied on by appellants, disclose dihydroxy alkoxybenzophenones and nickel phenolate of a monosulfide of bis-(p-alkyl phenol) respectively, other classes of known stabilizers, certain members of which appellants' specification shows to be very poor stabilizers for polypropylene, notwithstanding the Belgian abstract is directed to polypropylene, without mentioning the type of stabilization involved, and Hardy is directed to ultraviolet stabilization of a "tremendous array of suitable synthetic resin carrier materials * * * [including] the polyolefins, as for instance, the polymers of ethylene, propylene, isobutylene, etc. * * *."

Example 18 of Hardy shows a 0.02 inch thick sheet of polypropylene containing 0.1% by weight of 2,2′-dihydroxy-4-methoxybenzophenone to be superior in resistance to ultraviolet deterioration after 200 hours exposure than a control sheet containing no benzophenone. Appellants' specification shows that 125 to 150 denier polypropylene monofilaments, containing from 0.5% to 2.0% by weight of this same

compound, break after 20 to 40 hours exposure, and upon those results appellants base part of their argument of unobviousness. The Solicitor makes a point of the differences between Hardy's and appellants' test conditions, contending that since the claims are not limited to monofilaments appellants' results would not be indicative of non-obviousness.

Appellants' specification contains some 59 examples which allegedly demonstrate the unexpected nature of their invention. The first 17 show the substantial effectiveness of nickel and cobalt dithiocarbamates. Examples 18 to 44 show the ineffectiveness, under conditions used in Examples 1 to 17, of the following "stabilizers" disclosed in the art of record: certain zinc, lead, selenium, bismuth, and tellurium dialkyldithiocarbamates; various tetra(lower alkyl) thiuram disulfides; nickel stearate; certain hydroxy methoxybenzophenones; and octyl phenyl salicylate. Examples 45 to 59 show the "hours to break" and "% tenacity retained" (after a given number of hours) of monofilaments of polypropylene containing small percentages of the following: cobalt dibutyldithiocarbamate, nickel dibutyl- and di-sec. butyldithiocarbamate, ferric dibutyldithiocarbamate, and a nickel phenolate. With one exception, the claimed compositions were found to be greatly superior to those not claimed. That exception is that the results of nickel phenolate compositions compared favorably with those of nickel di-sec. butyldithiocarbamate compositions. For comparison purposes non-stabilized polypropylene monofilaments were similarly tested and found to be quite inferior.

Thus, the crux of the Patent Office position is that polyethylene and polypropylene are so closely related that one of ordinary skill in the art, seeking an ultraviolet stabilizer for polypropylene, would *expect* those known in the art as useful stabilizers for polyethylene to be useful stabilizers for polypropylene. If that theorem falls, its entire case falls.

The crux of appellants' position is that "Modern Plastics," combined with those examples in the application showing the *in*effectiveness of various prior art stabilizers, is evidence showing appellants' invention to be unobvious—that those skilled in the art would *not* expect the polyethylene stabilizers to be useful stabilizers for polypropylene—particularly when considered in view of Hawkins, Hardy, Tholstrup, the Italian patent, and the abstract of the Belgian patent. That is, to the extent art cited and relied upon by the Patent Office makes out a "prima facie case of obviousness," appellants allegedly have presented sufficient evidence to rebut that case.

After extensive deliberation, we are disposed to agree with appellants and reverse the rejection of all claims. However, for reasons which will be discussed later, we must exclude from the reversal claims 1, 2, 4, 5, 7, 8, 10–13, and 18–20—those composition and process claims reading on *nickel* dithiocarbamates as the stabilizing ingredient.

Considering the evidence as a whole, we think it inescapable that we are here dealing with an art that is quite empirical. Nearly every reference of record speaks of the unexpectedness of the behavior of "related" materials, or of problems such as discoloration encountered in attempting to use many then known stabilizers in new materials. Exemplary is the following passage from Tholstrup:

> The close relationship between zinc and cadmium apparent from the periodic table indicates that the cadmium salts which correspond to the zinc salts of this invention would function somewhat analogously, and it may be that they do; however, even here there is no known basis for predictability of results

since investigations in the art in general reveal a wide variation in effects between various metal salts without any apparent basis for prognostication.

In addition, we consider quite significant the above passage from "Modern Plastics," notwithstanding that disclosure is general and might even be said, by one desiring to find obviousness of the invention, to *imply* that some prior art stabilizers *do* work with polypropylene. We think such reasoning is far-fetched, however, and that it fails to answer the further, more critical question: which ones? There is not the slightest hint of even the class wherein to search. As to the point about generality, appellants' specification provides numerous examples of the unworkability in polypropylene of *specific* stabilizers, disclosed in the Examiner's cited art as effective in polyethylene.

Further, it is of particular importance, we think, that no reference of record expressly discloses stabilizing *polypropylene* against the degradative effects caused by *light*, with the exception of Example 18 in Hardy, to which we are not inclined to give much weight since the stabilizer there used, 2,2'-dihydroxy-4-methoxybenzophenone, is quite unlike appellants' metal dialkyldithiocarbamates, and also since a polypropylene filament containing that compound was found by appellants to break after 20–40 hours exposure to ultraviolet light. We think this offsets what evidence of obviousness is to be found in that example.

There remains for consideration the legal effect to be given the following disclosure in Tholstrup:

> In addition to the excellent degree of heat stability provided by this invention, it is quite significant that the zinc di-lower alkyldithiocarbamates do not produce discoloration in the stabilized thermoplastic hydrocarbons. Other salts, such as the nickel salt, suffer serious disadvantage from the discoloration standpoint which militates against their use in producing the colorless products which are often much desired.

The second paragraph of Tholstrup's specification says the invention relates to stabilizing "high polymers of mono-α-olefins containing 3 to 8 carbon atoms * * *." The specification as a whole leaves no doubt that *polypropylene* is of particular concern. We therefore conclude that polypropylene compositions containing nickel di-lower alkyl dithiocarbamates are unpatentable over Tholstrup for the reason stated in the Examiner's answer, that novelty is required for patentability and novelty is lacking as to the claimed compositions stabilized with nickel salts.

[4] In finding anticipation of some claims by Tholstrup, however, we stress three points: (1) that polypropylene and *nickel* salts have each been clearly singled out by Tholstrup from classes of materials, (2) that the negative aspects of Tholstrup's disclosure go not to the making of the composition here claimed, but rather to its use for Tholstrup's purpose, and (3) that appellants have made no statement tending to establish the incorrectness of that disclosure. [5] As to the claim expression "light-stable composition," we think it immaterial that Tholstrup does not *in haec verba* make that disclosure. The claims as a whole must be analyzed to see if the composition defined thereby is distinguished in terms from the prior art. *In re Neugebauer*, 51 CCPA 1138, 330 F.2d 353, 141 USPQ 205. Since we think those composition claims reading on nickel dithiocarbamates are not so distinguishable, the rejection of those claims is affirmed.

[6] We likewise must affirm the rejection of process claims 18–20, notwithstanding appellants' urgings that those claims "stand in a different position regarding obviousness" than the composition claims by setting forth "a use and the means whereby such new use is obtained," thus coming "within the definition of a process set forth in 35 U.S.C. 100(b)" and that this "new use of the nickel and cobalt dithiocarbamates as an ultraviolet stabilizer for polypropylene constitutes one of the fundamental aspects of appellants' invention." As indicated, Tholstrup shows the combination of polypropylene with nickel dithiocarbamates to be old. While the method of combining is not clear, we think it conventional, and therefore obvious, to do so by "admixing," as claimed. We therefore find process claims 18–20 unpatentable by reason of their reading on an obvious process, the admixing of polypropylene and a nickel dithiocarbamate, an old mixture.

[7] As to the introductory language, "A process of inhibiting degradation of polypropylene caused by exposure to light," again we do not think these words can serve to patentably distinguish the claimed process from the prior art. That language, in effect, states the *result* of admixing the two materials. While the references do not show a specific recognition of that result, its discovery by appellants is tantamount only to finding a property in the *old composition*, not in the nickel compound for which, it is argued, a new use has been found.

We need not comment in this regard about *cobalt* dithiocarbamates since no process claim is limited thereto.

[8] Reference to the Tholstrup disclosure on which we feel compelled to affirm the rejection of claims reading on compositions stabilized with the nickel salts will show, in view of its negative character which says, in effect, that the patentee does *not* favor the use of nickel salts for any purpose, the rejection to be a highly technical one for lack of novelty and not based on any real teaching of the effect of nickel salts on stabilization against ultraviolet light. For this reason we do not believe this rejection should carry with it the claims limited to the use of cobalt salts on a theory that the nickel salts and cobalt salts are closely related in chemical properties. In view of the empirical nature of this invention, as above analyzed, and in view of the lack of *any* teaching in the prior art about the light-stabilizing effect of the nickel salts *in polypropylene*, we think that portion of appellants' invention concerned with cobalt salts remains patentable notwithstanding our partial affirmance of the rejection.

[9] The decision of the Board is affirmed as to claims 1, 2, 4, 5, 7, 8, 10–13, and 18–20, and is reversed as to claims 3, 6, 9, and 14–17.

MODIFIED.

SMITH, *J.*, concurring in part and dissenting in part, with whom MARTIN, *J.*, joins.

The majority affirms the rejection of claims 1, 2, 4, 5, 7, 8, 10–13, and 18–20 as unpatentable over the prior art use of nickel dithiocarbamates in stabilizing polypropylene. I agree with this portion of the majority opinion. However, I dissent from the majority opinion in which it reverses the Board as to the rejection of claims 3, 6, 9, and 14–17. While I agree with the majority that the art with which we are here dealing is an empirical art and there is no direct teaching that polypropylene can be stabilized by the use of the cobalt salts as claimed in these claims, it seems to me that these claims do not define a non-obvious invention when measured against the requirements of 35 U.S.C. 103.

If we compare the claims which we agree should be rejected with those whose rejection the majority would reverse, we find that composition claims 3, 6, 9, and 14–17 are dependent claims which are based on the rejected claims. The only difference in these claims is that instead of the nickel salt specified in the rejected claims, the corresponding cobalt salts are specified therein.

I note the majority's reference to the reading of the rejected claims on the prior art which suggests to me that the rejection is treated by the majority essentially as an anticipation rejection under 35 U.S.C. 102(a). I think there is no question, despite the generality of some of the terms in which the rejection was phrased by the Examiner and affirmed by the Board, that the real statutory basis with which we should be here concerned is obviousness of the invention under 35 U.S.C. 103. The Board stated:

*** * * we find ourselves in agreement with the Examiner that claims 1 through 20 are "unpatentable over Naunton et al. or Imperial Chemical alone or in combination with Tholstrup et al. or Hawkins et al. under 35 U.S.C. 103." It is the Examiner's stated position that where the prior art disclosed stabilization of polyethylene against the effects of light by means of nickel or cobalt dialkyldithiocarbamate (Naunton et al. and Imperial Chemical), it would be obvious for a person skilled in the art to try these salts to stabilize polypropylene, particularly in view of the suggestion in Hawkins et al. and Tholstrup et al. to the effect that certain stabilizers can be used effectively for both polyethylene and polypropylene. * * ***

The majority's disagreement with this proposition pivots about the phrase "obvious * * * to try," and appears to support its ultimate conclusion by finding that there was no prior art which taught the use of claimed cobalt salts to stabilize polypropylene compositions. I fully agree that in here considering the invention as a whole, the selection of the particular cobalt salts is a factor to be weighed before reaching the ultimate legal conclusion of obviousness or non-obviousness required by 35 U.S.C. 103. However, I do not agree with what seems to me to be the majority's rationale that such selection per se supports a finding of unobviousness *under the facts here.* I do not find that we are here concerned with a problem of the selection of particular materials from a universe which presents many choices. The art here is so developed that the majority finds the use of nickel salts to stabilize polypropylene to be unpatentable. In the composition claims 1, 4, 7, as well as in the process claims 18–20, the rejection of which the majority affirms, the stabilizing salt is selected from the group consisting of nickel and cobalt.

Thus, the issue here turns on the specific selection of the claimed cobalt salts for stabilizing polypropylene in view of the prior art and in the light of the agreed unpatentability of the invention where the corresponding nickel salts are claimed for the same purpose. The prior art teachings showed stabilization of *polyethylene* from degradation due to sunlight in Naunton, Italian and Hawkins. Naunton and Italian disclose the use of *nickel* dibutyldithiocarbamate for this purpose. Italian further discloses a group of metal salts including *cobalt dibutyldithiocarbamate* for stabilizing of *polyethylene.* Prior art recognized similarities between polyethylene and polypropylene as regards stabilization are shown in Hawkins and Tholstrup both of which teach that both polyethylene and polypropylene may be stabilized by the addition of the same compounds and Hawkins deals with degradation by sunlight. Thus, it seems to me one of ordinary skill in this art would be led by the Italian reference directly to the

choice of *cobalt dibutyldithiocarbamate* as a specific salt which is there shown to be effective in stabilizing *polyethylene* against degradation from sunlight. Thus the only difference between appellant's claimed invention and the prior art is that they followed Tholstrup and Hawkins' teachings and treated polypropylene with what the art had used to stabilize polyethylene. These circumstances suggest that the factor of selection stressed by appellants should be given relatively little weight in reaching the legal conclusion of obviousness under section 103.

The selection argument advanced by appellants and relied upon by the majority is not supported by the facts of record. The majority states, "There is not the slightest hint of even the class [of stabilizers] wherein to search." It seems to me that this statement does not consider the teachings as a whole of the Italian patent. It is true that Italian begins by stating a large number of metal dithiocarbamates may be used. However, five specific examples employing metal dithiocarbamates are set forth. Example 1 shows tests with iron cobalt and nickel; Example 2 employs copper, cadmium, lead, bismuth and selenium; Examples 3 and 4 show nickel and zinc; and Example 5 shows nickel. The qualitative results shows the preferred group of metals by a substantial margin is iron, cobalt and nickel with nickel being the best metal by a very small margin. Four of the five tests set forth employ nickel showing the effectiveness of it as a stabilizer.

Appellants set forth certain metal stabilizers which are allegedly ineffective, i.e., zinc, lead, selenium and bismuth. Italian specifically discloses the ineffectiveness of these metals as stabilizers as compared to the preferred group of iron, cobalt and nickel.

Appellants, in citing art to demonstrate the non-obviousness of their invention, place principal reliance on the statement quoted by the majority from Modern Plastics. I find that this statement is only general in nature and encompasses stabilizers developed for "polyolefins, vinyl chlorides and the like." It seems to me that the specific teachings in Italian, Tholstrup, etc., relied upon by the Patent Office, are the "teachings which a person of ordinary skill in the art would consider the most pertinent and accord the most weight" as they are "closely concerned with the claimed invention." *In re Lunsford*, 53 CCPA 1011, 357 F.2d 385, 148 USPQ 721, 724.[5]

On the present record, it seems to me that either the substitution of cobalt salts for nickel salts or the substitution of polypropylene for polyethylene in the art of record would have been obvious to one of ordinary skill in this art under the conditions specified in 35 U.S.C. 103. I would, therefore, affirm the decision of the Board as to claims 3, 6, 9 and 14–17.

[5] Appellants in their brief do not discuss the teachings of the Belgian patent. The other teachings of the references relied upon by appellants are adequately set forth in the majority and I find they are far from specific as are the teachings relied upon by the Patent Office. Accordingly, the teachings relied on by the Patent Office are clearly entitled to more weight.

PATENT SUITS

Notices under 35 U.S.C. 290; Patent Act of 1952

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PLANT PATENTS

GRANTED MAY 2, 1967

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

2,734
ROSE PLANT

Reimer Kordes, Barmstedt, near Elmshorn, Germany, assignor to Jackson & Perkins Company, Newark, N.Y., a corporation of New York

Filed Apr. 22, 1966, Ser. No. 544,633
1 Claim. (Cl. Plt.—20)

A new and distinct variety of rose plant of the hybrid tea class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a vigorous, upright and well balanced plant habit, with the attainment of an average height of about 5½ feet, free production of large flowers suitable for cut flowers, an urn-shaped bud form, a high-centered open flower form, a distinctive and attractive Scarlet-Red general color tonality of the flowers, and a strong and rich tea fragrance of the flowers.

2,735
CHRYSANTHEMUM PLANT

Eugene S. Boerner, Newark, N.Y., assignor to Jackson & Perkins Company, Newark, N.Y., a corporation of New York

Filed Apr. 22, 1966, Ser. No. 544,634
1 Claim. (Cl. Plt.—82)

A new and distinct variety of chrysanthemum plant of the reflexed class with incurved center, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a free and vigorous habit of growth, large bloom size, a reflexed flower form with incurved center, and a distinctive and attractive general color tonality of the flowers corresponding to Scarlet-Red, very lightly overcast with Nopal Red.

2,736
ROSE PLANT

Dennison H. Morey, Jr., Santa Rosa, Calif., assignor to Jackson & Perkins Company, Newark, N.Y., a corporation of New York

Filed Apr. 22, 1966, Ser. No. 544,635
1 Claim. (Cl. Plt.—20)

A new and distinct variety of rose plant of the hybrid tea class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a vigorous, upright and bushy habit of growth, foliage of the "Talisman" type, free flower production, a distinctive, attractive and unusually brilliant red flower color corresponding to Spectrum Red, very lightly overcast with Scarlet-Red, and a strong "Old Rose" flower fragrance.

2,737
ROSE PLANT

Dennison H. Morey, Jr., Santa Rosa, Calif., assignor to Jackson & Perkins Company, Newark, N.Y., a corporation of New York

Filed Apr. 22, 1966, Ser. No. 544,636
1 Claim. (Cl. Plt.—20)

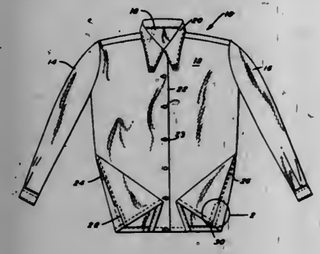
A new and distinct variety of rose plant of the hybrid tea class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of abundant foliage, a very free blooming habit, an urn-shaped bud form, open flowers of large size and double form, a distinctive and attractive Scarlet-Red general color tonality of the flowers, and a strong tea flower fragrance.

PATENTS

GRANTED MAY 2, 1967

GENERAL AND MECHANICAL

3,316,556
SHIRT WITH ELASTICALLY URGED SIDE VENTS
Benedict Berkowitz, New York, N.Y., assignor to Michael Berkowitz Company, Incorporated, New York, N.Y.
Filed July 13, 1964, Ser. No. 382,049
1 Claim. (Cl. 2—128)



An article of clothing for the upper part of the body comprising a body portion, a neck opening in said body portion, said body portion being adapted to be opened and closed at its front, a pair of side seams in said body portion, said side seams being open adjacent the bottom of said body portion edges of said open side seams defining a pair of vents, elastic means extending across said vents for resiliently urging vents into a closed disposition, the open part of said seam being finished with a hem and stitching for holding said hem in place, said stitching being spaced from the edges of said open side seams, said stitching also attaching said elastic means to said body portion whereby said elastic means is attached to said article of clothing spaced from the edges of said open side seams.

3,316,557
SURGICAL, VASCULAR PROSTHESIS FORMED OF COMPOSITE YARNS CONTAINING BOTH SYNTHETIC AND ANIMAL DERIVATIVE STRANDS
William J. Liebig, Harrington Park, N.J., assignor to Meadox Medicals, Incorporated, Haledon, N.J., a corporation of New Jersey
Filed Feb. 15, 1965, Ser. No. 432,700
9 Claims. (Cl. 3—1)

1. A vascular prosthetic implant for surgical use in the repair and replacement of vessels and tracts in human and animal bodies, said implant comprising a porous flexible tubular unit of compound fabric construction characterized by a relatively low porosity initially at the time of implantation and also by the capacity to increase in porosity in the implanted status under biological action wherein an organic component of the fabric is systematically resorbed and in that dissolved and replaced by living tissue and cellular growth between and through the fabric, said compound fabric implant formed of interlaced yarns fabricated in a mesh structure sufficiently closed to be substantially impermeable to blood when the prosthesis is first implanted, the initial porosity of said mesh structure ranging from zero through an ideal value of about 50 up to not more than about 500 on the Wesolowski scale, said compound fabric mesh structure fabricated at least in part uniformly distributed composite yarns comprising strands of a non-absorbable synthetic substance of adequate strength, flexibility and resilience and characterized by the properties of compatibility with and relative inertness to change in the presence of living tissue, of wettability to blood, and of capacity for sterilization, and said composite yarns further comprising strands of an animal derivative substance sufficiently hemostatic to prevent blood leakage during an initial implantation of the prosthesis but having the capacity for biological absorption in prosthetic use, said synthetic substance strands affording a stable structural framework for said porous flexible tubular implant,



and said animal derivative substance strands affording the implant a controlled permeability characteristic whereby upon said biological absorption of said latter strands the porosity of said fabric increases to a terminal value of at least about 5,000 and preferably ranging from about 10,000 to 20,000 and upwardly, on the Wesolowski scale, and whereby said strands are replaced by invading organic growths in the form of endothelial cells and fibroblasts in the host patient sufficient for the tissue of the host body to become adequately attached to the prosthetic implant.

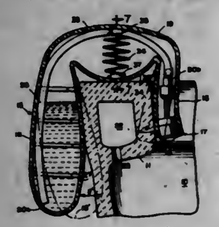
3,316,558
PROSTHETIC LEG WITH A HYDRAULIC KNEE CONTROL
La Vaughn L. Mortensen, 616 W. 107th St., Los Angeles, Calif. 90044
Filed Nov. 12, 1963, Ser. No. 322,619
13 Claims. (Cl. 3—1.2)

4. A fluid chamber knee control device for a leg prosthesis comprising a tubular member closed at one end, a piston rod bearing in the other end through which a piston rod passes, a fixed partition in said tubular member dividing it into an upper and a lower cylinder, said partition having a poppet valve therethrough, an orifice connecting said upper and lower cylinders, a floating piston in said upper cylinder, a piston in said lower cylinder connected to said piston rod, said floating piston dividing said upper cylinder into an upper and a lower chamber, the other said piston dividing the lower cylinder into an upper and a lower chamber, means to prevent passage of fluid around said floating piston, means to prevent the passage of fluid around said other piston, an orifice through said other piston to allow controlled passage of fluid therethrough, and an orifice through said poppet valve to allow controlled passage of fluid therethrough.

10. A leg prosthesis comprising an upper thigh member, a lower shank member, a knee joint pivotally connecting said members, means pivotally connected between said members for control of said knee joint comprising, a tubular member sealed at each end, a partition in said tubular member, an upper cylinder and a lower cylinder formed by said partition, hydraulic fluid in both said cylinders, a valve means joining said cylinders, a non-valve means allowing continuous fluid communication between said cylinders, fluid spring means in said upper cylinder, a piston in said lower cylinder, an upper chamber and a lower chamber in said lower cylinder formed by said piston, an orifice joining said upper and lower chambers of said lower cylinder, and a piston rod connected to said piston.



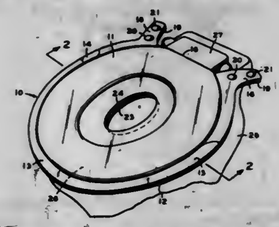
3,316,559
TOILET HYGIENIC DEVICE
James W. Ewing, 130 Howe Terrace, Barrington, Ill. 60010, and Dale F. Behrends, 13024 Fenton Ave., Sylmar, Calif. 91342
Filed June 10, 1964, Ser. No. 373,976
12 Claims. (Cl. 4—223)



5. A device for introducing a hygienic liquid into a toilet bowl, comprising a unitary, generally elongated, U-shaped, generally tubular body constructed of resilient plastic material, said body being defined by depending leg portions adapted to extend downwardly along the inside and outside of a toilet bowl rim, with one of said leg portions being equipped with a discharge nozzle, and a connective portion for said leg portions, said connective portion having generally longitudinally arcuate upper and lower side walls convexly related to each other, said lower side wall being deformed upwardly toward said upper side wall when the latter is engaged by a lowered toilet seat to urge said leg portions toward each other for immobilizing said container on the bowl rim, said body being equipped with a dip tube extending into the other leg portion from said nozzle, and a check-valve in said tube adjacent said nozzle.

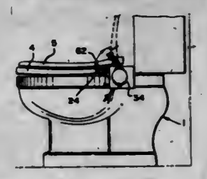
3,316,560
DISPOSABLE TOILET SEAT COVER
Jeanne B. Montaldo, Glendale, Mo. (72 Aberdeen Place, St. Louis, Mo. 63105)
Filed Dec. 2, 1963, Ser. No. 327,322
4 Claims. (Cl. 4—242)

1. A toilet seat cover for supporting small children and the like, said toilet seat cover comprising a pair of flexible plastic sheets having flat surfaces and each being provided with a forward margin, a rear margin and opposed side margins, means to join the forward and side margins of the sheets together to define a pocket therebetween of a size suitable to receive a toilet seat, cooperating fastening elements operatively associated with the rearward margin of each of said sheets to releasably fasten the rear margin of said sheets together, said fastening elements having longitudinally spaced snap fasteners for adapting the cover to different length toilet seats, and means defining superposed holes through the centers of the upper and lower sheets, said superposed holes being substantially



smaller than the hole formed by said toilet seat and being sized so that the buttocks of a small child can be supported on a portion of the flat surface immediately surrounding the superposed holes, said sheets being sufficiently thick to support the weight of a small child seated thereon.

3,316,561
ACTUATING MEANS FOR TOILET SEATS AND LIDS
Kenneth Newkirk, 866 Green St., San Francisco, Calif. 94133
Filed Feb. 10, 1964, Ser. No. 343,659
4 Claims. (Cl. 4—251)



1. In combination with a toilet provided with a hinged lid:

closing means urging said lid to closed position,

holding means for holding said closing means at a point with said lid in open position,

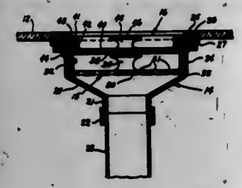
time delay means actuated by opening of said lid and adapted to release said holding means after a predetermined time interval whereby said closing means automatically closes said lid a predetermined length of time after it is opened,

said time delay means including a hydraulic cylinder.

3,316,562
SINK STOPPER
William E. Van Dyke, Riverside, Calif. (P.O. Box 2441, Riviera, Ariz. 86442), and Otis Balthrope, 5646 Wohlstetter St., Riverside, Calif. 92503
Filed May 18, 1964, Ser. No. 368,164
5 Claims. (Cl. 4—286)

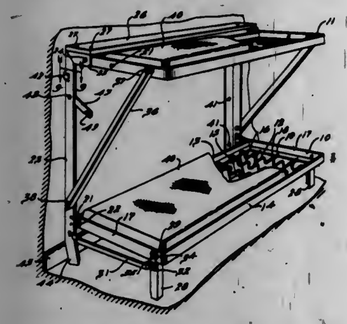
1. A stopper and drain assembly for sinks including a well adapted to be positioned centrally of a sink and a reduced diameter drainage pipe, a connecting portion between the top of said pipe and the bottom of said well defining a shoulder, a garbage strainer comprising a flat perforate plate having an annular wall of a height not greater than one-half the depth of said well and a diameter slightly less than that of said connecting portion seating on said shoulder in said well, and a handle secured to the upper surface of said perforate plate of a height no greater than that of said flange; and a stopper member comprising an annular imperforate plate having an annular wall of a diameter substantially equal to that of said first mentioned annular wall, and of a height not greater

than one-half the depth of said well, a handle secured to the upper surface of said imperforate plate of a height no greater than said last mentioned annular wall, and sealing means surrounding the exterior periphery of said last mentioned annular wall, whereby said strainer and



said stopper member may be simultaneously seated in said well in superposed relation with said stopper member seating flush with the top of said annular wall of said strainer, and with the top of the annular wall of said stopper member and the handle of said stopper member flush with or below the top of said well.

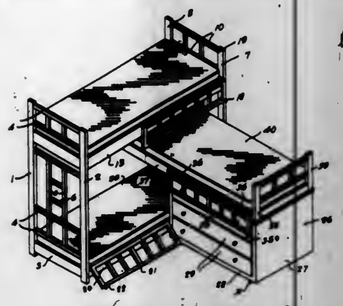
3,316,563
BUNK BED
Harold A. Vogel, Seattle, Wash., assignor, by mesne assignments, to Lear Siegler, Inc., Santa Monica, Calif., a corporation of Delaware
Filed Aug. 20, 1962, Ser. No. 217,984
11 Claims. (Cl. 5—9)



1. A collapsible assembly movable between a bunk bed position and a seat forming position and comprising; a pair of uprights having parallel arms extending laterally therefrom, first and second frames with springs disposed thereacross, said first frame being pivotally connected to said arms, said second frame being pivotally connected to said uprights rearwardly of the pivotal connection of said first frame to said arms so that said frames may be pivoted to the vertical position with said first frame being parallel to and forward of said second frame whereby said first frame encompasses said second frame, first means for supporting one of said frames in a horizontal position, second means for supporting the other of said frames in a horizontal position, and third means for supporting one of said frames in a tilted backrest position to form a seat.

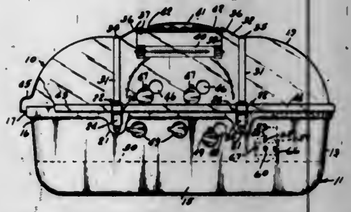
3,316,564
MULTIPLE-DECK BED
William A. Rogers, Jr., 2326 Old St. Augustine Road, Tallahassee, Fla. 32301
Filed Jan. 15, 1964, Ser. No. 337,814
4 Claims. (Cl. 5—9)

1. A multiple-decker bed comprising three bed frames, two pairs of upright end posts with each pair thereof attached to opposite ends of two of said bed frames fixedly supporting the same in spaced apart superposed positions, a movable support having a portion of the third of said bed frames fixedly mounted thereon with a second portion of said third bed frame extending from said mov-



able support between and laterally of said two of said bed frames adjacent one pair of said end posts, and means detachably connecting said movable support to said one pair of said end posts.

3,316,565
CARRIER FOR LIVING BEINGS
Gerald N. Knowlton, Chicago, Ill., assignor, by direct and mesne assignments, of two-thirds to Samuel O. Broyde
Filed Apr. 9, 1965, Ser. No. 446,854
12 Claims. (Cl. 5—97)



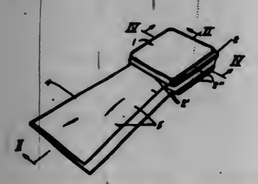
1. A portable carrier particularly adapted for carrying living beings comprising,
an elongated open top receptacle made from an opaque plastic material and having connected side and end walls and a vertically extending flange extending about and upwardly of said walls,
a transparent cover for said receptacle generally conforming to the open end thereof, and having a shoulder extending thereabout engageable with said flange on said receptacle and having a retaining flange depending from said shoulder and extending along the outside of said flange on said receptacle,
a handle at the top of said cover enabling said cover to be carried by the hand,
and means forming a support for said handle on said cover and detachably connecting said cover to said receptacle comprising,
a pair of parallel straps extending over the top of said cover along the outside thereof and downwardly along the side walls thereof and having hooked lower end portions,
a handle strap extending along the inside of said cover and connecting said straps together and forming a means for the attachment of said handle to said cover and straps,
and toggle latches engageable with said hooked ends of said straps and mounted on opposite sides of said receptacle for retaining said cover to said receptacle.

3,316,566
CONSTRUCTION FOR WASHABLE FABRIC ARTICLES
Arch O. Long, Sr., 1311 Tangier Way, Sarasota, Fla. 33579
Filed Dec. 23, 1963, Ser. No. 332,419
2 Claims. (Cl. 5—334)



1. A combined top and bottom bed sheet comprising a single ply rectangular woven fabric panel having a length substantially equal to twice the length of the bed to which it is to be applied, said sheet having its parallel long edges selvaged and the transverse end edges unselvaged, each of the unselvaged end edges being secured against raveling by a surge stitch formed of a nonhygroscopic thread, and the central portion of the sheet being marked by transverse threads of contrasting color with the fabric.

3,316,567
AIR-CUSHION
Hidejiro Yagi, 2548 Oaza Kokubunji, Kokubunji, Tokyo, Japan
Filed Mar. 2, 1965, Ser. No. 436,593
Claims priority, application Japan, May 21, 1964, 39/49,449
6 Claims. (Cl. 5—348)



1. A combination air-cushion and head cover comprising, first and second inner layers of material of substantially coextensive length and width having one pair of their corresponding sides and their corresponding top ends sealed together to form a hood opening at the opposite corresponding sides, and an enveloping layer sealingly connected adjacent the top ends of the respective first and second inner layers and overlying the exteriors of said first and second inner layers and extending downwardly along the respective sides thereof and being sealingly secured around their peripheries to the respective sides of said first and second inner layers to define inflatable substantially aligned pillow chambers on each side of said hood.

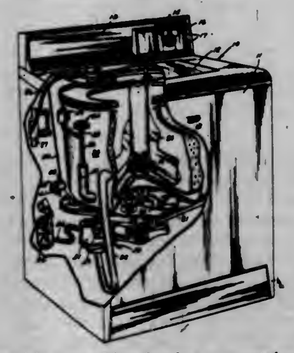
3,316,568
HOSPITAL MATTRESS WITH ARTICULATED FRAME
Melvin N. Janapol, 6000 Avalon Blvd., Los Angeles, Calif. 90003
Filed Apr. 29, 1966, Ser. No. 546,237
6 Claims. (Cl. 5—351)

1. An inner-spring mattress comrising a plurality of normally horizontal and inclinably relatable sections and each with its own independent spring frame, each of said spring frames having side rails with transverse rows of vertically disposed spring coils, there being a common padding overlying the said sections and supported by



said spring coils, and said adjacent spring frames being hingedly coupled by means of the side rails that are extended and pivotally joined end to end on a transverse axis at the plane of support beneath the padding.

3,316,569
TORQUE RESPONSIVE PNEUMATICALLY OPERATED WATER LEVEL CONTROL FOR AUTOMATIC WASHER
Robert A. Brenner and Ernest B. Ruble, St. Joseph, Mich., assignors to Whirlpool Corporation, Benton Harbor, Mich., a corporation of Delaware
Filed Oct. 20, 1965, Ser. No. 498,493
11 Claims. (Cl. 8—158)



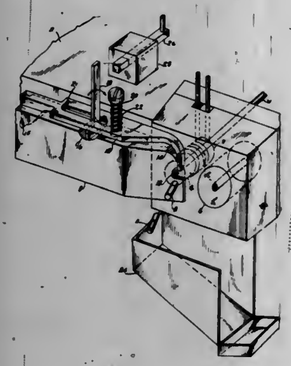
1. In a washing machine having a container for materials to be washed:
agitation means for effecting a washing operation of materials placed within said container,
pneumatic pressure controlled means for introducing wash liquid into said container, said pneumatic pressure controlled means being effective to terminate introduction of wash liquid when said pneumatic pressure controlled means senses a predetermined air pressure,
sensing means on said machine for sensing movement resulting from the agitation of said materials to be washed in an amount of wash liquid less than that required to establish a predetermined relationship between the materials to be washed and the amount of wash liquid, and
air bleed means associated with said pneumatic pressure controlled means and responsive to said sensing means for reducing the air pressure sensed by said pneumatic pressure controlled means to thereby allow the introduction of additional wash liquid to said container.

11. The method of washing articles which comprises introducing the articles to be washed into a container,
introducing washing liquid into said container under the control of pressure responsive means,
terminating the introduction of washing liquid when said pressure responsive means senses a predetermined air pressure,

agitating said articles in said washing liquid, sensing the torque produced movement of said container during such agitating, and

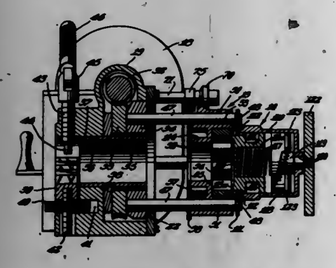
reducing the air pressure sensed by said pressure responsive means when an excessive torque produced movement of said container is sensed, thereby introducing additional washing liquid into said container.

3,316,570
CUTTING MECHANISM
Robert A. Am Ende, Vernon, Conn., assignor to Veeder Industries Inc., a corporation of Connecticut
Filed Jan. 25, 1965, Ser. No. 427,786
6 Claims. (Cl. 10—25)



1. A cut off mechanism for use with a forging machine of the type wherein the cut off knife cuts off a predetermined length of wire and normally transfers the cut off wire to a position of alignment with a working die comprising: a cutting die through which the wire extends prior to cutting, a knife blade in cooperative relationship to said cutting die adapted to cut off a predetermined length of wire, a receiving pan, a first working die adjacent said cutting die, and means cooperating with said knife blade selectively operable to transfer the cut off slugs to either said receiving pan or to a position of alignment with a first working die as desired.

3,316,571
PORTABLE POWER THREADER AND VISE
John N. Cutrone, 6716 Navajo, Lincolnwood, Ill. 60645
Filed Aug. 6, 1964, Ser. No. 387,929
15 Claims. (Cl. 10—89)



1. A portable pipe threader and vise which comprises an electric motor, a gear housing supporting said motor and having reduction gears rotatably mounted therein driven by said motor, a worm driven by said reduction gears in said casing, a ring gear driven by said worm in said casing, a vise on one side of said ring gear on said casing, a tool carriage support projecting from said ring gear on the opposite side of said casing remote from said vise, a tool carriage slidably mounted on said support means and movable toward and away from said ring gear, said vise effective to hold the workpiece through said ring gear against a cutting tool in said tool carriage, detachable means on said tool carriage effective to load the tool therein against the end of a workpiece held by said vise, and switch mechanism actuated by said tool carriage for reversing and subsequently stopping said motor upon completion of a cutting operation.

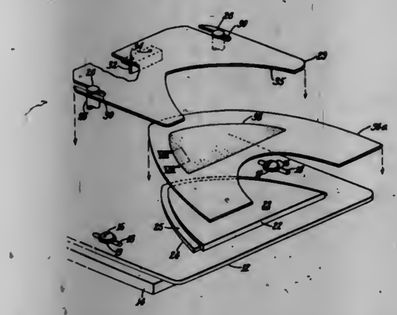
3,316,572
APPARATUS FOR MAKING SHOES
James L. Forma, Andover, and William F. Herlihy, Haverhill, Mass., assignors to Lowell Molding Corporation, Lawrence, Mass., a corporation of Massachusetts
Filed Sept. 24, 1963, Ser. No. 311,138
12 Claims. (Cl. 12—12.5)



1. Apparatus for shaping and heel seat lasting the back part of an upper to a bottom element, comprising a male form having an eterior surface complementary to the quarter at the back part of the upper, and an upwardly facing flat heel seat portion, about the exterior surface of which the upper is adapted to be placed with its margin extending above the heel seat portion, and upon which is adapted to be placed a bottom element, spaced positioning elements on the heel portion, situated on the median thereof, operative, by engagement of the bottom element therewith, to hold the bottom element accurately positioned, an activator element mounted adjacent the male form movable from an inoperative position into engagement with the marginal edge of the bottom element peripherally of the spaced positioning means, said activator element having a heightwise thickness such that, when the margin of the upper is flush with its upper side, the throat of the upper is accurately positioned heightwise of the male form, a mold part complementary to the male form operative to clamp the upper in position on the male form, and means operatively associated with the mold part and the activator operative automatically to move the activator to an out-of-the-way position in concurrence with the movement of the mold part into clamping engagement with the male form.

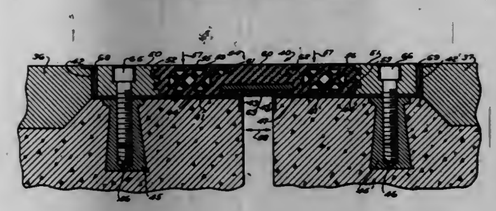
3,316,573
SHOE MANUFACTURE
Adolph M. Chaplick, Hudson, N.H., and Conrad Rossitto, Andover, Mass., assignors to United Shoe Machinery Corporation, Flemington, N.J., a corporation of New Jersey
Filed Jan. 20, 1964, Ser. No. 338,705
6 Claims. (Cl. 12—146)

1. A method for providing a shoe component in permanently stiffened three dimensional configuration which comprises the steps of applying a coating of viscous molten thermoplastic synthetic polymeric material to the surface of the area of said shoe component to be stiffened, said thermoplastic synthetic polymeric material having a softening point of from 200° F. to 400° F. and a stiffness when cooled and solidified to provide through its strength and stiffness as a layer of the below defined thickness the added stiffening needed to hold said shoe component in said three dimensional configuration, and being applied at a temperature at which said molten thermoplastic synthetic polymeric material has a viscosity low enough to wet and adhere to said surface but sufficiently high that it will substantially not penetrate the shoe component to be stiffened, cooling the said ma-



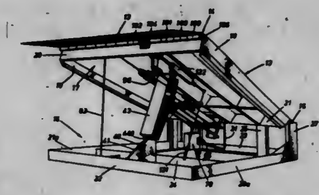
terial to form a stiffly resilient, distinct, at least lightly adherent layer of the order of from about 0.010 to about 0.10 inch in thickness above the surface of said shoe component giving the stiffness required for holding said shoe component in the desired three dimensional configuration, and applying conforming pressure to shape said shoe to the desired three dimensional configuration.

3,316,574
ROAD EXPANSION JOINT
Robert Lee Pare, 1890 Broad St., Cranston, R.I. 02910
Filed July 28, 1965, Ser. No. 477,360
23 Claims. (Cl. 14—16)



20. An expansion joint in a roadbed comprising two roadbed sections spaced from each other to thereby define a gap therebetween, an elongated elastomeric block of generally rectangular cross-section having its longitudinal running edges supported on said sections, said block having top and bottom generally parallel surfaces, abutment means maintaining said block on said sections, the bottom of said parallel surfaces being that surfaces of said block portions which are supported by said slabs, said block exhibiting a greater resistance to deformation forces generally parallel to said surfaces and generally longitudinal with respect to said roadbed sections in the lower half of said block than in the upper half of said block, whereby upon a longitudinal movement of said roadbed sections towards each other, upward buckling centrally of said elastomeric block is inhibited, a stiffening element, said stiffening element being positioned in said block, said stiffening element positioned below the mid portion of said block and being of lesser width than the width of said block, said stiffening element spanning and overlying said gap between said roadbed sections.

3,316,575
DOCK LEVELLERS
Kurt K. Larsen, Islington, Ontario, and Arne I. Pedersen, Georgetown, Ontario, Canada, assignors to Blue Giant Equipment of Canada Limited, Brampton, Ontario, Canada
Filed Aug. 10, 1964, Ser. No. 388,726
5 Claims. (Cl. 14—71)



2. An adjustable dock leveller comprising: a ramp member having a front edge and a rear edge; means hingedly mounting said ramp member adjacent the rear edge thereof for movement about a horizontal axis, elevating means normally urging said ramp means to move about said horizontal axis into an elevated position, and brake means to restrain movement of said ramp means in at least one attitude, said brake means comprising: a flexible substantially non-extensible member secured to said ramp at a first end and at a second end to a rotatable winding drum, means to rotate said drum, and stop means engageable upon actuation with said drum to restrain movement thereof, said brake means including a housing, said stop means comprising a free member disposed in said housing, said free member being frictionally engageable with an adjacent surface of said drum to restain movement thereof in a predetermined direction and means for moving said free member out of frictional engagement with said drum.

3,316,576
ELECTRIC TOOTHBRUSH
Richard L. Urbush, Racine, Wis., assignor to Scovill Manufacturing Company, Waterbury, Conn., a corporation of Connecticut
Filed Aug. 19, 1965, Ser. No. 481,020
4 Claims. (Cl. 15—22)



1. An electric toothbrush provided with brush handle holding means in which the brush handle is retained by frictional engagement and is inserted and removed by simple push and pull movements without manipulation of any parts, comprising

(a) a casing,

(b) a brush holder housing having an opening in its forward end mounted in the casing,

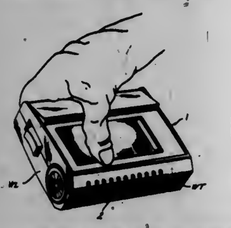
(c) a pair of separate substantially parallel brush holder bars extending longitudinally of the housing in alignment with the opening,

(d) resilient means between each bar and the holder housing yieldingly urging said bars toward each other, said resilient means comprising an elongated leaf spring extending longitudinally of the bar and means fastening the spring to the bar between the spring ends, the opposite ends of the spring being biased to extend in divergent directions away from the bar and to bear against the housing surface,

(e) a motor in the casing, and

(f) means operatively connecting the brush holder housing to the motor for reciprocating the housing,
(g) said bars being separable by insertion of a toothbrush handle between said holder bars into frictional engagement therewith.

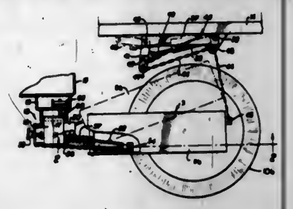
3,316,577
BATTERY-POWERED CLOTHES BRUSH
Joseph F. Kravos, Chesterland, Ohio, assignor to General Electric Company, a corporation of New York
Filed Mar. 1, 1965, Ser. No. 435,835
11 Claims. (Cl. 15—23)



1. A compact cleaner apparatus comprising:
(a) a hollow housing having an inside surface and an outside surface, said housing having a nozzle opening therethrough; a brush chamber, a dirt collecting chamber, and a motor chamber located in said housing;
(b) a rotatable generally cylindrical brush mounted within said housing and positioned adjacent said nozzle so that a peripheral portion of said brush projects outwardly through said nozzle; a motor whose sole output is connected to said brush;
(c) the inside surface of said housing conforming to the shape of said brush and said brush establishing a rotating air flow pattern within said housing;
(d) first aperture means in said housing for admitting a first air flow into the portion of said housing adjacent said brush, said first air flow being caused as a result of a suction force created by said rotating air flow pattern, said first air flow being impelled past said nozzle by the rotation of said brush for ingesting dirt particles into said housing and said brush;
(e) second aperture means in said housing for admitting a second air flow into the portion of said housing surrounding said brush, said second air flow being caused as a result of a suction force created by said rotating air flow pattern;
(f) means for discharging the combined first and second air flows and said dirt particles away from said brush into said dirt collecting chamber;
(g) means for filtering said dirt particles from said combined first and second air flows; and
(h) aperture means extending through the inside and outside surfaces of said housing for exhausting said combined first and second air flows from said housing.

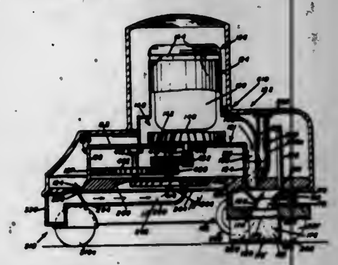
3,316,578
SWEEPER GUTTER BROOM SUSPENSION
Simon Tamny, Los Angeles, Calif., assignor to Wayne Manufacturing Company, Pomona, Calif., a corporation of California
Filed Dec. 23, 1965, Ser. No. 516,000
9 Claims. (Cl. 15—87)

3. A street sweeper gutter broom and mounting assembly, comprising a vehicle frame structure, a broom carrier, a generally horizontally disposed rotary broom rotatable about an essentially vertical axis and supported by and movable relative to the carrier, means mounting said carrier to the frame structure for both downward and lateral outward movement from broom elevated traveling position to lowered sweeping position, a single power source mounted to the frame structure, means connecting said power source to the carrier and transmitting both lateral and vertical force components to raise the carrier and broom from lowered sweeping



position to raised traveling position, said power source including over-center means acting to maintain the carrier and broom in said elevated position and to release the carrier and broom beyond an intermediate position thereof for downward and outward gravity movement.

3,316,579
APPARATUS FOR SELECTIVELY POLISHING, SCRUBBING AND CLEANING FLOORS
Aaron H. Smith, Ipswich, Mass., assignor to Signal Manufacturing Company, Salem, Mass., a corporation of Massachusetts
Filed Jan. 30, 1964, Ser. No. 341,185
50 Claims. (Cl. 15—320)



1. Floor conditioning apparatus comprising:
(a) frame means adapted to receive floor-engaging attachments thereon;
(b) a motor mounted on said frame means;
(c) passageway means, including a delivery portion;
(d) fan means driven by said motor for drawing air through said passageway means across said motor, and forcing said air through said delivery portion; and
(e) dolly means removably attached to said frame means in at least partially underlying relation thereto, said dolly means including a foaming chamber means disposed to receive air forced by said fan means through said delivery portion, said foaming chamber means including means for mixing said air with liquid to produce foam.

3,316,580
FLUID DISPENSABLE APPLICATOR BRUSH
Frances W. Tebbs, Alexandria, Va., assignor to A. Robert Matt Associates, Incorporated, Hartford, Conn., a corporation of Connecticut
Filed Oct. 30, 1964, Ser. No. 407,828
6 Claims. (Cl. 15—539)

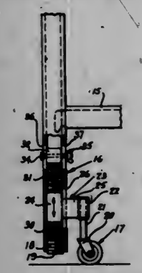
1. The improvement in applicators comprising a resilient applicator head, bifurcated medially to define opposed segments; applicator means on said opposed segments; and a confined reservoir of applicator fluid in the

form of a frangible envelope, detachably engaging the opposed segments; shoulder means in extension of the



segments, adjacent the applicator means, guiding the envelope to dispense its fluid first upon exposed ends of the applicator means.

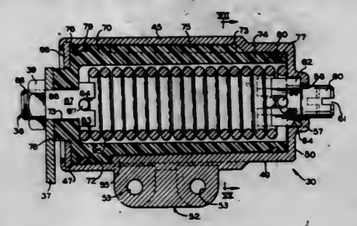
3,316,581
CASTER WHEEL MEANS WITH SHOCK ABSORBER MEANS FOR FURNITURE AND THE LIKE
Guyton E. Hornsby, Annandale, Va., (P.O. Box 869, Washington, D.C. 20004)
Filed Feb. 17, 1965, Ser. No. 433,271
2 Claims. (Cl. 16—44)



1. In combination a caster wheel and leg with a hollow section having a lower elongated slot and upper aligned spaced elongated slots, a caster wheel attachment member consisting of a bar in said hollow section, a flat plate extending through said lower slot and a caster wheel sleeve on the outer end of said plate for carrying said wheel, a first spring member in said leg below said bar and abutting it, a lower plug abutting the bottom of said spring member and secured to said leg, a second spring member in said leg abutting the top of said bar, and an upper plug abutting the upper end of said second spring, wherein said upper plug consists of a short cylindrical bar with a horizontal hole through it and a bolt extends through said hole and upper slots, and a wing nut is disposed on said bolt for clamping said upper plug at a predetermined location in said leg to adjust the force in said second spring.

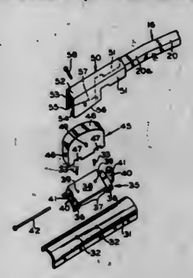
3,316,582
VISCOUS LIQUID DAMPING DEVICES
James R. Johnston, Monroe, and William W. Higginbotham, Britton, Mich., assignors to Ridge Products, Inc., Britton, Mich., a corporation of Michigan
Filed Oct. 23, 1964, Ser. No. 405,923
10 Claims. (Cl. 16—51)

1. A valveless fluid damped spring operated device, comprising:
(a) a viscous liquid having a viscosity of above about 10,000 centistokes and having a substantially constant viscosity-temperature ratio between about —50° C. and 150° C.,
(b) a housing having a chamber for said viscous liquid,
(c) a damping means oscillatingly movable in said chamber in said housing and having a blade with a predetermined fixed fluid leakage passageway for said liquid around an edge of said blade and said chamber as the sole means for restricting the oscillating movement of said damping means in said chamber,



(d) a spring means connected between a portion of said housing and said damping means, and
(e) means for relatively moving said damping means with respect to said housing in one direction against the action of said spring means, whereby said spring means moves said damping means in the opposite direction restricted by the viscosity of said liquid passing through said fixed passageway.

3,316,583
WINDSHIELD WIPER ARM AND BLADE ASSEMBLY
John W. Anderson, 1075 Grant St., Gary, Ind. 46404
Filed Sept. 6, 1955, Ser. No. 532,640
23 Claims. (Cl. 15—250.23)

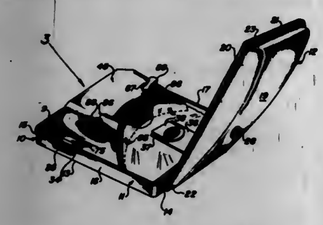


19. In a wiper mechanism for wiping curved windshields, means for supporting and moving a wiper blade over the surface of said windshield, said means being elongate and comprising a mounting section for attachment to a drive means and a wiper carrying section pivotally connected together for relative movement about a longitudinal axis and a transverse axis, one section having cam lobe portions engaging a bearing surface on the other section at opposite sides of the axes to rock the wiper carrying section about the longitudinal axis with rocking about the transverse axis to maintain the wiper blade substantially normal to the surface being wiped.

3,316,584
SUCTION CLEANERS WITH TOOL STORAGE
Carroll M. Gantz and Neil E. Spencer, North Canton, Ohio, assignors to The Hoover Company, North Canton, Ohio, a corporation of Ohio
Filed Sept. 10, 1963, Ser. No. 307,882
8 Claims. (Cl. 15—323)

1. In a suction cleaner of the canister type, means defining a body having a suction chamber to receive parts of the suction cleaner, a motor-fan suction creating unit in said suction chamber, partition means in said suction

chamber and having a portion cooperating with said body to enclose said motor-fan unit in said suction chamber,



said partition means including another portion for inserting cleaning tools of said cleaner into said body to store said tools.

ERRATA

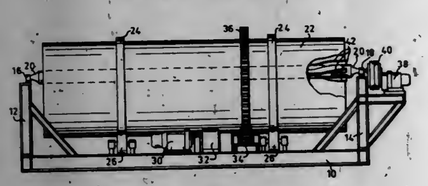
For Class 16—44 see:
Patent No. 3,316,581

For Class 16—51 see:
Patent No. 3,316,582

3,316,585
ROTARY SCRAPING DEVICE FOR NODULIZING DRUMS IN PELLETIZING PLANTS

Karl Arne Källberg, Sala, Sweden, assignor to Sala Maskinfabriks Aktiebolag, Sala, Sweden, a corporation of Sweden

Filed July 19, 1965, Ser. No. 473,070
Claims priority, application Sweden, June 16, 1965, 7,955/65
5 Claims. (Cl. 18—1)



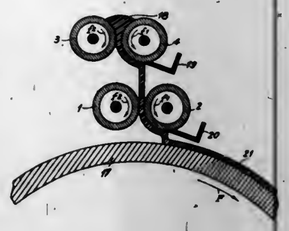
1. In a pelletizing apparatus the combination of a substantially horizontal rotary drum having an inlet for ore at its one end and at its other end an outlet for nodules or balls formed from a layer of ore at the inner wall of the drum, with a scraping device, comprising a rotary shaft extending through the drum parallel to the axis of rotation thereof, a plurality of flanges extending helically along the shaft at a steep pitch helix, and scrapers mounted on said flange to have their scraping edges at a predetermined distance from the inner wall of the drum, the rotary shaft being adjustable to enable change of said distance.

3,316,586
DEVICES FOR FEEDING UNCURED PLASTIC SHEET TO A MOVABLE SHEET-RECEIVING DEVICE

Francois Noel Sommer, Paris, France, assignor to S.E.T.E.P., Societe d'Etudes, de Recherches et d'Experimentations Industrielles de Tous Procedes Nouveaux pour l'Alliance des Textiles et des Matieres Plastiques, Ardennes, France

Filed Dec. 17, 1964, Ser. No. 419,110
Claims priority, application France, Dec. 19, 1963, 957,781, Patent 1,387,966
2 Claims. (Cl. 18—2)

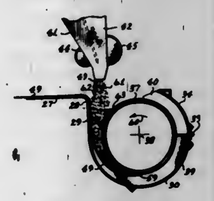
1. Apparatus for shaping uncured plastic material into a sheet and feeding the sheet to a movable surface adapted to receive the sheet, comprising two pairs of calendering rolls, means to rotate the rolls of each pair in opposite directions and so that one of the rolls of each of the pairs is rotated at a higher peripheral speed than the other of the rolls of the respective pair and the faster and slower rotating rolls of one of the pairs rotate in the same direction as the faster and slower rotating rolls, respectively, of the other pair, one of the pairs being arranged above the other of the pairs with the roll of the upper pair adapted to rotate faster than the other roll of the upper pair being positioned with its axis lying approximately in a vertical plane passing between and equidistantly from the rolls of the lower pair, and the other roll of the upper pair and the slow roll of the lower pair being positioned on the same side of the plane, means to adjust the spacing between the rolls of each of the pairs, a doctor disposed along the lowermost generatrix of the roll of each of the pairs adapted to rotate faster than the other roll of the respective pair, and means to cool the rolls, whereby said two pairs of rolls are adapted serially to calender uncured plastic material into a sheet and to feed the thusly shaped sheet to a movable surface adapted to receive the sheet and positioned beneath the lower pair of rolls.



3,316,587
PIPE INSULATING MACHINE

John D. Scruggs, Eugene, Oreg., assignor, by direct and mesne assignments, to Ralph A. Carlson, Salt Lake City, Utah

Filed Jan. 9, 1964, Ser. No. 336,691
3 Claims. (Cl. 18—5)

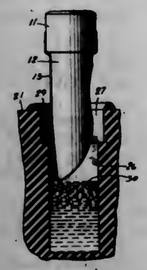


1. A pipe insulating machine comprising in combination:
(a) a frame adapted to rotatably support a workpiece,
(b) a semi-cylindrical molding plate fixed on said frame and surrounding and radially spaced from the axis of rotation of the workpiece on said frame,
(c) a compression plate on said frame located radially to one side of said workpiece axis,
(d) a plastic sheet feeding guide plate on said frame associated with said compression plate,
(e) and a supply and feeding means on said frame for presenting insulative materials in the space between said compression plate and the workpiece rotatably supported on said frame.

3,316,588
PLIABLE MOLDING TOOL

Steve Vezirakis, Vancouver, Wash., assignor to Don's Sports Systems, Inc., a corporation of Washington

Filed Nov. 9, 1964, Ser. No. 409,771
2 Claims. (Cl. 18—5.1)



1. A tool for forming finger holes in bowling balls conforming to the finger of the bowler comprising:
a solid pliable pattern for forming finger holes in a bowling ball adapted to fit in a predrilled oversize finger hole in the bowling ball and form a pattern for molding compound in the oversize hole, said pattern having
a generally cylindrical head on the outer end thereof,
a reduced diameter generally cylindrical wall portion extending from said head for a portion of the length of said pattern and having
a shallow flat concave recess on one side thereof locking the pattern to the mold upon hardening of the molding compound,
a ridge at the inner end of said recess, and converting into a flattened inwardly curved convex portion in the general form of the end of the finger behind the nail,
said cylindrical wall portion having an opposite flattened portion generally simulating the nail portion of the thumb,
and said head forming a hand grip adapted to be gripped by the hand to stretch and unlock the pattern for removal from its mold.

3,316,589
APPARATUS FOR PRODUCING COMPOSITE FILAMENTS

Charles Jarman Hollandsworth, Jr., Martinsville, Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Original application Dec. 31, 1962, Ser. No. 248,640, now Patent No. 3,244,785, dated Apr. 5, 1966. Divided and this application Oct. 27, 1965, Ser. No. 505,338
3 Claims. (Cl. 18—8)

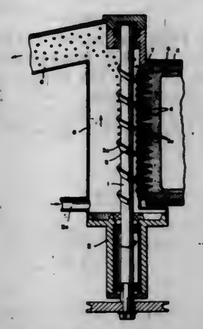


1. A spinneret pack comprising sandwiched filter block and spinneret plate elements, one of said elements being recessed to present a distribution space therebetween, said filter block element having separate cavities for distinct molten polymers and at least one distribution passage connecting each cavity with said space, said spinneret plate element having at least one spinning orifice in communication with said space through branched flow passages, one of said distribution passages being coaxial with and having a lesser diameter than one of said flow passages.

3,316,590
GRANULATING APPARATUS, PARTICULARLY FOR THERMOPLASTICS

August Rettig, Ludwigshafen (Rhine), Germany, assignor to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

Filed Apr. 28, 1965, Ser. No. 451,591
Claims priority, application Germany, Apr. 29, 1964, B 76,577
6 Claims. (Cl. 18—12)

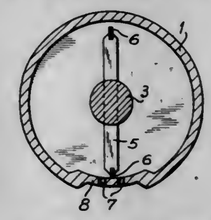


1. Granulating apparatus for thermoplastics which comprises an extrusion device having a die plate with a plurality of extrusion orifices therein, said orifices being arranged in at least one straight line, and at least one rotatable cutting tool having a spiral, outer, cutting edge contacting the outer face of said die plate at spaced points along said line of orifices whereby said spiral cutting edge shears threads or strings of thermoplastic extruded through said orifices as said cutting tool rotates.

3,316,591
DEVICE FOR CONVERTING PASTY MATERIAL INTO VERMICULAR THREADS PRIOR TO DRYING

Erich Feld and Werner Kleinlein, Frankfurt am Main, and Reinhardt Liebenhoff, Kelkheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany

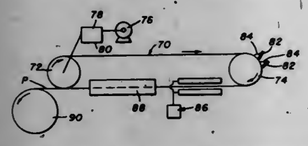
Filed June 8, 1965, Ser. No. 462,284
Claims priority, application Germany, June 16, 1961, F 34,183
6 Claims. (Cl. 18—12)



1. A device for continuously converting pasty material into vermicular threads prior to drying of the material which comprises a substantially horizontal cylinder closed at its ends and having a plurality of perforations in its underside along at least a part of its length, the diameter of said perforations being larger than the thickness of the cylinder wall in the area of the perforations, a conduit connected to the upperside of said cylinder and adjacent to one end thereof to receive and transport said pasty material into said cylinder, and scraping means within said cylinder having an axially mounted movable shaft, scraper support means extending from said shaft and an elongated scraper having a thickness less than the diam-

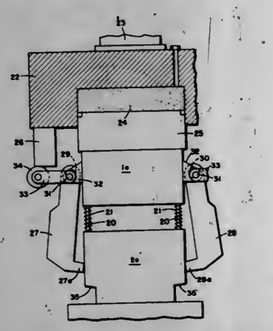
eter of said perforations, said scraping means being held by said support means and adapted to pass intermittently over the inner surface of the perforated part of said cylinder at a distance of up to 0.5 mm. from said surface to cover only partly said perforations while thereover, whereby pasty material fed into said device through said conduit is extruded through said perforations as vermicular threads under the influence of said scraping means.

3,316,592
APPARATUS FOR MAKING CAST PLASTIC FABRIC-LIKE MATERIAL
Norman Forrest, 216 Byram Road, Byram, Conn. 10573
Filed July 10, 1964, Ser. No. 381,691
4 Claims. (Cl. 18—15)



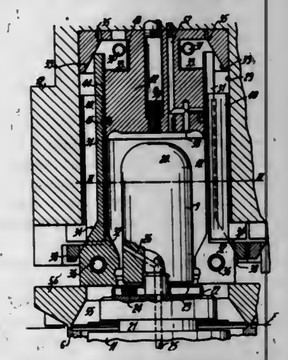
1. Apparatus for making plastic reproductions of carpet, fabric and similar web materials including an endless, conveyor belt-shaped, flexible, rubber-like mold of a width equal to the material to be reproduced and having a molding contour with openings therein complementary to the surface of the material to be reproduced, means for supporting and continuously advancing the mold, means for bending the mold around an arc to increase the area of the openings in the molding contour of the mold, means for wiping a plastic into the openings and over the surface of the molding contour in the area where the mold is bent around an arc, means for curing the plastic, and means for stripping the plastic from the mold and for winding it up.

3,316,593
MOLDING APPARATUS FOR HARDENABLE SYNTHETIC MATERIALS
Karl Josef Neumann, Wallerfelfstrasse 2, St. Ingbert, Saar, Germany
Filed June 15, 1964, Ser. No. 374,762
10 Claims. (Cl. 18—16)



1. In a molding apparatus of the type which includes a press and a molding form having an upper half and a lower half for producing molded parts of plastic material, especially hardenable synthetic materials, in a hot pressing process in which the molding form is maintained under pressure after closing during a baking or hardening period, the improvement which comprises, a plurality of eccentric shafts rotatably mounted on one of said molding form halves, at least one tension rod pivotally mounted on each of said eccentric shafts, a plurality of locking members on the other molding form half engageable by said tension rods, means for pivoting said tension rods into a locking position with said locking members and means for rotating said eccentric shafts in one direction to exert a pulling force on said locking member with said tension rods and lock said molding form halves together.

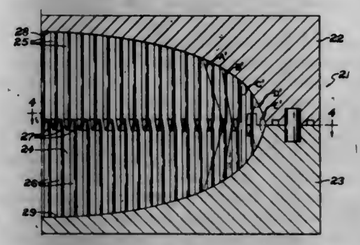
3,316,594
METHOD AND APPARATUS FOR MAKING CONTAINERS OF THERMOFORMABLE MATERIAL
Maurice Hoffer, Geneva, André Uldry, Chene-Bourg, Geneva, Ernest Ackermann, Carouge, Geneva, and Jean-Jacques Roissard De Bellet, Petit-Lancy, Geneva, Switzerland, assignors, by mesne assignments, to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Original application Sept. 28, 1962, Ser. No. 226,834. Divided and this application Jan. 22, 1964, Ser. No. 340,857
Claims priority, application Switzerland, Oct. 9, 1961, 11,688/61
(Filed under Rule 47(a) and 35 U.S.C. 116)
8 Claims. (Cl. 18—19)



1. In apparatus of the class described for forming articles such as containers and the like from a heated sheet of plastic material, a punch and die located one on either side of said sheet, respectively, means advancing said punch relatively to said sheet to engage and initially deform same, means effecting relative movement of said punch and die to introduce said punch into said die, gas flow control means operable in timed relation to movement of said punch in said die to introduce gaseous material under pressure into said die thus to apply the plastic material against said punch and to prevent same from contacting said die, gas flow control means operable in timed relation to movement of said punch in said die to introduce gaseous material between said punch and plastic material after said plastic material has been applied against said punch, and means relieving said first mentioned pressure at a preselected time in the excursions of said punch in said die thus to permit the gaseous material between said punch and plastic material to expand the latter against the wall of said die.

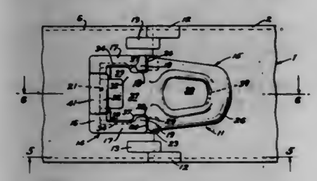
3,316,595
MOLD FOR PRODUCING FOAM RUBBER CUSHIONING
Stephen M. Kordiak, Orange, Conn., assignor to The B. F. Goodrich Company, New York, N.Y., a corporation of New York
Filed Dec. 20, 1963, Ser. No. 331,995
3 Claims. (Cl. 18—39)

1. A mold for producing foam rubber cushioning which mold comprises a pair of separable mold sections arranged for disposition one on top of the other when said mold is closed, said mold sections when said mold is closed defining a mold cavity for shaping said cushioning, each said mold section having affixed thereto a plurality of coring pins which project into said mold cavity and terminate short of the inner face of the mold section opposing said pins, the coring pins in the peripheral zone of the mold cavity that project into the mold cavity from one of said mold sections being interjected between the coring pins projecting into the mold cavity from the other said mold section a greater amount than the interjection



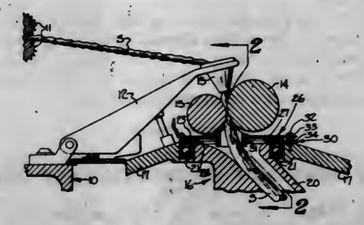
of opposing coring pins projecting into the central zone of the mold cavity whereby a greater volume of coring is present in the median horizontal zone of the mold cavity at the peripheral zone of the mold cavity than in the central portion of the mold cavity which causes the rate of advance of expanding latex composition in the said mold cavity to be less in the median horizontal zone in the peripheral zone of the mold cavity than the rate of advance of expanding latex composition adjacent the roof surface and floor surface of the mold cavity.

3,316,596
MEANS TO LATCH TOGETHER THE MEETING ENDS OF COLLAPSIBLE CURING RIMS
Elmer W. Robertson, 6965 Park Blvd., Oakland, Calif. 94611
Filed June 18, 1965, Ser. No. 465,056
7 Claims. (Cl. 18—43)



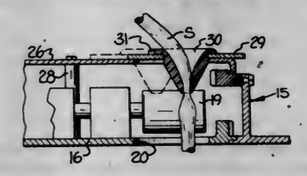
1. Means for latching together the meeting ends of end segments of a collapsible curing rim, comprising,
(a) a female member secured to the inside of one of said meeting ends,
(b) a male member secured to the inside of the other meeting end,
(c) a female socket formed in said female member, said female socket being open toward the adjacent meeting end,
(d) a bolt on said male member insertable through said open end and interlocked with an end of said socket and being withdrawable therefrom by moving longitudinally of said bolt,
(e) means on said male member engageable by a prying tool for exerting force circumferentially of the rim and radially inwardly, thereby to withdraw said bolt from said socket longitudinally and radially inwardly to disengage said members and said meeting ends of said end segments.

3,316,597
COILER STOP MOTION APPARATUS FOR TEXTILE MACHINES
Allen B. Nivens, Gastonia, N.C., assignor to Ideal Industries, Inc., Bessemer City, N.C., a corporation of North Carolina
Filed July 10, 1964, Ser. No. 381,793
7 Claims. (Cl. 19—.2)



1. In a textile sliver processing machine having a stationary frame, an electrical circuit for controlling operation of the machine, a vertically movable coiler mechanism associated with said stationary frame and adapted to receive and pass therethrough and coil a continuous flow of textile sliver, a can having a predetermined sliver capacity associated with said coiler mechanism and adapted to receive coiled sliver from said coiler mechanism, said coiler mechanism being adapted to be raised when the coiled sliver in the can exceeds the capacity thereof, and a pair of rotatable calender rolls carried by said frame and disposed above said coiler mechanism for feeding sliver therebetween to said coiler mechanism; the combination of a detector disposed between the calender rolls and the coiler mechanism, means normally maintaining said detector in a normal position to maintain operation of the textile machine when the sliver is uninterruptedly passing from the calender rolls through the coiler mechanism in a normal manner and when the coiled sliver in the can has not exceeded the capacity thereof, said detector being movable from said normal position to a raised position upon a choke-up occurring between the detector and the coiler mechanism, or upon the coiled sliver in the can exceeding the capacity thereof and raising the coiler mechanism, said detector being movable from said normal position to a lowered position upon a choke-up occurring between the detector and the calender rolls, and said detector being operatively connected to the electrical circuit of the textile machine for interrupting the operation of the textile machine when the detector is located at either of said raised or lowered positions.

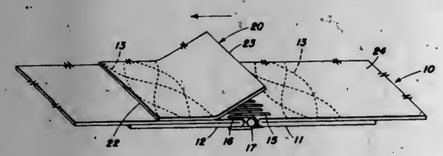
3,316,598
TEXTILE SLIVER COILER INCLUDING MEANS FOR VARYING THE THROW OF SLIVER
Joe R. Whitehurst, Bessemer City, N.C., assignor to Ideal Industries, Inc., Bessemer City, N.C., a corporation of North Carolina
Filed July 21, 1966, Ser. No. 566,871
4 Claims. (Cl. 19—159)



1. A textile sliver coiler comprising:
a coil forming member supported for rotation about a predetermined axis and having a sliver delivery opening therein,

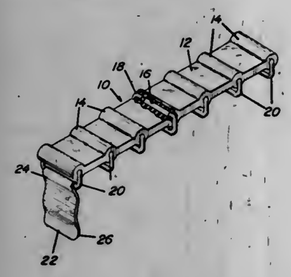
a pair of elongate calender rolls mounted on the coil forming member for rotation therewith about said axis and with the nip thereof closely overlying said opening so that said rolls advance sliver therethrough,
sliver guide means closely overlying the nip of said rolls for determining the path of sliver travel thereinto, and
means for varying the throw of the sliver and thus the diameter of the coiling thereof comprising means for adjusting said sliver guide means to vary the location of sliver entry along the nip of said rolls and into and through said opening therebelow.

3,316,599
END FASTENING CONSTRUCTION FOR DRIER BELTS
Joseph R. Wagner, Greeneville, Tenn., assignor to Huyck Corporation, Rensselaer, N.Y., a corporation of New York
Filed Apr. 7, 1964, Ser. No. 357,878
9 Claims. (Cl. 24—31)



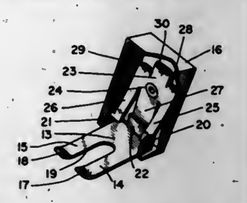
1. A drier belt end fastening construction comprising, in combination, a drier belt movable along a predetermined path and having a pair of end portions; joining means for interconnecting said end portions; and a narrow woven tape affixed adjacent one edge thereof to a surface of said drier belt in position to cover said joining means, said tape including a set of warp yarns, two edge yarns extending along the respective edges of the tape in directions transverse to the predetermined path of said drier belt, and a filling yarn interwoven with said warp yarns, said filling yarn passing around said edge yarns to firmly interlock said edge yarns with the main body portion of said tape.

3,316,600
ELASTIC CLOSURE FASTENER
Richard S. Latta, New Milford, Pa.
(6 Congress St., Trumansburg, N.Y. 14886)
Filed Dec. 1, 1964, Ser. No. 415,031
14 Claims. (Cl. 24—73)



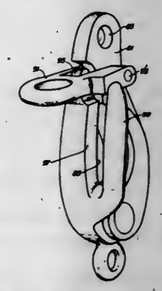
10. The combination with a closure having a pair of spaced hooks adapted to be connected to each other by a fastener; of a resilient strip having spaced reinforcing areas of greater thickness and a loop for encircling one of said hooks connected to each of said areas to enable any two thereof and said strip to connect said hooks under elastic tension regardless of their spacing.

3,316,601
INTERCHANGEABLE ORNAMENT FOR BUTTONS
Thomas R. Ryan, 535 Latimer Road, Santa Monica, Calif. 90402
Filed Nov. 20, 1964, Ser. No. 412,735
2 Claims. (Cl. 24—113)



1. An interchangeable ornament for buttons or the like comprising, in combination: an ornamental member dimensioned to overlie and eclipse a button; a retaining means including a base plate having prong elements integrally extending from a forward end and adapted to slide under said button with the button securing threads passing between said prong elements, the rear end of said base plate terminating in an up-turned tab at its central portion and hinge means at its rear corner portions positioned forward of said tab; and an ornament holder hinged to said hinge means and including a central integrally extending resilient strip having a free end engaging said tab, said holder being secured to said ornamental member so that said holder and member may swing about said hinge means to a closed position over said button when said prong elements are secured under said button, said resilient strip biasing said holder in said closed position, the end portions of said pring elements being turned upwardly, said holder including means for frictionally engaging said end portions when said holder is in closed position to aid in holding the same closed, and including a downwardly curved portion at the central part of its forward edge between said means for frictionally engaging the end portions of said prongs to prevent sliding removal of said prongs from under said button when said holder is in closed position.

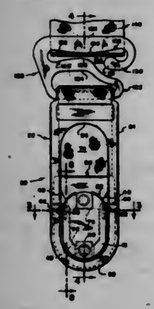
3,316,602
HOOK DEVICE FOR LOG BINDER
Donald McEachern, 1515 25th St., Longview, Wash. 98632
Filed Oct. 12, 1964, Ser. No. 403,269
1 Claim. (Cl. 24—241)



A quick release hook comprising:
a body,
a hook pivoted on said body for movement from an open to a closed position,
said hook having a first mouth formed to receive a flexible element in the form of a chain;
said mouth facing in a predetermined direction in the closed position of said hook,

said hook having a second mouth on one side thereof formed to receive a flexible element in the form of a chain,
said second mouth facing in the same direction as the first mentioned mouth and disposed in a plane generally perpendicular thereto,
and a single latch for releasably retaining said hook in its closed position,
said latch in its operative latching position effectively closing both mouths to prevent the dislodgment therefrom of any flexible element in either,
said latch being in the form of a hasp pivoted on said body,
said hasp having a drive fit with a portion of said hook so as to securely hold said hook in position until the hasp is driven out of engagement with said hook, said mouths being dimensioned so that a portion of a knob on the flexible element can be received by one mouth when a portion of the flexible element is received by the other mouth.

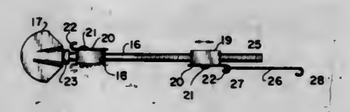
3,316,603
FASTENER STRUCTURE
Richard K. Sutz, Riverdale, N.Y., assignor, by mesne assignments, to The Warner Brothers Company, Bridgeport, Conn., a corporation of Connecticut
Filed Oct. 14, 1964, Ser. No. 403,842
22 Claims. (Cl. 24—245)



22. In an assembly for use with garments, such as foundation garments, said assembly having a stud assembly, a connector assembly for operative association with such garment, and means for cooperatively associating said stud and connector assemblies with respect to one another, said connector assembly comprising:
a rim having:
a recess at one end thereof;
a mounting plate connected to said rim, and having:
a mounting tab of increased thickness fixedly positionable within said recess;
a connecting plate disposable in overlying relationship with respect to the tab of said mounting plate;
said mounting plate being disposed with said mounting tab in said recess to form a bight for operatively associating said connector assembly with a garment and said connector plate being disposed in said overlying relationship subsequent to operatively associating said mounting tab in said recess.

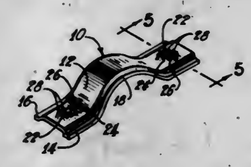
3,316,604
HOOD CLAMP
Alton Leger, P.O. Box 135, Grand Coteau, La. 70541
Filed June 29, 1964, Ser. No. 378,528
2 Claims. (Cl. 24—263)

1. A hood clamp applicable to the supporting members of an automobile engine hood comprising a shaft having a smooth cylindrical portion and a threaded portion, manually operable means on one end of said shaft for rotating the same, a pair of blocks mounted on said shaft, one of said blocks having a relatively smooth cylindrical opening slidably receiving the smooth portion of said shaft, the other block having a threaded opening complementary to the threads on said shaft, each block having a generally



flat surface located substantially parallel to the axis of said shaft, a flat plate having a hooked end attached to the flat surface of each block, and said hooked ends being arranged to face each other, whereby said hooked ends can be caused to engage the supporting members of the hood to maintain said hood in open position.

3,316,605
NUT LOCKING CONSTRUCTION
Richard W. Tabbert, Toledo, Ohio, assignor, by mesne assignments, to Oldberg Manufacturing Company, Toledo, Ohio, a corporation of Michigan
Filed Sept. 14, 1964, Ser. No. 396,171
3 Claims. (Cl. 24—277)

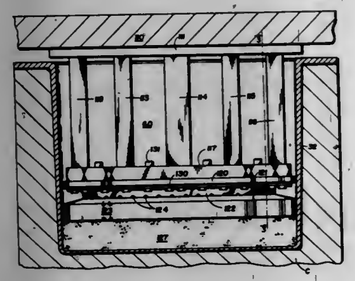


1. A clamp construction comprising a metal clamp member having a planar region and a portion configurated to engage a body to be clamped, said planar region having a circular opening, and a plurality of nut-engaging teeth having sharply pointed apexes of generally pyramidal configuration defining a circle bounding the circular opening, the apexes of the teeth being dimensioned to have substantially point contact with an associated nut.

3,316,606
CONTROL OF CHARGE FOR CERAMIC EXTRUSION
Cornelius J. Kelleher, Dallas, Tex., assignor to Verson Manufacturing Co., Dallas, Tex., a corporation of Texas
Filed Aug. 13, 1964, Ser. No. 390,264
5 Claims. (Cl. 25—22)

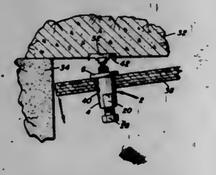
1. In a system for de-airing a flocculated charge in a mold preparatory to extruding the same to the shape of said mold, the combination which comprises:
(a) a preforming punch having a foot which closely mates with the inside of said mold at a near bottom point therein,
(b) reciprocating means including a pair of cylindrical members supporting said punch at the lower ends thereof for moving said punch in and out of said mold with travel limited to said near bottom point,
(c) a vacuum source,
(d) a plate above said foot having downward opening ports flow-connected through at least one of said cylindrical members to said vacuum source,

(e) a plate slidable on said cylinders in sealed relation having resilient means for engaging the mouth of said mold in a sealing relation, and



(f) valve means operable during the portion of the stroke of said punch after said resilient means seals said mold for evacuating air from said mold.

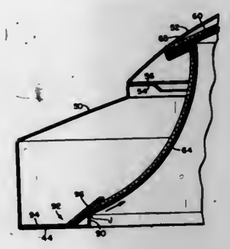
3,316,607
FORM STRIPPING TOOL AND SEALING CAP
Stanley J. Kroll, 3420 Urbana S., Laurel, Md. 20810
Filed Aug. 5, 1964, Ser. No. 387,564
5 Claims. (Cl. 25—120)



1. In a form structure incorporating a form element having a bore therethrough, a tool freely receivable within and freely removable from said form element bore and adapted for stripping said form element from a cast structure, comprising: a body receivable within said through bore, and having a threaded bore extending axially therethrough; an annular flange on the upper end of said body, said flange being substantially larger in diameter than said through bore in said form element; a threaded shaft received within said threaded bore, and having a length substantially greater than that of said body; a head mounted for universal swivel movement on the upper end of said shaft; and means on the lower ends of said body and said shaft defining wrench-engagement surfaces.

3,316,608
INSERT FOR CASKET TOP AND METHODS OF INSERTION
Carl H. Ross, Cincinnati, Ohio, assignor to The Crane & Breed Casket Company, Cincinnati, Ohio, a corporation of Ohio
Continuation of application Ser. No. 149,779, Nov. 2, 1961. This application June 11, 1965, Ser. No. 468,669
12 Claims. (Cl. 27—19)

3. A readily insertable and removable liner insert for the top of a burial casket of the type that includes a central cap and an integral depending peripheral rim provided with inwardly extending flanges which terminate in upstanding lips which define a free peripheral edge, each flange having an upper inside face which is in horizontal position when the top is closed, a backing strip secured to the upper inside face of said flanges, said backing strips each including a terminal end projecting in spaced relationship with and above and across and beyond the said peripheral edge of an adjacent lip toward the casket top and defining with an adjacent lip the throat of an elongate pocket opening inwardly and upwardly of and bottomed by the inside face of a flange; said liner insert comprising a central member having side and end edges and dimensioned to be received within the central cap of said top, peripheral panels having upper and lower marginal portions, inner and outer surfaces, and longitudinal and transverse edges defining said lower marginal portions, one of said transverse edges having an arch wing-flap integral therewith, means securing the upper marginal portions of said peripheral panels to the edges of said central member whereby the panels are movable independently one from the other, said peripheral panels

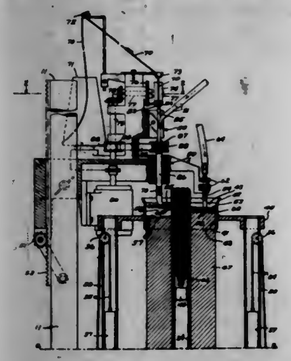


being resilient and adapted to be transversely flexed from an initial unfinished, incompletely shaped form to a tensioned, arcuate, bowed configuration from the longitudinal edges of said lower marginal portions to said secured upper marginal portions thereof incident to insertion of the said longitudinal edges and adjacent lower marginal portions of said panels into the throat of an elongate pocket whereby to dispose the said lower marginal portions of said panels in abutment with the upper inside face of a flange and to dispose the backing strip in substantial flatwise bearing relationship with the inner surface of said peripheral panels adjacent to the lower marginal portions thereof and with the free peripheral edges of said upstanding lips engaging the outer surface of said panels for providing a finished juncture between said edges and panels, and said panels outer surfaces embodying upholstery material extending across said longitudinal edges and turned back against and secured to the inner surfaces thereof.

3,316,609
APPARATUS FOR PRODUCING A YARN PACKAGE
Carl J. Russo, Chatham, Wilmington, Del., assignor to Joseph Bancroft & Sons Co., Wilmington, Del., a corporation of Delaware
Filed Apr. 16, 1964, Ser. No. 360,253
11 Claims. (Cl. 28—21)

1. Apparatus for packaging yarn which comprises a package support disc having an axial core tube extending upwardly therefrom, a fixed annular flange forming with said core tube an annular space to receive said package, a top ring disposed in said space having at least a portion of its under surface perforated and having on its upper surface a zone to receive loops of yarn, means rotating said disc under said ring to draw said loop into the

space between said ring and said disc, means supplying a fluid through said perforate surface and means retracting

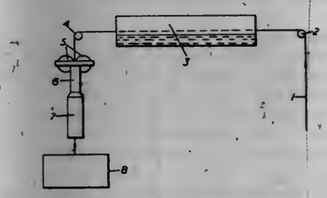


said disc with respect to said ring and said core tube as the yarn package builds up therebetween.

3,316,610
METHOD OF RENDERING FABRICS STRETCHABLE
Geoffrey Windle Manock, Harrogate, England, assignor to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain
Filed Dec. 2, 1963, Ser. No. 327,215
Claims priority, application Great Britain, Nov. 30, 1962, 45,345/62
5 Claims. (Cl. 28—72)

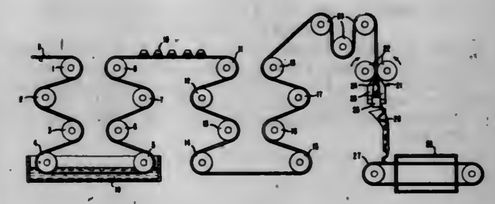
1. A process for imparting stretch characteristics to a fabric woven from two sets of parallel yarns, one of said sets including yarns comprising a proportion of synthetic thermoplastic fibres having a glass-rubber transition temperature when wet, above 80° C., said process comprising: stretching the fabric in the direction of the other set of yarns to remove ondulations therefrom, as much as possible without breaking the yarns, while allowing the yarns in said one set to relax thereby to increase the yarn crimp therein and thereby establishing crimp interchange between the two sets of yarns; heat-setting the increased crimp in the yarns in said one set; and cooling the fabric to below the rubber transition temperature of the fibres in said one set before removing a substantial proportion of the stretching force so as to maintain said crimp interchange.

3,316,611
PROCESS FOR CRIMPING A TOW OF VINYL ALCOHOL POLYMER
Pierre Jean Terra and Gerard Finiels, Lyon, France, assignors to Societe Rhodiaceta, Paris, France, a corporation of France
Filed Feb. 24, 1965, Ser. No. 435,094
Claims priority, application France, Mar. 23, 1964, 968,336
13 Claims. (Cl. 28—72)



1. Process for the continuous production of crimped tows consisting of filaments of vinyl alcohol polymers, which comprises simultaneously humidifying the tow and raising its temperature to between 70° and 100° C. by contacting it with water vapour free from droplets of liquid water whereby the tow acquires a degree of humidity at least 2% and at most equal to the degree of sorption, immediately thereafter mechanically crimping the tow at a temperature of 80°–150° C. in a heated compression chamber, and then cooling the tow while it is still in a compressed state.

3,316,612
PROCESS OF DRAWING AND CRIMPING ASYMMETRICALLY QUENCHED POLYESTER FILAMENTS TO PROVIDE A COMPACT RIBBON-LIKE TOW FOR SHIPPING AND ENHANCED BULK IN END-PRODUCTS
William Lester Stump, Kinston, N.C., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Original application July 30, 1962, Ser. No. 213,222, now Patent No. 3,235,442, dated Feb. 15, 1966. Divided and this application Oct. 12, 1965, Ser. No. 508,408
5 Claims. (Cl. 28—72)

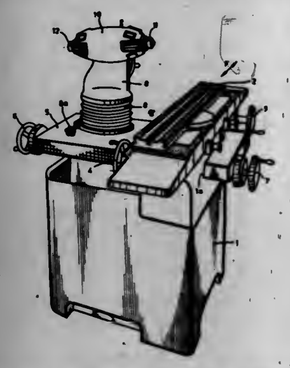


1. In the process of forming filaments of crystallizable linear condensation polyester material by extruding the molten polyester in the form of filaments, asymmetrically quenching the extruded polyester with fluid to form filaments having an asymmetric birefringence differential across the filament diameters and drawing a tow of said filaments at a draw ratio of about 2 to 5 times to orient the filaments, the improvement of maintaining the drawn filaments under sufficient tension to keep them parallel, and mechanically crimping the tow of parallel filaments to form a ribbon-like tow of substantially parallel filaments having a two-dimensional crimp.

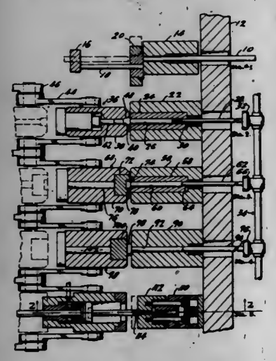
3,316,613
MACHINE TOOL
Robert Habib, 36 Quai Gustave Ador, Geneva, Switzerland
Filed Aug. 7, 1964, Ser. No. 388,170
Claims priority, application Switzerland, Aug. 9, 1963, 9,886/63
3 Claims. (Cl. 29—26)

1. In a machine tool, a base and a work-table movably mounted thereon, a vertically adjustable pillar on said base, a support mounted on a vertical pivotal axis on said pillar, said support having an arm and a foot, a turret adapted to hold therein a motor for driving two coaxial and opposed tool holders, said turret being rotatable in a vertical plane to bring one or the other of said tool-holders into work position without altering the angular position of said support on said pillar, said turret being pivoted on said arm of said support so that the horizontal pivotal axis of said turret on said arm of said support divides said turret into a longer and a shorter part, said horizontal pivotal axis of said turret on said arm not intersecting said vertical pivotal axis of said support on said pillar, being eccentric with respect thereto and spaced

from the axis of said tool-holders, said horizontal pivotal axis being sufficiently spaced from said foot and said support to allow passage of at least said shorter part of said turret above said foot.



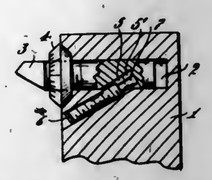
3,316,614
METHOD AND APPARATUS FOR MAKING MULTI-PART PRODUCTS
Joseph J. Kurtz, Lorain, Dale A. Webster, Elyria, and John J. Kurucz, Lorain, Ohio, assignors to Gregory Industries, Inc., Lorain, Ohio, a corporation of Michigan
Original application Sept. 17, 1964, Ser. No. 397,259. Divided and this application Mar. 30, 1966, Ser. No. 538,850
9 Claims. (Cl. 29—34)



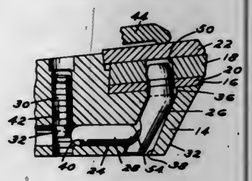
1. A cold heading machine comprising a plurality of stations, each of several stations comprising a forming die to receive and shape a portion of a first part, and hammer means for moving the first part toward the die and for holding the part in a fixed position relative to the die; at least one station comprising means for holding a plurality of second parts, means for receiving the shaped portion of the first part, and means for forcing one of the second parts into assembled relationship with the portion of the first part.

3,316,615
MACHINE TOOL
Thurston Williams, Wilton, N.H. (% The O.K. Tool Co., Inc., Milford, N.H. 03055)
Filed Apr. 30, 1965, Ser. No. 452,197
1 Claim. (Cl. 29—96)

A tool comprising a carrier having a bore in its front face and a second bore intersecting the first bore at an oblique angle, in the first bore a holder for a cutting edge projecting from said face, a stop to limit the extent to which the holder extends into its bore, said stop being adjustable longitudinally of the holder to regulate the extent to which the cutting edge projects beyond said face, one side of the holder having a recess with a bottom shoulder facing the inner end of said second bore, in said second bore an adjustable lock bearing on said shoulder to lock the holder in its bore, said recess also having side shoulders abutting opposite sides of said lock to prevent rotation of the holder in its bore, and said stop comprising a ring threaded on the outer end of the holder, the stop and ring being disposed on the same side of the carrier so that they can be adjusted concomitantly.



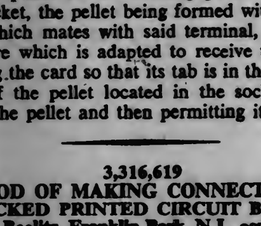
3,316,616
ELBOW TILT PIN RETAINER
Victor Milewski, Birmingham, Mich., assignor to The Valeron Corporation, a corporation of Michigan
Filed July 19, 1966, Ser. No. 566,432
9 Claims. (Cl. 29—96)



1. A cutting tool comprising a tool head formed to provide a shouldered seat and having a replaceable cutting insert with a central hole therein received and disposed for use thereon, a bore hole provided in said tool head centrally of said seat and having an elbow shaped tilt pin received therein extending into said insert hole for engaging and retaining said insert against the shoulder on said seat, a reaction surface in said bore hole adapted for engagement by an intermediate elbow portion of said tilt pin, and means for actuating the end of said tilt pin remote from said insert.

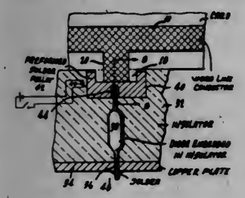
3,316,617
TWO-PIECE CUTOFF TOOL HAVING CHAMFERING PROPERTIES
William B. Stein, Barberton, Ohio, assignor to The Warner & Swasey Company, Cleveland, Ohio, a corporation of Ohio
Filed Mar. 12, 1965, Ser. No. 439,265
9 Claims. (Cl. 29—97)

8. A cutting tool of the character described, comprising;
(A) a tool body;
(B) a support blade having a bit receiving marginal edge and being releasably secured to said tool body in non-shiftable relationship therewith;
(C) a clamping block shiftably mounted on said tool body and having an elongated clamping surface longitudinally overlying a substantial portion of said bit receiving edge;
(D) an elongate shank having one edge received on said bit receiving edge;
(E) a cutting tip disposed on one end of said shank;
(F) said shank having an elongate pocket disposed in its top surface behind said cutting tip;
(G) a chamfering plate adapted to be clamped
(1) on the top surface of said shank in said pocket;
(2) beneath the rearward portion of said clamping surface;



(3) said plate having a thickness approximating the thickness of said cutting tip, whereby clamping pressure from said clamping edge can be applied to the top surfaces of said tip and said plate.

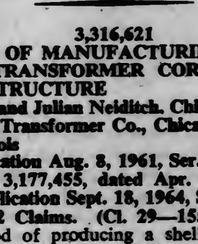
3,316,618
METHOD OF MAKING CONNECTION TO STACKED PRINTED CIRCUIT BOARDS
Joseph Guarraciai, Trenton, N.J., assignor to Radio Corporation of America, a corporation of Delaware
Filed Dec. 9, 1963, Ser. No. 328,913
2 Claims. (Cl. 29—155.5)



1. A method of making a connection between an element having a terminal and a conductor printed on a surface of a card comprising the steps of:
forming the card with a projecting tab which includes, on one surface thereof, a portion of said printed conductor;
embedding the element in an insulator formed with a socket into which said terminal projects;
placing a pellet of low melting point conductor into the socket, the pellet being formed with a first aperture which mates with said terminal, and a second aperture which is adapted to receive the tab;
arranging the card so that its tab is in the second aperture of the pellet located in the socket; and
melting the pellet and then permitting it to solidify.

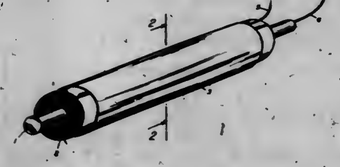
3,316,619
METHOD OF MAKING CONNECTIONS TO STACKED PRINTED CIRCUIT BOARDS
Howard R. Beelitz, Franklin Park, N.J., assignor to Radio Corporation of America, a corporation of Delaware
Filed Dec. 9, 1963, Ser. No. 328,914
6 Claims. (Cl. 29—155.5)

1. A method of making connection to printed circuits on the surfaces of cards comprising the steps of:
forming each card with terminals in corresponding positions at an edge of the card, and on the same surface thereof as the circuit;
selectively punching the edges of the cards to remove at least a portion of each of a plurality of terminals;
stacking the cards in such manner that any punched out terminal portion on a card forms an opening along one side of the stack of cards which exposes the terminal on a card beneath the punched out terminal; and



placing a multiple element connector, which is adapted to mate with the openings formed along said one side of the stack of cards, in electrical contact with the terminals within said openings.

3,316,620
PROCESS FOR THE PRODUCTION OF ELECTRETS
Lawrence Lee Stewart, Jr., Richmond, Va., assignor to Philip Morris Incorporated, New York, N.Y., a corporation of Virginia
Filed Feb. 28, 1964, Ser. No. 348,067
4 Claims. (Cl. 29—155.5)

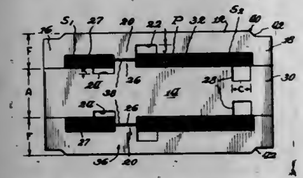


1. A process for the production of electrets which comprises wrapping at least one layer of an insulated electret-forming mterial around an electrically conducting core, placing an electrically conducting sheath around said electret-forming material, heating the assembly to a predetermined temperature for a predetermined time, applying a direct current electrical field between said core and said sheath, and separating said electret-forming material from said core and said sheath after termination of said heat and field applications.

3,316,621
METHOD OF MANUFACTURING A SHELL TYPE TRANSFORMER CORE FOR BALLAST STRUCTURE
Elias Schwarz and Julian Neilditch, Chicago, Ill., assignors to Advance Transformer Co., Chicago, Ill., a corporation of Illinois
Original application Aug. 8, 1961, Ser. No. 130,170, now Patent No. 3,177,455, dated Apr. 6, 1965. Divided and this application Sept. 18, 1964, Ser. No. 397,585
2 Claims. (Cl. 29—155.61)

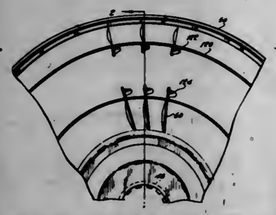
1. A method of producing a shell type transformer core on which magnetic flux coils are mounted which is comprised of individual laminations of electrical steel stacked and arranged together in a unitary core structure, and in which the individual laminations consist only of elongate central winding leg members and elongate side members, the side members having lateral projections perpendicular thereto of substantially the same width at opposite ends thereof, and having at least one central

lateral projection on an inner edge thereof, said central winding leg having its end dimensions of the same width and provided with a lateral extension intermediate the ends thereof, and the central winding leg members are stacked and the side members also stacked and arranged with the central members to form the side parts of the core, the length of the side parts are equal and the extension on the central winding leg and those on the side legs being juxtaposed whereby to form at least one shunt on said core; said method comprising stamping said central and side laminations in a continuous process from a strip of electrical steel moving through a stamping machine in a pre-determined geometrical arrangement of said individual



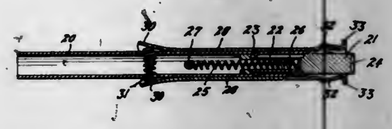
laminations along the direction of movement of the sheet which defines groups of said laminations, each group including one pair of side laminations and one of said central laminations, all nested together with the projections of the side members engaging in notches of the central member and vice versa, whereby such stamping results in a substantial reduction of waste, of forming the projections at the same time as stamping, of assembling the coils on the central winding leg by slipping one coil over an end of said winding leg and moving it along said leg until it abuts against said extension and slipping a second coil over the opposite end of said winding leg until it abuts against said extension, and thereafter stacking an assembly of laminations to form the core.

3,316,622
METHOD OF MAKING BLADED HYDRO-KINETIC MEMBERS
Vladimir J. Jandasek, Dearborn, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Original application Feb. 25, 1963, Ser. No. 260,449. Divided and this application Jan. 29, 1965, Ser. No. 429,963
1 Claim. (Cl. 29—156.8)



A method for assembling sheet metal blades within the torus shell of a hydrokinetic torque transmitting mechanism comprising the steps of forming a shell with a semi-toroidal shape and with a single thickness, piercing a series of slots at circumferentially spaced locations on the outer margin of the interior surface of said shell, piercing a series of slots in said interior shell surface at a radially inward location, the slots of each series being arranged in spaced circumferential relationship about the axis of said shell, piercing a series of additional slots in said interior shell surface at radial locations intermediate said radially inward slots and said radially outward slots, said intermediate slots being located at circumferentially spaced locations, the slots of each series being circumferentially offset with respect to corresponding slots of the other series, forming a plurality of flow directing blades with an outer margin that corresponds in shape to the toroidal shape of said interior surface, said blades being concave in shape to provide an optimum blade geometry consistent with the hydrokinetic characteristics of said mechanism, forming the outer margin of said blades with retaining tabs that are positioned at radial locations corresponding to the radial locations of said slots, flexing said blades and inserting said projections into said slots with each projection being in registry with one slot of the corresponding series formed in said shell, the outermost projections and the innermost projections being received within their respective slots with an interference fit whereby removal of said blades in a direction parallel to the axis of said shell is prevented, and securing the innermost margins of said blades to an inner shroud whereby said inner shroud, said shell and said blades cooperate to define a unitary assembly having radial flow passages, the blade retaining tabs on said blades and the cooperating slots in said shell having a radial clearance following assembly, said tabs and said slots providing the sole means for retaining said blades in assembled relationship with respect to said shell.

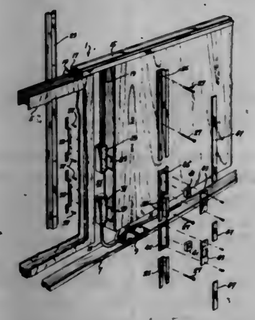
3,316,623
TOOL FOR INSTALLING SPLIT VALVE SPRING RETAINERS ON VALVE STEMS
James T. Clark, Fort Morgan, Colo., assignor to Clark-Feather Manufacturing Co., Fort Morgan, Colo.
Filed July 12, 1965, Ser. No. 471,204
1 Claim. (Cl. 29—249)



A valve spring retainer tool for use in placing a split spring retainer on a valve stem comprising:
(a) an elongated handle;
(b) a plunger slidably mounted in and projecting forwardly from said handle;
(c) a spring-loaded gripping jaw pivotally mounted on and positioned at each side of said handle, the forward extremities of said jaws being positioned at opposite sides of said plunger;
(d) a pocket formed in each of said forward extremities facing each other and adapted to receive and hold the halves of said split retainer against opposite sides of said plunger so that when said handle is moved forwardly relative to said plunger said halves will be slid forwardly on and from said plunger;
(e) a compression spring in said handle acting to urge said plunger forwardly from said handle;
(f) a reduced diameter portion on said plunger intermediate the ends thereof;
(g) an inwardly directed projection on said handle extending into said reduced diameter portion to limit longitudinal movement of said plunger relative to said handle to the lentgh of said reduced diameter portion;
(h) a pivot rivet extending completely through said handle intermediate said jaws and adjacent the rear extremities of the latter;
(i) hinge ears formed on said jaws and pivotally engaging the opposite extremities of said pivot rivet to form the pivotal mounting for said jaws;
(j) outwardly arched rear extremities on said gripping jaws forming finger levers thereon which when swung inwardly toward said handle cause the forward extremities of said jaws to move away from said plunger; and

(k) a second compression spring extending laterally of and completely through said handle, said second spring being compressed by said finger levers.

3,316,624
METHOD OF INSTALLING UTILITY OUTLET IN MOVABLE PARTITIONS
Sigmund A. Brudevold, Puyallup, Wash., assignor to Weyerhaeuser Company, Tacoma, Wash., a corporation of Washington
Filed Apr. 1, 1965, Ser. No. 444,532
4 Claims. (Cl. 29—400)

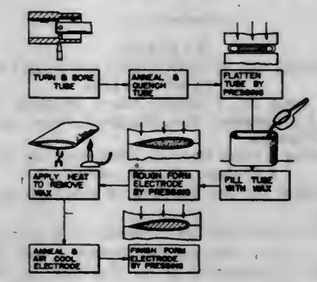


1. A method of installing utilities in movable partitions, which include panel units supported above the floor level with each panel unit joined to the adjacent panel unit by mullions, comprising:
laying utility conduits in the base space beneath said panels,
running said conduits from said base space up between adjacent panel units between mullions where utility outlets are desired securing stand-off bracket means on one of said mullions,
mounting utility outlet boxes on said bracket means,
installing the conduit connections into said outlet boxes,
clamping said adjacent panel units between said mullions accommodating said utility boxes with at least one clamping bolt for each of the individual sections of said mullions; and
mounting trim plates on the exposed side of said outlet boxes to seal the space between said adjacent panels.

3,316,625
METHOD FOR COATING STEEL WITH NICKEL
George N. Flint, Solihull, and Frank G. Haynes and Thomas B. Ashcroft, Birmingham, England, assignors to The International Nickel Company, Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed June 8, 1964, Ser. No. 373,524
Claims priority, application Great Britain, June 10, 1963, 23,045/63; July 19, 1963, 28,724/63
11 Claims. (Cl. 29—420.5)

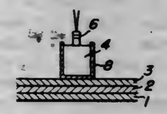
1. A process for producing an improved corrosion resistant coating on steel which comprises coating a flat steel product with an aqueous slurry containing in suspension between about 45% to about 80% by weight of fine nickel powder and a small amount up to about 10% by volume of inert particles having a particle size from about 0.01 to about 50 microns, drying the resulting slurry coating, sintering the dried coating, compacting the sintered coating to provide a consolidated coating on the steel and chromium-plating at least a portion of the resulting coated steel to provide thereon a micro-porous chromium coating whereby a coating having an improved resistance to corrosion is obtained.

3,316,626
METHOD OF MAKING AN AIRFOIL SHAPED ELECTRODE
Roger J. Fredericks, Harwinton, Conn., assignor to J. F. Fredericks Tool Company, Incorporated, West Hartford, Conn., a corporation of Connecticut
Filed Oct. 26, 1964, Ser. No. 406,303
5 Claims. (Cl. 29—423)



1. A method for manufacturing a hollow shell electrode with an airfoil section for electric discharge machining, said method comprising the steps of providing a tube having a circumferential dimension substantially equal to the desired peripheral dimension of said airfoil section and having a wall thickness substantially equal to the desired wall thickness of said hollow electrode, flattening the circular cross-section of said tube to a generally oblate cross-section which is slightly thicker than the desired profile thickness dimension of said airfoil section, filling the interior of said tube with wax, rough forming said tube by pressing to approximate said airfoil section with said wax therein, removing said wax from said electrode so formed, positioning a mandrel within said electrode parallel to the axis thereof and extending therethrough, and finish forming said electrode by pressing said electrode to the contour of said airfoil section with said mandrel therein.

3,316,627
SPOT WELDING METHOD FOR METALS BY EXPLOSIVES
Teruhiko Suzuki, Masayuki Kameishi, and Kazumoto Yamamoto, Nobeoka-shi, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan, a corporation of Japan
Filed Nov. 5, 1963, Ser. No. 321,590
Claims priority, application Japan, Nov. 6, 1962, 37/65,759; Nov. 29, 1962, 37/52,570; Feb. 21, 1963, 38/11,027; July 12, 1963, 38/35,568; Sept. 28, 1963, 38/51,531
4 Claims. (Cl. 29—470.1)



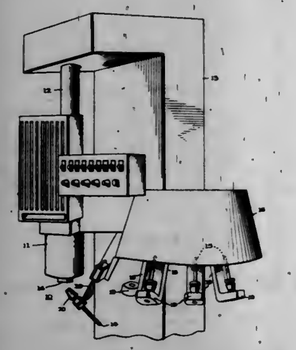
1. A method of spot welding metal plates by explosion comprising superimposing on one another a plurality of metal plates of the same or different materials to be spot welded, forming a container for an explosive from buffer material selected from the group consisting of a fibrous material, rubber, and a synthetic high polymer

resin, said container being formed so that the surface of the buffer material which contacts the explosive has a convex surface to concentrate the force of the detonation of the explosive in a localized area, placing said container with the explosive therein, on the outer surface of an outer plate in at least one discrete relatively small area of said plate, and detonating the explosive to produce spot pressure-welding at the mutual contact surfaces of the metal plates at said at least one discrete area.

3,316,628
BONDING OF SEMICONDUCTOR DEVICES TO SUBSTRATES
George F. Lang, Jr., Peabody, Mass., assignor to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
No Drawing. Filed Dec. 30, 1964, Ser. No. 422,404
8 Claims. (Cl. 29—472.7)

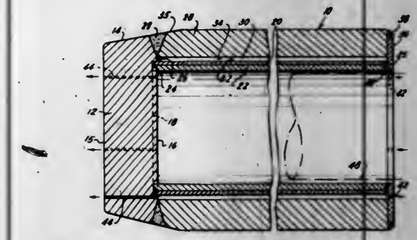
1. A method for the bonding of silicon to a ceramic comprising:
depositing a gold film on a surface of a ceramic body, placing a silicon chip on the deposited gold film, and raising the temperature of the assembly to the extent necessary for the formation of a gold-silicon eutectic.

3,316,629
MACHINE TOOL TOOL CHANGER
Henry F. Meyer, Cortland, N.Y., assignor to The Monarch Machine Tool Company, a corporation of Ohio
Filed Sept. 18, 1963, Ser. No. 309,700
12 Claims. (Cl. 29—568)



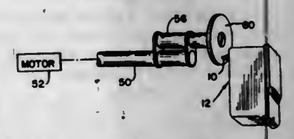
1. A tool change mechanism for changing a tool at the operating station of a machine comprising: a tool transfer station disposed for receiving tools that are to be transferred to the operating station of a machine, tool transfer means at said transfer station carried by the machine, said tool transfer means including tongs having a pair of arms pinioned at an intermediate position on said arms and disposed for movement in a pair of perpendicular planes, air means connected to said tongs for opening and closing said tongs in one of said planes, motive means including a rack and pinion connected to said tongs for rotating said tongs in the other of said planes whereby said tongs are carried to grasp said tool when said tongs are closed and transfer said tool in an arcuate path upon energization of said motive means to transfer said tool from said tool transfer station to the operating station, a cam surface connected to rotate with said pinion, means arranged for engagement with said cam surface to displace said total transfer station a distance less than approximately 25°, and means at said operating station arranged to receive said tool and operatively retain it therein.

3,316,630
CLAD BODY MANUFACTURE
Fritz Goedecke, Dusseldorf-Benrath, Paul Opel, Langenfeld-Richrath, and Gunther Ivens, Dusseldorf-Wersten, Germany, assignors to Stahl- und Rohrenwerk Reisholz G.m.b.H., Dusseldorf-Reisholz, Germany
Filed Oct. 4, 1962, Ser. No. 228,113
Claims priority, application Germany, Oct. 5, 1961, St 18,406
6 Claims. (Cl. 29—473.5)



1. A method of producing a clad seamless hollow body from a ferritic tube and a thin walled corrosion resistant metallic tube, comprising the steps of mounting a temporary reinforcing means on one of the circumferential faces of said corrosion resistant tube while leaving the other circumferential face thereof free; placing one of said tubes within the other tube in spaced relationship to each other and securing said tubes and said reinforcing means to each other so that said thin walled corrosion resistant tube is supported by said reinforcing means in a position in which the free circumferential face of said corrosion resistant tube is adjacent to and spaced from one of the circumferential faces of said ferritic tube and an annular gap is formed therebetween; passing a gaseous reducing agent through said annular gap to reduce and clean the material of said tubes at their adjacent faces; heating said tubes to a predetermined temperature in the presence of said gaseous agent; drawing said tubes at said predetermined temperature to firmly unit said tubes at their reduced and cleaned faces; and then removing said temporary reinforcing means from the clad body produced.

3,316,631
PROCESS FOR MANUFACTURING RECORDER PENS OR THE LIKE
Frits Kuyt, Rochester, N.Y., assignor to Bausch & Lomb Incorporated, Rochester, N.Y., a corporation of New York
Filed Dec. 7, 1964, Ser. No. 416,476
3 Claims. (Cl. 29—558)



1. A method for polishing writing tubes of the type used in strip chart recorders comprising the steps of chamfering an inside surface of the writing tube at one end thereof, providing a rotatable flexible abrasive disk of coarse grit which is rotatable about a first axis and rotating the disk simultaneously about a second axis to thereby produce an eccentric rotational movement, forcing the chamfered end of the tube against the eccentrically rotating disk to thereby round off the end surface thereof, providing a rotatable flexible abrasive disk of medium grit which is rotatable about a first axis and rotating the disk simultaneously about a second axis to thereby produce an eccentric rotational movement, forcing the rounded end of the writing tube against the eccentrically rotating medium grit disk to thereby produce a finer finish on the writing tube, and providing a rotatable flexible abrasive disk of fine grit which is rotatable about a first axis and rotating the disk about a second axis to thereby produce an eccentric rotational movement, forcing the rounded end of the writing tube agianst the eccentrically rotating fine grit disk to thereby produce a final polish on the end surface thereof.

3,316,632
NAIL CLIPPER
Thomas S. Bowers, 3544 Grantley Road, Toledo, Ohio 43606
Filed July 5, 1966, Ser. No. 562,733
5 Claims. (Cl. 30—28)



1. A nail clipper comprising:
(a) a housing member including a pair of upwardly extending side walls connected by a base member,
(b) cutting means carried by the base of said housing member and comprising
(1) an upper jaw member and a lower jaw member,
(2) said jaw members being joined together adjacent one of their ends with the other ends of said jaw members being resiliently movable relative to each other,
(c) cover means adapted to be nestled between the side walls of said housing means and comprising
(1) a pair of downwardly extending side walls connected together by a top member,
(2) said side walls of said cover means being provided with elongated slots extending at an angle with respect to said top member,
(d) pin means extending through the side walls of said housing member and said elongated slots of said cover means whereby said cover means can be moved forwardly so that said pin means is at the rear of said elongated slot or rearwardly so that said pin means is at the front of said elongated slot,
(e) cam means on said cover means engaging said upper jaw member for moving the same to perform a cutting operation when said cover means is in its rearward position,
(f) the angle of said elongated slot in said cover means permitting said cover means to be easily slid forwardly to a storage position with the natural movement oft he thumb of the user when the nail clipper is resting on the fingers of the hand of the user and permitting said cover means to be easily slid rearwardly to an operating position by slight and natural pressure of the thumb of the user on the forward portion of said cover means, the movement of the thumb permitting the rear of the cover means to swing upwardly.

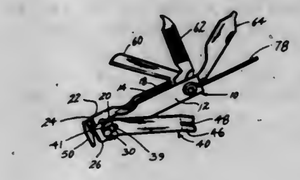
3,316,633
ELECTRICAL HAIR-ERECTOR SHAVER
Robert Tapper, % General Medical Co., 5701 W. Adams Blvd., Los Angeles, Calif. 90016
Filed Oct. 14, 1965, Ser. No. 496,101
9 Claims. (Cl. 30—34.2)

1. An electric shaver comprising;
(a) means for cutting hair,
(b) an activating electrode disposed adjacent to and electrically insulated from said means for cutting hair,
to activate the arrector pili muscle of each hair about to be cut by said means for cutting hair,
(c) a return electrode upon said electric shaver and disposed away from said activating electrode, and



(d) pulsating low voltage electrical means connected between said activating electrode and said return electrode
to electrically activate said electrodes for erecting each hair by electrical stimulation of only the arrector pili muscle of each hair,
thereby obtaining a close shave.

3,316,634
COMBINATION IMPLEMENT ASSEMBLY
Harvey N. Bliss, Windsor, Conn., assignor to The Britton Corporation, Newington, Conn., a corporation of Connecticut
Filed Oct. 22, 1965, Ser. No. 501,482
2 Claims. (Cl. 30—143)



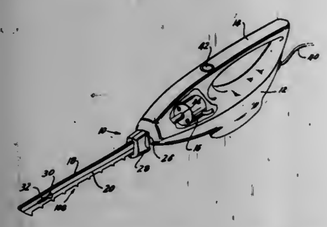
1. A combination implement assembly comprising: a casing integrally formed of resiliently deflectable sheet metal having a pair of spaced apart, generally elongated side wall portions and a base portion connecting said side wall portions from adjacent one end thereof but terminating inwardly from the other end thereof to provide unconnected portions of said side wall portions adjacent said other end resiliently deflectable relative to each other, said unconnected portions providing cooperating nail clipper jaw elements, and said unconnected portions being biased apart in operative position to provide yieldable spacing between said clipper jaw elements; a post intermediate the length of said unconnected portions; an elongated operating lever pivotably mounted on said post and extending generally longitudinally of said side wall portions for biasing said unconnected portions into engagement by the abutting of said jaw elements; a pivot member adjacent said one end thereof; at least one blade member receivable in said casing and mounted on said pivot member for rotation from a closed position disposed in said casing to an open position generally aligned with the elongated axis of said casing; and a jaw protector pivoted on said post and having a portion thereof extending outwardly of said jaw elements to protect said jaw elements from inadvertent contact, said jaw protector being pivotable to one side of said jaw elements whereby said implement assembly may be used as a nail clipper.

3,316,635
SCORING KNIFE
George W. Merrow, Bloomfield, Robert F. McKee, Cheshire, and Robert F. West, Simsbury, Conn., assignors to The Stanley Works, New Britain, Conn., a corporation of Connecticut
Filed May 6, 1964, Ser. No. 365,424
8 Claims. (Cl. 30—162)



1. In a knife comprising a storage handle and a removable blade retractable into the handle, a handle body having a transverse opening at one end thereof and a longitudinal storage cavity adjacent the top thereof extending from said opening along a substantial portion of said handle body to adjacent the end thereof opposite said one end; and a resilient partially compressed closure for the cavity movable within said opening between an open and closed position, said closure having means thereon cooperating with said handle body for limiting movement thereof beyond the open and closed positions.

3,316,636
POWER OPERATED CUTTING KNIFE
Julian R. Raper, Jr., Barrington, and Jay G. Tausendfreundt, Bristol Ferry, R.I., assignors to Imperial Knife Associated Companies, Inc., Providence, R.I., a corporation of Rhode Island
Filed May 3, 1966, Ser. No. 547,243
10 Claims. (Cl. 30—210)



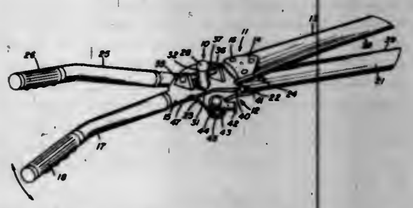
1. A power operated cutting knife, said knife including a pair of elongated cutting blades, a housing, an electric motor, means selectively energizing said motor, a pair of members receiving and holding the blades, and means driven by said motor relatively counter-reciprocating the receiving members and thus the cutting blades along a common axis, said blades each having a flat inner side face, an outer side face, said inner side faces lying in a common plane and being held in sliding contact by the receiving members, an elongated cutting edge continuous along the length of each blade, the cutting edges of the blades being immediately adjacent one another, each cutting edge being a mirror image of the other and each including a series of uniformly spaced like fixed sharp peaked cutting teeth and sharp aligned reaches between each pair of adjacent teeth, said reaches having their respective major segments lying along a common line substantially parallel to the common axis, and cutting edge bevels on the reaches and teeth, said bevels being located only on the outer side faces of the blades, the bevels of the cutting edges sloping towards the common plane.

3,316,637
CUTTING TOOL
Monte H. Lovelace, San Fernando, Calif., assignor to The Bendix Corporation, a corporation of Delaware
Filed Aug. 10, 1965, Ser. No. 478,551
4 Claims. (Cl. 30—240)



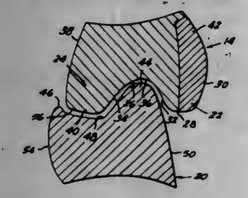
1. A hand tool comprising a unitary piece of solid material including a pivotal section at one end thereof and a pair of handle members adapted to be squeezed toward each other, said pivotal sections encompassing a substantially cylindrical interior passageway;
and a removable, substantially cylindrical cutting tool of resilient material positioned in said passageway having adjacent cutting edges such that when said handle members are squeezed toward each other, the effective circumference of said interior passageway is reduced and said adjacent cutting edges are forced together.

3,316,638
HEDGE SHEARS
Joseph Mihalyi, 76 Van Voorhis Ave., Rochester, N.Y. 14617
Filed Sept. 2, 1965, Ser. No. 484,601
9 Claims. (Cl. 30—262)



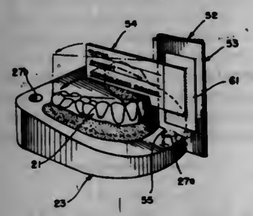
1. A pivotal arrangement for shears comprising a first movable member having an intermediate portion from which a cutting blade and a handle extend in opposite directions along substantially the same line, and a second movable member having an intermediate portion from which a cutting blade and a handle extend in opposite directions along substantially the same line, said first and second movable members being arranged in an overlapped relation, the combination comprising:
first pivot means rotatably mounted in one of said intermediate portions and extending through an aperture in the other of said intermediate portions for establishing a first axis that is substantially perpendicular to said intermediate portions and about which said cutting blades are moved across each other progressively by said handles as the latter are moved toward each other from an open position to a closed position; and
second pivot means fixedly mounted on the other of said intermediate portions and rotatably coupled to said first pivot means for establishing a second axis that intersects said first axis substantially perpendicular thereto and is spaced from and substantially parallel to the line of extension of said handle and cutting blade on said other intermediate portion;
said second pivot means rotating said first pivot means as said handles are moved between said open and closed positions and permitting said cutting blade extending from said other intermediate portion to be pivotally urged about said second axis and toward the cutting blade extending from said one intermediate portion for increasing the cutting action of said blades.

3,316,639
ARTIFICIAL DENTURES
Aaron H. Shovers, 4624 Goldfield Ave., Long Beach, Calif. 90807
Filed July 1, 1963, Ser. No. 291,977
10 Claims. (Cl. 32—2)



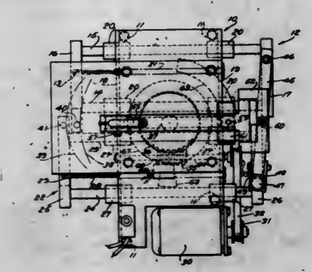
1. In a denture, artificial maxillary and mandibular posterior teeth, each maxillary tooth having a fossa defining a buccal cusp and a lingual cusp, and each mandibular tooth having a food table and a buccal cusp, said mandibular food table being arranged to move into confronting relationship with said lingual cusp and said buccal cusp being arranged to cooperate with said maxillary fossa, the occlusal contact between said maxillary and said mandibular teeth being limited to the apex of said buccal cusp and the base of said maxillary fossa.

3,316,640
METHOD OF MAKING A DENTAL APPLIANCE
Peter C. Kesling, Green Acres, La Porte, Ind. 46350
Filed May 7, 1964, Ser. No. 365,717
11 Claims. (Cl. 32—14)



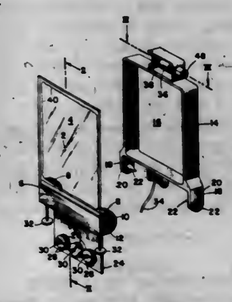
1. A method of making an appliance for use on the teeth of a person from cast models of the upper and lower arches of that persons and a means representing the relationship between the teeth and hinge axis of the lower arch of that person, said method comprising the steps of reproducing said models in separable upper and lower bases of a flask in accordance with the cast models of that person and said means representing the relationship between the teeth and hinge axis of the lower arch of that person, establishing a position of said upper and lower arches as reproduced in said bases simulating a relaxed slightly opened position of the arches based upon said representation means of that person, and making a resilient solid member therefrom having recesses shaped and located to the position of the teeth.

3,316,641
DEVICE FOR FORMING A CONTOUR LINE
Sulo A. Aijala, Attleboro, Mass., assignor to Intricate Machine & Engineering Inc., a corporation of Massachusetts
Filed Apr. 23, 1965, Ser. No. 450,468
3 Claims. (Cl. 33—18)



1. A device for forming a contour line comprising a frame, a vertical shaft rotatably mounted in said frame, means to rotate said shaft, a pair of units each mounted by said frame to slide in a generally horizontal plane at right angles to the axis of said shaft, one located on one side of the shaft and the other located on the other side of the shaft, cams on said shaft in generally a horizontal plane to reciprocate said units, one operably associated with one unit and the other operably associated with the other unit, a link swingable about a pivot axis which is fixed with reference to one unit and slidably pivoted on the other unit and a work member fixedly carried by said link to obtain controlled movement by reason of the movement of said units.

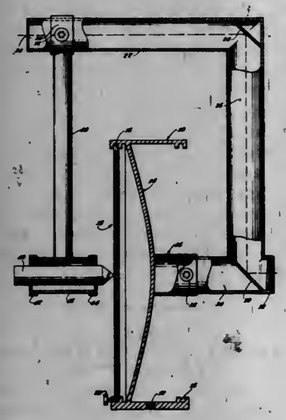
3,316,642
HIGHLY DAMPED, BALANCED MOUNTING FOR A PLOTTER STYLUS
Richard R. Councilman, Garland, Tex., assignor, by mesne assignments, to Ling-Temco-Vought, Inc., Dallas, Tex., a corporation of Delaware
Filed Nov. 26, 1965, Ser. No. 509,845
4 Claims. (Cl. 33—18)



1. Stylus mounting means for plotting projectors, said mounting means comprising:
a supporting frame having an opening to permit passage of light therethrough;
pivot means carried by said supporting frame;
a base member having anti-friction means rotatably supporting said base member on said pivot means;
a transparent mounting plate rigidly secured to said base member and extending adjacent said frame to substantially cover said opening;
a stylus fixedly secured to said mounting plate at a location substantially corresponding with the center of said opening;

a flange carried by said base member and extending from said base member in a direction substantially opposite from said mounting plate,
balance means carried by said flange and adjustable to vary the location of the center-of-mass of said flange,
first resilient means mounted on said frame and engageable with said flange to urge said stylus to an "out-of-plot" position,
a solenoid on said frame, and
second resilient means operable by said solenoid and engageable with said mounting plate to urge said stylus to a "plot" position.

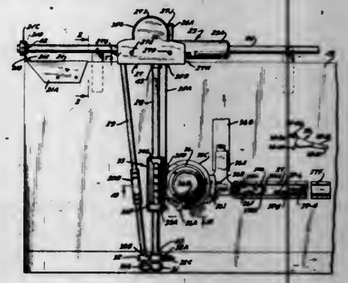
3,316,643
DRAWING INSTRUMENT
Robert E. Wenzel, Los Angeles, Calif. (1517 E. 7th St., Ontario, Calif. 91762)
Filed Dec. 28, 1964, Ser. No. 421,470
19 Claims. (Cl. 33—20)



1. A drawing instrument for making reproductions of a subject, said instrument including: first means defining a reproducing surface and a bearing surface; periscope means for sighting along a particular optical axis and including a first portion adapted to coact with said bearing surface and a second elongated portion extending over said first means when said first portion coacts with said bearing surface; a scribing element; and a support means for said scribing element affixed to said periscope means in position to support said scribing element in alignment with said optical axis and in inscribing relationship with said reproducing surface as said first portion of said periscope means is moved over said bearing surface.

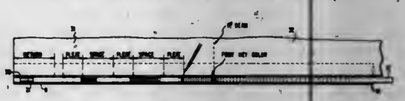
3,316,644
DRAFTING MACHINE
Allister L. Baker, Denville, William R. Krause, Secaucus, and William J. Drexler, Ridgefield, N.J., and Frederick Irving Zener, South Portland, Maine, assignors to Keuffel & Esser Company, Hoboken, N.J., a corporation of New Jersey
Filed July 18, 1960, Ser. No. 43,642
13 Claims. (Cl. 33—79)

1. A drafting machine and drafting board adapted for use in horizontal and inclined positions comprising a first cylindrical rail mounted on a drafting board, a first carriage including an elongated C-shaped sleeve mounted for movement along and for angular rotation about the cylindrical rail, means to support said cylindrical rail on the drafting board adjacent the ends, intermediate support means for said cylindrical rail including narrow struts extending radially from said rail, each strut being of smaller transverse dimension than the slot in said C-shaped sleeve and each strut being positioned to be received in the slot opening in said C-shaped sleeve, strut support means mounted on said drafting board and supporting said struts, a roller assembly mounted on said C-shaped sleeve adjacent each end thereof, each roller assembly including a pair of generally cylindrical rollers spaced apart substantially less than 180 degrees and located on one side of the C-shaped sleeve and engaging the cylindrical rail on one side of the rail, and at least another generally cylindrical roller positioned on the other side of said C-shaped sleeve and engaging the other side of said rail, said at least another roller being spaced an amount appreciably less than 180 degrees from an adjacent roller, resilient means urging said at least another roller toward said one side of said C-shaped sleeve and toward said rail, each generally cylindrical roller being mounted for rotation on an axis lying in a



plane perpendicular to the axis of the cylindrical rail and perpendicular to a radius of the cylindrical rail, the position of the axis of each of said pair of rollers being fixed relative to said C-shaped sleeve, a brake mounted in said C-shaped sleeve intermediate the ends thereof on the said other side of said C-shaped sleeve adjacent said at least another roller producing a braking force on said other side of the cylindrical rail with the brake reaction being taken by said at least two rollers on the said one side of the C-shaped sleeve and on the said one side of said cylindrical rail, means to apply and release said brake causing said first carriage selectively to be held against movement and permitting said first carriage to freely move along and about said cylindrical rail, a second rail lying in a plane perpendicular to said cylindrical rail to overlie the front surface of said drafting board, a second carriage mounted on said second rail for movement therealong, line guide means on said second carriage for guiding a line forming instrument, and means to maintain said second carriage in adjusted position on said second rail.

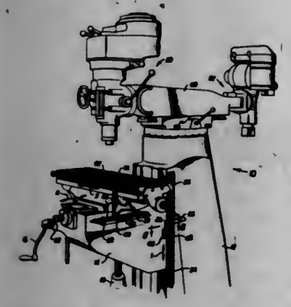
3,316,645
MARKING RULE FOR DRAPERY PLEATING
Marvin Fink, Philadelphia, Pa., assignor to Coloplete Corporation, Huntingdon Valley, Pa., a corporation of Pennsylvania
Filed Apr. 22, 1965, Ser. No. 450,000
9 Claims. (Cl. 33—103)



5. A device for computing the width and spacing of drapery pleats comprising an elongated, generally rectangular base member, an inclined material supporting ramp integral with and coextensive with one longitudinal edge of said base member, a longitudinal groove formed

in said base member, a slide member slideably received in said groove, a well formed adjacent each end of said base member and communicating with said groove, a selected one of a set of different size spacer blocks adapted to fit within one of said wells to offset said slide member with respect to said base member, a plurality of spaced scale sets on each of said base and slide members, each scale set having a plurality of scale segments, the segments in each set being of the same width, each of said scale sets having the same series of indicia, said scales on said base member and slide member being in alignment when the end of said slide member is in alignment with said base member.

3,316,646
MILLING MACHINE SCALES
Richard T. Novey, 9216 Vena St., Pacoima, Calif. 91331
Filed May 22, 1964, Ser. No. 369,426
2 Claims. (Cl. 33—125)



1. A machine comprising:
a base;
a carriage adjustably mounted for transverse movement on said base;
a work table adjustably mounted for lateral movement on said carriage;
a tool in operative association with said table and adapted to perform work on material supported on said table;
a first scale adjustably mounted for transverse movement on said base, said scale extending parallel to the direction of movement of said carriage on said base;
a second scale mounted on said work table, said scale extending parallel to the direction of movement of said work table on said carriage;
a pointer arm attached to and movable with said carriage;
a first pointer adjustably mounted for vertical movement on said arm, said first pointer registering with said first scale to indicate relative movement between said carriage and said base;
a bracket adjustably mounted for vertical movement on said arm; and
a second pointer adjustably mounted for lateral movement on said bracket, said second pointer registering with said second scale to indicate relative movement between said work table and said carriage.

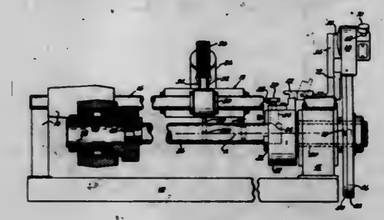
3,316,647
OIL LEVEL INDICATOR
Sven Arild Swallert, 11 Rue Michel Chauvet, Geneva, Switzerland
Filed May 12, 1965, Ser. No. 455,089
2 Claims. (Cl. 33—126.7)

1. An oil level indicator, for instance for automobile engines, comprising a suction pump including a cylindrical container having a translucent wall, a tubular dip stick upon which said container is mounted, a holder to which said dip stick is secured, said dip stick having a passage connecting the interior of said container with an opening through the wall of the dip stick at a point of the stick corresponding to the normal level of the oil, a piston



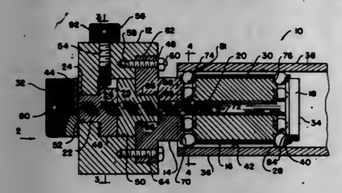
mounted in said container for sliding movement toward and away from said dip stick, said container having an opening in its side walls, a resetting spring operably engaging said piston to press said piston in the direction away from said tubular stick against a stopping member in which position said opening in the wall of said container is closer than said piston to said dip stick.

3,316,648
LINEAR AND ANGULAR GAUGE
William Peter Klaassen, Brooklyn, Mich., assignor to Teer, Wickwire & Company, Jackson, Mich., a corporation of Michigan
Filed July 18, 1966, Ser. No. 566,060
7 Claims. (Cl. 33—174)



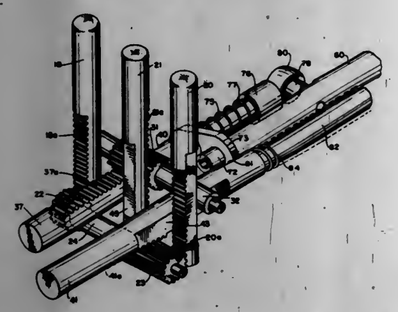
1. A gauge for determining the angular relationship of predetermined locations relative to a given axis upon an article to be gauged comprising, in combination, support means, article holding means mounted upon said support means for rotation about a given axis adapted to hold the article to be gauged, a disc fixed relative to said article holding means for rotation therewith having a circular surface concentric to said axis, a dial indicator having a rolling drive wheel engaging said circular surface and indicating angular movement of said article holding means and disc, and article engaging means mounted upon said support means angularly fixed relative to said axis adapted to selectively engage said article predetermined locations whereby the angular relationship of said locations relative to said axis can be determined.

3,316,649
GAGE
Thomas J. O'Connor, Ann Arbor, Mich., assignor of one-half to Dale R. Smith, Detroit, Mich.
Filed Aug. 17, 1964, Ser. No. 389,845
8 Claims. (Cl. 33—178)



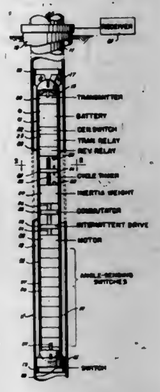
1. A gage for measuring the internal diameter of cylindrical openings comprising generally cylindrical body means having a helical opening extending axially therethrough, a generally cylindrical pressure plate, a shaft secured to the pressure plate depending from one side thereof centrally thereof and having a helical portion passing through the opening in the body means, opposed beveled edges on the body means and pressure plate forming a ball race therebetween, balls positioned in said ball race, a retaining sleeve surrounding the balls for preventing outward radial movement of the balls beyond a predetermined diameter having openings therein through which the balls extend with diameters smaller than that of the balls, means for rotating the shaft relative to the body means to move the shaft axially in the helical opening in the body means whereby on movement of the beveled edges closer together the balls are moved radially outward and means operable between the body means and the shaft for indicating the radial position of diametrically opposed balls relative to each other in accordance with the relative rotation of the shaft and body means.

3,316,650
DIAL BORE GAGE WITH RETRACTION MEANS
David H. Aldeborgh and Earl M. Boat, Poughkeepsie, N.Y., assignors to Standard Gage Company, Inc., Poughkeepsie, N.Y., a corporation of New York
Filed Mar. 8, 1965, Ser. No. 437,720
19 Claims. (Cl. 33—178)



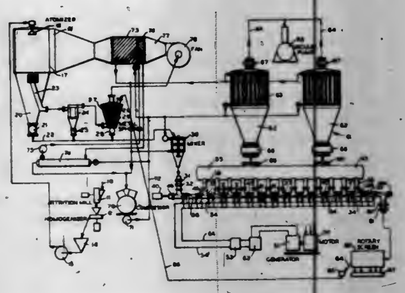
1. In a dial bore gage, in combination, a gaging plunger, an indicator means, means for transmitting motion from said gaging plunger to said indicator comprising, rack teeth on said plunger, a gear meshing with said teeth, a rack meshing with said gear, a rod for transmitting movement of said rack to said indicator means, means for operating said rod in a retracting direction, spring means urging said rod in the opposite direction; and adjustable means for limiting the movement of said rack in said opposite direction to thereby limit the outward movement of said gaging plunger.

3,316,651
INCLINOMETERS
Josiah J. Godbey, Richardson, Tex. (812 Nottingham Drive, Dallas, Tex. 75217)
Filed Jan. 22, 1965, Ser. No. 427,306
13 Claims. (Cl. 33—205)



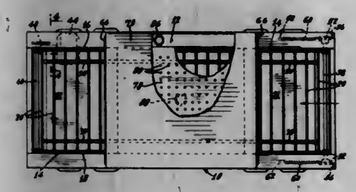
1. An inclinometer for measuring the angularity of a well bore including a housing, a plurality of separate angle-sensing means in the housing each being responsive to a greater degree of angularly than each preceding angle-sensing means to generate a signal, means for transmitting to the ground surface a signal from each of the angle-sensing means that is activated, and an inertial switch for terminating the angle measuring by opening, the inertial switch being responsive to the commencing of rotation of the inclinometer to reclose.

3,316,652
CONTINUOUS DEHYDRATING PROCESS
Arthur van Gelder, Ojai, Calif., assignor to Sun-Freeze, Inc., Ojai, Calif., a corporation of California
Filed Oct. 24, 1965, Ser. No. 504,800
6 Claims. (Cl. 34—5)



1. The continuous method of dehydration of liquids and liquids containing suspended or colloidal solids comprising the steps of reducing the solids in the liquid to finely divided form, instantly freezing said material to produce a powder of frozen particles, mixing the frozen particles under continuous agitation with a pre-determined volume of electrically conductive pellets which have previously been cooled to a temperature below the freezing point of said powder, moving said powder proportioned with said pellets in continuous tumbling engagement through a vacuum chamber in the presence of induction heating thereby raising the vapor pressure of said powder above the negative pressure causing dehydration of said powder, continuously separating the dehydrated powder from the pellets and continuously returning the pellets to the system.

3,316,653
PROCESS AND APPARATUS FOR SHRINKING FILMS ON PACKAGES
Seymour Zelnick, Toms River, N.J., assignor to Weldotron Corporation, Newark, N.J., a corporation of New Jersey
Filed Nov. 18, 1963, Ser. No. 324,485
4 Claims. (Cl. 34—22)



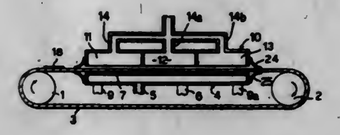
1. A process of uniformly heating all surfaces including the bottoms of heat-shrinkable thermoplastic coverings on individual packages, comprising: supporting each such package on a plurality of sequentially spaced apart rollers and advancing such rollers over a source of hot air while rotating such rollers to advance each such package supported by such rollers with respect to such rollers in the direction of advance of such rollers to continuously and progressively change the portions of the respective bottoms of such packages which are contacted by such rollers; and continuously blowing hot air from the top, sides and between adjacent spaced apart rollers, against the continuously differing exposed portions of the respective bottoms of such packages, thereby applying hot air to all of the surfaces including the entire bottom of each such package.

3,316,654
PROCESS FOR DRYING FILM
Frank P. Gay, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Apr. 29, 1965, Ser. No. 451,967
3 Claims. (Cl. 34—23)

1. The process of treating an aromatic polyimide film having a volatile content of less than about 30% by weight based on the total weight of said film, said process comprising exposing at least one surface of said film to an open gas flame for a time sufficient to raise the film temperature to between about 500° C. and the zero strength temperature of the film and hold it at such temperature for a time sufficient to drive off at least some of said volatiles from said film while holding said film under restraint.

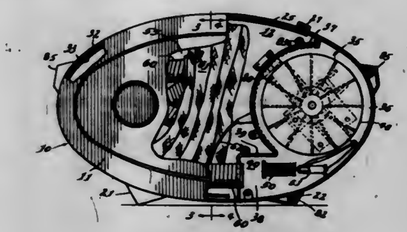
3,316,655
APPARATUS FOR DRYING TANNED SKINS UNDER VACUUM
Paolo Bocciardo, Rivarolo Canavese, Italy
Filed Apr. 16, 1963, Ser. No. 273,512
4 Claims. (Cl. 34—92)

1. Apparatus for drying tanned skin, said apparatus comprising, in combination, a pair of parallel arranged spaced apart roller drums, a heat-transmitting conveyor belt supported on said drums and extending therebetween for moving in an endless path around said drums, a lower hollow plate member located under said conveyor belt and engaging one face of said conveyor belt, the other face of said conveyor belt constituting a surface for supporting skins for drying, means for heating said lower plate member to a predetermined temperature, an upper hollow plate member located above said conveyor belt and spaced therefrom and being arranged in alignment over said lower plate member, a steam-pervious elastically deformable layer carried by said upper plate member and adapted to engage a skin carried by said conveyor



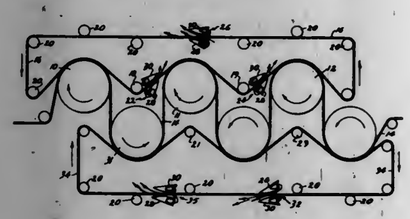
belt, means connected with said upper plate member for moving said upper plate member toward and away from said conveyor belt, means connected with said upper plate member for creating a vacuum in the space between said upper plate member and said conveyor belt, and means varying the extent of this vacuum, said apparatus further comprising elastic skirts connected with the peripheries of said upper and lower plate members and engaging opposite faces of said conveying belt.

3,316,656
ELECTRIC HAIR DRYER
John F. Wahl, Sterling, Ill., assignor to Wahl Clipper Corporation, Sterling, Ill., a corporation of Illinois
Filed May 13, 1964, Ser. No. 367,174
1 Claim. (Cl. 34—99)



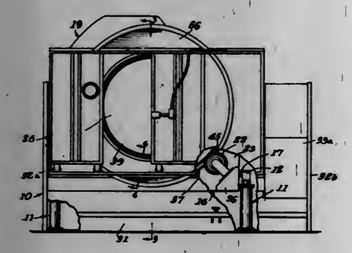
An electric hair dryer comprising:
a housing having spaced front and rear walls of generally elliptical shape and a closure wall extending between said front and rear walls, said closure wall having an access opening;
a motor-fan-heater assembly mounted within an end portion of said housing away from said access opening, said assembly including wall portions cooperating in complementary relation with walls of said housing to form a fan enclosure and an air outlet duct;
a sliding door of thin resilient plastic sheet material in effective relation with said access opening;
arcuate guide means on said housing mounting said door on a longitudinally extending arc to open and close said access opening;
a flexible air hose having one end connected to said air outlet duct; and
a dryer hood connected to the other end of said hose, the space within said housing unoccupied by said motor-fan-heater assembly at least large enough for storing said hose and hood.

3,316,657
AIR DEFLECTOR UTILIZING COANDA EFFECT
Oliver G. Haywood, New Canaan, Conn., assignor to Huyck Corporation, Rensselaer, N.Y., a corporation of New York
Filed Oct. 23, 1965, Ser. No. 503,255
18 Claims. (Cl. 34—111)



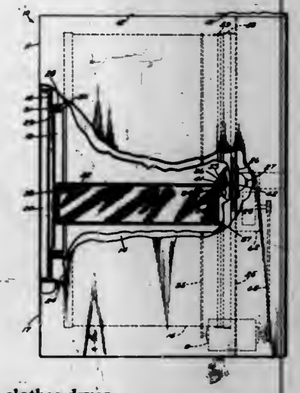
1. In an apparatus for drying a continuous sheet of paper,
an endless pervious belt movable in conjunction with said sheet and arranged to press said sheet against the drying means in said apparatus,
and a linear Coanda nozzle extending substantially in the direction of the width of said belt adjacent to one surface thereof at a desired location along the path of travel of said belt where it is not in contact with said sheet,
said nozzle being so oriented with respect to said belt that the flow of gas induced by said nozzle will originate in the mass of gas adjacent to the same surface of said belt as is said nozzle, will converge with said belt at an acute angle to the direction of travel of said belt, and will pass substantially totally through said belt to the side of said belt opposite that to which said nozzle is adjacent.

3,316,658
TWO-SIDED TUMBLER
George N. Strike, 1844 Cypress Ave., Los Angeles, Calif. 90065
Filed Apr. 5, 1965, Ser. No. 445,466
5 Claims. (Cl. 34—126)



1. In a tumbler for drying wet wash,
(a) a rotatable wash-tumbling and -drying drum having open ends front and back and concentric with the drum axis,
(b) means mounting the drum to rotate on said axis,
(c) housing means in which the drum is disposed with the open ends thereof extending one through the front and the other through the rear of the housing means, and
(d) means to tilt the housing in a vertical plane to, thereby, tilt the axis of the drum in said plane.

3,316,659
DELICATE GOODS TRAY FOR DRYERS
John A. Lanck, Stevensville, Mich., assignor to Whirlpool Corporation, Benton Harbor, Mich., a corporation of Delaware
Filed Aug. 5, 1964, Ser. No. 387,587
6 Claims. (Cl. 34—133)



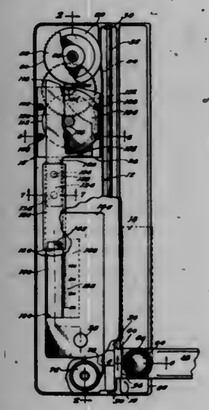
5. In a clothes dryer,
a cabinet,
a cylindrical dryer drum journalled for rotation within said cabinet,
an opening of a given size formed in one end of said drum,
a dryer basket having a plurality of sections hinged together to accommodate folding over of the sections from an open state into a compactly arranged folded state,
said basket being dimensioned in its folded-over state for insertion through said drum opening into the interior of said drum and being smaller than the interior diameter of said drum when opened, and
mounting means supporting and positioning said open basket within said drum independently of the support of said drum whereby on rotation of the drum the basket remains in a fixed non-rotatable position.

3,316,660
LAMINARFORM FOR USE WITH ELECTRO-STYLUS
Joseph Greenspan, 1120 Queensland St., Los Angeles, Calif. 90034
Filed Oct. 12, 1965, Ser. No. 495,221
9 Claims. (Cl. 35—9)



1. A device of the character described wherein an electrically operable probe is intelligently applied to areas of like appearance and of predetermined electro-conductive and non-conductive capability, and of laminarform structure comprising; a lamina of electrically insulating material with indicia deposited at one face to be viewed and having a multiplicity of perforations therethrough intelligently related to said indicia, and a lamina of electrically conductive material laminated to the opposite face of the first mentioned lamina, the second mentioned lamina being coated with a transparent insulation at the face thereof opposed to the said opposite face of the first mentioned lamina except at least at one of said perforations therethrough.

3,316,661
VARIABLE CONSTANT-SPEED DRIVE MECHANISM
John A. Simpson, Chicago, and Charles E. Soderquist, Jr., Chicago Heights, Ill., assignors to Elizabeth A. Simpson, Chicago, Ill.
Filed Apr. 29, 1965, Ser. No. 451,888
7 Claims. (Cl. 35—35)



1. A variable drive mechanism comprising, in combination:
(a) a housing,
(b) means mounted on the housing for exerting a constant drive force,
(c) an eddy-current brake comprising a non-magnetic conducting member rotatably mounted on the housing and coupled to the force-exerting means and means for producing a magnetic field through the rotative path of the conducting member,
(d) and means to vary the retarding force exerted by the magnetic field comprising adjusting means movable on the housing in a plane transverse to the magnetic field to vary the area and shape of the magnetic field penetrating the conducting member.

3,316,662
SAFETY TRACTION ATHLETIC SHOE SOLES
Louis F. Schmadeke, 1818 Plank Road, Keokuk, Iowa. 52632
Filed Mar. 11, 1965, Ser. No. 439,105
8 Claims. (Cl. 36—32)



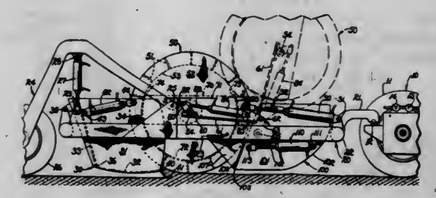
1. In an athletic shoe sole, having a combination of a base,
horizontally elongated cleats on said base each having a continuous axis extending transversely of the longitudinal axis of the sole and horizontally elongated cleats on said base extending from the toe portion to the heel portion and parallel to the longitudinal axis of the sole.

3,316,663
ANTI-SLIDING SUPPORT FOR FOOTWEAR
Johannes Neu, Frankfurt am Main-Sossenheim, Germany, assignor to The Scholl Mfg. Co., Inc., Chicago, Ill., a corporation of New York.
Filed Mar. 15, 1963, Ser. No. 265,384
1 Claim. (Cl. 36—71)



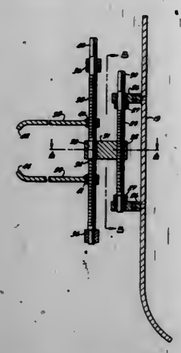
An anti-slip insert for footwear, comprising
a longitudinally arcuate and upwardly concave pad formed anatomically to properly underlie the ball of the foot,
a ridge formed in said pad to abut the metatarsal heads and restrain the foot from sliding forward in the footwear,
a foot relieving device disposed along the length of said footwear behind said pad, and
top and bottom covers on said pad,
each of said covers extending rearwardly beyond the pad to form a rearwardly opening pocket therebetween to receive the end of said foot relieving device.

3,316,664
REEL-TYPE EARTH MOVING SCRAPER
John Howard Wilmoth, 5756 N. Flora, and Harry L. Wilmoth, 6289 N. 1st, both of Fresno, Calif. 93726
Filed Dec. 21, 1964, Ser. No. 419,943
10 Claims. (Cl. 37—9)



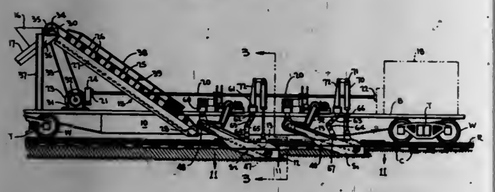
1. An earth moving scraper comprising a mobile frame having a predetermined direction of travel; an earth engaging scraper blade mounted transversely in the frame; a rotary earth elevating reel mounted for rotation in the frame about an axis transversely of the frame above and forwardly of the blade, said reel having a periphery disposed adjacent to the ground for rolling travel thereover during travel of the frame and to elevate said earth; a hopper mounted in the frame rearwardly of the blade to receive a predetermined quantity of earth scraped thereover by the reel; means carried by reel to receive earth in excess of said predetermined quantity scraped rearwardly over the blade and elevated by said reel; an auxiliary hopper carried by the frame; and means to transfer earth from said earth receiving means of the reel to said auxiliary hopper.

3,316,665
SNOWPLOW BLADE FOR AUTOMOBILE BUMPER MOUNTING
Michael S. Rinaldo, 1921 Sequoya Drive, Poland, Ohio 44514
Filed Apr. 28, 1964, Ser. No. 363,239
3 Claims. (Cl. 37—42)



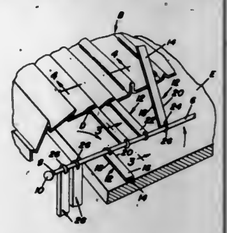
1. A snowplow attachment for an automobile having a bumper and a transverse frame member therebehind, said snowplow attachment comprising a pair of blade portions hinged to one another in endwise relation, means on each of said blade portions vertically mounting a pair of threaded rods, said means including a connecting body member joining said rods, one of said rods having upper and lower threaded areas in which the threads are oppositely arranged, apertured clamping arms respectively threadably engaging said upper and lower threaded areas of said rod for engaging said bumper, the other of said threaded rods being threadably engaged with said connecting body member and being journalled on said mounting means for raising and lowering movement of said blade relative to said connecting body member, and secondary extensible means on each blade portion for engaging said transverse frame member.

3,316,666
BALLAST CLEANER
Martin J. Speno, Syracuse, N.Y., assignor to Frank Speno Railroad Ballast Cleaning Co., Ithaca, N.Y., a corporation of New York
Filed Dec. 10, 1964, Ser. No. 417,442
12 Claims. (Cl. 37—107)



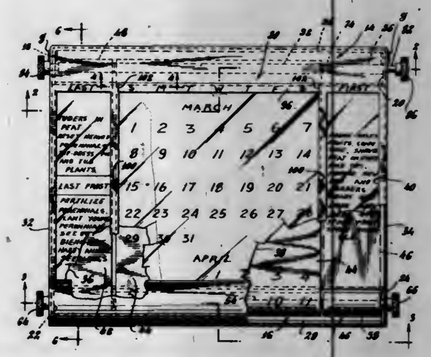
1. Ballast handling mechanism comprising an ambulatory support adapted for movement parallel to a railroad roadbed, leading and trailing scoops carried by said support for operative engagement with the ballast of said roadbed, said leading scoop being disposed in a position to remove ballast from the roadbed in a predetermined path and at a predetermined depth whereby to form a trench of said predetermined depth, said trailing scoop being positioned for movement along the said trench and for removal of ballast therefrom to a greater depth than the leading scoop, said scoops both including conveyors for receiving the ballast removed by them, and discharging it rearwardly, said conveyor of the trailing scoop, being positioned rearwardly of and beneath the discharge end of the conveyor of said leading scoop, whereby to receive the ballast removed by both scoops.

3,316,667
SHAPING AND PRESSING MEANS FOR KNIFE PLEATS
Mary A. Harny, Rte. 4, Box 204, Astoria, Oreg. 97103
Filed Oct. 29, 1965, Ser. No. 505,607
2 Claims. (Cl. 38—108)



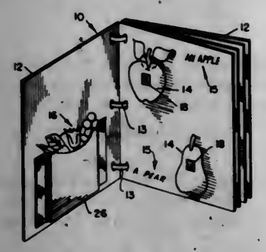
1. A pleat pressing aid comprising an elongated rod adapted to extend transversely across the upper surface of an ironing board, a plurality of arms adapted to extend longitudinally of the top surface of the ironing board and be received in pleats in a garment placed on the ironing board in order to shape the pleats when being pressed, means connecting one end of each of said arms to said rod for free pivotal movement of the arms about the longitudinal axis of the rod, longitudinal sliding adjustment of the arms along the length of the rod and limited rotational adjustment of the arms about substantially the longitudinal axis of the arms to enable the arms to be positioned in pleats in a garment placed on an ironing board, each of said arms being elongated and of rectangular cross-section through the length thereof and provided with parallel side edges and parallel flat top and bottom surfaces, the other end of each of said arms being free to facilitate placement thereof in pleats in a garment placed on an ironing board.

3,316,668
ADJUSTABLE GARDEN CHART
Charles H. Rogers, 12 Hideaway Lane, Norwalk, Conn. 06851
Filed Nov. 9, 1964, Ser. No. 409,694
10 Claims. (Cl. 40—117)



1. A device for correlating information contained on three indicia bearing strips which comprises, three pairs of reels on which the strips are respectively supported, each pair of reels comprising a first reel and a second reel, means for mounting the three first reels in axial alignment, for rotation separately, means for interlocking either or both end reels of said three first reels for rotation with the middle one of said three first reels, and means for rotatably mounting the three second reels in axial alignment, in spaced relation longitudinally of the strips from the three first reels.

3,316,669
EDUCATIONAL DEVICE
Edith G. Nachbar, Brooklyn, N.Y., assignor of fifty percent to Peter Goetz
Filed Sept. 8, 1964, Ser. No. 394,901
3 Claims. (Cl. 40—142)



1. An educational device comprising,
(a) a two-dimensional base supporting sheet including predetermined indicia on the face thereof,
(b) a first Velcro fastening tape section associated with said indicia and secured to said base sheet,
(c) a two-dimensional preformed attachable article graphically representative of said first predetermined indicia, and
(d) a second mating Velcro fastening tape section matably cooperable with said first tape section to effect a temporary union therewith,
(e) said second tape section being secured to the underside of said preformed article,
(f) whereby said base sheet and article may be selectively joined in a predetermined spaced relationship by said first and second tape sections,
(g) at least said second tape section being of substantially limited area relative to the area of said attachable article,
(h) said spaced relationship of said article to said base sheet being sufficient to provide said combined article and base sheet with a three-dimensional appearance and to define a gap which provides grasping access to said underside of said article.

3,316,670
MID-WATER TRAWL
Wesley W. Johnson, Ottawa, Ontario, Canada, assignor to Canadian Patents and Development Limited, Ottawa, Ontario, Canada, a corporation of Canada
Filed Dec. 24, 1964, Ser. No. 420,881
9 Claims. (Cl. 43—9)



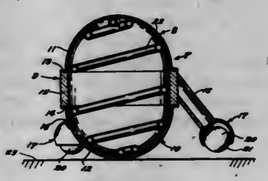
1. In a mid-water fishing trawl including a gradually tapered boxlike net having a body formed of two pairs of mutually opposed walls, said walls being bounded at side edges thereof by rib lines, and a cod-end at the trailing end of said body portion, the improvement comprising: a triangular wing portion of net material extending from the leading edge of each of said four walls so that the base of each triangular portion extends along the entire leading edge of an associated one of said walls from rib line to rib line, the apex of each of the triangular portions being adapted to be secured to a sweep line.

3,316,671
WHIRLING SOUND-MAKING TOY
Clifford M. King, Sugar Creek, Mo. (11508 Anderson, Independence, Mo. 64054)
Filed July 29, 1964, Ser. No. 385,863
1 Claim. (Cl. 46—52)



A sound-making amusement device comprising,
(a) a rectangularly shaped body member having plane side faces and side edges, a portion of said side edges having plane surfaces, each of said side edges having a beveled portion extending partially across said side edges and throughout the longitudinal length of said body member, the beveled portion on one side edge extending into a portion of one side face and the beveled portion on the other side edge extending into a portion of the other side face, and said body member having an opening transversely through one end thereof, and
(b) a cord having one end non-rotatably attached to said body member through said opening, whereby the free end of said cord may be held by the hand of a user to whirl said wing member around said user and through the air in a circular motion to cause the same to whirl as it is swung causing a humming noise, and whereby said cord is axially twisted during swinging of the wing member in one direction and reversal of swing of the wing member to the other direction enhances rotation of said wing member and enhances the humming action thereof.

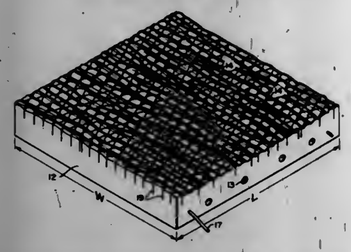
3,316,672
SPINNING TOY
John W. Dixon, 224 Ireland Ave., Cincinnati, Ohio 45218
Filed Mar. 23, 1965, Ser. No. 441,997
3 Claims. (Cl. 46—66)



1. A manually operated spinning toy comprising a generally egg-shaped, thin walled body composed of a transparent plastic material, a plurality of outwardly and downwardly extending arms attached to and radiating from the central portion of the body, said arms being equi-angularly spaced apart around the body, a downwardly opening socket member carried on the outer end of each arm, and a weighted ball held in each socket member for limited upward movement therein and having its lower end projecting beyond the open socket member, said arms having equal lengths of an extent to main-

tain all the weighted balls above the spinning surface of the toy body when said body has its axis normal to the said surface.

3,316,673
HORTICULTURAL SYSTEM
James N. Mason and Edward M. Rothermel, Winchester, Mass., assignors to American Biltrite Rubber Co., Inc., Chelsea, Mass., a corporation of Delaware
Filed Jan. 21, 1966, Ser. No. 522,289
6 Claims. (Cl. 47—1)



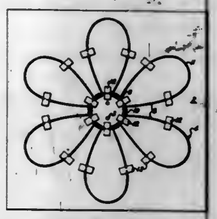
1. A horticultural system comprising a layer of garden soil overlying a ply of elastomeric material which has an internal network of perforated ducts for distributing liquid to the overlying layer of soil and embedded electrical heating means therein for controlling the temperature of the overlying soil.

3,316,674
METHOD OF NEW INDUSTRIAL CULTIVATION OF UNICELLULAR GREEN ALGAE SUCH AS CHLORELLA
Minoru Shirota, Kyoto, Hiroshi Endo, Hirakata, Osaka, and Kei Nakajima, Kyoto, Japan, assignors to Kabushiki Kaisha Yakult Honsha, Tokyo, Japan
No Drawing. Filed Aug. 16, 1965, Ser. No. 480,117
Claims priority, application Japan, Sept. 11, 1964, 39/51,388
1 Claim. (Cl. 47—1.4)

A method for industrial cultivation of unicellular green algae from the group of Chlorella and Senedesmus which comprises the steps of inoculating unicellular green algae from the group of Chlorella and Senedesmus to a culture medium which comprises inorganic salts and a member of the group of sugars and organic acids, cultivating with shaking at a suitable temperature, illuminating continuously and in the absence of externally supplied carbon dioxide for several days, thereafter selectively isolating strains which have grown abundantly, repeating the culture of said isolated strains several times in the previously indicated manner, selecting a strain showing the largest multiplication as a seed strain, inoculating the said seed strain to a sterilized culture medium having the same composition as indicated above, and then effecting a pure culture at a suitable temperature with shaking or aeration stirring under continuous light illumination without externally supplying carbon dioxide to the culture medium.

3,316,675
PLANT CONTAINER
Albert David Cartwright, Jr., Collierville, Tenn. 38017
Filed Aug. 5, 1965, Ser. No. 477,525
5 Claims. (Cl. 47—37)

1. A container for transporting a plant having a root system in a ball of earth, comprising a strand frame having a lower, generally centrally located selvage strand base member formed in a substantially circular configuration, said selvage base member being generally horizontally disposed, a plurality of radial loop strand members having their lowermost ends radially connected to said selvage base member, a flexible cover overlying said selvage base member and said loop members for receiving said ball of earth, said loop members being flexible and distortable whereby said loop portions are connectable

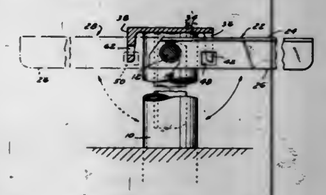


to one another about the stem of a plant by means of a tie so that the selvage base member and loop members tightly embrace said cover and said ball of earth.

3,316,676
SEED PACKAGES OF WATER INSOLUBLE POLYETHYLENE OXIDE
Casimer C. Legal, Jr., Elkridge, Md., Thomas H. Nichols, Atlanta, Ga., and William A. Patterson, Spartanburg, S.C., assignors to W. R. Grace & Co., Duncan, S.C., a corporation of Connecticut
No Drawing. Filed Mar. 3, 1965, Ser. No. 436,925
13 Claims. (Cl. 47—58)

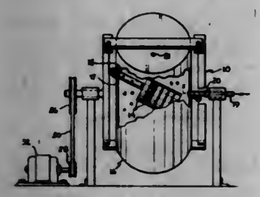
8. A method for preparing a seed package suitable for planting comprising:
(a) enclosing at least one seed within a film comprising a water shrinkable but substantially water insoluble, oriented film material, and
(b) shrinking said film about said seed to form a package by subjecting said film to a heat shrinking temperature for a period of time sufficient to cause said film to closely conform to the contours of said seed without rupturing said film.

3,316,677
PARKING SPACE GUARDING DEVICE
Alex Danin, 1080 Mamaroneck Ave., White Plains, N.Y. 10605
Filed Aug. 23, 1965, Ser. No. 481,619
6 Claims. (Cl. 49—254)



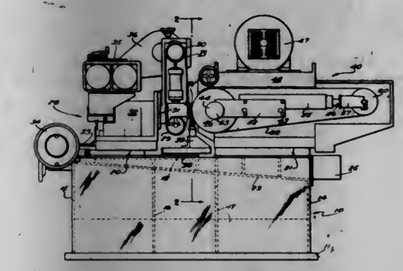
1. A parking lot guarding device comprising
(a) a vertical member;
(b) a shaft extending horizontally through said member adjacent the top end thereof;
(c) a hollow horizontal sleeve concentrically disposed on said shaft adjacent one end thereof and slidable thereon toward and away from said member;
(d) an elongated element secured at one end to said sleeve and rotatable in a vertical arc about said shaft, said element having an aperture spaced apart from said sleeve; and
(e) means secured to said member and having a horizontally extending prong pointing in a direction parallel to said shaft, said prong being spaced from said sleeve in a position at which, when the element is swung to a horizontal position and said sleeve is slid towards said member, said prong engages said aperture and said element is held in horizontal position, said element extending vertically downward from said sleeve when said prong is disengaged from said aperture.

3,316,678
APPARATUS FOR ABRADING APERTURED ARTICLES
Emil Jacob Poltorak, Somerville, N.J., assignor to Johns-Manville Corporation, New York, N.Y., a corporation of New York
Filed Dec. 9, 1964, Ser. No. 417,098
13 Claims. (Cl. 51—5)



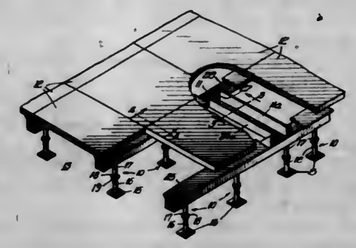
1. Apparatus for abrading apertured articles, comprising:
(a) a mandrel adapted to mount a plurality of said apertured articles in a manner whereby said articles are free to move in an axial direction along said mandrel;
(b) said mandrel defining a series of sharp edges for abrading the inner peripheral area of said articles as they move along said mandrel;
(c) means for imparting a rocking motion to said mandrel in a manner whereby the area of contact between said mandrel and each of said articles is continually changed during the rocking motion.

3,316,679
CENTERLESS GRINDING MACHINE
John A. Wilson, Cranston, R.I., assignor to Wanskuck Company, a corporation of Rhode Island
Filed Sept. 4, 1964, Ser. No. 394,514
4 Claims. (Cl. 51—137)



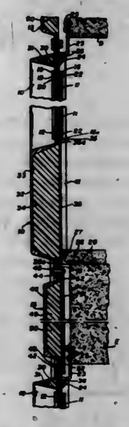
1. A centerless grinder comprising a bed, a pair of ways on said bed, a carriage slidably mounted on said ways, a driven contact wheel journaled in said carriage centrally of said ways, an abrasive belt embracing said contact wheel, a work rest mounted on said bed, a pressure means supported above said bed, said pressure means comprising a driven endless belt also being centrally located transverse of said ways whereby pressure exerted on a workpiece by the pressure means against the cutter is equally resisted by each way.

3,316,680
FLOOR STRUCTURE
Jerome A. Chrastek, 1502 Blanchan, La Grange Park, Ill. 60525; Jerome R. Chrastek, executor of said Jerome A. Chrastek, deceased
Filed Feb. 11, 1964, Ser. No. 343,991
3 Claims. (Cl. 52—126)



1. A structure for fabricating a paneled floor in elevated spaced relation to a supporting surface, which structure comprises a plurality of floor panels, a plurality of vertically adjustable support pedestals adapted to be positioned in a predetermined spaced array on said supporting surface, and a plurality of panel mounting members secured to said arrayed support pedestals so as to provide a structurally stable and uniformly arranged base structure for peripherally supporting said floor panels, each of said panel mounting members including a generally U-shaped housing that defines an elongated channel and a cover that removably mates with said housing so as to fully enclose said channel.

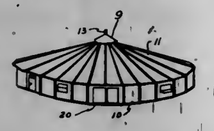
3,316,681
CURTAIN WALL AND METHOD OF ERECTING SAME
George F. Eber, 1400 Pine Ave. W., Apt. 702, Montreal, Quebec, Canada
Filed Apr. 17, 1964, Ser. No. 360,629
Claims priority, application Canada, Apr. 26, 1963, 874,218
6 Claims. (Cl. 52—235)



1. In a curtain wall for buildings having window and spandrel units, a curtain wall window unit, comprising:
(a) a substantially rectangular metal panel which extends between two adjacent floors of a building;
(b) a bracket member connecting the top of said panel to the upper of said adjacent floors, and the bottom of said panel to the lower of said adjacent floors of the building;

(c) said panel being a unitary metal piece which constitutes the exterior facing of the building when the panel is in position;
(d) said panel having a window opening therein bounded by a peripheral beaded flange extending towards said window opening;
(e) an elastomeric structural gasket having a plurality of linearly extending recesses on each side thereof which has one of its exterior recesses fitted on said beaded flange;
(f) a glass window within said window opening which has its peripheral edge extending into one of the interior facing recesses on the structural gasket;
(g) said structural gasket having a sealed continuous internal cavity connected at one point to a valve, whereby said structural gasket can be evacuated prior to installation to reduce its size and to thereby assist in its installation on the panel;
(h) said structural gasket when in position having said internal cavity vented to atmosphere to expand said structural gasket to its normal size to thereby seal and tightly engage both the beaded flange and the glass window;
(i) the portions of said metal panel adjacent the window opening being outwardly bowed to form a hollow cavity;
(j) insulation material packed within said cavity of the panel;
(k) an insulation retaining plate behind the bowed portion of said metal panel below the window opening holding said insulation in position; and
(l) said insulation retaining plate having a peripheral edge thereof disposed in a recess of said structural gasket to hold it in position.

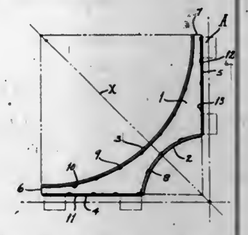
3,316,682
POLYGON BUILDING STRUCTURE
Herbert E. Natalis, 22 Linda Circle, Matawan, N.J. 07747
Filed Mar. 2, 1964, Ser. No. 348,414
2 Claims. (Cl. 52—237)



1. A prefabricated structural panel adapted for use in multiple in a wall structure comprising a unitary quadrangular flat member provided with an upper and lower flanged edge and two partially circular mating edges, formed to interlock with an adjoining edge, a locking pin being smaller in diameter than the diameter of said circular mating edges and fitted with bushings that are of the same diameter as said circular mating edge, said bushings spaced apart on said locking pin and a plurality of apertures formed in said partially circular mating edges and located between said bushings, said locking pin fitted between the interlocking partially circular edges of adjoining members, to form a unitary ring shaped wall.

3,316,683
STRUCTURAL ELEMENT WITH MOUNTING FLANGES
Charles T. Patton, 1549 Martel St., Los Angeles, Calif. 90046
Filed Mar. 25, 1965, Ser. No. 442,644
12 Claims. (Cl. 52—582)

1. For use in a structural system, a structural component comprising a multi-lateral web having first and second curvate sides in concavo-concave relationship, first and second linear sides extending laterally from the ends of said first curvate side in mutually perpendicular relationship, a mounting flange being provided on each of said first and second linear sides for securing said com-



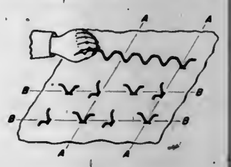
ponent to similar adjacent components to form said structural system, there being linear connecting end sides between the outer ends of said first and second linear sides and the proximate ends of said second curvate side.

3,316,684
PLYWOOD PANEL CONSTRUCTION
Don A. Proudfoot, Cedarwood Drive, Greenwich, Conn. 06830
Filed May 8, 1964, Ser. No. 365,896
4 Claims. (Cl. 52—615)



1. A plywood panel for interior decorative use comprising a plurality of plys including at least a back ply and a facing ply, said facing ply being constituted by edge joined strips of a low grade wood veneer of a strength and appearance unsuited for use as a facing ply and having an outer surface, and strips of material of higher strength characteristics than said low grade wood veneer of said facing ply, said strips of said material being secured to said outer surface of said veneer strips of said facing ply and strengthening said facing ply and improving the appearance thereof to render said low grade wood veneer suitable for use as a facing ply.

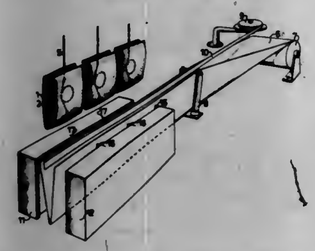
3,316,685
METHOD FOR ANCHORING A CONCRETE TYPE OF COVERING TO A METAL WALL SECTION WITH MULTIPLE ANCHOR STRIP MEANS
Walter C. Hensel, Palatine, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
Filed July 25, 1962, Ser. No. 212,194
3 Claims. (Cl. 52—741)



1. In a method of forming an anchored concrete covering on a metal wall section which comprises, attaching a multiplicity of individual anchor sections shaped as a V or U in a spaced pattern to the surface of the metal wall to be covered, effecting such attachment by successively welding to the wall in said pattern the apex of end anchor sections from a strip of attached anchors separable from each other at notched points spaced between each of such

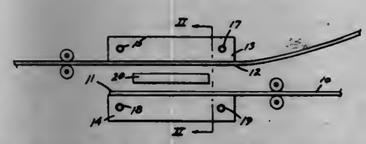
sections and, subsequent to welding each individual end anchor, lifting and breaking away the remaining strip from the welded individual end anchor at the notch next to said welded end anchor whereby to permit the welding of a next resulting end section of said strip to the metal wall section in successive welding operations, and subsequently applying a protective covering material over the spaced anchor sections and said wall section to provide said anchored covering therefor.

3,316,686
METHOD OF MANUFACTURING A PACKAGE
Guy John Olof Welin-Berger, Box 228, Nacka, Sweden
Original application Mar. 16, 1964, Ser. No. 352,210, now Patent No. 3,223,229, dated Dec. 14, 1965. Divided and this application Oct. 12, 1964, Ser. No. 403,233
Claims priority, application Sweden, Mar. 18, 1963, 2,920/63
5 Claims. (Cl. 53—28)



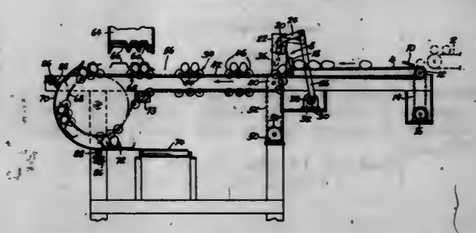
1. A method of manufacturing packages for tea leaves and similar material, comprising the steps of advancing a web of paper, folding the web about a line at least substantially parallel with an edge of the web to form opposite walls, inserting bags each provided with a carrier string successively in a row between said opposite walls, inserting an end of each carrier string between said walls at edges thereof located opposite the fold, and forming an envelope around each bag by pressing portions of said walls together along two lines extending transversely of the fold on either side of each bag and at an edge of the walls parallel with the fold to unite the portions along said lines and to fasten the end of the carrier strings therebetween.

3,316,687
STRAP SECURING METHOD
David Sabin Bartlett, Jr., San Jose, Calif., assignor to FMC Corporation, Philadelphia, Pa., a corporation of Delaware
Filed Feb. 6, 1964, Ser. No. 343,000
1 Claim. (Cl. 53—33)



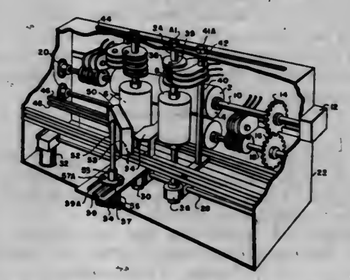
The method of securing a stretch oriented polymeric strap about an article comprising withdrawing the strap from a supply and positioning it about the article so as to provide overlapping but spaced apart end portions one of which is the free end and the other of which extends to the supply, introducing heat between the overlapping end portions by briefly inserting a hot element therebetween but out of contact therewith to soften the facing areas thereof while maintaining the remainder of the end portions in normal condition, pressing the softened areas together with cold devices which extend along the strap beyond the softened areas, maintaining the softened areas under pressure until they fuse to thus secure a length of strap about the package, and severing the secured length from the supply.

3,316,688
PACKING EQUIPMENT
Otto C. Niederer, Bear Tavern Road, and Herbert O. Niederer, Church Road, both of Titusville, N.J. 08560
Filed Jan. 16, 1964, Ser. No. 338,192
9 Claims. (Cl. 53—62)



2. Equipment for packaging eggs comprising a packing conveyor having a plurality of parallel rows of egg holding cavities thereon extending transversely of the conveyor with the number of cavities in each of said rows being the same, egg moving means for directing eggs to the packing conveyor and including a number of channels equal to the number of cavities in each transverse row of cavities on the packing conveyor, an egg control device located between the egg moving means and the packing conveyor and including an egg retarding member positioned in alignment with each of said channels, sensing means associated with each egg retarding member and responsive to the presence of an egg in engagement with the egg retarding member, means controlled by said sensing means and connected to the egg control device for moving said egg retarding members to permit a row of eggs to be transferred from the channels of the egg moving means to a row of cavities in the packing conveyor, and means for advancing the packing conveyor to present another row of cavities to the egg moving means after the deposit of a row of eggs in one of said rows of cavities on the packing conveyor.

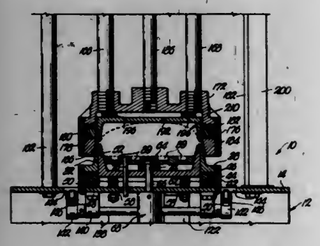
3,316,689
APPARATUS FOR SIMULTANEOUS HEAT SEALING AND HEAT SHRINKING FILM OVERWRAPPED ABOUT AN OBJECT
Thomas E. Waldrop, Greer, John M. Cook, Greenville, and Thomas R. Lazar, Taylors, S.C., assignors to W. R. Grace & Co., Duncan, S.C., a corporation of Connecticut
Filed Sept. 8, 1964, Ser. No. 394,744
19 Claims. (Cl. 53—184)



1. A device for heat sealing and shrinking a film overlapped about a multilateral object comprising, in combination, a series of rollers, the surface of at least one

roller adapted to contact the top, bottom and side plane surfaces of said object, respectively, said series terminating in at least one upright roller, means for feeding said object through said series of rollers successively, a restraining member positioned on the discharge side of said upright roller at a distance substantially that of the length of said object, so that said object will contact both said member and said upright roller simultaneously, means for heating the surface of said rollers and said member, said member cooperating with said upright roller to heat shrink the film on both the anterior and posterior surfaces of said object.

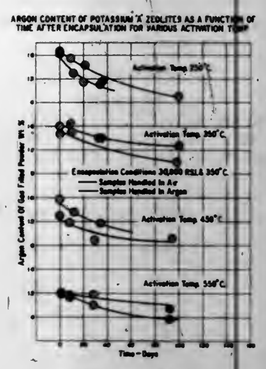
3,316,690
MACHINE FOR SEALING PACKAGES
Melvin J. Straub, Hopkins, Allen L. Hover, and Jerry C. Anderson, Minneapolis, Minn., assignors to Gordon Johnson Company, Kansas City, Mo., a corporation of Missouri
Filed Feb. 13, 1964, Ser. No. 344,773
17 Claims. (Cl. 53—329)



1. A machine for sealing the juxtaposed outwardly projecting, peripheral flanges of a pair of adjacent packaging sections of thermoplastic material and presenting a package for an article between said sections, said machine comprising:
a support;
a pair of normally spaced-apart, relatively shiftable members mounted on said support, one of said members including a heating element and the other of said members including a package-supporting platen;
means shiftably mounted on the support for placing a package onto said platen, the latter having structure for receiving said package placing means in spaced relationship from a package supported by the platen to thereby permit said package placing means to be shifted away from said platen while said package remains thereon; and
means carried by said support for moving a first of said members relative to a second of said members in a direction to place the flanges of the sections of a package in thermal interchange relationship with said heating element when said package is supported on said platen, whereby the flanges may be caused to become fused together and to seal the package at its periphery.

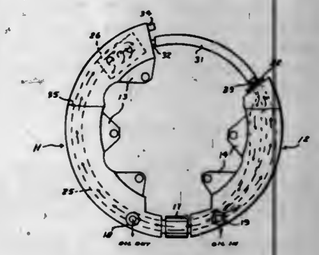
3,316,691
FLUID ENCAPSULATION PRODUCT
Walter J. Sesny, Hammond, Ind., and Lloyd H. Shaffer, Springdale, Conn., assignors to Union Carbide Corporation, a corporation of New York
Continuation of application Ser. No. 156,735, Dec. 4, 1961. This application May 31, 1966, Ser. No. 554,211
2 Claims. (Cl. 55—66)

1. A fluid encapsulate comprising a substantially dehydrated three dimensional crystalline zeolite A in which from about 60 to about 83 percent of the cation content is potassium and the remaining cation content is provided by sodium, said zeolite A having confined in the inner cavities thereof at least one gas selected from the group consisting of argon, krypton and methane, said gas being



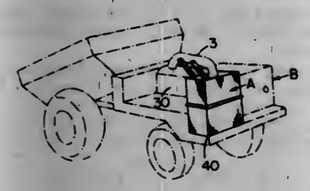
held within the cavities of the zeolite in a state wherein they do not possess sufficient energy to overcome the potential energy barrier posed by the pore openings of the zeolite.

3,316,692
LIQUID STORAGE TANK
Paul R. Hughes, Englewood, and Leroy J. Sabin, Jr., Dayton, Ohio, assignors to United Aircraft Products, Inc., Dayton, Ohio, a corporation of Ohio
Filed Dec. 15, 1965, Ser. No. 513,985
6 Claims. (Cl. 55—204)



1. A liquid reservoir for use in a liquid circulating system returning a liquid-air mixture to said reservoir, said reservoir comprising first and second sections having limited communication with one another at normal bottom portions thereof, a liquid return conduit entering said first section and reaching therethrough into the said second section, deaerator means in said first section, a flow connection from said conduit to said deaerator means bypassing a portion of the returning liquid-air mixture directly into said first section by way of said deaerator means, means for venting the normal upper portions of said sections, and a liquid outlet located in the normal bottom portion of one of said sections, said return conduit entering said first section at the top thereof extending downward herein and interconnecting said sections at their normal bottom portions, said return conduit having an orifice in the wall thereof in the normal upper portion of said first section forming part of said flow connection to said deaerator means.

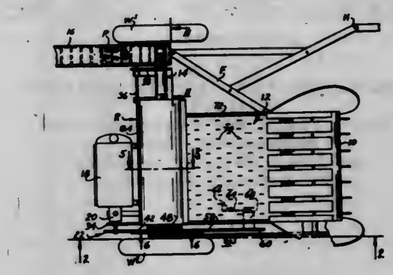
3,316,693
EXHAUST GAS TREATING DEVICE
Robin B. Fermor, Murdochville, Quebec, Canada, assignor to Gaspe Copper Mines Limited, Toronto, Ontario, Canada
Filed June 5, 1963, Ser. No. 285,635
Claims priority, application Canada, Apr. 24, 1963, 873,976
6 Claims. (Cl. 55—248)



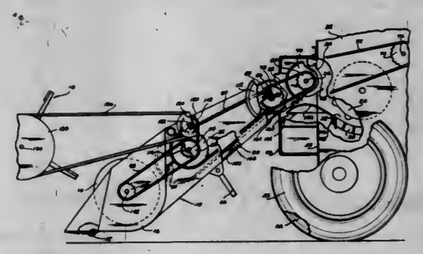
1. A conditioner system for the exhaust gases from a diesel engine or the like comprising:
(a) a housing;
(b) means adapted to introduce gases into the housing;
(c) said means adapted to introduce gases into the housing including a perforated flame tube;
(d) a gas expansion chamber formed around said flame tube comprising an annular casing mounted generally concentrically and longitudinally of said flame tube which permits gases emitted from said flame tube to expand;
(e) a body of gas conditioning liquid in the base of the housing;
(f) conduit means connected to and in communication with said expansion chamber and adapted to receive exhaust gases from said expansion chamber and exhaust them into said liquid;
(g) the lower end of said conduit means being submerged in said conditioning liquid;
(h) outwardly extending vanes of generally helical formation on said conduit means;
(i) said vanes being positioned below the liquid level and in the upwardly flowing path of the gas bubbles exhausted from said conduit means, whereby said gas bubbles impinge upon said vanes causing deviation from their normal upward path, thereby extending the gas-liquid contact within the system;
(j) an exhaust outlet from said housing to the atmosphere for the gas so conditioned including means for guiding the flow to atmosphere of condition gases leaving said liquid;
(k) said guiding means comprising a baffle assembly disposed above the surface of said liquid, including a first set of baffles attached to said annular casing extending out from said casing and terminating short of said housing and a second set of baffles extending out from said housing in overlying relation to said first set of baffles and terminating short of said annular casing.

3,316,694
CROP PELLETER
Howard F. McColly and Joseph Molitorisz, East Lansing, Mich., assignors to Michigan State University
Filed Nov. 8, 1963, Ser. No. 323,198
9 Claims. (Cl. 56—1)

9. In an agricultural machine of the character described comprising a mobile frame adapted to advance over a field of crops such as hay and the like; the combination of a movable gathering and feeding means supported by the frame for collecting the crops from the field, a roller-compressor means supported by the frame and including a plurality of identical substantially parallel rollers, said rollers being arranged to define a core-forming chamber therebetween of an effective diameter at least as small as that of said rollers, means for driving the rollers in the same direction and at the same speed so that the peripheral speeds of adjacent points on the rollers are substantially equal, and cutoff means for cutting into pellets the core defined and expelled from the chamber by the rollers.



3,316,695
AGRICULTURAL IMPLEMENT
Shelly A. Bulin, Davenport, Iowa, assignor to J. I. Case Company, Racine, Wis., a corporation of Wisconsin
Filed Apr. 27, 1964, Ser. No. 362,695
2 Claims. (Cl. 56—21)

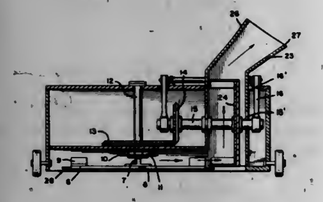


1. A combine including a
thresher housing, a
threshing cylinder journaled for rotation in the housing, a
concave supported in the thresher housing in position to cooperate with said cylinder, to provide a bite to receive crop material between said cylinder and said concave, a
header including a cutter bar, an auger conveyor, a feeder housing, and a feed rake in said housing positioned to propel crop material from said auger conveyor toward said bite and having a driven power input shaft, a power source, means for feeding crop material into said bite comprising an
auxiliary housing fixed to the thresher housing in a position enclosing said bite,
means on said auxiliary housing for attaching said feeder housing to said auxiliary housing in position to feed crop material into said auxiliary housing, a
beater in said auxiliary housing in position to receive crop material from said feed rake and to impel said crop material into said bite, said beater having a driving and driven shaft,
means connected with said power source and with said driving and driven shaft in driving relation thereto, a

sleeve journaled on said driven power input shaft, power transmission means connected to said driving and driven shaft and in driving relation to said sleeve, and

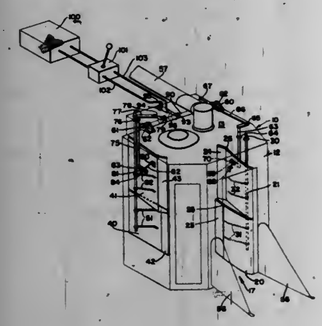
variable ratio driving means connected with said sleeve and in driving relation with said auger conveyor.

3,316,696
COMBINATION LAWN MOWER AND SNOW REMOVER
Pablo V. Florido, 4800 Ravenswood Road, Riverdale, Md. 20840
Filed June 4, 1965, Ser. No. 461,235
5 Claims. (Cl. 56—25.4)



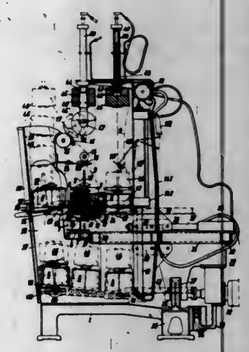
1. An apparatus for cutting grass and removing snow, comprising a housing, a grass-cutting disk carried by said housing, power means for rotating said disk, a hood carried by the housing, a fan within said hood, means for rotating said fan including said power means and a pair of meshing gears driven thereby, and means carried by said housing operable to engage and disengage one of said gears with the other gear whereby the apparatus operates as a grass cutter by action of the cutting disk when the gears are disengaged and as a snow remover by action of the fan when the gears are engaged.

3,316,697
PRESSURE PLATE ASSEMBLY FOR COTTON PICKER TUNNEL
Arthur L. Hubbard, Des Moines, Iowa, assignor to Deere & Company, Moline, Ill., a corporation of Delaware
Filed Mar. 26, 1962, Ser. No. 182,262
8 Claims. (Cl. 56—44)



1. In a housing structure for a cotton harvester having a fore-and-aft extending plant receiving passage, the improvement comprising: upright wall structure adjacent to and defining at least a portion of one side of the passage composed of upper and lower vertically disposed fore-and-aft extending plates; means mounting the plates on the housing structure for lateral movement as respects the passage; means on the housing structure yieldably resisting outward movements of the plates relative to the passage; and power means on the housing structure connected to the upper plate adjustable to effect lateral outward positioning of the latter relative to the lower plate.

3,316,698
METHOD OF AND APPARATUS FOR CONTROLLING BOBBIN CHANGE IN DOUBLE-TWIST MACHINES
Gustav Franzen, Neersen, Germany, assignor, by mesne assignments, to Palitex Project Company G.m.b.H., Krefeld, Germany, a company of Germany
Filed July 15, 1964, Ser. No. 382,830
Claims priority, application Germany, July 15, 1963, N 23,466
15 Claims. (Cl. 57—53)



6. A double twist machine having: means defining at least one preparation station, means defining at least one standby station, means defining at least one insertion station and means defining at least one doubling station at which yarn is wound from a creel bobbin onto doubler bobbin means all of said one stations being generally disposed in a common plane; means for sensing an interruption in the passage of yarn from the creel bobbin to the doubler bobbin at said doubling station; a changer apparatus disposed at said insertion station at least upon the sensation by said sensing means of a yarn interruption and comprising:

(a) means for withdrawing an associated creel bobbin and doubler bobbin means having yarn operatively threaded therebetween from said stand-by station;

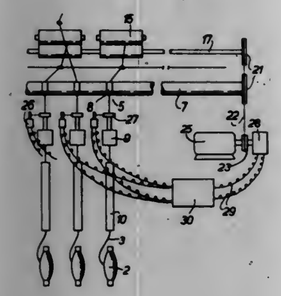
(b) means for disengaging from the doubling station the creel bobbin and doubler bobbin means between which yarn passage has been interrupted;

(c) means for depositing the disengaged creel bobbin and doubler bobbin means at the preparation station; and

(d) means for installing the associated creel bobbin and doubler bobbin means withdrawn from the stand-by station at the doubling station.

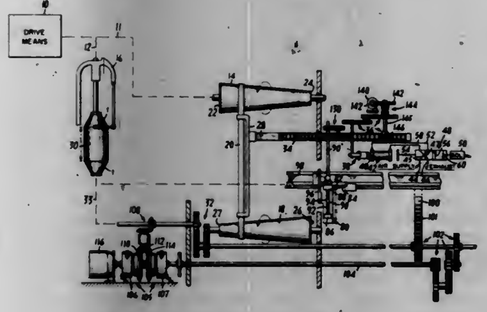
3,316,699
APPARATUS FOR TWISTING YARN
Denis Albert Edward Mattingly, London, England, assignor to The Klinger Manufacturing Company Limited, London, England, a British company
Filed Oct. 6, 1964, Ser. No. 401,851
Claims priority, application Great Britain, Oct. 16, 1963, 40,929/63
5 Claims. (Cl. 57—93)

1. Apparatus for false twisting a plurality of yarns comprising a first feed means for drawing the yarns from supply bobbins, a plurality of false twist devices for twisting the yarn, yarn conditioning or setting means whereby the twist imparted to the yarn prior to the yarn passing through the false twist device is set therein, second feed means for drawing the yarns through said conditioning means and said false twist devices, means for supporting and rotating a plurality of take-up spools on which the false twisted yarn is wound and means for traversing the yarn on to said spools to form packages, a first electrical motor for driving said first and said second feed means and for rotating said spool, a second electrical motor for driving said false twist device and



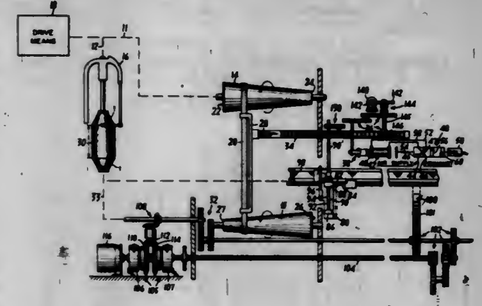
a third electrical motor for driving said traverse mechanism, a generator of electrical current driven by said first electrical motor and a generator of electrical current driven by said second electrical motor, the outputs of said generators being related to their speeds, control means adapted to automatically maintain the speeds of said first and said second electrical motors in a predetermined desired relationship, said control means being responsive to variations in the outputs of said generators of electrical current.

3,316,700
BUILDER MOTION FOR ROVING FRAME
Ronald C. Mason, North Uxbridge, and William B. Strzelewicz, Jr., Webster, Mass., assignors, by mesne assignments, to Whitin Machine Works, Inc., Whitinsville, Mass., a corporation of Massachusetts
Filed Nov. 9, 1964, Ser. No. 409,669
12 Claims. (Cl. 57—98)



1. In a frame for paying off a filamentary material from a feed mechanism and winding the material onto a bobbin to form a package of the material on the bobbin, the improvement comprising drive means for establishing a relative rotation of the feed mechanism and bobbin with respect to each other and a relative traverse of the feed mechanism and bobbin with respect to each other longitudinally of the axis of rotation of the bobbin, the drive means including a pair of counterrotating clutch means and rotatable shaft means alternately engageable by the clutch means, and control means for (1) alternately energizing the clutch means to cause said relative traverse alternately to assume first and second directions opposite to each other and (2) limiting at least one of (a) the rotational velocity, (b) the traverse velocity, and (c) the traverse length to values w, v, and l, respectively, the control means comprising a pneumatic piston-cylinder assembly, means for actuating the piston-cylinder assembly at intervals to produce an output, and means coupling the output to the drive means to alter at least one value limited by the control means.

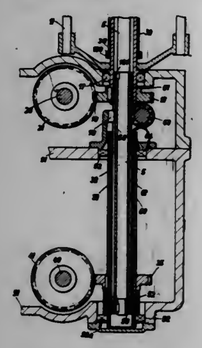
3,316,701
WINDING APPARATUS WITH ELECTRIC CONTROL CIRCUIT
Ronald C. Mason, North Uxbridge, William B. Strzelewicz, Jr., Webster, and Frederick A. Willis, Jr., Whitinsville, Mass., assignors, by mesne assignments, to Whitin Machine Works, Inc., Whitinsville, Mass., a corporation of Massachusetts
Filed Nov. 9, 1964, Ser. No. 409,916
3 Claims. (Cl. 57—98)



1. In a frame for paying off a filamentary material from a feed mechanism and winding the material onto a bobbin, the improvement comprising drive means for establishing a relative rotation of the feed mechanism and bobbin with respect to each other and a relative traverse of the feed mechanism and bobbin with respect to each other longitudinally of the axis of rotation of the bobbin and control means for limiting the traverse length to a value 1, the control means including (a) first and second contact means spaced apart from each other a distance x of which the value 1 is a function (b) third contact means adapted to engage alternately the first and second contact means at opposite ends of the traverse, (c) first and second relay coils, the first relay coil being energized by engagement of the first and third contact means and the second relay coil being energized by engagement of the second and third contact means, (d) first, second, third, and fourth pairs of contacts governed by the first and second coils, and (e) a control relay coil, the first pair of contacts being adapted alternately to occupy first and second states and being caused to occupy the first state on energization of the first coil and the second state on energization of the second coil, the second pair of contacts being adapted alternately to

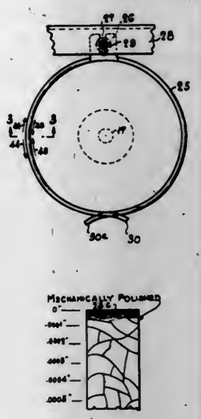
occupy third and fourth states and being caused to occupy the third state on energization of the first coil and the fourth state on energization of the second coil, the third pair of contacts being adapted alternately to occupy fifth and sixth states and being caused to occupy the fifth state on energization of the first coil and the sixth state on energization of the second coil, and the fourth pair of contacts being adapted alternately to occupy seventh and eighth states and being caused to occupy the seventh state on energization of the first coil and the eighth state on energization of the second coil, and the first, second, third, and fourth pairs of contacts being prevented from changing states when both the first coil and the second coil are de-energized, the first pair of contacts in its first state facilitating traverse movement in a first direction, the second pair of contacts in its fourth state facilitating traverse movement in a second direction opposite the first direction, the third pair of contacts in its fifth state facilitating energization of the control relay coil, and the fourth pair of contacts in its eighth state facilitating energization of the control relay coil, and a fifth pair of contacts adapted alternately to occupy ninth and tenth states and being caused to occupy the ninth state on energization of the control relay coil and the tenth state on de-energization of the control relay coil, one of the ninth and tenth states facilitating altering of the distance x and hence the value 1.

3,316,702
ROVING FRAME
Willi Pfeifer, Eislingen (Fils), Germany, assignor to Zinser Textilmaschinen G.m.b.H., Ebersbach (Fils), Germany
Filed July 13, 1964, Ser. No. 381,965
Claims priority, application Germany, July 22, 1963, Z 10,246
5 Claims. (Cl. 57—99)



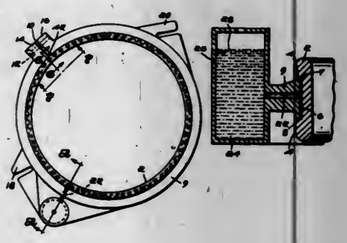
1. In a speed frame: frame means, a radially outermost tube forming rotary sleeve rotatably but axially non-displaceably journalled in said frame means, driving means arranged outside of and drivingly connected to said rotary sleeve for rotating the same, a radially inner tube located radially next to said outermost tube and forming a lifter sleeve extending into said rotary sleeve, said lifter sleeve being axially displaceable relative to said frame means and to said rotary sleeve, actuating means operatively connected to said lifter sleeve for axially reciprocating the same, and a bobbin carrier forming a radially innermost member in said lifter sleeve and being rotatably but axially non-displaceably journalled in said lifter sleeve and connected thereto so as to be axially displaceable together with said lifter sleeve, said bobbin carrier being rotatably connected to said rotary sleeve and being axially displaceable relative thereto.

3,316,703
BALLOON CONTROL RING
Henry R. McKelvie, Kings Mountain, N.C. (P.O. Box 861, Gastonia, N.C. 28052)
Filed Apr. 21, 1964, Ser. No. 361,335
5 Claims. (Cl. 57—106)



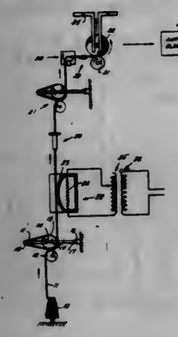
1. A balloon control ring for controlling ballooning of textile strands comprised essentially of electro-polished spring wire, said ring having a concave wearing surface and wherein the particles forming said surface are subjected to compressive stress below the elastic limit thereof.

3,316,704
GROOVED HOLDER FOR SPINNING RING
Andrew J. Wayson, Needham, Mass., assignor to Merriman Inc., a corporation of Massachusetts
Filed Oct. 22, 1965, Ser. No. 500,523
2 Claims. (Cl. 57—120)



1. The combination of a spinning ring made of porous metal and a ring holder of the split type, said spinning ring having a circumferential groove extending thereabout and presenting a smooth circular surface at the interior of said groove, the interior portion of said holder dimensioned to fit closely within said groove, said holder on its interior vertical face having a plurality of inwardly directed circumferentially extending teeth having terminal apexes of small vertical dimension, said teeth, when the ring is clamped in position within said holder, engaging the said circular surface of the said ring groove along a plurality of substantially line contacts, thereby to present a plurality of circumferential passages through which oil may flow to engage substantially the entire circular surface of the said ring groove, means for supplying oil to the said passages and means for preventing leakage of oil at the split in said holder.

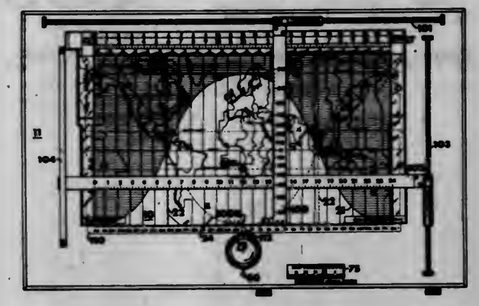
3,316,705
PRODUCTION OF ARTIFICIAL YARNS
Mario Nava, Macclesfield, England, assignor to Ernest Scragg & Sons Limited, and Chesilene & Crepes Limited, both of Macclesfield, England
Continuation of application Ser. No. 313,392, Oct. 2, 1963. This application May 31, 1966, Ser. No. 554,209
Claims priority, application Great Britain, May 13, 1958, 15,240/58
26 Claims. (Cl. 57—157)



1. In a process for producing a yarn which is only contractile to the extent of substantially less than 50% and which is almost as highly bulked as fully twist crimped yarn, the steps of false twisting a thermoplastic yarn while only partially setting the yarn by maintaining during said false twisting a relatively low temperature below the melting point of said thermoplastic yarn so as to obtain a partially set false twist crimped yarn which has a high contractability exceeding 50%; delivering said partially set false twisted yarn having high contractability after said false twist crimping at a predetermined speed; collecting said partially set false twist crimped yarn having high contractability delivered at said predetermined speed on a take-up package at a speed which is less than said delivery speed so that the tension of said partially set twist crimped yarn having high contractability is reduced, but which speed is still great enough to retain substantial tension in said thus only partially tensioned partially set false twist crimped yarn having high contractability when the same reaches said take-up package, so that said partially tensioned partially set false twist crimped yarn of high contractability is wound up on said take-up package still under substantial tension; and finally subjecting said partially tensioned partially set false twist crimped yarn having high contractability while it is wound up under said substantial tension on said take-up package for a given period of time to a setting fluid which completes the setting of said partially tensioned partially set false twist crimped yarn, thus obtaining a relaxed false twist crimped yarn which has only a low contractability of substantially less than 50%, has substantial dimensional stability and is substantially of the non-torque type while being almost as highly bulked as fully twist crimped yarn.

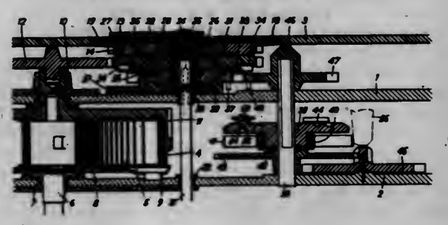
3,316,706
HOROLOGICAL INSTRUMENT FOR GRAPHICALLY REPRESENTING THE RELATIVE POSITIONS OF SUN AND EARTH
James Kilburg, San Carlos, Calif., assignor to Kilburg Geochron Corporation, San Carlos, Calif., a corporation of California
Filed Apr. 27, 1964, Ser. No. 362,670
21 Claims. (Cl. 58—3)

1. An instrument of the kind described comprising a rectilinearly movable cartographic representation of earth surface, means moving constantly and continuously to delineate and visibly distinguish thereon the areas thereof experiencing day and night, and means to cause rectilinear movement of said cartographic representation



relative to said delineating means to visibly represent the changing position of day resulting from earth rotation.

3,316,707
WATCH MOVEMENT WITH RINGING MECHANISM
Jean-Claude Schneider, La Chaux-de-Fonds, Switzerland, assignor to Fabrique d'Horlogerie Chs. Tissot et Fils S.A., Le Locle, Switzerland, a company limited by shares of Switzerland
Filed July 14, 1965, Ser. No. 471,833
Claims priority, application Switzerland, Aug. 7, 1964, 10,349/64
13 Claims. (Cl. 58—21.12)

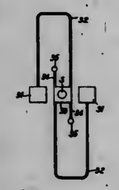


1. In an alarm clock having a clock movement, alarm means including an alarm spring and a winding wheel for energizing and releasing the alarm spring, a releasing device for initiating two alarm periods spaced by an interval of time, the releasing device including a first rotatable releasing member operatively connected to the clock movement to be rotated in one direction by the clock movement, said first releasing member being engageable and disengageable with said winding wheel for respectively preventing movement of the winding wheel and for releasing the winding wheel for initiating a first alarm period, a second rotatable releasing member operatively connected to the clock movement to be rotated by the clock movement, said second releasing member also being engageable and disengageable with the winding wheel for respectively preventing movement of the winding wheel and for releasing the winding wheel for initiating a second alarm period, said first and second releasing members being rotatably adjustable relative to each other to vary the time interval between the alarm periods respectively initiated thereby.

3,316,708
MECHANICAL RESONATOR FOR NORMAL FREQUENCY OSCILLATORS IN TIME MEASURING DEVICE

Heinz Waldburger, Neuchatel, Switzerland, assignor to Centre Electronique Horloger, Neuchatel, Switzerland, a corporation of Switzerland

Filed July 26, 1965, Ser. No. 474,802
Claims priority, application Switzerland, July 31, 1964, 10,061/64
5 Claims. (Cl. 58—23)

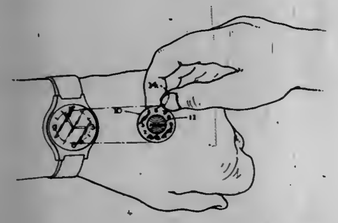


1. Mechanical resonator for a standard frequency oscillator in a time measuring device, said resonator comprising two substantially U-shaped spring vibrators, two masses, means for securing the resonator in the time measuring device, elastic holders, each spring vibrator having a free end carrying one of said masses, the other ends of said spring vibrators being connected so that together the U-shaped springs form the general shape of an "S," said holders connecting elastically the middle of said "S" to said securing means, and all parts of the resonator being arranged and shaped dynamically centrally symmetrically in relation to the center of gravity of the resonator.

3,316,709
TRANSPARENT DIAL

Harrison F. Edwards, 266 Bedford Road, Pleasantville, N.Y. 10570

Filed Oct. 19, 1964, Ser. No. 404,676
5 Claims. (Cl. 58—42)

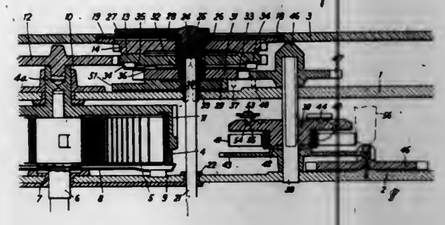


1. A transparent numerical time compensator provided with an adhesive substance on the lower surface thereof for attachment to the exterior surface of a crystal of a timepiece which includes at least hour and minute hands and a first clock dial having serially arranged thereon the numerals 1 through 12 and in which the numeral 12 is at the top of the dial and the numeral 6 is positioned in vertical alignment therewith therebeneath at the bottom of the dial, the improvement comprising a simulated second clock dial face constructed of a thin flexible transparent material having upper and lower surfaces, an adhesive on the lower surface, numerically arranged indicia legible when viewed from the upper surface, said indicia being serially arranged from 1 through 12 and so arranged on the simulated clock dial face to cover the underlying numerals of the first clock dial thereby permitting application of the transparent membrane-like element to the exterior of the clock crystal to adapt the timepiece for desired time zone changes without movement of the hour and minute hands of said timepiece.

3,316,710
WATCH MOVEMENT WITH RINGING MECHANISM

Jean-Claude Schneider, La Chaux-de-Fonds, Switzerland, assignor to Fabrique d'Horlogerie Chs. Tissot et Fils S.A., Le Locle, Switzerland, a company limited by shares of Switzerland

Filed July 14, 1965, Ser. No. 471,822
Claims priority, application Switzerland, Aug. 7, 1964, 10,348/64
7 Claims. (Cl. 58—57.5)



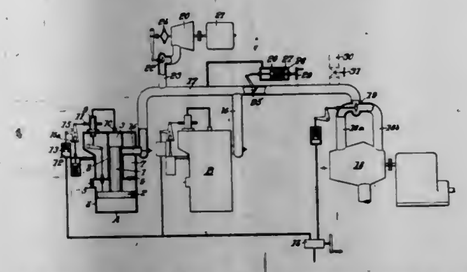
1. In a clock movement, the combination comprising an adjustable mechanical ringing mechanism, means for releasing the ringing mechanism to allow ringing, a motor spring, a gear train driven by said motor spring, hours and minutes indicating members driven by said motor spring through said gear train, an alarm spring operatively connected to said ringing mechanism to mechanically drive the ringing mechanism when the latter is released by said release means and a winding wheel operatively connected to said alarm spring for winding said alarm spring, said winding wheel being in meshing engagement with one of the gears of said train whereby the winding wheel is rotatable by said one gear to energize said alarm spring for actuating the ringing mechanism, the prime energy source for the alarm spring being provided by said motor spring acting through said gear train.

3,316,711
POWER PLANTS COMPRISING AT LEAST ONE MAIN GAS-ENGINE DRIVEN BY POWER GAS SUPPLIED BY A GAS-GENERATOR AND AT LEAST ONE AUXILIARY ENGINE

Robert Huber, Bellevue, France, assignor to Societe d'Etudes et de Participations Eau, Gaz, Electricite, Energie, S.A., Geneva, Switzerland, a society of Switzerland

Filed Apr. 18, 1958, Ser. No. 729,312
Claims priority, application France, Apr. 30, 1957, 737,576
The portion of the term of the patent subsequent to May 1, 1978, has been disclaimed
6 Claims. (Cl. 60—13)

1. A power plant comprising a gas-generator adapted to produce power gases under pressure, a main gas-engine to which power gases are supplied by said gas-generator; a main gas conduit to convey power gases from said gas-generator to said main engine; an auxiliary gas-engine; an auxiliary feed conduit extending between said gas-generator and said auxiliary gas-engine in shunt with said main gas conduit; the respective shafts of said auxiliary engine and said main engine being wholly independent of each other; the gas inlet of each of said gas-engines being wholly independent of the gas outlet of the other gas-engine, and valve means in said main gas conduit and said auxiliary conduit for controlling the distribution of the gaseous stream from said gas-generator to said two gas-engines respectively, said valve means being responsive at least to variations of the pressure in said main gas conduit upstream of said valve means for closing

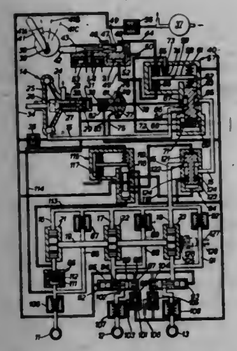


at least partly the flow of said gaseous stream to said main gas-engine when the power gas pressure to be provided at the intake of said main gas-engine becomes lower than a given value.

3,316,712
FUEL SUPPLY SYSTEM FOR JET PROPULSION ENGINES

Stanley R. Tyler, Cheltenham, England, assignor to Dowty Fuel Systems Limited

Filed Oct. 14, 1965, Ser. No. 495,802
Claims priority, application Great Britain, Oct. 20, 1964, 42,762/64
7 Claims. (Cl. 60—39.28)

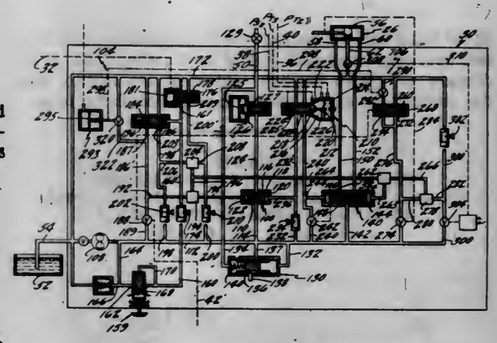


1. A fuel supply system for at least two sets of burners in a jet propulsion engine, a flow-control member and flow-control means operable thereby over a range of movement of the flow-control member to vary fuel flow from a source to a delivery conduit, a branch conduit connecting the delivery conduit to each set of burners, a rotary positive fluid-displacement device interposed in each branch conduit, all such fluid displacement devices having interconnecting drive means to ensure rotation of said devices in unison, valve means including an openable and closable shut-off valve disposed in the branch conduit which is connected to a set of burners subsequent to a first set of said sets of burners, and valve-control means adapted for operation by said flow control member and acting on said valve means, when the flow-control member is moved through an intermediate position in its range of movement in the flow-increasing sense, to open the shut-off valve and, when the flow-control member is moved through said intermediate position in the flow-decreasing sense, to close the shut-off valve, the fluid-displacement devices maintaining a fixed proportionality in the fuel flows to the respective sets of burners in use when the shut-off valve is open.

3,316,713
CLOSED-LOOP FUEL CONTROL FOR GAS TURBINE ENGINES

Louis A. Urban, Granby, Conn., assignor to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware

Filed Dec. 27, 1965, Ser. No. 516,235
10 Claims. (Cl. 60—39.28)



1. For a turbine type of powerplant having a compressor, a heat source and a turbine driven by the exhaust gases of the heat source for driving the compressor, a closed-loop fuel control having metering means for delivering fuel to the heat source, means for establishing a first signal commensurate with a desired ratio of pressure rise across the compressor and velocity head at the exit end of the compressor or a desired ratio of pressure rise across the compressor and the heat source pressure loss and means responsive to the actual ratio of the pressure rise across the compressor and velocity head at the exit end of the compressor or the actual ratio of pressure rise across the compressor and the heat source pressure loss for generating a second signal and control means responsive to said first signal and said second signal for producing a resultant signal for controlling said metering means.

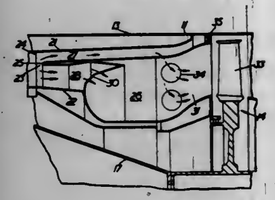
3,316,714
GAS TURBINE ENGINE COMBUSTION EQUIPMENT

Stanley Frank Smith, Duffield, and Paul Alfred Taylor, Derby, England, assignors to Rolls-Royce Limited, Derby, England, a company of Great Britain

Filed May 28, 1964, Ser. No. 370,938
Claims priority, application Great Britain, June 20, 1963, 24,673/63
8 Claims. (Cl. 60—39.65)

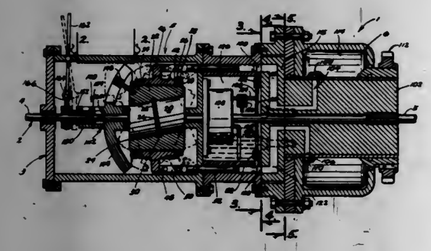
1. A gas turbine engine combustion chamber comprising an outer casing, a flame tube mounted within the outer casing and spaced therefrom and having a downstream and an upstream end in use thereof, an axially extending dilution air duct which is adapted to be supplied with dilution air, and which extends alongside the flame tube, an axially extending primary combustion air duct for delivering primary combustion air to the upstream end of the flame tube, a plurality of angularly spaced apart nozzle guide vanes having aerofoil surfaces which are mounted within and extend radially completely across the flame tube, a passage within each nozzle guide vane, each said passage communicating with the dilution

air duct, and at least one aperture in a said aerofoil surface of each nozzle guide vane, said at least one aperture communicating with the said passage and with the interior



of the flame tube upstream of the downstream end thereof, said apertures being such that at least a major part of the dilution air passes through said apertures to mix with the combustion gases flowing through the flame tube.

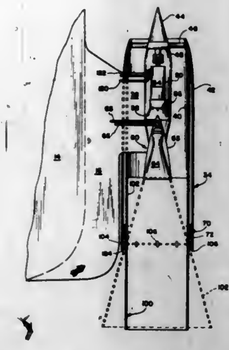
3,316,715
VARIABLE SPEED TRANSMISSION
Douglas F. McFarland, Davis City, Iowa. 50065
Filed May 11, 1966, Ser. No. 549,231
12 Claims. (Cl. 60—53)



1. A transmission having a drive shaft with input and output ends,
- a hydraulic motor having input and output openings, and input and output drive members, said input drive member being connected to and driven by said output end of said shaft,
- a pair of reciprocating power pistons,
- means limiting rotational movement of said pistons about the axis of rotation of said shaft,
- adjustable means for connecting said pistons to said input end of said drive shaft for reciprocating said pistons, said pistons being 180 degrees out of phase with each other when being operated, and
- a manifold mounted on and rotatable with said output end of said drive shaft, said manifold having inlet and outlet openings adapted to alternately communicate with said power pistons, and said inlet and outlet openings being in communication with said input and output openings respectively of said motor.

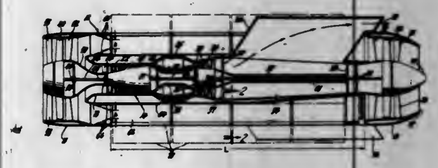
3,316,716
COMPOSITE POWERPLANT AND SHROUD THEREFOR
William J. D. Escher, Los Angeles, Calif., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed July 1, 1964, Ser. No. 379,768
6 Claims. (Cl. 60—225)

1. In a vehicle propulsion system the combination comprising: a fan engine; a rocket motor located aft of said engine; and shroud means for forming an exhaust duct for said engine when a first position and a high expansion ratio nozzle for said motor when in a second position



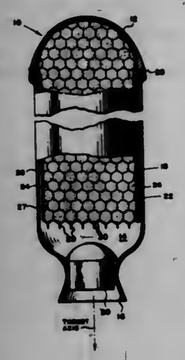
preventing operation of said engine whereby the vehicle may be propelled in environments of variable air density.

3,316,717
DUAL FAN ENGINE
William S. Castle, Speedway, and Henry M. Mar and Douglas K. Thompson, Indianapolis, Ind., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Sept. 15, 1965, Ser. No. 487,369
5 Claims. (Cl. 60—226)



1. In a variable ducted fan gas turbine engine or the like, the combination comprising:
- an elongated cylindrical duct,
- a gas turbine power unit mounted within said duct, said gas turbine power unit being shorter than said duct so that the inlet and exhaust of said power unit are spaced axially inwardly from the ends of said duct,
- an annular bypass passage defined by said duct and the outer casing of said power unit,
- variable area means in the inlet of said bypass passage,
- exhaust passage means extending from the exhaust of said gas turbine power unit to the outside of said duct through said bypass passage,
- a first fan rotatably mounted in said duct ahead of the inlet of said gas turbine power unit whereby the discharge of said fan is divided between said inlet and said bypass passage,
- a second fan rotatably mounted in said duct aft of said power unit,
- means to drivingly couple said fans to said power unit, and
- a plurality of pivotally mounted closures in the portion of said duct defining said bypass passage and downstream from said variable area means, said closures being movable between an open and closed position to vary the bypass ratio of said engine, said closure means in their open position providing communication from said bypass passage to the atmosphere through said duct.

3,316,718
HONEYCOMB STRUCTURED PROPELLANT FOR ROCKET MOTORS
Wells A. Webb, Redlands, Calif., assignor to Lockheed Aircraft Corporation, Los Angeles, Calif.
Filed Jan. 13, 1965, Ser. No. 425,354
11 Claims. (Cl. 60—255)



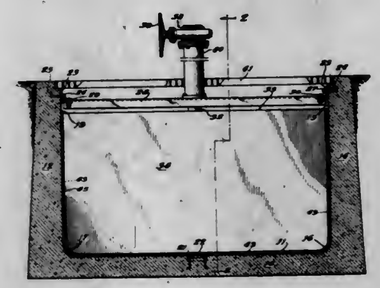
1. A rocket motor comprising: a combustion chamber; an end-burning solid propellant grain in said chamber; a cellular structure in the form of a honeycomb for supporting and reinforcing the grain, said structure being so disposed in the grain that the cell axes are perpendicular to the general direction of burning of said grain.

3,316,719
EXPANSIBLE ROCKET ENGINES
Joseph F. Loprete, Wayne, N.J., assignor to Curtiss-Wright Corporation, a corporation of Delaware
Filed Mar. 11, 1965, Ser. No. 438,943
5 Claims. (Cl. 60—256)



1. A concatenated series of individual reaction engines, comprising in combination a flexible tape member having a plurality of said engines longitudinally distributed thereon, each of said engines comprising a charge-carrier of generally plate-like form having one flat side and one side curved on a circular arc, a generally tubular member extending from said flat side substantially normal thereto and having a converging-diverging exhaust nozzle aperture therethrough having an orifice in said curved side, a charge of propellant material disposed on said flat side surrounding said tubular member, a flange propagating charge disposed on the surface of said propellant charge and having a lower ignition temperature than said propellant charge, electrical resistance means disposed in contact with said flame propagating charge, an expansible elastomeric housing encasing said carrier and said charges and bonded to said tape on the side adjacent to said curved side of said carrier, said tape and said housing being apertured generally coaxially with said nozzle orifice for discharge of gas therethrough during combustion, and a pair of electrodes having contact surfaces substantially flush with the surface of said tape and extending into said engine and being electrically connected to said resistance means.

3,316,720
CHANNEL VALVE
William J. Woolley, Oak Park, Ill., assignor to Henry Pratt Company, a corporation of Illinois
Filed Sept. 8, 1964, Ser. No. 394,841
9 Claims. (Cl. 61—24)

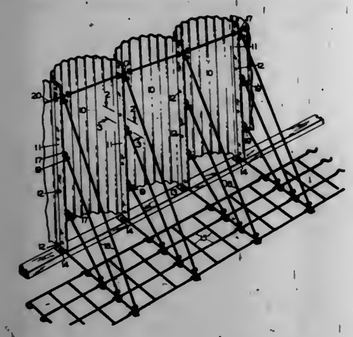


1. A valve for controlling liquid flow in an upwardly open channel having a bottom wall surface and spaced upwardly extending side wall surfaces for directing flow along the channel, comprising:
- a gate member having bottom and side peripheries similar in shape to the cross-sectional shape of the channel surfaces confining the liquid flow, said gate member being of a size to span the channel with the channel wall surfaces spaced slightly outwardly of the gate member peripheries,
- a pivot member secured in the bottom wall generally midway of the channel,
- and a cross member spanning the channel between the side walls above liquid level and carrying an upper pivot member,
- said gate being mounted on said pivot members, said gate being swingable on said pivots between positions crosswise of the channel and aligned longitudinally of the channel,
- and an imperforate inflatable seal member extending over said peripheries of the gate member opposite said liquid confining surfaces of the channel, said seal having means for receiving an inflating fluid and having an expandable section for outward extension from the gate into sealing contact with the bottom and side walls of the channel.

3,316,721
TENSIONED RETAINING WALL FOR EMBANKMENT
George E. Heilig, 1323 SW. Dolph St., Portland, Oreg. 97219
Filed July 6, 1964, Ser. No. 380,369
1 Claim. (Cl. 61—39)

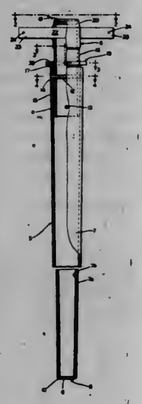
A tensioned retaining wall for an embankment, said wall consisting of a series of similar panels of flexible sheet material of identical width secured only along their side edges, upright holding members for said panels located on the inside of the wall, the side edges of adjacent panels secured in said holding members, said holding members being parallel and spaced the same distance apart, the spacing between said holding members being such as to hold said panels in outwardly bowed and substantially semi-cylindrical shape, a ground member extending along in said wall, the bottom ends of said holding members connected to and held properly spaced apart

by said ground member, wall tensioning means extending along the inner side of the upper portion of said wall, the upper portion of said holding members connected to and held properly spaced apart by said tensioning means, whereby said holding members will be kept parallel to each other and said panels maintained flexibly in outward-



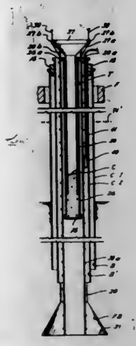
ly bowed position by said holding members, and anchoring means extending into the ground on the inner side of said wall and connected with said holding members for retaining said holding members in upright position, whereby outward pressure on the wall by the embankment will result in thrust loads being directed against said panels in various directions.

3,316,722
PILE DRIVING MANDREL CONSTRUCTION AND METHOD
Harry de R. Gibbons and George D. Rausch, North Canton, Ohio, assignors to The Union Metal Manufacturing Company, Canton, Ohio, a corporation of Ohio
Filed Sept. 22, 1964, Ser. No. 398,291
11 Claims. (Cl. 61—53.7)



10. Pile shell driving mandrel construction, including a substantially rigid longitudinally continuous mandrel member having a head provided with upper and lower ends and a tapered shell-contacting portion connected with the lower end of the head, floating shell-contacting driving ring means surrounding the head between the upper and lower ends of the head, and means mounting the ring means on the head for axial movement relative to the head above the tapered portion and below the upper end of the head.

3,316,723
METHOD AND APPARATUS FOR FORMING FOUNDATION MEMBERS
Myles H. Schutte, 4655 Telephone Road, Houston, Tex. 77017
Filed Nov. 2, 1964, Ser. No. 408,309
6 Claims. (Cl. 61—53.64)



1. A method of forming foundation members, comprising the steps of:
(a) drilling a substantially vertical hole in the ground for a foundation member,
(b) disposing an inner casing and an outer casing in the hole with an annular space therebetween for substantially the full length of the casings,
(c) pouring concrete into the inner casing to substantially fill same to a predetermined level,
(d) thereafter promptly pouring sand into the annular space to partially fill same,
(e) pulling the inner casing upwardly prior to the hardening of the concrete to remove it from the hole while gradually adding sand in the annular space to maintain the level of the sand in the annular space above the lower end of the inner casing and
(f) thereafter pulling the outer casing upwardly after the concrete has hardened to remove such outer casing from the hole.

3,316,724
CONCRETE PILE JOINT AND METHOD OF ASSEMBLY
Yoshiro Tsuzuki, 76 Suehiro-cho, Numazu, Shizuoka Prefecture, Japan
Filed Jan. 13, 1964, Ser. No. 337,366
Claims priority, application Japan, Jan. 16, 1963, 38/1,935
5 Claims. (Cl. 61—56)

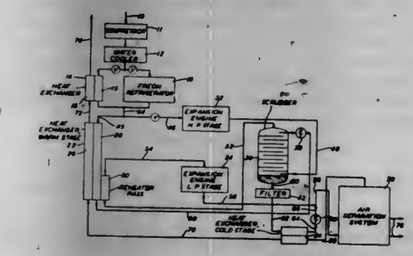
1. A connecting apparatus for solid cross shape concrete pile, which includes iron cross shape joint fittings for an upper solid cross shape concrete pile and iron cross shape joint fittings for a lower solid cross shape concrete pile, said joint fittings being dimensioned such that the former joint fittings may closely be fitted into the latter joint fittings, the cross shape joint fittings for the upper pile and the cross shape joint fittings for the lower pile being respectively used for the bottom end of the upper pile and the head of the lower pile; at least one set of crossed reinforcing bars having free bent ends are positioned inside of the said joint fittings, each free

bent end of the said reinforcing bars being respectively welded to the corresponding inside face of the joint fittings; and connecting reinforcing bars, which are at their



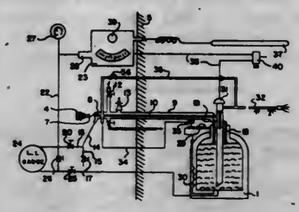
front ends welded to the inside faces of the joint fittings, each rear portion of the said connecting reinforcing bars being extended rearwardly from the cross shape joint fittings.

3,316,725
REFRIGERATING AND CONDITIONING OF A PROCESS STREAM IN A CRYOGENIC PROCESS
Wolcott Dennis, Basking Ridge, N.J., assignor to Air Reduction Company, Incorporated, New York, N.Y., a corporation of New York
Filed May 20, 1964, Ser. No. 368,802
9 Claims. (Cl. 62—14)



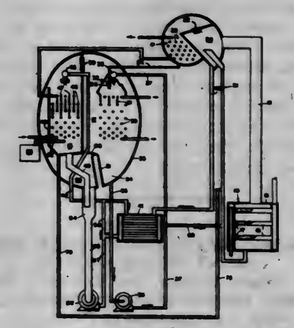
1. In an input stream conditioning and refrigerating system for a cryogenic process, in combination, a warm stage counter-current heat exchanger, a cold stage counter-current heat exchanger, said heat exchangers each having a warm end and a cold end and each serving to transfer heat from a respective incoming relatively warm stream to a relatively cold stream of material derived from said cryogenic process, a high pressure engine expansion means, a low pressure engine expansion means, said engine expansion means each serving to work-expand a respective incoming relatively high pressure stream, means to divide the first mentioned input stream into first and second portions, means to conduct said first portion to the warm end of said warm stage heat exchanger, means to conduct said second portion to the input side of said high pressure engine expansion means, a vapor-liquid contacting and separating device, means to conduct the said first portion of the input stream from the cold end of said warm stage heat exchanger to said liquid-vapor device, means to conduct the said second portion of the input stream from the output side of said high pressure engine expansion means to said vapor-liquid device, means to conduct vapor from said vapor-liquid device to the input side of said low pressure engine expansion means, means to conduct liquid from said vapor-liquid device to the warm end of said cold stage heat exchanger, means to combine the output from the cold end of said cold stage heat exchanger with the output from the said low pressure engine expansion means, and means to conduct the so-combined material to the input of the cryogenic process.

3,316,726
REFRIGERATION SYSTEM
Richard S. Paulukonis, Cleveland, Ohio, assignor to Ryan Industries, Inc., Cleveland, Ohio, a corporation of Ohio
Filed Sept. 9, 1965, Ser. No. 486,103
13 Claims. (Cl. 62—55)



1. In a system for cooling the insulated cargo space of a refrigeration transport vehicle by evaporation of liquefied gas, a control box external to the insulated cargo space, a liquefied gas container, spray line means in the cargo space, a fluid network partly in said control box and partly in the insulated cargo space, said network including valves and lines for filling said container and venting it during filling and for controllably supplying fluid to said spray line means, said network including coaxial conduit means communicating between the container and the externally located control box, said coaxial conduit means including both filling line means and venting line means.

3,316,727
ABSORPTION REFRIGERATION SYSTEMS
Joseph R. Bourne, De Witt, N.Y., assignor to Carrier Corporation, Syracuse, N.Y., a corporation of Delaware
Filed June 29, 1964, Ser. No. 378,655
9 Claims. (Cl. 62—101)



5. A method of absorbing refrigerant vapor into an absorbent solution in an absorption refrigeration machine, said machine including an absorber tube bundle which comprises a plurality of heat exchange tubes disposed in a plurality of staggered rows, said heat exchange tubes being arranged in a plurality of vertically aligned horizontally parallel rows, at least some of said rows being

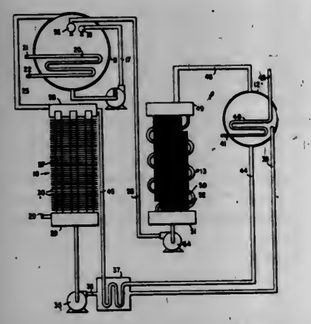
spaced apart by a progressively diminishing distance from one region of said tube bundle toward another region thereof, which comprises the steps of:

wetting the exterior surfaces of said plurality of spaced heat exchange tubes by discharging an absorbent solution onto the exterior surfaces of said tubes;

cooling the absorbent solution on the exterior surfaces of said heat exchange tubes by passing a cooling medium through the interior of said heat exchange tubes; and

passing said vapor through progressively more restricted spaces between said heat exchange tubes from said one region of said tube bundle to said other region thereof, while simultaneously reducing the quantity of said vapor passing through said tube bundle from said one region to said other region thereof by absorbing vapor into the cooled absorbent solution on the exterior surfaces of said heat exchange tubes.

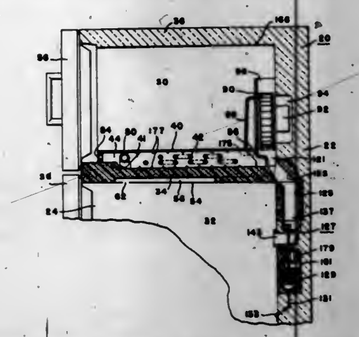
3,316,728
ABSORPTION REFRIGERATION SYSTEMS
Wendell J. Biermann, 45 Foxcraft Drive, Fayetteville, N.Y. 13066
Filed Dec. 23, 1965, Ser. No. 515,928
15 Claims. (Cl. 62—112)



1. An absorption refrigeration system comprising an evaporator, an absorber, a generator, and a condenser connected to provide refrigeration; said system including a refrigerant, and an absorbent solution for absorbing said refrigerant; wherein the improvement comprises: said absorbent solution comprising an aqueous solution including a first material comprising a lithium salt of an oxy-acid selected from the group consisting of lithium chlorate, lithium nitrate, and lithium nitrite, dissolved in said solution in an amount in excess of one mole percent; and a second material comprising a lithium halide compound selected from the group consisting of lithium bromide and lithium chloride, dissolved in said solution an amount in excess of one mole percent.

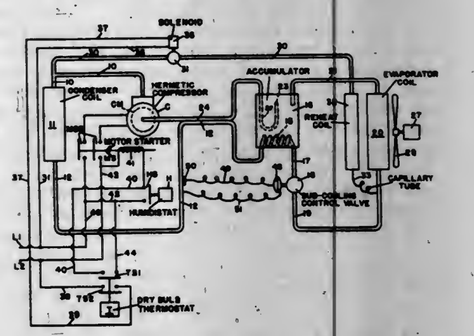
3,316,729
DEFROSTING SYSTEM WITH FOOD COMPARTMENT SHUNT SWITCH
Leonard J. Mann, Dayton, and Robert S. Hanson, Kettering, Ohio, assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed July 19, 1965, Ser. No. 472,801
5 Claims. (Cl. 62—156)

1. A refrigerator including means enclosing a below freezing storage compartment and an above freezing storage compartment, means forming a mixing compartment separated from said compartments, an evaporator portion associated with said mixing compartment, means for circulating air from said below and above freezing compartments through said mixing compartment and returning the cooled air to said below and above freezing compartments in amounts sufficient to maintain normally said compartments at desired below and above freezing temperatures, refrigerant liquefying means operatively connected to said evaporator portion, a defrosting switch having a set of normally closed contacts, electrical operating means for said liquefying means, a thermostatic cycling control switch responsive to temperatures of said below freezing compartment and a second temperature responsive switch responsive to the temperature of said above freezing compartment, said cycling control switch and said second



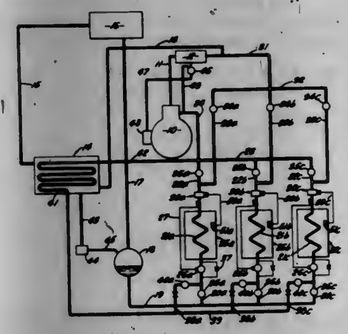
switch being connected in parallel electric circuit with each other and in series circuit with said normally closed contacts of said defrosting switch and said electrical operating means for controlling the temperature of said evaporating portion to hold desirable refrigerating temperatures in said compartments, means for electrically energizing said circuits, said defrost switch also having operating means responsive to a predetermined low temperature of said evaporator portion for operating to open position said normally closed contacts to deenergize said electrical operating means.

3,316,730
AIR CONDITIONING SYSTEM INCLUDING REHEAT COILS
Rodney F. Lauer, Staunton, Va., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Jan. 11, 1966, Ser. No. 519,901
6 Claims. (Cl. 62—173)



1. An air cooling system comprising a refrigerant compressor; a condenser coil; an evaporator coil; a discharge gas tube connecting said compressor to said condenser coil; accumulator means; a heat exchange coil arranged to heat liquid within said accumulator means; a suction gas tube connecting said accumulator means to said compressor; a liquid tube connecting said condenser coil to said heat exchange coil; an expansion valve; a fourth tube connecting said heat exchange coil to said valve; a fifth tube connecting said valve to said evaporator coil; a sixth tube connecting said evaporator coil to said accumulator means; means for moving air to be cooled over said evaporator coil; a reheat coil adjacent to and downstream with respect to air flow of said evaporator coil; a seventh tube connecting said discharge gas tube to said reheat coil; a normally closed valve in said seventh tube; expansion means connecting said reheat coil to said fifth tube; means for opening said normally closed valve when reheat is required and for reclosing said normally closed valve when no reheat is required; and means for adjusting said expansion valve to supply refrigerant from said heat exchange coil to said evaporator coil at the rate at which refrigerant is condensed in said condenser coil.

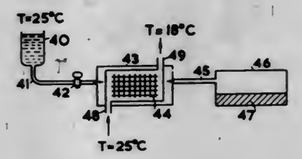
3,316,731
TEMPERATURE RESPONSIVE MODULATING CONTROL VALVE FOR A REFRIGERATION SYSTEM
Lester K. Quick, Eugene, Oreg.
(25 Provincial Court, St. Louis, Mo. 63122)
Filed Mar. 1, 1965, Ser. No. 435,895
17 Claims. (Cl. 62—196)



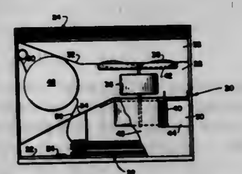
1. A temperature control valve for the evaporator of a refrigeration system fixture, comprising, a body having a pressure chamber, a valve element mounted in said body for movement between open and closed positions, said valve element having means exposed to said pressure chamber, a port in said valve element for restricted communication therethrough to said pressure chamber, means for varying the pressure in said pressure chamber for causing modulating movement of said valve element between said open and closed positions to modulate the backpressure on the evaporator, and solely temperature responsive means for associating with the fixture and having means for operating the said means for varying the pressure in said pressure chamber inversely with fixture temperature.

3,316,732
APPARATUS FOR CONTROLLING THE TEMPERATURE OF THE HUMAN BODY
Derek Rodney Burton, Farnborough, England, assignor to Minister of Aviation in Her Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England
Filed Mar. 27, 1964, Ser. No. 355,390
Claims priority, application Great Britain, Apr. 5, 1963, 13,635/63
2 Claims. (Cl. 62—259)

1. Apparatus for controlling the temperature of a human body comprising a garment consisting of at least a trunk portion, and a liquid circuit including a system of liquid carrying pipes so attached to the garment that at least a proportion of the exposed inner face of the garment is formed of exposed pipe wall, the pipes running generally outwardly from the central region of the trunk portion and so connected in the liquid circuit that liquid will flow through the several pipes in the same sense in relation to the central region, the circuit having means whereby temperature control and circulation of the liquid is effected, said temperature control means being a heat exchanger of the heat absorption type which is operative to cool the circulating liquid, said heat exchanger including a container, refrigerant liquid in the container, an expansion chamber connected with the container to receive refrigerant liquid, a heat exchanger matrix positioned within the chamber and having external fins and internal fluid passageways through which passageways the circulating liquid circulates, and refrigerant liquid metering means located between the container and the chamber through which metering means the refrigerant liquid may pass and expand into the chamber in vaporous form, flow through and over the matrix thereby cooling the circulating liquid circulating through the matrix.



3,316,733
MUFFLERS
Earl K. Harley, Jr., Greenville, Mich., assignor to Hupp Corporation, Cleveland, Ohio, a corporation of Virginia
Filed Nov. 1, 1965, Ser. No. 505,888
3 Claims. (Cl. 62—296)

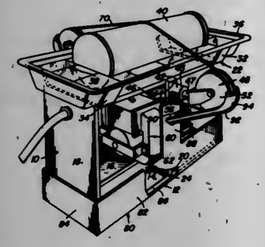


1. In refrigeration apparatus having a compressor and a condenser to which compressed refrigerant is delivered by the compressor through a discharge conduit; a muffler for said compressor comprising means forming a closed column connected to said discharge conduit in parallel with said condenser.

3,316,734
APPARATUS FOR COOLING CANNED LIQUIDS
Roland F. Crane, Jr., Rte. 2, Box 425, Pueblo, Colo. 81004
Filed Apr. 12, 1966, Ser. No. 544,663
26 Claims. (Cl. 62—381)

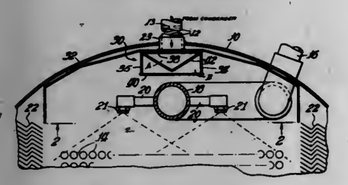
11. In combination, support means, a quantity of ice supported from said support means, a generally cylindrical container inclined relative to a vertical position so as to be more horizontally disposed than vertically disposed

and positioned on said ice and cradled thereby for primary support therefrom and for rotation of said container about its longitudinal axis relative to said ice, a rotatable drive shaft journalled from said support means,



an endless flexible and elastic drive member entrained about said shaft and about said container in an at least partially tensioned condition thereby drivingly connecting said shaft to said container.

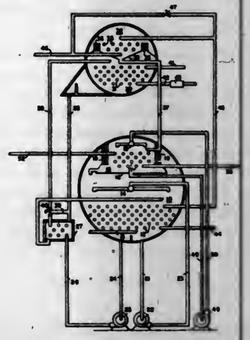
3,316,735
REFRIGERANT DISTRIBUTION FOR ABSORPTION REFRIGERATION SYSTEMS
Per Edberg, York, Pa., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois
Filed Nov. 25, 1964, Ser. No. 413,695
2 Claims. (Cl. 62—476)



1. In an absorption refrigeration system of the type including a generator, a condenser, an evaporator, and an absorber connected in a closed refrigeration circuit, conduit means for conducting refrigerant from said condenser to said evaporator, means defining a restrictive orifice in said conduit means, and a refrigerant distributor operatively positioned in said evaporator at the point where refrigerant is introduced therein, the improvement wherein said distributor comprises a generally box-like housing having imperforate top, side, and end walls, a perforated bottom wall, means defining an opening in said top wall through which refrigerant is introduced into said housing by said conduit means, and a substantially V-shaped perforated baffle overlying the said opening.

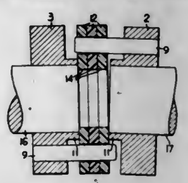
3,316,736
ABSORPTION REFRIGERATION SYSTEMS
Wendell J. Biermann, 45 Foxcraft Drive, Fayetteville, N.Y. 13066
Filed Dec. 23, 1965, Ser. No. 515,887
1 Claim. (Cl. 62—502)

An absorption refrigeration system having an evaporator, an absorber, a generator, and a condenser connected to provide refrigeration, which employs water in the evaporator as a refrigerant and a liquid absorbent solution in the absorber to absorb refrigerant vapor, wherein the



improvement comprises the absorbent solution consisting essentially of lithium chlorate dissolved in water.

3,316,737
FLEXIBLE COUPLING
Bruce G. Hulley, Montreal, Quebec, Canada, assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Jan. 25, 1965, Ser. No. 427,679
2 Claims. (Cl. 64—13)

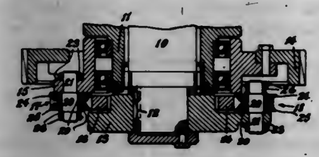


1. A flexible coupling for connecting axially separated rotating shafts together comprising: a pair of shafts; a pair or hubs each having an inner face; means for securing one of said hubs on each said shafts; a flexible driving member positioned between said inner faces of said hubs and having apertures therethrough extending generally parallel to said shafts; a plurality of axially extending driving pins mounted on each of said hubs with the pins on one of said hubs being interdigitated with the pins on the other of said hubs and projecting through alternate ones of said apertures in said driving member; and a nondriving spacer means positioned adjacent said shafts to extend axially between each of said inner faces and said driving member, said spacer element extending radially outward from said shaft a distance less than the radial distance of said pins from said shaft to provide a continuous annular relieved area into which said pins project.

3,316,738
OLDHAM COUPLINGS
Thomas Desmond Bishop, Solihull, England, assignor to The Deritend Engineering Company Limited, Birmingham, England, a British company
Filed July 16, 1965, Ser. No. 472,409
Claims priority, application Great Britain, July 29, 1964, 30,079/64
2 Claims. (Cl. 64—31)

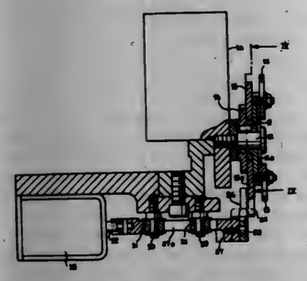
1. An Oldham coupling comprising two rotatable members and an intermediate member for coupling the rotatable members, wherein the improvement comprises transverse slots in the intermediate member each having parallel side walls that are V-shaped in cross section, and

each having therein a pair of frusto-conical rollers which fit the V-shaped side walls and which are supported by one of the rotatable members in axially adjustable relation-



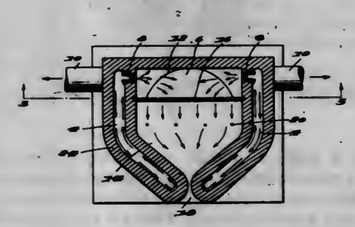
ship, the slots which contain rollers supported by one rotatable member being perpendicular to the slots which contain rollers supported by the other rotatable member.

3,316,739
STRAIGHT BAR KNITTING MACHINE
Alessandro Coppo, 44 Via Antonelli, Regina Margherita, Turin, Italy
Filed Apr. 13, 1964, Ser. No. 359,111
Claims priority, application Italy, Apr. 19, 1963, 8,497/63
1 Claim. (Cl. 66—71)



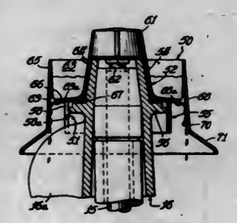
A straight bar knitting machine of the type comprising a yarn carrier having a forward and a rear portion, stitch cams carried by said portions, a guide bar for each of said stitch cams and means for varying the stitch density of the fabric, wherein the said means comprises, for each stitch cam carried by one of the said carrier portions, a cam disc assembly rotatably mounted on each of said yarn carrier portions, a plurality of peripheral cams adjustably secured to said cam assembly, said cams being equally spaced about the periphery of said cam assembly at varying radial distances, intermediate control means interposed between one of said peripheral cams and said stitch cam for determining the bottom position of said stitch cam, means for rotating said cam assembly step by step in one direction by the extent necessary to cause successive peripheral cams of said cam assembly to engage said intermediate control means and means for actuating the normally inoperative means for rotating said cam assembly when said yarn carrier moves to one end of a working stroke, said means for rotating said cam assembly comprising ratchet means associated with said cam assembly and a lug carried by said guide bar for the yarn carrier portion on which said cam assembly is mounted, said lug being positioned adjacent the end of said guide bar to act upon said ratchet means when said yarn carrier reaches the end of a working stroke, means for displaceably mounting said lug for movement between a normal inoperative position in which it is prevented from engaging said ratchet means and an operative position in which it is positioned to act upon said ratchet means at the end of a yarn carrier stroke, said lug being mounted at one end of a longitudinally reciprocable rod, electromagnetic means adapted to shift said rod and said lug between said inoperative position and said operative position, said lug being pivotably mounted on said rod for displacement by said ratchet means during movement toward the respective end of said guide bar, spring means adapted to return said lug to its original position to operate said ratchet means when said carrier moves in the opposite direction, said lug and said electromagnetic means being positioned on said guide bar in advance of the point where the stroke of said yarn carrier ends.

3,316,740
YARN STEAMING APPARATUS
James Campbell Davis, Chattanooga, Tenn., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Dec. 23, 1964, Ser. No. 420,547
6 Claims. (Cl. 68—6)



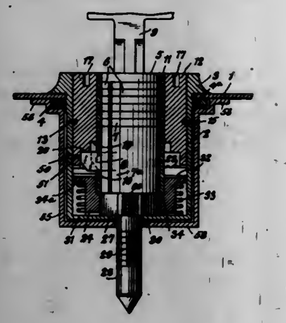
1. In an apparatus having an elongated steaming chamber for steaming running lengths of yarn, elongated steam inlet means positioned along one side of said chamber for uniformly passing high quality steam substantially transverse to the path of yarn passing through said chamber and elongated steam outlet means positioned along the opposite side of said chamber.

3,316,741
ADDITIVE DISPENSER
Willis E. Harlow and Robert B. Beare, Herrin, Ill., assignors to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois
Filed Feb. 8, 1965, Ser. No. 431,042
4 Claims. (Cl. 68—207)



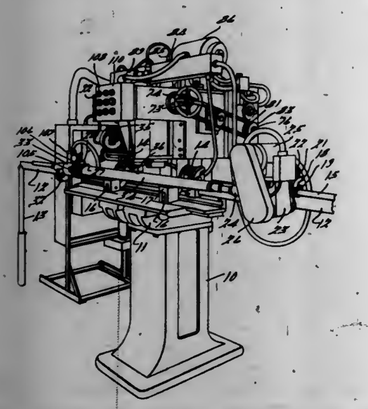
1. In an additive dispenser adapted to be mounted atop an agitator in an article washer or the like, comprising in combination, mounting means adapted to engage the agitator top, a reservoir portion having a bottom portion carried by said mounting means for receiving and holding an additive being introduced into the wash liquid, said bottom portion formed of material presenting an oily surface and having at least one discharge opening therein for permitting said additive to flow therethrough, and surface establishing means communicating with said opening effective to prevent formation of a meniscus capable of blocking said discharge opening to the flow of additive where said bottom portion is constructed of said material presenting an oily surface.

3,316,742
LOCKS
John F. Wellekens, New York, N.Y., assignor to Hotel Security Systems Corporation, New York, N.Y., a corporation of New York
Filed July 9, 1965, Ser. No. 470,709
13 Claims. (Cl. 70—379)



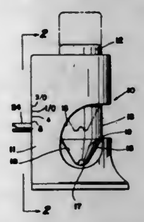
4. In a lock, a spindle controlling a bolt-actuating means, a rotative spindle-turning member arranged around the spindle, means permitting said spindle-turning member to have axial movement relatively to the spindle while maintaining its coupling thereto, a lock tumbler assembly located forwardly of the spindle, a collar arranged around the tumbler assembly, a latch extending radially from the tumbler assembly and engaging the collar, spring means for urging the spindle-turning member toward the collar, and clutch means on the spindle-turning member and collar effective to couple the collar and spindle-turning member together only when the latch is in a retracted position in the collar.

3,316,743
STRAIGHTENING MACHINE
Herbert C. Ovshinsky, 15200 Leslie, Oak Park, Mich. 48237
Filed July 26, 1963, Ser. No. 297,790
20 Claims. (Cl. 72—10)



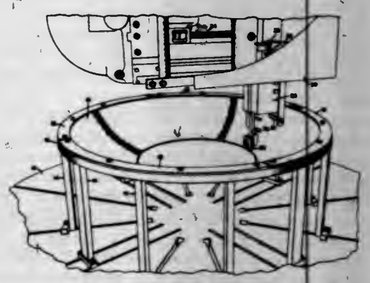
1. In a straightening device for an elongated workpiece, supporting means for the workpiece, means for rotating the workpiece, means for stopping the rotation of the workpiece, a sensing head movable into engagement with the workpiece to be in contact therewith during the rotation thereof, means actuated by the movement of the head during the first workpiece rotation for ascertaining whether the deformation of the workpiece is within an allowable tolerance, and means actuated upon the second rotation of the workpiece to stop the operation if the deformation in the workpiece proved to be within allowable tolerance.

3,316,744
IMPACT CRIMPING TOOL
Paul J. Spangler, University Heights, Ohio, assignor to ETC Incorporated, Cleveland, Ohio, a corporation of Ohio
Filed July 8, 1964, Ser. No. 381,126
1 Claim. (Cl. 72—35)



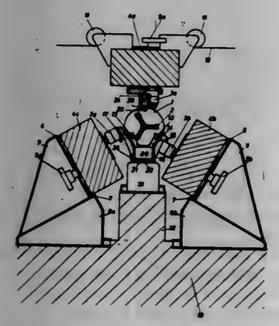
An impact crimping tool comprising a base, a smooth walled vertical bore in said base, a smooth walled ram slidably mounted for axial movement in said bore and having a bottom end defining a first ferrule crimping surface, the bottom of said bore defining a second ferrule crimping surface which is opposed to said first ferrule crimping surface, an opening in said base communicating with said bore and said second surface so that a tubular ferrule may be placed on said second surface, a pin fixed to said ram and extending through a vertical slot in said base, a spring fixed to said pin and to said base and biasing said ram toward said second surface so that a ferrule may be retained between the second surface and the spring biased ram, indicia means on said base and adjacent said slot, said first and second ferrule crimping surfaces defining one of a series of desired cross sectional crimping configurations when said pin is aligned with a selected indicia means.

3,316,745
METHOD OF DIELESSLY FORMING SURFACES OF REVOLUTION
Walter G. Berghahn, Lee, and George F. Murray, Jr., Pittsfield, Mass., assignors to General Electric Company, a corporation of New York
Filed Feb. 8, 1965, Ser. No. 433,538
4 Claims. (Cl. 72—83)



1. The method of forming a surface of revolution without the use of dies including the steps of supporting the material to be formed in a circular clamp about its periphery, rotating said material about its center, providing a working roller having a radius of curvature small enough to provide a limited surface of contact and large enough to prevent accumulation of material inside of the roller, guiding the roller against the material in a predetermined line of motion while separately guiding said roller toward the center of the material in a different predetermined line of motion so that the resultant path taken by the roller is regulated to lie on a predetermined curve, and cold working a portion of the material already formed adjacent the portion being formed.

3,316,746
MULTIPLE-STAND ROLLING MILL
Friedrich Kocks and Kurt Rotert, both of Dusseldorf, Germany, assignors to Kommanditgesellschaft Friedrich Kocks, Dusseldorf, Germany, a corporation of Germany
Filed Nov. 29, 1963, Ser. No. 326,797
Claims priority, application Germany, Apr. 13, 1963, K 49,466
9 Claims. (Cl. 72—238)



1. A multiple-stand rolling mill comprising a removable unitary supporting structure extending throughout the length of the mill with the roll stands each separately removably mounted on the supporting structure and driving means for driving the rolls of the respective stands disconnectable therefrom, at least certain of the driving means when disconnected being withdrawable bodily to an out-of-the-way position, whereby selectively individual stands of rolls or the supporting structure with all the stands of rolls mounted thereon may be removed from the mill.

3,316,747
TOOL FOR MUTILATING HYPODERMIC SYRINGES
Jack Yonchar, 722 S. Muirfield Road, Los Angeles, Calif. 90005
Filed Jan. 25, 1965, Ser. No. 427,643
7 Claims. (Cl. 72—332)



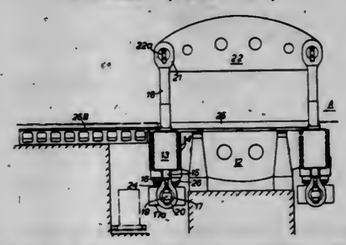
1. A tool for rendering disposable hypodermic syringes useless, comprising a pair of levers pivotally connected at their inner ends and free at their outer ends, means limiting pivotal movement of the levers, one of said levers being bifurcated at its inner end providing two laterally spaced side walls extending normal to the pivotal axis of the levers, said side walls being apertured on a common axis with a relatively large hole in one side wall and a relatively small hole in the other side wall, said holes being adapted to accommodate a hypodermic syringe initially inserted through the large hole with the needle thereof extending through said small hole and the neck of the syringe received in said large hole, a first blade formed as part of the other lever positioned to sever the neck of a hypodermic syringe projecting through said large hole when the levers are pivoted toward each other, and a second blade formed as a part of said other lever positioned to sever the needle of the hypodermic syringe projecting through said large hole.

3,316,748
METHOD OF PRODUCING PROPPING AGENT
Charles F. Lang, Henrico County, and Joseph F. Ritter and Vernon D. Claiborne, Chesterfield County, Va., assignors to Reynolds Metals Company, Richmond, Va., a corporation of Delaware
Original application Dec. 1, 1960, Ser. No. 73,098. Divided and this application Oct. 14, 1963, Ser. No. 320,599
7 Claims. (Cl. 72—377)



1. A method of faceting, rounding, and work-hardening a cast aluminum particle, said method comprising the steps of: disposing said particle in the path of radially extending rotary blades terminating proximate to a reaction surface whose major portion is spaced from said path by a distance exceeding the width of said particle, striking said particle with a said blade, allowing said particle, as a result of the force of its impact with said blade, to travel freely away from the point of said impact until said particle impinges against said reaction surface, and rebounding said particle off said reaction surface back into said path.

3,316,749
PRESSES
Jack Herbert Beard, Sheffield, England, assignor to Davy and United Engineering Company Limited, Sheffield, England, a British company
Filed Aug. 6, 1964, Ser. No. 387,835
Claims priority, application Great Britain, Aug. 13, 1963, 31,845/63
9 Claims. (Cl. 72—450)



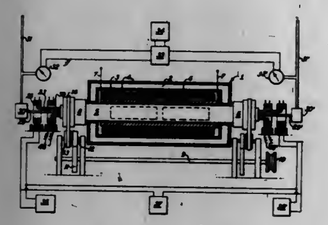
1. A press comprising a vertically reciprocable elongate beam, drive means for reciprocating the beam, four tie bars each having a substantially rectangular horizontal

cross section connecting the beam to the drive means, each tie bar having one end pivotally connected to a respective corner of the beam for rotation relative to the beam about a horizontal axis normal to the length of the beam, and having its other end pivotally connected to the drive means for rotation relative thereto about a horizontal axis normal to the length of the beam, and guide means associated with each tie bar for urging the tie bars to a vertical position, each guide means including a pair of fixed guide plates having guide surfaces parallel to the length of the beam and a pair of movable guide plates having guide surfaces normal to the length of the beam, and preloaded spring means arranged to bias the movable plates towards the associated tie bar.

3,316,750
DTA APPARATUS

Gen Takeya, 1375–1, West 14, South 8; Kazuo Makino, 35, West 14, North 15; and Tadao Ishii, 801–301, Asomachi; all of Sapporo, Hokkaido, Japan.

Filed Feb. 5, 1964, Ser. No. 342,828
6 Claims. (Cl. 73—15)

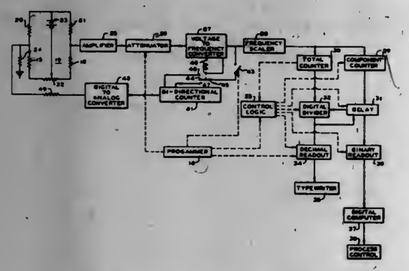


1. Apparatus for differential thermal analysis comprising a horizontally disposed cylindrical heating furnace, a rotatable cylindrical body mounted coaxially in said furnace, a sample vessel and a reference vessel each with an open end and a closed end axially positioned in said rotatable cylindrical body with their closed ends adjacent each other, means for closing said respective open ends, means for rotating the cylindrical body, and means for indicating the difference between the temperature in said sample vessel and in said reference vessel.

3,316,751
ELECTRICAL MEASURING APPARATUS

Marvin C. Burk, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

Filed Dec. 9, 1963, Ser. No. 328,909
9 Claims. (Cl. 73—23.1)



1. Apparatus for zeroing an analog to digital conversion system comprising a voltage source having a biasing terminal and an output terminal, an analog to digital converter, means for connecting said output terminal to an input of said analog to digital converter, means adapted to measure the digital output of said analog to digital converter, means for periodically connecting the input of said means to measure to the output of said analog to digital converter, means responsive to said means to measure to produce an analog error correction signal of a first polarity when the output of said means to measure is below a predetermined value and to produce an analog correction signal of opposite polarity when the output of said means to measure is above said predetermined value, and means for applying the analog error signal thus produced to said biasing terminal.

3,316,752
METHOD AND APPARATUS FOR DETECTION AND LOCATION OF MICROLEAKS

James E. Webb, Administrator of the National Aeronautics and Space Administration with respect to an invention of Norman M. Mitchell, Lomita, Calif.

Filed Dec. 31, 1964, Ser. No. 422,869
18 Claims. (Cl. 73—40.5)



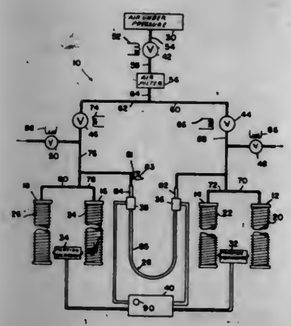
1. A method of testing metal containers to indicate leakage of the container's contents which consists of the following steps:
(a) covering that part of said continer which is to be tested for leakage with an insulative material;
(b) permitting said insulative material to cure to form a homogeneous sheet which adheres to said container at its interface for confining said contents of said container opposite a leak until said sheet is deformed by the pressure of said contents;
(c) placing at least one easily ruptured electrically conductive strip on said insulative sheet thereby forming an electrical capacitor with said metal container serving as the first plate thereof and said electrically conductive strip serving as the second plate thereof; and
(d) connecting a capacitor detector and readout circuit between said first and second plates of said capacitor which is responsive to the change in the capacitance of said capacitor produced when said conductive strip is ruptured by the deformation of said sheet caused by the leakage of said container contents.

3,316,753
ELECTRO-HYDRAULIC PRESSURE DIFFERENTIAL TESTER

James Le Roy Herren, Decatur, Ala., assignor to Calumet & Hecla, Inc., Allen Park, Mich., a corporation of Michigan

Filed Oct. 7, 1963, Ser. No. 314,450
11 Claims. (Cl. 73—49.1)

1. A pressure differential tube tester for testing for leaks in a plurality of tubes comprising a manometer including a U-shaped tube having fluid therein, means for mounting a plurality of tubes adjacent each leg of the manometer tube and connected to the respective leg of the manometer tube, a source of air under pressure, means for connecting the legs of the manometer tube and the tubes connected thereto to the source of air so that no pressure differential exists between the legs of the manometer tube, means for subsequently disconnecting the manometer and tubes from the source of air under pressure, means for automatically sensing a pressure differential between the legs of the manometer tube after the manometer tube and tubes have been disconnected from the source of air under pressure as an indication of

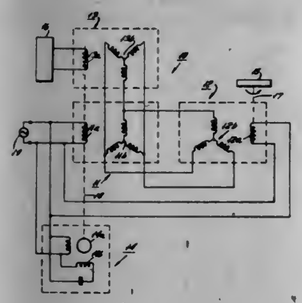


a defect in one of the tubes connected to the manometer tube and means for subsequently exhausting the air from the manometer and tubes.

3,316,754
VISCOSITY DETECTOR

Osamu Nagatsuka and Mitsutaka Kawada, Shiba Mita, Minatoku, Japan, assignors to Nippon Electric Company Limited, Tokyo, Japan

Filed June 30, 1964, Ser. No. 379,249
Claims priority, application Japan, July 3, 1963, 38/34,917
13 Claims. (Cl. 73—59)

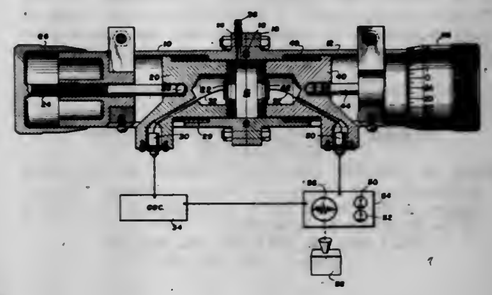


1. Means for measuring the viscosity of a fluid comprising:
a power source;
synchro transmitter means having an armature coil rotating at a fixed angular velocity;
synchro receiver means having an armature coil electrically connected in parallel to said synchro transmitter means armature coil and said power source to follow the rotation of said synchro transmitter means;
said synchro transmitter and receiver means each having a field coil;
a rotatable member coupled to said synchro receiver means and being immersed in a fluid medium;
said rotatable member being driven by said synchro receiver means armature coil wherein the fluid medium loads said rotatable member and said synchro receiver means causing said synchro receiver means to lag said synchro transmitter means by an angle representative of the viscosity of the fluid medium.

3,316,755
TWO-CRYSTAL INTERFEROMETER

Donald Luther Ensley, Hurst, Tex., assignor, by direct and mesne assignments, to Harvest Queen Mill & Elevator Company, Dallas, Tex., a corporation of Texas

Filed July 29, 1963, Ser. No. 298,201
3 Claims. (Cl. 73—67.5)

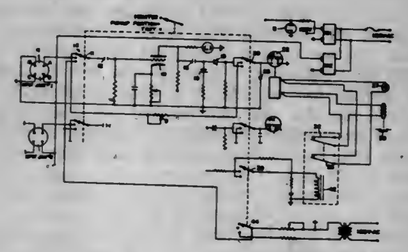


1. A system for measuring transmission of acoustic energy through a solid body which comprises:
(a) a pair of like cylinders each having an open flanged end and a closed end,
(b) movable closure means for each of said cylinders adjustable longitudinally of said cylinders adjacent to the open ends having conical recesses therein,
(c) acoustic transducers, one mounted at the axis in each of said closure means in said conical recesses as to be in fluid coupled to said solid body supported in said recesses,
(d) means coupling the flanges together to form a closed chamber between said closure means,
(e) means for energizing one of the transducers,
(f) means for measuring the voltage generated by the other of said transducers,
(g) duct means for introducing said liquid into said cylinders between said transducers, and
(h) micrometer means at each said closed end respectively connected to the closure means for varying in measured amounts the spacing between said transducers.

3,316,756
VIBRATION MONITORING SYSTEM

George H. Hickman, Jeannette, Pa., assignor to Carrier Corporation, Syracuse, N.Y., a corporation of Delaware

Filed June 12, 1964, Ser. No. 374,681
3 Claims. (Cl. 73—71.4)



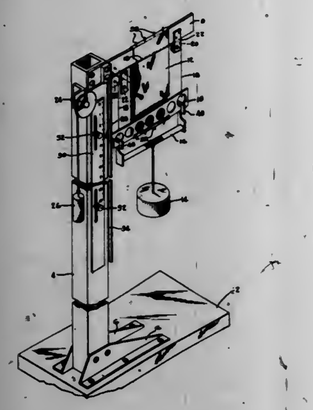
1. In combination with mechanism for detecting vibration of a structural part wherein said vibration is sensed by a variation in an electrical signal caused by movement of the structure under the influence of vibration

relative to a signal transmission device, a first circuit including a control switch having a first set of contacts for transmitting the detected signal to a measuring device to record the shaft displacement due to vibration, a second circuit including a second set of switch contacts for indicating the position of the vibration sensing device relative to said part, and a third circuit including a third set of contacts for transmitting independently of said vibration sensing device a signal indicative of a pre-selected magnitude of vibration to test the accuracy of said measuring device.

3,316,757
FABRIC STRETCH-RECOVERY TEST APPARATUS

Hazel M. Fletcher, Hyattsville, Charles H. Fischbach, Baltimore, and George F. Button, Lanham, Md., assignors to the United States of America as represented by the Secretary of Agriculture

Filed June 22, 1965, Ser. No. 466,136
1 Claim. (Cl. 73—89)

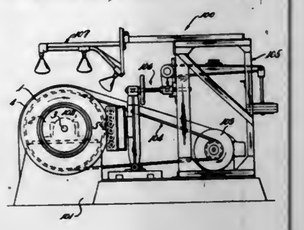


A device for measuring the elastic recovery of a loop of knit fabric comprising a base, a support arising vertically from, and secured to, said base, fabric securing means comprising a fixed arm and a movable arm, said fixed arm rigidly secured at one end to said support, said fixed arm extending in a direction perpendicular to said support and adapted to hold said loop without slippage along said arm, said movable arm suspended proximate each of its ends from said fixed arm, means proximate the ends of said fixed arm for adjustably supporting said movable arm, means of preventing substantial slippage of said loop along said movable arm, weights for establishing a load on said movable arm, a load carrying bar adapted at its ends to reversibly engage said movable arm and adapted for positioning of the load intermediate the ends of said bar, a counterbalance, two flexible lines, each of said lines connecting one of the ends of the movable arm to said counterbalance, substantially frictionless pulley means attached to said support in substantially the same plane as the said means on said fixed arm, the flexible lines proceeding from the counterbalance over said pulley means and over said means to the ends of said movable bar and being adjusted to suspend said movable arm in a plane parallel to said fixed arm, scale means adjustably mounted on said support, and indicator means, integral with said movable arm, adapted to secure readings from said scale.

3,316,758
APPARATUS FOR TESTING TIRES AND OTHER TOROIDAL OBJECTS

Hans Wild, Muttenz, Switzerland, assignor to Fabrik fur Firestone Produckte AG., Pratteln, Switzerland, a corporation of Switzerland

Filed June 24, 1964, Ser. No. 377,664
11 Claims. (Cl. 73—146)

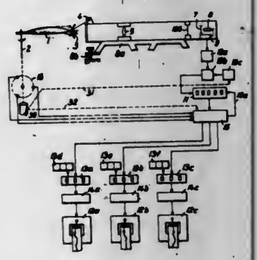


1. Apparatus for testing a sample toroidal, deformable object, comprising means for substantially flattening a portion of said object, said means comprising at least three rotatable, closely spaced elongated rollers with sample-contacting portions of their peripheral surfaces lying in a plane and mounted with their longitudinal axes substantially parallel, and means for urging a sample into contact with said rollers.

3,316,759
APPARATUS FOR MEASURING FLEXURE OF A ROTATING OBJECT

Hans Rehder, Frankfurt am Main, Germany, assignor to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany

Filed Aug. 4, 1964, Ser. No. 387,379
Claims priority, application Germany, Aug. 9, 1963, L 45,565
16 Claims. (Cl. 73—147)



1. For use with a rotating object, an arrangement for measuring the distance which a point on the object is, during rotation, displaced in a direction generally parallel to the axis about which the object rotates, said arrangement comprising, in combination:

(a) a reflection ball attached to said point of the object;

(b) means for illuminating said ball to produce an image line which is at right angles to said axis of rotation;

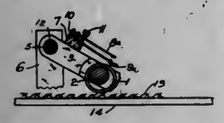
(c) masking means arranged in the path of the image line so as to be swept by the latter during rotation of the object, said masking means being provided with two light-passing slots which, in a direction transverse to the sweeping image line, are inclined with respect to each other so that the time interval between the instant at which the image line sweeps across the first of said slots and the instant at which the image line sweeps across the second of said slots depends upon how far said point is displaced in said direction parallel to said axis of rotation; and

(d) means for obtaining a measurement of said time interval and hence a measurement of the distance which said point is displaced in said direction parallel to said axis of rotation.

3,316,760
SEAM DETECTOR

John W. Ward, Charlottesville, Va., assignor, by mesne assignments, to Teledyne, Incorporated, Hawthorne, Calif.

Filed Nov. 9, 1964, Ser. No. 409,649
4 Claims. (Cl. 73—159)

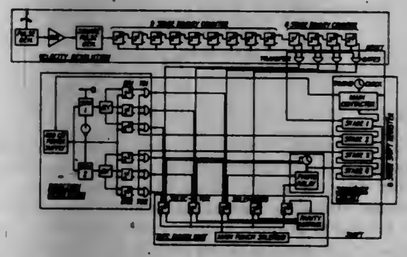


1. In a seam detector, a plurality of electrical contact members, a plurality of mechanical seam-sensing elements, a plurality of electrical contact elements for actuation by said seam-sensing elements to touch said electrical contact members, electrical circuit means in circuit with said contact elements and contact members, said circuit means including bridge means cooperating to provide a current proportional to the number of contacts closed within a pre-set time interval, and electrical output means actuated when a predetermined number of contacts are closed within said preset time interval.

3,316,761
RECORDING ANEMOMETERS

Robin Philip Frith, Melbourne, Victoria, and Clifford Ralph Jacobson, Ferntree Gully, Victoria, Australia, assignors to Commonwealth of Australia, Department of Civil Aviation, Melbourne, Victoria, Australia

Filed Oct. 24, 1963, Ser. No. 318,630
Claims priority, application Australia, Oct. 26, 1962, 23,609/62
12 Claims. (Cl. 73—189)

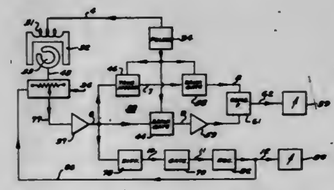


1. An anemometer comprising a set of rotatable vanes to detect wind speed; an electromagnetic induction type pulse generator driven by the vanes and generating electrical impulses at a rate proportional to the rate of rotation of the vanes; means operable to detect wind direction; means operable to transduce the detected wind direction indications into coded voltages representative of said indications; a single electronic binary counter counting the impulses over predetermined equal and immediately sequential time intervals, constituting programmed periods, in such a way that the number of impulses during each time interval is proportional to the average value of the indications during the respective time interval; recording means operable to record the number of impulses counted and the resolved coded voltages directly on a recording medium suitable for analysis in a digital computer; analyzing circuits operable to resolve the coded voltages to give a representation of the wind direction at the end of each time interval; gating means operable automatically at the end of each counting period to gate the contents of said binary counter and the resolutions of said analyzing circuits to said recording means; and means operable automatically to reset the counter to zero at the end of each programmed period, so that each counter reading is a total for the respective period rather than a progressive total.

3,316,762
APPARATUS AND PROCESS FOR MEASURING FLUID FLOW

Allan S. Westersten, Norwalk, Calif., assignor, by mesne assignments, to Statham Instruments Inc., Los Angeles, Calif., a corporation of California

Filed Aug. 28, 1963, Ser. No. 305,090
14 Claims. (Cl. 73—194)



1. In apparatus for measuring fluid flow, said apparatus having sensing means for sensing an electrical quantity which is a function of the fluid flow, and energizing means for creating a field which, in conjunction with said flow, creates said electrical quantity, the combination comprising:

first time sampling means for sampling said electrical quantity at predetermined first intervals and delivering an output which is a composite of both a flow signal that is a function of said flow and an unwanted error signal;

second time sampling means for sampling said electrical quantity at predetermined intervals differing from said first intervals and delivering a signal which is a function substantially only of said unwanted error signal;

means for algebraically combining the outputs of said time sampling means to derive a signal which is a function of the fluid flow free of the unwanted error signal, and

means for measuring said derived signal, thereby to obtain a measure of said flow.

12. Process for the measurement of fluid flow comprising:

creating a single signal which is a function of said flow and also of an error;

deriving from said single signal a second signal which is a function of said flow and of said error;

deriving from said single signal a third signal which is a function only of said error;

combining said second and third signals to produce a fourth signal which is a function of said flow substantially free of said error; and

measuring said fourth signal.

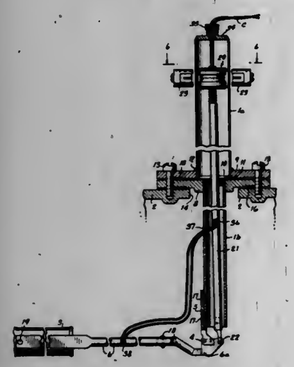
3,316,763
FLUID LEVEL GAUGE

Clarence A. de Giers, Brookville, N.Y., assignor to The Liquidometer Corporation, Long Island City, N.Y., a corporation of Delaware

Filed Sept. 22, 1964, Ser. No. 398,248
11 Claims. (Cl. 73—317)

2. A fluid level gauge for measuring the level of fluid within a container comprising movable sensing means and non-magnetic housing means adapted to support said

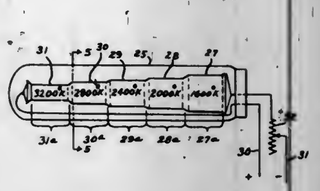
sensing means within a container for movement between two sensing limits to sense the level of fluid in the container, linearly reciprocable actuator means of magnetically permeable material coupled to said sensing means and supported within said housing means for movement between two actuator limits in proportion to the movement of said sensing means between said two sensing limits, follower means of magnetically permeable material, at least one of said actuator and follower means providing a magnetic field, pivotal support means for supporting said follower means on the exterior of said housing means and in magnetic flux path linkage with said actuator means to follow the motion thereof through



a response range, adjustable means mounted for adjustable rotation on said pivotal support means about an axis parallel with the pivotal axis of said pivotal support means, indicator means defining an indicator range of fluid levels within said container and including an indicator element fixedly mounted on a rotatable shaft, driven gear means fixedly mounted on said rotatable shaft and driver gear means mounted for arcuate motion and engaging said driven gear means, and means interconnecting said adjustable means with said driver gear means, said adjustable means being adjustably rotatable for varying the proportion by which said driven gear means moves relative to the movement of said follower means to correlate said response range with said indicator range.

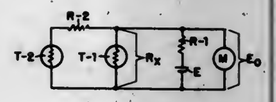
3,316,764
RADIATION PYROMETER AND TEMPERATURE STANDARD THEREFOR
Russell A. Nelson, Norristown, Pa., assignor to the United States of America as represented by the Secretary of the Air Force
Filed May 12, 1964, Ser. No. 366,929
2 Claims. (Cl. 73—355)

1. In combination with an object subject to extremely rapid heating, a high speed motion picture camera operable at a predetermined number of frames per second, having a motion picture film therein photographically responsive to variations in color temperatures of an object being photographed, a plurality of differently heated color temperature reference indicators disposed in predetermined adjacent relation in proximity to said object to be heated, said camera fixed to simultaneously photograph on said film, said indicators and said object during the heating thereof at said predetermined number of frames per second, whereby when said film is developed said film provides a continuous progressive comparison photographic record of the changing color temperature of said object and the fixed color temperatures of the color temperature reference indicators for comparison, in which the changes in color temperature of said object on the film in each successive frame records the rate and area of change in color temperature during each predetermined fraction of a second, determined by the number of pictures taken per second, whereby a complete record of color temperature changes of the object and the rate of such changes per unit of time is accomplished in which



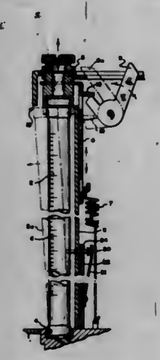
the color temperature reference indicators comprise an elongated flat resistance heated strip connected at its opposite ends to a constant electrical source, in which the width of the strip is progressively reduced at spaced intervals throughout the length thereof to increase the electrical resistance thereof between said spaced intervals whereby to increase the color temperatures thereof to predetermined degrees Kelvin, and an enclosing envelope surrounding said strip.

3,316,765
EXTENDED RANGE THERMISTOR TEMPERATURE SENSING
Hardy W. Trolander and Ray W. Harruff, Yellow Springs, Ohio, assignors to The Yellow Springs Instrument Company, Inc., Yellow Springs, Ohio, a corporation of Ohio
Filed Aug. 19, 1965, Ser. No. 480,958
14 Claims. (Cl. 73—362)



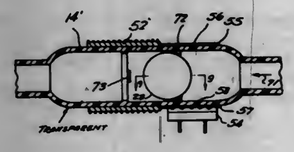
3. A thermistor temperature sensing circuit having a substantially linear output over a greater range than obtainable from a single thermistor, comprising a first thermistor exhibiting an essentially linear change in electrical resistance through a first higher range of temperatures, a second thermistor exhibiting an essentially linear change in electrical resistance through a second lower range of temperatures overlapping said higher range, an electrical resistance of fixed predetermined valve connected in series circuit with said second thermistor, means forming a parallel circuit connecting said first thermistor in parallel across said series circuit, a supply source circuit including a source of electrical energy and a fixed resistor connected to said source, said fixed resistor being of a value equal to the total resistance of said temperature sensing circuit at a temperature within the limits of the highest temperature of said higher range and the lowest temperature of said lower range, means connecting said supply source circuit to apply a potential across said first thermistor, output connections from said first thermistor for applying the total variable voltage drop across said parallel circuits to a readout device, and means mounting said thermistors in close physical relation such that they both respond to the same temperature to be sensed.

3,316,766
SPHYGMOMANOMETER MEASURING TUBE EJECTION MECHANISM
George H. Jones, Massapequa, N.Y., assignor to W. A. Baum Co., Inc., Copiague, N.Y., a corporation of New York
Filed Mar. 30, 1965, Ser. No. 443,926
2 Claims. (Cl. 73—402)



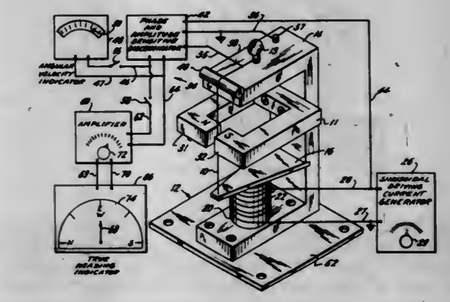
1. In a sphygmomanometer of the mercury-manometer type having
(1) a mercury reservoir standardized as to its essential interior dimensions,
(2) a replaceable measuring tube calibrated with respect to the reservoir, said tube having one end detachably connected to said reservoir,
(3) a fixture affording communication between said reservoir and said measuring tube,
(4) said tube being interchangeable with another like measuring tube, and
(5) a spring pressed cup adapted to engage the opposite end of the tube to maintain the connection between the tube and reservoir mercury-tight, and to retain the tube in a fixed position, the improvement comprising in combination therewith,
(a) spring-biased means disposed in contact with the outer surface of the tube intermediate its ends, and
(b) means arranged adjacent the upper end of said tube for lifting said spring pressed cup whereby said spring biased means urges the tube outward to enable grasping the same for removal and replacement.

3,316,767
SPECIFIC GRAVITY OR FLOW INDICATOR
Edward E. Liebert, Marysville, Wash. (Rte. 1, Box 40, Okanogan, Wash. 98840)
Filed Nov. 6, 1964, Ser. No. 409,427
11 Claims. (Cl. 73—453)



1. In a force-measuring device of the character described, a conduit member, a magnetic member movably disposed in said conduit member, fluid in said conduit member exerting force on said magnetic member, a coil wound on said conduit member, a source of current, a photo cell on one side of the conduit member, a light source on the other side of the conduit member, means providing a light-transmitting path between said light source and photo cell, said magnetic member being at least partly in said path, whereby to vary the amount of light impinging on the photo cell in accordance with movements of the magnetic member relative to said coil, a masking plate mounted between said conduit member and said photo cell and having a light-transmitting aperture in said light-transmitting path, said aperture being of varying width in the direction of movement of said movement of said magnetic member in said conduit member, whereby to correspondingly vary the sensitivity of response of said photo cell, a source of current, current control means, means operatively connecting said photo cell to said current control means, circuit means connecting said source to said coil through said current control means, whereby to produce a flow of current through the coil which stabilizes at a value sufficient to provide a magnetic force on the magnetic member balancing the fluid force acting thereon, and means to measure said current.

3,316,768
MAGNETIC ANGULAR VELOCITY INDICATING SYSTEM
George W. Cook, McLean, Va., assignor to Thiokol Chemical Corporation, Bristol, Pa., a corporation of Delaware
Filed Oct. 29, 1963, Ser. No. 319,735
8 Claims. (Cl. 73—505)

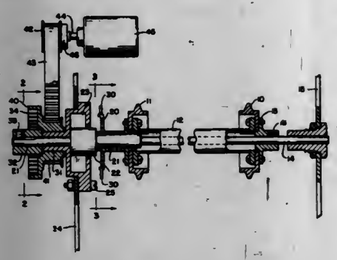


3. An angular velocity sensing system comprising an elongated flexible element having distributed mass, frame means for supporting said element under tension, means for applying to said element a periodically-recurring unidirectional tension force at a frequency of twice the resonant frequency of said element with respect to sidewise vibration thereof at its fundamental mode of vibration for vibrating said element sympathetically sidewise in its fundamental mode, and means for sensing the orientation of the plane of vibration of said element with respect to said frame means.

3,316,769
INTERMITTENT DRIVE
Robert W. Nordin, Skokie, Ill., assignor to Teletype Corporation, Skokie, Ill., a corporation of Delaware
Filed July 6, 1965, Ser. No. 469,521
8 Claims. (Cl. 74—1.5)

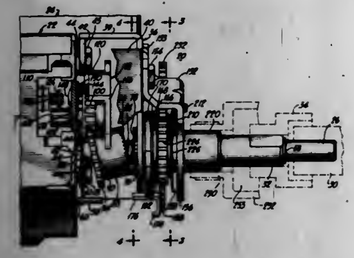
6. An intermittent motion device comprising:
means for providing a constant drive torque;
a flywheel urged to rotate in one direction by the torque means;

means for constraining said flywheel to move only in said one direction;



a load means connected to the flywheel for resiliently urging the load to rotate; and
means for selectively limiting movement of the load.

3,316,770
TUNING MECHANISM FOR TELEVISION TUNERS
Joe G. Badger and Alarico A. Valdettaro, Bloomington, Ind., assignors to Sarkes Tarzian, Inc., Bloomington, Ind., a corporation of Indiana
Filed May 14, 1965, Ser. No. 455,795
18 Claims. (Cl. 74—10.8)



18. In a television tuner, the combination of, a station selector shaft rotatable to a plurality of station selecting positions, a support structure rotatable with said selector shaft and carrying a plurality of individually adjustable gear elements for fine tuning adjustment to different television stations, said adjustable gear elements moving in a predetermined path around said selector shaft as said support structure is rotated, a rotatable fine tuning control member, a control sleeve, means defining a fulcrum engaging the inner surface of said sleeve, said sleeve being normally tilted so that the axis thereof is at an angle with respect to the axis of said fine tuning control member, means responsive to inward movement of said control member for pivoting said sleeve about said fulcrum means to an adjusting position in which the axis of said sleeve is aligned with the axis of said fine tuning control member, cooperating means on said control member and said sleeve for rotating said sleeve while the same is maintained in said adjusting position, and means driven by said sleeve and movable into said path when said sleeve is moved to said adjusting position for rotating a selected one of said gear elements.

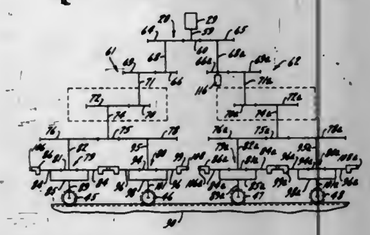
3,316,771
POWER-TRANSMISSION CHAIN
Edgar B. Nichols, 119 Colonial Ave., Moorestown, N.J. 08057
Filed Apr. 13, 1966, Ser. No. 542,376
5 Claims. (Cl. 74—248)

1. A power-transmission chain comprising a series of molded plastic units connected together by cross pins, said units comprising elongated solid central sections extending in a direction parallel to the axis of one of the cross pins and across the entire width of the chain, said solid central section having, along its entire length, a generally triangular cross-sectional area in a plane normal to said axis on said one of the cross pins, thereby defining



a three-sided central section for reducing the rotational movement of each unit about the cross pins, and a plurality of planar end projections extending outwardly and downwardly from two adjacent sides of each central section, each end projection on each side of the central section being equidistant from the other.

3,316,772
MULTIPLE PINION WOUND-UP POWER DRIVE
Gordon H. Jones, Fond du Lac, Wis., assignor to Giddings & Lewis Machine Tool Company, Fond du Lac, Wis., a corporation of Wisconsin
Filed Aug. 4, 1964, Ser. No. 387,274
18 Claims. (Cl. 74—410)

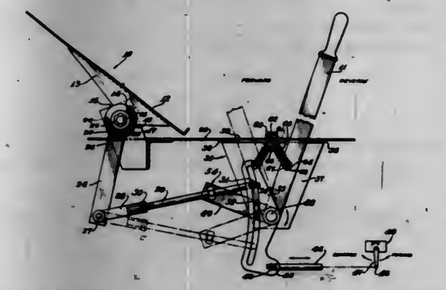


1. A reversible power drive for movable machine tool members and comprising, in combination; an input pinion; a pair of primary gear trains connected to said input pinion; a first pair of planetary gear assemblies interposed in one of said primary gear trains; a second pair of planetary gear assemblies interposed in the other of said primary gear trains; each said planetary assembly including sun, planet, and ring gears and a planet carrier; a plurality of output pinions each connected to the planet carrier of a respective one of said planetary gear assemblies; and means interconnecting the ring gears in each said pair of planetary assemblies in opposed driving relation permitting limited movement of each ring gear to equalize the load transmitted to their associated output pinions.

3,316,773
REVERSIBLE PUMP CONTROL LINKAGE
Jack B. Findlay, Downers Grove, Ill., assignor to International Harvester Company, Chicago, Ill., a corporation of Delaware
Filed Feb. 14, 1964, Ser. No. 345,002
4 Claims. (Cl. 74—481)

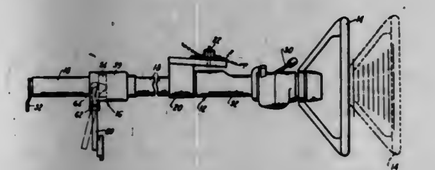
1. A control device for operating a component having a neutral position and alternate positions in opposite directions from the neutral position thereof, comprising: a support; a foot pedal mounted for pivotal movement on said support; bell crank means mounted for pivotal movement on said support; one arm of said bell crank means including a handle and being manually rotatable selectively between a forward and a reverse position thereof;

a beam member having an arcuately extending slot therein and mounted for pivotal movement coaxial with but for movement independent of said bell crank means on said support; motion-transmitting means pivotally connected at one end to said beam member and at an opposite end to said component; articulated motion-transmitting linkage connected at one end to said pedal and constrained for movement therewith, and having an opposite end thereof pivotally and slidably mounted in the arcuate slot of said beam; an intermediate portion of said linkage being slidably connected to another arm of said bell crank means for guide movement therewith; yieldable interlocking means extending between said support



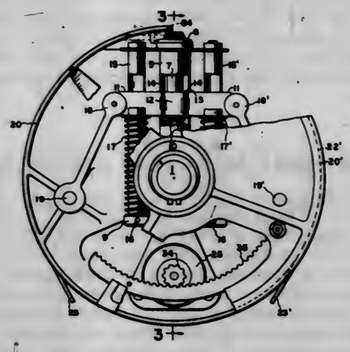
and said one arm of said bell crank means and operative for maintaining said one arm in each of the selectable forward and reverse positions thereof; said pedal being operative between a neutral position and a full range of movement position in each of the alternate positions of said component; said linkage, beam and said another arm of said bell crank means being operatively cooperative upon movement of said one arm of said bell crank means into each of the forward and reverse positions thereof and upon actuation of said pedal for selectively providing operative control to said component between maximum and minimum range of movement limits thereof in each of the alternate positions of the component.

3,316,774
ADJUSTABLE STEERING COLUMN
Charles W. Vogelgesang, South Bend, Ind., assignor to The Bendix Corporation, South Bend, Ind., a corporation of Delaware
Filed July 12, 1965, Ser. No. 471,148
4 Claims. (Cl. 74—493)



1. In a motor vehicle, an axially adjustable steering column comprising an outer tubular member having a first transverse slot located in the wall thereof, said outer tubular member being rigidly connected to the frame of the vehicle, an inner tubular member axially movable with respect to said outer tubular member, means operatively connected to said outer and inner tubular members for preventing relative rotation therebetween, a sleevelike member having a plurality of axially spaced transverse grooves on the surface thereof and adjacent said first transverse slot, said sleevelike member being located between said outer and inner members and fixedly connected to the latter for axial movement therewith and bearing engagement with the former, a first cylindrical roller located in said first slot for engaging one of said grooves, a locking ring telescoped over said outer tubular member and movable axially with respect thereto, said locking ring having a first position for forcing said first roller into one of said grooves to thereby prevent axial movement between said inner and outer tubular members and a second position for permitting said first roller to move from one groove to another when the inner tubular member and sleevelike member are moved axially with respect to said outer tubular member, manually operated actuating means for causing movement of said locking ring from said first to said second position, first resilient means for returning said locking ring from said second to said first position, a first polygonal shaped steering shaft component located within said inner tubular member, a second steering shaft component telescoped over said first steering shaft component and movable axially with respect thereto, said second steering shaft component having a polygonal bore located therein for receiving and engaging said first steering shaft component to prevent relative rotation therebetween and a second transverse slot extending through the wall thereof, manually operable means operatively connected to said second steering shaft component for causing rotation thereof, a second cylindrical roller located in said second slot, a second ring telescoped over said second steering shaft component, said second ring having a tapered ramp on the inner surface thereof for engagement with said second roller, second resilient means for urging said ring in a direction tending to force said second roller radially to cause frictional engagement and elimination of torsional lash between said steering shaft components, and means operatively connected to said second steering shaft component and said inner tubular member for causing concomitant axial movement of said inner tubular member upon axial movement of said second shaft component but permitting relative rotation therebetween.

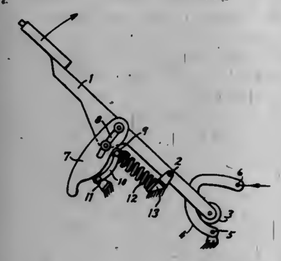
3,316,775
CONTROL LINE REGULATOR
Robert J. Wrighton and James E. Glauser, both of Santa Ana, Calif., assignors to Pacific Scientific Company, San Francisco, Calif., a corporation of California
Filed June 1, 1965, Ser. No. 460,286
5 Claims. (Cl. 74—501.5)



1. A control line regulator comprising a regulator shaft, a pair of oppositely disposed regulator sheave sectors turnable on said shaft and adapted to receive control cables, rig load regulator spring means carried by said

regulator shaft, force transmitting means connecting said spring means and said sheave sectors for urging the latter to turn in opposite directions to maintain the cables under rig tension, said force transmitting means including gripping means to effect the braking of said sheave sectors against relative turning movement when a control load is applied to one of the cables connected to one of said sheave sectors, and additional gripping means comprising an inertia member interconnected between said sheave sectors and operable in response to relative turning of said sheave sectors exceeding a predetermined acceleration to restrain said sectors against further relative movement.

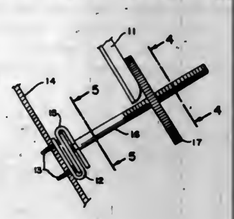
3,316,776
HAND OPERATED BRAKE
Hans Otto Schröter, Robert Kochstrasse 18, Munich, Germany
Filed July 8, 1965, Ser. No. 470,371
Claims priority, application Germany, Mar. 1, 1965, Sch 36,616
3 Claims. (Cl. 74—516)



1. A braking mechanism comprising a manually operated lever pivotally mounted on a stationary axis and adapted to act upon brake-applying linkages, a peripherally curved member carried by the lever, an arm pivotally mounted on another stationary axis and carrying a roller that travels along the curved periphery of said member, and a spring urging the roller against the curved periphery, a portion of the periphery being approximately concentric with the axis of the lever while another and adjacent portion of the periphery has a reverse curvature so that the spring will remain inactive during the initial brake-applying movement of the lever but will contribute to the brake-applying force upon continued movement of the lever.

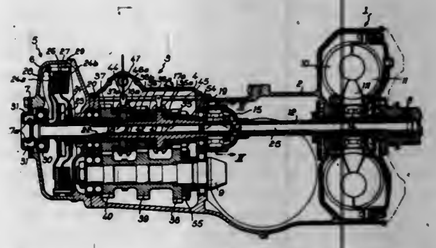
3,316,777
BRAKE PEDAL DEPRESSING AND HOLDING DEVICE
Bernard S. Sain, 75 Forest Hill Road, West Orange, N.J. 07052
Filed Mar. 8, 1965, Ser. No. 437,922
2 Claims. (Cl. 74—532)

1. In an automobile having a brake pedal and a floor board below, a brake pedal depressing and holding device comprising a slotted, flattened bracket permanently connected to said floor board and having at least one open side, a screw threaded shaft, a flattened enlargement fixedly disposed on the lower end of said shaft and removably engaging said flattened bracket by being inserted through said open side and interleaved thereby with said bracket, said shaft thereby extending outwardly and upwardly of said floor board, and a wheel having a threaded bore rotatably mounted on said shaft so as to travel up or down as the wheel is rotated whereby



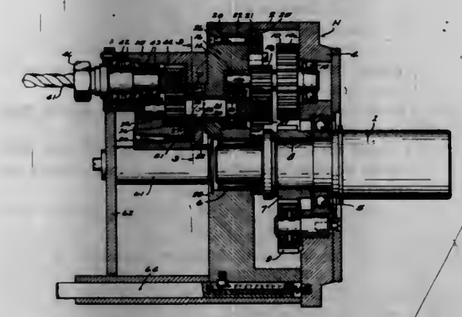
pressure may be applied thereby to said brake pedal, said wheel being in the form of a flat disk and being manually rotatable relative to said shaft.

3,316,778
GEAR BOX
Antoine Brueder, Paris, France, assignor to Société Anonyme André Citroën, Paris, France, a French society of France
Filed July 28, 1964, Ser. No. 385,728
Claims priority, application France, July 31, 1963, 943,248
10 Claims. (Cl. 74—732)



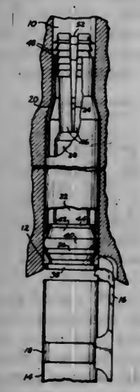
1. An automatic transmission for an automotive vehicle, comprising a driving shaft adapted to be rotated by the engine of the vehicle, and a driven shaft extending parallel to said driving shaft and offset with respect to the axis of the latter for connection to driving wheels of the vehicle; a hydraulic torque converter driven by said driving shaft and having an output shaft; a gear box including first and second intermediate shafts mounted so as to be free to rotate relative to each other, first and second axially slidable collars mounted on said first and second intermediate shafts, respectively, for selective displacement to at least two positions for each of said collars, pinions on said intermediate shafts meshing with corresponding pinions secured on said driven shaft, dog clutch means connected with said pinions on the intermediate shafts and being selectively operable by said collars in each of said two positions of the latter for coupling said first and second intermediate shafts to selected ones of said pinions thereon, and displacement means engaged with said first and second collars and being actuable to simultaneously displace both of said collars to a selected one of said two positions thereof; free wheel means connecting said output shaft of the torque converter with said first intermediate shaft; braking means for arresting rotation of said output shaft; a clutch including an input plate connected to said driving shaft for rotation therewith and an output plate connected to said second intermediate shaft for rotating the latter from said driving shaft when said clutch is engaged; and means controlling the engagement of said clutch in dependence on operating parameters of said driving shaft.

3,316,779
ADJUSTABLE DRILL HEAD
James E. Schultz, Elm Grove, Wis., assignor to H. O. Schultz, Inc., Milwaukee, Wis., a corporation of Wisconsin
Filed June 22, 1965, Ser. No. 465,960
6 Claims. (Cl. 77—24)



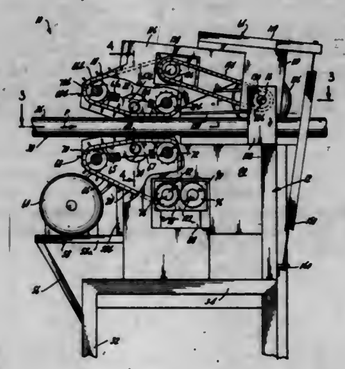
1. A rotatable multiple drill head having a shank and a main housing rotatably journalled on the shank, an idler housing rotatably mounted within said main housing and having means for permitting it to be rotated and locked in any desired position within said main housing, said main housing having a main outer surface and said idler housing being located within said main housing and beneath said surface except for a post which protrudes outwardly beyond said surface, a spindle housing having an opening which receives said protruding post and permits said spindle housing to be positioned flush with said main surface, said spindle housing being rotatable on said post for 360° and adapted to rotatably support a drill therein, a gear power train means extending from said shank through said housings and to said drill for rotating the latter, and releasable means for locking said spindle housing relative to said main surface of said main housing.

3,316,780
BROKEN RIFLE SHELL EXTRACTOR
Edward C. Herkner, P.O. Box 5007, Boise, Idaho 83702
Filed Jan. 14, 1966, Ser. No. 520,801
8 Claims. (Cl. 81—3.05)



1. For use in extracting a rimless, discharged shell fragment from the chamber of a rifle fitted with a bolt reciprocatable between retracted and advanced positions and provided with a forwardly extending latching finger normally engageable in the advanced position of the bolt with the annularly flanged rim of an unbroken discharged shell for withdrawing the same from the rifle chamber, an extractor insertable into the chamber and comprising:
(a) a stepped spindle having a rearward segment of enlarged diameter and a forward segment of lesser diameter and on the rearward segment a head provided with an annularly flanged rim dimensioned for engagement by the latching finger of the rifle bolt,
(b) a radially arranged resilient ring seated on the head a spaced distance from the spindle rim,
(c) the ring being dimensioned for frictional engagement with the bore of the rifle chamber,
(d) an expandable sleeve mounted for longitudinal sliding movement on the forward segment of the spindle,
(d) the forward end of the sleeve being provided with engaging means for engaging the fragment,
(f) and wedge means positioned on the forward end of the forward spindle segment forwardly of the sleeve for wedging engagement with the sleeve upon relative longitudinal movement of the spindle and sleeve induced by shifting the bolt to its retracted position, thereby expanding the sleeve into gripping engagement with the shell fragment and withdrawing the fragment from the rifle chamber upon withdrawal of the extractor therefrom.

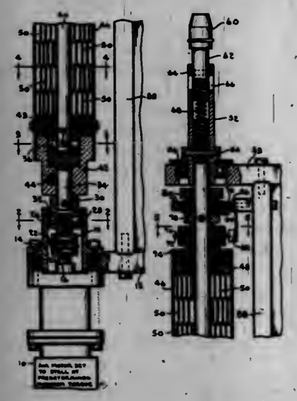
3,316,781
CABLE INSULATION STRIPPING APPARATUS
Frederick A. Bignell and George B. Erskine, Emporium, Pa., assignors to Emporium Specialties Co., Inc., Austin, Pa., a corporation of Pennsylvania
Filed June 1, 1966, Ser. No. 554,588
9 Claims. (Cl. 81—9.51)



1. A cable insulation stripping apparatus comprising a stationary support frame, a movable support frame mounted for pivotal movement about a predetermined pivot axis relative to said stationary support frame, cooperating cable-advancing means on said support frames for engaging and feeding cable having insulation thereabout along a feed path between said support frames, a cooperating pair of rotary knives respectively mounted on said support frames along said feed path and effective to slit said cable insulation preparatory to the stripping thereof from said cable and a drive for each of said rotary knives, the drive for said rotary knife on said movable frame including a motor having a drive shaft and a drive connection of a predetermined extent therefrom to said rotary knife, said motor being located adjacent said predetermined pivot axis such that said drive shaft thereof and said predetermined pivot axis are coaxial, whereby

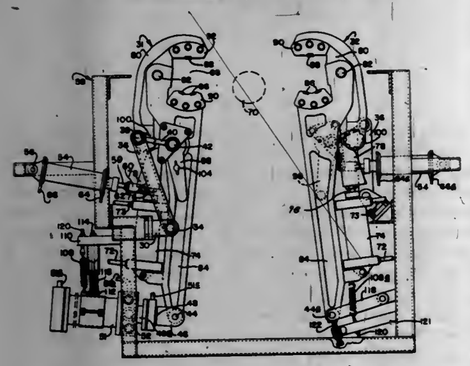
said drive connection remains of the same predetermined extent in all pivotal positions of said movable support frame about said predetermined pivot axis.

3,316,782
TORQUE CONTROL DEVICE
Lyell C. Tullis, Janesville, Wis., assignor to Gisholt Corp., Madison, Wis., a corporation of Wisconsin
Filed July 6, 1965, Ser. No. 469,498
9 Claims. (Cl. 81—52.5)



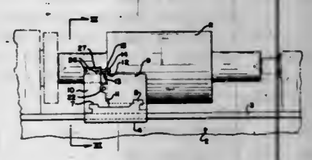
1. Apparatus for driving nuts and seating them with a predetermined torque, comprising, an air motor set to stall at approximately said torque, a shaft driven by the air motor, a lost motion connection between the shaft and the motor, spring means loading the lost motion connection in a direction such that the air motor can overrun the shaft by taking up lost motion against the force of the spring means, said spring means being preloaded to yield at about the minimum torque desired and having a low spring rate whereby the torque is not increased above the maximum permissible torque within the range of lost motion.

3,316,783
PIPE TONGS
John Hart Wilson, % Wilson Manufacturing Co., P.O. Box 1031, Wichita Falls, Tex. 76307
Filed Feb. 19, 1965, Ser. No. 434,745
15 Claims. (Cl. 81—54)



1. A power actuated tong for gripping pipe and the like, which tong comprises;
(a) an elongated body,
(1) a movable jaw pivotally mounted near the distal end of said body,
(2) first pipe engaging members within said body near an end thereof,
(i) said movable jaw having the side between said jaw and said body open, which opening is in associated relation with said pipe engaging members in said body,
(3) a second pipe engaging member on said movable jaw within said opening and being in opposed relation to said first pipe engaging members in said elongated body,
(b) a fluid actuated cylinder mounted on a side of said elongated body,
(1) said movable jaw having a lever portion, said lever portion extending in the same general direction as the elongated body,
(i) said lever portion extending toward said fluid actuated cylinder,
(c) cam means extending between the lever portion and the body, and interconnecting the plunger of said cylinder with said lever portion of said movable jaw in power actuated relation,
(d) means pivotally mounting said elongated body of said tong for lateral movement within a plane, and
(e) support means connected to said body intermediate the length thereof.

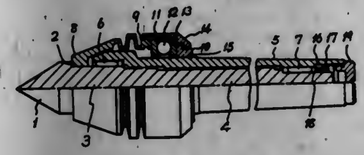
3,316,784
LATHE TOOL HOLDER
Roger E. Johnson, Bethel Park, and Elbert G. Thompson, Library, Pa., assignors to Blaw-Knox Company, Pittsburgh, Pa., a corporation of Delaware
Filed Oct. 30, 1964, Ser. No. 407,653
5 Claims. (Cl. 82—24)



1. In a lathe, a longitudinal guideway, a carriage movable along the guideway, a cross slide mounted on the carriage adjustably positionable transversely of the carriage, a tool post mounted directly on the carriage and adjustably positionable transversely of the carriage, means for fastening together the cross slide and the tool post in respective adjusted transverse positions thereof on the carriage and tool means carried by the tool post.

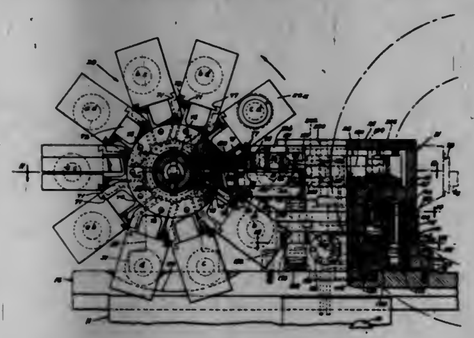
3,316,785
LIVE CENTER
Hirosi Nakane, 56, Shimorenjaku, Mitaka-shi, Tokyo, Japan
Filed May 5, 1965, Ser. No. 453,246
Claims priority, application Japan, May 7, 1964, 39/25,897; (utility model), 39/31,606
3 Claims. (Cl. 82—33)

1. A live center comprising a rotary shaft integrally made up of a conical head, a neck having a stepped portion and a long body contiguous thereto, a stationary shaft sleeve surrounding said body, needle bearings disposed between said body and said stationary shaft sleeve, a bearing annulus, said bearing annulus being mounted on the body in such a manner that the front end of the bearing annulus may abut on the stepped portion of the body, an annulus secured around said stationary shaft sleeve, a ball bearing inserted between said annulus and the rear end of said bearing annulus, a resilient member abutting on said ball bearing to absorb a thrust applied



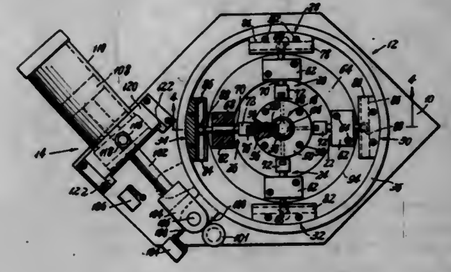
thereto from said bearing annulus, and a cover ring mounted on said bearing annulus to surround the same.

3,316,786
TURRET FOR A MACHINE TOOL
William C. E. Coate, Cincinnati, Ohio, assignor to The Lodge & Shipley Company, Cincinnati, Ohio, a corporation of Ohio
Original application Oct. 5, 1961, Ser. No. 143,076, now Patent No. 3,186,266, dated June 1, 1965. Divided and this application Apr. 15, 1965, Ser. No. 448,291
7 Claims. (Cl. 82—36)



1. In tool changing and supporting apparatus for a machine tool having a bed, turret apparatus comprising:
a base section on said bed;
a head section disposed on said base section and constructed to carry a tool for working a blank;
means rotatably mounting said head section on said base section for rotation relative to the base section;
means on said head section for mounting a tool holder;
a first ring fixedly connected to said head section and rotatable therewith, the ring having a pair of diametrically opposite radially extending V-shaped slots;
a second ring fixedly connected to said base section and disposed radially inwardly of first said ring and having a pair of diametrically opposed radially extending V-shaped slots;
a pair of shoes disposed above said rings and diametrically opposite one another;
means exerting a force on said head section to rotate the same until said V-shaped slots are in substantial radial alignment and then relieve said force; and
means to cause said shoes to move downwardly into said slot when the slots are in substantial radial alignment,
said rings are radially spaced from one another and each shoe has a piston rod extending down through the space between the rings, the piston rod being connected to a piston disposed in a cylinder formed in said base section, the piston being for use in moving said shoes in and out of said slots.

3,316,787
MULTIPLE SIDE PUNCHING MACHINE
Thomas E. Lambro, Bridgeport, Conn., assignor to Nathan Dolberge, Bridgeport, Conn.
Filed Oct. 20, 1965, Ser. No. 498,508
4 Claims. (Cl. 83—109)

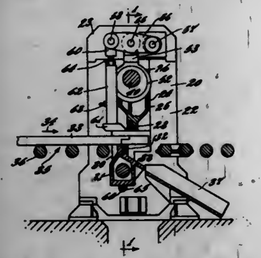


1. A machine for multiple side punching of tubular blanks comprising:
(A) a frame,
(B) means on said frame for supporting tubular blanks,
(C) a plurality of angularly spaced punching units disposed around said supporting means, each punching unit comprising
(1) radially acting punching means disposed adjacent said blank supporting means,
(2) a ram disposed radially with respect to said supporting means for actuating said punching means, and
(3) a ram guide secured to said frame for supporting and guiding said ram for reciprocable movement,
(D) an annular carrier rotatably supported on said frame,
(E) means for oscillating said carrier through a predetermined angle of rotation between spaced apart limit positions,
(F) cam means interconnecting said carrier and said plurality of rams in continuous driving relationship throughout the extent of movement of said carrier between said limit positions for simultaneously forcibly driving said rams both inwardly and outwardly in response to oscillatory movement of said carrier between said limit positions,
(G) ejecting means mounted on said frame adjacent said supporting means for ejecting a blank therefrom, and
(H) means responsive to the arrival of said carrier in one of said limit positions for actuating said ejecting means upon completion of a radially outward movement of said rams.

3,316,788
UP-AND-DOWN SHEAR
Edward C. Peterson, Douglasville, Pa., assignor to Birdsboro Corporation, Birdsboro, Pa., a corporation of Pennsylvania
Filed Oct. 14, 1965, Ser. No. 495,878
4 Claims. (Cl. 83—375)

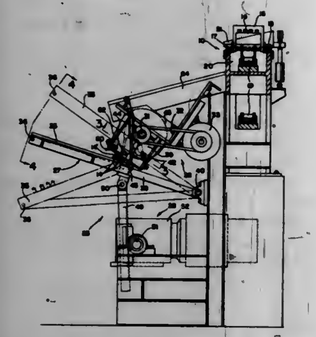
1. In an up-and-down shear, a frame, an upper knife slide vertically slidably mounted on the frame, an upper knife at the lower end of the upper knife slide, a crankshaft journalled in the upper knife slide and movable bodily up and down with the upper knife slide, a first crank throw on the crankshaft, a lower knife slide vertically slidably mounted on the frame, and having a lower position resting on the frame, a lower knife at the upper

end of the lower knife slide cooperating in shearing position with the upper knife, means operatively connecting the lower knife with the first crank throw, vertically



movable clamp means positioned adjacent the upper knife, a second crank throw on the crankshaft, and means operatively connecting the second crank throw with the clamp means.

3,316,789
DROP LEAF DECK SAW
Stuart O. Smith, Chagrin Falls, Ohio, assignor, by mesne assignments, to National Copper Development Co., Solon, Ohio, a corporation of Ohio
Filed Sept. 2, 1965, Ser. No. 484,593
6 Claims. (Cl. 83—453)



1. A holddown device for workpieces long in proportion to their size tending to cause entangling in a longitudinal direction comprising

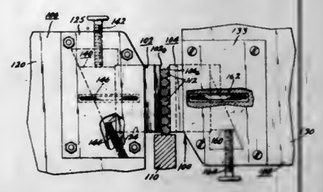
a work support having a flat work surface upon which is supported a plurality of workpieces,

tool means operable in a plane perpendicular to the longitudinal axes of said workpieces and said work support and tool means being movable toward and away from each other, and

elastic means extending transversely of the workpieces and being engageable therewith in such a manner as to progressively stretch thereacross upon relative movement of said work support and tool means causing a local rearrangement of the workpieces into a flat, parallel row prior to performing work thereon.

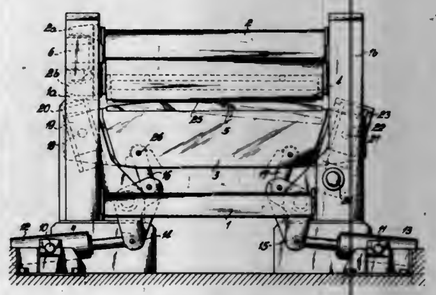
3,316,790
CUTTING APPARATUS
Ove Steen Frederiksen, Sydvestvej 99, Glostrup, Denmark
Filed Sept. 27, 1965, Ser. No. 490,616
3 Claims. (Cl. 83—679)

1. Cutting apparatus comprising a support frame, a pair of cutting blades having elongated parallel cutting edges mounted in said frame, said blades adapted to be positioned relative to one another to provide a gap between the cutting edges to receive material to be cut, means including a holder for mounting each of said blades, each of said holders including a member having a C-shaped projection defining a guide opening for said one blade and including an inclined wall, a wedge element of right-angled triangular shape mounted in said opening having an inclined face engaging said inclined wall and one side engaging the back of the cutting blade, a threaded adjusting screw mounted in said member en-



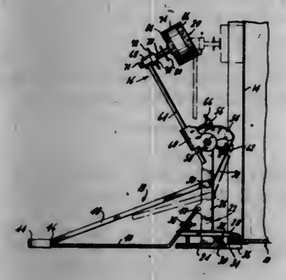
gaging the other side of said wedge operable to move said wedge to displace said cutting blade thereby to effect selective adjustment of the gap between the cutting edges of the cutting blades, spring biasing means mounted in each holder and connected to the cutting blades mounted in the respective holders and adapted to normally urge said blades in a direction against its respective wedge element.

3,316,791
METAL SHEARS HAVING A STRAIGHT AND A CURVED KNIFE
Karl Greis and Paul Hamacher, St. Ingbert, Saar, Germany, assignors to Verwaltungsgesellschaft Moeller und Neumann offene Handelsgesellschaft, St. Ingbert, Saar, Germany
Filed Dec. 4, 1964, Ser. No. 415,901
Claims priority, application Germany, Dec. 5, 1963, V 24,982
9 Claims. (Cl. 83—566)



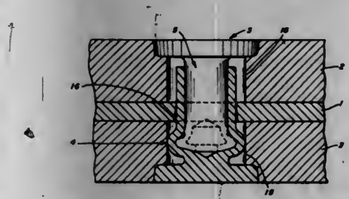
1. Heavy duty shears for shearing metal plates comprising a housing, an upper knife support carried in said housing, an upper cutting knife mounted on said upper knife support, a lower knife support carried in said housing, a lower knife mounted on said lower knife support, one of said knives being straight and the other knife being curved, said knife support of said curved knife being guided on one side by an inclined rigid guide, two crank drive means operatively connected to the knife support at a distance from each other carrying said curved knife for imparting a reciprocating rocking movement to said knife support for effecting a cutting stroke in cooperation with said straight knife mounted in a relatively fixed position, and adjusting means for moving the level of one of said knives in a vertical direction normal to its original level and relative to said other knife without changing the cutting movement of said curved knife.

3,316,792
PEDAL-ACTUATED DRUM BEATER DEVICE
Francis J. Ippolito, 98—33 64th Ave., Forest Hills, N.Y. 11375
Filed June 18, 1965, Ser. No. 464,920
2 Claims. (Cl. 84—422)



1. The combination with a drum having a flat drum playing surface of a drum beater device having a flat striking surface thereon oriented in facing relation to said drum playing surface, and of means for actuating said drum beater device into contact with said drum playing surface such that said respective flat surfaces make substantially flush contact with each other, said means comprising a pedal mechanism for actuating said drum beater device through a rotative movement from a spaced position from said flat drum playing surface into contact therewith, and supporting rod means operatively connected between said pedal mechanism and said drum beater device and including at least two legs having an included angle therebetween, said included angle being appropriate to orient said drum beater device at an angle at said spaced position for making said flush contact against said flat drum playing surface at the end of said rotative movement.

3,316,793
CUTLERY RIVET
Frank J. Mitchell, Sherborn, Mass., assignor to Textron Industries, Inc., Providence, R.I., a corporation of Rhode Island
Filed Sept. 7, 1965, Ser. No. 485,429
3 Claims. (Cl. 85—39)



1. A rivet for securing a handle upon a knife tang through aligned openings therein comprising,

(a) a tubular rivet portion having a hollow shank portion and an enlarged solid head portion, and

(b) a solid rivet portion having a solid shank portion terminating at one end in an enlarged head portion and terminating at the opposite end in a hollowed out portion defined at its outer end by inturned walls terminating in spaced relation to the longitudinal centerline of the shank portion,

(c) said solid rivet shank portion having a length greater than said tubular rivet hollow shank portion whereby when the said rivet shank portions are arranged through opposite sides of said handle and tang openings with the solid rivet shank portion aligned with said tubular rivet hollow shank portion and force applied against the opposite rivet head portions the solid rivet shank hollowed out portion upon bottoming in said tubular rivet hollow shank portion expands about the hollowed out portion thereof to expand and lock both said rivet shank portions in fixed expanded relation.

3,316,794
MOUNTING PIN
Max D. Dixon, 125 N. Main St., Miami, Okla. 74354
Filed Aug. 23, 1965, Ser. No. 481,615
4 Claims. (Cl. 85—49)



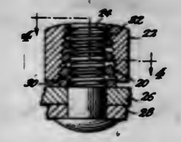
1. A pin comprising:

first and second generally parallel, elongated, substantially vertical members, the lower end of each member being pointed, said members having a substantially square-shaped, cross-section configuration, the top end of each member terminating in a generally horizontal, substantially square-shaped surface; and

an elongated strip having a substantially horizontal portion extending between said members and covering said top ends thereof, each extremity of said portion terminating in a vertically downwardly extending clamp frictionally engaging the three sides of the top end of the corresponding member remote from said other member,

the point of each member having three vertical sides with the side thereof most remote from the other of said members being tapered, whereby said tapered sides converge in the direction away from said top ends.

3,316,795
FASTENING DEVICE INCLUDING HELICAL SPRING-LIKE ELEMENT
David Tann, 333 Covington Drive, Detroit, Mich. 48203
Filed June 23, 1965, Ser. No. 466,287
4 Claims. (Cl. 85—64)



1. In combination, male and female members having telescoping external and internal surfaces, one of said surfaces being tapered and the other of said surfaces being generally cylindrical with at least one of said surfaces being threaded, and a helical spring-like element,

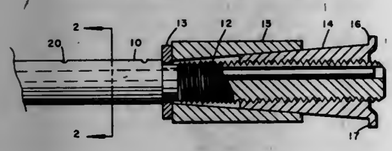
said spring-like element comprising a continuous length of wire-like material forming a helix having a plurality of convolutions, said helix defining inner and outer surfaces with one of said surfaces defining a truncated cone corresponding to said tapered surface and the other of said surfaces defines a cylinder corresponding to said cylindrical surface, the cross-sectional area of said wire-like material progressively diminishing from one end of the helix to its opposite end, said spring-like element threadably engaging said threaded surface so as to be displaced radially when said one member is rotated and advanced axially relative to said helical spring-like element.

3,316,796
SELF-DRILLING EXPANSION ANCHOR BOLT
Jacob H. Young, Glendale, Mo. (1415 S. 18th St., St. Louis, Mo. 63104)
Filed June 24, 1965, Ser. No. 466,736
4 Claims. (Cl. 85—68)



1. An anchor bolt for insertion in a wall; said bolt comprising an expansible sleeve having a threaded end portion at one end and a flange plate at its other end with an expansible collar portion therebetween, said collar portion having axially extending slits therein, a bolt fitted through said sleeve and having threads for engaging the threads of said threaded end portion, said threaded end portion adapted to advance toward said flange plate when said bolt is rotated in a preselected direction relative to said sleeve whereby to expand said collar portion of said sleeve, said bolt being provided at one end with a head projecting beyond said flange plate and being provided with a point at its other end, said point having a substantially flat removable cutter element thereon having cutting edges for boring a hole through a wall when rotation in said preselected direction is imparted to said bolt, said bolt being provided intermediate its ends with a diametrically reduced portion to slidably fit within said threaded end portion.

3,316,797
ROCK BOLT WITH CONDUIT
Chester I. Williams, 347 Green Briar SE., Grand Rapids, Mich. 49506
Filed Jan. 29, 1964, Ser. No. 341,076
1 Claim. (Cl. 85—74)



A rock bolt assembly adapted to be grouted in a hole, comprising:

a bolt rod having an axial recess extending along the entire length thereof and being open throughout its length at the outer surface of said rod, said rod having an externally threaded inner end portion;

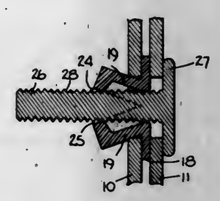
said recess being narrower adjacent the periphery of said rod than at a position nearer to the center thereof;

an anchor device received on said threaded inner end portion, said anchor device including a threaded cone and an expansible sleeve surrounding said cone, said sleeve being adapted to expand upon rotation of said cone relative to said bolt rod; and

a tube received in said axial recess, said tube extending to the outer extremity of said bolt rod, and

said tube being received in said recess in a forced fit, said recess having means extending inwardly from the opposite sides thereof adjacent the radially outermost extremities of said recess for retaining the said tube therein.

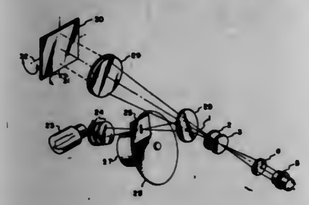
3,316,798
PLASTIC ANCHOR ASSEMBLY
Kenneth C. Johnson, 9 Crabapple Lane, Commack, N.Y. 11725
Continuation of application Ser. No. 414,390, Nov. 27, 1964. This application Mar. 18, 1965, Ser. No. 440,770
2 Claims. (Cl. 85—84)



1. A fastening assembly for supporting an article in a supporting member having an opening therethrough comprising a bolt-like member having a serrated shank adapted to extend through said opening, an anchor member of deformable resilient plastic material having a body portion for insertion through the opening in the supporting member and a thin flange integral with and extending laterally from and perpendicularly to said body portion for initially retaining the anchor member in position, said body portion comprising a substantially thin, straight, cylindrical side wall portion extending around the axis of the body portion to form a bore having an inner surface and an end portion forming a bottom wall to said bore, said inner surface being substantially perpendicular to said flange, the axial length of said body portion being substantially greater than the axial thickness of said flange, the axial length of said body portion being greater than the axial thickness of said end portion, said bore extending about two-thirds the length of the body portion and the end portion extending axially about one-third the length of the body portion, a slit in said end portion forming opposed gripping surfaces substantially perpendicular to said flange and parallel to said inner surface, said slit extending throughout the length of said body portion to permit the wall portion to bend outwardly, the area of said bottom wall immediately adjacent said gripping surfaces being substantially parallel to said flange and substantially perpendicular to said gripping surfaces, the diameter of said serrated shank being smaller than the diameter of said bore and axially passing through said bore and between the gripping surfaces in the end portion to expand the end portion and bend the wall portion of the body portion radially a distance greater than the opening in the supporting member to cause a substantial portion of the inner surface of said wall portion to be spaced from said shank, the gripping surfaces only of said end portion being adapted to grip the serrated shank of the bolt-like member and be the initial contact between the body portion of said anchor member and the bolt-like member whereby the

circumferential area of the bore adjacent the flange moves inwardly and becomes embedded in the serrated shank of the bolt-like member to aid in holding the bolt-like member securely in place.

3,316,799
TWO AXIS AUTOCOLLIMATOR USING POLARIZED LIGHT
William J. Daley, Ridgefield, and Robert W. Astheimer, Westport, Conn., assignors to Barnes Engineering Company, Stamford, Conn., a corporation of Delaware
Filed Nov. 7, 1962, Ser. No. 236,025
1 Claim. (Cl. 88—14)



In a polarized light photoelectric autocollimator having a light source and means for projecting a beam of plane polarized light therefrom and receiving a reflected beam from a reflecting surface, rotations of which about predetermined orthogonal axes are to be monitored, the improvement which comprises, in optical alignment along an optical axis of the instrument,

(a) an analyzer at the focus of the reflected beam,

(b) the analyzer comprising four quadrants of polarizing material, opposite pairs of quadrants polarizing at right angles to each other and adjacent quadrants polarizing at 45° to each other, the planes of polarization of one pair being parallel to one orthogonal axis with respect to the analyzer and the other to the other axis, means for rotating the plane of polarization of the projected beam at a predetermined frequency, said means being located between the source of light and the analyzer,

(c) a reference A.C. source having a frequency equal to twice the rotational frequency of the plane of polarized light, and 90° out of phase therewith,

(d) a single radiation detector capable of transforming the polarized light into electrical signals, alternating current electronic processing circuits receiving the output of the detector and including two phase detection circuits, one phase detection circuit directly connected to the reference A.C. source, and the other connected thereto through means for changing the phase of the reference source by 90°, A.C. output means from the two phase detection circuits responding to A.C. signals at the frequency of the reference signal source, whereby, when the beam image on the analyzer is centered, no net A.C. component is detected and displacement of the image resulting from rotation of the reflecting surface about the two orthogonal axes produces outputs from the phase detectors corresponding to the rotation about the respective axes.

3,316,800
LIGHT COMMUNICATION ALIGNMENT SYSTEM
Lynden U. Kibler, Middletown, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Mar. 19, 1963, Ser. No. 266,440
1 Claim. (Cl. 88—14)

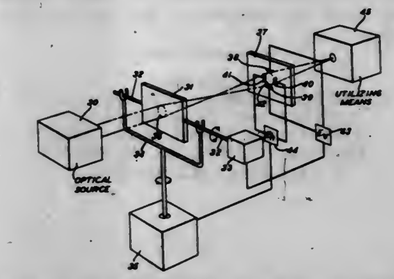
A beam direction stabilized coherent optical transmission system comprising

a source of coherent substantially single frequency electromagnetic wave energy,

first means for focusing and directing said wave energy,

second means for focusing and directing wave energy focused and directed by said first means and incident upon said second means,

said second means having first, second, third and fourth photon responsive elements disposed thereon in spaced relationship around a preferred area of illumination,



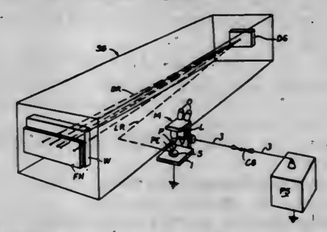
said elements being disposed on the surface of said second means upon which said energy from said first means is incident, whereby errors due to temperature differentials and misalignments among said elements are reduced,

means associated with said photon responsive elements for producing external electrical signals in response to illumination of said elements,

and means responsive to said external electrical signals for changing the orientation of said first focusing and directing means,

said change in orientation of said first focusing and directing means reducing said external electrical signals substantially to zero.

3,316,801
MICROSCOPE IN COMBINATION WITH A MICRO-SPARK PROBE INCLUDING AN UNSHIELDED ELECTRODE OF SMALL TIP RADIUS
Raymond S. Vogel, Kirkwood, Mo., assignor, by mesne assignments, to the United States of America as represented by the United States Atomic Energy Commission
Filed Jan. 17, 1964, Ser. No. 338,456
16 Claims. (Cl. 88—14)



1. Apparatus for in situ microanalysis of a selected micro-area of a sample to be spectroscopically analyzed comprising:

a microscope having

a stage for mounting a sample to be analyzed,

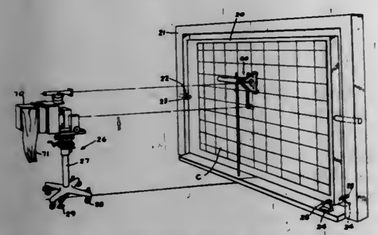
an ocular,

an objective adapted to be positioned in optical alignment with said ocular,

and means for varying the position of the sample relative to the optical axis of the microscope whereby a selected micro-area of said sample may be positioned on the optical axis of said microscope,

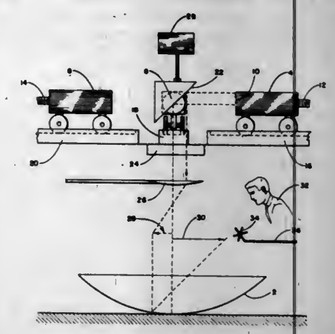
a microspark probe including an electrode positionable relative to a selected microarea of the sample thereby to form a spark gap, said electrode being unshielded and having a tip radius in the order of about 1 micron,
means for positioning said probe in optical alignment with said ocular,
and means for electrically energizing the probe and the sample whereby a discrete micro-area of the sample is selectively sparked to form a spark plasma, the microspectra of the radiant energy thereof being useful for spectroscopic and spectrographic analysis.

3,316,802
COPYING METHOD AND APPARATUS
Cecil G. Shuert, Grosse Pointe, Mich.
(13550 Conant, Detroit, Mich. 48212)
Filed Aug. 13, 1964, Ser. No. 389,369
4 Claims. (Cl. 88—24)



1. The method of reproducing loft drawings and the like to any specific ratio with respect to an original which comprises the steps of
holding the drawing to be copied in a fixed frame,
holding a mirror in position on the face of the drawing with the plane of the mirror parallel to the plane of the drawing,
bringing a camera into position adjacent the drawing,
said camera having a viewing scope mounted thereon with the axis of the scope in accurate parallel relationship to the axis of the lens of the camera and a reflection target on the end of the scope, said target having a vertical cross hair and a horizontal cross hair,
leveling the camera,
rotating the camera to position the vertical cross hair of the scope in alignment with the vertical center line of the reflection target as reflected by the mirror held on the drawing,
moving said frame to bring the horizontal cross hair of the scope into alignment with the horizontal center line of the reflection target as reflected by the mirror held on the drawing,
inserting an unexposed photographic plate in the camera,
exposing the photographic plate,
developing the photographic plate,
repositioning the exposed photographic plate in the camera,
positioning an unexposed positive in the line of sight of the camera,
aligning the plane of the positive so that it is perpendicular to the axis of the lens of the camera,
directing light through the exposed negative and the camera and thereby utilizing the camera for enlarging the exposed negative and projecting an enlarged image on the unexposed positive,
thereby exposing the positive,
and developing the positive to produce a copy of the original drawing to precise accurate dimensions and precise ratio of size to the original drawing.

3,316,803
THREE DIMENSIONAL VOLUMETRIC DISPLAY MEANS
Lewis R. Carpenter, Lancaster, Calif., and Donald Makuch, Detroit, Mich., assignors, by mesne assignments, to LTV Aerospace Corporation, Dallas, Tex., a corporation of Delaware
Filed Jan. 7, 1965, Ser. No. 423,939
2 Claims. (Cl. 88—24)

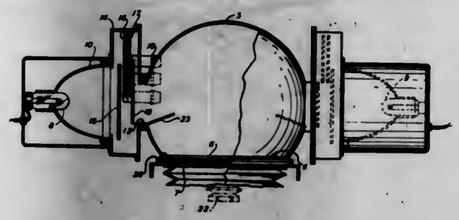


1. A three dimensional volumetric display device comprising:
a parabolic mirror;
a plurality of illuminated objects mounted above said parabolic mirror substantially perpendicular to the axis of said parabolic mirror,
means mounting each of said objects for independent adjustable positioning with a plurality of degrees of freedom,
a rotating mirror mounted to receive light from all of said objects during each rotation and to reflect said light parallel to the axis of said parabolic mirror,
lens means mounted between said rotating mirror and said parabolic mirror for focusing light from said objects to form the objective for the real image field of said parabolic mirror,
collimating means interposed between said objects and said lens means for collimating light passing from said objects to said lens means, and
reference means mounted adjacent said real image field and adjustably positionable with a plurality of degrees of freedom.

3,316,804
ILLUMINATING APPARATUS FOR PHOTOGRAPHIC PRINTERS AND ENLARGERS WITH SPECULAR MIRRORS
Louis L. Weisglass, New York, N.Y., assignor to Simmon Brothers, Inc., Long Island City, N.Y., a corporation of New York
Filed Mar. 15, 1965, Ser. No. 439,653
3 Claims. (Cl. 88—24)

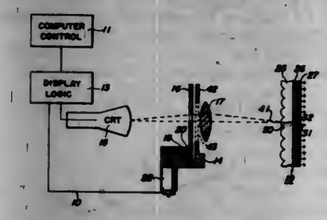
1. An illuminating apparatus for photographic printers and enlargers for producing thoroughly mixed homogeneous light over the surface of a film transparency comprising:
(a) a light collector in the form of a hollow elliptical body having a specular reflecting surface and a light source at one end with an outlet orifice at its other end,
(b) a spherical mixing chamber provided with a diffusely reflecting interior surface and having a light inlet aperture coinciding with the light outlet orifice of said light collector and a light exit aperture disposed normal to its light inlet aperture, and

(c) means carried by said spherical mixing chamber and disposed at an acute angle relative to the axis of its light inlet aperture and positioned between the latter and the light exit aperture of said spherical mixing chamber, and said means being thus across



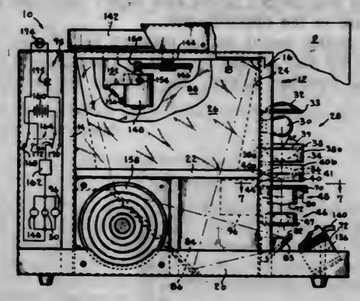
the path of light from said inlet aperture to prevent direct light from said light collector passing to the light exit aperture of said spherical mixing chamber and to a film transparency positioned adjacent thereto.

3,316,805
COLOR DISPLAY
Donald S. Cary, Pittsford, N.Y., assignor to Xerox Corporation,, Rochester, N.Y., a corporation of New York
Filed Sept. 2, 1965, Ser. No. 484,606
4 Claims. (Cl. 88—24)



1. A method of transforming a monochromatic graphic display into a corresponding graphic display colored in accord with a preselected scheme comprising:
(a) nominally identifying those portions of said monochromatic display to be imparted a particular color;
(b) sequently displaying each of said portions for intervals of time during which the said portion is selectively imaged through those apertures of a selectable multiple aperture plate nominally color-identified with the color identification of said portion and through a lens system onto a lenticulated light sensitive member, said aperture plate and lens system being positioned with respect to said displayed portion and said lenticulated light sensitive member so that said portion is imaged at points on said light sensitive member behind individual lenticules in accordance with said color-identified apertures selected for the particular time interval;
(c) developing said light sensitive member to form a visible image;
(d) replacing said aperture plate by a banded color filter, said bands being colored in accord with the nominal color identification of said apertures; the space locations of said bands corresponding to the exposure location of the apertures with which the said bands are in color accord;
(e) light projecting said image back through said lens system and said color filter and onto a viewing screen so that points on said developed image nominally identified with said particular colors are projected through bands on said filter corresponding to said colors.

3,316,806
PORTABLE PROJECTOR
Leonard W. Coulson, Slinger, Wis., Joseph Antos, Big Rock, Ill., and Eckart F. Schultze, Oconomowoc, Wis., assignors to La Belle Industries, Inc., Oconomowoc, Wis., a corporation of Wisconsin
Filed Jan. 13, 1964, Ser. No. 337,304
6 Claims. (Cl. 88—28)



1. A portable audio-visual projector comprising, in combination,
a housing having a base, a vertical wall extending from said base, and a projection screen arranged at and visible through an opening in the vertical wall of said housing,
horizontally disposed lamp means within said housing characterized by having a predetermined rated voltage at which said lamp means will have an optimum operating life,
reflector means in said housing operatively adjacent and above said lamp means for directing light from said lamp means along a desired vertical line,
film support means defining a film aperture on said line and supporting a film roll to be fed past said film aperture,
lens means arranged along said line between said lamp means and film aperture,
a self-contained D.C. power supply within said housing, connected to said lamp means, and characterized by supplying power to operate said lamp means above its rated voltage so that sufficient light is emitted from said lamp means with the relatively limited power available from said self-contained D.C. power supply,
drive means connected to said D.C. power supply and said film roll for moving said film past said aperture,
a sound system connected to and operated from said D.C. power supply,
and means controlling said lamp means, drive means and sound system.

3,316,807
BOMB-FUZE FUNCTION SELECTOR AND INITIATOR
Lionel L. Woolston, Silver Spring, Robert H. Semenoff, Takoma Park, and Robert R. Armstrong, Silver Spring, Md., assignors to the United States of America as represented by the Secretary of the Navy
Filed Oct. 22, 1965, Ser. No. 502,754
5 Claims. (Cl. 89—1.5)

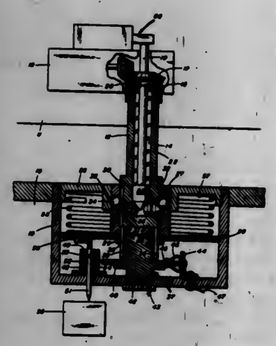
1. In combination with an aircraft, an aircraft drop bomb, a bomb fuze function selector and initiator comprising:
a housing positioned within the bomb,
a plurality of stationary spring contacts arranged in a circle near the bottom wall of said housing,
a switch plate rotatably mounted in said housing within the area of said circle and contacted by all of said stationary spring contacts,

arcuate contacts mounted on said switch plate and so spaced as to permit switching between the circuits of a plurality of fuzing functions as the switch plate is rotated,

a cylindrical member positioned above said switch plate and rotatably coupled therewith,

said cylindrical member having an annular flange on the end thereof facing said switch plate and an axial bore in the opposite end,

coil spring means acting between said flange and the upper wall of said housing and urging said cylindrical member toward the bottom of said housing,

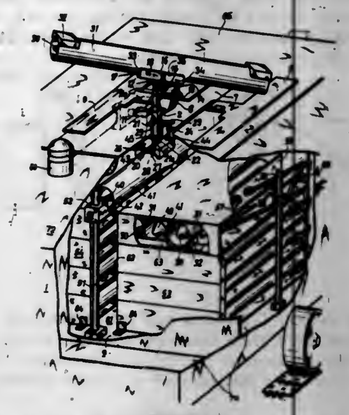


a rod member positioned in said housing beneath said flange and having a stabber portion extending through the bottom wall of said housing for initiating a battery starter,

and means within the aircraft releasably coupled to said housing for rotating said cylindrical member and said switch plate to select one of said fuzing functions and adapted to momentarily hold said cylindrical member stationary as the bomb begins to fall away, thereby compressing said spring means so that when uncoupling from the aircraft takes place the spring drives the cylindrical member and the stabber portion of said rod downward within the housing to initiate the sequence of operations within the fuzing function selected.

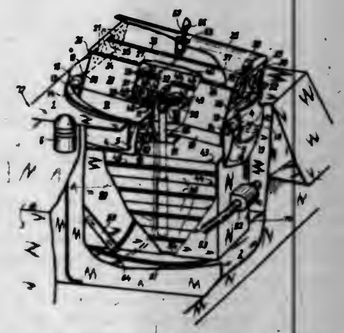
3,316,808
MISSILE LAUNCHER AND LOADING SYSTEM
Frank Mais, Munich, Germany, assignor to Bolkow Gesellschaft mit beschrankter Haftung, Munich, Germany
Filed Oct. 12, 1965, Ser. No. 495,180
Claims priority, application Germany, Nov. 6, 1964, B 79,236
9 Claims. (Cl. 89—1.804)

1. A missile loading and firing device for use in a carrier having an armored wall, said loading and firing device comprising a rotatable supporting shaft, a first setting member secured to said shaft and extending outwardly therefrom, a second setting member secured to said shaft and extending outwardly therefrom in a direction substantially opposite to said first setting member, a missile firing mount pivotally carried on the free ends of each of said first and second setting members, said missile firing mounts on said free ends of each of said first and second setting members being movable vertically and laterally independently of each other, and means to rotate said supporting shaft for placing said first setting member into a firing position and said second setting member into a loading position, and for thereafter placing said first setting member into a loading position



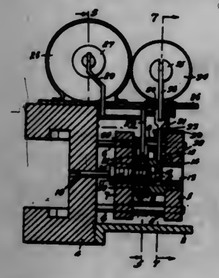
while said second member is placed into a firing position, said means also being operable to locate said missile firing mounts within said carrier.

3,316,809
RETRACTABLE MISSILE LAUNCHER
Edmund Riedel, Brunnthal, near Munich, Germany, assignor to Bolkow Gesellschaft mit beschrankter Haftung, Ottobrunn, near Munich, Germany
Filed Oct. 15, 1965, Ser. No. 496,512
Claims priority, application Germany, Nov. 6, 1964, B 79,235
20 Claims. (Cl. 89—1.815)



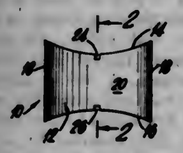
1. A mounting for storing, handling and firing jet-propelled missiles for use in an armored carrier, said mounting comprising an enclosure having a front and a rear wall each with at least one opening for firing a missile and for permitting escape of the thrust gases of the missile respectively, supporting means for said enclosure permitting universal pivotal movement and extension and retraction of said enclosure in respect to said carrier, means carried on said supporting means engageable with said enclosure for moving said enclosure to an extended position for firing and to a retracted position for loading, an opening in the bottom of said enclosure for receiving a magazine containing a plurality of said jet-propelled missiles arranged side by side therein, means for transferring said magazine to the enclosure when the latter is in its retracted position, said magazine being arranged in a magazine carrier located below said enclosure and rotatable about a perpendicular axis in respect to said enclosure.

3,316,810
MULTIPLE SHOTGUN FIRING MECHANISM
Mitchell G. Angeloz, Cockeysville, Robert W. Schnepfe, Timonium, and Jacob Sofinowski III, Westminster, Md., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Army
Filed Aug. 26, 1965, Ser. No. 482,954
3 Claims. (Cl. 89—28)



1. A firing mechanism for firing a plurality of weapons simultaneously comprising, a mounting plate, a breech block secured to said mounting plate, a series of rearwardly extending rods fixed to said breech block, a back plate fixed to the rearward ends of said rods, a spring biased firing plate slidable on said rods, at least three horizontally aligned, symmetrically spaced firing pins fixed on said firing plate and slidable through said breech block, the central one of said pins having a rearwardly extending threaded portion, a tubular housing having a radial bore therein and fixed centrally in and extending forwardly from said back plate, a shaft, having an annular reduced portion, slidable in said tubular housing, said shaft being threadably engaged with said threaded portion of said central firing pin, a first electrically operating triggering means, supported on said breech block and associated with said tubular housing for releasably holding said firing plate in a cocked position relative to said breech block and a second electrically operated safety means, supported on said breech block for releasably locking said firing plate in said cocked position comprising an electric solenoid having a sliding armature, a safety pin slidable through said radial bore in said tubular housing and in said annular reduced portion of said shaft and a spring loaded link connecting said armature and said pin whereby when said solenoid is energized said pin will be withdrawn from said annular reduced portion on said shaft to permit release of said firing plate by said first electrically operated means.

3,316,811
METHOD AND APPARATUS FOR FORMING SHOULDER PADS
Howard Friedman, Crawford Road, Harrison, N.Y. 10528; and Jack Friedman, 1350 Huckleberry Lane, Hewlett Harbor, N.Y. 11557
Filed June 8, 1964, Ser. No. 373,149
18 Claims. (Cl. 90—11)



1. A method for producing a shoulder pad having a plurality of nonplanar surfaces from an elongated bar of foamed plastic, said method comprising the steps of:

(a) longitudinally feeding the bar;

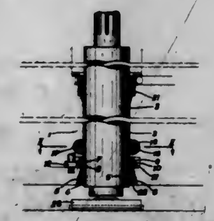
(b) cutting a groove in the top and bottom surfaces of the bar parallel to and concurrently with the longitudinal feeding of the bar;

(c) cutting a concave surface in the top and bottom surfaces of the bar transverse to and concurrently with the longitudinal feeding of the bar;

(d) cutting a convex face on the leading end of the longitudinally moving bar transverse the movement of the bar; and

(e) cutting a concave face on the leading end of the longitudinally moving bar transverse the movement of the bar, said convex face cutting and said concave face cutting steps being continuously and alternately performed.

3,316,812
APPARATUS FOR ADJUSTING THE DROP OF TOOL HEADS ON MACHINE TOOL SPINDLES
Johann Heinrich Wichern and Alfons Pohlhaus, Dusseldorf, and Otto Ufert, Dusseldorf-Oberkassel, Germany, assignors to Schloss Aktiengesellschaft, Dusseldorf-Oberkassel, Germany
Filed July 27, 1964, Ser. No. 385,151
Claims priority, application Germany, July 30, 1963, Sch 33,641
7 Claims. (Cl. 90—17)

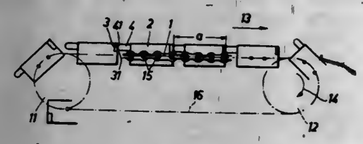


1. In a machine tool; spindle means round in cross section and having a longitudinal axis and also having means at one end for receiving a cutting tool, spindle support means also having an axis, guide means disposed between said support means and said spindle means for supporting the spindle means and including adjusting means, and means for actuating said adjusting means for adjusting said spindle means to obtain a condition of angularity of said axes relative to each other, said adjusting means being near said one end of said spindle means whereby the said adjusting of the spindle means results in movement of a tool thereon in a direction laterally of the said support means axis, said adjusting means comprising reciprocable clamping bushing means extending about the circumference of said spindle means and moveable in one direction to exert a thrust laterally on said spindle means and moveable in the other direction to retract from the spindle means, and means for selectively actuating said bushing means to produce lateral movement of said spindle means in said support means in any desired direction.

3,316,813
APPARATUS FOR CHAIN BROACHING MACHINES
Paul Wenig, Pforzheim, Germany, assignor to Karl Klink, Werkzeug und Maschinenfabrik, a company of Germany
Filed Sept. 7, 1965, Ser. No. 485,463
Claims priority, application Germany, Sept. 8, 1964, K 53,952
11 Claims. (Cl. 90—78)

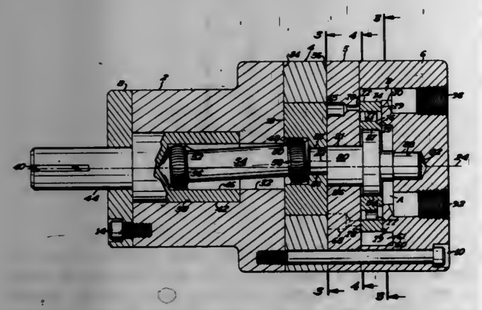
1. In an apparatus for chain broaching machines with at least one drive chain guided between wheels, on the members or links of which are disposed in sequence in

the direction of movement of the chain apparatus supports which in the region of the engagement between tool and workpiece are guided in a lineal guide, the improve-



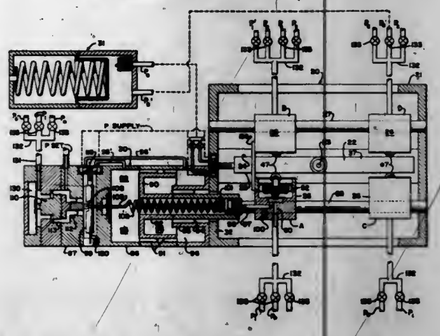
ment consisting in support surfaces provided at the rear and front and of the apparatus supports which when the chain is extended, come to rest against each other within the lineal guide region with pretensioning of the chain.

3,316,814
ROTARY FLUID PRESSURE DEVICE
Lynn L. Charlson, Minneapolis, Minn., assignor to Germane Corporation, Minneapolis, Minn, a corporation of Minnesota
Filed Apr. 22, 1965, Ser. No. 450,113
4 Claims. (Cl. 91—56)



1. In a fluid pressure device, fluid inlet and outlet means, casing means including an internally toothed ring member defining the outer wall of a chamber, a cooperating externally toothed star member having fewer teeth than said ring member disposed eccentrically in said chamber, one of said members having orbital movement about the axis of the other of said members and one of said members having rotational movement about its own axis in the opposite direction from and at a slower speed than said orbital movement during relative movement between said members, the teeth of said members intermeshing to form expanding cells on one side of the line of eccentricity and contracting cells on the other side of said line during relative movement between said members, valve means including a valve element, said valve means having fluid supply passage means for admitting fluid from said fluid inlet means to said expanding cells and fluid exhaust passage means for exhausting fluid from said contracting cells, and valve drive means for imparting orbital movement to said valve element in synchronism with said orbital movement of the orbiting one of said star member, wherein said valve means includes a valve chamber formed by said casing and said valve element is disposed eccentrically in said valve chamber, said valve element being ring shaped with one of said passage means being internally thereof and the other of said passage means being externally thereof.

3,316,815
SERVO-ACTUATING MECHANISM FOR PNEUMATIC ANALOG COMPUTERS
Donald W. Chapin, Scottsdale, and Donald H. Fischer, Phoenix, Ariz., assignors to The Garrett Corporation, Los Angeles, Calif., a corporation of California
Original application Dec. 4, 1961, Ser. No. 156,810, now Patent No. 3,239,139. Divided and this application June 24, 1965, Ser. No. 466,670
6 Claims. (Cl. 91—359)

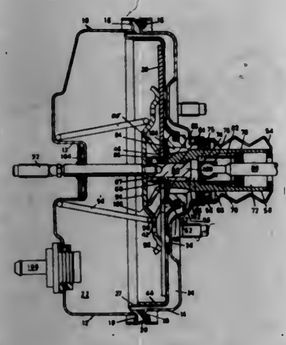


1. A servo-actuator for adjusting the position of a force applying cart in a pneumatic analog computer, comprising:
(a) a housing having a piston chamber in one end thereof and a sensing means adjacent to said piston chamber;
(b) a piston arranged for movement in said chamber and having a shaft extending outside said housing for connection with said force applying cart;
(c) means associated with and responsive to the operation of said sensing means for applying fluid pressure to said piston;
(d) an actuating member operatively connected to said sensing means and having limited movement in two directions;
(e) a feedback spring operatively connected to said piston and actuating member, movement of said piston tending to cause said feedback spring and actuating member to interrupt the application of fluid pressure to said piston; and
(f) means disposed in part in said piston chamber and responsive to the application of fluid pressure to said piston to apply a force directly to said feedback spring to modify the feedback action thereof.

3,316,816
SERVO MOTORS FOR VEHICLE BRAKE SYSTEMS
Alfred Yardley, Blackheath, England, assignor to Girling Limited, Tyseley, Birmingham, Warwickshire, England, a British company
Filed June 6, 1966, Ser. No. 555,501
6 Claims. (Cl. 91—369)

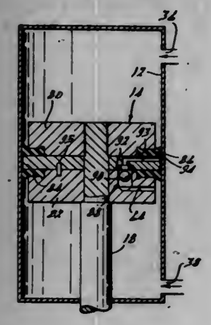
2. A servo motor for a vehicle braking system of the kind including a pair of fluid pressure sources of different fluid pressures, comprising an internally hollow housing, a movable wall within said housing and dividing the hollow interior thereof into contiguous first and second fluid chambers, a motor output member displaceable by said wall and extending externally of said housing, and fluid flow control valve means for selectively connecting the first chamber to said fluid pressure sources with the second chamber permanently connected to one of said sources only, thereby enabling a fluid pressure differential to be established between said chambers for moving said wall within said housing, said control valve means comprising a valve seat member formed

with a pair of spaced passage means, a pair of relatively stationary valve seats on said member and each circumscribing one of said passage means, and a common valve closure member engageable with and selectively tiltable about each seat to thereby open the passage



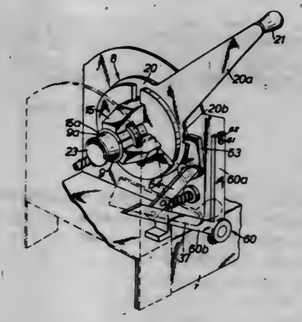
means circumscribed by the other said seat, the end of one of said passage means remote from said valve seats being permanently connected to one of said fluid sources and the corresponding end of the other said passage means being permanently connected to said first chamber.

3,316,817
AIR BLEED SYSTEM FOR HYDRAULIC PISTON
Rollo G. Ellis, Birmingham, Mich., assignor to Elox Corporation of Michigan, Troy, Mich., a corporation of Michigan
Filed Sept. 8, 1965, Ser. No. 485,787
3 Claims. (Cl. 92—79)



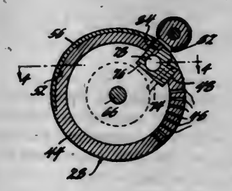
1. In a hydraulic motor including a cylinder and a piston mounted for reciprocal movement therein responsive to operating pressures applied, an air bleed system for said piston comprising at least one passage extending through the periphery of said piston proximate its lower face, a check valve having its body in said piston and its inlet communicating with said passage, a seal mounted about the periphery of said piston, said seal having an upper deflectible portion engageable with the inner wall of said cylinder and forming an arcuate chamber between said piston and said wall, said portion being deflectible toward and away from engagement with said inner wall responsive to the operating pressure supplied to said piston, said arcuate chamber being in communication with said check valve, said check valve having its control element movable to an open position during downward movement of said piston to permit flow of fluid including entrained air into said arcuate chamber, said deflectible portion operable to permit passage of air accumulated in said chamber upwardly therefrom responsive to upward movement of said piston.

3,316,818
MANUFACTURE OF BON BON CRACKERS
Philip Steward Powling, Ilford, England, assignor, by mesne assignments, to Tom Smith & Co. Limited
Filed May 14, 1964, Ser. No. 367,451
10 Claims. (Cl. 93—1)



1. Apparatus for forming the waist in a cracker, comprising support members adapted to embrace a cracker cylinder, waist-forming means operative on relative movement of said members, a device for supporting and clamping an end of the cracker cylinder prior to and during the waist-forming operation and means operative upon relative movement of said members to release said clamping device after the waist has been formed.

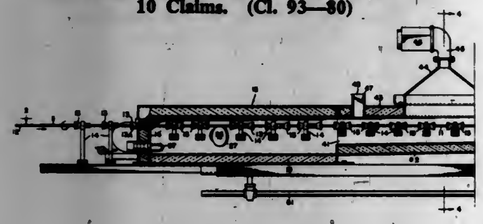
3,316,819
ENVELOPE MACHINE
Robert Cohn, Millbrae, Calif., assignor to Champion Paper Inc., Hamilton, Ohio, a corporation of Ohio
Filed Sept. 17, 1964, Ser. No. 397,106
26 Claims. (Cl. 93—62)



1. In an envelope folding machine including means for feeding a blank and means for folding the side flaps thereof into overlying relation with respect to the front panel of said blank, and means for applying adhesive strips to the back of said folded side flaps, the improvement comprising rotary means for folding the back panel of said blank into adherent relation overlapping said side flaps, said means including a rotary folding and backup roller having means for positioning and holding

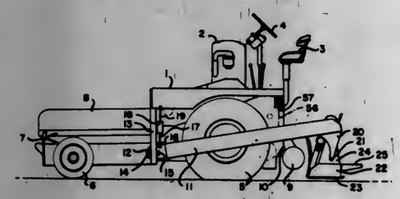
the blank during folding of said back-flap, means carried by said roller for displacing the flap from the plane of the front panel while the blank is positioned on the roller and nip defining means engaging the blank while positioned on said roller to compressively adhere said back flap to said side flaps.

3,316,820
MACHINE AND METHOD FOR MANUFACTURING DRINKING STRAWS
Harold Groner and Alfred Bowen, Baltimore, Md., assignors to Maryland Cup Corporation, Owings Mills, Md., a corporation of Maryland
Filed Sept. 27, 1963, Ser. No. 312,037
10 Claims. (Cl. 93—80)



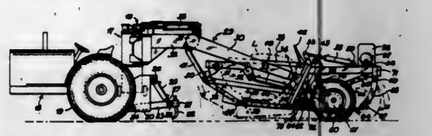
1. A machine for manufacturing drinking straws comprising a paper tube forming mandrel, means defining a longitudinal path of travel for a rotating tube discharged by the mandrel, said means being adapted to support the rotating tube along the path of travel, a wax conveyor adjacent a portion of the path of travel, said conveyor being adapted to convey liquefied wax to the path of travel, means for feeding liquefied wax to the conveyor, means for impregnating the tube with wax applied to it by the conveyor, and means for severing from the end of the tube a section of a given length as the tube moves along the path of travel.

3,316,821
BITUMINOUS PAVING APPARATUS
Donald R. Davin, Shelbyville, Ill., assignor to Blaw-Knox Company, Pittsburgh, Pa., a corporation of Delaware
Filed May 13, 1964, Ser. No. 367,102
1 Claim. (Cl. 94—46)



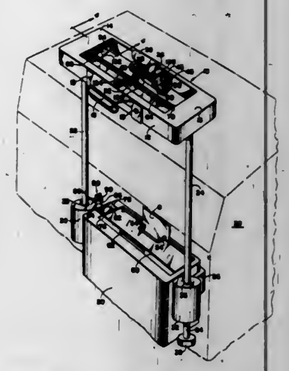
Bituminous paving apparatus comprising a screed having sole plate means for smoothing bituminous material into a mat, a transversely extending tamper positoned at the forward edge of the sole plate means and arranged for up and down axial reciprocating motion, said tamper having its upper end rearwardly of its lower end, a tamper shield positioned forwardly of the tamper and initially sloping upwardly and rearwardly from its lowermost portion at substantially the same angle to the vertical as the tamper, sloping upwardly and rearwardly to a mid-point and thence upwardly and forwardly to the uppermost portion of the tamper shield, and bituminous material agitating and distributing means positioned forwardly of the tamper sheld in position to agitate and redistribute bituminous mix struck off by the screed.

3,316,822
COMBINED EARTH MOVER AND COMPACTOR
Harry J. Seaman, Milwaukee, Wis.; Ann Seaman and American City Bank and Trust Company, executors of said Harry J. Seaman, deceased, assignors to Seaman Corporation, a corporation of Wisconsin
Filed Mar. 12, 1964, Ser. No. 351,464
7 Claims. (Cl. 94—50)



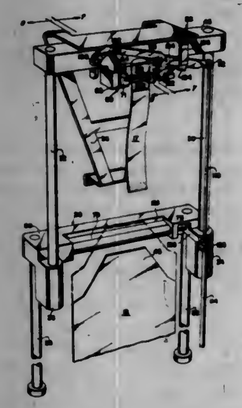
6. In an earth working machine, a vehicle including a frame structure and a pneumatic-tired compaction roll supporting said frame structure at the rear thereof, said compaction roll comprising a plurality of wheel units providing a bank of closely spaced pneumatic-tired wheels, linkage means connecting each wheel unit to said frame structure and guiding said wheel unit for fore-and-aft displacement between a normal forward position and an alternative rearward position, the linkage means for each wheel unit including generally parallel front and rear links having their upper ends pivotally connected to said frame structure and a leaf spring pivotally connecting the lower ends of said links, said linkage means forming a linkage of generally parallelogram configuration and the lower end of each link being normally disposed forward of the upper end of said link, and releasable retaining means for holding each wheel unit in its normal forward position with respect to said frame structure, said retaining means when released permitting relative rearward shifting of the associate wheel unit to its rearward position.

3,316,823
SEMI-AUTOMATIC APPARATUS FOR WITHDRAWING PHOTOGRAPHIC FILM UNITS FROM A FILM PACK
Gary Kaess, West Newton, and David S. Wilson, Rockland, Mass., assignors to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware
Filed Apr. 30, 1965, Ser. No. 452,164
16 Claims. (Cl. 95—1)



16. Apparatus for assisting in the successive withdrawal of film units from a film pack of the type enclosing an assemblage of film units, each unit having a leader thereon which is withdrawn from the pack to cause the leading end of the film unit to project from the pack into access of the user, comprising, in combination:
carriage means reciprocally mounted for movement to and from the film pack, including film unit clamping means and leader holding means for successively engaging and withdrawing the leader and then the film unit from the film pack.

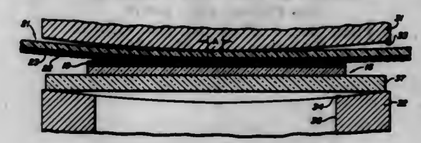
3,316,824
APPARATUS FOR WITHDRAWING FILM UNITS FROM A FILM PACK
Herbert A. Bing, Wellesley, William L. Hanna, Foxboro, and David S. Wilson, Rockland, Mass., assignors to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware
Filed Oct. 21, 1965, Ser. No. 499,552
14 Claims. (Cl. 95—1)



1. Apparatus for assisting in the successive withdrawal of film units from a film pack of the type enclosing an assemblage of film units, each unit having a leader which is withdrawn from the film pack to cause the leading end of the film unit to project from the film pack, comprising in combination:
first means mounted for movement away from a film pack for engaging and withdrawing said leader from said film pack;
second means mounted for movement away from said film pack for engaging and withdrawing said film unit from said film pack; and
lost motion means coupling said first and second means for introducing a delay between the movements of said second and first means away from the film pack, whereby during a single withdrawal stroke of said first and second means away from a film pack, the leader of a film unit is retentively engaged by said first means and withdrawn from the film pack, and thereafter, the film unit is retentively engaged by said second means and withdrawn from the film pack.

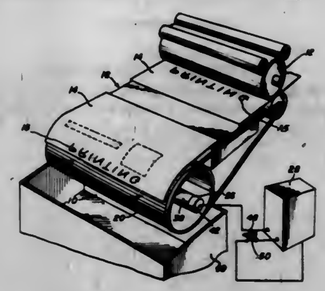
3,316,825
CONTACT PRINTER
Carl O. Carlson, Los Angeles, Benjamin F. Scherr, Hawthorne, and Ivan V. Rondas, Compton, Calif., assignors to The National Cash Register Company, Dayton, Ohio, a corporation of Maryland
Filed May 26, 1964, Ser. No. 370,314
4 Claims. (Cl. 95—73)

1. A photographic contact printer capable of printing high resolution images comprising: two pressure plates, one of said pressure plates having a convex surface and the other of said pressure plates having a concave surface; said pressure plate with the concave surface having an opening for the passage of light rays; a bendable, bend resisting transparent, back-up plate that is normally flat relative to the curvature of the convex and concave surfaces disposed on said concave surface and over said opening, said transparent plate being of a size to cover the opening such that the edges of the plate can be engaged by the concave surface; a master containing high resolution images disposed on said back-up plate; a substrate provided with a coating of photographic emulsion disposed on said master; means for forcing the two pressure plates together with said back-up plate, said master, and said substrate sandwiched therebetween to cause said convex surface to apply pressure to said substrate initially



in a small area which area increases outwardly as said back-up plate yields and becomes bowed so as to conform to the contour of said convex surface, said concave surface providing continuous support along the curvature of the conformed back-up plate to support the back-up plate against further bowing whereby said force is applied uniformly over the contacting area of the master and substrate; and a light source disposed to shine light rays through said opening to expose said photographic emulsion after said back-up plate is bowed to placed said photographic emulsion and said master in full contact.

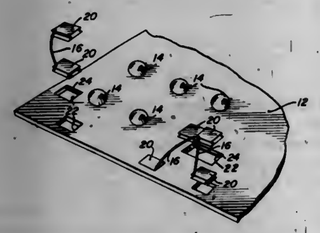
3,316,826
SELECTIVE MASKING AND EXPOSURE MEANS FOR DUPLICATING MACHINE
Eli A. Port, Chicago, Ill., assignor to Alpha Research & Development, Inc., Blue Island, Ill., a corporation of Illinois
Filed Aug. 17, 1964, Ser. No. 389,835
19 Claims. (Cl. 95—77.5)



1. Apparatus for use with photosensitive duplicating machines to selectively expose predetermined areas of photosensitive sheet material to be used with said duplicating machines while shielding from exposure those areas of the sheet material that will receive the image, said apparatus comprising a rotary-driven cylinder constructed of light transmitting material, a light source position within said cylinder and connected to a source of power, masking means associated with said cylinder and rotating therewith, said masking means comprised of a predetermined pattern of opaque and transparent sections such that said transparent sections correspond to said predetermined areas of the photosensitive sheet material to be exposed, and said opaque sections corresponding to the predetermined image receiving areas of said sheet material, and control means responsive to a signal

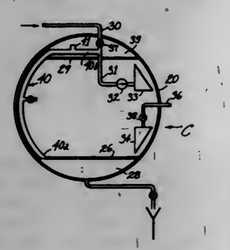
for energizing said light source to produce a flash of sufficient intensity to expose photosensitive material, the light from said light source being transmitted through said transparent sections of said masking means to simultaneously expose said predetermined areas while said opaque areas shield said image receiving areas from said light.

3,316,827
FILM HANGER DEVICE FOR PROCESSING PHOTOGRAPHIC SHEET FILM
William G. Hill, 1163 Walnut St., Des Plaines, Ill. 60016
Filed Dec. 3, 1964, Ser. No. 415,762
7 Claims. (Cl. 95—100)



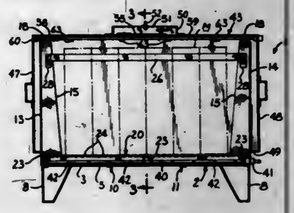
1. Film holder means for selectively holding photographic film sheets of various sizes for use with a magazine, said film holder means comprising:
(a) a base plate,
(b) securing means for securing film sheets of various sizes to said base plate, said securing means comprising
(1) a plurality of recesses in said base plate,
(2) and a plurality of matching plastic plugs that removably snap into said recesses,
(3) and plastic thread extending between adjacent ones of said plugs, said plastic thread being arched so as to permit corners of the film sheets to be processed to be slipped thereunder.

3,316,828
HYPERBARIC CHAMBERS
Andrew P. Boehmer, Barrington, Ill., assignor to Borg-Warner Corporation, a corporation of Illinois
Filed Dec. 30, 1964, Ser. No. 422,268
4 Claims. (Cl. 98—1.5)



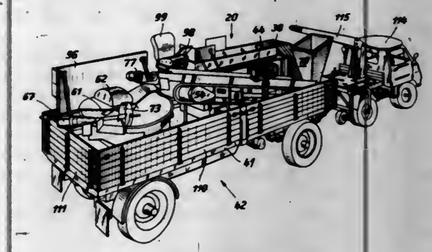
1. A hyperbaric chamber comprising a closed shell having generally circular cross section; a generally flat, imperforate floor extending across the lower portion of said shell, said floor dividing the chamber into an upper zone above said floor and a lower zone beneath said floor; means for supplying air to said upper zone to provide super-atmospheric pressure conditions within said shell; and conduit means interconnecting said lower zone to said means for supplying air to equalize the pressure in said upper and lower zones; and check valve means associated with said air supply means to prevent air from flowing from said upper zone to said lower zone through said conduit means.

3,316,829
STEAM COOKING APPARATUS
Ralph M. Foldenauer, Chicago, Ill., assignor to Bloomer-Fiske, Inc., a corporation of Illinois
Filed Feb. 1, 1966, Ser. No. 524,129
9 Claims. (Cl. 99—234)



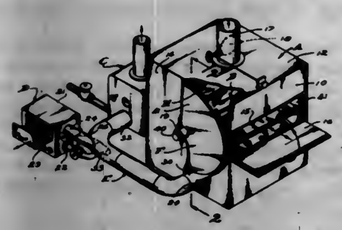
1. Apparatus for heating molds comprising a transportable support member for the molds, said support member having a base with depending means for engagement with a floor surface or the like, said support member also being laterally open at two opposed side portions to facilitate loading and unloading of molds from the support, removable means at said two opposed side portions for maintaining the molds on the support when the latter is transported, a hood member sized for removable telescopic engagement with the support member and embracing said removable means and when so telescoped cooperating with the support member to form a chamber for the molds, and means on one of said members for delivering steam to the space enclosed by the two members for subjecting the molds to the heat from the steam.

3,316,830
APPARATUS FOR THE PREPARATION OF A FODDER MIXTURE FOR SUBSEQUENT ENSILAGE
Heinrich Biehl, Heinrichshof, near Trittau, Germany
Filed Oct. 13, 1965, Ser. No. 495,602
Claims priority, application Germany, Oct. 13, 1962, B 69,218
8 Claims. (Cl. 99—235)



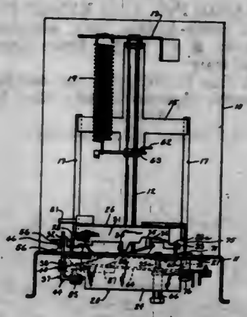
1. A system and apparatus for preparing a fodder mixture for subsequent storage in a silo comprising, in combination, fodder precleaning means for cleaning fresh fodder supplied thereto, said fodder precleaning means having power driven means for moving said fresh fodder, a washing machine for washing fresh fodder delivered from said fodder precleaning means, said washing machine having power driven means for moving said fresh fodder, first power driven conveyor means operatively arranged between said fresh fodder precleaning means and said washing machine to convey precleaned fresh fodder from said fodder precleaning means to said washing machine, power-driven comminuting and mixing means for comminuting and intimately mixing fodder material supplied thereto, second power-driven conveyor means operatively arranged between said washing machine and said comminuting and mixing means to convey washed fresh fodder from said washing machine to said comminuting and mixing means, weighing means supporting said second conveyor means to determine the amount of fodder material present on said second conveyor means, third power-driven conveyor means operatively connected to said comminuting and mixing means to supply thereto a relatively dry fodder material suited to establish in the fodder mixture prepared in said comminuting and mixing means an overall water content which is considerably smaller than in said fresh fodder alone so that said mixture attains a pulpy but still flowable consistence, selectively operable mixture takeout means operatively connected to said comminuting and mixing means to selectively take out said mixture prepared therein, silo-filling pumping means for pumping said mixture to said silo, fourth conveyor means operatively connected between said take-out means and said pumping means to transport said mixture taken out of said comminuting and mixing means to said pumping means for subsequent pumping said mixture to said silo, a road truck adapted to support and transport all components of said system and apparatus if said components are arranged in a transportation assembly upon said road truck, and to support partly or wholly a certain number of said components if said components are cooperatively arranged in a working arrangement, and means for selectively supplying energy to the various drive means of said components.

3,316,831
SMOKE-HOUSE
Don H. Koland, Garden Grove, Vernon L. Schultz, Cypress, and Arlyn B. Shambeau, Santa Ana, Calif., assignors to Robert S. Bardins, Newport Beach, Calif.
Filed Feb. 11, 1966, Ser. No. 526,793
10 Claims. (Cl. 99—261)



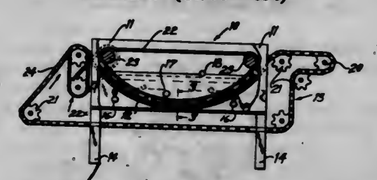
1. A smoke-house including, a cabinet defining a closed chamber and having top, bottom, front, rear, and side walls; an access opening extending transverse the front wall; a closure shiftably carried by the front wall and normally overlying the opening, and an exhaust stack communicating with the upper portion of the chamber, an elongate rotor arranged within the chamber and extending laterally of the cabinet, said rotor having a plurality of circumferentially spaced, radially outwardly projecting pairs of elongate, axially spaced rack supporting channels, bearing means at the sides of the cabinet rotatably supporting the rotor, drive means at one side of the cabinet and driving the rotor, a rack for each pair of channels including, a pair of flat, perforate, rectangular, foodstuff-engaging panels normally juxtapositioned and corresponding in longitudinal extent with the lateral extent between the related channels and slidably engageable therewith; heat generating means related to the cabinet to heat the chamber defined thereby and smoke generating means related to the cabinet to fill the chamber with smoke.

3,316,832
SELF-HEATED BIMETAL TIMER
James A. Ogle, Jr., Woodstock, and Franklin C. Hitzeroth and Raymond A. Ilia, Elgin, Ill., assignors to McGraw-Edison Company, Milwaukee, Wis., a corporation of Delaware
Filed May 4, 1965, Ser. No. 453,057
10 Claims. (Cl. 99—329)



1. In an electric toaster having a bread slice supporting carriage vertically movable between an upper loading position and a lower toasting position, a timing mechanism comprising a timer base; a control lever pivotally mounted on said timer base presenting a latching portion for engaging said carriage and retaining said carriage in said lower toasting position; and an escapement lever pivotally mounted on said timer base presenting first and second confronting latching members respectively engageable with said control lever to retain said control lever in first and second carriage retaining positions, means for selectively moving one of said latching members toward and away from other of said latching members; means biasing said escapement lever in one direction; and bimetal means carried by said timer base and engageable with said escapement lever to pivot said escapement lever in a direction opposite of said one direction in response to a change in the temperature of said bimetal.

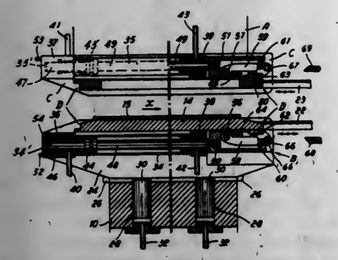
3,316,833
CAGED BAGEL COOKER
Robert W. Williams, Brookville Road, Brookville, N.Y.; and Robert Laurita, 3 Dolphin Lane, West Islip, N.Y. 11795
Filed Aug. 19, 1966, Ser. No. 573,686
5 Claims. (Cl. 99—404)



1. An automatic bagel cooker adapted to boil bagels out-of-contact of one another comprising a tank having a continuous depending suitably wide curved bottom wall from end to end and a pair of side walls; a continuous slat conveyor having separator walls thereon adapted to transport a plurality of spaced-apart bagels abreast of one another on each slat thereof, said conveyor extending suitably exteriorly of the tank at the inlet end to receive uncooked bagels, along the top surface of the tank bottom wall and then extending suitably exteriorly of the tank at the outlet end to discharge the cooked bagels; means for driving said slat conveyor at a suitable predetermined speed to effect cooking during travel through

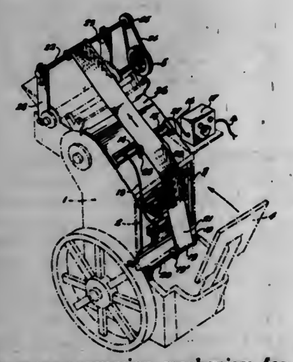
said tank; and suitably wide continuous screen conveyor means disposed within said tank and adapted to frictionally engage the separator walls of said slats to form the top wall of moving bagel confining chambers in the boiling water of said tank.

3,316,834
PRESS DIE HANDLING AND REMOVING MEANS
Dante Draganti, Busto-Arsizio, Italy, assignor to Officina Meccanica Erba & C. S.a.S., Busto-Arsizio, Italy, a corporation of Italy
Filed June 1, 1965, Ser. No. 460,259
Claims priority, application Italy, Nov. 21, 1964, 25,074/64
4 Claims. (Cl. 100—214)



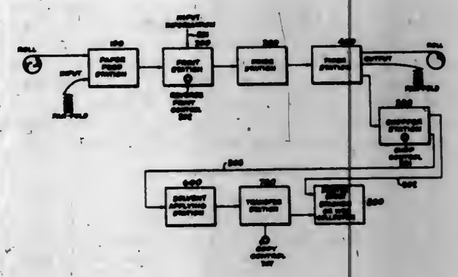
1. A power press having a vertically reciprocating bed and a fixed bed; each of said beds having one edge portion horizontally reciprocable with respect to the other edges thereof, track means carried by each bed with the longitudinal axes thereof parallel to the direction of reciprocation of said one edge portions, a plate and die assembly for each bed supported on said track means and said reciprocable edge portions, latch means for selectively connecting each of said plates to its respective bed, transverse latch means for selectively connecting each of said plates to its reciprocating edge portion of its bed, and means for latching and unlatching said latch means and further latch means and for reciprocating said one edge portion of each of the beds.

3,316,835
MEANS CONVERTING PLATEN PRESS TO METALLIC LEAF APPLYING-HOT DIE STAMPING PRESS
Dirk Liepelt, 218 SE. 13th St., Portland, Oreg. 97214
Filed May 2, 1966, Ser. No. 546,916
3 Claims. (Cl. 101—27)



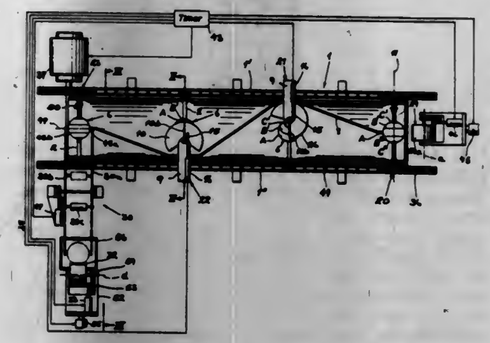
1. Stamping press conversion mechanism for a platen press having ink fountain drive mechanism moving intermittently step-by-step, a press bed, a press frame above the press bed and a frisket bracket below the press bed, comprising a roll-leaf supply-supporting rod carried below the press bed by the press frisket bracket, roll-leaf strip-pulling means supported from the press frame above the press bed and engaged with a roll-leaf strip extending upwardly across the press bed from said roll-leaf supply-supporting rod, and drive means connecting said roll-leaf strip-pulling means and the ink fountain drive mechanism of the press for driving said roll-leaf strip-pulling means intermittently step-by-step by movement of the ink fountain drive mechanism.

3,316,836
ELECTROSTATIC PRINTING SYSTEM HAVING MEANS TO MAKE PLURAL COPIES
Herman Epstein, Philadelphia, Pa., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois
Filed July 26, 1965, Ser. No. 474,552
20 Claims. (Cl. 101—114)



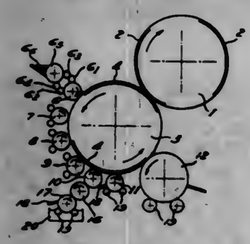
1. An electrostatic printing system for providing a visible record of input character-denoting signals, comprising:
input means for accepting a master dielectric web;
selective charging means, positioned to receive the master web from the input means, including a mask electrode defining a series of character-forming apertures and means for providing a cloud of electrically charged particles for passage through the character-forming apertures to charge the master web in a pattern representing the characters denoted by the input information signals;
auxiliary charging means for producing additional charged particles to charge the web in a pattern conforming with a reference mark to signify the desired length of a web segment;
means for developing the latent image provided by the selective charging means to provide a permanent record of the characters represented by the input character-denoting signals, and for developing the pattern of the reference mark;
output means for collecting the master dielectric web;
chopper means, disposed between the developing means and output means, including a chopper blade control means for enabling the chopper means to drive the chopper blade, and means for sensing said reference mark on the web to produce a mark-indicating signal and utilizing the signal in regulating operation of the chopper means, thus to chop the master web into segments of desired length; and
copying means, positioned between the chopper means and the output means, for removing at least some of the particles previously applied to the master web and providing a copy of the master pattern on a separate sheet.

3,316,837
SYSTEM FOR THE PRINTING OF SPHERICAL OBJECTS
Artur Schoeck, Schaferstrasse 5, Gelsenkirchen-Buer-Sutum, Germany
Filed Feb. 4, 1966, Ser. No. 525,059
Claims priority, application Germany, Feb. 4, 1965, Sch 36,470; Aug. 19, 1965, Sch 37,582
10 Claims. (Cl. 101—115)



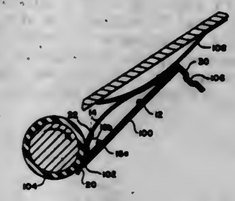
1. A system for printing spherical objects, comprising gripper means for engaging a sphere at diametrically opposite poles with freedom of said sphere to rotate about a spin axis defined by said poles; a plurality of rotatable printing heads including respective carriers for silk-screen matrices successively engageable with the periphery of said sphere, said heads being rotatable about respective axes all differently inclined with reference to said spin axis but coplanar therewith; means for shifting said spin axis between successive engagement of said heads with said sphere; and means for jointly rotating said sphere and the printing head in contact therewith whereby each of said heads prints a respective segment of said sphere centered on said spin axis.

3,316,838
MULTICOLOR ROTARY INTAGLIO PRESS WITH ROLLER WIPERS
Regis René Henry des Lyons de Fouchier, Paris, France, assignor to Societe Technique d'Impressions Fiduciaires, Paris, France, a society of France
Filed Mar. 26, 1964, Ser. No. 354,956
Claims priority, application France, Oct. 23, 1963, 951,573, Patent 1,383,021
2 Claims. (Cl. 101—152)



1. An inking device for a multi-color plate printing machine comprising a printing cylinder, a plate-holder cylinder equipped with at least one engraved intaglio plate adapted to be consecutively inked with several inks of different color, a plurality of inking rollers in contact with said plate-holder cylinder, a first compacting roller located in sequence after said inking rollers in engagement without slippage with said plate-holder cylinder, for compacting the ink into the bottom of grooves engraved in said plate and for removing a portion of ink from said grooves as well as a portion from the upper face of said plates without mixing the colors, said first compacting roller having a diameter arranged so that each generatrix thereof always comes in contact with the same generatrix of said plate-holder cylinder, a second roller located in sequence after said first roller in the same rotational direction as said plate-holder cylinder and revolving in the same rotational direction as said first roller at a very slightly higher circumferential speed than that of said plate-holder cylinder for removing surplus ink from said grooves and for assisting in a partial wiping of the upper surface of said plate, means for cleaning said first and said second rollers, a third roller located in sequence after said second roller in the rotational direction of said plate-holder cylinder, said third roller being in engagement with said plate-holder cylinder and revolving in a direction opposite to that of said first and second rollers to finish the wiping of said plate, and means for cleaning said third roller.

3,316,839
INK PACKAGE AND SUPPLY SYSTEM FOR DUPLICATING MACHINES
Francis K. Lake, Euclid, Ohio, assignor to Addressograph-Multigraph Corporation, Cleveland, Ohio, a corporation of Delaware
Filed Apr. 20, 1966, Ser. No. 549,752
4 Claims. (Cl. 101—364)



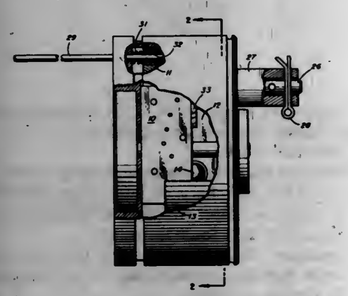
1. In an ink supply system for dispensing pasty ink to a duplicating machine, comprising:
a fountain roller;
a support surface means beginning at an edge lying along the periphery of said roller and projecting in a direction approximating a tangential plane with respect to said fountain roller;
a container for said ink having first and second sheet walls defining opposite sides of an elongate, relatively flexible envelope:
said container first wall overlaying said support surface means and extending between said support surface means beginning edge and said roller, said container first wall being pressed by said surface means edge against said roller;
said container second wall joined to said first wall a distance from said roller;
a quantity of pasty ink positioned between said container walls;
said container walls joined along opposite sides, and having a slit opening extending therebetween;
said roller rotatable in a direction to move the periphery thereof in a direction passing said container and toward said surface means edge;
said container second wall lying on the roller periphery and the edge of said slit opening turned in the direction of roller rotation.

3,316,840
COMPOSITION AND DEVICE FOR CREATING AN UNDERWATER CLOUD
Joseph A. Grand, Washington, D.C., assignor to the United States of America as represented by the Secretary of the Navy
Filed Apr. 28, 1944, Ser. No. 533,199
6 Claims. (Cl. 102—66)



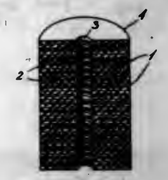
1. A device capable of generating an underwater cloud which comprises a shell, a fuze and an expellant charge in said shell, a charge for said shell comprising a gas generating material so arranged that ignition of said expellant charge expels said gas generating material, said gas generating material comprising an intimate mixture of alkali metal hydride and a binder.

3,316,841
SAFETY DEVICE FOR A BOMB FUZE
Charles E. McFann, Woodbine, and Arnold S. Munach, Rockville, Md., assignors to the United States of America as represented by the Secretary of the Navy
Filed July 29, 1965, Ser. No. 475,899
9 Claims. (Cl. 102—76)



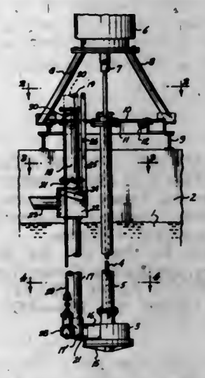
1. A safety device for a fuze in a velocity-retarded gravity bomb comprising:
a rod engaging said fuze and movable from a first position wherein it may prevent fuze arming to a second cleared-for-arming position,
stored energy spring means for moving said rod from said first position to said second position,
first means for preventing movement of said rod from said first position to said second position prior to the expiration of a predetermined minimum period of time,
and second means responsive only to deceleration occurring during a specified incremental portion of said predetermined minimum period of time for inactivating said first means and permitting rapid movement of said rod to said second position by said stored energy spring means.

3,316,842
PROPULSION PRODUCT
Helmut W. Schulz, Charleston, W. Va., assignor to Union Carbide Corporation, a corporation of New York
Filed Mar. 19, 1963, Ser. No. 266,324
5 Claims. (Cl. 102—100)



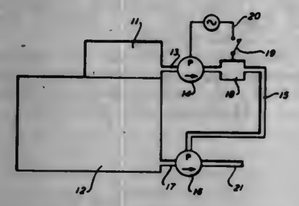
1. A laminated rocket propellant grain having a longitudinal axis, said grain comprising a multiplicity of contiguous and interbonded layers of propellant composition arranged latitudinally with respect to said longitudinal axis, each of said layers having embedded therein a fuel-contributing reinforcing element disposed normal to the longitudinal axis, each of said layers having a perforation extending therethrough, which perforation defines an inner wall in said layer, the inner walls of all layers in the grain being in longitudinal alignment and forming an unrestricted burning front parallel to the longitudinal axis of the grain.

3,316,843
TANK SUMP PUMP INSTALLATION
James E. Vaughan, Elma, Wash., assignor to Vaughan Co., Inc., Montesano, Wash., a corporation of Washington
Filed Apr. 26, 1965, Ser. No. 450,837
6 Claims. (Cl. 103—2)



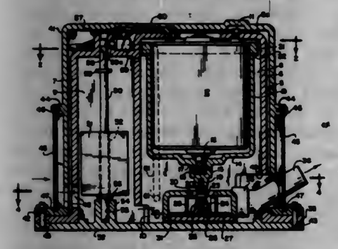
1. A tank sump pump installation comprising a tank, a sump pump, rotative disk, means suspending said pump in said tank from said disk in a position for bodily rotation about the rotative axis of said disk, a discharge pipe extending from said pump upward through said disk, a first branch outlet projecting from said discharge pipe transversely of the length thereof and at a location adjacent to said pump and forming a discharge opening along a line offset from the rotative axis of said disk, a second branch outlet projecting from said discharge pipe transversely of the length thereof at a location near the surface of the liquid in said tank, first valve means operable to control discharge of liquid through said first branch outlet, and second valve means operable independently of said first valve means to control discharge of liquid from said second branch outlet.

3,316,844
ADDITIVE DELIVERY DEVICE
Michael J. Valk, 640 Franklin Ave., Nutley, N.J. 07110; and John Valk III, 302 Orient Way, Rutherford, N.J. 07070
Filed May 18, 1965, Ser. No. 456,792
5 Claims. (Cl. 103—6)



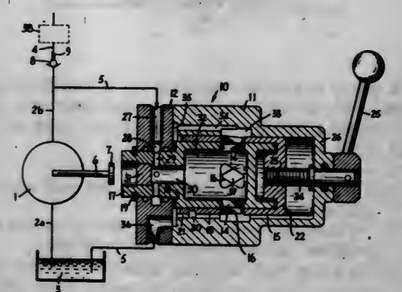
1. An additive delivery device comprising:
(a) an additive tank;
(b) a fuel tank;
(c) an additive pump having an inlet and an outlet, the inlet communicating with the additive tank;
(d) a fuel pump having an inlet and an outlet, the inlet communicating with the fuel tank;
(e) a conduit connecting the outlet of the additive pump with the inlet of the fuel pump;
(f) a power source operatively connected to the additive pump the said power source being independent of both the operating pressure and speed of the fuel pump;
(g) means in the said conduit for detecting suction at the inlet of the fuel pump, said means being operatively connected to the power source for the additive pump whereby the additive pump is energized when the fuel pump generates suction at its inlet.

3,316,845
BILGE PUMP
Alfred F. Schumann, P.O. Box 9445, Riviera Beach, Fla. 33404
Filed July 28, 1965, Ser. No. 475,520
5 Claims. (Cl. 103—26)



1. A bilge pump of the character described comprising a base plate for fixing the pump within a bilge or sump molded frame member that is flanged at its lower end for fixed connection to the base plate, the frame being provided with a perpendicular cylindrical chamber and a generally rectangular float chamber, a motor fixed at the upper end of the cylindrical chamber and with the motor being provided with a downwardly extending shaft, a cylindrical cup open at its top and with the cup having a closed bottom that is cylindrically recessed to receive the shaft of the motor, the shaft being fixed to the extension, a centrifugal pump mounted in the lower end of the cylindrical chamber and with the pump having a casing that is detachably connected to opposite sides of the chamber, the pump casing being closed at its lower side, coupling means between the extension of the motor and whereby the cup and the pump are rotatable from the shaft of the motor, the pump casing upon its top being provided with a water inlet opening that surrounds the extension, outlet means for the pump, a float disposed within the float chamber and slidable upon a vertically disposed rod, the rod slidable within a boss molded integral with the base plate and slidable through a boss that is integral with a top of the float chamber, the rod having upper and lower stop collars whereby the rod is shifted upwardly and downwardly by the float, the rod at its upper end engaging a switch for energizing the motor from a source of electrical energy when the float is shifted upwardly by the rise of water entering the float chamber, an outer molded shell that overlies the frame in slightly spaced relation thereto, the shell also being flanged at its bottom to overlie the flange of the frame whereby the frame and the shell are jointly fixed to the base plate, openings formed in a frame wall and openings formed in the shell whereby water may enter float chamber and to flow through and into the pump and screens fixed to the shell to prevent the entry of foreign matter into the chambers.

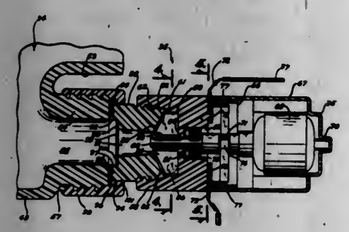
3,316,846
REGULATING SYSTEM
Vagn S. L. Bender, Nordborg, Denmark, assignor to Danfoss A/S, Nordborg, Denmark, a corporation of Denmark
Filed Apr. 12, 1966, Ser. No. 542,037
Claims priority, application Germany, Apr. 17, 1965, D 47,071
4 Claims. (Cl. 103—41)



1. In combination with a system comprising pump means, first conduit means communicating between the suction side of said pump means and a reservoir adapted to contain a fluid, and second conduit means communicating between the discharge side of said pump means and a fluid dynamic system, the improvement comprising a regulating system for regulating as desired the rate of delivery of said fluid from the discharge side of said pump means to said fluid dynamic system without significantly effecting the fluid pressure in said fluid dynamic system, said regulating system comprising an intermittently opening and closing fluid flow interruptor having a fluid inlet and a fluid outlet, said fluid flow interruptor comprising a first hollow member having at least one passage of triangular cross-section communicating between its interior and its exterior and a second hollow member having at least one passage of triangular cross-section communicating between its interior and its exterior, said second hollow member being disposed interiorly of said first hollow member with the triangular cross-section of said at least one passage of said first hollow member being oriented differently from the triangular cross-section of said at least one passage of said second hollow member, one of said hollow members being rotatable to align said at least one passage of said

hollow members in communicating relationship, conduit means communicating between said second conduit means and the fluid inlet of said flow interruptor, interconnection means for interconnecting said pump and said fluid flow interruptor for common driving thereof, means for adjusting the duration and magnitude of the opening of said fluid flow interruptor comprising means for axially displacing one of said hollow members to adjust the extent to which said at least one passages are alignable by rotating said rotatable hollow member, conduit means communicating between the fluid outlet of said flow interruptor and said reservoir, and non-return valve means communicating between said second conduit means and said fluid dynamic system.

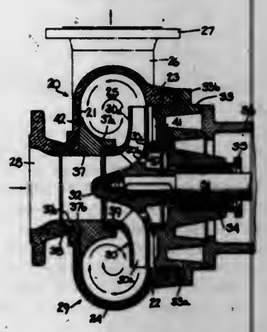
3,316,847
WINDSHIELD WASHER SYSTEM
Robert R. Mandy, Thomas E. Trainor, and Thurston Metcalf, Detroit, Mich., assignors, by mesne assignments, to The Delman Company, a corporation of Tennessee
Filed Oct. 29, 1964, Ser. No. 407,426
1 Claim. (Cl. 103—87)



A pump and motor assembly for a vehicle windshield washer system including a fluid reservoir with a fluid connection adjacent the bottom of and open to the inside of the reservoir, comprising:

(a) a motor unit,
(b) a cylindrical housing means for said motor unit open at one end thereof,
(c) a shaft for said motor unit having an end section projected outwardly from said open end,
(d) a pump unit including a first cylindrical housing member with an axially extended bore, said bore having a central portion of a small diameter, one end portion of a large diameter, and an opposite end portion of an intermediate diameter,
(e) means coupling said first housing member to the open end of said motor housing means with said opposite end portion of the bore open to the inside of said housing means and said shaft end section extended within said bore,
(f) a bearing and fluid seal assembly for said shaft end section located in the opposite end portion of said bore,
(g) an impeller mounted on said shaft end section within said one end portion of the bore,
(h) a second cylindrical housing member for said pump unit having an axially extended bore therein, said second housing member having one end positioned within and in fluid sealing engagement with the side wall of the large diameter portion of said bore, with the end face of said one end of the second housing member positioned adjacent said impeller to form with the inner end of said large diameter bore portion a chamber means for said impeller, said first housing member having an outlet passage open to said chamber means,
(i) means for coupling the opposite end of said second housing member with the connection on said reservoir,
(j) a source of electric energy, and
(k) means connecting said motor with said source of electric energy.

3,316,848
PUMP CASING
Emile Egger, Cressier, Neuchatel, Switzerland, assignor to Emile Egger & Co., AG., Cressier, Switzerland, a corporation of Switzerland
Filed July 6, 1965, Ser. No. 469,781
Claims priority, application Switzerland, July 14, 1964, 9,223/64; Nov. 28, 1964, 15,376/64
21 Claims. (Cl. 103—103)



1. A pump casing assembly adapted for receiving a rotary impeller mounted upon a shaft, the rotary impeller being any one type of rotary impeller selected from a plurality of different types of rotary impellers, each of the plurality of types of rotary impellers having a pump casing cover and means for sealing said shaft with respect thereto, said pump casing assembly comprising a standardized pump casing having a pair of wall portions disposed opposite and spaced apart from one another and an annular wall portion connecting together said pair of wall portions, said annular wall portion having an outlet opening for said casing, one of said pair of wall portions having an additional opening disposed therein for receiving the impeller and shaft, said one wall portion adjacent said additional opening being adapted to engage the pump casing cover when the impeller is disposed within said casing, the other of said pair of wall portions having an inlet opening; and an insert member disposed adjacent to said opening and being exposed to the interior of said casing, said insert member being any one form of a plurality of different forms of insert members each of the plurality of insert members having a cylindrical opening for directing the flow of fluid moving through said inlet opening toward the impeller and certain of the plurality of insert members additionally having means for guiding the fluid for recirculation within the casing, whereby said standardized pump casing can be selectively assembled with any one type of the plurality of types of rotary impellers.

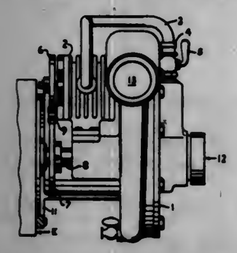
3,316,849
SELF-PRIMING, DIRECT CURRENT PUMP-MOTOR
Donald H. Cooper, Berkeley Heights, N.J., John D. Edick, Wickliffe, Andrew J. Humphrey, Cleveland, Ohio, and Charles S. Reasby, Worcester, Mass., assignors, by direct and mesne assignments, to the United States of America as represented by the Secretary of the Army
Filed July 15, 1965, Ser. No. 472,374
6 Claims. (Cl. 103—113)

1. A self-priming, self-cooling, direct current pump-motor for pumping hydrocarbon fuels comprising in combination, a tubular outer housing, closed at its upstream

side and converging to form a nozzle at its downstream side, a tubular inner housing having a diameter smaller than said outer housing and secured entirely within said outer housing whereby an annular space is formed between said outer and inner housings, said inner housing converging to a smaller diameter at its downstream side, and having an inlet connected to its upstream side, said inlet being in communication with said annular space, a valve assembly mounted axially to the downstream side of said inner housing and adapted to normally close the downstream side of said annular space, a first shaft mounted axially in said inner housing, a vacuum pump mounted for rotation with said first shaft, a second shaft mounted in axial alignment with said first shaft in said inner housing, a clutch assembly mounted axially between said first and second shafts in said inner housing and normally being in engaged position whereby said shafts are rotated simultaneously, an alternating current, induction motor mounted medially in said inner housing, said motor having a stator encapsulated in an insulating material and a rotor adapted to drive said second shaft, a centrifugal pump mounted on the upstream end of said second shaft and disposed between said annular space and said inlet, an electrical current inverter carried by the upstream end of said outer housing and surrounding said inlet, said inverter being encapsulated in an insulating material and being in electrical communication with said stator of said induction motor and an electrical outlet in the upstream side of said housing and being in electrical connection with said inverter, said inverter converting direct current supplied through said outlet into alternating current in said induction motor, said induction motor, when energized, adapted to rotate said second shaft to rotate said vacuum pump and said centrifugal pump to evacuate said pump-motor of gases and to pump hydrocarbon fuels into said inlet through said annular space respectively and through said nozzle whereby said inverter, said induction motor, said clutch assembly and said vacuum pump are cooled by the fuel being pumped.

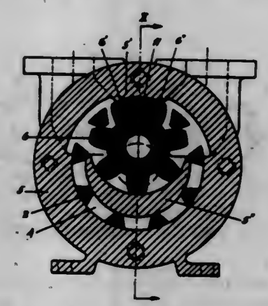


3,316,850
PUMP PRIMING CONTROL
Royal N. Roberts and Valdemar M. Labiensiecki, both of Baldwinsville, N.Y., assignors to Morris Machine Works, Baldwinsville, N.Y., a corporation of New York
Filed Aug. 27, 1965, Ser. No. 483,219
4 Claims. (Cl. 103—113)



1. A pump assembly in which the priming operation is manually controlled, said assembly including a main pump of the centrifugal type, a priming vacuum pump that is of the rotary, positive displacement type, a discharge line communicating between the chamber of said main pump and the chamber of the said priming vacuum pump, means to prevent ingress of fluid into the priming vacuum pump, a take-off wheel in driving relationship with the shaft of said main pump, a driving wheel in driving relationship with the shaft on said priming vacuum pump, and an idler wheel disposed such that it will frictionally engage the said take-off wheel and said driving wheel when activated manually.

3,316,851
ARRANGEMENT IN ROTATION PUMP OR MOTOR
Harald Hagenes, % Hnefi Verft & Mek. Verksted, Tonsberg, Norway
Filed Oct. 21, 1965, Ser. No. 499,854
3 Claims. (Cl. 103—126)



1. In apparatus for use as a pump, motor or the like wherein a casing having an inlet port and an outlet port for conducting fluid into and out of said casing has formed therein a chamber bounded by walls having a lower portion and an upper portion, said casing including a boss extending into said chamber and forming a groove bounded by a lower portion of said boss and said lower wall portion, said groove being of uniform width substantially concentric with said casing, and wherein a first gear is disposed within said chamber having teeth adapted for movement through said groove in sliding relationship with said lower portion of said boss and said lower portion of said chamber, wherein a second idling gear matingly cooperating with said first gear is disposed eccentrically within an upper portion of said chamber and within said first gear such that the teeth of said first and second gears mesh, the improvement which comprises:

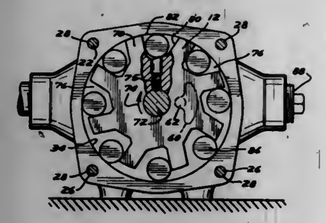
a boss extending from said upper portion of the chamber into the chamber, said boss having a surface portion substantially parallel to the locus of points on said gears during movement thereof, the crowns of said second gear protruding radially farther than the crowns of said first gear such that a reduction in fluid volume occurs between said inlet and said outlet ports only by cooperation of said second gear with said surface portion, said inlet and outlet adapted to conduct fluid in a substantially axial direction.

3,316,852
PUMP
Harry J. Sedler, Minneapolis, Minn., assignor to Hypro, Inc., Minneapolis, Minn., a corporation of Ohio
Continuation of application Ser. No. 419,022, Dec. 17, 1964. This application Sept. 22, 1966, Ser. No. 584,628
14 Claims. (Cl. 103—136)

1. A fluid pump comprising:

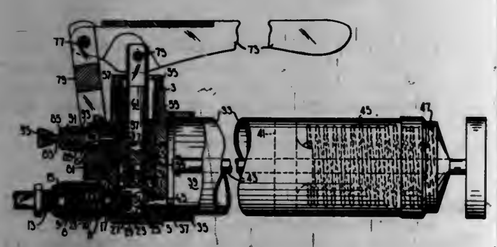
(a) a housing having a cylindrical pumping chamber therein;

(b) said pumping chamber being defined by an inner circumferential wall and a pair of spaced circular end walls;
(c) a rotor rotatably mounted within said pumping chamber and having its axis in offset parallel relation to that of said pumping chamber and having a width such as to extend from one of said circular end walls to the other;
(d) said rotor having a plurality of roller receiving slots of predetermined depth formed into and across the circumferential surface thereof;
(e) a roller having a predetermined diameter disposed for free rotation in each of said roller receiving slots and having an axial length extending from one of said circular end walls to the other;
(f) arcuately spaced inlet and outlet ports communicating with said chamber through arcuately spaced openings in said walls; and



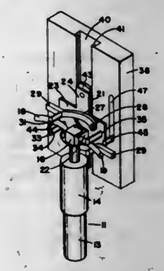
(g) the said roller receiving slots in said rotor having a bottom surface with a generally planar central portion and generally angularly oriented planar leading and trailing faces disposed in radially outwardly diverging relationship, one to another, with the said trailing face being disposed substantially along a radius line of said rotor, and with the sum of said predetermined depth and a gap between said rotor edge and said inner circumferential wall and being substantially equal to said predetermined diameter and with the slot width at a distance radially outwardly from the base of said slot equal to the radius of said roller being greater than the diameter of said roller, the arrangement being such that simultaneous contact is possible between said roller, said bottom surface, and one only of said leading and trailing surfaces.

3,316,853
MEASURING PUMP
Rudy F. Schneller, O'Fallon, Mo., assignor to McNeil Corporation, Akron, Ohio, a corporation of Ohio
Filed Apr. 4, 1966, Ser. No. 539,789
10 Claims. (Cl. 103—203)



1. A pump for liquids comprising:
a cylinder,
a liquid inlet passage and a liquid outlet passage communicating with the cylinder,
a first check valve closing the inlet passage to liquid discharged from the cylinder,
a second check valve closing the outlet passage to the flow of liquid from the outlet passage into the cylinder,
a plunger,
means for reciprocating the plunger throughout a full stroke,
means for limiting the stroke of the plunger,
a reciprocating piston movable through the cylinder between a first position wherein the cylinder is charged with liquid and a second position wherein liquid has been discharged from the cylinder, the plunger having a sliding lost-motion connection with the piston whereby the plunger is movable into the cylinder relative to the piston during the first part of a cylinder discharging stroke and movable out of the cylinder relative to the piston during the first part of a cylinder charging stroke, and a latch pin having an end portion movable between an extended position wherein it projects into the cylinder adjacent to the piston when the piston is in its first position for blocking movement of the piston into the cylinder and a retracted position wherein it is withdrawn from the cylinder to permit movement of the piston from its first position to its second position,
means biasing the latch pin to its extended position,
the latch pin being moved against the biasing means to its retracted position by an increase in pressure of substantially gas-free liquid in the cylinder resulting from initial movement of the plunger into the cylinder during a cylinder discharging stroke, thereby unblocking the piston so that further movement of the plunger after its initial lost-motion travel relative to the piston causes the piston and plunger simultaneously to sweep through the cylinder for discharging liquid from the cylinder through the outlet passage.

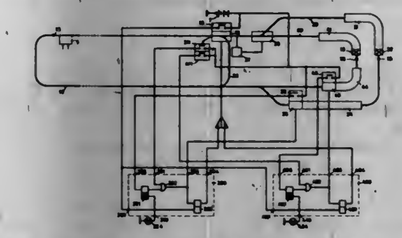
3,316,854
METERING APPARATUS
Henry F. Coffey and Norbert R. Kuzel, both of Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind., a corporation of Indiana
Filed Dec. 22, 1965, Ser. No. 515,574
9 Claims. (Cl. 103—227)



1. A metering apparatus comprising in combination:
a mounting plate,
first and second valve operating stops,
a pump support plate slidably mounted on said mounting plate,
a reciprocal pump mounted on said pump support plate,
a pair of resilient and deformable inlet and outlet conduits on said pump, and
a pair of valve clamp means on said pump support plate and biased in pinching position on said inlet and outlet conduits,

each of said biased valve clamp means being positioned to alternately contact a respective one of said operating stops upon a predetermined movement of said pump and pump support plate relative to said mounting plate and overcome the biasing action on said valve clamp means and remove the pinching effect on said conduits.

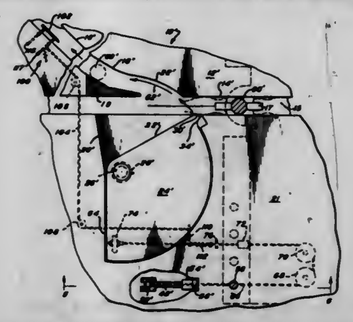
3,316,855
SELECTIVE CONVEYOR
Jean H. Immarigeon, Sceaux, France, assignor to Société Mixte pour l'Etude et le Developpement de la Technique des Centres Postaux Mécanisés styled Somepost, Orly, France, a body corporate of France
Filed Jan. 13, 1965, Ser. No. 425,136
Claims priority, application France, Jan. 16, 1964, 960,529
3 Claims. (Cl. 104—88)



1. A conveyor comprising a main path, a plurality of auxiliary paths shunted across said main path and forming looped circuits with the same, said auxiliary paths being connected to said main path by points at their entry and by a junction at their exit, routable carriages, synchronous driving chains adapted to drive said carriages along said main and auxiliary paths, a loading station on said main path, loading and unloading stations on each auxiliary path, each loading and unloading station having on each side an upstream storage zone and a downstream storage zone of equal capacity wherein said carriages may be disengaged from said driving chains, blocking means of said carriages at the exit of said storage zones, means for detecting the presence of at least one carriage in each of said downstream storage zones, means for releasing a carriage from said downstream storage zone, route detectors disposed close before said entry points, means for controlling said entry points in order to actualize the routing of said carriages, said route detector and said carriage presence detecting means being so associated as simultaneously to control said means for controlling said entry points and said means for releasing a carriage from said downstream storage zone, the switching of a given carriage to a given auxiliary path being only conditioned by the presence of at least one carriage in the downstream storage zone of said given auxiliary path, whereby all the carriages travel around said main path until a carriage is present in the downstream storage zone of the loading and unloading station for which they are routed at the time when they pass to the entry of the points for the corresponding auxiliary path.

3,316,856
TOW TRUCK SWITCHING MEANS
David M. Edgar and Graham K. Johnson, Easton, Pa., assignors to SI Handling Systems, Inc., Easton, Pa., a corporation of Pennsylvania
Filed June 16, 1964, Ser. No. 375,458
9 Claims. (Cl. 104—172)

1. Tow truck switching means for switching a tow truck having a depending tow pin for engagement with a slot comprising a reference surface having a main slot intersected by at least one shunt slot, a switch member movably supported adjacent said intersection, means mounting said member for movement from an inoperative position to an operative position, said member in its operative position presenting an abutment surface in the main slot for contact with a tow pin, said member being mouned for movement from said operative position with the tow pin to guide the tow pin into the shunt slot, means



for causing said member to remain in its inoperative position, and means supported by said reference surface and actuable by a portion of a truck for moving said member from its inoperative position to its operative position, said last-mentioned means including an abutment which when actuated causes said member to move to its operative position.

3,316,857
MOTOR ACTUATED CLOSURE MECHANISM FOR RAILWAY HOPPER CARS
Walter L. Floehr, Toledo, Ohio, assignor to Unitcast Corporation, Toledo, Ohio, a corporation of Ohio
Filed Apr. 21, 1964, Ser. No. 361,459
17 Claims. (Cl. 105—240)

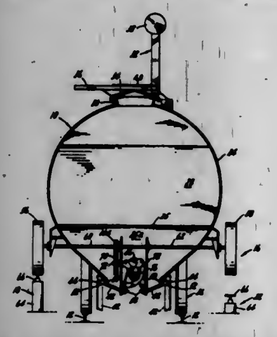


1. Dumping mechanism for a hopper car having a plurality of bottom outlets arranged in pairs spaced longitudinally of the car with the outlets of each pair spaced laterally by a center sill, and a plurality of hinged doors opening longitudinally of the car, said doors being connected in pairs across said sill each for closing a pair of said outlets and certain of said connected pairs opening oppositely from other thereof, comprising remotely controllable operator means in and acting longitudinally of said sill and individually connected to each of said pairs of connected doors for operating said doors in unison.

3,316,858
RAILWAY HOPPER CAR CLOSURE ACTUATING DEVICE
William E. Fritz, Hinsdale, Ill., assignor to Union Tank Car Company, Chicago, Ill., a corporation of New Jersey
Filed Oct. 24, 1962, Ser. No. 232,729
9 Claims. (Cl. 105—241)

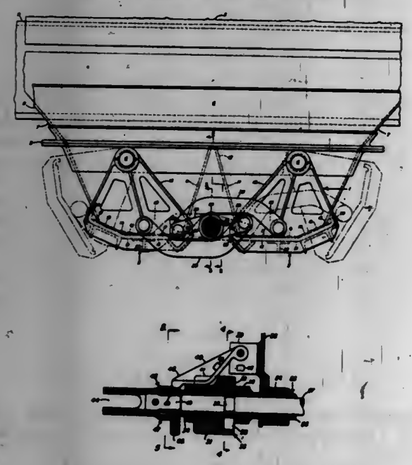
1. Apparatus for controlling opening and closing of a pair of pivotable hopper doors on a hopper car during movement of the car in a certain direction comprising said hopper doors being pivoted about longitudinally extending axes, first and second rotatable shafts positioned on opposite sides of said car, said first and second shafts having a first and second shaft rotation actuator,

respectively, thereon on opposite sides of said car, said first and second shafts each having first gear means thereon, each of said first gear means directly engaging one another, said first gear means on said first shaft also directly engaging a second gear means mounted upon a third rotatable shaft, a fourth rotatable shaft extending longitudinally of said hopper car between said hopper doors, said third rotatable shaft driving said fourth



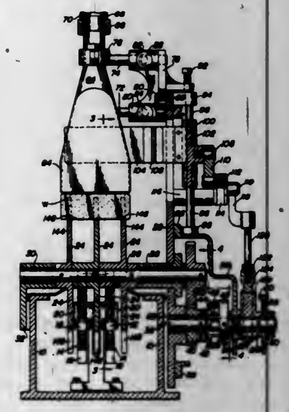
rotatable shaft through third gear means, means connecting said fourth shaft and said hopper doors to open and close said hopper doors upon rotation of said fourth shaft, rotation of said first rotation actuator while said second rotation actuator is free to rotate causing said doors to open and rotation of said second rotation actuator in the same direction while said first rotation actuator is free causing said doors to close.

3,316,859
HOPPER DOOR OPERATING AND LATCHING ASSEMBLY
Walter L. Floehr, Toledo, Ohio, assignor to Unitcast Corporation, Toledo, Ohio, a corporation of Ohio
Filed Feb. 4, 1963, Ser. No. 255,849
14 Claims. (Cl. 105—253)



1. A door operating assembly for a railway hopper car having a hopper dischargeable downwardly through a discharge opening, comprising a door mounted on said car above said opening for swinging about a horizontal axis between an open position rearwardly of said axis and adjacent an end of said opening to a closed position beneath said opening, said door in closed position presenting to any lading in said hopper an inner face extending forwardly and rearwardly of and having angularly related portions disposed normal to said axis and constructed and arranged for enabling said lading acting on each portion to exert a door-opening force thereon, and said door in said closed position having the center of gravity thereof so disposed relative to said swinging axis as to be swingable by gravity from open to closed position, an operating shaft mounted on said car and disposed parallel to said axis, means drivably connecting said shaft to said door for swinging thereof between open and closed positions, operating means rotatably mounted on said car concentrically of said shaft, and lost motion means operatively connecting said operating means and shaft, said lost motion means having an arc of lost motion of such extent relative to the arc of swinging of said door between open and closed positions as to enable said door to swing in a closing direction between said positions without imparting movement to said operating means.

3,316,860
ICE CREAM SANDWICH MACHINE
Robert J. Peterson, Linden, N.J., assignor to The Quaker Oats Company, Chicago, Ill., a corporation of New Jersey
Filed Apr. 28, 1966, Ser. No. 546,033
3 Claims. (Cl. 107—1)



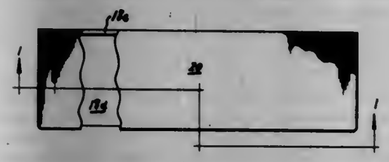
1. In a sandwich making machine of the type including an extrusion nozzle having a discharge end from which a plastic comestible may be continuously extruded, means for feeding wafers against opposite sides of said nozzle and for moving them in the direction the comestible is being extruded, separating means including a pair of spaced circular discs having notches therein providing a series of separate spaced-apart pockets, said pockets each having an open end for receiving therein a pair of wafers having extruded comestible therebetween, and means for intermittently moving said discs relative to the extrusion nozzle for successively positioning said pockets with their open ends in an oriented filling position closely adjacent the extrusion nozzle for receiving therein a pair of wafers having extruded comestible therebetween, whereby said pockets are adapted after filling and upon movement of said discs to shear off comestible across the discharge end of the nozzle, thereby delivering successive sandwiches, the improvement in which said discs provide a series of 12 or more separate uniformly spaced-apart pockets, and said means for intermittently moving said discs is adapted to move said discs at an average speed of less than 11,000 degrees rotation per minute while the discs are in motion when the machine is operating at a production rate of 110 units per minute.

3,316,861
PALLET FOOT
William T. Dalley, Manhasset, N.Y., assignor to Interstate Container Corporation, New York, N.Y., a corporation of New York
Filed Apr. 6, 1966, Ser. No. 540,560
9 Claims. (Cl. 108—51)



1. A pallet foot assembly designed for use with a corrugated paperboard pallet, said foot assembly comprising a tapered cup shaped foot, said foot being inverted so that it is closed at the top and open at the bottom, said foot being upwardly tapered and having a flat top with a hole, and a fastener to secure said foot to a pallet and beneath said pallet, said fastener having a flat head of relatively large area to bear downward against the top of the pallet and a shank dimensioned to pass through the pallet and into the hole in the foot, the lower end of said shank being slightly enlarged to lock the foot and fastener together after the fastener shank has passed downward through the pallet and into the foot.

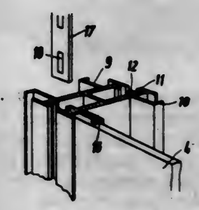
3,316,862
FURNITURE ASSEMBLY
Jelemma I. Dismuke, 315 S. Bedford Ave., Evansville, Ind. 47713
Filed Sept. 15, 1964, Ser. No. 396,675
1 Claim. (Cl. 108—91)



A furniture assembly comprising a base unit having a supporting frame, at least one recessed portion disposed in said supporting frame of said base unit, a plurality of separable sections disposed in stacked relationship on said base unit, each of said separable sections having a supporting frame with at least one recessed portion therein, each of said separable sections having at least one integral downwardly depending portion extending from and along a side wall thereof adapted to be received in said at least one recessed portion in an adjoining section, and a flat top member having at least one downwardly depending portion proximate to and along a side thereof adapted to be received in said at least one recessed portion in an adjoining section.

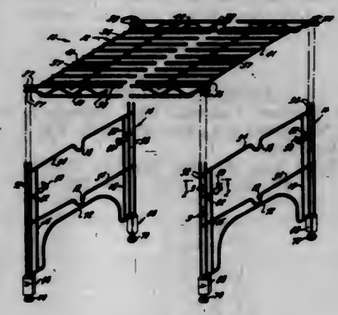
3,316,863
SHELVES
Felix Zock, Am Deimelberg 46, Trier, Germany
Filed Oct. 18, 1965, Ser. No. 497,408
Claims priority, application Germany, Feb. 19, 1965, Z 11,344
15 Claims. (Cl. 108—108)

1. A shelf comprising at least two standards of any desired length, each having a substantially H-shaped cross section formed by a pair of parallel side walls and a central transverse web connecting said side walls, a short outwardly projecting first flange on each lateral end of each side wall, and another pair of outwardly projecting second flanges on each side wall, each of said second flanges being spaced at a certain distance form the associated first flange and having a hook-shaped end facing in the direction toward said associated first flange, at lease one back wall having parallel lateral edges and a recess in one side spaced from each of said edges at a



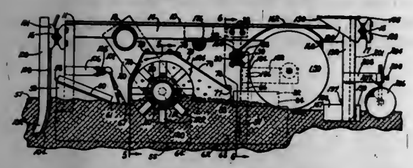
distance slightly smaller than the width of each of said second flanges and adapted to receive said hook-shaped end of one of said second flanges, brackets adapted to be mounted on each of said standards and projecting at least toward one side thereof, horizontal shelf boards on and supported by said brackets, and at least one base for supporting each of said standards and at least one of said back walls thereon.

3,316,864
KNOCKDOWN SHELVING UNIT
Louis Maslow, Huntsville Road, Dallas, Pa. 18612
Original application Mar. 1, 1963, Ser. No. 262,102, now Patent No. 3,288,408. Divided and this application Apr. 7, 1965, Ser. No. 451,891
5 Claims. (Cl. 108—148)



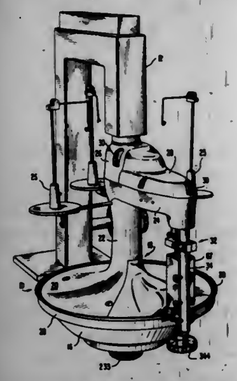
1. An assembly comprising a frame and spaced vertical supports, said frame including parallel sides and opposite transverse ends, said sides comprising pairs of spaced ribs, the spacing of the ribs being perpendicular to the plane of the frame, said pairs of ribs including notches permitting the sides to engage the supports in a retaining manner when the frame is perpendicular to the supports and clip means for holding said frame in vertically adjusted position with respect to said supports, said clip means including a notch adapted to slide vertically on said support and a projection adapted to support said frame by resisting a downward thrust thereof, said downward thrust tending to cock said notch out of alignment with said support and thereby prevent vertical sliding of said clip on said support.

3,316,865
AGRICULTURAL IMPLEMENT
Leslie Ford Williams, P.O. Box 741, Buttonwillow, Calif. 93206
Filed Aug. 21, 1964, Ser. No. 391,194
5 Claims. (Cl. 111—6)



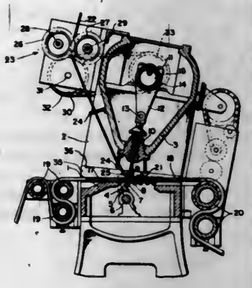
1. An agricultural implement for preparing seed beds arranged in elongated rows comprising a frame adapted for earth traversing movement in a predetermined forward direction of travel longitudinally along such rows; an elongated inverted trough-shaped bed forming member mounted on the frame providing a forwardly opening funnel portion and a rearward portion providing a constricted passage longitudinally aligned with said rows and individually engaging the rows in supporting relation to the frame during said movement thereof, said bed forming member providing an upper opening between said funnel portion and said rearward portion; a nozzle mounted on the frame adapted for connection to a source of flowable soil treating material for discharge through said opening against the seed bed; a soil mulching wheel rotatably mounted on the frame within the bed forming member rearwardly of said upper opening having a plurality of radially extended blades in earth penetrating relation to the rows to insure intermixing and substantially complete absorption of said soil treating material into the seed bed, said mulching wheel including a pair of transversely spaced discs on opposite sides of the blades to constrain the soil being mulched therebetween; powered means borne by the frame having driving connection to said mulching wheel; and a roller rotatably mounted on the frame in following relation to said mulching wheel having a lower periphery in rolling engagement with the seed bed and disposed within said bed forming member.

3,316,866
SEWING MACHINE
Russell S. Shelton, Paducah, Ky., assignor to Southern Textile Machinery Co., Inc., Paducah, Ky., a corporation of Kentucky
Filed Apr. 21, 1964, Ser. No. 361,461
19 Claims. (Cl. 112—25)



6. In a dial looper sewing machine having work impaling points extending radially from a rotatable dial and a needle movable along successive points to carry a thread through work impaled on the points, a looper mechanism comprising a downwardly extending rod, means supporting said rod for movement axially along its longitudinal axis rotatably about its longitudinal axis, and pivotally about an axis extending laterally of said longitudinal axis, and a looper element on the lower end of said rod positioned outwardly of the dial points to engage and manipulate the thread carried through the work by the needle.

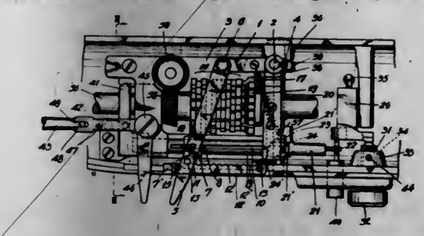
3,316,867
TUFTING MACHINES HAVING INCLINED NEEDLES TO PREVENT TAGGING
Joseph O. Erwin, Jr., Hixson, Tenn., assignor to The Singer Company, New York, N.Y., a corporation of New Jersey
Filed Feb. 26, 1965, Ser. No. 435,627
6 Claims. (Cl. 112—79)



1. In a tufting machine, a frame having a bed including a work supporting surface, a standard extending from said work supporting surface and a head carried by the standard and overhanging the bed, fabric feeding means for advancing a backing fabric across said work supporting surface and defining the direction of feed, at least one needle supported for reciprocation through said backing fabric and having a work penetrating end adapted to penetrate said backing fabric on the work supporting surface and to project successive loops of yarn through said backing fabric, means including a push rod operably connected to said needle for initiating reciprocating movement of said needle, said needle and said push rod each being disposed in said head for reciprocation in paths included in respective planes parallel to the direction of fabric feed and substantially normal to the work supporting surface and the paths of said needle and said push rod each being inclined a sufficient amount in a downwardly direction opposite to the direction of fabric feed such that the work penetrating end of said needle will always recede with respect to a previously formed advanced loop upon successive penetration of said needle through said backing fabric to form the next succeeding loop of yarn thereby preventing subsequent penetration of the previously formed advanced loop by said needle.

3,316,868
BUTTONHOLE STITCHING DEVICE
Yasukata Eguchi, Tokyo, Japan, assignor to Janome Sewing Machine Co., Ltd., Tokyo, Japan
Filed Feb. 2, 1960, Ser. No. 6,313
Claims priority, application Japan, Feb. 2, 1959, 34/4,922; Feb. 4, 1959, 34/3,532; Mar. 16, 1959, 34/14,899
9 Claims. (Cl. 112—158)

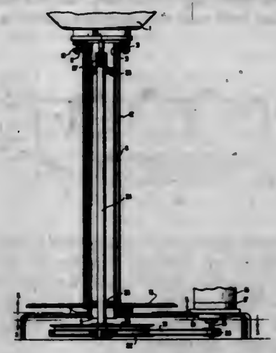
1. In a sewing machine, in combination, a buttonhole stitching device comprising a rotary composite cam having two outer cam tracks and a central cam track formed with projections and recesses, said projections of said outer cam tracks having the same height, and said projections of said central cam track having twice the height of said projections of said outer cam track, the extremities of said projections of one of said outer cam tracks and the lowest points of said recesses of the other of said outer cam tracks being aligned; means mounting said cam for rotation about an axis; an oscillatable cam follower means movable along said axis between three inoperative positions respectively located opposite said cam tracks spaced from the same, and turnable from each of said inoperative positions to a corresponding operative position for cooperating with said three cam tracks, respectively; shifting means for selectively shifting said cam follower means between said inoperative positions, and from the same to said operative positions, respectively, so that said cam follower means is oscillated in said operative positions in accordance with said three cam track patterns, respectively; a needle



bar assembly; connecting means operatively connecting said cam follower means with said needle bar assembly so that the same is transversely oscillated, said needle bar assembly producing smaller transverse stitches when said cam follower means cooperates with said outer cam tracks, and longer transverse stitches when said cam follower means cooperates with said central cam track, said smaller transverse stitches produced under control of said outer cam tracks, respectively, being in transversely spaced positions, and said longer stitches extending transversely over said smaller stitches; feed reversing means for reversing the feeding direction in which a material is fed to said needle bar assembly; and linkage means connecting said shifting means with said feed reversing means for reversing the feeding direction when said cam follower means is shifted from the position with either one of said outer cam tracks to the position cooperating with either one of said outer cam tracks to the position cooperating with the respective other cam track.

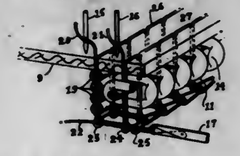
3,316,869
PEDESTAL MOUNTING FOR SEWING MACHINE
Russell S. Shelton, Paducah, Ky., assignor to Southern Textile Machinery Co., Inc., Paducah, Ky., a corporation of Kentucky
Filed Dec. 14, 1964, Ser. No. 418,004
4 Claims. (Cl. 112—258)

2. A mounting pedestal for a dial looper sewing machine comprising, a fixed hollow base having an upper surface with an opening formed therein, an elongated hollow support column fixed on said base and extending upwardly from said opening, bearing means for supporting a sewing machine on the upper end of said column for rotation thereon about the longitudinal axis thereof, an elongated drive shaft supported within said column for driving a sewing machine connected thereto and supported on said column, means within said hollow base for rotating said shaft, an elongated cylindrical sleeve concentric with and surrounding said column and having means at its upper end for fixing said sleeve to a sewing machine supported on said column for rotation therewith, a radially extending flange on the lower end of said sleeve overlying a portion of said upper surface of said base in position to be engaged by the feet of a sewing machine operator to manually rotate



the sleeve and a sewing machine fixed thereto about said vertical axis, and adjustable friction brake means for controlling the force required to rotate said sleeve.

3,316,870
METHOD OF MAKING COIL TYPE ZIPPER FASTENER STRINGERS
John E. Burbank, Middlebury, Conn., assignor to Scovill Manufacturing Company, Waterbury, Conn., a corporation of Connecticut
Filed Mar. 27, 1964, Ser. No. 355,197
2 Claims. (Cl. 112—265)



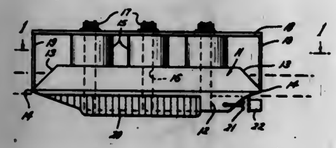
1. The process of making a zipper fastener stringer in a sewing machine comprising
(a) feeding a flat tape and a coil having a cord enclosed therein with the forward edge of the tape overlapping the coil;
(b) guiding a plurality of parallel yarns along the outside edge of the coil;
(c) passing parallel lines of stitching one through the tape and coil alongside the enclosed cord and another through the tape and said plurality of parallel yarns;
(d) interlocking said lines of stitching on the front-side of the coil opposite the tape by means of a third thread while applying sufficient tension to said third thread to pull said parallel yarns into covering relation with said coil and also to bind said cord tightly in the coil.

3,316,871
STABILIZED VESSEL FOR OPEN SEA OPERATIONS
Augustine John Tucker, 911 S. Post Oak Lane, Houston, Tex. 77027
Filed Jan. 27, 1966, Ser. No. 523,349
10 Claims. (Cl. 114—.5)

1. A seagoing vessel which is adapted for operation in open sea comprising:
a hull having inwardly and upwardly sloped top sides;
a grid network attached to the bottom side of the hull, said grid network comprising a plurality of grid

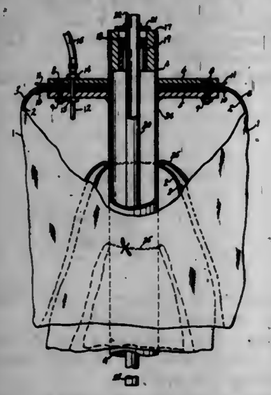
plates attached at generally right angles to the bottom surface of the hull and forming a plurality of generally downwardly facing open ended pockets;

at least one generally cylindrical shaped tank mounted on top the hull and adapted to support a deck thereabove;



and ballasting means for raising and lowering the hull a predetermined distance relative to the water surface at predetermined times whereby the leading edges of the sloped top sides may be submerged below the water surface when the vessel is engaged in a support operation.

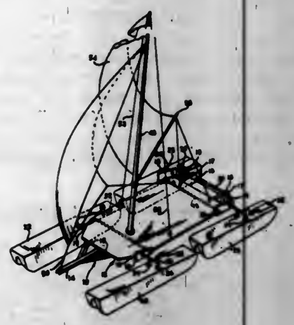
3,316,872
APPARATUS FOR SALVAGING VESSELS
Herman J. van Eck, 494 Thompson Ave., East Haven, Conn. 06512
Filed Apr. 15, 1965, Ser. No. 448,476
7 Claims. (Cl. 114—54)



1. Apparatus for imparting buoyancy to a flood compartment of a vessel comprising a vertically arranged casing adapted to extend through the wall structure of the compartment and be secured thereto, an open-ended, unfoldable, flexible and gas-impervious liner around said casing to substantially conform to a large portion of the top and side wall structure of the vessel compartment and having one of said open ends in communication with said casing, means securing the other open end of said liner around said casing, an open-ended inner discharge pipe extending in telescopic relation within said casing in a vertical direction to regulate water and gas within the liner, and inlet means for directing gas within said liner from a source of compressed gas.

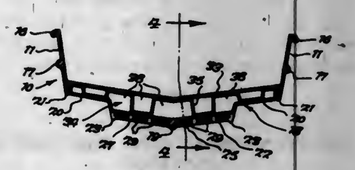
3,316,873
MULTIHULL VESSELS
Newton B. Dismukes, 159 Woodridge Circle New Canaan, Conn. 06840
Filed Apr. 8, 1965, Ser. No. 446,635
11 Claims. (Cl. 114—61)

1. A multi-hull vessel comprising in combination: a load-carrying structure and a plurality of planing type hulls thereunder, said hulls including a bottom surface designed to plane over a water surface, said surface being configured so as to present a substantially larger area rearward of the longitudinal center of the hull than forward of said center whereby the static and dynamic centers of buoyancy of said hull are aft of said center; flexible connection means between each of said hulls and said load-carrying structure, said connection means comprising fixed pivot axes extending athwartship parallel to each other,



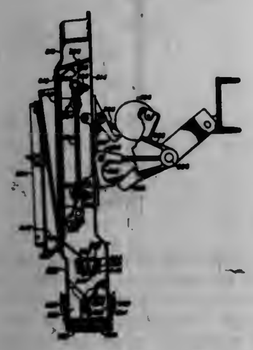
said hulls each being pivotable about a corresponding one of said axes only in planes which are parallel to each other, each of said axes extending in respective planes located between said static and said dynamic centers of buoyancy, said axes being symmetrically arranged at the apices of an isosceles polygon, said connection means holding said load-carrying structure in upwardly spaced apart relationship to said hulls whereby said hulls are free to trim to waves without obstruction from said structure.

3,316,874
BOAT HULLS
Henry Donald Canazzi, 178 Jewett Parkway, Buffalo, N.Y. 14214
Filed Oct. 9, 1964, Ser. No. 402,769
5 Claims. (Cl. 114—67)



1. A high speed, planing hull having a bow portion and a stern portion and including sides that converge in said bow portion to form a relatively sharp prow and which, in the stern portion are joined to a transom, a bottom, said bottom comprising outer, flat, longitudinally extending portions adjacent said sides and a depressed, central, longitudinally extending portion having a lateral, downwardly projecting step extending substantially across the full width thereof, said step being vented across substantially the full width of the rear surface thereof, said hull being provided with an interior floor and spacing means between said bottom and said floor, said spacing means extending from the bow portion of said hull to said transom and for substantially the full width of said hull bottom and being transversely corrugated to form longitudinal channels, and means within said hull for supplying air to the rear vented portion of said step whereby air is discharged under said bottom to provide a cushion of air that reduces drag on said hull, said means for supplying air being at least in part in said central portion of said bottom and including said spacing means.

3,316,875
XEROGRAPHIC DEVELOPING APPARATUS
Thomas C. Murray, Rochester, Russell R. Roberts, Ontario, and Joseph B. Stone, Penfield, N.Y., assignors to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Mar. 2, 1964, Ser. No. 348,480
3 Claims. (Cl. 118—6)



1. Developing apparatus for developing electrostatic latent images on a xerographic plate by selectively cascading developer material thereacross according to the electrical characteristics of the latent image comprising

contiguous walls forming an elongated housing wherein one of said longitudinally extending walls being formed with an opening therein to receive a xerographic plate having an electrostatic latent image to be developed exposed to the interior of said housing,

movable support means suspended from a rotatable shaft and being associated with said housing for supporting the same in a plate loading condition,

a backing electrode extending parallel to said plate and being movable from a first position closely spaced to said plate associated with tone copy to a second position spaced farther from said plate associated with line copy,

chamber means located at one end of said housing to separately contain at least two different developer materials one material being associated with producing line and another material for tone copy, said chamber means being in communication with the interior of said housing and including a displaceable wall member pivotally mounted on a common wall centrally located in said chamber, said displaceable wall member being movable from a first position to close off one side of said chamber allowing a one of said materials to be cascaded and being movable to a second position to close off the other side of said chamber allowing the other said material to be cascaded,

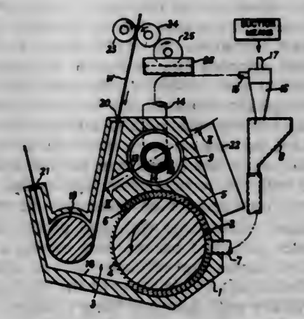
motor driven drive means connected to said housing and adapted to swing said housing about the axis of said shaft in a first direction to a first cascade position and then in a second direction to a second cascade position,

cam means positioned on said support means an engageable with a pair of switches, a one of said switches being located in the first direction path of said housing, and the other being located in the second direction path, said motor driven drive means being responsive to the actuation of said switches to stop the swing of said housing beyond a predetermined position defined by the placement of each of said switches, said cam means including a displaceable camming surface for adjusting the angular displacement of said housing at which said switches are engaged from one position in the case of line copy to another position in the case of tone copy.

timing means responsive to actuation of said switches and operable to interrupt the movement of said motor driven means for a predetermined time interval to define the time duration at which said housing remains in said first and second cascade positions, said timing means including a movable stop member for permitting the adjustment of the time interval for which said motor driven drive means is interrupted, said stop member having a first position associated with line copy and a second position associated with tone copy, and

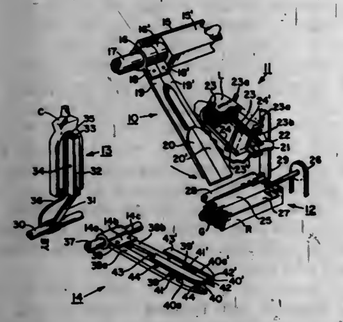
control means to conjointly move said displaceable wall member, said backing electrode, said camming surface, and said stop member to provide line or tone development as aforesaid in accordance with the electrical characteristics of the latent image to be developed.

3,316,876
APPARATUS FOR APPLYING BRONZE POWDER TO A WEB
Alan Keith McCombie, London, England, assignor to The Molins Organisation Limited, a British company
Filed Aug. 1, 1963, Ser. No. 299,280
Claims priority, application Great Britain, Aug. 17, 1962, 31,680/62
7 Claims. (Cl. 118—50)



1. Bronzing apparatus for applying particles of bronzing material to an adhesive coated web, comprising a member defining first and second chambers, said second chamber having a cylindrical wall and an outlet in said cylindrical wall communicating with said first chamber, resilient means for supporting said member, means for vibrating said member, means to feed said web through said first chamber, a rotatable cylinder within said second chamber, the cylindrical surface of said rotatable cylinder being spaced from the cylindrical wall of said second chamber to define a channel therebetween, pile material covering the opposed surfaces of both said cylinder and said cylindrical wall, the fibers of said pile material covering both said surfaces being inclined in the same arcuate direction, and means to feed said particles between said two pile covered surfaces, whereby vibration of said member causes said cylinder to rotate delivering and dispersing said particles through said outlet in said cylindrical wall into said first chamber.

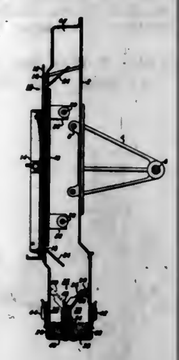
3,316,877
LABEL APPLYING MECHANISM
Warren H. Harlan, Greenhills, Ohio, assignor to The Procter and Gamble Company, Cincinnati, Ohio, a corporation of Ohio
Filed Dec. 16, 1964, Ser. No. 418,801
5 Claims. (Cl. 118—236)



1. In a labeling machine of the kind which includes a label hopper; a label picking means adapted to withdraw an exposed label from the hopper, said picking means comprising a pair of picker elements movable toward and from each other with a label contacting surface on each in the same plane; means for applying adhesive to said surfaces of the picker elements; means operative to move the picker elements, in closely adjacent relation, to a label picking position wherein the said surfaces thereof contact the back of the exposed label, and to move said picker elements, while maintained in the same relation, to a transfer position to thereby withdraw and transport the exposed adherent label to said transfer position and means operative to separate the picker elements whereby to spread the adhesive over the back of said label while the picker elements are at said transfer position; the improvement which comprises in combination: a transfer pad with a label gripping face operative to engage the front of the label at said transfer position and retain the label while said picker elements are separated, said transfer pad having a width substantially narrower than the width of said label and adapted to contact the label front with the vertical center line of the transfer pad in approximate alignment with the vertical center line of the label, and a backup arm mounted for movement to the transfer position in timed relationship with said picker elements and said transfer pad, said backup arm having a pair of coplanar label contacting surfaces thereon adapted to be placed substantially in the plane of the label gripping face of said transfer pad, with one lying to either side of said transfer pad face, at the transfer position while said picker elements are being separated, said label contacting surface on said backup arm being configured to substantially match oppositely disposed portions of said label which extend outwardly of the sides of said transfer pad, whereby said portions are fully supported during said glue spreading operation.

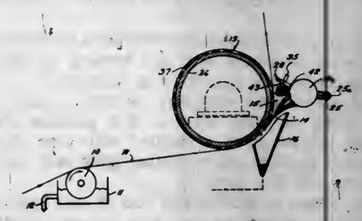
3,316,878
CASCADE DEVELOPING APPARATUS
Patrick T. Ferrari, Rochester, Franklin S. Reese, Victor, and Joseph B. Stone, Penfield, N.Y., assignors to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Dec. 30, 1965, Ser. No. 517,599
6 Claims. (Cl. 118—637)

1. Apparatus for developing electrostatic images on a xerographic plate including
a developer housing having its longitudinal axis extending vertically and an opening in one side of a size sufficient to accommodate a xerographic plate,
clamping means positioned to hold a xerographic plate over the opening in the housing,
chamber means adjacent one end of the developer housing to contain two separated charges of developer material,



means to cascade each of the charges of developer material over the surface of the xerographic plate,
said chamber means including a displaceable wall member arranged compatible with the flow path of the developer material to retain one charge of developer material while the other charge is being cascaded.

3,316,879
CONTROL OF FINE PARTICLE MIST EMPLOYING ELECTROSTATIC MEANS
Robert S. Washburn, Beloit, Wis., assignor to Beloit Corporation, Beloit, Wis., a corporation of Wisconsin
Filed Dec. 20, 1962, Ser. No. 246,254
14 Claims. (Cl. 118—639)

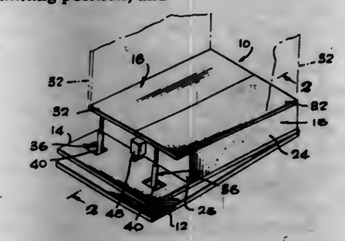


1. In a paper coating machine wherein a mist of coating particles is formed after the coating is applied to a travelling web, the combination comprising, an electrode positioned in said mist, and means for charging said electrode with a high voltage for collecting the particles on the electrode.

3,316,880
AUTOMATIC CAT LITTER BOX
Robert N. Jungles and James M. Jungles, both of 1710 E. Francis, La Habra, Calif. 90631
Filed Oct. 24, 1965, Ser. No. 504,894
18 Claims. (Cl. 119—1)

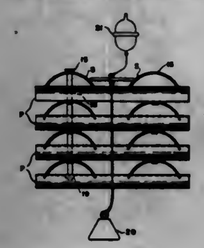
2. An automatic sanitary enclosure to be operated by an animal, comprising:
supporting base means;
a receptacle having a top opening;
closure means mounted on said receptacle for movement between open and closed positions relative to said opening;

means movably mounting said receptacle on said base means for movement between upper and lower limiting positions relative to said base means;
spring means co-acting between said base means and receptacle for urging said receptacle to said upper limiting position; and



closure operating means responsive to movement of said receptacle relative to said base means for effecting opening of said closure means in response to movement of said receptacle from said upper limiting position toward said lower limiting position relative to said base means and closing of said closure means in response to return of said receptacle to said upper limiting position.

3,316,881
ARTIFICIAL OYSTER CULTCH
Harry C. Fischer, Box 548, Goose Neck Road, Royal Oak, Md. 21662
Filed Dec. 13, 1965, Ser. No. 513,224
14 Claims. (Cl. 119—4)



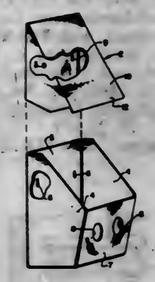
7. Artificial cultch comprising sheet material suitable to set spat, said sheets having alternately raised portions and connecting means for stacking said cultch sheets with the raised portions in crisscrossed relation.

3,316,882
THIN WALLED COLLAPSIBLE AQUARIUM
William C. Renwick, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich., a corporation of Michigan
Filed Aug. 6, 1965, Ser. No. 477,727
6 Claims. (Cl. 119—5)



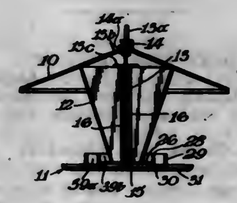
1. An aquarium comprising:
a generally circular rigid base member having a circular vertically extending bearing portion on the top surface thereof,
a non-rigid circular tubular member having one end thereof bearing against said bearing portion of said base member and the other end open to the atmosphere, and
wedge-shaped circular sealing means for sealing said tubular member and said base member to provide watertight integrity to the unit, whereby said tubular member is adapted to be rigidified at least in part by hydrostatic pressure.

3,316,883
BIRD FEEDER
Howard F. Johnson, New Lebanon, N.Y. 12125
Filed Oct. 6, 1965, Ser. No. 502,808
6 Claims. (Cl. 119—51)



1. A bird feeder comprising a feeder portion having an open top end, a bottom wall, an exterior, substantially vertical side surface, and a front wall, a roof portion slidable over said feeder portion and having an open bottom, a closed top end, an interior substantially vertical side surface, and a front wall slanting at a relatively sharp angle and extending in front of and downwardly beyond a top edge of said front wall of said feeder portion wherein the width of said roof portion exceeds slightly the width of said feeder portion and said roof portion having a snug fit on said feeder portion with said exterior vertical surface of the latter frictionally engaging the interior vertical surface of said roof portion and said frictional engagement between said vertical surfaces forming the only connection between said feeder and roof portions.

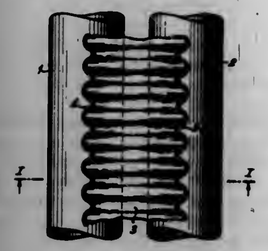
3,316,884
FEEDING DEVICE
Richard M. Viggars, Snuff Mill Road, Greenville, Wilmington, Del. 19807
Filed Oct. 20, 1965, Ser. No. 498,555
19 Claims. (Cl. 119—52)



1. A feeder for feeding granulated materials, such as bird feed, comprising a top, a centrally disposed chamber and a bottom tray, said centrally disposed chamber being subdivided into a plurality of separate compartments by a plurality of walls each of which extends radially from the center of said chamber and contacts the inside

wall of said chamber throughout its length and said wall of said chamber being in contact all along its bottom edge with said bottom of said feeder except at spaced intervals at which a portion of said wall is removed affording a passageway from the respective compartments for feed contained therein to fall by gravity to the said tray; and in said tray a feed retaining means comprising a plurality of at least three different substantially flat floor levels which are in a confined, stepped relationship with each other and are so confined by a pair of walls positioned on the top surface of the bottom of said tray and circling said chamber and spaced apart from each other, the outermost of said floors affording a perch.

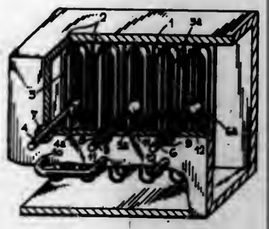
3,316,885
ELASTIC GAS-TIGHT CONNECTION, ESPECIALLY FOR BOILER PARTS
Karl Bickenbach, Karlskamp, near Gummersbach, Kurt Hesseler, Gummersbach, and Friedrich Hüsken, Mittelagger, Germany, assignors to L. & C. Steinmuller G.m.b.H., Gummersbach, Rhineland, Germany
Filed Apr. 15, 1965, Ser. No. 448,468
Claims priority, application Germany, Apr. 16, 1964, St 21,977
4 Claims. (Cl. 122—6)



1. An arrangement for steam producing installations, which includes: a first tubular member, a second tubular member arranged near said first tubular member and extending in the same longitudinal direction thereof, and a corrugated trough-shaped sheet metal strip having its corrugations extending in the transverse direction of said first and second tubular members and having its longitudinal edges respectively welded to said first and second tubular members along corrugated lines, the trough formed by said sheet metal strip extending in the longitudinal direction thereof and having its longitudinal edges located substantially at the welding seams respectively connecting said first and second tubular members to said sheet metal strip.

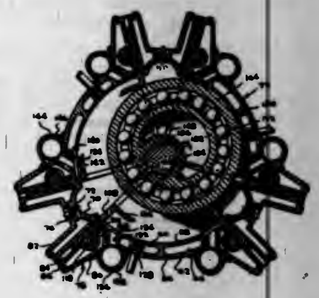
3,316,886
BACK-HEAT BOILER
Edouard Rudekiel, 5 Rue G. Thiriart, Liege, Belgium
Filed Oct. 23, 1965, Ser. No. 503,403
Claims priority, application Belgium, May 19, 1965, 40,520
8 Claims. (Cl. 122—379)

1. A back-heat boiler having side walls defining a flue passage for hot gas, rows of looped tubes suspended in said flue passage, means supporting the tubes in free-hanging loops whose lower ends are movable relative to each other, said supporting means positioning the tubes in the rows to define a plurality of horizontal clear paths transverse of the rows of tubes, at least one poker movable horizontally between the tube loops along said paths for a distance greater than the distance between the tube loops to knock ash off the tubes, and restraining means spaced between said side walls of the boiler and disposed a substantial distance below the tops of the tube loops but above the bottoms of the tube loops and limiting the distance the loops may swing transversely of the path



of the poker, said restraining means allowing the tube loops to move freely relatively to said restraining means a substantial distance in a direction transverse to the path of the poker.

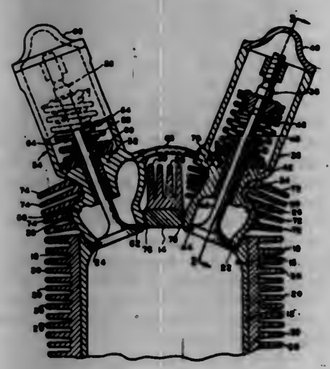
3,316,887
ROTARY ENGINE
William M. Melvin, 8434 Greenstone Drive, Dallas, Tex. 75231
Filed May 24, 1965, Ser. No. 458,201
13 Claims. (Cl. 123—14)



13. A rotary internal combustion engine comprising:
an engine housing having an outer end wall and an opposite inner end wall, the end walls having substantially centrally located, coaxial openings therein;
an annular side wall connecting the end walls;
the end walls and side wall having communicating coolant chambers therein;
a main shaft extending through the housing and projecting through the openings of the end walls;
a plurality of fuel input conduits connected to the side wall at spaced locations;
the side wall having inlet passageways and exhaust passageways formed therein in pairs spaced thereabout;
a substantially cylindrical chamber separation roller mounted eccentrically on the main shaft for rotation between the end walls in changeable, tangential contact with the side wall;
the roller including an inner element fixed to the main shaft and an outer element rotatably mounted about the inner element;
separation valve housings mounted on the side wall at spaced locations, each housing having a trackway therein;

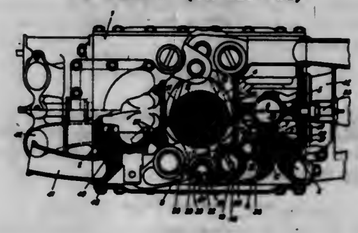
exhaust and compression valves, each comprising a plate with gear teeth thereon extending into the respective trackways, and a curved foot member contacted by the roller and operable in one position to close the respective inlet and exhaust ports;
ignition means at spaced locations about the side wall;
a control housing secured to the inner side wall of the engine housing and having an annular side wall and an end wall, the main shaft extending through the last-named end wall;
a control for each of the separation valves mounted in the control housing and having spring means to constantly bias it toward an outer position.
a pair of eccentrically mounted cam means mounted for rotation with the shaft within the control housing and being arranged for the sequential opening and closing of the controls and the valves associated therewith;
a transverse valve control shaft extended between the controls, and the separation valves, the shaft having gears thereon engaging the gear teeth of the separation valves and the controls, whereby control movement is imparted to the respective separation valves; and
lubrication inlet means for the control housing.

3,316,888
CYLINDER HEAD CONSTRUCTION
Carl F. Bachle, Grosse Pointe, Mich., assignor to Continental Aviation and Engineering Corporation, Detroit, Mich., a corporation of Virginia
Filed Jan. 15, 1965, Ser. No. 425,731
4 Claims. (Cl. 123—41.69)



1. A cylinder head for an internal combustion engine comprising;
(a) a lower section,
(b) said lower section defining a combustion chamber,
(c) an exhaust port receiving opening and an intake port receiving opening being provided in said lower section and communicating with said combustion chamber,
(d) an exhaust port structure and an intake port structure carried in said exhaust port receiving opening and said intake port receiving opening respectively,
(e) said lower section being constructed of a relatively high thermal resistive material defining said combustion chamber and a relatively high thermal conductive material encompassing said first mentioned material,
(f) said exhaust port structure being constructed of a relatively high thermal resistive material,
(g) said exhaust port structure being provided with a rocker arm housing connected integrally therewith,
(h) said housing enclosing a rocker arm assembly and an exhaust valve operable connected therewith, and
(i) a seat member constructed of a high strength material carried in said exhaust port structure and providing a seat for said exhaust valve.

3,316,889
INTERNAL COMBUSTION ENGINES, PARTICULARLY IN ENGINES OF THE TWO-STROKE TYPE
Roger Laurent Jean-Baptiste Saumori, "Fontarce," Rue des Genets, Monte Carlo, Monaco
Filed Sept. 14, 1964, Ser. No. 396,078
Claims priority, application Monaco, Oct. 15, 1963, 459
5 Claims. (Cl. 123—51)

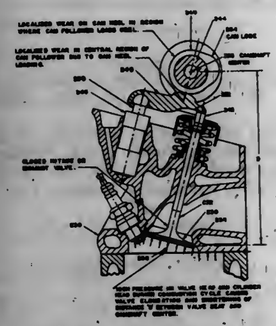


1. An oversquare internal combustion engine comprising at least a group of cylinders made up of two cylinders having a large diameter bore and a middle transverse plane, the axes of said cylinders being arranged in a single plane, a crankshaft having two crankpins and extending normally to the plane containing the axes of the two cylinders and between said cylinders, a first and a second reciprocating piston mounted in opposition in each cylinder for synchronously moving in opposite directions, a rocker connected to each piston, a roller sector cooperating with said rocker and having an outer diameter and an inner diameter, a plate member provided on said piston, said outer diameter of said sector rolling on said plate member, while said inner diameter is journalled on said rocker, a bearing semicircle provided in said rocker, a pin carried by said piston, said pin being laterally slidable on said bearing semi-circle, a pitman directly connecting the first piston rocker of one cylinder to the diagonally opposed second piston rocker of the other cylinder, means on said pitman for engaging one crankpin of said crankshaft, intake means provided in each cylinder near one end of a diameter contained in said middle transverse plane of said cylinder, and exhaust means provided in said cylinder near the other end of said diameter, so as to ensure within said cylinder a scavenging action by transversely directed equicurrents about said middle plane.

3,316,890
CAMSHAFT FOR INTERNAL COMBUSTION ENGINE VALVE GEAR
Michael C. Turkish, Lyndhurst, Ohio, assignor to Eaton Yale & Towne Inc., Cleveland, Ohio, a corporation of Ohio
Filed Sept. 12, 1966, Ser. No. 578,528
20 Claims. (Cl. 123—90)

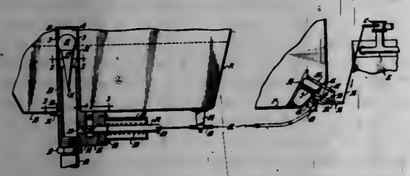
1. In an internal combustion engine having a valve seat and valve gear components which deflect under cylinder combustion pressure, the engine having a substantially rigid camshaft including a cam having a lobe and a heel, the heel providing valve closing, the valve gear deflections producing a changed cam to valve seat distance, and increased length of valve gear components contained therein, during the combustion interval to produce valve gear malfunction by the cam heel during a portion of its interval, the improvement wherein

a portion of said cam heel is profiled to a magnitude substantially equivalent to the deflection of said valve gear during camshaft rotation,



whereby the cam heel to follower contact load is maintained under normal light loading with the valve controlled by said cam in a normally closed position during the cam heel interval.

3,316,891
METERING MEANS FOR RESERVE SUPPLY OF LIQUID MOTOR FUEL
William R. McKay, Compton, Calif.
(12119 S. Duncan Ave., Lynwood, Calif. 90262)
Filed Dec. 3, 1964, Ser. No. 415,660
10 Claims. (Cl. 123—136)



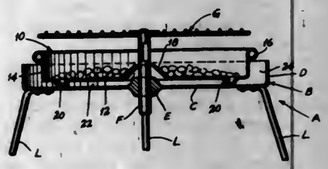
1. An assembly of the character described, adapted to couple a drainage conduit to a reservoir in position to drain essentially all of the liquid contents of said reservoir at two successive flow rates, the first being a normal flow rate adapted to drain the predominant quantity of said liquid, and the last being a restricted rate adapted to drain the residual quantity thereof, said assembly including, in combination:

(a) a housing having an open-top tube adapted to project upward from the bottom of such reservoir part way into the interior thereof with its open top thus providing an outlet mouth for normal flow therethrough of liquid which is above the level of the outlet mouth within the reservoir, which projecting tube is formed with lateral aperature means of progressively decreasing flow capacity spaced downward from said mouth, whereby liquid may flow through said aperture means from the reservoir into the tube at a progressively decreasing rate as the liquid level drops in the reservoir below said outlet mouth;

(b) a bypass conduit having a flow capacity similar to said outlet mouth and disposed to connect such drainage conduit with the level of liquid adjacent the bottom of said reservoir; and

(c) selectively operable valve means normally closing said bypass conduit, and lost-motion leverage means adapted substantially simultaneously to fully open said valve means and the throttle of a carburetor to which said conduit may be connected.

3,316,892
REMOVABLE LINER FOR THE FIREBOWL OF BARBECUE APPARATUS
Kenneth E. Hanke, St. Louis County, Mo.
(4215 Tupelo Drive, St. Louis, Mo. 63125)
Filed Aug. 9, 1965, Ser. No. 478,379
1 Claim. (Cl. 126—25)



In combination with the firebowl and the grill supporting counterpost of a barbecue apparatus, said firebowl including a bottom wall merging into a circular upwardly extending side wall and having a central bearing through which said centerpost extends,

a removable liner for said firebowl including:

a bottom wall that merges into a circular upstanding vertical side wall;

a brim having an arcuate contour forming the upper edge of said side wall, said brim being disposed in a plane above that of the upper peripheral edge of the firebowl when the liner is in position therein, thus providing an annular handle portion for facilitating insertion of the liner into the firebowl and removal of said liner therefrom;

a hollow upstanding frusto-conical segment formed centrally in the bottom wall of the liner, said conical segment serving as a shield for the bearing portion aforesaid of the firebowl and that portion of said centerpost that extends through said bearing portion; and

a plurality of spaced depending dimple formations formed in the bottom wall of the liner providing an air space between said bottom wall of the liner and the bottom wall of the firebowl when said liner is in position within said firebowl, said dimples being formed along an imaginary centerline having a radius inwardly of said circular side wall of the liner;

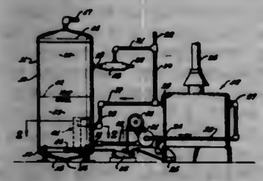
said side wall of the liner having a diameter smaller than the diameter of said side wall of the firebowl whereby to provide an annular air space between said walls when the liner is in position within said firebowl.

3,316,893
DEFROSTING APPARATUS
Radovan P. Lazich, Sacramento, Calif., assignor of fifty percent to James W. Wilson, Sacramento, Calif.
Filed Oct. 22, 1965, Ser. No. 500,840
6 Claims. (Cl. 126—271.2)

1. In combination, a body defining a generally flat elongated narrow wall portion providing an outer surface including a central area spaced centrally intermediate the opposite ends of said wall portion, burner means carried by said body and operative to sustain a source of radiant heat at a point spaced slightly outwardly of said outer surface in said central area, an elongated heat reflector and shield projecting outwardly from and extending along one longitudinal marginal edge portion of said outer surface, said heat reflector and shield, along its free longitudinal edge, projecting over said outer surface and partially enclosing an area outwardly of said outer surface opening outwardly of the other longitudinal marginal edge portion of said outer surface and also outwardly of said other longitudinal marginal edge portion in a direction generally normal to said outer surface, and a scraper blade supported from said body, disposed on the side of said shield remote from said outer surface and projecting outwardly from said body in a direction extending away from said outer surface and terminating in a free edge portion disposed generally in a plane containing said other longitudinal marginal edge portion and spaced slightly outwardly of the free longitudinal edge of said heat reflector and shield.



3,316,894
WATER HEATING AND STORAGE SYSTEM
Robert M. Ramey, North Hollywood, and Robert G. Purdy, Los Angeles, Calif., assignors to Avy L. Miller, North Hollywood, Calif.
Filed June 1, 1965, Ser. No. 465,237
12 Claims. (Cl. 126—362)



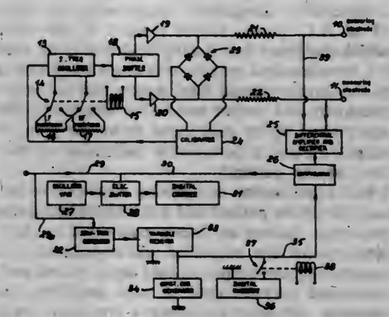
10. A storage tank for a water heating and storage system comprising: a cylindrical casing; top and bottom closures for said casing; means for supporting said tank with the axis of the casing vertical; spaced inlet and outlet means through the lower portion of said tank for connection to a circulatory heating loop; and an enclosure within said tank on the wall thereof through which said inlet and outlet means open to form a mixing chamber which substantially forms a part of the heating loop, the top and bottom walls of said enclosure being substantially straight to leave segmental discontinuities toward the adjacent cylindrical tank wall constituting substantially the sole communicating passages between the mixing chamber and the main body of the tank.

3,316,895
DEVICE FOR COLLECTING SEMEN
William Dennis Lewis, 1955 SE. 23rd Ave., Portland, Oreg. 97214; Dorothy D. Lewis, executrix of said William D. Lewis, deceased, assignor to Dorothy Dale Lewis, Portland, Oreg.
Filed June 21, 1965, Ser. No. 465,419
2 Claims. (Cl. 128—2)

1. A device for collecting semen comprising a hollow cylindrical core having a diameter to fit in a male urethra, an elastic sleeve fitting the distal end of said core and a major portion of its side wall, means securing the proximal end of said sleeve to said side wall near the proximal end of said core, and means securing an intermediate portion of said sleeve circumferentially to said side wall to form proximal and distal bladders in said sleeve, the proximal end of said core having an inlet opening, and said core having outlet openings into both of said bladders, said sleeve being distendable away from said core to receive fluid from said outlet openings.



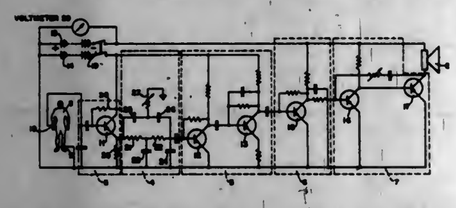
3,316,896
APPARATUS AND METHODS FOR THE MEASURE OF THE ELECTRICAL IMPEDANCE OF LIVING ORGANISMS
Auguste Louis Thomasset, 11 Rue Emile Zola, Lyon, France
Filed Oct. 15, 1963, Ser. No. 316,214
Claims priority, application France, Oct. 18, 1962, 42,968, Patent 1,344,459
7 Claims. (Cl. 128—2.1)



1. A method for simultaneously and associatively determining the individual impedances r_1, and r_2 of the extracellular contents and of the intracellular contents of a living organism which consists in measuring the total impedance Z_1 of the said organism between two selected points thereof at a first frequency of about 1000 cycles, for which the influence of electrolytic phenomena is avoided while the capacitive current passing through the membranes of the cells is of negligible value with respect to the current which passes through the extracellular contents, in such manner that Z_1 is substantially equal to the value of the individual impedance r_1 of the extracellular contents; in measuring the total impedance Z_2 of the said organism between the said points at a second frequency of about 100 to 500 kilocycles to reduce the capacitive impedance of the membranes of the cells to a negligible value with respect to the impedance of the intracellular contents in such manner that Z_2 is substantially the resultant of the individual impedances r_1 of the extracellular contents and r_2 of the intracellular contents when connected in parallel; and in calculating r_2 from the formula

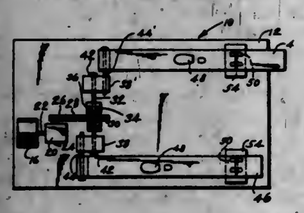
$$\frac{1}{Z_2}=\frac{1}{r_1}+\frac{1}{r_2}$$

3,316,897
HEART MONITORING DEVICE WITH FILTER FOR SUPPRESSING THE FREQUENCY OF AN AMBIENT A.C. POWER SOURCE
Hans Weidinger and Gustav Volbehr, Heidelberg-Kirchheim, Wolfgang Limpert, Nussloch, and Hartwig Steusloff, Heidelberg-Wieblingen, Germany, assignors to Teldix Luftfahrt-Ausrustungs G.m.b.H., Heidelberg-Wieblingen, Germany
Filed Dec. 21, 1964, Ser. No. 419,648
Claims priority, application Germany, Dec. 21, 1963, T 25,319
8 Claims. (Cl. 128—2.06)



1. A heart monitoring device, comprising, in combination:
(a) input means connectible to a patient for picking up a voltage produced by the action of the patient's heart;
(b) output means for giving an indication of the patient's heart beat;
(c) noise-frequency filter means having an input connected to said input means and including means for substantially completely suppressing the frequency of an A.C. power source present in the vicinity in which the heart monitoring device is to be used; and
(d) a transistorized amplifier having an input connected to the output of said filter means and an output connected to said output means for amplifying the voltage picked up by said input means to give, on said output means, a perceptible indication of the heart beat of the patient;
(e) said input means comprising electrode means connectible to the patient and a transistorized impedance converter having an input connected to said electrode means, the output of said impedance converter constituting the output of said input means and being connected to said input of said amplifier, said impedance converter including a transistor having an emitter circuit which includes an emitter resistor and a collector circuit which is free of any collector resistor whereby the impedance of the patient is matched to that of the circuit constituted by said filter means, said amplifier and said output means.

3,316,898
REHABILITATION AND EXERCISE APPARATUS
James W. Brown, 904 Walnut Drive, Latrobe, Pa. 15650
Filed Oct. 23, 1964, Ser. No. 405,957
3 Claims. (Cl. 128—25)



1. A rehabilitation and exercise apparatus comprising in combination a rectangular base, a plurality of pivotable casters carried by said base providing a means for easy mobility of said apparatus, a motor on said base, a speed reducer driven by said motor, a first sprocket being driven by said speed reducer and a shaft extending through said second sprocket and being fixed thereto, said shaft being rotatably mounted on said base, an endless chain drivingly connected to the two sprockets, a crank rod on each side of said and sprocket at 180° part having one end rigidly mounted on said rotatable shaft, a pair of parallel and rectangular reciprocating plates carried above said base providing support means for exercising the ankles, legs, and hips of the user, one end of said plates being pivotally attached to the other ends of said crank rods and so constructed and arranged for permitting circular movement of that end of said plates, a plurality of parallel rollers carried by said base providing support means for the other ends of said plates.

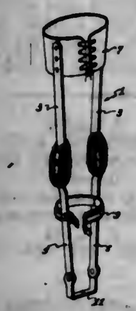
3,316,899
ANATOMICAL LACING WITH ACTUATING MEANS FOR EXERCISING FACIAL MUSCLES
Arthur Raeder, 615 Eastern Parkway, Brooklyn, N.Y. 11216
Filed Dec. 19, 1963, Ser. No. 331,767
9 Claims. (Cl. 128—63)



1. An anatomical lacing for treating muscular dysfunction comprising a plurality of lacing means for securement about the head and neck of the user; individual ones of said lacing means positioned to overlie preselected neuromuscular junctions; first and second juncture points bilaterally located at respectively opposite commissure regions of the mouth; a first portion of said lacing means connecting to said first juncture point, and a second portion of said lacing means connected to said second juncture point; actuating means having a reciprocal linear motion of a predetermined frequency about said first and second juncture points; first means interconnecting said juncture points to said actuating means for imparting reciprocal motion of said predetermined frequency to said juncture points; first and second fixation points located adjacent opposed sides of the user's head and spaced away therefrom; second means connecting said first and second juncture points to said first and second fixation points, respectively; said reciprocal motion alternately expanding and relieving said lacing means; whereby the neuro-muscular junctions of the user are massaged at said operating frequency.

3,316,900
LEG BRACE HINGE GUARD
Lillian M. Young, 1830 S. Joplin Ave., Tulsa, Okla. 74112
Filed Aug. 18, 1964, Ser. No. 390,305
4 Claims. (Cl. 128—80)

1. A leg brace hinge guard, comprising a sleeve of flexible material having separable longitudinally extending edges, reinforcing means bordering the sleeve, the reinforcing means comprising a closed flexible loop of reinforcing material, the loop having a pair of longitudinally extending portions bordering said separable edges, and closed bights at the ends of the edges, each bight extending at an angle to the edges of the sleeve and bordering an end of the sleeve, the bights gathering the ends of the sleeve into reduced end portions of lesser peripheral extent than the mid-portion of the sleeve,

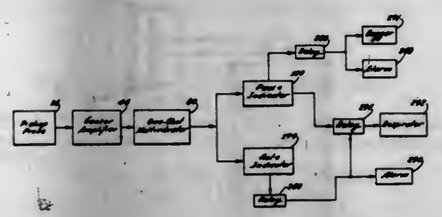


and means for releasably securing together said longitudinally extending portions of the loop.

3,316,901
PLASTER OF PARIS BANDAGE
David F. Smith, 120 Grove St., Bay Head, N.J. 08744
No Drawing. Filed May 17, 1965, Ser. No. 456,488
10 Claims. (Cl. 128—91)

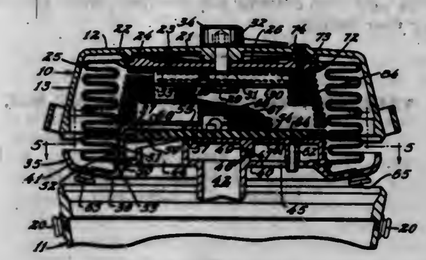
1. A dry, settable plaster of Paris bandage comprising a flexible backing material substantially uniformly coated with a substantially uniform mixture of: (1) powdered plaster of Paris in major proportion (2) a minor proportion of a material selected from the class consisting of boric acid in amount from about 0.25 to about 3% of the weight of plaster of Paris and casein in amount from about 0.1 to about 2% of the weight of the plaster of Paris and (3) zinc sulfate in amount from about 0.1 to about 2.5% of the weight of the plaster of Paris; said material selected being in small part combined with ammonia in the form of a salt and said zinc sulfate being present in amount sufficient to significantly reduce the retarding effect of said salt.

3,316,902
MONITORING SYSTEM FOR RESPIRATORY DEVICES
Henry T. Winchel, Los Angeles, Calif., and Arthur W. Haydon, Milford, Conn.; said Haydon assignor to Tri-Tech, Inc., a corporation of Connecticut
Filed Mar. 25, 1963, Ser. No. 267,703
12 Claims. (Cl. 128—145.5)



12. In a respiration monitor of the class described for monitoring the respiration in a respiratory tract of a person, including:
pick-up means constructed to be disposed in a respiratory tract of the person whose respiration is to be monitored for providing a first signal indicating the inspiration of air through the respiratory tract of said person,
first means operatively interconnected with said pick-up means and responsive to said first signal to provide a second signal having characteristics dependent upon the frequency of said first signal, and
means operatively interconnected with said first means and responsive to said first and second signals to supplement the natural inspiration of air through said tract by said person in response to said first signal whenever the second signal has characteristics representing a frequency below a particular value for the first signal.

3,316,903
INHALATOR
Albert M. Richards, 1365 Lowry Medical Arts Bldg. St. Paul, Minn. 55102
Filed Sept. 26, 1963, Ser. No. 311,711
16 Claims. (Cl. 128—145.7)



1. In a respiratory device of the type including a bellows and end members on the ends of said bellows by means of which said bellows may be expanded or contracted, one of said end members including an inlet passage, an outlet passage, and a mask passage, a face mask having its interior in communication with said mask passage, a bellows passage in opposed relation to said outlet passage and a valve for controlling the flow of fluid through said passages, said valve comprising an elongated strip of flexible material secured to said one end member intermediate its ends, one end of said strip extending over said inlet passage and operable to open said inlet passage when said bellows expands and close said inlet passage as said bellows contract, the other end of said strip being movable from one position closing said outlet passage when said bellows contract to a position closing said bellows passage when said bellows expand, said mask passage being in communication with said outlet passage when said strip is in the last named position.

3,316,904
FILTERING WEB FOR FACE MASKS AND FACE MASKS MADE THEREFROM
Thomas H. Wall, St. Paul, and Paul E. Hansen, North St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware
Filed July 31, 1961, Ser. No. 127,958
6 Claims. (Cl. 128—146.6)

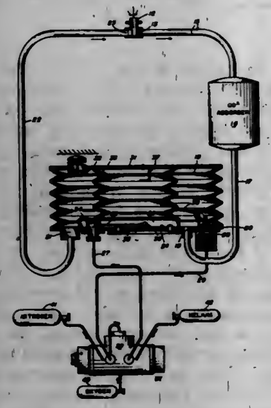
3. A filtering web comprising a lofty, non-woven reticulated structure resistant to matting and having a void volume of at least about 95%, said web being composed of a blend of heat shrunken vinyl chloride polymer fibers in a size range of from about 1 denier to about 2½ deniers and thermostable glass filtering fibers in a size range of from about 0.5 to about 2.5 microns, said glass fibers being adhered to said thermoplastic fibers in such manner that said thermoplastic fibers retain their fibrous character and maintain said glass fibers separated from one another, the proportion of vinyl chloride polymer

fibers to glass fibers in parts by weight being about 40:60 to about 60:40, said vinyl chloride polymer and said glass fibers having been adhered to one another by subjecting an uncompressed blend of said fibers to substantially un-



restrained shrinkage at a temperature in the softening range of said vinyl chloride polymer for a period of time sufficient to adhere said fibers to one another and to shrink said vinyl chloride polymer fibers while preserving their fiber identity.

3,316,905
VARIABLE VOLUME REBREATHING BAG FOR SCUBA SYSTEM
Henry W. Seeler, 3142 Atherton Road, Dayton, Ohio 45409
Filed Apr. 24, 1964, Ser. No. 362,532
7 Claims. (Cl. 128—147)



3. In a closed circuit demand rebreathing system for divers, having a mouthpiece and having separate sources of nitrogen, oxygen and helium for inhalation, and a canister for removing carbon dioxide from exhaled gases, the purified exhaled bases being combined with the gases to be inhaled, the combination of a regulator valve for controlling the kind and amount of gases to be inhaled, with a breathing bag, comprising:

a plurality of concentric bellows having a common movable top and stationary bottom plates;

a demand mouthpiece attached to the outer of said bellows to deliver to and receive gases from said outer bellows upon exhalation and inhalation of a diver;

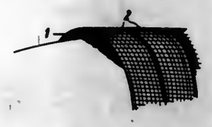
means between adjoining bellows for establishing gas passage between adjoining bellows;

valves mounted to cooperate with said gas passage means for controlling the flow of gases through said passages;

means connected to said valves and actuated by the static pressure of the water in which the diver is working, actuating said valves; and

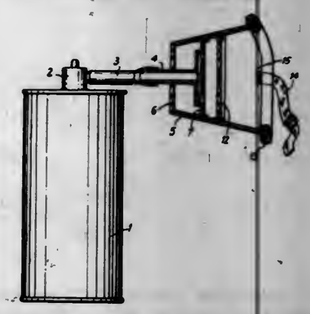
means for delivering oxygen to the innermost of said bellows and from said innermost bellows through any open passage from the innermost of said bellows to its adjacent bellows and continuing to the next adjacent bellows until a closed valve prevents flow of oxygen between adjacent bellows, said remaining bellows receiving purified exhaled gases.

3,316,906
SURGICAL DRESSING AND THE LIKE
Heinz Baron, Juchener Weg 33, Duesseldorf-Lorick, Germany
Filed Mar. 11, 1964, Ser. No. 351,042
Claims priority, application Germany, Mar. 15, 1963, B 71,143
7 Claims. (Cl. 128—156)



6. As an article of manufacture, an absorbent dressing adapted to be applied to a body portion and to absorb body juices emanating therefrom, said absorbent dressing including a face portion adapted to contact said body portion, at least a major portion of said absorbent dressing having a dark color at least the major portion of which belongs to the part of the visible spectrum characterized by a relatively short wave length, and at least said face portion of said dressing being formed of a fabric including a plurality of threads extending substantially parallel to each other, some of the threads of said plurality of substantially parallel threads being adapted to shrink upon application of moisture to said face portion at a greater shrinkage rate than the remainder of the threads of said plurality of substantially parallel threads, said difference in shrinkage rate between some of the threads and the remainder of the threads influencing the temperature of said body portion by preventing the dressing from becoming stiff and adherent.

3,316,907
SUPEROXYGENATED AIR INHALING DEVICE
Jean Jacques Goupil, 30 Ave. du President Wilson, Cachan, France
Filed Sept. 9, 1964, Ser. No. 395,256
Claims priority, application France, Sept. 13, 1963, 947,462
3 Claims. (Cl. 128—205)



1. A device for permitting inhalation of super-oxygenated air from a container filled with oxygen under pressure comprising a tubular inhaler having an open end adapted to be fitted over the user's face, a first grid at the opposite end of said inhaler having perforations therethrough for the inflow of air, an interior wall extending across said tubular inhaler between said grid and the open end of said inhaler, means defining a plurality of substantially radially extending ducts adjacent said wall each terminating in an opening directed toward the open end of said inhaler, an oxygen supply tube extending through said grid and said interior wall into communication with each of said ducts, said wall having at least one opening between adjacent radially extending ducts for the flow of air from the grid side of the wall to the open end, and a second grid spaced from said interior wall toward the open end of said inhaler and defining a mixing chamber in said inhaler between said interior wall and said second grid, said second grid having an opening therethrough for the passage of the intermixed air and oxygen to the user at the open end.

3,316,908
INTRAVENOUS INJECTION APPARATUS
George K. Burke, Bethlehem, Pa., assignor to Burron Medical Products, Inc., Bethlehem, Pa.
Filed Apr. 14, 1964, Ser. No. 359,675
28 Claims. (Cl. 128—214)



1. A dual flow piercing device for use in intravenous injection apparatus comprising a body means formed of substantially rigid material and having a sharp end portion, said body means having a pair of oppositely tapering passages formed therethrough, each of said passages opening through the sharp end portion of said body means and each of said passages also opening through a portion of said body means spaced a substantial distance from said sharp end portion, said body means including an attaching base portion, said attaching base portion defining an annular cavity, said body means including a central extension extending through the central area of said annular cavity, the inner surface of said base portion which defines said annular cavity having gripping means formed thereon, flexible drip chamber means and connector means engaging said body extension and which means includes an outer surface portion cooperating with said gripping means to retain the flexible drip chamber means in clamped position within said attaching base portion.

3,316,909
HYPODERMIC SYRINGE OPERABLE BY ONE HAND
Calvin C. Cowley, La Canada, Calif., assignor to Pharmaseal Laboratories, Glendale, Calif., a corporation of California
Filed Dec. 30, 1963, Ser. No. 334,323
1 Claim. (Cl. 128—218)

A disposable hypodermic syringe comprising:

(a) a cylindrical thermoplastic barrel open at one end and partially closed at an opposite end, said barrel having a substantially constant diameter bore extending between its two ends;

(b) an adapter for supporting a needle assembly connected to the partially closed end of said barrel;

(c) a plunger and stopper coupled together and axially slideable to and fro within said barrel, said stopper being in fluid tight contact with said barrel, the end of said plunger opposite said stopper extending beyond the open end of said barrel, whereby withdrawal of the extending portion of the plunger also withdraws the stopper through the barrel's open end for disassembly of the plunger and barrel;

(d) a thumb ring integrally attached to the end of said plunger extending beyond the open end of said barrel;

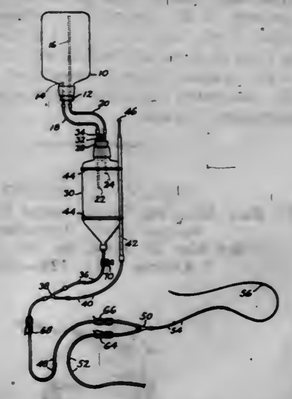
(e) a first, flat, transverse, disk-like thermoplastic flange adjacent said open end of said barrel and integrally molded to said barrel, said first flange including two ears extending from opposite ends of the flange, said ears having a thickened section adjacent



said barrel, each of said ears extending perpendicularly outwardly from the barrel a distance substantially less than the thumb ring's diameter; and

(f) a second flat, transverse, disk-like thermoplastic flange integrally molded to said barrel at a location spaced from the open end of said barrel and from said first flange, said second flange having two ears extending from opposite ends of the flange, said ears having a thickened section adjacent said barrel, each of said ears extending perpendicularly outwardly from the barrel a distance substantially less than the diameter of the thumb ring said finger receiving portions of the first and second flanges being substantially as wide as the barrel at their juncture with the barrel to provide a syringe which is easy to control and manipulate when grasped.

3,316,910
METHOD AND APPARATUS FOR DISSOLVING RENAL CALCULI
Thomas A. Davis, 1735 SW. Prospect Drive, Portland, Oreg. 97201
Filed Dec. 20, 1963, Ser. No. 332,134
4 Claims. (Cl. 128—227)



1. The method of dissolving renal calculi, comprising

(a) preparing a volume of calculus solvent predetermined not to substantially exceed the capacity of the renal pelvis cavity to be treated,

(b) introducing said predetermined volumes of solvent into the renal pelvis cavity,

(c) retaining said solvent in the renal pelvis cavity for a period of time sufficient to effect at least partial dissolution of the calculi,

(d) simultaneously with said retention period preparing another of said predetermined volumes of solvent for subsequent introduction into the renal pelvis cavity,

(e) removing the first named volume of solvent from the renal pelvis cavity, and
(f) repeating the steps of introducing, retaining, preparing and removing subsequent batches of said predetermined volume of solvent until the desired calculi dissolution is effected.
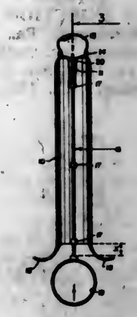
2. Apparatus for dissolving renal calculi, comprising
(a) a calculus solvent measuring container adapted to receive calculus solvent from a source of supply,
(b) level control means associated with the measuring container for maintaining solvent in the latter at a predetermined level,
(c) a calculus solvent dispensing container,
(d) first conduit means interconnecting the measuring container and dispensing container for delivering solvent from the measuring container to the dispensing container,
(e) means supporting the measuring and dispensing containers for relative vertical adjustment for adjusting the height to which the dispensing container is to be filled with solvent, which height provides in the dispensing container a volume of solvent predetermined not to substantially exceed the capacity of a renal pelvis cavity to be treated,
(f) a ureteral catheter,
(g) second conduit means interconnecting the dispensing container and the catheter for delivering said predetermined volume of solvent in the dispensing container to the renal pelvis cavity to be treated,
(h) flow restricting means associated with the first conduit means for restricting the flow of solvent from the measuring container to the dispensing container to a magnitude substantially less than the flow of solvent from the dispensing container to the catheter,
(i) drain conduit means communicating with the catheter for draining solvent from the renal pelvis cavity, and
(j) control valve means in the second conduit means and drain conduit means for selectively opening and closing said conduit means,
(k) the control valve means in the second conduit means functioning in one position of adjustment to open the second conduit means to discharge the contents of the dispensing container into the renal pelvis cavity and in a second position of adjustment to close said second conduit means and permit filling of the emptied dispensing container with solvent from the measuring container automatically to said predetermined volume.

3,316,911
INFANT GARMENT
Luis D. Barr, Diagonal Roque Saenz Pena 1119, 7 piso, Buenos Aires, Argentina
Filed May 20, 1964, Ser. No. 368,789
3 Claims. (Cl. 128—286)



3. Device for infants comprising a garment-like supporting body including panel holding means removably holding front and rear complementary panels in a position to enclose an infant's genitals, and front and rear complementary water-proof panels held in said panel holding means and having outlet fitting means for capturing and detachably retaining released urine and stool respectively, said body defining an opening in the rear thereof, the rear complementary panel having an area larger than the opening and being permanently attached along the upper edge thereof to the outer surface of the supporting body and covering the opening, and at least two replaceably adsorbent napkins covering the rear opening.

3,316,912
FECAL IMPACTION REMOVER
Elizabeth G. Whitaker, Greeley, Colo., assignor of twenty-five percent to Gene C. Wilkins, M.D., York, Nebr., and twenty-five percent to Caryl L. Sorensen, Greeley, Colo.
Filed Sept. 20, 1963, Ser. No. 310,371
5 Claims. (Cl. 128—303)

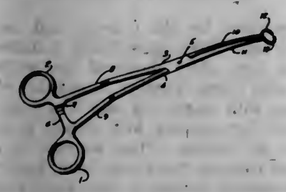


1. A fecal impaction remover tool comprising, in combination:
(A) an elongated semi-tubular substantially cross-sectionally semi-circular body member;
(B) a pivotally operable impaction remover head member pivotally secured to one end of said body member and designed to extend pivotally normally in prolongation alignment from and with said body member;
(a) said head being adapted to be pivotally moved into a right angular position thereof to the longitudinal axis of the body member;
(C) an operable push-pull plunger member frictionally carried by and operable longitudinally of the body member and having one end thereof pivotally connected with said head member at a position on the head member for effecting pivotal operation of the head member upon plunger operation and adapted for plunger operation for effecting such right angular pivotal movement of the head member with relation to the body member;
(D) a finger grasping loop on each of said body member end and said plunger member end remote from said head member;
whereby plunger movement in one direction with relation to the body member causes the head member to be pivotally operated to extend in prolongation of and from the body member, and a plunger movement in the other direction with relation to the body member causes the head member to be pivotally operated to extend in a right angular position thereof to the body member.

3,316,913
CATHETER GUIDING FORCEPS
Rudolph E. Swenson, 40 Acacia Ave., Berkeley, Calif. 94708
Filed Feb. 28, 1964, Ser. No. 348,918
2 Claims. (Cl. 128—321)

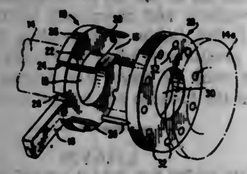
1. An intubating forceps for use with a catheter dimensioned for entry through the nasal cavity into the trachea for indirect laryngoscopy comprising, a pair of levers

pivotally connected to provide forward reaching arms and rearwardly extending handles, said arms terminated in semi-circular formed tips movable with said arms to closed and open positions and in closed position providing a circular opening having an internal dimension to loosely encircle at least a majority of the periphery of said catheter, said tips in open position separating to a dimension clearing said catheter periphery for removal therefrom, said handles directly diverging rearwardly from said pivot with the ends being formed into finger engaging rings for operating the forceps, said divergence being on an acute angle to a straight line taken from the pivot rearwardly to a point between the rings, said handles having a downwardly extending obtuse angle therein intermediate the pivot and the rings, said handles extending rearwardly from the pivot to the obtuse angle in a common horizontal plane and from the obtuse angle to the rings in another common horizontal plane and at the obtuse angle to the first horizontal plane, said arms extending forwardly from the pivot in engagement with



each other in closed position to the point of the semi-circular tips and having a downwardly extending curve intermediate the pivot and tips, said arms extending from the pivot to the point of curvature in a common horizontal plane and in alinement with the first horizontal plane of the handles and from the point of curvature to the tips in another common horizontal plane, said tips and arms being so formed and dimensioned to position said opening in a plane substantially perpendicular to the longitudinal axis of the midpharnyx passageway and substantially coaxially thereto with said handles extending exteriorly of the mouth for movement of said tips to open and closed positions without obstruction to view of the operating area of the rear of the mouth and throat, said tips and adjacent arms being formed and dimensioned for insertion through the mouth and into the midpharnyx passageway and for opening and closing of said tips therein to encircle the leading end portion of said catheter for guided axial reciprocation and lateral positioning into alinement with the trachea.

3,316,914
SURGICAL METHODS AND DEVICES FOR ANASTOMOSIS
Michael B. Collito, South Orange, N.J. (Babies Hospital, 15 Roseville Ave., Newark, N.J. 07107)
Filed Feb. 14, 1963, Ser. No. 258,570
27 Claims. (Cl. 128—334)



1. In a method of anastomosis and the like, the steps of positioning upon the end of a living vessel part an assembly comprising a ring and a plurality of removable prongs which extend through and protrude from said ring, turning the vessel end outwardly upon said protruding prongs and supporting said end thereon, securing said vessel end to said ring independently of said prongs, and removing said prongs from said ring and said vessel end.

13. An anastomosis device comprising a sleeve having a plurality of prongs projecting therefrom, said prongs having outwardly facing axial slots and being open the full length thereof to permit sutures to be drawn through the prongs and later to be withdrawn through the slots.

3,316,915
NIGHTGOWN AND BUILT IN BUST SUPPORT
Dixie M. Howell, Chicago, Ill., assignor to Kellwood Company, Chicago, Ill., a corporation of Delaware
Filed Apr. 19, 1965, Ser. No. 449,033
1 Claim. (Cl. 128—454)



In an intimate garment for women having a skirt portion and a bodice,
(a) said bodice having a front portion and a back portion joined by shoulder straps,
(b) said front portion comprising a relatively inelastic midriff section and relatively elastic breast cups,
(c) said back portion and breast cups being stretchable in two directions and being substantially continuous with said shoulder straps, the latter being longitudinally stretchable.

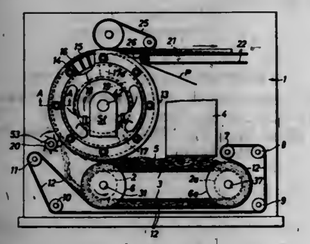
3,316,916
HOP PICKING MACHINE
Florian F. Dauenhauer and Thomas H. Frazer, both of 111–121 5th St., Santa Rosa, Calif. 95401
Filed May 22, 1964, Ser. No. 369,392
16 Claims. (Cl. 130—30)



1. In a hop picking machine:
(a) a combined picker and endless conveyor including hop picking fingers on the conveyor;

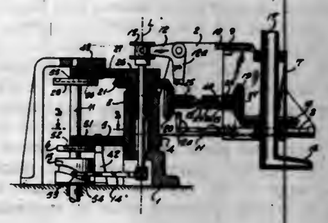
(b) a plurality of pairs of sprockets lying in the same plane and supporting the upper reach of the conveyor, each pair being spaced from adjacent pairs;
(c) a pair of idler sprockets positioned in each space provided between the pairs of the first mentioned sprockets and being placed below the plane thereof, the conveyor having its upper reach being alternately passed over the upper pairs of sprockets and under the lower pairs to form a plurality of crests and valleys in the upper reach;
(d) a vine-retarding comb positioned at each valley and providing a series of combs, each being adapted to be moved from vine retarding position with respect to the upper reach and be raised into a vine-releasing position;
(e) a first means operatively connecting every other comb into a first group for causing the combs in this group to be moved in unison from vine-retarding positions into vine releasing positions and vice versa;
(f) a second means operatively connecting the remaining combs into a second group for causing the combs in this second group to be moved in unison from vine releasing positions into vine retarding positions and vice versa; and
(g) common means for alternately operating said first and said second means in sequence so that one group of combs will be in vine retarding position in alternate valleys before the other group of combs will be raised into inoperative position.

3,316,917
DEVICE FOR PRODUCING A CONTINUOUS TOBACCO ROD OF UNIFORM CROSS SECTION
Willy Richter, Hamburg-Bergedorf, Germany, assignor to Hauni-Werke Korber & Co. K.G., Hamburg-Bergedorf, Germany
Original application Nov. 16, 1959, Ser. No. 853,273. Divided and this application May 23, 1961, Ser. No. 112,076
Claims priority, application Germany, Nov. 21, 1958, H 34,865
9 Claims. (Cl. 131—84)



1. In a tobacco rod forming machine, in combination, a first conveyor means arranged to deliver a continuous supply of tobacco; a second conveyor means having suction means associated therewith arranged to receive tobacco from said first conveyor means and defining an elongated path wherein the tobacco received from said first conveyor means forms a stream which moves lengthwise and which contains tobacco in excess of that required in the tobacco rod; trimming means adjacent to said elongated path for removing excess tobacco from said stream so as to form a filler rod; means for mechanically compacting the tobacco stream on said second conveyor means; and a third conveyor means arranged to receive said filler rod and to maintain it in said rod form and to advance it lengthwise from said second conveyor means to a rod forming station.

3,316,918
APPARATUS FOR THE TRANSFER AND ROLLING OF WRAPPERS ONTO CIGAR ROLLS OR THE LIKE
Herbert Geyer, Dresden, Germany, assignor to Veb Tabak- und Industriemaschinen Dresden, Dresden, Germany
Filed Oct. 16, 1961, Ser. No. 145,415
10 Claims. (Cl. 131—105)



3. An apparatus for the transfer and the rolling of wrappers on cigar fillers, comprising a stationary frame member, an arm plate mounted for swivelling with respect to said frame member, a support mounted for radial sliding with respect to said arm plate, a suction head mounted for rotating with respect to said support and adapted for holding a cigar wrapper by negative air pressure, said rotating movement being performed about an axis substantially parallel to the axis of said swivelling movement and substantially perpendicular to the direction of said sliding, and three structurally and operatively independent rotatable cam means having a common axis substantially parallel to said first and said second axes, one each of said cam means controlling said swivelling, said sliding and said rotating movements, each of them separately and independently from the respective other two movements.

3,316,919
PROCESSING OF SMOKING TOBACCO
Sydney James Green, Portswood, and William Brian Fordyce, Romsey, England, assignors to Brown and Williamson Tobacco Corporation, Louisville, Ky., a corporation of Delaware
No Drawing. Filed Apr. 21, 1964, Ser. No. 361,578
Claims priority, application Great Britain, Apr. 29, 1963, 16,832/63
8 Claims. (Cl. 131—143)

1. A method of treating tobacco comprising preparing a bed of ground tobacco disposed on a filtering means having a porosity such that a solvent passing through the bed is controlled at a sufficient rate so as to obviate substantially decomposition of the more unstable tobacco aroma and flavor constituents contained in the liquor; extracting the ground tobacco with an ice-cold solvent by percolation of the solvent through the bed of tobacco; rapidly freezing the liquor by subjecting the liquor to a temperature substantially below the freezing point of the solvent so that all of the material extracted remains substantially involatile and chemically inert and then freeze drying the frozen liquor by subjecting the frozen liquor to reduced pressures while maintaining the liquor in a frozen state until the flavor and aroma constituents extracted from the tobacco are free of solvent.

3,316,920
HAIR CURLER WITH ENDS HAVING LOW FRICTION
Gail E. Cruise, Bronxville, N.Y.
(75 Oriole Road, Yonkers, N.Y. 10708)
Filed Feb. 5, 1964, Ser. No. 342,670
6 Claims. (Cl. 132—39)

2. A curler for curling hair comprising a tubular body of elastically resilient foam material having adjacent to the lateral ends thereof a peripheral band of textile fabric



in contact with and covering the exterior surface of the said foam body.

3,316,921
BOBBY PIN WITH FINGER GRIPPING MEANS
Florence L. Westburg, 514 Mulberry St., Hollidaysburg, Pa. 16648, and Ruth Rosefsky, 1116 Liberty St., Morris, Ill. 60450
Filed Nov. 4, 1964, Ser. No. 408,925
2 Claims. (Cl. 132—50)



1. A bobby pin comprising
(a) complemental clamp members,
(b) a loop connecting the members at one end, and
(c) a rigid cross bar affixed only to the inner face of the loop and having parts extending a substantial distance to both sides thereof to provide finger pieces.

3,316,922
MANICURING DEVICE
David Seidler, Forest Hills, N.Y., assignor to Chesebrough-Pond's Inc., New York, N.Y., a corporation of New York
Filed June 26, 1964, Ser. No. 378,178
1 Claim. (Cl. 132—75)



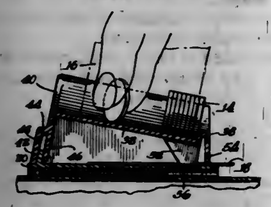
A manicuring device adapted for removing fingernail coatings comprising:
(a) a container having fingernail coating dissolving fluid therein and an opening at one end,
(b) an insert member mounted at one end of the container and extending partially into said container,
(c) a first group of abutments mounted on said insert,
(d) a second group of abutments mounted on said insert and diametrically spaced from said first set of abutments,
(e) each of said abutments having substantially the shape of a wedge,
(f) a brush member including a core with a plurality of bristles extending therefrom,
(g) said brush member being positioned with said container by a snap fitting relationship by said first and second groups of abutments,
(h) said first and second groups of abutments being spaced longitudinally so that said core and bristles are positioned at an angle to the horizontal, and
(i) each of said groups of abutments consisting of three abutments wherein two of said abutments in one of said groups and one of said abutments in the other said group have inclined surfaces extending downwardly and inwardly of the container to facilitate inserting the brush member within the container and wherein at least three abutments have surfaces facing generally towards the opening in the container and at least three abutments face generally towards the bottom of the container, said last mentioned surfaces being separated by a space only slightly larger than the diameter of the core.

3,316,923
AEROSOL FOUNTAIN TOOTH PASTE BRUSH
Jacob Wagner, New York, N.Y.
(Apt. No. 5, 1120 N. Main St., Jacksonville, Fla. 32206)
Filed Jan. 26, 1965, Ser. No. 428,178
1 Claim. (Cl. 132—84)



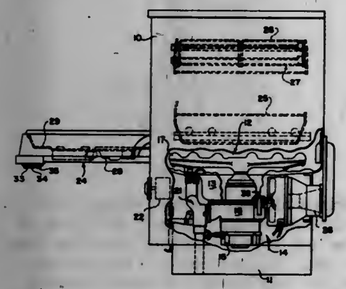
A combined fountain tooth brush and tooth paste container, said tooth brush having a flat head, an integral flat handle and bristles radiating from the head in one direction, said container having a hollow body, closed at both ends, one end having a discharge opening, a flexible nozzle connected to the discharge opening, said handle having an enlarged hollow portion serving as a cap for said discharge opening, valve mechanism in the hollow body of the container controlling the discharge of the contents through the discharge opening, said cap, handle and head having a common communicating passage communicating with the nozzle at one end, the other end communicating with an opening in the head leading to the bristles, said cap having a notch intersecting the bottom end edge and facing in the same direction as said bristles thereof to permit the cap to move in said one direction in order to flex said nozzle for opening the valve mechanism by finger tip pressure to the back of the brush head, the remainder of the bottom end edge of the cap contacting the end of the container preventing movement of the cap in any other direction whereby the container, cap and brush head constitute a rigid unit so that the container serves as a handle when brushing the teeth.

3,316,924
TOLL TENDER DEVICE
Elizabeth C. Ware, 611 Edgewood Place, River Forest, Ill. 60305
Filed Oct. 23, 1965, Ser. No. 503,162
7 Claims. (Cl. 133—1)



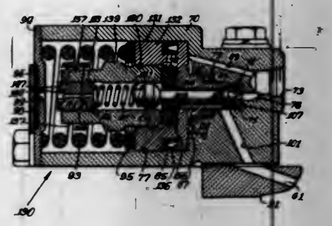
1. A coin dispenser comprising: base means, connection means attached to said base means to operatively connect said base means to an automobile dashboard, coin receiving means, means connecting said coin receiving means to said base means, and card retention means connected to said coin receiving means, said means connecting said coin receiving means to said base means including a flange extending from an edge portion of said base means and a slot in said coin receiving means adapted to enclose said flange, and wherein the opposite end portion of said base means has a plurality of recesses, said recesses cooperating with ribs extending from said coin receiving means, said cooperating ribs and recesses providing means for retaining paper currency.

3,316,925
AUTOMATIC MACHINE FOR WASHING LABORATORY WARE
Carl J. Schroeder, Burton, Ohio, assignor to The Chemical Rubber Company, Cleveland, Ohio, a corporation of Ohio
Filed Apr. 8, 1965, Ser. No. 446,516
2 Claims. (Cl. 134—58)



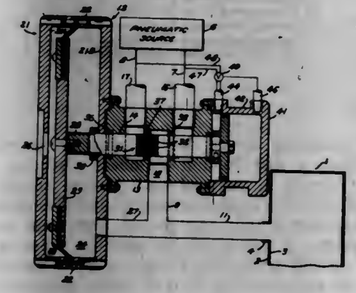
1. In a machine for washing laboratory ware in accordance with an automatic, timed cycle, which includes in sequence, a wash stage and a plurality of rinse stages,
a washing chamber,
tap water fill control means connected to admit tap water to said chamber during said wash stage and during each of said plurality of rinse stages,
mineral-free water fill control means connected to admit mineral-free water to said chamber during each of said plurality of rinse stages, and
means for energizing one of the aforementioned fill control means during each of said plurality of rinse stages, comprising
a timer connected to said control means for synchronizing the activation of the latter with the execution of each of said plurality of rinse stages, and
a plurality of manually operable switches corresponding in number to said plurality of rinse stages on the basis of one switch per rinse stage, each switch being connected to said timer, and operative to program the use of tap water and mineral-free water during only its corresponding rinse stages
whereby one of said fill control means admits water to said chamber during each of said plurality of rinse stages in accordance with the programming of said switches.

3,316,926
PRESSURE RESPONSIVE SUPPLY-EXHAUST VALVE
Daniel B. Worth, Columbus, Ind., assignor to Cummins Engine Company, Inc., Columbus, Ind., a corporation of Indiana
Filed Apr. 1, 1963, Ser. No. 269,480
6 Claims. (Cl. 137—102)



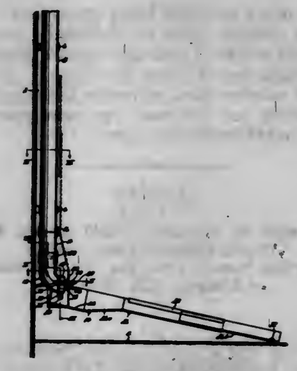
5. An air governor for controlling a source of fluid under pressure for maintaining a reservoir connected to said source at a predetermined pressure, comprising:
(a) a hollow body having a chamber and an inlet adapted to be connected to said reservoir and having a first passage connecting said inlet and said chamber,
(b) pressure responsive means mounted in said chamber and subjected to pressure from said inlet for moving said pressure responsive means in one direction,
(c) spring means tending to move said pressure responsive means in the opposite direction,
(d) said hollow body having an outlet adapted to be connected to said source for controlling the flow of pressure fluid from the latter to said reservoir,
(e) said body also having a second passage connecting said inlet and said outlet,
(f) first valve means including a valve seat mounted in said body and a valve closure slidably carrier by said pressure responsive means for controlling pressure fluid flow through said second passage, said first valve means being opened by movement of said pressure responsive means in said one direction and closed when said pressure responsive means moves in said opposite direction preventing flow from said inlet to said outlet,
(g) second valve means for draining pressure fluid from said outlet,
(h) said second valve means being interconnected with said first valve means and being closed when said first valve means is opened and opened when said first valve means is closed to drain pressure fluid from said outlet,
(i) said second valve means comprising a valve seat mounted in said pressure responsive means and a valve closure connected to the valve closure of said first valve means and movable therewith,
(j) said pressure responsive means having a plunger slidably mounted therein,
(k) the valve closure of said first valve means being formed on one end of said plunger and the valve closure of said second valve means being formed on the other end of said plunger,
(l) second spring means bearing against said valve closure of said second valve means and tending to urge both of said valve closures toward their respective valve seats,
(m) said pressure responsive means having a bore loosely receiving said plunger,
(n) said bore having an enlarged portion for receiving said valve seat and said valve closure of said second valve means, and
(o) said second spring means being mounted in said enlarged portion and bearing at one end against the valve closure of said second valve means.

3,316,927
APPARATUS FOR REGULATING THE DIFFERENTIAL PRESSURE OF A HOLLOW SUBMERGED BODY
Keith M. Burton, El Cajon, Calif., assignor to the United States of America as represented by the Secretary of the Navy
Filed Dec. 21, 1964, Ser. No. 420,222
6 Claims. (Cl. 137—102)



1. Pressure compensating apparatus for maintaining a constant differential pressure between exterior and interior wall surfaces of a water-submerged gas filled body comprising;
a regulator casing disposed in close proximity to said submerged body, said casing having an elongate central section closed at one end and formed at the other end into a diametrically-enlarged sensing chamber,
said central section being provided with a longitudinal bore opening into said sensing chamber and also with gas inlet and outlet ports arranged to permit a transverse pressurized gas flow through said section,
a diaphragm partitioning said sensing chamber into interior and exterior compartments, the latter compartment having an exterior wall provided with an opening admitting ambient water,
a cylindrical piston valve mounted for axial reciprocation in said bore and secured at one end to said diaphragm,
said valve having a cylindrical port section substantially equal in diameter to said bore and formed of a plurality of closely spaced perforations,
a gas pressure circuit for supplying and venting gas pressure through said casing and piston valve simultaneously to said submerged body and to said interior sensing chamber compartment and simultaneously from said body and interior compartment,
said casing ports and valve port section being disposed for alternately establishing the supply and vent conditions of said circuit in response to reciprocations of said diaphragm-driven piston valve from a normal flow-arresting position,
said diaphragm being movable in response to ambient pressure variations in said sensing compartment whereupon said piston valve is driven for establishing a gas pressure flow capable of simultaneously compensating for the differential pressure variation in said submerged body and said interior compartment,
said compensating flow causing said diaphragm to return said piston valve to a normal flow-arresting position.

3,316,928
EXTENSION ATTACHMENT FOR GUTTERING DOWNSPOUTS
Richard A. Weakley, 2708 N. 73rd Place, Bethel, Kans. 66009
Filed Aug. 14, 1964, Ser. No. 389,553
10 Claims. (Cl. 137—119



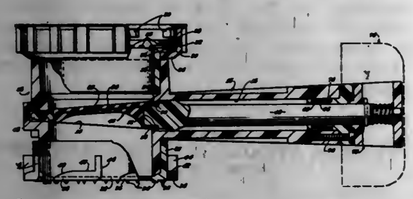
1. An extension for use in connection with a downspout affixed to the side of a building and adapted to convey water downwardly therethrough, said extension comprising:
(a) an L-shaped tubular body member having a vertical leg adapted to be interconnected to the lower end of said downspout to receive water therefrom and a horizontal leg forming a spout at the lower end of said vertical leg and adapted to discharge water horizontally, and
(b) an elongated conduit pivoted at one end to said body member on a horizontal axis below the discharge opening of said spout, said conduit being pivotable downwardly from a raised rest position generally parallel to and adjacent said downspout, in which it overlies the discharge end of said spout, to a use position in which it extends horizontally outwardly from said spout in alignment therewith and is positioned to receive water therefrom, said conduit being urged from said rest position to said use position by water impinging thereagainst as it emerges from said spout.

3,316,929
HOUSE TRAILER WASTE OUTLET GATE VALVE
Kenneth A. Milette, 16103 Lear Court, Valinda, Calif. 91744
Filed May 7, 1964, Ser. No. 365,641
12 Claims. (Cl. 137—270)

11. In a gate valve having a body with a flow passage therethrough with a transverse tapered valve seat in the flow passage and having a tapered valve member with a

stem protruding from the body for manipulation to move the valve member into and out of wedging sealing engagement with the valve seat, the improvement comprising:

the gate valve body being equipped with male and female fittings respectively at the opposite ends of the flow passage whereby the gate valve can be connected to fluid sources having either male fittings or female fittings;

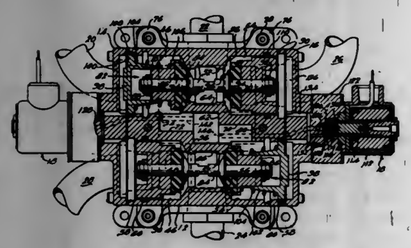


the taper of the valve seat being symmetrical;

the valve member being an elastomeric member reinforced to withstand upstream pressure directed against a particular one of its two faces; and

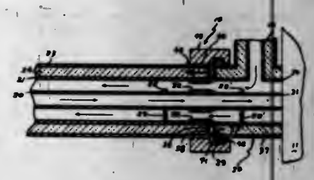
the valve member being reversible in the valve seat for positioning to withstand upstream pressure from either end of the flow passage.

3,316,930
VALVE
Lawrence H. Gardner, 30247 Lorain Road, North Olmsted, Ohio 44070
Filed Nov. 4, 1964, Ser. No. 408,864
4 Claims. (Cl. 137—270)



1. A valve for alternately supplying pressure fluid to and exhausting pressure fluid from a work cylinder, comprising a base member having an inlet port, an exhaust port and a work port therein, a valve body mounted on said base member and having a valve bore extending therethrough, said valve bore having a central portion communicating with said work port and inlet and exhaust chambers at its opposite ends, outwardly facing valve seats at the inner ends of said inlet and exhaust chambers, said inlet chamber communicating with said inlet port and said exhaust chamber communicating with said exhaust port, a poppet valve in said bore and having an inlet valve member at one end thereof disposed in said inlet chamber and engageable with the valve seat therein and an exhaust valve member at its other end disposed in said exhaust chamber and engageable with the valve seat therein, said valve members being spaced apart a distance greater than the spacing of said valve seats whereby when one of said valve members is seated the other is unseated, spring means urging said poppet valve in a direction to engage one of said valve members with its valve seat, passage means communicating with said inlet chamber and the end of said bore containing the other of said valve members for supplying inlet pressure against the outer end of said other valve member, the area of said other valve member exposed to said inlet pressure being greater than the area of said one valve member exposed to said inlet pressure, and pilot valve means in said passage means for selectively permitting flow of pressure fluid against said other valve member to effect reciprocation of said poppet valve, said valve bore being symmetrical on opposite sides of said central portion whereby said poppet valve may be reversed end-for-end within said bore to provide in one position of assembly into said bore a normally open valve and in the reversed position of assembly within said bore a normally closed valve.

3,316,931
CRYOGENIC TRANSFER METHOD AND APPARATUS
Charles W. Elrod, Dayton, Ohio, assignor to the United States of America as represented by the Secretary of the Air Force
Filed Aug. 18, 1964, Ser. No. 390,492
2 Claims. (Cl. 137—339)



1. A coupling device for a cryogenic transfer line comprising: a first conduit member; a second conduit member having a reduced end portion snugly fitting inside of said first conduit member; a third conduit member, supported within and spaced from said first conduit member; a fourth conduit member supported within and spaced from said second conduit member and having an enlarged end portion snugly surrounding said third conduit member; a first pipe member surrounding said first conduit member and having a substantially radially positioned bent over end portion attached to said first conduit member; a second pipe member surrounding said second conduit member and having a substantially radially positioned bent over end portion attached to said second conduit member; an O-ring seal located between the bent over end portions of said pipe members; one of said pipe members having external threads adjacent said bent over end portion; the other of said pipe members having an external flange secured thereto adjacent said bent over end portion; a coupling means engaging said flange and having internal threads engaging the threads on said one of said pipe members.

3,316,932
WATER MIXING DEVICE FOR WATER CLOSET STORAGE TANKS
William C. Schmitt, Milwaukee, Wis., assignor to Milwaukee Faucets, Inc., Milwaukee, Wis., a corporation of Wisconsin
Filed Dec. 2, 1964, Ser. No. 415,403
2 Claims. (Cl. 137—512)

1. A mixing device for hot and cold water comprising: an elongated chamber housing a hot water inlet at one end and a cold water inlet at the other end and an outlet in the central portion thereof, said chamber having bores opposite said inlets, said bores containing a threaded portion at the outer end thereof and a smooth non-threaded portion adjacent said chamber;

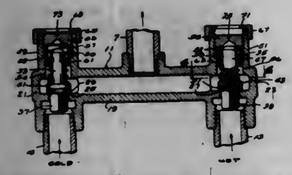
a valve in each of the hot and cold water inlets comprising:

a valve seat formed by the wall of the chamber adjacent said inlet;

a valve stem having a valve disc at one end thereof resting on said valve seat to block said inlet;

a spring means surrounding said valve stem;

a plug fitting over the other end of said valve stem and containing said spring to force the valve disc on said valve seat, said plug threaded to mate with the threaded portion of said bore for

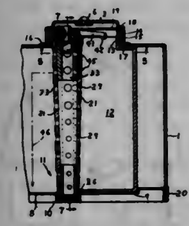


movement toward or away from said valve seat, said plug having a skirt extending toward said valve disc containing a sealing means contacting said bore on the smooth non-threaded portion; and

a tubular cap having an overhanging lip mounted on the outside of said bore to protect the threaded portion thereof while permitting access to said plug;

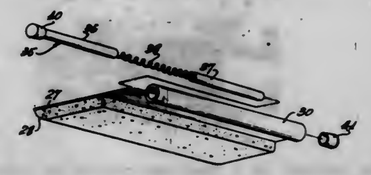
whereby the mixture of hot and cold water supplied to the outlet is determined by the force exerted on said valve discs by said springs.

3,316,933
LIQUID PROPORTIONAL MEASURING DEVICE
Fortunato S. Ajero, 2165 Broadway, Springfield, Ohio 45504
Filed Apr. 27, 1964, Ser. No. 362,875
13 Claims. (Cl. 137—576)



1. In combination a fuel tank and a self-contained proportional mixing chamber therein, normally sealed from the tank except for openings in the wall of the chamber leading into the tank, a cylinder formed integral with said wall at the position of said openings and extending inwardly of said chamber, the innermost portion of said member having openings which are in line with the openings in the wall of the chamber but positioned remote therefrom, a rotatable circular valve within the cylinder means having openings therethrough, said valve having a first position with said openings coincident with the openings in the wall of said chamber and with the openings in the cylinder member in order to allow free flow of fluid from the mixing chamber into the tank when the valve is in said first position, said valve being adapted to be moved to a second position which serves to close the communication between said chamber and the tank.

3,316,934
EXPANDABLE HINGE WEIR
Charles A. Sowers, 6318 Denny Ave., North Hollywood, Calif. 91606
Filed Sept. 17, 1962, Ser. No. 224,156
9 Claims. (Cl. 137—578)



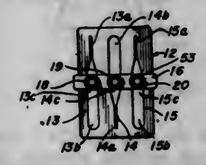
5. A swimming pool weir comprising:

(a) an expandable rod adapted to be secured intermediate opposed side walls of a skimmer pocket communicating with the water in a swimming pool;

(b) a weir plate pivotally secured to said rod; and

(c) float means connected to said weir plate.

3,316,935
FLOW CONTROL CLAMP
George C. Kaiser, Webster Groves, Mo., Robert D. King, Indianapolis, Ind., and Henry M. Scislowicz, Lake Bluff, Ill., assignors to Abbott Laboratories, Chicago, Ill., a corporation of Illinois
Filed June 24, 1964, Ser. No. 377,585
5 Claims. (Cl. 137—595)

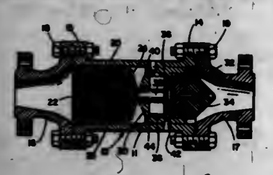


1. A flow control clamp for use with a parenteral administration system having a plurality of lengths of administration tubing, comprising: a thin, elongated slide clamp defining a plurality of transversely spaced clamp apertures in side-by-side relationship, each such aperture having a wide end portion the width of which is approximately equal to the diameter of said administration tubing and the length of which is slightly greater than one half of the total length of said aperture, so that an intermediate position of the clamp is provided wherein at least two of the lengths of tubing are open, and a narrow end portion the width of which is substantially less than the diameter of said tubing, so that said tubing will be restricted when positioned in said narrow end portion to reduce any fluid flow therethrough, at least one of said apertures being oppositely disposed with respect to the other of said apertures, whereby the wide end portion of one of said apertures is adjacent to the narrow end portion of another of said apertures, and a body member defining a transverse slot of approximately the same width and thickness as said slide clamp and slidably accommodating said slide clamp and defining a plurality of apertures of approximately the same diameter as said tubing and in respective alignment with a corresponding slide clamp aperture.

3,316,936
RESILIENT VALVE MEMBER HAVING A PLURALITY OF PASSAGES
Calvin A. Gongwer, Glendora, Calif., assignor to Aerojet-General Corporation, Azusa, Calif., a corporation of Ohio
Filed Jan. 27, 1964, Ser. No. 340,452
14 Claims. (Cl. 137—625.28)

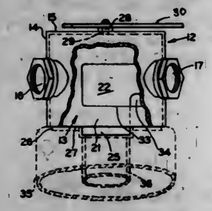
8. A valve comprising: a housing having an inlet and an outlet, a resilient valve member having a relatively

large number of axially aligned passages therethrough for flow of fluid from the inlet to the outlet of the housing, said resilient valve member being received by said housing, and means for applying pressure to said resilient



valve member in a direction parallel to said passages whereby operation of the pressure applying means causes a gradual restriction of the passages over their entire length which may continue until the passages are completely closed.

3,316,937
SIX-WAY SWIMMING POOL FILTER VALVE
Jerome Friedman and Josephine Friedman, both of 744 Bound Brook Place, Dunellen, N.J. 08812
Filed Jan. 14, 1965, Ser. No. 425,406
2 Claims. (Cl. 137—625.29)



1. A valve, of the type described, and designed to be attached to a tank opening provided with a generally-centrally disposed tube, comprising,

a hollow cylindrical body open at the bottom for attachment to a tank opening, and having a top, and having three substantially equally-spaced openings in the cylindrical wall,

a cylindrical rotary slide axially disposed within said cylindrical body in close-fitting fluid-sealing relation therewith,

a pipe T mounted diametrically across the center of said slide and having its in-line outlets emerging from the cylinder wall thereof in outside sealing relation therewith and in register with a body opening, with the angled outlet directed downwardly for movable connection to a central tube of a tank,

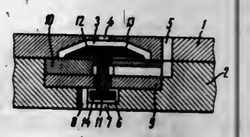
an aperture in the cylindrical wall of said slide between the two T outlets and of size and spacing adequate to enable fluid flow through a body opening and through said aperture, or through a body opening and through the aperture and a T outlet,

a shaft axially mounted on top of said slide and designed to project through said body top in outside sealing relation, and

a handle mounted on the projecting portion of said shaft and designed to enable turning of said slide.

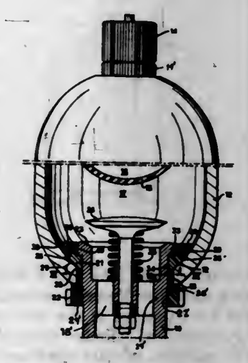
3,316,938
PNEUMATIC DISCRETE RELAY
Robert Jurjevich Fedoseev and Alevtina Vjacheslavovna Fedoseeva, both of Moscow, U.S.S.R., assignors to Nauchno-Issledovatelsky Institute Teploenergeticheskogo Priborostroenija, Moscow, U.S.S.R.
Filed Oct. 23, 1964, Ser. No. 406,093
2 Claims. (Cl. 137—625.66)

1. A pneumatic discrete relay comprising a housing defining a chamber; an insert dividing said chamber into first and second portions; said insert having a channel providing communication between said portions; first and second membranes free along their edges, the first of the said membranes being larger than the second of the said membranes and being arranged in a first of said portions; the second of the said membranes being arranged in the second portion; a stem in the form of a cylinder with longitudinal ducts disposed in said channel and interacting with the said membranes; said housing having four holes for inlet and outlet of compressed air; a first hole in the wall of said housing being arranged in the first of said



portions opposite the first of said membranes; a second hole in the wall of said housing being arranged in the second of said portions opposite the second membrane; a third hole in the wall of said housing being arranged in the second of said portions alongside said second membrane; a fourth hole in said housing being arranged in said insert communicating between the wall of said housing and said channel, whereby the membranes reciprocate to close the first and second portions by closing the first and second holes alternately while blocking the opposite portion from the channel.

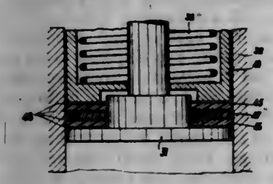
3,316,939
LOCKING RING
Jacques H. Mercier, New York, N.Y., assignor to Mercier Oiaer Patent Corporation, Wilmington, Del., a corporation of Delaware
Original application Jan. 31, 1963, Ser. No. 255,388, now Patent No. 3,148,705, dated Sept. 15, 1964. Divided and this application Sept. 1, 1964, Ser. No. 393,564
15 Claims. (Cl. 138—30)



9. In a pressure vessel of the type having a port, a deformable partition secured in said pressure vessel and adapted to move toward said port and a cylindrical member in said port having a laterally outward extending annular flange at its inner end of outer diameter less than that of said port and defining a shoulder, the combination therewith of a deformable locking member for said cylindrical member positioned between said shoulder and the inner surface of said pressure vessel encompassing said port, said deformable locking member comprising a

ring of resilient material having a recess in the inner periphery thereof, a plurality of rigid arcuate segments having their outer peripheries positioned in said recess, said recess in said inner periphery and said rigid arcuate segments having complementary conformations to releasably yet securely retain the segments in said resilient ring, the upper surface of said resilient ring terminating short of the inner periphery of said arcuate segments to define an abutment shoulder, said segments defining a ring member of inner diameter slightly greater than the diameter of said tubular member so that the latter may fit therein with said flange shoulder seated on said abutment shoulder, said arcuate segments having arcuate notches on their undersurface adjacent their inner peripheries defining an arcuate hub of width but slightly less than the distance between the tubular member and the wall of said port, said notches defining arcuate shoulders adapted to seat on the periphery of the port, and resilient means normally urging said tubular member outwardly, whereby said flange shoulder of said tubular member will seat on the abutment shoulder of said locking segments and the shoulder defined by the recess in said locking segments will seat on the periphery of said port adjacent said opening.

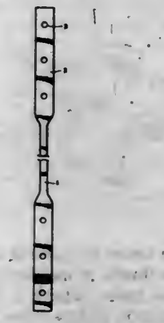
3,316,940
SLIDING SEAL ASSEMBLIES
Jean Louis Gratzmuller, 66 Blvd. Maurice Barres, Neuilly-sur-Seine, Seine, France
Filed June 29, 1964, Ser. No. 378,901
4 Claims. (Cl. 138—31)



2. In a hydropneumatic accumulator of the type including a cylinder, a piston slidably mounted within the cylinder to divide the cylinder space into a gas chamber and a liquid chamber, said piston comprising a disc element, a reduced cylindrical portion extending axially of the disc element, abutment means carried by the piston in axially spaced relation from the disc element, sealing means including a plurality of sealing rings of different hardness characteristics and of substantially rectangular cross section mounted around the reduced cylindrical portion of the piston, a ring of self-lubricating material interposed between each sealing ring and its adjacent sealing ring whereby the plane surfaces of each sealing ring are in contact with the rings of self-lubricating material only, a seal compressing means on the reduced cylindrical portion of the piston bearing against the sealing means, and resilient means biased between the seal compressing means and the abutment means for exerting a substantially constant axially directed pressure on the rings for elastically expanding the sealing rings.

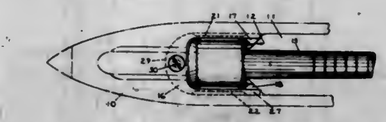
3,316,941
HARNESS STRAP FOR LOOMS
Hans Neumaier, Weil der Stadt, Germany, assignor to Albert Haag KG Pickerfabrik, Weil der Stadt, Germany
Filed May 9, 1963, Ser. No. 279,232
Claims priority, application Germany, May 16, 1962, H 41,486
5 Claims. (Cl. 139—88)

1. A one-piece harness strap for looms, which comprises: two outer sections of non-stretched synthetic material and an intermediate section interconnecting said two outer sections and integral therewith, said intermediate section consisting of synthetic material stretched with-



in its elastic limit only, said outer and intermediate sections being of the same synthetic material and forming a single integral unitary entity with each other.

3,316,942
SHUTTLE CLAMP FOR BOBBINS
Harry William Thatcher, Mendon, Mass., assignor to Draper Corporation, Hopedale, Mass., a corporation of Maine
Filed Feb. 11, 1965, Ser. No. 431,827
4 Claims. (Cl. 139—207)

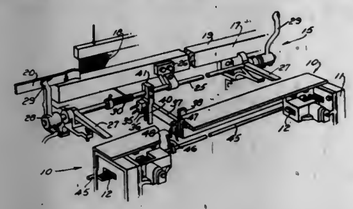


1. For a loom shuttle having a longitudinally extending, bobbin receiving and ejecting opening, opposed and vertically spaced and horizontally extending shelf members forming one end of said opening and extending for a portion of the length thereof, said shelf members defining a recess in each of the side walls of said shuttle within said opening, a bobbin support and gripping member receivable by and adapted to be fixedly positioned in abutting relationship with said recesses formed by said shelf members, said bobbin support and gripping member having a cross sectional configuration conforming to said opening's one end, and being generally U-shaped to define opposed gripping elements adapted to extend within the longitudinal extent of said recesses, the inner surfaces of said member including centrally disposed and longitudinally extending concave surfaces forming vertically spaced and opposed gripping points for the butt of a loom bobbin.

3,316,943
ANTI-SMASH DEVICE FOR A LOOM
Robert J. Cooney, 121 2nd Ave., Woonsocket, R.I. 02895, and Leonard E. Brodt, Woonsocket, R.I.; said Brodt assignor to said Cooney
Filed July 19, 1965, Ser. No. 472,793
3 Claims. (Cl. 139—343)

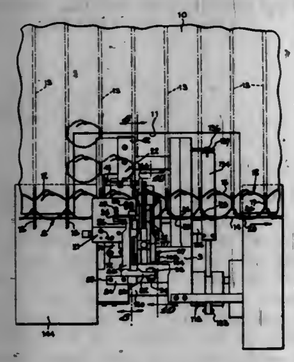
1. In a loom having an electric stop motion circuit and a stop lever, a lay carrying a shuttle box and shuttle and having a protection rod with a dagger to engage said lever and a feeler on said protection rod to mechanically move said dagger out of a path to engage said lever upon the presence of a shuttle in said shuttle box, that improvement which comprises adding to a loom so constituted a switch fixed to the loom with reference to which the lay swings, said switch being connected in circuit with

said stop motion circuit and a downwardly extending arm on said protection rod, the relative location of said switch and arm being such that at back dead center position of



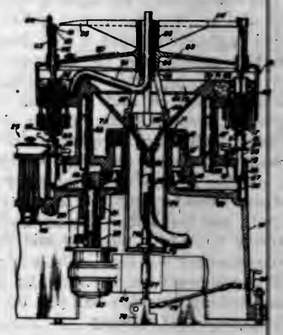
the lay said arm clears said switch when the feeler detects the absence of a shuttle in the shuttle box but engages said switch when the feeler detects a shuttle in the box and swings the protection rod to move said arm.

3,316,944
HELICAL WRAPPING MECHANISM FOR COIL SPRING UNITS
Clifford Goldmeyer, Cincinnati, and Thomas J. Dull, Fairfield, Ohio, assignors to The J. R. Greeno Company, Cincinnati, Ohio, a corporation of Ohio
Filed Jan. 23, 1964, Ser. No. 339,638
18 Claims. (Cl. 140—92.3)



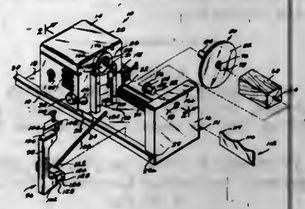
1. A helical wrapping machine for completing the assembly of a coil spring unit, said coil spring unit comprising rows of coil springs, a border element, and helicals connecting the rows of coil springs to one another, said helicals each having at least one end portion projecting outwardly beyond said border element, said wrapping machine comprising,
- a machine frame,
- a locating mechanism mounted on the machine frame including a shiftable element adapted to locate and clamp mating portions of the border element, coil spring and helical in wrapping position relative to one another,
- a rotatable wrapping element mounted adjacent said locating mechanism and adapted to receive the end portion of said helical,
- and means for moving the shiftable element of the locating mechanism into locating and clamping position, and for imparting rotary motion to said wrapping element,
- said wrapping element adapted to wrap the projecting end portion of said helical about the mating portions of the border element and coil spring, whereby the wrapped end portion of the helical ties the mating portions of the coil spring and border element to one another.

3,316,945
CONTAINER FILLING MACHINE
Earl Brinkley and E Gordon Young, Mount Prospect, Ill., assignors to The Kartridg Pak Co., Davenport, Iowa, a corporation of Iowa
Filed Feb. 11, 1964, Ser. No. 344,011
10 Claims. (Cl. 141—140)



3. A container filling machine which comprises a turret including a liquid supply bowl having an annular trough with an inside lip which is lower than the outside wall thereof and a center opening into which liquid will spill over the inside lip when the trough is filled to overflowing, said trough having a plurality of circumferentially spaced openings in the bottom thereof, measuring and dispensing valve assemblies mounted in sliding relation in said openings, each of said assemblies comprising a cylindircal measuring cup disposed in an opening with an open top and a capped bottom protruding through the bottom of the bowl, a flexible bellows-type seal in the trough between the top of the cup and the opening in the bottom of the trough for preventing the passage of liquid therethrough, while permitting vertical movement of the cup, a discharge passageway in the cap at the bottom of the cup which terminates at a ball valve seat, a valve ball mounted on a rod which is supported for vertical movement in the cup, a container supporting platform aligned below each of the assemblies and cam means for raising and lowering the platform, means for delivering containers to be filled beneath said assemblies on the turret and for taking the filled containers away, and cam means including a fixed cam track and cooperating cam followers on the valve rods for raising and lowering the same to open and close the valves in the cups.

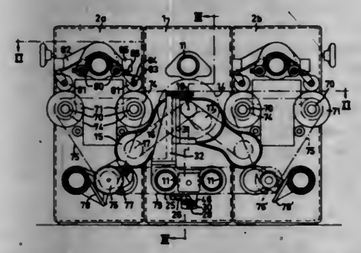
3,316,946
TOY MACHINE SHOP TOOL
John W. Ryan, Bel Air, Richard L. May, Manhattan Beach, and Jacob de Gelder, Hawthorne, Calif., assignors to Mattel, Inc., Hawthorne, Calif., a corporation of California
Filed Jan. 4, 1965, Ser. No. 423,241
14 Claims. (Cl. 144—1)



1. A toy machine shop tool, comprising:
- a bed having parallel, spaced-apart ways provided thereon;

- a tail stock mounted on said ways at one end of said bed, said tail stock being provided with an aperture; and
- a head stock slidably mounted on said ways at the other end of said bed, said head stock including a motor driven shaft to which various tools may be attached for rotation thereby, said shaft being aligned with said aperture,
- an eccentric member affixed to said motor-driven shaft for rotation thereby; and
- a reciprocal plate slidably mounted on said head stock, said reciprocal plate including an aperture encompassing said eccentric member, whereby rotation of said eccentric member by said motor-driven shaft reciprocates said plate.

3,316,947
MACHINE SYSTEMS ENLARGEABLE ACCORDING TO THE PRINCIPLE OF UNIT CONSTRUCTION
Eyvind Lyche, Goteborg, and Gunnar Lennart Wiknas, Jonsered, Sweden, assignors to Jonsereds Fabrikers Aktiebolag, Jonsered, Sweden, a corporation of Sweden
Filed Jan. 26, 1965, Ser. No. 428,038
Claims priority, application Sweden, Oct. 24, 1964, 12,837/64
11 Claims. (Cl. 144—1)



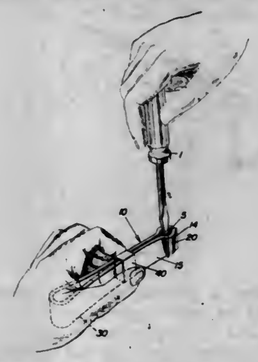
1. A working machine system comprising at least one working unit for performing machining operations upon workpieces and at least one operating unit for respectively feeding said workpieces to and discharging them from the working unit, said units having frame means supporting power-driven means and operating means driven by said power means, said units having mutually identical input and output sides and being arranged for assembling one with the other like the elements of a construction set into large or small working machines or machine systems including various numbers of units.

3,316,948
WOOD PRODUCT AND THE METHOD AND APPARATUS FOR MAKING THE SAME
Theodore R. Drake, 1780 Crestview Ave., Seal Beach, Calif. 90740
Filed Apr. 9, 1965, Ser. No. 446,856
4 Claims. (Cl. 144—318)



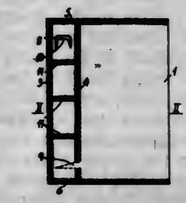
1. The method of making an elongate fabricated wood board, rectangular in cross section and having laterally disposed end grain throughout its longitudinal extent including, arranging a plurality of wood blocks in side by side relationship with the grain of the wood thereof extending transverse the longitudinal axis of the assembly of blocks and disposed outwardly from two opposite sides of the assembly of blocks, next establishing an elongate uninterrupted outwardly opening groove in the other two opposite sides of the assembly of blocks and then engaging an elongate cord press fitted in each groove in fixed relationship with each block to extend between and hold the blocks in assembled relationship.

3,316,949
POSITIONING TOOLS
Edward F. Canfield, 9705 Kendale Road, Potomac, Md. 20854
Filed June 24, 1965, Ser. No. 466,774
5 Claims. (Cl. 145—46)



1. A positioning tool comprising:
- an elongated plastic strip having a medial portion and integral opposite end portions, said medial portion being reversedly bent, thereby forming a handle,
- said opposite end portions respectively defining opposite truncated semi cones aligned adjacent each other, thereby forming a conical holder, and means holding juxtaposed opposite extremities of said medial portion juxtaposed.

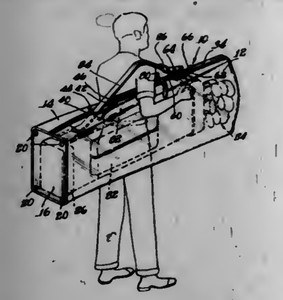
3,316,950
RECEPTACLES OF PLASTIC
Svend Sigurd Christie Fleischer and Hans Harald Christie Fleischer, both of Kroyersvej 14, Klampenborg, Denmark
Filed Oct. 5, 1964, Ser. No. 401,436
7 Claims. (Cl. 150—9)



1. A receptacle formed from synthetic plastic material, comprising:
- a pair of spaced parallel synthetic plastic walls the edge portions of which are connected to define a chamber for receiving material to be dispensed;
- means including a strip of synthetic plastic material secured to one of said walls within said chamber to define a discharge passage,
- said receptacle containing an outlet opening at one end of said discharge passage for dispensing material therefrom, and an inlet opening affording communication between the other end of said passage and the receptacle chamber;

and seal means closing said discharge passage intermediate its ends to isolate the outlet opening from the inlet opening.

3,316,951
GOLF BAG CARRYING CASE
Sidney I. Jacobson, Chicago, Ill., assignor of one-third to Arthur F. Jacobson and one-third to Harold D. Jacobson, both of Chicago, Ill.
Filed Apr. 26, 1965, Ser. No. 450,795
1 Claim. (Cl. 150—52)



In combination, a golf bag having a normally closed bottom end and an open opposite end from which golf clubs extend, and a longitudinally extending shoulder strap having separated opposite end portions attached to the bag, and a case enclosing said golf bag and clubs comprising: opposed flexible panels each having opposite longitudinal edges and end edges, one of the longitudinal and one of the end edges of one of the panels being secured to the corresponding edges of the other panel, the other longitudinal edge and the other end edge of each panel having a single zipper stringer extending therealong, the zipper stringers being normally interlocked to close the case around the golf bag, two cooperating pairs of zipper sliders on said zipper stringers for selectively opening and closing said stringers on movement of the pairs of sliders in one direction, the leading slider of each pair opening the stringers and the other slide of each pair closing the stringers, each cooperating pair of sliders being positioned with its individual sliders on opposite sides of a different one of the end portions of the shoulder strap of the golf bag and defining the margins of a variably sized and shiftable opening on the stringers for the shoulder strap, through which opening the associated end portion of the shoulder strap passes to the outside of the case, the slider nearest the end of the golf bag being movable to the end of the stringers at the end edges of the casing panels to form a large opening at the end of the casing around the open end of the golf bag, said cooperating pair of zipper sliders being movable into a contiguous position when the shoulder strap is tucked into the casing where the stringers are closed for substantially their full length, and means on the sliders which permit the four sliders to be locked together in such position.

3,316,952
SEALING LOCK NUT
Robert F. Hollinger, Massillon, Ohio, assignor to Eaton Yale & Towne Inc., Cleveland, Ohio, a corporation of Ohio
Filed Mar. 14, 1966, Ser. No. 533,984
8 Claims. (Cl. 151—7)

1. A locking and sealing nut comprising in combination:

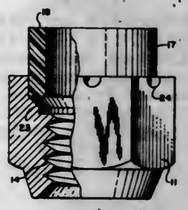
a metal nut having a threaded bore and having a sink therein substantially concentric with the threaded bore and having a longitudinal groove portion formed in a lateral cylindrical wall portion of said sink;

and having a well adjacent the threaded bore with a cylindrical side surface also substantially concentric with the threaded bore and the sink and with a radial bottom surface extending from the side surface to the bore;

the well being of a smaller outside diameter than the sink but of a larger outside diameter than the major diameter of the thread;

the sink being formed with a sloping conical shoulder around the well extending between the well and said lateral sink wall;

whereby the well is axially spaced from the lateral wall portion of the sink;

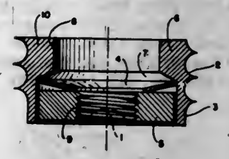


the angle of said shoulder being of the order of 45° and a deformable insert of hollow cylindrical form having an axial dimension greater than the axial dimension from the end of the wall adjacent the conical shoulder to the outer end of the sink adapted to be received therein and to be compressed by said sloping shoulder upon tightening the nut against a surface;

the insert being composed of material having less compressive strength than the nut and having an end surface adapted to engage the sloping surface of said nut and having a lesser angle than the angle of the shoulder of the sink measured from a plane perpendicular to the axis of the insert;

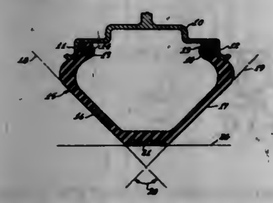
and means for securing the insert in said sink.

3,316,953
FURNITURE FITTING
Karl-Erik Fransson, Vimmerby, and Anders Larsson, Vena, Sweden, assignors to C. H. Larsson, Vena, Sweden, a corporation of Sweden
Filed Sept. 22, 1964, Ser. No. 398,445
Claims priority, application Sweden, Sept. 24, 1963, 10,399/63
2 Claims. (Cl. 151—41.73)



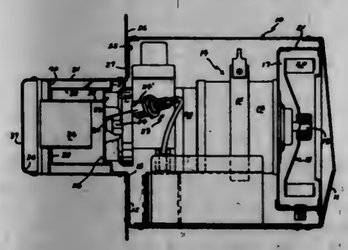
1. A furniture fixture for securing a first furniture element onto a second furniture element in predetermined angular relation comprising, a sleeve, external threads on said sleeve, a shoulder internally in said sleeve, a nut in said sleeve, internal threads in said nut, means mounting said nut in said sleeve for axial movement therein, and for preventing rotation of said nut therein, and a conical disc spring disposed between the shoulder and the nut urging the nut away from the shoulder, whereby the externally threaded sleeve may be screwed into an opening in the second furniture element and the first furniture element may be screwed into the internally threaded nut to draw the nut towards the shoulder against the action of the spring and the sleeve may be turned with respect to the second furniture element so that the first and second furniture elements may be both in tight engagement with each other and in predetermined angular relationship.

3,316,954
TIRE STRUCTURE
Winston F. Wright, Winnemucca, Nev.
(113 N. 13th St., House A, Las Vegas, Nev. 89101)
Filed June 14, 1965, Ser. No. 463,564
3 Claims. (Cl. 152—352)



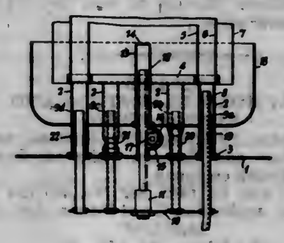
1. A tire structure comprising in combination:
(A) angularly disposed substantially flat side walls,
(B) a normal hardsurface relatively narrow road tread formed integral with the outer portions of said flat side walls,
(C) said side wall portions being constructed that the inner sidewall portions extend beyond the width of the rim so as to cause inward deflection of the side walls as load is applied to said tire.

3,316,955
OIL BURNER APPARATUS
Eugene C. Briggs, Dayton, and Ralph Farkas, Wilmington, Ohio, assignors to Master Consolidated Inc., Dayton, Ohio, a corporation of Ohio
Filed Mar. 8, 1965, Ser. No. 437,888
13 Claims. (Cl. 158—4)



1. Apparatus providing a combustion chamber for oil burners and like equipment including a shell providing a housing open to opposite ends, a shield fixed transversely of one end having limited openings respectively providing for receipt in and movement through said shell of a pressured flow of air and receipt of charges of fuel which are ignited in the process of their delivery in said shell, a vaporizing tube fixed centrally of said shell having one end opposite and spaced from said shield, arranged thereby to receive the charges of fuel, and its other end adjacent and open to the other end of said shell, a tubular element defining with said shell a flow path for air entering said shell under pressure and forming with said shell and about said vaporizing tube a path for recirculating a portion of such air under the influence of combustion in said tube whereby to provide preheated air in said tube producing an optimal vaporizing of the fuel which enters said tube and means adjacent said other end of said vaporizing tube operative to produce a circulation of the air flowing to said other end of said shell in a sense to cause said air to pick up unburned particles leaving said vaporizing tube and drive them inwardly of the flame produced by combustion in said tube.

3,316,956
LEAKPROOF SEAL FOR WICK TUBES
Arthur Whittaker Richardson, New Malden, England, assignor to Karma (New Malden) Limited
Continuation of application Ser. No. 343,976, Feb. 11, 1964. This application Apr. 4, 1966, Ser. No. 540,090
8 Claims. (Cl. 158—98)

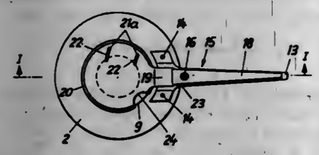


1. A liquid-fuel burner having a pair of tubular burner shells, means supporting the burner shells one about the other to define an annular combustion chamber therebetween, a container for liquid fuel beneath the burner shells, said container having a top wall, a plurality of annularly arranged conduits extending from the top wall of the fuel container to between the burner shells, a wick tube received coaxially within each conduit, a wick held within each wick tube and projecting slightly thereabove, the wick tubes having a diameter substantially less than at least the upper inside portion of the conduit tubes to provide an annular clearance therebetween of sufficient radial extent to prevent or materially reduce the formation and deposit of carbon on and adjacent the projecting portion of the wick and the upper end of the wick tubes and the conduit tubes, the wicks having lower ends extending into the fuel container, means connecting the wick tubes for axial movement together within the conduits and adapted to withdraw the projecting wick portions to within the conduit tubes, and means located at the lower end of each conduit forming a sliding seal around each wick tube and spacing the same from the upper inside portion of the conduit tubes to prevent fuel from flowing in the annular clearance between the wick tube and the conduit in which it is received and to maintain said annular clearance.

3,316,957
SPIRIT BURNER
Alfred Stöckli, Netstal, Martin E. Kissling, Urdorf, and Werner Spalinger, Ennenda, Switzerland, assignors to the firm Alfred Stockli Sohne, Netstal, Switzerland
Filed Sept. 8, 1965, Ser. No. 485,759
9 Claims. (Cl. 158—97)

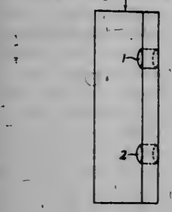
1. A spirit burner, comprising in combination: a bottom portion, absorbent material contained in said bottom portion and in operation absorbing a storage of spirit, a top portion mounted on said bottom portion and having a central opening and a plurality of outlets for spirit vapors arranged on a pitch circle surrounding said central opening, a cover plate resiliently bearing on said top portion in the region of said outlets and movable between an open position and a closed position on the same, clearing in

the open position said central opening and all of said outlets, and when moved into the closed position at least partly obturating temporarily each of said outlets and said central opening, and when in the closed position



proper, re-establishing a pressure equalizing communication between the interior of said bottom portion and the ambient atmosphere through at least one cut-out provided in said cover plate.

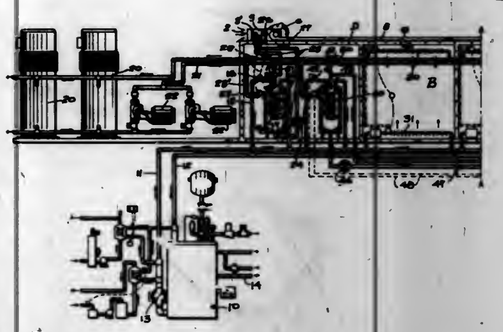
3,316,958
FILM MOLECULAR STILLS AND EVAPORATORS
James S. Johnston, Kirkcaldy, Fife, Scotland, assignor to Henry Balfour and Company Limited, Leven Fife, Scotland, a British company
Filed Apr. 12, 1965, Ser. No. 447,254
Claims priority, application Great Britain, Apr. 22, 1964, 16,685/64
12 Claims. (Cl. 159—6)



1. An evaporator comprising an evaporator chamber circular in cross-section and having a heated wall, an inlet for material to be treated, an outlet for withdrawal of vapor and an outlet for withdrawal of the treated material, a rotor mounted in said chamber, wiper elements carried by said rotor and contacting said wall to spread said material thinly on said wall, said elements cooperating with said wall for advancing said material from said inlet to said material outlet, means mounting said wiper elements on said rotor for limited floating non-rotatable movement relative thereto in a plane perpendicular to the rotor axis, and said element being of curvilinear profile in a plane perpendicular to the rotor axis and each of said wiper elements having a leading edge and a trailing edge and being rockable about its leading edge, and making substantially tangential line contact with said wall.

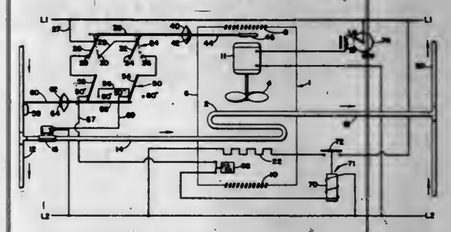
3,316,959
SYSTEM AND APPARATUS FOR MAINTAINING A CONSTANT TEMPERATURE IN A PLURALITY OF ROOMS
Ray C. Edwards, Pompton Plains, N.J. (396 Ski Trail, Smoke Rise, Kinnelon, N.J. 07405)
Filed Nov. 14, 1963, Ser. No. 323,623
3 Claims. (Cl. 165—22)

1. In a heating and cooling system and apparatus for enclosures, means for maintaining a constant temperature in a plurality of rooms wholly independently of outside air temperature, or pressure including a fan delivering discharged air directly into a plurality of rooms, a heat exchanger arranged to vary the temperature of air entering the suction of said fan, means for delivering a heating or cooling fluid to said heat exchanger, a single thermostat actuated by variances in the temperature of air discharged into said room for controlling the temperature of heating or cooling fluid delivered to said heat exchanger, whereby a constant uniform temperature will be



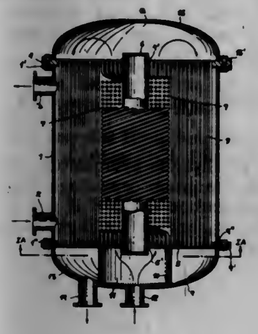
maintained simultaneously in all of the rooms, said means for delivering the heating or cooling fluid to the heat exchanger constitutes a tank, means for delivering chilled fluid into said tank, means for varying the temperature of the fluid in said tank, said single thermostat controlling the temperature variance of the fluid in said tank.

3,316,960
CONTROL CIRCUIT FOR HEAT EXCHANGE UNIT WITH AUXILIARY ELECTRIC HEATER
Robert G. Miner, La Crosse, Wis., assignor to The Trane Company, La Crosse, Wis., a corporation of Wisconsin
Filed May 7, 1965, Ser. No. 454,107
9 Claims. (Cl. 165—26)



1. In combination with air conditioning apparatus comprising a heat exchange coil and an electric heating element located in a space to be air conditioned, improved control means comprising: a thermostat responsive to the temperature in the conditioned space and having a minimum temperature heating control contact and a maximum temperature cooling control contact; electrically operable valve means in a fluid supply conduit connected to said heat exchange coil; switch means electrically connected to said heating and cooling control contacts and movable between first and second positions; a first circuit through said heating control contact and said switch means serving to energize said electric heating element; a second circuit through said heating control contact, said switch means and said electrically operable valve means; a third circuit through said cooling control contact, said switch means and said electrically operable valve means; said switch means being operative in said first position to complete either said first circuit or said third circuit depending upon the temperature sensed by said thermostat, and operative in said second position to open said first circuit and to close said second circuit.

3,316,961
HEAT EXCHANGER FOR THE TRANSFER OF SENSIBLE HEAT AND HEAT OF CONDENSATION FROM A GAS TO A HEAT-ABSORBING FLUID
Armin Dorner, Munich, Germany, assignor to Linde Aktiengesellschaft, a corporation of Germany
Filed Nov. 30, 1964, Ser. No. 414,908
Claims priority, application Germany, Dec. 2, 1963, G 39,291
9 Claims. (Cl. 165—145)



1. A heat-exchanger system for the transfer of heat from a relatively warm condensable fluid to a heat-absorbing fluid, comprising housing means forming a heat-exchanger chamber, said housing means being provided with an inlet for supplying said heat-absorbing fluid to said chamber, and an outlet for removing said heat-absorbing fluid from said chamber subsequent to its absorption of heat therein; an array of generally helicoidally extending tubes in said chamber in heat-transferring relationship with the heat-absorbing fluid therein; an array of generally linearly extending tubes in heat-transferring relationship with said heat-absorbing fluid in said chamber; said array of generally helicoidally extending tubes and said array of generally linearly extending tubes being coaxially nested; first means for supplying said relatively warm condensable fluid to said helicoidally extending tubes whereby sensible heat of said condensable fluid is transferred to said heat-absorbing fluid; second means for passing the condensable fluid emerging from said helicoidally extending tubes to said linearly extending tubes whereby heat of condensation of said condensable fluid is transferred to said heat-absorbing fluid; and third means for discharging fluid from said linearly extending tubes, said helicoidally extending tubes being of substantially greater length than said linearly extending tubes in heat-transferring relationship with said heat-absorbing fluid, and said array of helicoidally extending tubes having a total flow cross-section substantially less than the total flow cross-section of said linearly extending tubes.

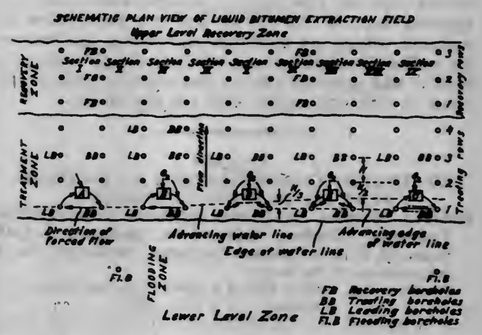
3,316,962
IN SITU COMBUSTION METHOD FOR RESIDUAL-OIL RECOVERY FROM PETROLEUM DEPOSITS
Hans Lange, Celle, Germany, assignor to Deutsche Erdol Aktiengesellschaft, Hamburg, Germany
Filed Mar. 15, 1966, Ser. No. 540,452
Claims priority, application Germany, Apr. 13, 1965, D 47,028
12 Claims. (Cl. 166—11)

1. A method for the recovery of residual oil from underground petroleum deposits by flooding and in situ combustion comprising the following steps:

(a) locating in a petroleum deposit at least one row of flooding boreholes connecting a structurally deep zone of said deposit, at least one row of recovery boreholes connecting a structurally high zone of said deposit, and at least one row of treating boreholes and leading boreholes, said treating and leading boreholes positioned between said flooding and recovering boreholes and connecting an intermediate zone of said deposit;

(b) introducing under pressure into said treating boreholes a limited amount of activated combustion gas having an increased oxygen content for achieving moderate combustion temperatures and igniting said activated combustion gas in said deposit between said treating boreholes and said leading boreholes whereby there is produced in the reaction zone a burning zone in which in situ combustion is performed in the stratum contents which have been extensively changed by the hot vapors and gases;

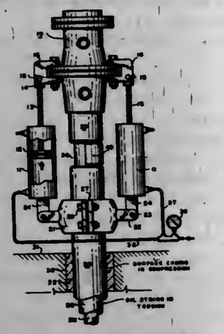
(c) introducing flood water into said flooding boreholes under pressure whereby a primary direction of flow of the stratum contents is established in said deposit between said flooding boreholes and said recovery boreholes whereby the axis of the reaction front between the treating boreholes and the leading boreholes is shifted in parallelism in the direction toward



the recovery boreholes, further conducting the flood water first through the burnt-out rock while being heated and then through the reaction zone while being further heated and vaporized, and conducting the resulting vapors through the burning front, burning and gasifying in the burning front, by said activated gases of combustion with increased oxygen content, of the stratum contents which have been strongly altered by contact with said vapors, whereby from the activated oxygen-containing gases of combustion a modified gas of combustion is formed, further conducting the steam which during passage into the reaction zone has become further heated so that at greater distances from the burning zone it will cause further flash vaporization of the stratum contents in the primary flow direction and so that the hot gases and vapors of the modified gases of combustion from the burning front will produce a delayed coking in the stratum contents which have already been flashed, so that for the trailing burning front there will remain only a strongly altered stratum contents; and

(d) condensation and dissolving in the colder portions of the stratum of the modified combustion gases and vapors which are caused by the pressure gradient in the primary flow direction to flow toward the recovery boreholes while warming that portion of the stratum.

3,316,963
REPAIR OF WELLS
John S. Boldrick and Henry M. Krause, Jr., Houston, Tex., assignors, by mesne assignments, to Esso Production Research Company, Houston, Tex., a corporation of Delaware
Filed Apr. 27, 1964, Ser. No. 362,646
7 Claims. (Cl. 166—14)



1. A method of providing stress on a well having a wellhead arranged on a surface pipe and having a pipe string connected to the wellhead and wherein the stress on said surface pipe and pipe string is changed which comprises applying stress to said surface pipe at a point below the wellhead, cutting and separating said surface pipe between the wellhead and said point and then sealingly joining the ends of said separated surface pipe whereby stress is provided on both said surface pipe and pipe string.

3,316,964
METHOD OF CONSOLIDATING AN INCOMPETENT OIL BEARING FORMATION
Robert L. Gergins, Havertown, and Leon Weber, Wilkins Township, Allegheny County, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware
No Drawing. Filed Dec. 13, 1963, Ser. No. 330,241
5 Claims. (Cl. 166—29)

5. A method of consolidating sands having a petroleum crude oil distributed therethrough to form a hard permeable unitary mass comprising passing a mixture of chlorine and an inert gas through the sands at a flux adapted to increase the temperature of the sands to 300 to 1600° F., the concentration of chlorine in the mixture being at least 10 percent by volume.

3,316,965
MATERIAL AND PROCESS FOR TREATING SUBTERRANEAN FORMATIONS
David J. Watanabe, Orange, Calif., assignor to Union Oil Company of California, Los Angeles, Calif., a corporation of California
No Drawing. Filed Aug. 5, 1963, Ser. No. 300,060
45 Claims. (Cl. 166—33)

1. A process for treating subterranean formations penetrated by a well comprising:

injecting into said well elevated pressure a treating fluid comprising a pumpable carrier liquid having suspended therein oil-soluble, water-insoluble solid particles, said particles comprising a homogeneous mixture of organic polymer and hydrocarbon.

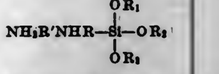
34. A composition which comprises a suspension of discrete solid particles of a homogeneous mixture of nongaseous hydrocarbon and an addition polymer in a pumpable carrier liquid, said addition polymer being selected from the group consisting of copolymer ethylene and vinyl acetate and copolymer ethylene and ethyl acrylate.

3,316,966
SAND CONSOLIDATION METHOD
Cleveland Dear, Jr., Houston, Tex., assignor, by mesne assignments, to Esso Production Research Company, Houston, Tex., a corporation of Delaware
No Drawing. Filed Jan. 30, 1964, Ser. No. 341,397
6 Claims. (Cl. 166—33)

1. A method of consolidating an incompetent earth formation comprising:

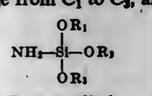
admixing an epoxy resin and a polymerizing catalyst therefor with a petroleum solvent for epoxy resin having an aromatic hydrocarbon content of between 5 and 90 vol. percent of the solvent and an aliphatic hydrocarbon content of between 10 and 95% of the solvent, and from .01 to 2 vol. percent of the total mixture, of a bonding agent selected from the group consisting of

(a)



where R is an aliphatic hydrocarbon radical, R' is selected from the group consisting of aliphatic and aromatic hydrocarbon radicals, R and R' are from C_1 to C_{20}, R_1, R_2, and R_3 are aliphatic hydrocarbon radicals in the range from C_1 to C_3, and

(b)

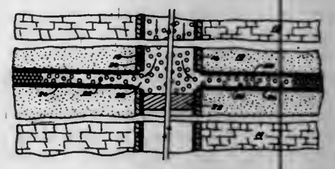


where R_1, R_2, and R_3 are alkyl groups between C_1 and C_3;

injecting the mixture into said incompetent earth formation; and

after a time interval of at least two hours, producing the formation to remove therefrom the remaining liquid content of said mixture.

3,316,967
PROCESS FOR FRACTURING AND PROPPING AN UNCONSOLIDATED SUBTERRANEAN FORMATION
Jimmie L. Huitt, Glenshaw, and John Papaila, Apollo, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware
Filed Sept. 30, 1964, Ser. No. 400,526
17 Claims. (Cl. 166—42)

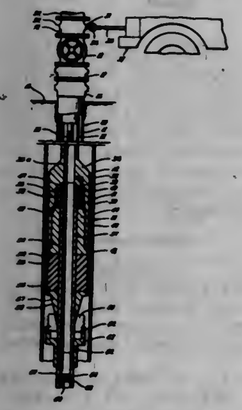


1. A method of propping a fracture in an unconsolidated subterranean rock formation penetrated by a well bore comprising injecting into the fracture a first liquid containing a plurality of lamellar supporting particles, maintaining pressure upon said liquid adapted to hold the lamellae in contact with the faces of the fracture, displacing said first liquid with a second substantially lamellae-free liquid containing a plurality of propping particles, thereafter depositing the propping particles within the fracture with at least some of the propping particles contiguous to the lamellae, thereby supporting the lamellae in contact with the fracture faces and preventing movement of formation particles into the fracture, and thereafter reducing the pressure on the liquids to leave the lamellae substantially permanently in the fracture adjacent the fracture faces.

3,316,968
DRY ICE STICKS TO RESTORE FLOW IN WELLS
Henry D. Nettles, Tyler, Tex., assignor to Pan American Petroleum Corporation, Tulsa, Okla., a corporation of Delaware
No Drawing. Filed Mar. 25, 1964, Ser. No. 354,752
7 Claims. (Cl. 166—45)

1. A method for initiating flow of liquid from a well comprising dropping solid carbon dioxide into said liquid in the conduit through which said liquid flows to the surface and producing said liquid together with gaseous carbon dioxide from said well, no gas-generating additive other than the solid carbon dioxide being used in the well.

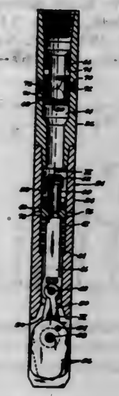
3,316,969
METHOD OF SETTING HYDRAULIC PACKERS
Arthur W. Smith, Houston, Tex., assignor to Big Three Welding Equipment Company, Houston, Tex, a corporation of Texas
Filed July 16, 1964, Ser. No. 383,187
5 Claims. (Cl. 166—48)



1. Method for setting hydraulic packers, comprising running a hydraulic packer into a well in assembly with a well pipe, introducing fluid into the well pipe to at least partially displace liquids from the well pipe and from spaces in the well surrounding the well pipe, closing the well pipe beneath the packer, and introducing pressured inert gas into the well pipe above the closure to set the packer hydraulically.

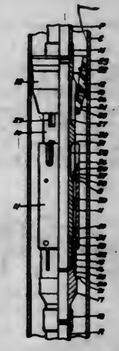
3,316,970
APPARATUS FOR CUTTING A NOTCH IN A SUBSURFACE FORMATION
Jimmie L. Huitt, Glenshaw, and Joseph L. Pekarek, Penn Hills, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware
Original application Oct. 8, 1964, Ser. No. 402,601, now Patent No. 3,254,720, dated June 7, 1966. Divided and this application Sept. 23, 1965, Ser. No. 489,635
9 Claims. (Cl. 166—55.7)

1. Apparatus adapted to be run into a cased well on the lower end of pipe for cutting a notch in a subsurface formation penetrated by the well comprising means adapted to be attached to the lower end of the pipe for cutting hydraulically a notch in the formation, said hydraulic cutting means having therein a plurality of openings for the discharge of hydraulic cutting fluid pumped down the drill pipe, said hydraulic cutting means comprising means to close said openings to said hydraulic cutting fluid pumped down the drill pipe and means to selectively open said closing means to permit the discharge of said hydraulic cutting fluid through said openings, and means secured to the lower end of said hydraulic cutting means for cutting mechanically a notch in the casing, said mechanical cutting means constructed and



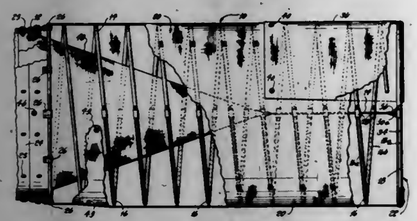
arranged to cut in the casing an opening having a width equal to at least four times the diameter of the openings in the hydraulic cutting means.

3,316,971
SAND TRAP FOR USE IN WELL BORES
Joe R. Brown, 5649 Tupper Lake, Houston, Tex. 77027
Filed Feb. 12, 1965, Ser. No. 432,253
6 Claims. (Cl. 166—99)



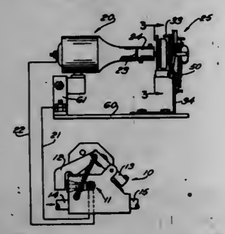
1. A device for trapping detritus settling in a well bore, comprising, a tubular mandrel connectible into a well pipe string to form a part thereof, longitudinally spaced-apart upper and lower elongate groove means in the exterior of said mandrel, a non-grooved cylindrical sealing section separating said upper and lower groove means, an upwardly facing cup-shaped catcher element slidably disposed on the mandrel for relative longitudinal movement thereon between an upper by-pass position opposite said upper groove means, an intermediate position about said sealing section, and a lower by-pass position opposite said lower groove means, a positioning sleeve means longitudinally slidably disposed about said mandrel below said catcher element for movement between an upper position adapted to stop said catcher element at said intermediate position and a lower position permitting the catcher element to attain said lower by-pass position, means resiliently biasing said sleeve means toward said upper position, and means limiting relative upward movement of said catcher element to said upper by-pass position.

3,316,972
RETRACTABLE HIGH EXPANSION FOAM DISCHARGE NOZZLE WITH SELECTIVELY CLOSEABLE SIDE AND END OPENINGS
Milton Lambert, 6236 Ellwell Crescent, Rego Park, N.Y. 11374
Filed June 11, 1965, Ser. No. 463,407
10 Claims. (Cl. 169—15)



1. A foam discharge nozzle comprising:
an open ended frame extendable to elongated operating position and retractable to minimum bulk storage position,
said frame being covered with a flexible material except for the open ends thereof, one end serving as an intake for foam development materials and the other end serving as an end discharge opening for said foam, and except for an area adjacent said end discharge opening serving as a side discharge opening,
a common closure means supported on said frame manually displaceable to selectively close said end discharge opening and said side discharge opening, and
foam developing screen means supported within said covered frame adjacent said intake end to develop foam.

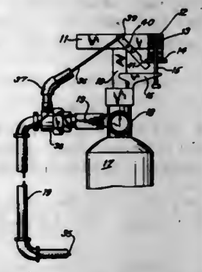
3,316,973
FIRE EXTINGUISHER SYSTEM WITH SPRING OPERATED ELECTRIC GENERATOR
David A. Young, 22 Berwick Ave., Centerdale, R.I. 02911
Filed Aug. 30, 1965, Ser. No. 483,532
5 Claims. (Cl. 169—19)



1. In a fire extinguishing system, an electrically actuated release valve, an electric circuit for actuating said valve, a mechanical source of electrical energy, spring means for storing energy for actuating said mechanical source, trip mechanism for releasing said stored energy, and fusible means for actuating said trip mechanism.

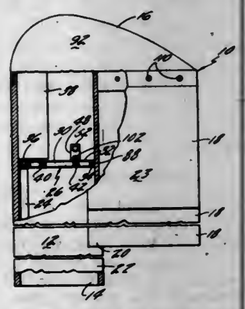
3,316,974
INTERNAL CABLE DISCHARGE DEVICE
Roger R. Cholin, 175 Saw Mill River Road, Elmsford, N.Y. 10523
Filed June 18, 1965, Ser. No. 464,991
3 Claims. (Cl. 169—26)

1. A cable device for actuating a tank of fire extinguishing chemicals comprising a tubular conduit disposed between said tank and the fire source, a flexible cable disposed within said conduit; fusible metal spring loaded cable means comprising a tubular housing removably secured to said conduit, an upright pillar fixedly secured to said housing, an axle disposed transversely in opposed walls of said housing and protuding therefrom, cable securing means secured fixedly to said axle within said housing, a post secured to said axle extension, a coil spring disposed about said axle extension and secured at one end to said housing and at the other end to said post and a fusible metal link disposed between said stationary



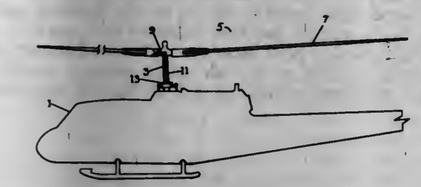
pillar and the rotatable spring loaded post spring loaded striker means disposed over and adapted to actuate said tank, and lever release means secured to the other end of said cable and engaging said striker means whereby melting of said fusible metal releases the spring loaded tension on the lever release means thereby causing the spring loaded striker means to open the tank outlet to permit passage of said chemicals through said conduit to extinguish said fire source.

3,316,975
HELICOPTER BLADE TIP SEAL
George Capowich, Shelton, Conn., and Pierce A. Meck, South Salem, N.Y., assignors to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
Filed Feb. 25, 1965, Ser. No. 435,213
20 Claims. (Cl. 170—159)



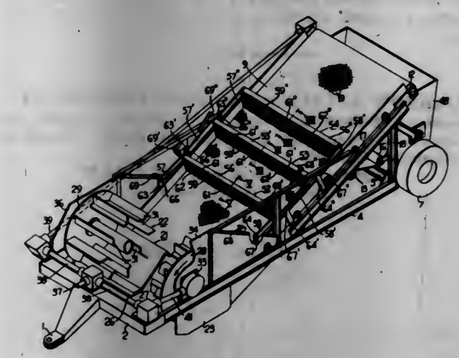
1. A helicopter blade having a root section, a tip section and an airfoil section therebetween, said blade comprising a hollow spar extending spanwise of the blade between the blade tip and root sections and which is shaped to form the forward portion of the airfoil section, a plurality of spanwise arranged blade pockets attached to said spar and shaped to cooperate therewith in forming said blade airfoil section, a spar seal located within the interior of said hollow spar and comprising a dam including a rim portion extending parallel to the blade chord and fitting snugly into the spar interior, means to support said dam in said spar, sealing means permanently bonded to said dam rim portion and the interior of said hollow spar throughout the full periphery thereof to form a gas tight seal between said hollow spar and said dam.

3,316,976
ROTOR BLADE
Cecil E. Covington, Hurst, Wesley L. Cresap, Fort Worth, and Jan M. Dress, Dallas, Tex., assignors to Bell Aerospace Corporation, Wheatfield, N.Y.
Filed Dec. 3, 1965, Ser. No. 511,389
3 Claims. (Cl. 170—159)



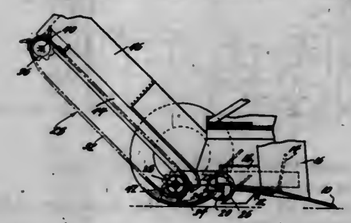
1. An integrally constructed rotor blade comprising:
(a) inboard and outboard sections,
(b) said outboard section having an increasing chord to thickness ratio proceeding from the innermost end of said outboard section to the tip of said blade and providing a substantial part of the effective lift producing force of the rotor blade,
(c) said inboard section having its leading edge substantially in line with the leading edge of said outboard section, and the innermost part of said inboard section having a lesser chord length than said outboard section.

3,316,977
SCREEN CONVEYOR WITH GROUND ENGAGING SCOOP
Russell A. Snook, Ojai, Calif., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Apr. 15, 1964, Ser. No. 359,993
2 Claims. (Cl. 171—25)



1. A mobile sifting machine comprising: a vehicle frame; a sifting device mounted on said frame and including a power driven wire screen conveyor presenting an upper run operable to move material in a generally rearward direction relative to said frame; means for feeding ground surface material to said conveyor, said means comprising a ground engaging scoop mounted on said frame forwardly of said conveyor and presenting a transverse cutting edge adapted to be operated below the surface of the ground and presenting a wall member extending rearwardly and upwardly from said cutting edge; a feeder drum rotatably mounted on said frame above the normal ground surface in cooperative relation to said scoop for moving the upper portion of raised ground material from the latter rearwardly toward said conveyor, a common drive means for said feeder drum and said conveyor and being operative to rotate said feeder drum at a peripheral speed sufficiently high so that material contacted thereby will be subjected to a throwing action which causes it to be distributed over an extended portion of said upper run of said conveyor; and flexible material agitating means mounted on said frame in cooperative relation to the upper run of said conveyor; wherein said flexible material agitating means includes an elongated back member and a brush assembly projecting from one of the longitudinally extending sides thereof; mounting arms secured to and extending transversely of said back member at opposite ends thereof; means connecting said mounting arms with said vehicle frame so as to position said back member in transversely extending overlying relation to said conveyor and so as to present said brush assembly in cooperative relation to the upper side of said upper conveyor run; wherein a plurality of said elongated back members and brush assemblies are provided in said frame in overlying relation to said upper conveyor run, and spaced from each other in the longitudinal direction of said conveyor, each of said brush assemblies being in cooperative engagement with the upper side of said upper conveyor run; wherein said mounting arms are connected with said vehicle for pivotal movement about a horizontal axis extending transversely of said conveyor; said mounting arms comprising individual supports for said brush assemblies, pivot means swingably mounting said supports on said vehicle frame so as to permit selective adjustment of said brush assemblies to operative and inoperative positions with respect to said conveyor; and stop means on said frame cooperable with said supports to determine said pivotally adjusted inoperative positions, respectively, of said brush assemblies.

3,316,978
PEANUT HARVESTING MACHINE
Lloyd Q. Hines, P.O. Box 1098, Suffolk, Va. 23434
Filed Jan. 11, 1965, Ser. No. 424,634
4 Claims. (Cl. 171—101)

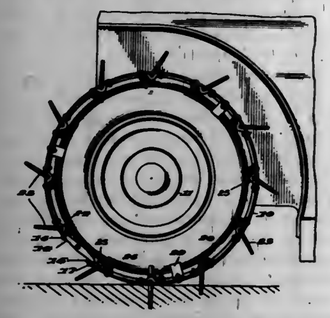


1. In a peanut digger including means for uprooting peanut vines, an open conveyor, for transporting said vines upwardly and rearwardly of said digger, comprising a pair of sprocket driven chains supported on said digger, a plurality of cross members each having a plurality of vine engaging points thereon, and bracket means rigidly securing said members to said chains, said bracket means arranged to deflect said cross members outwardly of the path of travel of said conveyor at the sprocket portions thereof, thereby momentarily accelerating the speed of said vine engaging points about said sprocket portions.

3,316,979
SOIL PENETRATING IMPLEMENT
Arnold A. Dedoes, 2070 W. Eleven Mile Road, Berkley, Mich. 48072
Filed Oct. 1, 1965, Ser. No. 491,929
3 Claims. (Cl. 172—22)

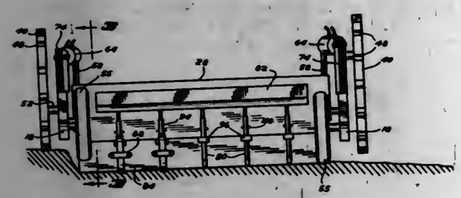
1. A demountable soil aerating rim attachment for use on a rubber tired tractor wheel comprising a normally flat spring steel metal plate member of substantially rectangular shape and .032 inch in thickness so as to be adapted to be sprung longitudinally under pressure from

the normally flat position to form a tire band fitting the circumference of the rubber tire on said tractor wheel and supporting the same on the ground without deformation thereof, said flat spring steel plate member having a plurality of elongated slot means formed in the surface



thereof and spaced laterally from the edges of the tire, a plurality of elongated tubular soil coring elements pivotally mounted for swinging movement in said slots, and means connecting the opposite ends of said plate member when wrapped around the periphery of said tractor tire.

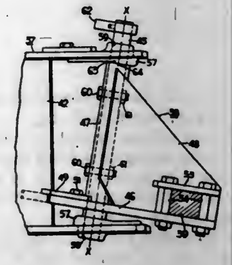
3,316,980
BASIN FORMING MACHINE FOR RANGE RESEEDING
Kenneth R. Frost, Agr. College, University of Arizona, Tucson, Ariz. 85721
Filed July 15, 1964, Ser. No. 382,772
10 Claims. (Cl. 172—90)



1. A basin forming machine comprising:
(a) an elongated frame;
(b) means at one end of the frame for pulling said machine;
(c) a scraper blade at the other end of said frame;
(d) a non-circular ground engaging wheel;
(e) an axle about which said wheel rotates;
(f) a beam pivotally connected intermediate its ends to said frame;
(g) means supporting said axle adjacent one end of said beam;
(h) a circular ground engaging wheel rotatably connected to said beam adjacent its other end, and
(i) power means for pivoting said beam in a direction to force said circular wheel downwardly against the ground and thereby lift said non-circular wheel away from the ground.

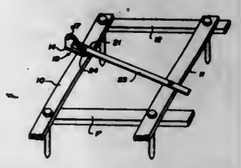
3,316,981
TRACTOR PLOW
Ralph W. Jahnisk, La Crosse, Wis., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Mar. 12, 1965, Ser. No. 439,383
2 Claims. (Cl. 172—255)

1. A semi-mounted, multi-bottom plow adapted to be attached at its forward end to lift arms of a tractor in supported relation thereto and having an adjustable height rear wheel attached to said plow in supporting relation thereto, the improvement comprising said plow being provided with a horizontally extending transverse lift bar at the forward end thereof, said lift bar being provided with trunnions at the ends thereof for connection to said lift arms, said plow including a frame for supporting a plurality of plow bottoms and including a forwardly facing U-shaped pivot bracket carried by the forward end of said frame, said lift bar being attached to a generally vertically extending pivot member, said pivot member being pivotally received at its ends within bearings carried by upper and lower portions of said bracket; the longitudinal



axis of said pivot member being inclined forwardly with the upper end of said pivot member closer to the attached tractor than the lower end thereof so that when said tractor turns relative to said plow in one direction the forward plow bottom is elevated, and wherein said plow may be adjusted relative to said tractor wherein said tractor may be operated entirely on land for plowing or with one drive wheel in the furrow and wherein such adjustment is achieved by turning said channel member upside down and laterally shifting same on the forward end of said frame without changing the inclination of said longitudinal axis and wherein said bearings are interchangeable.

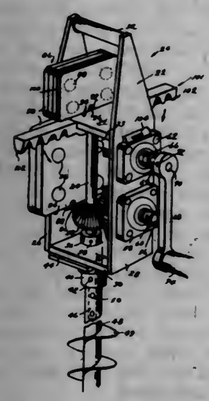
3,316,982
HARROW ATTACHMENT HOOK COMPONENT
Rheinhard Bobrowski, Morris, Manitoba, Canada, assignor to Manitoba Development Fund, Winnipeg, Manitoba, Canada
Filed Dec. 21, 1964, Ser. No. 419,639
1 Claim. (Cl. 172—677)



The comibnation of a harrow frame having first and second frame members spaced from each other, and a draft attachment comprising a strap extending across said first and second frame members, a draft member formed integrally from one piece of material and comprising a plate provided with a rectangular aperture whereby the plate forms a pair of side pieces and front and rear pieces at the sides and front and rear of the aperture respectively, a curved hook provided integrally centrally on the front edge of the front piece and extending upwardly and rearwardly and then downwardly to a free terminus disposed substantially centrally in said aperture and substantially flush with the underside of said plate, said hook being adapted to receive a link

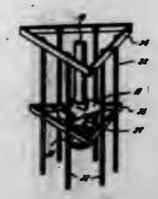
of a draft chain inserted in said aperture and passed upwardly over said free terminus and then forwardly to the front portion of said hook, the rear piece of said plate being superposed on the first frame member of the harrow frame and underlying one end portion of said strap, a single fastening element extending through said one end portion of the strap and through said rear piece of the plate and through said first frame member whereby to provide sole means for securing the same together, another fastening element securing said strap to the second frame member of the harrow frame in spaced relation from the first mentioned fastening element, and a pair of transversely spaced upturned lugs provided integrally at the rear edge of the rear piece of said plate in alignment with said side pieces thereof, the transverse spacing of said lugs being such that they abuttingly engage the opposite sides of said one end portion of said strap and the latter thereby prevents said draft member plate from turning about said single fastening element constituting said sole securing means.

3,316,983
EARTH AUGER
Louis N. Goodman, 5510 S. Claiborne Ave., New Orleans, La. 70125
Filed Oct. 9, 1964, Ser. No. 402,886
23 Claims. (Cl. 173—163)



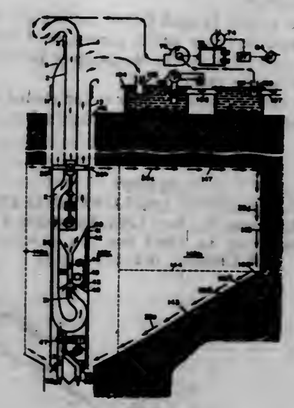
1. An earth auger comprising:
a drive shaft;
hand-balanced frame means mounted solely on one end portion of said drive shaft, said drive shaft being rotatably journalled in said frame means and axially keyed to prevent relative axial movement with respect to said frame means;
auger means secured to the other end of said drive shaft and rotatably driven by said drive shaft;
driving means supported by said frame means and operatively connected with said drive shaft for imparting a rotatable movement to said drive shaft so as to rotate said auger means; and
removable weight means operatively connected with said auger means for increasing the bite thereof during rotation within the earth, said weight means being supported by said frame means in a position substantially within said confines of said frame means for aligning the center of gravity of said earth auger as closely as possible to the axis of said auger means thus enabling the earth auger to be balanced more easily.

3,316,984
WELL APPARATUS
Marvin R. Jones, Houston, Tex., assignor to Cameron Iron Works, Inc., Houston, Tex., a corporation of Texas
Filed Nov. 20, 1964, Ser. No. 412,758
6 Claims. (Cl. 175—7)



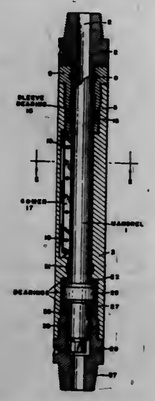
1. In a system for guiding equipment between water level and a wellhead at an underwater level, at least three flexible cables having their lower ends connectable to the wellhead for extension upwardly therefrom in circumferentially spaced apart relation, means on the upper ends of the cables for holding them taut, and rigid bands connecting the cables at vertically spaced apart levels.

3,316,985
UNDER-REAMING MACHINE
Anderson Billy Fly, Amarillo, Tex., assignor to Hydro-Jet Services, Inc., Amarillo, Tex., a corporation of Texas
Original application Dec. 23, 1959, Ser. No. 861,557, now Patent No. 3,155,177. Divided and this application Dec. 18, 1963, Ser. No. 331,435
8 Claims. (Cl. 175—24)



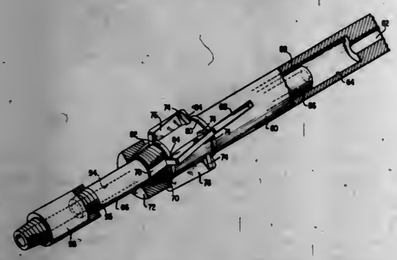
1. A device for under-reaming a well and digging an underground tunnel comprising a vertically movable support at the surface, rotatably supported therefrom underground a substantially rigid housing containing a plurality of outwardly directed cutting jets, a valve in said housing, a fluid supply line in said housing operatively connected to said jets through said valve, an underground pump for directing fluid upward through said housing, said pump having an outlet, said outlet being located in said housing and below said jets, and said pump operatively connected to said inlet line, and a control means for said pump and said cutting jets being located at the surface.

3,316,986
ROTARY JAR-TYPE WELL TOOL
Willis P. Orr, Tyler, Tex., assignor, by mesne assignments, to Esso Production Research Company, Houston, Tex., a corporation of Delaware
Filed Mar. 22, 1965, Ser. No. 441,752
4 Claims. (Cl. 175—297)



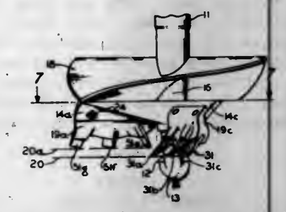
2. Apparatus for connection to a drill string for imparting a rotary jar to a drill string section in the lower end of a borehole, comprising:
an elongated mandrel;
means for coupling said mandrel to an upper pipe string section;
a sleeve section extending around the lower portion of said mandrel;
means for connecting said sleeve section to a lower pipe string section;
hammer spline means on said mandrel radially extending therefrom;
an internal cavity in said sleeve section for accommodating said hammer spline means, said cavity forming an anvil shoulder for reception of blows from said hammer spline means; and
means for holding said hammer spline means away from said anvil until large torque is exerted on said mandrel.

3,316,987
SELF-CLEANING DRILL STRING TOOL
James H. McManus, Jr., Box 1994, Lafayette, La. 70501
Filed Dec. 10, 1964, Ser. No. 419,275
19 Claims. (Cl. 175—313)



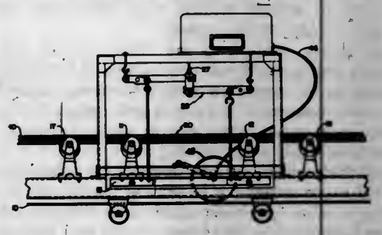
14. A self-cleaning drill string tool comprising: a sleeve having means at one end to connect said sleeve to the drill string, said sleeve having at least one elongated slot; a mandrel slidably mounted in said sleeve with one end of said mandrel directed out of said sleeve, said one end of said mandrel having means to connect said mandrel to the drill string; at least one blade mounted on said mandrel and extending through a portion of the elongated slot in said sleeve and being slidable in the slot; and wiping means mounted on said sleeve adjacent said slot whereby the relative sliding of said blade and the slot will cause said wiping means to wipe caked material from said blade.

3,316,988
AUGER HEAD WITH THREE RADIAL ARMS
Gerald A. Petersen, Sunnyvale, Calif., assignor of one-half to Anita E. Petersen, Saratoga, Calif.
Filed Sept. 21, 1964, Ser. No. 397,708
4 Claims. (Cl. 175—391)



1. An auger head having a hub, first, second and third arms extending from said hub approximately radially and equiangularly in plan and slightly upwardly-outwardly in elevation, a first, second and third tooth holder detachably connected to said first, second and third arms, respectively, and each slanting downwardly, forwardly, said first holder bent downwardly and having its forward edge terminating at a lower elevation than said second and third holders, a first plurality of first tooth attachment means on said first holder spaced at different radial distances from the axis of said head, first teeth in each said first tooth attachment means positioned to dig concentric furrows separated by ridges as said head revolves, a second plurality of second tooth attachment means on said second holder, second teeth in each said second tooth attachment means, a third plurality of third tooth attachment means on said third holder, third teeth in each said third tooth attachment means, said second and third teeth being radially staggered relative to said first teeth to slice off said ridges left by said first teeth, said second and third teeth being higher in elevation than said first teeth, said second and third teeth being radially staggered relative to each other, whereby said second teeth slice off the insides of said ridges and said third teeth slice off the outsides of said ridges.

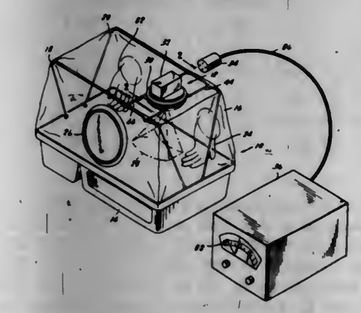
3,316,989
MOVING CONVEYOR LOAD SCALES
David M. L. Griffiths, 1316 W. 11th Ave., Vancouver, British Columbia, Canada
Filed June 13, 1966, Ser. No. 557,139
13 Claims. (Cl. 177—16)



1. In conveyor load weighing apparatus including a fulcrumed scale beam normally in a neutral position and to which is operatively connected a weighing frame having spaced rollers over which a conveyor belt runs when

the apparatus is in operation, a load weight accumulator, a variable speed drive for the accumulator, said variable speed drive being driven in accordance with the speed of the conveyor, a reversible electric motor connected to the variable speed drive to operate the latter to increase and decrease the speed of operation of the accumulator as the load on the conveyor belt travelling over the weighing frame increases and decreases, resilient means connected to the variable speed drive and to the scale beam to counterbalance the conveyor load on the weighing frame, and switch means for controlling the motor closable by a very small movement of beam from its neutral position as the conveyor load increases and decreases to cause the motor to operate the variable speed drive respectively to increase and decrease the speed of operation of the accumulator, said resilient means being moved by said variable speed drive to move the beam back to its normal position to open the switch means immediately after each change in the conveyor load.

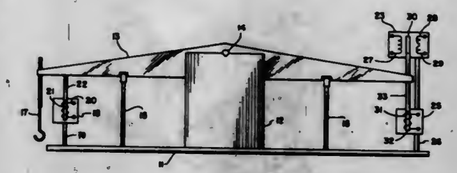
3,316,990
ANIMAL ISOLATOR WITH WEIGHING SYSTEM
Leslie Bruce Wilner, Palo Alto, and Bernard A. Shoor, Menlo Park, Calif., assignors, by mesne assignments, to Becton Dickinson and Company, East Rutherford, N.J., a corporation of New Jersey
Filed Mar. 16, 1965, Ser. No. 440,207
18 Claims. (Cl. 177—132)



1. An isolator with weighing means comprising:
an environmental enclosure having at least one wall with an opening; a member sealed to the enclosure having a force transmission surface extending across said opening;
a weighing pan means within the enclosure for receiving the object to be weighed;
a readout means exterior of the enclosure for registering the weight of the object to be weighed on the pan means; and
means for detachably interconnecting the weighing pan means and readout means through the member in such manner as to prevent leakage into said environmental enclosure from the surrounding atmosphere.

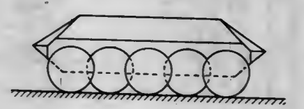
3,316,991
AUTOMATIC FORCE MEASURING SYSTEM
Donald R. Rummler, Hampton, Va., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed May 26, 1965, Ser. No. 459,138
8 Claims. (Cl. 177—210)

1. In a weighing device including a weighing beam a taring device comprising: a solenoid including a core and a coil with the core rigidly attached to said weighing beam; first and second equal resistors connected in series across a voltage source; a third resistor, a potentiometer and a fourth resistor connected in series across said voltage source with the resistance of the third resistor being equal to the sum of the resistances of the potentiometer and the fourth resistor; and means for connecting said coil between the slider of said potentiometer and the junction of said first and second resistors whereby



when the slider is positioned to include the entire resistance of the potentiometer in a leg of the resulting bridge with the fourth resistor no current will flow through the coil and when the slider is moved the current flow through the coil will be substantially directly proportional to the movement of the slider and a corresponding force will be applied to said weighing beam.

3,316,992
STEERING MECHANISM FOR VEHICLES WITH NON-DIRIGIBLE WHEELS
Karl Schindler, Frankfurt am Main, Germany, assignor to Henschel-Werke A.G., Kassel, Germany, a corporation of Germany
Filed Aug. 25, 1964, Ser. No. 391,862
4 Claims. (Cl. 180—6.2)



1. A method of steering a vehicle having a drive shaft and non-dirigible wheels which comprises superimposing rates of revolution for individual pairs of opposed wheels, each pair being mounted on a common axis, on that rate provided by the drive shaft, according to the equation:

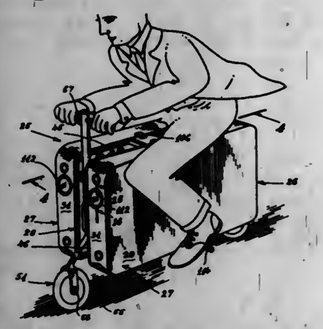
$$n_{L0}:n_{L1}:n_{Lx}=B_0:\frac{B_1^2+l_1^2}{B_1}:\frac{B_2^2+l_2^2}{B_2}:\frac{B_x^2+l_x^2}{B_x}$$

in which n_{L0} is the rate of revolutions to be superimposed on wheels mounted on a first axis passing through the rotational steering center of the vehicle and having a tread B_0; n_{L1}, n_{L2} and n_{Lx} are rates of revolutions to be superimposed on wheel pairs mounted at different distances from the first axis and having treads B_1, B_2 and B_x and wheelbases l_1, l_2 and l_x, respectively, wherein said superimposed rates of revolution are in opposite directions for each wheel of a pair.

3,316,993
MOTORIZED TRAVELING CASE SCOOTER TO CONVEY PASSENGER
Dorothea M. Weltzner, 8 E. 62nd St., New York, N.Y. 10021
Filed June 1, 1965, Ser. No. 460,027
8 Claims. (Cl. 180—33)

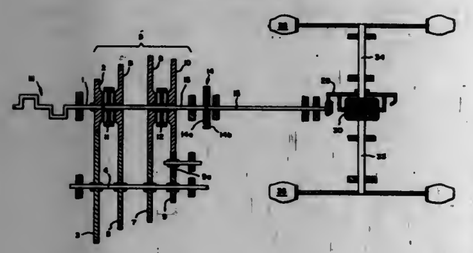
1. In a traveling scooter case the combination of a case, handle carrying means on said case for carrying said case, caster wheel means on said case for towing said

case, motorized scooter means in said case to provide riding means on said case, a pair of spaced-apart end sections, and an intermediate section, said end sections



providing storage means for various articles and said intermediate section between said end sections providing housing means for said motorized scooter means.

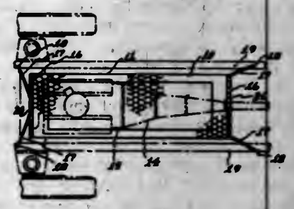
3,316,994
POWER TRANSMISSION ARRANGEMENT
Fritz Bührer, Hinwil, Zurich, Switzerland
Filed July 9, 1964, Ser. No. 381,414
5 Claims. (Cl. 180—53)



1. A power transmission arrangement for power driven vehicles comprising a motor, wheel driving means for driving the wheels of the vehicle, a synchromesh transmission having constantly rotating members, one of which is an input shaft directly coupled to the motor and being driven concurrently by said motor at all times when said motor is operative, and said members of said transmission further including synchronizing elements and an output shaft, a plural element clutch of the type for coupling two relatively rotating shafts wherein one of the elements of said clutch is directly coupled to the output shaft of said transmission and wherein the element of the clutch is coupled to the wheel driving means, whereby when it is desired to change gears, the clutch is disengaged and only the synchronizing elements and output shaft of the transmission and the said one element of the clutch need have the speed thereof changed to the synchronizing speed.

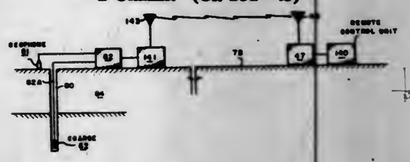
3,316,995
MOTOR VEHICLE OIL DRIP GUARD
Russell A. Fay, 8244 E. Camelback Road, Scottsdale, Ariz. 85251
Filed May 7, 1965, Ser. No. 454,049
2 Claims. (Cl. 180—69.1)

1. A motor vehicle oil drip guard comprising in combination:
(A) a folded sheet of netting consisting of,
(B) an upper vehicle engaging portion,
(C) and a downwardly swingable bottom portion,
(D) an absorbent pad between said upper and bottom portions,



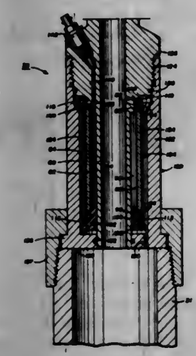
(E) spreader strips fixed to the ends of said upper portion of said netting,
(F) and tension means connected between said spreader strips and the vehicle chassis.

3,316,996
SEISMIC SYSTEM WITH A RADIO COMMUNICATIONS LINK CONNECTING THE RECORDING AND SHOT STATIONS
John D. Ball and Charles J. Clarke, Houston, Tex., assignors, by mesne assignments, to Esso Production Research Company, Houston, Tex., a corporation of Delaware
Filed Dec. 7, 1964, Ser. No. 416,325
2 Claims. (Cl. 181—5)



1. In seismic prospecting wherein an explosive charge is detonated in a shot hole and resulting seismic waves are detected by a plurality of geophones including a given geophone stationed at the mouth of the shot hole, apparatus for controlling the detonation of the explosive charge from a remote location from the shot hole and for measuring the travel time of seismic waves to said given geophone, comprising:
first and second signal generating means at said remote location for producing electrical signals of different frequency;
a communications link between said remote and shot hole locations;
means for selectively connecting said first and second signal generating means to said communications link for transmitting the signals produced thereby to said shot hole location;
means at said shot hole location connected to said communications link to provide a sensible indication of the output signal of said first signal generating means;
detonating means at said shot hole location for detonating an explosive charge responsive to a detonating signal applied thereto;
gating means for gating a detonating signal to said detonating means responsive to a firing signal applied thereto;
first circuit means connected to said communications link for producing said detonating signal responsive to reception of the output signal of said first signal generating means thereby; manually actuatable means connected to said gating means and to said first circuit means for conducting the detonating signal of said first circuit means to said gating means upon manual actuation thereof; and
second circuit means connected to said communications link, to said gating means, and to said first circuit means, responsive to simultaneous reception thereby of the output signal of said second signal generating means and the detonating signal from said first circuit means to produce said firing signal for said gating means.

3,316,997
ECHO RANGING APPARATUS
James N. McCoy, Box 1388, Wichita Falls, Tex. 76307
Filed Feb. 11, 1965, Ser. No. 431,837
14 Claims. (Cl. 181—0.5)



1. In an apparatus for determining the location of the liquid level in a well having a string of tubing assembled therein and a flow channel communicating with the well, the combination which comprises:
a housing for connection to the flow channel,
barrel means for supporting an explosive source centrally in the housing forming a flow channel extending centrally through the housing for directing energy from the source into the flow channel,
a pressure sensitive detector disposed symmetrically around the barrel means, and
shielding means for the detector having a restricted flow port therethrough communicating with the well for applying variations in pressure in the flow channel to the detector.

3,316,998
INDEXABLE ROTATING JOINT FOR STETHOSCOPE
Albert E. Krug, Wyckoff, N.J., assignor to Becton, Dickinson and Company, Rutherford, N.J., a corporation of New Jersey
Filed Feb. 14, 1966, Ser. No. 527,369
7 Claims. (Cl. 181—24)

1. In a stethoscope having a microphone body with a plurality of microphones, a first cylindrical recess in the center of said microphones, and having openings in the apexes of the cups of the microphones communicating with said first recess, a second cylindrical recess of larger diameter in coaxial alignment with said first recess, the improvement comprising:
(a) a rotatable tube located within said recesses, one end of said tube being connected to the sound tube of said stethoscope,
(b) an opening in said rotatable tube for interchangeable alignment with the openings in said microphone cups,
(c) looking means inserted within said rotatable tube at the end opposite that connected to said sound tube,
(d) indentations in said body, provided in a shoulder formed by said first cylindrical recess and said second cylindrical recess, for seating said locking means to provide for alignment of said rotatable tube opening with one of said microphone cup openings,



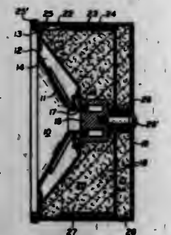
(e) a compression spring in contact with the end of said rotatable tube near said locking means, and
(f) a cap inserted in said second recess forcing said spring against said rotatable tube.

3,316,999
ACOUSTICAL SHELL CONSTRUCTION
John Christopher Jaffe, 2 Stonecrop Road, Norwalk, Conn. 06851, and Paul Kleinman, White Plains, N.Y.; said Kleinman assignor to said Jaffe
Continuation of application Ser. No. 217,853, Aug. 20, 1962. This application Nov. 5, 1965, Ser. No. 514,164
6 Claims. (Cl. 181—30)



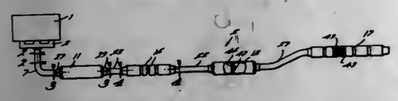
1. An upright acoustical panel comprising a sound directing panel and a reinforcing panel, said sound directing panel having a main portion and an upper portion, said main portion being concave-convex about a vertical axis and having flanges at the vertical side edges thereof, said flanges extending rearwardly in a direction opposite to said convex side of said main portion, said convex side defining the front of said panel, said reinforcing panel extending between said side flanges and overlying the concave side of said main portion, said upper portion extending forwardly in a smooth arc above said convex side, the outermost end of said upper portion being uniplanar about a horizontal axis, the intermediate section of said upper portion being concave-convex and merging smoothly between said uniplanar upper portion and said concave-convex main portion.

3,317,000
ELECTROACOUSTIC TRANSDUCER
Stephen L. Heldrich, 29 Richmond Drive, Darien, Conn. 06820
Filed Feb. 1, 1966, Ser. No. 524,015
9 Claims. (Cl. 181—31)



1. An electro-acoustic transducer for generating acoustic pressure variations to a fluid medium, comprising
a housing including a wall,
means for generating acoustic pressure variations to a fluid medium within said housing and disposed within an opening in said wall of said housing, said housing comprising
a first enclosure defining a first chamber,
a second enclosure defining a second chamber,
a first wall of one of said enclosures being disposed contiguous to a second wall of either one of said enclosures and defining a narrow air duct conductor between said first and second walls,
said first chamber communicating with said second chamber, and
said air duct conductor being of substantial length relative to the distance between said first and second walls.

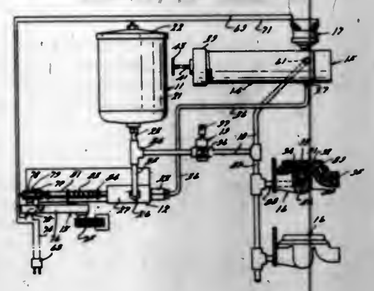
3,317,001
MUFFLER
Walter H. Powers and Ervin C. Lentz, Racine, Wis., and Karl K. Kerns, Jackson, Mich., assignors to Walker Manufacturing Company, Racine, Wis., a corporation of Delaware
Continuation of application Ser. No. 321,007, Nov. 4, 1963. This application May 16, 1966, Ser. No. 550,574
10 Claims. (Cl. 181—36)



1. A silencing system for an internal combustion engine having an exhaust manifold comprising a section of laminated pipe for connection at one end directly to the exhaust manifold and forming means for silencing side noises, an expansion chamber directly connected to the other end of the laminated pipe and forming means for silencing notes, a series of spit chambers at the outlet end of the system and forming means for silencing roughness, and conduit means connecting said spit chambers to said expansion chamber.

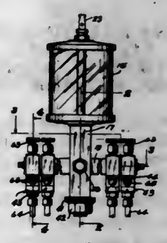
3,317,002
FLUID DISTRIBUTING SYSTEM
William G. McKenzie, Racine, Wis., assignor to Walker Manufacturing Company, Racine, Wis., a corporation of Wisconsin
Filed Feb. 8, 1965, Ser. No. 430,836
7 Claims. (Cl. 184—7)

3. In a fluid distributing system, a reservoir, a pump having an inlet port connected to said reservoir, electrically operated driving means for said pump, an accumulator having a piston slidable in a collection chamber between a discharge position and a fully charged position, resilient means urging said piston toward its discharge position, means for adjusting the stroke of said piston between said positions, a connection between said chamber and the pump outlet port, a relief valve having an inlet port connected to said pump outlet port and an outlet port, means in said relief valve responsive to the attainment of a relatively high predetermined pressure at said relief valve inlet port for opening said relief valve and responsive to reduction of pressure at said relief



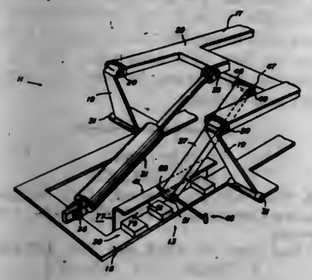
valve outlet port to a relatively low value for closing said relief valve, means connected to said relief valve outlet port for supplying a plurality of metering valves, a bleedoff line leading from the relief outlet port and connected to said reservoir, an adjustable restriction in said bleedoff line, and a pressure-responsive electrical switch connected to said relief valve outlet port and controlling the power supply to said pump driving means, whereby said pump will be deactivated whenever the pressure at said relief valve outlet port is above a predetermined pressure below the relatively low pressure at which said relief valve recloses.

3,317,003
MULTIPLE VALVE FLUID FEEDER
Gus J. Lukas, Manitowoc, Wis., assignor to Lube Devices, Inc., Manitowoc, Wis., a corporation of Wisconsin
Filed June 26, 1964, Ser. No. 378,116
7 Claims. (Cl. 184—31)



1. A multiple valve fluid feeder comprising a manifold, a plurality of valves mounted thereon, a source of fluid for said manifold, a mounting block, means for mounting said manifold against said block, means for connecting said source to said block, said block having an interior passage communicating from said source to said manifold, and a mounting bracket on said block by which both said source and said manifold are supported by said bracket through said block, the means for connecting the manifold to the block being releasable independently of the means for connecting the source to the block to facilitate assembly and disassembly of the manifold and its valves as a unit with respect to the feeder and without affecting the mounting of the said source on said block.

3,317,004
SAFETY DEVICE FOR A VEHICLE LIFT
Nelson C. Harrison, Jr., Memphis, Tenn., assignor to Dover Corporation, New York, N.Y.
Filed Jan. 14, 1966, Ser. No. 520,611
6 Claims. (Cl. 187—8.5)



1. In a vehicle lift of the type including a base, a superstructure, and means for moving said superstructure in an arc relative to said base and uparallel to said base between raised-rearward and lowered-forward positions relative to said base; a safety device for said vehicle lift comprising an inclined safety leg having an upper end and a lower end, means pivotally attaching said safety leg adjacent said upper end thereof to said superstructure with said safety leg extending forwardly and downwardly to its termination at said lower end, said distal lower end of said safety leg being movable between an upper position and a lower position, ratchet-like engagement means for coaction with said distal lower end of said safety leg when in said lower position to permit said lower end of said safety leg to move rearwardly when said vehicle lift is moved towards rearward-raised positions and to stop said lower end of said safety leg in its forward movement when said vehicle lift is urged towards forward-lowered positions whereby said safety leg permits raising of said superstructure but prevents accidental lowering thereof, a track fixedly mounted relative to said base, holding means attached to said safety leg and adapted for selective movable engagement with said track for holding said lower end of said safety leg in said upper position away from said ratchet-like engagement means to permit said safety leg to move forwardly and said superstructure to be lowered.

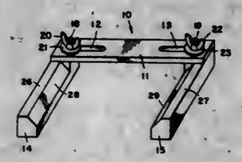
3,317,005
ELEVATOR SYSTEM
Arthur H. Kehoe, 67 W. Pierrepont Ave., Rutherford, N.J. 07070
Filed Apr. 21, 1965, Ser. No. 449,712
8 Claims. (Cl. 187—16)

1. In an elevator system, means defining a vertical elevator shaft, at least one gear rack extending up through said shaft, a source of continuous rotary power situated at a fixed position along said shaft, a chain loop extending along the length of said shaft and connected to be rotated by said power source, a plurality of elevator cars arranged to move along said shaft, each of said cars having pinion gear means rotatably mounted thereon and positioned to mesh with said gear rack, at least one input sprocket located on each car, said input sprockets being positioned to engage and become rotated by movements of said chain, and an epicyclic train mounted on each car, each epicyclic train having an input section, an output section and a control section, said input section being rotatably connected to said input sprocket, said output section being rotatably connected to said pinion gear



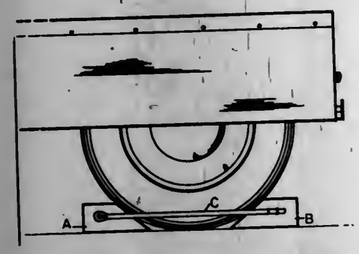
means, and said control section being connected to controllable braking means on said car, whereby operation of said braking means effectively controls the direction of power from said chain loop to said pinion gear means for driving each car along said shaft.

3,317,006
FOLDING WHEEL CHOCK
Maurice W. Patterson, 3841 E. Stop 8 Road, Indianapolis, Ind. 46227
Filed Dec. 23, 1965, Ser. No. 516,068
2 Claims. (Cl. 188—32)



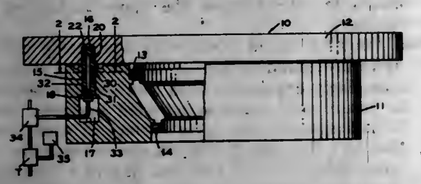
1. A vehicle wheel chock comprising
a spanner formed with longitudinally-extending slot means therethrough,
a pair of blocker arms,
upstanding shank means carried by each of said arms adjacent one end thereof,
said shank means being movably receivable in said slot means to extend above the upper surface of said spanner,
and fastening means operatively engageable with the upwardly-extending portions of said shank means and clampingly engageable with said spanner selectively to secure said arms in adjusted positions relative to said spanner, the upper surface of each arm including a flat area at said one end defining the maximum height of said arm and having a longitudinal dimension substantially equal to the width of said spanner, said shank means being substantially centered in said area, the combined length of said arms measured from said shank means to the distal ends of said arms being less than the distance between the remote ends of said slot means to permit pivotal folding of said arms under said spanner.

3,317,007
CONTINUAL-SELF-ADJUSTING WHEEL CHOCK UNIT
Robert C. Braun, 20 Strawberry Hill Road, Hillsdale, N.J. 07642
Filed Feb. 3, 1966, Ser. No. 527,394
1 Claim. (Cl. 188—32)



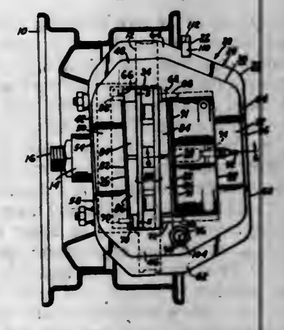
A continual-self-adjusting wheel chock unit for engaging the surface of a tire affixed to the wheel comprising:
a pair of blocks;
each of said blocks having two opposed, parallel sides, a bottom surface and a top surface connecting the parallel sides and a face connecting the bottom surface and the top surface, the face making an acute angle with the bottom surface;
a first, cloth covered elastic line having a first end and a second end, the first end being permanently attached to one of the parallel sides of one of the pair of blocks, the second end being permanently attached to one of the parallel sides of the other of the pair of blocks such that the faces of the pair of blocks face each other and are drawn toward each other by the contraction of the first, cloth covered elastic line;
a peg mounted in the other of the parallel sides of one of the pair of blocks;
a second, cloth covered elastic line having a first end and a second end, the first end having a loop therein to engage the peg, the second end being permanently attached to the other of the parallel sides of the other of the pair of blocks;
the faces of the pair of blocks being drawn toward each other to snugly engage the surface of a tire when the loop is engaged with the peg to thereby prevent the wheel, to which the tire is affixed, from moving.

3,317,008
INDEXING AND POSITIONING SYSTEM
Gordon H. Porath, Detroit, and Robert J. Kleias, Livonia, Mich., assignors to Century-Detroit Corporation, Detroit, Mich., a corporation of Michigan
Filed Sept. 15, 1965, Ser. No. 487,413
24 Claims. (Cl. 188—69)



1. In an indexing and positioning system, the combination comprising
a base member,
a work support member mounted for movement relative to said base member,
at least one opening in one of said members,
a locating pin movably mounted on the other of said members,
means for projecting said locating pin into the opening,
one of said pin and said opening having a series of circumferentially spaced pressure recesses therein engaging the surface of the other of said pin and said opening in an operative position,
and a fluid restrictor associated with each said pressure recess,
means for directing fluid under pressure through each said restrictor to the respective pressure recess,
whereby when said pin is moved into said opening and fluid is applied to each said pressure recess, said members are held in predetermined spaced relation to one another by flow of a continuous film of fluid from each said pressure recess between the surfaces of said pin and said opening.

3,317,009
DISC BRAKE
Edward H. Warwick, Englewood, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Apr. 21, 1965, Ser. No. 449,841
2 Claims. (Cl. 188—73)

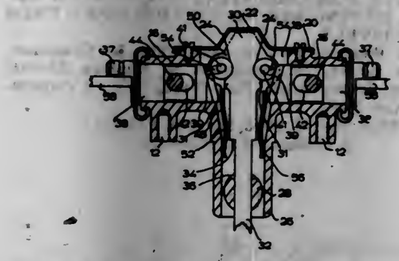


1. A disc brake caliper having a hydraulic cylinder assembly, first and second brake shoe and lining members movable substantially transversely of a disc to be braked thereby by said hydraulic cylinder assembly, a reaction and support member comprising plate means encircling said hydraulic cylinder assembly and said brake shoe and lining members and taking brake apply reaction force substantially transversely of the disc to be braked and taking brake torque reaction forces substantially parallel to the disc to be braked, and means pivotally mounting said reaction member near one end thereof for pivotal movement substantially transversely of the disc to be braked, said last means including a guiding section and an end portion extending adjacent the other end of said reaction member and projecting into the path of pivoting movement of said reaction member to engage an edge of the reaction member upon a predetermined amount of brake lining wear.

3,317,010
VEHICLE BRAKES
Charles Newstead, Walsall, England, assignor to Girling Limited, Birmingham, England, a British company
Filed Jan. 27, 1966, Ser. No. 523,421
Claims priority, application Great Britain, Oct. 27, 1965, 45,398/65
7 Claims. (Cl. 188—78)

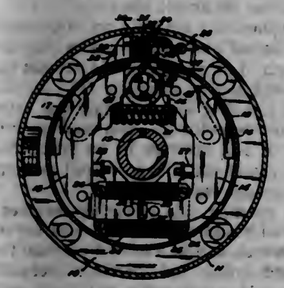
1. In a vehicle bake assembly comprising a rotor, at least one friction element displaceable towards and away from braking engagement with said rotor, an actuator

housing, a wedge member movable in the housing, friction element displacing means in said housing including complementary inclined surfaces one on each side of said wedge member, and at least one roller interposed between each inclined surface and the cooperating surface of said wedge member, the improvement comprising a cage retaining and guiding the rollers between the wedge member and said inclined surfaces, said cage being movable in the direction of longitudinal movement of the wedge member and additionally being capable of tilting relative to said wedge member, passage means in the housing, and bearing means on the cage cooperating with the wall of said passage means, said housing comprising a support formed with a central chamber, a pair of cylinders ex-



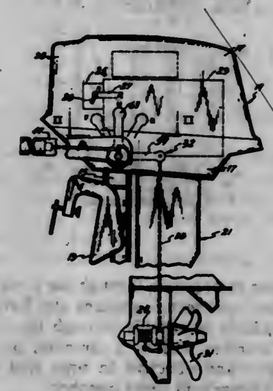
tending in opposite directions from said support and having their ends opening directly into said chamber of the support, and a plunger member slidable in each cylinder and having an inclined inner end, the wedge member having a wedge-shaped, free inner end presenting within said chamber, inclined surfaces which are in spaced relation to corresponding inner end surfaces of the plunger members, and wherein said roller cage comprises a body portion circumscribing the wedge member, a first pair of arms extending from one end of said body portion into said chamber for supporting rollers therein, and a second pair of oppositely directed arms extending from the opposite end of the body portion and shaped at their free end regions to provide a rocking bearing between the cage and the housing.

3,317,011
LOW PRESSURE, TORQUE-SUSTAINING FRICTIONAL COUPLING
James A. Mason, Shaker Heights, Ohio, assignor to Fawick Corporation, a corporation of Michigan
Filed July 7, 1965, Ser. No. 469,999
6 Claims. (Cl. 188—171)



1. A torque-sustaining frictional coupling comprising first and second relatively rotatable structures, said first structure including a frictional-engagement member composed primarily of aluminum with silicon particles embedded therein, said second structure including a friction wear pad in confronting relationship to said frictional-engagement member of the first structure, means for selectively bringing said frictional-engagement member and said wear pad into torque-sustaining frictional engagement with each other at a maximum pressure between them of less than 50 pounds per square inch, and said wear pad being composed of material which is elastomeric under the pressure of said torque-sustaining engagement.

3,317,012
ENGINE
Richard C. Heidner, Galesburg, and Charles E. Johnson, Jr., Waukegan, Ill., assignors to Outboard Marine Corporation, Waukegan, Ill., a corporation of Delaware
Filed Jan. 14, 1965, Ser. No. 425,490
8 Claims. (Cl. 192—096)

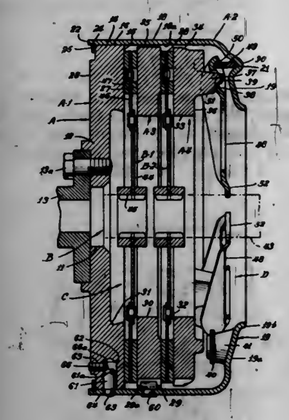


1. A device comprising support means, a throttle regulating member adapted to be connected to a throttle to afford throttle regulation in response to movement of said throttle regulating member, means mounting said throttle regulating member on said support means for throttle regulating movement, a clutch actuating member adapted to be connected to a clutch to afford operation of said clutch in response to movement of said clutch actuating member, and means mounting said clutch actuating member on said support means for clutch operating movement, wherein the improvement comprises mounting one of said throttle regulating member and said clutch actuating member for sliding movement and mounting the other of said throttle regulating member and said clutch actuating member for rotary movement about said one member, and including interlocking means on said clutch actuating member and on said throttle regulating member for limiting movement of each of said members in accordance with the setting of the other of said members.

3,317,013
MULTIPLE PLATE CLUTCH CONSTRUCTIONS
Richard E. Smirl, La Grange Park, Ill., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois
Filed Dec. 30, 1964, Ser. No. 422,182
3 Claims. (Cl. 192—69)

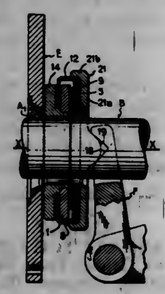
2. A clutch device comprising: a rotating driving member having an axis of rotation, a plurality of interleaved driven elements and pressure elements interconnected with said driving member, said elements being stacked in alignment with said driving member, a cover member having a first wall extending along and adjacent to the end of said stacked elements opposite from said driving member; said cover member also having a second wall extending along said axis and about the peripheries of said stacked elements, actuating means operating between said

cover member first wall and said stacked elements effective to promote selective conjoint rotation, and means for securing a terminal edge of said cover member to said driving member, said securing means comprising at least one pin slidably carried by said



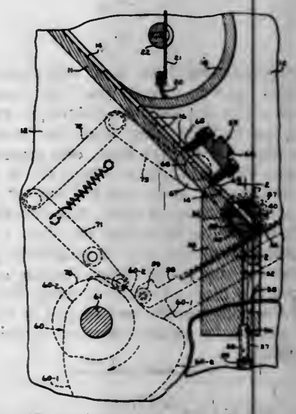
driving member inaccessible through the front face of said driving member, said securing means also having a second member threadably adjustable through the front face of said driving member and in a direction parallel to the axis of rotation and effective to urge said pin radially outwardly to engage said cover member.

3,317,014
THRUST BEARINGS
Alfred Pitner, Paris, France, assignor to Nadella S.A., Rueil-Malmaison, France, a French body corporate
Filed Sept. 1, 1964, Ser. No. 393,595
Claims priority, application France, Sept. 10, 1963, 947,018; Dec. 12, 1963, 956,940
22 Claims. (Cl. 192—98)



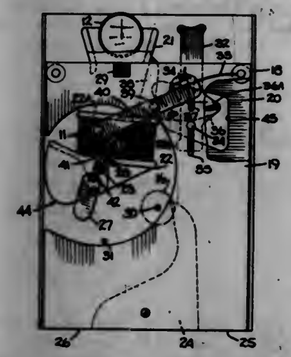
22. A clutch mechanism comprising a rotary member for actuating the clutch halves, a control or declutching fork, and a thrust bearing comprising elongated rolling elements, a cage for the rolling elements, a first bearing race member and a second bearing race member, the race members being relatively rotative and displaceable radially relative to each other and having plane faces between which the rolling elements are engaged, a disc connected to the first race member and disposed adjacent said rotary member, the bearing further comprising a lubricant retaining housing connected to the second race member, the housing having an outer cylindrical wall dimensioned to permit a limited degree of radial displacement of the two race members, and a pair of axially spaced radial walls extending towards the axis of the bearing so as to create, over a reduced diameter, a centrifugal lubricant retaining pocket, the fork being fitted with a thrust ring of annular dished configuration for receiving the bearing housing, the internal diameter of said thrust ring being at least equal to the diameter of the centre opening of the adjacent walls of the bearing housing and at the most equal to the inner diameter of the path of circulation of the bearing rolling elements.

3,317,015
APPARATUS FOR ORIENTING ELONGATED ARTICLES HAVING ROUND AND RECESSED ENDS RESPECTIVELY
Norman J. Buggele, Berwyn, and Willis K. Grassauer, Downers Grove, Ill., assignors to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York
Filed Mar. 7, 1966, Ser. No. 532,311
6 Claims. (Cl. 193—43)



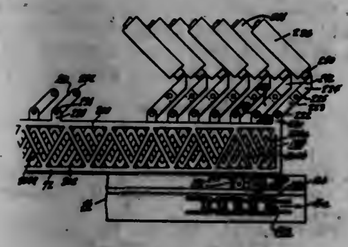
1. A device for orienting elongated articles having round ends and recessed ends respectively which comprises:
an orienting member having an aperture therethrough for receiving an article therein;
an element mounted movably on said member with a portion thereof extending laterally into said aperture in the path of movement of the articles for engaging the recessed end of an article fed into said aperture recessed end first and retaining the article against movement therethrough, said element being moved laterally of said aperture by an article fed into said aperture round end first to permit movement of the article through said aperture;
means for rotating said orienting member to a first position with said aperture disposed for receiving an article therein, and to a second position for reversing a retained article fed thereinto recessed end first whereby said article may exit from said aperture round end first;
means for randomly feeding the articles successively into said aperture of said orienting member in the first position; and
means for receiving the articles in oriented relation from said orienting member.

3,317,016
COIN SELECTING DEVICE
Pierre P. Turillon, Ramsey, N.J., assignor to The International Nickel Company, Inc., New York, N.Y., a corporation of Delaware
Filed May 21, 1965, Ser. No. 457,694
7 Claims. (Cl. 194—100)



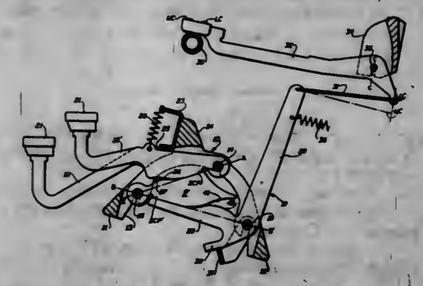
1. In a coin selector device, the combination for selecting a coin having a controlled magnetic property comprising a coin passageway, an oscillator including a coil about said passageway tuned to provide a resonant audio frequency when said coil has an air core and to provide a modulated resonant audio frequency when said coin forms the core of said coil, a frequency selective device responsive to said modulated audio frequency from said oscillator and selector means responsive to said frequency selective device adjacent said passageway to select said coin.

3,317,017
PRINTER WITH ROLLING ANVIL MEMBER
Charles J. Young, Princeton, N.J., assignor to Radio Corporation of America, a corporation of Delaware
Filed Aug. 6, 1965, Ser. No. 477,789
7 Claims. (Cl. 197—1)



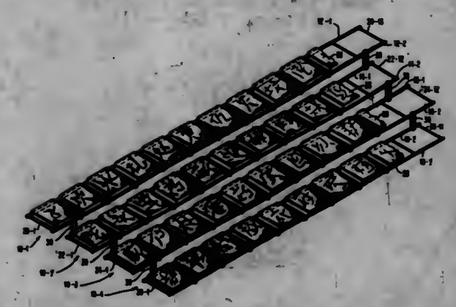
1. In a printer, the combination of:
a document path;
a print head disposed on one side of said path;
a track disposed opposite the print head and parallel thereto on the other side of the document path;
at least a first, drive roller;
means for rolling said drive roller on said track;
a cylindrical anvil pin adjacent the document path and in printing relation to said print head; and
means maintaining said anvil pin in rolling contact with said drive roller for rotation thereby as said drive roller is rolled on said track.

3,317,018
MANUAL TYPE ACTION WITH ROLLING POINT CONTACT
Arthur R. Johnson, Wethersfield, Conn., assignor to Royal Typewriter Company, Inc., New York, N.Y., a corporation of Delaware
Filed Oct. 22, 1965, Ser. No. 501,305
3 Claims. (Cl. 197—27)



1. A type action for a manual typewriter having a type bar supporting segment,
a type bar pivotally mounted on said segment,
a pivotally mounted sublever having a reaction surface,
a link connecting said sublever and type bar whereby said type bar will be driven when said sublever is rotated about its pivot,
a pivotally mounted key lever having a camming surface,
and a pivotally mounted intermediate lever having a reaction and a camming surface in point contact with and contoured relative to said key lever camming surface and said sublever reaction surface respectively such that upon key lever depression said key lever camming surface acts by rolling contact with said intermediate lever reaction surface to rotate said intermediate lever about its pivot at a progressively increasing angular velocity and said intermediate lever camming surface simultaneously acts by rolling contact with said sublever reaction surface to rotate said sublever about its pivot at a progressively increasing angular velocity.

3,317,019
KEYBOARD OVERLAY TO CHANGE INDICIA INDICATED BY KEY CAP
Robert F. Brame, Putnam Valley, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Sept. 20, 1965, Ser. No. 488,699
8 Claims. (Cl. 197—98)



1. A device for mounting on a keyboard containing a plurality of keys comprising:
at least one rigid frame adapted to be placed over a separate row of keys of the keyboard, said rigid

frame including first and second longitudinal members and a plurality of spaced parallel members transversely connected between said first and second longitudinal members,

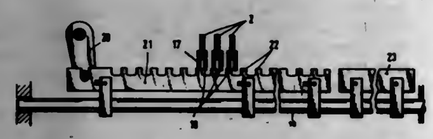
and at least one flexible member associated with said rigid frame, said flexible member extending over said associated rigid frame and connected to said parallel spaced members thereof, said flexible member covering the row of keys of the keyboard and supporting the interconnected rigid frame when said rigid frame is placed over the row of keys of the keyboard.

3,317,020

KEYBOARD PROVIDING DIFFERENT UNRELATED CODES IN RESPONSE TO CASESHIFT OPERATION

Bruno Nitschke, Munich, Germany, assignor to Siemens & Halske Aktiengesellschaft Berlin and Munich, a corporation of Germany

Filed July 28, 1965, Ser. No. 475,515
Claims priority, application Germany, July 30, 1964, S 92,365
3 Claims. (Cl. 197—98)



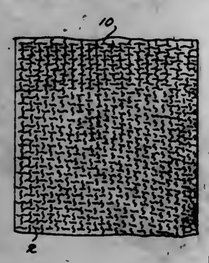
1. A keyboard for teletype machines for generation of symbol steps, comprising a plurality of selector slides, means operatively connecting each slide to a respective controlling key allocated to at least two symbols, a plurality of rows of selector cam members for each selector slide, operatively connected therewith and actuatable thereby, the number of rows for each slide being equal to the number of symbols allocated to the controlling key therefor, a plurality of selector members less in number than said selector slides and each provided with a plurality of teeth thereon cooperable with the respective selector cam members, and means cooperable with said teeth for selectively effecting a shifting thereof into the range of a cooperable row of selector cam members on each selector slide.

3,317,021

RIBBONS AND METHODS OF MAKING SAME

Jack Leach, Greensboro, N.C., assignor to Burlington Industries, Inc., Greensboro, N.C., a corporation of Delaware

Filed Apr. 2, 1963, Ser. No. 270,097
10 Claims. (Cl. 197—172)



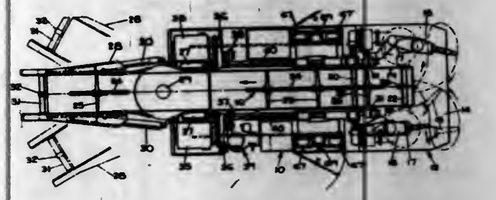
1. An inked ribbon for use in a printing device comprising tightly woven synthetic multifilament thermoplastic stretch yarn, the surface of said ribbon being uniformly puckered whereby the wear and ink capacity of said ribbon are increased, the puckers in said fabric surface being extensible so as to mold around the printing element in said device.

3,317,022

LOADING MACHINE OPERATING MECHANISM

John E. Bennett, Richard C. McMahon, and Fay E. Munger, Columbus, Ohio, assignors to Jeffrey Galion Manufacturing Company, a corporation of Ohio

Filed Dec. 10, 1964, Ser. No. 417,396
20 Claims. (Cl. 198—10)



1. In a mobile loading machine of the character described having traction means for forward and reverse propulsion of the machine and gathering means for collecting material into a conveying means in the machine, power means for operation of said traction means and said gathering means, a forward drive transmission for said traction means, a reverse drive transmission for said traction means, drive connections of said power means to said forward transmission and to said reverse transmission to continuously drive the forward and reverse transmissions, traction drive means for driving said traction means in either forward or reverse directions, a forward transmission engaging means to drivingly engage said forward transmission with said traction drive means to drive said traction means in the forward direction, a reverse transmission engaging means to drivingly engage said reverse transmission with said traction drive means to drive said traction means in the reverse direction, means for selectively operating either said forward transmission engaging means or said reverse transmission engaging means, a drive transmission for said gathering means, drive connections of said power means to said gathering transmission to continuously drive the gathering transmission, gathering drive means for driving said gathering means, a gathering transmission engaging means to drivingly engage said gathering transmission with said gathering drive means to drive said gathering means, and means for operating said gathering transmission engaging means.

3,317,023

PLATING MACHINE

James N. Ryerson, 195 Comanche Drive, Oceanport, N.J. 07757, and David S. Ackerman, 712 Amherst Road, Linden, N.J. 07036

Filed Mar. 31, 1964, Ser. No. 356,113
3 Claims. (Cl. 198—19)

1. A processing machine comprising

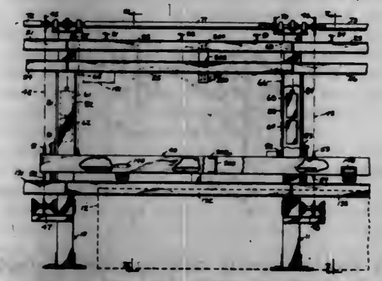
(a) a carrier guide frame for movement along a work path and having a carriage for vertical reciprocation in said frame to raise and lower work units carried at one side of said frame by said carriage,

(b) a monorail suspending said guide frame therefrom and comprising a semicircular monorail section of substantially constant radius and straight length monorail sections connected with the opposite ends of said semicircular monorail section,

(c) a curved lower track extending below said semicircular monorail section for guiding the lower end of said guide frame,

(d) a curved vertically disposed rail face extending adjacent said semicircular monorail section at the side of said guide frame opposite said one side and directed radially inwardly,

(e) said carrier guide frame having spaced pairs of rollers rotatable on horizontal axes and riding on said monorail and having a further roller rotatable on a vertical axis and riding on said vertically disposed rail face, and



(f) a single conveyor chain coupled with said carrier guide frame and extending along a curved path adjacent and radially inwardly of said monorail and connected with said carrier guide frame for moving said carrier frame along said monorail,

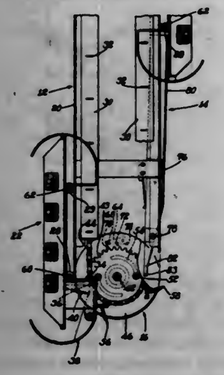
(g) said curved vertically disposed rail face having a relatively greater spacing from said monorail intermediate the ends of said semicircular section than at the ends of said semicircular section.

3,317,024

CONVEYOR SYSTEMS

Ernest C. Kenney, John F. Moody, and Joseph Robbins, Leicester, England, assignors to United Shoe Machinery Corporation, Flemington, N.J., a corporation of New Jersey

Filed July 10, 1964, Ser. No. 381,640
Claims priority application Great Britain, July 11, 1963, 27,458/63
4 Claims. (Cl. 198—24)



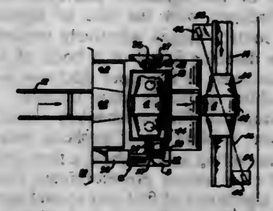
1. In a conveyor system comprising conveyor means having two conveyor runs, each run having a support rail, transfer means disposed between adjacent ends of the runs for receiving articles, one at a time, from the end of one run and transferring them to the beginning of the other run, continually oscillating drive means for driving said transfer means, and means responsive to the presence of a single carrier at the beginning of the second run for stopping the transfer means without impeding the movement of said drive means.

3,317,025

AUTOMATIC KEG FEEDER

Ernst Schickle, Tappan, N.Y., assignor to Rheingold Breweries, Inc., Brooklyn, N.Y., a corporation of New York

Filed May 17, 1965, Ser. No. 456,187
4 Claims. (Cl. 198—26)



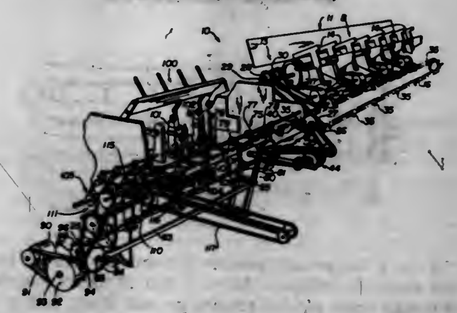
1. Apparatus for automatically transferring beer cans from the discharge end of a first conveyor to a receiving station location on a second conveyor means comprising keg transfer means arcuately displaceable intermediate a keg receiving location adjacent the discharge end of said first conveyor and a keg delivering location adjacent the receiving station location on said second conveyor, first sensing means responsive to the presence of a keg within said keg transfer means for initiating displacement thereof from said keg receiving location to said keg delivering location and second sensing means responsive to the presence of a keg disposed within the receiving station location on said second conveyor means for preventing initiation of displacement of said keg transferring means by said first sensing means.

3,317,026

SIGNATURE HANDLING MECHANISM

Victor A. Zugel, Parma, and John J. Marciniak, Cleveland, Ohio, assignors to Harris-Intertype Corporation, Cleveland, Ohio, a corporation of Delaware

Filed Sept. 29, 1964, Ser. No. 400,115
13 Claims. (Cl. 198—133)

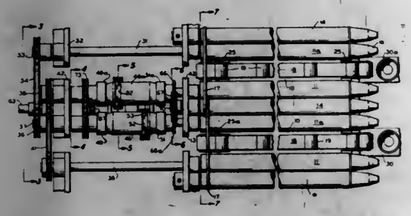


1. A signature handling mechanism comprising a signature conveyor, a plurality of signature pushers adapted to be supported on said signature conveyor at a first predetermined distance apart for conveying signatures of a first size or at a second predetermined distance apart which when multiplied by a whole number other than one approximately equals said first predetermined distance for conveying signatures of a second size, said pushers being operable when at said first predetermined distance apart to move signatures assembled into books of a first size through an inspection station and operable when at said second predetermined distance apart to move signatures assembled into books of a second size through said inspection station, a detector wheel located at said inspection station and engageable with books of said first and

second size conveyed by said conveyor and having a detecting peripheral portion lying on a circle having a circumference equal to said second predetermined distance, drive means for said signature conveyor and detector wheel for driving said signature conveyor and detector wheel at the same surface speed including means for varying the speed of the signature conveyor and detector wheel in accordance with the size of signatures being handled, and control means selectively responsive to the sensing by the detector wheel of a book of said first or said second size being of improper thickness and operable to effect a machine control function thereon.

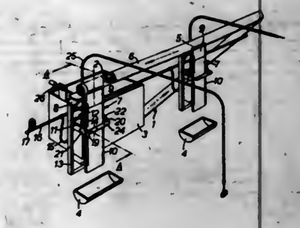
11. A signature handling mechanism comprising a signature conveyor, a plurality of pushers, means on said conveyor for mounting said pushers a first predetermined distance apart or a second predetermined distance apart for conveying signatures of first and second sizes to a conveyor delivery station, a shuttle mechanism reciprocable between said conveyor delivery station and a shuttle delivery station for moving signatures therebetween, the distance between the center of said conveyor delivery station and the center of said shuttle delivery station being nonvariable, the center of said signatures as measured on a line perpendicular to the direction of movement of the signatures being located at the center of said conveyor delivery station and said shuttle delivery station when located thereat, and means for reciprocating said shuttle mechanism through a stroke including means for varying the stroke of said shuttle mechanism between first and second different stroke lengths only with the first and second stroke lengths when multiplied by whole different numbers equalling the distance between the centers of the conveyor delivery and shuttle delivery stations.

3,317,027
ORIENTING MEANS AND METHOD FOR FRUIT AND VEGETABLE ARTICLES
Earl R. Anderson, Los Gatos, Calif., assignor to Philip H. Allen, Saratoga, Calif.
Filed Dec. 14, 1964, Ser. No. 418,000
11 Claims. (Cl. 198—33)



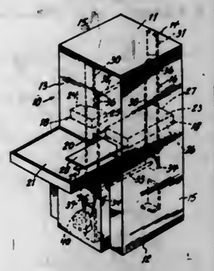
1. In a feeder and orienter for articles such as fruit and vegetable articles, a frame, a pair of rollers mounted in spaced apart parallel relation on said frame and in an inclined position from the article receiving end to the article discharge end to provide a fruit supporting trough therebetween, drive means for said rollers including means for first driving said rollers in the same direction to provide on their adjacent article contacting surfaces an upwardly moving surface on one roller and a downwardly moving surface on the opposite roller, means for thereafter reversing the direction of rotation of one of the rollers to provide both adjacent articles surfaces moving upwardly with respect to the articles positioned thereon, means for thereafter reversing the other of said rollers without reversing said one roller whereby the adjacent surfaces of the two rollers are again moving one upwardly and one downwardly with respect to an article but in the opposite sense from the first similar operation on the article, and means for maintaining articles separated as they travel down said roller in series fashion.

3,317,028
ANIMAL FEEDING APPARATUS
Herbert Edward Skett, Ellesmere, England, assignor to R. J. Fullwood & Bland Limited, London, England, a British company
Filed Apr. 26, 1965, Ser. No. 450,649
Claims priority, application Great Britain, Apr. 29, 1964, 17,818/64
15 Claims. (Cl. 198—37)



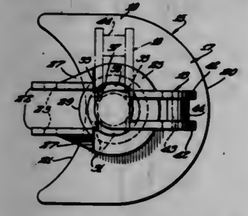
1. A variable capacity metering chamber adapted to receive foodstuffs by gravity feed and to deliver foodstuffs by gravity feed, said metering chamber comprising a vertical tubular conduit open at both ends and being laterally collapsible over a substantial portion of its length to permit constriction at any point or any one of a number of points along the length of the collapsible portion, and closure means for effecting such constriction said closure means being movable along the length of the collapsible portion of the conduit.

3,317,029
ARTICLE STORAGE EQUIPMENT
Freeland R. Goldammer, Williamsville, and John A. Gondek, North Tonawanda, N.Y., assignors to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Filed Oct. 22, 1965, Ser. No. 502,200
4 Claims. (Cl. 198—158)



1. In conveyor driven equipment of the class described,
(a) a pair of spaced vertical support members,
(b) a pair of spaced vertically aligned sprocket wheels on each of said support members,
(c) an endless conveyor chain trained about each of said pair of sprocket wheels and,
(d) a plurality of vertically spaced carriers arranged between said support members,
(e) spaced points of attachment on the conveyor chains including extended link connecting pins thereon,
(f) a bracket member at each end of a said carrier and having one end secured to the carrier,
(g) means on the other end of the bracket adapted for connection to a pair of said extended link connecting pins of an adjacent one of said conveyor chains,
(h) said connection means on the other end of a said bracket member including an aperture and an elongated slot provided thereon and mounted on said pins to provide respectively fixed pivotal connection and a loose pivotal connection with said conveyor chains,
(i) means for moving said conveyor chains and interconnected carriers in vertical paths of travel between said sprocket wheels and in non-vertical paths about said sprocket wheels,
(j) said fixed pivotal connection of each bracket having a common point of attachment on a said conveyor chain with the loose pivotal connection of the next adjacent carrier on said conveyor chain with said loose pivotal connection adapted to move relative to said fixed pivotal connection of the next adjacent carrier during the movement of its attached carrier through the non-vertical path of travel,
(k) said one end of said bracket member comprises a plate portion screwed to said carrier and said other end includes a flange portion at right angles to said plate portion and having a foot portion projecting beyond said plate portion with said slot and aperture being formed respectively in said flange portion and said foot portion.

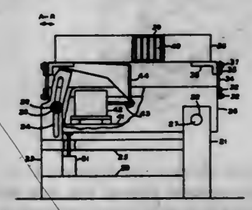
3,317,030
ARTICULATED-SECTION CONVEYOR STRUCTURE
Herschel L. Davis, Lombard, Ill., assignor to Alpeda Industries, Inc., Franklin Park, Ill., a corporation of Delaware
Filed Mar. 23, 1965, Ser. No. 441,960
19 Claims. (Cl. 198—189)



1. An articulated-section conveyor structure comprising,
a series of conveyor sections,
each of said sections comprising a pair of articulated members one of which has an article-opposing panel extending sidewardly thereon,
means providing an articulated pivotal coupling of the members,
means connecting the members of the respective sections to respective members of adjacent sections to connect all of the sections in conveyor series,
grooved sidewardly opening means including said panel on said one of the members of each of the sections,
and guide structure engaging in said grooved guide means and guiding the sections in an angular path involving pivoting of said couplings.

3,317,031
VIBRATOR
Thomas Mariner, Mount Joy, Pa., assignor to Armstrong Cork Company, Lancaster, Pa., a corporation of Pennsylvania
Filed July 13, 1965, Ser. No. 471,697
2 Claims. (Cl. 198—220)

1. A vibratory apparatus comprising a base, a vibratory member disposed in spaced relationship to said base, said vibratory member having a planar upper surface and a high flexural stiffness to mass ratio, said vibratory member further being comprised of a substantially rigid honeycomb structure secured between two rigid plates, resilient support means for said vibratory member extending therefrom to said base, said vibratory member, as it may be effected by said resilient support means, having a fundamental, natural, flexural frequency of vibration, said vibratory member and said resilient support means forming a mass-



spring system having a natural frequency of vibration less than said fundamental, natural, flexural frequency of said vibratory member, and drive means separate from said resilient support means and attached to said base for vibrating said mass-spring system at a frequency less than said fundamental, natural, flexural frequency of said vibratory member whereby substantially node-free vibration is maintained in said vibratory member.

3,317,032
MATCH FOLDER WITH BURNT MATCH RECEPTACLE
Bernard Zimerman, 7725 Wellington, St. Louis, Mo. 63105
Filed July 28, 1965, Ser. No. 475,394
2 Claims. (Cl. 206—38)

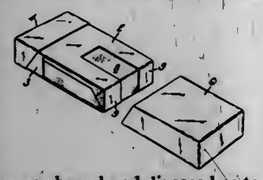


1. A match folder having means for receiving burnt matches, said folder comprising at least one row of matches fastened at the bottom to the match folder with the means for receiving burnt matches being fastened to the bottom of the match folder between the matches and the back cover of said match folder, said means receiving said burnt matches comprising a pluarality of parallel and connected open topped elongated compartments, said compartments extending upwardly from the bottom of the folder and being closed at the bottom and having the cross-sectional area of the opening slightly larger than that of a burnt match and receiving a burnt match in relatively close confinement to restrict the access of air to said burnt match.

3,317,033
PACKETS FOR CIGARETTES OR LIKE ARTICLES
John Walker Chalmers, Kent, England, assignor to Molins Machine Company Limited, London, England, a corporation of Great Britain
Filed Feb. 10, 1966, Ser. No. 526,508
Claims priority, application Great Britain, Feb. 19, 1965, 7,409/65
5 Claims. (Cl. 206—41)

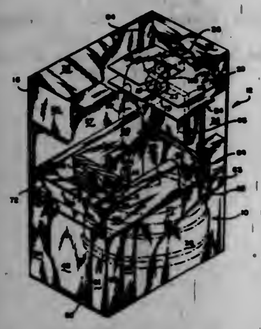
1. A packet of synthetic plastic material comprising a body having front, rear, and two side walls and a bottom all integral with one another, and a lid having four side

walls and a top all integral with one another, an insert within said body, a hinge connecting said lid to said insert, said lid being movable on said hinge between an open position out of alignment with the body and a closed position in alignment therewith, said insert having a pro-



jecting portion so shaped and disposed as to lie within the lid and against at least one of the side walls of the lid whenever said lid is in said closed position so as to oppose movement of the lid towards said open position but being deformable to permit such movement.

3,317,034
REINFORCED CARTON
Renile E. Bowles, Janesville, Wis., and Robert L. Craig, Gurnee, Ill., assignors to Hoerner-Waldorf Corporation, a corporation of Delaware
Filed June 1, 1964, Ser. No. 371,597
13 Claims. (Cl. 206—46)



1. In a package for carrying an outboard marine motor in an upside down position, said motor having a clamp, a gear case, a cavitation plate and an exhaust, said package including a container having a top, a bottom, side walls and end walls,

motor mount means having a first cross member to which the clamp of the motor is secured, and a second cross member parallel to and spaced from said first cross member,

insert means for supporting the motor mount means in a spaced relation with respect to the top and bottom of the container, and

reinforcing means positioned on the second of said cross members and forming a rigid support from said cross bar to the gear case for said motor.

3,317,035
GRAPHITE-CATALYST CHARGE ASSEMBLY FOR THE PREPARATION OF DIAMOND
Peter Cannon, Alplaus, N.Y., assignor to General Electric Company, a corporation of New York
Filed Sept. 3, 1963, Ser. No. 306,069
11 Claims. (Cl. 206—47)

1. In a graphite-catalyst charge element arrangement for insertion in high pressure apparatus for the conversion of graphite to diamond by application thereto of high pressures and high temperatures above the graphite-to-diamond equilibrium line on the phase diagram of carbon wherein spectroscopically pure graphite is partially enclosed in an outer thin layer of catalyst metal chosen from the group consisting of one of the metals of Group VIII of the periodic table of elements, chromium, manganese and tantalum, and a hard crystalline inclusion is enclosed within the graphite, the improvement which comprises:

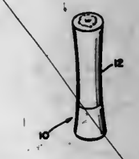
(a) the crystalline inclusion in the graphite being located offset from the central axis of the catalyst metal enclosure and spaced between about 50 and about 100 mils distant from the inner surface of the outer catalyst metal layer at its closest point

(1) said crystalline inclusion being selected from the class consisting of diamond, cubic boron nitride, boron carbide, zirconia, thoria, stishovite silicon dioxide, coesite silicon dioxide and sapphire and

(b) a quantity of a catalyst metal from the above-recited group being located entirely within said graphite,

(1) said quantity of metal being in a volumetric ratio of between 1:10 and 6:1 to the volume of crystalline inclusion present and being localized about said crystalline inclusion on at least two sides thereof having graphite disposed between said quantity of catalyst metal and said catalyst metal layer.

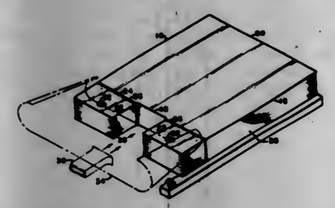
3,317,036
LIPSTICK HOLDER
Samuel Cherba, 735 Totowa Road, Totowa, N.J. 07512
Filed May 21, 1964, Ser. No. 369,096
13 Claims. (Cl. 206—56)



1. A lipstick holder composed of only two parts, said holder consisting of a first part with an elongated portion having a seat adjacent the forward end thereof to receive and fixedly hold the inner end of a lipstick therein with the outer end of the lipstick projecting beyond the outer end of the seat in the first part, and a second part in the form of a protective sleeve for the lipstick, said first and second parts being of substantially the same length, the two parts being telescopically connected for relative reciprocation between a first terminal position in which the sleeve is extended substantially to sheath the lipstick and a second terminal position in which the sleeve is retracted toward the rear of the first part to expose the lipstick outwardly of the seat in the first part, and cooperating means integral with the respective parts of the holder to stop the relative reciprocation of the parts in said two terminal positions.

3,317,037
BAG SUPPLY PAD
Frederick S. Russell, Hampden, Mass., assignor to United States Envelope Company, Springfield, Mass., a corporation of Maine
Filed Apr. 11, 1962, Ser. No. 187,172
1 Claim. (Cl. 206—57)

A pad of bags suitable for use on an automatic bagging machine comprising a plurality of bags made of flexible film-like material arranged in end to end and front to back relation, each of the bags having a front wall, a back wall, an open end forming a mouth, and an integral, detachable extention of the back wall extending for the entire width of the back wall of the bag connected thereto by a weakened line extending the entire width of the bag, said front wall terminating along a line substantially even with said weakened line, and said extensions extending upwardly from the back wall above the top edge of



the front wall, each of said bags having a U-shaped recess in the mid-section of its extension, said recess beginning at the top edge of the extension and running parallel to the sides of said extension and the base of the recess intersecting the weakened line connecting the extension to the bag, and means formed in the extensions near the sides of said recess holding the bags together in a pad with said recesses in alignment.

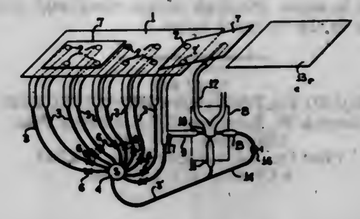
3,317,038
CONTAINER STRUCTURE
Werner Bade, Bayside, and Alan N. Seideman, New York, N.Y., assignors to Pallam Development Corp., New York, N.Y., a corporation of New York
Filed Mar. 15, 1965, Ser. No. 439,839
5 Claims. (Cl. 206—62)



1. A phonographic record jacket comprising: front and back panels of thermoplastic sheet material; a seal area along part of the edges of said panels, another part of the edges of said panels being open; and a sheet of foam material located between said panels with edge portions of said foam material sealed to said thermoplastic sheet material adjacent to said seal area, said seal area extending beyond the adjacent portion of the edge of said foam material whereby said panels are in direct sealing contact in said seal area.

3,317,039
WEIGHING AND SORTING DEVICE
Walter G. Wadey, 7505 Holiday Terrace, Bethesda, Md. 20034
Filed Feb. 25, 1965, Ser. No. 435,220
12 Claims. (Cl. 209—120)

12. An object sorting device comprising a sorting plate, means for issuing streams of fluid for supporting an object, means for conveying said object toward and past said sorting plate, means for producing a signal indicative of the location of the object above the means for issuing and means responsive to said signal being in a specified

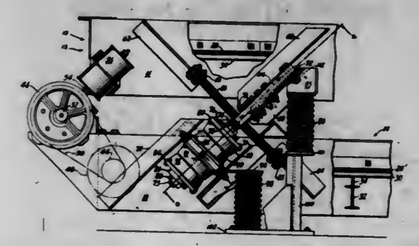


range of magnitudes for issuing a further stream of fluid of such flow parameters as to cause the object to have a predetermined vertical location relative to said sorting plate.

3,317,040
FLOTATION PROCESS WITH REAGENT COMPOSITION
Robert Ben Booth, Stamford, Conn., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Filed July 30, 1963, Ser. No. 298,555
6 Claims. (Cl. 209—166)

1. A storage-stable flotation promoter composition consisting essentially of: (1) alkali metal dialkyl monothiophosphate, each alkyl group being selected from the primary and secondary alkyl and containing 1–6 carbon atoms, (2) alkali metal chloride in a concentration of 1–30% by weight of the entire composition and (3) alkali metal hydroxide in a concentration of above about 2 but less than 10% by weight of the entire composition.

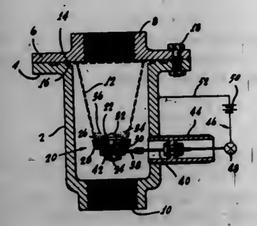
3,317,041
RESONANT SCREEN
Bernard A. Century, Cleveland Heights, Ohio, assignor to Hewitt-Robins Incorporated, Stamford, Conn.
Continuation of application Ser. No. 154,691, Nov. 24, 1961. This application Oct. 5, 1965, Ser. No. 502,806
13 Claims. (Cl. 209—315)



7. A resonant screen device, comprising, in combination: a pair of vertically spaced screen decks movable relative to each other, each of said decks having side plates and cross beam members and screens supported by said cross beam members, the cross beam members of each deck being connected to the side plates of its associated deck; an interdeck battery system comprising buffer members including resilient elements; means connecting said resilient buffer elements to said decks for reaction between said buffer elements within the resonant range of operation of said decks; said connecting means including one of said cross beam members of one of said decks and an operating rod connected to the latter cross beam member, said rod extending alongside of said screen

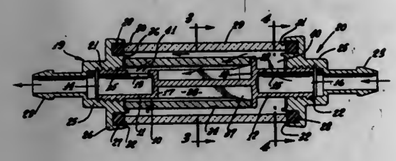
decks; at least one of said buffer elements being connected to said rod and at least one of said buffer elements being connected to the other of said decks, the latter of said elements being reactable with said one of said buffer elements to cause interdeck action when said screen is oscillated in the resonant range.

3,317,042
LIQUID FILTER AND CHIP DETECTOR
Dietrich W. Botstiber, 307 S. Chester Pike, Glenolden, Pa. 19036
Filed Oct. 16, 1964, Ser. No. 404,244
8 Claims. (Cl. 210—86)



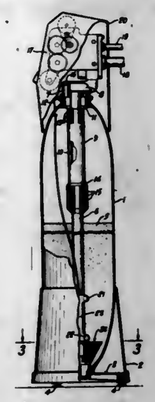
1. A liquid filter and chip detector for use in a liquid circulating system comprising a casing having an inlet and an outlet, a filter screen located in the casing between the inlet and outlet and inclined at an angle with respect to the path of flow of liquid through the casing, spaced electrical contacts located on the inlet side of the filter screen adjacent that portion of the filter screen farthest removed from the inlet, and an electrical circuit including said contacts, said contacts having a gap therebetween, said gap having means for completing said circuit by a bridging accumulation of electrically conducting material between said contacts.

3,317,043
IN-LINE FILTER CONSTRUCTION
Albert G. H. Vanderpoel, 14509 Van Ness Ave., Gardena, Calif. 90249
Filed Mar. 31, 1965, Ser. No. 444,338
7 Claims. (Cl. 210—94)



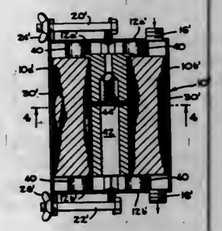
1. A liquid fuel filter, comprising an elongated body having tubular opposite end portions each with side and end openings, and caps mounted on said body end portions, a porous tubular filter element through which the body projects, the body having a closure thereon to close one end of said filter element so that the element is retained between said closure and one of said end caps closing the opposite end of said element, one body portion side opening then having direct communication with the outside of said filter element and the other body portion side opening then having direct communication with the inside of said filter element, and a casing having opposite ends retained at said end caps and within which said body projects.

3,317,044
WATER CONDITIONING APPARATUS
Lawrence P. Marks, Brown Deer, Wis., assignor, by mesne assignments, to Culligan, Inc., Northbrook, Ill., a corporation of Delaware
Filed Dec. 2, 1964, Ser. No. 415,233
6 Claims. (Cl. 210—96)



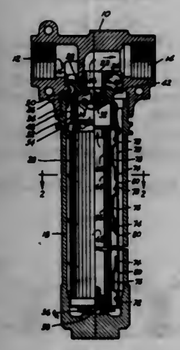
2. In a water conditioning apparatus, a tank having a generally parabolic shaped lower end, a bed of ion exchange resin disposed within the tank, a tube disposed centrally of the tank and extending through the bed of resin, and a distributor connected to the lower end of the tube and disposed at the parabolic end of the tank, said distributor comprising an inner inverted generally frustō conical wall and an outer inverted generally frusto conical wall with said walls being spaced apart to provide a passage therebetween, said passage communicating with the lower end of said tube, said inner wall and said outer walls both being provided with a plurality of openings establishing communication between said passage and the interior of the tank.

3,317,045
FILTER UNIT WITH RADIALLY COMPRESSED ELEMENT
William J. Dummler, San Jose, Calif., assignor to Motor Guard Corporation, San Jose, Calif., a corporation of California
Filed Sept. 23, 1963, Ser. No. 310,754
7 Claims. (Cl. 210—130)



1. A filter unit which comprises a housing composed of separate sections arranged for sealing juncture, a compressible roll of tissue filter element in said housing, said housing being arranged so that the separation of said separate sections exposes a wall of said filter element extending in the general direction of the endwise longitudinal axis of said housing, an inlet to said housing adjacent the upstream portion of said filter element, an outlet to said housing adjacent the downstream portion of said filter element, and means interconnecting said separate sections of said housing and adapted to urge said separate sections into sealing juncture for effecting compression, whereby said filter element is compressed in a direction substantially perpendicular to the endwise longitudinal axis of said housing and substantially entirely fills the radial cross-section of said housing.

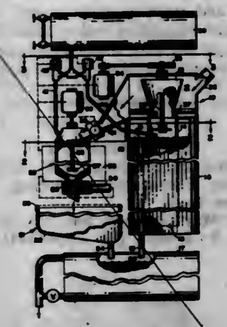
3,317,046
FILTER ELEMENT HAVING PLURAL FLAPPER TYPE BYPASS VALVES THEREON
Ray J. Raupp and Raymond L. Landree, Madison Heights, Mich., assignors to The Bendix Corporation, Madison Heights, Mich., a corporation of Delaware
Filed Jan. 6, 1965, Ser. No. 423,772
1 Claim. (Cl. 210—130)



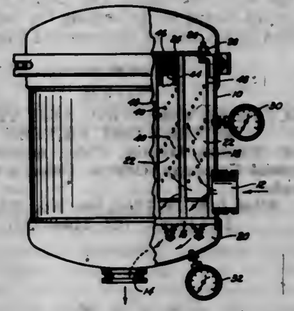
A device for filtering fluids comprising a head having an inlet passage and an outlet passage, a bowl removably attached to the head for communicating said inlet passage with said outlet passage, a removable substantially cylindrical low collapse pleated filter element of the outside-in flow type located in said bowl and interposed between said inlet and outlet passages, a U-shaped strip fixedly attached to and extending the full length of said pleated element, said strip having a plurality of bypass ports therein and a plurality of pressure responsive flapper type valves located on the down-stream side of said filter element and within said U-shaped strip for completely bypassing the entire filter element by permitting flow through said bypass ports when the pressure differential across said filter element increases above a predetermined value, said flapper type valves each including a leaf spring, one end of which is rigidly attached to said strip and the other end of which has a valve pad affixed thereto and in sealing engagement with an associated bypass port for controlling flow therethrough, said pad end of said flapper type valves having one side thereof exposed to the pressure upstream of said filter element and the other side thereof exposed to the pressure downstream of said filter element.

3,317,047
SEWAGE DISPOSAL SYSTEM
Roy Dahl Hansen, 5659 Cabot Drive, Oakland, Calif. 94611
Filed Nov. 5, 1964, Ser. No. 409,140
11 Claims. (Cl. 210—139)

6. In a sewage treating system, means for separating the sewage into its solid and liquid components comprising: a chamber for receiving the solid-liquid combination; a rotatable annular screen mounted within the chamber to define an inner and an outer compartment in the chamber; inlet means on the outer compartment for the entrance of the liquid-solid combination; outlet means on the outer compartment for discharge of solids; outlet means on said inner compartment for liquids; valve means associated with the outer compartment permitting discharge of solids from said outer compartment at preselected times; means for intermittently rotating said annular screen at a rate sufficient to dislodge solids from the surface thereof; and timing means connected to said valve means and to said means for intermittently rotating said annular screen adapted for actuating said last-named means when said valve means is closed and before discharge of solids from said outer compartment.



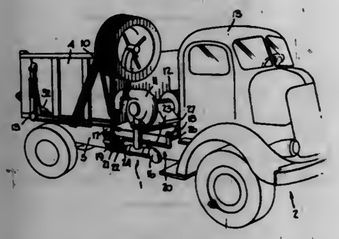
3,317,048
FILTER UNIT
Walter Kasten, Madison Heights, Mich., assignor to The Bendix Corporation, Madison Heights, Mich., a corporation of Delaware
Filed June 29, 1964, Ser. No. 378,567
2 Claims. (Cl. 210—234)



1. A fluid filtering device comprising housing means having fluid inlet and outlet passage means, partition means operatively connected to said housing means and located between said inlet and outlet passage means, a plurality of filter ports located in said partition means for permitting communication between said inlet and outlet passage means, a plurality of valve seats, one of which is formed in each of said filter ports, a plurality of poppet valves, one of which is located in each of said filter ports and seatable on the valve seat formed therein, said poppet valves each having a bore therein and a plurality of outlet ports for communicating said bore with the respective filter port when said poppet valves are in an unseated position, external thread means formed on each of said poppet valves, a plurality of springs, each of which is operatively connected to said partition means and to one of said poppet valves for urging said poppet valves towards their respective valve seats and a seated position,

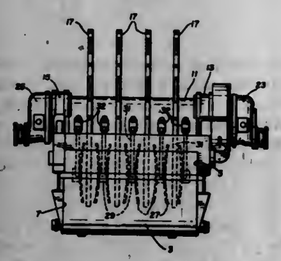
a plurality of normally porous filtering elements of the outside-in type for filtering the fluid flowing from said inlet passage means to said outlet passage means, and a plurality of ferrules, one of which is fixedly connected to the end of each of said filtering elements, said ferrules each having internal thread means formed therein for threadedly engaging the external thread means of said poppet valves and causing said poppet valves to move away from their respective valve seats to an unseated position after said ferrules sealingly engage said partition means and are rotated relative to said poppet valves.

3,317,049
EDUCTOR UNIT
Raymond H. Petretti, Flushing, N.Y., assignor to Ortem Manufacturing Corporation, Flushing, N.Y., a corporation of New York
Filed May 18, 1964, Ser. No. 368,198
8 Claims. (Cl. 210—241)



1. An eductor unit comprising a debris-collecting tank, means for depositing a fluidized debris in said tank, return means disconnectedly mounted on said tank for removing at least some of the fluid parts of said debris from said tank, means for lifting said tank to remove other portions of the debris therefrom, and control means operable by said return means for preventing the tank from lifting if the return means are not disconnected from said tank.

3,317,050
ELECTRICAL VIBRATING AGITATORS FOR ROTARY DISC FILTERS
Arthur C. Daman, Denver, Colo., assignor to Denver Equipment Company, Denver, Colo., a corporation of Colorado
Filed June 19, 1964, Ser. No. 376,440
11 Claims. (Cl. 210—331)



1. In a disc-type filter including a tank for slurry and a shaft supported for rotation adjacent the top of the tank, the shaft supporting a plurality of spaced discs, each having a plurality of radially adjoining filter sectors, filter media covering the exterior surface of each sector, and means for producing a vacuum within the sectors for forming a cake of solids on each filter media during rotation through the slurry, the improvement comprising a series of spaced elongated fan-shaped plates extending lengthwise of the tank disposed in a submerged position in the slurry in proximate relation to an adjoining filter sector, each plate being substantially coextensive with adjoining filter sectors, means for mounting said plate for vibratory movement so as to keep particles of the slurry in suspension and compress the cake on the filter sector, said mounting means inclusive of plural rod-like members, each having an end portion connected to at least one of said plates and another portion distant from said end portion connected by a coupling member to a stationary surface on the filter, and an electric vibrating means connected to each of said rod-like members and its associated one of said plates to individually impart a high frequency vibratory movement thereto.

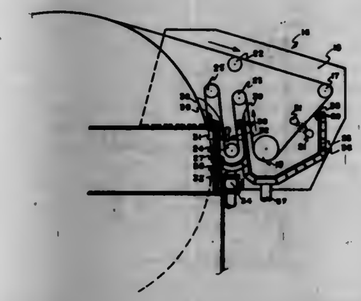
3,317,051
DEVICE FOR THE SCREENING OF LIQUIDS
Ernst Gustaf Rane Ranhagen and Erik Gustaf Ranhagen, Danderyd, Sweden, assignors to Aktiebolaget Karlstads Mekaniska Werkstad, Karlstad, Sweden, a joint-stock company of Sweden
Filed June 17, 1964, Ser. No. 375,881
Claims priority, application Sweden, June 19, 1963, 6,845/63
3 Claims. (Cl. 210—332)



1. A liquid screening device comprising a substantially impervious cylindrical, substantially vertical, stationary casing adapted for containing a centrally located spraying device capable of generating outwardly directed movable jets, a plurality of elongated holder means arranged along the inner wall of said cylindrical casing substantially parallel to its longitudinal axis, said holder means being provided with longitudinal grooves, a plurality of filter screens having opposite edges received in the grooves of adjacent holder means, each filter screen being constituted as a comparatively thin perforated, stiff but bendable sheet material, said filter screens being wider than the linear distance between adjacent holder means to be secured therebetween in flexed condition with convex sides facing inwardly towards the centrally located spraying device to define enclosed spaces between the inner surface of the casing and the concave surface of the filter screens, means for extracting liquid from said spaces and means for extracting liquid from the spaces between the spraying device and the screens, and a further screening element on said screens retained between the screens and the holder means.

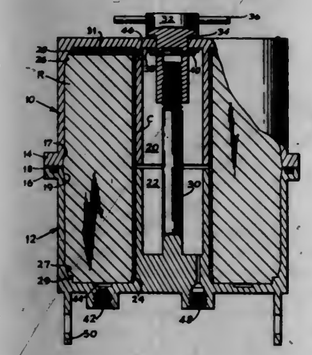
3,317,052
FILTER MEDIA WEB CLEANING APPARATUS
Steven S. Davis, Bountiful, Utah, assignor to The Eimco Corporation, Salt Lake City, Utah, a corporation of Delaware
Filed July 13, 1964, Ser. No. 382,091
2 Claims. (Cl. 210—393)

1. Vacuum filtration apparatus comprising an endless filter media web trained to pass around a cake discharge section spaced from a filter section, means for continuously cleaning said web, said means comprising a first wiping means for squeezing filtrate from said web following cake discharge, means for spraying said web with water following said first wiping means, second wiping means for removing wash water from said web, a solvent holding trough, means for passing said web through said trough after removing excess wash water therefrom by



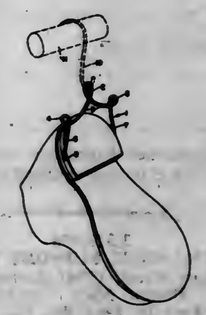
said second wiping means whereby contiguous sections of the web are submerged in solvent, third wiping means for removing solvent from said web, and means for returning said web to said filtering section.

3,317,053
FILTER UNIT WITH AXIALLY SEPARABLE HOUSING
William J. Dummler, San Jose, Calif., assignor to Motor Guard Corporation, San Jose, Calif., a corporation of California
Filed Mar. 4, 1964, Ser. No. 349,226
7 Claims. (Cl. 210—439)



1. A filter unit comprising a housing having two separable generally cup-shaped sections arranged for sealing juncture at their lips, a compressible roll of tissue filter element in said housing, said housing being arranged to engage said filter element, said housing be arranged so that the separation of said cup-shaped sections exposes a wall of said filter element extending in the general direction of the endwise longitudinal axis of said housing, an inlet to said housing adjacent the upstream side of said filter element, an outlet to said housing adjacent the downstream side of said filter element, and means axially disposed relative to said housing and said filter element and releasably inter-connecting said cup-shaped sections for urging said cup-shaped sections toward one another to establish the sealing juncture therebetween and means in said housing to effect radial compression of said filter element, whereby said filter element is compressed in a direction substantially perpendicular to the endwise longitudinal axis of said housing and substantially entirely fills the radial cross-section of said housing.

3,317,054
RESILIENT BOOT AND SHOE PRESERVER AND HANGER
Frederick T. Gies, 207 Hilton Terrace, Newport News, Va. 23601
Filed Feb. 25, 1965, Ser. No. 435,170
1 Claim. (Cl. 211—34)

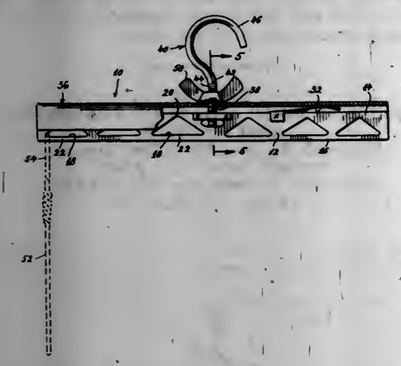


A device for supporting a boot or shoe in a suspended position from a support by engaging opposing side portions of the exterior edge of a sole or a heel, said device comprising a one-piece body of inherently resilient but relatively stiff thin wire-like material having an upstanding central section looped centrally upon itself to provide an upstanding supporting central eye functioning only for reception of a hook of a hanging supporting means and having outwardly curved branch portions flaring out immediately in opposite directions from the eye and lying substantially coplanar, said branch portions being of a combined length to substantially correspond to the width of a shoe or boot and having terminal ends looped once upon themselves in reverse fashion to provide oppositely bent spring loops, said loops lying substantially in the same plane, each of said loops having an extending straight terminal arm portion projecting in an opposite direction from the eye, said arm portions being spaced apart and disposed in substantial coplanar relation and being urged slightly toward each other by the spring loops, said arm portions being coextensive in length and terminating in free distal ends having free laterally inturned prongs, said prongs being directed inwardly toward each other and being cooperatively coplanarly arranged to cooperatively clamp on opposing portions of the edge of a sole or heel of a boot or shoe.

3,317,055
HANGER ASSEMBLIES FOR SUPPORTING A NUMBER OF CLOTHES HANGERS OR RACKS IN ORDERLY FASHION
Walter H. Roscicki, 446 Beach Ave., Bronx, N.Y. 10472
Filed June 3, 1965, Ser. No. 460,938
13 Claims. (Cl. 211—124)

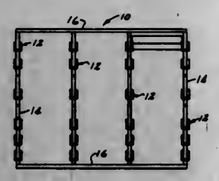
1. A hanger assembly comprising an elongated flat clothes-hanger-supporting bar having a series of spaced slots therein, a channel-shaped bar slidably nested over the flat bar, spring means for urging the bight portion of the channel-shaped bar away from the top edge of the

flat bar, hook means associated with the bars for supporting the hanger on a horizontal support and means



for moving the channel-shaped bar over the slots in the supporting bar for clamping-clothes-hangers on the supporting bar.

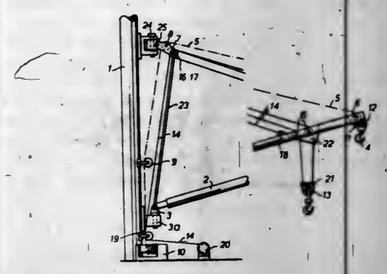
3,317,056
MERCHANDISE SUPPORT DEVICE
Abraham Alpert, 19941 Ardmore Ave., Detroit, Mich. 48235
Filed June 29, 1965, Ser. No. 467,955
16 Claims. (Cl. 211—176)



3. In a merchandise display and support device, the combination of,
- a plurality of vertical members connected in parallel spaced relationship;
- a plurality of aligned horizontal grooves in said vertical members;
- generally flat support members;
- a substantially rectangular opening in each said support member receiving a vertical member;
- one edge of each support member engaging one of said horizontal grooves to form a merchandise support means; and
- means for retaining a package on said support means.

3,317,057
DERRICKS
Hans E. Gjelsteen, Bergen, Norway, assignor to A/S Bergens Mekaniske Verksteder, Lakserag, Bergen, Norway, a corporation of Norway
Filed Feb. 18, 1966, Ser. No. 528,618
Claims priority, application Norway, Mar. 16, 1965, 157,227
4 Claims. (Cl. 212—58)

1. In a derrick arrangement comprising an upright column, a boom, means supporting said boom at its innermost end on said column for pivotal movement in both a horizontal plane and a vertical plane, means operable to pivot and lock said boom in a definite angular orientation, first loading means suspended at the outermost end of said boom, second loading means suspended a distance inwardly of the outermost end of said boom, a pair of winch means and respective loading lines each connecting a respective winch means to a respective loading means; the improvement comprising a common block mounted on said column above said winch means; said loading means being permanently rigged with their respective loading lines and both of said loading lines passing through said common block to their respective winch means; and respective lift means, each associated with a respective loading means and operable directly to engage and lift said boom; whereby either winch means can be used as a topping winch and the other used as a loading winch.

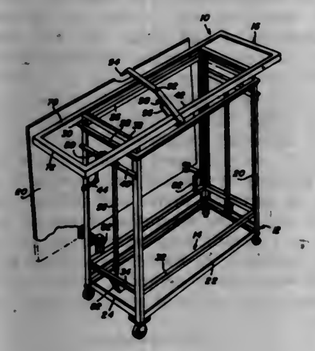


3,317,058
TRAVELLING CRANE WITH TELESCOPING BOOM ASSEMBLY
Henri Kummerman, Paris, France, assignor to MacGregor-Comarain, Paris, France, a body corporate of France
Filed Dec. 18, 1964, Ser. No. 419,351
Claims priority, application France, Dec. 19, 1963, 957,834; Oct. 2, 1964, 990,241
6 Claims. (Cl. 212—74)

1. A travelling crane comprising a rolling main frame spanning and movable on tracks, a telescoping rolling boom of substantially the same length as said main frame and mounted in the latter longitudinally thereof for motion therealong, said boom being reciprocally movable from a retracted position inside of said main frame to an outside extended overhanging position wherein it projects at least in part from either end of said main frame, a hoisting trolley truck carried by said crane and continuously movable along the full length of either of said main frame and said boom frame from the free outward projecting end of said boom in its outward reaching position to the opposite remote end of said main frame, thus being indifferently supportable from either of said main frame and telescoping boom, at least two powered reversible rotatable drums for shifting either of said boom and said trolley truck and mounted on and transversely of said main frame in substantially parallel relationship, drive

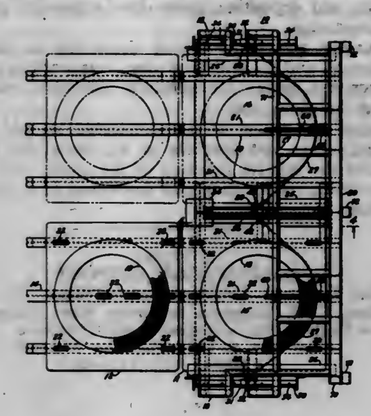
means operatively connected to said drums which are selectively disconnectable separately from said drive means to revolve in opposite directions, at least one pair of first end sheaves provided at the opposite ends, respectively, of said main frame, at least one pair of second end sheaves provided at the opposite ends, respectively, of said telescoping boom, at least one tractive driving rope fastened intermediate of its length to said trolley truck so as to form two runs each of which starting from said trolley truck in opposite directions makes a loop reeved successively around one first sheave and one second sheave at the corresponding ends of said main frame and of said boom respectively, the free ends of said runs being wound on said boom-shifting drums respectively, whereby one run may be wound on one drum while being simultaneously payed out from the other drum, and releasable attachment means provided on said boom to rigidly connect and disconnect the latter selectively to and from said runs, respectively.

3,317,059
ADJUSTABLE SCAFFOLD FOR SUPPORTING PANELS
Arch T. Higgins, 1601 S. 6th St., Ponca City, Okla. 74601
Filed May 4, 1965, Ser. No. 453,019
7 Claims. (Cl. 214—1)



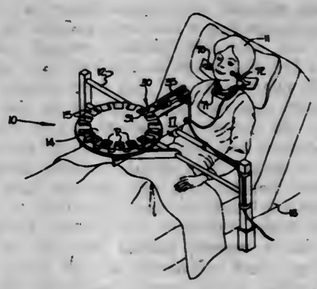
1. An adjustable scaffold for supporting and elevating wall and roof panels comprising a mobile base, a carriage, means mounting said carriage upon said base for guided vertical sliding movement between lowered and raised positions, elevating means connected to said base and carriage and causing vertical travel of said carriage upon said base, means carried by said carriage for holding a vertical wall panel upon the exterior of said base and carriage for vertical movement with the latter, said holding means comprising hooks mounted upon the lower portion of said carriage and projecting laterally outwardly beyond said base, said lower portion of said carriage having support brackets, each hook being pivoted to a support bracket for swinging in a horizontal plane about a vertical axis between a retracted position within said carriage and a laterally extended position projecting outwardly beyond said base, said holding means including a retaining arm on said scaffold positioned to overlie said carriage and having a finger adapted to overlie, embrace and retain the upper edge of a vertical wall panel, said retaining arm having a resilient hook at the opposite end from said finger, said resilient hook being operable to suspend said arm from a portion of said base when not in use and to releasably secure said arm to said carriage when holding the upper edge of a vertical wall panel.

3,317,060
COIL HANDLING DEVICE
Charles E. Youngblood, Johnstown, Pa., assignor to Bethlehem Steel Corporation, a corporation of Delaware
Filed June 2, 1965, Ser. No. 460,670
3 Claims. (Cl. 214—1)



1. In combination with a coil tilting device of the type wherein a coil carriage comprising front and rear walls is provided with means for tilting the carriage from a coil receiving position to a coil delivering position, the improvement which comprises:
- (a) a flexible belt located between and substantially longitudinally coextensive with said walls, for engaging a coil inserted therebetween,
- (b) means attached to one end of said walls for securing one end of said belt,
- (c) means securing the other end of said belt, said means adapted to move said belt toward said coil, and
- (d) means secured to said belt intermediate its ends for suspending said belt when said carriage is in a coil receiving position, said means being movable on a supporting structure toward and away from said coil.

3,317,061
FEEDING DEVICE FOR INVALIDS
Jerry L. Causey, Rte. 1, Grifton, N.C. 28530
Filed Aug. 19, 1965, Ser. No. 480,957
7 Claims. (Cl. 214—1)



1. A feeding device for enabling an invalid to feed himself comprising:

tray means for containing a plurality of food portions, means operatively associated with said tray means for sequentially removing a selected food portion

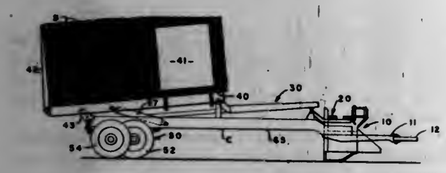
therefrom and for transporting the same to a position remote from said tray means and adjacent an invalid's mouth and for depositing the food portion into the invalid's mouth,

said tray means and removing, transporting and depositing means being relatively indexable to bring selected food portion and said removing, transporting and depositing means into sequential operative association,

actuating means operatively connected to said tray means and to said removing, transporting and depositing means for affecting sequential movement of the same, and

control means operatively connected to said actuating means and operable by an invalid for controlling the relative indexing of the means and the removing, transporting and depositing of a food portion.

3,317,062
BALE WAGON SUPPORT
Gordon E. Grey, Kingsburg, and William W. Wilson, Selma, Calif., assignors to Sperry Rand Corporation, New Holland, Pa., a corporation of Delaware
Filed Apr. 6, 1965, Ser. No. 446,053
3 Claims. (Cl. 214—6)



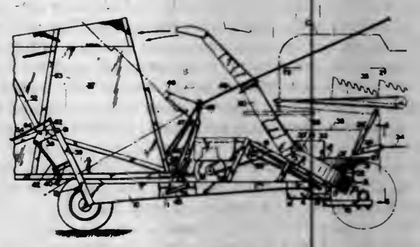
1. A bale wagon comprising a wheel supported maneuverable chassis adapted to travel forwardly, said chassis having first and second substantially horizontal longitudinally extending frame members arranged in spaced side-by-side relationship and forming the lateral extremities of said chassis, an inclined load-carrying bed on said chassis and having its lowest point rearwardly, said load-carrying bed being adapted to receive a series of vertical stacks of bales with their longitudinal axes transverse to the direction of travel, said bales being supported rearwardly and the first stack of the series being unsupported forwardly, a suspension system supporting said chassis comprising in combination a first unit and a second unit, said first unit having a transverse forward axle which extends laterally beyond said first and second frame members, a first front wheel on said forward axle adjacent said first frame member and a second front wheel on said forward axle adjacent said second frame member, said second unit comprising a rear axle parallel to said forward axle and extending laterally beyond said frame members, a first rear wheel on said rear axle adjacent to and laterally offset from said first front wheel, a second rear wheel on said rear axle adjacent to and laterally offset from said second front wheel, a first front spring mounted between said first frame member and said forward axle, a second front spring mounted between said second frame member and said forward axle, a transversely extending frame element connected to said first and second frame members and located forwardly of said rear axle, a support bracket mounted on each of said frame members rearwardly of said frame element, a first rear spring spaced laterally outwardly of said first front spring and connected to said frame elements and to one of said support brackets, a second rear spring spaced laterally outwardly of said second front spring and connected to said frame element and to the other of said support brackets, said rear springs being mounted on said rear axle, and each of said units functioning independently of the other whereby the stability of the wagon chassis is maintained and the chassis will remain substantially horizontal when supported by both units or by either of said units.

3,317,063
BUNCHING AND STACKING DEVICE
Dick Sporte, Grand Rapids, Mich., assignor to Werner Machinery Company, Grand Rapids, Mich., a corporation of Michigan
Filed July 27, 1964, Ser. No. 385,371
3 Claims. (Cl. 214—7)



2. A device for bunching and stacking a continuous succession of relatively firm, generally flat objects of rounded wafer-like configuration, comprising: at least one bunching and stacking chute means, having an upper extremity with a substantially flat bottom surface and a generally rounded lower extremity, the width of said bottom surface of said upper extremity at its uppermost portion being greater than the width of said lower extremity for accommodating at least one object upon its flat side; upstanding wall portions on the sides of said upper extremity of said chute, said wall portions progressively decreasing in radius of curvature from the upper portion of the upper extremity to the lower portion thereof where said upper extremity merges with said lower extremity, said flat bottom surface of said upper extremity becoming progressively narrower from said upper portion to said lower portion; means for supporting said plurality of adjacent chute means in an inclined position; an eccentric driver and follower means connected to said chute supporting means so as to rotate the same in a reciprocating manner, thereby imparting a vibratory motion to all of said chute means and to any of said wafer-like objects upon the same; and an electric motor adapted to drive said eccentric driver and follower means.

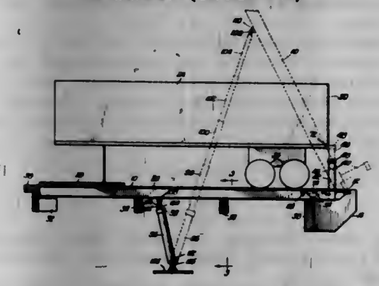
3,317,064
SELF-CONTAINED FORAGE WAGON ASSEMBLY FOR HARVESTER COMBINE
Boris M. Fingerut, Lake Grove, Oreg., assignor to Portland Wire & Iron Works, Portland, Oreg., a corporation of Oregon
Filed Aug. 24, 1964, Ser. No. 391,447
6 Claims. (Cl. 214—42)



1. In a self-contained forage wagon of the character described adapted for use with a harvester combine having rearwardly extending chaff-discharging means and straw-discharging means, a hitch on the wagon for connecting said wagon to the harvester combine, a blower assembly

entirely supported on said wagon and centrally positioned at the front end of said wagon, a housing for said blower assembly, a top wall on said housing, an impeller in said housing, a motor on said wagon operating said impeller, said top wall of said housing having a central entrance opening into said blower assembly interior, upwardly outwardly expanding guide means on said housing extending from said entrance opening, said blower assembly and said guide means so located on said wagon that said blower housing and said guide means will be above said hitch and below the ends of the chaff-discharging means and straw-discharging means on the harvester combine when said wagon is hitched to the harvester combine, an upwardly rearwardly extending chute entirely supported on said wagon and connected with said housing, and a forage bin on the rear portion of said wagon for receiving material discharged from said chute.

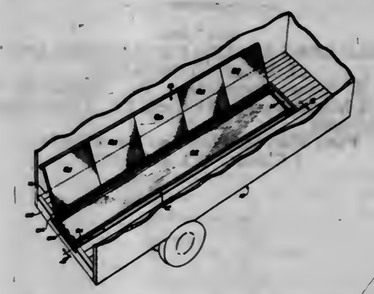
3,317,065
TRUCK TILTING PLATFORM HAVING RETRACTABLE BACKSTOP
Hugh L. Scott, Hammond, Ind., assignor to Screw Conveyor Corporation, a corporation of Illinois
Filed Aug. 21, 1964, Ser. No. 391,177
14 Claims. (Cl. 214—49)



1. Truck unloading apparatus comprising, in combination, a tilting truck supporting platform pivoted in the vicinity of one end, means for tilting said platform with the truck thereon about the pivot for said platform, a backstop having a first portion pivoted to said platform and having a horizontal position within said platform, a first hydraulic cylinder and piston structure operable to swing said backstop from its horizontal position to a vertical position extending upwardly from said platform, said backstop having a second portion constituting the upper end of said backstop when in vertical position, and a second hydraulic cylinder and piston structure positioned within said backstop and operable to raise and lower second portion of said backstop from said first portion of said backstop for proper cooperation with the backs of different trucks.

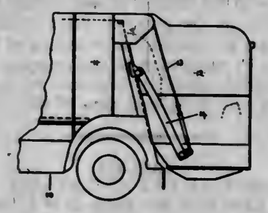
3,317,066
TRAILER VAN AND CONVEYOR
Billie Hamm, 573 Palmetto Drive, Miami, Fla. 33166
Filed Feb. 11, 1966. Ser. No. 526,754
2 Claims. (Cl. 214—83.36)

1. In combination, a trailer for hauling separate articles of general cargo and a conveyor system secured longitudinally in the trailer, said trailer including side walls and a main floor to support a load, said main floor having a longitudinally extending opening substantially along the length of the floor and terminating adjacent the rear of the trailer, a sub-floor under the opening and side walls supported by the trailer and defining a longitudinally extending receptacle, a plurality of separate hingedly mounted doors along one longitudinal edge of the opening, said doors each being sized to overlay a portion of the opening when the vehicle is loaded and adapted to be opened or closed in sequence to progressively expose or close the receptacle on loading or unloading operation, said conveyor system including, a conveyor means in the receptacle and including a frame having a continuous conveyor base extending from a point adjacent one end of the receptacle to the other end of the receptacle, a drive drum adjacent one end of the receptacle and a driven drum adjacent the other end of the receptacle, said drums having parallel shafts, and an endless belt spanning the drums and supported along the length thereof by said base, said base being disposed slightly below the main plane of said trailer floor, tensioning means carried on the frame to move the driven



and driving drums apart with their axes parallel to one another to tighten said belt, and drive means connected to said conveyor to move the conveyor continuously, and said side walls having a continuous recess at the floor plane defining a depressed lip to nest and support the marginal edges of said doors so that the doors, when closed, are flush in the main plane of the trailer floor, whereby a vehicle may be loaded and unloaded by positioning articles on the conveyor for movement along the floor of the vehicle and the doors are dimensioned relative to the trailer floor and the receptacle width such that when folded out of the plane of the floor the swinging edge rests against the longitudinally extending side walls of the trailer and bumper means are provided to cushion the swinging edge of the doors along the line of contact with the trailer.

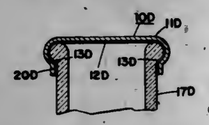
3,317,067
REFUSE VEHICLE
Dennis Guy Palmer and Kenneth Leslie Merther, Leamington Spa, England, assignors to Eagle Engineering Company Limited, Warwick, England, a British company
Filed June 1, 1964, Ser. No. 371,645
Claims priority, application Great Britain, June 4, 1963, 22,073/63
9 Claims. (Cl. 214—519)



1. A refuse vehicle comprising a body having a main chamber and a secondary chamber, a first reciprocable member mounted on the body for crushing refuse in the secondary chamber, a second reciprocable member mounted on the body for displacing crushed refuse from

the secondary chamber into the main chamber, guide means constraining said first member to move in a curved path, guide means constraining the second member to move in a straight path, each of said guide means comprising V-section guides mounted on the body and rollers complementary with said guides mounted on said first and second members, with each roller on said first member being located in a cage free to pivot about an axis perpendicular to both the axis of rotation of the roller and to the plane containing the guide engaged by said roller, and with each roller on said second member being located in a cage fixed to said second member, and means connected to the first and second members for operating said members approximately in quadrature when crushing and displacing respectively.

3,317,068
TEAR-OPEN SEALED CONTAINERS AND CLOSURES THEREFOR
Thomas E. Betner, Bryn Mawr, Pa., assignor to Acme Plate & Mat Company, Malvern, Pa., a corporation of Pennsylvania
Filed Mar. 22, 1965, Ser. No. 441,470
8 Claims. (Cl. 215—39)



1. A sealed container and cover arrangement which can be unsealed by removal of the cover without recourse to a knife or other tool and which provides for recapping of the unsealed container by the removed cover comprising

a container body having cover-retaining structure adjacent its open end; and

a cover comprising two layers of substantially different strength having their adjacent faces bonded together,

at least the outer stronger layer of said cover extending across said open end of the container with its peripheral area in gripping engagement with said cover-retaining structure of the container body,

only the inner and weaker of said layers of the cover being sealed throughout a marginal area of the cover to the container body to provide hermetic sealing of the container by said inner layer of the cover, the bond between said inner, weaker layer of the cover and said container body being stronger than the bond between said layers of the cover,

the lifting of said cover releasing said gripping engagement between its outer layer and said cover-retaining structure of the container body and also breaking the bond between said layers of the cover and so leaving said marginal area of the inner layer of the cover attached solely to the container body for access to the interior of said container body, said outer layer of the removed cover remaining essentially intact for subsequent recapping of the unsealed container by restoration of said gripping engagement between said retaining structure of the container body and said peripheral area of the cover.

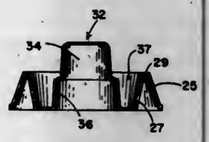
3,317,069
BOTTLE CAP AND STAND
Wesley S. C. Chin, P.O. Box 8412, 3934 S. Bronson Ave., Los Angeles, Calif. 90008
Filed May 6, 1965, Ser. No. 453,601
2 Claims. (Cl. 215—47)

1. A combination bottle cap and stand, comprising:

a one piece bottle plug having a base adapted to seat upon a planar surface, said plug having a stepped concentric form around a central longitudinal axis for fitting a plurality of differing size bottle openings;

a well surrounding said plug and attached to the base of said plug, said well defined by an annular wall extending on a plane substantially normal to said axis of said plug, and an upwardly and outwardly sloping wall extending less than the altitude of said plug;

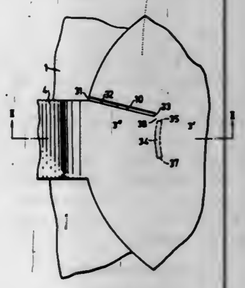
stand means for projecting outwardly to a stability position on said plane, said stand means comprising an



upwardly and inwardly sloping wall beginning on said plane and extending to a juncture with said outwardly sloping well wall, said well wall and stand wall having an inverted V cross sectional configuration;

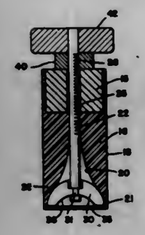
whereby, said plug may project into the mouth of a bottle and close said mouth, and the well may provide additional sealing closure for the bottle as well as to catch any inadvertent seepage from said bottle, and the stand means provides stability against tipping of a bottle held in an inverted position upon said plug.

3,317,070
CAP
Anders Ruben Rausing, Simontorps Säteri, Sjobo, and Rolf Lennart Ignell, Lund, Sweden; said Ignell assignor to said Rausing
Filed Mar. 18, 1966, Ser. No. 535,466
Claims priority, application Sweden, Mar. 20, 1965 3,630/65
5 Claims. (Cl. 215—47)
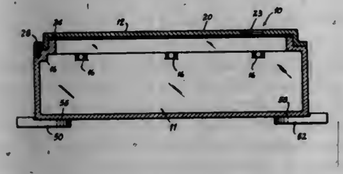


1. A cap having a tubular plug portion and a lid portion provided with a pulling handle, the lid portion having a greater diameter than the outer diameter of the tubular plug portion and being intended to be separated from the said tubular plug portion when opening that container for which the cap is intended, characterized by a tear-up indication in the shape of an annular recess (11) in the tubular plug portion; and by at least one weakening line (32) in the peripheral portion (3") of the lid extending substantially from a point (31) of the periphery of the lid adjacent the pulling handle (4) towards the joint (12) between the lid portion and the tubular plug portion.

3,317,071
BOTTLE STOPPER
Desmond M. Teeter, 5807 Charles Ave., El Cerrito, Calif. 94530
Filed July 16, 1965, Ser. No. 472,461
4 Claims. (Cl. 215—54)



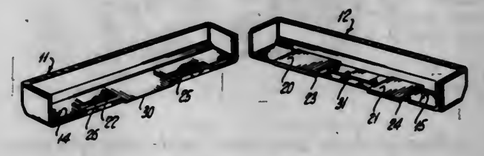
1. A stopper having a resilient cylindrical member with a substantially constant outer diameter and having an inner concentric conical bore said bore tapering upwardly and inwardly, the slope of said bore continually increasing in a direction toward its innermost point, a semi-spherical piston mounted within said bore having a diameter approximating the widest diameter of said conical bore, and positioning means for moving said piston longitudinally of said cylinder to position said piston at various areas of reduced diameter within said cylinder, said piston co-acting in the areas of reduced diameter by extending pressure outwardly to cause a spherical expansion of said resilient cylindrical member which is restricted to a portion of the otherwise-constant diameter cylindrical skirt.

3,317,072
CAST BOX
Marshall G. Zavertnik, Manchester, Joseph J. Farina, Bridgeton, and George F. Linne, St. Louis, Mo., assignors to Killark Electric Manufacturing Company, St. Louis, Mo., a corporation of Missouri
Filed Aug. 28, 1963, Ser. No. 305,113
2 Claims. (Cl. 220—3.8)



1. In a box: a main, open-top, lower box part having a bottom and side walls, and having a substantially horizontal flange around the top having a smooth sealing surface, an upstanding rim adjacent the horizontal flange, also having a smooth sealing vertical surface, all of the foregoing being a single, unitary cast metal piece, and a cover having a top wall and side flanges, the side flanges having bottom, horizontal, sealing surfaces that match with horizontal surfaces on the flange, and having vertical surfaces to match with those on the flange and said sealing surfaces on the box and cover having a width extending unbroken all around the cover and box part to afford surfaces of sufficient width to constitute a frame and explosion barrier; means to clamp said cover and box part flange surfaces in tight engagement; a gasket clamped between the top and box part, the cover being of aluminum and means securing the gasket to the cover.

3,317,073
PLASTIC MOLDED CASE HALVES WITH CONCEALED INTERLOCK
Leo G. Woerner, Lancaster, Pa., assignor to Schick Electric Inc., Lancaster, Pa., a corporation of Pennsylvania
Filed Jan. 6, 1965, Ser. No. 423,658
1 Claim. (Cl. 220—4)



A plastic case for electric shavers and the like comprising:

(a) molded halves having abutting upper ends and mating side and lower end walls and means for locking such walls against lateral separation;

(b) manually releasable means adapted to secure the upper ends of the case halves against pull-apart separation;

(c) locking means independent of both said above-mentioned means for interlocking the lower ends only of the halves against pull-apart separation and including a locking element molded integrally with the inner face of the lower end wall of one of the halves;

(d) said locking element forming a projection extending beyond the adjacent edges of the end wall of which it is a part and in the direction and into the interior of the other case half adjacent the inner face of the lower end wall thereof;

(e) said independent locking means also including a keeper molded integrally with the inner face of the lower end wall of said other case half adjacent the said locking element;

(f) said keeper element forming a projection extending beyond the adjacent edges of the end wall of which it is a part and in the direction and into the interior of the first-mentioned case half adjacent the inner face of the lower end wall thereof;

(g) the said locking element terminating within the said other case half in a downwardly directed hook and the inner face of the lower end wall of the said other case half having an upwardly directed recess to receive said hook;

(h) said hook and recess being shaped to positively interlock the said lower end walls against pull-apart separation;

the case halves being separable only by first releasing the said manually releasable means, thereby freeing the upper ends of the case halves from one another, and then moving the said upper ends apart in a direction to rotate the halves about the edges of the said mating lower end walls, whereby the said hook is raised out of the said recess, thereby freeing the lower ends of the case halves from one another.

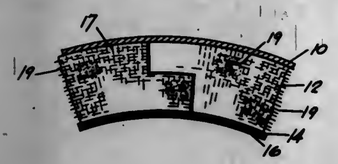
3,317,074
CRYOGENIC CONTAINERS
Horace H. Barker, Jr., Los Angeles, Richard L. Long, Manhattan Beach, Dante Rosello, Long Beach, Gilbert J. Soldat, Woodland Hills, and Theodore D. Smith, Pacific Palisades, Calif., assignors to Douglas Aircraft Company, Inc., Santa Monica, Calif.
Filed June 17, 1963, Ser. No. 289,773
5 Claims. (Cl. 220—9)

5. A cryogenic container comprising:

an outer metal tank of structural thickness;

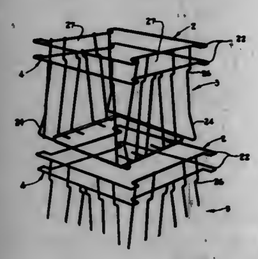
a plurality of joined panels bonded to the inner surface of said tank, each of said panels comprising a multiplicity of braided glass fiber threads arranged

substantially perpendicular and imbedded in a matrix of foam, wherein the ends of fibers extending between the faces of said panels protrude therefrom;



a liner of woven glass fibers impregnated with epoxy resin bonded to the inner surface of said panels; and a sealant coating on the inner surface of said liner.

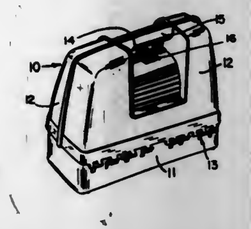
3,317,075
CARRIER FOR MILK CARTONS
Clarence H. Drader, R.R. 2, South Edmonton, Alberta, Canada
Filed May 3, 1965, Ser. No. 452,665
3 Claims. (Cl. 220—19)



1. In a nesting carrier basket construction having substantially square spaced upper and lower substantially parallel frames interconnected by side frames substantially at right angles to the upper and lower frames and with the side frames consisting of a plurality of spaced parallel segments tapering inwardly from the bottom frame to the top frame whereby one basket may be nestingly received within a similar basket, the improvement which comprises forming the upper frame at its corners into open ears projecting in opposite directions on two sides of the basket and forming segments of the side frames adjacent the lower frame into ears projecting on opposite sides of the basket and located immediately below the said ears in the upper frame whereby the ears formed in the segments of the side frame will be received in the ears of the upper frame of a similar basket when the baskets are nested and whereby the ears formed in the segments of the side frame will engage on the upper frame to stack the baskets when one basket is rotated 90° with respect to the other.

3,317,076
PLASTIC CASE
Sherwood G. Enders, Bowleys Quarters, Baltimore, Md., assignor to The Black and Decker Manufacturing Company, Towson, Md., a corporation of Maryland
Filed May 26, 1964, Ser. No. 370,238
6 Claims. (Cl. 220—31)

1. In a plastic case of the type which comprises at least one pair of members, means to hinge said members together, comprising, in combination:
(a) a first hinge element formed integrally with one of said members;
(b) a first retaining element formed integrally with the other of said members to cooperate with said first hinge element;
(c) a second hinge element formed integrally with the other of said members and spaced longitudinally of said first retaining element;
(d) a second retaining element formed integrally with said one member, spaced longitudinally from said first hinge element, and cooperating with said second hinge element; and



(e) each set of respective hinge elements and cooperating retainer elements having means included therein for preventing longitudinal sliding movement between said respective elements until said members of the case have been pivoted a certain degree with respect to each other.

3,317,077
PLASTIC BOX WITH DOVETAILED HINGING AND LATCHING MEANS
Paul A. Braginetz and George A. La Cas, Staunton, Va., assignors to Philip Morris Incorporated, New York, N.Y., a corporation of Virginia
Filed Nov. 17, 1964, Ser. No. 411,916
25 Claims. (Cl. 220—31)

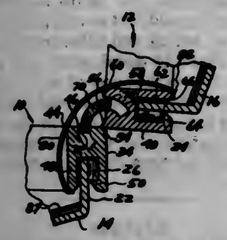


1. In a box comprising a receptacle and a cover therefor, the receptacle and cover each having front and rear wall portions arranged in planar alignment with the cover in a closed position, a flap swingably connected with the rear of said receptacle and having at least one prismatic recess therein, a prismatic projection carried by the rear wall of said cover and removably engaged in each prismatic recess, a prismatic latch projection carried by the front wall of said cover, the front wall of said receptacle having a prismatic latching recess for releasably receiving said latch projection when said cover is closed, and means carried by said receptacle for releasing said latch projection from said latching recess.

3,317,078
EXTRUDED HINGE
Alfred Jack Gordon, Adrian, Mich., assignor to Great Lakes Aluminum Fabricators, Inc., Hudson, Mich., a corporation of Michigan
Filed July 29, 1965, Ser. No. 475,637
14 Claims. (Cl. 220—35)

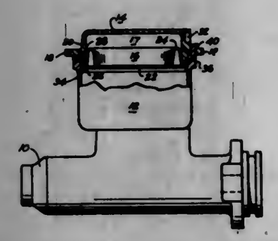
1. A hinge, including three members, two of the members consisting of extruded sections having slots, arcuate in cross-section, formed therein, and the third member

consisting of an extrusion which is arcuate in cross-section, and has a developed width at least equal to the developed depths of the arcuate slots in the other two sections, said arcuate member being disposed with its sides in each of the arcuate slots and arranged so that the first two



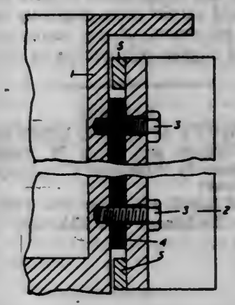
extrusions may be moved between an open position, wherein only the ends of the arcuate member are disposed in the two slots, and a closed position, wherein the full width of the arcuate member is disposed within the two slots.

3,317,079
MASTER CYLINDER CAP
William E. Ferrell, St. Joseph, and Herman M. Huffman, Kalamazoo, Mich., assignors to The Bendix Corporation, St. Joseph, Mich., a corporation of Delaware
Filed Mar. 29, 1965, Ser. No. 443,535
7 Claims. (Cl. 220—40)



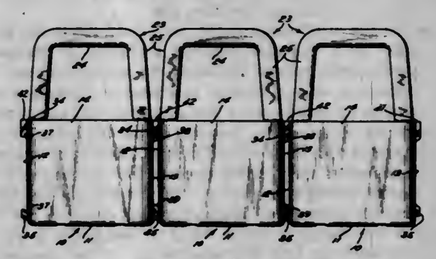
1. The combination of a master cylinder reservoir and cap comprising: a cap and a hollow reservoir member, said cap comprising an annular wall closed at the top end by a portion transverse thereto thereby defining a cavity, flange means intermediate the ends of said annular wall, the outer surface of said wall having an annular relieved portion extending between said flange means and the open end of said wall, a flexible sealing member bridging the entire cavity and having its outer peripheral portion received in said relieved portion, vent means in said cap for venting said cavity, said reservoir member having an upper open end annular wall portion receiving the lower end of said annular wall of said cap therein, said peripheral portion of said sealing member compressively engaging the inner surface of said reservoir wall, the bottom surface of said flange means engaging the end of said reservoir wall at the open end thereof, at least one lug extending upwards from the open end of said reservoir wall, said lug including a finger extending radially outwards therefrom, at least one opening in said flange means, said finger extending through said opening in said flange means, said opening having an initial finger receiving section of radial width at least equal to the radial length of said finger and a finger retaining section of radial width smaller than the radial length of said finger, said finger and sections being so located that upon rotation of said cap in one direction said finger will be located within said finger retainer section of said opening, whereby said cap is removably secured to said reservoir member.

3,317,080
TANKS FOR INDUCTIVE APPARATUS
Deryck Lelean Buttrick, Wilmslow, and Max Milner, Salford, England, assignors to Ferranti, Limited, Lancashire, England, a company of Great Britain and Northern Ireland
Filed Feb. 20, 1964, Ser. No. 346,224
Claims priority, application Great Britain, Feb. 23, 1963, 7,382/63
6 Claims. (Cl. 220—71)



1. A tank for inductive apparatus, at least one wall of said tank being provided with one or more stiffeners, said stiffeners each comprising a rigid beam member more rigid than said wall and loosely secured at intervals along its length to said wall, said beam member being spaced from said wall such that said wall is free to vibrate, but distortion of said wall is limited by said beam member, and metallic pads disposed between said wall and each said beam member, said metallic pads being secured to one of said wall or said beam member such that said pads are spaced from the other of said wall or said beam member by a small gap.

3,317,081
BOTTLE CARRIER
Richard T. Cornelius, Minneapolis, Minn., assignor to The Cornelius Company, Anoka, Minn., a corporation of Minnesota
Filed June 14, 1965, Ser. No. 463,814
14 Claims. (Cl. 220—102)

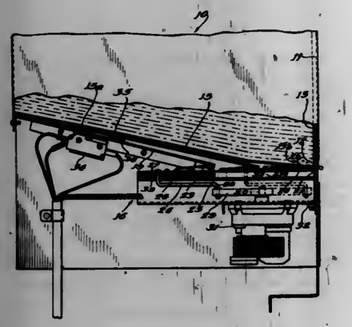


1. A bottle carrier assembly including:
(a) a plurality of plastic carrier units each of which comprises a one-piece plastic tray having base and upstanding side and end walls, with divider means dividing the tray into an array of upwardly opening bottle-receiving cells;

(b) complementary longitudinally extending tongue and groove coupling flange structures on opposed side walls of the carrier units interengaged by longitudinal relative assembly movement of the carrier units with said base in horizontal orientation and separable by reverse relative longitudinal movement of the carrier units;

(c) and stop means respectively associated with said tongue and groove flange structures and comprising a shoulder at one extremity of one of said structures facing in one longitudinal direction and a complementary shoulder on the corresponding extremity of the other of said structures and facing in the opposite longitudinal direction, said shoulders opposing one another and abutting in face-to-face relation at the end of said longitudinal relative assembly movement of said carrier units positively to limit relative assembly movement of the carrier units to a predetermined aligned relationship of the units.

3,317,082
PRODUCT AND BAG DISPENSER
Leonard W. Ohlsson and Jerry W. Saddler, St. Paul, Minn., assignors to Whirlpool Corporation, a corporation of Delaware
Filed July 2, 1964, Ser. No. 379,845
2 Claims. (Cl. 221—14)

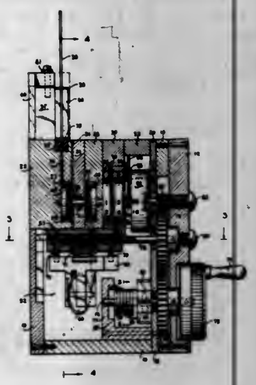


1. In an apparatus utilizing bags for holding a product and having a first mechanism including a control providing a preselected cycle of operation thereof, means for providing bags one-at-a-time from a supply for use in said apparatus, said bag providing means comprising:

means for storing a pluraltiy of bags for delivery seriatim to a discharge position; and

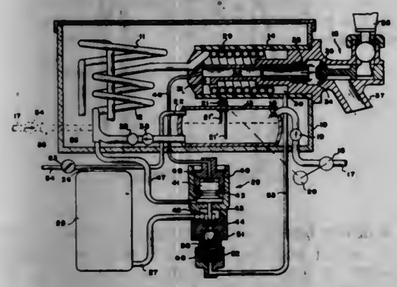
means for discharging a bag from said discharge position to a dispense position including a discharge mechanism, means including an electric motor for operating said discharge mechanism through a discharge cycle wherein a bag is discharged, and control means arranged to respond to an initiation of the cycle of operation of said first mechanism to energize said motor and thereby operate the discharge mechanism through one cycle, said control means being further arranged to de-energize said motor at the end of the discharge cycle while allowing the cycle of operation of said first mechanism to be completed, and set itself up for a subsequent discharge cycle upon initiation of a subsequent cycle of operation of said first mechanism, said control means including a first switch connected in series with said motor and arranged to be opened at the initiation of the cycle of operation of said first mechanism, and a second switch connected in parallel with said first switch and arranged to be closed at the initiation of the cycle of operation of said first mechanism to energize said motor at that time, means associated with said motor for opening said second switch after a preselected amount of operation of the discharge mechanism, means for holding said second switch open until completion of the cycle of operation of said first mechanism, and means associated with said motor for closing said first switch prior to the opening of said second switch and subsequently opening said first switch after the opening of said second switch to terminate the energization of said motor, said control means further including a third switch and means responsive to the weight of bags in the storing means to preclude operation of the first mechanism whenever the supply of bags therein is below a preselected minimum.

3,317,083
APPARATUS AND METHOD FOR MAKING ACCURATE MICRO-MEASUREMENTS AND FOR DISPENSING ACCURATELY MEASURED SMALL QUANTITIES OF LIQUIDS
Vaughan Morrill, Jr., Creve Coeur, Mo. (26 S. Spoede, St. Louis, Mo. 63141)
Filed May 27, 1965, Ser. No. 459,278
10 Claims. (Cl. 222—1)



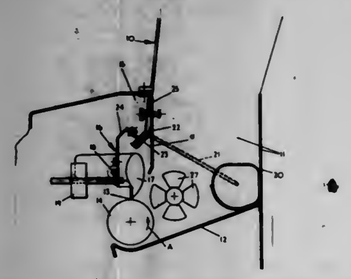
1. The method of accurately dispensing measured small quantities of a liquid held in a chamber with a liquid discharge passageway having an inlet communicating with the chamber and thru which liquid from the chamber can enter the discharge passageway and an outlet for egress of measured small quantities of liquid and with a filament guide channel having an inlet thru which may be drawn an accurately measured length of an elongated flexible relatively inelastic filament made of a material unaffected by the liquid and having substantially uniform cross-sectional dimensional characteristics throughout its effective length, and having an outlet communicating with the chamber and through which the wire can enter the chamber which comprises: drawing the filament through the inlet of the filament guide channel; simultaneously frictionally engaging the filament in the guide channel by providing channel dimensions effectively smaller than the diameter of the wire so that it is in sealing-wiping relationship therewith; subjecting the filament to a uniform tension below the elastic limit of the filament as it is drawn thru the guide channel; drawing into the chamber through the outlet of the filament guide channel and accumulating therein an accurately measured length of filament thereby simultaneously displacing liquid from the chamber into the discharge passageway; and passing from the outlet of the discharge passageway a volumetric quantity of liquid exactly equal to the volumertic quantity of the measured length of filament drawn into the chamber.

3,317,084
BEVERAGE MIXING AND DISPENSING SYSTEM
Frank Welty, Youngstown, Ohio, assignor to The Vendo Company, Kansas City, Mo., a corporation of Missouri
Filed June 8, 1965, Ser. No. 462,348
4 Claims. (Cl. 222—57)



1. Apparatus for dispensing beverages mixed from water and flavoring syrup comprising a cooling coil for the water or beverage discharging into a dispensing faucet, means to supply water to said coil at a controlled rate upon the opening of the faucet, and means to introduce into the water passage extending through said coil and faucet flavoring syrup at a controlled rate, the latter means being operative upon the opening of said faucet, said syrup introduction means comprising a pilot-operated flow control valve, and further including means operative in response to the pressure drop at spaced points along said passage upon opening of the faucet to open said pilot-operated valve.

3,317,085
FEEDERS FOR GRANULAR OR PULVERULENT MATERIALS
Ernest William Higgs, Chinley, England, assignor to Henry Simon Limited, Stockport, England
Filed Oct. 18, 1965, Ser. No. 497,400
Claims priority, application Great Britain, Oct. 21, 1964, 42,874/64
5 Claims. (Cl. 222—58)



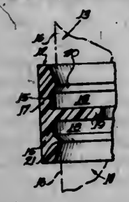
1. A feeding means for granular or pulverulent material, comprising, a hopper having at the bottom of one of its walls an outlet port which is vertically narrow relative to its horizontal width and whereof the effective outlet area is controlled by a pivoted feed-gate biased towards a closed position and arranged so that the port-closing part of the feed-gate remains parallel to the bottom of the outlet port as the feed-gate is caused to rock on its pivots to vary the height of the outlet port opening, means which regulates the pivotal movements of the feed-gate in accordance with the dead-weight of the material supported by at least a portion of the base of the hopper which regulating means is a collapsible reservoir containing air and being so mounted relative to the base of the hopper that a resilient cushion is formed to support the weight of the material superimposed thereon, and a connecting pipe leading from the collapsible reservoir to a secondary collapsible reservoir mounted between a fixed structural element and a lever extension of the pivoted feed-gate, the two collapsible reservoirs and their connecting pipe being sealed against any loss of their contents so that air displaced from the hopper base collapsible reservoir by the weight of the material supported thereon flows through the connecting pipe to the secondary collapsible reservoir causing it to expand and move the lever extension of the feed-gate so that the feed-gate is caused to rock on its pivots to a position providing a feed outlet area directly related to the weight of material supported by the hopper base reservoir, characterised in that the connecting pipe between the collapsible reservoirs has a branch connecting pipe leading to a sealed pressure chamber of a pressure sensitive device of known kind arranged to actuate members which control the operation of the processing machinery associated with the feeder in such manner that when the weight of material resting on the reservoir in the hopper falls below a predetermined value the feed-gate is closed and simultaneously the machinery is rendered inoperative.

3,317,086
STORAGE APPARATUSES FOR GRANULAR OR PULVERULENT MATERIAL
Gustav Arthur Welinder, Lockarp, Sweden, assignor to A.-B. Interconsult, Malmo, Sweden
Filed Jan. 21, 1966, Ser. No. 522,298
Claims priority, application Sweden, Feb. 2, 1965, 1,322/65
2 Claims. (Cl. 222—136)



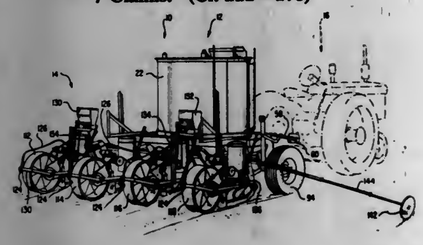
1. A storage apparatus for particulate material, comprising a closed container, partition means in said container subdividing the interior of said container into a plurality of cells, closable inlet means for each cell at the top of said container for introducing particulate material in a stream of gas under pressure selectively into each cell, closable outlet means for each cell at the bottom of said container for discharging the material by means of gas under pressure selectively from each cell, gas passageway means on said partition means interconnecting said cells adjacent their upper ends, and filter means associated with said gas passageway means and being permeable to gas but impermeable to the particulate material.

3,317,087
HOLDER FOR FLANGED PARTS
Henry Richard Landis, Oaklawn, Ill., assignor to Landis Plastics, Inc., Chicago, Ill., a corporation of Illinois
Filed Sept. 25, 1964, Ser. No. 399,264
8 Claims. (Cl. 222—143)



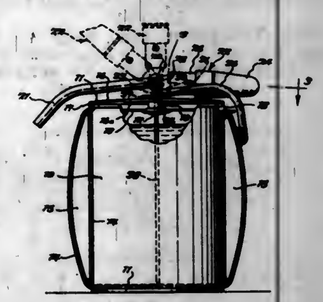
2. The combination of two tubular parts aligned longitudinally and having flanges projecting radially and outwardly from adjacent ends of the parts and a holder comprising a tubular wall having an inner surface complementary in shape to said flanges and adapted to telescope closely with the flanges, intermediate stop means projecting radially and inwardly from said inner surface intermediate the ends of said tubular wall to engage said ends of said parts and limit the telescoping movement of said flanges with respect to the inner surface, a first retaining member projecting radially and inwardly from said inner surface on one side of said stop means and spaced from the stop means to hook behind said flange of a part engaging that side of the stop means to hold the part assembled releasably to the holder, and a second retaining member projecting radially and inwardly from said inner surface on the other side of said stop means and spaced from the stop means to hook behind said flange of another part engaging that side of the stop means to hold the part assembled releasably to the holder.

3,317,088
FERTILIZER APPLICATOR
William E. Funk and Irvin H. Lehman, both of Kentland, Ind., assignors to Edw. J. Funk & Sons Inc., Kentland, Ind., a corporation of Indiana
Filed June 1, 1964, Ser. No. 371,398
7 Claims. (Cl. 222—178)



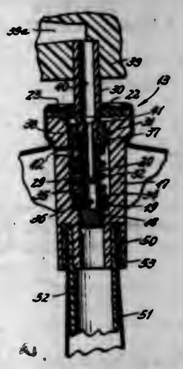
4. A slurry rig for applying a slurry fertilizer to soil and for forming a plurality of substantially equally compacted tracks for planting and receipt of said fertilizer, said slurry rig comprising a tank for holding slurry adapted to be drawn by a motor vehicle over the soil, an agitator in said tank for breaking up large crystals that may form, a bed supporting said tank and including a pair of pivot axles extending parallel to the direction of travel of said tank over the soil, wheel frames pivoted to each of said axles, and a pair of wheels rotatably mounted on each of said wheel frames, slurry fertilizer distributing means disposed in line with said tracks formed by said wheels, and means for delivering slurry fertilizer from said tank to said distributing means so as to deposit slurry fertilizer in the tracks compacted by said wheels.

3,317,089
LIQUID STORING AND DISPENSING DEVICE
John F. Kopczynski, 1671 Sweeney St., North Tonawanda, N.Y. 14120
Filed Mar. 18, 1966, Ser. No. 538,141
17 Claims. (Cl. 222—183)



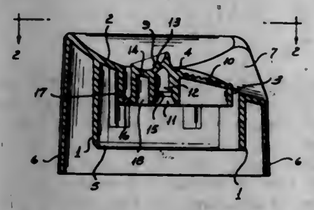
9. A device for use with containers in which a beverage may be stored and from which it may be dispensed in increments at intervals through an aperture in an end wall of said container, which comprises:
(a) a shell of elastomeric material of a size and shape to snugly but detachably encircle the periphery of a container, and having an inflatable chamber,
(b) a bridge member formed at its ends for detachable connection across said end wall of a container on which said shell may be placed,
(c) said member having means engageable with said end wall at said aperture for connecting a source of gas under pressure to said chamber and to the interior of a container on which said member is secured, and for maintaining the interior of said container under gaseous pressure and for dispensing said beverage from said container in selected increments.

3,317,090
DISPENSING MEANS AND VALVE MEANS THEREFOR
Philip Meshberg, 15 Stoneleigh Road, Fairfield, Conn. 06430
Filed Sept. 13, 1965, Ser. No. 486,813
6 Claims. (Cl. 222—386.5)



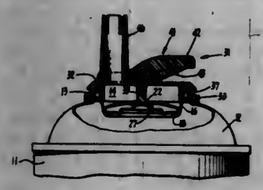
1. A dispensing device comprising a container having a material therein to be dispensed therefrom, a reciprocating valve unit mounted on the container and having means communicating with said container to control the dispensing of the material therefrom, and a flexible, expansible bag disposed in said container and connected to said valve unit, said valve unit having a removable portion providing means to connect said bag to an external source of pressure producing material to be charged therefrom and to thereafter be replaced to seal the bag in dispensing position of said valve unit whereby pressure produced in said bag is applied to said material in the container to expel said material from the container under control of said valve unit.

3,317,091
AEROSOL DISPENSER ANTI-CLOGGING DEVICE
John Richard Focht, Yonkers, N.Y., assignor to Precision Valve Corporation, Yonkers, N.Y., a corporation of New York
Filed Feb. 16, 1965, Ser. No. 433,036
4 Claims. (Cl. 222—402.13)



1. A cap for aerosol dispensers comprising a cap body having a top opening, a valve operating tab positioned within said top opening and having on its underside a socket to receive the valve stem of a container, said tab further having a forward portion having a recessed region through which discharge of the container contents occurs and a rear portion for receiving the valve actuating force, and a discharge passage communicating at one end with the valve stem and at the other end with a discharge orifice in a conical projection within the recess, said discharge orifice being elevated with respect to the adjacent surface of the recess thereby forming an obtuse angle between the center line of the discharging spray and the adjacent surface of the projection.

3,317,092
CENTER-PUSH LEVER RELEASE MECHANISM FOR AEROSOL VALVES
Walter R. Jurasek, Gustine, Calif., assignor to Avoset Company, Oakland, Calif., a corporation of Delaware
Filed June 23, 1965, Ser. No. 466,272
4 Claims. (Cl. 222—402.13)



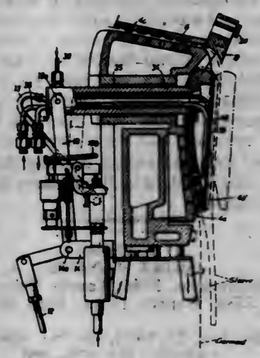
1. In an aerosol container having an upper open end provided with a peripheral bead, a closure member closing said open end and having a discharge opening, and resilient valve means underlying and normally closing said discharge opening; the combination therewith of a cap member having a top portion disposed in spaced relation to said closure member and an integral peripheral skirt portion engaging said container bead on both the inner and outer peripheral portions thereof, said cap member having a product outlet extending from said top portion and further having a valve actuator element formed integrally with and depending from said top portion and adapted to move said valve means out of closing engagement with said discharge opening when pressure is applied to the upper surface of said cap.

3,317,093
SEALABLE POURING CAP
James G. Moran, 122 N. Rose St., Burbank, Calif. 91505
Filed Dec. 24, 1964, Ser. No. 420,894
6 Claims. (Cl. 222—484)



1. A pouring cap structure for a container having a pouring neck, said cap structure comprising:
(a) a cap member including an essentially cylindrical portion fitted over the neck of a container and a capping portion covering the open end thereof, said cap member having a fluid discharge port and an air inlet port;
(b) a divider member member integral with said capping portion and extending into said pouring neck, said divider member having circumferentially spaced peripheral surfaces in intimate contact with the inner surface of said pouring neck and at least one wall extending between said contacting surfaces, said wall being spaced from and defining with the confronting surface of said pouring neck a passage communicating between at least one of said ports and a point inwardly from said capping portion;
(c) and means for opening and closing said ports.

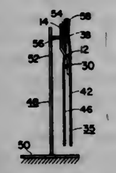
3,317,094
PRESSING MACHINE
Alois Schmid, Munich, Germany, assignor to Hoffman Maschinen G.m.b.H., Cologne-Mulheim, Germany, a corporation of Germany
Filed Aug. 17, 1965, Ser. No. 480,377
Claims priority, application Germany, Aug. 17, 1964, H 53,544
7 Claims. (Cl. 223—57)



1. An ironing press for operation on the shoulder portions of garments and including a frame, lower and upper pressing plates carried by the frame, the latter being

movable and adapted to be pressed against said lower plate, said latter plate adapted to underlie the shoulder section of a garment and whose upper section and opposed front and rear sections are shaped to substantially conform to the shape of the shoulder section of the human body, said lower pressing plate having a downwardly extending hollow shoulder shaping part provided with inner and outer walls and having openings in its outer wall through which air and vapor may pass, means for sliding the shoulder shaping part inwardly and outwardly of said lower pressing plate, conduits for said air and vapor extending through said sliding means, and means outside said lower pressing plate for moving the shoulder shaping part to an adjusted position.

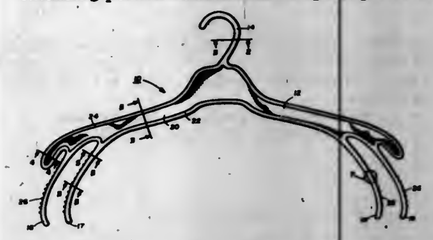
3,317,095
TIE HOLDER
James T. Kerns, 6410 Winchester Road, Fort Wayne, Ind. 46807
Filed Oct. 1, 1964, Ser. No. 400,798
10 Claims. (Cl. 223—87)



5. In combination, a tie holder and a support therefore, said support comprising a standard having a base portion and an elongated support portion, said support portion being secured to said base and extending upwardly substantially vertically from said base, said support portion having a distal end vertically spaced from said base portion, said distal end being horizontally spaced from the remaining portion of said support portion by a neck portion, said tie holder comprising a sheet of flexible material having a peripheral edge, a pair of generally rounded portions and a neck portion therebetween, one of said sheet portions having a first slit, said first slit being centrally located in said one portion and having ends adjacent each other thereby to form a first flexible tab, said one portion having a pair of holes therein intermediate said first tab and said peripheral edge, said holes being adjacent each other and adapted to receive a safety pin therein, said one portion having a first opening and a second slit intermediate said pair of holes and said peripheral edge, said second slit extending from said peripheral edge inwardly and terminating at said first opening thereby forming a second flexible tab, said other portion having a third slit therein, said third slit extending from said peripheral edge inwardly, said other portion having a second opening therein, said third slit terminating at said second opening, said neck portion of said support being inserted into said second opening thereby securing said sheet to said standard with said sheet depending from said neck portion.

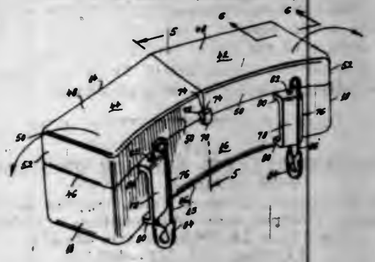
3,317,096
SKIRT HANGER
Arthur L. Bissonnette, 5566 Waneta Drive, and Donald L. Stull, 5538 Waneta Drive, both of Dallas, Tex. 75209
Filed Feb. 23, 1965, Ser. No. 434,381
1 Claim. (Cl. 223—95)

A hanger comprising in combination:
(a) an integrally molded plastic body having a generally horizontal frame portion simulating human shoulders for receiving the shoulders of a garment,
(b) a pair of elongated resilient arms integral with said frame and extending therefrom at points adjacent to the ends of said frame and extending downwardly and outwardly and curving inwardly at the ends thereof, said pair of elongated resilient arms being of substantially circular cross-section and said frame of I-shaped cross-section,
(c) friction means on the outer edges of the outwardly extending portion of each arm comprising a series of



projections extending outwardly from each of said pair of resilient arms, the projections increasing in length toward the ends of each of said pair of resilient arms with said arms lying substantially in a common plane, the ends of said pair of resilient arms being free of resilient movement inwardly for insertion of waistbands of different size garments, and
(d) a hook secured to the center of the frame for suspending the frame in a horizontal position.

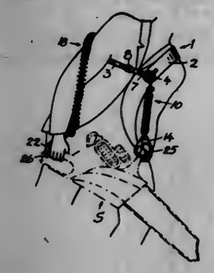
3,317,097
FISHING EQUIPMENT STORAGE BOX
Benedict J. Giordano, 123 Park St., Ridgefield Park, N.J. 07660
Filed Dec. 28, 1964, Ser. No. 421,562
8 Claims. (Cl. 224—5)



2. A fishing box comprising an elongated rectangular shaped hollow body open at the top end divided into a single central compartment and a plurality of end compartments, a pair of hinged covers closing the open top, and latching means for holding the covers in closed position, including a latch member integral with one of the long walls of the body, said covers having notches receiving portions of said latch member for releasably holding the covers in closed position, said covers having compartments interiorly thereof.

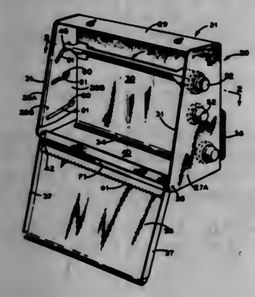
3,317,098
CARRYING DEVICE FOR A CHAIN TYPE MOTOR SAW
Inge Aurlen, Tyristrand, Norway
Filed Oct. 26, 1965, Ser. No. 505,254
3 Claims. (Cl. 224—5)

1. Carrying device for a chain-type motor saw having front and rear handles, the device comprising a buckled strap adapted to be strapped around the body of an operator, running across one shoulder and under the opposite arm, said strap comprising a relatively wide part having a free end and a second narrower part extending from the other end thereof; fastening means provided on said strap in spaced relation longitudinally thereof, the fastening means including a first ring secured at the free end of the relatively wide strap part, a buckle connected to said ring to cooperate with the second strap part, and



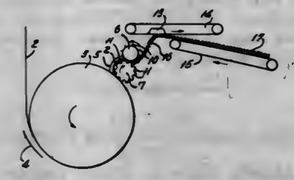
a second ring secured adjacent the other end of the relatively wide strap part; a first resilient suspension strop detachably connected to said first ring; a second resilient suspension strop detachably connected to said second ring; and means at the free ends of said resilient strops for connection thereof to the front and rear handles of said saw, respectively.

3,317,099
DISPENSER FOR ROLLED SHEETS OF MATERIAL
Jack Solomon, Brooklyn, N.Y., assignor to Lincoln Metal Products Corporation, Brooklyn, N.Y., a corporation of New York
Filed July 29, 1966, Ser. No. 568,868
15 Claims. (Cl. 225—23)



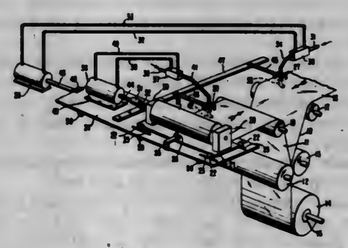
1. A dispenser for dispensing sheet materials packaged in rolls on tubular cores comprising in combination:
a housing having opposed side wall forming means, a top wall connected therebetween, and a back forming wall connected between said side wall forming means to define an open front for said housing,
a closure for said open front of said housing,
means for pivotly connecting said closure to the side wall means of said housing for movement between open and closed positions,
a cutter having a cutting edge,
means pivoting said cutter to said closure whereby the cutting edge of said cutter is disposed in cutting position adjacent the bottom edge of said closure in the closed position of said closure and pivoted to inoperative position in the open position of said closure,
said side wall forming means defining with said closure a slotted opening at the bottom thereof adjacent said cutter, said slotted opening being substantially coextensive in width to said cutter, and roll-support means mounted between the side wall means for supporting therebetween a roll of sheet material to be dispensed.

3,317,100
MACHINE FOR MAKING SHORT FIBERS PARTICULARLY FROM GLASS
Herbert Flemming and Gerhard Kuhne, Dresden, Germany, assignors to VEB Glasfaserwerk Steinach, Steinach, Thuringia, Germany
Filed Aug. 27, 1965, Ser. No. 483,179
8 Claims. (Cl. 225—97)



1. In an apparatus for forming into relatively short fibers of predetermined lengths elongated individual filaments made of a material which is brittle enough to break when bent beyond a predetermined critical bending radius, a roller having at its outer surface projections which terminate in tips having rounded free edges of a radius of curvature less than the critical bending radius at which the individual filaments will break, and means coacting with said roller for bending individual filaments around said rounded edges thereof so that said filaments will break.

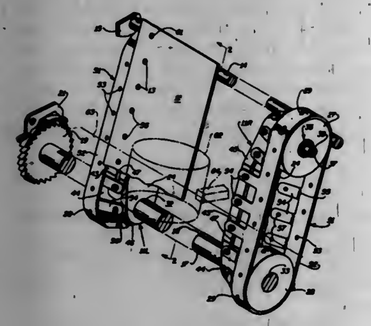
3,317,101
WEB ALIGNING APPARATUS FOR SLAVE AND MASTER WEBS
Vincent Jerome Himrod and Daniel Edward McDermott, Richmond, Va., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Aug. 11, 1964, Ser. No. 388,754
4 Claims. (Cl. 226—19)



1. A web aligning apparatus, comprising, in combination: a common support which is movable transversely to the paths of a master web and a slave web which are to be maintained in alignment; two web edge detectors mounted on said common support, each of said detectors producing an operating signal on departure from a preselected positional relationship between itself and the web edge with which it cooperates; a first servomechanism comprising first control means and a first servomotor, said first servomotor operatively connected to said movable common support and controlled by the signal output of a first one of said edge detectors which is cooperative with an edge of the master web and which moves said common support and both of said detectors to restore

the preselected positional relationship between said first detector and the edge of said master web upon generation of a signal by said first detector and to directly restore the alignment of said slave web with said master web; web positioning means for the slave web to permit transverse adjustment of the slave web; a carriage affixed to said common support which supports said web positioning means; a second servomechanism comprising second control means and a second servomotor, said second servomotor affixed to said common support, operatively connected to said web positioning means and controlled by the signal output of the second edge detector which is cooperative with an edge of said slave web and which moves said web positioning means to restore the preselected positional relationship between said second detector and the edge of said slave web upon generation of a signal by said second detector.

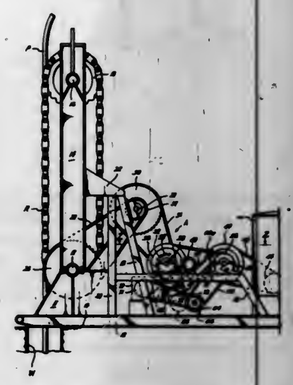
3,317,102
TRACTOR ASSEMBLIES FOR PERFORATED FORMS
Edgar G. Lizotte, Winsted, Conn., assignor to Royal Typewriter Company, Inc., New York, N.Y., a corporation of Delaware
Filed Apr. 30, 1965, Ser. No. 452,295
5 Claims. (Cl. 226—75)



1. In a machine of the character described, edge perforated forms feed mechanism including an endless flexible belt,
a plurality of flexible elements extending laterally from the body of said belt and normally converging inwardly of the path defined by the belt,
forms feed pins secured adjacent the ends of said elements,
a straight element guide platform located adjacent and inwardly of the upper run of said belt,
and planar ramps leading to and from said guide platform operable to gradually rotate said elements into the plane of said belt body as said belt is indexed whereby said pins will enter into forms holes near the top of said lead ramp, said guide platform maintaining said elements and associated pins in driving engagement over a straight run of the belt.

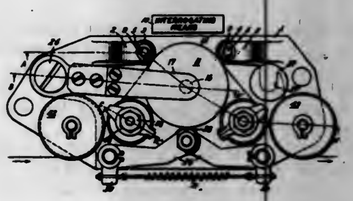
3,317,103
APPARATUS FOR HANDLING HOSE OR SIMILAR ELONGATE MEMBERS
Roy H. Cullen, Suite 1931, 500 Jefferson Bldg., Houston, Tex. 77002, and Leslie D. Richards, Houston, Tex.; said Richards assignor to said Cullen
Filed May 3, 1965, Ser. No. 452,631
3 Claims. (Cl. 226—173)

1. In an apparatus for handling flexible pipe having a drill bit and motor suspended therefrom wherein such apparatus includes an endless means for raising and lowering such flexible pipe in a well, the improvement residing in a control assembly for controlling said lowering, which control assembly includes:
(a) a drive shaft operably connected to drive said endless means,
(b) a main drive means operably connected to said drive shaft for the operation of the endless means,
(c) first clutch means for connecting and disconnecting said main drive means from said drive shaft,



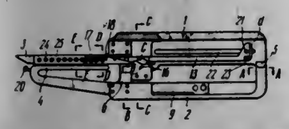
(d) an auxiliary drive means adapted to be operably connected to said drive shaft for obtaining a controlled rate of lowering of the flexible pipe when said main drive means has been operably disconnected from said drive shaft, and
(e) second clutch means for connecting and disconnecting said auxiliary drive means with said endless means.

3,317,104
TAPE INDEXING ARRANGEMENT
William C. Hughes, Scotia, Charles R. Stein, Schenectady, and Raymond W. Kunz, Ballston Lake, N.Y., assignors to General Electric Company, a corporation of New York
Filed May 5, 1965, Ser. No. 453,269
6 Claims. (Cl. 226—183)



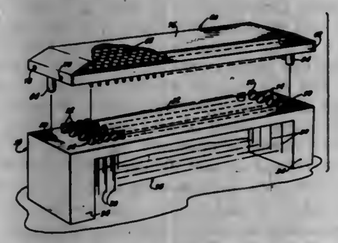
1. In a tape recorder a tape guide means comprising: a member having a surface over which a tape under tension passes while interrogating of the tape occurs by an interrogating means, said surface being directly opposite said interrogating means, fixed means toward which said member is biased, and means biasing said member toward each of said fixed means so that a tape passing between said member and said fixed means is maintained at a constant distance from said interrogating means.

3,317,105
INSTRUMENT FOR PLACING LATERAL INTESTINAL ANASTOMOSES
Georgy Vasiljevich Astafjev, Anatoly Nikolaevich Ozhgikhin, Anatoly Georgievich Pugachev, and Viktor Vasilievich Gavryushov, all of Moscow, U.S.S.R., assignors to Nauchno-Issledovatelsky Institute Experimentalnoi Khirurgicheskoi Apparatury i Instrumentov, Moscow, U.S.S.R.
Filed Mar. 25, 1964, Ser. No. 356,000
5 Claims. (Cl. 227—76)



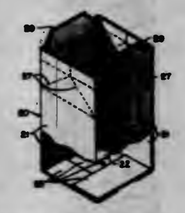
1. A surgical instrument for placing anastomoses comprising a stapling body including a projecting jaw having a free end, said jaw having a longitudinal slot, and a slot for staples on either side of the longitudinal slot, pusher means in the staple slots for ejecting staples, means movable in the longitudinal slot for actuating the pusher means, cutting means mounted on the latter means for dissecting tissue, a supporting body coupled to said stapling body and including a jaw, the latter jaw extending from the supporting body in the same direction as the jaw of the stapling body and being reversely bent to provide a limb adjacent the jaw of the stapling body jaw having a free end adjacent the stapling body and remote from the free end of the jaw of the stapling body, said limb having depressions aligned with said staple slots for bending the ends of staples ejected therefrom.

3,317,106
SOLDER BOAT
Sydney Dix, Costa Mesa, Calif., assignor to Dix Engineering Co., Venice, Calif., a corporation of California
Filed Aug. 19, 1963, Ser. No. 302,931
2 Claims. (Cl. 228—44)



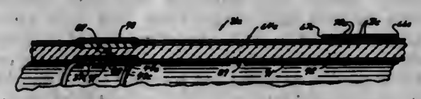
1. Means for soldering semiconductive wafers to the electrical conductors in a plurality of capsules, said means comprising the combination of:
a workpiece holder,
capsule receiving means on said holder arranged in a predetermined pattern, said receiving means receiving said capsules and retaining said capsules positioned therein with said open ends being exposed and arranged in said pattern,
a rigid support member,
complementary mounting means on said support means and said workpiece holder for positioning and detachably mounting said support member in a predetermined reference position relative to said workpiece holder, said mounting means supporting the weight of said support member, and
a plurality of biasing means secured to said support member and carried thereby, said biasing means arranged in said pattern and positioned to register with the capsules disposed on said receiving means, each of said biasing means including a portion constructed and arranged for fitting inside of one of said capsules and for engaging the semiconductive wafer disposed in said capsules, each of said biasing means independent of the others of said biasing means and the weight of said support member applying a predetermined biasing force on its respective wafer for biasing said wafer toward the conductor in said capsule.

3,317,107
PLASTIC-COATED CONTAINERS
Beverly E. Williams, 716 N. La Grange Road, La Grange Park, Ill. 60525
Original application Aug. 29, 1962, Ser. No. 220,181, now Patent No. 3,240,611, dated Mar. 15, 1966. Divided and this application Oct. 22, 1965, Ser. No. 501,365
4 Claims. (Cl. 229—3.5)



1. A self-sustaining, fluid-retaining, pressure heat-sealed container formed from a one-piece foldable laminated blank of sheet material and useful for storing fluids which are deleteriously affected by light, said container comprising four substantially rectangular side wall panels forming a tubular body of square cross section having a fold-in top closure and a fold-in bottom closure formed by first and second pairs of opposed closure panels connected to said body; said container being formed from paperboard thermally bonded between interior and exterior overall layers of moisture impervious polyethylene, one of said layers of polyethylene containing an edible non-toxic colorant which tints the layer to a color in the red-brown area of the spectrum, and selected portions of the exterior and interior surfaces of certain of said panels overlapping and pressure heat-sealed to adjacent exterior or interior surfaces of other of said panels to form a liquid-proof semi-rigid container wherein with the top and bottom closures folded in place fluids stored therein are completely enclosed and protected from the deleterious effect of light by the tinted layer.

3,317,108
HELICALLY WOUND CONTAINER
William E. Cheeley, Bon Air, Va., assignor to Reynolds Metals Company, Richmond, Va., a corporation of Delaware
Continuation of abandoned application Ser. No. 181,415, Mar. 21, 1962. This application Mar. 25, 1966, Ser. No. 543,450
4 Claims. (Cl. 229—4.5)



1. A container comprising a helically wound wide strip of material having adjacent edges of adjacent convolutions thereof disposed adjacent to each other, said

wide strip of material comprising a lamination of paperboard and metallic foil with the foil forming part of the interior and exterior surfaces of said container, a helically wound first narrow strip of material disposed inboard of said wide strip of material and overlapping and securing together said adjacent edges of adjacent convolutions of said wide strip of material, and a helically wound second narrow strip of material disposed outboard of said wide strip of material and overlapping and securing together said adjacent edges of adjacent convolutions of said wide strip of material.

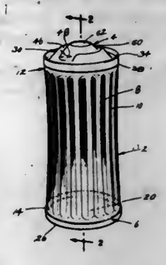
3,317,109
CONTAINER
Charles E. Palmer, Somers, Conn., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Filed May 10, 1965, Ser. No. 454,440
6 Claims. (Cl. 229—5.5)



1. A container comprising a tubular body element of semi-rigid synthetic plastic sheet material and polygonal cross section having overlapping side margins and a plurality of peripherally spaced, parallel extending folds therein each defining a corner of said body element, said folds extending axially of said body element and for the major axial extent thereof, defining sharp angles which terminate inwardly of the ends of said body element and defining smooth accurate curves at said end portions and end closures engaged on the end portions of said body element and defining the polygonal cross-sectional configuration of said end portions, said end closures each having a peripheral lip portion which extends about the cooperating end portion of said body element to urge said end portion into conformity therewith.

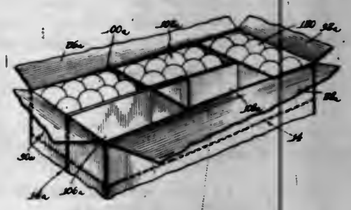
3,317,110
CONTAINER WITH FOLDED BODY OF CURVILINEAR CROSS SECTION
Charles E. Palmer, Somers, Conn., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Filed May 10, 1965, Ser. No. 454,456
13 Claims. (Cl. 229—5.5)

1. A container comprising a tubular body element of semi-rigid synthetic plastic sheet material having overlapping side margins and a multiplicity of alternating inward and outward folds therein extending about the entire periphery thereof and providing outwardly diverging channels between said inward folds, said folds extending axially over at least the major potrion of the length of said body element but terminating inwardly of the ends thereof to provide unfolded end portions; end closures engaged on said unfolded end portions of said body element, said end closures each having a peripheral lip portion adjacent the inner end thereof which abuts against and extends about the cooperating end portion of said body element to urge said end portion into conformity therewith, said lip portion providing a curvilinear abutment and defining a curvilinear cross section for said end portions and thereby the length of said body element, said



tubular body element tapering from each end portion to a reduced cross section intermediate its length; means adhesively engaging said end closures to said end portions of said body element.

3,317,111
CARTON CONSTRUCTION
Richard A. Black, Sauk Village, Ill., assignor to Bell Fibre Products Corporation, Marion, Ind., a corporation of Indiana
Filed Oct. 19, 1965, Ser. No. 498,066
9 Claims. (Cl. 229—15)

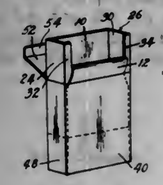


5. A one-piece divider and cushion member formed from a laminated board having opposite side sheets and a core having corrugations extending in a predetermined direction, said member comprising first and second substantially coplanar bottom sections having adjacently disposed inner side edges extending transversely of said corrugations and substantially parallel outer side edges, first and second divider sections respectively integrally articulated to said inner edges of said first and second bottom sections and extending upwardly therefrom, the corrugations of the board in said divider sections extending in upwardly directions, a connecting section integrally joining upper edges of said divider sections, first and second outer upstanding sections respectively integrally articulated to portions of said outer side edges of said bottom sections, and transverse divider sections respectively integrally articulated to one upstanding end edge of and extending between said outer upstanding sections and said first and second divider sections.

3,317,112
CONTAINER
Irving Futterman, 1523 Fielding St., Bronx, N.Y. 10469
Filed May 6, 1964, Ser. No. 365,412
4 Claims. (Cl. 229—19)

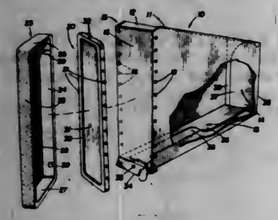
1. A container formed from a single blank of sheet material comprising an inner compartment only one side wall of which is provided with two spaced lines of perforations, an outer sleeve positioned around the inner compartment and slidable with respect thereto, said outer

sleeve being connected to said inner compartment by tab means which are attached to that portion of the side wall of the inner compartment which is bouned by said spaced perforations said tab means forming a wall between the said side wall of the inner compartment which is con-



nected to the tab means and the said outer sleeve and said bounded portion of the side wall being movable by said tab means to provide access into the inner compartment when the inner compartment is slid out of said sleeve.

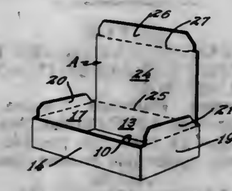
3,317,113
COLLAPSIBLE FILING CONTAINER
Frederick H. Humphrey, P.O. Box 440, Markham, Ontario, Canada
Filed Apr. 26, 1966, Ser. No. 545,450
6 Claims. (Cl. 229—23)



1. A filing container comprising in combination: a file holder member having two upright spaced-apart wall panels and a bottom structure bridging between the wall panels at the bottom thereof to form therewith a channel-like enclosure having a rearward end and a forward end, the wall members having apertures adjacent said forward end, a rectangular member adapted to take up a position within said forward end and having protrusions which register with said apertures when the plate member is in said position, and a trough-like member adapted to be snapped on over said forward end to maintain said apertures in registry with said protrusions, the trough-like member having means by which it is maintained in its snapped-on position.

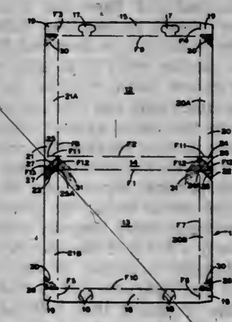
3,317,114
TRAYS
Robert O. Ragan, Minneapolis, and Jerome F. Olson, South St. Paul, Minn., assignors to Waldorf Paper Products Company, Ramsey County, Minn., a corporation of Minnesota
Filed Mar. 2, 1965, Ser. No. 436,558
2 Claims. (Cl. 229—30)

1. A tray formed from a blank comprising a sheet of heat fusible foamed plastic cut and creased to provide:
a bottom panel,
front, rear, and end wall panels hinged to the edges of said bottom panel, cover and tuck flap panels hinged along the free edge of one of the panels,
said front and rear wall panels being coextensive in length, said front and rear wall panels being of a length greater than the length of said bottom panel and extending equally beyond the hinges connecting said end wall panels to said bottom panel,
said end wall panels being coextensive in length, said end wall panels being of a length greater than the width of said bottom panel and extending equally beyond the hinges connecting said front and rear wall panels to said bottom panel,
edges of said panels at their intersection with said hinges being in abutting relation,



said wall panels being folded into angular relation to said bottom panel with their beveled side edges in edge abutting relation,
and said side edges are heated above the fusing temperature of the plastic, said edges are withdrawn slightly, and
said withdrawn beveled abutting edges are fused together.

3,317,115
BOX CONSTRUCTION
Sidney Conescu, 188 Beach 147th St., Neponsit, N.Y.
Filed May 24, 1965, Ser. No. 458,027
14 Claims. (Cl. 229—33)



1. A box construction comprising:
(a) single blank of foldable sheet material having a plurality of transversely extending fold lines defining a front panel, a connected bottom panel, and a back panel,
(b) side flaps connected to the opposite sides of said front and back panels respectively,
(c) an underlying top panel connected to the free end of said front panel, and
(d) an overlying top panel connected to the free end of said back panel,
(e) upper corner flaps connected to the opposed ends of each of said top panels,
(f) a reinforcing bottom corner flap,
(g) said bottom corner flap being disposed between the adjacent ends of the corresponding side flaps connected to said front and back panels,
(h) said bottom corner flap being hingedly connected along one end thereof about a fold line to one of said side flaps,
(i) said fold line forming an extension of the fold line about which said front panel is hinged to said bottom panel,

(j) and said other end of said corner flap being die-cut from the plane of the other corresponding side flap whereby said bottom corner flap is provided with an extended tail which in the folded position of said box extends over the surface of said back panel,

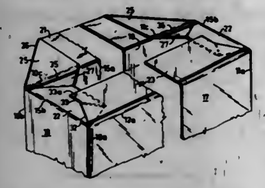
(k) and means for adhesively securing said bottom corner flap to said bottom wall and said back panel.

3,317,116

METHOD OF GLUING CARDBOARD BOXES AND BOX ADAPTED TO BE GLUED IN ACCORDANCE WITH SUCH METHOD

Karl Rune Persson, Halmstad, Sweden, assignor to Sprinter-Pack AB, Halmstad, Sweden

Filed Apr. 13, 1966, Ser. No. 542,307
Claims priority, application Sweden, June 4, 1965, 7,412/65
5 Claims. (Cl. 229—38)



4. A cardboard box comprising four interconnected side walls having extensions at one end for forming a rectangular projecting frame which is adapted to be turned inwards about transverse fold lines at the end edges of said walls and which by fold lines is divided into portions corresponding to said end flaps and into intermediate portions forming hinged connections between the end flaps, wherein the width of the short end flaps located at the ends of the narrow walls is at most equal to half the width of the narrow walls, whereas one long end flap is wider than the other long end flap and of a width substantially equal to the width of the narrow walls, and wherein the corner portion between the respective end of the wide long flap and the adjacent short end flap is formed by two triangular portions located one on each side of the corner fold line of the frame, the greater one of said two triangular portions being hingedly connected to the wide long flap along a 45° fold line and the other, smaller portion being hingedly connected to the short end flap along a 45° fold line, characterized in that the width of the short end flaps is smaller than half the width of the narrow side walls, that the short end flap and the narrow long flap are hingedly connected to each other by a triangular intermediate portion the base of which is aligned with the free edge of the short end flap and the sides of which are defined by fold lines making an angle less than 45°, and that the angle between the free edge of said smaller triangular intermediate portion and the end edge fold line of the adjacent narrow wall is substantially equal to the angle between the fold line that forms the hinged connection between the wedge-shaped triangular intermediate portion and the narrow long flap and the end edge of the adjacent side wall such that the free edge of said smaller triangular intermediate portion is clear of the end edge of the narrow long flap during closure of the box.

3,317,117

BAG

Ralph C. Goodwin, Wayzata, Minn., assignor to Bemis Company, Inc., a corporation of Missouri

Filed Mar. 19, 1965, Ser. No. 441,211
9 Claims. (Cl. 229—58)

1. A bag comprising a flat tube of flexible heat-sealable sheet plastic material, an end closure for one end of said tube formed from a one-piece molded body of flexible heat-sealable sheet plastic material of shallow rectangular box shape having a rectangular base, side walls and end walls, the height of the side and end walls being somewhat greater than one-half the width of the base, the side walls being folded over on the lines of juncture of the side walls and the base to overlie the base, marginal portions of the side and end walls being folded back on lines extending along the lengthwise center line of the base into face-to-face relation, the closure thereby



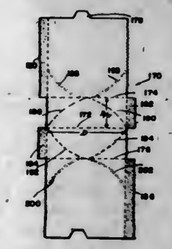
having a flat outer wall having a main rectangular body portion and triangular ends, panels folded over on said lines of juncture overlying said flat outer wall, and a flattened tubular lip extending from the inner margins of said panels along the lengthwise center line of said outer wall from the apex of one of said triangular ends to the apex of the other, said lip lapping one end of said tube, and a heat seal sealing together the tube and the lip completely around the lip, the walls of the bag being free of one another in the region of the heat seal.

3,317,118

FOLDABLE CONTAINER AND BLANK THEREFOR

Henry C. Harrison, 94 Bayview Ave., Port Washington, N.Y. 11050, and Henry Harrison, 18 Frost Creek Drive, Locust Valley, N.Y. 11560

Filed May 17, 1965, Ser. No. 456,109
10 Claims. (Cl. 229—61)



1. A generally rectangular blank of flexible sheet material foldable to form a container, said blank comprising: means defining a first fold line extending laterally of said blank substantially at the imaginary transverse center line thereof; means defining a pair of second fold lines in said blank extending generally parallel to, equidistant from and on either side of said first fold line; means defining four arcuate fold lines arranged in a substantially closed figure and each being concave toward the juncture of the imaginary longitudinal center line of the blank and the imaginary transverse center line of the blank, each arcuate fold line extending substantially between a juncture of said first fold line and a lateral edge of said blank, and a juncture of one of said second fold lines with the imaginary longitudinal center line of said blank, means for securing the portion of each lateral edge of the blank defined between one of said second fold lines and the adjacent end of the blank and the complementary edge portion defined between the other of said second fold lines and the end of the blank adjacent thereto; and means for securing each approximately triangular blank portion defined between a second fold line, an arcuate fold line and a blank edge to a congruent approximately triangular portion of said blank having symmetry with the first mentioned approximately triangular portion about the second fold line which defines an edge thereof.

3,317,119

CLOSURES FOR PACKAGES

Jacob Lasoff, Lexington, Mass., assignor to W. R. Grace & Co., Cambridge, Mass., a corporation of Connecticut

Original application Jan. 31, 1962, Ser. No. 170,076, now Patent No. 3,197,938, dated Aug. 3, 1965. Divided and this application May 7, 1965, Ser. No. 464,260
3 Claims. (Cl. 229—62)



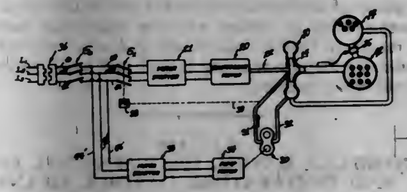
1. A hermetically sealed package comprising an object completely enclosed in an enveloping film of thermoplastic material, said film extending beyond the object on at least one portion of the package and being twisted into an elongated neck, said neck being restrained by a molded plastic retainer ring completely and tightly encircling said neck, the internal surface of said ring conforming to the external configuration of the twisted neck and interpenetrating the folds of said twisted neck.

3,317,120

COMPRESSOR DRIVE SYSTEM

John M. Schultz, York, Pa., assignor to Borg-Warner Corporation, a corporation of Illinois

Filed Dec. 28, 1964, Ser. No. 421,497
5 Claims. (Cl. 230—1)



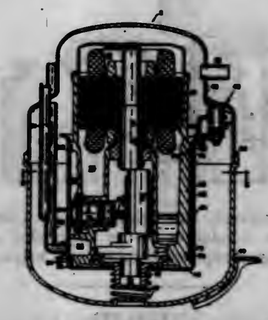
1. In apparatus of the character described, the combination comprising a compressor; a first electric motor operatively connected to drive said compressor; pump means adapted to supply a lubricant to said compressor; a second electric motor operatively connected to drive said pump means, both of said motors being of the reversible type which are capable of driving their respective loads in a proper direction or in an improper direction depending on the phase relation of the electrical power supplied thereto; an electrical circuit having a first portion common to both of said motors adapted to be connected to a source of electrical power to be supplied to both of said motors, said circuit further including electrical conductor means interconnecting said first and second electric motors to the common portion of said circuit to insure that said first and second motors are both driven simultaneously in said proper or in said improper directions regardless of the manner in which the first portion of said circuit is connected to the power supply; and means acting only in response to the proper rotation of said pump means to make said circuit between said power source and said first motor, whereby said first electric motor is dependent on the proper driving direction of said second electric motor.

3,317,121

COMPRESSOR MANIFOLD SEAL

Carl J. De Groat, Peterboro, N.Y., assignor to Carrier Corporation, Syracuse, N.Y., a corporation of Delaware

Filed Oct. 24, 1965, Ser. No. 504,873
3 Claims. (Cl. 230—58)



1. In a hermetic motor compressor apparatus, the combination of a housing defining a generally cylindrical chamber; a compressor block telescopically received in said chamber, said block having first and second annular sides projecting therefrom engageable with the inner wall of said housing to define in cooperation therewith a substantially annular discharge manifold; the part of said block between said first and second projecting sides defining a plurality of radially oriented cylinders opening into said discharge manifold; a crankshaft rotatably journalled in said block; a piston slidably received in each cylinder operatively secured to said crankshaft; a suction manimold; valve means regulating communication of each cylinder with said suction manifold and said discharge manifold; and means for subdividing said discharge manifold into a first manifold section communicating with at least one of said cylinders and a second manifold section to permit said first manifold section to be connected with said suction manifold to thereby render said one cylinder ineffective including an outwardly projecting flange on said block on each side of said one cylinder engageable with the inner wall of said housing, said flanges extending between said first and second projecting sides, the outer surface of each flange having a groove therewithin continuing from said first projecting side to said second projecting side, a length of resilient seal arranged in each flange groove, the depth of said flange grooves being greater than the thickness of said seals to permit disposition of said seals below the surface of said flanges, the dimension across the width of said seals being slightly greater than the width of said flange grooves whereby said seals tightly engage the side walls of said flange grooves, and port means connecting the interior of each flange groove with said manifold second section, discharge pressure in said manifold second section urging said seals outwardly against the inner wall of said housing upon connection of said manifold first section with said suction manifold.

3,317,122

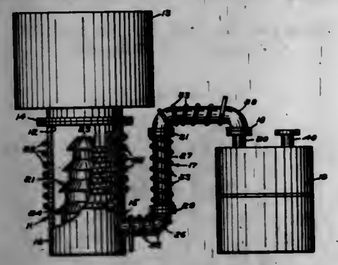
VACUUM PUMP APPARATUS

Werner G. Bächler, Cologne, Germany, assignor to Leybold Holding AG, a Swiss joint-stock company

Filed July 6, 1965, Ser. No. 469,662
16 Claims. (Cl. 230—101)

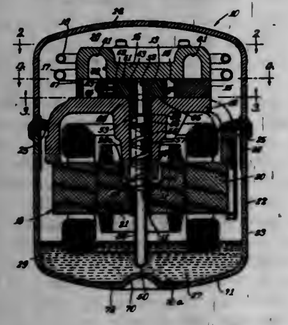
1. A vacuum pump apparatus comprising a diffusion vacuum pump having a pump housing enclosing a pumping mechanism, said pump housing having an inlet port adapted for connection with a chamber to be evacuated, said pump housing also having an exhaust port adapted to allow expulsion from said pump housing of the gases

pumped by said pumping mechanism, an exhaust tubulation attached to said pump housing and communicating with said exhaust port so as to receive gas and vapor



expelled therefrom, and heating means adapted to heat said exhaust tubulation so as to inhibit condensation therein of vapor expelled through said exhaust port.

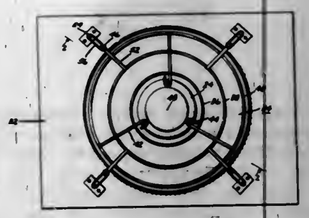
3,317,123
COMPRESSOR LUBRICATION
Ludwig F. Funke, Evansville, Ind., assignor to Whirlpool Corporation, a corporation of Delaware
Filed Sept. 2, 1965, Ser. No. 484,589
13 Claims. (Cl. 230—207)



1. In a compressor having a shaft,
means journalling said shaft,
means defining a compression chamber, and
means on said shaft in said chamber slidably engaging said chamber means for pressurizing fluid in said chamber,
lubricating means comprising:
means for disposing a body of lubricating fluid to be contacted by the pressurized fluid;
means carried by said shaft for withdrawing a mixture of lubricating fluid and pressurized fluid from said disposing means;
means on said shaft for separating lubricating fluid from said mixture and delivering said separated lubricating fluid to between said journalling means and shaft; and
means on said shaft for delivering the residual mixture of lubricating fluid and pressurized fluid to between said chamber means and pressurizing means.

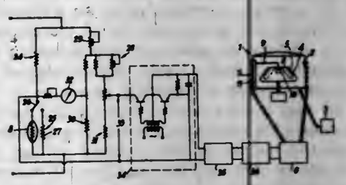
3,317,124
MOTOR VIBRATION ISOLATING MOUNTING
Wayne J. Morrill, 3448 S. Washington Road, Fort Wayne, Ind. 46804
Filed Nov. 19, 1964, Ser. No. 412,490
15 Claims. (Cl. 230—273)

1. Mounting apparatus for isolating rotational vibration of a motor including a stator member and a rotor member, while closely maintaining the lateral and axial position of the axis of rotation of said rotor member comprising: stationary mounting means disposed in a plane normal to said axis and surrounding the same; at least three elongated normally straight flat beam members each having a generally rectangular cross-section and opposite ends; each of said beam members comprising a pair of elongated, flat, longitudinally spaced metal mounting elements at said opposite ends respectively, an elongated strand of relatively longitudinally stiff material wound on said mounting elements thereby to form a plurality of reinforcing tension elements extending between said mounting elements, and a body of rubber-like material having said tension elements embedded therein; first means for respectively connecting one mounting ele-



ment of said beam members to said stator member at symmetrically spaced annular positions around said axis with said one mounting element of each beam member extending parallel with said axis; said second means for respectively connecting the other mounting element of said beam members to said mounting means with said other mounting elements extending perpendicularly to the plane of said mounting means, said beam members normally extending generally radially between respective first and second connecting means in planes normal to the plane of said mounting means and with said tension elements being in tension whereby said beam members are relatively flexible transversely and relatively stiff longitudinally thereby resisting lateral and axial movement of said stator member.

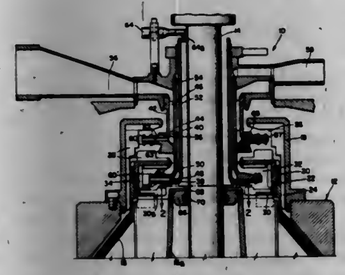
3,317,125
CENTRIFUGE HAVING HEAT SENSITIVE PROBE AND TEMPERATURE CONTROL MEANS
Edward John Holden, Crawley, England, assignor to M.S.E. Holdings Limited, London, England, a British company
Filed Jan. 13, 1964, Ser. No. 337,319
Claims priority, application Great Britain, Jan. 15, 1963, 1,860/63
10 Claims. (Cl. 233—11)



1. A centrifuge apparatus comprising: a centrifuge casing operable with a vacuum in said casing; a rotor rotatably mounted in said centrifuge casing and containing pockets for receiving material for batch processing by centrifugal action; an axially-disposed axially-open recess in said rotor; a heat sensitive passive and resistive

probe member for sensing heat by radiation; support means for supporting said probe member stationarily in said recess free of said rotor; and an electrical circuit including said probe member for producing an electrical signal related to the temperature of said rotor.

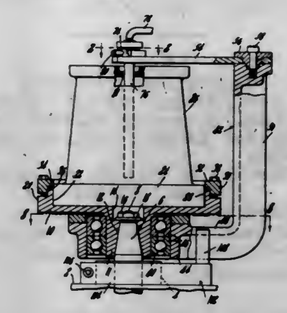
3,317,126
CENTRIFUGE DISCHARGE MEANS
Thomas H. Little, Devon, and Leonard Shapiro, Upper Darby, Pa., assignors to Pennsalt Chemicals Corporation, Philadelphia, Pa., a corporation of Pennsylvania
Filed Jan. 14, 1965, Ser. No. 425,412
4 Claims. (Cl. 233—22)



1. A centrifuge for the separation of viscous component from a mixture with a liquid comprising
a supported rigid drive spindle extending downwardly,
a centrifuge bowl having an axis and mounted on its axis on the lower end of the spindle,
means for delivering feed to the bowl,
an inwardly facing annular pocket disposed on the bowl about the axis with passage means from the interior of the bowl to the pocket for the passage of the separated component,
a stationary skimming device mounted adjacent the bowl and extending outward into the pocket and adapted to skim said component from the pocket,
a stationary nozzle disposed above the bowl and adjacent the shaft and adapted to direct a supplemental liquid in a downward stream parallel to and adjacent the shaft, and
an annular deflector closely surrounding the shaft at the level of the pocket and mounted to rotate with the bowl, the annular deflector having radial vanes and adapted to accelerate the supplemental liquid outward into the pocket, whereby the viscous component is intimately contacted with and diluted with the supplemental liquid to facilitate discharge through the stationary skimming device.

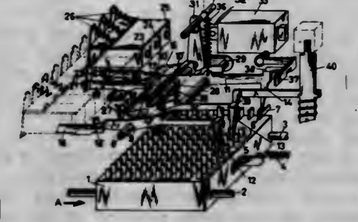
3,317,127
CENTRIFUGE
Richard F. Cole, Marblehead, Mass., assignor to Arthur D. Little, Inc., Cambridge, Mass., a corporation of Massachusetts
Filed Mar. 25, 1965, Ser. No. 442,765
7 Claims. (Cl. 233—26)

1. A centrifuge accessory for use with a centrifuge having a drive spindle with an exposed free end and a centrifuge bowl having a feed header adapted to remain stationary as the bowl is rotated, comprising a bowl chuck having means for mounting it on the spindle end for rotation therewith and having means for supporting such a bowl for rotation with said chuck and spindle, means on said chuck for supporting said header independently of the bowl in predetermined fixed position spaced along the spindle axis from the free end of the spindle, and means, having means for mounting it on



said centrifuge, for holding said supporting means against rotation.

3,317,128
PIN CARRIAGE INPUT ARRANGEMENT
Helmut Schmidt, Villingen, Black Forest, Germany, assignor to Kienzle Apparate G.m.b.H., Villingen, Black Forest, Germany
Filed Dec. 30, 1964, Ser. No. 422,352
Claims priority, application Germany, Jan. 7, 1964, K 46,742
10 Claims. (Cl. 235—60)

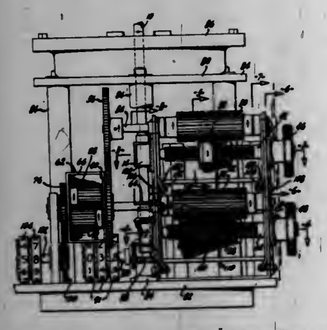


1. Pin carriage input arrangement comprising, in combination, pin carriage means including a carriage movable in one direction to a plurality of positions, and a group of pins mounted on said carriage for movement with the same, each pin being individually movable relative to said carriage between a normal position and an actuated position, said group including a series of digital pins and a control pin, said control pin in said actuated position being adapted to cause movement of said carriage to the next following position thereof; an actuating member operable for moving said control pin to said actuated position thereof; a plurality of digital actuating means individually operable for moving said digital pins to said actuating positions thereof; connecting means connecting said digital actuating means with said actuating member for operating said actuating member to move said control pin to said actuated position when any one of said actuating means moves the respective digital pin to said actuating position; an electromagnetic operating means having a movable member operable to move to an actuating position; a plurality of coupling means individually movable between an inoperative position, and a coupling position for coupling said digital actuating means, respectively, with said

operating means; and a plurality of electromagnetic selector means connected with said coupling means, respectively, for moving the same individually to said coupling positions whereby said actuating member is operated to actuate said control pin dependent on the operation of a digital actuating means.

3,317,129
COMPUTING COUNTER
William F. Berck, Hayward, and Leif J. Sundblom, Castro Valley, Calif., assignors to Rockwell Manufacturing Company, San Leandro, Calif., a corporation of Pennsylvania
Filed Nov. 23, 1964, Ser. No. 412,974
7 Claims. (Cl. 235—61)

1. A computing counter, comprising:
(a) input means for producing at least one input rotational motion whose angular velocity is proportional to a base quantity;



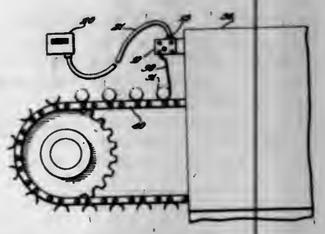
(b) first variable gearing means including more than ten ratio gears mounted, in the form of a cone, to a common shaft geared to said input means, each of said ratio gears having a different number of teeth, and pinion means positioned for axial movement along an idler shaft parallel to the surface of said cone and selectively engageable with each of said plurality of ratio gears to be driven thereby at a first rotational speed proportional to said base quantity times a first selectable multiplier;
(c) second non-lockable variable gearing means including ten ratio gears mounted, in the form of a cone, to a common shaft geared to said input means, each of said ratio gears having a different number of teeth, and pinion means positioned for axial movement along an idler shaft parallel to the surface of said cone and selectively engageable with each of said plurality of ratio gears to be driven thereby at a second rotational speed proportional to said base quantity times a second selectable multiplier;
(d) differential gearing means connected to said first and second variable gearing means for producing an output rotation proportional to the algebraic sum of said first and second intermediate rotation; and
(e) separate selecting means associated with each of said variable gearing means for selecting at least one of said multipliers, each of said selecting means including:
(1) a control element;
(2) aligning means actuated by said control element for successively aligning said pinion means with a plurality of said ratio gears; and
(3) disengaging means for disengaging said pinion means from said ratio gears during actuation of said aligning means by moving only said idler shaft in a direction away from the surface of said cone.

3,317,130
DURATION OF FLIGHT INDICATOR
Nicholas A. Evans, 440 Mt. Vernon Road, Newark, Ohio 43055
Original application June 25, 1964, Ser. No. 378,084. Divided and this application Sept. 28, 1965, Ser. No. 505,776
1 Claim. (Cl. 235—83)



A device for presenting instantaneous aircraft flight duration data in conjunction with fuel quantity indications on the periphery of a disc-like primary scale comprising:
a secondary scale constructed in the form of a fan the individual sectors of which are expandably and retractably linked together for selective concurrent and sequential movement as a result of manual manipulation, said fan being concentric with, and rotatably attached to, the face of said primary scale;
said secondary scale being positionable on said scale so that the zero indication on the periphery of said secondary scale may be placed opposite the fuel quantity indication representing the reserve fuel desired; and
said secondary scale being graduated such that an hourly indication on a particular sector thereof represents the hourly fuel consumption rate at the time of use;
whereby when said secondary scale is positioned with its zero indication opposite the reserve fuel quantity indication on said primary scale the remaining flight duration will be indicated directly opposite the fuel quantity needle of said device.

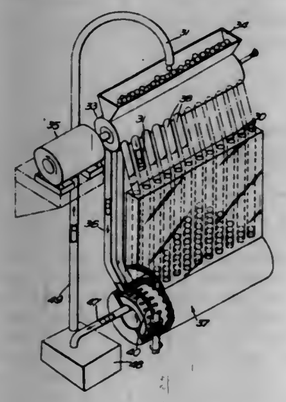
3,317,131
COUNTER-ACTUATOR DEVICE
Richard W. Walsh, 1110 N. Franklin St., Danville, Ill. 61833
Filed Sept. 23, 1965, Ser. No. 489,582
10 Claims. (Cl. 235—98)



1. A counter-actuator for actuating an electric counter to count moving objects during processing of said objects by heavy-duty machinery comprising:
means providing a housing;
means within the housing fixedly mounting an electrical contact;
means within the housing pivotally mounting an arm movably carrying an electrical contact opposed to said fixed contact and normally biased toward engagement of the arm-carried contact with the fixed contact;
means for electrically connecting said contacts with the counter;

a shaft rotatably mounted on and in traversing relation through said housing adjacent to said arm and having a contact rod fixedly mounted thereon outside the housing and adapted to be disposed in the path of moving objects to engage and swing the rod and correspondingly rotate said shaft;
means carried by said housing normally biasing said rod into one position from which the rod is swung by the objects;
and a cam on said shaft operative to thrust said arm against its bias into said one position wherein the contact carried thereby is open relative to the fixed contact, and said cam releasing said arm to close the contacts when said rod is engaged and swung in opposition to its bias by an object.

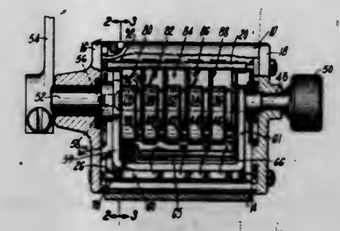
3,317,132
STATISTICAL DISPLAY APPARATUS
Robert Edgar Martin, 19 Elles Ave., Merrow, Guildford, Surrey, England
Filed Apr. 8, 1965, Ser. No. 446,662
12 Claims. (Cl. 235—123)



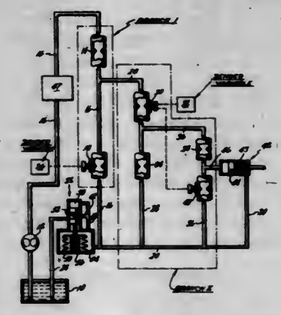
1. Statistical display apparatus for displaying, in histogram form, information regarding the relative number of times sampled instantaneous values of a variable fall within each of a number of discrete ranges of the variable comprising a separate counting display device for each discrete range of the variable, a sampling device for periodically sampling the variable so as to determine within which discrete range the instantaneous value lies, selector means operated by said sampling device to actuate the appropriate display device selected in accordance with the sampled value so as to increase the counted indication on that device and means operated in accordance with the sampling rate of said sampling device to adjust each of the displayed counts to represent counts of samples in each discrete range over a predetermined number of samples.

3,317,133
COUNTING MECHANISM
William C. Fox, Plainville, Conn., assignor to Veeder Industries, Inc., a corporation of Connecticut
Filed Nov. 8, 1965, Ser. No. 506,628
3 Claims. (Cl. 235—131)

1. A counting mechanism comprising a counter shaft, a plurality of axially spaced coaxial rotary counter wheels mounted on said shaft having axially spaced coaxial ratchet wheels for individually indexing said counter wheels respectively, indexing means engageable with the ratchet wheels for angularly indexing the counter wheels in stepwise fashion in one angular direction, and a plurality of fixed sheet metal members axially spaced along said shaft; said sheet metal members having transversely extending spacer portions interleaved between the counter wheels, generally radially inwardly extending detent pawl portions in axial spaced relationship with the spacer portions respectively and in engagement with the ratchet wheels respectively for preventing angular movement of the counter wheels in the opposite angular direction, and connecting portions integrally connecting the spacer portions and detent pawl portions respectively.

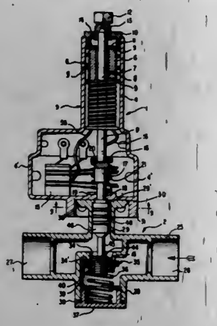


3,317,134
HYDRAULIC COMPUTER
Charles F. Stearns, East Longmeadow, Mass., assignor to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
Filed May 25, 1964, Ser. No. 369,847
7 Claims. (Cl. 235—200)



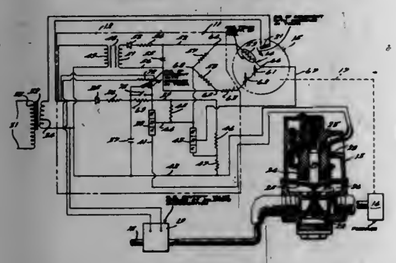
1. Means for hydraulically computing the products of sensed variables comprising a pair of parallelly disposed fluid branches, one of said branches having a first flow line and a pair of serially disposed restrictions, means for varying the area of one of said restrictions as a function of a sensed variable, the other branch having second and third parallelly disposed fluid flow lines each of which contain a pair of restrictions, a drain, said second fluid flow line interconnecting said first fluid flow line at a point intermediate the two restrictions in the first branch and drain, means for varying the area of the upstream restriction in said second fluid flow line as a function of a sensed variable, said third fluid flow line interconnecting said drain and said second fluid flow line at a point just downstream of the variable restriction and upstream of the other restriction disposed in said second flow line, means for varying the area of the downstream restriction in said third flow line as a function of the movement of said variable restriction in said second flow line and means for regulating the pressure in said drain.

3,317,135
ELECTRICALLY CONTROLLED THERMOSENSITIVE ACTUATORS FOR REMOTE CONTROL OF VALVES AND OTHER DEVICES
Maurice Feinberg, 2 Jackson St., Waltham, Mass. 02154
Filed Sept. 17, 1963, Ser. No. 309,566
16 Claims. (Cl. 236—68)



1. In combination, a power head assembly for the remote control of a valve assembly, comprising a housing having an upper portion, and a lower portion including a bottom wall, electrically controlled thermosensitive actuator means mounted within the upper portion of the housing, said actuator means including a power element having one end extending into the lower portion of the housing, said power element incorporating a heat sensitive plastic and a piston, a plunger having one end adapted to receive one end of said piston, the opposite end of the plunger being adapted to slide outwardly of the housing through the bottom wall thereof; switch means positioned within the lower portion of the housing in proximity to said plunger, and a switch actuating arm carried by said plunger, a valve assembly including a valve body and valve actuating means, said plunger being in alignment with said valve actuating means, whereby when the thermosensitive actuator is energized, the heat sensitive plastic expands, thereby moving the plunger outwardly of the housing to cause the switch actuating arm to actuate said switch means and simultaneously cause the plunger to move against the valve actuating means whereby the valve assembly is actuated.

3,317,136
THERMOSTATIC GAS FLOW CONTROL MEANS
Charles Stang, Jr., and Herbert J. Schlachter, Detroit, Mich., assignors to Maxitrol Company, Southfield, Mich., a corporation of Michigan
Filed June 9, 1965, Ser. No. 482,960
4 Claims. (Cl. 236—78)



3. In a system for controlling the flow of a combustible gaseous heating medium at relatively low pressure, a gas conduit, a valve in said gas conduit, means urging said valve towards its open position, an electrical coil for urging the valve toward its closed position, a current supply source for said coil, an electrical valve in series with said coil for modulating the current therein, a signal bridge network having a pair of output junctions connected to said electrical valve for controlling the current therein, a supply source for said bridge network, at least one element in said bridge network being a negative temperature coefficient resistance, whereby the potential difference between said junctions may be varied, selective means for closing the connections between said supply sources and said coil and bridge network, and means for reducing the current to said coil for a predetermined time period upon closing of said connections.

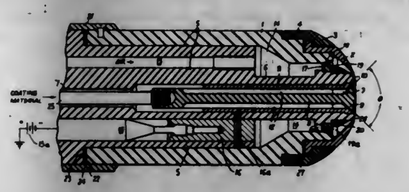
3,317,137
RAILROAD CROSSING RAIL BED UNIT
Paul G. Harmon, Rte. 4, Box 211, Eugene, Oreg. 97401
Filed June 29, 1964, Ser. No. 378,878
7 Claims. (Cl. 238—8)



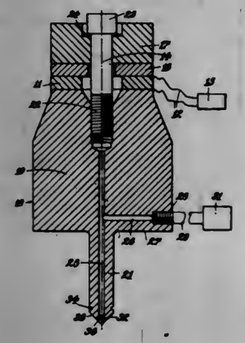
1. A railroad crossing rail bed unit comprising:
(a) a concrete rail-anchoring base member for releasably securing railroad rails thereto, the base member having a central section and parallel side sections integral therewith and elevated above the plane of the central section by an increment substantially equal to the height of a pair of railroad rails adapted to be supported freely in parallel spaced relation along the side margins of the central section,
(b) the inside edges of the side sections being contoured to bear substantially along their full length against the outside side faces of the webs of the rails, whereby to secure the latter against outward and upward displacement from the base member,
(c) concrete rail-locking panel means dimensioned for placement between the rails over the central section of the base member with the upper surface thereof substantially coplanar with the upper surfaces of the side sections of the base member,
(d) the locking panel means having outside side edges contoured to bear substantially along their full length against the inner side faces of the webs of the rails and to hold the latter against the inside edges of the side sections of the base member,
(e) and securing means for releasably securing the locking panel means to the base member, thereby releasably securing the rails to the base member.

3,317,138
ELECTROSTATIC SPRAYING APPARATUS
Reginald Percy Fraser, Surrey, England, assignor to Sames, Societe Anonyme de Machines Electrostatiques, Paris, France, a French joint-stock company
Filed Feb. 24, 1964, Ser. No. 346,662
Claims priority, application Great Britain, Feb. 22, 1963, 7,244/63
16 Claims. (Cl. 239—15)

3. In a portable electrostatic spray gun, in combination, nozzle means defining a plurality of discharge orifices, conduit means for directing particles of spraying material and pressurized fluid to said nozzle means and respectively through said orifices, the spraying material being discharged into a stream of said fluid, adjustment means cooperating with said conduit means for modifying the same to vary the flow of said fluid through the corresponding orifice to produce both a vortical spray pattern and a spray pattern in which the individual particles of spraying material are discharged along substantially linear paths, a voltage source, means for supplying voltage from said source to said nozzle means, to electrostatically charge said spraying material, and means operatively associated with said conduit means for adjusting said adjustment means, to change the path of said spraying material from one of said spray patterns to the other.



3,317,139
DEVICES FOR GENERATING AND DELIVERING MECHANICAL VIBRATIONS TO A NOZZLE
William Freeland, Esher, England, assignor to Simms Group Research & Development Limited, London, England, a British company
Filed Apr. 13, 1965, Ser. No. 447,634
8 Claims. (Cl. 239—102)



1. A velocity transformer device for atomizing liquid with ultrasonic frequency vibrations from an ultrasonic frequency vibration generator, said transformer device comprising first and second body members, the first body member being of larger cross section than the second body member, vibration means for coupling said generator to said first body member at a position remote from the second body member, the second body member having a projecting end remote from the first body member, said end having outwardly facing tapered atomizing faces inclined to the longitudinal axis of the device, a first conduit extending transverse to said axis of the device for receiving said liquid, a second conduit in communication with the first conduit and extending along said axis through at least a part of said second body member, said first and second conduits forming first and second portions of a flow path to said tapered faces for said liquid, and at least one bore extending from the second conduit to the exterior of said second body member thereby forming an additional portion of said flow path from said second conduit to said tapered faces for the atomizing operation.

3,317,140
AEROSOL SPRAY NOZZLE
John J. Smith, 1429 N. Bronson Ave., Hollywood, Calif. 90028
Filed Nov. 12, 1964, Ser. No. 410,550
9 Claims. (Cl. 239—107)



1. An aerosol spray nozzle adapted for spraying paint and like materials hardening upon exposure to the atmosphere, comprising:
a nozzle body having a spray passageway extending vertically therealong and opening ot the top thereof,
a groove in communication with said spray passageway opening to the top and a front wall of said nozzle body,
a separable cap detachably mounted on said nozzle body for completing the groove in said nozzle body, and
interengaging means registering said cap with said nozzle body and maintaining said cap in position to complete said groove in said nozzle body to open to the front wall thereof.

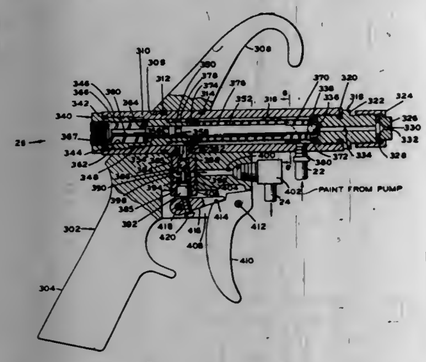
3,317,141
AIRLESS LIQUID SPRAY GUN HAVING A DIAPHRAGM PUMP AND FILTERING APPARATUS
Carl Mann, 1228 Yorkshire, Grosse Pointe Park, Mich. 48230
Filed Oct. 26, 1964, Ser. No. 406,478
17 Claims. (Cl. 239—127)

1. A gun for spraying liquid under pressure including in combination means forming a pressure chamber in the gun, means connecting said chamber with a source of spray liquid under pressure, a spray nozzle connected to said gun and having a passage communicating with the chamber shaped to atomize pressurized liquid passing therethrough into a spray, an outlet valve adapted to close said nozzle passage, means for biasing said outlet valve to closed position, means for returning the pressure fluid from said chamber back to said source, a normally open trigger valve actuatable to close said return means to build up pressure in said chamber, said outlet valve including means having a working surface exposed to the pressure fluid in said chamber such that the fluid acting on said working surface develops an opening force on said valve in response to said pressure buildup operable to open said outlet valve at a predetermined pressure.

3. Apparatus for spraying liquids under high pressure comprising a cabinet, an electric motor mounted in said cabinet and having a rotary output shaft extending from one end thereof in said cabinet, a casing adjacent one end of the motor, said motor shaft extending into said casing, a cylinder connected to said casing and having a piston reciprocable therein with one end of said piston extending into said casing, means operably connecting said motor shaft to said piston to convert rotary motion of the shaft to reciprocating motion of the piston, said cylinder having a working chamber, said piston having an end remote from said casing defining a movable wall in said working chamber, pressure fluid conductor means connected to said working chamber and including a rigid tubular conductor extending from said cabinet, means supporting one end of said conductor in said cabinet, a pump supported on the other end of said conductor exteriorly of the cabinet, and adapted for submergence in a container containing the liquid to be sprayed, said pump having a fluid

chamber communicating with said working chamber of the cylinder via said conductor, and a diaphragm disposed in said pump chamber, said pump including flow passage means having an inlet and an outlet and valves associated therewith cooperable with said diaphragm in response to expansion and contraction of said diaphragm produced by fluid pressure pulsations in said pump chamber to pump liquid from the container to said outlet, said pulsations causing said pump and said rigid tubular conductor to vibrate to thereby effect a stirring action on the liquid in the container.

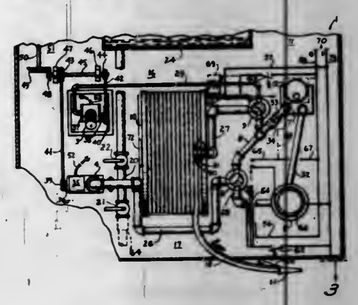
15. In an apparatus for high pressure airless spraying of liquid including a pump having an inlet adapted to be connected to a source of the spray liquid and having an outlet for discharging the liquid from said pump, the combination therewith of a self-washing filter comprising a casing having a liquid chamber therein, a filter extending



within said chamber and having one side spaced from a wall of said chamber to define a flow space extending along and between said one side of said filter and said wall, inlet means connecting said flow space with said pump outlet, first outlet means communicating with said liquid chamber on the side of said filter opposite said one side thereof for conducting liquid filtered through said filter from said chamber for transfer to a hydraulic atomization spray nozzle, and second outlet means communicating with said flow space in said liquid chamber, said inlet and second outlet means being spaced from one another along said one side of said filter, and a bypass line connecting said second outlet back to said source of spray liquid whereby liquid pumped from said source is caused to bypass said first outlet means and flow along said one side of said filter to produce a washing action on said filter.

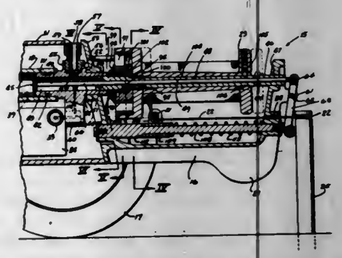
3,317,142
ON THE SPOT CAR WASH
Amerigo Casale, 2427 Glenn Haven, Houston, Tex. 77025
Filed Apr. 25, 1966, Ser. No. 544,927
9 Claims. (Cl. 239—130)

1. In combination with a motor truck, portable car washing equipment carried thereby including a pump, an air compressor, a water heater, a detergent mixer, a hose reel having a reel axis, first and second three-way valves, electrical means for said heater and to selectively switch said three-way valves between respective first and second positions, means connecting said pump to a source of water, means connecting said electrical means to a source of electrical power, common driving means for said pump and said compressor, a hose nozzle, switch means actuable from the hose nozzle to selectively switch said valves, a discharge conduit connecting said pump to said first valve, a water heater-first valve connecting conduit, a water heater-detergent mixer connecting conduit, a second valve connecting conduit, a hose, said hose having an end fixed to said reel, delivery conduit means from said second valve to deliver fluid through the reel axle into the reel fixed end of said hose, a compressed air conduit to deliver compressed air from said compressor to said second valve, a detergent-mixer connecting conduit to said first valve connecting conduit and having a check valve therein yieldably urged seated in direction



of said detergent mixer, whereby the truck may be transported to selective cars to be washed, electrical, water, and drive connections made, and cars washed at location, said first valve being actuated from said nozzle to selectively switch water delivery between said valve connecting conduit and said water-heater first valve connecting conduit, and said second valve being selectively actuated from said nozzle to switch said second valve between said valve connecting conduit and said compressed air connecting conduit.

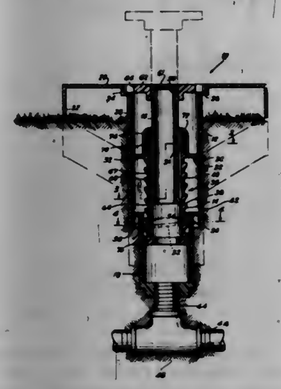
3,317,143
VACUUM MOTOR OPERATED TETHERED LAWN SPRINKLER WITH OSCILLATING NOZZLE
George L. Turner, Hickory Corners, Mich., assignor to H. B. Sherman Manufacturing Company, Battle Creek, Mich., a corporation of Michigan
Filed Oct. 9, 1964, Ser. No. 402,899
17 Claims. (Cl. 239—189)



1. A lawn sprinkler comprising a vacuum producing means, a vacuum operated motor assembly having an endwise movable diaphragm axle, means operably connecting the vacuum from said vacuum producing means to said diaphragm axle of said motor assembly for reversibly moving said axle in endwise direction, a tethering means, and means connecting said motor assembly to said tethering means for actuating same.

7. A lawn sprinkler having as part of same a vacuum producing means, a spraying nozzle connected to said vacuum producing means, and a pair of fixed edge symmetrically flexing diaphragms with connecting means for moving said spraying nozzle in a predetermined sprinkling pattern with one of said flexing diaphragms moving said nozzle in one direction and the other moving said nozzle in the opposite direction, said vacuum producing means and said spraying nozzle being connected in series with each carrying all of the fluid passing through said sprinkler.

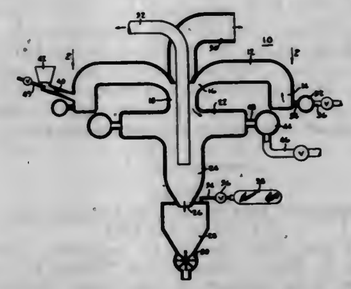
3,317,144
FLUSH SPRINKLER AND FITTING THEREFOR
William G. Muschett, 6163 Rolling Road Drive, Miami, Fla. 33156
Filed May 17, 1965, Ser. No. 456,381
7 Claims. (Cl. 239—204)



1. For use with a flush lawn sprinkler, a fitting for manually axially adjustably securing a sprinkler head to a buried pipe, said fitting comprising a pair of open-ended rigid sleeves, one sleeve being telescopically received and axially slidable in the other sleeve whereby to provide a pair of radially facing surfaces axially movable with respect to one another, said surfaces being of different diameters thereby to provide an annular gap between said surfaces over their entire coextensive lengths, a buttress thread on the facing surfaces of one sleeve, said thread having a camming face and a stop face, a pair of circumferentially spaced camming projections, means slidably mounting each of the camming projections detachably secured to the one sleeve on the other sleeve intermediate the ends thereof for radial movement with respect to said other sleeve through said annular gap between an engaging position abutting the stop face and a retracted position abutting the camming face, said mounting means biasing the camming projections to their engaging positions, whereby said facing surfaces can be manually non-rotatably moved axially with respect to one another in the direction in which the camming face of the thread abuts the camming projections, but whereby said surfaces can only be rotatably moved axially with respect to one another in the direction in which the stop face of the thread abuts the camming projections, means on one end of one sleeve for attaching the sleeve to a buried pipe, means associated with the other sleeve for attaching said other sleeve to a sprinkler head and means slidably sealing said facing surfaces of said sleeves against passage of water.

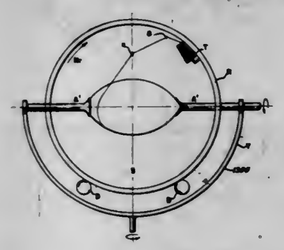
3,317,145
METHOD AND MEANS FOR PULVERIZING AND DRYING SOLIDS
Nicholas N. Stephanoff, Haverford, Pa., assignor to Fluid Energy Processing & Equipment Company, Lansdale, Pa., a corporation of Pennsylvania
Filed Jan. 2, 1964, Ser. No. 335,043
6 Claims. (Cl. 241—5)

1. A method of grinding and drying solids which comprises passing solid particles into an atmosphere containing a vortex of gaseous fluid at a temperature higher than the temperature of condensation of said fluid, substantially separating said fluid from the lighter particles in said vortex while passing said lighter particles commovingly into a second atmosphere containing a vortex



of a different gaseous fluid at a temperature higher than its temperature of condensation, and substantially separating the fluid of said second vortex from the lighter particles therein while passing said last mentioned particles toward a collection station.

3,317,146
METHOD OF WINDING A REINFORCING CORD ON A HOLLOW SPHEROID
Rudolph G. Holman, Santa Ana, Calif., assignor to W. J. Voit Rubber Corp., a corporation of California
Filed Aug. 15, 1962, Ser. No. 221,927
5 Claims. (Cl. 242—3)



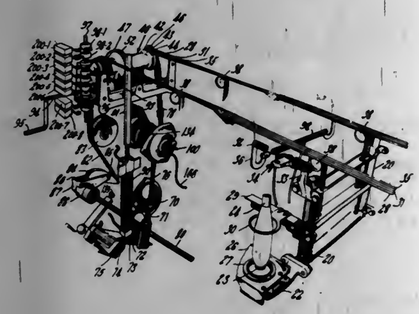
1. A method for reinforcing a wall of a hollow spheroid subjected to pressure of compressed fluid within said spheroid when said spheroid is in use, said spheroid having a major axis passing through poles at the opposite ends of the spheroid and a minor axis perpendicular to the major axis midway between the poles of the spheroid, and having an equator in an equatorial plane perpendicular to the major axis and in which the minor axis lies, said method including the steps of

(a) providing an inflated spheroid,
(b) providing a source of said cord and eyelet for guiding and winding said cord on said wall,
(c) attaching the free end of said cord to said spheroid,
(d) thereafter rotating said spheroid around the major axis of said spheroid to wind said cord around said spheroid,
(e) oscillating at a variable amplitude said eyelet back and forth across the equatorial plane of said spheroid,
(f) correlating the speed of rotation of said spheroid around said major axis and the rate of oscillation of said eyelet to make all of the turns of said cord follow a series of geodesic paths merging into each other on the surface of said spheroid to make all of said turns capable to counteract said pressure,

(g) varying the amplitude of said oscillations between a minimum amplitude producing a plurality of substantially geodesic turns in the vicinity of the equator of said spheroid and a maximum amplitude producing a plurality of substantially geodesic turns running substantially from tip to tip of said spheroid to cover the surface of said spheroid with said cord,

(h) and controlling the number of oscillations of said eyelet at any given amplitude to produce that type of distribution of the turns over the surface of said spheroid which is capable of resisting effectively all the stresses imposed on said spheroidal wall by said fluid.

3,317,147
SPINNING FRAME FLUID OPERATED CONTROL MEANS
Lester W. Pray and Gordon C. Anderson, Clemson, Herman D. Sheron, Seneca, and William H. Drake, Clemson, S.C., assignors to Maremont Corporation, Chicago, Ill., a corporation of Illinois
Filed Oct. 8, 1964, Ser. No. 402,384
16 Claims. (Cl. 242—26.4)



1. In a spinning frame and the like having means for building bobbins including spindles, bobbins on said spindles, yarn traversing and guiding elements including spinning rings, and means for rotating said spindles,

automatic control and operating mechanism comprising:

a builder motion mechanism, providing traversing movement of said spinning rings,

a counter force mechanism,

a windlass mechanism connected between said builder motion mechanism and said counter force mechanism for oscillating said windlass mechanism in synchronism with said builder motion mechanism,

said spinning rings being connected to said windlass mechanism for traversing said spinning rings in synchronism with said windlass mechanism,

fluid power operating means for operating said windlass mechanism,

said operating means rotating said windlass mechanism for moving said spinning rings downwardly independently of said builder motion mechanism,

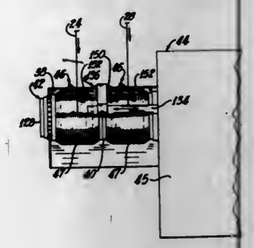
control means initiating operation of said operating means when said bobbins are fully built first automatically to lower said spinning rings, and

automatically to stop rotation of said spindles,

restart means operable to start rotation of said spindles and said builder motion mechanism to produce traversing of said spinning rings after replacing full bobbins with empty bobbins.

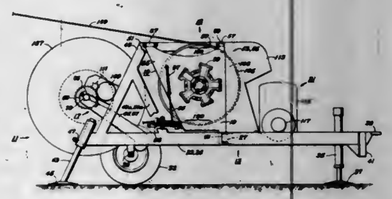
said control means operating said operating means automatically to locate said spinning rings in an initial bobbin winding position.

3,317,148
APPARATUS FOR FORMING AND COLLECTING FILAMENTARY MATERIALS
Wiley S. Martin and Jerome P. Klink, Anderson, S.C., assignors to Owens-Corning Fiberglas Corporation, a corporation of Delaware
Original application Oct. 17, 1963, Ser. No. 316,805, now Patent No. 3,254,850, dated June 7, 1966. Divided and this application Sept. 27, 1965, Ser. No. 508,878
5 Claims. (Cl. 242—43)



1. Apparatus for collecting strand material including, in combination, a support, a rotatable winding collet journally mounted for rotation on the support arranged to collect the strand material, means for rotating the collet, a member arranged for reciprocatory movements substantially parallel with the axis of the collet, a motor having a shaft, a strand oscillator mounted on said shaft arranged to be engaged with the strand material, mounting means for said motor, said mounting means including a first bracket supported by said reciprocable member, and a second bracket carried by said first bracket and adjustable relative to the first bracket, said second bracket supporting the motor.

3,317,149
ELECTRIC CABLE STRINGING APPARATUS
William C. Gooch, Fort Worth, Tex., assignor to Hydra-Pull Corporation, Fort Worth, Tex.
Filed July 8, 1964, Ser. No. 381,135
8 Claims. (Cl. 242—54)



1. An apparatus for stringing electrical power transmission cables in electric power distribution systems, said apparatus comprising:

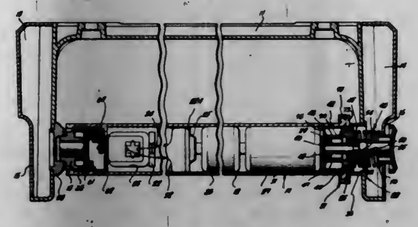
(a) a mobile support frame;

(b) a cable reel rotatably secured to the support frame;

(c) a pay-out wheel pivotally and rotatably mounted on the support frame and adapted to receive cable from cable reel and to pay-out said cable for elevated installation, said pay-out wheel having an annular groove in its periphery that is defined with reference to its radial cross-section as having walls that converge toward the rotational axis of the pay-out wheel, and as having a bottom, generally stress relieved, configuration that has clearance from the cable disposed in the groove; and

(d) a guide mechanism adapted for pivotally moving said receiving portion of said pay-out wheel into continuous alignment with said cable as said cable is unwound from or wound upon the cable reel.

3,317,150
SELF-POWERED DISPENSER
Ernest John Summersby, Los Angeles County, Calif., assignor to Mirra-Cote Company, Inc., El Segundo, Calif., a corporation of California
Filed June 14, 1965, Ser. No. 463,717
10 Claims. (Cl. 242—55.2)



1. A power-driven holder and dispenser for a roll of sheet material comprising:

a support;

a tubular roller mounted in said support for holding the material roll thereon and rotatable therewith;

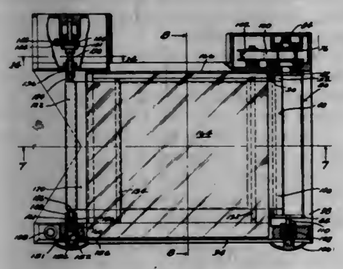
a motor for rotating said roller in a sheet material dispensing direction;

a power supply for said motor;

means mounting said motor and said power supply within said roller; and

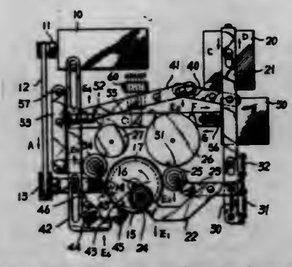
power actuator means movably mounted on said support for selective manual control of the energization of said motor by said power supply.

3,317,151
PROJECTION STAGE APPARATUS
John S. Wright, 627 Birch Ave., Whitefish Bay, Wis. 53217
Filed July 19, 1963, Ser. No. 296,322
10 Claims. (Cl. 242—55.12)



1. A supplemental projector stage adapted to be interposed between a projector light source and lens for supporting image-bearing film for projection, said stage comprising a frame having a central window, a film winding spindle mounted on the frame at one side of the window, a removable film cartridge having a film storage spindle, means for releasably mounting the cartridge on the frame at the other side of the window from the winding spindle, means for subjecting the storage spindle of the cartridge to torque tending to rewind the film thereon, said last means comprising a negator spring motor developing approximately constant torque over a wide range of film movement, means for mounting said motor on the frame independently of said cartridge, and a driving coupling having separable parts respectively connected with the storage spindle and with the motor, said cartridge and storage spindle being freely removable unitarily.

3,317,152
APPARATUS FOR THE QUICK RETURN OF A RECORDING MEDIUM IN TAPE RECORDER
Shichiro Fukatsu, Yokohama, Japan, assignor to Victor Company of Japan, Limited, Kanagawa-ku, Yokohama, Japan, a corporation of Japan
Filed June 16, 1965, Ser. No. 464,319
Claims priority, application Japan, June 24, 1964, 39/49,537
7 Claims. (Cl. 242—55.12)

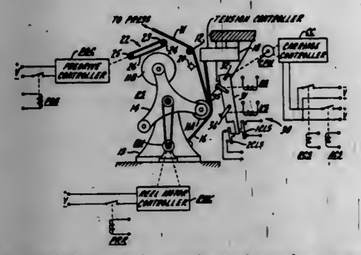


1. An apparatus for advancing and re-winding the recording medium in a tape recorder, said apparatus comprising a first wheel adapted to receive a supply reel; a second wheel adapted to receive a takeup reel; a rotary drive means; a first coupling means and a second coupling means adapted to couple said rotary drive means to said first wheel and to said second wheel, respectively, to rotate said wheels and advance the recording medium from said supply reel to said takeup reel; a first actuating means and a second actuating means for actuating said first and second coupling means, respectively; means responsive to movement of one of said actuating means to reverse the rotary direction of said rotary drive means to reverse said wheels and effect re-winding of said recording medium from said takeup reel to said supply reel; a first and second energizing means for selectively energizing said first and second actuating means, respectively; electrical storage and discharge means for energizing said second energizing means; a power source connected in parallel with said first energizing means and said electrical storage means; and switch means for switching from a position wherein only said first energizing means and said electrical storage and discharge means are connected with said power source thereby effecting an advance of said recording medium, to a position wherein said first energizing means and said electrical storage means are disconnected from said power source and a closed circuit is made by only said second energizing means and said electrical storage and discharge means, thereby effecting an immediate re-winding of said recording medium.

3,317,153
DIGITAL CONTROL SYSTEM FOR PRINTING PRESSES OR THE LIKE
Francis A. Raymond, Westmont, Ill., assignor to Miehle-Goss-Dexter, Incorporated, Chicago, Ill., a corporation of Delaware
Filed Mar. 7, 1966, Ser. No. 538,439
19 Claims. (Cl. 242—58.3)

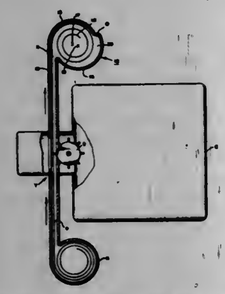
1. In apparatus for splicing the web from a new roll to a running web drawn from an expiring roll wherein first components are provided for effecting preliminary operations to make ready for splicing and second components are provided for effecting the splicing operation,

the combination which comprises pulse generating means for producing a pair of pulses during each revolution of the expiring roll, the time relationship between said pulses varying as a function of the expiring roll diameter and



the speed of the running web, and sensing means operatively connected to said pulse generating means and responsive to prescribed time relationship between said pulses for producing an output signal to initiate the preliminary operations by the first components.

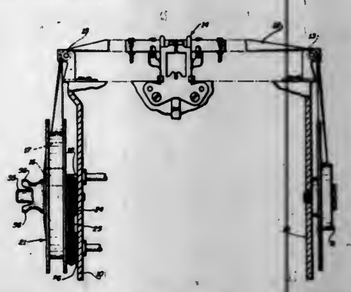
3,317,154
FILM CANNISTER
John C. L. Leslie, Albuquerque, N. Mex., assignor to Educational Research Associates, Inc., Albuquerque, N. Mex., a corporation of New Mexico
Filed Sept. 3, 1965, Ser. No. 485,017
1 Claim. (Cl. 242—71.2)



A film cannister for receiving and coiling a length of film as it is passed through a projector comprising an inner cannister wall, said inner wall including a first substantially semi-cylindrical inner wall section, a second substantially semi-cylindrical inner wall section of larger effective diameter than that of said first wall section, an offsetting portion joining said wall sections, means providing an entryway for the film substantially diametrically opposite the offsetting portion, and means pushing the film into said entryway to contiguously engage said first inner wall section and form inside the cannister a convolution of decreasing radius spaced from said second inner wall section by the offsetting portion, thereby reducing frictional contact against the inner wall of the cannister.

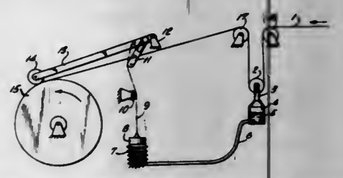
3,317,155
RIBBON SPOOL
Carl A. Geissler, Glastonbury, Conn., assignor to Royal Typewriter Company, Inc., New York, N.Y., a corporation of Delaware
Filed June 7, 1965, Ser. No. 461,653
3 Claims. (Cl. 242—71.8)

1. A carbon ribbon take-up spool comprising a first flange adapted to be rotatably mounted on a machine frame and driven to wind used ribbon on said spool,
a second circular flange,
a coaxial hub on said second flange,
means for releasably securing said hub coaxially to said first flange,
a normally contracted radially expandable element attached to and axially coextensive with said hub between said flanges,



and means supported by and for axial movement relative to said hub operable when moved in one direction to expand and maintain said element expanded and in the other direction to permit contraction of said element whereby it may serve when expanded to support a wound used ribbon and when contracted to release said wound used ribbon.

3,317,156
DEVICE FOR CONTROLLING THE TENSION WHEN WINDING MATERIAL
Dietrich Hank, Leipzig, Germany, assignor to VEB Druckmaschinenwerke Leipzig, Leipzig, Germany
Filed Aug. 20, 1965, Ser. No. 481,268
6 Claims. (Cl. 242—75.3)

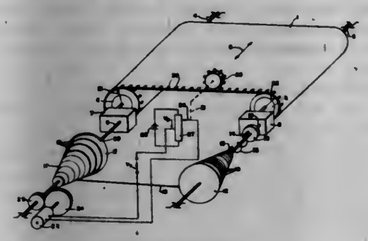


1. A device for regulating tension on a fibrous material during the operation of winding said material upon a storage roller comprising:
(a) a variable volume cylinder,
(b) means for sensing the diameter of said fibrous material on said storage roll,
(c) means for varying the volume of said cylinder,
(d) mechanical linkage connecting said sensing means to said volume varying means,
(e) a container for containing a liquid therein; and
(f) a flexible conduit connecting said container to said variable volume cylinder.

3,317,157
TENSION MAINTAINING DEVICE
Heinz Leiber, Liemen, Germany, assignor to Teldix Luftfahrt-Ousrustungs G.m.b.H., Heidelberg-Wieblingen, Germany
Filed May 12, 1965, Ser. No. 455,157
Claims priority, application Germany, May 13, 1964, T 26,177
9 Claims. (Cl. 242—75.5)

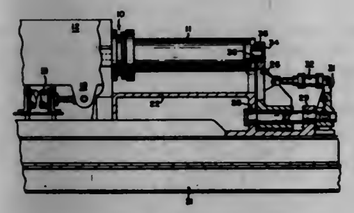
1. A device for maintaining the tensile stress of a strip stretched between two drums, comprising, in combination:
two conical pulleys for positioning a rope and having spiral grooves in their conical surfaces;

a rope having its ends fixed to the conical pulleys and partly wound about the rope pulleys in the grooves;
two drums having a strip stretched between them and wound on the drums; and
gearing means for connecting the drum on which the strip is wound with the rope pulley from which the



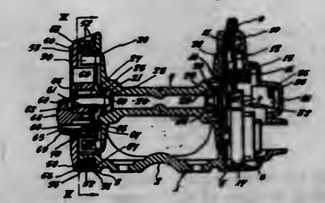
rope is unwound, and the drum from which the strip is unwound with the rope pulley on which the rope is wound, and including means for providing torsional biassing interposed between one of the drums and the pulley to which it is connected.

3,317,158
OUTBOARD BEARING FOR TENSION REELS
Jeremiah Wagner O'Brien, Pittsburgh, Pa., assignor to United Engineering and Foundry Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed July 16, 1965, Ser. No. 472,595
Claims priority, application Great Britain, Aug. 11, 1964, 32,588/64
4 Claims. (Cl. 242—78.1)



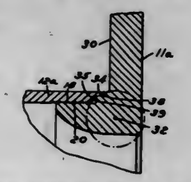
1. A reel for coiling and/or uncoiling metallic strip material incident to processing in a rolling mill comprising:
a housing,
a mandrel rotatably supported by said housing at its inboard end and having an outboard strip receiving end overhanging one side of said housing, said strip receiving end of said mandrel being subject to forces inducing deflection thereof,
a support means for the outboard end of said mandrel for resisting said deflection and arranged so as not to interfere with strip passing to and from said mandrel,
means for positioning said support means into a supporting position with said mandrel and,
a member rigidly uniting said housing and said support means whereby wear and distortion of said mandrel and said support means will not effect the quick and accurate positioning of said support relative to said mandrel,
said member carrying said support means and arranged at one side of said mandrel in a spaced parallelly extending relation below the mandrel.

3,317,159
ROTATING SPOOL FISHING REEL WITH AIR BRAKE
Kenneth Patrick Morritt, Cheam, England, assignor to K. P. Morritt Limited, Cheam, Surrey, England
Filed Nov. 25, 1964, Ser. No. 413,769
Claims priority, application Great Britain, Nov. 28, 1963, 47,052/63
10 Claims. (Cl. 242—84.52)



1. A fishing reel comprising a spool, an axle, a spool end plate, a reel casing, a casing portion of the reel casing having a radially central and a radially outer portion, air passages in the casing portion, control means, and centrifugal fan vanes on the spool end plate, the axle being fast with the casing portion, a first of the air passages about the axle being in the radially central portion of the casing portion, a second of the air passages being in the radially outer portion of the casing portion, the spool being rotatable about the axle, the centrifugal fan vanes being between the first and second air passages, and the control means controlling the effective size of one of these passages.

3,317,160
TEXTILE BEAM
Joseph Paul Laird, Philadelphia, Pa., assignor to Hayes Industries, Inc., Jackson, Mich., a corporation of Michigan
Filed Jan. 14, 1964, Ser. No. 337,649
5 Claims. (Cl. 242—118.62)

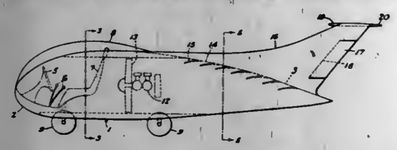


5. A textile beam construction of the type employing a barrel and a pair of heads one of which is secured to each end of the barrel forming a joint between abutting surfaces on each end of the barrel and the adjacent head and which abutting surfaces can separate due to deflection resulting from the load imposed upon the heads when the beam is wound with yarn thereby permitting yarn filaments to be entrapped in the joint, characterized by said abutting surfaces on the barrel and head each being formed substantially parallel to the neutral axis of the head and the said abutting surfaces on each end of the barrel intersecting the outer yarn-supporting surface thereof whereby such deflection of a head results in sliding rather than separating relative movement between said abutting surfaces.

3,317,161
AIR CAR
James G. Sawyer, Snyder, N.Y., assignor to General Turbine Corp., Buffalo, N.Y.
Filed Oct. 29, 1964, Ser. No. 407,319
7 Claims. (Cl. 244—36)

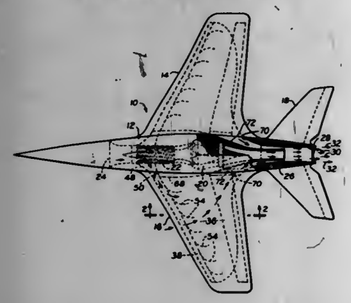
1. A surface vehicle free of laterally projecting wing structures and capable of air travel without changing its

external configuration comprising a body of aerodynamic airfoil shape in side elevation having a low aspect ratio, an air passageway through said body including forwardly directed air inlet means in the forward portion of said body and rearwardly directed air discharge means in the upper rear portion of said body, said upper rear portion of said body providing a rearwardly and downwardly inclined airfoil lift surface, said discharge means directing



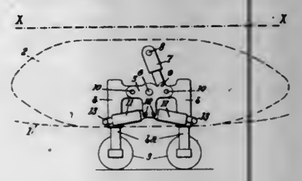
the exiting air downwardly along and essentially parallel to the airfoil surface of said upper rear body portion for boundary layer control, said upper rear lift surface extending rearwardly and downwardly to a trailing edge with the bottom surface of said body, means carried by said body arranged to force air through said passageway and out of said discharge means, stabilizer means carried by said body, and surface engaging support means carried by said body.

3,317,162
AIRCRAFT WING WITH INTERNAL AIR PASSAGES FOR INCREASED LIFT
Charles H. Grant, Box 247, Cottage St., Manchester Center, Vt. 05255
Filed July 13, 1965, Ser. No. 471,688
14 Claims. (Cl. 244—42)



13. An aircraft including a fuselage, wings extending spanwise on opposite sides of the fuselage, each of the wings having a leading edge and a trailing edge, an air chamber within each wing and through which air passes, an air inlet near a forward part of the chamber, an air outlet near the rearward part of the chamber, and surfaces in the chambers in position to deflect the air downward at one location along the course of flow of the air in the chamber from the inlet to the outlet to develop lift, the chamber in each wing having a substantial spanwise extent and the inlet including a spanwise extending opening through the wing near the leading edge thereof, adjustable means for controlling the flow of air into said inlet from the winds of flight, the inlet being an opening in the bottom of the wing for most of the extent of the wing beyond the fuselage, and the adjustable means being a scoop movable between raised and lowered positions, the scoop in its raised position extending in a chordwise direction across the inlet and forming a bottom surface of the wing that closes said inlet, the scoop in its lowered position extending downwardly and forwardly in a direction to deflect air upward into the inlet, and the scoop including connections to the wing that swing most of the spanwise extent of the scoop down below the bottom surface of the wing so that there is a slot for passage of part of the air in front of the scoop to pass between the scoop and the bottom of the wing, the inlet including also a duct leading from the fuselage into the chambers in each of the wings, a blower in the aircraft for supplying air to the ducts, each wing having a flap at the trailing edge thereof, the outlet of the chamber of each wing including a spanwise opening through the wing above the flap, said flap being movable between raised and lowered positions and being of a chordwise extent to completely close the spanwise opening through the wing above the flap and to form a continuation of the surface of the wing when the flap is in raised position, the aircraft having a tail with an exhaust opening therein and the wing chamber outlets also having passages leading to said exhaust opening, baffle means for selectively closing the inlets from the blower and the outlets to the exhaust selectively when the scoop and flap, respectively, are in their lowered positions.

3,317,163
AIRCRAFT RETRACTABLE LANDING GEARS
Jacques Andre Maurice Leclercq, Saint-Leu-la-Foret, France, assignor to Societe d'Exploitation des Materiels Hispano-Suiza, Bois-Colombes, Seine, France
Filed July 19, 1965, Ser. No. 472,854
Claims priority, application France, July 23, 1964, 982,809
14 Claims. (Cl. 244—102)

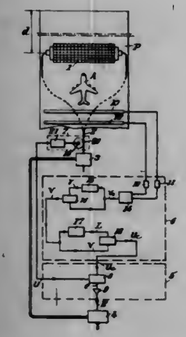


1. For use on an aircraft structure, a landing gear which comprises; a support pivoted to said aircraft structure about a single first axis, said first axis being transverse to the aircraft fore-and-aft direction, a first leg pivoted to said support about one second axis transverse to the aircraft fore-and-aft direction and a second leg pivoted to said support about another second axis, each of said second axes being the sole axis about which its corresponding leg is pivoted to said support, a first wheel journalled on said first leg about one third axis and a second wheel journalled on said second leg about another third axis, each of said third axes being at a fixed angular relationship with respect to its corresponding leg, and each of said third axes being horizontal and perpendicular to said fore-and-aft direction when said legs are in the downwardly extended position with respect to said support, and an actuating means interposed between each leg and said support for causing said respective leg to pivot upwardly about its respective second axis with respect to the said support.

3,317,164
AIRCRAFT ARRESTING GEARS
Claude Louis Edouard Marcheron, Montrouge, France, assignor to Societe d'Exploitation des Materiels Hispano-Suiza, Bois-Colombes, Seine, France
Filed Oct. 21, 1965, Ser. No. 499,621
Claims priority, application France, Nov. 12, 1964, 994,650
14 Claims. (Cl. 244—110)

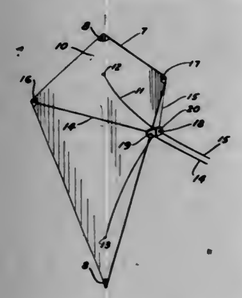
1. For use to stop a body with respect to the ground an arresting gear which comprises, in combination,
a barrier extending across the path of travel of said body on the ground,

holding means for said barrier comprising at least one flexible link secured to said barrier,
mounted in fixed position on the ground, a braking device for braking said flexible link,
means on the ground ahead of said barrier for measuring the speed of said body as it is going to strike said barrier,
an electronic calculator having its input connected with the output of said speed measuring means for determining the assigned speed of displacement of said flexible link,
a device for measuring the actual speed of displacement of said flexible link,



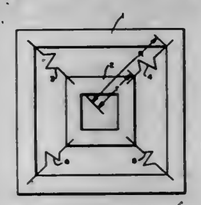
electronic regulator means having two inputs connected to the respective outputs of said electronic calculator and of said measuring device for supplying, at the output of said regulator means, a signal representative of the comparison between the indication of said two respective outputs, and
a servo-control device having its input connected with the output of said regulator means and its output connected with said braking device to control it to tend to make the output of said measuring device equal to the output of said electronic calculator.

3,317,165
KITE CONTROL
Raymond John Zobl III, 27077 Bennett, Redford Township, Detroit, Mich. 48240
Filed July 9, 1965, Ser. No. 470,673
5 Claims. (Cl. 244—155)



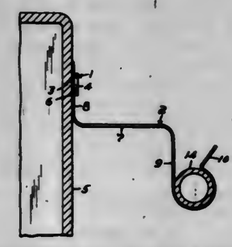
1. The combination with a kite having a single length bridle string secured at one end to the top and secured at the other end to the bottom of said kite, and a separate control string secured to each side of said kite, the combination of a plate like member having a plurality of apertures therein positioned along a median line of said plate with said bridle string received in said apertures, and a comparatively larger aperture near each end of said plate with one of said control strings slideably received in each last named aperture.

3,317,166
MOUNTING
Hans-Joachim Janssen, Hundsmuhlen uber Oldenburg, Oldenburg, Germany, assignor to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany
Filed July 9, 1964, Ser. No. 381,422
Claims priority, application Germany, July 9. 1963, L 45,346; Dec. 19, 1963, L 46,652
23 Claims. (Cl. 248—26)



1. A resilient mounting for use with small electric motors, especially in sound reproducing equipment, for insulating vibration thereof, said mounting comprising, in combination: two frames defining an annular space therebetween and resilient web means interconnecting said frames, said web means acting as springs and lying within said space, which is coaxial with the axis of a motor to be supported by said mounting, the ratio of the inner radius of said space to the outer radius of said space being 1:2 or less.

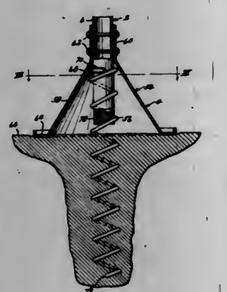
3,317,167
FASTENER COMBINATION FOR SECURING TUBULAR STRUCTURES
Charles H. Becker, Braintree, and Richard I. Jones, Lexington, Mass., assignors to United-Carr Incorporated, Boston, Mass., a corporation of Massachusetts
Filed Nov. 2, 1965, Ser. No. 506,037
2 Claims. (Cl. 248—73)



1. An assembly comprising, in combination, a sheet metal support, a clip including a laterally extending portion, an attaching arm extending upwardly from one end of said laterally extending fastener, said attaching arm having a keyhole-shaped slot formed therein, and an article-retaining arm extending downwardly from said laterally extending portion at the end thereof opposite said attaching arm, said article-retaining arm being curled back on itself to provide a loop portion which snappingly engages an article, a stud having a shank and a generally circular head at one end of said shank, said head being of greater diameter than said shank, said shank being welded to a surface of the support at its end opposite said

head such that said head is spaced from, but lies in, close proximity to the surface of the support, the space between the undersurface of said head and the support being approximately equal to the thickness of the attaching arm of said clip, said shank being seated in the narrow portion of said keyhole slot in said attaching arm, said head being clamped against the portions of said attaching arm adjacent said slot at the surface of said arm remote from said support, thereby tensioning said attaching arm against said support.

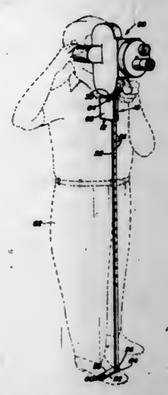
3,317,168
OBJECT-SUPPORTING STANDARD AND GROUND ANCHOR THEREFOR
George R. Ziph, 6332 S. 11th St., St. Joseph, Mo. 64504
Filed Sept. 8, 1964, Ser. No. 394,792
6 Claims. (Cl. 248—156)



1. In combination with a generally vertical standard, a ground anchor for affixing the lower end of said standard in the ground, said ground anchor comprising:
   a. a foot member affixed to the lower end of said standard and having a planar horizontal base substantially larger than said standard and adapted to abut the ground,
   b. an anchor member adapted to be engaged immovably in the ground beneath said foot member and within the transverse confines thereof, and
   c. a vertically disposed, resiliently extensible member affixed at its lower end to said anchor member and affixed at its upper end to said standard at a point spaced above the base of said foot member, said anchor member and said resiliently extensible member conjointly constituting a single helical spring, the lower portion of said spring being adapted to be screwed into the ground in the manner of a corkscrew and the upper portion of said spring being disposed above the plane of the base of said foot member and affixed at its extreme upper end to said standard.

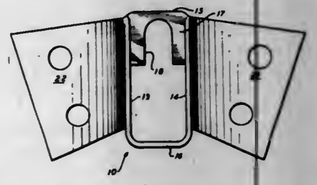
3,317,169
CAMERA TENSION ANCHOR
William L. Hendricks, 4415 Jacaranda Ave., Burbank, Calif. 91505
Filed Aug. 19, 1966, Ser. No. 573,610
4 Claims. (Cl. 248—188.2)

1. An anchor for a camera, said anchor including mounting means adapted to be secured to a hand held camera, elongated member means secured at one end to said mounting means, adjustable in effective length and including anchor means at the other end thereof adapted to be engaged with and retained against movement away from an anchoring object, said mounting means including means for selectively receiving adjusted length portions of the adjacent end of said member in a coiled state, said mounting means and said member including coacting means operative to releasably secure various adjusted



length portions of said adjacent end of said member in a coiled state.

3,317,170
PENDANT SUPPORT STRUCTURE
Henry C. Pfaff, Jr., Summit, N.J., assignor to Pfaff and Kendall, Newark, N.J., a corporation of New Jersey
Filed June 28, 1965, Ser. No. 467,605
2 Claims. (Cl. 248—221)

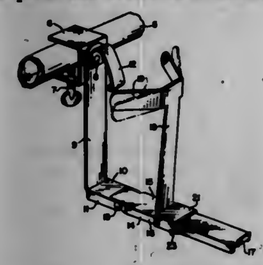


1. A pendant structure comprising a tubular arm, wings extending from opposite sides of the arm, and a slotted plate secured to the arm extending between the wings and terminating within the tubular section, each of said wings being apertured and inclined about axes making an angle with the axis of the arm, and said plate lying in a plane containing said axes whereby to provide a continuous surface with the wings.

3,317,171
CUP OR TUMBLER HOLDER FOR ATTACHMENT TO ALUMINUM CHAIRS OR THE LIKE
Joseph Kramer, 6717 SW. 27th Court, West Hollywood, Fla. 33023
Filed June 21, 1965, Ser. No. 465,297
3 Claims. (Cl. 248—229)

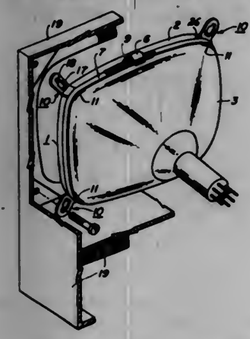
1. A collapsible tumbler or paper cup holder for support upon the arm of metallic lawn furniture, that comprises a U-shape bracket that is adapted to be connected to the arm and held against movement by a set screw, a vertically arranged arm that is pivotally connected to the bracket at its upper end and with the arm being bent at a right angle from its lower end to form a rest, a channel bar having a pivotal connection with the rest so as to be swingable to a collapsed position, a clamping plate engaging the channel bar and slidable therealong to yieldably engage a side of a tumbler or a paper cup supported upon the top of the channel bar, means for limiting the downward swinging movement of the channel bar and means for limiting the sliding movement of the

clamping plate away from the arm and a leaf spring fixed to the pivot and biased in a direction toward the



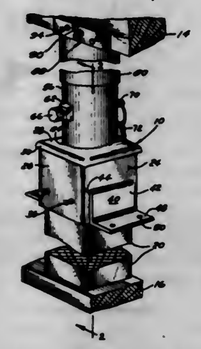
clamping plate, whereby the tumbler is yieldably disposed against the spring and the clamping plate.

3,317,172
PICTURE TUBE MOUNTING
John Balint, Langhorne Manor, Pa., assignor to George K. Garrett Company, Division of MSL Industries, Inc., Philadelphia, Pa., a corporation of Minnesota
Filed June 2, 1965, Ser. No. 460,640
5 Claims. (Cl. 248—316)



1. A picture-tube mounting, comprising a flexible tube-encircling band extending around the generally largest peripheral portion of the picture-tube, adjustable fastener means associated with the free ends of said tube-encircling band for securing said ends to each other and adjustably tightening said tube-encircling band about said peripheral portion of the picture-tube, a plurality of circumferentially distributed brackets operatively connected with said tube-encircling band when the latter is tightened around said peripheral portion of the picture-tube so that said brackets are firmly held to said peripheral portion of said picture-tube in circumferentially distributed relation thereto, said brackets including a base portion overlapping and connected with said tube-circling band, a base-extension extending forwardly and offset outwardly of said band-overlapping base and formed in direct continuation thereof, an inverted generally U-shaped single-ply mounting-plate with the ends of the legs thereof formed in direct continuation of said base-extension, a shield-retainer formed in direct continuation of the portion of the front end of said base-extension which is between the legs of the inverted U-shaped mounting-plate, said shield-retainer extending forwardly of said base-extension in the direction of the face of the picture-tube for retaining a transparent tube-shield panel in front of the picture-tube, said shield-retainer having an inwardly extending hook-like terminal portion disposed at an angle to said base-extension, and a recess in the outer end of said mounting-plate for receiving a fastener for securing said mounting plate to the cabinet.

3,317,173
SHORE ADAPTER
Walter D. Williams, River Forest, Ill., assignor to Symons Mfg. Company, Des Plaines, Ill., a corporation of Delaware
Filed May 25, 1965, Ser. No. 458,571
2 Claims. (Cl. 248—351)

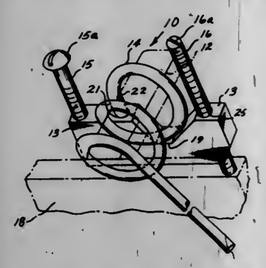


1. A steel shore adapter capable of alternatively establishing a supporting thrust connection between either the upper end of a vertical wooden shore post having a square cross section or a horizontal foundation sill and the lower end of a tubular cylindrical steel shore section, the lower region of said shore section being formed with a reduced pilot section establishing a downwardly facing shoulder, said adapter comprising an inverted cup-shaped body including a square top wall and four depending side walls, said body being adapted for telescopic reception over said upper end of the post, certain of said side walls being formed with nail holes therein for reception therethrough of nails by means of which the body may be nailed in position on the post, and a cylindrical tubular retaining sleeve having its lower rim welded in centered relationship to said top wall, projecting vertically upwardly therefrom, and designed for telescopic reception therein of said reduced pilot section of the steel shore section so that said shoulder seats upon the upper rim of the sleeve, said retaining sleeve being formed with a bolt-receiving hole therein, a nut welded to said retaining sleeve exteriorly thereof and in register with said bolt-receiving hole, a bolt threadedly received by said nut and adapted upon turning thereof in a tightening direction to be projected through said bolt-receiving hole and into clamping engagement with said pilot section when the latter is received within the retaining sleeve, and a pair of attachment feet in the form of anglepieces welded to two of the opposed side walls of said body and presenting horizontal nailing flanges which project outwardly laterally from said body and lie in the horizontal plane of the lower rim of the body, said nailing flanges each being provided with nail holes therein by means of which the body may be secured to said horizontal foundation sill.

3,317,174
PORTABLE ELECTRIC SAW HANGER
Wilborn F. Wilkerson, Jr., 4247 Yaleton Ave., Covina, Calif. 91722
Filed Oct. 4, 1965, Ser. No. 492,490
6 Claims. (Cl. 248—359)

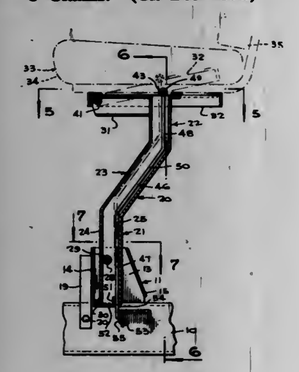
1. A hanger for a portable tool having a handle, said hanger comprising: resilient means adapted to be wrapped about the handles of portable tools, and having a short straight end and a long straight end; and a locking means having a notch therein to receive the handle of a portable

tool, a bore to receive said short straight end of said resilient means and having adjustment screws therein adapted to press against the tool and lock said handle in said



notch, the long straight end of said resilient means adapted to extend from the side of said handle to provide a hanger for the tool which may securely support the tool when hung over a structural member.

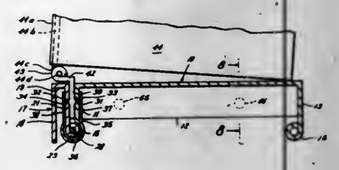
3,317,175
DISPLACEABLE SEAT PEDESTAL STRUCTURE
Wade O. Ford, 30 W. 29th St., San Angelo, Tex. 76901
Filed June 8, 1965, Ser. No. 462,172
8 Claims. (Cl. 248—398)



1. A displaceable seat pedestal comprising a support means, upright means pivotally connected to said support means for movement in a vertical plane, a seat frame pivotally connected on the upper end of said upright member for movement substantially in a vertical plane, locking means carried by said seat frame and being movable substantially along the length of said upright means when said seat frame is pivoted and means mounted on said support means engageable by said locking means when said upright means is disposed at a predetermined angle relative to said support means, and said locking means is displaced along the length of said upright means toward said engageable means.

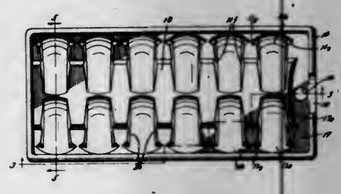
3,317,176
APPARATUS FOR STORING AND RETRIEVING INFORMATION
Harold H. Herrin, 4704 Edison St., Houston, Tex. 77009
Filed Oct. 14, 1965, Ser. No. 496,058
17 Claims. (Cl. 248—447)

1. Apparatus for storing and retrieving information disposed on the sheets of books, and the like, comprising substantially horizontal support surface means having at least one substantially straight longitudinal side portion, clamp means disposed along said side portion adapted to frictionally engage downwardly extending web means therein and to open for release of said web means, at least one hinge means having downwardly extending web



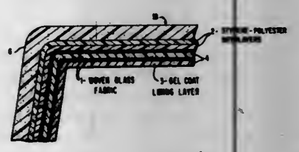
means frictionally and releasably engaged in said clamp means and having book connection means pivotally connected to the upper end of said web means and secured to the back hinge portion of a book.

3,317,177
ICE CUBE TRAYS
Lawrence H. Brand, Rte. 3, Box 200, Eldon, Mo. 65026
Filed Aug. 14, 1964, Ser. No. 389,541
4 Claims. (Cl. 249—119)



4. In a cell for freezing ice cubes, said cell being formed so that, in plan, it tapers from a wide end to an opposite narrow end, said cell having an arcuate concave floor wall extending from an arc-shaped lip at said wide end of said cell to another arc-shaped lip at said opposite narrow end of said cell the improvement for facilitating removal of ice cubes from said cell, said improvement comprising an arc-shaped lip at said wide end of said cell having a crest lower than the crest of said arc-shaped lip at said opposite narrow end of said cell.

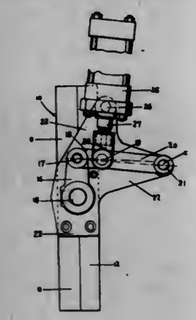
3,317,178
LINING FOR LIGHTWEIGHT FIBERGLASS REINFORCED POLYESTER RESIN MOLD
George J. Kreier, Jr., 1524 Cambridge St., Philadelphia, Pa. 19130
Filed July 18, 1966, Ser. No. 566,029
2 Claims. (Cl. 249—134)



1. A form member of extended surface area for poured concrete structures comprising: (a) a backing formed of a rigid, glass fiber reinforced, cured styrene-polyester laminate; and (b) a chemically inert finely divided hydrophilic fibrous filler containing cured styrene-polyester gel facing layer bonded to said backing, said facing layer varying in thickness from about 1/64" to about 1/4", said facing layer imparting a smooth surface to the poured concrete molded thereby and being adapted to withdraw from the freshly poured concrete a quantity of water up to about 1.5% by weight of the cured gel facing layer to condition the mold and to thereby facilitate separation of the mold form from the concrete after the concrete has hardened, there being present in said gel facing at least from about 15 to 35% of said finely divided hydrophilic fiber by weight of said facing layer, said fiber being selected from the group consisting of ethyl cellulose, regenerated cellulose, cellulose acetate, cellulose propionate, caprolactam, polyvinyl alcohol and chopped cotton, said textile fiber having a filament denier weight of from 2 to 10, 100% of the fibers being less than 1/8 inch in length, 90% of the fibers being less than 1/16 inch in length and 60% of the fibers being less than 1/32 inch in length, said filled styrene-polyester gel facing layer being coated with a film of organic hydrophobic mold-release material, said hydrophobic film forming a barrier which blocks the transport of free lime from the concrete while floating against a film of water at the water-containing surface of the concrete during casting, the concrete being thereby effectively separated from the mold by a film of water, said release material being selected from the group consisting of kerosene, fatty acid dispersed in kerosene, mineral oil, fatty acid dispersed in mineral oil, carnauba wax dispersed in volatile hydrocarbon and carnauba wax dispersed in mineral oil.

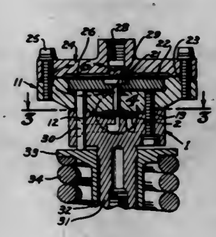
2. An antifriction product consisting essentially of styrene-polyester containing 15–35% by weight of finely divided hydrophilic fibrous filler selected from the class consisting of polyhexamethylene adipamide fibers, regenerated cellulose, polyvinyl alcohol fibers, caprolactam fibers, cellulose acetate fibers, cellulose propionate fibers and ethyl cellulose fibers, each of said cellulosic and synthetic fibers having a filament denier weight of from 2 to 10, 100% of the fibers being less than 1/8 inch in length, 90% of the fibers being less than 1/16 inch in length and 60% of the fibers being less than 1/32 inch in length.

3,317,179
VALVE OPERATING LINKAGES
Harold Victor Willis, Solihull, England, assignor to David F. Wiseman & Sons Limited, Birmingham, England, a British company
Filed July 31, 1964, Ser. No. 386,548
Claims priority, application Great Britain, Aug. 9, 1963, 31,447/63
6 Claims. (Cl. 251—58)



1. An operator for a valve assembly wherein a valve member is rotatably mounted within a valve body and has an operating spindle projecting from said body, a radially extending arm fixed on said spindle, a pair of mutually pivotally connected links forming a toggle linkage, with one link pivotally connected adjacent an end to said arm, and the other link pivotally connected adjacent an end on said body, an operator motor having a movable fluid pressure responsive element connected to apply thrust to said linkage adjacent the pivotal connection between the links for turning the valve member, said arm and toggle linkage being so constructed and arranged that when the operator is mounted in the valve assembly with said valve member in value closed position said arm is approximately perpendicular to said one link and the pivotal connection between said links lies in an over center position on one side of a line containing the pivot axes of said links on the arm and valve body respectively, said links during normal valve operation passing through alignment with each other as the valve member approaches said closed position, and an adjustable stop operative to determine the angular relationship between said links in the closed position of the valve member.

3,317,180
HIGH PRESSURE REGULATOR VALVE
Hugh L. Dryden, Deputy Administrator of the National Aeronautics and Space Administration, with respect to an invention of William F. MacGlashan, Jr., Pasadena, Calif.
Filed Apr. 9, 1963, Ser. No. 271,821
2 Claims. (Cl. 251—61)



1. In a high pressure regulator valve of the type including a valve chamber having an inlet and an outlet port with a raised knife-edge seat disposed therebetween, and a valve closing element adapted to be forced into valve sealing engagement with the knife-edge seat in response to a convexing deflection of a valve-sealing diaphragm disposed in contiguous relationship with the element, the improvement comprising in combination;

(a) a retainer disk including means defining a first and a second concentric cavity disposed at opposite sides of the disk and a coaxially aligned valve bore extending between the cavities;

(b) means mounting said retainer adjacent the valve-sealing diaphragm in a manner such that the diaphragm is disposed across the first concentric cavity of said retainer;

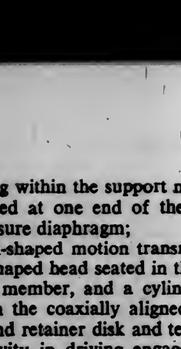
(c) a support member seated for axial displacement in the second cavity of said retainer including means defining therein a bore extending in coaxial alignment with said valve bore;

(d) a flexible pressure diaphragm extended across said second cavity;

(e) an open-faced fluid chamber having an open face mounted on said retainer disk in a manner such that the flexible pressure diaphragm is caused to be extended across the open face of the fluid chamber and between the fluid chamber and the second cavity of the retainer disk;

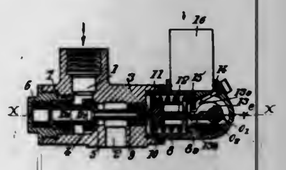
(f) means defining within the support member a counter bore disposed at one end of the bore adjacent the flexible pressure diaphragm;
(g) a rigid piston-shaped motion transmitting member having a disk-shaped head seated in the counter bore of the support member, and a cylindrical stem extending through the coaxially aligned bores of support member and retainer disk and terminating within said first cavity in driving engagement with the valve-sealing diaphragm, whereby axial displacement imparted to the motion transmitting member in a valve-closing direction is caused to be imparted to the valve-sealing diaphragm and valve-closing element, for thereby causing the element to seat on the knife-edge seat as the valve-sealing diaphragm is caused to deflect in a convexing mode;
(h) biasing means including at least one spring member urging said support into constant engagement with the flexible pressure diaphragm; and
(i) bias adjusting means connected with the biasing means whereby as a pre-selected fluid pressure is established in the fluid chamber the flexible diaphragm is caused to deform toward the support member and the motion transmitting member to thus displace the support member independently of displacement imparted to the motion transmitting member by the flexible diaphragm and against the biasing means with a force greater than the force applied to the valve closing element as it is forced by the motion transmitting member into sealing engagement with the knife-edge seat.

3,317,181
FULLY SEALED, PRESSURE OPERATED METERING VALVE
Roland W. Robbins, Jr., China Lake, Calif., assignor to the United States of America as represented by the Secretary of the Navy
Filed Aug. 24, 1965, Ser. No. 482,306
5 Claims. (Cl. 251—62)



1. A pressure signal controlled metering valve, comprising;
(a) a housing member forming first and second axially aligned, generally cylindrical cavities consisting of a control piston cavity and a valve element cavity, said cavities having their adjacent ends separated by a transverse barrier wall forming the inner end walls of said first and second cavities, said barrier wall having a first opening extending therethrough forming a connector rod guide bore aligned along the axis of the cavities, said first and second cavities each being closed at their respective outer ends by an end wall,
(b) a connector rod of predetermined length disposed in said connector rod guide bore in sliding engagement therewith, one end of the connector rod projecting into the first cavity and the other end projecting into the second cavity,
(c) a first control pressure port formed in said housing member for receiving a valve control pressure signal, said first port opening into the lateral wall of said first cavity and communicating with the interior thereof at a zone thereof adjacent its outer end,
(d) a piston disposed in said first cavity and in sliding engagement with the lateral wall thereof, said piston having first and second faces confronting the inner and outer end walls of the first cavity, respectively, said piston having an axially aligned spacer rod projecting from its second face, said spacer rod having a predetermined length to cooperate with the outer end wall of the first cavity to define a piston limit position in which the piston is axially clear of the first port, said piston having a first blind guide hole for slideably receiving the end of the connector rod,
(e) second and third valve ports formed in said housing member and opening into the lateral wall of said second cavity and communicating with the interior thereof,
(f) a cylindrical valve element disposed in said second cavity and in sliding engagement with the lateral wall thereof, said valve element having first and second ends confronting the inner and outer end walls of the first cavity, respectively, said valve element having a second blind guide hole for slideably receiving the end of the connector rod, said second guide hole being formed in the first end of the valve element, the construction and arrangement of the valve element and the housing member being such that the valve element has a predetermined axial limit position in the direction toward the inner end of the second cavity in which is blocks communication between the second and third ports.
(g) a helical compression spring disposed in said second chamber between the outer end wall and the second end of the valve element to resiliently bias same toward said limit position.

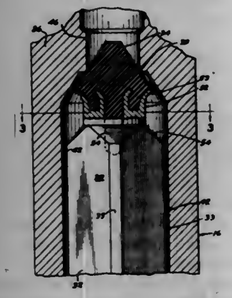
3,317,182
SAFETY VALVES
Marcel René Schott, Colombes, France, assignor to Societe d'Exploitation des Materiels Hispano-Suiza, Bois-Colombes, France, a society of France
Filed July 24, 1964, Ser. No. 384,848
Claims priority, application France, July 27, 1963, 351,486
2 Claims. (Cl. 251—68)



1. In combination with a fixed structure forming a closed fluid path, a two position valve device which comprises,
an obturator disposed in said path so as to be able to move between two extreme positions, in one of which positions it blocks said path and in the other of which positions it unblocks said path,

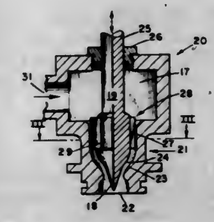
biassing means associated with said obturator for maintaining it in one of its extreme positions in which it is to normally remain,
a member pivoted in said fixed structure about a first axis carried by said fixed structure and perpendicular to the direction of movement of said obturator,
a link pivotally connected at one end thereof to said member about a second axis parallel to the first one carried by said member at a distance from said first axis, the other end of said link being located opposite said obturator,
an energy accumulating spring capable of exerting a force greater than said biassing means, said spring being interposed between said other end of said link and said fixed structure to urge said other end of said link toward said obturator for moving the latter into its other extreme position, said energy accumulating spring being adapted to be subjected to its maximum deformation when the plane passing through said two axes is in line with the direction of the thrust of said spring and said member is in an unstable position,
an abutment carried by said fixed structure adapted to cooperate with said member for holding it just past said unstable position, and
triggering means for rotating said member beyond said unstable position, thus releasing said energy accumulating spring.

3,317,183
CARBURETOR
Alex N. Szwargulski, St. Louis, Mo., assignor to ACF Industries, Incorporated, New York, N.Y., a corporation of New Jersey
Filed Apr. 29, 1964, Ser. No. 363,420
4 Claims. (Cl. 251—120)



1. A fuel flow regulating device including.
(1) means forming a passage communicated with a source of fuel and having a seating shoulder formed therein,
(2) an elongated needle body longitudinally movably positioned in said means forming a passage, and having side walls with opposed rear and forward ends,
(3) peripheral guide ribs on said elongated needle body for slidably engaging walls of said means forming a passage,
(4) a constricted cylindrical neck at the forward end of said needle body disposed adjacent to said shoulder and having a flared, tip receiving collar,
(5) a resilient flared tip received in said constricted neck at said collar, said tip having an outer conical surface for engaging said seating shoulder and forming a seal therewith when said needle body is urged toward said shoulder to prevent fuel flow through said means forming a passage,
(6) said resilient tip having a base at the lower part of said conical surface extending toward the walls of said means forming a passage to overhang said constricted cylindrical neck,
(7) means engaging said elongated body for movably positioning the latter in said passage to control the annular opening formed between said seating shoulder and said resilient tip, and
(8) a plurality of generally planar surfaces commencing at and extending rearwardly from said constricted neck toward the body rear end, and forming fuel diverting faces at said respective guide ribs to direct fuel along said body and thereby minimize fuel turbulence created when fuel passes through said annular opening and into the portion of said means forming a passage adjacent to said constricted neck.

3,317,184
PINTLE VALVE AND FLOW COLLIMATOR
Joe D. Usry, Arlington, Tex., assignor to Ling-Temco-Vought, Inc., Dallas, Tex., a corporation of Delaware
Filed Apr. 15, 1964, Ser. No. 359,922
6 Claims. (Cl. 251—122)

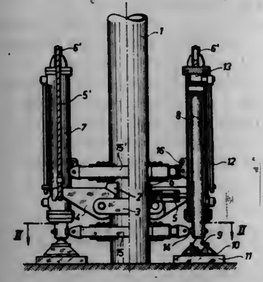


1. A pintle valve for a mounting space that is limited in the direction of a desired ejected uniform stream of fluid comprising: a valve chamber having a plenum, an inlet to the plenum for receiving fluid under pressure, and a discharge orifice, a valve seat encircling said discharge orifice, said seat facing the interior of said chamber,
a pintle having a substantially conical metering portion, said pintle being disposed so that said pintle and said seat are coaxial, the apex of said conical metering portion being directed outwardly along the axis of said orifice, means for mounting said pintle and said seat to said valve chamber to provide change in spacing between said metering portion of said pintle and said seat;
a cylindrical collimator having a plurality of passageways with a ratio of length to diameter such that flow is confined to the direction of the axis of said orifice, said collimator closely encompassing said pintle, said collimator having cylindrical walls coaxial with said pintle and said orifice to prevent flow of fluid within said plenum to said orifice except through said collimator.

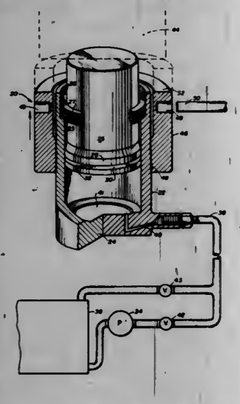
3,317,185
APPARATUS FOR PULLING OUT STAKES, POSTS AND THE LIKE SET IN THE GROUND
Manfred Burk, Gottlieb Burenweg 3, Bad Driburg, Germany, and Achim Kehrberger, Riegelstr. 35a, Nellingen, Germany
Filed Oct. 22, 1965, Ser. No. 501,838
Claims priority, application Germany, Nov. 20, 1964, D 45,888
11 Claims. (Cl. 254—30)

1. Apparatus for pulling out draw pieces such as stakes, posts and the like set in the ground, said apparatus comprising

(a) two elongated lifting appliances adapted for mounting in upright positions parallel to and connected with each other and on opposite sides of a draw piece,
(b) a clamp capable of clamping on said draw piece and adapted for engagement by said lifting appliances for lifting thereby together with the draw piece, and
(c) at least one connection frame at least partly surrounding the said draw piece and which is articulately connected to the lifting appliances by means of radially directed supporting props abutting against the draw piece.

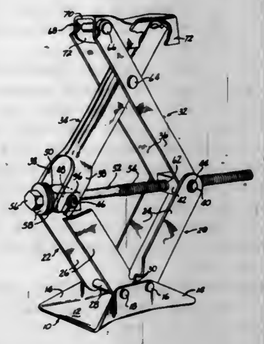


3,317,186
ALIGNMENT AND SUPPORT HYDRAULIC JACK
Jobst Brandt, Menlo Park, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Mar. 16, 1966, Ser. No. 536,592
6 Claims. (Cl. 254—93)



1. A jack for moving an object to a selected position, and for maintaining the object in said position, comprising:
(a) a base support column means including a base for disposition in contact with a foundation;
(b) a movable load lift member mounted on said base for movement with respect thereto;
(c) means for moving said movable member upward from said base and against said object to move said object to said selected position;
(d) retractable positive support means mounted on said base; and
(e) means for moving said support means outward from said base into engagement with said object for holding said object in said selected position.

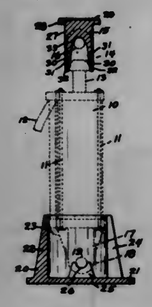
3,317,187
SCISSORS JACK
William J. Steppon, Jackson, Mich., assignor to Ryerson & Haynes, Inc., Jackson, Mich., a corporation of Michigan
Filed Feb. 7, 1966, Ser. No. 525,588
9 Claims. (Cl. 254—126)



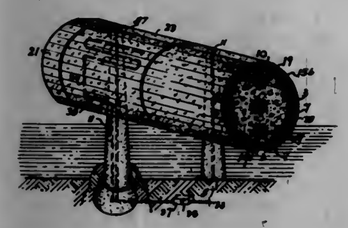
1. A scissors jack comprising, in combination,
(a) a base,
(b) first and second links pivotally mounted on said base, each of said links having a first end and a second end, said links' first ends being pivotally mounted on said base,
(c) third and fourth links each having first and second ends,
(d) pivot means pivotally connecting said second end of said first link to said first end of said third link and pivot means pivotally connecting said second end of said second link to said first end of said fourth link,
(e) screw adjustment means interposed between said first and third links and said second and fourth links adapted to vary the spacing between said second ends of said first and second links,
(f) said fourth link constituting an integral, inverted channel-shaped member having a yoke defined at said first end thereof and a convex surface defined at said second end thereof,
(g) a pivot stud pivotally interconnecting said third and fourth links intermediate said first and second ends thereof, and
(h) a load rest pivotally mounted on said second end of said third link, said load rest having a fourth link engageable surface, said fourth link second end convex surface slidably engaging said load rest surface.

3,317,188
JACK ADAPTER FOR HYDRAULIC CYLINDERS
Calvary M. Linscott, Sloan, Iowa 51055, and Gene W. Brenden, Hornick, Iowa 51026
Filed May 27, 1965, Ser. No. 459,255
1 Claim. (Cl. 254—133)

A jack adapter for hydraulic cylinders comprising a base portion including a cylindrical member adapted to receive the lower end of said hydraulic cylinder, an upper portion adapted to engage the piston rod attaching pin of said hydraulic cylinder, said base portion including a base wall, a boss attached to said wall, said boss having an arcuate portion adapted to receive the lower attaching pin of said hydraulic cylinder, said boss being received between the extending ears of said hydraulic cylinder, said upper portion including integral downwardly diverging portions adapted to snugly engage the piston rod yoke of said hydraulic cylinder, and being received between the extending ears of said yoke, said hydraulic cylinder member having a cutaway portion for providing reception of hydraulic hoses therein, adapters of lesser diameter than said hydraulic member being received in said cylindrical member for accommodating smaller diameter hydraulic cylinders.

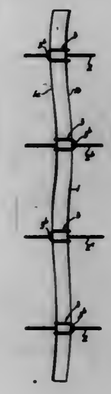


3,317,189
TRAFFIC CONTROL BUMPER GUARD RAIL STRUCTURES
David Rubenstein, 2750 2nd Ave., San Diego, Calif. 92103
Original application Aug. 19, 1960, Ser. No. 50,767. Divided and this application Nov. 18, 1964, Ser. No. 412,604
3 Claims. (Cl. 256—13.1)



1. A prestressed traffic control marker and bumper-guard rail comprising at least one core-body having face surfaces, said core-body being formed of resilient rubber-concrete porous material and having a surface layer on at least one face thereof providing resilient support against impacts, said surface layer comprising a bonded and impregnated polymeric resin composition having a filler and pigment of light reflective material disposed therein, said core-body being substantially filled in its porous structure by an integrant comprising a rubbery resinous composition, a system of internal reinforcement comprising at least one prestressed reinforcing cable located substantially in the central portion of said core-body and extending longitudinally thereof, at least one prestressed reinforcing cable located just below the face of said surface of said core-body and extending longitudinally thereof on the side adjacent the roadway to which it is adapted to be placed, and a substantially identical prestressed reinforcing cable located just below the face of said surface of said core-body and extending longitudinally thereof on the side away from the roadway to which it is adapted to be placed, said centrally placed cable being prestressed by an amount greater than that of either of the outer placed prestressed cables.

3,317,190
FENCE BATTEN
Victor Nelson Duff, Opua, Northland, New Zealand, assignor to Cavo Patents Limited, Whangarei, Auckland, New Zealand
Filed Sept. 22, 1964, Ser. No. 398,286
Claims priority, application New Zealand, Oct. 11, 1963, 136,237
2 Claims. (Cl. 256—48)

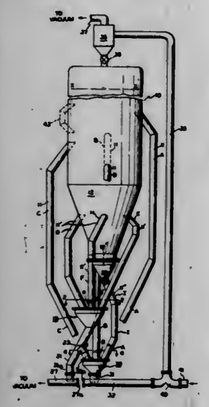


1. A batten for use with a fence having vertically spaced longitudinally extending wires, comprising a length of spring metal having flat opposite surfaces and side edges and means capable of being attached to each wire of the fence adjacent alternate side edges of the batten, said attaching means comprising a length of wire shaped to provide a pair of spaced-apart substantially parallel legs, and a hook portion at one end of each leg and a cross bar connecting the other ends of said legs with the cross bar being displaced from the plane of the legs, said wires being located adjacent one surface of the batten and passing between the cross bar located adjacent one side edge and said surface of the batten, with said parallel legs overlying the other surface of said batten and having the hook portions engaging over the opposite side edge of the batten so that upon distortion of the batten, the batten is placed under spring tension whereby upon freeing of the batten, the batten deflects towards its initial position for maintaining the hook portions and wire against said one surface of the batten.

3,317,191
METHOD AND APPARATUS FOR SOLIDS BLENDING
George N. Brown and Willard D. Steinborg, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Nov. 8, 1965, Ser. No. 506,656
7 Claims. (Cl. 259—4)

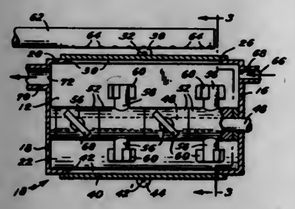
1. The method of blending solids comprising confining a mass of the heterogeneous solids in an elevated column to which fresh solids to be blended are added at the top, withdrawing from said mass in a generally vertical direction and within about one-fourth of the distance from the center of said mass to the confining wall of said column taken at the level of withdrawal inwardly from the periphery of said mass substantially equal amounts of said solids per unit time simultaneously by gravity flow from a multiplicity of regions disposed lengthwise of said mass and substantially equiangularly around said periphery of said mass, collecting solids withdrawn from said mass as a first blended product fraction derived in

the proportion of at least 75% from the lower 25% of the volume of said mass of said heterogeneous solids in said elevated column, collecting the remaining solids



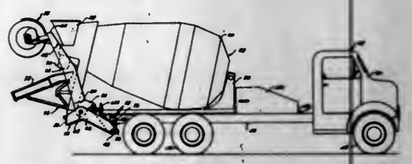
withdrawn from said mass as a second fraction separate from said first blended product fraction, and recycling said second fraction to the top of said elevated column.

3,317,192
METHOD AND APPARATUS FOR PREPARING A BITUMINOUS CONCRETE MIX
Charles C. Plumb, Cranston, R.I., assignor to Improved Pavements Corporation, Warwick, R.I., a corporation of Rhode Island
Filed Sept. 20, 1965, Ser. No. 492,986
3 Claims. (Cl. 259—147)



1. In a process of manufacturing a bituminous concrete mix, comprising the steps of introducing a batch of heated aggregate into a relatively fixed mixing receptacle having an open top constantly exposed to atmosphere, introducing a heated asphalt material into said open-top mixing receptacle for mixing with said aggregate to form said bituminous concrete mix, and treating the open-top mixing receptacle and the aggregate and asphalt material contained therein by introducing an inert gaseous medium into said open-top receptacle for at least a portion of the mixing cycle and while the aggregate and asphalt material are being mixed, whereby the mixing of the asphalt with the aggregate is carried out in an inert environment so that oxidizing impurities contained in the mix and mixing area are removed therefrom, the step of treating the open-top mixing receptacle and aggregate and asphalt material contained therein in an inert environment including the steps of introducing the inert gaseous medium into said open-top receptacle just prior to the introduction of said asphalt material therein for preconditioning said open-top receptacle, and continuing the passage of said inert gaseous medium into said open-top receptacle in a free-flow pattern into said open-top receptacle for a predetermined period after introduction of the asphalt material therein but without materially increasing the pressure in said open-top receptacle.

3,317,193
RETRACTABLE MOTOR VEHICLE TRAILER
William H. Buelow, Brookfield, and George Mihalowicz, Greendale, Wis., assignors to Rex Chainbelt Inc., Milwaukee, Wis., a corporation of Wisconsin
Filed Feb. 28, 1966, Ser. No. 530,471
15 Claims. (Cl. 259—161)

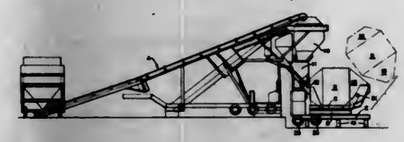


1. In combination with a transit mixer truck having an elongated main frame with forward and rearward ends and mounting on said main frame adjacent the rearward end thereof a mixer assembly including a rotatable drum with a rear loading-discharge opening, a loading hopper and a discharge spout in operative association with said opening, and an extensible-retractable discharge chute below said spout and arranged for swinging movement relative to said main frame, a trailer comprising:
an auxiliary frame secured to the main frame adjacent the rearward end thereof;
a generally U-shaped chassis including a pair of laterally spaced side assemblies hingedly connected at their free ends to said auxiliary frame, said chassis being arranged for swinging movement about an axis oriented generally horizontally and perpendicular to the longitudinal axis of the main frame between an elevated position proximate the end of the mixer assembly and a lowered generally horizontal position, there being a central open space in said chassis through which the discharge chute passes as said chassis is swung between its elevated and lowered positions;
a tag wheel assembly supported on the outer end of said chassis at a location substantially midway between its side assemblies and arranged to engage the ground surface when said chassis is in its lowered position;
and power operated means for swinging said chassis between its elevated and lowered positions and forcefully urging said chassis downwardly when in its lowered position.

3,317,194
CONCRETE MIXER
Robert E. Heltzel, 6922 Mines Road, Warren, Ohio 44484
Filed June 23, 1966, Ser. No. 559,808
9 Claims. (Cl. 259—161)

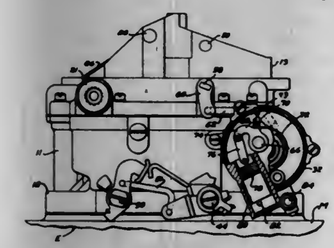
1. A concrete mixer comprising
(a) a base frame,
(b) an intermediate frame,
(c) means between the frames for causing lifting and lowering movements of the intermediate frame,

(d) linkage connecting the frames acting to move the intermediate frame forwardly and backwardly incident to lifting and lowering movements,



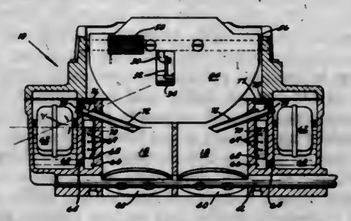
(e) a cradle tilt frame pivotally mounted at one end to the intermediate frame,
(f) means between the intermediate frame and the cradle for rocking the latter about its pivotal axis, and
(g) a mixing drum rotatably carried by said cradle.

3,317,195
CARBURETOR
James T. Bickhaus, Granite City, Ill., and Forrest W. Cook, Webster Groves, Mo., assignors to ACF Industries, Incorporated, New York, N.Y., a corporation of New Jersey
Filed Sept. 29, 1964, Ser. No. 399,991
3 Claims. (Cl. 261—23)



1. A multistage carburetor comprising a body structure having a pair of primary mixture conduits and a pair of secondary mixture conduits for the flow of an air and fuel mixture therethrough, said secondary conduits being larger than said primary conduits, means including a different open ended primary nozzle for providing fuel flow into each of said primary conduits, means including a different secondary nozzle having a plurality of openings for providing fuel flow into each of said secondary conduits, manually operable primary throttles and secondary throttles movably mounted respectively within each of said primary and secondary conduits and downstream respectively of said primary and secondary nozzles for controlling the flow of air-fuel mixture therethrough, control valve structure within said secondary conduits upstream of said respective secondary nozzles, shaft means eccentrically mounting said control valve structure for movement from a position closing said secondary conduits toward an open position in response to air flow through said secondary conduits, and a spring connected to said control valve structure normally biasing said control valve structure against said air flow toward said closed position to provide a pressure drop across said air valve structure, said spring being a coil spring surrounding said shaft means, and one end of said spring abutting a surface of said control valve with the other end thereof being anchored to said body structure.

3,317,196
CARBURETOR
Robert J. Smith, St. Louis, Mo., assignor to ACF Industries, Incorporated, New York, N.Y., a corporation of New Jersey
Filed Mar. 12, 1965, Ser. No. 439,200
1 Claim. (Cl. 261—23)

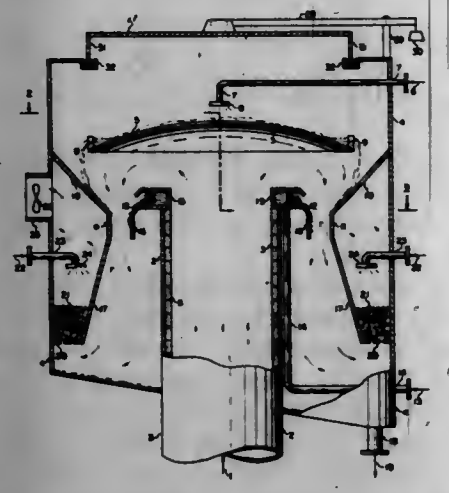


A carburetor for an internal combustion engine comprising:
(a) a body having primary and secondary mixture conduits,
(b) a throttle valve and a choke valve disposed in said primary conduit,
(c) main and idle fuel supply systems for said primary conduit,
(d) a main fuel supply for said secondary conduit,
(e) a throttle valve in said secondary conduit posterior to the point of entry of said main fuel to said secondary conduit,
(f) an air valve in said secondary conduit anterior to said point of entry of main fuel, said air valve being adapted to substantially close off said secondary conduit and thereby prevent entry of air into said secondary conduit when said air valve is closed, said air valve being provided with biasing means urging said air valve to closed position, said biasing means being responsive to air flow through said secondary conduit to open an amount proportional to the flow of air,
(g) the main fuel supply for said secondary conduit comprising:
(1) a fuel bowl connected to a source of fuel and having valve means for regulating admission of fuel to said bowl,
(2) a fuel passage communicating with the fuel in said fuel bowl and with a secondary fuel nozzle,
(3) an air bleeder tube in said passage for supplying air to the fuel therein,
(4) a downwardly inclined fuel nozzle intersecting said passage and extending into said secdary conduit, said nozzle being closed at the end extending into said passage and being provided with an aperturee in the upper portion only of said nozzle extending into said passage, said aperture being located so as to permit tilt angles of about 22 degrees, the portion of said nozzle under said aperture and in said passage serving to function as a vapor separator, and an anti-percolation vent at the top of said passage for venting vapors from said passage.

3,317,197
STACK MOUNTED SCRUBBER
Louis A. Lohner, Maspeth, and Peter M. Wechselblatt, New York, N.Y., assignors to Chemical Construction Corporation, New York, N.Y., a corporation of Delaware
Filed June 22, 1966, Ser. No. 559,510
14 Claims. (Cl. 261—24)

1. An apparatus for quenching and scrubbing a hot contaminated gas stream which comprises a vertically oriented cylindrical stack, said stack extending upwards

from a source of hot contaminated gas, a vertically oriented cylindrical container, said container being coaxial with and concentrically external to said stack and extending from below the stack outlet to an upper terminus spaced above the stack outlet, a circular generally horizontal baffle, said baffle being centrally disposed within said container above the stack outlet and being of larger diameter than said stack, an inverted frusto-conical baffle, said inverted baffle extending downwards and inwards from the inner wall of said container and terminating below and external to the stack outlet, a first upright frusto-conical baffle, said first upright baffle extending downwards and outwards from the stack outlet and terminating adjacent to the lower end of said inverted frusto-conical baffle, a first vertical cylindrical baffle, said first cylindrical baffle depending downwards from the lower end of said inverted fursto-conical baffle, a second vertical cylindrical baffle, said second vertical cylindrical baffle depending downwards from the lower end of said



first upright frusto-conical baffle and parallel with said first vertical cylindrical baffle, whereby an annular passage of restricted cross-section is defined between said first and second vertical cylindrical baffles, a second upright frusto-conical baffle, said second upright baffle extending downwards and outwards from the lower end of said first vertical cylindrical baffle and terminating within said container, means to discharge a first liquid stream onto the upper surface of said horizontal baffle, whereby liquid flows over the circular edge of said horizontal baffle and is projected downwards onto the upper surface of said inverted frusto-conical baffle, and thereby flows downwards into said annular passage, means to pass a second liquid stream onto the upper surface of said first upright frusto-conical baffle as a uniform liquid film, whereby said second liquid stream flows downwards into said annular passage, means to remove quenched and scrubbed stack gas from said container below the upper end of said inverted frusto-conical baffle, and means to remove excess unvaporized liquid from the lower end of said container.

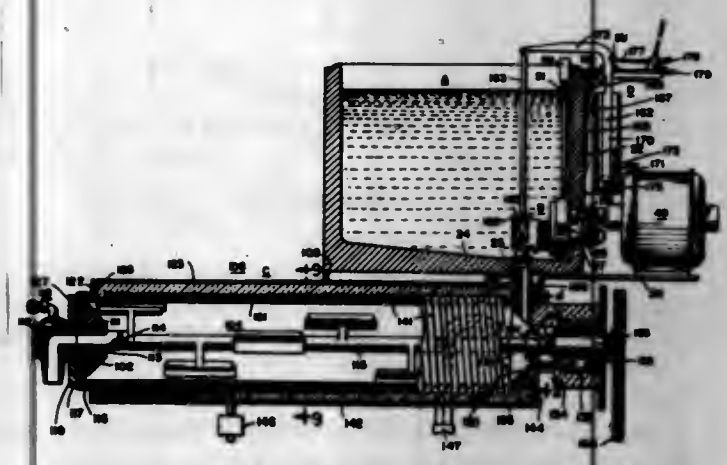
3,317,198

FROZEN-CONFECTION DISPENSING APPARATUS

Louis A. M. Phelan, Beacon Hill, Roscoe, Ill. 61073, and Harold O. Cadman, 205 W. River St., Rockton, Ill. 61072

Filed Feb. 1, 1966, Ser. No. 524,185
10 Claims. (Cl. 261—27)

1. An apparatus for dispensing frozen-confection products comprising, a tank for containing a liquid, an adjacently-positioned congealing receptacle, a motor-driven air-liquid mixing pump having separate liquid and air inlets and a mixture outlet port, the liquid inlet drawing liquid directly from the tank and the air inlet drawing air ambient of the liquid in the tank, and a baffling element interposed between the pump outlet port and the receptacle and structured to define a spiraling tortuous flow path through which the air-liquid mixture from the pump outlet-port is pressured to create a continuing turbulence of



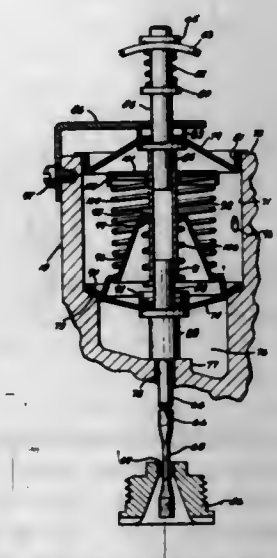
the air-liquid mixture to effect the increasing miniaturization of air bubbles in the mixture before discharged into the receptacle.

3,317,199

CARBURETOR METERING ROD AIR MOTOR

Allan J. Reifel, Breckenridge Hills, Mo., assignor to ACF Industries, Incorporated, New York, N.Y., a corporation of New Jersey

Filed Feb. 2, 1966, Ser. No. 524,536
10 Claims. (Cl. 261—51)



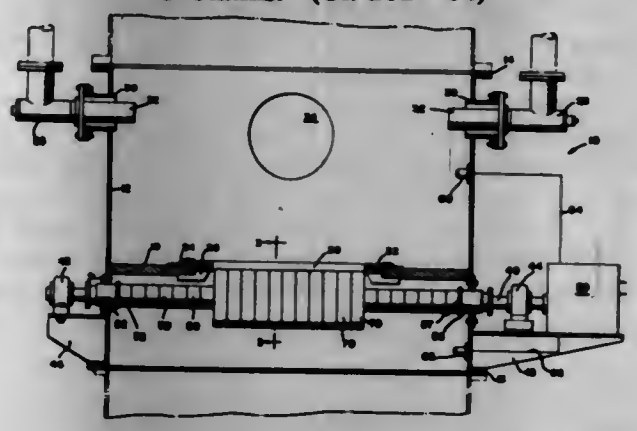
1. An air motor for a carburetor having a fuel bowl, a mixing conduit, a lever actuated throttle, a metering rod registered in a fuel orifice for controlling fuel flow from said fuel bowl to said mixing conduit, and means positioning said air motor on said carburetor, said air motor including, a casing having a rigid wall, diaphragms sealed at diametrally opposed ends of said casing defining an expandable fluid tight chamber therebetween, means communicating said fluid tight chamber to a source of engine vacuum, guide means carried at the inner side of each of said opposed diaphragms, a spacer disposed longitudinally of said casing and slidably supported on said guide means, said spacer being of sufficient length to limit movement of the respective diaphragms toward each other into said fluid tight chamber, a first spring in said chamber biasing one of said diaphragms outwardly therefrom, a spring retainer in said chamber, a second spring engaging said spring retainer and having one spring end thereof in abutment with the other of said diaphragms to normally bias the latter in a direction outwardly from the chamber, said means positioning said air motor on said carburetor being disposed such that said throttle lever operably engages said one of said diaphragms to displace the latter, and said other diaphragm

being in engagement with said metering rod for actuating the same whereby said metering rod is adjusted in said orifice in response to both the degree of engine vacuum, and to movement of said throttle lever.

3,317,200
GAS SCRUBBER

William J. Armiger, Jr., Princeton, N.J., assignor to Research-Cottrell, Inc., Bridgewater Township, N.J., a corporation of New Jersey

Filed Dec. 30, 1965, Ser. No. 517,675
5 Claims. (Cl. 261—64)

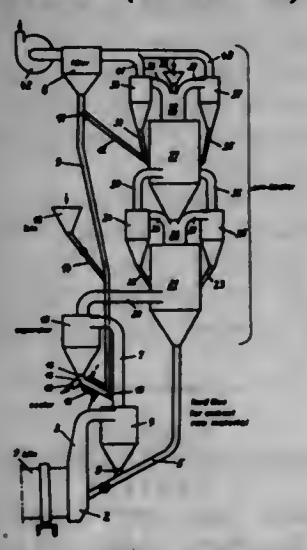


1. A variable orifice gas scrubber assembly including: a housing having two open ends; a plate in said housing positioned generally transversely to the longitudinal axis thereof, said plate having an aperture therein, means in said housing positioned axially of said plate for injecting a liquid into the interior of said housing, a rotating louver element positioned within said housing and contiguous to said opening and extending generally transversely of said housing, said louver having a generally elliptical cross-section over at least a portion of its length, said louver comprising a plurality of stacked elements traversed by a shaft passing therethrough, said louver being slidable off its supporting shaft and adapted to be withdrawn therefrom and from the interior of said housing.

3,317,201
METHOD OF AND ARRANGEMENT FOR INCREASING THE ALKALI CONTENT IN ALKALI-LADEN DUSTS OF FLUE GASES

Heinz-Gert Müller, Neubeckum, and Erich Bade, Beckum, Germany, assignors to Polysius G.m.b.H., Neubeckum, Germany

Filed Apr. 13, 1964, Ser. No. 359,253
6 Claims. (Cl. 263—32)

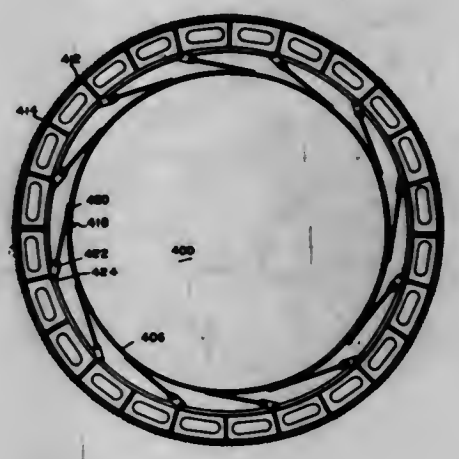


3. In combination with a cement burning kiln: a first dust separator having an inlet port and an outlet port and also having a separated dust discharge port, first conduit means leading from said kiln to said inlet port of said separator for conveying from said kiln to said separator a continuous flow of flue gases carrying dust and alkali vapors, second conduit means leading from said dust discharge port of said first separator to said kiln to return the separated out dust thereto, a second separator having an inlet port, an outlet port, and a separated dust discharge port, third conduit means connecting the outlet port of said first dust separator with the inlet port of the second separator, fourth conduit means leading from the dust discharge port of said second separator to said third conduit near the said outlet port of said first separator for supplying dust to the alkali vapor laden flue gases leaving said first separator, a cooler associated with said fourth conduit means to cool dust passing therethrough to a temperature at which alkali vapors will condense thereon, port means for introducing dust into said fourth conduit means, and means for withdrawing alkali laden dust from said dust discharge port of said second separator.

3,317,202
INCINERATOR

Henry J. Cates, Jr., De Kalb County, and Tom Rosenberg, East Point, Ga. (both of 416 Walton Bldg., Atlanta, Ga. 30303)

Original application Sept. 14, 1960, Ser. No. 56,015, now Patent No. 3,212,465, dated Oct. 19, 1965. Divided and this application Apr. 8, 1965, Ser. No. 455,357
2 Claims. (Cl. 263—33)



1. In a rotary kiln for an incinerator wherein there is continuous incineration of refuse continuously moving therein and wherein the kiln receives the refuse from a previous incinerator operation and further burns the refuse as it passes therethrough, an elongated, kiln shell supported for rotation about its longitudinal axis, a girth gear surrounding said kiln shell, and a plurality of elongated members having one end of each one thereof pivotally attached to one of said girth gears and the other end thereof rigidly attached to a point on said kiln shell circumferentially spaced from the point of attachment on said girth gear.

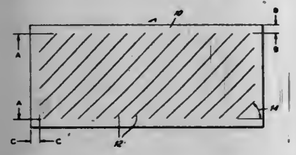
3,317,203
RADIATION SHIELD FOR INDUCTION FURNACE

Lawrence M. Litz, Cleveland, and Larry M. Baker, Berea, Ohio, assignors to Union Carbide Corporation, a corporation of New York

Filed Oct. 28, 1963, Ser. No. 319,293
16 Claims. (Cl. 263—50)

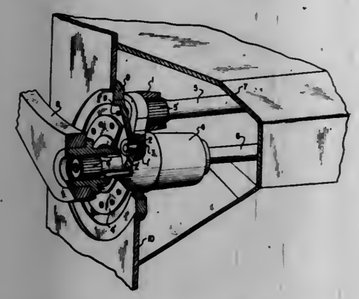
1. A radiation shield for use in a furnace around an inductively heated crucible and comprising at least one sheet of heat resistant, radiation opaque material arranged into an open-ended, cylindrical, multi-layered structure having a central open core of a diameter greater than the diameter of the crucible to be shielded, and

having spacers positioned between adjacent layers to provide separation thereof, said sheets of radiation opaque material having formed therein a plurality of relatively



closely-spaced, generally parallel slits arranged at an angle to the longitudinal axis of the cylindrical structure and located in a central portion of the sheet leaving an unslit edge portion on the top, bottom and ends of each sheet.

3,317,204
TORSION BAR ASSEMBLY
Heinrich Maennig, Kassel, and Fritz Bölling, Ellingerode, Witzenhausen, Germany, assignors to Henschel-Werke A.G., Kassel, Germany, a corporation of Germany
Filed Feb. 15, 1965, Ser. No. 434,736
Claims priority, application Germany, May 29, 1964, H 52,809
8 Claims. (Cl. 267—57)



1. A torsion bar assembly comprising a torsion bar mounted in a rocker arm bearing in a side wall of a vehicle body, and stationary bearing means having a flange secured on centering means at a slight distance from the inner side of the body wall, whereby the stationary bearing means may be installed through an aperture in the side wall for receiving the rocker arm bearing.

3,317,205
OUTBOARD MOTOR REPAIR FIXTURE
Robert M. Kerr, 220 N. Main St., Winter Garden, Fla. 32787
Filed Apr. 6, 1964, Ser. No. 357,536
1 Claim. (Cl. 269—76)

The combination, with the work table having an upper surface, of an outboard motor repair fixture, for use with the tail portion of an outboard motor having horizontal fin elements, the outboard motor repair fixture comprising:

a supporting base secured to the upper surfaceand having a top side;

an upstanding post fixed to the base and extending vertically from the top side thereof;

a substantially horizontal arranged, tubular sleeve member, having an inner end and an open outer end, secured substantially medially of said ends to the upstanding post;

an elongated, substantially tubular supporting projection telescopically fitted within the tubular sleeve and of a length to extend substantially from end to end thereof and including a portion extended outwardly of the open outer end of the sleeve member;

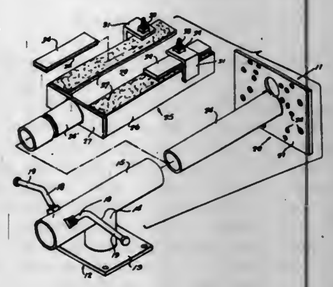
the sleeve having a pair of radially spaced openings formed therein adjacent its inner end;

a connection element fixed to the sleeve and having a threaded opening therein arranged about each of the sleeve openings, said threaded openings being aligned with the sleeve openings;

a clamping screw threadedly engaged at each of said threaded openings and extended through the sleeve openings into the sleeve to releasably lock against the supporting projection;

the clamping screws having handle means thereon to facilitate turning whereby the projection is secured in any desired orientation with respect to the sleeve;

a support bracket adapted to be detachably fastened to a portion of an outboard motor whereby the motor is positioned in repair position with respect to the work table, the support bracket being connected to the supporting projection at its portion outward-



ly of the open end of the sleeve remote from said connection elements;

the support bracket including a substantially vertical cross plate fixed to said portion of the supporting projection;

opposed angle bars rigidly connected to the vertical cross plate and extending outwardly therefrom at spaced locations to define a U-shaped structure with a longitudinal slot therein;

the angle bars including top flanges;

substantially L-shaped angle brackets secured to the angle bars, the brackets including horizontal arms extending inwardly towards each other and spaced above the horizontal flanges of the angle bars;

lining means on the horizontal flanges;

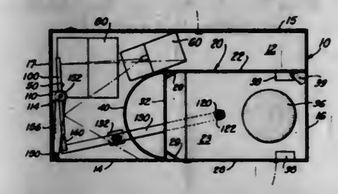
pad elements adapted to overlie portions of the horizontal flanges; and

the horizontal fin element of the outboard motor being clamped between the flanges and the pads, and changeable fastener means extending through the angle brackets to releasably clamp the horizontal tail element between the pads and the horizontal flanges.

3,317,206
ILLUSORY THREE-DIMENSIONAL PROJECTION SYSTEM
James B. Holt, 6927 Varna Ave., Van Nuys, Calif. 91405
Filed Apr. 29, 1963, Ser. No. 276,533
6 Claims. (Cl. 272—8)

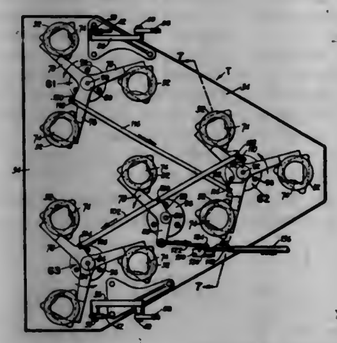
1. An illusory three-dimensional image projection system which comprises: an image projector; a universally mounted mirror disposed so as to receive an image from

said projector and reflect the image; an arcuate translucent screen disposed so as to receive said image reflected by the mirror and pass the image through the screen; a transparent panel disposed to expose the image projected



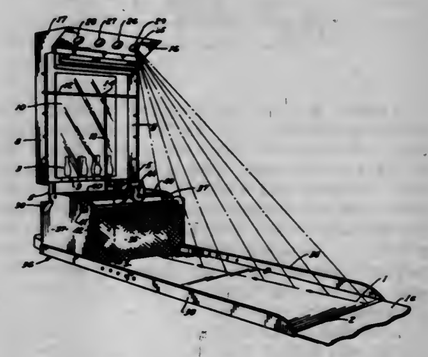
to the screen and expose said image for viewing; and means for selectively changing the attitudes of the image, said means comprising means for selectively varying the positions of said mirror.

3,317,207
BOWLING PINSPOTTING MACHINE
Fred John Jark, Blauvelt, N.Y., James D. Elliott, Riverside, Conn., and Thomas W. Edwards, Oradell, N.J., assignors to American Machine & Foundry Company, a corporation of New Jersey
Filed Apr. 14, 1964, Ser. No. 359,607
2 Claims. (Cl. 273—43)



1. In a candlepin spotting machine, the combination of a plurality of open, upwardly and outwardly flaring guide funnels; means fixedly supporting said funnels in an elevated position with the longitudinal axes of said funnels extending upwardly, said funnels being spaced apart horizontally in a triangular assembly in which the position of each funnel corresponds to the playing position to be occupied by a different one of the candlepins to be spotted; a spotting table disposed beneath said funnels and including ten open-ended tubular pin receiving cups, horizontal frame means fixedly supporting said cups in upright position, said cups being spaced apart horizontally in a triangular assembly with each of said cups aligned below a different one of said funnels, and a plurality of closure members each operatively associated with a different one of said cups, each of said closure members being mounted for horizontal movement between a first position, in which said closure member blocks the bottom end of the corresponding one of said cups, and a second position, in which such closure member is horizontally displaced from such cup to free the cup for passage of a candlepin downwardly therefrom; power means; drive linkage means interconnecting said power means and said spotting table to drive said table vertically between a raised position, in which the open tops of said cups are disposed respectively beneath the bottoms of said funnels, and a lowered position, in which said cups are disposed above the alley bed, said drive linkage being operative to maintain said spotting table horizontal throughout its movement between said raised and lowered positions; pin delivery means operatively arranged to supply candlepins downwardly into said funnels when said spotting table occupies said raised position; actuating means operatively connected to said closure members to actuate the same between said first and second positions, said actuating means being operative to maintain said closure members in said first position while said spotting table is in its raised position and to actuate said closure members simultaneously to said second position in response to downward movement of said spotting table into its lowered position, said actuating means comprising four pivot members mounted on said frame means and each defining an upright pivotal axis, three of said pivot members each being centered with respect to a different group of three of said cups, three spider members each mounted on a different one of said pivot members for pivotal movement about the pivotal axis defined thereby, each of said spider members having three arms extending radially from the corresponding one of said pivotal axes, each of said arms supporting a different one of said closure members, a lever member mounted on the fourth one of said pivot members and carrying one of said closure members, a control member pivotally mounted on said frame means, link means operatively connecting said control member to said spider members and said lever member, and means for pivoting said control member to simultaneously actuate said spider members and said lever member for simultaneous movement of said closure members.

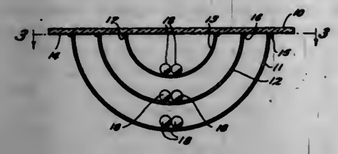
3,317,208
BOWLING LANES AND MEANS ASSOCIATED THEREWITH FOR EXERCISING AND CORRECTING BODILY MOVEMENTS
George M. Birkic, 24130 Euclid Ave., Apt. 4–B, Euclid, Ohio 44117
Filed Mar. 12, 1964, Ser. No. 351,345
16 Claims. (Cl. 273—54)



14. In combination with at least part of a bowling lane having a foul line, a frame extending across and upwardly from the bowling lane at a predetermined distance from the foul line, means for supporting the frame above the bowling lane, a mirror secured to the frame, a rod extending longitudinally across the entire width of the mirror, means associated with said frame for adjustably supporting said rod in front of the mirror at such height that the image of both shoulders of the bowler will appear in the mirror upon a plane substantially even with the image of said rod, a vertical rod, means for adjustably supporting

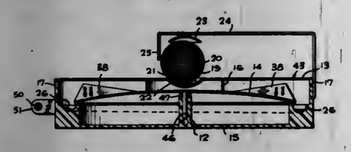
the vertical rod from the horizontal rod to form a frame within which the image of both of the bowler's shoulders and the image of the bowler's arm which delivers the ball appear, and said vertical rod being of such length that it extends downwardly to at least the bottom of the mirror to indicate that the bowler's arm is straight at the time he delivers the ball.

3,317,209
EDUCATIONAL DEVICE
John W. Dixon, 224 Ireland Ave.,
Cincinnati, Ohio 45218
Filed Dec. 22, 1964, Ser. No. 420,307
4 Claims. (Cl. 273—109)



1. An educational toy comprising a base plate, a plurality of thin, transparent bowl-shaped shells, means securing the rim of each shell to one major face of the base plate, said shells being disposed on the plate in spaced apart, nested positions, and a relatively heavy opaque ball freely removable in each shell.

3,317,210
MARBLE PROPELLED SPINNER GAME
James A. Di Meo, 7329 Capistrano Ave.,
Canoga Park, Calif. 91304
Filed Feb. 4, 1965, Ser. No. 430,441
1 Claim. (Cl. 273—122)



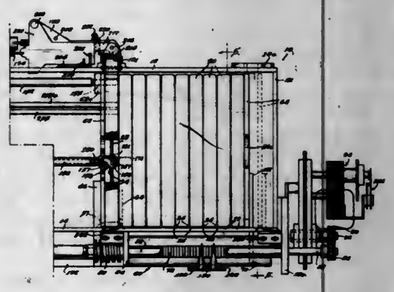
A sphere propelled spinner game including: a base; a structure mounted on said base for rotation in a horizontal plane, said structure comprising a first circular member having a convex upper surface with lugs extending upward therefrom and a second circular member disposed above said first member and connected thereto for rotation therewith, said second member having a central depression in its upper surface with a shallow platform mounted therein; means for projecting spheres into the space between said members and against said lugs for imparting rotation to said structure; a circular grooved track so disposed on said platform around said structure that spheres rolling from said second member will fall into the grooved track, said track sloping in both circular directions from a relatively high point to a relative low point to which said spheres may roll by gravity for retrieval; a peripheral wall surrounding said track and first member and approaching sufficiently close to said second member to prevent said spheres from escaping from the area surrounded by said wall; a ball resting upon said platform and having indicia thereon; a cap overhanging said ball; and indicator means fixed to said base, pointing toward said ball and spaced sufficiently therefrom and from said cap to permit rotation or bouncing of the ball and thereby indicate a score when the ball comes to rest.

3,317,211
WEIGHTED PRACTICE GOLF CLUB INCLUDING IMPROPER SWING SENSING MEANS
Merrill M. Debski, 1775 Boston Ave.,
Bridgeport, Conn. 06610
Filed Dec. 8, 1960, Ser. No. 74,645
5 Claims. (Cl. 273—186)



1. A practice golf club for use with light weight practice golf balls, comprising a shaft capable of buckling over substantially its entire length, handle means surrounding an end portion of said shaft and firmly secured thereto, weighting means attached at one end to the opposite end of said shaft, and a light-weight head attached to the opposite end of said weighting means, the weight of said weighting means being selected to give the golf club an overall weight approximately equal to a standard golf club, and the weighting means being spaced from the light-weight head so as to place the club center of gravity further up on the shaft and thereby reduce the normal flexure of the shaft when swinging the club.

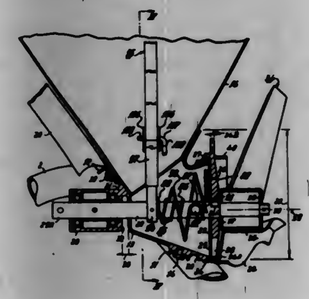
3,317,212
TAPE CARTRIDGE CHANGER
Ernest O. P. Tatter, Addison, and Philip Vazzano, Des Plaines, Ill., assignors to Warwick Electronics Inc., a corporation of Delaware
Filed Mar. 20, 1964, Ser. No. 353,486
20 Claims. (Cl. 274—11)



1. A magnetic recorder utilizing tape cartridges each having a length of tape extending between reel means, said reel means including a reel having a center drive opening, said recorder comprising, a tape drive capstan and magnetic heads mounted at a fixed position and defining a tape path, a frame, means on the frame for holding a plurality of tape cartridges in assembled relation with each cartridge having said length of tape disposed

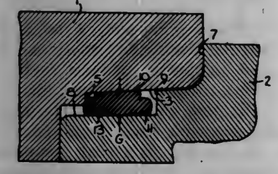
in the plane of said path in alignment therewith and exposed for movement along the tape path, means for moving all of said cartridges simultaneously to move successive cartridges to a position having the exposed length of tape in said tape path, means for locating a selected cartridge at said position and initiating advancement of the tape relative to the cartridge by operation of the capstan, and a reel drive shaft extending from one end of the frame and positionable through the reel drive openings of a plurality of cartridges, and means on said shaft at said position for driving only the reel in a cartridge at said position.

3,317,213
DEVICES FOR SPREADING GRANULAR OR POWDERY MATERIAL
Cornelis van der Lely, Zug, Switzerland, assignor to Patent Concern N.V., Willemstad, Netherlands Antilles, a limited-liability company of the Netherlands
Filed June 26, 1964, Ser. No. 378,159
Claims priority, application Netherlands, July 22, 1963, 295,633, 295,634
26 Claims. (Cl. 275—15)



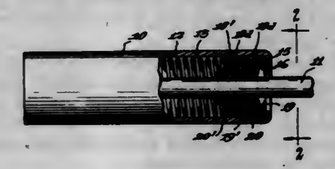
1. A device for spreading granular or powdery material comprising a frame, a hopper for the material to be spread and a distributor, a substantially horizontal drive shaft for said distributor, said hopper having a delivery portion including a wall and an outlet port in said wall, said wall being substantially perpendicular to said shaft and being conical-shaped at its surface projecting to said distributor, said distributor being provided with spreading arms having inner ends, each of said inner ends being provided with a rim radially projecting relative to said shaft, said rims extending parallel to and adjoining said conical surface of said wall.

3,317,214
PIPE JOINT ASSEMBLY
John A. Durgom, Rockton, Ill., assignor to Leanel Corporation, Rockton, Ill., a corporation of Illinois
Filed Nov. 4, 1964, Ser. No. 408,990
2 Claims. (Cl. 277—170)



1. A pipe joint assembly comprising the combination of cooperable bell and spigot members, said bell having an inner flared guide surface terminating in a generally radially directed stop and having an annular projection with a radially directed outer surface in the corner intermediate said guide surface and said stop, said spigot having a coupling portion of reduced diameter for entering within said annular guide surface of said bell and having a radially directed shoulder defining a further reduced diameter tongue providing an annular gasket accommodating channel in cooperation with the guide surface and projection and said spigot shoulder when said coupling portion is within the bell, an annular gasket of resiliently deformable material encircling said spigot tongue, said gasket having a cross section comprising a generally rectangular axially elongated base having its bottom engaging said spigot tongue and having a generally semi-circular rib extending radially outwardly centrally of said base for engaging said guide surface of said bell, one or more annular grooves in the bottom of said gasket base, the radial height of said shoulder on said spigot being greater than the radial height of said gasket base, the radially directed surface of said projection engaging one end of said gasket base and the opposite end of said gasket base being positioned adjacent to said shoulder, and said gasket cross sectional height in a radial direction being greater in an unstressed condition than the radial height of the gasket accommodating channel between said spigot tongue and said bell flared guide surface.

3,317,215
ROD SEAL
Stanley C. Wolniak, Chicago, and Elbert M. Spencer, Wildwood, Ill., assignors to The Illinois Lock Company, a corporation of Illinois
Filed Mar. 17, 1964, Ser. No. 352,508
3 Claims. (Cl. 277—188)



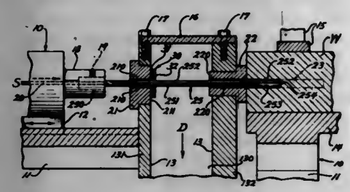
1. In a piston and cylinder device having a reciprocating piston rod extending from an end of said cylinder, an end seal for said rod, comprising: a resilient washer transversely disposed in said cylinder and having a central aperture receiving said rod, said washer, prior to installation, being flat and having an aperture diameter less than the cross-sectional diameter of said rod, said aperture and the central portion of said washer immediately surrounding said aperture being expanded by the rod flexing the washer, the central portion extending generally longitudinally of the rod defining an exterior concave surface on one side of the washer and an interior convex surface on the opposite side thereof; a back-up ring around said piston rod having a shoulder facing and supporting the inner convex surface of the washer, outwardly of the central expanded portion; a cup-shaped bearing ring around said piston rod having a shoulder engaging the exterior concave surface of the washer inside the shoulder of the back-up ring, the expanded portion of the washer extending into the cup of the bearing ring; and means holding said bearing ring, washer and back-up ring together.

3,317,216
GUN DRILL SEALS
John G. Muthler, 35289 Edythe Drive,
Farmington, Mich. 48024
Filed Nov. 6, 1963, Ser. No. 321,896
7 Claims. (Cl. 277—216)

1. A gun drill seal for sealing the space around the fluted shank of a gun drill entering the chip box of a gun drill setup on a machine tool, said chip box having in

opposite walls thereof a circular entrance and a circular exit aperture to accommodate the said gun drill in free rotational telescopic relationship therethrough, said chip box receiving coolant under pressure carrying chips thereinto from the cutting tip of said gun drill through the said circular exit aperture therefor, said gun drill seal comprising

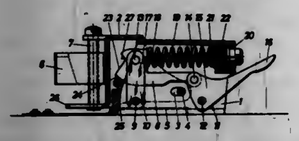
a relatively hard sealing disc element apertured in the cross sectional configuraton of the fluted gun drill shank to telescope freely thereover, said sealing disc element being formed of a material resistant to abrasive wear during turning when urged axially in face contact with the interior of said chip box adjacent said circular gun drill entrance aperture therein,



a relatively softer sealing disc element adhered to said hard sealing disc element apertured in the cross sectional configuration of the fluted drill shank to telescope in sealed relationship thereover, said soft sealing disc element being formed of a material softer than said hard sealing disc element and highly resistant to abrasion by the bombardment thereof by coolant carrying chips discharged under pressure thereagainst from said gun drill exit aperture in said chip box, and

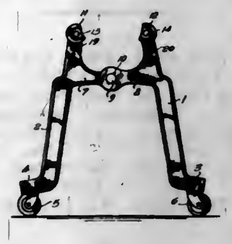
the format of the aperture in said hard sealing disc element and said soft sealing disc element being substantially identical in shape except that the aperture in said soft sealing disc is uniformly smaller than the aperture in said hard sealing disc and uniformly follows the contour thereof.

3,317,217
HEEL DOWNHOLDER FOR CABLELESS SAFETY SKI BINDINGS
Hans Polger, Haar, near Munich, Germany, assignor to Heinrich Wunder, Rothschwaige, near Dachau, Germany
Filed Oct. 23, 1965, Ser. No. 503,356
Claims priority, application Germany, Mar. 1, 1965, W 38,649
5 Claims. (Cl. 280—11.35)



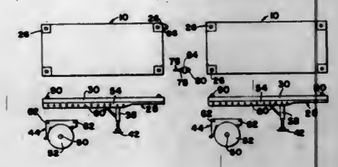
1. A heel downholder for cableless safety ski bindings comprising a housing part adapted to be secured to the ski, a head part pivoted to said housing part, said head part being provided with a jaw for embracing the heel of the boot, and with a stepped plate, which is adapted to be kicked down to move the holder into its locked position, said head part being under the influence of a snap lock, which locks the head part in both end positions, said snap lock being provided with a locking bolt, which is subjected to the adjustable pressure of a clamping spring and is pivoted at opposite ends to two links pivotally mounted in said housing part, said bolt being provided with cams which cooperate with said head to ensure a releasable snapping of the head part into a release position and locked position, one of said links consisting of a bell-crank lever which is adapted to be operated from the outside.

3,317,218
DEVICE FOR TEMPORARILY REPLACING AN AUTOMOTIVE VEHICLE ROAD WHEEL
Luis Arturo Rivolta, Bolivia 240, Buenos Aires, Argentina
Filed Sept. 1, 1965, Ser. No. 484,203
7 Claims. (Cl. 280—150)



1. A device for temporarily replacing an automotive vehicle road wheel, comprising a pair of arms; an inwardly directed projection on each of said arms at a position between the ends thereof; a pivotal connection between said arms in said projections; a small floor wheel rotatably mounted at one end of each of said arms; a hole in the opposite upper end of each of said arms, engageable by a bolt on a vehicle wheel drum; a screw-threaded pin member between said hole and said projection in each of said arms; a plate member having end openings and at least one hole in the middle portion thereof; said end openings being engageable by said arm screw-threaded pin members and said middle hole being engageable by a further bolt on said vehicle wheel drum.

3,317,219
VEHICLE FORMED BY COUPLEABLE CONTAINERS WITH DEMOUNTABLE ADAPTER FRAMES
Eugene Hindin, 6730 N. 13th St., Philadelphia, Pa. 19126; Semond Levitt, 1835 Lippincott Road, Huntingdon Valley, Pa. 19006; and Andrew Abolins, 431 Crescent Ave., Penndel, Pa. 19047
Filed June 4, 1965, Ser. No. 461,393
11 Claims. (Cl. 280—415)



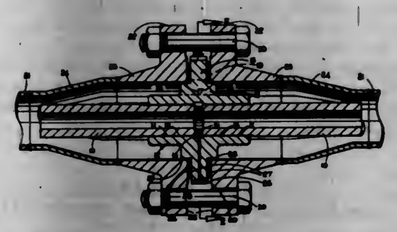
1. A vehicle comprising a pair of freight-carrying substantially rectangular containers, upper and lower corner members in said containers, at least each of the lower members including a vertical and horizontal wall, a recess behind said walls and slots opening through said walls and communicating with said recess, an adapter frame substantially coextensive with each container, a single axle bogie detachably coupled to said frame for sliding movement longitudinally thereof, landing gears, operatively connected to said frames for movement to positions which do not obstruct movement of said bogie along the frame, means extending removably through said slots in said vertical walls and into said recesses of the lower corner members of the confronting ends of said containers removably coupling said containers horizontally, and means carried by said adapter frames and extending removably through said slots in said horizontal walls of said lower corner members and into said recesses removably coupling said adapter frames vertically to said containers.

3,317,220
RELEASABLE FLUID COUPLING
Earl F. Bruning, P.O. Box 147, Lincoln, Nebr. 68501
Filed Apr. 15, 1963, Ser. No. 272,921
2 Claims. (Cl. 285—1)



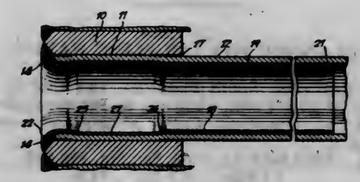
1. A tubular coupling comprising female and male components, said female component having a radially enlarged outer end portion with an annular channel in its outer surface, said channel having a series of peripherally spaced passages opening into the channel and into the interior of said female component, said passages converging in diameter in an inward direction, the slant of the walls, with respect to a plane perpendicular to the tubular axis, being greater toward the outer end of the female component than toward the inner end of the female component, a sphere in each passage having a diameter intermediate the maximum and minimum diameters of the passage, spring means of circular form arranged in said channel, in surrounding relation to said spheres, collectively, to retain said spheres in said passages, and a male component having a radially inwardly thickened, outer end portion, having an outer, annular channel with at least one slanted side wall, adapted to receive inwardly extending portions of said spheres.

3,317,221
PIPE JOINTS
Anthony Cecil Brown, Bearley, near Stratford-on-Avon, England, assignor to Birwelco Limited, Birmingham, England, a British company
Filed Aug. 25, 1964, Ser. No. 391,923
Claims priority, application Great Britain, Aug. 29, 1963, 34,147/63
2 Claims. (Cl. 285—39)



1. A pipe joint between two pipe assemblies, each assembly comprising an outer pipe and an inner pipe mounted within the outer pipe to leave an annular space between the pipes, the joint comprising a sleeve member whose bore has internally threaded end portions of opposite hand and which receives complementary threaded end portions of said inner pipes; a ring seal in said bore interposed between, and in sealing engagement with, the ends of said inner pipes; external flanges on adjacent ends of the outer pipe; an external flange on the sleeve member interposed between said outer pipe flanges and having formations on the outer periphery thereof for engagement by a spanner; sealing gaskets interposed between the flange on the sleeve member and the flanges on the outer pipes; a ring of bolts passing through and connecting the flanges on the outer pipes to draw them together and to compress the sealing gaskets, said flange on the sleeve member lying wholly within said ring, and passages in the flange of the sleeve member to place the annular spaces of the two pipe assemblies in communication.

3,317,222
INSERT CONSTRUCTIONS FOR TUBES OF HEAT EXCHANGERS AND CONDENSERS
Charles B. Maretzo, Brooklyn, N.Y., assignor to Consolidated Edison Company of New York, Inc., New York, N.Y., a corporation of New York
Filed Apr. 16, 1964, Ser. No. 360,275
1 Claim. (Cl. 285—55)

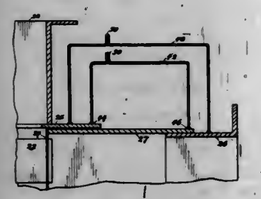


In combination: a tube sheet having numerous tube apertures and adapted for use in steam turbine condensers and the like heat exchangers; water tubes having their end portions received in said apertures and having normal external diameters such as to provide close clearance with the interior surfaces in the apertures, means affixing the ends of said tubes to the tube sheet, said tube ends terminating near the face of the tube sheet, each of said tubes being expanded to form a cylindrical expanded portion thereof which is in tightly-fitting engagement with the interior surfaces of the apertures from point at the region of the front face of the tube sheet and extending back to points near, but spaced inwardly from the rear face of the tube sheet; and tubular inserts formed of sheet metal of uniform thickness and located within the end portions of each of said tubes, each said insert at its outer end having an annular outwardly flared lip portion covering the end of its corresponding tube and the affixing means, each said insert extending inwardly of the tube for a distance of at least several inches beyond the rear face of the tube sheet and having an external diameter such as to be received with close clearance within the tube, each said insert also being expanded to form a cylindrical uniformly-expanded portion thereof which is in tightly-fitting engagement with substantially the entire expanded portion of the tube, the expansion of said expanded portion of the insert being no more than several mils, and the interior surface of said expanded portion of the insert merging smoothly with the adjacent interior surfaces of the insert.

3,317,223
MULTIPLE EXPANSION JOINT
Ronald H. Ingraham and Lloyd D. Grames, Wellsville, N.Y., assignors, by mesne assignments, to The Air Preheater Company, Inc., a corporation of Delaware
Filed Sept. 28, 1964, Ser. No. 399,468
2 Claims. (Cl. 285—299)

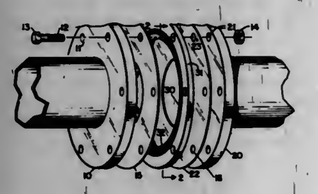
1. An expansion joint comprising three interfitting coaxial ducts forming a passageway, said ducts being movable relative to each other, a seal arrangement for said ducts comprising a first flexible member disposed thereabout, said member being generally U-shaped in transverse

section with one leg of the U secured to and about one of the ducts and with the other leg secured to and about another of the ducts and with a portion of the third duct exposed to the interior of the U, a second flexible member



disposed about and secured to said third duct at a location intermediate the depending legs of the first flexible member and being constructed and arranged to form a seal with said one duct.

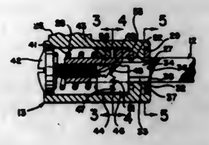
3,317,224
FLANGED PIPE COUPLING HAVING METALLIC SEAL MEANS
Guntis Kuskevics, South Pasadena, and Carl W. Scott, Sierra Madre, Calif., assignors to Electro-Optical Systems, Inc., Pasadena, Calif., a corporation of California
Filed Sept. 23, 1964, Ser. No. 398,550
1 Claim. (Cl. 285—363)



A device for interconnecting a pair of pipes and on the end of a single pipe in a hermetic seal; said device comprising a first flat metal flange member, said flange member being mounted on the end of the first pipe, said first flange member being designed with evenly spaced bolt holes along its peripheral edge and having a single layer of metal foil with correspondingly spaced holes therein pressed firmly against its outer end surface; a second flat metal flange member similar to the first flat metal flange member placed opposite thereto; said second flange member also having a single layer of metal foil containing correspondingly spaced holes; a metal gasket interposed between the two flange members, said gasket held in place by a metal positioner, said gasket having a plurality of phonograph record-like grooves in its sides adjoining said foil layers and having a 1–5° inwardly extending taper; and, a means for compressing said flange members towards each other, the clamping of said gasket and foil covered layers between said flange members producing the desired hermetic seal.

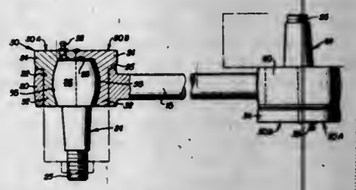
3,317,225
SUN-VISOR ATTACHMENT
William T. Cooper, 1724 Liberty Drive, Akron, Ohio 44313
Filed Apr. 23, 1965, Ser. No. 450,482
1 Claim. (Cl. 287—14)

In an automobile provided with a sun visor mounted on a rod held by a bracket which is fastened to the automobile, the rod being rotatable in the bracket, and the visor being positioned by intermeshing clutch surfaces rounds the rod, the improvement in which one end of the rod enters one end of the bracket, one clutch surface is integral with said end of the bracket and exposed to the



interior of the bracket, the other clutch surface is on a member slidable along the rod but not rotatable about it, and the spring presses said surfaces together at all times.

3,317,226
TORQUE ARM CONNECTION
Walter N. Mosher, 6137 Le Sage Ave., Woodland Hills, Calif. 91364
Filed May 13, 1965, Ser. No. 455,553
5 Claims. (Cl. 287—93)



1. A torque arm connection, comprising: a torque arm having an opening in at least one end thereof; an insert rigidly secured within said opening, said insert being made of a rigid, compression-resistant material and having a cavity therein open at its outer end and closed at its inner end, the side wall of said cavity being continuous and barrel-shaped, and the diametrical dimensions at said outer end and said inner end of said cavity being less than the diametrical dimension in the central region of said cavity; and a bolt having a barrel-shaped portion on one end thereof received within said barrel-shaped cavity, said barrel-shaped portion being complementary to and in embraced bearing engagement with the side wall of said barrel-shaped cavity, the longitudinal dimensions of said barrel-shaped cavity and said barrel-shaped end portion being substantially greater than the maximum diametrical dimensions thereof, and the longitudinal axes of said cavity and said end portion lying on the longitudinal axis of said bolt and being normal to said torque arm, said insert being made of at least two parts for assembly about said barrel-shaped end portion, said parts being secured together in mating engagement to provide said continuous cavity side wall.

3,317,227
BUILDING STRUCTURE
Aart Gijsbertus Nijhuis, Benedendorpsweg 55, Oosterbeek, Netherlands
Filed Aug. 23, 1965, Ser. No. 481,722
Claims priority, application Netherlands, Sept. 29, 1964, 6,411,351; Germany, Mar. 31, 1965, N 26,484
15 Claims. (Cl. 287—189.36)

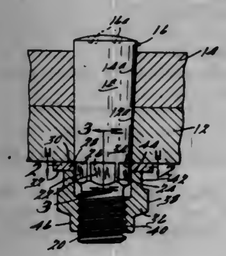
1. A building structure, including in combination two profile pieces, each having a generally rectangular longitudinal aperture, each said aperture having first and second facing surfaces which are arcs of the same cylinder and joined by third and fourth facing surfaces which cross said cylinder, and a corner joint piece having two legs, each jammed into a said longitudinal aperture of

one said profile piece and having first and second surfaces that are arcs of the said cylinder and having third and fourth surfaces joining them and spaced from the third and fourth surfaces of said profile piece by a suitable clear-



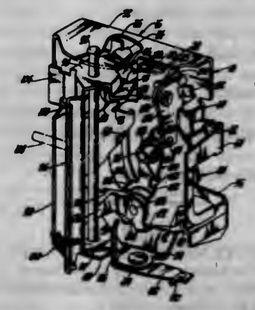
ance, whereby a said profile piece and a said leg inserted therein may be slightly rotated relative to each other to correct misalignment, the cylindrical surfaces that lie against each other than sliding along each other.

3,317,228
TAPER BOLT ASSEMBLY
Harold A. Storch, Birmingham, Mich., assignor to Federal Screw Works, Detroit, Mich., a corporation of Michigan
Continuation of application Ser. No. 352,758, Mar. 18, 1964. This application Apr. 11, 1966, Ser. No. 549,093
4 Claims. (Cl. 287—189.36)



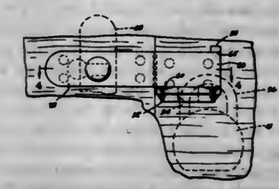
1. The combination comprising a pair of members having aligned tapered apertures, said members being positioned with their respective apertures converging toward a point spaced from one face of one of said members, fastening means having a headless tapered body portion received in said apertures and in engagement with the surface of each of said members defining its respective aperture, said fastening means further having a male threaded portion extending away from said one face of one of said members and away from the other of said members, a female threaded member axially threaded onto said male threaded end portion, means including said female threaded member operatively reacting against said one member for urging said members toward each other upon threading of said female threaded member onto said male threaded end portion, and abutment means independent of either of said pair of members providing means positively engaged by said female threaded member for limiting the axial distance said female threaded member is threaded onto said male threaded end portion and the force applied to urge said members toward each other, said abutment means comprising in part means formed integrally with said fastening means adjacent said tapered body portion and a washer received upon the fastening means and in engagement with the abutment means, the female threaded member being operatively reactive against the one member by engagement with one side of said washer, the other side of said washer engaging said one member.

3,317,229
CLOSURE LATCH
William F. Scarpace, Warren, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed June 23, 1965, Ser. No. 466,222
6 Claims. (Cl. 292—216)



1. A closure latch comprising, in combination, latch means movable between latched and unlatched positions, detent means for holding said latch means in latched positions, outside operating means for releasing said detent means, movable inside operating means coupled to a remote handle for releasing said detent means, means biasing said blocking means to unblocking position wherein said blocking means are located out of the path of movement of the inside operating means, blocking means movable between blocking and unblocking positions, said blocking means being located in the path of movement of said inside operating means in the blocking position thereof, and cooperating means on said blocking means and said latch means engageable with each other for moving said blocking means to blocking position upon movement of said latch means to unlatched position to prevent movement of said inside operating means and permit use of said remote handle as a door pull-to.

3,317,230
HASP
Raymond R. Demrick, Greeneville, and Jimmy L. Leonard, Johnson City, Tenn., assignors to Avis Industrial Corporation, Greeneville, Tenn., a corporation of Delaware
Filed Oct. 22, 1965, Ser. No. 502,266
5 Claims. (Cl. 292—281)



1. A hasp comprising a supporting plate, a movable plate and an eyelet plate, said eyelet plate having a vertical base portion, a lower eyelet portion projecting in a horizontal direction outwardly of said base portion, and an upper lug portion projecting in a horizontal direction outwardly of said base portion said eyelet portion of said eyelet plate extending outwardly beyond said lug portion, above said eyelet portion, means mounting said movable plate on said supporting plate for vertically pivotal and horizontally shiftable movement, said movable plate having a free end portion extending beyond said supporting plate with said end portion being adapted to overlie said

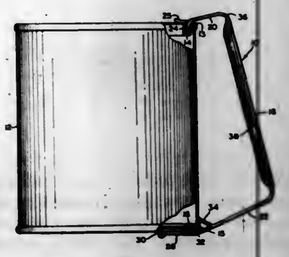
base portion when said movable plate is in a fully closed position, said end portion having a lower eyelet portion projecting in a horizontal direction outwardly of said end portion and above said eyelet portion of said eyelet plate when said movable plate is in a fully closed position, said end portion being dimensioned to fit between said lug portion and said eyelet portion of said eyelet plate with the eyelet portion of said movable plate resting on the eyelet portion of the eyelet plate, said end portion further having an upper stop portion above said eyelet portion of said movable plate, said stop portion being disposed below said lug portion and adapted to engage said lug portion to limit pivotal movement of said movable plate when said movable plate is in a fully closed position, and said movable plate being horizontally shiftable from its fully closed position to clear said lug portion and permit pivotal movement of said movable member.

3,317,231
EXTENSION DOOR HANDLE
Morris W. Lindquist, 14461 Linnhurst Ave., Detroit, Mich. 48205, and Clifford Pederson, 3670 Thompson Road, Duluth, Minn. 55811
Filed Oct. 30, 1964, Ser. No. 407,702
2 Claims. (Cl. 292—336.3)



1. In a door of the type having a latch adjacent the free edge of the door at generally the vertical mid portion thereof, said latching including a manually depressible release button, said button being depressible inwardly perpendicular to the plane of the door to release the latch, means for enabling a small child to operate the latch comprising a rod on said door extending vertically downwardly to adjacent the lower portion of the door, means supporting said rod on said door for rotation about the vertical axis of the rod and for preventing the rod from shifting upwardly or downwardly, the vertical axis of the rod being off-set laterally toward the hinged edge of the door from said button, said rod having an arm at its upper end comprising a hand grip portion spaced from the plane of the door and extending horizontally toward the hinged edge of the door, said hand grip portion being adapted to be rotated in a direction away from the plane of the door to operate the latch, the upper end of the rod having an arm extending outwardly from the plane of the door and laterally toward said button, said upper arm terminating in a free end which is aligned horizontally with the button, said free end of the upper arm being spaced laterally from the button toward the hinged edge of the door so as to not interfere with normal depression of the button and being spaced outwardly from the plane of the door a distance greater than the outer free end of the button, the free end of the upper arm being spaced radially from the axis of rotation of the rod approximately the same distance as the outer free end of the button such that when the hand grip portion is rotated in a direction away from the plane of the door the upper arm swings in a direction toward the plane of the door and the free end thereof engages and depresses the button to release the latch.

3,317,232
DETACHABLE HANDLE
George McFaul, 1095 High St., Dedham, Mass. 02026
Filed Apr. 30, 1965, Ser. No. 452,151
4 Claims. (Cl. 294—33)



1. A detachable handle for a container of the type having an extended rim at its top and bottom edges, said handle comprising a U-shaped metal member having a body portion and upper and lower leg portions, said upper leg having depending prongs arranged to be inserted over the top rim of the container, said lower leg having an upwardly and rearwardly inclined retaining lug for engagement with the inner wall of the bottom rim, and a pair of upwardly and forwardly inclined stop lugs engageable with the outer wall of the container, said lower leg having a flat extended portion and a downwardly turned lip portion, the flat portion arranged to be flexed into assembled relation with said bottom rim after the prongs are inserted over the upper rim, said retaining lug cooperating with said stop lugs to firmly grip the bottom edge of the container.

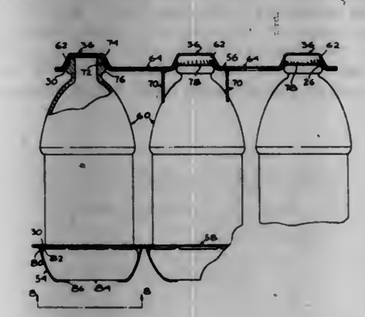
3,317,233
SLING CONSTRUCTION AND METHOD OF MAKING SAME
Boyd C. Black, Rte. 5, Newark, Ohio 43055
Filed Apr. 20, 1965, Ser. No. 449,453
8 Claims. (Cl. 294—74)



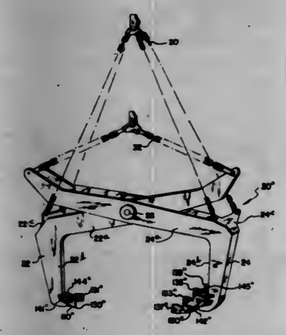
1. A sling for lifting soft metal shaped articles and the like comprising a length of wire rope, a loop formed at each end of said sling by a splice of each end of said length back onto itself, each said splice being a concealed end splice gradually tapered down to the diameter of said rope over a portion of said rope extending from said loop, and a hose covering said sling over the full length of said sling between said loops including said splices.

3,317,234
CARRIER FOR BOTTLES OR CANS
Lyle V. Burford, Los Angeles, Calif., assignor to James C. De Shazor, Jr., North Hollywood, Calif.
Filed May 24, 1965, Ser. No. 457,929
15 Claims. (Cl. 294—87.2)

1. A carrier for releasably mounting a plurality of containers in relatively fixed relationship, each of such containers having at either end an annular projection forming an outer circumferential shoulder, comprising:
a substantially planar paper stock with obverse and reverse sides and having a corresponding plurality of discrete container-engagement regions each comprising a circumferential portion radially defining a circular hole having a diameter less than the outer diameter of such projection; and
a plastic film sheet bonded onto the obverse side of said paper stock in substantially completely covering relationship thereto and overlaying such holes, whereby one end of each of such containers may be forcibly inserted through a corresponding one of said holes from the reverse side into resilient engagement with said plastic film sheet for elastic stretching thereof and so that said annular projection is past said circumferential portion, said circumferential portion having being deflected by such annular projection during such insertion and, upon completion of such insertion, automatically snapped against the side of the container and into retention engagement with the shoulder of such annular projection said plastic film sheet acting to resiliently maintain such retention engagement.

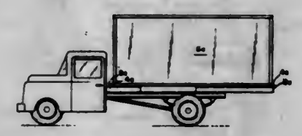


3,317,235
LOAD GRAB
John P. Botten, Rocky River, Ohio, assignor to The Owen Bucket Company, Cleveland, Ohio, a corporation of Ohio
Filed Jan. 18, 1965, Ser. No. 426,235
7 Claims. (Cl. 294—112)



1. A load grab, comprising
two jaws,
means operatively connecting said jaws for relative movement in a plane between jaws closed and open positions,
one of said jaws having a first load grab assembly including at least one load grab member,
the other of said jaws having a second load grab assembly including at least two load grab members,
means movably mounting said two load grab members and second assembly at one movement connection to said other jaw for movement relative to said other jaw,
said two load grab members being rigidly spaced apart and generally straddling said movement connection,
said second load grab assembly including an inner and an outer pair of rigidly spaced apart load grab members with the two members in each pair generally straddling said connection,
the load engagement portions for said inner pair extending along a line generally parallel to but closer to said connection than the corresponding line for said outer pair,
whereby said one load grab member can grab either a small load with said inner pair or a large load with said outer pair.

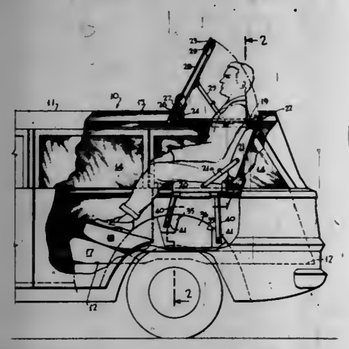
3,317,236
FASTENING MEANS FOR SHIPPING CONTAINERS
Edwin B. Connerat, 6122 Woodmont Road, Alexandria, Va. 22307, and Denver Eyler, Atlanta, Ga. (1814 Coronado Terrace, Fairfax, Va. 22030)
Filed Apr. 1, 1965, Ser. No. 444,729
2 Claims. (Cl. 296—35)



1. A locking system for coupling a shipping container to a transport chassis, comprising
at least one pair of parallel spaced opposed angle iron means of generally L-shaped configuration extending transversely of and longitudinally spaced relative to said chassis, said angle iron means including horizontal portions adapted for connection with the chassis frame, and vertical portions extending upwardly from the remote edges of said horizontal portions, respectively;
a plurality of fastening elements adapted for connection in transversely spaced relationship with the lower portion of the container for seating engagement upon the horizontal portion of at least one of said angle iron means, each of said fastening elements comprising a first housing including bottom and side walls at least partially defining a first chamber, the vertical portion of said angle iron means and the housing side walls adjacent thereto containing aligned apertures, the bottom walls of each of said first housings containing key slots;
and a plurality of locking means for locking said fastening elements with the horizontal and vertical portions of said angle iron means, respectively, comprising second housings secured to the opposite side of the vertical portion of said angle iron means from said fastening elements, respectively, each of said second housings including a pair of spaced opposed side walls parallel with said vertical portion, said opposed side walls at least partially defining therebetween a second chamber and containing openings aligned with the associated passage and aperture, a bolt mounted intermediate its ends in said openings for rotational and axial sliding movement relative to said second housing, said bolt being axially shiftable between a locking position in which one end

thereof extends through both of said apertures and a retracted position in which the bolt is retracted from the aperture in the first housing, means rotatably biasing said bolt toward a given initial angular position relative to said second housing, means permitting shifting of said bolt between its locking and retracted positions only when the bolt is angularly displaced from said initial position to a predetermined second position, and a key member rotatably connected with the horizontal portion of said angle iron means for rotation about a vertical axis, said key member being adapted for insertion through the slot in said bottom wall of said first housing and rotatable to a locking position relative to the said slot.

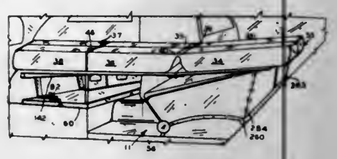
3,317,237
OPEN-VIEW VEHICLE SEATING CONSTRUCTION
Floyd G. Kerby, Orchard Lake, Mich., assignor to The Budd Company, Philadelphia, Pa., a corporation of Pennsylvania
Filed Aug. 13, 1965, Ser. No. 479,470
17 Claims. (Cl. 296—63)



1. Open-view seating accommodations for a vehicle having a body with a floor, sides with window openings, longitudinal side frame members above and below the window openings, and a rigid roof, comprising in combination, a frame forming an opening in the roof, the opening frame providing a gutter with drain and a sealing border, a closure hinged at the front of said opening and having a peripheral seal with said frame when closed, means supporting said closure in an inclined position as a windshield when raised in front of said opening, a passenger seat, and means supporting said seat at an elevation below said opening in a position to dispose the head of an occupant of the seat above the roof in said opening and allowing body access of the occupant below and behind the front edge of the opening and above the top of said seat.

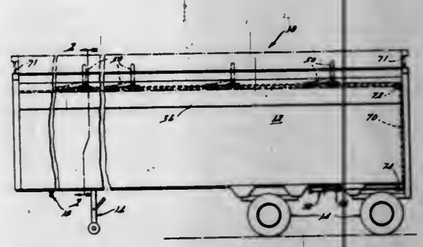
3,317,238
COMBINATION STRUCTURE FOR AUTOMOBILES
Lee V. Smoll, 8133 Triangle Drive, Amarillo, Tex. 79107
Filed July 28, 1965, Ser. No. 475,383
9 Claims. (Cl. 296—69)

1. A combination structure for use in automobiles, said automobiles comprising a frame and a front seat, a base subassembly attached to the frame of said automobile, a foldable panel subassembly cooperatively attached to said base subassembly, said base subassembly comprising a plurality of like spaced-apart hinge brackets, each of said hinge brackets having one arm member closed at the top and open at the front on one side and another arm member laterally spaced therefrom closed on its bottom and front and open at its top at its other side, a straight elongated cylindrical channel defined by the space between said arm members on said one hinge bracket, the channel between the arms of one said like member and the other being coaxial with each other, said hinge brackets attached to said base subassembly, an upwardly projecting vertical support means spaced forwardly of said hinge means and extending transversely to the frame of said automobile, the pivotal panel subassembly comprises a first locator panel which is rigid and a second rigid and flat panel permanently attached thereto by pivotal hinge elements, one end of one of said hinge elements being laterally spaced apart from the other end of said one of said hinge elements, and a third rigid panel, and said second and said third panels being joined to each other



by hinge means, and said first panel being provided with hinge elements which engage with hinge brackets on said base subassembly and permit lateral motion therein in only one direction when said hinge element and bracket element are fully engaged, said base subassembly support means also comprising lug means projecting transversely of said vertical support means, said first panel comprising a pair of downwardly projecting lugs each member of said pair being transversely spaced away from the other along the width of said panel and the front edge of said lugs being spaced away from the front edge of said first panel, and said lugs on said first panel engage said lug means on said vertical support means when said panel subassembly and said base subassembly are positioned for use and said panel subassembly is engaged with said hinge bracket.

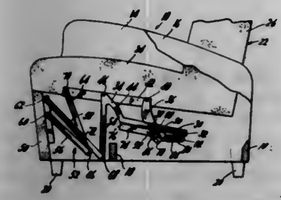
3,317,239
TRAILER CONSTRUCTION
Keith W. Tantlinger, Grosse Pointe Shores, Mich., assignor to Fruehauf Corporation, Detroit, Mich., a corporation of Michigan
Filed Jan. 21, 1966, Ser. No. 522,226
3 Claims. (Cl. 296—100)



1. An elevatable roof for a heavy duty over-the-road vehicle having a pair of longitudinally extending vertical side walls, said elevatable roof comprising,
an elongated roof panel,
a plurality of arms pivotally secured to the longitudinal edges of said roof panel, each of said arms having a roller secured to the lower end thereof,
a longitudinally extending upper rail on said side walls, respectively, for seating said rollers,

a plurality of vertical guides extending between said roof panel and the side wall panels of said vehicle for limiting said roof panel to vertical movement relative to said side walls, and
means for concomitantly moving the lower ends of each of said arms longitudinally thereby to effect elevation of said roof.

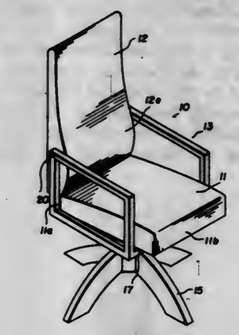
3,317,240
VARIABLE LEG-REST CONTROL ARRANGEMENT FOR MULTIPLE POSITION RECLINING CHAIR
Peter S. Fletcher, Delray Beach, Fla., assignor to Anton Lorenz, Boynton Beach, Fla.
Filed May 12, 1961, Ser. No. 109,721
5 Claims. (Cl. 297—89)



1. A multiple position reclining chair comprising a support frame, a body-supporting unit including a seat and a back-rest, a first guiding linkage mounting the body-supporting unit for first rearwardly horizontal translational movement through a first motion phase from an upright sitting position to an intermediate, tilted sitting position, means for blocking further rearward movement of the first guiding linkage at said intermediate, tilted sitting position, means providing a stationary pivotal center for said body-supporting unit in the intermediate, tilted sitting position for second upwardly and rearwardly rotational movement of the latter through a second motion phase from said intermediate, tilted sitting position to a fully-tilted position, a leg-rest, a leg-rest linkage carrying said leg-rest and operatively connected between said seat and support frame for elevating said leg-rest from a retracted position beneath the seat to an extended position forwardly of and substantially at the level of the front end of said seat during the first motion phase in response to said first rearwardly horizontal translational movement of said body-supporting unit, and control means providing a lost motion connection between said support frame and said first guiding linkage, said control means actuating said first guiding linkage in a reverse direction to move the body-supporting unit in a forwardly horizontal translational movement as said unit follows said rearwardly rotational movement during the second motion phase, whereby the leg-rest is slightly retracted relative to the seat.

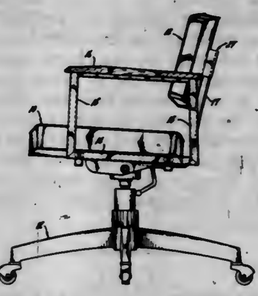
3,317,241
RECLINING CHAIR
David E. Pace, 208 Morningside Drive, San Antonio, Tex. 78209
Continuation of abandoned application Ser. No. 394,962, Sept. 8, 1964. This application Apr. 18, 1966, Ser. No. 549,117
2 Claims. (Cl. 297—285)

1. A reclining chair comprising a base, a swivel-tilt control secured to said base, a frame attached to said control, said frame consisting of first and second transversely extending cross bars and spaced parallel sides connected perpendicularly thereto, a back, a seat, said back and seat hingedly connected, said back pivotally connected to sides of the frame, first and second longitudinally extending bars secured to said seat and bearing against said first cross bar whereby the first and second bars slide for-



ward over the said first cross bar and the back and seat assume the same longitudinal plane when the swivel-tilt control is tilted backward to the limit of the tilting action.

3,317,242
CHAIR CONSTRUCTION
Donald L. Moore and Orville E. Snyder, Gallatin, Tenn., assignors to Hamilton Cosco, Inc., Columbus, Ind., a corporation of Indiana
Filed May 17, 1965, Ser. No. 456,276
4 Claims. (Cl. 297—353)

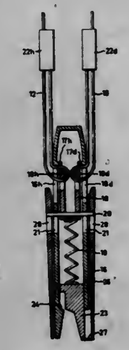


1. In a chair construction, a back rest, a pair of back supports connected to the back rest for supporting said back rest in an elevated position above a chair seat, a cover having an open lower end and extending over the upper portion of said back supports, and a plate carried within said cover and mounted on the inner face thereof having a pair of guides slidably received on said back supports, said plate having an offset finger at its lower end adapted to be connected to said back rest for mounting the cover thereon.

3,317,243
SAFETY BELTS
Per O. Weman, Hamburg-Garstedt, Germany, assignor to Sigmatex A.G., Basel, Switzerland, a corporation of Switzerland
Filed May 20, 1965, Ser. No. 457,419
Claims priority, application Sweden, May 21, 1964, 6,151/64
11 Claims. (Cl. 297—389)

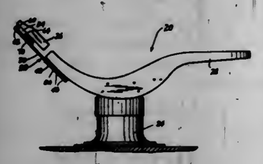
1. A safety belt comprising a chest strap having one end anchored at shoulder level on one side of a seat, a hip strap having one end anchored on said one side of and beneath the seat, a buckle with two connectible parts for detachable connection of said straps with an anchorage

point on the other side of the seat, said straps running separately into one of said buckle parts, a manually grippable pull member on each strap forming an extension thereof and emerging from said one buckle part, clamping means for immovably engaging each of said chest and hip straps with said one buckle part, said clamping means comprising a stationary abutment and a bar movable transversely to and from said abutment and encircled by a loop formed by the strap and the pull member thereof, said strap passing onto the bar substantially on the side thereof opposite to said abutment with the pulling member forming an extension of the strap, extending



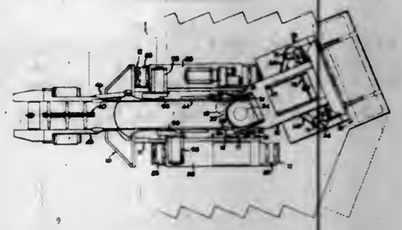
from the bar between the bar and the abutment to be clamped between the bar and the abutment by the exertion of pull at the strap, and manually operable means for moving said bar from the stationary abutment to allow the loop encirculing the bar to move through said one buckle part in order to increase the effective length of the strap by the exertion of pull at the strap, said bar also being movable from said abutment by the exertion of pull at said pull member to allow the loop encircling the bar to move through said one buckle part by exertion of pull on said pull member in order to decrease the effective length of the strap.

3,317,244
HEADREST FOR DENTAL CHAIR
Arthur C. Ferro, Creve Coeur, Mo., assignor to Contour Chair-Lounge Co., Inc., St. Louis, Mo., a corporation of Missouri
Filed Oct. 22, 1965, Ser. No. 501,885
3 Claims. (Cl. 297—410)



1. In combination, a chair headrest support comprising a base, means for mounting said base on a chair body permitting infinite adjustment in respect thereto, including a permanent magnet, a support therefor and a guiding member for defining a path of movement for the base, the guiding member and the base having complementary, relatively slidable, mutually engageable surfaces to limit the said path of movement to reciprocation in a single plane, and means for connecting said base to a headrest for support thereof.

3,317,245
PROPELLING AND STEERING SYSTEM FOR MINING MACHINES
Charles J. Arndt, Harvey, Ill., assignor to Goodman Manufacturing Company, Chicago, Ill., a corporation of Illinois
Filed Sept. 29, 1964, Ser. No. 400,086
10 Claims. (Cl. 299—76)



1. In a mining machine,
a main frame,
propelling and steering means for said main frame including a pair of laterally spaced continuous traction tread devices, supporting said main frame,
longitudinally slidable supporting connections between said main frame and said tread devices,
a separate motor for each tread device for driving said tread devices independently of each other,
a transverse tying frame structure mounted on said main frame, limited angular movement relative to said main frame in the general plane of said main frame, and having movable connection with said tread devices at its ends, for tying said tread devices together and to said main frame and accommodating one tread device to advance with respect to the other.

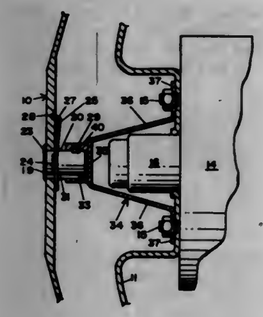
3,317,246
BICYCLE WHEEL TRIM DISCS
Edwin J. Wester, 7018 W. Beckett Ave., Milwaukee, Wis. 53216
Filed June 22, 1965, Ser. No. 466,001
10 Claims. (Cl. 301—37)



1. A wheel trim disc assembly for spoked wheels of the type including a center hub and an outer rim supported from said hub by means of a plurality of spokes, said assembly comprising a pair of opposite side disc members adapted to be secured to opposite sides of a spoked wheel, each of said disc members including a central hub

receiving portion with at least one concentric circular groove formed in one side thereof, said disc members being constructed of a material capable of being scored by means of a sharp implement seated in and moved through said grooves of each disc member and thereafter broken along the scored grooves to provide or enlarge a hub receiving opening adapted to snugly receive the hub of said wheel, said disc members including means adapting said disc members to be secured to opposite sides of said wheel.

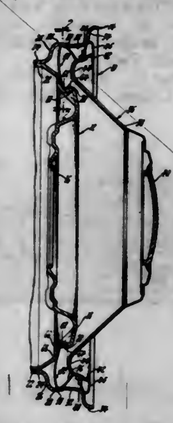
3,317,247
COMBINED WHEEL COVER AND LOCKING MEANS
Robert E. Lamme, 41 E. 19th St., Hialeah, Fla. 33010
Filed May 24, 1965, Ser. No. 458,106
4 Claims. (Cl. 301—37)



1. A combined wheel cover and locking means comprising a wheel cover having a substantially centrally disposed opening, a barrel lock extending through said opening, said barrel lock having a cap engaging one side of said wheel cover and a pair of oppositely positioned slotted portions on the other side of said wheel cover, a retainer having leg portions slidably positioned on said barrel lock engaging the other side of said wheel cover and said leg portions received by said slotted portions, a key mounted on said barrel lock, a mounting bracket having a plurality of leg portions, means for securing said leg portions to a wheel, lock receiving means mounted on said bracket receiving said barrel lock, said lock receiving means having a key way for properly positioning said wheel cover on said wheel and preventing the relative rotation of said wheel cover and said wheel and a plurality of spring elements secured at one end to said wheel cover and the other end extending to the periphery of said wheel cover in spaced relation thereto for engaging the rim of said wheel and yieldingly forcing said wheel cover in a direction away from said rim of said wheel.

3,317,248
WHEEL COVER
Floyd I. Dully, Detroit, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed June 28, 1965, Ser. No. 467,621
6 Claims. (Cl. 301—37)

1. In a wheel structure including a wheel rim and a wheel body provided with radially facing circumferentially extending retaining shoulders, a cover for said wheel structure including a cover body and cover retaining means having radially spaced shoulders thereof engaging said rim and body shoulders, said cover shoulders being normally axially spaced relative to each other and radially spaced relative to each other a lesser distance than said wheel body and wheel rim shoulders, and means decreasing the relative axial spacing of said cover shoulders to



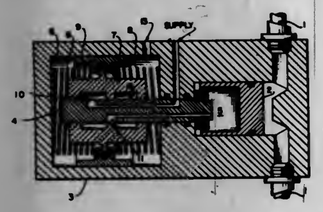
move said cover shoulders radially outwardly of each other into thrusting relationship with said wheel body and wheel rim shoulders.

3,317,249
WHEEL COVER
Henri A. L. Dagobert, Valdosta, Ga., assignor to Thompson Industries, Inc., Indianapolis, Ind., a corporation of Massachusetts
Filed Aug. 20, 1965, Ser. No. 481,205
7 Claims. (Cl. 301—37)



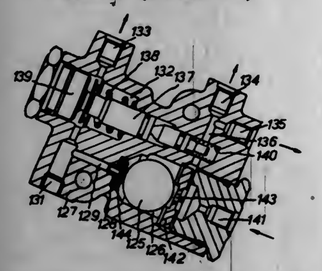
1. A wheel cover for a vehicle wheel having a tire rim comprising: a relatively thin sheet metal body of a size to substantially cover the wheel and having an integral annular, axially directed flange bent from the peripheral edge of the body, said flange being of a diameter slightly less than the inner diameter of the rim, and having a plurality of extensions along the free edge thereof; and a plurality of retention elements struck from each of said extensions with each retention element having a plurality of spaced edge portions for bitingly engaging the inner surface of said rim when the wheel cover is applied thereto, each of said retention element extensions being located along an arc the radius of which is greater than the radius of said flange in unstressed condition whereby the retention elements on each extension are increasingly urged into said biting engagement with said rim.

3,317,250
ACCELERATION SENSITIVE PRESSURE MODULATING VALVE
Edward F. Martin, Jr., Glendale, and Robert L. Rapp, Burbank, Calif., assignors to Lockheed Aircraft Corporation, Burbank, Calif.
Filed May 11, 1964, Ser. No. 366,378
3 Claims. (Cl. 303—24)



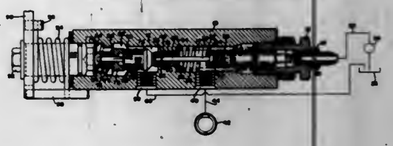
1. A pressure modulating valve comprising a valve body,
a first chamber in one end of said body, a line in which pressure is to be modulated connected to said first chamber, a piston located in said chamber and having one end thereof exposed to the pressure to be modulated, a second chamber in the other end of said body, a spool extending from said first chamber into said second chamber, an inertia mass mounted on said spool and having first and second annular cavities therein separated by a land, a first port in said spool normally covered by said land and extending through the spool to said first chamber and against the other end of said piston, a second port in said spool extending from one of said cavities through at least a portion of said spool to a pressure supply.

3,317,251
BRAKE PRESSURE PROPORTIONING DEVICE
Stewart Kevern Hambling, Tamworth, and George Broadley Spence, Coventry, England, assignors to Girling Limited, Birmingham, England, a British company
Filed July 31, 1964, Ser. No. 386,526
Claims priority, application Great Britain, July 31, 1963, 30,323/63; Sept. 5, 1963, 35,062/63; Nov. 12, 1963, 44,565/63; Dec. 16, 1963, 49,513/63; Feb. 15, 1964, 6,419/64; May 23, 1964, 21,386/64
7 Claims. (Cl. 303—24)



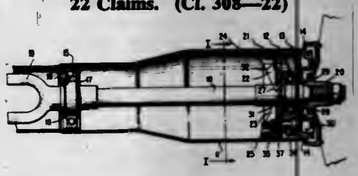
1. A fluid pressure control valve unit for a vehicle braking system incorporating a master cylinder and a brake slave cylinder, comprising a housing, partition means dividing said housing into a first chamber and a second chamber, a first port connected to said master cylinder and in communication with said first chamber, a second port connected to said brake slave cylinder and in communication with said second chamber, a stepped bore in said partition connecting said first and second chambers, a differential piston working in said stepped bore, wherein the larger end of said piston is connected with said second chamber and the smaller end with said first chamber, a spring loading said piston axially in a direction towards the end of the bore of larger diameter, a passage in said partition means remote from said stepped bore and connecting said first and second chambers, and valve means for controlling fluid flow through said passage, said valve means comprising a stationary valve seating, and an inertia-operated valve member housed in said first chamber normally permitting communication through said passage but adapted to co-operate with said valve seating to cut-off communication between said first and second chambers when said inertia member is subjected to a deceleration in excess of a predetermined value.

3,317,252
PRESSURE MODULATING HYDRAULIC CONTROL VALVE
Max P. Gassman, Waterloo, Iowa, assignor to Deere & Company, Moline, Ill., a corporation of Delaware
Filed Dec. 28, 1964, Ser. No. 421,375
10 Claims. (Cl. 303—54)



1. In a pressure-modulated hydraulic control valve of the type having valve means manually actuated through modulating means compressible along the axis of movement, the combination therewith of an improved compression spring means for resisting said modulating means compression comprising a plurality of axially alined concave disk springs adjacently mounted in said modulating means for axial compression along said axis of motion, at least one of said springs being concave in the opposite direction from the remainder.

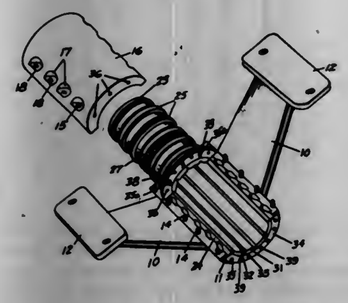
3,317,253
STEERING SPINDLE
Erwin Löffler, Rommelshausen, Arthur Mähler, Fellbach, and Hans-Egon Ritterskamp, Monheim, Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed Nov. 19, 1963, Ser. No. 324,664
Claims priority, application Germany, Nov. 27, 1962, D 40,363
22 Claims. (Cl. 308—22)



1. A steering spindle bearing support, especially for multi-partite steering spindles, within a tubular casing having a rim, comprising:
a steering spindle section,
bearing means for rotatably supporting said spindle section within said tubular casing,
socket means for said bearing means and provided with flange means seated on the rim of said tubular casing for limiting movement of said bearing means in one axial direction,
rigid internal abutment means within said tubular casing and at most only slightly reducing the cross-section of said tubular casing,

and means for securing said socket means with respect to said internal abutment means including a plurality of separate inwardly collapsible support bracket means engaging said abutment means for limiting movement of said bearing means in the other axial direction.

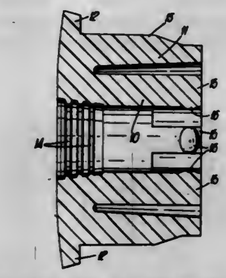
3,317,254
DEMOUNTABLE MARINE BEARING
James Glenn Satterthwaite, 305 Sterling Point Drive, Portsmouth, Va. 23703, and James B. Macy, Jr., 107 Holly Lane, Morehead City, N.C. 28557
Filed Dec. 19, 1963, Ser. No. 331,795
4 Claims. (Cl. 308—26)



1. A marine bearing assembly adapted to be mounted around propeller shafting of a vessel, comprising housing means adapted to be positioned around said shafting, bearing segments each formed with an inner rubber bearing surface adapted for bearing engagement with the propeller shafting, said segments having axially extending edges adapted to abut to form a complete tubular bearing around said shafting, the outer surfaces of said segments being formed with a plurality of axially spaced circumferentially extending lands projecting outwardly therefrom, said housing means having a plurality of corresponding axially spaced circumferentially extending lands projecting inwardly therefrom and aligned with and engaging the lands on said segments in the normal position of said segments, releasable means securing said segments in said normal position, said segments, upon release of said releasable means, being movable axially through a distance equal to the axial length of said lands into displaced position, the spaces between said lands on said housing means being sufficiently long to receive the lands on each of said segments to permit radially outward movement thereof with respect to said shafting in said displaced position, whereby said segments are supported in bearing position about said shafting in said normal position and are free for rotation about said shafting in said axially displaced position.

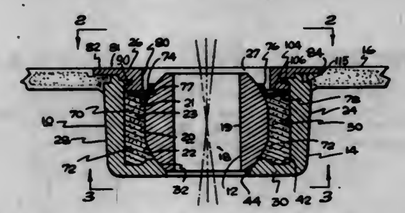
3,317,255
PIVOT PIN BEARING ARRANGEMENT
Christian Henry Wehlau, The Grove, Crouch End, London, England
Filed Feb. 1, 1965, Ser. No. 429,683
Claims priority, application Great Britain, Nov. 25, 1964, 47,857/64
4 Claims. (Cl. 308—37)

1. A pivot pin bearing arrangement comprising in combination a plain cylindrical pivot pin and a complementary moulded synthetic plastic bearing component formed with a bore through which said pivot pin extends freely and with radial clearance in relative rotational relationship with said bearing component, said bearing component comprising at least three resilient tongues equally spaced around and extending substantially parallel to the axis of said bore, and a plurality of protuberances formed one on each of said tongues, each of said protuberances having a convexly-rounded surface making "point" contact over a very small area with said pivot pin, said protuberances being adjacent to the tips of said resilient tongues and said resilient tongues exerting inward radial forces which are



transmitted through said protuberances to said pivot pin and tend to maintain said pivot pin co-axial with said bore so that there is contact between said bearing component and said pivot pin only where said protuberances each make a "point" contact with said pivot pin.

3,317,256
IMPROVED BEARING UNITS WITH LUBRICANT RESERVOIR
Richard B. Ernest, Richboro, Pa., assignor to Spyrafio, Inc., Miami, Fla., a corporation of Delaware
Filed May 27, 1964, Ser. No. 370,410
11 Claims. (Cl. 308—132)



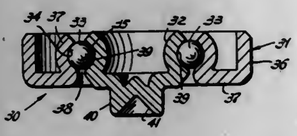
1. In combination, a sheeted plate, a self-aligning bearing unit for a shaft comprising an annular retainer, said retainer comprising an elongated annular pilot, a rib at one end of said pilot and a ring at the other end, means defined by said elongated annular pilot and ring for locking themselves together and for securing the bearing unit to said sheeted plate by deformation of the latter into locking engagement with said retainer, a spherical-like bearing housed in said retainer, a resilient washer, said pilot and rib defining an annular reservoir, said washer closing one end of said reservoir, said sheeted plate having a hole to receive said pilot, said pilot being tapered to provide an interference fit with said sheeted plate portion defining said hole, and a lubricant and wicking material within said reservoir, said washer locking said bearing to said retainer.

3,317,257
ROLLER BEARING AND A METHOD OF MAKING SAME
Odd N. Oddsen, School House Lane, Washington Valley, Morristown, N.J. 07960
Filed Sept. 2, 1964, Ser. No. 393,948
1 Claim. (Cl. 308—191)

A roller bearing comprising:
(a) an integrally formed outer race member of sheet material of generally uniform thickness having an annular flange portion defining the rolling periphery of said bearing,

(b) an annular bearing seat concentrically disposed in spaced relationship with respect to said annular flange portion, said annular flange being substantially cylindrically shaped to form a rolling surface for said outer race, and said bearing seat having a curvilinear surface adapted to conform to the shape of the ball bearings,

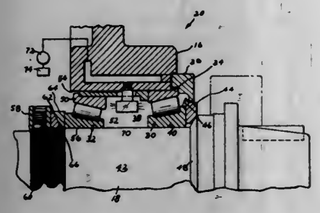
(c) a web connecting said flange portion and seat portion to define the side of said roller bearing,



(d) a cup shaped inner race member of sheet material of generally uniform thickness having its wall portions defining a complementary bearing seat portion, said complementary seat portion having a curvilinear surface adapted to conform to the shape of the ball bearings, said cup shaped inner race member having a projecting stem portion extending between said bearing seat portion forming a relatively rigid support for said bearing seat portion, the center of said projecting stem portion being continuous and formed with a recess to strengthen the inner race member,

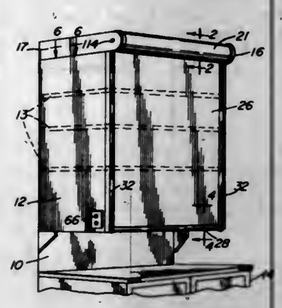
(e) and a series of ball bearings retained between the respective bearing seat portions of said inner and outer race members.

3,317,258
COMPENSATION FOR SPINDLE CREEP DUE TO BEARING TEMPERATURE
Otto Hermann, Cincinnati, Ohio, assignor to The R. K. Le Blond Machine Tool Company, Cincinnati, Ohio
Filed Oct. 6, 1964, Ser. No. 401,814
13 Claims. (Cl. 308—207)



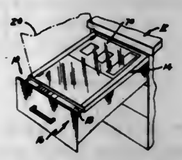
1. A structure comprising first and second relatively rotatable members and a pair of spaced anti-friction tapered roller bearings therebetween with each bearing having a race pertaining to each member, and means for compensating for expansion of the structure due to an increase in temperature thereof whereby to prevent the development of excessive pressures in the bearings and to prevent change in axial position of a predetermined point on one of the members, said means comprising; means fixedly locating a first race of one bearing relative to its pertaining member, a sleeve member carried by the last mentioned member abutting between said first race and the corresponding race of the other bearing, and spaced abutment means on the other member engaging the other races of the bearings on the sides of the bearings opposite said sleeve member, at least one of said abutment means including ring elements having interengaging conical surfaces and expansible relatively in the radial direction upon an increase in temperature thereof and in a direction to increase the space between said abutment means.

3,317,259
CABINET CONSTRUCTION
Samuel S. Otis, 516 Walnut St., Winnetka, Ill. 60093
Filed June 3, 1965, Ser. No. 461,108
4 Claims. (Cl. 312—223)



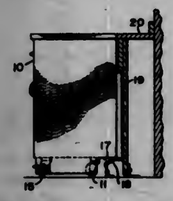
1. In combination with a cabinet having an open front, closure means adapted to close said open front comprising; roller means extending transversely of the front of the cabinet adjacent the top thereof, a flexible closure member wound on said roller means, said closure member having a lower edge being extended vertically downwardly upon rotation of said roller means in one direction for closing the front of the cabinet and being retracted vertically upwardly upon rotation of said roller means in the other direction for opening the front of the cabinet, power operated means for selectively effecting rotation of said roller means in either direction, a transverse bar secured to the lower edge of said closure member for maintaining the latter taut during vertical movement, and cooperating guide means associated with the ends of said transverse bar and the sides of the front of the cabinet for guiding said transverse bar and said closure member during vertical movement.

3,317,260
COMBINATION DRAWER AND WRITING SHELF
Edward C. Levit, Lester F. Schroeder, and Edgar L. Rein, all of Grand Rapids, Mich., assignors to Steelcase, Inc., Grand Rapids, Mich., a corporation of Michigan
Filed Aug. 4, 1965, Ser. No. 477,142
5 Claims. (Cl. 312—231)



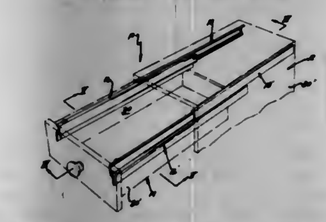
1. A combination drawer and writing shelf, comprising in combination: a drawer assembly having a bottom and upstanding side portions defining an enclosure; a writing shelf means having a flat, continuous and generally smooth writing surface; guide rail means secured beneath said writing shelf means lengthwise thereof; and support means secured to said drawer assembly in alignment with said guide rail means; said guide rail and support means defining interengaged recess and projection structure for supporting said writing shelf means slidably lengthwise relative to said drawer assembly for access thereinto, while prohibiting vertical dislodgement of said shelf means.

3,317,261
PORTABLE CABINET AND SERVICE STRIP
Roger W. Peterson and Warren R. Black, Muskegon, Mich., assignors to E. H. Sheldon & Company, Muskegon, Mich., a corporation of Michigan
Filed Dec. 30, 1965, Ser. No. 517,684
6 Claims. (Cl. 312—249)



1. In combination with a support strip extending above a floor, a mobile body equipped with anti-friction means for movement on the floor, said body being provided at one side with a ledge adapted to rest on said support strip and on an opposite side with at least one vertically adjustable leg, said leg being extensible against the floor to render said anti-friction means inoperative and said body immobile.

3,317,262
DRAWER CONSTRUCTION
James B. Vogt, Grand Rapids, Mich., assignor to Knape & Vogt Manufacturing Co., Grand Rapids, Mich., a corporation of Michigan
Sept. 10, 1965, Ser. No. 486,457
3 Claims. (Cl. 312—342)



1. A drawer and rail assembly comprising: a drawer including a pair of partial side walls having upper edges; a pair of case rails each having a generally C-shaped cross section, oriented with their open sides facing inwardly toward each other; a pair of drawer rails having portions generally C-shaped in cross section and mounted on the upper edges of said side walls to extend thereabove and with the open sides faced outwardly opposite each other; said drawer rails and case rails being laterally telescopically interfitted with each other and both including rotatable rollers allowing non-friction longitudinal telescopic extension therebetween; and said drawer rails having vertical panels forming vertical extensions of said partial drawer side walls.

3,317,263
METHOD AND APPARATUS FOR POSITIONING FILAMENTS IN FILAMENT LAMPS
Ralph H. Lesher, deceased, late of Minneapolis, Minn., by Robert W. Lesher, administrator, Minneapolis, Minn., assignor to Joseph R. Brink, Minneapolis, Minn.
Filed Dec. 9, 1963, Ser. No. 329,318
6 Claims. (Cl. 316—23)

1. A tool for use in positioning filaments in the bulbs of filament lamps in their proper focal position, said tool comprising:

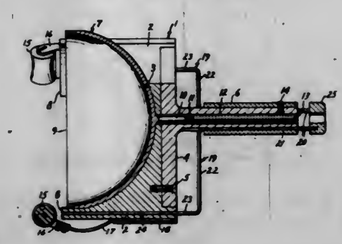
(a) a base member,

(b) a parabolic reflector carried by said base member,

(c) a seat defined by said base member and adapted to receive the bulbs of said lamps,

(d) means for initially adjusting said reflector relative to said seat by use of a master filament lamp of the same size as said lamps to be adjusted and having a generally perfectly focused filament,

(e) means for releasably retaining the bulbs of lamps to be adjusted against said seat, said means comprising a plurality of inwardly biased roller elements each one positioned adjacent a different one of said seat elements and said roller elements being located



longitudinally of said base member for engagement with this bulb surfaces of the lamps to be adjusted at positions over the greatest transverse diameter of the bulbs, and

(f) whereby the filaments of the lamps may be adjusted by moving the stem until a given portion of the filament intersects a similarly given portion of the filament image produced by said reflector when viewing the filament from a generally lateral viewpoint.

3,317,264
METHOD OF GETTERING IMPURITIES IN ELECTRICAL DEVICES SUCH AS INCANDESCENT LAMPS
Jack Martin, Paramus, and Hugh C. Hiner, Bloomfield, N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Sept. 6, 1963, Ser. No. 307,146
8 Claims. (Cl. 316—25)



3. In the manufacture of an electric device having a sealed envelope that contains an incandescible filament of refractory metal wire that initially has an unrecrystallized fibrous structure and is subject to sag, the method of removing impurities from said filament after it has been sealed into said envelope and before it is flashed and recrystallized and preventing such impurities from subsequently recontaminating the completed device, which method comprises:

mounting on said filament, prior to its assembly with said envelope, a member fabricated from a metal which when heated will getter gaseous impurities liberated by said filament;

heating the unflashed filament to a temperature approximately 400° C. below its recrystallization temperature to activate said gettering member solely by the heat imparted to it by said filament and vaporize impurities associated with said filament; and

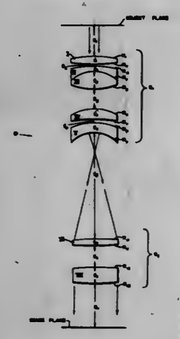
maintaining the filament at said temperature for a period of about 20 seconds so that said heated getter member absorbs substantially all of the liberated

gaseous impurities before the filament becomes recrystallized or develops an appreciable amount of sag.

3,317,265
AFOCAL RELAY LENS SYSTEM

Guy V. Coniglio, Rochester, N.Y., assignor to Bausch & Lomb Incorporated, Rochester, N.Y., a corporation of New York

Filed Dec. 19, 1963, Ser. No. 331,779
2 Claims. (Cl. 350—46)



1. An afocal relay lens system for forming an image of 5.0× magnification of an object, said system being especially well corrected for distortion, field curvature, spherical and chromatic aberration, coma and astigmatism, said system comprising a succession of optically aligned lenses which are

a front singlet lens designated I which is spaced rearwardly in the direction of entrant light from an object plane by an axial distance which is designated S_1 and has an axial thickness designated t_1,

a doublet lens which is spaced rearwardly of lens I at a distance designated S_2 and is composed of a front negative lens element designated II and of a rear positive lens element designated III and in contact therewith, the axial thicknesses thereof being designated respectively t_2 and t_3,

a singlet positive meniscus lens designated IV which is spaced from lens III by a distance S_3 and has an axial thickness designated t_4,

a singlet negative meniscus lens designated V which is spaced from lens IV by a distance S_4 and has an axial thickness designated t_5,

a positive singlet lens designated VI which is spaced from lens V by an axial distance S_5 and has an axial thickness represented by t_6,

a rearmost positive singlet lens designated VII which is spaced an axial distance S_6 from lens VI and has an axial thickness designated t_7,

the axial space rearwardly of lens VII to the image being designated S_7,

the optical parameters governing the construction of said system being set forth in the table of mathematical expressions herebelow in which R_1 to R_{13} represent the successive radii of the refractive surfaces of the lenses I to VII, the minus (—) sign used therewith applying to those surfaces having a center of curvature on the entrant side of said surfaces, and F designates the focal length of the group of lenses I to V,

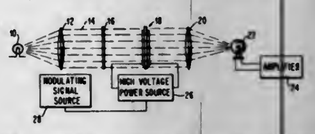
the refractive index n_D of the optical materials in the successive lenses I to VII being designated $n_D(I)$ to $n_D(VII)$ and the Abbé number ν of said optical materials being designated $\nu(I)$ to $\nu(VII)$, the absolute values of the refractive indices and Abbé numbers being given in the table of mathematical expressions herebelow,

$R_1=1.955F$	$t_2=.0438F$
$-R_2=3.044F$	$t_3=.1502F$
$R_3=1.595F$	$t_4=.0946F$
$R_4=.568F$	$t_5=.0946F$
$-R_5=1.303F$	$t_6=.0693F$
$R_6=.824F$	$t_7=.1502F$
$R_7=2.88F$	$S_1=1.067F$
$R_8=.954F$	$S_2=.01846F$
$R_9=.529F$	$S_3=.7000F$
$R_{10}=23.09F$	$S_4=.0277F$
$-R_{11}=23.09F$	$S_5=4.425F$
$R_{12}=28.8F$	$S_6=.779F$
$-R_{13}=3.593F$	$S_7=1.552F$
$n_D(I)=1.517$	$\nu(I)=64.5$
$n_D(II)=1.689$	$\nu(II)=30.9$
$n_D(III)=1.517$	$\nu(III)=64.5$
$n_D(IV)=1.612$	$\nu(IV)=59.5$
$n_D(V)=1.613$	$\nu(V)=44.2$
$n_D(VI)=1.517$	$\nu(VI)=64.5$
$n_D(VII)=1.517$	$\nu(VII)=64.5$
$t_1=.0623F$	

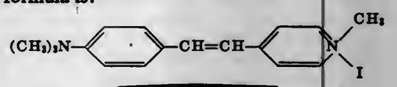
3,317,266
ELECTROCHROMIC LIGHT VALVE

William R. Heller, Pound Ridge, Junji Kumamoto, Yorktown Heights, John J. R. Luzzi, Carmel, and John C. Powers, Jr., Hartsdale, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York

Filed May 16, 1963, Ser. No. 280,994
27 Claims. (Cl. 350—160)



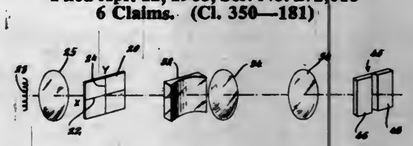
1. An electro-optic element for controlling the transmission of a beam of light therethrough said element comprising a matrix having therein an electrochromic material and electrode means mounted on opposite faces of said matrix for applying an electric field therebetween and wherein the electrochromic material is ω-(N'-methylpyridyl-4')-4-dimethylaminostyrene iodide whose structural formula is:



3,317,267
OPTICAL SYSTEM HAVING CYLINDRICAL POWER

Abe Offner, Darien, Conn., assignor to The Perkin-Elmer Corporation, Norwalk, Conn., a corporation of New York

Filed Apr. 12, 1963, Ser. No. 272,618
6 Claims. (Cl. 350—181)



1. An optical system having cylindrical properties for use in an environment in which the cylindrical power desired is in a first plane for which the field angle requirement is large relative to the field angle requirement in the second plane perpendicular thereto, comprising:

a cylindrical component having its cylindrical power in said second perpendicular plane and of a type substantially equal to but opposite in sign to that desired;

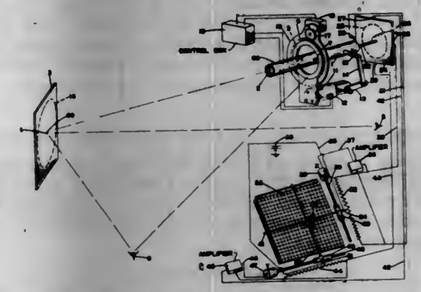
and a quasi-spherical component having a dioptric power substantially equal to but opposite to that of said cylindrical component;

so that the result is cylindrical power of the desired amount in said first desired plane while avoiding the use of any cylindrical element having its power in a plane having a relatively large field angle requirement.

3,317,268
SCANNING LIGHT SPOT PROJECTOR AND COUPLED RECORDING DEVICE FOR VISUAL FIELD TESTING

Olaf G. Oswald, Canadice, N.Y., assignor to Bausch & Lomb Incorporated, Rochester, N.Y., a corporation of New York

Filed Mar. 28, 1962, Ser. No. 183,293
3 Claims. (Cl. 351—30)



2. In a device of the character described comprising, a scanning means including a light projector for projecting a beam of light adapted for forming a spot on a visual screen, a recording device having motor means for providing displacement of a stylus in response to an unbalance signal, a bridge circuit connected intermediate said scanning device including a resistance plate having two pairs of connections substantially normally disposed with respect to each other, an electrical contact fixed on said projector engaging said plate resistance intermediate said connections, mating resistance arms connected to each of said pairs of connections on said resistance plate and having slider elements coupled to said motor means providing an electrical unbalance responsive to the position of said contact on said resistance plate, said motor means responsive to the unbalance signal and displacing the stylus in response to displacement of said contact thereby correlating the stylus position of said recording device with the scan position of said projector.

3,317,269
AUTOFOCUS LINKAGE

Basil M. Madigan, Wadsworth, Ohio, assignor to Goodyear Aerospace Corporation, Akron, Ohio, a corporation of Delaware

Original application June 7, 1962, Ser. No. 200,729, now Patent No. 3,208,341, dated Sept. 28, 1965. Divided and this application Aug. 3, 1965, Ser. No. 476,958
2 Claims. (Cl. 352—140)

1. A automatic lens focusing linkage for an axially movable lens in parallel alignment with a fixed film and a movable screen so that light passing through the film and lens projects an image on the screen comprising

a bell crank having a 90° included angle and a longitudinal open slot at each end thereof,

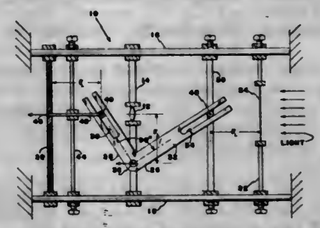
means pivotally connecting the apex of the bell crank to the lens,

said pivot means extending in the plane of the lens and in a plane parallel to the axis of the lens offset a distance equal to the focal length of the lens,

means to selectively adjust the spaced relation between the pivot means and the lens to allow use of lenses with various focal lengths,

means limiting the movement of the pivot means to the plane parallel to the axis of the lens,

a fixed guide pin spaced from the film toward the lens a distance equal to the focal length of the lens, said



fixed pin being positioned in the plane of the axis of the lens and extending normal to said axis and parallel to said pivot means,

one of said slotted open end portions of the crank being in engagement with the pin,

a movable guide pin spaced from the screen toward the lens a distance equal to the focal length of the lens, said pin being positioned in the plane of the axis of the lens and extending normal to said axis and parallel to said pivot means,

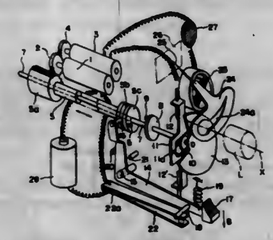
the other of said slotted open end portions of the crank being in engagement with the movable pin,

a link securing the movable guide pin to the screen, and means limiting the movement of the movable guide pin to the plane of the axis of the lens.

3,317,270
SHUTTER RELEASE DEVICE FOR CINE CAMERAS

Koji Sho, Yokohama-shi, Japan, assignor to Nippon Kogaku K.K., Tokyo, Japan, a corporation of Japan

Filed Aug. 12, 1964, Ser. No. 389,168
Claims priority, application Japan, Sept. 3, 1963, 38/46,395
6 Claims. (Cl. 352—141)



1. In a motion picture camera including shutter means and an automatic exposure adjusting device, the combination comprising, a motor for driving the shutter means, a D.C. generator driven by said motor, a normally disengaged clutch interposed between the motor and the shutter means, a release button movable from an inoperative position through a first and a second position, a lever actuated by the release button for initiating operation of the motor to drive the generator when the release button is in its first position and for engaging the clutch mechanism to drive the shutter means when the release button is in its second position, and an electrical circuit for the automatic exposure adjusting device, the voltage developed by the generator forming the power source for said circuit.

3,317,271

COMPOSITIONS CONTAINING A NEUTRAL-DYEING PREMETALIZED DYE AND PROCESS OF DYEING POLYAMIDES THEREWITH

Jerry Michael Mecco, Somerville, N.J., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Dec. 26, 1963, Ser. No. 333,674
10 Claims. (Cl. 8—42)

1. A liquid dyeing composition for coloring nitrogenous and polyamide materials, said composition comprising:
(a) a metalized dye free of ionogenic groups,
(b) a polyakylene glycol monoalkyl ether,
(c) a nonionic surfactant, and
(d) water,
said metalized dye containing one atom of a metal having an atomic number greater than 23 but less than 29, chelated with two molecules of a monoazo dye.

7. In the process of coloring continuous filament polyamides strong, level shades free of skittery and heathery effects the steps comprising:
(1) prewetting the polyamide material in an aqueous bath comprising on the weight of the material to be colored
(a) 0.1 to 4.0 weight percent of a neutral-dyeing premetalized dye derived by chelating one atom of a metal having an atomic number greater than 23 but less than 29 with two molecules of a monoazo dye free of ionogenic groups,
(b) 0.2 to 5.0 weight percent of a polyakylene glycol monoalkyl ether, and
(c) 0.1 to 2.0 weight percent of a nonionic surfactant,
(2) adding to the aqueous bath from about 20 to 35 weight percent of an alkali-metal salt;
(3) adjusting the pH of the aqueous bath from about 6.0 to 8.5 at ambient temperature;
(4) heating the aqueous bath containing the polyamide material to about 195° to 215° F. to transfer the neutral-dyeing premetalized dye to the polyamide material;
(5) separating the colored material from the aqueous bath, and
(6) thereafter rinsing and drying the colored material.

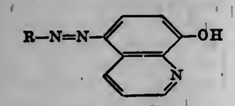
3,317,272

PROCESS FOR THE DYEING AND PRINTING OF POLYPROPYLENE FIBERS

Hermann Wunderlich, Cologne-Mulheim, and Max Schwarz, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed Jan. 9, 1964, Ser. No. 336,647
Claims priority, application Germany, Jan. 11, 1963, F 38,746
9 Claims. (Cl. 8—42)

1. Process for the dyeing and printing of polypropylene fibers that comprises, dyeing the fibers with an aqueous dispersion of a dyestuff represented by the formula:



(I)

wherein R represents an aromatic nucleus free of sulfonic acid groups, selected from the group consisting of carbocyclic radicals containing a member of the group consisting of hydroxyl and carboxyl groups in the position ortho to the azo linkage, a thiazolyl radical, a benzothiazolyl radical, a triazolyl radical, a thiadiazolyl radical, a benzimidazolyl radical, a pyrazolyl radical and an indazolyl radical.

3,317,273

METALLIZING AZOIC DYEINGS AND PRINTS

Clemens Streck, Loudonville, N.Y., assignor to General Aniline & Film Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Apr. 16, 1964, Ser. No. 360,436
14 Claims. (Cl. 8—42)

1. In the method of after-treating fibrous materials dyed with an azoic dye free of solubilizing groups and containing in o,o'-positions relative to an azo linkage groups capable of conversion to a complex metal compound, the improvement which comprises treating said dyed fibrous material with an alkali-ion-free aqueous alkaline solution having a pH in the range of above 7–9, containing (1) a metallizing compound of the group consisting of salts and hydroxides of copper, cobalt and nickel capable of forming a metal complex with said azoic dye, (2) an ammonium salt of the formula:

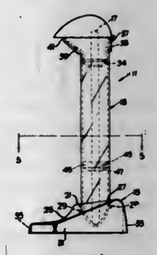
wherein X represents a member selected from the group consisting of hydroxyl, hydrogen and alkyls having 1 to 4 carbon atoms and, (3) such amount of ammonium hydroxide as is necessary to maintain the pH of the solution in said range.

3,317,274

DEVICE FOR SUPPORTING A CLINICAL THERMOMETER

James B. McCormick, La Grange, Ill., assignor, by mesne assignments, to Miles Laboratories, Inc., Elkhart, Ind., a corporation of Indiana

Filed May 22, 1963, Ser. No. 282,397
3 Claims. (Cl. 21—87)



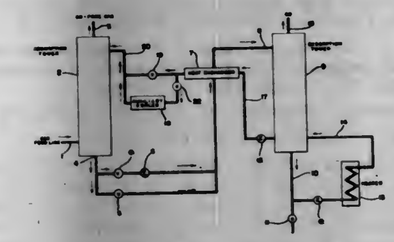
2. A device for supporting a thermometer in a liquid chemical on a table or the like, which device comprises a base member having a flat underside adapted to rest upon a flat supporting surface and having a surface adapted to carry the printed name of a patient, said base including in its top surface means defining a sleeve, an upright elongated tube adapted to contain a quantity of liquid, one end of said tube being closed and tapered and removably inserted into said sleeve, a portion of the opposite open end of the tube being flared outwardly to define an inclined upwardly facing shoulder, and a retaining member carried by the upper end of the tubular member for supporting the upper end of a thermometer disposed in an upright position within the tubular member and for retaining the liquid therein, said retaining member comprising a generally cylindrical hollow neck portion, a hollow conical section integrally connected at its widest cross section with the lower peripheral edge of said neck portion and having inwardly projecting flexible ring segments integrally connected to and spaced about the periphery of its lowest cross section, said spaced ring segments each projecting inwardly and laterally of said neck portion and terminating short of the central axis of said neck portion to define a central opening for receiving and supporting a thermometer in upright position, upstanding surrounding wall means integral with the upper peripheral edge of said neck portion, a portion of said wall means being flared outwardly to provide an inclined upwardly facing ledge, a lip integral with said wall means and projecting laterally and outwardly from the upper edge of said wall means, and a flexible hollow resilient lid having a flexible strip attached to said wall means serving as a hinge, said lid including means engageable with said lip so as to maintain said lid in a position overlying the upper end of a thermometer supported in said central opening, said retaining member being removably fitted into the open end of said tube with the flared portion of said wall means overlying the upwardly facing shoulder of the open end of said tube and the neck portion of said retaining member being frictionally received within the tube below said upwardly facing shoulder.

3,317,275

PROCESS FOR REMOVING CARBON MONOXIDE FROM GASES

David P. Tate, Northfield, and Joseph M. Augl, Bedford, Ohio, assignors to The Standard Oil Company, Cleveland, Ohio, a corporation of Ohio

Filed Dec. 10, 1962, Ser. No. 243,411
3 Claims. (Cl. 23—2)



1. A process for separating carbon monoxide from a gas containing the same which comprises (1) contacting at a temperature within the range of 20° C. to 250° C. and a pressure of from 0 to 5000 p.s.i.g. said gas with a solution containing a metal carbonyl complex of the formula

$$(Y)_aX(CO)_{6-a}$$

where
X is a metal selected from the group consisting of chromium, molybdenum, and tungsten;
Y is a nitrogen-coordinating compound having 2 to 12 carbon atoms, and capable of donating at least one pair of electrons to said metal; and
a is an integer of one to three, inclusive,

whereby carbon monoxide is absorbed by and Y is liberated from said metal carbonyl complex, forming a carbon monoxide-enriched complex having the formula

$$(Y)_{a-b}X(CO)_{6-a+b}$$

where
X, Y, and *a* are defined as above, and
b is an integer greater than 0 and not greater than *a*;

and (2) performing on said carbon monoxide-enriched complex at least one of the steps of increasing the temperature and decreasing the pressure used in step (1), whereby carbon monoxide is liberated and said metal carbonyl complex is reformed.

3,317,276

STABILIZED AMMONIUM NITRATE COMPOSITIONS AND THEIR PRODUCTION

Marion Lipscomb Brown, Jr., Albert Wise Green, and Elmer Ladelle Blanton, all of Yazoo City, Miss., assignors to Mississippi Chemical Corporation, Yazoo City, Miss., a corporation of Mississippi

No Drawing. Filed Oct. 24, 1966, Ser. No. 588,754
29 Claims. (Cl. 23—103)

1. A method for reducing the dust formation normally associated with particulate ammonium nitrate production in which a crystalline ammonium nitrate composition is subjected to a rapid temperature change which promotes an interchange of the ammonium nitrate crystalline form directly between Type II and Type IV, which comprises crystallizing the ammonium nitrate from a liquid mixture with boric acid, an alkali-metal salt thereof, an ammonium salt thereof, or a mixture thereof, in an amount sufficient to substantially reduce the sensitivity of the ammonium nitrate to II–IV crystal type transitions.

3,317,277

METHOD FOR PREPARING ALUMINA PARTICLES

Lee A. Cosgrove, West Chester, Pa., assignor to Air Products and Chemicals, Inc., Philadelphia, Pa., a corporation of Delaware

No Drawing. Filed Jan. 17, 1963, Ser. No. 252,040
10 Claims. (Cl. 23—143)

1. The method of preparing hard, strong, spheroidal pellets of alumina useful as contact and catalyst support material which comprises the successive steps of:
(a) agglomerating a mixture of powdered alumina hydrate and 15–16% concentration aqueous mineral acid;
(b) aging the green agglomerates at ambient temperature to further the reaction between the acid and the alumina hydrate, thereby forming an alumina salt serving as an interparticle binder;
(c) continuously mass tumbling the aged green agglometrates at ambient temperature, and while still in plastic state containing free liquid, for a period up to about 2 hours, to smooth the surface of and to strengthen said agglomerates at least a portion of the tumbling being effected after complete reaction between the acid and the alumina hydrate has taken place;
(d) stage drying the tumbled agglomerates, first slowly under relatively high humidity conditions and then more rapidly under conditions of lower humidity and increased temperature; and
(e) calcining the dried pellets to reconstitute the alumina in said agglomerates by decomposing the aluminum salt.

3,317,278

PURIFICATION OF CARBON DIOXIDE

Martin Siegfried William Ruhemann, Brooklands, Sale, and Peter Halford, Peel Hall, Manchester, England, assignors to Petrocarbon Development Limited, London, England, a British company

Filed Nov. 26, 1963, Ser. No. 325,988
4 Claims. (Cl. 23—150)

1. A process for the purification of impure carbon dioxide contaminated with gaseous impurities, including light hydrocarbons, which process comprises distilling the

impure carbon dioxide, after removal of any traces of oil and any moisture present, in a first distillation step at a superatmospheric pressure and at a temperature below ambient temperature, at which it is essentially liquid, sufficient to remove the more volatile impurities as an overhead fraction and obtain a liquid bottoms fraction, removing and vaporizing said liquid bottoms fraction, introducing molecular oxygen into said vaporized bottoms fraction in an amount sufficient to oxidize the remaining hydrocarbon impurities and subjecting the resulting mixture of oxygen and vaporized bottoms fraction to catalytic oxidation at a superatmospheric pressure and an elevated temperature sufficient to oxidize said remaining hydrocarbon impurities, drying and cooling the effluent from the catalytic oxidation to below ambient temperature to substantially liquefy it, and distilling said liquefied effluent in a second distillation step at a superatmospheric pressure sufficient to remove the inorganic impurities then present as an overhead fraction and recovering substantially pure carbon dioxide as the bottoms fraction of said second distillation step.

3,317,279
POLYMORPH OF CALCIUM DISILICIDE AND ITS METHOD OF PREPARATION

Meyer S. Silverman, Elkins Park, Pa., assignor to Pennsalt Chemicals Corporation, Philadelphia, Pa., a corporation of Pennsylvania

No Drawing. Filed Mar. 15, 1963, Ser. No. 265,343
10 Claims. (Cl. 23—204)

1. A polymorph of $CaSi_2$ having an X-ray diffraction pattern essentially as follows:

d (A.):	I
2.77	100
2.28	80
2.14	55
1.76	55
1.56	50
1.512	30
1.326	30
1.235	25

3. A process for producing the polymorph of claim 1 which comprises heating to a temperature of at least 800° C. at a pressure of at least 20 kilobars, ingredients selected from the group consisting of calcium disilicide and precursors of calcium disilicide.

3,317,280
PREPARATION OF HYDROGEN PEROXIDE

Ray S. Long, Concord, and Amy T. Noma, Berkeley, Calif., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Dec. 12, 1963, Ser. No. 330,004
4 Claims. (Cl. 23—207)

1. In a process for preparing hydrogen peroxide by acidification of an alkali metal peroxide selected from the group consisting of sodium peroxide and potassium peroxide, said alkali metal peroxide being prepared by direct oxidation of the corresponding amalgam, the improvement which comprises;

(a) contacting said alkali metal peroxide with a solution of a mineral acid in a trialkyl phosphate liquid organic solvent therefor, said mineral acid being a member selected from the group consisting of phosphoric acid, hydrochloric acid, sulfuric acid and mixtures thereof and each of the alkyl groups of said trialkyl phosphate having from about 4 to about 8 carbon atoms, thereby converting said alkali metal peroxide to hydrogen peroxide and extracting said hydrogen peroxide into said trialkyl phosphate,

(b) separating the hydrogen peroxide containing organic extract from the residual amalgam, and

(c) water stripping said hydrogen peroxide from said organic extract.

3,317,281
RECOVERY OF SULFUR FROM GASES CONTAINING HEAVY HYDROCARBONS

Howard Grekel, Tulsa, Okla., assignor to Pan American Petroleum Corporation, Tulsa, Okla., a corporation of Delaware

No Drawing. Filed July 12, 1965, Ser. No. 471,445
6 Claims. (Cl. 23—225)

1. In a process for the recovery of elemental sulfur from a gaseous mixture containing not more than about 10 mol percent hydrogen sulfide together with inerts and heavy hydrocarbons in a catalytic reaction zone, said heavy hydrocarbons tending to cause deactivation of the catalyst in said zone, the improvement which comprises adjusting the sulfur dioxide content of said mixture so that the hydrogen sulfide-sulfur dioxide ratio is from about 2 to about 2.5 to 1, adding to said mixture from about 0.5 to about 1 mol percent of oxygen, next preheating the resulting mixture to a temperature of from about 425° F. to about 450° F., thereafter contacting this hot gaseous mixture in a zone containing a catalyst for the reaction of hydrogen sulfide with sulfur dioxide to produce elemental sulfur at a temperature not in excess of 550° F., withdrawing from said zone the resulting product mixture and recovering sulfur therefrom.

3,317,282
FIELD TEST FOR INDICATING AND MEASURING QUATERNARY AMMONIUM COMPOUNDS

Harold J. Antonides and Ralph L. Dietchweiler, Kankakee, Ill., assignors to Armour Pharmaceutical Company, Chicago, Ill., a corporation of Delaware

No Drawing. Filed Mar. 22, 1963, Ser. No. 267,355
11 Claims. (Cl. 23—230)

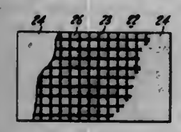
1. A field test method for indicating and measuring the presence of from zero to 5 p.p.m. of quaternary ammonium compounds in a contained body of water comprising: isolating a sample of water from said body; dissolving in said sample an amount of an indicator-buffer powder containing bromo chloro phenol blue sufficient to bring said solution to a pH of 5.4 to 6.0; adding chloroform to said solution; shaking said solution and said chloroform to form an admixture in which quaternary ammonium compounds present in said water form with said bromo chloro phenol blue a soluble colored complex, said complex being preferentially solubilzed in said chloroform to form a chloroform-complex solution; separating said water from said chloroform-complex solution; and matching said color of said chloroform-complex solution with a standard color card to determine quantitatively said presence of quaternary ammonium compounds.

3,317,283
LEAK DETECTING DEVICE

Cecil V. King, Chatham, N.J., assignor to American Gas & Chemicals, Inc., New York, N.Y., a corporation of Massachusetts

Filed Aug. 13, 1963, Ser. No. 301,746
4 Claims. (Cl. 23—253)

1. An organic solvent leak detecting device comprising a fibrous web having an organic solvent permeable adhesive coating on a face thereof, said coating having an organic solvent soluble, water insoluble dye dispersed therein whereby an organic solvent applied to said adhesive coating leaches said dye therefrom and imparts therewith a visible stain to said web.



3,317,284
FUSION PROCESS FOR PRODUCTION OF STOICHIOMETRIC UO_2

John J. Scott, Chippawa, Ontario, and Neil C. Turnbull, Niagara Falls, Ontario, Canada, assignors to Norton Company, Worcester, Mass., a corporation of Massachusetts

Filed June 6, 1963, Ser. No. 286,009
3 Claims. (Cl. 23—355)

1. A method for producing stoichiometric coarsely crystalline uranium dioxide comprising forming a molten mass of uranium oxide by melting a composition having an O to U molal ratio of 3 or less, enclosing said mass while still molten, flowing an inert gas through said mass to purge the system of free gases other than said inert gas, flowing hydrogen through said mass for a time sufficient to convert the mass to stoichiometric UO_2, and cooling said mass while protected from contamination by oxygen and nitrogen.

3,317,285
COMPOSITION COMPRISING IRON-GROUP METAL AND PARTICULATE REFRACTORY METAL OXIDE

Guy B. Alexander, Brandywine Hundred, Robert E. Stuart, Christiana Hundred, and Sherwood F. West, Brandywine Hundred, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Jan. 12, 1965, Ser. No. 425,060
13 Claims. (Cl. 29—182.5)

1. A composition comprising two components mechanically inseparable from each other, the first of said components comprising a metallic material selected from the group consisting of: (a) iron, cobalt and nickel; (b) alloys of (a) metals with each other; (c) alloys of metals (a) and alloys (b) with up to 30% by weight of a metal of the group consisting of tungsten and molybdenum and mixtures of them; (d) alloys of metals (a), alloys (b), and alloys (c) with up to 30% of chromium; and (e) alloys of metals (a), alloys (b), alloys (c) and alloys (d) with up to 16% by weight of manganese, the content of iron plus cobalt plus nickel in said metallic material being at least 50% by weight; and the second of said components consisting essentially of a refractory metal oxide having a free energy of formation, measured at 1000° C., greater than 98 kcal. per gram atom of oxygen, said oxide being in the form of discrete particles having a mean particulate diameter, D, not greater than

$$(0.5K+30t^{16}-11)$$

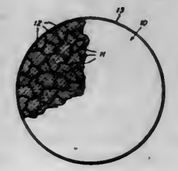
millimicrons, where K is the free energy of formation, in kcals. per gram atom of oxygen measured at 27° C., of the most stable oxide of any metal of said first component, and t is the fraction of theoretical density, the volume loading of said second component present being up to 5%, and 90% of the refractory oxide particles by volume having a diameter less than 3D.

3,317,286
COMPOSITE SUPERCONDUCTOR BODY

Warren De Sorbo, Ballston Lake, N.Y., assignor to General Electric Company, a corporation of New York

Filed Nov. 2, 1961, Ser. No. 149,590
4 Claims. (Cl. 29—183.5)

1. As an article of manufacture a strand of niobium

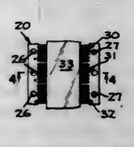


containing a minor amount of zirconium and containing tin and niobium as a second phase in the form of continuous filamentary network.

3,317,287
ASSEMBLY FOR PACKAGING MICROELECTRONIC DEVICES

Edward A. Caracciolo, Santa Clara, Calif., assignor to General Micro-Electronics Inc., a corporation of Delaware

Original application Dec. 30, 1963, Ser. No. 334,332. Divided and this application Aug. 1, 1966, Ser. No. 581,406
6 Claims. (Cl. 29—193)



1. An assembly for the packaging of microelectronic devices comprising confronting strips of insulating material, and a conductor strip partially imbedded between said strips of insulating material, said conductor strip being formed with a series of projection receiving perforations parallel with an edge thereof and spaced from said insulating strips.

3,317,288
NIOBIUM-SILICON BRAZING ALLOY FOR REFRACTORY METALS

James C. Marshall and Ronald H. Mueller, Cincinnati, Ohio, assignors to the United States of America as represented by the United States Atomic Energy Commission

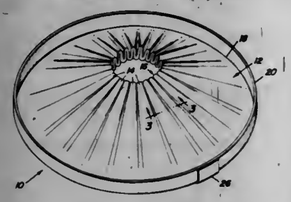
No Drawing. Filed Mar. 13, 1964, Ser. No. 351,873
2 Claims. (Cl. 29—198)

1. A composite structure comprising at least two structural portions selected from the class of metals and alloys consisting of tantalum, niobium, and alloys containing predominant proportions thereof joined to one another by a fused brazing alloy having a composition, prior to brazing, consisting essentially of 0.5 to 7.0 weight percent silicon and the balance niobium, the joint provided by the fused brazing alloy being characterized by having a melting temeprature greater than the melting temperature of the brazing alloy.

3,317,289
MANUFACTURE OF SMOKELESS FUEL FROM CERTAIN LOW-GRADE COAL MATERIALS
Frederick W. Braun, Beaverton, Oreg., and Edward Prostel, Laramie, Wyo., assignors to Continental Oil Company, Ponca City, Okla., a corporation of Delaware
No Drawing. Filed May 7, 1962, Ser. No. 192,948
5 Claims. (Cl. 44—10)

1. A process of producing smokeless, carbonaceous briquettes from low-grade coal which comprises:
contacting particles of coal with a solvent comprising gas oil at a temperature of from 500° F. to 800° F., under a pressure sufficient to maintain a substantial amount of the solvent in the liquid state and for a substantial period of time to remove a substantial amount of hydrocarbonaceous material to provide a residue comprising from about 30 to about 80 percent of said coal;
removing occluded solvent, extract and odor and smoke-producing materials simultaneously from said residue by contacting said residue with super-heated steam; and
briquetting said particulate coal residue.

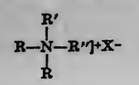
3,317,290
SELF-KINDLING FUEL CONTAINER
Carlyle W. Gentry, 408 Mountain View Ave., Bluefield, W. Va. 24701
Filed Aug. 25, 1965, Ser. No. 482,454
7 Claims. (Cl. 44—38)



1. An inflammable container constructed of deformable and resilient material, said container being adapted to have combustible fuel disposed therein and comprising an upstanding cylindrical member including an upper marginal portion, the vertical extent of the lower portion of said cylindrical member below said upper marginal portion being less than one-half the diameter of said cylindrical member and having axially extending and circumferentially spaced corrugations formed therein terminating at their upper ends at the lower extremity of said upper marginal portion, said cylindrical member being creased around said lower extremity and the lowermost marginal edge of said cylindrical member being radially inwardly and upwardly displaced so as to form a truncated shallow and hollow cone of said lower portion with said lowermost marginal edge disposed at an elevation spaced at least slightly above a plane in which said crease is disposed and defining the minor diameter end of said cone.

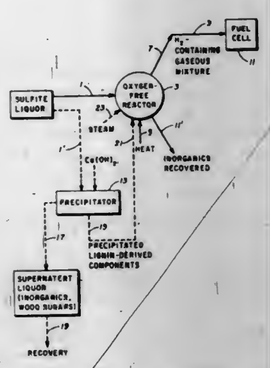
3,317,291
NONCLOGGING FUEL OIL COMPOSITIONS
Byron E. Marsh, Mount Vernon, and Donald Joseph Tucek, Berwyn, Ill., assignors to Armour and Company, Chicago, Ill., a corporation of Delaware
No Drawing. Filed July 16, 1963, Ser. No. 295,525
12 Claims. (Cl. 44—72)

1. A fuel oil composition comprising fuel oil and an additive from about 0.0010 to about 2.0 weight percent of a quaternary ammonium salt having the formula



wherein R is an aliphatic hydrocarbon radical having from 8 to 22 carbon atoms, R′ is selected from the group consisting of alkyl radicals having from 1 to 5 carbon atoms and alkyaryl, R″ is selected from the group consisting of alkyl radicals having from 1 to 5 carbon atoms, alkylaryl, aryl, and cyanoethyl, and X is an anion, and about 0.0025 to about 2.0 weight percent of a compound selected from the group consisting of aliphatic secondary and tertiary amines, dialiphatic - beta - amino - propionaldehydes, N-methyloldialkylamines, and N-alkyl diamines; said additive having a synergistic sludge dispersing action.

3,317,292
METHOD OF TREATING WASTE SUBSTANCES TO DERIVE HYDROGEN AND OTHER GASES THEREFROM, AND HYDROGEN-CONTAINING GASEOUS PRODUCT
Walter Juda, Lexington, Mass., assignor to Prototech Incorporated, Cambridge, Mass., a corporation of Massachusetts
Filed Nov. 15, 1962, Ser. No. 237,898
3 Claims. (Cl. 48—209)

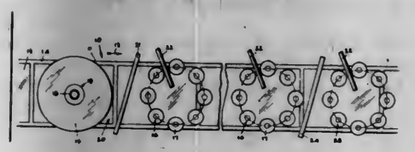


1. A method of treating waste-substance liquor containing inorganic components and lignin-derived organic solute components, that comprises precipitating lignin-derived components from said liquor, separating the precipitate from the supernatant liquor, reacting the precipitate with steam at temperatures at least of the order of several hundred degrees centigrade, and in stoichiometric proportions to favor production of carbon monoxide and hydrogen, in a reaction atmosphere substantially void of free oxygen, in order to produce carbon monoxide and hydrogen gases, and withdrawing a hydrogen-containing gaseous mixture.

3,317,293
RARE EARTH CHLORIDES IN A GLASS POLISHING COMPOSITION
Harold L. Rueter, Toledo, and Lazarus D. Thomas, Maumee, Ohio, assignors to Libbey-Owens-Ford Glass Company, Toledo, Ohio, a corporation of Ohio
Filed Apr. 20, 1964, Ser. No. 360,967
15 Claims. (Cl. 51—307)

1. In a method of finishing a glass surface, the step of rubbing a slurry of water, cerium oxide and a mixture of rare earth chlorides containing approximately 45% cerous chloride, in the proportions of 100 parts by weight of water, from 0.5 to 20 parts by weight of cerium oxide and from 0.5 to 5 parts by weight of the mixture of rare earth chlorides, over said surface with a soft tool.

3,317,294
GLASS POLISHING COMPOSITION COMPRISING A WATER-SOLUBLE ZINC SALT
Lazarus D. Thomas, Maumee, and Harold L. Reuter, Toledo, Ohio, assignors to Libbey-Owens-Ford Glass Company, Toledo, Ohio, a corporation of Ohio
Filed July 16, 1964, Ser. No. 383,023
15 Claims. (Cl. 51—307)



11. A composition for use in polishing glass consisting essentially of 100 parts by weight of water, from 1 to 60 parts by weight of a polishing oxide selected from the group consisting of cerium oxide and iron oxide and from .2 to 5 parts by weight of polishing additive comprising a water soluble zinc salt.

3,317,295
GRINDING WHEEL HAVING AN ANTIMONY OR BISMUTH TRIOXIDE BOND
Paul L. Kuzmick, 30 Oval Road, Essex Fells, N.J. 07021
No Drawing. Filed Oct. 17, 1963, Ser. No. 317,077
16 Claims. (Cl. 51—308)

1. A grinding wheel comprising diamond abrasive particles and consisting essentially of a sintered composition selected from the group consisting of antimony trioxide, bismuth trioxide, and mixtures thereof.

2. A grinding wheel comprising diamond abrasive particles and a bond a major proportion of which consists essentially of a sintered composition selected from the group consisting of antimony trioxide, bismuth trioxide, and mixtures thereof and a minor proportion of which consists essentially of a hard glass having a softening temperature around 1100–1200° F. or 1200–1300° F. when used with antimony trioxide or bismuth trioxide respectively.

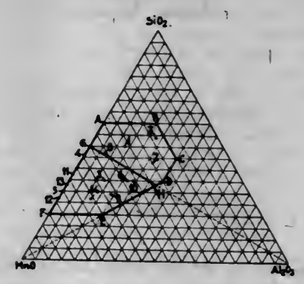
3,317,296
PROCESS OF MAKING FIBROUS PRODUCT
Winfield T. Irwin, Mount Lebanon, Pittsburgh, and Warren W. Drummond, Allison Park, Pa., assignors to Pittsburgh Plate Glass Company, Pittsburgh, Pa., a corporation of Pennsylvania
Original application Dec. 26, 1962, Ser. No. 246,889. Divided and this application Jan. 13, 1966, Ser. No. 520,500
2 Claims. (Cl. 65—2)

2. A process for producing an expanded, multifilament fiber glass product which comprises collecting a plurality of longitudinally extending sized fiber glass strands composed of filaments to form a tow, crimping the strands of said tow, heating said crimped strands at a temperature sufficient to soften the filaments of said strands and to remove size present in said tow until said filaments are softened, cooling said softened filaments to impart permanent crimp in a plurality of directions whereby said filaments and strands are intertwined and each relatively movable with respect to one another when said tow is substantially free of tension, and thereafter directing a gaseous stream against said tow thus moving said strands and filaments with respect to one another to form a mass of increased bulk and of less density than the tow.

3,317,297
METHOD OF CHEMICALLY STRENGTHENING GLASS
Neil Hunter Ray, Northwich, England, assignor to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain
No Drawing. Filed May 7, 1964, Ser. No. 365,776
Claims priority, application Great Britain, May 24, 1963, 20,893/63
6 Claims. (Cl. 65—30)

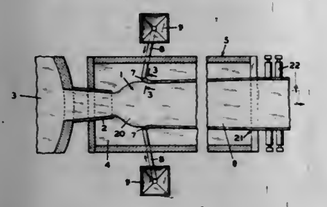
1. In a process for strengthening glass by etching it to remove surface-flaws and by replacing sodium ions in its surface-layers with potassium ions in order to produce a compressive force therein, the improvement comprising first contacting the glass with a melt-system containing at least one borofluoride selected from the group consisting of sodium bonofluoride and potassium borofluoride but no other potassium salt in order to etch the glass and thereafter with a melt-system containing potassium nitrate and a catalyst selected from the group consisting of silver and silver nitrate in order to replace sodium ions at the surface of the glass with potassium ions.

3,317,298
PROCESS FOR JOINING SURFACES OF REFRACTORY MATERIAL WITH A MnO-SiO_2-Al_2O_3 SYSTEM
Johannes Theodorus Klomp, Theodoor Peter Johannes Botden, and Marius Annie Frans Klop, all of Emmasingel, Eindhoven, Netherlands, assignors to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
Filed Mar. 30, 1964, Ser. No. 355,821
Claims priority, application Netherlands, Apr. 11, 1963, 291,499
5 Claims. (Cl. 65—32)



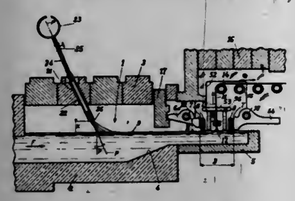
1. A method of joining two surfaces each of a refractory material having a melting point exceeding 1100° C. to form a seal therebetween which is vacuum tight up to 850° C. comprising the steps of placing between the surfaces a bonding material consisting essentially of a compound in the ternary system MnO-SiO_2-Al_2O_3 having 20 to 60% by weight of SiO_2, 20 to 80% by weight of MnO, and up to 35% by weight of Al_2O_3, said composition lying within the area A-B-C-D-E-F-G-A of the ternary phase diagram shown in FIGURE 1 of the accompanying drawing, heating said bonding material for at least two minutes to a temperature above 1100° C. and at least 50° C. above the melting point thereof in a non-oxidizing protective atmosphere, and cooling the melted bonding material to form a bond between the two surfaces.

3,317,299
METHOD OF CHANGING THE EQUILIBRIUM THICKNESS OF A GLASS SHEET BEING FORMED ON A MOLTEN METAL BATH
Michel Bré, Paris, France, assignor to Compagnie de St. Gobain, Neuilly-sur-Seine, Seine, France
Filed July 31, 1963, Ser. No. 299,058
Claims priority, application France, Aug. 3, 1962, 906,016; July 16, 1963, 941,658
6 Claims. (Cl. 65—60)



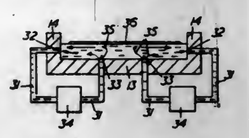
1. The method of controlling the thickness of sheet glass produced by depositing molten glass upon a bath of molten metal to form an incipient ribbon, and continuously moving the same over and along the bath while allowing the ribbon to attain uniform thickess, comprising, depositing on and along the edges only of the ribbon and the surface of the bath contiguous thereto, a material which affects the surface tension of the glass to thereby cause a change in the equilibrium thickness from that otherwise resulting, said material being stable at the temperature to which it is subjected during the method.

3,317,300
ANGULAR JETS IN CONDITIONING CHAMBER OF A GLASS SHEET DRAWING APPARATUS
Georges Prislan, Wingles, Pas-de-Calais, France, assignor to Société dite: Glaces de Boussois, Paris, France, a company
Filed Sept. 12, 1963, Ser. No. 308,587
Claims priority, application France, Sept. 21, 1962, 910,082
5 Claims. (Cl. 65—84)



1. In a process for improving the conditions of continuous vertical drawing of soft glass from a draw pot which is supplied with molten glass from a molten glass bath in a thermal-conditioning chamber and the glass is drawn vertically from the draw pot in a continuous sheet which is then horizontally bent at a distance above the glass bath; the improvement comprising blowing air diagonally downwardly upon said molten glass bath in the thermal-conditioning chamber in a plurality of jets whose axes are inclined in the direction of the draw pot and are disposed in vertical parallel planes with the jets disposed in a series that extends across the thermal-conditioning chamber transversely of the direction of travel of glass toward the draw pot, and blowing less air with the air jets that are adjacent opposite ends of the series of jets than with the middle jets of the series, so that the glass of the surface of the bath is cooled by the jets less at the sides of the thermal-conditioning chamber than in the mid portion of the thermal-conditioning chamber.

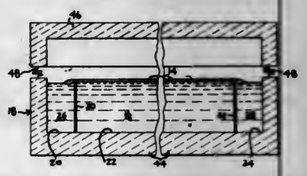
3,317,301
METHOD OF AND APPARATUS FOR THE MANUFACTURE OF FLAT GLASS ON A MOLTEN METAL BATH
Albert Sidney Robinson, Birkdale, Southport, England, assignor to Pilkington Brothers Limited, Liverpool, England, a corporation of Great Britain
Filed July 29, 1963, Ser. No. 298,045
Claims priority, application Great Britain, Aug. 3, 1962, 30,073/62
6 Claims. (Cl. 65—99)



1. A method of manufacturing flat glass in ribbon form on a bath of molten metal, wherein glass in ribbon form is advanced along the bath of molten metal, characterised by the steps of applying molten metal to the bath to flow upwardly beneath the central area of the ribbon of glass, withdrawing molten metal from the bath in a direction transversely of the zone of application of molten metal to the bath, and controlling the rate of applying and the rate of withdrawal of the molten metal such that a transverse current of molten metal is sustained directly beneath the advancing ribbon of glass.

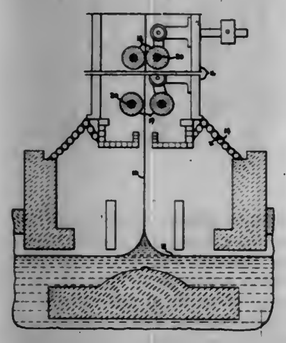
4. Apparatus for manufacturing flat glass including a tank structure containing a bath of molten metal, means for delivering glass to the bath through an inlet to the bath and for advancing the glass along the bath in ribbon form for delivery through an outlet for the glass from the bath, and molten metal recirculation apparatus connected to inlet and outlet ports positioned within the tank structure such that they are transverse of each other relative to the tank structure with the inlet port beneath the central area of the glass ribbon being advanced.

3,317,302
METHOD OF MANUFACTURING FLAT GLASS ON A BI-LEVEL FORMING SURFACE
George W. Misson, Pittsburgh, Pa., assignor to Pittsburgh Plate Glass Company, Pittsburgh, Pa., a corporation of Pennsylvania
Continuation of application Ser. No. 251,546, Jan. 15, 1963. This application Oct. 15, 1963, Ser. No. 316,311
4 Claims. (Cl. 65—99)



1. A method of manufacturing flat glass having a thickness on the central portion thereof less than the normal equilibrium thickness comprising:
forming a horizontally disposed elongated supporting surface for supporting molten glass, said supporting surface including an elongated central portion having a level upper surface between elongated edge portions each having an upper surface extending laterally of said central portion,
adjusting the elevation between the level of the upper surface of said central portion and the level of the upper surfaces of the adjacent edge portions until the level of said upper surface of said central portion is above the level of said edge portions,
depositing a mass of molten glass at a temperature throughout the mass thereof at which it will flow on said elongated supporting surface,
flowing said mass of molten glass and the free edges thereof laterally over said central portion, and over the surfaces of said edge portions toward equilibrium thickness,
moving said molten glass longitudinally over said elongated supporting surface,
cooling the leading portion of said molten glass to fix its cross section, and
removing the cooled glass from said elongated supporting surface to provide a ribbon of glass having a thickness in the central portion thereof less than the equilibrium thickness.

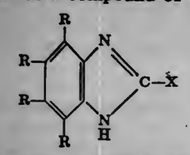
3,317,303
TRACTION ROLLS AND MATERIAL HANDLING APPARATUS EMPLOYING SUCH ROLLS
Norman Shorr, Pittsburgh, Pa., assignor to Pittsburgh Plate Glass Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Feb. 15, 1965, Ser. No. 432,518
8 Claims. (Cl. 65—253)



1. A roll especially adapted for use at elevated temperatures having a material engaging surface containing at least 30 percent by weight of an asbestos fiber selected from the group consisting of anthophyllite asbestos, amosite asbestos, tremolite asbestos, actinolite asbestos and mixtures thereof.

3,317,304
HERBICIDAL 2-HALOBENZIMIDAZOLES
Harry Goldsmith and Robert F. Crawford, La Mirada, Calif., assignors to United States Borax & Chemical Corporation, Los Angeles, Calif., a corporation of Nevada
No Drawing. Filed Feb. 12, 1964, Ser. No. 344,220
15 Claims. (Cl. 71—2.5)

1. The method of controlling undesirable weed growth which comprises applying to the locus of said weeds a phytotoxic amount of a compound of the formula



where each R is selected from the group consisting of hydrogen, chlorine and bromine and X is a halogen atom selected from bromine and chlorine.

3,317,305
BIOCIDAL COMPOSITION CONTAINING AN ELECTROLYTE PLANT NUTRIENT
Andrew Stefcik, Easton, Pa., and Fred E. Woodward, Watchung, N.J., assignors to General Aniline & Film Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Mar. 14, 1963, Ser. No. 265,040
3 Claims. (Cl. 71—3)

1. A stable, readily remulsifiable composition comprising components:
(a) at least about 0.1% of a water-insoluble organic biocide present as a solution in an organic solvent,
(b) water,
(c) from about 10% to about 50% by weight of a water-solute electrolyte plant nutrient, and
(d) at least about 0.1% of a phosphate ester of a nonionic surface active agent, said ester selected from the class consisting of mono- and di-phosphate esters and mixtures thereof, said nonionic surface active agent having the molecular configuration of a condensation product of
(e) a phenol and
(f) at least one mole of an alkylene oxide, the said nonionic surface active agent containing at least 10% by weight of ethylene oxide.

3,317,306
PROCESS FOR CONCENTRATING WET-PROCESS PHOSPHORIC ACID
John G. Getsinger and William C. Scott, Florence, Ala., assignors to Tennessee Valley Authority
Filed Sept. 16, 1964, Ser. No. 397,046
5 Claims. (Cl. 71—43)

1. In an improved process for the production of a fluid, highly concentrated wet-process phosphoric acid substantially free of iron aluminum tripolyphosphate, which process comprises the steps of continuously feeding commercially available wet-process phosphoric acid containing in the range from about 30 percent by weight P_2O_5 to about 54 percent by weight P_2O_5 into evaporating means; maintaining the material in said evaporating means at a temperature in the range of about 450° F. to about 600° F.; and withdrawing as product from said evaporating means a highly concentrated fluid wet-process phosphoric acid substantially free of solids, containing from about 60 to 76 weight percent P_2O_5 and containing in solution substantially all of the congeneric impurities originally present in said commercially available wet-process phosphoric acid fed to said evaporating means, the improvement in combination therewith for preventing the formation of the acid insoluble undesirable salts of iron aluminum tripolyphosphate in the resulting concentrated wet-process phosphoric acid, which improved process comprises the additional step of retaining in said evaporating means for a period of time from about 1 minute but less than about 20 minutes the wet-process phosphoric acid being concentrated therein prior to withdrawing same as product from said evaporating means.

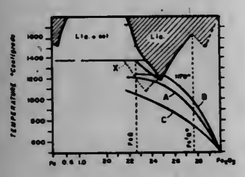
3. In an improved process for the production of a high-analysis, liquid mixed fertilizer substantially free of iron aluminum tripolyphosphate, which process comprises the steps of continuously feeding commercially available wet-process phosphoric acid containing in the range from about 30 percent by weight P_2O_5 to about 54 weight percent P_2O_5 into evaporating means; maintaining the material in said evaporating means at a temperature in the range of about 450° F. to about 600° F.; withdrawing from said evaporating means a highly concentrated fluid wet-process phosphoric acid substantially free of solids, containing about 60 to 76 weight percent P_2O_5, and containing in solution substantially all of the congeneric impurities originally present in said commercially available wet-process phosphoric acid fed to said

evaporating means; subsequently introducing an ammoniating fluid to said highly concentrated phosphoric acid; maintaining the resulting solution of unhydrolyzed ammonium salts at a temperature in the range of about 180° F. to about 210° F. during introduction of said ammoniating fluid; and withdrawing the resulting solution as product, the improvement in combination therewith for preventing the formation of the acid insoluble undesirable salts of iron aluminum tripolyphosphate in the resulting concentrated wet-process phosphoric acid, which improved process comprises the additional step of retaining in said evaporating means for a period of time from about 1 minute but less than about 20 minutes the wet-process acid being concentrated therein prior to withdrawing same as product from said evaporating means.

3,317,307
METHOD OF GRANULATING FERTILIZER
Andrew E. Wise and Judson K. Chapin, Jr., Greenville, S.C., and Thomas H. Nichols, Atlanta, Ga., assignors to W. R. Grace & Co., New York, N.Y., a corporation of Connecticut
Filed Jan. 20, 1964, Ser. No. 338,717
7 Claims. (Cl. 71—64)

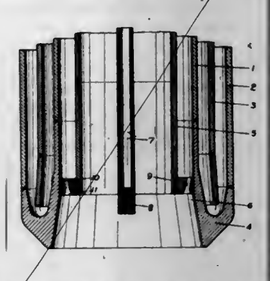
1. The method of making a non-caking, granulated, free-flowing fertilizer characterized by a reduced tendency to cake under mechanical pressure comprising blending dry fertilizer solids with solutions to form a plastic mass, tumbling said mass in a confined rolling bed on a moving surface to form said mass into agglomerates of fertilizer solids, continuously coating said surface before each contact with said tumbling solids with a layer of comminuted lamellar mineral selected from the group consisting of vermiculite, talc, chlorite and mica to form at least a partial coating on said pellets and drying said coated pellets, thereby forming hard encrusted pellets having dispersed in the outer layer thereof said lamellar mineral in sufficient quantity to avoid sticking of said particles.

3,317,308
PROCESS FOR REDUCTION OF IRON ORES
Andre Greffe, Annecy, France, assignor to Societe d'Electro-Chimie, d'Electro-Metallurgie et des Acieries Electriques d'Ugine, Paris, France, a corporation of France
Filed Oct. 11, 1963, Ser. No. 315,636
Claims priority, application France, Oct. 16, 1962, 912,419
8 Claims. (Cl. 75—33)



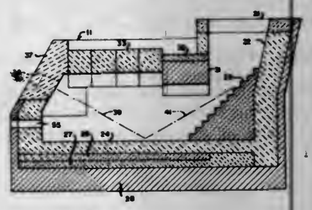
1. A process for the production of low carbon iron from a siliceous iron ore comprising,
(A) mixing the ore with a solid carbon reducing agent and agglomerating the mixture into pellets,
(B) feeding the agglomerated pellets to one end of a furnace and flowing the pellets through a heating zone in the furnace countercurrently to a flow of combustion gases,
(C) heating the agglomerated pellets in said heating zone to a temperature of approximately 900° C. at a rate of less than 100° C. per minute,
(D) passing the heated pellets into a reduction zone and heating the pellets at a rate less than 100° C. per minute to the eutectic melting point of the pellets and forming a ferrous framework within the pellets which is infusible at the temperature prevailing,
(E) continuing the heating of the pellets in the reduction zone to a temperature above the eutectic melting point of the pellets to strengthen the ferrous frameworks within the pellets and substantially complete reduction of the iron ore in the pellets, and
(F) cooling the mixture of reduced iron ore and siliceous material in a reducing atmosphere.

3,317,309
METHOD FOR MELTING ARTIFICIAL SCRAP
Rudolf Rinesch, Linz, Austria, assignor to Vereinigte Österreichische Eisen- und Stahlwerke Aktiengesellschaft, Linz, Austria, a company of Austria
Filed Nov. 22, 1963, Ser. No. 325,591
Claims priority, application Austria, Nov. 30, 1962, A 9,429/62
4 Claims. (Cl. 75—43)



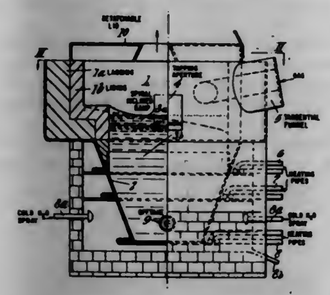
1. A method for melting up particles of iron-containing materials prior to refining in a metallurgical vessel by a top blowing process comprising introducing particles of iron-containing materials by free fall into the area of the zone of reaction of an oxygen stream with a ferrous melt in the metallurgical vessel, and causing a flame formed by the oxygen stream and a stream of fuel to envelop the particles of iron-containing material during their introduction into the vessel.

3,317,310
METHOD OF MAKING CAST IRON
Carl George deLaval, Jr., 21 Sunnyhill Drive, Pittsburgh, Pa. 15228
Filed June 5, 1964, Ser. No. 372,914
7 Claims. (Cl. 75—43)



1. The method of making cast iron which comprises introducing a cast iron forming charge into a reverberatory furnace together with sufficient acidic components to produce an acid slag, directing a substantially neutral combustion flame at the charge in the furnace until melting of the charge commences, thereafter increasing the amount of oxygen in the furnace so that the furnace atmosphere becomes substantially oxidizing, continuing the application of the oxidizing atmosphere until the melting is completed and then superheating the molten charge with a substantially neutral flame.

3,317,311
COPPER DROSSING
Thomas Ronald Albert Davey, Avonmouth, Bristol, England, assignor to Metallurgical Processes Limited, Nassau, Bahamas, a company incorporated in the Bahamas, and the National Smelting Company Limited, London, England, a British company
Filed Aug. 14, 1963, Ser. No. 302,192
Claims priority, application Great Britain, Oct. 26, 1962, 40,629/62
14 Claims. (Cl. 75—78)



1. In the method of copper-drossing molten lead bullion in a confined relatively deep upright treating zone, the improvement in combination therewith which comprises:
(a) feeding molten lead bullion gentlly into the upper portion of the treating zone to form an upright column of the molten bullion and to minimize disturbance of the molten lead bullion in the lower portion of the column;
(b) heating the upper portion of the column of molten lead bullion to a temperature high enough to prevent accretions thereof from forming at the periphery of that portion of the treating zone;
(c) drastically cooling the lower portion of the column of molten lead bullion to form accretion banks of a matrix of solid lead containing precipitated particles of impurities, such as copper, copper sulphides and copper arsenides, at the periphery of that portion of the treating zone;
(d) interrupting the cooling of the lower portion of the column of molten lead bullion from time to time and then re-heating the same to increase its temperature high enough to melt said accretion banks.
(e) permitting resulting copper-containing particles from the accretion banks to float to the top of the column of molten lead bullion;
(f) dissolving the copper-containing particles in a molten matte layer collecting on the top of the column of molten lead bullion;
(g) tapping off molten matte from the resulting layer; and
(h) drawing off relatively cool copper-drossed molten lead from the lower portion of the column of molten lead bullion.

9. In apparatus having a confined relatively deep upright treating chamber for the copper-drossing of molten lead bullion, the improvement in combination therewith comprising:
(a) the upper section of the treating chamber is insulated to inhibit the loss of heat therethrough;
(b) the lower section of the treating chamber consists of an un-insulated metal shell to facilitate the loss of heat therethrough;
(c) the top of the treating chamber is surmounted by a removable top having an outlet for the escape of spent heating gases;
(d) the removable top is spaced suitably from the normal level of molten matte and molten lead bullion maintained in the apparatus for treatment to provide a vertically flexible confined space;
(e) a molten-lead-bullion feed inlet communicates with the upper portion of the upper section of the treating chamber;
(f) merging means connect the discharge end of the feed inlet for causing in-coming molten lead bullion gently to contact and merge with the top portion of the column of molten lead to minimize turbulence thereof;
(g) a tapping conduit extends through the side wall of the upper section of the treating chamber for the discharge of molten matte therefrom; and the tapping conduit extends somewhat above and below the molten matte level normally maintained in the upper section of the apparatus to accommodate a rise and fall of that matte level;
(h) a gas-firing-inlet extends through the wall of the upper portion of the upper section of the treating chamber well above the normal level of molten matte and molten lead bullion maintained in the apparatus;
(i) cooling means are provided at the lower section of the treating chamber to cool the same drastically; and
(j) a copper-drossed-molten-lead outlet extends through the lower part of the treating chamber for the withdrawal of copper-drossed molten lead.

3,317,312
PROCESSES FOR REMOVAL AND/OR SEPARATION OF METALS FROM SOLUTIONS
Kurt A. Kraus and Harold O. Phillips, Oak Ridge, Tenn., assignors of one-third to James S. Johnson, Jr., Oak Ridge, Tenn.
No Drawing. Filed Feb. 24, 1964, Ser. No. 347,021
13 Claims. (Cl. 75—108)

1. A chromatographic process for the removal of a metal ion from a solution containing the same, said metal ion being selected from Ag(I), Cu(II), Hg(II) and Au(III), which comprises bringing said solution into intimate contact with a particulate body consisting essentially of a solid metal sulfide which is substantially insoluble in said solution, said metal sulfide being selected from zinc, cadmium, lead, arsenic, copper, iron and silver sulfides, said metal sulfide being other than cadmium sulfide when said metal ion is Cu(II), said particulate body containing at least 1 mole of metal sulfide per liter of particular body, said solid metal sulfide having a solubility in said solution greater than the solubility of the sulfide of the metal ion in said solution, said solid metal sulfide being permeable to said metal ion, said solid metal sulfide being capable of reacting by substitution of its metal with said metal ion to an extent equal to at least about 20% of the metal in said metal sulfide within about ½ hour at about room temperature, said particulate body being employed in the form of a chromatographic column with said solution being brought into contact with said particulate body by passage through said column; controlling said contacting of said solution with said particulate body so as to cause at least a portion of said metal ions to diffuse into at least a portion of the interior of said solid metal sulfide particles, whereby the insoluble sulfide of said metal ion is formed with displacement of the metal from said solid metal sulfide; and thereafter removing at least a portion

of the resulting body of sulfide particles from contact with said solution.

3,317,313

PROCESS FOR THE RECOVERY OF GOLD AND SILVER FROM GOLD AND SILVER BEARING AQUEOUS CYANIDE LIQUORS AND ION EXCHANGE RESIN EMPLOYED THEREIN

Anthony Arthur Büggs, Surbiton, Norman Frank Kember, Sutton Valence, near Maidstone, and Ronald Alfred Wells, Walton-on-Thames, England, assignors to National Development Research Corporation, London, England, a British corporation

No Drawing. Filed Aug. 21, 1961, Ser. No. 132,569
Claims priority, application Great Britain, Aug. 25, 1960, 29,447/60
11 Claims. (Cl. 75—118)

1. Anion exchange resins containing strongly basic and weakly basic exchange groups and suitable for use in the recovery of gold and silver from gold and silver bearing aqueous cyanide liquids comprising copolymers of monovinyl benzene and from 1 to 5% divinyl benzene, said copolymers having both strong base quaternary amino anion exchange groups and weak base tertiary amino anion exchange groups present to the extent of approximately one such exchange group per styrene residue of the copolymer, the strong base groups consisting of groups of the general formula

$$—CH_2—NR^1R^2R^3$$

and the weak base groups of the groups of the general formula $—CH_2—NRR^0$ where R, R^1, R^2, R^3 and R^0 are selected from the group consisting of straight chain alkyl groups having not less than 4 carbon atoms and alkyl groups containing not less than 4 carbon atoms, which groups are branched on any point other than the 1 carbon position, the proportion of strong base amino groups being between 20 and 60% of the total pure exchange groups present.

3. A process for the recovery of gold and silver from gold and silver bearing aqueous cyanide liquors which comprises contacting the liquors with an anion exchange resin containing strongly basic and weakly basic exchange groups, said anion exchange resin comprising a copolymer of monovinyl benzene and from 1 to 5% divinyl benzene, said copolymer having both strong base quaternary amino anion exchange groups and weak base tertiary amino anion exchange groups present to the extent of approximately one such exchange group per styrene residue of the copolymer, the strong base groups consisting of groups of the general formula $—CH_2—NR^1R^2R^3$ and the weak base groups of the groups of the general formula $—CH_2—NRR^0$ where R, R^1, R^2, R^3 and R^0 are selected from the group consisting of straight chain alkyl groups having not less than 4 carbon atoms and alkyl groups containing not less than 4 carbon atoms, which groups are branched on any point other than the 1 carbon position, the proportion of strong base amino groups being between 20 and 60% of the total pure exchange groups present, and subsequently eluting the gold and silver from the resin.

3,317,314

COLUMBIUM-BASE ALLOY

Stanley T. Wlodek, Niagara Falls, Wallace F. Sheely, Buffalo, and Jack L. Wilson, Niagara Falls, N.Y., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Nov. 18, 1959, Ser. No. 853,680
2 Claims. (Cl. 75—174)

1. An alloy comprising 10 to 30 weight percent tungsten, 5 to 15 weight percent titanium, 3–10 weight percent zirconium and the balance columbium and incidental impurities.

3,317,315

ELECTROSTATIC PRINTING METHOD AND ELEMENT

Frederick H. Nicoll, Princeton, N.J., and Herbert F. Ogawa, Levittown, Pa., assignors to Radio Corporation of America, a corporation of Delaware

No Drawing. Filed Apr. 30, 1962, Ser. No. 191,352
17 Claims. (Cl. 96—1.1)

1. A recording member for electrostatic printing comprising a substrate having an electrically conducting surface and having on said surface a photoconductive bottom layer of organic heat-deformable material having a resistivity in darkness of at least 10^9 ohm-centimeters and a resistivity, when irradiated, of at least two orders of magnitude less than said resistivity in darkness, said layer including a synthetic resinous material, and a second separate and distinct layer bonded to said photoconductive layer, said second layer comprising a solid film of material which is insoluble in said photoconductive layer, said film having a thickness of up to about 500 Angstrom units.

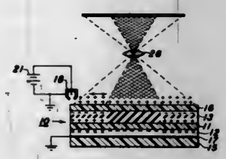
9. A method of recording comprising the steps of producing a latent electrostatic image on an insulating layer of thermoplastic material coated with a thin film of substantially incompatible inelastic material and heating said coated layer to cause said thermoplastic layer to soften and said film to break up and distort the coated surface of said layer in the image areas thereon to produce a light scattering image.

3,317,316

INTERNAL FROST RECORDING

Lloyd F. Bean, Rochester, and Robert W. Gundlach, Victor, N.Y., assignors to Xerox Corporation, Rochester, N.Y., a corporation of New York

Filed May 17, 1963, Ser. No. 281,233
2 Claims. (Cl. 96—1.1)



2. An integral imaging member for forming a frost image pattern at an interface by deforming said interface into a pattern of random light diffusing irregularities corresponding in density to the variations in an image input supplied thereto comprising:

(a) a first insulating support layer of a transparent thermally stable material;
(b) a transparent photoconductive layer contacting said first insulating layer;
(c) an electrically insulating frostable layer positioned in contact with the face of said photoconductive layer non-adjacent said insulating layer;
(d) a deformable conductive layer positioned in contact with said frostable layer and having a substantially different refractive index from said frostable layer; and
(e) a conductively coated insulating support layer of transparent thermally stable material, the conductive coating of said face being positioned in contact with said deformable conductive layer.

3,317,317

XEROGRAPHIC METHOD OF MAKING A PARTICLE TRANSPARENCY PROJECTABLE IMAGE

Harold E. Clark, Penfield, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York

Filed Jan. 2, 1963, Ser. No. 248,975
8 Claims. (Cl. 96—1.4)

5. The xerographic method of making a particle transparency projectable image wherein the particle image areas appear light against a dark background comprising:

(a) uniformly electrostatically charging a xerographic plate;
(b) exposing the plate to a pattern of light and shadow to form an electrostatic latent image corresponding to the pattern;
(c) developing the latent image on the plate with electrostatically attractable particles capable of altering polarized light;
(d) electrostatically transferring the particulate material in image configuration onto a uniform transparent support;
(e) placing the support member between light polarizing elements;
(f) shining light through said support member and light polarizing elements; and,
(g) adjusting said polarizers for minimum transmission of said light through area of said support free of said particles.

3,317,318

METHOD OF PRODUCING INDICIA-BEARING SURFACES

Owen F. Backus, Johnson City, Tex., and Hugh I. Morris, Bridgeport, Conn., assignors to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware

No Drawing. Continuation of application Ser. No. 123,090, July 11, 1961. This application Sept. 21, 1965, Ser. No. 489,066
2 Claims. (Cl. 96—36)

1. A process of preparing an indicia-bearing metal surface selected from the group consisting of magnesium, magnesium alloys, aluminum, aluminum alloys and stainless steel, which comprises coating a clean metal surface with a layer of a contrasting colored pigmented lacquer subject to disintegration and removal by a hot chromic acid bath, drying the lacquer layer, cleaning the lacquer layer with a volatile organic liquid which does not attack the lacquer surface, coating the lacquer layer with a photosensitive layer, exposing portions of the photosensitive layer, developing the photosensitive layer to remove the unexposed portions thereof to provide both resistant and unprotected areas overlying the lacquer layer, baking to harden the resist layer, subjecting the lacquer and resist to a hot aqueous solution of chromic acid until the pigmented lacquer layer not covered by the resist is disintegrated and removed, rinsing in water, brightening the unprotected metal areas by treatment with a dilute water solution of nitric or hydrochloric acid, rinsing in water, removing the exposed, hardened areas of resist by means of a solvent for the resist, washing the metal and coating the dried lacquer surface with a coat of a clear protective lacquer.

3,317,319

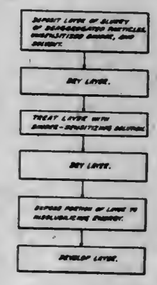
METHOD OF DEPOSITING PARTICULATE LAYERS

Edith E. Maysud, Lancaster, Pa., assignor to Radio Corporation of America, a corporation of Delaware

Filed June 4, 1963, Ser. No. 285,523
9 Claims. (Cl. 96—36.1)

1. The method of depositing a layer of particles onto a substrate comprising the steps of:

(a) applying to said substrate a layer of a mixture including said particles and a binder which is soluble in water
(b) applying to said layer a solution of sensitizer for said binder, the solvent of said sensitizer solution comprising water and at least one member of the group consisting of alcohol and acetone, thereby



sensitizing said layer so that it will become insoluble in water when exposed to a given kind of energy, and then

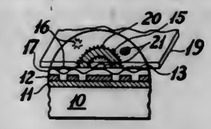
(c) exposing at least a portion of said sensitized layer to said given kind of energy.

3,317,320

DUO RESIST PROCESS

Robert L. Reber, Eatontown, N.J., assignor to The Bendix Corporation, Eatontown, N.J., a corporation of Delaware

Filed Jan. 2, 1964, Ser. No. 335,169
1 Claim. (Cl. 96—36.2)



A method of etching an image on a semiconductor wafer comprising the steps of:

coating the wafer with a photo sensitive resist
covering said wafer with a first mask having a predetermined image
exposing to light through said first mask
developing and removing unexposed resist
aligning and remasking with a second mask having the same predetermined image as said first mask
reexposing to light through said second mask redeveloping, and
etching to form the predetermined image on said wafer.

3,317,321

PHOTOCHROMIC COMPOSITIONS COMPRISING DOPED INORGANIC METAL OXIDES SUSPENDED IN POLYESTER BINDERS

John A. Chopoorian, Stamford, Conn., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Nov. 21, 1962, Ser. No. 239,335
13 Claims. (Cl. 96—88)

1. A composition of matter comprising a polyester resin selected from the group consisting of (1) those produced from a polycarboxylic acid free of non-benzenoid unsaturation and a saturated polyhydric alcohol and (2) those produced from a α,β-ethylenically unsaturated

polycarboxylic acid, a polyhydric alcohol and a cross-linkable monomer possessing a polymerizable $CH_2=C<$ group having uniformly dispersed throughout the body thereof an inorganic photochromic material selected from the group consisting of (A) TiO_2 doped with an oxide selected from the group consisting of Fe_2O_3, FeO, Cr_2O_3, CuO, NiO, MnO_2, Mn_2O_3, a mixture of Fe_2O_3 and NiO, a mixture of Fe_2O_3 and CuO, a mixture of FeO and NiO and a mixture of FeO and CuO, (B) Nb_2O_5 doped with an oxide selected from the group consisting of Fe_2O_3, FeO, Cr_2O_3, CuO, V_2O_5, MnO_2, and Mn_2O_5, (C) Al_2O_3 doped with an oxide selected from the group consisting of Cr_2O_3 and V_2O_5, (D) ZnO doped with an oxide selected from the group consisting of CuO and V_2O_5, (E) SnO_2 doped with CuO, (F) ZrO_2 doped with an oxide selected from the group consisting of CuO and NiO, (G) TiO_2 reacted with an oxide selected from the group consisting of MoO_3 and WO_3, (H) ZnO reacted with an oxide selected from the group consisting of MoO_3 and WO_3, (I) ZrO_2 reacted with an oxide selected from the group consisting of MoO_3 and WO_3, (J) SnO_2 reacted with an oxide selected from the group consisting of MoO_3 and WO_3 and (K) GeO_2 reacted with an oxide selected from the group consisting of MoO_3 and WO_3.

3,317,322
PHOTOGRAPHIC EMULSIONS HAVING HIGH INTERNAL SENSITIVITY

Henry D. Porter, Thomas H. James, and Wesley G. Lowe, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed Aug. 27, 1965, Ser. No. 483,331
17 Claims. (Cl. 96—108)

1. A photographic silver halide emulsion containing silver halide grains having high internal sensitivity, said grains comprising a central core of chemically sensitized silver halide, and covering said central core, an outer shell of silver halide which is chemically sensitized subsequent to the formation of said outer shell.

3,317,323
DUSTING POWDER AND METHOD FOR FACILITATING THE SEPARATION OF INDIVIDUAL PIECES OF UNBAKED DOUGH

Benjamin Lawrence, Springfield Township, Hamilton County, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio

No Drawing. Filed Dec. 26, 1963, Ser. No. 333,682
8 Claims. (Cl. 99—90)

1. A dusting powder for use in coating the surfaces of dough pieces intended for prolonged storage in contact with each other in the unbaked state consisting essentially of rice flour and from about 0.1% to about 5% of the dusting powder's weight of potassium bromate.

3,317,324
DEBITTERING DRIED PEAS

George T. Austin and Helen F. Austin, Pullman, Wash., assignors to Washington State University Research Foundation, Pullman, Wash.

No Drawing. Filed Aug. 1, 1963, Ser. No. 299,433
6 Claims. (Cl. 99—98)

1. The method of debittering raw dried peas which comprises:

removing the air from around the peas by replacing it with steam;

raising the temperature of the peas in the presence of steam and increasing the steam pressure to about 7–10 p.s.i.; and

holding the peas in steam at the aforesaid pressure for a period of 7–12 minutes.

3,317,325
POWDERED NUT PRODUCT

Jack R. Durst, Osseo, Minn., assignor to The Pillsbury Company, Minneapolis, Minn., a corporation of Delaware

No Drawing. Filed Oct. 5, 1964, Ser. No. 401,709
15 Claims. (Cl. 99—126)

1. A method for making a powdered nut product consisting generally of an edible fat globule encapsulated by non-fat nut cotyledon constituents which consists essentially of:

(a) providing a nut butter selected from the group consisting of peanuts, almonds, pecans, walnuts, hazel nuts, cashews and sesame butter and having the oil contained therein in a liquid state,

(b) mixing said nut butter with at least an equal amount (by weight) of water for a time sufficient to form a stable emulsion, and

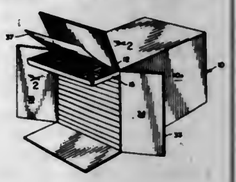
(c) drying said emulsion to a particle size such that all particles pass through a 20-mesh sieve (U.S. Sieve Series).

6. A dry free-flowing powdered nut product containing an edible fat and adapted to be dispersed in an aqueous medium without releasing fat therefrom, said nut product consisting essentially of a discontinuous phase of fat globules and a continuous phase of at least one member of non-fat nut cotyledon constituents selected from the group consisting of peanuts, almonds, pecans, walnuts, hazel nuts, cashews and sesame seeds, said non-fat cotyledon constituents forming a continuous phase for encapsulating the discontinuous phase of said fat globules, said product having a particle size such that all particles pass through a 20-mesh sieve (U.S. Sieve Series).

3,317,326
BUTTER PAT PACKAGING

Leo Peters, 750 Plymouth Road SE., Grand Rapids, Mich. 49506

Filed Sept. 1, 1966, Ser. No. 576,487
12 Claims. (Cl. 99—179)



11. A butter-pat package, comprising: a plurality of pat-carrying plates, each equipped with a central support portion, an integral flat flange upstanding from each side of said support portion, an embossed-top butter pat positioned on said support portion a spaced distance away from each flange, with the flanges projecting upwardly above the pat, and a confining case urging the flanges of one plate into cooperative bearing relation with the flanges of adjacent plates, said case also supporting the support portions of said plates in generally coplanar relation, said flat flanges being constructed of resilient material whereby said flanges tend to pivot outwardly when the aforesaid cooperative bearing relation ceases.

3,317,327
METHOD OF RETARDING THE SETTING TIME OF CEMENT

Osaku Matsuda and Norihiro Kudo, Tokyo, Japan, assignors to Onoda Cement Company, Limited, Yamaguchi Prefecture, Japan

No Drawing. Filed Jan. 6, 1964, Ser. No. 336,072
3 Claims. (Cl. 106—90)

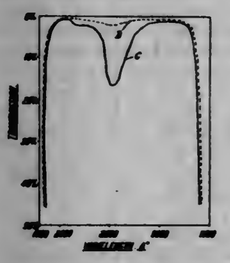
2. A method of retarding the setting time of cement selected from Portland cement and a cement mixture

comprising Portland cement, which comprises adding magnesium silicofluoride ($MgSiF_6$), in an amount of from about 0.01% to 1.0% by weight of said cement and at least one organic surface-active agent selected from the group consisting of an ammonium salt of the sulfuric acid ester of a higher fatty alcohol, a calcium salt of lignin sulfonic acid, polyoxyethylene-nonyl phenol ether, polyoxymethylene-nonyl phenol ether and naphthalene sulfonate-formaldehyde condensation product in an amount of from 0.001% to 0.5% by weight of said cement.

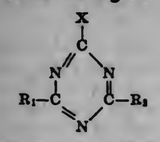
3,317,328
PROCESS FOR THE MANUFACTURE OF ULTRAVIOLET LIGHT ABSORBING CELLULOSIC FILMS

James Charles Brunton, North Petherton, Somerset, England, assignor to British Cellophane Limited, Bridgwater, England, a British company

Filed June 25, 1963, Ser. No. 290,431
Claims priority, application Great Britain, July 4, 1962, 25,666/62
9 Claims. (Cl. 106—165)

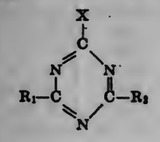


1. A process for the manufacture of an ultraviolet light absorbing cellulosic article comprising extruding an article forming cellulosic material containing cellulose chains and selected from the group consisting of viscose and hydroxyethyl cellulose into a coagulation medium to form a shaped article containing said cellulose chains wherein the cellulose chains are reacted with between 0.2 and 3.0% by weight based on the solid cellulosic material of a colorless 1:3:5 triazine derivative in the presence of an alkali, the 1:3:5 triazine having the configuration:



in which X is a halogen atom selected from the group consisting of bromine and chlorine, R_1 is an aminobenzene acid radical selected from the group consisting of aminobenzene carboxylic acid radical and aminobenzene sulphonic acid radical and R_2 is a secondary amino group having substantially no coloring properties.

9. An ultra-violet light absorbing cellulosic article in which the cellulose chains in the article formed from cellulosic material selected from the group consisting of viscose and hydroxyethyl cellulose are reacted with between 0.2 and 3.0% by weight based upon the solid cellulosic material of a colorless 1,3,5 triazine derivative having the configuration:



in which X is a halogen atom selected from the group consisting of bromine and chlorine, R_1 is an aminobenzene acid radical selected from the group consisting of aminobenzene carboxylic acid radical and aminobenzene sulphonic acid radical and R_2 is a secondary amino group having substantially no coloring properties.

3,317,329
1,3-DIOXOLANE AND 3-OXETANONE SOLUTIONS OF CYANOETHYLATED CARBOHYDRATES

Harry D. Williams, Penns Grove, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Dec. 29, 1964, Ser. No. 422,021
8 Claims. (Cl. 106—176)

1. A solution of at least 5% of a cyanoethylated carbohydrate selected from the group consisting of cyanoethyl cellulose, cyanoethylstarch, cyanoethylamylose, cyanoethylamylopectin said carbohydrates having a degree of substitution greater than about 2.2 and octanoethylsucrose, in a solvent selected from the group consisting of 1,3-dioxolane, 3-oxetanone, and mixtures thereof.

3,317,330
METHOD OF TREATING POLYETHYLENE AND POLYPROPYLENE PLASTIC SURFACES

Sidney Livingston, Beechhurst, and Leonard Mackles, New York, N.Y., assignors to Chemclean Corporation, Queens, N.Y., a corporation of Delaware

No Drawing. Filed Jan. 5, 1965, Ser. No. 423,584
6 Claims. (Cl. 106—287)

4. A solution for rendering the normally hydrophobic surfaces of polyethylene and polypropylene articles hydrophylic, said solution comprising, by weight, 8.00% water, 2.00% chromic acid, and potassium permanganate, concentrated sulphuric acid and a wetting agent, whose amounts may vary as follows, respectively;

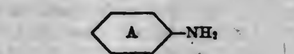
	Percent
Potassium permanganate	0.050–0.013
Concentrated sulphuric acid	89.945–89.845
Fluorochemical surfactant of the general formula $(C_nF_{2n+1})R$, where n is an integer from 6 to 10 and R is selected from the group consisting of carboxylic acids, sulphonic acids, their salts and their derivatives	0.005–0.025

3,317,331
MODIFIED AZO PIGMENTS

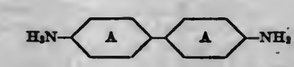
Maurice Auguste Jacques Lenoir, Paris, Jean Denis Bernard Ligot, Arnouville-les-Gonesse, and Madeleine Georgette Maigrot, nee Morisot, Paris, France, assignors to Etablissements Kuhlmann, Paris, France

No Drawing. Filed June 17, 1963, Ser. No. 288,536
Claims priority, application France, Sept. 18, 1962, 909,721
1 Claim. (Cl. 106—288)

That improvement in azo pigments obtained by coupling (1) the diazotization product of an amine selected from the group consisting of



and



where the A nucleus of said amine is substituted by at least one member selected from the group consisting of hydrogen, chlorine, methyl, methoxy, nitro and sulpho, with (2) a first coupling component selected from the group consisting of the pyrazolone, 2-hydroxy-naphthlene, 2-hydroxy-3-carboxy-naphthalene, N-(2-

hydroxy-3-naphthoyl) amino-benzene, and N-acetyl-acetyl-amino-benzene series,

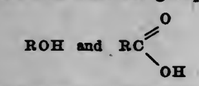
wherein said azo pigment also comprises a material obtained by concurrently coupling (1) with (3), a second coupling component selected from the group consisting of the N-(acetylacetyl) rosinamines, the N-(2-hydroxy-3-naphthoyl) rosinamines, and the N - (1 - phenyl - 5 - pyrazolone - 3 - carbonyl) - rosinamines, the mole ratio of said first coupling component to said second coupling component being between 95 to 5 and 85 to 15.

3,317,332
COMMINUTION OF GLASS

William A. Pliskin, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed June 9, 1964, Ser. No. 373,828
4 Claims. (Cl. 106—308)

1. In the process of comminuting glass to form dispersible glass particles of less than 40 microns average diameter, the step of combining with the glass in the comminuting apparatus from 0.1 to 0.6 percent by weight of a compound selected from the group consisting of:



where R includes carbon, hydrogen in the relationship as shown by the formula:

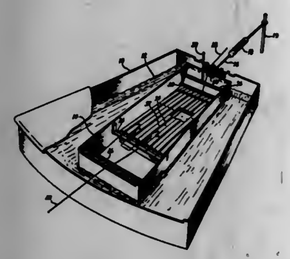
$$C_nH_{2n+1}$$

where n is the whole number between 1 and 3, inclusive.

3,317,333
METHOD AND APPARATUS FOR TENSIONING MATERIAL

George Halliday, Toronto, Ontario, Canada, assignor to Philip D. Rosengarten, Montreal, Quebec, Canada

Filed May 11, 1964, Ser. No. 366,433
Claims priority, application Canada, May 15, 1963, 875,577
8 Claims. (Cl. 117—7)



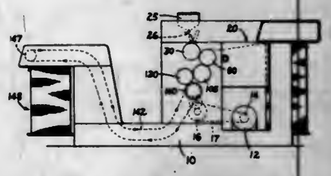
1. A device for tensioning an end of material comprising a slip vessel adapted to contain a liquid in use, mounting means for said slip vessel, guide means for guiding an end of material through said slip vessel on a vessel path whereby to entrain a liquid contained in said slip vessel in use, slip wall means in said slip vessel adapted to be in a liquid in said slip vessel in use and adapted to be in slipping relation with liquid entrained by an end of material travelling said vessel path in use to tension said end of material.

7. A method of tensioning an end of material as it is pulled from a package to a machine comprising the steps of providing a body of liquid having a viscosity that will become entrained with the end as the end is drawn therethrough at the feed velocity to the machine, providing a slip surface means in said liquid and tensioning said end by guiding said end on a path through said liquid with the liquid entrained by said end in slipping relation with said slip surface means.

3,317,334
COATING APPARATUS

Robert K. Norton, Twinsburg, Ohio, assignor to Harris-Intertype Corporation, Cleveland, Ohio, a corporation of Delaware

Filed Dec. 30, 1959, Ser. No. 862,897
17 Claims. (Cl. 117—10)



15. A method of applying normally solid plastic coating material to sheet material such as paper, comprising the steps of supplying the coating material in bulk form and heating it to in excess of its melting point thereby reducing the coating material to a viscous hot liquid state, applying the hot liquid coating material to a traveling coating member having depressions of predetermined dimensions on the surface thereof to which the coating material is applied, wiping such surface level with the top of the depressions to leave a predetermined amount of the viscous liquid material in the depressions, moving such surface of the coating member into contact with sheet material to be coated and moving the sheet material at the region of contact with the coating member at the same surface speed as the coating member to transfer the viscous coating material from the depressions to the sheet material by pressure contact, conveying the sheet material with the liquid coating material thereon away from the coating member and into contact with a cooled surfacing member of predetermined configuration, pressing the coated material against said surfacing member to spread and meter the hot liquid coating material over a predetermined area of the sheet material and to a predetermined thickness and simultaneously commencing cooling of the hot liquid coating material during the metering step by reason of the contact of the coating material with the cooled surfacing member, maintaining the coated area of the sheet material in contact with the cooled surfacing member for a time sufficient to cause essentially complete solidification of the coating material, removing the sheet material from the surfacing member at the same surface speed as the surfacing member until at least the coated area of the sheet material is completely removed from the surfacing member, and delivering the coated sheet material to a delivery station with a solid flexible coating of predetermined thickness thereon.

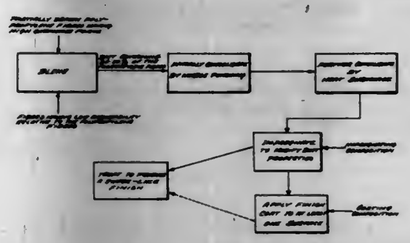
3,317,335
FIBROUS, NON-WOVEN SHEET MATERIALS AND THE PRODUCTION THEREOF

Henry James Marrinan and Eric Ivan Riseley, Harrogate, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

Filed Feb. 24, 1964, Ser. No. 347,038
Claims priority, application Great Britain, Mar. 4, 1963, 8,609/63; July 4, 1963, 26,530/63
11 Claims. (Cl. 117—11)

1. A method of manufacturing a high density, non-woven, fibrous sheet material, comprising forming a batt of fibres of which at least 20% and less than 50% by weight are partially drawn polypropylene fibres capable

of shrinking by at least 20% of their original length when under a load of at least 0.01 gram per denier at 150° C. and the remainder of the fibres having low shrinkability relative to said polypropylene fibres, ini-



tially consolidating the batt by needlepunching, and finally consolidating the batt by subjecting it to a heat shrinkage treatment.

10. A process according to claim 1 comprising the step of treating the sheet material to resemble suede.

3,317,336
PROCESS FOR COATING UNPRIMED METAL WITH POLYVINYL FLUORIDE

Alexander W. Kennedy, Mayfield Heights, and Michael E. Kucsma, Painesville, Ohio, assignors to Diamond Alkali Company, Cleveland, Ohio, a corporation of Delaware

No Drawing. Filed Apr. 17, 1963, Ser. No. 273,550
6 Claims. (Cl. 117—132)

1. A process of coating an unprimed metal substrate which comprises applying to said substrate a coating of polyvinyl fluoride, heating said applied polyvinyl fluoride coating at a temperature sufficient to coalesce the applied polyvinyl fluoride on said substrate, heating said coalesced polyvinyl fluoride at a temperature at least 50° F. above that necessary to coalesce said applied polyvinyl fluoride for a period of time up to about 10 minutes.

3,317,337
METHOD OF METALLIZING LUMINESCENT SCREENS

Theodore A. Saulnier, Lancaster, Pa., assignor to Radio Corporation of America, a corporation of Delaware

No Drawing. Filed Mar. 18, 1963, Ser. No. 266,033
10 Claims. (Cl. 117—33.5)

2. A method of metallizing a luminescent screen comprising the steps of:

(a) depositing on said screen an undercoat layer of a water based mixture containing a material which forms a film substantially free of cracks, holes, and gross discontinuities over areas of substantial size at the temperature of deposition and which is essentially one member of the group consisting of polyvinyl acetate, polyvinyl alcohol, and soft acrylic resins,

(b) drying said undercoat layer,

(c) depositing over the dry undercoat layer a topcoat layer of an aqueous emulsion of an acrylic resin, which forms a film having substantial cracks, holes, and gross discontinuities over areas of substantial size at the temperature of deposition,

(d) drying said topcoat layer,

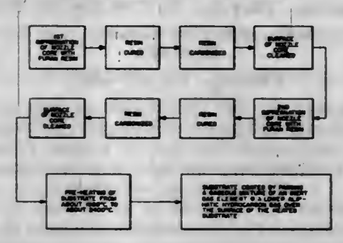
(e) depositing a metallic coating onto said topcoat layer, and

(f) heating said metallic coated screen to volatilize and remove said undercoat and said topcoat.

3,317,338
PYROLYTIC GRAPHITE COATING PROCESS

James D. Batchelor, Alexandria, Va., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Army

Filed Jan. 7, 1964, Ser. No. 336,319
17 Claims. (Cl. 117—46)



1. The process for forming a high-temperature resistant and erosion resistant coating of pyrolytic graphite on a graphite substrate comprising the steps of:

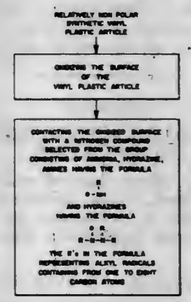
(a) heating said substrate to a temperature within the range of about 1900° C. to about 2400° C.; and

(b) continuously passing a gaseous mixture of an inert gas element and a lower aliphatic hydrocarbon gas over the surface of the heated substrate at a total gas flow rate of about 10 cubic feet (STP) to about 20 cubic feet (STP) per hour, said hydrocarbon gas comprising from about 1% by volume to about 6% by volume of the total volume of said gaseous mixture and said inert gas comprising substantially the remainder of the total volume of said gaseous mixture.

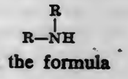
3,317,339
SURFACE MODIFICATION OF PLASTIC ARTICLES

Cecil Paul Fortner, Bloomfield, and Jules Pinsky, West Hartford, Conn., assignors to Monsanto Company, a corporation of Delaware

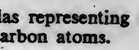
Filed Dec. 23, 1963, Ser. No. 332,877
10 Claims. (Cl. 117—47)



1. Process for treating a relatively non-polar synthetic vinyl plastic to improve its surface properties which comprises oxidizing the surface of said plastic and reacting said surface with a nitrogen compound selected from the group consisting of ammonia, hydrazine, amines having the formula



and hydrazines having the formula



the R's in the formulas representing alkyl radicals containing from 1 to 8 carbon atoms.

3,317,340
PREPARATION OF METAL SURFACES FOR ENAMELING

Georg Ziehr and Hermann Drosdziok, both of Dusseldorf-Holthausen, Germany, assignors to Henkel & Cie. G.m.b.H., Dusseldorf-Holthausen, Germany

No Drawing. Filed Jan. 22, 1964, Ser. No. 339,338

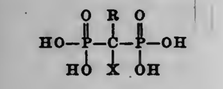
Claims priority, application Germany, Apr. 9, 1963, H 48,800

6 Claims. (Cl. 117—53)

1. A process for the pretreatment of iron and steel sheet, after acid etching and prior to passivation preparatory to vitreous enameling, for the purpose of total removal of iron salts formed, which comprises exposing said sheet for 1 to 15 minutes and at temperatures ranging from 5 to 90° C. to a 0.1 to 10 percent by weight aqueous solution of a compound selected from the group consisting of polyhydrocarboxylic acids having the formulae $CH_2OH(CHOH)_3 \cdot COOH$,

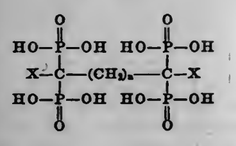
$$CH_2OH(CHOH)_4 \cdot COOH$$

$COOH(CHOH)_3 \cdot COOH$, $COOH(CHOH)_4 \cdot COOH$, gluconic acid, saccharic acid, glucosaccharic acid, acids having the formulae



(1)

and



(2)

wherein R is selected from the group consisting of a hydrocarbon radical having 1 to 8 carbon atoms and a phenyl radical; n is a whole number from 1 to 8; and X is selected from the group consisting of —OH and $—NH_2$; water soluble salts of all those acids, and mixtures thereof.

3,317,341
METALLIC FILM DIFFUSION FOR BOUNDARY LUBRICATION

Donald H. Buckley, North Olmsted, and Robert L. Johnson, Fairview Park, Ohio, assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

No Drawing. Filed Oct. 15, 1963, Ser. No. 316,477

1 Claim. (Cl. 117—65.2)

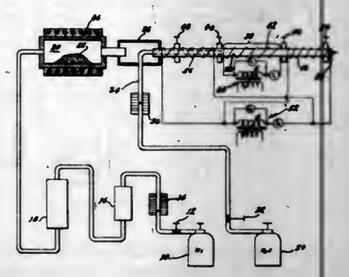
A method of forming a metallic film of gallium and alloys thereof having low friction and wear properties on alumina and stainless steel surface which comprises removing foreign material from the surface upon which said metallic film is to be applied, polishing said surface to improve said surface finish, applying a gallium coating to said surface, rubbing said surface whereby said metallic film is formed and impregnates said surface, heating said surface with said metallic film to a temperature of 200° F., cooling said surface with said metallic film to room temperature, removing excess metallic film on said surface, reheating said surface with said metallic film to a temperature from 450° F. to 550° F. for approximately one hour, and cooling to room temperature.

3,317,342
PROCESS FOR PLATING INTERIOR SURFACE OF TUBING WITH CADMIUM SULFIDE

Charles R. Barnes, Medway, and Charles R. Geesner, New Carlisle, Ohio, assignors to the United States of America as represented by the Secretary of the Air Force

Filed Dec. 19, 1963, Ser. No. 331,979

5 Claims. (Cl. 117—95)



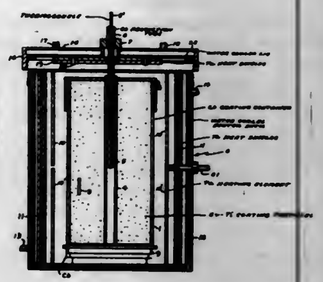
1. A process for plating the interior surface of a fine bore tube comprising the steps of directing a vaporized mixture of hydrogen, cadmium 2,4-pentanedione, and hydrogen sulfide through the length of said tube, heating said tube containing said mixture to a first temperature sufficient to maintain said mixture in the vaporous state, said mixture being in contact with substantially all of the interior surface of said tube, heating a zone of said tube to a second temperature higher than said first temperature, said second temperature being sufficient to form a reaction between the cadmium 2,4-pentanedione and the hydrogen sulfide and effect deposition of a thin, uniform, continuous film of cadmium sulfide on the interior surface of said zone of said tube.

3,317,343
ACTIVATED COATING OF COLUMBIUM METAL

Richard A. Jefferys, Euclid, Ohio, assignor to the United States of America as represented by the Secretary of the Air Force

Filed Feb. 1, 1963, Ser. No. 256,223

6 Claims. (Cl. 117—107.2)



1. The process to be accomplished within an initially evacuated furnace of controlled partial pressures and temperatures for diffusing a protective coating into the surface of a refractory base metal article, wherein the base metal is selected from the group consisting of columbium and columbium-based alloys comprising the steps of mixing together in powdered solid state about from 30 to 69 parts chromium with 69 to 30 parts titanium and with one part potassium fluoride as a pack for surface diffusing partial pressure vaporized components into the article; embedding the article into the powered solid state pack; positioning the pack embedded article inside of the furnace; evacuating both the interior of the furnace and the pack and the pack embedded article in establishing a closed system for developing partial pressures of the contents of the furnace by temperature increase; elevating the temperature of the furnace in developing the partial pressures of the chromium, titanium and potassium fluoride of which the pack is composed and maintaining the temperature permitting the pack composition partial pressures to diffuse into the surface of the refractory base metal article immersed in the pack for a time adequate for the diffusion of at least the chromium and titanium to a desired depth into the immersed object; and lowering the furnace temperature.

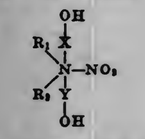
3,317,344
ANTISTATIC PHOTOGRAPHIC FILM

E. Scudder Mackey and Harvey Abend, Binghamton, N.Y., assignors to General Aniline & Film Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Sept. 27, 1963, Ser. No. 311,981

6 Claims. (Cl. 117—121)

1. A photographic element comprising a film support coated with a layer of a hydrophobic colloid containing an antistatic mixture of (a) a phosphate ester prepared by reacting one mole of P_2O_5 with 2.2 to 4.5 moles of a non-ionic surface-active agent having the molecular configuration of a condensation product of at least one mole of ethylene oxide with one mole of an alkyl phenol under substantially anhydrous conditions at a temperature below about 110° C. and (b) a quaternary ammonium compound corresponding to the formula:



wherein each of R_1 and R_2 represent an alkyl radical of from 1 to 20 carbon atoms and each of X and Y represent divalent radicals selected from the group consisting of phenylene radicals and alkylene radicals of from 2 to 20 carbon atoms.

3,317,345
ROT-RESISTANT FINISH FOR TEXTILE MATERIALS

Linton Avery Fluck, Jr., and Philip B. Roth, Bridgewater Township, Somerset County, and William Norio Nakajima, Somerville, N.J., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed June 25, 1963, Ser. No. 290,295

10 Claims. (Cl. 117—138.5)

1. A method for imparting a rot-resistant finish to cellulose containing textile materials which comprises applying thereto based on the dry weight of the material, from 2 to 50% of a water-soluble aminoplast, 1 to 10% of a compound selected from the group consisting of thiourea and urea, and a catalytic amount of a water-soluble aluminum salt of a strong mineral acid, and thereafter curing the aminoplast at a temperature of from about 200° F. to about 400° F.

3,317,346
MODIFICATION OF STARCH

William H. Kibbel, Jr., Pennington, and John J. Juhasz, Carteret, N.J., assignors to FMC Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed July 24, 1964, Ser. No. 385,054

6 Claims. (Cl. 127—70)

1. The method of modifying starch to stabilize its paste viscosity and reduce its gelation tendency, comprising providing an aqueous slurry containing 20 to 50 percent by weight of starch and an amount of a dichlorinated cyanuric compound to provide 0.5 to 5.0 percent by weight of available chlorine based on the weight of the starch, said slurry having a pH of 8.0 to 9.0, and maintaining said slurry for 2 to 4 hours at 90° to 175° F. and at said pH of 8.0 to 9.0.

3,317,347
NICKEL ELECTRODE AND METHOD OF MAKING SAME

Joseph J. Coleman, Milton E. Wilke, and Clifford J. Vander Yacht, Freeport, Ill., assignors to Servel, Inc., Evansville, Ind., a corporation of Delaware

Filed July 2, 1962, Ser. No. 206,620

15 Claims. (Cl. 136—28)

1. A method for the producetion of a porous nickel cathode for a nickel-cadmium cell which comprises coating a composition consisting essentially of nickel hydroxide, a water-insoluble resin, and an organic solvent for said resin on a conductive metal screen, evaporating said solvent to form a dry adherent coating on said screen, and treating said coated screen in a nickel-plating bath to deposit nickel throughout said coating.

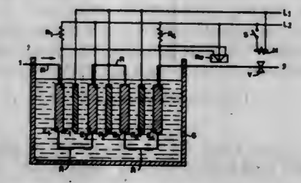
3,317,348
METHOD AND APPARATUS FOR PERIODICALLY REMOVING INERT GAS ACCUMULATIONS FROM ELECTRO-CHEMICAL CELLS

August Winsel, Braunschweig, Germany, assignor of one-half to Siemens-Schuckertwerke Aktiengesellschaft, Berlin-Siemensstadt, and one-half to Varta Aktiengesellschaft, both corporations of Germany

Filed Aug. 2, 1962, Ser. No. 214,244

Claims priority, application Germany, Aug. 5, 1961, A 38,069

10 Claims. (Cl. 136—86)



1. The method of periodically removing inert gas accumulations from electro-chemical energy conversion cells having electrically parallel connected gas-diffusion electrodes serially supplied with inert-gas-containing reaction gas, which comprises electrically measuring the partial current of the last electrode in the supply series as a criterion, electrically obtaining a reference magnitude characteristic of electric operating condition of the electrode, electrically comparing the partial current with said magnitude characteristic and in response to said comparison automatically blowing a rinsing flow of gas serially through the electrodes when the resultant magnitude departs from given limits.

5. In electro-chemical energy conversion apparatus having an electric load circuit and gas-diffusion electrodes electrically parallel connected to said circuit and gas supply means serially connected with said electrodes for supplying them with inert-gas-containing reaction gas, the combination of a device for periodically removing inert gas accumulations from the electrodes comprising current-responsive circuit means connected with serially last electrode relative to said gas supply means, reference circuit means connected to said load circuit for supplying a reference magnitude which is characteristic of the operation of the apparatus, a comparator means to which said two circuit means are inputwise connected, and pressure

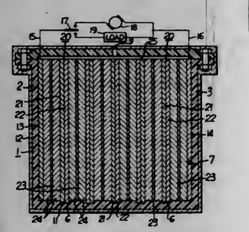
control means disposed in said gas supply means and connected with said comparator means for passing a rinsing flow of gas through said electrodes when said partial current changes to a value indicative of inert gas accumulations.

3,317,349

AMBIPOLAR BATTERY INCLUDING ELECTRODES OF IDENTICAL NICKELOUS COMPOSITION

William E. Elliott, Elm Grove, and James R. Huff, Milwaukee, Wis., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Filed Mar. 15, 1963, Ser. No. 265,534
6 Claims. (Cl. 136—86)



1. An ambipolar electrical storage device capable of electrical discharge operation comprising a liquid tight housing; nonconsumable, electrically conductive anode and cathode electrodes mounted in spaced relation to each other in said housing; said anode being constructed from a nickelous material identical in composition to that selected for the cathode; an aqueous electrolyte disposed within said housing in contact with said electrodes; means for supplying a direct charge to said electrodes to electrolyze said electrolyte and store chemisorbed energy at the respective electrodes: said anode storing chemisorbed hydrogen and a reduced species of the anode, said cathode forming and storing a metastable oxide such that at discharge the chemisorbed materials and the reduced species of the anode material react simultaneously releasing stored energy as electrons flow through said external circuit.

3,317,350

PRIMARY ELECTRIC CELL HAVING A SHEET OF FOIL METALLURGICALLY BONDED TO THE ANODE

James F. Murphy, Hamden, Conn., assignor to Olin Mathieson Chemical Corporation, a corporation of Virginia

Filed Dec. 26, 1963, Ser. No. 333,572
7 Claims. (Cl. 136—100)

1. In a primary cell containing a consumable, unpolarized cathode, an electrolyte and a metal anode selected from the group consisting of magnesium, zinc and aluminum, the improvement in combination therewith which comprises said metal anode having a sheet of foil metallurgically bonded thereto to one face of said anode, said bond extending substantially throughout the extent of said one face of said anode, said foil being selected from the group consisting of silver, gold, platinum and copper.

3,317,351

STABILIZED LOW VOLTAGE ALKALINE PRIMARY CELL

Ernest B. Honeycutt, Ramsey, N.J., and Hugh P. Keating, Lakewood, Ohio, assignors to Union Carbide Corporation, a corporation of New York

Filed May 14, 1963, Ser. No. 280,301
7 Claims. (Cl. 136—106)

1. In an alkaline primary cell comprising an anode of zinc, an alkaline electrolyte and a cathode composed of a material selected from the group consisting of cadmium oxide and cadmium hydroxide, said cell being normally characterized by having an open circuit voltage which is substantially higher than the theoretical voltage, the addition to said cathode of cadmium metal in an amount sufficient to stabilize the cell voltage at a lower operating voltage approximately equal to said theoretical voltage.

3,317,352

METHOD FOR DETERMINING THE STATE OF CHARGE OF BATTERIES BY THE USE OF TRACERS

James E. Webb, Administrator of the National Aeronautics and Space Administration, with respect to an invention of George M. Arcand, Tujunga, Calif.

No Drawing. Filed Feb. 5, 1965, Ser. No. 430,778
6 Claims. (Cl. 136—182)

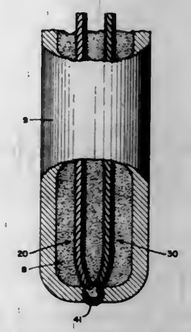
1. The method of ascertaining the state of charge of an electrochemical battery having at least one anode and at least one cathode wetted by an alkali hydroxide-containing electrolyte solution, wherein at least some of the hydrogen atoms in the electrolyte solution are in the form of tritium, which comprises measuring the decrease in the amount of tritium present in the electrolyte solution from the amount present when the battery is fully charged.

3,317,353

THERMOCOUPLE COMPRISING INTIMATELY TWISTED WIRES

Clifford R. Bingham, Flourtown, Pa., assignor to Honeywell Inc., a corporation of Delaware

Filed Dec. 6, 1962, Ser. No. 242,725
2 Claims. (Cl. 136—233)



1. A thermocouple including, a negative wire composed of a number of strands intimately twisted to form a braid, a positive wire composed of a number of strands intimately twisted to form a braid, one of the ends of each of said wires being in electrical contact with each other to form a hot junction, a layer of mineral oxide insulating said wires from each other and an outer sheath of a metallic composition having a thermal expansion coefficient substantially greater than that of said wires and surrounding said wires and said hot junction and insulated from said wires by said mineral oxide, and the hot junction being integral with the base of the sheath.

3,317,354

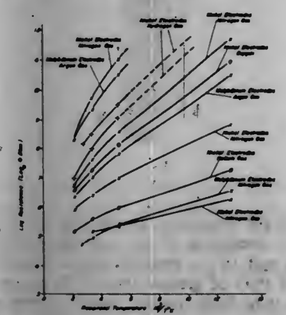
PROCESS FOR DOPING A DIAMOND IN A GASEOUS ELECTRICAL DISCHARGE

Kenneth A. Darrow, Sprakers, and Robert H. Wentorf, Jr., Schenectady, N.Y., assignors to General Electric Company, a corporation of New York

Filed May 28, 1964, Ser. No. 370,798
4 Claims. (Cl. 148—1.5)

1. A method for introducing additional allowed energy levels for electron occupancy into a material to selectively product semiconductor behavior by said material comprising the steps of:

(a) placing diamond material on a cathode within a closed chamber,
  (1) said diamond material being disposed between said cathode and an anode spaced therefrom within said chamber,
(b) evacuating said chamber,
(c) introducing a gas capable of supporting a glow discharge into said chamber,
  (1) said gas being selected from the group consisting of nitrogen, hydrogen, oxygen, the noble gases and mixtures thereof, and being at a total internal gas pressure ranging between about 10 and about 200 microns of mercury,
(d) impressing a voltage potential between said anode and said cathode to create glow discharge current within said chamber,
  (1) said voltage differential amounting to a potential of at least about 1.5 kilovolts, and
(e) exposing said diamond material to the glow discharge during which exposure ions leave the vicinity of said anode and travel toward said cathode impinging upon said diamond material.



4. A method for converting at least a portion of the surface of a p-type semiconductor diamond to function as an n-type semiconductor diamond comprising the steps of:

(a) placing a p-type semiconductor diamond on a cathode within a closed chamber,
  (1) said diamond being disposed between said cathode and an anode spaced therefrom within said chamber,
(b) evacuating said chamber,
(c) introducing a gas chosen from the group consisting of nitrogen and argon to provide a total internal gas pressure ranging between about 10 and about 200 microns of mercury,
(d) impressing a voltage potential between said anode and said cathode to create glow discharge current within said chamber,
  (1) said voltage differential amounting to a potential of at least about 1.5 kilovolts, and
(e) exposing a selected extent of the surface of said diamond to the glow discharge.

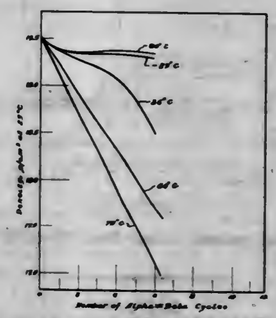
3,317,355

HEAT TREATMENT OF PLUTONIUM

Ronald D. Nelson, Grandview, Wash., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Feb. 12, 1965, Ser. No. 432,435
3 Claims. (Cl. 148—3)

1. A process of treating plutonium metal, comprising heating the plutonium to above 650° C. whereby it melts, casting the molten plutonium into the shape desired, allowing the plutonium shape to cool to between 110 and 95° C., immersing the plutonium shape in a liquid quenching bath having a temperature of between −75° C. and −115° C., and holding the plutonium shape at this temperature for between 10 and 15 minutes.

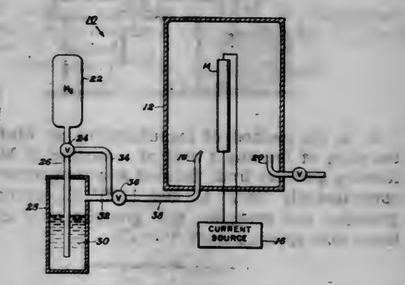


3,317,356

PROCESS FOR APPLYING A PROTECTIVE COAT OF SILICON CARBIDE TO REFRACTORY METALS

William R. Clendinning, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Filed Mar. 31, 1964, Ser. No. 356,190
20 Claims. (Cl. 148—13.1)



1. A process for adherently depositing a protective coat of silicon carbide on the surface of a refractory metal comprising the steps of:

carburizing the surface of the refractory metal, and depositing a coat of silicon carbide on the carburized surface.

3,317,357

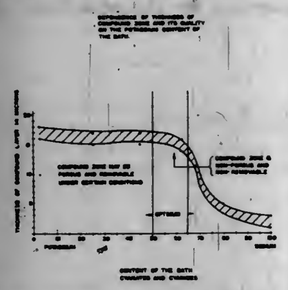
MOLTEN SALT BATHS FOR NITRIDING STEEL AND CAST IRON

Johannes Müller, Neu Isenburg, Germany, assignor to Kolene Corporation, Detroit, Mich.

Filed Mar. 15, 1965, Ser. No. 445,299
3 Claims. (Cl. 148—15.5)

1. A process of nitriding steel and cast iron comprising immersing a ferrous metal workpiece in a molten alkali salt bath comprising mainly cyanides and cyanates of

alkali metals of the group consisting of potassium and sodium; characterized by the K—Na content, based on



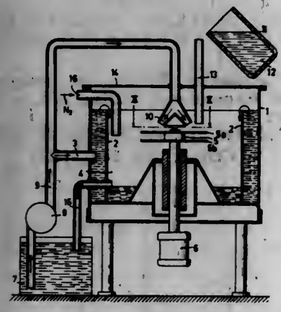
the pure metal content, ranges from 50–65% K, and 35–50% Na.

3,317,358

METHOD OF MANUFACTURING MnBi MAGNETS

Albertus Antonie Aldenkamp, Emmasingel, Eindhoven, Netherlands, assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware

Filed Dec. 2, 1964, Ser. No. 415,535
Claims priority, application Netherlands, Dec. 4, 1963, 301,379
6 Claims. (Cl. 148—105)



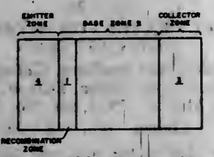
1. In the method of manufacturing an MnBi magnet the steps of forming a melt of a mixture of Mn and Bi, forming granules from the melt at a temperature between approximately 1000° C. and 1250° C., quenching said granules, and annealing said granules at a temperature lower than approximately 360° C.

3,317,359

METHOD OF FORMING A TRANSISTOR BY DIFFUSING RECOMBINATION CENTERS AND DEVICE PRODUCED THEREBY

Wilhelm Engbert, Ulm (Danube), Germany, assignor to Telefunken A.G. Patentabteilung, Berlin, Germany

Filed May 5, 1965, Ser. No. 458,810
Claims priority, application Germany, Apr. 8, 1959, T 16,518
5 Claims. (Cl. 148—186)



4. In a method of making a transistor having a base zone, the step of diffusing recombination centers into said base zone from an emitter or collector zone adjacent said base zone.

3,317,360

PREPARATION OF ELECTRIC BLASTING CAP MIXTURE CONTAINING AMORPHOUS BORON AND LEAD OXIDE

Guy Bayard Young and Steven James Labbiski, New Castle, Pa., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

Original application Mar. 25, 1965, Ser. No. 422,714. Divided and this application June 7, 1966, Ser. No. 555,866
1 Claim. (Cl. 149—2)



A method for preparing an electric blasting cap ignition mixture, consisting of (a) amorphous boron of 90–97% purity and (b) a member selected from the group consisting of PbO of greater than 99% purity and Pb_3O_4 of not less than 90% purity, which comprises forming a wet intimate mixture of (a) and (b), drying the resulting mixture, crushing and forcing the dry mixture through a screen of 20–60 mesh size and electrostatically graining the screened mixture to substantially spherical form by tumbling in a container made of non-conductive material.

3,317,361

FLEXIBLE PLASTICIZED EXPLOSIVE OF CYCLONITRAMINE AND NITROCELLOSE AND PROCESS THEREFOR

John D. Hopper, Succasunna, and Franklin E. Wells, Jefferson Township, Morris County, N.J., assignors to the United States of America as represented by the Secretary of the Army

No Drawing. Filed Oct. 27, 1965, Ser. No. 505,445
13 Claims. (Cl. 149—18)

1. A self-supporting, resilient, high-powered, brisant, flexible exposive composition of moderate cap-sensitivity, low impact sensitivity, good heat stability and water resistance comprising about 45–76 weight percent of a high explosive selected from the group consisting of cyclotrimethylenetrinitramine (RDX) and cyclotetramethylenetetranitramine (HMX), about 17–39 weight percent of a plasticizer having a pour point not exceeding about —40° C., and about 5–15 weight percent of a high viscosity nitrocellulose containing about 12.1–12.5 weight percent nitrogen.

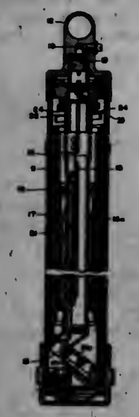
2. The composition of claim 1 further characterized by said RDX and HMX having an average particle size of up to about 25 microns and preferably not exceeding about 13 microns.

3,317,362

IGNITER COMPOSITION FOR AIRCRAFT EJECTION APPARATUS

Thomas A. Doris, Jr., Palmyra, N.J., and Thomas Q. Ciccone, Langhorne, Pa., assignors to the United States of America as represented by the Secretary of the Army

Filed July 7, 1965, Ser. No. 470,302
4 Claims. (Cl. 149—19)



1. An igniter material for assisting in igniting the rocket motor propellant aircraft seat ejection apparatus having catapult and rocket motors, comprising a mixture including the following components by weight:

12–20% of fuel material from the group of magnesium, zirconium and boron,
70–80% of an oxidizer from the group of an oxide or nitrate of barium, strontium and lead or a chlorate or nitrate of potassium,
0–2% zinc stearate,
0–6% of a chlorinated rubber binder material,
0–1% of a red dye, and
0–8% of a binder material from the group of calcium or strontium resinates.

3,317,363

CORRUGATED PRODUCT

Walter O. Weber, Wilmington, Del., assignor to Haveg Industries, Inc., a wholly-owned subsidiary of Hercules Powder Company, New Castle, Del., a corporation of Delaware

Filed Nov. 29, 1963, Ser. No. 326,815
7 Claims. (Cl. 156—210)



1. A method of forming a corrugated board with a corrugated core of foamed, thermoplastic resin having integral non-foamed skins on both surfaces and surfacing planar sheets comprising extruding a sheet of foamed thermoplastic resin, chilling both the top and bottom portions of said sheet prior to corrugation to form non-porous, unfoamed skins integral with the foamed core, corrugating said sheet in a direction parallel to the extrusion direction whereby peaks and low points are formed in the sheet and adhering surfacing panels to the skin surface of both the peaks and low points of said corrugated sheet.

3,317,364

PROCESS OF PRODUCING A KNOT MEMBER FOR A NECKTIE

Kazumi Mizukuno, 20 5-chome, Kogokitamachi, Hiroshima-shi, Japan

Filed Aug. 16, 1963, Ser. No. 302,662
1 Claim. (Cl. 156—213)

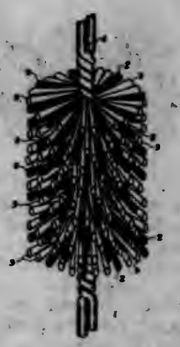
A process of producing a knot member for a necktie, which consists of successively piling a piece of cloth, a sponge plate and a measure plate, said cloth piece being of hexagonal shape and suitably larger than said measure plate; said sponge plate being similarly shaped to and a little larger than said measure plate, and said measure plate being made of thermo-plastic synthetic resin and of quasi-hexagonal shape, successively tucking in and pasting the edge part of said cloth piece along the edge of said measure plate, thereby producing unfinished knot member, putting a glass weight on said unfinished knot member located at one of dents on a rotary table, bringing said glass weight and said unfinished knot member below an infra-red ray lamp by turning said table, bending said unfinished knot member along the surface of a somewhat flat conical inner mold, pushing a somewhat flat conical outer mold onto said inner mold over said unfinished knot member, heating said assembled members in a heater, and taking the knot member out of said outer and inner molds.

3,317,365

NON-FLAMMABLE SYNTHETIC DECORATIVE TREE BRANCH

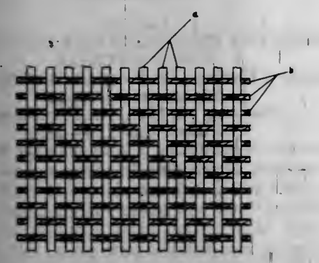
Erwin C. Reichert and John C. Lewis, Jr., Middlebury, Vt., assignors to Polymers, Inc., Middlebury, Vt., a corporation of Vermont

Filed June 30, 1964, Ser. No. 379,087
2 Claims. (Cl. 161—22)



1. A non-flammable synthetic decorative tree branch of assembled twisted-in-wire construction whose fibres simulate tree needles and consist of a mixture of two synthetic fibres one of which is a non-flammable polyvinyl chloride fibre, and the other of which is a flammable fibre selected from the group consisting of polystyrene, polypropylene and polyethylene, said halogen-bearing fibre being present in an amount of 10% to 50% by volume of the synthetic fibre mixture.

3,317,366
WOVEN POLYESTER CARPET BACKING AND TUFTED CARPET INCORPORATING THE SAME
Vianney J. Dionne, Radburn-Fairlawn, N.J., assignor to Beaunit Corporation, a corporation of New York
Filed May 18, 1962, Ser. No. 195,758
8 Claims. (Cl. 161—66)



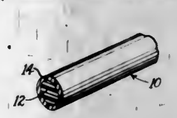
1. A tufted carpet consisting of a woven backing fabric having on one side a yarn pile tufted thereto and on the other side a coating of heat-cured latex, wherein the woven backing fabric is substantially dimensionally stable to moisture and to temperatures up to 260° F. and consists of a warp of substantially flat polyester monofilaments and a filling of multi-fiber polyester yarns, said polyesters being members of the group consisting of polyethylene terephthalate, a random copolymer of ethylene terephthalate and ethylene isophthalate, and poly(1,4-cyclohexylenedimethylene terephthalate).

3,317,367
HYDROPHOBIC FIBER STRUCTURE WITH INTERCONNECTED NON-FIBROUS HYDROPHILIC NETWORK
Charles Richard Koller, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Apr. 12, 1963, Ser. No. 272,532
8 Claims. (Cl. 161—67)



1. A highly porous, flexible, sponge-like article comprising a non-fibrous interconnected hydrophilic network and a reinforcing bonded fiber assembly integrally extending therethrough, said bonded fiber assembly being predominantly hydrophobic and being composed of substantially parallelized, crimped, synthetic organic, polymeric fibers selected from the group consisting of polyamides, polyethylene terephthalate, and polyacrylonitrile which are attached by a hydrophobic binder composition at a plurality of contact points throughout the three dimensions of said article, said hydrophilic network comprising a water insoluble polymeric material selected from the group consisting of cellulose xanthate, cyanoethyl cellulose, alkali soluble cellulose, methoxymethyl cellulose, hydroxyethyl cellulose, and carboxymethyl cellulose coagulated in the form of open cell-like irregular shaped film-like and fibril-like particles distributed about and between portions of said fibers in substantially uniform fashion throughout the three dimensions of said article, the fiber density of said article being less than about 8 lbs./ft.^{2}, and the density of the hydrophilic network material being between 0.2 and 5 lbs./ft.^{3} in said article and exceeding the density of binder composition therein.

3,317,368
COMPOSITE THERMOPLASTIC ADHESIVES
William R. Battersby, Lexington, Mass., assignor to United Shoe Machinery Corporation, Flemington, N.J., a corporation of New Jersey
Filed Dec. 20, 1963, Ser. No. 332,009
6 Claims. (Cl. 161—175)



1. As an article of manufacture a flexible, slender composite rod of indefinite length comprising a longitudinally extending central portion of normally solid, heat-fusible adhesive component too soft for coiling, storage and uncoiling and handling in a through feed melting and applying machine and a non-tacky, flexible, dimensionally stable, shape-retaining external layer of a different heat-fusible resinous material, resistant to degradation by exposure and surrounding said central portion and cooperating with said central portion to enable said composite rod to be coiled, stored and uncoiled and handled in said machine, the weight per unit length of said external layer and of said central portion being in substantially constant ratio throughout the length of said rod and the material of said central portion and said external layer constituting an adhesive when melted and mixed together.

3,317,369
ACRYLOXYALKYLSILANE COMPOSITIONS AND THE FABRICATION OF STRUCTURES THEREWITH
Harold A. Clark and Edwin P. Plueddemann, Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich., a corporation of Michigan
No Drawing. Filed July 26, 1961, Ser. No. 126,885
30 Claims. (Cl. 161—193)

1. A composition comprising a mixture of
(A) at least one acryloxyalkylsilane of the formula $CH_2=CRCOO(CH_2)_nSi(OR')_3$ where R represents a substituent selected from the group consisting of the methyl radical and a hydrogen atom, *n* is an integer of from 1 to 4 inclusive, and R' is selected from the group consisting of methyl, ethyl, isopropyl and acetyl radicals and radicals of the formula $—CH_2CH_2OR''$ where R'' is an alkyl radical of from 1 to 4 inclusive carbon atoms, and
(B) at least one binder selected from the group consisting of
(1) a water-soluble alcohol having at least two hydroxy groups per molecule and having a melting point of at least 35° C.,
(2) an aqueous mixture of a film-forming organic resin which is miscible with water and which when dried is converted to a state which is not miscible with water,
(3) an organosilane of the formulae selected from the group consisting of SiX_4, where X is selected from the group consisting of methoxy and $[O(CH_2CH_2O)_mR'']$ where *m* has a value from 1 to 2 inclusive and R'' is as above defined and $R'''_ySi(OR')_{4-y}$ where R' is as above defined, *y* is from 1 to 2 inclusive, and R''' is selected from the group consisting of alkyl radicals of less than 4 carbon atoms, phenyl, vinyl, allyl, β-acetoxyethyl, and gamma-acetoxypropyl radicals, and radicals of the formula

$$—(CH_2)_zOCH_2CH—CH_2$$
$$\qquad\qquad\quad \diagdown\ \diagup$$
$$\qquad\qquad\quad O$$

where z is an integer from 2 to 3 inclusive, and
(4) boric acid.

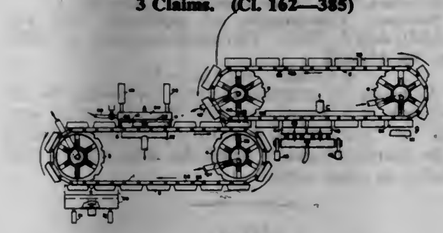
3,317,370
PROCESS OF PREPARING WET STRENGTH PAPER CONTAINING ACROLEIN POLYMERS
George T. Kekish, Chicago, Ill., assignor to Nalco Chemical Company, Chicago, Ill., a corporation of Delaware
No Drawing. Filed Sept. 22, 1965, Ser. No. 489,395
4 Claims. (Cl. 162—168)

1. The process of treating paper to increase the strength thereof without rendering the same impermeable to water which comprises adding to an aqueous suspension of cellulosic paper fibers from 0.01 to 10.0%, based on the bone dry weight of the fiber, of a water-soluble wet strength agent whereby said agent is adsorbed upon said fibers, forming the thus treated fibers into a matted product by draining the suspended water therefrom, and drying said matted product, said wet strength agent consisting of the water-soluble product of polymerization of a mixture of monomers consisting of from 10 to 80 mole percent of an alpha-beta-ethylenically unsaturated aldehyde having the following formula:

$$R_2CH=\overset{R_1}{\overset{|}{C}}—CHO$$

where R_1 and R_2 are selected from the group consisting of halogen, lower alkyl radicals and hydrogen, and from 20 to 90 mole percent of a reactant selected from the group consisting of (A) a nitrogen heterocycle containing an ethylenically unsaturated group capable of copolymerization with said aldehyde and (B) mixtures of said nitrogen heterocycle and another ethylenically unsaturated monomer having no anionic substituents and containing a hydrophilic radical as a side chain and capable of terpolymerization with said aldehyde and said nitrogen heterocycle such that each monomer is present in an amount ranging from 10 to 70 mole percent, said polymerization product being prepared whereby it is soluble in aqueous liquids up to about 10% by weight of solids by carrying out said polymerization as a dilute aqueous reaction mixture containing below about 10% by weight of said mixture of monomers during at least ⅓ the period of said polymerization reaction.

3,317,371
APPARATUS FOR PRODUCING MOLDED PULP ARTICLES
Eugene M. Alsman, 5104 SE. Long St., Portland, Oreg. 97206
Filed May 11, 1964, Ser. No. 366,315
3 Claims. (Cl. 162—385)



1. Apparatus for producing hollow box-like containers originating from material comprising ground up fibrous pulp components suspended in water, comprising in combination,
a first endless conveyor and a second endless conveyor having a driving connection therebetween and each having a top run and a bottom run,
a series of material-gathering preliminary forming dies carried by the first conveyor,
means for applying to said dies predetermined quantities of said material,
suction means applied to said dies for maintaining said material thereon for advancement toward a first drying stage,
said first drying stage comprising means disposed above the top run of said first conveyor for directing hot air to the material carried by said dies and means therebelow for applying vacuum thereto,
a second series of dies carried by the second conveyor and engageable at one end thereof with the dies of said first series and the material carried thereby for removing the material from said first dies and advancing it to a final drying stage,
said final drying stage comprising means for directing air pressure and vacuum to the material for finally drying the same, and
pressure means at the opposite end of said bottom run of the second conveyor for discharging the finished material therefrom.

3,317,372
HOUSEHOLD DEODORANT
Una L. Hart, St. Paul, Minn.
No Drawing. Filed Sept. 29, 1965, Ser. No. 491,374
13 Claims. (Cl. 167—14)

1. A deodorant composition consisting essentially of in an aqueous solution,
a soluble basic material having a pH in the range of 8.2 to 12.4 from a saturated solution of a slightly soluble base up to 35% by weight of a soluble base, and
a volatile basic material in combination therewith.

3,317,373
NOVOBIOCIN AS AN INSECTICIDE
Ford H. Harries, Wenatchee, Wash., assignor to the United States of America as represented by the Secretary of Agriculture
No Drawing. Filed Oct. 16, 1964, Ser. No. 404,539
7 Claims. (Cl. 167—33)

1. A method for destroying insects which comprises contacting the insects with novobiocin.

3,317,374
2,4,5-TRICHLOROPHENOL REACTION PRODUCTS FOR THE TREATMENT OF SEEDS AND PLANTS
Marie Adele Josephe Bouilleune-Walrand, Liege, Belgium, and Francois Charles Marie Joseph d'Ogny, Paris, Georges Wetroff, Le Thillay, and Jean Emile Khaladji, Paris, France, assignors to Pechiney-Compagnie de Produits Chimiques et Electrometallurgiques, Paris, France
No Drawing. Filed June 7, 1962, Ser. No. 200,637
Claims priority, application France, June 9, 1961, 864,448
4 Claims. (Cl. 167—38)

1. A process for treating seeds, soil and plant life comprising bringing the seeds, soil and plant life directly into contact with the product of the reaction of 2,4,5-trichlorophenol in substantial equimolecular proportion with an organic compound having at least one electron donor group in which the organic compound is selected from the group consisting of tributyl phosphate, tri-isobutyl phosphate and triphenylphosphate.

3,317,375

FUNGISTATIC THIOUREA WOOD-BLUEING PREVENTION AND WOOD-PROTECTION COMPOSITIONS WITH POLYETHYLENE-GLYCOL ALKYL THIOETHER

Georges Molinet, Pau, Georges Durand, Mourenx-Ville-Nouvelle, and Jacques Mestreit, Pau, France, assignors to Societe Nationale des Petroles d'Aquitaine, Paris, France

No Drawing. Filed Sept. 8, 1964, Ser. No. 395,052
Claims priority, application France, Sept. 12, 1963, 947,320
3 Claims. (Cl. 167—38.6)

1. Process for preventing the blueing of wood, which consists in soaking sound pieces of wood in an aqueous solution containing 2 to 5% of a composition formed of 99 to 99.9 parts by weight of thiourea and 1 to 0.1 part of a polyethyleneglycol alkyl monothioether the alkyl group of which has 6 to 30 carbon atoms per molecule, and the molecule contains 6 to 18 oxyethylene units.

3,317,376

GERMICIDAL FABRIC

Robert I. Schattner, 3636 16th St. NW., Washington, D.C. 20010

No Drawing. Filed Feb. 12, 1963, Ser. No. 257,843
7 Claims. (Cl. 167—38.7)

1. A method for rendering fabric germ-free and germ-resistant comprising impregnating said fabric with an aqueous solution of the following composition:
from 0.8% to 15% by weight of sodium phenolate,
from 0.3% to 5.5% by weight of sodium tetraborate,
from 0.8% to 15% by weight of glycerine,
from 2.0% to 16.5% by weight of phenol, and
the balance water.

3,317,377

SEDATIVE-ANALGESIC COMPOSITIONS

John A. Hill and Stephen Ashukian, both of New Brunswick, N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Apr. 19, 1966, Ser. No. 543,548
4 Claims. (Cl. 167—52)

1. A liquid sedative-analgesic composition comprising per dosage unit at least about 300 mg. of chloral hydrate and at least about 200 mg. of acetaminophen in a balanced vehicle comprising about 20 to 40% weight/volume of glycerin, about 15 to 40% weight/volume of propylene glycol and about 10 to 20% volume/volume of alcohol.

3,317,378

METHOD OF CONTROLLING BLOAT IN RUMINANTS

Walter R. Woods, Lincoln, Nebr., and Keith J. Smith, Ames, Iowa, assignors to Iowa State University Research Foundation, Inc., Ames, Iowa, a corporation of Iowa

No Drawing. Filed June 18, 1962, Ser. No. 202,978
6 Claims. (Cl. 167—53)

1. The method of controlling bloat in ruminants, characterized by orally administering to said ruminants an ethylene polyamine chelating agent capable of chelating calcium and magnesium, said chelating agent being formed from acetic acid and an amine selected from the group consisting of ethylene diamine and ethylene triamine, the acetic acid moiety of said chelating agent being attached to a nitrogen.

3,317,379

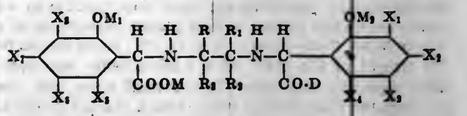
METHODS OF TREATING BLOAT IN RUMINANTS

Robert T. McCarty, Fort Worth, Tex., assignor to Geigy Chemical Corporation, Ardsley, N.Y., a corporation of Delaware

No Drawing. Filed June 24, 1963, Ser. No. 290,241
8 Claims. (Cl. 167—53)

1. The method of reducing the incidence and severity of bloat in a ruminant animal, which comprises providing the animal by oral administration with an intake of from about eighteen to about forty-five milligrams per day per kilogram of body weight of a bloat incidence and severity reducing substance which is a member of the class consisting of

(a) an ethylenediamine derivative having the formula



wherein any of R through R_3 is separately a member of the class consisting of hydrogen, alkyl having under 13 carbon atoms, hydroxy lower alkyl, and the divalent polyalkylene group having under 5 carbon atoms substituted for one of the pairs of R and R_1 or R_2 and R_3; and any of X_1 through X_5 is separately a member of the class consisting of hydrogen, alkyl with one through ten carbon atoms, lower alkoxy, lower hydroxyalkyl, carboxyl, alkali carboxylate, hydroxyl, alkali metal-oxy, nitro, free amino, cyano, sulfo, alkali metal sulfonate, and halogen; D is a member of the class consisting of free amino, hydroxyl, and —OM; and M is selected from the class consisting of hydrogen and an alkali cation; and each of M_1 and M_2 is independently selected from the group consisting of hydrogen and alkali metal; and

(b) an acid addition salt of the member (a), which addition salt is pharmaceutically acceptable at the dosage regimen followed to provide said intake of said substance;

and the alkali cation in members (a) and (b) is a member of the class consisting of (i) alkali metal, and (ii) an ammonia-derived cation which leaves said specific bloat incidence and severity reducing substance as a whole pharmaceutically acceptable at the dosage regimen followed to provide said intake.

3,317,380

PROCESS FOR INDUCING ANOREXIA

William Veldkamp, Kalamazoo Township, Kalamazoo County, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Continuation of application Ser. No. 293,131, July 5, 1963. This application Mar. 19, 1965, Ser. No. 441,332
4 Claims. (Cl. 167—55)

1. A process for inducing anorexia comprising the administration of a member selected from the group consisting of α,α-diphenyl-β-methyl-1-pyrrolidinepropanol and the pharmacologically acceptable acid addition salts thereof to an obese animal.

3,317,381

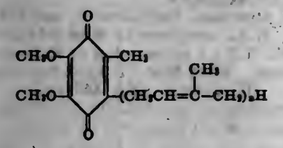
METHOD FOR TREATING PEPTIC ULCER

Senji Umehara, Tokyo, Japan, assignor to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Filed Oct. 4, 1965, Ser. No. 492,867
4 Claims. (Cl. 167—55)

1. A method of treating peptic ulcer, which comprises

administering an effective amount of coenzyme Q_n of the formula



wherein *n* is an integer from 7 to 10 inclusive, to a patient with the disease.

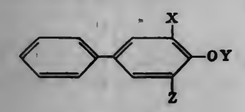
3,317,382

SUBSTITUTED 5-PHENYLSALICYLIC ACID COMPOUNDS FOR THE PREVENTION AND TREATMENT OF ERYTHEMA

Matthew J. Brunner, Floramoor, Paul Finkelstein, Wilmette, Herbert E. Hilbelck, Elmwood Park, Stephen Sichak, Chicago, and Elliott N. Schubert, Skokie, Ill., assignors to The Gillette Company, Chicago, Ill., a corporation of Delaware

No Drawing. Original application May 26, 1959, Ser. No. 815,792. Divided and this application Dec. 7, 1962, Ser. No. 253,013
32 Claims. (Cl. 167—58)

25. A method for the treatment of erythema which comprises: applying to the skin a composition which comprises from about 0.001% to about 10% of a principal active ingredient selected from the group consisting of a compound of the formula:

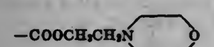


wherein X is a member selected from the group consisting of (1) hydrogen, (2) acetyl, (3) amino and (4) $—CH_2CH=CH_2$; Y is a member selected from the group consisting of (1) hydrogen, (2) lower alkyl containing 1 through 5 carbon atoms, and (3) acetyl; and Z is a member selected from the group consisting of (1) carboxy, (2) carbalkoxy in which the alkyl groups contain 1 through 5 carbon atoms, (3) carbphenoxy

(4) $—COOCH_2CH_2N(CH_3)_2$

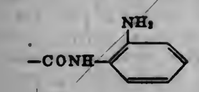
(5) $—COOCH_2CH_2NHC(CH_3)_3$

(6)



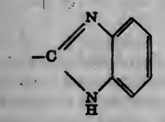
(7) $—COOCH_2CF_3$

(8)



and

(9)



and dermatologically acceptable acid addition salts of such compounds dispersed in a pharmaceutically acceptable dermatologic base.

3,317,383

DECONGESTIVE COMPOSITIONS AND METHOD

Ove Birger Fernö, Knut Bertil Högberg, and Torsten Ove Enok Linderot, all of Halsingborg, Sweden, assignors to Aktiebolaget Leo (A/B Leo), Halsingborg, Sweden

No Drawing. Filed Apr. 23, 1964, Ser. No. 362,165
Claims priority, application Great Britain, May 1, 1963, 17,242/63
13 Claims. (Cl. 167—58)

1. A nasal decongestive composition comprising an effective amount of a sympathomimetic amine and, as a nasal decongestive ingredient,
an effective amount, between about 0.002 and 2.0%, by weight, of a high-molecular weight, antienzymatic organic compound selected from the class consisting of polyphloretin phosphate, polyphloroglucinol phosphate, polyquercetin phosphate, and polyhesperidin phosphate,
the ratio by weight between the sympathomimetic amine and the high molecular weight compound being between zero and ten to one, and a non-toxic pharmaceutical diluent.

3,317,384

TREATMENT OF TOPICAL VIRAL INFECTIONS WITH GLUCOCORTICOIDS AND NUCLEOSIDES

Gerald E. Underwood, Galesburg, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Filed June 8, 1964, Ser. No. 373,501
3 Claims. (Cl. 167—58)

1. A process for minimizing deleterious effects of topical anti-inflammatory glucocorticoids in topical viral infections which comprises application to the infected area of a pharmaceutical preparation comprising in combination

(a) from about 0.025% to about 2.5% of a topical anti-inflammatory glucocorticoid,

(b) from about 0.1% to about 10% of a topical antiviral nucleoside selected from the group consisting of 1 - β - D - arabinofuranosyluracil, its 5-bromo, -chloro, -fluoro, -iodo, and -methyl derivatives, 1-β-D-arabinofuranosylcytosine, its 5-methyl derivative, and pharmaceutically acceptable acid addition salts thereof, and

(c) topical pharmaceutical means which adapt the preparation for topical pharmaceutical application.

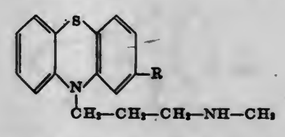
3,317,385

METHOD OF TREATMENT OF DEPRESSION IN MAMMALS

Daniel A. Prins, Oberwil, Basel-Land, Switzerland, assignor to Geigy Chemical Corporation, Ardsley, N.Y., a corporation of Delaware

No Drawing. Filed Jan. 21, 1963, Ser. No. 252,592
Claims priority, application Switzerland, July 24, 1961, 8,704/61; June 21, 1962, 7,504/62
5 Claims. (Cl. 167—65)

1. A method for treating depression in mammals by eliciting an antidepressive effect without tranquilization which comprises administering to said mammals an antidepressively effective amount of a member selected from the group consisting of the compounds of the formula:



and the pharmaceutically acceptable non-toxic salts thereof wherein R is a member selected from the group consisting of H and CF_3.

3,317,386

METHOD OF TREATING APLASTIC ANAEMIA USING A PREPARATION CONTAINING THE MITOGENIC COMPONENT OF PHYTOHAEMAGGLUTININ

Joseph Graeme Humble, Ashstead, Surrey, England, assignor to Burroughs Wellcome & Co. (U.S.A.) Inc., Tuckahoe, N.Y., a corporation of New York

Filed May 4, 1964, Ser. No. 364,845
2 Claims. (Cl. 167—65)

1. A method of treating aplastic anaemia which comprises the in vivo parenteral administration to the patient of a preparation containing a clinically effective dose of the mitogenic component of phytohaemagglutinin.

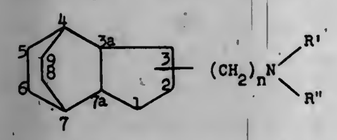
3,317,387

METHOD OF REDUCING THE SEVERITY OF INFLUENZA VIRUS INFECTIONS

William W. Prichard, Hockessin, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed May 25, 1964, Ser. No. 370,064
9 Claims. (Cl. 167—65)

7. The process of reducing the severity of influenza virus infections in warm-blooded animals which comprises administration to said warm-blooded animals of a small but effective dose of an amine derivative of 4,7-ethano-3a,4,5,6,7,7a-hexahydroindane selected from the group consisting of those having the structural formula



and nontoxic salts of said amine derivatives, where R' and R'', taken separately, are selected from the class consisting of hydrogen, lower alkyl, lower alkenyl, lower alkynyl and substituted alkyl having a total of up to 6 carbons wherein the substituent is selected from the class consisting of hydroxy, alkoxy, amino and dialkylamino; and, when taken together with the amine nitrogen, is a 3 to 7-membered ring in which the amine nitrogen, the only hetero atom in the carbon ring, is an integral parts of the ring; and R' and R'' when taken together with the $-(CH_2)_nN<$ grouping is the $-(CH_2)_nN=CHR'''$ group wherein R''' is a hydrocarbon of up to 12 carbons, and *n* is a cardinal number of from zero to one.

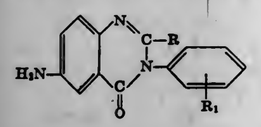
3,317,388

METHODS FOR TREATING PAIN

Bola Vithal Shetty and Liborio A. Campanella, Rochester, N.Y., and Edwin E. Hays, Northridge, Calif., assignors to Wallace & Tiernan Inc., Belleville, N.J., a corporation of Delaware

No Drawing. Filed Nov. 20, 1964, Ser. No. 412,840
4 Claims. (Cl. 167—65)

1. The method of alleviating pain in a warm-blooded animal suffering from pain which comprises administering to said animal an effective amount of a compound selected from the group consisting of compounds of the formula:



where R and R_1 are selected from the group consisting of hydrogen, trifluoromethyl, and lower alkyl; and their pharmaceutically acceptable acid addition salts.

3,317,389

ANTIBACTERIAL COMPOSITION CONTAINING AMPICILLIN OR HETACILLIN WITH DICLOXACILLIN

Alphonse P. Granatek, Baldwinsville, and Peter A. Ratto, Syracuse, N.Y., assignors to Bristol-Myers Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Mar. 17, 1965, Ser. No. 440,622
12 Claims. (Cl. 167—65)

1. An antibacterial composition comprising a mixture of about one to about two parts by weight of a member selected from the group consisting of hetacillin and ampicillin with one part by weight of dicloxacillin.

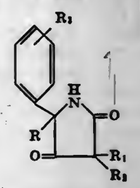
3,317,390

COMPOSITIONS HAVING CNS DEPRESSANT ACTIVITY

Corris Mabelle Hofmann, Ho-Ho-Kus, and Sidney Robert Safir, River Edge, N.J., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed July 27, 1965, Ser. No. 475,233
5 Claims. (Cl. 167—65)

1. A composition of matter having central nervous system depressant activity comprising an edible carrier and from 10 mgs. to about 1000 mgs. of a compound of the formula:



wherein R and R_1 are lower alkyl and R_2 and R_3 are selected from the group consisting of hydrogen and lower alkyl.

3,317,391

COMPOSITION FOR TREATMENT OF ANGINA PECTORIS AND PROCESS FOR PREPARING SAME

Louis W. Granirer, 90—36 149th St., Jamaica, N.Y., and Elisabeth Adam, New York, N.Y.; said Adam assignor to said Granirer

No Drawing. Filed June 24, 1963, Ser. No. 290,222
11 Claims. (Cl. 167—74)

1. A method for making a composition for relief of the symptoms of angina pectoris which comprises: mixing finely ground placenta with an acid extracting mixture which consists substantially of 75% of an alcohol selected from the group consisting of ethyl alcohol and methyl alcohol, and 25% of water by volume at a pH of substantially 2.7, thus dissolving an agent of said placenta in said extracting mixture while maintaining said extracting mixture acid and precipitating proteins which are extracted by said extracting mixture from said placenta by allowing the original extract to stand in the cold for at least 24 hours; separating such proteins to provide a liquid fractional extract which has a clear, straw-yellow color, adding alkaline hydroxide to said liquid fractional extract to produce a clear crystalline precipitate which is insoluble in water at a pH of 7, separating said precipitate, evaporating the resultant filtrate to produce a dry placenta-derived residue; forming an aqueous solution of said residue and adding thereto aspirin, powdered desiccated and undefatted beef liver, and a sulfanamide selected from the group consisting of sulfadiazine, sulfamerazine, sulfamethazine, sulfacetamide, sulfisoxazole, salicylazosulfapyridine, sulfamethoxypyridizine, sulfamethoxypyrimidine, sulfaethylthiadiazole, succinyl sulfathiazole, phthalylsulfathiazole, phthalylsulfacetamide and sulfaguanidine so as to form an aqueous paste, allowing said components to inter-react, and elevating the temperature of said aqueous paste so as to evaporate water therefrom to form a dry residue composition suitable for treatment of angina pectoris.

3,317,392

PITUITARY GLAND EXTRACT

Samuel H. Eppstein, Charleston Township, Kalamazoo County, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Filed July 16, 1965, Ser. No. 472,710
2 Claims. (Cl. 167—74)

1. In a process of preparing prolactin principle from porcine pituitary glands wherein the principle is solubilized in aqueous solution, the steps of adjusting the pH of said solution to from about 4.8 to about 5.1, separating soluble and insoluble portions thereof, and recovering said prolactin principle from the insoluble portion.

3,317,393

IMMUNIZATION BY SELECTIVE INFECTION OF THE INTESTINAL TRACT WITH AN ENCAPSULATED LIVE VIRUS

Robert M. Chanock, Bethesda, Robert J. Huebner, Ijamsville, and Robert B. Couch, Bethesda, Md., assignors to the United States of America as represented by the Secretary of the Department of Health, Education, and Welfare

No Drawing. Filed June 8, 1964, Ser. No. 373,587
12 Claims. (Cl. 167—78)

1. As an immunization agent for selective infection of the intestinal tract, an enteric-coated gelatin capsule containing unattenuated live virus.

3,317,394

MEDICINAL TABLET AND A METHOD FOR ITS PREPARATION

Lars-Einar Fryklof, Enskede, Erik Sandell, Djursholm, and John Ivan Georg Ostholm, Molnlycke, Sweden, assignors to Aktiebolaget Hassle, Apotekare Paul Nordstroms Fabriker, Goteborg, Sweden, a Swedish company

Filed Dec. 14, 1956, Ser. No. 628,408
Claims priority, application Sweden, Dec. 22, 1955, 11,605/55
35 Claims. (Cl. 167—82)

35. A medicinal tablet for oral administration comprising a continuum of an insoluble, non-toxic matrix in skeleton form, the insolubility being in digestive juice, said matrix having in the interstices thereof interconnected canals and ducts, the canals and ducts being filled with a drug and leachable filler, the canals and ducts being continuous to the outer surfaces of the tablet so that a portion of said drug and filler extends to and is exposed on an outer surface of said tablet, the matrix resisting distintegration in digestive juices and retaining substantially its original tablet form during the entire-leaching out period, said tablet requiring a period of at least about 8 hours for the drug to be substantially completely leached therefrom by the action of said digestive juice.

3,317,395

DENTIFRICE COMPOSITIONS CONTAINING STANNOGLUCONATES

Leonard M. Edwards, Cranford, N.J., assignor, by mesne assignments, to M & T Chemicals Inc., New York, N.Y., a corporation of Delaware

No Drawing. Original application Oct. 2, 1962, Ser. No. 227,938, now Patent No. 3,225,076, dated Dec. 21, 1965. Divided and this application Mar. 23, 1965, Ser. No. 457,886
9 Claims. (Cl. 167—93)

1. A dentifrice composition characterized by its freedom from objectionable color, taste and odor and by its content of tin which assists in the formation of tooth structure containing a dentifrice base and as active ingredient: a salt of stannogluconic acid prepared by the process which comprises mixing an aqueous solution of an acid selected from the group consisting of gluconic acid and gluconolactone with stannous hydroxide thereby forming an aqueous solution of stannogluconic acid; treating said aqueous solution with activated carbon; and neutralizing said stannogluconic acid with a base thereby forming a salt of said stannogluconic acid.

3,317,396

COMPOSITION AND METHOD FOR INHIBITING CALCULUS DEPOSITION ON HUMAN TEETH

Istvan Tamas, 4967 S. Sedgewick, Road, Lyndhurst, Ohio 44124

No Drawing. Filed Sept. 3, 1965, Ser. No. 485,073
17 Claims. (Cl. 167—93)

1. A composition of matter for use in inhibiting the deposition of calculus on natural and artificial teeth which consists of a mixture of toothpaste and an organic chemical compound, said compound having the property of forming a thin, adherent, calculus inhibiting film on the teeth when said composition is applied thereto, said compound having been made by bringing together, heating to between about 50° C. and about 100° C. and stirring until a clear liquid results, an alkyl organic compound selected from the group consisting of stearic acid, lactic acid, ricinoleic acid, sodium salts of said acids, esters of said acids and castor oil, and an organic titanate selected from the group consisting of tetra isopropyl titanate, tetra-N-butyl titanate, tetra octylene glycol titanate, triethanolamine titanate, triethanolamine titanate-N-stearate, and triethanolamine-N-oleate, mixing the said clear liquid with the toothpaste in the ratio of about 5 parts of the said organic chemical compound to about 95 parts of the toothpaste, and adjusting the pH value of the resulting composition to between about 6 and about 8.

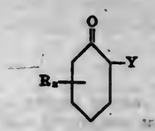
3,317,397

METHOD FOR PROLONGING THE ODOR OF PERFUMED MATERIALS WITH TRIMETHYLNORBORNYL-ALKYLCYCLOHEXANONES

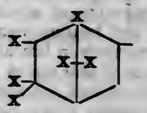
Harry C. Saunders, Nutley, N.J., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

No Drawing. Filed Feb. 25, 1966, Ser. No. 529,940
9 Claims. (Cl. 167—94)

1. A method for prolonging the odor of a perfume-containing material which comprises incorporating into said material at least one compound of the formula:



wherein *n* is an integer of from 1 to about 2, Y is alkyl, and R is a trimethylnorbornyl radical of the formula:



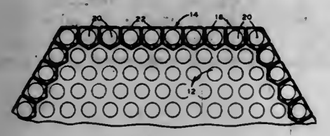
wherein X is selected from the group consisting of hydrogen and methyl, at least three X's being methyl.

3,317,398
FUEL ELEMENT ASSEMBLY
Ernest Hutter, Chicago, Ill., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed July 9, 1963, Ser. No. 293,919
1 Claim. (Cl. 176—78)



An assemblage of fuel assemblies fitting together and having their centers lying on a square lattice, each assembly comprising a plurality of nuclear-fuel rods and a tube enclosing the rods and being shaped as a hexagon having six 120° interior angles, two opposed relatively short sides, each having a length equal to the quantity 0.299 times the length of the side of the said square lattice, and four relatively long sides, each having a length equal to the quantity 0.816 times the length of the side of the said square lattice, each fuel rod being provided with a spiral spacing rib, the fuel rods of each assembly being arranged in rows parallel to the short sides of the hexagon of the tube, the number of rods per row progressing by one from two to six and back to two, the ribs of the fuel rods of each row of each assembly engaging the tube of that assembly, each of the remaining fuel rods of each assembly being laterally supported on six sides by the spacing ribs of the six fuel rods directly surrounding the rod in question.

3,317,399
FUEL ELEMENT CONTAINER
Gordon R. Winders, Lynchburg, Va., assignor to The Babcock & Wilcox Company, New York, N.Y., a corporation of New Jersey
Filed Apr. 13, 1964, Ser. No. 359,267
7 Claims. (Cl. 176—78)



1. In a nuclear reactor having a core, an elongated nuclear fuel element comprising a plurality of elongated nuclear fuel bearing members aranged in laterally spaced relation to one another, a container for said fuel bearing members comprising a plurality of longitudinally extending tubular elements each joined along its length to adjoining elements to form a closed peripheral wall of said container, and a plurality of spacer grids spaced along the length of said fuel bearing members for maintaining said fuel bearing members in laterally spaced relationship to one another, each of said spacer grids being connected to the interior wall of said container, and at least some of said tubular elements which comprise said container themselves containing nuclear fuel bearing members arranged in spaced relationship therewith to provide a coolant flow path between said fuel bearing member and its associated tubular element.

3,317,400
ENZYMATIC MODIFICATION OF BOVINE GROWTH HORMONE BY PROTEOLYTIC STREPTOMYCETE CELL EXTRACTS
Fritz Reusser, Portage, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware
No Drawing. Filed Nov. 23, 1964, Ser. No. 413,306
1 Claim. (Cl. 195—2)

A process of preparing modified biologically active factors of mammalian pituitaries which comprises:
(1) reacting bovine somatotropic factor with a proteolytice elaboration product of a member selected from the group consisting of *Streptomyces moderatus*, Sp. N.; *Streptomyces pallidus*, Sp. N.; *Streptomyces rosa*, Sp. N.; and *Streptomyces regalis*, Sp. N. at a pH of from about 4 to about 11 for from about 1 to about 6 hours at a temperature of from about 10° C. to about 30° C.;
(2) adding a protein precipitating agent to the reaction mixture to form a precipitate;
(3) separating and recovering the precipitate;
(4) dissolving the precipitate in aqueous sodium hydroxide and dialyzing the solution against purified water;
(5) adjusting the Ph of the dialyzed solution to about pH 10 and applying the adjusted solution to a column of cross-linked dextran gel having a water regain value of about 100 gm. per gm. equilibrated with 0.05 M sodium carbonate-bicarbonate aqueous buffer of pH about 10;
(6) fractionally eluting absorbed material from the gel with 0.05 M sodium carbonate-bicarbonate aqueous buffer of pH about 10;
(7) combining fractions of eluate corresponding to peaks of protein in the eluate; and
(8) recovering as dry powders modified biologically active factors from said combined fractional eluates by volatilizing water therefrom in vacuo, said powders demonstrating modified ratios of lipolytic, somatotropic and immunological activity.

3,317,401
MICROBIOLOGICAL OXIDATION OF 7-METHYL-1,8-NAPHTHYRIDINES TO 7-HYDROXYMETHYL-1,8-NAPHTHYRIDINES
Eldon D. Nielson, Winston-Salem, N.C., Pat B. Hamilton, Ponca City, Okla., and David Rosi, East Greenbush, and George P. Peruzzotti, North Greenbush, N.Y., assignors to Sterling Drug Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Oct. 25, 1963, Ser. No. 318,818
9 Claims. (Cl. 195—51)

1. The process for converting the methyl radical attached in the 7-position of the 1,8-naphthyridine nucleus to the hydroxymethyl radical which includes subjecting a compound containing said substituent on said nucleus to the fermentative enzymatic action of an organism classified in the orders Moniliales, Mucorales, Hypocreales, Melanconiales, Sphaeriales and Spirogyrales, capable of effecting said conversion; and, recovering from the fermentation reaction mixture the 7-hydroxymethyl-1,8-naphthyridine.

3,317,402
GRAIN MODIFICATION PROCESS AND PRODUCT
Leslie F. Smith, Robert V. Dahlstrom, James H. Jaehnig, and Michael R. Sfat, Manitowoc, Wis., assignors to Rahr Bio-Technical Laboratories, Incorporated, Manitowoc, Wis., a corporation of Wisconsin
No Drawing. Filed June 11, 1963, Ser. No. 286,936
23 Claims. (Cl. 195—69)

1. In a process for producing a malt-like grain modification product from malting cereal grain whole corns having a viable embryonic radicle and acrospire content and active endosperms, the improvement which comprises subjecting said grain whole corns to freezing temperature and moisture conditions sufficient to render the radicles and acrospires inviable while preserving endosperm activity prior to grain modification.

3,317,403
STREPTOMYCES AUREOFACIENS FERMENTATION PROCESS USING GLYCERIDE OIL AND CASEIN
Stephen Aloysius Szumski, Pearl River, N.Y., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Filed Feb. 10, 1964, Ser. No. 343,488
6 Claims. (Cl. 195—80)

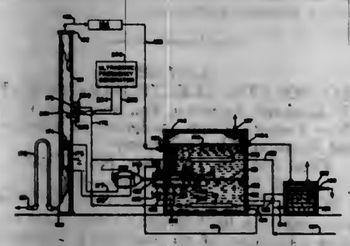
1. In a process of producing tetracycline antibiotics by aerobic fermentation of an aqueous nutrient medium by microorganisms of the species *Streptomyces aureofaciens*, the improvement which comprises supplying to said medium from about 1% to 7% by volume of a glyceride oil and from about 1 to 10 grams of casein per liter of medium.

3,317,404
PRODUCTION OF METABOLIC PRODUCTS OF GRAM-POSITIVE BACTERIA AND STREPTOMYCES BY THE ADDITION OF KINETIN TO THE FERMENTATION BROTH
Paul Präve, Hofheim, Taunus, and Gerhard Huber, Kelkheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Brüning, Frankfurt am Main, Germany, a corporation of Germany
No Drawing. Filed Jan. 24, 1966, Ser. No. 522,403
Claims priority, application Germany, May 22, 1962, F 36,853
5 Claims. (Cl. 195—80)

1. A process for increasing the production of antibiotics by gram-positive bacteria or Streptomyces during fermentative cultivation in a fermentation broth, which process comprises adding kinetin to said fermentation broth in an amount of from 0.001 to 100 microgram/ml.

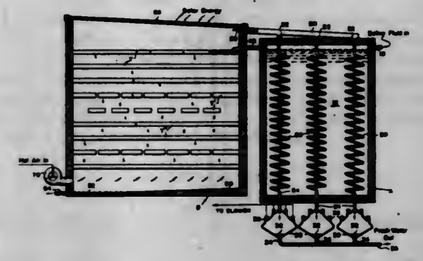
3. A process for increasing the production of urease by gram positive bacteria during fermentative cultivation in a fermentation broth, which process comprises adding kinetin to said fermentation broth in an amount of from 0.001 to 100 microgram/ml.

3,317,405
DISTILLATION APPARATUS WITH ULTRASONIC FREQUENCY AGITATION
Kenard D. Brown, 1227 S. Willow St., Casper, Wyo. 82601
Filed Oct. 21, 1965, Ser. No. 499,617
5 Claims. (Cl. 202—176)



1. A liquid purification system comprising means providing an evaporating chamber, a closed tank for containing a body of purified liquid, means including a pump for producing a low pressure in said evaporating chamber and for delivering evaporated liquid to said tank, means for supplying liquid for purification to said chamber, means for heating the liquid supplied by said last mentioned means, an ultrasonic energy transducer mounted in said chamber above the level of liquid therein, means for directing liquid supplied to said chamber onto the surface of said transducer, and means for generating ultransonic wave energy for energizing said transducer whereby at least a portion of the liquid flowing onto said transducer is evaporated by ultransonic energy to increase the rate of evaporation of liquid in said chamber, said pump for producing low pressure and for delivering evaporated liquid comprising a combined liquid and vapor pump arranged in said tank and having one inlet for withdrawing vapor from said chamber and a second inlet for circulating liquid in said tank, said heating means utilizing heat produced by operation of said pump.

3,317,406
HOT AIR DESALINIZATION APPARATUS
Kim D. Beard, 1040 S. Magnolia, Los Angeles, Calif. 90006
Filed May 1, 1963, Ser. No. 277,372
6 Claims. (Cl. 202—180)



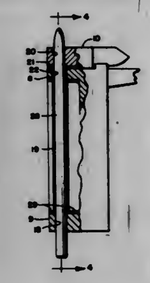
1. Apparatus for obtaining a distillate comprising:
(a) an evaporative unit having a plurality of vertically spaced rows of evaporative trays which receive and hold saline water to be distilled;
(b) a saline water inlet at the top of said evaporative unit immediately above the top row of trays which supplies saline water to said trays so that it fills with excess water falling successively from the top to the lower most row of trays;
(c) an excess saline water outlet at the bottom of said evaporative unit to pass out excess saline water;
(d) a top panel above said top row of trays through which sunlight is passed;
(e) a connecting dry air supply passage which has an open end immediately below the lowermost row of trays for passing hot air into said evaporative unit and up around said rows of trays;
(f) a forced air unit connected to the other end of said dry air supply passage;
(g) a warm moist air outlet immediately below said top panel and above said top row of trays through which moisture-laden air passes;
(h) a condenser unit beside said evaporative unit which contains a body of saline water and has a liquid level over flow conduit at the side adjacent said evaporative unit for carrying saline water from the upper end of said condenser unit to said saline water inlet;
(i) a condenser unit saline water inlet above the water level in the condenser unit for supplying saline water to said condenser unit by gravity feed;
(j) a plurality of vapor condensing heat exchangers immersed in the body of water in said condenser unit and connected to said warm moist air outlet of said evaporative unit adjacent the tops thereof;

(k) each of said vapor condensing heat exchangers being connected to a collecting chamber at the lower end thereof for collecting fresh distilled water;
(l) the warm moist air passing downward through the said vapor condensing heat exchangers from top to bottom thereof, heating the adjacent water so that the water is warmed thereby rising to the liquid level over flow outlet, while the cooler water entering the condenser unit through said saline water inlet tends to sink to the bottom of the condenser unit; and
(m) said chambers being vented to allow the cool air from the vapor condensing heat exchangers to pass freely through said chamber with no back pressure.

3,317,407
METHOD OF MAKING A PUNCH BLOCK ASSEMBLAGE

John J. Kratzmeyer, Des Plaines, and Robert J. Mianowski, Chicago, Ill., assignors to Teletype Corporation, Skokie, Ill., a corporation of Delaware

Filed Jan. 14, 1964, Ser. No. 337,641
5 Claims. (Cl. 204—6)



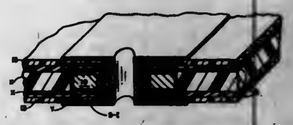
1. The method of making a punch block assemblage including a punch block and attached die plate having a punch-receiving aperture which comprises the steps of:
forming an aperture of predetermined size in the punch block;
attaching the die plate to the punch block with its aperture in alignment with the punch-receiving aperture in the die plate;
inserting a mandrel into the aperture in the punch block and through the aperture in the die plate;
masking all areas of the punch block, die plate, and mandrel except areas of the punch block and mandrel between the portion of the punch block in which the aperture is formed and the die plate;
electroplating metal onto the unmasked areas of the punch block and around the mandrel;
removing the mandrel; and
inserting a punch pin in place of the mandrel.

3,317,408
METHOD OF MAKING A MAGNETIC CORE STORAGE DEVICE

Creighton D. Barnes, Garden Grove, and Joseph M. Shaheen, Whittier, Calif., assignors to North American Aviation, Inc.

Filed June 11, 1963, Ser. No. 286,998
2 Claims. (Cl. 204—15)

1. A method of fabricating a magnetic core storage device having a plurality of toroidal magnetic cores disposed in a plane and an electroplated single turn winding through the aperture of each core comprising
preparing a clean board of insulating material having top and bottom sheets of electrically conductive material laminated to opposite sides thereof,
depositing a first coat of photosensitive emulsion on both sheets of conductive material and photo-exposing said first coat of emulsion on both sheets through a photographic positive of a pattern of desired holes where cores are to be deposited, thereby hardening the emulsion around said pattern of desired holes in said top and bottom sheets,
removing the unexposed emulsion with a suitable solvent and etching said pattern of desired holes through said top and bottom sheets of conductive material with a first etching solution which will not materially dissolve the hardened emulsion and said insulating material,
removing the hardened photosensitive emulsion and etching each of said desired holes through said insulating material, to a larger diameter than the etched holes through said top and bottom sheets of conductive material, with a second etching solution which will not materially dissolve the conductive material, thereby using said top and bottom sheets of conductive material having the desired pattern of holes etched therethrough as a mask,
etching the holes in the top sheet of conductive material to the same diameter as the holes through the



insulating material, thereby providing uniform holes through the top sheet and the insulating material and smaller holes through the bottom sheet to provide an annular protruding portion in the bottom of the hole through the insulating material,
coating the inside of the holes through the insulating material and the protruding annular portion of the bottom sheet of each hole with a non-conductive adhesive,
depositing a core in each hole through said insulating material, said core having a larger outside diameter and a smaller inside diameter than the corresponding hole through the bottom sheet,
covering each deposited core with a non-conductive encapsulating material, thereby providing a plane of encapsulated cores, each core having an insulated aperture,
electroplating conductive paths through said insulated core apertures from said top sheet to said bottom sheet to provide thereby electroplated apertures,
and etching a pattern of conductive paths in said top and bottom sheets of conductive material, each electroplated aperture being surrounded by a conductive path on each side thereof, to provide a single turn winding through each core.

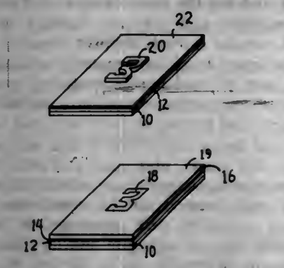
3,317,409
ELECTROLYTIC ELECTROPHOTOGRAPHY

Alfred F. Kaspaul, Fairview, Pa., and John W. Christensen, New Canaan, Conn., assignors to Minnesota Mining and Manufacturing Company

Filed Apr. 16, 1963, Ser. No. 273,471
6 Claims. (Cl. 204—18)

1. A process for making a reproduction which comprises exposing to a light image a copy sheet comprising a substrate consisting of an electrically conductive base sheet, an intermediate photoconductive layer and a surface layer overlaying said photoconductive layer consisting essentially of a light-transmissive metallic film having about 40 to 70 percent optical transmissivity, to create a latent image in the photoconductive layer of the said copy sheet, wetting the surface of the copy sheet with

an aqueous electrolyte solution, and creating a direct current electrical potential between the electrolyte as the cathode and the conductive base layer of the copy sheet

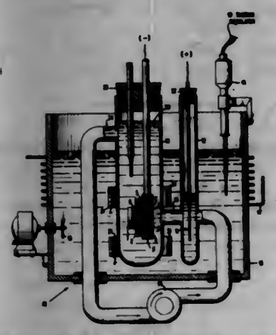


as the anode to convert the said light-transmissive metallic layer electrolytically to a visible record of the said light image.

3,317,410
AGITATION SYSTEM FOR ELECTRODEPOSITION OF MAGNETIC ALLOYS

Ian M. Croll, Pleasantville, and Ronald G. Stevens, Fishkill, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York

Filed Dec. 18, 1962, Ser. No. 245,499
4 Claims. (Cl. 204—23)



1. A method for electrodepositing a thin magnetic alloy film of the order of 1,000 A. so that the composition of the latter is uniform throughout the film thickness comprising:
(a) providing a substrate onto which the film is to be deposited,
(b) providing an electrolyte which will deposit said alloy film onto said substrate,
(c) providing a stream of said electrolyte to orthogonally impinge upon said substrate,
(d) agitating said stream during said orthogonal impingement, and
(e) subjecting said flowing electrolyte to electrolytic action to thereby deposit a thin magnetic alloy film of the order of 1,000 A. onto said substrate.

3,317,411
PROCESS OF PRODUCING A SMOOTH CONTINUOUS SURFACE

Calvin O. Letendre, Northford, Conn., assignor to Chromium Corporation of America, Waterbury, Conn., a corporation of Delaware

No Drawing. Filed Jan. 9, 1964, Ser. No. 336,617
8 Claims. (Cl. 204—29)

1. The process for producing smooth, continuous metal plate on a basis metal having surface cavities less than about 0.15 mm. in width which comprises the steps of degassing the basis metal; grit blasting the surface to be plated thereby forming a saturated matte finish surface; applying to said saturated matte finish surface a hardenable polyester resin; hardening said polyester resin thereby forming a hardened polyester resin coating on said saturated matte finish surface; grinding the hardened polyester resin coating and the saturated matte finish surface to a smooth, level surface in which substantially all of the remaining hardened polyester resin is present in cavities having a width of less than about 0.15 mm. and said remaining hardened polyester resin constitutes less than 1% of the area of said smooth, level surface; and electroplating a metal plate over said smooth, level surface thereby forming a smooth, continuous metal plate.

3,317,412
METHOD FOR OBTAINING A BRIGHT ZINC COATING BY ELECTRODEPOSITION AND THE BATH USED THEREFOR

Helmut Dahlmann, Stuttgart, Germany, assignor to Schering Aktiengesellschaft, Berlin, Germany

No Drawing. Filed July 3, 1962, Ser. No. 207,426
Claims priority, application Germany, July 6, 1961, Sch 29,958
5 Claims. (Cl. 204—55)

1. A method for obtaining a bright zinc coating which comprises exposing the object to be coated as a cathode in an aqueous cyanide-free alkaline zinc bath consisting essentially of a zincate selected from the group consisting of zinc and zinc compounds dissolved in an alkali metal hydroxide solution and an amine, and passing a current in said bath from anode to said cathode.

3,317,413
CONTROL OF ALUMINA CONTENT DURING IGNEOUS ELECTROLYSIS

Jacques Chambran, Tarascon-sur-Ariege, Ariege, France, assignor to Pechiney Compagnie de Produits, Chimiques et Electrometallurgiques, Paris, France

Filed Sept. 23, 1963, Ser. No. 310,588
23 Claims. (Cl. 204—67)

1. In the process of controlling the alumina content of an igneous electrolysis bath during the manufacture of aluminum, the steps comprising providing a pilot anode, the base of said anode having a small area relative to the total anode surface in said bath, causing a current impulse to pass through said pilot anode, the current impulse being such that said base is traversed by a current having a density higher than the density d of the current passing through the anode surface of the tank under normal operating conditions, said higher density being between 1.5 and 10 times the density d and between 1.0 and 10 A./cm.^{2}, measuring the voltage of the pilot anode during the duration of this current impulse, repeating the impulse systematically until the voltage of the pilot anode exceeds an excess voltage which is higher than the maximum value observed during the preceding impulses, whereby the moment when the dissolved alumina content of the bath has dropped below a threshold value is detected, said threshold value depending on the chosen impulse density.

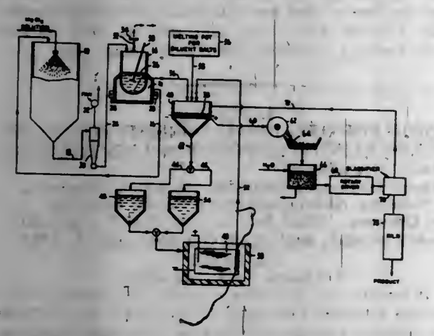
3,317,414
PRODUCTION OF MAGNESIUM CHLORIDE AND MAGNESIUM METAL

Sven Fougner, Garden City, N.Y., assignor to Magnalith Corporation, a corporation of New York

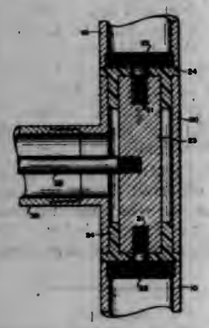
Filed Mar. 17, 1964, Ser. No. 352,611
16 Claims. (Cl. 204—70)

1. In the manufacture of magnesium chloride and electrolysis thereof to produce magnesium metal, the improvement which comprises adding to a molten mass of anhydrous magnesium chloride partially-dehydrated magnesium chloride which contains water in an amount not

exceeding about 30% by weight, maintaining said molten mass at a temperature sufficient to cause a portion of said water to vaporize and the remaining portion to react with magnesium chloride to form magnesium oxide, separating the resulting mixture of molten anhydrous magnesium chloride and magnesium oxide into one fraction comprising molten anhydrous magnesium chloride which is substantially free of magnesium oxide and another fraction comprising solid magnesium oxide intermixed with entrained molten magnesium chloride, and washing said magnesium oxide fraction with at least one molten inorganic salt in which magnesium oxide is substantially insoluble to recover entrained molten magnesium chloride, said molten inorganic salt being selected from the group consisting of alkali metal halides and alkaline earth metal halides.

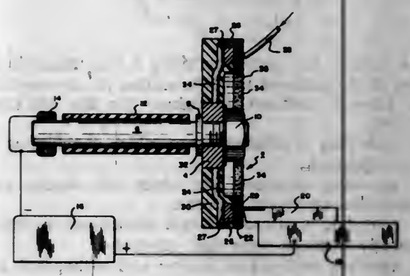


3,317,415
CATHODE FOR ANODIC PROTECTION SYSTEM
John F. Delahunt, Florham Park, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware
Filed June 20, 1963, Ser. No. 289,275
4 Claims. (Cl. 204—196)



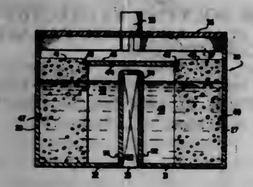
1. An apparatus for heating corrosive solutions comprising in combination a vessel having at least side walls and a bottom wall, one of said side walls including a plurality of heater receiving apertures, a plurality of substantially parallel elongated bayonet heaters formed out of an active-passive metallic material extending through respective ones of said apertures perpendicular to the side walls of said vessel into said vessel, at least one reference electrode adapted to be mounted in said vessel in electrical contact with said corrosive solution, at least one potentiostatic device suitable for the supply of direct current energy and for the maintenance of a predetermined potential between said bayonet heaters and reference electrode, a tubular cathode support structure formed out of an environment insensitive material extending through an unused one of said heater receiving apertures, said cathode support structure extending substantially parallel to said heaters and having an inner end and an outer end, said outer end being connected to and supported by the side wall of said vessel, said inner end extending into the vessel beyond the inner periphery of said bayonet heaters, a hollow T joint formed out of environment insensitive material and having its stem connected to the inner end of the cathode support structure and its cross-bar extending substantially perpendicular to the axis of said heaters, a pair of cathode members connected to each end of the T crossbar and electrically insulated from the T joint, the longitudinal axis of said cathode members extending in a plane substantially perpendicular to the longitudinal axis of the bayonet heaters, a conductor rod having an inner end and an outer end, said conductor rod extending through and electrically insulated from said cathode support structure having its outer end extending through and electrically insulated from the side walls of said vessel and its inner end extending into said T joint, means to electrically connect each of said cathode members to said conductor rod, electrical conduction means connecting the positive terminal of said potentiostatic device to the bayonet heaters as anodes and the negative terminal of said potentiostatic device to the outer end of said conductor rod and electrical conduction means connecting said reference electrode to said potentiostatic device.

3,317,416
ELECTROLYTIC MACHINING WHEEL
Stanley J. Warren, Teaneck, N.J., assignor to Anton Smith & Co., Inc.
Filed Apr. 14, 1964, Ser. No. 359,652
6 Claims. (Cl. 204—290)



1. A machining wheel for use in an electrolytic machining apparatus having an electric circuit including a metallic workpiece to be machined, a liquid electrolyte, the machining wheel and a direct current voltage source, said machining wheel comprising
(a) an electrically conductive metal bonded diamond-grit working member,
(b) an electrically conductive metal hub adapted to be mounted upon a spindle for rotation therewith,
(c) a plurality of electrically conductive metal spokes bonded to and extending from said hub,
(d) each of said spokes being bonded to said working member at one end and providing electrical connection between said hub and said member at the outer end,
(e) a disc-like member of dielectric material integrally mounted at its inner diameter on said hub for rotation with the hub,
(f) said working member being integrally mounted upon said disc-like member at its outer diameter for rotation therewith,
(g) said disc-like member surrounding said spokes and providing electrical insulation and mechanical shielding thereof from the liquid electrolyte.

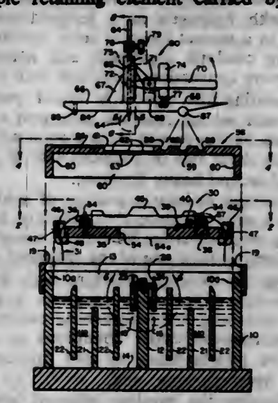
3,317,417
MICRO-ELECTROPHORESIS APPARATUS
Samuel Raymond, 538 Walnut Lane, Swarthmore, Pa. 19081
Filed Oct. 26, 1962, Ser. No. 233,352
4 Claims. (Cl. 204—299)



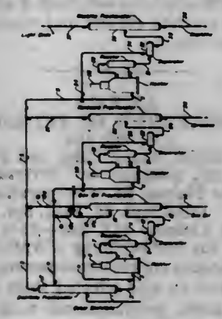
1. A micro-electrophoresis apparatus comprising:
(a) a single container including end and side walls and a divided bottom leaving a gap near the central portion of the bottom of the apparatus,
(b) an inverted U-shaped central dividing wall covering the gap in the bottom of the apparatus and dividing the inside of the container into two separate tanks adapted to contain liquid buffer solution;
(c) a pair of absorbent, sponge-like blocks, one positioned in each of the two separate tanks in the self-contained unit,
(d) means defining a step integral with each of the sponge-like blocks at the top facing edges thereof for supporting a plate and an electrophoresis supporting medium so that the sponge-like blocks will establish electrolytic contact between the electrophoresis supporting medium and buffer solution in the separate tanks;
(e) a self-contained power supply positioned within the inverted U-shaped dividing wall,
(f) a circuit within the power supply for providing a constant potential direct current from a conventional alternating current source, and
(g) a pair of wire electrodes electrically connected to the power supply and extending through sealed openings in the inverted U-shaped dividing walls and positioned in the tanks adjacent thereto for supplying the electric current for the electrophoresis operation.

3,317,418
ELECTROPHORESIS APPARATUS WITH ADJUSTABLE SAMPLE APPLICATION
Zvonimir Juan Zec, Palo Alto, Calif., assignor to Beckman Instruments, Inc., a corporation of California
Filed Feb. 28, 1963, Ser. No. 261,762
18 Claims. (Cl. 204—299)

3. In zone electrophoresis apparatus having container means forming two cells for electrolyte, sample carrier support means carried by the container means and adapted to support an elongated sample carrier in position to receive liquid sample applied to same, a cover member supported by the container means and disposed generally to overlie the sample carrier, the cover member including an access passage therethrough generally overlying a sample receiving region of the carrier, a liquid sample applicator supported above said cover member for manipulation through the access passage to apply liquid sample to said carrier, said applicator including a member movable between retracted and advanced positions, a sample retaining element carried by the last named member for transferring liquid sample to the carrier, said element in its advanced position serving to transfer sample to said carrier, and means for positively indexing said element to transfer sample to the carrier at any one of a plurality of positions distributed laterally of the surface of said elongated carrier.



3,317,419
MULTIPLE-STAGE CASCADE HYDROREFINING OF CONTAMINATED CHARGE STOCKS
John T. Fortman, Des Plaines, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
Filed June 1, 1964, Ser. No. 371,389
14 Claims. (Cl. 208—97)



1. A process for hydrorefining a hydrocarbon charge stock comprising hydrocarbons boiling above the gasoline boiling range, and containing a contaminant selected from the group consisting of nitrogenous compounds and sulfurous compounds, which process comprises the steps of:
(a) hydrocracking and hydrorefining said charge stock in admixture with hydrogen at a temperature in the range of from about 600° F. to about 850° F. in a first reaction zone containing a hydrorefining catalytic composite;
(b) separating the normally liquid product effluent from said first reaction zone into a first light fraction, having an end boiling point of from about 400° F. to about 650° F. and a heavier fraction;

(c) combining at least a portion of said first light fraction with a hydrocarbon mixture having an initial boiling point of from about 300° F. to about 450° F. and containing at least one of the aforesaid contaminants, and reacting the resulting mixture with hydrogen at a temperature within said range in a second reaction zone containing a hydrorefining catalytic composite and maintained under less severe conversion conditions than said first zone;
(d) separating the normally liquid product effluent from said second reaction zone into a second light fraction, having an end boiling point within the range of from about 300° F. to about 450° F., and a hydrorefined second heavy fraction;
(e) combining at least a portion of said second light fraction with a hydrocarbon mixture, having an end boiling point of from 300° F. to about 450° F. and containing at least one of the aforesaid contaminants, reacting the resulting mixture with hydrogen at a temperature within said range in a third reaction zone containing a hydrorefining catalytic composite and maintained under conditions to effect hydrogenative hydrorefining of said mixture with minimum hydrocracking; and,
(f) separating the product effluent from said third reaction zone into a normally gaseous phase and a hydrorefined third heavy fraction.

3,317,420
HYDROREFINING OF PETROLEUM CRUDE OIL

John G. Gatsis, Des Plaines, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
No Drawing. Filed Sept. 25, 1964, Ser. No. 399,366
7 Claims. (Cl. 208—264)

1. A process for hydrorefining a hydrocarbon charge stock which comprises colloidally dispersing in said charge stock a tin salt selected from the group consisting of halides, sulfates, salts of fatty acids and salts of aromatic acids, reacting the resulting mixture with hydrogen at a temperature above 225° C., removing a metal-containing sludge from the reaction effluent and recovering a hydrorefined liquid product.

3,317,421
HYDROREFINING OF PETROLEUM CRUDE OIL

William K. T. Gleim, Island Lake, and John G. Gatsis, Des Plaines, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
No Drawing. Filed Sept. 25, 1964, Ser. No. 399,367
5 Claims. (Cl. 208—264)

1. A process for hydrorefining a hydrocarbon charge stock which comprises colloidally dispersing in said charge stock a lead salt of an acid selected from the group consisting of fatty acids, polyfunctional acids and aromatic acids, reacting the resulting dispersion with hydrogen at a temperatures above about 225° C., removing a metal-containing sludge from the reaction effluent and recovering a hydrorefined liquid product.

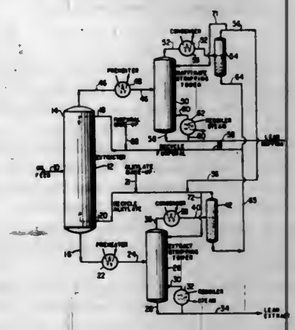
3,317,422
EXTRACTION OF AROMATIC HYDROCARBONS FROM HYDROCARBON MIXTURES

Alvin L. Benham, Littleton, Colo., assignor to Marathon Oil Company, Findlay, Ohio, a corporation of Ohio
Filed Feb. 10, 1964, Ser. No. 343,859
8 Claims. (Cl. 208—327)

1. In a process using an intimate, 1-phase solution of furfural, furfuryl alcohol and water as a solvent for the extraction of heavy aromatic and heavy aliphatics, the steps comprising in a closed loop the contacting of a displacer oil comprising a mixture of aromatic-nonaromatic hydrocarbons containing 10% to 50% lower alkyl poly substituted aromatic compounds with a solvent comprising an intimate, 1-phase solution of 35% to 45% furfural, 45% to 65% furfuryl alcohol, and 5% to 15% by weight of water in a first extraction zone, removing a first extract mixture from said first extraction zone to a second extraction zone, removing from said first extraction zone a raffinate, introducing into the second extraction zone a cycle oil having a boiling point higher than that of said displacer oil, removing from second extraction zone a second extract mixture, passing the second extract mixture to the first extraction zone, removing from said second extraction zone a raffinate, and distilling each of said raffinates to recover said heavy aromatics and heavy aliphatics.

3,317,423
PROCESS FOR SOLVENT EXTRACTION OF AROMATICS FROM AROMATIC-PARAFFINIC HYDROCARBON MIXTURE

Hugh P. Hebert, Princeton, N.J., assignor to Cities Service Oil Company, a corporation of Delaware
Filed Sept. 22, 1964, Ser. No. 398,193
4 Claims. (Cl. 208—327)



1. A process for producing an aromatic concentrate from hydrocarbon feedstock boiling above 500° F. and containing significant quantities of both paraffinic and aromatic constituents which comprises contacting said feedstock in a countercurrent extraction zone maintained at a temperature throughout said zone of from about 70° F. to about 95° F. with furfural, thereby forming a paraffinic raffinate and an aromatic extract containing a small amount of paraffins, counter-currently contacting said extract in said zone with a paraffinic hydrocarbon having a boiling point of from about 250° F. to about 400° F. and finally separating the aromatic components from the furfural.

3,317,424
DEMINERALIZATION OF POLAR LIQUIDS, ESPECIALLY WATER

Kenneth A. Schmidt, Chicago Ridge, Ill., assignor to Nalco Chemical Company, Chicago, Ill., a corporation of Delaware
No Drawing. Filed Mar. 1, 1963, Ser. No. 262,244
8 Claims. (Cl. 210—24)

1. A process for the demineralization of water which comprises bringing water containing dissolved inorganic salts into contact with a cation exchange resin in the hydrogen form, and thereby exchanging the hydrogen ions of said cation exchange resin for the cations of said salts and forming the acids of the anions of said salts; and bringing the water containing said acids into contact with a strongly basic anion exchange resin in the sulfate form, and thereby sorbing the anions of said acids on said anion exchange resin by a chemical reaction including conversion of exchangeable sulfate groups on said resin to bisulfate groups.

3,317,425
LUBRICATING COMPOSITIONS CONTAINING A CARBAMOYL PHOSPHINE

Ulrich Hasserodt, Hamburg, Bergedorf, Hans Fritzsche, Niederpleis, and Friedrich W.A.G.K. Korte, Hangelar, Germany, assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed Apr. 26, 1965, Ser. No. 451,025
Claims priority, application Germany, Aug. 14, 1964, S 92,653
16 Claims. (Cl. 252—46.7)

1. A lubricating oil composition comprising a major amount of lubricating oil and from about 0.05% to about 2% of an oil-soluble monocarbamoyl phosphine having the formula

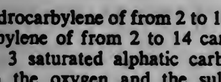
$$Y_2P(S)_n—C(X)—NHR$$

where the Y is selected from the group consisting of alkyl and aryl groups, R is selected from the group consisting of alkyl, aryl and acyl groups wherein the acyl groups are derived from aromatic carboxylic and alkanoic acids, X is selected from the group consisting of oxygen and sulfur and n is an integer of from zero to 1.

3,317,426
PHOSPHO-SUBSTITUTED URETHANE LUBRICATING OIL ADDITIVES

Warren Lowe, Berkeley, Calif., assignor to Chevron Research Company, a corporation of Delaware
No Drawing. Filed June 16, 1965, Ser. No. 464,564
5 Claims. (Cl. 252—46.7)

1. A lubricating oil composition comprising in a major amount an oil of lubricating viscosity and in an amount sufficient to impart extreme pressure properties to said lubricating oil, a composition of the formula:

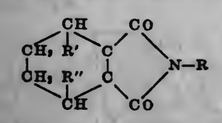


wherein R is hydrocarbylene of from 2 to 12 carbon atoms, R^a is hydrocarbylene of from 2 to 14 carbon atoms and has from 2 to 3 saturated alphatic carbon atoms as a bridge between the oxygen and the sulfur, and R^b is hydrocarbyl of from 1 to 30 carbon atoms.

3,317,427
CYCLOHEXANE-DICARBOXYLIC IMIDE TYPE FUNCTIONAL FLUIDS

Joachim Dazzi, Riehen, Switzerland, assignor to Geigy Chemical Corporation, Greenburgh, N.Y., a corporation of Delaware
No Drawing. Filed May 10, 1965, Ser. No. 454,678
Claims priority, application Switzerland, May 12, 1964, 6,143/64
8 Claims. (Cl. 252—49.6)

4. A composition consisting of at least 25% and up to 75% by weight of a lubricant imide of the formula



(I)

the balance consisting essentially of a second lubricant selected from the group consisting of functional fluids based on esters, aromatic ethers, silicone oils, alkyl melamines, esters of ortho silicic acid and high boiling mineral oil fractions.

3,317,428
ORGANOSILICON HYDRAULIC FLUIDS

Anton S. Pater, Williamsville, N.Y., assignor to Union Carbide Corporation, a corporation of New York
No Drawing. Filed June 29, 1966, Ser. No. 561,349
3 Claims. (Cl. 252—75)

1. A hydraulic fluid consisting essentially of a blend of from about 95 to about 75 weight percent of an organopolysiloxane oil having the formula:

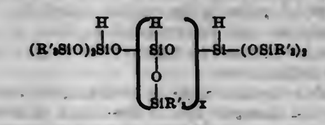
$$(R^1O)_{3-a}R_aSiO(R_2SiO)_xSiR_b(OR^1)_{3-b}$$

wherein R is a hydrocarbon radical, a halo-substituted hydrocarbon radical, a cyanoalkyl radical, an aminoalkyl radical, or a carboxylalkyl radical; R^1 is an alkyl radical or hydrogen; a is 0, 1 or 2; b is 0 or an integer of from 1 to 3; and x has a value of at least 1, and from about 5 to about 25 weight percent of a cyclic diorganopolysiloxane depolymerizate which consists essentially of a mixture of cyclic diorganopolysiloxane trimer, cyclic diorganopolysiloxane tetramer and cyclic diorganopolysiloxane pentamer.

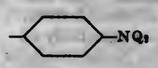
3,317,429
ANTIOXIDATION ADDITIVES

Joseph Cekada, Jr., Midland, and John W. Van Dyke, Freeland, Mich., assignors to Dow Corning Corporation, Midland, Mich., a corporation of Michigan
No Drawing. Filed June 22, 1964, Ser. No. 377,118
10 Claims. (Cl. 252—78)

1. A heat-stabilized fluid consisting essentially of
(1) from 95 to 99.9 weight percent of a fluid selected from the group consisting of oxidation-resistant esters of alkanoic acids having at least 5 carbon atoms and polyhydric alcohols containing at least two methylol radicals bonded to a quaternary carbon atom, esters of tertiary alkyl carbinols having a methylol radical on a quaternary carbon atom and having from 5 to 12 carbon atoms and dicarboxylic acids having from 4 to 12 carbon atoms, and siloxane fluids of the formula $[R_nSiO_{4-n/2}]_m$ where
R is selected from the group consisting of hydrocarbon radicals free of aliphatic unsaturation and halohydrocarbon radicals free of aliphatic unsaturation,
n has a value of 1.8 to 3, and
m has a value of at least 2,
(2) from 0.05 to 3 weight percent of an amine antioxidant selected from the group consisting of phenothiazine, phenylamine and naphthylamines, and
(3) from 0.05 to 3 weight percent of a compound selected from the group consisting of



and $(Q_3SiO)_3SiH$ where
Q is selected from the group consisting of lower alkyl and aryl radicals, at least one Q being aryl,
x is an integer of 0 to 4, and
R' is selected from the group consisting of alkyl radicals of no more than 3 carbon atoms, alkoxy radicals of no more than 3 carbon atoms, the phenyl, tolyl, naphthyl, and vinyl radicals, and the



radical where Q is selected from the group consisting of lower alkyl and aryl radicals, the ratio of (2) to (3) being from 1:2 to 2:1.

3,317,430
DETERGENT COMPOSITIONS
Hill M. Priestley, North Bergen, and James H. Wilson, Demarest, N.J., assignors to Lever Brothers Company, New York, N.Y., a corporation of Maine
No Drawing. Filed May 5, 1960, Ser. No. 26,976
3 Claims. (Cl. 252—152)

1. An improved detergent composition comprising an organic suds-producing synthetic detergent selected from the group consisting of anionic-nonsoap detergents and nonionic detergents and as a foam stabilizer an amine oxide selected from the group consisting of N,N-bis(2-hydroxyethyl) dodecylamine oxide and N-benzyl-N-methyl dodecylamine oxide, the amine oxide being present at a level ranging from 2% to 100% by weight of the synthetic detergent.

3,317,431
WATER TREATING REAGENT AND METHOD
Saul Kaye, Evanston, Ill., assignor to Wright Chemical Corporation, Chicago, Ill., a corporation of Illinois
No Drawing. Filed Oct. 8, 1964, Ser. No. 402,641
7 Claims. (Cl. 252—180)

1. The method of treating cooling water to control the formation of scale caused by the agglomeration and precipitation of heat-coagulable insoluble suspended particles which method comprises introducing at least 0.5 part per million, by weight, of a "condensed" tannin into said cooling water.

3,317,432
THORIUM OXIDE SOL
Guy B. Alexander and George W. Sears, Jr., Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed June 2, 1959, Ser. No. 817,468
2 Claims. (Cl. 252—301.1)

1. In a process for preparing thoria aquasols which are stabilized with a monovalent acid to a pH in the range of from about 2 to 5 and which have a concentration of from about 50 to 81 weight percent of thorium dioxide in the form of particles having an average diameter ranging from about 10 to 100 millimicrons, the step of simultaneously adding to a dilute aqueous solution of colloidal thoria particles having particle diameters not greater than 5 millimicrons a water-soluble thorium salt at a rate not exceeding 1 millimole of salt per hour per 10 square meters of colloidal thoria surface area in the colloidal solution, and an anion exchange resin in the hydroxyl form at a rate sufficient to maintain the pH in the mixture in the range between 2 and 5, while maintaining a temperature in the range above 80° C., and an electrolyte level below 0.2 molar in the reaction vessel, the additions being continued until the colloidal particles of thoria in the system have grown to a size in the range from about 10 to 100 millimicrons.

2. A stable thorium oxide sol having an average thorium oxide particle diameter size in the range of about 10 to 100 millimicrons, said sol being at a pH of between about 3 to 5.

3,317,433
HEAT RUPTURABLE CAPSULES
Herman J. Eichel, Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio, a corporation of Maryland
No Drawing. Filed Jan. 27, 1960, Ser. No. 4,858
8 Claims. (Cl. 252—316)

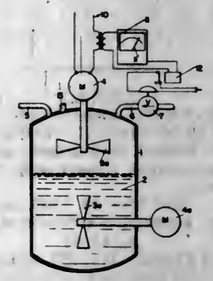
1. As an article of manufacture, a minute gas-rupturable capsule consisting essentially of

(a) a substantiallly water-insoluble core material,
(b) a seamless gas-pressure-rupturable solid capsule wall of hydrophilic film-forming polymeric material surrounding and normally confining said core material, and
(c) disposed in said capsule a heat-activatable material, which itself, when heated above an elevated predetermined temperature, rapidly and abruptly evolves, in situ, an amount of gas exerting a pressure sufficient to abruptly rupture the capsule wall, thereby releasing the confined core material.

3,317,434
METHOD OF ENCAPSULATING PARTICULATE MATTER BY COACERVATION USING GELATINS OF OPPOSITE ISOIONIC pH
Arthur Vela, Skokie, and Jerome Cohen and Catherine Aranyi, Chicago, Ill., assignors to Armour and Company, Chicago, Ill., a corporation of Delaware
No Drawing. Filed July 10, 1963, Ser. No. 294,167
7 Claims. (Cl. 252—316)

1. The method of encapsulating particulate matter, comprising dispersing the particulate matter in a first aqueous solution of gelatin, mixing a second aqueous solution of a different gelatin with said first solution, said mixing being carried out at a temperature of at least 35° C. but not over 65° C., the gelatin in one of said solutions being acid-precursor gelatin having an isoionic pH above 7.5 and the gelatin in the other of said solutions being alkali-precursor gelatin having an isoionic pH below 6.0 and both of said gelatin solutions being substantially salt-free, reducing the temperature of the mixture thus obtained to a temperature below 35° C. and at least 5° C. below the mixing temperature to encapsulate at least a portion of said particulate matter by gelatin-gelatin coacervation, and separating the encapsulated particulate matter.

3,317,435
METHOD FOR FEEDING AN ANTI-FOAMING AGENT TO A REACTION VESSEL
Sanzo Yamashita, Yutaka Iida, Yutaka Hara, Yutaka Hirukawa, and Iwao Kameyama, Tokyo, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan
Filed May 20, 1964, Ser. No. 368,958
Claims priority, application, Japan, May 23, 1963, 38/25,621
1 Claim. (Cl. 252—321)



In a method of feeding an anti-foaming agent to a reaction vessel containing a liquid carrying a top layer of foam: the steps of mechanically breaking the foam layer, deriving a variable electrical signal from the mechanical power required for breaking the foam layer, the signal varying with said power as the foam layer increases and decreases, and controlling the feeding of the anti-foaming agent in response to said signal to increase the feeding rate when said layer increases and to decrease said feeding rate when said layer decreases.

3,317,436
LIQUID STABILIZERS FOR VINYL CHLORIDE POLYMERS COMPRISING A LEAD SALT DISSOLVED IN AN ALKYL PHENOL
Alfred Szczepanek, Duren-Rolsdorf, and Günter Koemen, Duren, Germany, assignors to Chemische Fabrik Hoesch K.-G., Duren, Germany
No Drawing. Filed Feb. 19, 1963, Ser. No. 259,741
Claims priority, application Germany, Feb. 26, 1962, C 26,335
9 Claims. (Cl. 252—400)

1. A liquid lead stabilizer composition comprising a solution of a major proportion of at least one lead salt of one member selected from the group consisting of an epoxidized fatty acid, Koch acids consisting of a mixture of branched, cyclic and straight-chain aliphatic monocarboxylic acids of 9 to 19 carbon atoms, an alkyl phenol in which the alkyl group has 1 to 12 carbons, and a naphthenic acid dissolved in a minor proportion of an alkyl phenol in which the alkyl group has 1 to 12 carbon atoms.

3,317,437
PROCESS FOR THE PRODUCTION OF ALFIN CATALYSTS
William W. Hoffman, Fort Mitchell, Ky., and Fred K. Morgan, North College Hill, Ohio, assignors to National Distillers and Chemical Corporation, New York, N.Y., a corporation of Virginia
No Drawing. Filed Apr. 8, 1963, Ser. No. 271,487
7 Claims. (Cl. 252—431)

1. A process for the production of Alfin catalyst comprising

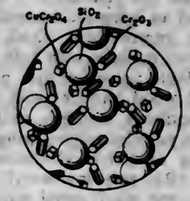
(a) mixing in an inert solvent methyl-n-alkyl carbinol with excess metallic sodium to form the sodium compound of said carbinol,
(b) thereafter introducing an alkyl halide into said reaction mixture to react with the remaining metallic sodium and form alkyl sodium and sodium halide, and
(c) thereafter introducing a vinyl monoolefin into said reaction mixture to react with said alkyl sodium and form the sodium compound of said vinyl monoolefin.

3,317,438
HYDROCARBON CONVERSION PROCESS AND CATALYTIC CONTACT MATERIAL THEREFOR
Gordon R. Engebretson, Park Forest, and John Mool, Homewood, Ill., assignors to Sinclair Research, Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Jan. 21, 1965, Ser. No. 427,126
5 Claims. (Cl. 252—455)

1. A solid contact material consisting essentially of modified feldspar of the general formula $L_yM_zAl_xSi_{4-x}O_8$ where L is a cation of valence w selected from the group consisting of hydrogen, barium, strontium and group IIIB type 4*f* rare earth cations, M is a cation of valence x selected from the group consisting of sodium, potassium and calcium, x is an integer of 1–2, y and z are fractional values such that $w(y)+x(z)=x$ and z is no greater than about 0.25, with which is associated about 20–99% by weight of the contact material of solid synthetic gel selected from the group consisting of 5–80% alumina, the balance essentially silica and 10–80% magnesia, the balance essentially silica.

3,317,439
CATALYST AGGREGATES OF CRYSTALLITES
Alvin B. Stiles, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Original application Sept. 29, 1960, Ser. No. 59,376, now Patent No. 3,230,034, dated Jan. 18, 1966. Divided and this application Oct. 21, 1965, Ser. No. 499,897
6 Claims. (Cl. 252—455)

1. As a catalyst, aggregates of crystallites of a catalytic material having an ultimate particle no greater than 1500 Angstroms which are kept apart by crystallites of a first refractory which melts above 1000° C., to said aggregates, crystallites of a second refractory which melts



above 1000° C. are added to keep the former two groups of crystallites apart thus forming an aggregate of said catalytic material, first refractory and second refractory which is stabilized against crystallite growth and inactivation at high temperatures.

3,317,440
VULCANIZATION OF ELASTOMERS WITH SULFUR AND A POLYHALOALIPHATIC COMPOUND
Peter E. Wei and John Reimer, Jr., Westfield, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Filed Mar. 5, 1962, Ser. No. 177,179
28 Claims. (Cl. 260—5)

1. A curable composition of matter comprising an elastomer, sulfur, and about 0.2 to 30 parts per 100 parts elastomer by weight of a polyhaloaliphatic compound having no more than one hydrogen atom selected from the class consisting of polyhaloalkanes and polyhalocyclomonoalkenes containing 3 to 20 ring carbon atoms, said elastomer being saturated when polyhaloalkanes are utilized.

3,317,441
METHOD FOR TEMPORARILY PROTECTING SENSITIVE SURFACES BY DIRECT-CONTACT FILM-FORMING COATINGS
Jacques Martial Baudin, 51 Ave. de Suffren, Paris, France
No Drawing. Filed Apr. 23, 1962, Ser. No. 189,323
Claims priority, application France, Apr. 29, 1961, 860,373
2 Claims. (Cl. 260—5)

1. A composition adapted to be applied on a mechanical piece in order to form a removable protective coating on said piece, said composition being an aqueous emulsion comprising (A) an elastomeric component comprising polychloroprene, polyisobutylene, and natural rubber in the approximate weight ratio of 200:14:6; (B) butyl ester of sulfonated ricinoleic acid and oleic alcobol sulfonate, these ingredients being present in the emulsion in an amount not exceeding 10% by weight based on the elastomeric component; and (C) a mineral filler in an amount exceeding 25% based on the weight of the elastomeric component.

3,317,442
PARTICLE BOARD COMPRISING MAGNESIA-BASE CEMENT AND A POLYELECTROLYTE
James A. Clarke, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Feb. 4, 1966, Ser. No. 525,130
13 Claims. (Cl. 260—9)

1. An improved wood particle board which comprises a wood particle-inorganic magnesia-base cementitious binder composition also containing from about 0.15 to

2.5 parts by weight per 100 parts dry wood of a synthetic water-soluble polyelectrolyte selected from the group consisting of polyalkylenimines, polyalkylenepolyamines, polyvinylbenzyl dialkanol sulfonium halides, and alkali metal salts of polyvinylarene sulfonic acids.

9. In the method of preparing wood particle board by the application of heat and pressure to a composite mass of wood particles and an inorganic magnesia-base cementitious material, the improvement which comprises the treatment of said wood particles with both a cationic and an anionic water-soluble polyelectrolyte prior to admixing the thus treated wood particles with said inorganic magnesia-base cementitious material, said cationic and anionic water-soluble polyelectrolytes being selected from the group consisting of polyalkylenimines (A), polyalkylenepolyamines (B), polyvinylbenzyl dialkanol sulfonium halides (C), and alkali metal salts of polyvinylarene sulfonic acids (D), and said treatment being carried out in a step-wise manner wherein said wood particles are first treated with from about 0.15 to 2.5 parts by weight per 100 parts dry wood of a cationic polyelectrolyte (A), (B), or (C) from said group of water-soluble polyelectrolytes and then subsequently treated with from about 0.02 to 0.5 part by weight per 100 parts of dry wood of an anionic polyelectrolyte (D) from said group of water-soluble polyelectrolytes.

3,317,443
SOLVENTLESS RESIN PREPARATION OF SILICONE-EPOXY RESINS

Sam A. Brady, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich., a corporation of Michigan

No Drawing. Filed Feb. 21, 1963, Ser. No. 260,316
6 Claims. (Cl. 260—18)

1. A method comprising reacting

(1) from 50 to 90 parts by weight of a fatty acid modified condensation product of

(a) an epihalohydrin in which the halogen atom has an atomic weight between 35 and 80, and

(b) a dihydric phenol, with

(2) from 10 to 50 parts by weight of a hydroxyl-containing organosilicon compound of the unit formula

$$(C_6H_5)_xR_ySiO_{4-x-y/2}$$

wherein

R is a monovalent hydrocarbon radical,

x has an average value of from 0.65 to 1.3,

y has an average value of less than 0.4, the sum of $x+y$ is from 0.95 to 1.3 inclusive, at least 60 mol percent of said siloxane being

$$(C_6H_5)SiO_{1.5}$$

units, there being a total of 100 parts of (1) plus (2), in the presence of

(3) from 2 to 8 parts per 100 parts of [(1)+(2)] of an aliphatic polyhydric alcohol containing at least three hydroxyl radicals,

in the absence of a solvent to give a soluble compatible resin.

3,317,444
BUTYL RUBBER VULCANIZATES PREPARED FROM COMPOSITIONS COMPRISING FACTICE, PHENOLIC CURING AGENT AND AROMATIC AMINE

Barry Topcik, Somerville, N.J., assignor to Columbian Carbon Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed June 21, 1963, Ser. No. 289,738
4 Claims. (Cl. 260—19)

1. An improved butyl rubber vulcanizate particularly characterized by excellent aging qualities, said vulcanizate obtained by vulcanizing a composition comprising 100 parts by weight of butyl rubber, a factice in an amount of from 3 to about 20 parts per 100 parts of rubber, a phenolic curing agent in an amount of from 3 to 20 parts per 100 parts of rubber and from about 0.5 to about 2 parts of an aromatic amine antioxidant per 100 parts of rubber.

3,317,445
ALKALI RESISTANT POLYESTER RESINS FROM ROSIN

Noah J. Halbrook and Ray V. Lawrence, Lake City, Fla., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed Aug. 27, 1964, Ser. No. 392,661
27 Claims. (Cl. 260—26)

1. A process for modifying an unmodified rosin with a lactone, which process comprises the following steps:

(a) charging to a reaction vessel an unmodified rosin;

(b) blanketing the unmodified rosin with an inert gas;

(c) heating the unmodified rosin, with stirring, to at least 160° C. and to not more than about 200° C.;

(d) adding a lactone selected from the group consisting of β-propiolactone and polymeric β-propiolactone to the resulting molten rosin slowly to avoid excessive refluxing and loss of the lactone, said lactone being added in the amount of about from 3 to 25 parts per 100 parts of the unmodified rosin, all parts by weight;

(e) slowly increasing the temperature of the molten product of step (d) to not more than about 250° C.;

(f) maintaining a period of dwell for at least two hours and not more than six hours under the blanket of inert gas with stirring until the U.V. absorption at 241 millimicrons becomes constant; and

(g) thereafter recovering the resulting lactone-modified rosin.

9. A process for esterifying a lactone-modified rosin to form a polyester resin containing rosin in the center of the chain and having a molecular weight of about from 460 to 2200, which process comprises the following steps:

(a) charging to a reaction vessel a lactone-modified rosin consisting of a product of claim 2;

(b) blanketing the modified rosin with an inert gas;

(c) heating the modified rosin, with stirring, under the blanket of inert gas to form a hot melt;

(d) slowly charging to the hot melt an excess of a polyol selected from the group consisting of ethylene glycol, diethylene glycol, triethylene glycol, propylene glycol, dipropylene glycol, 1,2-propanediol, 1,3-propanediol, and 1,4-butanediol, said polyol being added in the amount of about from 12 to 80 parts per 100 parts of the lactone-modified rosin, all parts by weight;

(e) increasing the temperature of the polyol and modified rosin hot melt to not less than about 250° C. and not more than about 300° C., with stirring, under the inert atmosphere;

(f) maintaining a period of dwell until the acid number of the charge is reduced to not more than about 30, thereby to produce a polyester resin containing rosin in the center of the chain and having a molecular weight of about from 460 to 2200;

(g) cooling the polyester resin to below about 100° C.; and

(h) thereafter recovering the polyester resin.

13. A process for extending a lactone-modified rosin polyester resin having rosin in the center of the polyester chain with an unsaturated dibasic acid and a polyol to give an extended, unsaturated polyester resin having a molecular weight of about from 1000 to 3000, which process comprises the following steps:

(a) charging to a reaction vessel a lactone-modified rosin polyester resin consisting of a product of claim 10;

(b) blanketing the lactone-modified rosin polyester resin with an inert gas;

(c) heating, with stirring, the lactone-modified rosin polyester resin to not more than 200° C.;

(d) charging to the reaction vessel an unsaturated dibasic acid selected from the group consisting of fumaric acid and maleic anhydride, a polyol selected from the group consisting of ethylene glycol, diethylene glycol, triethylene glycol, propylene glycol, dipropylene glycol, 1,2-propanediol, 1,3-propanediol, and 1,4-butanediol, and a polymerization inhibitor selected from the group consisting of quinone, hydroquinone, pyrocatechol, tert-butyl paracresol, and tert-butyl catechol, said unsaturated dibasic acid being added in the amount of about from 35 to 125 parts, the polyol being added in the amount of about from 12 to 130 parts, and the polymerization inhibitor being added in the amount of about from 0.005 to 0.02 part, all parts by weight and based on 100 parts of the lactone-modified rosin polyester resin;

(e) maintaining a period of dwell at about 190° C. to 200° C., with stirring, under the blanket of inert gas until the acid number is reduced to about 10 to 30; and

(f) thereafter recovering the extended, unsaturated polyester resin having rosin in the center of the polyester chain and a molecular weight of about from 1000 to 3000.

23. A process for the preparation of an alkali-resistant and a water-resistant plastic composition, which process comprises the following steps:

(a) charging to a reaction vessel an extended unsaturated polyester resin consisting of a product of claim 15;

(b) adding to the polyester resin a polymerization inhibitor selected from the group consisting of quinone, hydroquinone, pyrocatechol, tert-butyl paracresol, and tert-butyl catechol, said polymerization inhibitor being added in the amount of about from 0.005 to 0.02 part per 100 parts of said extended, unsaturated polyester resin, all parts by weight;

(c) blanketing the charge with an inert gas;

(d) heating with stirring, the charge to a temperature no greater than about 120° C.;

(e) charging to the hot melt a vinyl monomer selected from the group consisting of styrene, vinyl toluene, vinyl acetate, butyl acrylate, methyl methacrylate, vinyl naphthalene, and diallyl phthalate, said vinyl monomer being added in the amount of about from 20 to 100 parts per 100 parts of said extended, unsaturated polyester resin, all parts by weight, and containing a sufficient additional amount of said polymerization inhibitor to give a total weight of inhibitor of about from 0.005 to 0.02 part by weight per 100 parts of the hot melt;

(f) charging to the hot melt, with stirring, under the blanket of the inert gas, a peroxide catalyst selected from the group consisting of benzoyl peroxide, methyl ethyl ketone peroxide, pinane hydroperoxide, cumene hydroperoxide, photosensitized oxidized pine gum peroxide, and dicumyl peroxide, said peroxide catalyst being added in the amount of about from 0.5 to 2.0 parts by weight of the hot melt;

(g) transferring the resulting casting resin containing the peroxide catalyst to a mold; and thereafter

(h) copolymerizing the said extended, unsaturated polyester resin and the vinyl monomer to produce an alkali-resistant and water-resistant plastic composition.

3,317,446
CIS - 1,4 - POLYBUTADIENE-METAL SALT COMPOSITIONS HAVING IMPROVED PROCESSABILITY

Charles R. Wilder, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed May 31, 1963, Ser. No. 284,361
4 Claims. (Cl. 260—27)

1. A method of improving the milling characteristics and increasing the scorch time of a polybutadiene containing at least 85 percent of cis-1,4 addition which comprises compounding 100 parts by weight of said polybutadiene with 0.5 to 10 weight parts of a compound which functions as a processing aid and a scorch retarder selected from aluminum naphthenate and iron resinate, and thereafter milling the thus compounded stock.

3,317,447
ASPHALTENE TREATING PROCESS

Ernest P. Black, West Chester, and James B. Clelland, Newtown Square, Pa., and Seymour W. Ferris, deceased, late of Mount Holly, N.J., by Lucretia G. Ferris, executrix, Mount Holly, N.J., assignors to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

No Drawing. Filed Aug. 25, 1965, Ser. No. 482,636
5 Claims. (Cl. 260—28.5)

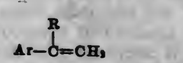
1. A process for the preparation of modified asphaltenes which comprises heating at a temperature in the range of 300–1000° F. a mixture consisting essentially of asphaltenes and polypropylene in the range of 1–20 to 20–1 parts by weight of polypropylene to asphaltenes in the mixture and 1–30 weight percent elemental sulfur based on the weight of the total mixture and recovering a reaction product having a melting point in the range of 275–600° F. and a maximum solubility in carbon disulfide of 70 weight percent.

3,317,448
BACTERIA-RESISTANT LATICES CONTAINING α,α'-AZOBIS(CHLOROFORMAMIDINE)

Hershel B. Prindle and Thomas H. Chandler, Lake Jackson Tex., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Apr. 1, 1963, Ser. No. 269,742
4 Claims. (Cl. 260—29.6)

1. A bacteria-resistant, water-insoluble, organic, polymeric latex comprised of from about 20 to about 75 weight percent of non-volatile solids composed essentially of from about 10 to about 200 parts per million of α,α'-azobis(chloroformamidine) incorporated in an aqueous dispersion of at least one organic, polymeric latex composed of polymerizable ethylenically unsaturated monomers selected from the group consisting of: (I) C_1–C_{18} primary and secondary alkyl esters of acrylic acid; (II) C_1–C_{18} primary and secondary alkyl esters of methacrylic acid; (III) monoethylenically unsaturated nitriles; (IV) monoalkenyl aromatic hydrocarbons of the benzene series represented by the general formula

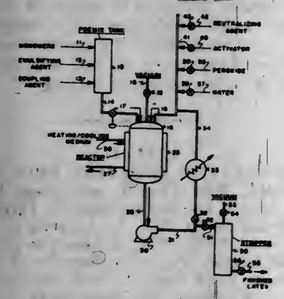


wherein Ar, selected independently, represents an aromatic hydrocarbon radical and a nuclear halohydrocarbon radical and R is selected from the group of substituents consisting of hydrogen, a C_1–C_4 alkyl radical, and a halogen radical having an atomic number of from 17 to 35 inclusively; (V) open-chain aliphatic conjugated dienes having from 4 to 9 carbon atoms, inclusively; (VI) vinyl chloride; (VII vinylidene chloride; (VIII) monoethylenically unsaturated monocarboxylic acids; and (IX) monoethylenically unsaturated dicarboxylic acids.

3,317,449
POLYVINYLIDENE CHLORIDE LATEX AND PROCESS

Philip K. Isaacs, Silver Spring, Md., Dudley G. Woodard, Washington, D.C., and Alexei Troffimow, Brookline, and Donald M. Wacome, Bedford, Mass., assignors to W. R. Grace & Co., Cambridge, Mass., a corporation of Connecticut

Filed Apr. 19, 1966, Ser. No. 549,743
12 Claims. (Cl. 260—29.6)



1. In the preparation of a polymer latex wherein the polymer comprises 80 to 95 weight percent of vinylidene chloride monomer and wherein the constituent monomers are emulsified in water in a reaction zone in the presence of an emulsifying agent and polymerized through the agency of a polymerization initiator, the improvement comprising adding said monomers and emulsifying agent continuously to said reaction zone during the course of the reaction while maintaining the weight ratio of the added monomers to the added emulsifying agent substantially constant and while maintaining the conversion of monomers in said reaction zone above 80 weight percent at any time after initiation of the reaction, said latex having a viscosity in the range of 20 to 50 cps. (Brookfield #1 splindle, 60 r.p.m. at 25° C.) as measured at 60 weight percent solids, said latex having a solids content above 55 percent.

3,317,450
INTERPOLYMERS OF VINYLIDENE CHLORIDE AND DIACRYLATE ESTERS OF A GLYCOL

Dallas G. Grenley, Midland, and Harold J. Townsend, Saginaw, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Mar. 14, 1963, Ser. No. 265,064
6 Claims. (Cl. 260—29.7)

1. A coating composition for coating flexible webs with non-blocking coatings comprising an aqueous latex of an interpolymer consisting essentially of (a) vinylidene chloride, (b) from 0.5 to about 5 percent by weight of a diacrylate ester of a glycol having the formula:

$$HO—(CH_2—CH_2—O)_n—H$$

wherein n is an integer from 1 to about 6 and wherein said glycol has an average molecular weight below about 270, and (c) any remainder being of at least one monoethylenically unsaturated comonomer and wherein said interpolymer is composed of at least 70 percent by weight vinylidene chloride.

3,317,451
PROCESS FOR PREPARING PREVULCANIZED CHLOROPRENE POLYMER LATICES

David Apotheker, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed June 24, 1963, Ser. No. 290,156
17 Claims. (Cl. 260—29.7)

2. A process for preparing a prevulcanized chloroprene polymer latex which comprises: (I) polymerizing chloroprene in aqueous emulsion in the presence of (a) from about 0.05 to 2 parts by weight, per 100 parts of monomer of a dialkyl xanthogen disulfide in which each alkyl group contains from about 1 to 8 carbon atoms, and (b) from about 3 to 5 parts by weight, per 100 parts of monomer, of an emulsifying composition comprising from about 15 to 50 weight percent of a fatty acid soap and from about 50 to 85 weight percent of a rosin acid soap, said polymerization being carried out to the maximum monomer conversion at which only sol polymer is obtained; (II) treating the resulting latex at a pH greater than about 10 and in an inert atmosphere free of atmospheric oxygen by adding thereto at least about 0.005 mole, per 100 parts by weight of polymer in the latex, of a mixture comprising (a) a member of the group consisting of hydrazine, a primary monoamine and a primary polyamine, in which last two compounds the amino group is attached to an aliphatic carbon atom, and (b) a secondary monoamine selected from the group consisting of secondary monoamines in which the amino group is attached only to aliphatic carbon atoms, and secondary monoamines in which the amino group is part of a saturated heterocyclic ring, the molar ratio of (a) to (b) being in the range of about 0.5 to 5 of (a) to 1 of (b); and, (III) subjecting the resulting treated latex to a temperature of from about 10° C. to 100° C. for a period of time sufficient to convert the sol polymer contained in the latex to gel polymer.

3,317,452
MANUFACTURE OF DESTATICIZED RESINOUS POLYMERIC ARTICLES

Arnold S. Louis, Hastings-on-Hudson, and Myron A. Coler, Scarsdale, N.Y. (both of 155 Waverly Place, New York, N.Y. 10014)

No Drawing. Filed May 4, 1965, Ser. No. 453,177
18 Claims. (Cl. 260—32.6)

1. The process of producing a product adapted to be molded into destaticized articles and consisting essentially of at least 50% by volume of a polymer of a vinylidene monomer selected from the group consisting of polystyrene, copolymers of vinylchloride and vinyl acetate, polyvinyl chloride, polyvinylidene chloride, polyethylene and polymethylmethacrylate and, in addition to the polymer, solid particles of a sorptive material having an electroconductive organic liquid sorbed on said particles which process consists of:

sorptively coating (a) solid particles of a chemically inert non-resinous sorptive material having a particle size smaller than 40 microns and a sorption factor of at least 0.5, with (b) a destaticizing agent consisting of a water soluble, electro-conductive, organic liquid having a conductivity greater than 10^{-9} mho/cm. at 20° C. and a vapor pressure below 760 mm. at 190° C., so as to sorb said organic liquid on said sorptive particles in a volume ratio of said organic liquid to said sorptive material not less than about 0.18 times and not exceeding 0.67 times the sorption factor;

and dispersing said sorptive material particles having said organic liquid destaticizing agent sorbed thereon, in said polymer, said organic liquid destaticizing agent being present in a quantity sufficient to impart electrical conductivity to articles molded from said resultant product whereby they are incapable of becoming electrostatically charged and constituting at least about 1 part of sorbed organic liquid, by volume per 100 parts of polymer, by volume; said polymer, said sorptive material, and said organic liquid being mutually non-reactive and stable under normal molding conditions for said polymer, said sorptive material being insoluble in said organic liquid and said polymer, said sorptive material being readily wetted by said organic liquid, and said organic liquid being at most partially soluble in said polymer.

3,317,453
COPOLYMERS OF VINYL ACETATE, ACRYLIC ACID, AND GLYCIDAL METHACRYLATE AND CROSSLINKED PRODUCTS THEREOF

Angus N. MacDonald, Longmeadow, and Gary P. Rabold, Boston, Mass., assignors, by mesne assignments, to Monsanto Company, a corporation of Delaware

No Drawing. Filed Feb. 3, 1964, Ser. No. 342,269
5 Claims. (Cl. 260—33.4)

1. A process for the preparation of a stable copolymer capable of self-curing at room temperature, which consists in heating together at temperatures of from about 60° to 80° C. in the presence of an addition polymerization catalyst, a mixture consisting of vinyl acetate, acrylic acid and glycidal methacrylate; wherein a total of 90 mole percent vinyl acetate, 5 mole percent acrylic acid and 5 mole percent glycidal methacrylate are used and wherein at least 90% of the acrylic acid and glycidal methacrylate is added gradually over a period of approximately 4 hours.

3,317,454
VULCANIZABLE COMPOSITIONS COMPRISING OLEFINIC POLYMERS AND VULCANIZATES OBTAINED THEREFROM

Giovanni Pedretti, Ferrara, Italy, assignor to Montecatini Edison S.p.A., Milan, Italy

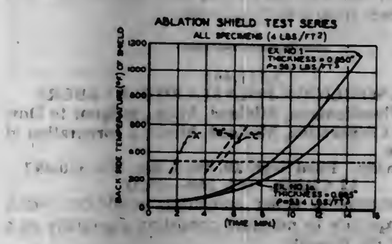
No Drawing. Filed Feb. 19, 1964, Ser. No. 345,845
Claims priority, application Italy, Feb. 21, 1963, 3,566/63
12 Claims. (Cl. 260—33.4)

1. A vulcanizable composition comprising a copolymer of ethylene with a higher alpha-olefin containing a reinforcing filler and an effective amount of a cross-linking agent selected from the group consisting of alpha, alpha'-bis(tertiary butyl-peroxy) para-diisopropylbenzene and a mixture of said para-diisopropylbenzene with alpha, alpha'-bis(tertiary butyl-peroxy) meta-diisopropylbenzene and an effective amount of an anti-blooming agent selected from the group consisting of dialcohols, polyalkylene oxides, aliphatic polyalcohols, and mixtures of said aliphatic polyalcohols in equal parts by weight with a member selected from the group consisting of silicic acid, an alkylene glycol and a polyalkylene oxide.

3,317,455
THERMAL INSULATION AND ABLATION MATERIAL

James C. Bloome, Bridgeton, and Edward M. Kern and Donald L. Kummer, Florissant, Mo., assignors to McDonnell Aircraft Corporation, St. Louis, Mo., a corporation of Maryland

Filed Jan. 21, 1963, Ser. No. 252,926
5 Claims. (Cl. 260—37)



1. A thermal insulation and ablation material comprising:

(a) about 80% by weight of a cured organopolysiloxane made from a methyl and phenyl substituted fluid organopolysiloxane curable by a platinum catalyst to a flexible elastomeric solid and constituted of:

(1) a high polymer dimethyl siloxane fluid having a small proportion of vinyl substituents and having dissolved therein a solid resinous copolymer of silica and $R_3SiO_{1/2}$ in which the R groups are principally methyl with a small proportion of vinyl, the total vinyl constituting less than 10 mol percent of the total organo substituents bonded to silicon in the fluid, and

(2) an amount of phenyl, methyl and hydrogen substituted fluid silicone having substantially 3 hydrogens per 7 phenyl and methyl radicals on a mol basis sufficient to provide substantially equivalent hydrogen and vinyl in the organopolysiloxane,

(b) about 9.6% by weight of hollow silica spheres,

(c) about 9.6% by weight of potassium titanate fibers, and

(d) about 0.8% by weight of dry boric acid,

said material being applicable in its wet form to a substrate in a single coating of desired thickness and being formable into a continuous tough smooth surfaced flexible resilient sheet suitable for bonding to an irregular substrate.

3,317,456
HEAT-SHRINKABLE ORGANOSILICON MATERIALS FROM MIXTURES OF CRYSTALLINE AND NON-CRYSTALLINE ORGANO SILICON POLYMERS

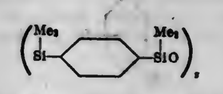
Darryl T. Hansen, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich., a corporation of Michigan

No Drawing. Filed July 22, 1963, Ser. No. 296,486
17 Claims. (Cl. 260—37)

8. A heat-shrinkable composition consisting essentially of

(1) a methylphenylpolysiloxane in which at least 50 percent of the substituents are methyl radicals,

(2) from 1 to 100 percent by weight based on the weight of (1)



where x has an average value of at least 100, and

(3) a reinforcing silica filler.

3,317,457
COATING COMPOSITIONS OF VINYL AROMATIC-MALEIC HALF ESTER COPOLYMERS, EPOXY RESINS AND UREA FORMALDEHYDE RESINS

Robert L. Zimmerman and James R. Harvey, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Aug. 23, 1962, Ser. No. 218,821
2 Claims. (Cl. 260—39)

1. A liquid coating composition comprising from 80 to 90 percent by weight of an organic film-forming material consisting of a mixture of a xylene soluble copolymer of from 75 to 90 mole percent of styrene and from 25 to 10 mole percent of isooctyl acid maleate, and an epoxy resin consisting of a diglycidyl ether of bisphenol A having an epoxide equivalent weight of from 170 to 400 in proportions corresponding to from 0.9 to 1.1 chemically equivalent proportions of the epoxy resin per carboxylic acid group in the copolymer, and from 20 to 5 percent by weight of melamine-formaldehyde-monohydric alcohol condensate, dissolved in a volatile organic solvent therefor and further containing a pigment.

3,317,458

MIXTURE OF CARBON BLACK AND LIGHT FILLER AQUEOUS SUSPENSION ADDED TO RUBBER LATEX

Willi Clas, Bonn (Rhine), Johannes Pochert, Wesseling, near Cologne, and Gerd Roderburg, Bad Godesberg, Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany

No Drawing. Filed Oct. 7, 1963, Ser. No. 314,495
4 Claims. (Cl. 260—41.5)

1. A process for the production of a vulcanizable premixture essentially consisting of a vulcanizable elastomer, carbon black and a light reenforcing filler component selected from the group consisting of finely divided reenforcing silicon dioxide, finely divided reenforcing silicates and mixtures thereof which comprises admixing carbon black and the light filler component with a latex of the elastomer, the carbon black and light filler component being admixed with such latex in the form of an aqueous suspension of a mixture of the carbon black and the light filler component, the total quantity of carbon black and light filler component admixed with the elastomer latex being such as to provide a ratio of carbon black and light filler component to dry elastomer substance content of the latex between 20:80 and 80:20 by weight, the ratio of carbon black to light filler component being between 2:1 and 5:1 by weight, and coagulating the latex in the presence of such admixed carbon black and light filler component.

3,317,459

RUBBERS STABILIZED WITH THE REACTION PRODUCT OF HALO OLEFINS AND PHENOLS

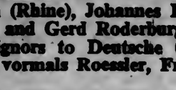
Ronald B. Spacht, Kent, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio, a corporation of Ohio

No Drawing. Filed Nov. 22, 1963, Ser. No. 325,748
8 Claims. (Cl. 260—45.95)

1. The reaction product resulting from the reaction of a mixture containing (1) at least two moles of a phenol conforming to the following structural formula

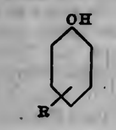


wherein R is selected from the group consisting of alkyl radicals containing from 1 to 12 carbon atoms, cycloalkyl radicals containing from 5 to 6 carbon atoms, benzyl radicals and phenylethyl radicals, and R′ is selected from the group consisting of hydrogen and alkyl radicals containing from 1 to 12 carbon atoms, and (2) approximately one mole of a dihalo olefin conforming to the following structural formula

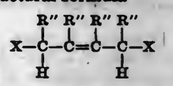


wherein R″ is selected from the group consisting of hydrogen and alkyl radicals containing from 1 to 4 carbon atoms and X is selected from the group consisting of chlorine, bromine and iodine.

4. The reaction product prepared by a two step process, the first step comprising reacting a mixture containing (1) at least two moles of a phenol conforming to the following structural formula



wherein R is selected from the group consisting of hydrogen and alkyl radicals containing from 1 to 12 carbon atoms, cycloalkyl radicals containing from 5 to 6 carbon atoms, benzyl radicals and phenylethyl radicals, and (2) approximately one mol of a dihalo olefin conforming to the following structural formula



wherein R″ is selected from the group consisting of hydrogen and alkyl radicals containing from 1 to 4 carbon atoms and X is selected from the group consisting of chlorine, bromine and iodine, and the second step comprising reacting the reaction product of the first step with an olefinic material containing from 2 to 12 carbon atoms.

3,317,460

HYDROXYORGANOSILOXANES AND COPOLYMERS

Harold A. Clark and Loren A. Haluska, Midland, Mich., assignors to Dow Corning Corporation, Midland, Mich., a corporation of Michigan

No Drawing. Filed Apr. 1, 1963, Ser. No. 269,781
21 Claims. (Cl. 260—46.5)

1. A siloxane having the general formula

$$[(HO)_aR_bSiO_{\frac{4-a-b}{2}}]$$

wherein each R is independently selected from the group consisting of trivalent and tetravalent hydrocarbon and hydrocarbon ether radicals and is bonded to the silicon atom through a silicon-carbon bond, R′ is a monovalent hydrocarbon radical free of aliphatic unsaturation, *a* is an integer from 0 to 3 inclusive, *b* is an integer from 1 to 2 inclusive, *c* is an integer from 2 to 3 inclusive and all of the hydroxyl groups are primary hydroxyl groups.

8. A copolymer consisting essentially of at least one siloxane unit having the general formula

$$[(HO)_aR_bSiO_{\frac{4-a-b}{2}}] \quad (1)$$

wherein each R is independently selected from the group consisting of trivalent and tetravalent hydrocarbon and hydrocarbon ether radicals and is bonded to the silicon atom through a silicon-carbon bond, R′ is a monovalent hydrocarbon radical free of aliphatic unsaturation, *a* is an integer from 0 to 3 inclusive, *b* is an integer from 1 to 2 inclusive, *c* is an integer from 2 to 3 inclusive and all the hydroxyl groups are primary hydroxyl groups, the remaining siloxane units having the general formula

$$R''_nSiO_{\frac{4-n}{2}} \quad (2)$$

wherein each R″ is independently selected from the group consisting of monovalent hydrocarbon and halogenated hydrocarbon radicals free of aliphatic unsaturation and *n* is an integer from 0 to 3 inclusive.

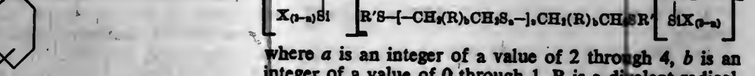
3,317,461

ORGANOSILICON-POLYSULFIDE RUBBERS

Edwin P. Plueddemann, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich., a corporation of Michigan

No Drawing. Filed Sept. 20, 1963, Ser. No. 310,497
12 Claims. (Cl. 260—46.5)

1. A composition under anhydrous conditions which cures on exposure to moisture consisting essentially of a polymer of the formula



where *a* is an integer of a value of 2 through 4, *b* is an integer of a value of 0 through 1, R is a divalent radical,

free of aliphatic unsaturation, comprising C and H in which divalent radical any remaining atoms are selected from the group consisting of O and S in the form of radicals of the group consisting of ≡C—O—C≡, —OH, —SH and ≡C—S—C≡, *c* is an integer with a value of at least 1, R′ is a multivalent radical having a valence of no more than 5, comprising carbon and hydrogen, any other atoms in the radical consisting of oxygen in the form selected from the group consisting of



≡C—O—C≡ and ≡C—OH, there being no acetylenic unsaturation in R′, R″ is a monovalent radical selected from the group consisting of hydrocarbon and halohydrocarbon, *n* is an integer of 0 through 2, X is a hydrolyzable group and *m* is an integer equal to one less than the valence of R′; there being an average of at least 2 Si atoms and 3 X groups per molecule.

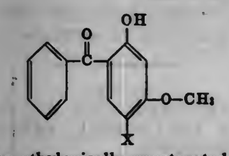
3,317,462

ETHYLENICALLY UNSATURATED DERIVATIVES OF 2 - HYDROXY-4-METHOXYBENZOPHENONE AND POLYMERS THEREOF

Albert I. Goldberg, Berkeley Heights, N.J., and Joseph Fertig and Martin Skoultchi, New York, N.Y., assignors to National Starch and Chemical Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Sept. 26, 1962, Ser. No. 226,464
14 Claims. (Cl. 260—47)

1. An ethylenically unsaturated derivative of 2-hydroxy-4-methoxybenzophenone corresponding to the formula:



wherein X is an ethylenically unsaturated radical selected from the group consisting of the acrylyloxymethylene and methacrylyloxymethylene radicals, said acrylyloxymethylene and methacrylyloxymethylene radicals being linked to the 5 position of the benzophenone nucleus via their respective methylene moieties.

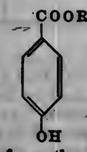
3,317,463

ESTER-ISOCYANATE REACTION PRODUCT

Edward Schonfeld, New York, N.Y., and Charles A. Fetscher, Short Hills, N.J., assignors to Nopco Chemical Company, Newark, N.J., a corporation of New Jersey

No Drawing. Filed Jan. 29, 1963, Ser. No. 254,594
18 Claims. (Cl. 260—47)

1. A process for protecting reactive isocyanate groups comprising the steps of (1) contacting at a temperature of from about 60 to about 110° C., a material containing at least two reactive isocyanate groups with (2) an ester of the formula.

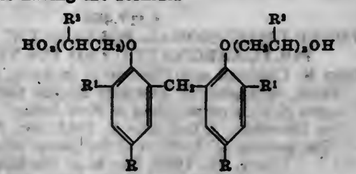


wherein R is selected from the class consisting of alkyl, aryl, and alkaryl groups, said groups containing from 1 to 22 carbon atoms and said ester being present in a ratio of at least one mole of said ester for each reactive isocyanate group.

7. A process according to claim 1, wherein said material containing at least two reactive isocyanate groups is a prepolymer, said prepolymer being prepared by reacting

(A) a polyester, having at least two free and unreacted hydroxyl groups, said polyester being prepared by reacting

(1) from about 1.1 to 2.0 moles of an aromatic glycol having the formula



wherein R is an alkyl group of from 5 to 9 carbon atoms, *x* varies from 1 to 2, and each of R^1 and R^2 is selected from the group consisting of hydrogen and methyl, and

(2) with about one mole of a compound from the group consisting of aromatic dicarboxylic acids, aliphatic dicarboxylic acids and anhydrides thereof, and

(B) a polyisocyanate, said polyisocyanate being present in an amount sufficient to provide at least 2 isocyanate groups for every free and unreacted hydroxyl group in the polyester.

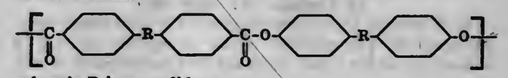
3,317,464

PRODUCTION OF LINEAR AROMATIC POLYESTERS

Andre Jan Conix, Antwerp, Belgium, assignor to Gevaert Photo-Producten N.V., Mortsel-Antwerp, Belgium, a Belgian company

No Drawing. Filed June 10, 1963, Ser. No. 286,496
Claims priority, application Great Britain, Dec. 14, 1956, 38,306/56
4 Claims. (Cl. 260—47)

1. A highly polymeric, linear polyester soluble in chlorinated hydrocarbons and having an intrinsic viscosity of at least 0.4 dl./g. when measured in a solvent taken from the group consisting of 1,2-dichloroethane and symtetrachloroethane at 25° C., of a non-fused, polynuclear phenol and a non-fused, polynuclear aromatic dicarboxylic acid, consisting essentially of re-occurring units of the formula:



wherein R is propylidene.

3,317,465

COMBINATION CATALYST-INHIBITOR FOR BETA-HYDROXY CARBOXYLIC ESTERS

Thomas E. Doyle, Pittsburgh, Frank Fekete, Monroeville, Patrick J. Keenan, Pittsburgh, and William J. Plant, Monroeville, Pa., assignors to H. H. Robertson Company, Pittsburgh, Pa., a corporation of Pennsylvania

No Drawing. Filed June 26, 1963, Ser. No. 290,591
8 Claims. (Cl. 260—47)

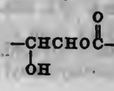
1. In the process of reacting an epoxy compound having a terminal epoxide group



with a carboxylic acid having a terminal



group to yield a beta-hydroxy ester having an internal



group, the improvement comprising:

carrying out the ester formation reaction in the presence of a catalytic amount of a mixture of triphenyl stibine and triphenyl phosphine.

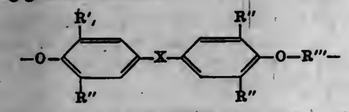
3,317,466

THREE-DIMENSIONAL POLYCYCLIC BISPHENOL POLYCARBONATES AND POLYESTERS

John R. Caldwell and Winston J. Jackson, Jr., Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed July 1, 1963, Ser. No. 292,139
The portion of the term of the patent subsequent to Nov. 22, 1983, has been disclaimed
25 Claims. (Cl. 260—47)

1. A highly polymeric thermoplastic linear organic polyester having an inherent viscosity of at least 0.4, as measured in chloroform, in which the recurring units in the polymer chain are connected only through ester linkages and at least 10 percent of said recurring units have a complex three-dimensional structure represented by the following general formula:



wherein each R'' is a member selected from the group consisting of a hydrogen atom, a halogen atom, and an alkyl radical containing from 1 to 4 carbon atoms, R''' is the residue of a bifunctional carboxylic acid precursor having up to 40 carbon atoms selected from the group of precursors consisting of carbonic acid and dicarboxylic acids, and X is a gem-bivalent radical having a saturated polycyclic three-dimensional structure which includes a saturated bicyclic atomic bridged hydrocarbon ring member.

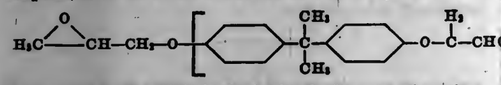
3,317,467

PROCESS FOR PREPARING POLYPHENOXYLENE COMPOSITIONS

Gordon P. Brown and Abraham Goldman, Schenectady, N.Y., assignors to General Electric Company, a corporation of New York

No Drawing. Filed Sept. 9, 1963, Ser. No. 307,365
10 Claims. (Cl. 260—47)

1. A process for the preparation of a solid linear polyphenoxylene composition which comprises heating a suspension of the alkali metal salt of a monohydric mono-



halogenophenol which is free of substituents other than the phenolic hydroxyl and halogen, in an inert nonpolar aliphatic hydrocarbon liquid in which said salt of the monohalogenophenol and polyphenoxylene composition are essentially insoluble throughout the reaction and has a boiling point of at least 150° C., under anhydrous conditions in the presence of elemental copper catalyst for a period of time sufficient to achieve polymerization.

3,317,468

EPOXYAMINE RESIN

James R. Griffith, Riverdale Heights, Md., assignor to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed Aug. 13, 1964, Ser. No. 389,504
3 Claims. (Cl. 260—47)

1. A heat curable epoxy resin composition comprising a mixture of meta-aminobenzylamine and the diglycidyl ether of 2,2-bis (4-hydroxyphenyl) propane in which said amine is present in proportions to provide an amino hydrogen atom for each epoxy group of said glycidyl ether.

3,317,469

REACTION PRODUCT OF A GLYCIDYL POLYETHER AND DIAMINOMETHYL-TRICYCLODECANE

Hans Feichtinger, Dinslaken, and Heinz Noeske, Oberhausen-Sterkrade, Germany, assignors to Ruhrchemie Aktiengesellschaft, a corporation of Germany

No Drawing. Filed Dec. 8, 1964, Ser. No. 416,893
Claims priority, application Germany, Dec. 11, 1963, R 36,770
2 Claims. (Cl. 260—47)

1. Process for preparing glycidyl polyether resins which comprises reacting a glycidyl polyether with diaminomethyl-tricyclodecane.

3,317,470

CRYSTALLINE DIGLYCIDYL ETHER OF BISPHENOL A WITH CURING AGENTS

Kenneth B. Cofer, Pasadena, Tex., assignor to Shell Oil Company, New York, N.Y., a corporation of New York

No Drawing. Original application Aug. 11, 1960, Ser. No. 48,855. Divided and this application Apr. 1, 1965, Ser. No. 458,608
5 Claims. (Cl. 260—47)

1. A solid, particulate composition essentially comprising:

(a) free-flowing crystals of 2,2-bis(2,3-epoxypropoxyphenyl)propane and

(b) a curing amount of an amine curing agent therefor which is a solid at temperatures up to 100° F.

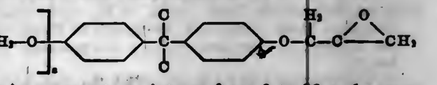
3,317,471

THERMOPLASTIC RESINOUS REACTION PRODUCT OF A DIGLYCIDYL ETHER AND AN AMINO COMPOUND

Wilbur E. Johnson, Lake Jackson, Tex., and Walter A. Henson, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Mar. 12, 1959, Ser. No. 798,854
2 Claims. (Cl. 260—47)

1. A linear, thermoplastic resin consisting essentially of the product formed by the reaction of substantially equimolecular proportions of a diglycidyl ether of a dihydroxy organic compound having the formula



wherein *n* represents an integer from 0 to 20 and a compound having only two amine hydrogen atoms selected from the group consisting of alkanolamines and aniline, said reaction being effected by mixing said reactants and heating the resulting mixture at a temperature of about 20 to 250° C. until the reaction is substantially complete.

3,317,472

THERMOSETTING POLYBISPHENOLS

Chester W. Fitko and Abraham Ravve, Chicago, Ill., assignors to The Continental Can Company, Inc., New York, N.Y., a corporation of New York

No Drawing. Filed Aug. 6, 1963, Ser. No. 300,180
8 Claims. (Cl. 260—50)

1. A process for preparing a metal surface wetting, curable, and flexible resin product comprising the steps of:

(a) condensing in acid medium an alkylene-carbon monoxide copolymer having an alkylene-carbon monoxide mole ratio in the range of 2.5:1 to 8.0:1 with a phenolic compound selected from the group consisting of phenols having at least 2 unsubstituted ortho- and para-positions to form a polyketone phenolic compound condensate, and subsequently,

(b) reacting said condensate with a formaldehyde yielding compound in basic medium to methylolate a portion of the phenolic groups of the polyketone-phenol condensate.

3,317,473

CURING PHENOL-BENZALDEHYDE RESINS WITH A POLYAZIRIDINE

Richard A. Ploeger, Freeland, and Walter E. F. Rupprecht, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed June 29, 1964, Ser. No. 378,941
8 Claims. (Cl. 260—55)

1. A thermosettable mixture comprising a thermoplastic phenol-benzaldehyde resin and a polyaziridinyl compound.

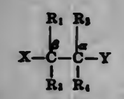
3,317,474

LATENT CATALYSTS FOR ACID-CATALYZED REACTIONS

Joseph W. Jones, Jr., Kansas City, Mo., assignor, by mesne assignments, to Gulf Oil Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

No Drawing. Filed May 21, 1963, Ser. No. 282,137
3 Claims. (Cl. 260—57)

1. A composition comprising an acid curable resin precondensate selected from the group consisting of urea-formaldehyde resin, melamine-formaldehyde resin, urea-melamine resin, phenol-formaldehyde resin, and a polyester resin containing a formaldehyde derivative cross-linking agent, and further comprising a latent curing catalyst selected from the group consisting of compounds of the formula:



wherein X is the residue of a strong acid having a pK less than about 2 and resulting from the abstraction of acidic hydrogen, Y is a Lewis base moiety of the form A_nZ, where Z represents the basic atom of the Lewis base, said Z selected from the group consisting of N, O and S, A represents the same or different substituents on the basic atom, said A selected from the group consisting of hydrogen, lower alkyl, phenyl, —(CH_2—CH_2—X), and lower alkyls capable of forming heterocyclic groups with Z, *n* equals the valence of Z minus 1, wherein said Z is bonded to the alpha carbon atom and R_1, R_2, R_3, and R_4 are selected from the class consisting of hydrogen and lower alkyl; mineral acid salts of said compounds of said formula: and mixtures of said compounds of said formula and said salts.

3,317,475

COPOLYMERIZATION OF GASIFORM FORMALDEHYDE

George Walter Halek, New Providence, Frank Michael Berardinelli, South Orange, Charles Malcolm Hendry, Berkeley Heights, and William John Roberts, Bernardsville, N.J., assignors to Celanese Corporation, a corporation of Delaware

Filed June 24, 1963, Ser. No. 289,837
11 Claims. (Cl. 260—67)

1. A method for producing a stable oxymethylene copolymer, which comprises:

(a) introducing into a reaction zone a gasiform mixture consisting essentially of formladehyde and from about 0.01 to about 10 mols, per mol of formaldehyde, of a comonomer, which contains adjacent carbon atoms and is capable of copolymerizing with the formaldehyde, and

(b) reacting said gasiform mixture therein in the presence of a cationic formaldehyde polymerization catalyst to yield, in contact with the gasiform mixture, a stable oxymethylene copolymer having a molecular weight of at least 1000.

3,317,476

CONDENSATE PREPARED BY REACTING FORMALDEHYDE WITH A REACTION PRODUCT OF AMMONIA AND A LINEAR POLYMER CONTAINING EQUIMOLAR AMOUNTS OF MALEIC ANHYDRIDE AND AT LEAST ONE OTHER ETHYLENICALLY UNSATURATED MONOMER

Lucien Sellet, Saddle River, N.J., assignor to Nopco Chemical Company, Newark, N.J., a corporation of New Jersey

No Drawing. Original application Oct. 5, 1960, Ser. No. 60,576, now Patent No. 3,223,751, dated Dec. 14, 1965. Divided and this application Feb. 23, 1965, Ser. No. 434,690
1 Claim. (Cl. 260—72)

A condensate of molar amounts of formaldehyde and molar amounts of a condensate of

(1) salts of sulfohydroxymethane and

(2) an amide ammonium salt which is the reaction product of

(a) at least two moles of ammonia and one mole of

(b) a water soluble linear copolymer, said copolymer containing approximately equimolar amounts of maleic anhydride and at least one other ethylenically unsaturated monomer copolymerizable therewith.

3,317,477

PROCESS FOR THE PREPARATION OF STYRENE-OXYMETHYLENE COPOLYMERS AND RESULTING PRODUCT

Walter Wilson and Herbert May, Birmingham, England, assignors to British Industrial Plastics Limited, London, England, a corporation of the United Kingdom

No Drawing. Filed Nov. 16, 1961, Ser. No. 152,934
Claims priority, application Great Britain, Nov. 21, 1960, 40,020/60
9 Claims. (Cl. 260—73)

1. A process for the preparation of an oxymethylene-styrene copolymer material capable of forming films which comprises reacting trioxan under substantially anhydrous conditions in the presence of an electrophilic catalyst at a temperature between 0° C. and 100° C. with a compound selected from the class consisting of styrene and styrene derivatives selected from the group consisting of ring-substituted styrenes, alpha-substituted styrenes, beta-substituted styrenes and vinyl naphthalenes, in an amount of 0.5% to 20% by weight based on the total weight of trioxan and said compound, the water content of the reaction mixture being less than 0.1% by weight.

3,317,478

POLYMERS OF POLYACROLEIN-FORMALDEHYDE REACTION PRODUCTS AND CARBOXYLIC ACID ESTERS THEREOF WITH ALDEHYDES

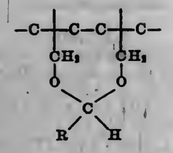
Ilse Ursula Nebel, Oberlar, and Gerhard Bier, Troisdorf, Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Bezirk Cologne, Germany, a corporation of Germany

No Drawing. Filed Nov. 30, 1964, Ser. No. 414,884
Claims priority, application Germany, Dec. 21, 1963, D 43,232
16 Claims. (Cl. 260—73)

1. Process for production of polymer which comprises the step of contacting polyacrolein formaldehyde reaction

product or carboxylic acid esters thereof with aldehyde in the presence of an acid catalyst for reaction of said substituents and the aldehyde to form acetyl substituents on the polymer chain.

12. Polymer having a hydrocarbon polymer chain and having substituents thereon according to the following formula:



wherein R is selected from the group consisting of hydrogen and a radical having a carbon atom directly connected to the carbon atom to which the radical R is joined, wherein the substituents are joined to the same or different carbon atoms of the chain.

3,317,479

CHLOROHYDRIN OF OILY POLYBUTADIENE POLYMERS AND METHODS FOR PREPARING SAME

Allen Noshay, Fords, and Anthony H. Gleason, Scotch Plains, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Filed Jan. 15, 1962, Ser. No. 166,373
3 Claims. (Cl. 260—77.5)

1. A process for obtaining a cured casting under room temperature conditions, which comprises admixing with toluene diisocyanate a polychlorohydrin derivative of an oily polybutadiene polymer, obtained by reacting said polybutadiene polymer with an alkyl hypochlorite and water at a temperature of 10 to 75° C. and allowing said admixture to cure, said polychlorohydrin derivative having a number average molecular weight of 400 to 10,000 and containing one chlorohydrin group per 1 to 10 butadiene units.

3,317,480

ADDUCTS OF ISOCYANATES AND AROMATIC ANHYDRIDE CARBOXYLIC ACIDS

Charles A. Fetscher, Short Hills, N.J., and Edward Schonfeld, New York, N.Y., assignors to Nopco Chemical Company, Newark, N.J., a corporation of New Jersey

No Drawing. Filed June 7, 1963, Ser. No. 286,198
13 Claims. (Cl. 260—77.5)

1. A method of preparing aromatic amide anhydrides comprising reacting, under anhydrous conditions,

(A) an organic isocyanate selected from the group consisting of

(1) an aliphatic monoisocyanate,
(2) an aliphatic polyisocyanate,
(3) an aromatic monoisocyanate,
(4) an aromatic polyisocyanate, and
(5) a prepolymer which is the reaction product of

(a) a compound having at least two free hydroxyl groups selected from the group consisting of

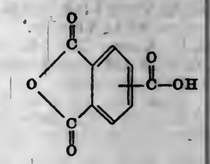
(I) a polyol, which is a polyhydric alcohol having at least two free hydroxyl groups,

(II) a polyester which is the reaction product of a polyol which is a polyhydric alcohol having at least two free hydroxyl groups and an organic acid selected from the group consisting of dibasic acids, poly basic acids and anhydrides thereof, and

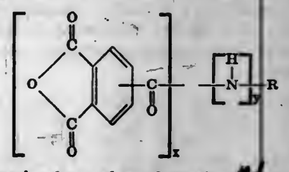
(III) a polyether selected from the group consisting of polyoxyethylene glycols, polyoxypropylene glycols, copolymers thereof, and polyols which are polyhydric alcohols having at least three hydroxyl groups condensed with at least one member of the group consisting of ethylene oxide and propylene oxide, and

(b) a polyisocyanate selected from the group consisting of aliphatic polyisocyanates and aromatic polyisocyanates in sufficient amounts to provide at least two isocyanate groups per each free hydroxyl group present in said compound so that all of the hydroxyl groups in said compound are reacted with isocyanate groups and the sole reactive groups present in said prepolymer being reactive isocyanate groups, and

(B) with from about 0.9 to 1.2 moles per reactive isocyanate group contained within said isocyanate, of an aromatic anhydride of the formula



8. A new and novel aromatic amide anhydride having the formula:



wherein y varies from about 2 to about 4, x varies from about 0.9 to about 1.2 times the value of y, and R is an organic residue of an organic isocyanate which is a prepolymer, said prepolymer being the reaction product of

(A) a compound having at least two free hydroxyl groups selected from the group consisting of

(1) a polyol, which is a polyhydric alcohol having from two to four free hydroxyl groups,

(2) a polyester, which is the reaction product of (a) a polyol, which is a polyhydric alcohol having from two to six free hydroxyl groups, and (b) an organic acid selected from the group consisting of saturated and unsaturated aliphatic dibasic acids and anhydrides thereof having from two to ten carbon atoms, terephthalic acid, isophthalic acid and phthalic anhydride, said (a) and (b) being present in sufficient amounts to provide at least two free hydroxyl groups, and

(3) a polyether having a molecular weight of from 200 to 4000 selected from the group consisting of polyoxyethylene glycols, polyoxypropylene glycols, copolymers thereof and polyethers which are polyhydric alcohols having from three to four hydroxyl groups condensed with at least one member of the group consisting of ethylene oxide and propylene oxide, and

(B) a polyisocyanate selected from the group consisting of aliphatic polyisocyanates and aromatic polyisocyanates having from two to three isocyanate groups,

said (A) and (B) being present in sufficient amounts to provide at least two free isocyanate groups per each free hydroxyl group present in said compound so that all of the hydroxyl groups in said compound are reacted with isocyanate groups and the sole reactive groups present in said prepolymer are reactive isocyanate groups.

3,317,481

CHEMICAL COMPOSITIONS AND PROCESS

Mortimer A. Youker, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed July 24, 1964, Ser. No. 385,059
6 Claims. (Cl. 260—77.5)

1. A solution of (a) the undistilled phosgenation product resulting from the phosgenation of an aromatic polyamine, said product containing aromatic polyisocyanates in (b) a solvent selected from the group consisting of N-alkylated aliphatic monocarboxylic amides containing up to 25 carbon atoms, dialkyl sulfoxides containing up to 8 carbon atoms, N-alkylated sulfonamides containing up to 25 carbon atoms and tetraalkyl ureas containing up to 25 carbon atoms.

5. The process comprising contacting the composition of claim 1 with water whereby an amorphous polyurea resin is formed.

3,317,482

PRODUCTION OF POLYLAUROLACTAM

Joachim Kunde, Frankenthal, Pfalz, and Hans Wilhelm, Horst Metzger, and Helmut Doerfel, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Oct. 22, 1964, Ser. No. 405,849
Claims priority, application Germany, Oct. 26, 1963, B 74,026; Sept. 30, 1964, B 78,731
2 Claims. (Cl. 260—78)

1. A process for the manufacture of polylaurolactam by polycondensation of laurolactam at elevated temperatures which comprises heating a mixture of laurolactam and 20–60 mol percent of water for 1–6 hours, at 305–330° C. at autogenous pressure to produce low molecular weight polylaurolactam, then slowly releasing the pressure to atmospheric pressure while heating the polylaurolactam and removing the water of said mixture during the release of pressure, and then heating the resultant product for 0.2 to 5 hours under nitrogen at 280–330° C. to produce polylaurolactam having a K-value, as measured as 1 gram of polylaurolactam dissolved in 100 ml. of 96% sulfuric acid according to Fikentscher, Cellulosechemie, 12, 58 (1932), in the range of 40 to 60 and a methanol-extractable fraction of less than 1.2% by weight.

3,317,483

HYDROXYALKYL CONTAINING ADDITION POLYMERS OF TERTIARYALKOXYALKYL ESTERS

Joseph A. Verdol, Dolton, Ill., assignor to Sinclair Research, Inc., Wilmington, Del., a corporation of Delaware

No Drawing. Filed June 18, 1962, Ser. No. 202,963
14 Claims. (Cl. 260—78.4)

1. A method for preparing an addition polymer containing about 1 to 100% of a hydroxyalkyl ester of an olefinically unsaturated carboxylic acid which comprises subjecting a polymer having an average molecular weight of at least about 500 formed by polymerization at the double bond of a monomer containing about 1 to 100% of a tertiary-alkoxyalkyl ester of an olefinically unsaturated carboxylic acid in which the acid group is of 3 to 43 carbon atoms and in which the tertiaryalkoxyalkyl has the formula $—(R_1O)_x—R_2$, where R_1 is a divalent aliphatic hydrocarbon radical of 2 to 12 carbon atoms, R_2 is a monovalent tertiary aliphatic hydrocarbon radical of 4 to 10 carbon atoms, and x is a number from 1 to 25, the essential balance of the polymer being a copolymerizable olefinic compound of 2 to 12 carbon atoms, to a temperature of about 50 to 200° C. in the presence of an acid catalyst and releasing tertiary olefin from said polymer.

3,317,484

POLYMERS HAVING RECURRING TRIAZINE RINGS

Charles Gerhard Fritz, Wilmington, and Joseph Leo Warnell, Graylyn Crest, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Nov. 23, 1962, Ser. No. 239,823
22 Claims. (Cl. 260—78.4)

1. A solid polymer resin having recurring triazine rings linked from the carbon atoms with at least 1 weight percent of a perfluorocarbon ether having a structure selected from the group consisting of

(A) $—(CF_2)_n CF_2OCF—$ (X)

where n is an integer of from 0 to 12, and X is selected from the group consisting of F and CF_3;

(B) $—CFO(CF_2)_mOCF—$ (X, X)

where m is an integer of from 2 to 12 and X is selected from the group consisting of F and CF_3;

(C) $—(CF_2)_n CF_2O\left(\begin{matrix}CFCF_2O\\ \downarrow\\ X\end{matrix}\right)_y CF—$ (X)

where n is an integer of from 0 to 12, y is an integer of from 0 to 100, and X is selected from the group consisting of F and CF_3; and

(D) $—CF(OCF_2CF)_w O(CF_2)_m O\left(\begin{matrix}CFCF_2O\\ \downarrow\\ X\end{matrix}\right)_u CF—$ (X, X)

where m is an integer of from 2 to 12, w plus u is an integer of from 0 to 100 and X is selected from the group consisting of F and CF_3, the remainder of said triazine ring links being divalent perfluorocarbon radicals containing from 2 to 8 carbon atoms.

3,317,485

INTERPOLYMERS OF N-VINYLACETAMIDES WITH MALEIC ANHYDRIDE

Robert B. Blance, East Longmeadow, and Saul M. Cohen, Springfield, Mass., assignors, by mesne assignments, to Monsanto Company, a corporation of Delaware

No Drawing. Filed July 16, 1963, Ser. No. 295,528
2 Claims. (Cl. 260—78.5)

1. Copolymers of N-alkyl-N-vinylacetamide and maleic anhydride having an intrinsic viscosity of at least 0.04 dl./g. in acetone at 20° C., wherein the alkyl group contains from 2 to 18 carbon atoms.

ERRATA

For Class 260—79 see:
Patent No. 3,317,919
Patent No. 3,317,920

3,317,486

MERCAPTOETHANOL/MERCAPTOPROPANOL COPOLYMERS AND PROCESS

Morris B. Berenbaum, Levittown, and Edward Broderick, Perkasie, Pa., and Ray C. Christens, North Ogden, Utah, assignors to Thiokol Chemical Corporation, Bristol, Pa., a corporation of Delaware

No Drawing. Filed Dec. 6, 1962, Ser. No. 242,609
4 Claims. (Cl. 260—79)

1. A method of making a mercaptoethanol/mercaptopropanol copolymer which comprises condensing mercap-

toethanol and alpha,beta-mercaptopropanol monomers in the presence of 0.5 to 10 parts by weight of an acid catalyst selected from the group consisting of p-toluene sulfonic acid, sulfuric acid, zinc chloride and boron trifluoride-ether complex per 100 parts by weight of said monomers at a temperature in the range between 80° and 115° C., stabilizing the copolymeric product by removing residual acid catalyst values from the reaction mixture, and recovering the condensation product in substantially pure form.

3,317,487

NOVEL THERMAL STABLE RESINS AND PRODUCTS PRODUCED THEREWITH

Harry A. Smith, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Mar. 27, 1963, Ser. No. 268,445
6 Claims. (Cl. 260—79)

1. A process for preparing a stabilized polymer selected from the group consisting of (a) polyphenylene sulfides, (b) polyphenylene sulfoxides and (c) polyphenylene sulfides in which at least a portion of the sulfur moieties are oxidized to the sulfoxide, which comprises heating at a temperature of from about 400° to about 700° C. under an inert atmosphere a polymer of the class named having a molecular weight of at least about 2000 for a time, at least about 1 hour, sufficient to substantially elevate its melting point.

3,317,488

SULFUR-CONTAINING POLYMERS

Rudolf J. Eckert, Bensel (Rhine), Germany, and Lloyd C. Fetterly, Oakland, Calif., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Nov. 5, 1963, Ser. No. 321,430
4 Claims. (Cl. 260—79)

1. A process for preparing plastic sulfur-containing polymers which comprises reacting at a temperature of from —10° C. to 15° C. an ethylenically unsaturated compound selected from the group consisting of (a) aliphatic acyclic olefins containing at least 6 carbon atoms, (b) aliphatic conjugated diolefins containing from 4 to 6 carbon atoms, (c) cycloalkenes, (d) aryl olefins and (e) ethyl acrylate with a mixture of hydrogen sulfide and sulfur dioxide in the mole ratio of H_2S:SO_2 of from 1:1 to 3:1.

3,317,489

METHOD FOR POLYMERIZING THIIRANES

Manfred Sander, Frankfurt am Main, Germany, assignor to Mobil Oil Corporation, a corporation of New York

No Drawing. Filed Mar. 3, 1964, Ser. No. 349,175
15 Claims. (Cl. 260—79)

1. A process which comprises homopolymerizing thiiranes in the presence of a polar organic solvent having a dielectric constant above about 10 (measured at 20° C.) in admixture with an alkali metal in a highly basic form capable of combining with acetone.

11. A process which comprises homopolymerizing thiiranes in the presence of an aliphatic monoketone having a pK_a value above about 14 in admixture with potassium in a highly basic form capable of combining with acetone.

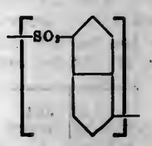
3,317,490

NOVEL INTERPOLYMER AND ITS PREPARATION

Rostyslaw Dowbenko, Gibsonia, Pa., assignor to Pittsburgh Plate Glass Company, Pittsburgh, Pa., a corporation of Pennsylvania

No Drawing. Filed Apr. 26, 1963, Ser. No. 276,071
4 Claims. (Cl. 260—79.3)

1. An interpolymer of 1,5-cyclooctadiene and sulfuryl chloride consisting essentially of recurring units of the structure:



3,317,491

NOVEL CRUDE RUBBERS CONTAINING METAL OXIDE CURE AGENTS, PROCESS FOR CURING SUCH COMPOSITIONS, AND VULCANIZATES OBTAINED THEREBY

Gaylord A. Kanavel, Yardley, Pa., assignor to Thiokol Chemical Corporation, Bristol, Pa., a corporation of Delaware

No Drawing. Filed Aug. 11, 1964, Ser. No. 388,936
18 Claims. (Cl. 260—79.5)

1. A curable composition comprising a curable polyacrylate interpolymer which contains vicinal epoxide groups and as a curing agent for said interpolymer, at least one metal oxide selected from the group consisting of the oxides of lead, zinc, magnesium and calcium.

3,317,492

PROCESS FOR COPOLYMERIZING A CONJUGATED DIOLEFIN AND A VINYL AROMATIC HYDROCARBON WITH A COORDINATION CATALYST AND THE PRODUCT

Carroll A. Hochwalt, Clayton, Mo., assignor to Monsanto Company, a corporation of Delaware

Filed Apr. 18, 1955, Ser. No. 501,795
11 Claims. (Cl. 260—79.5)

1. A process which comprises copolymerizing a conjugated diolefin hydrocarbon selected from the group consisting of butadiene-1,3 and isoprene with a vinyl aromatic hydrocarbon in the presence of a catalyst prepared by the interaction of (a) an aluminum compound of the general formula R_2AlX wherein R is selected from the group consisting of alkyl, cycloalkyl and aryl radicals and X is selected from the group consisting of hydrogen, halogen, alkyl, cycloalkyl and aryl radicals, with (b) a metal halide selected from the group consisting of the chlorides, bromides and iodides of titanium and zirconium, said copolymerizing being effected in the absence of material rendering said catalyst ineffective.

3,317,493

TERPOLYMER CONTAINING METHYL METHACRYLATE, 2-ETHYLHEXYL ACRYLATE AND METHACRYLIC ACID AND COMPOSITIONS CONTAINING SAME

Richard N. Selby, Williamsville, N.Y., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Nov. 5, 1963, Ser. No. 321,446
3 Claims. (Cl. 260—80.5)

1. An interpolymer of 65.5–71.5% by weight copolymerized methyl methacrylate, 27–33% by weight copolymerized 2-ethylhexyl acrylate, and 1.5–2.5% by weight copolymerized methacrylic acid, said interpolymer having an inherent viscosity of at least 0.4.

3. A structure comprising an aluminum substrate having coated thereon a composition comprising an interpolymer of 65.5–71.5% by weight copolymerized methyl methacrylate, 27–33% by weight copolymerized 2-ethylhexyl acrylate and 1.5–2.5% by weight copolymerized methacrylic acid, said interpolymer having an inherent viscosity of at least 0.4.

3,317,494

POLYMERIZATION OF CONJUGATED DIOLEFINS WITH A CARBON DISULFIDE-CONTAINING CATALYST

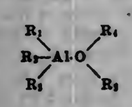
Frank S. Farson, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio, a corporation of Ohio

No Drawing. Filed June 12, 1964, Ser. No. 374,840
22 Claims. (Cl. 260—82.1)

1. The polymerization method which comprises polymerizing at least one conjugated diolefin by means of a catalyst system comprising (a) titanium tetrachloride (b) at least one member of the group consisting of (1) organo aluminum compounds defined by the formula



wherein R_1 is selected from the group consisting of alkyl (including cycloalkyls), aryl, aralkyl and halogen radicals and hydrogen; R_2 and R_3 are selected from the group consisting of alkyl (including cycloalkyls), aryl and aralkyl radicals and (2) the aromatic etherates of organo aluminum compounds defined by the formula



wherein R_1 is selected from the group consisting of alkyl (including cycloalkyls), aryl, aralkyl and halogen radicals and hydrogen; R_2 and R_3 are selected from the group consisting of alkyl (including cycloalkyl), aryl, aralkyl radicals; R_4 is an aromatic radical and R_5 is selected from the group consisting of saturated aliphatic, unsaturated aliphatic, saturated alicyclic, unsaturated alicyclic and aromatic radicals and (c) carbon disulfide.

ERRATUM

For Class 260—83.7 see:
Patent No. 3,317,918

3,317,495

EMULSION POLYMERIZATION OF VINYL CHLORIDE WITH HYDROGEN PEROXIDE, AN ALKALI METAL FORMALDEHYDE SULFOXYLATE AND A FATTY ACID SULFATE SALT

William D. Jones, Painesville, and Steven W. Schaefer, Mentor, Ohio, assignors to Diamond Alkali Company, Cleveland, Ohio, a corporation of Delaware

No Drawing. Filed Jan. 6, 1964, Ser. No. 336,012
25 Claims. (Cl. 260—86.3)

1. A process for preparing polymeric materials in an aqueous medium from a monomer selected from the group consisting of vinyl chloride and mixtures thereof with at least one other monomer polymerizable therewith, which process comprises contacting the said monomer with about 0.002 percent to 3 percent, by weight of the monomer, of a hydrogen peroxide catalyst, about 0.003 percent to 3 percent, by weight of the monomer, of an alkali metal formaldehyde sulfoxylate and about 0.2 percent to 1.5 percent, by weight of the monomer, of a fatty acid sulfate salt of the formula

$$R—(OR')_nOSO_3Y$$

wherein R' is a saturated aliphatic hydrocarbyl radical containing 1 to 3 carbon atoms; n is an integer from 0 to 10; R is an aliphatic hydrocarbyl radical containing 6 to 20 carbon atoms; and Y is a cation selected from the group consisting of alkali metals, alkaline earth metals, ammonium and alkanol amines containing up to 6 carbon atoms.

3,317,496

COPOLYMERS OF DIOLEFINS AND OLEFINS AND METHOD OF PRODUCING THEM

Giulio Natta, Piero Pino, and Lido Porri, Milan, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Continuation of application Ser. No. 570,961, Mar. 12, 1956. This application June 25, 1963, Ser. No. 290,302
Claims priority, application Italy, Mar. 18, 1955, 4,006/55
3 Claims. (Cl. 260—88.2)

1. A sulfur-vulcanizable, unsaturated rubber-like interpolymer of pentene-1 and hexadiene-1,5, the hexadiene-1,5 comprising about 13% by weight of the interpolymer, said interpolymer having an iodine number of about 40.

3,317,497

SUBSTITUTED PENTACHLOROCYCLOPENTADIENES AND PROCESS FOR THEIR PRODUCTION

Earl T. McBee, Lafayette, Ind., assignor to Purdue Research Foundation, West Lafayette, Ind., a corporation of Indiana

No Drawing. Filed Apr. 11, 1961, Ser. No. 102,111
6 Claims. (Cl. 260—91.5)

1. Substituted pentachlorocyclopentadienes of the formula C_5Cl_5—R wherein R is selected from the group consisting of allyl, 3-lower-alkyl-substituted-allyl, 2-cyclopentenyl, 2-cyclohexenyl and cinnamyl, produced by the alkylation of the pentachlorocyclopentadieneyl anion with an alkyl halide of the fomula RX wherein X is a halogen and R has the value given above.

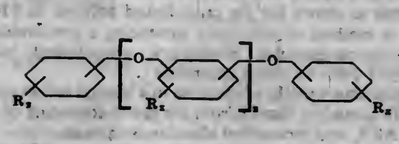
3,317,498

AROMATIC ETHERS AS CATALYST ADJUVANTS FOR PRODUCTION OF CRYSTALLINE POLYOLEFINS

Arthur A. Harban and Charles W. Moberly, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed Jan. 3, 1963, Ser. No. 249,113
14 Claims. (Cl. 260—93.7)

1. A process for the production of a normally solid polymer of a 1-olefin having a low amorphous content comprising contacting under polymerization conditions a 1-olefin having the formula R—CH=CH_2 wherein R is an alkyl group having 1 to 4, inclusive, carbon atoms with a catalyst consisting essentially of a halide of a Group IV–A metal and a component having the formula R_nMX_m wherein R is selected from the group consisting of alkyl, cycloalkyl, and aryl radicals and combinations thereof, X is from the group consisting of hydrogen and halogen, M is a Group III metal, n is from 1 to 3, inclusive, m is from 0 to 2, inclusive, and the sum of n and m is 3 in the presence of an aromatic ether represented by the structural formula



where n=0 to 5, x=1 to 3, R=hydrogen, alkyl, aryl, aralkyl, or alkaryl, at least one R must be other than hydrogen when n=0.

3,317,499

ZIEGLER-NATTA TYPE OLEFIN POLYMERIZATION CATALYST MODIFIED WITH ORGANIC ACID HALIDES OR SULFUR CONTAINING ORGANIC ACID HALIDES

Kohei Nakaguchi, Masaaki Hirooka, and Toshimichi Fujita, Nihama-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan, a corporation of Japan

No Drawing. Filed July 30, 1963, Ser. No. 298,588

Claims priority, application Japan, Aug. 6, 1962, 37/33,603

16 Claims. (Cl. 260—93.7)

1. A method for producing polyolefines comprising contacting an α-monoolefine having 3–10 carbon atoms with a catalyst system obtained by mixing (1) an organometallic compound which is a compound of a metal selected from Groups IA, IIA, IIB and IIIB of the Periodic Table and a hydrocarbon residue having 1–20 carbon atoms directly attached to the metal by a carbon-metal linkage, (2) a halide of a transition metal in which the valency of the metal is below its maximum value, the transition metal being selected from Groups IVA, VA and VIA of the Periodic Table, and (3) an acid halide of an organic acid selected from the group consisting of carboxylic, thiocarboxylic, sulfinic, and sulfonic acids.

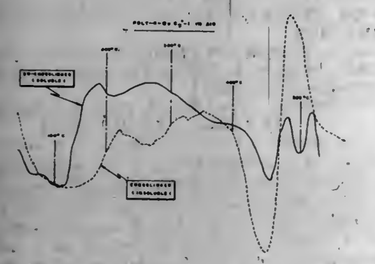
3,317,500

HYDROCARBON-INSOLUBLE POLY-4-METHYL-1-PENTENE

William R. Edwards, Baytown, Tex., assignor, by mesne assignments, to Esso Research and Engineering Company, Elizabeth N.J., a corporation of Delaware

Filed Oct. 2, 1963, Ser. No. 313,286

30 Claims. (Cl. 260—93.7)



1. An elastomeric, non-cold flowing cross-linked poly-4-methyl-1-pentene characterized by having a molecular weight in excess of 1,000,000 and being insoluble in hydrocarbon solvents, and having an infrared analysis as shown in FIGS. 1 and 1A, and a differential temperature analysis as shown for the cross-linked polymer in FIG. 2.

2. A method of selectively producing a predominantly hydrocarbon-insoluble elastomeric cross-linked poly-4-methyl-1-pentene which comprises

contacting 4-methyl-1-pentene in a methyl halide solvent with a catalyst chosen from the group consisting of solid $AlCl_3$ and monoethyl aluminum chloride

at a temperature within the range of −20° F. to +100° F.

and in the substantial absence of competing tertiary carbon-containing compounds.

3,317,501

SOLUBLE POLY-4-METHYL-1-PENTENE

William R. Edwards, Baytown, Tex., assignor, by mesne assignments, to Esso Research and Engineering Company, Elizabeth N.J., a corporation of Delaware

No Drawing. Filed Oct. 16, 1963, Ser. No. 316,524

12 Claims. (Cl. 260—93.7)

1. A method of polymerizing 4-methyl-1-pentene which comprises

contacting 4-methyl-1-pentene at −20° F. to +100° F. with a solid aluminum chloride catalyst,

with a solvent containing at least 4% by weight methyl halide,

and an effective amount of a catalyst deactivator chosen from the group consisting of alkyl chlorides containing at least two carbon atoms, diolefins, and tertiary carbon-containing compounds other than 4-methyl-1-pentene.

3,317,502

POLYMERIZATION OF OLEFINS IN THE PRESENCE OF A COORDINATION CATALYST AND CARBONYL SULFIDE

Arthur A. Harban and Samuel Renzulo, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed Oct. 21, 1963, Ser. No. 317,781

3 Claims. (Cl. 260—93.7)

1. A process for the production of a normally solid polymer of a 1-olefin having a low amorphous content comprising contacting under polymerization conditions a 1-olefin having the formula $R—CH=CH_2$ wherein R is an alkyl group having from 1 to 4, inclusive, carbon atoms with a catalyst prepared by admixing at least two essential components, one of said components being (1) selected from the group consisting of organometal compounds, metal hydrides and metals of Group I, II and III and another of said components being (2) a metal compound selected from the group consisting of Groups IV, V, VI and VIII metal compounds, the mole ratio of said organometal compounds, metal hydrides and metals of Group I, II and III to said metal compound selected from the group consisting of Group IV, V, VI and VIII metal compounds is in the range of 1:1 to 10:1 wherein said catalyst is present in the range of 0.01 to 5 weight percent based on the amount of 1-olefin contacted and wherein carbonyl sulfide is present in an amount in the range of from 11 to 80 parts per million based on the amount of 1-olefin feed.

3,317,503

PRODUCTION OF POLYBUTADIENE OF REDUCED TENDENCY TO COLD FLOW

Floyd E. Naylor, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed Mar. 25, 1963, Ser. No. 267,845

9 Claims. (Cl. 260—94.3)

1. In a process wherein 1,3-butadiene is polymerized to polybutadiene polymer having a cis-1,4-content of at least 80 percent, the improvement comprising adding to the polymerization mixture containing said polymer, after at least 80 percent of the monomer has been converted to polymer, a treating agent having the general formula R_nMH_m, where R is a hydrocarbon radical selected from the group consisting of alkyl, cycloalkyl, and aryl radicals and combinations thereof, M is a metal selected from the group consisting of boron, aluminum, gallium, indium and thallium metal, H is hydrogen, n is an integer from 1 to 3, m is an integer from 0 to 2, and the sum of n and m is 3, continuing the polymerization at an elevated temperature in the range of 40–300° F. for a period of time sufficient to age said treated mixture and recovering said polymer from the treated polymerization mixture.

3,317,504

POLYMERIZATION OF ETHYLENE UNDER HIGH PRESSURE

Klaus Kinkel, Ludwigshafen (Rhine), Helmut Pfannmueller, Wesseling, Peter Roder, Ludwigshafen (Rhine), Rudi-Heinz Rotzoll, Limburgerhof, Pfalz, Manfred Tittel, Mannheim, Friederich Urban, Limburgerhof, Pfalz, and Wieland Zacher, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Aug. 23, 1963, Ser. No. 304,263

Claims priority, application Germany, Aug. 29, 1962, B 68,614

7 Claims. (Cl. 260—94.9)

1. In a process for the production of high molecular weight polyethylene having a density between 0.91 and 0.94 in which ethylene is polymerized in a tubular reactor at a temperature between 150° and 300° C. and a pressure between 1,500 and 3,000 atmospheres and in which there is used a chain transfer agent selected from the group consisting of hydrogen, alkanols and cycloalkanols with 1 to 10 carbon atoms, straight-chain and branched aliphatic cycloaliphatic and aromatic hydrocarbons containing 1 to 8 carbon atoms and aliphatic carbonyl compounds containing 1 to 4 carbon atoms, the improvement which comprises heating the reaction mixture to 168° to 174° C. in a first zone of the tubular reactor through the reactor wall with a heating medium whose temperature is from 2° to 10° higher than said temperature of the reaction mixture at the end of the heating zone of said tubular reactor and then immediately withdrawing heat from the reaction mixture in the following zone through the reactor wall by means of a coolant whose temperature lies between 100° and 170° C., in such a manner that the temperature of said reaction mixture does not fall below 168° C.

3,317,505

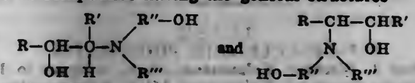
POLYOLEFIN COMPOSITIONS

Harry Braus, Springdale, Ohio, assignor to National Distillers and Chemical Corporation, New York, N.Y., a corporation of Virginia

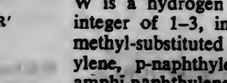
No Drawing. Filed Oct. 10, 1963, Ser. No. 315,387

4 Claims. (Cl. 260—94.9)

1. A composition comprising a polyolefin and an anti-static agent, said anti-static agent comprising a mixture of compounds having the general structures



and



wherein R is a saturated aliphatic hydrocarbon radical having from about 8 to 22 carbon atoms; R' is a member of the group consisting of hydrogen and a saturated aliphatic hydrocarbon radical having from about 1 to 6 carbon atoms; R'' is a saturated aliphatic hydrocarbon diradical having from 2 to about 6 carbon atoms; and R''' is a member of the group consisting of hydrogen, an alkylol radical having from 2 to about 6 carbon atoms, and a saturated aliphatic hydrocarbon radical having from 1 to about 6 carbon atoms.

3,317,506

PREPARATION OF SODIUM OR POTASSIUM SALTS OF POLYMYXIN B AND E OR COLISTIN FORMALDEHYDE - BISULFITE REACTION PRODUCTS

Samuel Wilkinson, London, England, assignor to Burroughs Wellcome & Co. (U.S.A.) Inc., Tuckahoe, N.Y., a corporation of New York

No Drawing. Filed Dec. 4, 1963, Ser. No. 328,049

Claims priority, application Great Britain, Dec. 13, 1962, 47,190/62

6 Claims. (Cl. 260—112.5)

1. A method for producing a sodium salt of a sulphite methyl derivative of a member of a group consisting of a polymyxin B and E, comprising the steps of treating a water soluble neutral salt of the polymyxin with formaldehyde in an aqueous solution under nearly neutral conditions, preferably at a pH between 6.6 and 6.8, bringing the precipitate formed thereby into solution with about 1.2 equivalent of sodium bisulphite at a pH between 6.4 and 6.7, maintaining the solution until the pH has risen to a pH between 7.3 and 7.5 and a sample no longer forms a precipitate when acidified to pH 5.0, and then freeze-drying the remainder of the solution without delay to recover the product.

3,317,507

COPPER-CONTAINING POLYAZO DYESTUFFS

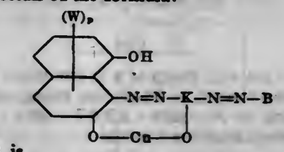
Karl-Heinz Schundehutte, Fritz Suckfull, and Horst Nickel, all of Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed Nov. 19, 1964, Ser. No. 412,328

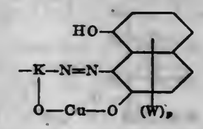
Claims priority, application Germany, Nov. 27, 1963, F 41,386

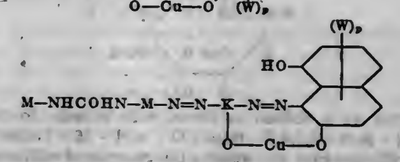
8 Claims. (Cl. 260—145)

1. A dyestuff of the formula:

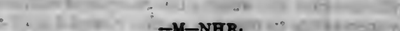


wherein B is





or



W is a hydrogen or a sulphonic acid radical, p is an integer of 1–3, inclusive, the K-radical is p-phenylene, methyl-substituted p-phenylene, sulpho-substituted p-phenylene, p-naphthylene, sulpho-substituted p-naphthylene, amphi-naphthylene, or sulpho-substituted amphi-naphthylene, said —O—Cu—O— bridge being in the ortho position to the azo bridge on the aromatic radicals connected by both the azo bridge and the —O—Cu—O— bridge, M is p-phenylene, sulpho-substituted p-phenylene, methyl-substituted p-phenylene, sulpho- and methyl-substituted p-phenylene, p-naphthylene, sulpho-substituted p-naphthylene, and R_1 is halo-sym. triazinyl, halo-pyrimidinyl, halo-pyrimidine-carbonyl, halo-pyrimidine-sulphonyl, 2,3-dihalo-quinoxaline-6-carbonyl, 2,3-dihalo-quinoxaline - 6 - sulphonyl, 1,4-dihalo-phthalazine-6-sulphonyl, 1,4-dihalo-phthalazine-6-carbonyl, 2-halo-benzthiazole-5-sulphonyl, 2-halo-benzthiazole-5-carbonyl, halo-acryloyl, halo-acetyl, or halo-propionyl, wherein halo is chloro or bromo.

3,317,508

PROCESS FOR MAKING ALKYLENE OXIDE-POLYOL ADDUCTS

Albert D. Winquist, Jr., St. Albans, and Louis F. Theiling, Jr., Charleston, W. Va., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Nov. 9, 1964, Ser. No. 409,939

19 Claims. (Cl. 260—209)

1. The process of forming an alkylene oxide adduct of a polyhydroxylated organic compound which comprises

intermixing said alkylene oxide with said polyhydroxylated organic compound in the presence of a ditertiary diamine catalyst.

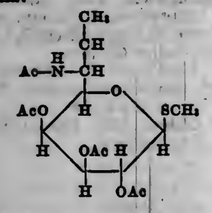
3,317,509

PROCESS FOR THE PRODUCTION OF METHYL N-ACYL - 2,3,4,7 - TETRA - O - ACYL - β - THIOLINCOSAMINIDES

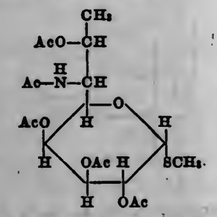
Brian Bannister, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Filed June 15, 1964, Ser. No. 375,299
3 Claims. (Cl. 260—210)

1. A process for the production of a methyl N-acyl-2,3,4,7 - tetra - O - acyl - β - thiolincosaminide having the following formula:



wherein Ac is the acyl group of a hydrocarbon carboxylic acid containing from 2 to 12 carbon atoms, which comprises: treating an N - acyl - 2,3,4,7 - tetra - O - acyl-α-thiolincosaminide of the formula



wherein Ac is defined as above, with bromine to obtain an N - acyl - 2,3,4,7 - tetra - O - acyl - 1β - bromo - 1-deoxylincosamine and treating this compound with a metal methylmercaptide to obtain a methyl N-acyl-2,3,4,7-tetra-O-acyl-β-thiolincosaminide.

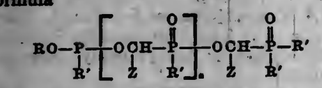
3,317,510

METHOD OF PREPARING POLYPHOSPHORUS-POLYOL ESTERS

Gail H. Birum, Kirkwood, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed Oct. 20, 1965, Ser. No. 498,995
10 Claims. (Cl. 260—210)

1. A process for preparing a phosphorus-containing polyol which comprises heating to 50°–200° C. a mixture of (a) an organic polyol having a molecular weight of from 62 to about 5000 and from 2 to about 10 hydroxyl groups per molecule with (b) a trivalent phosphorus ester of the formula



wherein R is selected from the group consisting of alkyl, haloalkyl, alkenyl, haloalkenyl, alkoxyalkyl, haloalkoxyalkyl, aryloxyalkyl, alkoxyhaloalkyl, and aryloxyhaloalkyl radicals having from 1 to 12 carbon atoms; each R′ is selected from the group consisting of the radicals defining R, —OR, and aromatic hydrocarbyl and halohydrocarbyl radicals having from 6 to 12 carbon atoms, and —OR and R′ taken together with the phosphorus atom to which they are bonded complete a dioxaphospholane ester ring having a total of from 2 to 8 carbon atoms; each Z is selected from the group consisting of hydrogen, and hydrocarbyl, halohydrocarbyl, carboalkoxyhydrocarbyl, alkylthiohydrocarbyl, alkyloxyhydrocarbyl, and cyanohydrocarbyl radicals having from 1 to 17 carbon atoms, and the furyl and thienyl radicals, and n is an average number of from 0 to about 20, for a time sufficient to effect a transesterification reaction in the reaction mixture.

5. A process as described in claim 1 wherein the polyol (a) used is a propylene oxide adduct of a carbohydrate molecule containing up to two saccharide units, and the polyphosphorus ester (b) used is obtained by adding an alkanecarboxaldehyde having from 1 to 17 carbon atoms to a mixture of a bis(haloalkyl) phosphorohalidite and a tris(haloalkyl) phosphite, wherein the halidite is selected from the group consisting of -chloridite and -bromidite and the haloalkyl is selected from the group consisting of chloroethyl, chloropropyl, bromoethyl, and bromopropyl.

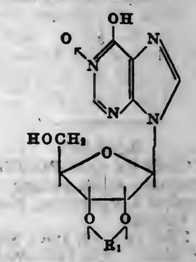
3,317,511

PREPARATION OF HYPOXANTHINE 1-N-OXIDE AND ITS DERIVATIVES

Hideaki Kawashima, Takashi Meguro, and Izumi Kumashiro, Kanagawa-ken, and Tadao Takeuchi, Tokyo, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

No Drawing. Filed Oct. 27, 1964, Ser. No. 406,881
Claims priority, application Japan, Oct. 29, 1963, 38/57,995; Feb. 19, 1964, 39/8,427
7 Claims. (Cl. 260—211.5)

1. A compound of the formula:



wherein R_1 is a member of the group consisting of two hydrogen atoms and lower alkylidene.

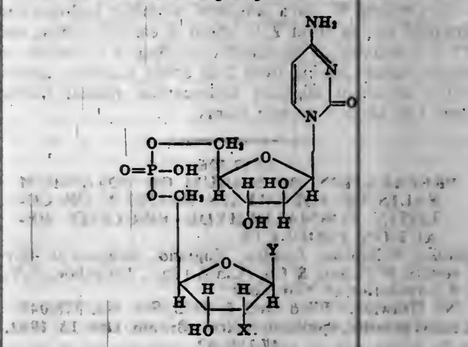
3,317,512

5′,5′-DINUCLEOSIDE PHOSPHATES

William J. Wechter, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Filed June 1, 1965, Ser. No. 460,554
14 Claims. (Cl. 260—211.5)

1. A 5′,5′-dinucleoside phosphate of the formula:



wherein X is selected from the group consisting of hydrogen and hydroxy, and wherein Y is selected from the group consisting of cytosin-1-yl, uracil-1-yl, thymin-1-yl, adenin-9-yl, guanin-9-yl, 7-deazaadenin-9-yl, 6-mercaptopurin-9-yl, uracil-3-yl, 5-fluorouracil-1-yl, 5-chlorouracil-1-yl, 5-bromouracil-1-yl, 5-iodouracil-1-yl, 5-trifluoromethyluracil-1-yl, hypoxanthin-9-yl, xanthin-9-yl, and 5-methylcytosin-1-yl.

3,317,513

METHOD FOR CROSS-LINKING CELLULOSE COMPOUNDS BY INTRAMOLECULAR ESTERIFICATION

Frederick A. H. Rice, Oxon Hill, Md., assignor to the United States of America as represented by the Secretary of the Navy

Original application Apr. 27, 1960, Ser. No. 25,177, now Patent No. 3,230,212. Divided and this application Apr. 22, 1965, Ser. No. 462,158
3 Claims. (Cl. 260—214)

1. A process of cross-linking a cellulose compound through formation of intramolecular ester groups which comprises subjecting a cellulose compound containing carboxyl and hydroxyl groups on adjacent chains of the molecule of the compound to esterification in a volatile organic solvent and in the presence of an acid esterification catalyst.

3,317,514

METHOD OF PRODUCING HIGH VISCOSITY STARCH PHOSPHATE PRODUCTS CONTINUOUSLY

George W. Fox, Jr., and Arden R. Weatherly, Chicago, Ill., assignors to American Maize-Products Company, a corporation of Maine

Filed Dec. 13, 1963, Ser. No. 330,373
11 Claims. (Cl. 260—233.5)

1. A process for producing starch phosphates which comprises forming a mixture of ungelatinized starch granules, from about 5% to about 12% by weight of at least one alkali metal phosphate salt based on the weight of said granules and from about 20% to about 80% by weight of water based on the weight of said granules, vigorously agitating said mixture and heating it to temperatures within the range from about 110° to about 190° F. to precondition said granules to enhanced penetration by and reaction with said phosphate salt, reducing the water content of said granules to below 20% by weight thereof and then roasting said granules at temperatures within the range from about 290° F. to about 400° F. to bring about reaction with said phosphate salt.

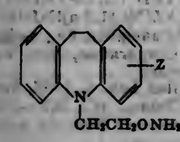
3,317,515

5-(2-AMINOOXYETHYL)-10,11-DIHYDRO-5H-DIBENZ[b,f]AZEPINES

Leo A. Paquette, Columbus, Ohio, assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Filed May 6, 1964, Ser. No. 365,477
3 Claims. (Cl. 260—239)

1. A compound selected from the group consisting of (1) a compound of the formula:



wherein Z is selected from the group consisting of hydrogen, halogen, trifluoromethyl, alkylthio wherein the alkyl group contains from 1 through 5 carbon atoms, alkanoyl wherein the alkyl group contains from 1 through 5 carbon atoms, alkyl of from 1 through 5 carbon atoms, and alkoxy wherein the alkyl group contains from 1 through 5 carbon atoms, and (2) an acid addition salt thereof.

3,317,516

PROCESS FOR THE PRODUCTION OF ε-CAPROLACTAM

Akira Mifune, Sachio Ishimoto, Osamu Ikeda, Michiyuki Tokushiki, Masaki Sumi, and Hideo Matsui, Yamaguchi-ken, Japan, assignors to Teijin Limited, Osaka, Japan, a corporation of Japan

No Drawing. Filed Feb. 27, 1964, Ser. No. 347,687
Claims priority, application Japan, Mar. 7, 1963, 38/10,441; Mar. 22, 1963, 38/13,415; Apr. 20, 1963, 38/20,059; June 24, 1963, 38/32,697; Jan. 13, 1964, 39/1,250
14 Claims. (Cl. 260—239.3)

1. A process for the production of epsilon-caprolactam which comprises heating at least one compound selected from the group consisting of epsilon-caprolactone, epsilon-hydroxycaproamide and amide-forming derivatives of epsilon-hydroxycaproic acid, together with aqueous ammonia whose ammonia concentration is from 5 to 35% by weight, to the temperatures ranging from 200° to 400° C. in the presence of at least one member of the group consisting of noble metal-containing hydrogenation catalysts, nickel-containing hydrogenation catalysts and cobalt-containing hydrogenation catalysts and in an atmosphere of hydrogen or hydrogen-containing inert gas.

3,317,517

PROCESS FOR THE PREPARATION OF EPSILON-CAPROLACTAM

Akira Mifune, Sachio Ishimoto, Osamu Ikeda, and Hideo Matsui, all of Iwakuni-shi, Yamaguchi-ken, Japan, assignors to Teijin Limited, Osaka, Japan, a corporation of Japan

No Drawing. Filed Feb. 27, 1964, Ser. No. 347,709
Claims priority, application Japan, Mar. 7, 1963, 38/10,442; Apr. 20, 1963, 38/20,060; Feb. 11, 1964, 39/6,938
8 Claims. (Cl. 260—239.3)

1. A process for the production of epsilon-caprolactam, which comprises heating at least one compound selected from the group consisting of epsilon-caprolactone, epsilon-hydroxy-caproamide and amide-forming derivatives of epsilon-hydroxycaproic acid, together with aqueous ammonia whose ammonia concentration is from 8 to 35% by weight, to a temperature within the range of 200° to 420° C. in an atmosphere of hydrogen or hydrogen-containing inert gas.

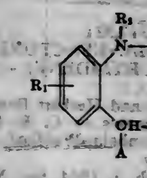
3,317,518

NOVEL 5-ARYL-1,2,4,5-TETRAHYDROBENZODIAZEPIN-3-ONE COMPOUNDS

Giles A. Archer, Essex Fells, and Leo Henryk Sternbach, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey

No Drawing. Filed Oct. 1, 1964, Ser. No. 400,891
4 Claims. (Cl. 260—239.3)

1. A compound selected from the group consisting of compounds of the formula



wherein R_1 represents a member selected from the group consisting of hydrogen, trifluoromethyl, halogen, lower alkyl and lower alkoxy; R_2 represents a member selected from the group consisting of hydrogen and lower alkyl; and A represents a member selected from the group consisting of pyridyl, unsubstituted phenyl and phenyl substituted by a member selected from the group consisting of halogen, trifluoromethyl, lower alkyl and lower alkoxy.

3,317,519

SIMULTANEOUS DEPOLYMERIZATION OF POLYCAPROAMIDE AND POLYESTER WITH RECOVERY OF CAPROLACTAM

Stanley D. Lazarus, Ian C. Twilley, and Orvill E. Snider, Petersburg, Va., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed May 21, 1965, Ser. No. 457,853
8 Claims. (Cl. 260—239.3)

1. A process which comprises heating an aqueous composition comprising water and a polymer mixture of poly-e-caproamide and a polyester formed from alkylene glycol and aromatic homocyclic dicarboxylic acid, the composition containing water:polymer mixture in initial weight ratio of at least about 1:1 and containing from about 3% to about 20% by weight of alkali metal hydroxide based on the dry weight of said polymer mixture, in the initial reaction mixture; the heating being at a temperature of from about 180° C. to about 320° C. and a pressure of from about 150 to about 350 pounds per square inch, thereby regenerating alkylene glycol and dicarboxylic acid together with caprolactam.

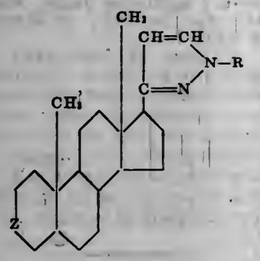
3,317,520

STEROIDO[20,21-c]PYRAZOLES AND INTERMEDIATES

Raymond O. Clinton, East Greenbush, N.Y., assignor to Sterling Drug Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Mar. 5, 1965, Ser. No. 437,590
9 Claims. (Cl. 260—239.5)

1. A compound selected from the group consisting of (A) compounds of the formula



wherein R is a member of the group consisting of hydrogen, carbamyl and acyl, and Z is a member of the group consisting of CH(OH), CH(Oacyl) and C=O; (B) compounds of the above formula having a double bond in the 4,5-position, Z being C=O; and (C) compounds of the above formula having a double bond in the 5,6-position, Z being CH(OH) or CH(Oacyl); acyl in each instance being carboxylic acyl having from one to ten carbon atoms.

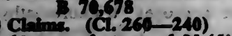
3,317,521

PROCESS FOR THE MANUFACTURE OF N-(5'-NITRO-2'-FURFURYLIDENE)-1-AMINO-HYDANTOIN

Erich Haack, Heidelberg, and Herbert Berger, Sulzberg, Allgau, Germany, assignors to C. F. Boehringer & Soehne G.m.b.H., Mannheim-Waldhof, Germany, a corporation of Germany

No Drawing. Filed Feb. 3, 1964, Ser. No. 342,279
Claims priority, application Germany, Feb. 9, 1963
B 76,678
10 Claims. (Cl. 260—240)

1. Process for the manufacture of N-(5'-nitro-2'-furfurylidene)-1-amino-hydantoin, which comprises reacting 5-nitrofurfurole-hydrazone with a halogen acetyl compound of the formula



contacting the 5-nitro-furfurole-4-halogen acetyl semicarbazone thereby formed with an agent for splitting off hydrogen halide and recovering the N-(5'-nitro-2'-furfurylidene)-1-amino-hydantoin produced from the reaction mixture.

3,317,522

ANILINE CHROMIUM TRICARBONYLS AND PREPARATION OF SAME

Mark Crosby Whiting, Oxford, England, assignor to Ethyl Corporation, New York, N.Y., a corporation of Virginia

No Drawing. Filed Mar. 11, 1963, Ser. No. 264,025
Claims priority, application Great Britain, Mar. 12, 1962, 9,364/62
29 Claims. (Cl. 260—242)

1. A process for the preparation of an aniline chromium tricarbonyl, said process comprising reacting an excess of an amine having at least one hydrogen atom bonded to the amino nitrogen atom, said amine selected from the class consisting of primary and secondary aliphatic, alicyclic, and aralkyl amines, and secondary amines wherein the amino nitrogen atom is within a ring structure, with a fluoroarene chromium tricarbonyl selected from the class consisting of fluorobenzene chromium tricarbonyl, o-fluorotoluene chromium tricarbonyl, m-fluorotoluene chromium tricarbonyl, and p-fluorotoluene chromium tricarbonyl, said process being carried out in a substantially alcohol-free system.

22. Process for the preparation of morpholinylbenzene chromium tricarbonyl, said process comprising reacting fluorobenzene chromium tricarbonyl with an excess of morpholine in a substantially alcohol-free system.

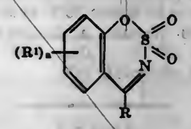
3,317,523

4-SUBSTITUTED-1,2,3-BENZOXATHIAZINE 2,2 DIOXIDES

John B. Wright, Kalamazoo Township, Kalamazoo, County, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware.

No Drawing. Filed Mar. 29, 1965, Ser. No. 443,646
12 Claims. (Cl. 260—243)

1. 4-substituted-1,2,3-benzoxathiazine 2,2-dioxide of the formula:



wherein R is a member selected from the group consisting of lower-alkyl, phenyl, lower-alkylphenyl, lower-alkoxyphenyl, and halophenyl; R^1 is a member selected from the group consisting of halogen, lower-alkyl, and lower-alkoxy; and *n* is a whole number from 0 to 2, inclusive.

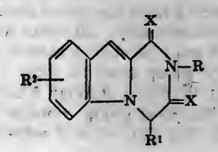
3,317,524

SUBSTITUTED 1,2,3,4-TETRAHYDRO-PYRAZINO[1,2-a]INDOLES

Meier E. Freed, Philadelphia, Pa., assignor to American Home Products Corporation, New York, N.Y., a corporation of Delaware

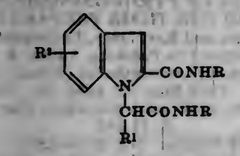
No Drawing. Filed Feb. 4, 1965, Ser. No. 430,494
34 Claims. (Cl. 260—246)

1. A compound selected from the group of compounds of the following formula:



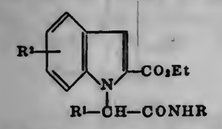
wherein R is selected from the group of di-lower-alkylamino - lower-alkyl, hydrogen, morpholino-lower-alkyl, lower-alkyl, benzyl, piperidino-lower-alkyl, cyclohexyl, and di-lower-alkoxyphenethyl, R^1 is selected from the group of hydrogen, and lower-alkyl; R^2 is selected from the group of hydrogen, benzyloxy, phenoxy, lower-alkoxy and fluorine; X is selected from the group of oxygen and two hydrogen atoms; and the acid addition salts thereof.

2. A compound of the formula:



wherein R, R^1 and R^2 are as stated in claim 1.

3. A compound of the formula:



wherein R, R^1 and R^2 are as stated in claim 1 and Et is ethyl.

15. N-(2-morpholinoethyl)-2-[(2-morpholinoethyl)-carbamoyl]indole-1-acetamide.

3,317,525

PREPARATION OF AMINE BORANES

John A. Snover, Peabody, Mass., assignor to Metal Hydrides Incorporated, Beverly, Mass., a corporation of Massachusetts

No Drawing. Filed May 20, 1964, Ser. No. 368,990
5 Claims. (Cl. 260—247)

1. In a method for the preparation of a water-soluble amine borane wherein an amine is reacted with diborane in an ether solution formed by reacting an alkali metal borohydride with a boron trihalide etherate in an ether which is a solvent for said amine borane to form a liquor comprising an ether solution of the amine borane and a precipitate of an alkali metal haloborate, the improvement which consists in mixing with said liquor about an equal volume of an aqueous solution of an alkali metal hydroxide containing from about 5 to 20 percent by weight of an alkali metal hydroxide, permitting the mixture to settle and form two liquid layers, the top layer of which comprises a solution of the amine borane in a liquor comprising ether and a small amount of water, separating said top layer and removing the ether therefrom by evaporation to form a solution of the amine borane in water, and recovering amine borane from the last mentioned solution.

3. The method as claimed by claim 1 wherein the amine borane is morpholine borane.

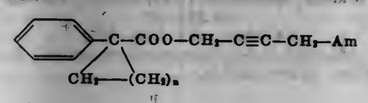
3,317,526

OMEGA-TERTIARYAMINO BUTYNOL-1-PHENYLCYCLOALKANE CARBOXYLATES

Johan Richard Dahlbom, Sodertalje, Sweden, assignor to Aktiebolaget Astra, Apotekarnes Kemiska Fabriker, Sodertalje, Sweden, a company of Sweden

No Drawing. Filed July 16, 1964, Ser. No. 383,214
7 Claims. (Cl. 260—247.2)

1. A compound selected from the group consisting of 4-amino-2-butynyl 1-phenylcycloalkane-1-carboxylates of the formula:



and the addition salts thereof with physiologically acceptable acids wherein *n* is an integer selected from the group consisting of 3 and 4 and Am is selected from the group consisting of pyrrolidino, piperidino, morpholino and lower dialkylamino wherein the alkyl groups have from 1 to 5 carbon atoms, and wherein said group is attached to the butynyl nucleus of said formula at the amino nitrogen.

7. A compound selected from the group consisting of 4-morpholino-2-butynyl 1-phenylcyclopentane-1-carboxylate and salts thereof with physiologically acceptable acids.

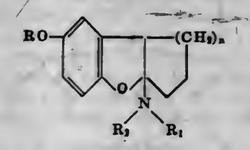
3,317,527

3a AND 5a TERTIARYAMINO CYCLOALKYLENE OF 5 TO 7 [α] BENZOFURANOLS

Louis L. Skaletzky, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Filed Oct. 24, 1966, Ser. No. 588,753
12 Claims. (Cl. 260—247.7)

1. A compound selected from the group consisting of (1) free base compounds of the formula:



wherein R is selected from the group consisting of hydrogen, lower-alkyl of from 1 to 6 carbon atoms, inclusive, benzyl, and lower-alkanoyl of from 1 to 6 carbon atoms, inclusive; *n* is an integer from 1 to 3 inclusive; and R_1 and R_2 taken separately are selected from the group consisting of lower-alkyl, aralkyl of from 7 to 12 carbon atoms, inclusive, phenyl, and substituted phenyl selected from the group consisting of lower-alkylphenyl, lower-alkoxyphenyl, and halophenyl, provided that R_1 and R_2 are not simultaneously selected from phenyl and substituted phenyl, and taken together with —N< constitute a saturated heterocyclic amino radical



of from 5 to 7 nuclear atoms, inclusive, wherein Z is a saturated bivalent radical selected from the group consisting of alkylene, oxadialkylene, thiadialkylene, and N-lower-alkylazadialkylene; (2) acid addition salts and (3) N-oxides thereof.

5. 2,3,3a,8b-tetrahydro-3a-morpholino-1H-cyclopenta[b]benzofuran-7-ol according to claim 1.

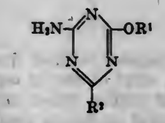
3,317,528

2-AMINO-4-ALKOXY-s-TRIAZINES

Takashi Tsuda, Ikeda, Saburo Takei, Kyoto, and Terusaki Tsujikawa, Otsu, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Filed Nov. 18, 1963, Ser. No. 324,242
Claims priority, application Japan, Nov. 20, 1962, 37/51,815
9 Claims. (Cl. 260—249.5)

1. A compound selected from the group consisting of the compounds of the formula

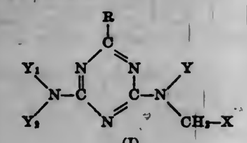


wherein R^1 is a member selected from the group consisting of methyl and ethyl, and R^2 is a member selected from

the group consisting of hydrogen atom and a lower alkyl having up to six carbon atoms; and pharmacologically acceptable acid addition salts of the compounds of the above-illustrated formula.

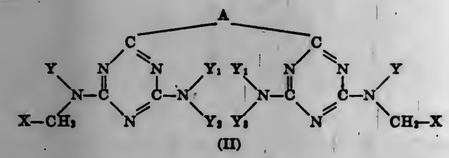
3,317,529
N-HALOMETHYL s-TRIAZINES
Michael Thomas Beachem, Somerset, and John Christian Oppelt, Manville, N.J., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Filed July 7, 1964, Ser. No. 380,947
12 Claims. (Cl. 260—249.6)

1. A compound selected from the group consisting of those having the formulas



(I)

and



(II)

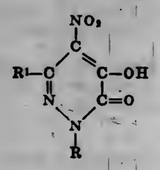
wherein X is selected from the group consisting of chlorine and bromine; R is selected from the group consisting of hydrogen, alkyl of less than 20 carbon atoms, carbocyclic aryl lower alkyl, carbocyclic aryl and



A is a divalent hydrocarbon radical of less than 10 carbon atoms; Y, Y_1, Y_2, Y_3 and Y_4 are selected from the group consisting of lower alkyl, $—CH_2OR_1$ and $—CH_2X$; and R_1 is selected from the group consisting of alkyl of less than 20 carbon atoms and lower alkenyl.

3,317,530
4-NITRO-5-HYDROXYPYRIDAZONES-(6) AND A PROCESS FOR THEIR PRODUCTION
Franz Reicheneder and Karl Dury, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Feb. 5, 1964, Ser. No. 342,777
Claims priority, application Germany, Feb. 6, 1963, B 70,636
8 Claims. (Cl. 260—250)

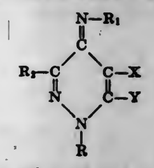
1. A 4-nitro-5-hydroxypyridazone-(6) having the formula



where R denotes a member selected from the group consisting of hydrogen, alkyl of one to eight carbon atoms, alkyl of one to eight carbon atoms substituted by a hydroxy group, cycloalkyl of five to twelve carbon atoms, cycloalkyl of five to twelve carbon atoms substituted by a hydroxy group, aralkyl of seven to nine carbon atoms, aryl of six to ten carbon atoms, aryl of six to ten carbon atoms substituted by a nitro group, aryl of six to ten carbon atoms subsituted by halogen, and arylsulfonyl of six to twelve carbon atoms, and R^1 denotes a member selected from the group consisting of hydrogen and alkoxy of one to four carbon atoms.

3,317,531
DERIVATIVES OF PYRIDAZONIMINES AND A METHOD FOR THEIR PREPARATION
Franz Reicheneder and Karl Dury, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Mar. 17, 1964, Ser. No. 352,647
Claims priority, application Germany, Mar. 19, 1963, B 71,190
12 Claims. (Cl. 260—250)

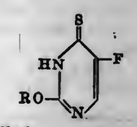
1. A pyridazonimine having the formula



in which R denotes alkyl having 1 to 4 carbon atoms, alkyl having 1 to 4 carbon atoms and being substituted by 1 to 2 chlorine atoms, phenyl, phenyl substituted by 1 to 2 nitro groups, phenyl substituted by 1 to 2 bromine atoms and phenyl substituted by 1 to 2 chlorine atoms, R_1 denotes a member selected from the group consisting of hydrogen, alkyl having 1 to 6 carbon atoms, alkyl having 1 to 6 carbon atoms substituted by chlorine, alkyl having 1 to 6 carbon atoms substituted by 1 to 2 bromine atoms and aralkyl having 7 to 9 carbon atoms, R_2 denotes a member selected from the group consisting of hydrogen, chlorine, bromine, phenyl, phenyl substituted by 1 to 2 chlorine atoms and phenyl substituted by 1 to 2 bromine atoms, X denotes a member selected from the group consisting of hydrogen, chlorine and bromine and Y denotes a member selected from the group consisting of chlorine and bromine.

3,317,532
DERIVATIVES OF PYRIMIDINE
Alden Gamaliel Beaman, North Caldwell, and Robert Duschinsky, Essex Fells, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey
No Drawing. Filed Nov. 19, 1964, Ser. No. 412,338
6 Claims. (Cl. 260—251)

1. A compound of the formula



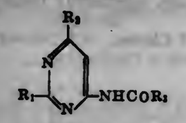
wherein R is lower alkyl.

3,317,533
THEOPHYLLINE DERIVATIVES
René Rachel De Ridder, Brussels, Belgium, assignor to Manufacture de Produits Pharmaceutiques A. Christiaens Societe Anonyme, Brussels, Belgium
No Drawing. Continuation of application Ser. No. 229,485, Oct. 9, 1962. This application Apr. 13, 1966, Ser. No. 543,492
Claims priority, application Great Britain, Apr. 22, 1960, 14,252/60
2 Claims. (Cl. 260—253)

2. 7-(N-ethyl-N-β-hydroxyethylaminoethyl)-8-benzyltheophylline hydrochloride.

3,317,534
BENZAMIDOPYRIMIDINES
Yoshihiro Nitta, Tokyo, Fumio Yonoda, Chigasaki-shi, and Toshio Miyamoto, Tokyo, Japan, assignors to Chugai Seiyaku Kabushiki Kaisha, Tokyo, Japan
No Drawing. Filed Sept. 25, 1964, Ser. No. 399,341
Claims priority, application Japan, Oct. 30, 1963, 38/57,518
7 Claims. (Cl. 260—256.4)

7. A compound of the formula



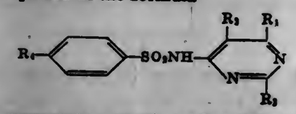
wherein R_1 and R_2 are each selected from the group consisting of alkoxy of less than five carbon atoms and dialkylamino of less than five carbon atoms; and R_3 is selected from the group consisting of phenyl and $(X)_n$-substituted phenyl, wherein X is selected from the group consisting of hydroxy and halo, and *n* is an integer less than 3.

3,317,535
POTASSIUM HYDROGEN SULFITE ADDITION PRODUCT 6-L-(1-CYTOSINYL) AND (1-URACILYL)-5-HYDROXY-p-DIOXANE-2-D-CARBOXYALDEHYDE
Harvey E. Alburn, West Chester, and William Dvonch, Radnor, Pa., assignors to American Home Products Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Feb. 19, 1965, Ser. No. 434,091
2 Claims. (Cl. 260—256.4)

1. 6-L-(1-cytosinyl)-5-hydroxy-p-dioxane-2-D-carboxaledehyde, potassium hydrogen sulfite addition product.

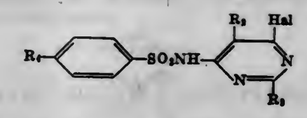
3,317,536
4-BENZENESULFONAMIDO-PYRIMIDINE DERIVATIVES
André Grüssner, Basel, Eckehard Lorch, Reinach, Basel-Land, and Otto Schnider, Basel, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey
No Drawing. Filed June 11, 1965, Ser. No. 463,344
Claims priority, application Switzerland, June 19, 1964, 8,084/64; Dec. 16, 1964, 16,252/64
38 Claims. (Cl. 260—256.5)

37. A compound of the formula



wherein R_1 represents a member selected from the group consisting of lower alkoxy-lower alkyloxy and hydroxy-lower alkyloxy; R_2 represents a member selected from the group consisting of lower alkyl, saturated carbocyclic rings of 3–7 carbon atoms, lower alkenyl, olefinically unsaturated carbocyclic rings of 3–7 carbon atoms, lower alkoxy, lower alkoxy-lower alkyl, hydroxy-lower alkyl, lower alkoxy-lower alkyloxy, hydroxy-lower alkyloxy, phenyl, phenyl substituted by halogen, hydroxy, lower alkyl, lower alkoxy, hydroxy-lower alkyl or lower alkoxy-lower alkyl, phenyl-lower alkyl and phenyl-lower alkyl in which the phenyl nucleus is substituted by halogen, hydroxy, lower alkyl, lower alkoxy, hydroxy-lower alkyl or lower alkoxy-lower alkyl; R_3 represents a member selected from the group consisting of hydrogen, lower alkyl, hydroxy-lower alkyloxy and lower alkoxy-lower alkyloxy; and R_4 represents a member selected from the group consisting of hydrogen, halogen, lower alkyl, lower alkylthio and lower alkoxy and pharmaceutically acceptable base addition salts thereof.

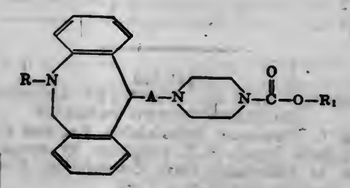
38. A compound of the formula



wherein Hal represents a member selected from the group consisting of chlorine and bromine; R_2 represents a member selected from the group consisting of lower alkyl, saturated carbocyclic rings of 3–7 carbon atoms, lower alkenyl, olefinically unsaturated carbocyclic rings of 3–7 carbon atoms, lower alkoxy, lower alkoxy-lower alkyl, hydroxy-lower alkyl, lower alkoxy-lower alkyloxy, hydroxy-lower alkyloxy, phenyl, phenyl substituted by halogen, hydroxy, lower alkyl, lower alkoxy, hydroxy-lower alkyl or lower alkoxy-lower alkyl, phenyl-lower alkyl and phenyl-lower alkyl in which the phenyl nucleus is substituted by halogen, hydroxy, lower alkyl, lower alkoxy, hydroxy-lower alkyl or lower alkoxy-lower alkyl; R_3 represents a member selected from the group consisting of hydrogen, lower alkyl, hydroxy-lower alkyloxy and lower alkoxy-lower alkyloxy; and R_4 represents a member selected from the group consisting of hydrogen, halogen, lower alkyl, lower alkylthio and lower alkoxy.

3,317,537
PIPERAZINOALKYL-MORPHANTHRIDINES
Alexander E. Drukker, Milwaukee, and Claude L. Judd, Mequon, Wis., assignors to Colgate-Palmolive Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed June 25, 1965, Ser. No. 467,097
2 Claims. (Cl. 260—268)

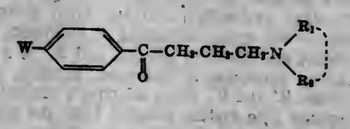
1. A compound of the formula



wherein R and R_1 are lower alkyl and A is lower alkylene.

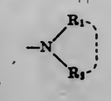
3,317,538
4,4'-DIAMINO-BUTYROPHENONES
Meier E. Freed, Philadelphia, and Elizabeth Hertz, Bryn Mawr, Pa., assignors to American Home Products Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Oct. 22, 1965, Ser. No. 502,641
6 Claims. (Cl. 260—268)

1. A disubstituted butyrophenone having the formula:



wherein W represents a member selected from the group consisting of piperidino, lower alkylpiperazino, phenyl (lower) alkylamino, di-(lower) alkylamino-(lower) alkyl-

amino, morpholino-(lower) alkylamino, and di-(lower) alkylamino-(lower) alkoxy, while



represents a member selected from the group consisting of N,N-di-lower) alkylamino and di-(lower) alkyl-piperidino.

3,317,539

BETA PHASE OF 2,9-DIMETHOXYQUINACRIDONE

Edward E. Jaffe, Union, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Aug. 20, 1965, Ser. No. 481,209
1 Claim. (Cl. 260—279)

A reddish-violet pigment of high intensity and high lightfastness consisting essentially of the beta phase of 2,9-dimethoxyquinacridone characterized by an X-ray diffraction pattern exhibiting three strong lines as follows:

2θ angle of diffraction—degrees:	Interplanar spacing—A.
5.0	17.66
15.0	5.90
26.8	3.32

and seven lines of lesser intensity as follows:

2θ angle of diffraction—degrees:	Interplanar spacing—A.
10.0	8.84
14.0	6.32
16.5	5.37
20.0	4.44
21.1	4.21
23.2	3.58
25.2	3.53

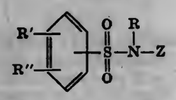
3,317,540

MICROBIOCIDAL QUATERNARY AMMONIUM AROMATIC SULFONAMIDES

Reginald L. Wakeman, Philadelphia, Pa., and E. Griffin Shay, Belle Mead, N.J., assignors, by mesne assignments, to Millmaster Onyx Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed July 30, 1964, Ser. No. 387,270
14 Claims. (Cl. 260—286)

1. An antimicrobial compound having the formula:



wherein Z is a quaternary ammonium cation having a phenol coefficient of at least 100 with respect to both *Staphylococcus aureus* and *Salmonella typhosa* at 20° C., R is a member of the group consisting of hydrogen, halogen, alkyl, cycloalkyl, aryl and aroyl groups, R' is a member of the group consisting of hydrogen, halogen, nitro, phenyl and phenoxy groups, and R'' is a member of the group consisting of hydrogen, halogen, nitro and alkyl groups, R' and R'' being selectively separate or part of a common ring system selected from the group consisting of aromatic and alicyclic ring systems.

11. Alkyl isoquinolinium salt of N-chloro-p-toluenesulfonamide.

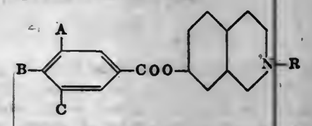
3,317,541

DECAHYDROISOQUINOLINE ESTERS OF SUBSTITUTED BENZOIC ACID AND METHODS FOR THEIR PREPARATION

Sumio Umezawa and Tatsuo Tomioka, Tokyo, Toshio Nakamura, Ohmiya, Saitama, and Yasuo Hoshiide, Kitaadachi-gun, Saitama, Japan, assignors to Nikken Chemicals Co., Ltd., Tokyo, Japan, a corporation of Japan

No Drawing. Filed Dec. 6, 1963, Ser. No. 328,491
Claims priority, application Japan, Dec. 7, 1962, 37/54,812
5 Claims. (Cl. 260—287)

1. A compound of the formula



wherein one of A, B and C is methoxy and each of the others is selected from the group consisting of hydrogen and methoxy and R is lower alkyl of 1 to 4 carbon atoms.

3,317,542

FLUOROPYRIDINES AND DERIVATIVES

Robert N. Haszeldine, Windyridge, Lyme Road, Disley, England, and Ronald Eric Banks, 187 Kingsway, Burnage, Manchester, England

No Drawing. Filed Mar. 23, 1965, Ser. No. 442,155
Claims priority, application Great Britain, May 11, 1964, 19,612/64
7 Claims. (Cl. 260—290)

1. 2,3,5,6-tetrafluoro-4-propenylpyridine.

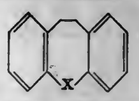
3,317,543

1 - HYDROXY - 1 - (2 - PYRIDYL)-2,3,6,7-DIBENZO-2,6-CYCLOOCTADIENE; 1-(2-PYRIDYL)-2,3,6,7-DIBENZO-2,6,8-CYCLOOCTATRIENE AND THE HYDROCHLORIDE ACID ADDITION SALTS THEREOF

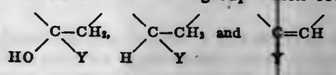
Leslie G. Humber, Dollard des Ormeaux, Quebec, Canada, assignor to American Home Products Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed June 15, 1965, Ser. No. 464,183
5 Claims. (Cl. 260—290)

1. A compound selected from the group which consists of compounds of the formula



wherein X is selected from the group which consists of



wherein Y represents 2-pyridyl; and their hydrochloride salts.

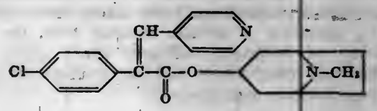
3,317,544

3-TROPINYL ESTERS OF SUBSTITUTED ACRYLIC AND THIO ACRYLIC ACIDS

Henry C. Caldwell, Ambler, and William G. Groves, Norristown, Pa., assignors to Smith Kline & French Laboratories, Philadelphia, Pa., a corporation of Pennsylvania

No Drawing. Filed Feb. 18, 1965, Ser. No. 433,779
5 Claims. (Cl. 260—292)

3. A chemical compound of the formula



3,317,545

[2-(2,6-DIMETHYLPIPERIDINO)ETHYL]GUANIDINES AND INTERMEDIATES

Harry Allen Albrecht, Nutley, John Thomas Plati, Rutherford, and Wilhelm Weaner, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey

No Drawing. Filed Aug. 21, 1963, Ser. No. 303,680
3 Claims. (Cl. 260—293)

1. A compound selected from the group consisting of [2-(2,6-dimethylpiperidino)ethyl]guanidine and non-toxic acid addition salts thereof.

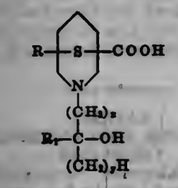
3,317,546

N-HYDROXYALKYL-PIPERIDINE CARBOXYLIC ACIDS

Francis E. Cislak and Charles K. McGill, both of Indianapolis, Ind., assignors to Reilly Tar & Chemical Corporation, Indianapolis, Ind., a corporation of Indiana

No Drawing. Filed Apr. 10, 1964, Ser. No. 358,955
6 Claims. (Cl. 260—294)

1. N-hydroxyalkyl-piperidine carboxylic acids of the formula:



wherein R is a member of the group consisting of hydrogen, lower alkyl and carboxyl, R_1 is selected from the group consisting of hydrogen and lower alkyl, x represents a whole number from 1 to 4 inclusive, and y is selected from the group consisting of 0, 1, and 2.

3,317,547

QUINUCLIDYL ETHERS OF DIBENZO-CYCLOHEPTADIENE

Claude I. Judd, Mequon, Wis., assignor to Colgate-Palmolive Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed June 24, 1965, Ser. No. 466,836
2 Claims. (Cl. 260—294.7)

1. 5-(3-quinuclidyloxy) - 10,11 - dihydro-5H-dibenzo[a,d]cycloheptene.

2. 5-(3-quinuclidyloxy)-5H-dibenzo[a,d]cycloheptene.

3,317,548

1-ALLYL-3-(SUBSTITUTED BENZOYL)-4-(SUBSTITUTED PHENYL)-4-HYDROXYPIPERIDINES

Marshall D. Draper, Woodland Hills, Calif., assignor to Rexall Drug and Chemical Company, Los Angeles, Calif., a corporation of Delaware

No Drawing. Filed Oct. 3, 1966, Ser. No. 583,954
5 Claims. (Cl. 260—294.7)

1. 1-Allyl-3-(p-lower alkoxybenzoyl)-4-hydroxy-4-(p-lower alkoxyphenyl)piperidine.

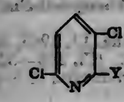
3,317,549

PICOLINIC ACID COMPOUNDS

Howard Johnston, Walnut Creek, Calif., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Sept. 28, 1964, Ser. No. 399,875
11 Claims. (Cl. 260—294.9)

1. A picolinic acid compound having the formula



wherein Y is a caboxylic acid derived group selected from the group consisting of carboxylic acid, cyano, carboxylic acid salt, carboxylic acid hydrazide, carboxylic acid ester and carboxylic acid amide.

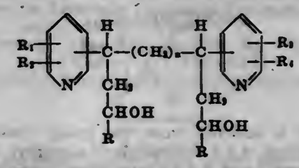
3,317,550

DI-(BETA-HYDROXYALKYL)-DI-PYRIDYL-ALKANES

Francis E. Cislak, Charles K. McGill, and George W. Campbell, Jr., Indianapolis, Ind., assignors to Reilly Tar & Chemical Corporation, Indianapolis, Ind., a corporation of Indiana

No Drawing. Filed Apr. 26, 1965, Ser. No. 451,005
6 Claims. (Cl. 260—296)

1. Di-(beta-hydroxyalkyl)-di-pyridyl alkane of the formula:



wherein R_1, R_2, R_3, and R_4 are selected from the class consisting of hydrogen and lower alkyl, R is a member of the group consisting of hydrogen and methyl, n is a small integer of the group consisting of 1 to 6.

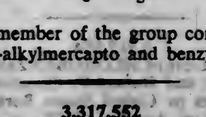
3,317,551

2-SUBSTITUTED-5-(5-NITRO-2-FURYL)-1,3,4-THIADIAZOLES

Joseph C. Collins, Normal, Ill., assignor to Sterling Drug Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed June 24, 1964, Ser. No. 377,475
8 Claims. (Cl. 260—302)

1. A compound of the formula



wherein X is a member of the group consisting of halo, mercapto, lower-alkylmercapto and benzylmercapto.

3,317,552

PREPARATION OF CERTAIN HYDROXYBENZO-HETEROCYCLIC COMPOUNDS

Harold A. Kaufman, Piscataway Township, Middlesex County, John R. Kilsheimer, Westfield, and Harold M. Foster, Middlesex, N.J., assignors to Mobil Oil Corporation, a corporation of New York

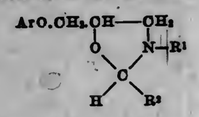
No Drawing. Filed May 25, 1965, Ser. No. 458,771
8 Claims. (Cl. 260—304)

1. A process for producing hydroxy-benzoheterocyclic compounds that comprises heating a solution of elemental sulfur and a keto-benzoheterocyclic compound reactant selected from the group consisting of 4-keto-4,5,6,7-tetrahydrobenzothiophene; 4-keto-2,3,4,5,6,7-hexahydrobenzothiophene; 4-keto-4,7-dihydrobenzothiophene; 4-keto-4,5,6,7-tetrahydro-7-cyanobenzothiophene; 4-keto-2,4,5,6,7,7a-hexahydrobenzothiophene; 4-keto-2,3,3a,4,5,6,7,7a-octahydrobenzothiophene; 4-keto-4,5,6,7-tetrahydrobenzothiazole; 4-keto-4,5,6,7-tetrahydrobenzoxazole; 4-keto-4,5,6,7-tetrahydrobenzofuran; 7-keto-2,3-dimethyl-2,3,3a,4,5,6,7,7a-octahydrobenzofuran; 5-keto-5,6,7,8-tetrahydroquinoline; and 4-keto-6-methyl-4,5,6,7-tetrahydrobenzothiophene in a solvent for both sulfur and said reactant selected from the group consisting of diamyl ether, amyl phenyl ether, benzyl ethyl ether, butylene glycol, 2-butoxy-1-ethanol, butyl phenyl ether, cuminyl alcohol, decanol, diethylene glycol, mono-n-butyl ether, diphenyl ether, dodecanol, ethylbenzyl alcohol, 2-ethyl-1-hexanol, glycer-

ol methyl ether, hexadecanol, di-n-heptyl ether, dioctyl-ether, dinaphthyl ether, methyl-cyclohexanol, propanediol, triethylene glycol, and 2-phenoxy-1-ethanol.

3,317,553
5-AROXYMETHYLOXAZOLIDINES
Albert Frederick Crowther and Leslie Harold Smith, Macclesfield, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain
No Drawing. Filed June 18, 1964, Ser. No. 376,231
Claims priority, application Great Britain, July 19, 1963, 28,716/63
6 Claims. (Cl. 260—307)

1. A compound selected from the group consisting of oxazolidine derivatives of the formula:



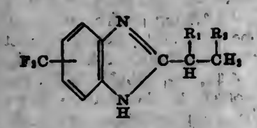
wherein: Ar is selected from the group consisting of phenyl, naphthyl, 5,6,7,8-tetrahydro-1-naphthyl, and said phenyl, naphthyl and 5,6,7,8-tetrahydro-1-naphthyl containing at least one substituent selected from the group consisting of halogen, alkyl of not more than 10 carbon atoms, haloalkyl of not more than 10 carbon atoms, alkenyl of not more than 10 carbon atoms, alkoxy of not more than 10 carbon atoms, acyl selected from the group consisting of acetyl and benzoyl, aryl of not more than 10 carbon atoms, aryloxy of not more than 10 carbon atoms, arylthio of not more than 10 carbon atoms, and aralkyl of not more than 10 carbon atoms, and R^1 is selected from the group consisting of alkyl of not more than 10 carbon atoms, hydroxyalkyl of not more than 10 carbon atoms, cycloalkyl of not more than 10 carbon atoms, alkenyl of not more than 10 carbon atoms, and aralkyl of not more than 10 carbon atoms; and R^2 is selected from the group consisting of hydrogen and alkyl of not more than 10 carbon atoms; and the pharmaceutically-acceptable acid-addition salts thereof.

3,317,554
2-ISOPROPYL-5(6)-CHLOROBENZIMIDAZOLE
Harry Goldsmith and Robert F. Crawford, La Mirada, Calif., assignors to United States Borax & Chemical Corporation, Los Angeles, Calif., a corporation of Nevada
No Drawing. Filed July 17, 1963, Ser. No. 295,828
1 Claim. (Cl. 260—309.2)

2-isopropyl-5(6)-chlorobenzimidazole.

3,317,555
5(6)-TRIFLUOROMETHYLBENZIMIDAZOLE COMPOUNDS
Harry Goldsmith and Robert F. Crawford, both of La Mirada, Calif., assignors to United States Borax & Chemical Corporation, Los Angeles, Calif., a corporation of Nevada
No Drawing. Filed Oct. 22, 1965, Ser. No. 502,502
5 Claims. (Cl. 260—309.2)

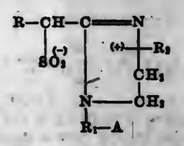
1. A 5(6)-trifluoromethylbenzimidazole compound of the formula



in which the F_3C— radical is at the 5(6) position, R_1 is methyl or methoxy, and R_2 is hydrogen or combined with R_1 to represent —CH_2—.

3,317,556
AMPHOTERIC ALPHA-SULFO-IMIDAZOLINES
Ira M. Rose, Millburn, and James Z. Glass, Fort Lee, N.J., and William Ramsay Christian, New York, N.Y., assignors to Nopco Chemical Company, Newark, N.J., a corporation of New Jersey
No Drawing. Original application June 22, 1962, Ser. No. 204,597, now Patent No. 3,258,474, dated June 28, 1966. Divided and this application Sept. 8, 1965, Ser. No. 496,217
6 Claims. (Cl. 260—309.6)

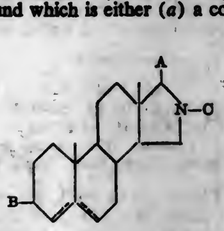
1. The amphoteric compound of the formula:



wherein R is an aliphatic hydrocarbon radical of from 9 to 21 carbon atoms, R_1 is a divalent aliphatic hydrocarbon radical of from 1 to 10 carbon atoms, R_2 is selected from the group consisting of hydrogen and aliphatic hydrocarbon radicals of from 1 to 10 carbon atoms, and A is selected from the group consisting of, —H, —OH, —NH_2, —NHR_2.

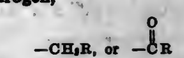
3,317,557
16-AZASTEROIDS AND INTERMEDIATES THEREFOR
Richard Wightman Kierstead, North Caldwell, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey
No Drawing. Filed June 21, 1965, Ser. No. 465,763
20 Claims. (Cl. 260—325)

1. A compound which is either (*a*) a compound of the formula

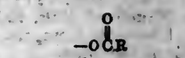


(I)

wherein C is hydrogen,



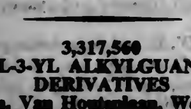
A is hydrogen or oxo; B is hydroxy, oxo, or



wherein R is hydrogen, lower alkyl, lower alkenyl, or cycloalkylloweralkyl, wherein the cycloalkyl group is a C_3-C_7 ring containing only the elements carbon and hydrogen; and not more than one of the dotted lines is a solid line, or (*b*) an acid addition salt of (*a*) with a pharmaceutically acceptable acid.

3,317,558
PRODUCTION OF N-SUBSTITUTED PHTHALIMIDINES
Friedrich Becke, Heidelberg, and Elly Jagla, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Aug. 13, 1965, Ser. No. 479,658
9 Claims. (Cl. 260—325)

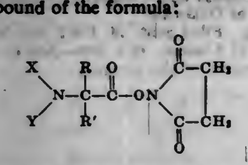
1. A process for the production of N-substituted phthalimidines which comprises heating an o-cyanobenzyl halide having the formula



in which X denotes a member of the group consisting of chlorine and bromine and R denotes a substituent selected from the group consisting of hydrogen, a halogen atom, alkyl having 1–4 carbon atoms, phenyl, alkoxy having 1–4 carbon atoms, cyano, and an acyl group having 1–4 carbon atoms with water and a primary amine selected from the group consisting of saturated or olefinically unsaturated, linear or branch chain aliphatic primary amines having 1–18 carbon atoms, cycloalkylamines having 5–13 carbon atoms in the cycloalkyl radical and a primary amino group, phenylamines having a primary amino group and 0–2 alkyl substituents, said alkyl substituents having 1–4 carbon atoms, aralkylamines having a primary amino group, a phenyl radical as the aryl radical and an alkylene radical with 1–6 carbon atoms, and the aforesaid primary amines having at least three carbon atoms and substituted with a member selected from the group consisting of a halogen atom and an alkoxy group with 1–6 carbon atoms.

3,317,559
α-AMINO ACID ESTERS OF N-HYDROXYSUCCINIMIDE AND PREPARATION AND USE IN PEPTIDE SYNTHESIS
George Washington Anderson, Upper Saddle River, N.J., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Filed Aug. 23, 1963, Ser. No. 304,256
6 Claims. (Cl. 260—326.3)

1. A compound of the formula:

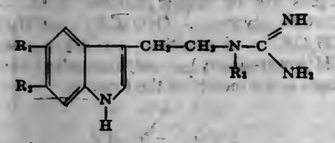


wherein X is selected from the group consisting of benzyloxycarbonyl, tertiary butyloxycarbonyl, triphenylmethyl and trifluoroacetyl, Y is hydrogen and X and Y taken together represent phthaloyl and R and R' represent the residue remaining of a naturally occurring α-amino acid.

4. The N-hydroxysuccinimide ester of carbobenzoxy glycine.

3,317,560
INDOL-3-YL ALKYLGUANIDINE DERIVATIVES
Volkert Claassen, Van Houteslaan, Weesp, Netherlands, assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Apr. 26, 1965, Ser. No. 451,034
Claims priority, application Netherlands, Jan. 3, 1963, 287,416; Apr. 25, 1964, 6,404,604
18 Claims. (Cl. 260—326.15)

1. An indolylethylguanidine compound of the formula:



wherein R_1 and R_2 are each selected from the group consisting of hydrogen, hydroxy, alkoxy of 1–10 carbon atoms and aralkoxy of 7–10 carbon atoms, R_3 is selected from the group consisting of alkyl of 1–10 carbon atoms, aralkyl of 7–10 carbon atoms, aralkyl of 7–10 carbon atoms which may be substituted with from 1 to 2 unsubstituted alkoxy groups of 1–3 carbon atoms, at least one of said groups designated by R_1 and R_2 being other than hydrogen and at least one of said groups designated by R_1-R_3 containing at least 6 carbon atoms and the pharmaceutically acceptable acid addition salts thereof.

15. 1-{2-(3,4-dimethoxyphenyl)ethyl}-1-[2-(5-benzyloxy-indole-3-yl)-ethyl] guanidine hydrochloride.

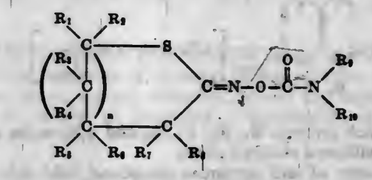
3,317,561
NEW HETEROCYCLIC ORGANO-PHOSPHATE COMPOUNDS
Stephen David Levy, Princeton, Roger Williams Addor, Pennington, and Richard Joseph Magee, Princeton, N.J., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Filed July 18, 1963, Ser. No. 296,074
1 Claim. (Cl. 260—327)

O,O-diethyl S-1-oxa-3-sulfolan-2-ylmethyl phosphorodithioate.

3,317,562
2-OXIMINOTHIOLANES AND RELATED COMPOUNDS
Roger Williams Addor, Pennington, N.J., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Original application Feb. 23, 1965, Ser. No. 434,680, now Patent No. 3,223,585, dated Dec. 14, 1965. Divided and this application July 28, 1965, Ser. No. 475,572
5 Claims. (Cl. 260—327)

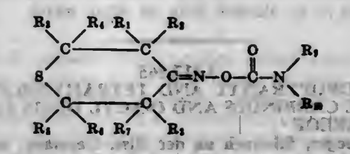
1. An oximino compound of the formula and selected from the group consisting of:

(A)



and

(B)



wherein each R_1 to R_8 is a substituent selected from the group consisting of hydrogen and lower alkyl; R_9 represents a substituent selected from the group consisting of hydrogen and lower alkyl; R_{10} stands for lower alkyl and *n* is an integer from 0 to 1.

3,317,563
PREPARATION OF ε-CAPROLACTONE
Theodore Horlenko and Donald R. Larkin, both of Corpus Christi, Tex., assignors to Celanese Corporation, a corporation of Delaware
No Drawing. Filed Dec. 26, 1963, Ser. No. 333,685
6 Claims. (Cl. 260—343)

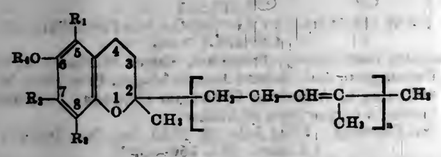
1. The process of making ε-caprolactone which comprises vaporizing 1,6-hexanediol at from about 250° C. to about 300° C.; mixing the vaporized diol with hydrogen; feeding the vaporous mixture of the said diol and hydrogen to a reaction zone wherein the said mixture is brought into contact with a catalyst consisting essentially of copper oxide; condensing the crude reaction product; and recovering ε-caprolactone from the condensate.

3,317,564
PROCESS FOR PRODUCING CHROMANS

Rudolf Rüegg, Bottmingen, and Peter Schudel, Munchenstein, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey

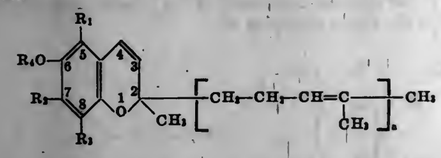
No Drawing. Filed June 26, 1964, Ser. No. 378,447
Claims priority, application Switzerland, July 4, 1963, 8,310/63
5 Claims. (Cl. 260—345.5)

1. A process for producing a chroman compound of the formula



in which R_1 is a member selected from the group consisting of hydrogen, alkyl and alkoxy; R_2 is a member selected from the group consisting of hydrogen, alkyl and alkoxy; R_3 is a member selected from the group consisting of hydrogen, alkyl and alkoxy; R_4 is a member selected from the group consisting of hydrogen and alkyl; and n is an integer of from 1 to 9, inclusive, with the proviso that at least one of the symbols R_1, R_2 and R_3 represents a member other than hydrogen

which comprises reducing a member selected from the group consisting of a chromene compound of the formula



in which symbols R_1, R_2, R_3, R_4 and n have the same significance as stated above

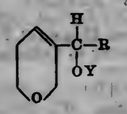
and an ester of said chromene compound, said reduction being effected by heating said chromene compound, while dissolved in an alcohol, with an alkali metal.

3,317,565
DIHYDROPYRANYL AND TETRAHYDROPYRANYL CARBINOLS AND O-ACYL DERIVATIVES THEREOF

Ernst Seeger, Biberach an der Riss, Germany, assignor, by mesne assignments, to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhine, Germany, a corporation of Germany

No Drawing. Filed Jan. 8, 1963, Ser. No. 250,005
Claims priority, application Germany, Jan. 15, 1960, T 17,730
8 Claims. (Cl. 260—345.8)

1. A compound of the formula



wherein

R is selected from the group consisting of alkyl of 2 to 6 carbon atoms and Z—R_1,

Z is alkylene of 1 to 6 carbon atoms,

R_1 is selected from the group consisting of phenyl, lower alkoxy-phenyl and lower alkyl-phenyl, and

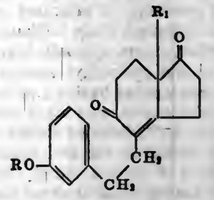
Y is selected from the group consisting of hydrogen, lower alkanoyl and monocarboxyl-lower alkanoyl.

3,317,566
SYNTHESIS OF $\Delta^{8,14}$-BISDEHYDROOESTRONE 3-ETHERS

John Stanley Whitehurst, Exeter, David John Crispin, Ashburton, and Clive Beresford Challis Boyce, Kent, England, assignors to Aspro-Nicholas Limited, London, England, a British company

No Drawing. Filed Nov. 1, 1963, Ser. No. 320,845
Claims priority, application Great Britain, Nov. 8, 1962, 42,182/62
20 Claims. (Cl. 260—345.9)

1. A method of making a $\Delta^{8,14}$ - bisdehydrooestrone compound which comprises subjecting a dione compound of the formula



wherein R is selected from the class consisting of lower alkyl and lower aralkyl and R_1 is selected from the class consisting of hydrogen, lower alkyl and lower aralkyl, to acidic conditions effective to cyclise the same to a $\Delta^{8,14}$-bisdehydrooestrone compound.

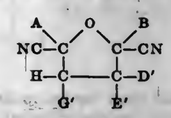
17. Alkali metal enolates of 5,6,7,8-tetrahydro-1β-tetrahydropyranlyoxy-8-methylindan-5-one.

3,317,567
DERIVATIVES OF TETRAHYDROFURAN

William J. Linn, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Sept. 28, 1962, Ser. No. 227,070
12 Claims. (Cl. 260—346.1)

12. A compound of the formula



wherein

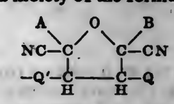
A is of the group consisting of hydrogen, cyano, R, RO(O)C—, polyfluoro R and p-XH_4C_6—, R being alkyl of 1–18 carbons and X being of the group consisting of hydrogen, halogen, nitro, R and RO—;

B is of the group consisting of cyano, —C(O)OR and polyfluoro R;

at least one of D', E' and G' is hydrogen;

each of D' and G' contains upon to 18 carbon and is of the group consisting of hydrogen, halogen, R' wherein R is selected from alkyl, phenyl, cycloalkyl, alkynyl, phenylalkyl, alkphenyl, phenylcycloalkyl, cycloalkylphenyl, alkcycloalkyl, cycloalkylalkyl, alkenyl, cycloalkenyl and phenylalkynyl, halo R' in which all halogens are of atomic number 9–35 and cyano R';

E' contains up to 18 carbons and is of the group consisting of D', alkenyl (R'''), halo R''' in which all halogens are of atomic number 9–35, —C≡CR', —C≡CH, cyano, —O(O)CR', —CH_2O(O)CR', —CH_2OR', —C(O)OR', —$(CH_2)_{1-8}$—C(O)OR', —CH(lower-alkoxy)$_2$, polyfluoroalkylthio of 1–7 carbons and a moiety of the formula



Q being of the group consisting of hydrogen and alkyl of 1–7 carbons and Q' being alkylene of 1–7 carbons;

H is hydrogen;

D' and E' conjointly are exomethylene; and

E' and G' conjointly form, with the depicted carbons, a cyclic compound in which any unsaturation is both intracyclic and ethylenic, the (—G'—E'—) segment of said compound being of the group consisting of divalent radicals (R'') containing 2–12 carbons selected from alkylene, phenylene, alkynylene, cycloalkylene, phenylalkylene, phenylcycloalkylene, alkphenylene, alkcycloalkylene, cycloalkylalkylene, cycloalkylphenylene, alkenylene, cycloalkenylene and phenylalkynylene, halo R'' in which all halogens are of atomic number 9–35, oxyvinylene,thiovinylene and oxy(halovinylene) and thio(halovinylene) in which the halogen is of atomic number 17–35.

3,317,568
DIHALOALKYL-SUCCINIC ACID AND DERIVATIVES

James C. Wygant, Creve Coeur, Richard M. Anderson, St. Louis, and Erhard J. Prill, Des Peres, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed Mar. 4, 1965, Ser. No. 437,258
15 Claims. (Cl. 260—346.8)

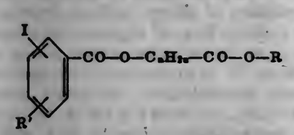
15. The monoethyl ester of 2,3-dibromopropylsuccinic acid.

3,317,569
ESTERS OF MONOIODINATED BENZOYLOXY-ALKANOIC ACIDS

Aubrey A. Larsen, Evansville, Ind., and James E. Siggins and James H. Ackerman, Bethlehem, N.Y., assignors to Sterling Drug Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Mar. 1, 1963, Ser. No. 262,186
14 Claims. (Cl. 260—347.4)

1. A compound of the formula



wherein R is a member of the group consisting of lower-alkyl, lower-alkenyl, lower-alkoxy-lower-alkyl, tetrahydrofurfuryl and lower-alkylthio-lower-alkyl; R' is a member of the group consisting of hydrogen and lower-alkoxy; n is an integer from 2 to 7; and the iodine atom is in a position selected from meta and para with respect to the carboxyl group.

3,317,570
PROCESS FOR THE PRODUCTION OF COMPLEX ALUMINUM ALKYL COMPOUNDS AND, IF DESIRED, THE RECOVERY OF HIGHER ALPHA OLEFINS THEREFROM

Wolf Rainer Kroll, Linden, N.J., and Kurt Zosel, Oberhausen, Germany, assignors to Karl Ziegler, Mulheim (Ruhr), Germany

No Drawing. Filed Oct. 10, 1961, Ser. No. 144,029
Claims priority, application Germany, Oct. 13, 1960, Z 8,299
21 Claims. (Cl. 260—349)

1. A process for the production of complex compounds which comprises reacting a complex of aluminum trialkyl with a member selected from the group consisting of alkali metal azide, alkali metal cyanide and potassium fluoride with ethylene at an elevated temperature under conditions conducive to chain growth of said ethylene on to said aluminum trialkyl complex and recovering the aluminum trialkyl complex compound having higher alkyl radicals thereby formed.

3,317,571
TRIS(N,N - DIMETHYLFORMAMIDE)MOLYBDENUM TRICARBONYL AND PROCESS FOR PREPARING SAME

Robert P. M. Werner and Thomas H. Coffield, Farmington, Mich., assignors to Ethyl Corporation, New York, N.Y., a corporation of Virginia

No Drawing. Filed Aug. 22, 1961, Ser. No. 133,826
3 Claims. (Cl. 260—429)

1. Tris(N,N-dimethylformamide)molybdenum tricarbonyl.

3,317,572
CYCLOPENTADIENYL MANGANESE TRICARBONYL SULFONES

John Kozikowski, Walled Lake, Mich., and Michael Cais, Haifa, Israel, assignors to Ethyl Corporation, New York, N.Y., a corporation of Virginia

No Drawing. Original application Aug. 12, 1960, Ser. No. 49,135. Divided and this application May 13, 1963, Ser. No. 283,142
2 Claims. (Cl. 260—429)

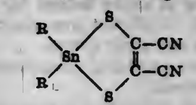
1. {{[(Tricarbonylmanganese) cyclopentadienyl] carbonylmethylsulfonyl}cyclopentadienyl}manganese tricarbonyl.

3,317,573
HETEROCYCLIC ORGANOTIN COMPOUNDS

Walter A. Stamm, Tarrytown, and Arthur W. Breindel, Yonkers, N.Y., assignors to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware

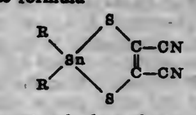
No Drawing. Filed Jan. 22, 1964, Ser. No. 339,345
5 Claims. (Cl. 260—429.7)

1. A heterocyclic organotin compound of the formula



wherein R represents a hydrocarbon radical selected from the class consisting of an alkyl radical of from 1 to 18 carbon atoms, benzyl, phenethyl, phenyl and naphthyl.

5. A method of preparing a heterocyclic organotin compound of the formula



wherein R represents a hydrocarbon radical selected from the class consisting of an alkyl radical of from 1 to 18 carbon atoms, benzyl, phenethyl, phenyl and naphthyl, which comprises reacting a disubstituted organotin halide of the formula $(R)_2SnX_2$ wherein R has the significance as above defined and X is a halogen selected from the class consisting of chlorine and bromine, with a salt of dimercaptomaleonitrile in which the salt is selected from the class of alkali metal and ammonium salts and isolating the so-obtained heterocyclic organotin compound.

3,317,574
METHOD OF MAKING FINELY DIVIDED FERROUS METAL SALTS OF ORGANIC ACIDS

Masaaki Morita, Kamakura-shi, Kanagawa-ken, and Shigetaka Higuchi and Yusuke Kamata, Miyagi-ken, Japan, assignors to Sony Corporation, Tokyo, Japan, a corporation of Japan

Filed July 19, 1962, Ser. No. 211,067
Claims priority, application Japan, July 21, 1961, 36/26,147
3 Claims. (Cl. 260—439)

1. A method of making a finely divided salt of an organic acid and a ferromagnetic metal, which comprises: (1) forming an aqueous solution of an inorganic salt of a ferromagnetic metal selected from the group consisting of iron, cobalt and nickel, in the presence

of an organic carboxylic acid selected from the group consisting of unsubstituted carboxylic acids having from 1 to 4 carbon atoms in the molecule,

(2) incorporating into said solution within not more than 100 seconds after the formation thereof at least 0.05% by volume of an organic solvent selected from the group consisting of water soluble alcohols and ketones each having from 1 to 4 carbon atoms and water soluble esters having from 2 to 5 carbon atoms in the molecule to effect precipitation of a salt of the selected metal and the selected organic acids, and

(3) recovering said precipitated salt, said recovered salt having a particle size between 0.1 and 2.0 microns in length.

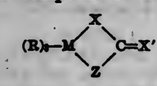
3,317,575

HETEROCYCLES HAVING IN THE RING THEREOF AN ELEMENT FROM GROUP V-A

Arthur W. Breindel, Yonkers, and Sheldon Herbstman, Bronx, N.Y., assignors to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware

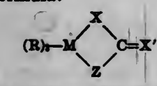
No Drawing. Filed Nov. 4, 1963, Ser. No. 321,319
14 Claims. (Cl. 260—440)

1. A heterocyclic compound of the following formula:



wherein M is selected from the class consisting of antimony and arsenic, R is an alkyl of from 1 to 10 carbon atoms, benzyl and phenethyl, X and X' are chalcogens selected from the class consisting of oxygen and sulphur and Z is a chalcogen as above defined for X and X' and >N—R' in which R' is selected from the class consisting of phenyl, naphthyl and alkyl groups.

13. The method of preparing a heterocyclic compound of the following formula:



wherein M is selected from the class consisting of antimony and arsenic, R is an alkyl of from 1 to 10 carbon atoms, benzyl and phenethyl, X and X' are chalcogens selected from the class consisting of oxygen and sulfur and Z is a chalcogen as above defined for X and X' and >N—R' in which R' is selected from the class consisting of phenyl, naphthyl and alkyl groups which comprises reacting a compound selected from the class consisting of a trisubstituted organoantimony sulfide, a trisubstituted organoantimony oxide, a trisubstituted organoarsenic oxide, and a trisubstituted organoarsenic sulfide, said substituents having the value as above defined for R with an anhydride selected from the class consisting of carbon disulfide, carbon dioxide, carbon oxysulfide and an isocyanate of the formula R'NCO wherein R' has the above defined values, it being provided that the reaction be conducted at a temperature below which the heterocyclic compound undergoes thermal decomposition to release the anhydride component.

3,317,576

REACTION PRODUCTS OF ANTIMONY HALIDES OR OXIDES WITH THIOGLYCOLLIC MERCAPTO-HYDROXYALKANES

Hugo Malz, Leverkusen, and Wilhelm Göbel, Cologne-Flittard, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a German corporation

No Drawing. Filed June 18, 1963, Ser. No. 288,635
Claims priority, application Germany, June 20, 1962, F 37,118, F 37,119
4 Claims. (Cl. 260—446)

1. An organic antimony compound which has been obtained by reacting in an aqueous medium at least one member selected from the group consisting of antimony trihalide and antimony trioxide with at least one member selected from the group consisting of thioglycollic acid and 1-mercapto-2-hydroxyalkane containing from 2 to 3 carbon atoms, said antimony compound containing per antimony atom one member selected from the group consisting of 2 mols of thioglycollic acid, 2 mols of said 1-mercapto-2-hydroxy-alkane and 1 mol each of thioglycollic acid and said 1-mercapto-2-hydroxy-alkane.

3,317,577

MODIFIED POLYALKYLENEAMINE SILICON COMPOUNDS

John W. Ryan, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich., a corporation of Michigan

No Drawing. Filed Oct. 22, 1962, Ser. No. 232,277
7 Claims. (Cl. 260—448.2)

1. A silane of the formula

$$R_xSiR'[NH(CH_2CH_2NH)_xCH_2CH_2NHCH_2CH_2COOY]_y$$

wherein each R is a monovalent substituent selected from the group consisting of alkoxy radicals, hydrogen atoms, hydrocarbon radicals free of aliphatic unsaturation containing from 1 to 18 inclusive carbon atoms and halogenoaryl radicals, R' is a saturated hydrocarbon radical of the formula selected from the group consisting of $C_pH_{2p}=$ and $C_pH_{2p-1}\equiv$ where p has a value from 1 to 18 inclusive being divalent when y is 1 and trivalent when y is 2, y has a value from 1 to 2 inclusive, x has a value of from 0 to 10 inclusive, Y is an alkyl radical containing from 1 to 4 inclusive carbon atoms.

2. A silane of the formula

$$R_xSiR'[NH(CH_2CH_2NH)_xCH_2CH_2N(CH_2CH_2COOY)_2]_y$$

wherein each R is a monovalent substituent selected from the group consisting of alkoxy radicals, hydrogen atoms, hydrocarbon radicals free of aliphatic unsaturation containing from 1 to 18 inclusive carbon atoms and halogenoaryl radicals, R' is a saturated hydrocarbon radical of the formula selected from the group consisting of $C_pH_{2p}=$ and $C_pH_{2p-1}\equiv$ where p has a value from 1 to 18 inclusive being divalent when y is 1 and trivalent when y is 2, y has a value from 1 to 2 inclusive, x has a value of from 0 to 10 inclusive, Y is an alkyl radical containing from 1 to 4 inclusive carbon atoms.

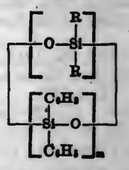
3,317,578

PROCESS FOR MAKING ORGANOPOLYSILOXANES

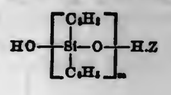
Paul I. Prescott and Terry G. Selin, Schenectady, N.Y., assignors to General Electric Company, a corporation of New York

No Drawing. Filed Nov. 1, 1962, Ser. No. 234,883
10 Claims. (Cl. 260—448.2)

1. The process for selectively preparing cyclic polydiorganosiloxane of the formula



to the significant exclusion of other organopolysiloxanes, which comprises reacting an organosilane of the formula R_2SiX_2 with a preformed amine complex of the formula



where R is a monovalent radical selected from the class consisting of monovalent hydrocarbon radicals and halogenated aryl radicals, Z is an organic amine consisting of carbon, hydrogen and nitrogen and is selected from the class consisting of primary, secondary and tertiary amines, X is a halogen, and m is a whole number equal to from 2 to 3, inclusive.

3,317,579

PROCESS FOR PURIFYING METHYLENEBIS (4-PHENYLISOCYANATE)

Mark Herbert Rosen, Claymont, and William Kenneth Witsiepe, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Apr. 16, 1965, Ser. No. 448,851
5 Claims. (Cl. 260—453)

1. A process for removing impurities that cause acidity in methylenebis(4-phenylisocyanate) comprising contacting said isocyanate with ferric oxide at a temperature between about 180° C. and 240° C. and thereafter recovering said isocyanate from the resultant reaction mixture.

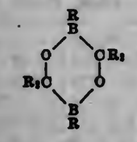
3,317,580

DIBORADIOXANES AND PROCESS FOR PREPARING DIBORADIOXANES AND BORONIC ACIDS

Melville E. D. Hillman, Richmond, Calif., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed June 4, 1962, Ser. No. 199,587
9 Claims. (Cl. 260—462)

1. A diboradioxane of the formula



wherein R is a 1 to 12 carbon atom radical bonded to the ring through aliphatic carbon.

6. A process for the preparation of diboradioxanes which comprises heating a borane of the formula R_3B wherein R is a 1 to 12 carbon atom hydrocarbon radical bonded to boron through aliphatic carbon with carbon monoxide in the presence of about from 0.5 to 10 parts by weight of water per part by weight of borane at a temperature of about from 25 to 125° C. and a reaction pressure of about from 1 to 100 atmospheres.

3,317,581

HYDROCARBON OXIDATION PROCESS TO PRODUCE BORATE ESTER

Mitchell Becker, Teaneck, N.J., assignor to Halcon International, Inc., a corporation of Delaware

Filed Jan. 17, 1964, Ser. No. 338,364
7 Claims. (Cl. 260—462)

1. The process which comprises subjecting a saturated hydrocarbon to oxidation at a temperature of 75° to 300° C. with molecular-oxygen containing gas in the presence of meta-boric acid to produce a borate ester containing reaction mixture, removing vapors comprising hydrocarbon and water from the oxidation reaction mixture, directly contacting said vapors with a first liquid feed stream of said hydrocarbon thereby heating said liquid and cooling said vapors, subjecting said first heated hydrocarbon feed stream to further heating up to 185° C. and introducing said first hydrocarbon feed stream into said oxidation reaction mixture, contacting said cooled vapors from said direct contact with a slurry of ortho-boric acid in said hydrocarbon thereby dehydrating the ortho-boric acid to meta-boric acid at a temperature of 100° to 160° C., feeding said meta-boric acid and hydrocarbon to said oxidation reaction mixture, removing vapors from the dehydration and contacting said vapors with a second liquid feed stream of said hydrocarbon, and passing said second hydrocarbon feed stream directly to said oxidation reaction mixture.

3,317,582

DIBENZOCYCLOHEPTENE COMPOUNDS AND PROCESSES FOR PREPARING THE SAME

Max Tishler, Westfield, N.J., assignor to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed July 18, 1962, Ser. No. 210,832
8 Claims. (Cl. 260—465)

4. A process for the preparation of 3-(5-5H-dibenzo-[a,d]cycloheptyl)-propionitrile which comprises reacting 5H-dibenzo[a,d]cycloheptene with acrylonitrile in the presence of a quaternary ammonium hydroxide and an inert, substantially anhydrous organic solvent.

6. 3-(5-5H-dibenzo[a,d]cycloheptyl)-propionitrile.

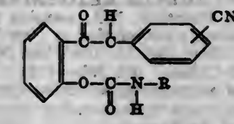
3,317,583

ALKYLCARBAMATES OF CYANOSALICYLANILIDES

Richard S. P. Hsi, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Filed Jan. 13, 1964, Ser. No. 337,160
3 Claims. (Cl. 260—465)

1. An alkylcarbamate of a cyanosalicylanilide having the formula:



wherein R is a lower-alkyl having from 1 to 6 carbon atoms inclusive.

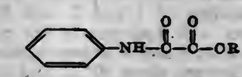
3,317,584

ESTERS OF AMIDOXALIC ACID

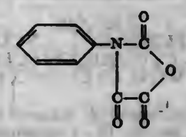
Paul J. Stoffel, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed Mar. 13, 1964, Ser. No. 351,827
6 Claims. (Cl. 260—465)

1. The method of preparing compounds of the structure:



wherein R is alkyl of up to 12 carbon atoms, which comprises contacting the oxazolidinetrione of the formula



with an alkyl alcohol of up to 12 carbon atoms.

3,317,585

PREPARATION OF NITRILES

Charles Herschmann, Geneva, Switzerland, assignor to Lonza Ltd., Gampel, Switzerland

No Drawing. Filed Aug. 15, 1963, Ser. No. 302,452
Claims priority, application Switzerland, Aug. 16, 1962, 9,887/62
2 Claims. (Cl. 260—465.2)

1. A process for the preparation of malodinitrile comprising heating cyanoacetamide dissolved in an inert organic solvent at a temperature of 50 to 100° C. with

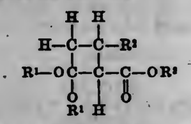
a dehydrating agent selected from the group consisting of phosphorus pentoxide, phosphorus pentachloride, and phosphorus oxychloride in the presence of catalytic amounts of an organic nitrogen base and a member of the group consisting of $AlCl_3$ and $AlCl_3 \cdot NaCl$, the sum of the molar concentrations of said catalytic amounts not exceeding 10 mole percent of said cyanoacetamide.

3,317,586
DIALKOXYCYCLOBUTANE CARBOXYLIC ACID ESTERS AND THEIR PREPARATION

Robert D. Burpitt, and Kent C. Brannock, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed Aug. 17, 1964, Ser. No. 390,214
6 Claims. (Cl. 260—468)

4. A compound of the formula



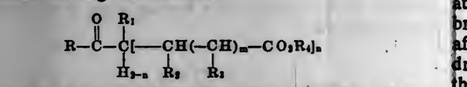
wherein R^1 and R^3 are lower alkyl and R^2 is selected from the group consisting of hydrogen, cyano and $-COOR^3$.

3,317,587
DIETHYL 4-BENZYL PIMELATE AND THE REDUCTION OF KETO-ESTERS

Sheldon Chibnik, Plainfield, N.J., assignor to Mobil Oil Corporation, a corporation of New York

No Drawing. Filed Oct. 15, 1963, Ser. No. 316,450
5 Claims. (Cl. 260—475)

1. The process of preparing saturated esters from keto esters which comprises hydrogenating a solution of a compound having the formula:



in which R is selected from the group consisting of aryl radicals and pyridyl, pyrryl, thienyl, and furyl radicals, R_1 and R_3 are selected from the group consisting of H, CH_3 and C_2H_5, R_2 is selected from the group consisting of H and an alkyl radical containing 1–8C atoms, R_4 is lower alkyl and m and n are selected from the group of integers consisting of 1 and 2, said hydrogenation being carried out with hydrogen in the presence of a hydrogenation catalyst and a strong mineral acid, at a temperature of between about 50° C. and about 150° C. and a pressure of between about 50 p.s.i and about 1500 p.s.i.

3,317,588
PROCESS OF PURIFYING CYCLOHEXYL-AMMONIUM-N-CYCLOHEXYLSULFAMATE CONTAMINATED WITH CYCLOHEXYLAMINE SULFATE

Vipin D. Shah, Waukegan, Ill., assignor to Abbott Laboratories, North Chicago, Ill., a corporation of Illinois

No Drawing. Filed June 1, 1964, Ser. No. 371,767
3 Claims. (Cl. 260—501)

1. The process of purifying cyclohexylammonium-N-cyclohexylsulfamate contaminated with cyclohexylamine sulfate, consisting essentially in placing 1 part of said contamined cyclohexylammonium-N-cyclohexylsulfamate in 1.5–5.0 part by weight of aqueous cyclohexylamine containing 60% to 90% by weight cyclohexylamine, slurrying the mixture at a temperature of at least 60° C., and separating the undissolved cyclohexylamine sulfate from the substantially sulfate-free cyclohexylammonium-N-cyclohexylsulfamate solution at a temperature of at least 60° C.

3,317,589
ALKALI METAL SULFO-N-ALKYLPROPIONAMIDES

Emil Alfred Vitalis, Springdale, and Michael Joseph D'Errico, Stamford, Conn., and Winfried Josef Fremuth, Frankfurt, Germany, assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Apr. 19, 1963, Ser. No. 274,342
2 Claims. (Cl. 260—513)

1. The alkali metal sulfo-N-alkylpropionamides prepared by sulfonating an isomeric mixture of N-alkylacrylamide prepared by the Ritter reaction, said Ritter reaction being carried out between an α-unsaturated nitrile and an olefin having at least 10 carbon atoms in the presence of a cationoid substance and thereafter hydrolyzing the resulting product to the corresponding amide, said sulfonation being effected by an alkali metal sulfite or bisulfite and said sulfo group being attached to the beta carbon atom of said alkali metal sulfo-N-alkylpropionamides.

3,317,590
PREPARATION OF UNSATURATED CARBOXYLIC ACIDS

Louis Schmerling, Riverside, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

No Drawing. Filed Nov. 12, 1963, Ser. No. 323,053
20 Claims. (Cl. 260—514)

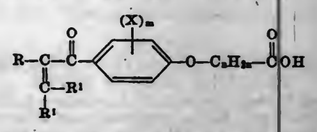
1. A method of preparing an unsaturated carboxylic acid, which method comprises heating a haloalkane at a temperature of from about 100° C. to about 300° C. in contact with a carboxylic acid salt selected from the group consisting of alkali metal and alkaline earth metal salts of alkanoic, cycloalkylalkanoic and arylalkanoic acids, and acidifying the resultant reaction product, the aforesaid haloalkane containing at least two halogen atoms selected from the group consisting of chlorine and bromine attached to the same carbon atom, and the aforesaid carboxylic acid salt containing at least two hydrogen atoms attached to the same alpha carbon atom thereof.

3,317,591
PREPARATION OF [4-(2-ALKYLIDENEALKANOYL) PHENOXY]-ALKANOIC ACID BY OXIDATION

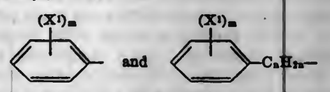
Everett M. Schultz, Ambler, Pa., assignor to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed Dec. 3, 1963, Ser. No. 327,810
5 Claims. (Cl. 260—521)

1. A process for preparing a compound of the formula

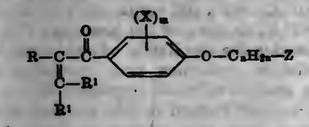


where R is a member selected from the group consisting of hydrogen, lower alkyl, halo-lower alkyl, cycloalkyl, cycloalkylalkyl,



wherein X^1 is a member selected from the group consisting of hydrogen, halogen, lower alkyl, trifluoromethyl, lower alkoxy and carboxy, R^1 is a member selected from the group consisting of hydrogen and lower alkyl, X is a member selected from the group consisting of hydrogen, halogen, lower alkyl, trifluoromethyl and lower alkoxy and, when substituted on adjacent carbon atoms of the benzene ring, two X radicals may be combined to form a 1,3-butadienylene linkage, m, in each occurrence,

is an integer having a value of 1–4 and n, in each occurrence, is an integer having a value of 1–5, which comprises the reaction of a compound of the formula



where R, R^1, X, m and n are as defined above and Z is a vinyl group with chromium trioxide.

3,317,592
CATALYZED OXIDATION REACTIONS

Alexander F. MacLean and Adin L. Stautzenberger, Corpus Christi, Tex., assignors to Celanese Corporation, a corporation of Delaware

No Drawing. Filed Feb. 9, 1962, Ser. No. 172,075
7 Claims. (Cl. 260—533)

1. A process for continuously producing carboxylic acids which comprises:

(a) providing an alkaline environment containing at least catalytic quantities of osmium tetroxide;

(b) introducing an oxidizable organic compound selected from the group consisting of olefins, ketones and alcohols into said environment; and

(c) introducing a molecular oxygen containing gas into said environment whereby said organic compound is oxidized to at least one carboxylic acid and said catalyst is continuously regenerated in situ.

3,317,593
PROCESS FOR THE HYDROLYSIS OF ALKANOL DERIVATIVES

Eduard Enk and Hellmuth Spes, Burghausen, Upper Bavaria, Germany, assignors to Wacker-Chemie G.m.b.H., Bavaria, Germany, a corporation of Germany

Filed Mar. 31, 1964, Ser. No. 356,291
Claims priority, application Germany, Apr. 11, 1963, W 34,292
4 Claims. (Cl. 260—540)

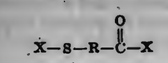
1. Process for the hydrolysis of alkanol derivatives selected from the group consisting of esters, acetals and ketals in the presence of a cation exchanger, which comprises flowing the hydrolyte and water downwardly through a cation exchanger in a reaction zone at a temperature sufficient to vaporize said hydrolyte in said reaction zone, flowing the water-containing liquid hydrolysate from said reaction zone downwardly through an extraction zone, running off the substantially hydrolyte-free liquid hydrolysis products from said extraction zone, and separating the liquid so discharged from said extraction zone into its components to obtain the individual hydrolysis products, said process being characterized by the fact that the contents of said extraction zone are heated above the vaporization temperature of said hydrolyte so that said hydrolyte remains in the vapor phase and rises in said reaction zone until the reaction is completed.

3,317,594
HALOFORMYLALKANESULFENYL HALIDES AND THEIR PREPARATION

Norman Kharasch and Robert B. Langford, Los Angeles, Calif., assignors to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Nov. 13, 1963, Ser. No. 323,227
3 Claims. (Cl. 260—544)

2. Haloformylalkanesulfenyl halides corresponding to the formula



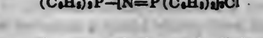
wherein X is selected from the group consisting of chlorine and bromine and R is selected from the group consisting of dimethylene, trimethylene.

3,317,595
LINEAR SUBSTITUTED PHOSPHONITRILIC DERIVATIVES

Kazimiera J. L. Paciorek, Riverside, Calif., assignor to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed Sept. 13, 1963, Ser. No. 308,916
5 Claims. (Cl. 260—551)

1. The method for preparing the compound



comprising reacting a solution of diphenylphosphonyl azide dissolved in anhydrous ether with diphenylphosphinous chloride in an inert atmosphere and the subsequent refluxing thereof until a white precipitate is formed which after purification yields



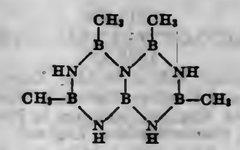
having a melting point of 338–345° C.

3,317,596
BICYCLIC BORAZOLE COMPOUND

James L. Boone, Fullerton, Calif., assignor to United States Borax & Chemical Corporation, Los Angeles, Calif., a corporation of Nevada

No Drawing. Filed Apr. 20, 1964, Ser. No. 361,265
1 Claim. (Cl. 260—551)

Solid, crystalline B-methyl bicyclic borazole of the formula



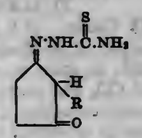
having a melting point of 60.5°–61.5° C.

3,317,597
THIOSEMICARBAZONES OF 2-LOWERALKYL-CYCLOPENTANE-1,3-DIONES

Gerhard R. Wendt, Havertown, and Kurt W. Ledig, Philadelphia, Pa., assignors to American Home Products Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Mar. 25, 1966, Ser. No. 537,317
2 Claims. (Cl. 260—552)

1. A compound having the formula:



wherein R represents an alkyl of the group consisting of methyl and ethyl.

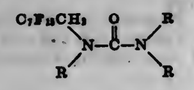
3,317,598

ARYL (1,1-DIHYDROPERFLUOROOCTYL) UREAS

Theodore Mill, Palo Alto, and John O. Rodin and Robert M. Silverstein, Menlo Park, Calif., and Cyril Woolf, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Mar. 24, 1964, Ser. No. 354,450
6 Claims. (Cl. 260—553)

1. A N,N'-tetra-substituted urea of the formula:



wherein R is a member selected from the group consisting of aryl and 1,1-dihydroperfluorooctyl, at least one R being aryl, said aryl group being a member selected from the group consisting of naphthyl, phenyl and lower alkyl derivatives thereof.

3,317,599

UREAS AND ALCOHOL PRODUCTS

Edward A. Swakon, Hammond, Ind., assignor to Standard Oil Company, Chicago, Ill., a corporation of Indiana

No Drawing. Filed Apr. 30, 1964, Ser. No. 364,024
7 Claims. (Cl. 260—553)

1. A method for simultaneously producing a mercaptan selected from the class consisting of beta-hydroxy and beta-mercapto mercaptans and a symmetrical urea selected from the class consisting of urea and sym. N,N'-disubstituted urea, which method comprises reacting at a temperature of from 15 to 90° C. an olefine chalcide with a monothiolcarbamate selected from the class consisting of ammonium monothiolcarbamate and N-monosubstituted monothiolcarbamate amine salts.

3,317,600

1-(PROPARGYLOXYPHENYL)-3,3-DIMETHYL UREAS

Peter John Brooker, Saffron Walden, Essex, John Gillon, Cambridge, and Geoffrey Tattersall Newbold, Saffron Walden, Essex, England, assignors to Fisons Pest Control Limited, Cambridgeshire, England

No Drawing. Filed Jan. 4, 1965, Ser. No. 423,383
Claims priority, application Great Britain, Jan. 11, 1964, 1,336/64
2 Claims. (Cl. 260—553)

1. 1-(para-propargyloxyphenyl)-3,3-dimethyl urea.
2. 1-(meta-propargyloxyphenyl)-3,3-dimethyl urea.

3,317,601

SYNTHESIZING UREA

Eiji Otsuka, Fujisawa, Shinji Yoshimura, Kamakura, and Kazumichi Kanai, Fujisawa, Japan, assignors to Toyo Koatsu Industries, Incorporated, Tokyo, Japan, a corporation of Japan

Filed Mar. 28, 1963, Ser. No. 268,769
Claims priority, application Japan, Aug. 8, 1962, 37/32,666
12 Claims. (Cl. 260—555)

1. In the method of producing urea by the reaction of CO_2 with NH_3 to form an effluent containing urea, water, unreacted CO_2 and unreacted NH_3, that improvement in separating unreacted CO_2 and NH_3 from said effluent for reuse in producing urea comprising, subjecting said effluent to a first distillation at a gauge pressure of about 10 to about 25 kg./cm.^{2}, a head temperature of about 90° C. to about 130° C. and a still temperature of about 130° C. to about 170° C. to drive off NH_3 and CO_2 while minimizing the distillation of water and leaving a depleted liquid; subjecting said depleted liquid to a second distillation at a gauge pressure of about 0 to about 3 kg./cm.^{2}, a head temperature of about 60° C. to about 110° C. and a still temperature of about 100° C. to about 140° C. to drive off the remaining CO_2 and NH_3 while minimizing the distillation of water and leaving an aqueous solution containing urea; removing from said solution an amount of water approximately corresponding to that amount formed in said reaction and separating some urea from said solution to leave an aqueous urea-containing mother liquor; and absorbing the CO_2 and NH_3 from said first and second distillations in said liquor for reuse in the production of urea.

3,317,602

N-(p-CHLOROPHENOXYACETYL) EPHEDRINE

Kenneth Eric Vincent Spencer, Emsworth, England, assignor to American Home Products Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed June 3, 1965, Ser. No. 461,184
Claims priority, application Great Britain, Sept. 18, 1964, 38,120/64
1 Claim. (Cl. 260—559)

N-(p-chlorophenoxyacetyl) ephedrine.

3,317,603

IMPROVEMENT IN THE PREPARATION OF N-VINYL-N-METHYLACETAMIDE

Robert B. Blance, East Longmeadow, and Saul M. Cohen, Springfield, Mass., assignors, by mesne assignments, to Monsanto Company, a corporation of Delaware

No Drawing. Filed Sept. 27, 1963, Ser. No. 312,015
2 Claims. (Cl. 260—561)

1. In the process for the preparation of N-vinyl-N-methyl-acetamide wherein methylamine and acetaldehyde are reacted to form N-ethylidenemethylamine and a trimeric condensation product of methylamine and acetaldehyde; which products are extracted with an alkaline hydroxide compound, and wherein the N-ethylidenemethylamine is treated further to convert it into N-vinyl-N-methylacetamide; the improvement which comprises fractionally distilling the trimeric condensation product of methylamine and acetaldehyde to convert it into N-ethylidenemethylamine.

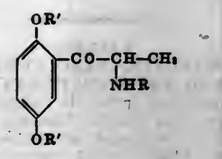
3,317,604

2,5-DIALKOXY-α-TERTIARY AMINO PROPIOPHENONES AND SALTS THEREOF

Richard Baltzly, Scarsdale, and Nariman B. Mehta, Valhalla, N.Y., assignors to Burroughs Wellcome & Co. (U.S.A.) Inc., Tuckahoe, N.Y., a corporation of New York

No Drawing. Filed Mar. 16, 1966, Ser. No. 534,637
8 Claims. (Cl. 260—570.5)

1. A compound selected from the class consisting of a free base and its salts with pharmaceutically acceptable acids, said free base being represented by the formula:



wherein R is a t. alkyl group and R' is selected from the class consisting of methyl and ethyl and propyl and the three groups R, R' and R' together contain from 6 to 10 carbon atoms inclusive.

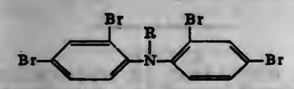
3,317,605

PROCESS FOR PREPARING 2,2',4,4'-TETRABROMO-N-(LOWERALKYL) DIPHENYLAMINE

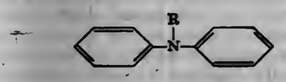
Leonard M. Weinstock, Rocky Hill, and William Paleveda, Jr., Rahway, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Continuation of application Ser. No. 81,229, Jan. 9, 1961. This application Feb. 4, 1964, Ser. No. 342,517
15 Claims. (Cl. 260—576)

1. A process for producing a compound of the formula:



which comprises contacting a solute compound having the structural formula:



wherein R is a lower alkyl radical, with at least 4 moles of bromine per mole of said solute compound in a two phase solvent system comprising water as one phase and an inert, water-immiscible, non-polar organic solvent for said solute compound as the second phase, said solvent system comprising at least 2% of water by volume and at least one ml. water per gm. of said solute compound.

3,317,606

PROCESS FOR SEPARATING VICINAL AND NON-VICINAL TOLUENE DIAMINES

Benjamin J. Luberoff, Mossey, N.Y., and Daniel H. Gold, Plainfield, N.J., assignors to The Lummus Company, New York, N.Y., a corporation of Delaware

Filed May 21, 1963, Ser. No. 281,933
7 Claims. (Cl. 260—582)

1. A process for separating a non-vicinal toluene diamine from a diamine solution containing a mixture of vicinal and non-vicinal toluene diamines comprising:

a. extracting the vicinal toluene diamine from the diamine solution with an unsaturated solution of a metallic compound, said solution containing a concentration of metallic compound that is at least 10 percent of the saturation concentration, said diamine solution and said solution containing a metallic compound being substantially immiscible with each other, said metal being selected from the group consisting of metals having atomic number 22 through 30 and 40 through 48.

b. separating the metallic compound solution containing extracted vicinal toluene diamine from the diamine solution, and

c. recovering non-vicinal toluene diamine from the diamine solution.

3,317,607

CHEMICAL REDUCTION OF NITROSAMINES

Harold K. Latourette, Pennington, N.J., and John A. Pianfetti, Charleston, W. Va., assignors to FMC Corporation, a corporation of Delaware

No Drawing. Filed July 30, 1959, Ser. No. 830,465
6 Claims. (Cl. 260—583)

1. A process for converting the N-nitroso derivative of a secondary amine selected from the group consisting of di-lower alkyl amines, piperidine, morpholine, and pyrrolidine to the N,N-disubstituted hydrazine corresponding to the precursor N-nitroso derivative which consists essentially of forming an aqueous mixture of the nitroso compound and zinc and adding an acid selected from the group consisting of sulfuric and hydrochloric until the pH of the reaction mixture is in the range of 2 to 4, the total amount of water in the final reaction mixture corresponding to 8 to 30 moles per mole of nitroso compound charged to the system, and isolating the hydrazine from the reaction mixture.

3,317,608

PROCESS FOR PREPARING 1,2-DIHYDRAZINOETHANE

Phyllis D. Oja, Walnut Creek, Calif., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed June 7, 1962, Ser. No. 202,347
3 Claims. (Cl. 260—583)

1. A process for preparing 1,2-dihydrazinoethane which comprises:

(1) contacting 1,2-dichloroethane with hydrazine hydrate thereby to prepare a two phase liquid reaction mixture, the molar ratio of said hydrazine hydrate/dichloroethane being about 15 to 1,

(2) reacting said two phase mixture at a temperature of from about 35 to about 40° C. for a period of time ranging from about 12 to about 24 hours,

(3) separating the excess hydrazine hydrate from the 1,2-dihydrazinoethane product,

(4) dissolving the residual reaction product in an excess of an inert solvent for said 1,2-dihydrazinoethane,

(5) treating the solution of the product in said solvent with a strong mineral acid thereby to produce a solution having a maximum pH of 2 and precipitating the 1,2-dihydrazinoethane product as the corresponding solid acid salt,

(6) separating the 1,2-dihydrazinoethane acid salt from the acidic solution and dissolving said salt with water,

(7) converting said dissolved acid salt dihydrazinoethane into the free base form, and

(8) distilling the regenerated 1,2-dihydrazinoethane free base thereby to produce a high purity 1,2-dihydrazinoethane.

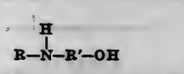
3,317,609

EPOXIDE ADDITION REACTION WITH AMINO ALCOHOL

Sherman D. Lescesne, Georgetown, Tex., assignor to Jefferson Chemical Company, Inc., Houston, Tex., a corporation of Delaware

No Drawing. Filed May 6, 1964, Ser. No. 365,476
7 Claims. (Cl. 260—584)

1. A method for the preferential reaction of an epoxide with an alcoholic hydroxyl group of a secondary amino alcohol containing a reactive amino hydrogen and having the formula



wherein R is selected from the class consisting of C_1–C_{18} primary and secondary alkyl, alkenyl, aryl, aralkyl and alkylaryl and R' is selected from the class consisting of C_2–C_{12} alkylene and arylalkylene which comprises treating the amino alcohol with the epoxide at a temperature of at least about 50° C. and a pressure within the range of about 0 to 500 p.s.i.g. in the presence of a catalyst selected from the class consisting of Group I metals, Group I metal hydrides and Group I metal amides, from about 0.8 to about 2 mols of catalyst being employed per mol equivalent of hydroxyl groups in the amino alcohol.

3,317,610
MANUFACTURE OF THIOETHERS IN THE GASEOUS PHASE
Paul Vannel, Lagor, France, assignor to Societe Nationale des Petroles d'Aquitaine, Paris, France
Filed Feb. 14, 1964, Ser. No. 344,872
Claims priority, application France, Feb. 18, 1963, 925,155
7 Claims. (Cl. 260—609)

1. Method for producing thioethers by reacting hydrogen sulfide with olefins in the presence of a catalyst, which consists in contacting a gaseous mixture of hydrogen sulfide and at least one olefin having 2 to 6 carbon atoms in its molecule, at a temperature of 150° to 350° C., with a catalyst consisting of active carbon.

3,317,611
PREPARATION OF CYCLOALKYL AROMATIC COMPOUNDS
James J. Louvar, Evanston, and Alfonso G. Francoy-Atares, Mount Prospect, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
No Drawing. Filed Sept. 16, 1965, Ser. No. 487,920
10 Claims. (Cl. 260—612)

7. A process for the preparation of a cycloalkyl aromatic compound which comprises treating anisole and toluene with hydrogen in the presence of a catalyst consisting essentially of palladium composited on a base consisting of 75% silica and 25% alumina at a temperature in the range of from about 50° to about 150° C. and at a pressure in the range of from about 50 to about 100 pounds per square inch, and recovering the resultant o-, m-, and p-(1-methylcyclohexyl)anisole.

3,317,612
BIODEGRADABLE SURFACE ACTIVE AGENTS
Leslie G. Nunn, Jr., Metuchen, and Leslie M. Schenck, Mountainside, N.J., assignors to General Aniline & Film Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Dec. 18, 1962, Ser. No. 245,414
1 Claim. (Cl. 260—613)

A biodegradable surface active agent consisting of the condensation product of from 1 to 150 moles of ethylene oxide with 1 mole of a complex liquid mixture obtained by the alkylation of 1 mole by weight of phenol with 2 to 4 moles by weight of butene-2 in the presence of from 0.6 to 1.9 parts by weight of boron trifluoride at a temperature ranging from 50° to 100° C. for period of time ranging from 7 to 24 hours, said complex liquid mixture comprising from about 15 to 55% of a mixture consisting of 2,4-di-secondary butyl phenol, 2,4,6-tri-secondary butyl phenol, 2-octylphenol and 4-octylphenol, 40 to 85% of a mixture consisting of 2-secondary butyl-4-octylphenol and 4-secondary butyl-2-octylphenol, and from about 0.0% to 5% of a mixture consisting of substantially 2-dodecylphenol and 4-dodecylphenol.

3,317,613
PROCESS FOR CONTINUOUSLY PRODUCING METHYLAL
Gerhard Künstle and Fritz Knörr, Burghausen, Upper Bavaria, Germany, assignors to Wacker-Chemie G.m.b.H., Munich, Germany, a corporation of Germany
No Drawing. Filed Feb. 12, 1963, Ser. No. 257,830
Claims priority, application Germany, Feb. 21, 1962, W 31,715
2 Claims. (Cl. 260—615)

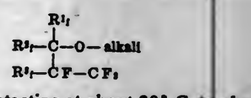
1. Process for continuously producing methylal which comprises preacetalizing an aqueous mixture of formaldehyde and methanol by passing same through a pre-reaction zone at room temperature in the presence of an acid cation exchanger, reacting the preacetalized mixture in the presence of an acid cation exchanger at a temperature of 65–90° C., continuously removing methylal in vapor form from the upper end of the reaction zone and continuously removing water from the bottom of the reaction zone, said process being characterized by the fact that stoichiometric quantities of the aqueous reaction mixture of formaldehyde and methanol flow into the reaction zone against the created methylal, and by the fact that said cation exchanger is arranged in such a way as to leave spacing gaps therein whereby to facilitate the removal of the created methylal.

3,317,614
PARTIAL OXIDATION OF HYDROCARBONS
Richard L. Marcell, Bergenfield, N.J., assignor to Halcon International, Inc., a corporation of Delaware
Filed Jan. 2, 1962, Ser. No. 163,709
2 Claims. (Cl. 260—631)

1. The process for the liquid phase partial oxidation of a hydrocarbon comprising contacting a slurry of liquid hydrocarbon containing a dispersed solid boron compound in an oxidation zone with a molecular oxygen containing gas at oxidizing conditions, removing from said zone during the oxidation a gaseous mixture of hydrocarbon and water, cooling and condensing said removed gaseous mixture, separating condensed hydrocarbon from condensed water, heating and vaporizing separated condensed hydrocarbon in a zone separate from the said oxidation zone, and heating the said slurry in said oxidation zone by direct contact with hydrocarbon vapors vaporized in said separate zone.

3,317,615
PROCESS FOR THE PREPARATION OF PERFLUORO-TERTIARY-ALKANOL
Donald P. Graham, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Sept. 1, 1964, Ser. No. 393,755
8 Claims. (Cl. 260—633)

1. A process for preparing an alkali metal salt of the structure



which comprises contacting at about 20° C. to about 175° C. a perfluoroketone of the structure $R^1_f—CO—R^2_f$ with a perfluoroolefin of the structure $R^3_fCF=CF_2$ and the compound MF, wherein M represents an alkali meal, in a solvent having a melting point below 20° C. and selected from the group consisting of polyethers having the structure $RO(C_pH_{2p}O)_nR$ and nitriles having the structure R'CN, wherein R^1_f and R^2_f are perfluoroalkyl groups which together contain from 2 to 20 carbon atoms, R^3_f is selected from the group consisting of fluorine and trifluoromethyl, R is a lower alkyl group of one to four carbon atoms, p is an integer of two to four, n is an integer of one to four, and R^1 is a hydrocarbon group free of aliphatic unsaturation, and recovering said alkali metal salt from the reaction mixture.

3,317,616
PROCESS FOR THE PREPARATION OF PERFLUORO-TERTIARY-BUTANOL
Viktor Weinmayr, Landenberg, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Sept. 1, 1964, Ser. No. 393,772
9 Claims. (Cl. 260—633)

1. A process for preparing an alkali metal salt of perfluoro-tertiary-butanol which comprises heating hexafluoroacetone with the compound MF, wherein M is an alkali metal of atomic number 19 to 55, to a temperature of from 75° C. to 250° C. in the presence of an amount of water not exceeding 0.65 mole of water per mole of the compound MF and a liquid reaction medium selected from the group consisting of nitriles having the structure R'CN and ethers having the structure $RO(C_pH_{2p}O)_nR$, wherein R' is a hydrocarbon free from atoms other than carbon and hydrogen, R is a lower alkyl of from 1 to 4 carbon atoms, p is an integer of from two to four and n is an integer from one to four, and recovering from the reaction mixture the alkali metal salt of perfluoro-tertiary-butanol.

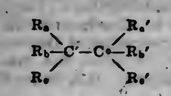
3,317,617
CHLORINATION OF TOLUENE
Eugene P. Di Bella, Rochelle Park, N.J., assignor to Tenneco Chemicals, Inc., a corporation of Delaware
No Drawing. Filed Oct. 21, 1965, Ser. No. 500,365
13 Claims. (Cl. 260—650)

1. In a process for the production of para-chlorotoluene by the chlorination of toluene, the improvement which comprises carrying out the chlorination in the presence of platinum dioxide, said platinum dioxide being present in the amount of about 0.25 gram to 5 grams per mole of toluene.

10. A process for the production of polychlorotoluenes having from 2 to 5 chlorine atoms and containing a major amount of polychlorotoluene isomers having a chlorine atom in the 4-position of the aromatic ring which comprises contacting toluene with chlorine in the amount of about 2 to 5 gram atoms of chlorine per mole of toluene at a temperature in the range of about —5° C. to 60° C. and in the presence of platinum dioxide, said platinum dioxide being present in the amount of about 0.25 gram to 5 grams per mole of toluene.

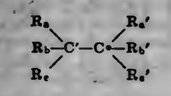
3,317,618
PROCESS FOR COUPLING HALOGENATED ORGANIC COMPOUNDS AND PRODUCTS THEREOF
Robert Neville Haszeldine, Windyridge, Lyme Road, Disley, Cheshire, England
No Drawing. Continuation of application Ser. No. 680,924, Aug. 27, 1957. This application Mar. 12, 1962, Ser. No. 179,217
Claims priority, application Great Britain, Sept. 15, 1952, 23,160/52; Aug. 9, 1954, 23,106/54; May 25, 1955, 15,157/55; Sept. 6, 1956, 27,343/56; Jan. 15, 1957, 1,537/57
13 Claims. (Cl. 260—653)

1. Compounds having the general formula



where R_a and R_b are selected from the group consisting of halogen and halogenoalkyl groups having not more than 20 carbon atoms, and R_a', R_b', R_c and R_c' are halogenoalkyl groups having not more than 20 carbon atoms, provided that R_c' has at least two halogen atoms other than iodine attached to the carbon atom adjacent the C° carbon atom, and that when both R_a and R_b are halogenoalkyl, R_c has at least two halogen atoms other than iodine attached to the C' carbon atom.

12. A method for making compounds having the general formula



where R_a and R_b are selected from the group consisting of halogen and halogenoalkyl groups having from 1 to 20 carbon atoms, and R_a', R_b' and R_c and R_c' are halogenoalkyl groups having not more than 20 carbon atoms, provided that R_c' has at least 2 halogen atoms other than iodine attached to the carbon atom adjacent the C° carbon atom and that when both R_a and R_b are halogenoalkyl, R_c has at least two halogen atoms other than iodine attached to the carbon atom adjacent to the C' carbon atom, which comprises coupling a compound having the formula



with a compound having the formula



where Z is selected from the group consisting of chlorine, bromine and iodine, by reacting said compounds with a dehalogenating metal in the presence of an organic solvent which is a Lewis base and which has a dielectric constant greater than 1.5.

3,317,619
PREPARATION OF VINYL FLUORIDE
Thomas E. Hedge, Wickliffe, Daniel F. Cooley, Mentor, Charles E. Entemann, Painesville, Roland Steinkoenig, Chardon, and Richard L. Urbanowski, Painesville, Ohio, assignors to Diamond Alkali Company, Cleveland, Ohio, a corporation of Delaware
Filed May 10, 1963, Ser. No. 279,426
12 Claims. (Cl. 260—653.3)

1. A process for the preparation of vinyl fluoride monomer which comprises, in combination, the steps of (a) contacting acetylene and hydrogen fluoride in a reaction zone containing a hydrofluorination catalyst comprising fluosulfonic acid having dissolved therein the reaction product of fluosulfonic acid with about 0.5 to 5 weight percent of an anhydrous metal chloride selected from the group consisting of tin tetrachloride, titanium tetrachloride and antimony pentachloride for a sufficient period of time to effect reaction of said acetylene and hydrogen fluoride to form a 1,1-difluoroethane product; (b) contacting said 1,1-difluoroethane product with acetylene in the presence of a disproportionation catalyst for a sufficient time to effect reaction of said 1,1-difluoroethane and acetylene to form a vinyl fluoride product; (c) selectively hydrogenating acetylene in said vinyl fluoride product in the presence of hydrogen and a hydrogenating catalyst containing a Group VIII metal on a catalytic support for a sufficient time to reduce the acetylene content in said vinyl fluoride product to less than about 10 parts per million and recovering a vinyl fluoride monomer product.

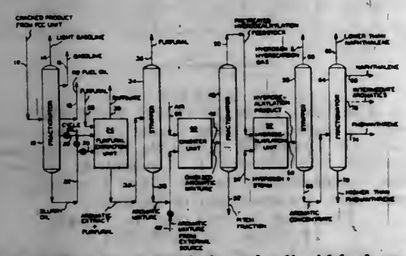
3,317,620
CIS,CIS-CYCLODECADIENE-(1,6) AND ITS MANUFACTURE
Günther Wilke and Paul Heimbach, both of Mulheim (Ruhr), Germany, assignors to Studiengesellschaft Kohle m.b.H., Mulheim (Ruhr), Germany, a corporation of Germany
Filed Apr. 9, 1964, Ser. No. 358,457
Claims priority, application Germany, Apr. 10, 1963, St 20,502
15 Claims. (Cl. 260—666)

1. Process for the preparation of cis,cis-cyclodecadiene-(1,6) by isomerization of cis,trans-cyclodecadiene-(1,5) which comprises contracting cis,trans-cyclodecadiene (1,5) with a catalytic quantity of a Group VIII metal of the Periodic System in solid particle form.

3,317,621
PREPARATION OF METHYL INDANES
Edwin L. De Young, Chicago, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
No Drawing. Filed June 8, 1964, Ser. No. 373,548
7 Claims. (Cl. 260—668)

1. A process for the preparation of methyl indanes which comprises hydrocracking decahydronaphthalene at an elevated temperature at least as high as 460° C. and an elevated pressure in the presence of a hydrocracking catalyst and hydrogen, and recovering the resultant methyl indanes.

3,317,622
POLYCYCLIC AROMATICS FOR HYDRODEALKYLATION
Charles D. Hoertz, Jr., Ashland, Ky., and William Sidney Green, Huntington, W. Va., assignors to Ashland Oil & Refining Company, Houston, Tex., a corporation of Kentucky
Filed Apr. 14, 1965, Ser. No. 448,062
36 Claims. (Cl. 260—672)

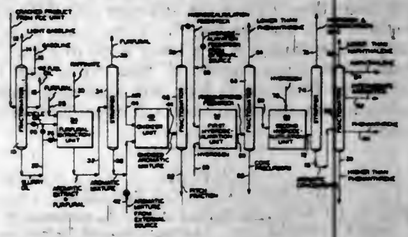


1. A method for dealkylation of a liquid hydrocarbon fraction, comprising: extracting aromatics from a liquid hydrocarbon fraction boiling between about 550° and 850° F. and containing alkylated aromatics with an aromatic selective solvent; oxidizing said extracted aromatic mixture at an elevated temperature until said oxidized aromatic mixture has a softening point between about 50 and 300° F. is obtained; separating a hydrodealkylation feed stock boiling below about 740° F. from a higher boiling fraction containing coke precursors; and subjecting said hydrodealkylation feed stock to a hydrodealkylation reaction, in the presence of a hydrodealkylation catalyst containing molybdic trioxide and cobalt oxide as active ingredients and, under the following conditions: a temperature between 1100 and 1400° F., a weight-hourly space velocity of 0.2 to 2, a hydrogen to hydrocarbon ratio of 10:1 to 30:1, a pressure between atmospheric and 1000 p.s.i.

31. A hydrodealkylation feed stock obtained by: oxidizing a liquid hydrocarbon fraction boiling between about 550° and 850° F. containing alkylated aromatics at an elevated temperature until said oxidized hydrocarbon fraction has a softening point between about 50° and 300° F. and separating a low boiling hydrodealkylation feed stock boiling below about 740° F. from a higher boiling fraction containing coke precursors.

3,317,623
POLYCYCLIC AROMATICS BY TWO-STAGE HYDRODEALKYLATION
William Sidney Green, Huntington, W. Va., and Charles D. Hoertz, Jr., Ashland, Ky., assignors to Ashland Oil & Refining Company, Houston, Tex., a corporation of Kentucky
Filed Apr. 14, 1965, Ser. No. 448,063
49 Claims. (Cl. 260—672)

3. A method of preparing a hydrodealkylation feed stock, comprising: subjecting a liquid hydrocarbon fraction containing alkylated aromatics and boiling above about 600° F. to hydrodealkylation in the presence of hydrogen and a hydrodealkylation catalyst; maintaining the reaction conditions of said hydrodealkylation below the level at which any appreciable quantity of alkylated aromatics boiling above about the end point of phenanthrene and anthracene is dealkylated including a tempera-



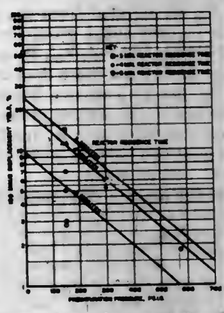
ture below about 1200° F; and separating from the product of said hydrodealkylation a hydrodealkylation feed stock boiling below about 725° F. and substantially free of coke precursors.

6. A method in accordance with claim 3 wherein the liquid hydrocarbon fraction is a heavy cycle oil from a catalytic cracking operation.

3,317,624
PROCESS FOR PURIFYING ALPHA OLEFINS WITH $SnCl_4$ AND HCl
William H. Clement, Cincinnati, Ohio, Howard M. Peters, Palo Alto, Calif., and Charles M. Selwitz, Pitcairn, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware
No Drawing. Filed May 20, 1964, Ser. No. 369,014
8 Claims. (Cl. 260—677)

1. A process which comprises:
contacting a first mixture containing predominantly at least one normal alpha olefin and lesser amounts of at least one substituted olefin selected from the group consisting of tri-substituted monoolefins and vinylidenes,
with a second mixture containing about 0.1 to about 50 percent by weight of anhydrous $SnCl_4$ and about 0.1 to about 100 percent by weight of anhydrous HCl, under conditions to selectively polymerize said substituted olefins.

3,317,625
PROCESS FOR DISPLACEMENT OF TRIALKYLALUMINUM IN THE PREPARATION OF ALPHA OLEFINS
William B. Carter and William C. Ziegenhain, Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla., a corporation of Delaware
Filed Oct. 15, 1964, Ser. No. 404,087
9 Claims. (Cl. 260—677)

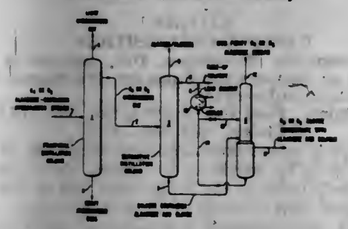


1. In the process of recovering olefins from aluminum alkyls by displacement with a low molecular weight alpha-olefin the improvement comprising presaturating said aluminum alkyl with said low molecular weight olefin prior to introducing said aluminum alkyl to displacement conditions.

3,317,626
OLEFIN PYROLYSIS INITIATORS
Kenneth J. Frech, Kent, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio, a corporation of Ohio
No Drawing. Filed Feb. 19, 1964, Ser. No. 345,863
20 Claims. (Cl. 260—680)

1. A cracking process which comprises providing a mixture of (a) at least one olefin having in its molecule a carbon-to-carbon single bond in a position beta to the double bond and (b) at least one olefin pyrolysis initiator selected from the group consisting of acetaldehyde, dimethyl ether, ethylene oxide, methylethyl ether, and propionaldehyde, said pyrolysis initiator being present in said mixture in an amount of at least 0.4 mol percent based on the olefin, subjecting said mixture to temperatures ranging from about 400° C. to about 900° C. for periods of time ranging from about 0.001 to about 3 seconds, to cleave the carbon-to-carbon single bond which is in a position beta to the double bond of said olefin.

3,317,627
HIGH PURITY ALKADIENES BY EXTRACTIVE DISTILLATION
Ralph W. King, London, England, and Hendrik Mondria, Amsterdam, Netherlands, assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware
Filed Oct. 22, 1964, Ser. No. 405,852
Claims priority, application Great Britain, Oct. 25, 1963, 42,202/63
8 Claims. (Cl. 260—681.5)



1 An improved extractive distillation process for recovering a C_4 to C_5 alkadiene low in alkyne contaminant from an alkadiene and alkyne containing C_4 to C_5 hydrocarbon mixture obtained from a more saturated C_4 to C_5 aliphatic hydrocarbon by dehydrogenation which comprises subjecting such C_4 to C_5 hydrocarbon mixture to extractive distillation with a selective polar solvent to produce and separate a solvent extract of alkadienes and alkynes from more saturated hydrocarbons, stripping the extracted hydrocarbons from said solvent extract in an upright elongated stripping zone while removing a side stream from said stripping zone having a greater alkyne-to-alkadiene ratio than said solvent extract and recovering an alkadiene overhead product of substantially reduced alkyne content.

3,317,628
POLYMERIZATION OF OLEFINS USING AMMONIATED COBALT SALT IMPREGNATED CARBON CATALYST
James M. Schuck, Webster Groves, and Robert G. Schultz, Vinita Park, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Filed July 12, 1963, Ser. No. 294,750
11 Claims. (Cl. 260—683.15)

1. A method for preparing substantially linear liquid olefins which comprises polymerizing an olefin having from 2 to 10 carbon atoms at a temperature of from —10° C. to about 250° C. using a catalyst which has been prepared prior to polymerizing said olefins by ammoniating an activated carbon with aqueous ammonium hydroxide, drying the thus treated activated carbon, impregnating the thus treated carbon with an oxygen containing cobalt salt of an acid capable of being decomposed to cobalt oxide when subjected to heating at temperatures not over 300° C., said cobalt salt being selected from the group consisting of cobalt nitrate, cobalt sulfate, and cobalt salts of alkanoic acids of 1 to 6 carbon atoms, drying the cobalt salt-impregnated ammoniated carbon thus obtained, and heating the cobalt salt impregnated activated carbon to temperatures from 200° C. to 550° C. in an inert atmosphere.

3,317,629
EXTENDERS FOR OLEOPHOBIC FLUOROALKYLSILOXANES
George J. Quasal, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich., a corporation of Michigan
No Drawing. Filed Sept. 11, 1964, Ser. No. 395,931
23 Claims. (Cl. 260—827)

1. A heat-curable composition comprising
(a) from 10 to 80 parts by weight of the hydrolyzate of

$$(C_nF_{2n+1})CH_2CH_2SiX_{3-m}$$
(with R on the Si)

(b) from 20 to 90 parts by weight of a polymeric composition having a unit formula of

$$[R'OCCRCH_2-]$$
(with O)

there being a total of 100 parts of (a) and (b) present, and
(c) a catalytic amount of a curing catalyst for (a), where R is selected from the group consisting of hydrogen and lower alkyl radicals, X is a hydrolyzable group, n has an average value of at least 4, m has an average value of 0 to 1, and R' is an alkyl radical.

3,317,630
"ONE-KETTLE" PROCESS FOR PREPARING A COMPOSITION CONTAINING ALKYLATED MELAMINE AND UREA FORMALDEHYDE CONDENSATES
Ernest C. Yuille, Plainfield, N.J., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Filed Nov. 15, 1962, Ser. No. 238,022
2 Claims. (Cl. 260—849)

1. A process for preparing a water-soluble resin composition containing a partially methylated polymethylol melamine having from 4 to 6 methylol groups and partially methylated dimethylol urea, said melamine and said urea being employed in relative molar ratios of about 1:3 and 3:1, which comprises condensing melamine with from 5 to 18 moles of formaldehyde at a pH of from 9 to about 11.0 in a water-methanol reaction medium, at a temperature above 60° C. up to reflux to form a melamine-formaldehyde condensate having from 4 to 6 methylol groups, adding urea at a pH of from 9 to about 10.5 to said reaction mixture and reacting said urea with formaldehyde at a temperature between 20° and 90° C. so as to form dimethylol urea, adjusting the pH of the reaction medium to from 4 to about 6 and reacting said composition with methanol at a temperature of between 50° C. and reflux, said methanol being present in the mixture in relative amounts of 1.1 to about 1.8 moles of methanol per mole of combined formaldehyde

and until at least 50% of the available methylol groups are methylated, adjusting the pH of the mixture to at least 8 and concentrating the solution to a solids content of at least 80% and a free formaldehyde content of less than 3.5% by weight.

3,317,631
THERMOSETTING RESINS OF ALIPHATIC OLEFIN, UNSATURATED ACID COPOLYMERS AND MELAMINE-FORMALDEHYDE RESINS
Richard Watkin Rees, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Sept. 9, 1963, Ser. No. 307,313
1 Claim. (Cl. 260—854)

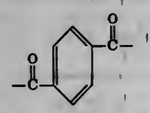
A composition of matter consisting essentially of the reaction product of 10 parts by weight of a copolymer of an aliphatic olefin having from 2 to 4 carbon atoms copolymerized with from 1 to 25 weight percent of an alpha-beta unsaturated carboxylic acid with 90 parts by weight of a melamine-formaldehyde resin.

3,317,632
BLOCK COPOLYESTERS CONTAINING SULFONATE RADICALS
Richard Keith Quisenberry and Edward Anthony Pacofsky, Kinston, N.C., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Mar. 5, 1965, Ser. No. 437,556
5 Claims. (Cl. 260—860)

1. A linear fiber-forming block copolyester, the molecular chains of which consist essentially of recurring alkylene terephthalate blocks and alkylene sulfonate blocks, said alkylene terephthalate blocks having the formula:

$$\{O—X—O—T\}_m \quad (I)$$

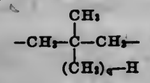
wherein
X is lower alkylene,
m is indicative of the molecular weight of the block and is a number of 3 to 200, and
T is



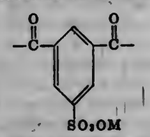
said alkylene sulfonate blocks having the formula:

$$\{O—Y—O—Z\}_n \quad (II)$$

wherein
Y is the radical



wherein
q is an integer of 1 to 3,
n is indicative of the molecular weight of the block and is a number of 3 to 200, and
Z is selected from the group consisting of T and sulfonate radicals of the formula



wherein M is selected from the group consisting of hydrogen and metallic elements,
with the proviso that at least 4 mol percent of the said Z radicals in the block be said sulfonate radicals,
the proportions of said alkylene terephthalate and alkylene sulfonate blocks in the copolyester being such as to provide therein between about 0.5 and 15 mol percent of said sulfonate radicals and at least 60 percent by weight of said alkylene terephthalate blocks.

3,317,633
POLYOLEFINS OF IMPROVED DYE AFFINITY MODIFIED WITH UNSATURATED POLYESTER RESINS
Giuliana C. Tesoro, Dobbs Ferry, N.Y., and Wing Kai Lee, Lyndhurst, and Donald R. Moore, Washington Township, Bergen County, N.J., assignors to J. P. Stevens & Co., Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed Apr. 1, 1964, Ser. No. 356,663
13 Claims. (Cl. 260—873)

1. The method of modifying a poly-alpha-olefin comprising the steps of adding to said poly-alpha-olefin a polyester in which at least a proportion of the repeating units of said polyester contains a carbon-to-carbon double bond located in a position alpha-beta to a carboxylic carbon atom, blending said poly-alpha-olefin and said polyester to form a substantially homogeneous mixture, and reacting said polyester in said mixture with a polar compound selected from the group consisting of ammonia, primary amines, secondary amines, polyamines, mercaptans, amino-mercaptans, polymercaptans, inorganic compounds selected from the class consisting of alkali bisulphite, halogens, halogen acid, phosphoric acid, phosphorous acid, hydrogen sulphide, sulfur and nitrogen oxide, and organic compounds having activated groups selected from the class consisting of diazo and methylene, whereby said polar compound is added across the carbon-to-carbon double bond of said polyester.

3,317,634
CASTING COMPOSITION
Ruskin Longworth, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Oct. 7, 1963, Ser. No. 314,545
2 Claims. (Cl. 260—878)

1. A casting composiiton consisting essentially of from 50 to 80 parts by weight of a 1-mono olefin polymer having a melt index in the range from 100 to 500 intimately mixed with from 50 to 20 parts by weight, complementally, of cyclohexyl methacrylate, stearyl methacrylate, or a mixture thereof, and an initiating amount of a free radical initiator having a half time of decomposition in the range from 1 to 10 hours at the solution temperature of about 110° C. of said polymer in said methacrylate.

3,317,635
POLYMERIC DISPERSION STABILIZERS FOR DISPERSIONS OF SYNTHETIC POLYMERS IN ORGANIC LIQUIDS
Desmond Wilfrid John Osmond, Iver Heath, England, assignor to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain
No Drawing. Filed June 24, 1963, Ser. No. 290,243
Claims priority, application Great Britain, May 27, 1957, 16,697/57; May 1, 1959, 15,051/59
40 Claims. (Cl. 260—881)

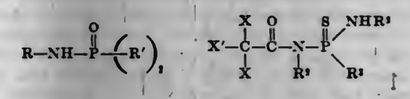
1. A stable dispersion in an organic liquid of particles of an addition polymer which are insoluble in the organic liquid, said dispersion being stabilized by a copolymer which is the product obtained by (i) reacting by a condensation reaction a compound (A) containing a polymeric component and a group capable of condensation reaction with a compound (B) containing both a complementary condensation reactive group and an ethylenically unsaturated group to produce a precursor (C) comprising a polymeric component having at least one such unsaturated group attached thereto and (ii) copolymerizing ethylenically unsaturated monomer (D) with the unsaturated group of precursor (C) to attach thereto, on average, not more than two addition polymeric components of (D) of different degree of polarity from the polymeric component provided by compound (A) so that one polymeric component is solvated by the organic liquid and the other polymeric component of different degree of polarity is not solvated by the organic liquid and becomes associated with the disperse polymer.

3,317,636
O,O,O',O'-TETRAMETHYL O,O'-THIODI-p-PHENYLENE PHOSPHOROTHIOATE
James Byron Lovell, Pennington, N.J., and Ronald William Baer, Flushing, N.Y., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Filed Jan. 10, 1964, Ser. No. 336,876
1 Claim. (Cl. 260—929)

O,O,O',O',-tetramethyl O,O'-thiodi-p-phenylene phosphorothioate.

3,317,637
N-HALOACYLPHOSPHORIC AMIDES
Harry F. Brust, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Jan. 10, 1964, Ser. No. 336,880
6 Claims. (Cl. 260—959)

1. Compounds corresponding to one of the formulae



wherein R represents haloalkanoyl, the alkanoyl portion of said moiety containing from 2 to 5, both inclusive, carbon atoms; each R' independently represents amino, benzylamino, alkylamino, or monocyanoalkylamino, the alkyl portion of said moieties containing from 1 to 5, both inclusive, carbon atoms; each R^2 independently represents hydrogen or loweralkyl being of from 1 to 4, both inclusive, carbon atoms; R^3 represents —NHR^2 or loweralkoxy being of from 1 to 4, both inclusive, carbon atoms; each X independently represents bromo or chloro; and X' represents X or loweralkyl being of from 1 to 4, both inclusive, carbon atoms.

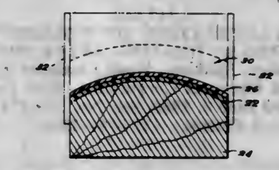
3,317,638
PREPARATION OF LONG OXYALKYLENE CHAIN PHOSPHATE POLYOLS
Robert J. Hartman, Wyandotte, and Louis C. Pizzini, Trenton, Mich., assignors to Wyandotte Chemicals Corporation, Wyandotte, Mich., a corporation of Michigan
No Drawing. Filed July 25, 1963, Ser. No. 297,655
13 Claims. (Cl. 260—978)

1. A method of producing a phosphorus-containing compound comprising reacting, in the presence of a catalyst selected from the group consisting of boron trifluoride and stannic chloride, an alkylene oxide with a compound selected from the group consisting of an acid of phosphorus and the reaction product of an acid of phosphorus and an alkylene oxide wherein said acid of phosphorus corresponds to a mixture of phosphorus pentoxide and water containing from about 72.4 to 90 percent by weight of phosphorus pentoxide with from about 10 to 27.6 percent by weight of water and said phosphorus-containing compound incorporates an average of more than two moles of said alkylene oxide per OH group of said acid of phosphorus.

3,317,639
PROCESS FOR PREPARING PHOSPHATE POLYOLS
Robert J. Hartman, Southgate, Mich., assignor to Wyandotte Chemicals Corporation, Wyandotte, Mich., a corporation of Michigan
No Drawing. Filed Sept. 11, 1963, Ser. No. 308,064
9 Claims. (Cl. 260—978)

1. A process for producing phosphate polyols comprising heating an acid of phosphorus selected from the group consisting of phosphoric acid, polyphosphoric acids, and mixtures of such acids, said acid of phosphorus corresponding to a mixture of from about 72–88% P_2O_5 and 28–12% by weight water, at a temperature of from about 75–200° C. for a period of from about 10 minutes to about 2 hours, and reacting the thus obtained acid product with an epoxide at a temperature below about 95° C.

3,317,640
METHOD FOR MAKING CURVED OPTICAL AND REFLECTIVE SURFACES
Harold A. Jones, Olldale, Calif., assignor to Fortin Plastics, Inc., Saugus, Calif., a corporation of California
Filed June 22, 1964, Ser. No. 376,669
4 Claims. (Cl. 264—1)

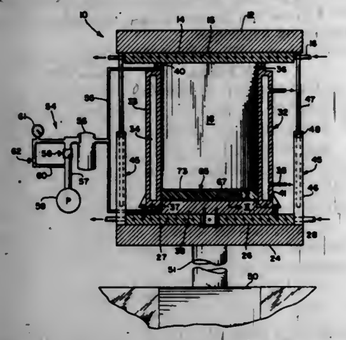


1. A method for forming elements of the class described, which comprises:
forming a base mold having a mold surface of predetermined curvature;
mounting a resilient, fine-celled foam layer to said mold surface, said foam layer conforming to the curvature of said mold surface;
heating a cast sheet of plastic material, having at least one of its surfaces glass-smooth, to a temperature at which it becomes formable, said foam layer having a softening point above said temperature;
laying said heated formable plastic sheet upon said foam layer with said glass-smooth surface exposed whereby said plastic sheet conforms substantially to the curvature of said mold surface of said base mold,
conforming a second plastic material against said exposed glass-smooth surface of said plastic sheet,
and releasing said second plastic material from said plastic sheet.

3,317,641
METHOD FOR MOLDING COMPOUNDS
Wilbur C. Heier, Hampton, Va., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Mar. 11, 1964, Ser. No. 351,259
3 Claims. (Cl. 264—102)

1. A method for compression molding thermosetting materials comprising the steps of:
placing thermosetting material of microparticle size having a high viscosity under heating and pressure and a high bulk factor in a compression mold chamber;
separating at least a portion of the thermosetting material from the mold chamber with a layer of ceramic paper and layers of glass cloth which allows passage of gases and prevents passage of viscous material;
closing the mold chamber and applying the full pressure of the apparatus to control density and form a high density billet;

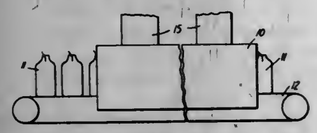
heating the mold chamber and thereby the thermosetting material;
sealing the mold chamber; and



continuously evacuating the mold chamber within the confines of the mold chamber seal during pressing and curing of the thermosetting material.

3,317,642
VOLUME STABILIZATION OF MOLDED PLASTIC CONTAINERS BY HEATING AFTER MOLDING

Robert L. Bailey, Spokane, Wash., assignor to National Distillers and Chemical Corporation, New York, N.Y.
Filed June 6, 1966, Ser. No. 555,374
4 Claims. (Cl. 264—230)

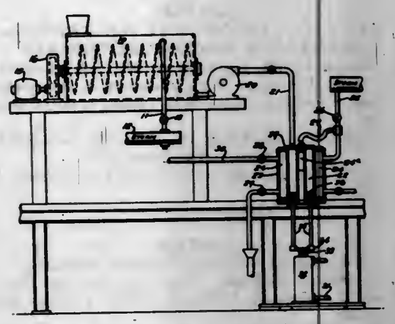


1. A method of stabilizing molded plastic resin containers subject to later intermittent exposure to elevated temperatures above the normal temperatures of the environment to which the container is to be utilized, comprising:
molding the container initially so as to provide it with an interior volume in excess of the desired container storage volume;
cooling the container to room temperature;
heating the container to a selected temperature above said elevated temperature and below the melting point of the resin from which the container is molded;
maintaining the container at said temperature for a duration of time sufficient to stabilize the interior volume of the container at the desired container storage volume and to insure maximum volume shrinkage at said temperature;
and cooling the stabilized container to room temperature.

3,317,643
PRODUCING HIGH TEMPERATURE CALCIUM SILICATES

Arthur D. Denny, deceased, late of Toledo, Ohio, by Grace D. Denny, executrix, Toledo, Ohio, assignor, by mesne assignments, to Owens-Corning Fiberglas Corporation, a corporation of Delaware
Continuation of application Ser. No. 255,144, Jan. 22, 1963, which is a continuation of application Ser. No. 652,112, Apr. 11, 1957. This application Sept. 3, 1965, Ser. No. 495,002
5 Claims. (Cl. 264—234)

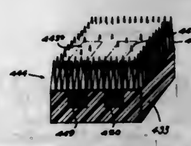
1. In a method of producing a pre-hardened hydrous calcium silicate product suitable for transformation into synthetic xonotlite for use as a thermal insulating material at temperatures substantially in excess of 1200° F. including the steps of: uniformly heating and mixing particles of siliceous material together with finely comminuted lime and with water to form an intimately mixed slurry of reactants consisting essentially of lime, silica and water and having a temperature between about 170° F. and the boiling temperature of said slurry; placing the heated slurry in a closed mold; further heating said slurry while within said mold to a vapor pressure of about 40 p.s.i.g. pressure while maintaining the slurry below the



boiling point thereof for about 5 to 15 minutes to obtain a pre-hardening reaction sufficient to transform said slurry into a molded self-supporting body of material and thereafter removing the pre-hardened material from said mold; the improvement which comprises providing essentially all of said particles of siliceous material in said mixing step in an amorphous form having a mean particle size range between 0.01 and 20 microns and in an amount such that said amorphous silica is present in said slurry in approximately equivalent molar relationship with said lime.

3,317,644
METHOD FOR PRODUCING A PLASTIC FABRIC HAVING PILE-LIKE PROJECTIONS

Unokichi Takai, 4 315–18 Kofuchu-machi, Kofu, Japan
Filed June 24, 1963, Ser. No. 289,860
13 Claims. (Cl. 264—246)



1. In the production of a fabric having unitary piliform projections on at least one surface thereof, the steps of
(a) providing a matrix having a high multiplicity of conical depressions therein,
(b) placing at least one sheet of thermoplastic material on said matrix,
(c) applying heat and pressure to said sheet on said matrix sufficient to soften and force a portion of one surface of said sheet into said conical depressions,
(d) removing said heat and pressure and cooling said sheet and said matrix under increased pressure to prevent stripping of the portions of said sheet in the conical depressions from said sheet,
(e) removing said cooling and pressure and stripping said fabric from said matrix.

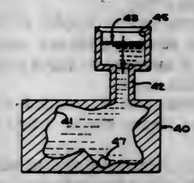
3,317,645
METHOD FOR FORMING MOLDED ARTICLES

Robert P. Nirenberg, New York, N.Y., assignor to International Fabric Molders, Inc., a corporation of California
No Drawing. Filed June 24, 1963, Ser. No. 290,160
13 Claims. (Cl. 264—258)

1. The method of forming a shaped three-dimensional article having flexibility and durable shape retention, from a textile material, which comprises:
(a) bringing together in layered relationship a layer of deformable textile material and a layer of a deflexible thermoplastic material, the latter having a thickness of from about 0.0005 to about 0.004 inch;
(b) applying heat to the layered materials of (a) at a temperature of at least the melt point of said thermoplastic material and below the melt point of said textile material, whereby said layer of thermoplastic material is melted so as to completely lose its integrity across its entire surface and to flow into and become a part of said textile material; and
(c) applying pressure to said layered material in a compression mold simultaneously with the application of said heat to form said materials into a permanent three-dimensional configuration, said layers being merged, molded and set simultaneously during said molding operation.

3,317,646
METHOD FOR CASTING NYLON

Carl W. Dames, Jr., Reading, Pa., assignor, by mesne assignments, to The Polymer Corporation, a corporation of Pennsylvania
Filed Sept. 30, 1963, Ser. No. 312,529
4 Claims. (Cl. 264—308)

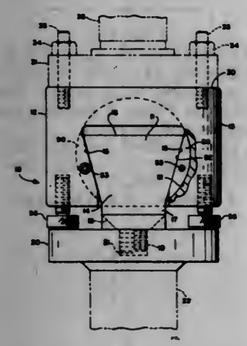


1. A process for the polymerization of higher lactams by utilizing low temperature anionic polymerization processes conducted below the melting point of the polylactam, characterized in that the polymerization is initiated in a localized region of a mold and is permitted to progress sequentially throughout the mold by introducing a lactam monomer containing a promoter into said mold and sequentially discharging a catalyst into said monomer adjacent said localized region of said mold.

ELECTRICAL

3,317,647
UNIVERSAL ELECTRODE CLAMPS

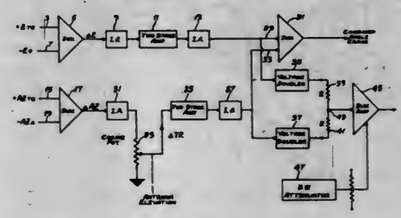
Leonard R. Bosold, Massillon, Ohio, assignor to Republic Steel Corporation, Cleveland, Ohio, a corporation of New Jersey
Filed Jan. 7, 1964, Ser. No. 336,247
10 Claims. (Cl. 13—16)



1. An electrode clamping device comprising:
(a) an electrode stub,
(b) said stub having an end portion adapted to be connected to an electrode and surface portions converging toward said end portion, and
(c) stub holder means for permitting vertical self-alignment of said stub and a connected electrode and for locking said stub in aligned position,
(d) said holder means including a seat having surfaces engageable with said stub surface portions, said stub surface portions being movable on said seat to permit vertical self-alignment of said stub when the weight of said stub and a connected electrode is supported by said holder means, and releasable locking means for maintaining said stub against said seat with the electrode in vertically aligned position.

3,317,648
TRANSISTORIZED ANGLE ERROR GENERATOR

Norman S. Pollack, Commack, N.Y., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed Sept. 22, 1965, Ser. No. 489,444
7 Claims. (Cl. 35—10.4)



1. An electrical circuit for providing an electrical signal whose amplitude is approximately proportional to the square root of the sum of a first electrical input signal squared and a second electrical input signal squared, comprising;
a first voltage double means, having a first output,
a first transmission means, for coupling said first electrical input signal to said first voltage doubler means,
a second voltage doubler means, having an output,
a second transmission means, for coupling said second electrical input signal to said second voltage doubler means,
resistive output means, coupled to said voltage doubler means, and
amplifier means connected to said resistive output means for drawing input current therefrom at a voltage corresponding to said electrical signal.

5. A simulator circuit for providing a realistic indication of the attenuation of a radar beam pattern, supplied with electrical signals proportional in amplitude to the elevation and azimuth angle of both a simulated target and a radar antenna, and supplied with a mechanical input proportional to the radar's elevation angle, comprising;

elevation error summing means, for providing an output signal whose amplitude is proportional to the sum of the target's elevation angle error and the antenna's elevation angle error,

azimuth error summing means, for providing an output signal whose amplitude is proportional to the sum of the target's azimuth angle error and the antenna's elevation angle error,

traverse angle error means coupled to the output of said azimuth error summing means, and having as one input thereof a mechanical input proportional to the radar's elevation angle,

elevation amplifier means coupled to said elevation error summing means having a first electrical output signal,

traverse amplifier means coupled to said traverse angle error means having a second electrical output signal, and

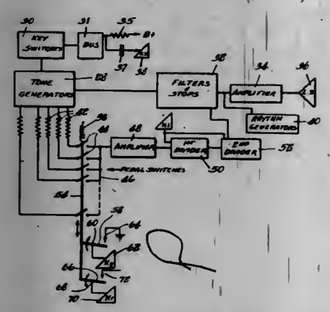
electric circuit means for providing an electrical signal whose amplitude is proportional to the square root of the sum of the first electrical output signal squared and the second electrical output signal squared, said electric circuit coupled to said amplifier means.

3,317,649

MANUAL CONTROL OF ELECTRONIC PERCUSSION GENERATOR WITH ORGAN

Joseph H. Hearne, Corinth, Miss., assignor to The Wurlitzer Company, Chicago, Ill., a corporation of Ohio

Filed Jan. 29, 1964, Ser. No. 341,080
9 Claims. (Cl. 84—1.24)



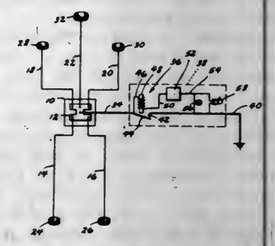
1. An electronic musical instrument comprising a plurality of tone generators for producing electronic oscillations corresponding to musical tones, a plurality of keys and a plurality of pedals, a plurality of switches repectively selectively operable by said keys and said pedals, amplifier means, said switches respectively selectively interconnecting said tone generators and said amplifier means upon selective operation of said keys and said pedals selectively to transmit oscillations from said generators to said amplifier means, electro-acoustic transducing means connected to said smplifier means for converting the amplified electric oscillations into sound, a plurality of percussive type tone generators respectively generating oscillations corresponding to different percussive effects, means operable substantially instantaneously as an incident to depression of a key to transmit a tone oscillation from at least one of said percussive tone generators to said amplifier means, and means operable substantially instantaneously as an incident to depression of a pedal to transmit at least one tone oscillation from at least one other of said percussive tone generators to said amplifier means, said percussive generator tone oscillations respectively being transmitted simultaneously with electronic oscillations from said musical tone generators.

3,317,650

ELECTRICAL GROUND NET

Ralph M. Padelford, Nevada, Iowa, assignor to Iowa State University Research Foundation, Ames, Iowa, a corporation of Iowa

Filed Mar. 29, 1965, Ser. No. 443,492
10 Claims. (Cl. 174—5)



1. In an electrical ground net device,

a first pair of electrical conducting elements adapted for connection to a wearer's wrist,

a second pair of electrical conducting elements adapted for connection to a wearer's ankles,

a centrally positioned terminal means located between said pairs of electrical conducting elements,

only a single insulated electrical conducting lead on each said electrical conducting elements, said leads interconnecting said terminal means with each of said respective electrical conducting elements,

a single electrical ground circuit interconnecting said terminal means and an electrical ground,

and a normally open relay switch imposed in said electrical ground so that when said relay switch is closed, said single electrical ground circuit will be the only means for grounding an electrical potential imposed upon one of said electrical conducting elements.

3,317,651

LOW TEMPERATURE DEVICE WITH A CURRENT SUPPLY MEMBER

Serge Deiness, Versailles, Seine-et-Oise, France, assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware

Filed Nov. 30, 1965, Ser. No. 510,501
Claims priority, application France, Dec. 11, 1964, 998,367
6 Claims. (Cl. 174—15)



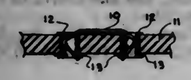
1. In a low temperature device, a current supply member for said low temperature device of good electrical conduction and poor heat conduction, said current supply member being constituted of a plurality of conductors of approximately the same cross-section, said conductors being located in interconnected levels, each of said conductors in each of said levels being parallel to one another, the number of conductors in each level decreasing from that part of said current supply member which is in contact with a warmer part of said low temperature device to that part of said current supply member which is in contact with a colder part of said low temperature device.

3,317,652

SOLDERLESS ELECTRICAL CONNECTION

Vaughn L. Johannessen and Edwin E. Sterner, Indianapolis, Ind., assignors to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York

Filed June 22, 1964, Ser. No. 376,752
3 Claims. (Cl. 174—68.5)



1. A solderless electrical circuit connection comprising:

an article having at least two terminals in the form of fixedly spaced openings therein, with each opening having an electrically conducting lining; and

a length of stiff wire interconnecting said terminals, said wire having an intermediate flat portion, coextensive with the upper surface of said article between said openings, and two leg portions extending from opposite ends of said intermediate portion, respectively, each of said leg portions having at least a first section extending downwardly and outwardly, relative to said intermediate portion, into a different one of said openings, the end of each of said leg portions adjacent said intermediate portion being in contact with the upper rim of the associated opening, and a region of each of said leg portions further removed from said intermediate portion contacting the lining within said associated opening.

3,317,653

ELECTRICAL COMPONENT AND METHOD OF MAKING THE SAME

Edwin H. Layer, Jr., Elkhart, and Darwyn L. Herbst, Lafayette, Ind., assignors to CTS Corporation, Elkhart, Ind., a corporation of Indiana

Filed May 7, 1965, Ser. No. 453,994
7 Claims. (Cl. 174—68.5)



1. A planar circuit component comprising a high-temperature-resistant electrically nonconductive substrate having a top surface, a first thin film conductor disposed on the surface of the substrate, a thin film insulating member overlying the center portion of the first thin film conductor, and a second thin film conductor disposed on the surface of the substrate and overlying a portion of the thin film insulating member, the second thin film conductor containing a glass having a softening temperature lower than the softening temperature of the insulating member, the major axis of the first thin film conductor being at an angle to the major axis of the second thin film conductor, the thin film insulating member comprising inert filler particles selected from the group consisting of ZrO_2, Ta_2O_5, Nb_2O_5, TiO_2, HfO_2 and SiO_2 and any mixtures and any double oxide compounds thereof, and a glass bonding together the particles, said particles having a softening temperature substantially higher than the glass bonding the particles together, only a portion of the filler particles being dissolved in the glass of the insulating member.

3,317,654

ELECTRICAL CABLE TERMINAL

Edward H. Yonkers, Glencoe, Ill., assignor to Joslyn Mfg. and Supply Co., Chicago, Ill., a corporation of Illinois

Filed Dec. 16, 1964, Ser. No. 418,678
17 Claims. (Cl. 174—73)



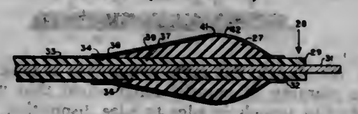
15. An elongated tubular elastic filler for surrounding a terminal end portion of an electrical cable and adapted for insertion therewith into an elongated cavity formed in a terminal housing of a terminal device, said filler including a lower end portion having a surface segment of its central bore adapted to closely engage and encircle a portion of a ground sheath of said cable and an outer peripheral surface adapted to closely engage a ground fitting of said terminal device, and low resistance resilient conductive means embedded in the lower end portion of said filler, said conductive means including inner contact portions within said surface segment of said filler disposed to electrically engage said cable ground sheath and outer contact portion extending to said peripheral surface of said filler adapted to electrically engage said ground fitting of said terminal device for providing a low resistance path between the cable ground sheath and said ground fitting of said terminal device.

3,317,655

SHRINKABLE STRESS-RELIEF CONE AND METHOD

Cecil J. Oatess, Marion, Ind., and Walter J. Plate, Rye, N.Y., assignors to Anaconda Wire and Cable Company, a corporation of Delaware

Filed Feb. 15, 1965, Ser. No. 432,584
9 Claims. (Cl. 174—73)



1. A stress-relief cone comprising:

(A) a tubular body having a portion defining a bore for the insertion of an insulated electrical conductor,

(B) said stress-relief cone being shrinkable by the application of heat whereby it can be shrunk down snugly around said conductor,

(C) said body being

(a) continuous in circumference and

(b) increasing substantially in thickness lengthwise from an end thereof.

7. The method of reducing the electrical stress concentration at a discontinuity in an insulated electrical conductor having an electric shield comprising the steps of:

(A) removing the shield from said conductor to a point along the length thereof,

(B) inserting an unshielded length of said conductor and said section into an oversized, shrinkable, semiconducting stress-relief cone having a body increasing substantially in thickness from the ends thereof, and

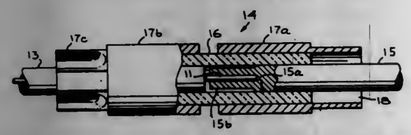
(C) shrinking said stress-relief cone down snugly around said conductor.

3,317,656

ELECTRICAL CONNECTION FOR SHEATHED CONDUCTORS

Alexander H. Firestone, Pasadena, Calif., assignor to Electro-Optical Systems, Inc., Pasadena, Calif.

Filed May 25, 1964, Ser. No. 370,019
2 Claims. (Cl. 174—86)



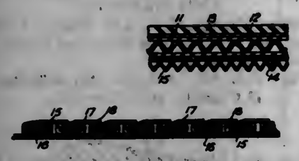
2. An electrical connector combination comprising: an electrical conductor having a first wire, a layer of insulative material surrounding said first wire, and a metal sheath surrounding said insulative layer; a second wire whose diameter is equal to the diameter of said metal sheath and which has a hole in it along its axis in which said first wire is mounted; an insulative sleeve mounted and extending over said metal sheath and second wire, the diameter of said sleeve being equal both to the diameter of said second wire and the diameter of said metal sheath to provide a snug fit therebetween; a pair of metal sleeves mounted on said insulative sleeve and respectively extending beyond the ends thereof; and means for respectively bonding the ends of said metal sleeves to said electrical conductor and said second wire.

3,317,657

FLAT ELECTRIC CABLES

Paul Eisler, 57 Exeter Road, London, England

Filed Dec. 12, 1960, Ser. No. 75,453
Claims priority, application Great Britain, Dec. 11, 1959, 42,253/59
6 Claims. (Cl. 174—117)



1. An electric flat cable comprising at least one layer of a plurality of parallel longitudinal thin flat flexible conductive strands in edge to edge disposition, respective similar sheaths of prefabricated thin flexible insulating material completely enveloping the strands and joined together and having a total width of insulating material at least twice the total width of the conductive strands, at least a major part of the surface of the conductor strands being free to move longitudinally relatively to the sheaths, there being no zones of adhesion between the strands and the sheaths long enough to impair substantially the longitudinal mobility of the strands in relation to the sheaths over the major part of the lengths of the strands and there being no zones of adhesion between the strands and sheaths at distances short enough to result in contact between the strands if the strands without the sheaths were flexed in their own plane to the limit of their endurance, and the mobility of the conductive strands inside their insulating sheaths being enhanced by the presence of a lubricating agent extending at least over a part of one of their contacting surfaces.

3,317,658

CABLE SPLICE SPIDER

Pleasant E. Smith, Carbondale, Ill., assignor of one-fourth to James A. Ozbourn, Carterville, one-fourth to Thomas A. Miller, Marion, and one-fourth to Wayne G. Lecocq, West Frankfort, Ill.

Filed June 7, 1966, Ser. No. 555,753
4 Claims. (Cl. 174—138)



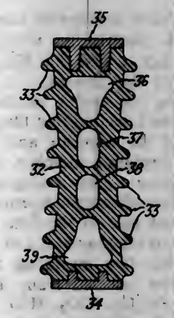
1. A cable splicer spider for use in joining the adjoining ends of a conductor cable carrying at least two conductors, comprising an elongated body of flexible nonconductive material, said body having opposing flat end portions disposed generally perpendicular to the longitudinal axis of the body, said body being provided with an external surface and having at least two axially extending cavity forming bores, said bores opening through the end portions and being separated in their entire extent through the body, said body having a longitudinal slit for each bore extending longitudinally from one end portion to the other end portion, each slit communicating its bore with the exterior surface of the body for a lateralwise insertion of a conductor into the associated bore, said end portions having axially projecting flat strip-like tongue extensions tapered in an outward direction and terminating in free substantially pointed outer ends with the extensions lying in a longitudinal plane transversely intersecting the longitudinal planes through the body and end portions in which the bores lie so that said extensions separate the conductors as they extend into the adjoining ends of the cable to be spliced.

3,317,659

HIGH VOLTAGE INSULATOR WITH INTERNAL CORONA SHIELD

Howard A. Frey, Towson, Md., assignor to General Electric Company, a corporation of New York

Filed Sept. 22, 1965, Ser. No. 489,235
2 Claims. (Cl. 174—140)



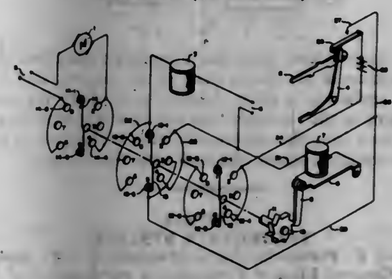
1. An electrical insulator comprising a solid piece of electrical insulation having external metallic parts at opposite ends between which under operating conditions a large difference in electrical potential exists, and an integral internal corona shield for at least one of those parts comprising a conductor film embedded in said piece of insulation adjacent said one part, said film having a surface substantially larger than but conforming in general shape to the adjacent surface extended of said one part, said surface being reentrant and enclosing a space devoid of said solid insulation.

3,317,660

PRINTING TELEGRAPH MOTOR START-STOP MECHANISM

Paul R. Simms, Mount Prospect, Ill., assignor to Teletype Corporation, Skokie, Ill., a corporation of Delaware

Filed Aug. 7, 1963, Ser. No. 300,485
8 Claims. (Cl. 178—4.1)



1. A motor control circuit for printing telegraph apparatus having a selector magnet connected to a transmission line for controlling printing and function operations of the apparatus and also having a motor for supplying power to effect such controlled operations comprising

(a) switching means having a normally energized driving magnet operable upon de-energization followed by re-energization for switching a plurality of connections from one condition to another,

(b) first circuit means controlled by said switching means for supplying power to said motor when said switching means is in said other condition,

(c) second circuit means controlled by said switching means for normally connecting said selector magnet and said driving magnet in series with said transmission line when said switching means is in said one condition and operable to break said series connection and establish another path to connect the selector magnet to the transmission line when said switching means is in said other condition,

(d) third circuit means controlled by said switching means for preparing an alternate circuit path to said driving magnet when said switching means is in said other condition,

(e) an auxiliary source of current in said third circuit means, and

(f) signal responsive means for completing said alternate circuit from the path prepared by said third circuit means.

3,317,661

COLOR TELEVISION MODULATING SYSTEM

Robert A. Dischert, Burlington Township, Burlington County, and William J. Dorenbecher, Jr., Cherry Hill, N.J., assignors to Radio Corporation of America, a corporation of Delaware

Filed Apr. 3, 1964, Ser. No. 357,043
5 Claims. (Cl. 178—5.4)

1. In a modulating system, the combination comprising:

a source of an intelligence signal;

a source of a carrier wave;

a modulator;

means for applying said intelligence signal and said carrier wave to said modulator to develop modulation products including said intelligence signal, two sets of oppositely phased sidebands of said carrier wave, and possibly an unmodulated trace of said carrier wave;

means for combining said intelligence signal in inverted polarity with said modulation products in such manner as to eliminate said intelligence signal from said modulation products;

means responsive to unmodulated traces of said carrier wave to produce a representative unidirectional control signal; and

means for combining said control signal with said intelligence signal to eliminate said unmodulated traces of said carrier wave from said modulation products.

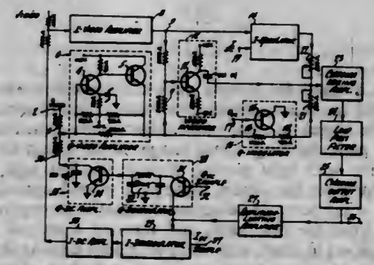
5. In a modulating system, the combination comprising:

sources of first and second independent intelligence signals;

sources of first and second carirer waves having the same frequency and quadrature related phases;

first and second modulators, each including a transistor;

means for applying said first and second intelligence signals to said respective transistors;



means for applying said first and second carrier waves to said respective transistors to operate said transistors as bi-directional switches for said first and second intelligence signals respectively, thereby to develop in the output of each modulator modulation products including said applied intelligence signal, two sets of oppositely phase sidebands of said applied carrier wave, and possibly an unmodulated trace of said carrier wave, the two sets of sidebands developed by said first modulator being in phase quadrature relationship to the two corresponding sets of sidebands developed by said second modulator;

means for combining said first and second intelligence signals;

means for inverting the polarity of said combined intelligence signals;

means for combining selected amplitudes of said combined intelligence signals of inverted polarity respectively with the modulation products of said first and second modulators, said selected amplitudes being such as to eliminate said first and second intelligence signals from said modulation products;

means for combining the modulation products of said first and second modulators to produce a single phase- and amplitude-modulated wave for delivery to utilization apparatus;

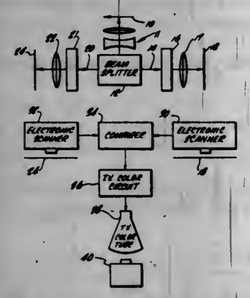
means coupled to receive said modulated wave for detecting any unmodulated traces of either or both of said carrier waves and for producing control signals respectively representative of said unmodulated carrier wave traces; and

means for adding said respective control signals as direct current components to the intelligence signal associated with the detected unmodulated carrier wave, thereby to eliminate any unmodulated carrier wave components from said phase- and amplitude-modulated wave delivered to said utilization apparatus.

3,317,662
COLOR DETECTION UTILIZING A CHROMATIC ABSORPTION FILTER

Charles F. Robinson, Pasadena, Calif., and James Reekie Wilmette, Ill., assignors to Bell & Howell Company, Chicago, Ill., a corporation of Illinois

Filed Apr. 10, 1964, Ser. No. 358,905
18 Claims. (Cl. 178—5.4)



1. A method for storing optical information about an image of an object, the method comprising passing light from the object through a first substantially panchromatic optical path, forming a first image of the object in black and white with light passing through the first path, passing light from the object through a second optical path having a property of selective chromatic absorption different from the first path, and forming a second image of the object in black and white with light passing through the second path so the intensity of each part of the second image varies from a corresponding part of the first image in accordance with the wave length of the light forming the said corresponding parts.

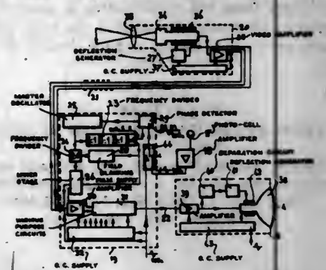
3. A method for obtaining optical information about an image of an object, the method comprising passing light from the object through a first optical path, forming a first image of the object in black and white with light passing through the first path, recording the first image on black and white photographic film, passing light from the object through a second optical path having a property of selective chromatic absorption, forming a second image of the object in black and white with light passing through the second path so the intensity of each part of the second image varies from a corresponding part of the first image in accordance with the wave length of the light forming the said corresponding parts, and recording the second image on black and white photographic film, and thereafter scanning the two images electronically to develop a chromatic electrical signal.

3,317,663
DEVICE FOR CINEMATOGRAPHICALLY RECORDING THE SCREEN IMAGE OF TELEVISION DISPLAY TUBES

Frans van Dam, Rotterdam, Netherlands, assignor to N.V. Optische Industrie "De Oude Delft," Delft, Netherlands

Filed Oct. 30, 1963, Ser. No. 320,081
Claims priority, application Netherlands, Nov. 5, 1962, 285,065
6 Claims. (Cl. 178—6.7)

1. A device for cinematographically recording the screen image of television display tubes incorporated in a closed circuit television system, which system includes a master oscillator whose frequency is adjustable, said device being provided with a cinematographic camera driven by a synchronous motor, characterized in that the camera comprises means to generate a cyclically modulated elec-

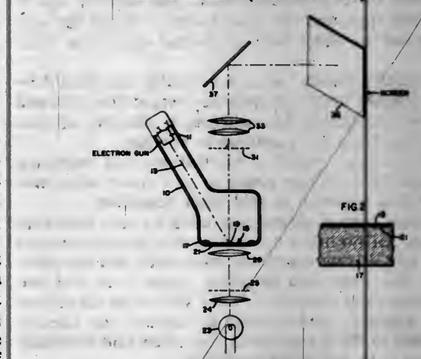


trical signal whose phase has a predetermined relation to the position of the driven shaft of the camera, said signal being applied to a phase detector controlling the master oscillator in such manner that the field synchronizing signal drived from the master oscillator is clamped in phase to the electrical signal obtained from the camera.

3,317,664
PROJECTION SYSTEM

Edward F. Perlowski, Jr., Baldwinsville, N.Y., assignor to General Electric Company, a corporation of New York

Filed Aug. 26, 1964, Ser. No. 392,107
12 Claims. (Cl. 178—7.5)



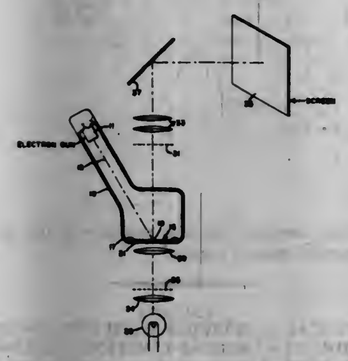
11. A projection system comprising a container having a conducting interior, a deformable medium in said container comprising the Friedel-Crafts reaction product of benzyl chloride and naphthalene, electron beam means for producing an electrical charge on the surface of said deformable medium as a function of an applied electrical signal and cooperating with said conducting interior to subject the medium to a deforming force to produce deformations in the surface of said medium and a light and optical system for projecting light as a function of the deformations in the surface of said medium.

3,317,665
PROJECTION SYSTEM

Edward F. Perlowski, Jr., Baldwinsville, N.Y., assignor to General Electric Company, a corporation of New York

Filed Aug. 26, 1964, Ser. No. 392,110
11 Claims. (Cl. 178—7.5)

11. A projection system comprising a container having a conducting interior, a deformable medium in said container comprising the Friedel-Crafts reaction product of benzyl chloride and biphenyl, electron beam means for producing an electrical charge on the surface of said deformable medium as a function of an applied electrical signal and cooperating with said conducting interior to

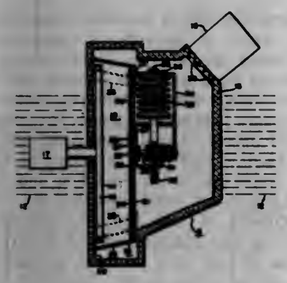


subject the medium to a deforming force to produce deformations in the surface of said medium and a light and optical system for projecting light as a function of the deformations in the surface of said medium.

3,317,666
PRESSURE-OPERATED VALVE FOR A PROJECTION SYSTEM

John F. De Ridder, Jr., Huntsville, Ala., assignor to General Electric Company, a corporation of New York

Filed Apr. 14, 1964, Ser. No. 359,641
6 Claims. (Cl. 178—7.87)

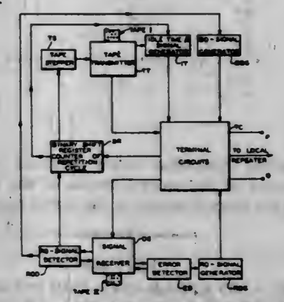


1. In a light valve positioned between a light source and a screen for projection of an image on the screen:
- (a) means defining a vacuum chamber,
- (b) diffraction grating producing means in said chamber through which light from said source passes before projection on said screen,
- (c) a cover for protecting said last-mentioned means from contaminating particles, said cover having at least one aperture therein,
- (d) a shutter movable between a first position for covering said aperture and a second position for uncovering said aperture, and
- (e) pressure-responsive means in said chamber to actuate said shutter to cover said aperture in response to increasing pressure in said chamber, and to uncover said aperture in response to decreasing pressure in said chamber.

3,317,667
ERROR CORRECTING TAPE TELECOMMUNICATION SYSTEM

Herman da Silva, Voorburg, Netherlands, assignor to de Staat der Nederlanden, ten deze vertegenwoordigd door de Directeur-Generaal der Posterijen, Telegrafie en Telefonie

Filed Jan. 10, 1963, Ser. No. 250,577
Claims priority, application Netherlands, Jan. 18, 1962, 273,728
9 Claims. (Cl. 178—23)



1. A telecommunication system of multi-element traffic signals for a tape and having an automatic error correction device provided with a predetermined number of signals in a repetition cycle, said system comprising:
- (A) means (TS) for stepping said tape forwardly and backwardly so that it can act as a memory for said traffic signals,
- (B) means (TT) for transmitting said traffic signals (A, B, C,) from said tape,
- (C) means (IT) for transmitting idle time signals (β) when said traffic signals are not being transmitted from said tape, and
- (D) a shift register means (SR) for counting the number of traffic signals and idle time signals transmitted in sequence for said number of signals in said repetition cycle, and controlling said stepping means to back-step said tape only that number of steps (X) in said counting means corresponding to transmitted traffic signals, when a request for repetition is made by said error correction device for retransmission of said traffic signals stored on said tape.

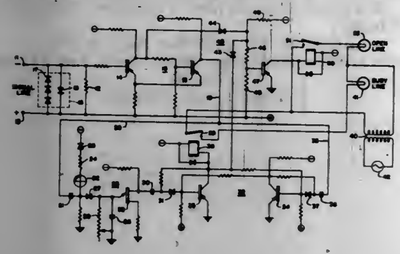
3,317,668
OPEN LINE AND BUSY LINE DETECTION CIRCUIT

James A. Johnson, Niles, Ill., assignor to Teletype Corporation, Skokie, Ill., a corporation of Delaware

Filed Aug. 15, 1963, Ser. No. 302,358
7 Claims. (Cl. 178—69)

1. In an open line and busy line detection circuit for monitoring a telegraph line carrying signals of first and second conditions wherein signals of the first condition are used to indicate an idle line,
- (a) signal responsive means providing a first output when the line signals are of the first condition and providing a second output when the line signals are of the second condition,
- (b) timing means having a predetermined timing period initiated into operation in response to each change in the output of the signal responsive means from the first output to the second output,
- (c) bistable means operated by the timing means providing a first output during the timing period of the timing means and providing a second output whenever a timing period is completed,

(d) first utilization means operated by the first output of the bistable means, and



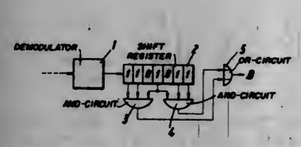
(e) second utilization means operated only upon concurrence of the second output of the bistable means with the second output of the signal responsive means.

3,317,669

METHOD AND APPARATUS FOR INCREASING RELIABILITY OF SYNC SIGNAL TRANSMISSION

Horst Ohnsorge, Ulm (Danube), Germany, assignor to Telefunken Patentverwertungs-G.m.b.H., Ulm (Danube), Germany

Filed Oct. 15, 1964, Ser. No. 404,111
Claims priority, application Germany, Oct. 15, 1963, T 24,892
6 Claims. (Cl. 178—69.5)



5. In a method of transmitting, from a transmitting end to a receiving end, data composed of blocks of information signals each of which blocks is preceded by a block of synchronizing signals, said method comprising the steps of dividing, at the receiver end, the synchronizing signals of each block into a plurality of groups, at least one of said synchronizing signals being common to each of at least two of said groups, and producing a signal which provides an indication of the start of a block of information signals when less than all of said plurality of groups are identified.

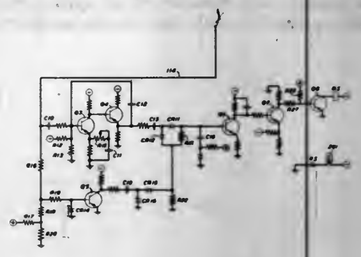
3,317,670

RECEIVER FOR DETECTING SUPERVISORY TONES SUPERIMPOSED ON FSK BINARY DATA SIGNALS

Theodore L. Doktor, Flushing, N.Y., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York

Filed May 28, 1963, Ser. No. 283,854
8 Claims. (Cl. 178—88)

1. A detector for fluctuating supervisory signals superimposed on data signals which alternate about an amplitude level comprising, voltage detector means capacitively coupled to incoming data signals and superimposed supervisory signals and responsive to all fluctuations of the amplitude of said data signals and superimposed supervisory signals, threshold detector means responsive to each of the transitions of said data signals through said amplitude level, and means for cancelling the output of



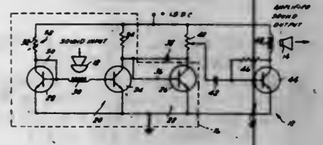
said voltage detector means in response to the output of said threshold detector means.

3,317,671

ELECTRICAL AMPLIFIER WITH INPUT CIRCUIT DIRECT-CURRENT-LIMITING MEANS

Walter B. Mitchell, Danbury, Conn., and George L. Bannerman, Yorktown, N.Y., assignors to National Semiconductor Corporation, Danbury, Conn.

Filed Sept. 7, 1965, Ser. No. 485,490
9 Claims. (Cl. 179—1)



7. An integrated circuit amplifier comprising, in combination, a wafer, a plurality of transistors including first and second similar transistors integral with said wafer, a pair of input terminals integral with said wafer, bias terminal means integral with said wafer for receiving direct current bias signals, means for connecting said bias terminal means to said transistors, and means for connecting each of said input terminals to the base terminal of a respective one of said first and second transistors, and means for interconnecting the collector and emitter electrodes of said first and second transistors for establishing and maintaining the direct current potential of one of said input terminals at substantially the same level as the direct current potential of the other of said input terminals, and, connected to said input terminals, a microphone which would be rendered substantially inoperative by the full flow of direct current through it.

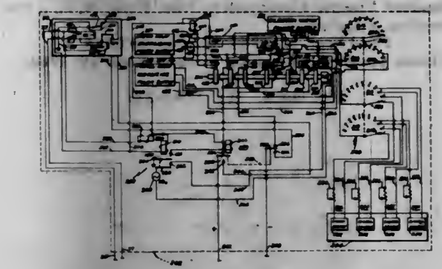
3,317,672

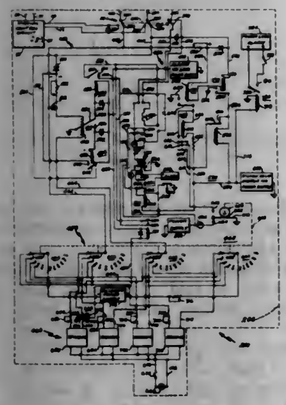
AUTOMATIC SIGNAL LOGGING SYSTEM

Arthur T. Cestaro, Jr., Stoneham, Mass., assignor, by mesne assignments, to James Talcott, Inc., New York, N.Y., a corporation of New York

Filed Feb. 7, 1963, Ser. No. 257,040
17 Claims. (Cl. 179—2)

15. An automatic remote logging system for sequentially selecting and recording a plurality of electric information signals from a plurality of electric signal sources comprising, in combination, a pair of telephone lines; signal selecting and transmitting means at the source of electric information signals which include a control signal, and a plurality of function signals to be recorded; said selecting and transmitting means including a multiple bank stepping switch, a cycle timer, switches in responsive relation to the cycle timer and in control relation to the multiple bank stepping switch for making sequential circuit with selected information signal sources and one end of the telephone lines, control and recording means at the other end of the telephone lines, the recording means including a function signal channel, a plurality of signal recorders corresponding to the number of function signals to be recorded, and a multiple bank stepping switch coupled to the re-





corders and function signal channel for selecting a particular recorder for a corresponding function signal; the control means including a control signal channel, a plurality of relays in the control signal channel in responsive relation to the control signal and in control relation to the last mentioned stepping switch for synchronizing the operation of said stepping switch with the stepping switch in the signal selecting and transmitting means, and unidirectional current valves oriented in said function signal and control signal channels for selectively confining said signals to the respective channels.

3,317,673

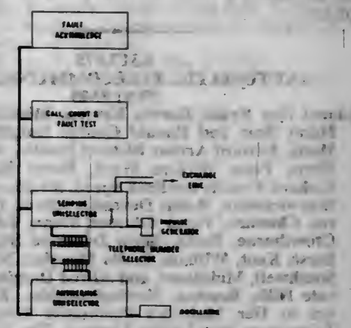
TELEPHONE TRANSMITTED ALARM UNIT USING SELECTOR SWITCHES TO TRANSMIT AND RECEIVE DIAL AND MESSAGE PULSES

Jack H. South, 10 Williams St., Clarence Park, South Australia, Australia

Filed Mar. 8, 1963, Ser. No. 263,840
Claims priority, application Australia, Mar. 9, 1962, 15,224/62
14 Claims. (Cl. 179—5)

1. Telephone transmitted alarm unit wherein a fault acknowledge circuit is coupled to a sending uniselector and an answering uniselector, and a telephone number selector links said sending uniselector to said answering selector, characterized by:

a fault circuit including a fault loop and a fault loop relay,



audible signal means coupled to said answering and sending uniselectors, and

an impulse generator coupled to said sending uniselector.

3,317,674

PAY TELEPHONE STATION

Rollie B. Nawman, Piedmont, Calif., assignor to Benner-Nawman, Inc., Oakland, Calif., a corporation of California

Filed Nov. 18, 1963, Ser. No. 324,567
15 Claims. (Cl. 179—6.3)



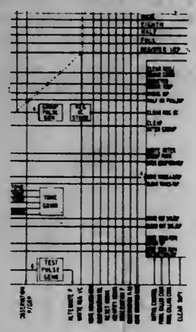
1. In a telephone pay station, a pay telephone, the pay telephone having a case, a dial for dialing telephone numbers mounted on the case and facing outwardly from the case, a cradle arm mounted in the case for movement between first and second positions, a hand set, a cord connected to the hand set and passing into said case, said hand set being adapted to rest upon said cradle, said pay telephone also having coin receiving means and coin return means, a front cover having a configuration similar to the configuration of the pay telephone, means for securing one portion of the front cover so that it overlies the pay telephone, means for releasably latching another portion of the front cover so that the front cover encloses the pay telephone, said means for securing said one portion of the front cover and for securing another portion of the front cover including means to permit the front cover to be removed from the pay telephone, the front cover having an access opening to the means for receiving

coins in the pay telephone, another access opening to the dial of the pay telephone, and another access opening for accommodating the coin return chute of the pay telephone.

3,317,675
AUTOMATIC TELECOMMUNICATION SYSTEMS

Lionel Roy Frank Harris, Kenton, Middlesex, Frederick Harry Bray and Ronald George Knight, New Barnet, Herts, Edward Arthur Richard Peddle, Abbots Langley, Herts, Peter William Ward, Hatch End, Middlesex, Richard Francis Bentinck Speed, Stretton-on-Dunsmore, Warwickshire, Robin Devenish Allum, Bebington, Wirral, Cheshire, Victor Edmund Mann, Edgecombe Park, Crowthorne, Berks, Brian Desmond Simmons, Chislehurst, Kent, William Sholto Douglas, Norwood Green, Southwell, Middlesex, and Alfred Dargie Martin, Bramcote Hills, Beeston, Nottinghamshire, England, assignors to Her Majesty's Postmaster General; Standard Telephones and Cables Limited; The General Electric Company Limited; Automatic Telephone & Electric Company Limited; Associated Electrical Industries Limited; and Ericsson Telephones Limited, all of England

Filed Oct. 24, 1960, Ser. No. 69,790
Claims priority, application Great Britain, Oct. 26, 1959, 36,168/59; May 20, 1960, 17,861/60, Patent 940,016
67 Claims. (Cl. 179—18)

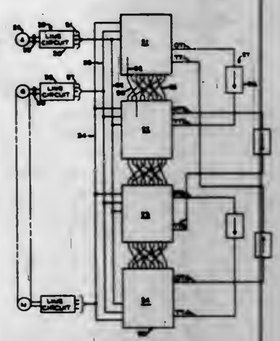


1. In an automatic telecommunication exchange including a plurality of lines, a switching network connected thereto, a permanent memory for storing sequences of orders for controlling said network, and common control means for receiving orders from said permanent memory, said switching network comprising: electronic switching equipment including static electrical connecting devices to set up connections between said lines of the exchange, said lines having respective equipment numbers assigned thereto corresponding to their respective termination locations on said connection devices, with multi-digit directory numbers also assigned respectively to said lines and having no fixed relationship with respect to said respective equipment numbers, the demand for any said connection being signalled by the transmission over any calling one of any of said lines of the directory number of any called one of said lines, means arranged to receive any transmitted number and including first adjustable translating means arranged to translate the exchange-designating group of digits of a directory number into routing digits, means responsive to said routing digits to direct calls to the respective called exchange, second adjustable translating means arranged to translate a portion thereof into the said equipment number of the called line and to deliver the translated equipment number to said switching equipment, and means including said static electrical connection devices in said switching equipment arranged to connect the calling line electronically to the line having said translated equipment number, whereby adjustment of said translating means compensates for routine changes of the identity of, and the directory number of, a line connected to any given said termination location.

3,317,676
AUTOMATIC TELEPHONE EXCHANGE

Oscar Evert Ekbergh, Hagersten, and Per Gustaf Jonsson, Soerlid, Roenninge, Sweden, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

Filed Sept. 10, 1963, Ser. No. 307,945
Claims priority, application Sweden, Sept. 10, 1962, 9,730/62
10 Claims. (Cl. 179—22)



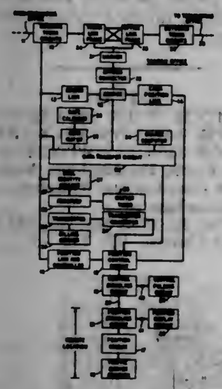
1. A telephone system comprising a plurality of subscriber lines and interstage trunks connected to a switching network, said network comprising rows and columns of switches arranged in crosspoints with a plurality of said switches at each of said crosspoints, said rows being assembled into a number of switching levels, there being at least two of said rows in each of said levels, said columns being arranged into a number of multiples, there being at least two of said columns in each of said multiples, whereby said plurality of switches located at each of said crosspoints comprise at least four switches per crosspoint, a plurality of inlets and outlets for said network distributed over said rows, said lines being connected to said inlets, said trunks being connected to said outlets, means comprising said columns of switches for causing the rows connected to said inlets to function as a primary switching stage and said rows connected to said outlets to function as a secondary switching stage, means comprising certain of said levels for selecting one of the four switches at each operated one of said crosspoints to effectively complete a particular electrical circuit and means whereby said particular electrical circuit is completed from an inlet through a first of said rows, over a column, and out a second of said rows to an outlet, thus completing a path between a selected one of said inlets and a selected one of said outlets.

3,317,677
REMOTE OPERATOR'S POSITION SIGNALING SYSTEM

Joseph J. Chudkosky and Robert C. Nance, Columbus, Ohio, assignors to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York

Filed Nov. 26, 1963, Ser. No. 325,890
21 Claims. (Cl. 179—27)

1. In combination, a telephone switching center, a remotely located operator position, a plurality of signaling trunks extending between said switching center and said operator position, means for deriving speech circuits on selected ones of said signaling trunks, and means for

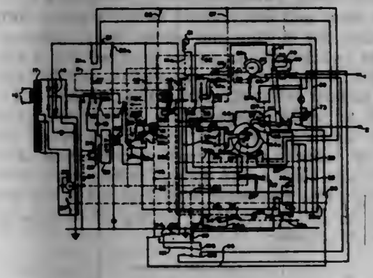


multiplexing control signals on said signaling trunks at said switching center and at said operator position.

3,317,678
AUTOMATIC REPERTORY DIALING SYSTEM

William W. Logan, Glen Ridge, and Francis X. Shatynski, Newark, N.J., assignors, by mesne assignments, to DASA Corporation, Andover, Mass., a corporation of California

Filed Oct. 24, 1963, Ser. No. 318,640
4 Claims. (Cl. 179—90)



1. In a repertory dialing machine: the combination of means for supporting a record medium, a record-cooperable record-reproduce head, a drive for producing a relative traveling movement between said record medium and head along a track on said record medium, said record track bearing a first recorded digit in code form representing a trunk line followed by a recorded control signal and by a series of recorded digits in code form representing a subscriber's telephone number, said digits of said telephone number being separated by unrecorded interdigital spaces and said control signal being separated from said first digit by a second unrecorded space greater than said respective interdigital spaces, and said track having an unrecorded end space following the last digit of said telephone number greater than said second unrecorded space, including timing means operative during scanning of unrecorded spaces on the record medium for stopping the machine without returning the head responsive to the head picking up a control signal after scanning an unrecorded space greater than said respective interdigital spaces and for stopping the machine and returning the head to its start position responsive to the head scanning an unrecorded space greater than said second unrecorded space.

3,317,679
VIDEO TRANSDUCING APPARATUS WITH TAPE TENSIONING LEVER

Wolfgang Rank, Kronach, Upper Franconia, Germany, assignor to Loewe Opta Aktiengesellschaft, Berlin, Germany, a company of Germany

Filed Apr. 8, 1963, Ser. No. 271,850
Claims priority, application Germany, Apr. 11, 1962, L 41,721
4 Claims. (Cl. 179—100.2)

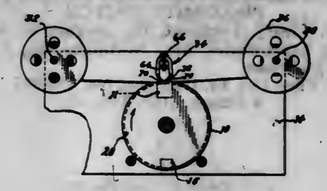


1. Apparatus for magnetic tape recording/reproducing of television signals comprising a cylinder, means for driving and guiding said tape to, around and away from said cylinder, a rotatable disc coaxially mounted within said cylinder, a transducer unit connected with the periphery of said disc, and a tensioning lever for guiding said tape away from said cylinder and for automatically tautening and releasing said tape; said tensioning lever being coordinated with a time-delay member releasing said tension of said tape only when tape and driving means are at a complete standstill.

3,317,680
DEVICE FOR REPETITIVELY SCANNING SELECTED SMALL INCREMENTS OF DATA

Harold C. Porter, Pepperell, Mass., assignor to the United States of America as represented by the Secretary of the Air Force

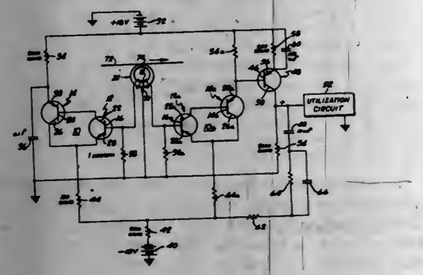
Filed Apr. 10, 1963, Ser. No. 272,169
4 Claims. (Cl. 179—100.2)



1. A device for repetitively recording, examining and erasing selected small variable size increments of data, comprising an axis shaft, a drum mounted on said shaft for rotation therewith, a record/playback and erasing devices carried in said drum for receiving intelligence from a magnetically imprinted tape, motor means for rotating said shaft, a supply spindle for supplying said tape, a takeup spindle, motor means for driving said takeup spindle, manual means for driving said takeup spindle, latch means operable to hold said drum and shaft against rotation when said takeup spindle is being driven to move a tape past said record/playback device, tape guide posts so located adjacent said drum as to maintain a maximum of tape length against said drum whereby a tape may be played back in its entirety and also selected segments of tape of a length approximating two thirds of the circumference of the drum may be repetitively examined, a pressure device for pressing said tape resiliently against said record/playback head, said pressure device comprising a pair of pressure elements, a pressure area on

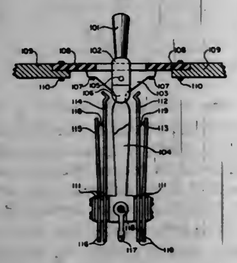
each of said elements individually spring loaded to resiliently force said tape against said record/playback head at two spaced areas and means for varying the distance between said elements for varying the length of the segment under examination.

3,317,681
PLAYBACK PREAMPLIFIER CIRCUIT
Barrett E. Guisinger, Redwood City, Calif., assignor to Ampex Corporation, Redwood City, Calif., a corporation of California
Filed May 7, 1963, Ser. No. 278,721
6 Claims. (Cl. 179—100.2)



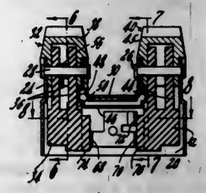
1. A playback preamplifier circuit comprising:
a magnetic reproduce head;
an inductive winding coupled to said head;
a first pair of compound connected transistors having an input coupled directly to one end of the winding;
a second like pair of compound connected transistors having an input coupled directly to the other end of the winding;
said pairs forming a balanced differential amplifier configuration; and
means for biasing said transistor pairs.

3,317,682
SWITCHING DEVICE WITH SENSOR FOR PROXIMITY SWITCH
Robert T. Cleary, Lockport, Ill., assignor to Automatic Electric Laboratories, Inc., Northlake, Ill., a corporation of Delaware
Filed Oct. 14, 1965, Ser. No. 496,027
4 Claims. (Cl. 200—1)



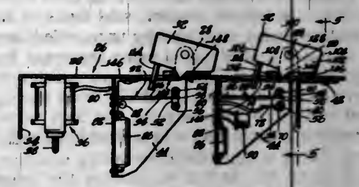
1. In combination, an electrical circuit, a proximity switch circuit and a switching device for operating said circuits, said switching device comprising:
sensing means connected to said proximity switch circuit, said proximity switch circuit operated in response to the placement of the hand of an operator in proximity to said sensing means to produce a first switching function;
at least one set of circuit switching contacts connected to said electrical circuit and located adjacent to and engageable by said sensing means;
said electrical circuit operated in response to the manual operation by an operator of said sensing means to engage said circuit switching contacts to produce a second switching function independent of said first switching function.

3,317,683
ELECTRIC SWITCH WITH MULTIPLE CONTACT ACTUATOR TIE BAR CONSTRUCTION CAPABLE OF MULTI- OR SINGLE-SWITCH SELECTION
William Edward Clark, Framingham, Mass., assignor to Ark-Les Switch Corporation, Watertown, Mass., a corporation of Massachusetts
Filed Oct. 15, 1965, Ser. No. 496,487
3 Claims. (Cl. 200—5)



1. A circuit controller for a pair of off and on switches, having in combination, a first manual switch actuator rotatable about an axis between alternate on and off positions to engage and disconnect one of said switches, a second manual switch actuator rotatable about said axis between on and off positions to engage and disconnect the other of said switches, and a tie member rotatable about said axis having a solid operating connection with said first switch actuator and a lost motion connection with said second switch actuator, providing a solid connection from said first manual switch actuator thru said tie member for moving said second switch actuator with said first switch actuator to on position, and a lost motion return connection between said tie member and said second manual switch actuator permitting said first switch actuator to return independently of said second switch actuator means bearing said first manual switch actuator to the off position, the lost motion connection of the tie member with said second manual switch actuator further providing a free movement of said second switch actuator between on and off positions for the off position of said first switch actuator.

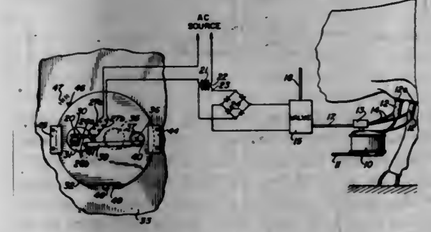
3,317,684
STOP TABLET AND FILTER ASSEMBLY WITH IMPROVED SEPARABLE RESILIENT POSITIONING MEANS
Harold O. Schwartz and Howard M. Thomas, North Tonawanda, N.Y., assignors to The Wurlitzer Company, Chicago, Ill., a corporation of Ohio
Filed Feb. 21, 1964, Ser. No. 346,458
10 Claims. (Cl. 200—6)



1. In an electronic organ, a stop tablet and filter assembly comprising a panel, a plurality of stop tablets movably carried from said panel, a pair of elongated insulating members, means supporting said elongated insulating members from said panel in fixed relation thereto,

said insulating members being parallel to one another and one thereof being spaced from said panel a greater distance than the other, fixed contact members comprising conductive elements carried by said pair of elongated insulating members, a printed circuit board supported from said panel substantially at right angles thereto, a plurality of flexible movable contact members extending from said printed circuit board substantially at right angles thereto and having conductive end portions thereof disposed between said pair of elongated insulating members in proximity to conductive elements carried thereby, and actuator means connected to said stop tablets to operatively interconnect said stop tablets and said movable flexible contact members selectively to control the condition of engagement and disengagement thereof with said conductive elements.

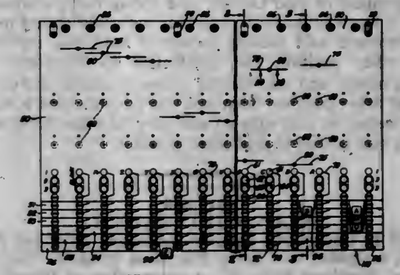
3,317,685
PULSATOR TIMER
Henry B. Babson, Chicago, Ill., assignor to Babson Bros. Co., a corporation of Illinois
Filed Oct. 12, 1964, Ser. No. 403,065
2 Claims. (Cl. 200—19)



1. A timer for the pulsator of a vacuum milking system, comprising: a base member; a circular carrier mounted on said base member for movement through a range of angular positions with respect to said base; releasable clamp means for locking said carrier against movement with respect to said base; means including a timing motor and having an output shaft, said timing motor being mounted on said carrier; a pulsator control circuit; a mercury switch connected in series in said control circuit; a pivoted support for said mercury switch, mounted on said carrier; and crank means including a drive link connected between the output shaft of said drive means and said switch support, to rock said support about a center position, said mercury switch having an open position and a closed position within its range of rocking and throughout the range of positions of said carrier, the angular movement of said carrier with respect to said base varying the ratio of switch open to switch closed time.

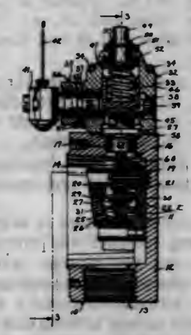
3,317,686
SELECTOR FOR DISPLAY BOARD
James R. Francy, Los Angeles, Calif., assignor to Scantlin Electronics, Inc., Los Angeles, Calif., a corporation of Delaware
Filed Feb. 17, 1964, Ser. No. 345,326
8 Claims. (Cl. 200—46)

1. In a selector for coupling selected input lines to selected output lines, the combination of:
a plurality of circuit boards, each of said boards having an input circuit on one face and an output circut on the other face, said input circuit comprising a plurality of conductors disposed in parallel, said output circuit comprising a plurality of conductors disposed in parallel and transverse to the conductors of said input circuit;
means for mounting said boards in spaced parallel planes with opposed input and output circuits and defining a plurality of individual tab slide spaces therebetween;
a stop at one end of each of said slide spaces; and
a plurality of slide tabs, each separately and removably inserted into a slide space in line with one of said conductors,



each of said tabs including a terminal member projecting from opposing faces of said tab for simultaneously engaging a conductor of said input circuit and a conductor of said output circuit and means for adjusting said terminal member along the slide axis relative to the tab,
each of said tabs including an indicium on a portion of the tab projecting beyond a board when the tab is engaging a stop, with the indicium of a tab identifying the location of the terminal member thereon.

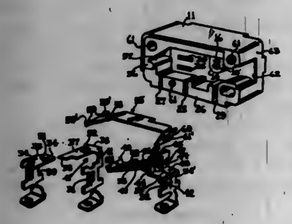
3,317,687
MANUALLY RESETTABLE SWITCH ACTUATOR
William F. Dehn, Wauwatosa, Wis., assignor to Allen-Bradley Company, Milwaukee, Wis., a corporation of Wisconsin
Filed Apr. 28, 1965, Ser. No. 451,544
6 Claims. (Cl. 200—47)



6. An actuator for a switch having a carrier that is movable between extreme positions in which contacts carried by the carrier alternately engage with spaced fixed contacts, biasing means normally urging the carrier to one extreme position, and snap action spring means that exerts a force on the carrier that is additive of the force of the biasing means when the carrier is in said one position and

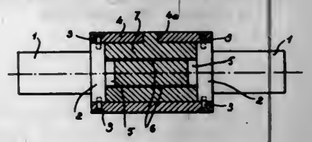
subtractive of the force of the biasing means when the carrier is in the other position, said actuator comprising: a support; a follower slidably mounted on said support for reciprocation with respect thereto and adapted to operate on said carrier; a spring normally urging said follower to a first position in which said follower will hold said carrier in said other position of said carrier; externally actuable means on said support and engageable with said follower, said externally actuable means adapted upon external actuation to move said follower to a second position whereby said biasing means can shift said carrier to said one position of said carrier; said spring being adapted to exert a force sufficient to combine with said spring means to overcome said biasing means to hold said carrier in said other position and insufficient to overcome said spring means and said biasing means to return said carrier to said other position from said one position; and actuable reset means on said support and adapted when actuated to return said carrier to said other position.

3,317,688
SNAP-ACTION SWITCH
Walter L. Cherry and Fred N. Anderson, Highland Park, Ill., assignors to Cherry Electrical Products Corporation, Highland Park, Ill., a corporation of Illinois
Filed Mar. 29, 1965, Ser. No. 443,304
7 Claims. (Cl. 200—67)



1. A snap action switch having a normally open sided housing and cover therefor providing an interior cavity in which is positioned a snap acting switch mechanism including,
(a) a movable blade, a pivot bracket within said cavity for pivotal supporting one end of said blade, an actuating lever having one end pivotally connected to said housing and its opposite end connected by a spring to the other end of said blade and adapted to move said other end of said blade relative to said pivot bracket,
(b) a bearing member extending through said housing and having an opening extending longitudinally therethrough at a substantial right angle to said opposite end of said actuating lever,
(c) a keyway formed in said bearing member and in open communication with said opening formed therethrough,
(d) a rotor actuator journaled in said opening formed in said bearing member and providing at one end a cam head and key member pivotally supporting said opposite end of said actuating lever,
(e) said rotor actuator carrying a circular retaining plate exteriorly of said housing and in facial relation to the exposed end of said bearing member,
(f) said cam head and key member identical in configuration to said opening and said keyway formed in said bearing member and projected therethrough into said cavity of said housing with said key radially displaced with respect to said keyway to prevent longitudinal movement of said cam head through said opening in said bearing member and out of contact with said actuating lever,
(g) and means provided by said housing exteriorly of said cavity and adjacent to said bearing member cooperating with said retaining plate to limit rotation of said rotor actuator to pivoting of said actuating lever to actuate the snap acting mechanism and to prevent horizontal alignment of said key with said keyway and longitudinal movement of said cam head through said opening in said bearing member out of said cavity and out of contact with said actuating lever of said snap acting switch mechanism.

3,317,689
CARTRIDGE FUSES WITH NON-POROUS ARC-QUENCHING MATERIAL
Louis Joseph Saudicoeur, Villeurbanne, Rhone, France, assignor to Lucien Ferraz & Cie, Lyon, Rhone, France, a joint-stock company of France
Filed Mar. 30, 1964, Ser. No. 355,603
Claims priority, application France, Apr. 5, 1963, 43,523, Patent 83,398
3 Claims. (Cl. 200—120)



1. A cartridge fuse comprising an open-ended insulating outer tubular barrel having a lateral hole; two electrically conducting end caps, each secured to one end of said barrel so as to define an intermediate inner space therein; electrically conducting fusible elements connecting said end caps with each other within said inner space; and a compact, solid and non-porous mass of a water-soluble mineral silicate embedding said fusible elements and substantially filling said inner space and lateral hole to prevent relative shocks and vibrations of the cartridge fuse assembly.

3,317,690
FUSE CARTRIDGE
Fritz Hollmann, Rheydt, Rhineland, and Hans Emmerich, Rheydt-Giesenkirchen, Germany, assignors to Fritz Driescher Spezialfabrik fur Elektrizitatswerksbedarf, Rheydt, Rhineland, Germany
Original application Sept. 19, 1960, Ser. No. 56,722, now Patent No. 3,196,521, dated July 27, 1965. Divided and this application June 7, 1965, Ser. No. 461,661
5 Claims. (Cl. 200—120)



1. A cartridge fuse, comprising a conductive assembly including a pair of spaced conductor members having confronting ends and a fusible element bridging said ends, a porous core of arc-quenching substance completely surrounding said fusible element and said ends, and an integral one-piece casing of molded synthetic-resin material around said core completely enclosing and substantially sealing same against escape of gases, said casing being substantially in the form of an ellipsoid of rotation in direct and continuous surface contact with said core and centered on a major axis in line with said confronting ends, said casing further having a pair of axial extensions integral with said ellipsoid closely surrounding portions of said conductors extending beyond said ends.

3,317,691
CURRENT-LIMITING FUSE
Ermanno Bussani, Corso Porta Vittoria 9, Milan, Italy
Filed Oct. 23, 1965, Ser. No. 503,623
Claims priority, application Italy, Dec. 19, 1964, 54,599/64
1 Claim. (Cl. 200—123)



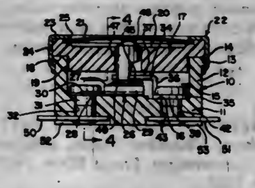
A current-limiting fuse comprising, in combination, an outer tubular casing of insulating material; an annular fuse link disposed within said tubular casing concentric therewith, said annular fuse link consisting of an elongated metallic strip comprising a plurality of longitudinally arrayed portions successive ones of which are joined by respective groups of critical sections, the critical sections in each group being arranged parallel with one another transversely of the elongation of said strip and each critical section being also arrayed with the corresponding critical sections of all other groups as seen in longitudinal direction of said strip, said critical sections being arranged equidistantly from one another as seen in the respective direction of said strip, the width of said strip and the spacing between the parallel sections of the respective groups being such that in annular condition of said strip the sections of each group are located at the centers of respective circles whose circumferences tangentially touch each other and an inner face of said outer tubular casing; a coating of an alloy having a melting point lower than that of said strip, provided on said critical sections so as to cause formation of a eutetic at a temperature intermediate the melting points of said strip and said alloy; and an arc-quenching filler material surrounding said critical sections in said tubular casing within and without said annular fuse link.

3,317,692
AMBIENT TEMPERATURE-MODIFIED TEMPERATURE-ALTERING CONTROL MECHANISM
James L. Duncan, Seattle, Wash., assignor, by direct and mesne assignments, to Duncan Econotrol, Inc., Seattle, Wash., a corporation of Washington
Filed Oct. 22, 1965, Ser. No. 501,074
5 Claims. (Cl. 200—136)



1. Control mechanism comprising temperature-altering control means for controlling the operation of temperature altering apparatus in altering the temperature of a first environment, power-supply means, a time clock, short-period auxiliary timer means separate from said time clock, timer-energizing means actuatable by said time clock at a preselected time for initiating operation of said auxiliary timer means, temperature-sensing means responsive to changes in temperature of a second environment, electric circuit-closing means connected to said auxiliary timer means, said temperature-sensing means, said power-supply means and said temperature-altering control means for closing a circuit between said power-supply means and said temperature-altering control means by predetermined coaction of said auxiliary timer means and said temperature-sensing means after a delay period the duration of which is governed by the temperature effect of such second environment on said temperature-sensing means, and timer-deenergizing means connected to said auxiliary timer means and said temperature-sensing means and operable by such predetermined coaction thereof to deenergize said auxiliary timer means preparatory to reenergization thereof by said timer-energizing means under the control of said time clock.

3,317,693
SNAP ACTING THERMAL DISC WITH BENT-OVER ANGULATED LEAF SPRING CONTACT MEMBER
John D. Bolesky, Mansfield, Ohio, assignor to Therm-O-Disc, Incorporated, Mansfield, Ohio, a corporation of Ohio
Filed Oct. 21, 1964, Ser. No. 405,416
5 Claims. (Cl. 200—138)



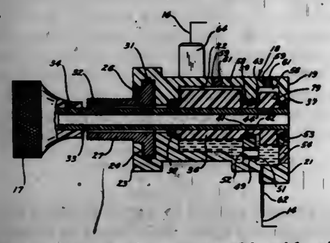
2. A thermostatic control device comprising a housing defining a switch chamber having a closed end and an open end, switch means mounted within said switch chamber including a fixed contact, and a mobile contact adapted to engage the fixed contact, means for supporting said mobile contact comprising a cantilever mounted arm spanning substantially the diameter of the switch chamber, said arm having an offset portion reversely bent along a transverse line and angulated from the plane of the arm and secured to a terminal post circumferentially spaced therefrom, said angulated portion having a fold therein to bias the arm against the closed end wall at said transverse bend, and means mounted in the open end of said switch chamber including a bimetallic member having two opposite positions of stability and engageable with said cantilever mounted arm in one of said positions to move the mobile contact with respect to the fixed contact.

3,317,694
COMBINATION SWITCH AND CIRCUIT BREAKER
Edmond F. Webb, Franklin, Mich., assignor, by mesne assignments, to Putnam Equipment Corporation, Cookeville, Tenn., a corporation of Tennessee
Filed Mar. 10, 1965, Ser. No. 438,568
9 Claims. (Cl. 200—152)

9. A switch for an electrical circuit comprising:
(a) two relatively movable cooperating members of insulating material having coacting portions to form a pair of closed chambers between said members,
(b) an electrically conductive liquid positioned within the chambers and of a lesser volume than the chambers,

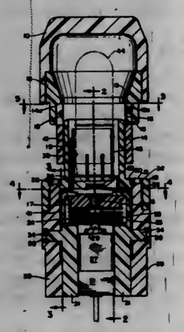
(c) means of electrically insulative material mounted in one of said members below the level of the liquid in said chambers, said means having at least one passage open to each chamber for accommodating a limited amount of said liquid to electrically couple said chambers so that the circuit will be broken when the liquid in the passage is separated by a predetermined electric current,

(d) electric circuit terminals communicating with each of said chambers, and



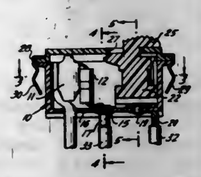
(e) means on said members engageable with said liquid and operative in response to relative movement of said members to one moved position therefor to relatively vary the level of the liquid in said chamber to establish electrical connection between said terminals through the liquid in said passage, said liquid, in response to relative movement of said members to a second moved position therefor being movable out of contact with one of said terminals to disestablish the electrical connection therebetween.

3,317,695
LIGHTED PUSH-BUTTON SWITCH
John J. Dennison, Cheshire, Conn., assignor to Maxson Electronics Corporation, Great River, N.Y., a corporation of New York
Filed Sept. 23, 1965, Ser. No. 489,633
7 Claims. (Cl. 200—167)



1. A push-button switch assembly comprising: a housing, a switch stationarily arranged in said housing and having an actuator extending therefrom, a lamp socket stationarily disposed in said housing and adapted to receive a lamp, a pair of contact strips stationarily received in said housing and electrically connected to said socket for energizing a lamp received therein, a pushbutton assembly including a lens, a collar connected to said lens and having a key extending therefrom, and a sleeve disposed within and detachably connected to said collar and provided with a groove receiving said key to prevent rotation between said collar and said sleeve, said sleeve being axially displaceably and non-rotatably mounted in said housing, a plunger arranged in said housing and movable therein from a rest position to an actuating position, spring means biasing said plunger into said rest position, and a blade connected to said plunger for movement therewith, upon depression of said push-button assembly said sleeve being adapted to move said plunger into said actuating position and thereby said blade into engagement with said actuator for actuating said switch.

3,317,696
INTEGRATED ELECTRICAL SWITCH AND LIGHT INDICATOR ASSEMBLY
Gil C. Sanchez, New York, N.Y., assignor of ninety-five percent to Leecraft Manufacturing Company, Inc., Long Island City, N.Y.
Filed Mar. 30, 1966, Ser. No. 538,672
7 Claims. (Cl. 200—167)



1. An integrated electrical switch and light indicator assembly comprising:

(a) an open-top housing,

(b) a lamp disposed adjacent one end of said housing,

(c) first and second resilient fixed contacts mounted at spaced positions adjacent one side of said housing,

(d) a slider having a wiper contact therein shiftable within said housing from a first position bridging said fixed contacts to a second position engaging but one of said contacts, said slider having a finger projecting above said housing,

(e) a lens plate covering said housing and having a window therein through which said finger extends, said window having a longitudinal dimension limiting the movement of said slider to said first and second positions, and

(f) three terminals, two of which are connected to said fixed contacts, and the third of which is connected in series with said lamp to one of said fixed contacts.

3,317,697
HERMETICALLY SEALED SWITCH AND PROTECTIVE MOUNTING MEANS THEREFOR
Werner Robert Bauer, Columbus, Ohio, assignor to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware
Filed Oct. 5, 1965, Ser. No. 493,108
8 Claims. (Cl. 200—168)

1. In combination:

an outer casing providing an outer casing enclosure for a switch casing and having a wall structure with an outer casing access opening;

a removable cover for said access opening;

passageway means in said wall structure to receive a switch operator extending into said enclosure;

attachment means on said wall structure for attachment of electrical conduit means to be connected with said casing enclosure, the interior of said conduit means to be connected to said outer casing enclosure,

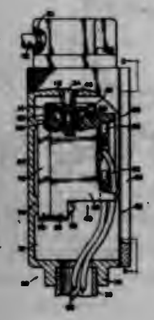
an inner sealed switch casing made of electrically insulative moldable material and secured to said wall structure, said switch casing having a switch cavity sealed from said outer casing enclosure;

a switch in said switch cavity;

switch actuating means connected to said switch, extending out of said switch casing into said outer casing enclosure and operated by said switch operator;

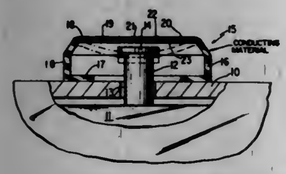
flexible sealing means connected to said switch actuating means and to said switch casing to seal said switch cavity from said outer casing enclosure;

electrical terminal means with internal threads and connected to said switch, passing through, tightly molded within and sealed to said switch casing;



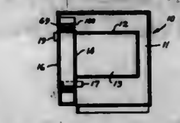
and electrical wire connector screws threadedly engaged in said threads and having wire retaining heads in said enclosure for attachment of electrical conductor wires to said terminal means, said wires to be introduced into said casing enclosure through said electrical conduit means, said wire retaining heads being accessible through said access opening for attachment of said conductor wires to said terminal means.

3,317,698
SWITCH INCLUDING SEALING AND SHIELDING MEANS THEREFOR
William E. Mansfield, Mattapoisett, Mass., assignor to Nichols Engineering, Incorporated, Shelton, Conn., a corporation of Connecticut
Filed Mar. 11, 1966, Ser. No. 533,597
7 Claims. (Cl. 200—168)



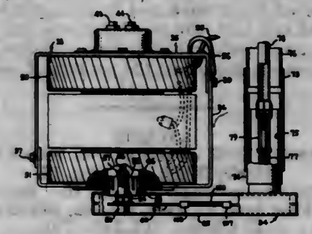
1. Apparatus comprising in combination, a panel; an electrical component mounted on said panel and including an actuatable element extending therefrom; a combined environmental seal and radio frequency interference shield covering said element, said seal and shield comprising a frame-like member molded from electrically conductive resilient material and including flange means sealed to said panel surrounding said element; electrically conductive screen means bonded to said frame-like member and providing a window through which the actuatable element of said electrical component can be observed; and transparent means covering said screen means and bonded to said frame-like member.

3,317,699
POWER SUPPLY FOR A MAGNETRON
Donald F. Helfer, Evergreen Park, Ill., assignor to General Electric Company, a corporation of New York
Filed Sept. 16, 1964, Ser. No. 396,955
9 Claims. (Cl. 219—10.55)



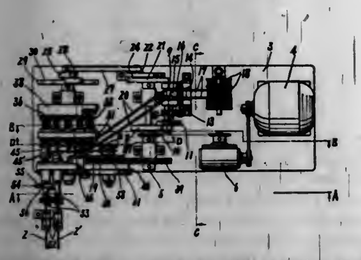
1. A circuit for controlling application of voltage to the filament and anode of a magnetron comprising in combination, supply circuits to be energized from a power source for supplying voltage to the filament and anode of the magnetron, means for effecting initial energization of said filament supply circuit to supply an initial magnitude of voltage to said filament, means for controlling energization of said anode and filament supply circuits including control switch means, a time delay device to be energized from said power source simultaneously with energization of said filament supply circuit and operable a preselected time after energization thereof, and relay means energizable only in response both to actuation of said control switch means and operation of said time delay device, said relay means being effective when energized simultaneously to reduce to a finite magnitude the initial magnitude of voltage supplied by said filament supply circuit, to effect energization of said anode supply circuit, and to deenergize said time delay device.

3,317,700
ELECTRONIC OVEN
James Edward Staats, Louisville, Ky., assignor to General Electric Company, a corporation of New York
Filed Sept. 29, 1964, Ser. No. 400,070
6 Claims. (Cl. 219—10.55)



1. In an electronic oven, means defining a food heating cavity, a high frequency energy source having a pair of output terminals, and a tunable transmission line coupling the source to the cavity, said transmission line including a hollow outer conductor coupled to one terminal of said source, an inner solid conductor extending through the outer conductor and coupled to the other terminal of said source, and a tuning member movably mounted on the outer surface of said inner conductor to adjust the impedance of the transmission line between said source and said cavity, said tuning member being outside said cavity intermediate the ends of said inner conductor and spaced from said outer conductor.

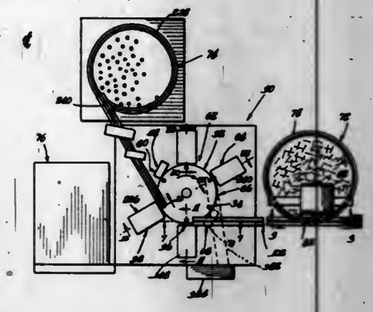
3,317,701
TUBULAR ELECTRIC ELEMENT MANUFACTURING APPARATUS
Kazuo Sato and Takashi Karasawa, Harunamachi, Tokuji Fukazawa, Mamachi, and Eiji Sekiya and Tokushige Sato, Harunamachi, Japan, assignors to Taiyo Yuden Company, Limited, Tokyo, Japan, a limited-liability company of Japan
Filed Sept. 8, 1964, Ser. No. 394,700
Claims priority, application Japan, Dec. 27, 1963, 38/70,653
5 Claims. (Cl. 219—56)



1. An apparatus for automatically winding lead wires onto a cylindrical electric element and soldering said lead wires, said apparatus comprising a rotatable disc having a plurality of electric element holding members around the periphery thereof, said holding members being adapted to hold a cylindrical electric element and being reciprocally mounted in said disc for reciprocal movement parallel to the axis of rotation of said disc, disc rotating means coupled to said disc for intermittently rotating said disc, at least one lead wire winding means positioned adjacent said disc at a point at which one of the holding members is stopped during the periods between the intermittent rotations of said disc for winding at least one lead wire around an electric element which is stopped at said point, an electric welding means positioned adjacent said disc at a point at which one of the holding members is stopped during the periods between intermittent rotations of said disc, said last mentioned point being past said first mentioned point in the direction of rotation of said disc, and a stationary cam disc on the opposite side of said disc from said lead wire winding means and said welding means and having an annular cam surface with which said holding members are in contact for moving said holding members in the direction of said lead wire winding means and said welding means and retracting said holding members when said holding members move past the position of said welding means.

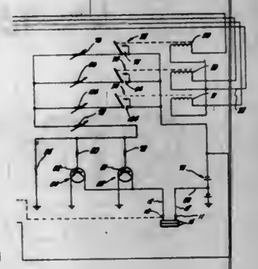
3,317,702
APPARATUS FOR ASSEMBLING WORKPIECES
Morley Mann, Elmhurst, Ill.
(739 Factory Road, Addison, Ill. 60101)
Filed June 17, 1963, Ser. No. 288,233
17 Claims. (Cl. 219—79)

1. An apparatus for assembling workpieces of the type described comprising fixture means having an aperture therethrough for receiving a first wire-like workpiece and a portion for receiving a second workpiece disposed adjacent the first workpiece, conveying means supporting said fixture means for movement along a path of travel to and past a plurality of stations, means at a first station adjacent said path of travel for directing a first wire-like workpiece to and in alignment with said aperture in a fixture means located at said first station, means for pulling the wire-like workpiece into the aperture, means providing a light directed for shining through said aperture, means including a light sensitive element for actuating said conveying means when the light is interrupted by a workpiece inserted into said aperture, means including a shiftably mounted tubular element at a second station adjacent said path of travel for assembling a second workpiece on said fixture means, means for selectively applying suction to said tubular element for holding the second workpiece and air pressure to the tubular element for positively discharging the workpiece from the tubular element and onto said fixture means, means for turning said second workpiece while on the tubular element for orienting the second workpiece in a predetermined manner,



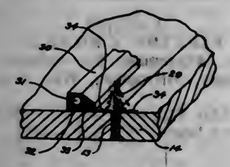
means at a third station adjacent said path of travel for electrically welding the first and second workpieces on the fixture means together, said welding means including an electrode shiftable into and out of engagement with a workpiece at said third station, means including pressure responsive bellows connected with said electrode for shifting the electrode, and means adjacent said conveying means for discharging a finished assembly on said fixture means.

3,317,703
WELDING CIRCUIT
John A. Gilbert, Altadena, Calif., assignor to Unitek Corporation, Monrovia, Calif., a corporation of California
Filed May 23, 1963, Ser. No. 282,753
5 Claims. (Cl. 219—111)



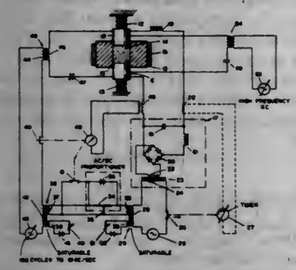
3. A welding circuit comprising a direct current energy source, a pair of welding electrodes, a power amplifier transistor having three electrodes, means coupling two of the transistor electrodes, the welding electrodes and the source, means for generating a control signal coupled to the third transistor electrode, means for adjusting the duration of the signal from the control signal generating means and adjustable attenuating means coupled to the third transistor electrode for controlling the conduction level of the power amplifier transistor whereby energy supplied from the source to the welding electrodes is regulated to compensate for resistance variations in the workpieces to be welded.

3,317,704
ELECTRIC ARC TORCHES
James A. Browning, Hanover, N.H., assignor to Thermal Dynamics Corporation, Lebanon, N.H., a corporation of New Hampshire
Filed Aug. 29, 1966, Ser. No. 575,803
4 Claims. (Cl. 219—137)



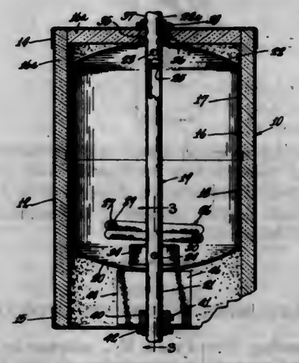
1. A device for use in welding with a plasma generating electric arc torch comprising a manifold interposed between said torch and two sections of a workpiece to be joined, and lying alongside the weld line; means for introducing a fluid under pressure to said manifold; and an outlet in said manifold at the surface of the workpiece to direct said fluid parallel to and along the surface of the workpiece toward the weld line.

3,317,705
METHOD OF AND APPARATUS FOR CONTROLLING THE POROSITY OF ELECTRICALLY SINTERED BODIES
Kiyoshi Inoue, 182 3-chome, Tamagawayoga-machi, Setagaya-ku, Tokyo, Japan
Filed Nov. 29, 1963, Ser. No. 326,837
Claims priority, application, Japan, Dec. 26, 1961, 36/47,409; Dec. 29, 1961, 36/48,028; Jan. 16, 1962, 37/1,356; Jan. 20, 1962, 37/1,982; Jan. 29, 1962, 37/3,123; Feb. 7, 1962, 37/4,652, 37/4,653; April 25, 1962, 37/16,930; May 1, 1962, 37/17,982; May 8, 1962, 37/18,546; May 30, 1962, 37/21,567; June 4, 1962, 37/22,767; June 7, 1962, 37/22,877; Sept. 19, 1962, 37/40,684; Oct. 9, 1962, 37/43,542; Nov. 30, 1962, 37/52,669; May 30, 1963, 38/28,052
14 Claims. (Cl. 219—149)



1. A method of sintering discrete electrically conductive particles into a coherent body, comprising the steps of:
disposing said particles in a mass between a pair of electrodes;
applying to said mass a light pressure sufficient to ensure development of a spark discharge between adjacent particles upon application of an electric field between said electrodes;
effecting an impulsive spark discharge through said mass to form fusion bridges between adjacent particles and continuing the passage of a unidirectional electric current through said mass after initial formation of said bridges;
superimposing upon said unidirectional current an alternating current having a frequency ranging between substantially 100 cycles/sec. and 10 kc./sec; and selecting the frequency of said alternating current in accordance with the desired density of said body.

3,317,706
ELECTRIC WATER HEATER
Harry C. Fischer, Montville, N.J., assignor to Edwin L. Wiegand Company, Pittsburgh, Pa.
Filed Mar. 5, 1964, Ser. No. 349,599
5 Claims. (Cl. 219—312)

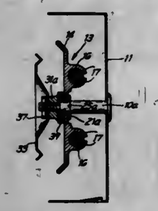


2. A hot water dispenser, comprising a water storage tank, means for heating the water within the tank, pipe means having one portion passing through a lower wall portion of said tank and constituting the inlet end of said pipe means, said pipe means having an intermediate portion passing inwardly through said tank and having an outlet end portion passing through an upper wall portion of said tank and outwardly of the latter, the inlet end of said pipe means being connectable to a source of water supply and the outlet end portion being connectable to a conduit for leading heated water to a place of use, said intermediate portion of said pipe means having a first opening for delivering water to said tank and a second opening above said first and adjacent to that part of the tank having the hottest water and also having a restricted orifice-forming nipple therein and located adjacent to but below said second opening, whereby hot water from said tank is drawn through said second opening by action of inlet water flowing through said pipe means to mix with the relatively cooler inlet water and thereby deliver to said outlet portion and to the place of use water at a temperature lower than that within said tank but higher than that coming from said source.

3,317,707
BASEBOARD HEATER
Robert F. Knudson, Concord, and Eugene R. Long, Marshall, Mich., and Lucas G. Tramontana, Oxford, Miss., assignors to McGraw-Edison Company, Milwaukee, Wis., a corporation of Delaware
Filed Aug. 24, 1964, Ser. No. 391,700
3 Claims. (Cl. 219—367)

1. A baseboard heater assembly comprising a longitudinally extending member; first and second bolts mounted on and projecting from said longitudinally extending member; a heating element assembly having first and second longitudinally spaced apertures therein; said first bolt projecting through said first aperture with fastening means carried by said first bolt securing said heating element assembly in a predetermined laterally spaced relation with respect to said longitudinally extending member; said second aperture being longitudinally elongated; said second bolt having a first shank portion, a reduced diameter second shank portion, and a distal threaded end portion;

a positioning washer journaled about said second shank portion; a cylindrical sleeve journaled about said second shank portion intermediate said positioning washer and said threaded end portion, said sleeve and said second shank portion being disposed in said second aperture; and

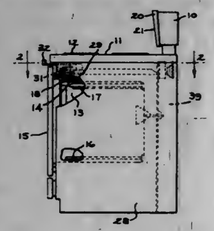


a nut threadably received about said threaded end and presenting an axial surface confronting said positioning washer and spaced therefrom a distance greater than the thickness of said heating element at said second aperture and the axial length of said sleeve.

3,317,708
DOOR LATCHING MECHANISM FOR OVEN CAVITY

Teamus Bowling, Fern Creek, Ky., assignor to General Electric Company, a corporation of New York

Filed May 4, 1964, Ser. No. 364,481
3 Claims. (Cl. 219—412)

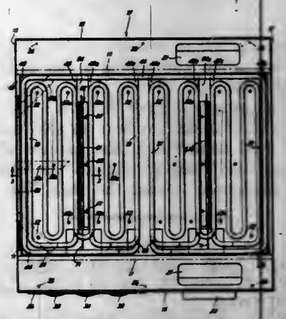


1. A door latching mechanism adapted for locking a door, a door and a door frame where the door is hingedly mounted to the door frame along one edge thereof, said latching mechanism being supported within the door frame adjacent the distal edge of the door and including a handle lever connected to a swinging hook member that is capable of grasping the door when the handle lever is moved to the closed position, a connecting rod pivoted to the handle lever and supported for reciprocating movement as the handle lever moves between the open and closed positions, an electrical timer associated with the connecting rod and having motor means that is adapted to be started once the handle lever is moved to its closed position, said timer including a starting wheel that is adapted to be motor-driven once the motor means is energized, a slider interposed between the connecting rod and starting wheel and being capable of shifting the starting wheel to a position for energizing the timer motor means when the handle lever is closed, and a movable locking bolt interposed between the starting wheel and the connecting rod, said starting wheel including a cam surface cooperating with the locking bolt and governing the position thereof, said connecting rod including a keeper portion engageable by the locking bolt, whereby the movement of the handle lever to the closed position serves to cause the slider to shift the starting wheel to a position that energizes the timer motor means, said motor means driving the starter wheel through a predetermined cycle, the said cam surface of the starting wheel serving after a short time interval to shift the locking bolt into engagement with the keeper portion of the connecting rod, as well as to withdraw the locking bolt from engaging the connecting rod toward the end of the cycle and shortly before the timer motor is deenergized so that the handle lever may only be opened at the completion of the operating cycle of the timer.

3,317,709
ELECTRIC GRIDDLE

Silas V. Beasley, Algonquin, Ill., assignor to McGraw-Edison Company, Milwaukee, Wis., a corporation of Delaware

Filed May 11, 1964, Ser. No. 366,386
6 Claims. (Cl. 219—449)

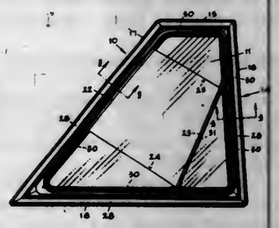


3. A griddle comprising a grid plate having upper and lower surfaces; first electrical heating means secured to said lower surface of said grid in heat delivering relation to said upper surface of said grid plate, the heat release portion of said first electrical heating means being disposed substantially uniformly with respect to said grid lower surface; support means connected to said grid plate along the marginal edge portions thereof and supporting said grid plate in a horizontal position; second electrical heating means secured to said lower surface of said grid plate in substantially completely surrounding relation to said first electrical heating means, said second electrical heating means being disposed intermediate said first electrical heating means and said support means; and first and second control means for respectively regulating the supply of electricity to said first and second electrical heating means.

3,317,710
LAMINATED SAFETY GLASS UNITS

James H. Boicey, Toledo, and James G. Marriott, Perrysburg, Ohio, assignors to Libbey-Owens-Ford Glass Company, Toledo, Ohio

Filed July 9, 1964, Ser. No. 381,377
8 Claims. (Cl. 219—543)



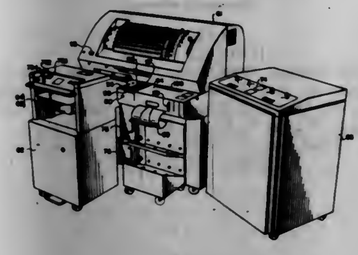
1. A laminated safety glass unit, comprising two sheets of glass and a non-brittle thermoplastic interlayer between said glass sheets and bonded thereto to form a composite

structure, a metal insert embedded in the marginal edge portion of said plastic interlayer, layers of an elastic material between the marginal edge portions of the glass sheets and plastic interlayer and adherent thereto, layers of elastic material also between the opposite surfaces of the metal insert and the plastic interlayer and adherent thereto, said metal insert being provided with at least one opening, and a plastic bridge in said opening joining the plastic interlayer on one side of said metal insert with the plastic interlayer on the opposite side of said metal insert.

3,317,711
AUTOMATIC CONTROLS FOR ACCOUNTING MACHINES

William F. Sommer, Brookville, and Russell E. Kneisley and Anthony G. Osterloh, Dayton, Ohio, assignors to The National Cash Register Company, Dayton, Ohio, a corporation of Maryland

Filed Apr. 22, 1963, Ser. No. 274,543
37 Claims. (Cl. 235—61.6)



1. In a device of the class described, capable of automatic entry of information from first and second types of record members, and also capable of computation required for processing a plurality of accounts, information for each account being derived from a pair of record members of the two different types, the combination comprising

sensing means for sensing information stored on the two types of record members;

feeding means for successively feeding record members to the sensing means from a stack in which the pairs of record members for the various accounts are arranged with the first type of record member for each pair located above the record member of the second type for each pair;

identification means for distinguishing between record members of the first and second types;

checking means controlled by the identification means for verifying that for each account processed, a record member of the first type is fed to the sensing means before a record member of the second type is so fed;

first disabling means controlled by the checking means for preventing further operation of the device in the event that, during the processing of any account, a record member of the second type is fed to the sensing means before a record member of the first type is so fed;

indicating means controlled by the checking means to provide a signal in the event that, during the processing of any account, a record member of the second type is fed to the sensing means before a record member of the first type is so fed;

second disabling means for preventing further operation of the device in the event that sequentially-sensed record members of the first and second types do not relate to the same account;

totalizers for accumulating balances;

differential means for providing input and output of information to and from the totalizers;

means for setting the differential means according to the information sensed from the record members;

a first plurality of memory switches for storage of a first type of information sensed from the first type of record member;

a second plurality of memory switches for storage of a second type of information sensed from the second type of record member;

means cooperating with said differential means for entering the information sensed from the first and second types of record members into the first and second pluralities of memory switches;

solenoid-operated input means associated with the first and second pluralities of memory switches for entering the information stored in said switches into the totalizers via the differential means;

first read-out means for causing the information stored in said first plurality of memory switches to be entered into the totalizers by means of the solenoid-operated input means and the differential means;

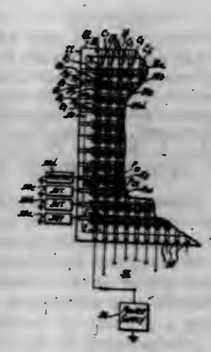
second read-out means for causing the information stored in said second plurality of memory switches to be displaced two denominational orders to the right and entered into the totalizers by means of the solenoid-operated input means and the differential means; and

sequential control means for causing the feeding means to feed a first record member to the sensing means to enable information to be sensed from the first type of record member and stored in the first plurality of memory switches, also causing the feeding means to feed a second record member to the sensing means to enable information to be sensed from the second type of record member and to be stored in the second plurality of memory switches and entered into the totalizers, and subsequently causing operation of the second and then the first read-out means to enter the information stored in said first and second pluralities of memory switches into said totalizers.

3,317,712
INTEGRATED LIGHT SENSING DEVICE

Bernard P. Silverman, Moorestown, N.J., assignor to Radio Corporation of America, a corporation of Delaware

Filed Oct. 3, 1962, Ser. No. 228,058
6 Claims. (Cl. 235—61.11)

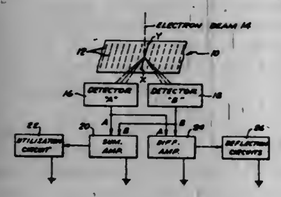


1. A sensing device comprising in combination a plurality of column conductors,

a plurality of row conductors positioned transversely across and insulated from said column conductors, and

photoconductive means and unidirectional conduction means serially coupled between said column and row conductors to provide unidirectional electrical connections therebetween when illuminated.

3,317,713
ELECTRON BEAM READOUT SYSTEM
Kurt F. Wallace, Redwood City, Calif., assignor to Ampex Corporation, Redwood City, Calif., a corporation of California
Filed Oct. 19, 1962, Ser. No. 231,646
4 Claims. (Cl. 235—61.11)



1. A system for reading out information from a photosensitive medium having information recorded on tracks comprising:

means for directing an electron beam along a path in said medium for scanning the recorded tracks to produce signals therein which are related to the recorded information being scanned;

a pair of detectors, each detector of the pair being spaced on opposite sides of the path defined by the beam and equally spaced from such path to detect the signals produced by the beam impinging said medium;

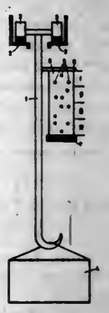
means coupled to said detectors for adding the detected signals to provide a readout signal representative of the recorded information;

means coupled to said detectors for deriving a different signal representing the difference between the detected signals; and

means for varying the path of the electron beam in response to such difference signal so that the beam substantially follows the center of the recorded tracks.

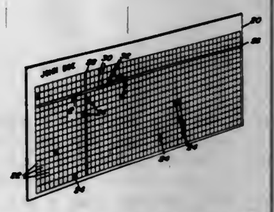
3,317,714
DESTINATION INDICATOR FOR THE TRAVELLING UNITS OF CONVEYOR SYSTEMS
Harald Hausler, Erlangen, and Friedrich Kuhrt and Hans-Joachim Lippmann, Nurnberg, Germany, assignors to Siemens-Schuckertwerke Aktiengesellschaft, Berlin-Siemensstadt, Germany, a corporation of Germany
Filed Jan. 4, 1963, Ser. No. 249,515
Claims priority, application Germany, Jan. 10, 1962, S 77,473
12 Claims. (Cl. 235—61.11)

3. For conveyor units of a conveyor system, a destination indicator to energize a sensing device, comprising a body, a plurality of permanent magnets mounted on said body, and a ferromagnetic screen movably mounted on said body and shiftable to a plurality of given positions, said screen defining a plurality of apertures in predetermined locations corresponding to the locations of predetermined ones of said magnets in each position of said screen so as to expose and magnetically mask respective ones of said magnets according to respective codes corresponding to each position of said screen, said magnets being arranged in pairs, the apertures in said screen being located to expose only one of each pair of magnets in



each position of said screen and thereby affect a magnetic digital read-out signal.

3,317,715
CODED CARD
Samuel A. Talbot, Baltimore, Md.; Bella Otto Talbot, executrix of said Samuel A. Talbot, deceased, and George N. Webb, Baltimore, Md., assignors of thirty percent to Walter G. Finch, Baltimore, Md.
Filed June 7, 1965, Ser. No. 467,177
1 Claim. (Cl. 235—61.11)



A process for obtaining information from a data storage card having a plurality of modalities of data formed thereon in data related combinations, each combination consisting essentially of at least one aperture and at least one other modality of data registered on one side of said card in juxtaposition with said aperture on the portion of said card which is normally reserved for surrounding said aperture, which process comprises optically sensing said aperture by illuminating the opposite side of said card, diverting a portion of the resultant beam of light passing through said aperture to impinge upon said other modality of data, detecting the light which is reflected therefrom, and detecting the remaining portion of said resultant beam of light passing through said aperture.

3,317,716
HIGH SPEED REVERSING COUNTER
Louis W. Ducote, Castro Valley, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed July 22, 1963, Ser. No. 296,877
4 Claims. (Cl. 235—92)

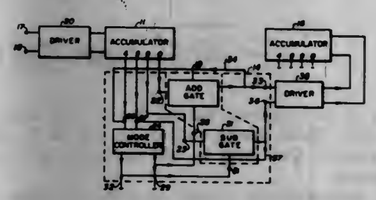
1. A high speed reversing summation counter comprising,

(1) at least two cascaded decade accumulators arranged to count and register successive input pulses,

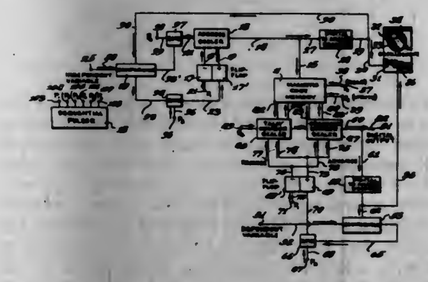
(2) an add gate electrically connected to the first of said cascaded accumulators to receive an add adjustment pulse therefrom, said adjustment pulse generated when said first accumulator registers a numerical count level of ten,

(3) a subtract gate electrically connected to said first accumulator to receive a subtract adjustment pulse therefrom, said adjustment pulse generated when said first accumulator registers a numerical count level of nine, and

(4) a bistable multivibrator, said multivibrator electrically connected to said first accumulator to receive first and second mode control pulse therefrom when said first accumulator registers numerical count levels of four and five respectively, said multivibrator electrically connected to said add gate to receive a third mode control pulse therefrom when an add adjustment pulse is transmitted through said add gate, said multivibrator electrically connected to said subtract gate to receive a fourth mode control pulse therefrom when a subtract adjustment pulse is transmitted through said subtract gate, said multivibrator responding selectively to the first and third mode control pulses by gating said subtract gate to allow transmission of said subtract adjustment pulse, and said multivibrator responding selectively to the second and fourth mode control pulses by gating said add gate to allow transmission of said add adjustment pulse.



3,317,717
CIRCUITRY TO REPRESENT AS A WAVEFORM THE RELATIONSHIP OF TWO VARIABLES
Robert W. Schumann, Madison, Wis., assignor to Northern Scientific Inc., Madison, Wis., a corporation of Wisconsin
Filed May 22, 1964, Ser. No. 369,429
4 Claims. (Cl. 235—150)



1. A circuit for determining and registering the magnitude relationship of two variable signals in the form of a dependent variable and an independent variable by determining for each of a predetermined number of magnitude values of the independent variable the approximate magnitude of the dependent variable, comprising

a memory circuit controlled by the magnitude of the independent variable and including means for separately recording therein numerical representations corresponding to each of the predetermined number of magnitude values of the independent variable,

means for selectively extracting from said memory circuit the numerical representation of the independent variable magnitude value at related time, said selectively extracting means restoring the extracted numerical representation upon a change in magnitude value of the independent variable,

means for deriving an analog signal functionally related to the selectively extracted numerical representation,

means for comparing the derived analog signal with the magnitude of the dependent variable at a time related to the time that the numerical representation is extracted from said memory circuit,

tally means for maintaining a tally of the number of times that the comparisons made by said comparing means indicates that the dependent variable exceeds the magnitude of the derived analog signal with which it is compared diminished by the number of times that the comparisons indicate otherwise,

means for providing a separate tally for each independent variable magnitude value,

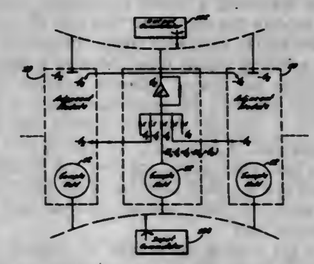
means for altering the extracted numerical representation in a first direction when the associated tally exceeds a first predetermined value,

said means altering the extracted numerical representation in a second direction when the associated tally decreases below a second predetermined value,

means for reducing said associated tally to zero upon alteration of the extracted numerical representation, and

means for registering said numerical representation.

3,317,718
COMPUTER
Walter Joseph Karplus, 7450 Palo Vista Drive, Los Angeles, Calif. 90046
Filed Mar. 22, 1963, Ser. No. 267,255
11 Claims. (Cl. 235—150.31)



1. A computer for solving transient field problems, including,

a plurality of node modules having input and output terminals for simulating the characteristics of discrete points in the field, each of the node modules including a plurality of interconnected circuit elements and with the circuit elements of each node module interconnected with the circuit elements of other circuit elements to form an electrical circuit array having electrical characteristics simulating the characteristics at discrete field positions of the field,

first means operatively coupled to the input terminals of the plurality of node modules for distributing analog signals to the node modules representative of the initial characteristics of the field at a particular time,

second means operatively coupled to the output terminals of the plurality of node modules for sampling the analog signals appearing at the output terminals of the plurality of node modules and for producing output signals in accordance with the sampled signals,

third means operatively coupled to the second means and responsive to the output signals for producing digital signals having characteristics in accordance with the characteristics of the output signals,

fourth means operatively coupled to the third means and responsive to the digital signals for storing the digital signals,

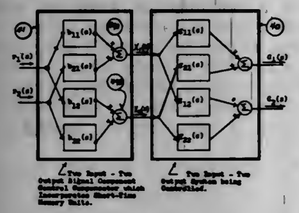
fifth means operatively coupled to the fourth means and to the first means and responsive to the stored digital signals for producing analog signals having characteristics in accordance with the digital signals and for coupling the analog signals to the first means.

3,317,719

SHORT-TIME MEMORY DEVICES IN MULTIPLE INPUT-MULTIPLE OUTPUT CONTROL

John F. Calvert and Ronald G. Schultz, Pittsburgh, Pa., assignors to John F. Calvert, as trustee

Filed Dec. 20, 1962, Ser. No. 246,175
39 Claims. (Cl. 235—151.1)



33. In a total system for controlling the output, or outputs, of a control system in which there are one or more input command signals and one or more output controlled variables, and in which there is more than one input signal and/or more than one output controlled variable, said total system comprising:

(a) means including a signal component control device to modify the command function of each input command signal, each such signal component control device including means form delaying a signal passing through the device different intervals of time, while also retaining the undelayed signal to produce therewith a plurality of components, altering the magnitude and, if necessary, the sign of said components so that when added together the resultant output signal is a specified function of the input signal to said device, and then adding together said altered components; and

(b) means for causing the output, or outputs, of each such device to be fed to the remainder of the total system being controlled to cause the outputs of the total system being controlled to be specified functions of one or more of the input command functions.

3,317,720

POLYBIPOLAR SYSTEM

Adam Lender, Palo Alto, Calif., assignor, by mesne assignments, to Automatic Electric Laboratories, Inc., Northlake, Ill., a corporation of Delaware

Filed Feb. 4, 1964, Ser. No. 342,412
9 Claims. (Cl. 235—154)

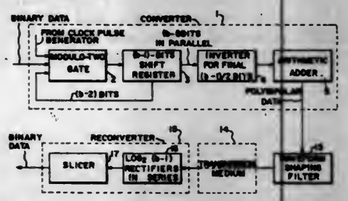
1. A method for transmitting binary digital waveforms by converting said waveforms into a polybipolar waveform, which method comprises the steps of:

(a) combining the present binary pulse with the binary output pulses generated in the previous (b—2) combinations of this step (a), where b is an odd integer greater than three, and providing a binary output pulse of one polarity if the number of binary ones in said combination is even, and of the opposite polarity if the number of binary ones is odd;

(b) inverting the final (b—1)/2 of the (b—1) successive binary output pulses from step (a);

(c) adding said (b—1) successive binary output pulses from step (a), including said (b—1)/2 inverted final pulses from step (b), to obtain a polybipolar waveform;

(d) transmitting said polybipolar waveform through a transmission medium to a receiver;



(e) at said receiver, sensing the level of said polybipolar signal during each pulse interval to ascertain whether that level is odd-numbered or even-numbered;

(f) indicating the receipt of a binary pulse of one polarity when an odd-numbered level has been sensed; and

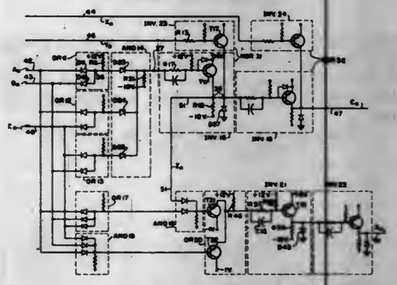
(g) indicating the receipt of a binary pulse of the opposite polarity when an even-numbered level has been sensed.

3,317,721

DIGITAL FULL ADDER WITH SPECIAL LOGIC FUNCTIONS

Richard M. Berlind, Phoenix, Ariz., assignor to General Electric Company, a corporation of New York

Filed June 27, 1963, Ser. No. 291,166
9 Claims. (Cl. 235—176)



7. In combination, circuit means, first input means connected to said circuit means for receiving two binary information signal inputs and a binary carry signal input, second input means separate from said first input means connected to said circuit means for receiving a plurality of binary control signal inputs, output means connected to said circuit means for providing first and second output signals, first means included in said circuit means responsive to a first permutation of binary states of said control signal inputs for causing said circuit means to perform a logical AND operation on said information signal inputs and to provide the result of the logical AND operation to said output means, second means included in said circuit means responsive to a second permutation of binary states of said control signal inputs for causing said circuit means to perform an exclusive OR operation on said information signal inputs and to provide the result of the exclusive OR operation to said output means, and third means included in said circuit means responsive to a third permutation of binary states of said control signal inputs for causing said circuit means to perform an arithmetic operation on said information signal and carry signal inputs and to provide the result of the arithmetic operation to said output means.

3,317,722

ELECTROLUMINESCENT LAMP

Frances L. Whitney, 114 E. 84th St., New York, N.Y. 10028

Filed Apr. 26, 1965, Ser. No. 450,620
9 Claims. (Cl. 240—2.25)



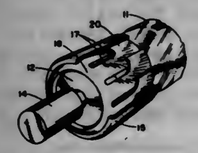
1. An electroluminescent lamp which comprises a rigid elongate transparent lamp housing body having walls of substantial thickness and having a passageway therethrough, an electroluminescent tape extending through said passageway, said tape comprising a phosphor layer sandwiched between a pair of hermetically sealed electrodes, said walls of said body portion defining said passageway and dimensioned so that said passageway has a cross-sectional area in a plane normal to the long axis of the passageway slightly larger than the cross-sectional area of said tape in a plane normal to its long axis, said tape extending through said passageway with a slidable fit, a closure closing one end of said passageway, a removably mounted closure plug closing the other end of said passageway and lead-in wires extending through said removable closure plug, one of which is connected within said housing to one of said electrodes and the other of which is connected to the other of said electrodes.

3,317,723

PROTECTIVE SHIELD

Nicholas Reinhardt, Lexington, Mass., assignor to EG & G, Inc., a corporation of Massachusetts

Filed Jan. 15, 1965, Ser. No. 425,695
1 Claim. (Cl. 240—47)



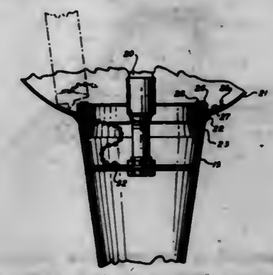
A shield for protecting the seal between the envelope and end cap of a flashtube comprising, in combination, a hollow cylindrical sleeve of sufficient length to cover said seal and having an inside diameter greater than the diameter of the end cap; and a spring having a plurality of overlapping paddle-shaped extension arms each having a greater terminal width than initial width, parallel to the flashtube and the sleeve, and disposed in the space therebetween, said arms being axially displaced a predetermined angle to exert a force against the sleeve and the flashtube.

3,317,724

LIGHTING DEVICE

Henry C. Pfaff, Jr., Summit, and John Kepenach, Middlesex, N.J., assignors to Pfaff and Kendall, Newark, N.J., a corporation of New Jersey

Filed Sept. 16, 1964, Ser. No. 396,932
2 Claims. (Cl. 240—84)



1. A street lamp unit comprising:

(a) a base rigidly mounted on the ground;

(b) an elongated upright hollow post integral with said base at its lower end and having an outwardly flared upper end section;

(c) a support member disposed within said flared upper end of said hollow post;

(d) a lamp socket mounted on said support member and projecting up and out of said flared upper end;

(e) electrical accessories connected to said lamp socket and mounted on the inside wall of said post adjacent the upper end thereof;

(f) a lamp globe retaining ring fitted on the upper edge of said hollow post;

(g) said lamp globe retaining ring having a recess at the lower section thereof for receiving the upper edge of said hollow post;

(h) a lamp globe mounted on said lamp globe retaining ring and covering said lamp socket;

(i) said lamp globe having a central opening at the bottom thereof with the adjacent peripheral portion extending radially inwardly to define the opening and engaging said lamp globe retaining ring;

(j) said lamp globe retaining ring having an upper peripheral recess adjacent the top thereof for receiving the said edge of the lamp globe;

(k) lamp globe locking means on said lamp globe retaining ring adjacent said inwardly extending peripheral portion which clamps said peripheral portion of said lamp globe on said lamp globe retaining ring; and

(l) fastening means for holding said globe housing retaining ring in position on said flared upper end of said post,

(m) an elongated hanger member connected to the inside wall of said flared end section of the post below said support member; and

(n) said electrical accessories are supported along said elongated hanger member.

3,317,725

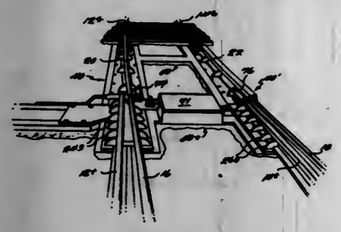
AUTOMATIC YARD SWITCH

John L. Jensen, St. Paul, Minn., assignor to Railroad Permanent Way Products Corp., Ashtabula, Ohio, a corporation of Ohio

Filed Mar. 3, 1965, Ser. No. 436,897
18 Claims. (Cl. 246—445)

1. A stub switch construction comprising: a precast and prestressed concrete foundation, the concrete foundation providing an integral and unitary support for the switch construction to thereby insure positive track surface and

uniform track gauge and alignment throughout the length of the switch; a pair of continuous longitudinal base plates disposed upon said concrete support; and a stub switch rail disposed upon each longitudinal base plate, a portion of each switch rail at the approaching end of the switch



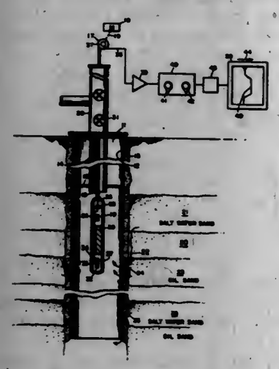
being fixedly secured to the respective longitudinal base plate, the remaining portion of each switch rail being freely movable from a position adjacent the rails of a main rail line on the trailing end of the switch and a position adjacent the rails of a turnout track on the trailing end of the switch.

3,317,726

RADIOACTIVE TRACER TECHNIQUE FOR IDENTIFYING FORMATIONS CONTRIBUTING UNWANTED FLUID TO PRODUCTIVE WELLS

Richard L. Caldwell, Dallas, Tex., assignor to Mobil Oil Corporation, a corporation of New York

Filed Aug. 29, 1963, Ser. No. 305,389
9 Claims. (Cl. 250—43.5)



9. The method of identifying a source of unwanted fluid which flows into a borehole and contributes to hydrocarbon fluid produced from a productive formation traversed by said borehole comprising the steps of:

terminating the flow of fluid from said borehole,

irradiating with primary radiation a formation other than said productive formation,

flowing fluid from said borehole, and

at a position away from the zone of irradiation and away from the influence of secondary radiation immediately emitted from elements following irradiation, detecting for irradiation emitted from fluid flowing into said borehole,

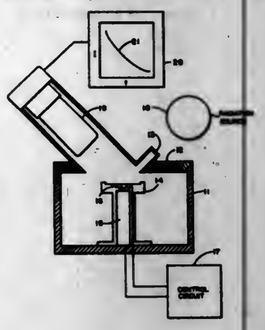
said detecting operation being carried out in the vicinity of the point of entry of fluid into said borehole from said productive formation and in the flow path of fluid from said productive formation flowing in said borehole.

3,317,727

CHARACTERIZING THERMOLUMINESCENT MATERIAL BY MEANS OF ITS ISOTHERMAL DECAY OF PHOSPHORESCENCE

William L. Medlin, Dallas, Tex., assignor to Mobil Oil Corporation, a corporation of New York

Filed June 18, 1963, Ser. No. 288,469
6 Claims. (Cl. 250—71)



1. A method of characterizing a thermoluminescent material on the basis of its isothermal decay of phosphorescence, comprising the steps of:

(a) bringing at least a portion of the material to an essentially constant temperature within a range of 100° C. of a glow peak of said material,

(b) irradiating said portion of material with ionizing radiation for a time t_0,

(c) thereafter measuring the phosphorescent emission of said portion of material whereby an isothermal decay curve is obtained, at least a portion of which obeys the equation:

$$I = I_0\left(\frac{b}{b+t}\right)^m$$

wherein

I is the intensity of emission,

t is time,

I_0 is the intensity of emission at t=zero, m is a dimensionless parameter, and b is a parameter in the same units as t,

(d) obtaining the relative energy level distribution of electron trapping centers for said decay curve, and

(e) characterizing said material by comparing said distribution with the relative energy level distribution of electron trapping centers for a second material of similar chemical composition and crystal structure obtained under essentially the same conditions of temperature and total cumulative amount of radiation as said distribution for said first material.

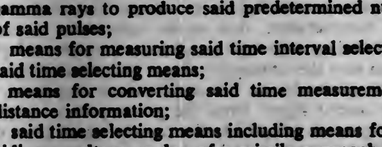
3,317,728

ELECTROLUMINESCENT DISPLAY DEVICE USING PLASTIC FOAM

Omer F. Hamann, La Jolla, Calif., assignor, by mesne assignments, to Stromberg-Carlson Corporation, Rochester, N.Y., a corporation of Delaware

Filed July 14, 1964, Ser. No. 382,594
9 Claims. (Cl. 250—71)

5. In combination, a source of primary radiation comprising a solid foam body having a plurality of cellular compartments at least some of which contain a gas which ionizes and emits electromagnetic radiation having a first frequency when subjected to an electric field, means generating an electric field within said solid foam body for producing generation within and emission from said body of said electromagnetic radiation having a first frequency, said solid foam body being composed of substances trans-



parent to said electromagnetic radiation, a phosphorescent layer adjacent to said solid foam body emitting electromagnetic radiation having a second frequency in response to irradiation by said electromagnetic radiation having a first frequency.

3,317,729

SYSTEM FOR DETERMINING MISS-DISTANCE USING A GAMMA RAY SOURCE AND DETECTOR

Paul R. Calaway, Glendale, Calif., assignor to Electronic Specialty Co., Los Angeles, Calif., a corporation of California

Filed May 14, 1963, Ser. No. 280,205
6 Claims. (Cl. 250—71.5)

4. A missile distance indicator system for detecting the closest proximity of a missile to a target comprising:

(a) a source of gamma ray radiation of known activity;

(b) radiation detection means developing an electrical signal pulse in response to each received gamma ray;

(c) means for counting a predetermined number of said pulses;

(d) means for selecting the shortest necessary time interval for receiving a sufficient number of said gamma rays to produce said predetermined number of said pulses;

(e) means for measuring said time interval selected by said time selecting means;

(f) means for converting said time measurement to distance information;

(g) said time selecting means including means for providing a voltage analog of a missile approach to the target, and means integrating said voltage analog and storing the resultant voltage whereby the maximum voltage amplitude represents the shortest distance of said missile from said target; and,

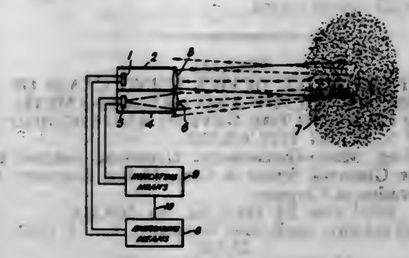
(h) said time measurement means including means for generating a declining function voltage, means comparing said voltage amplitude and said function voltage amplitude, and means noting the time interval required for said function and stored voltages to become equal.

3,317,730

DETERMINING ATMOSPHERIC POLLUTION BY THE DETECTION OF BACKSCATTERED INFRARED RADIATION

Cyril Hilsum, Malvern, England, assignor to National Research Development Corporation, London, England, a corporation of Great Britain

Filed Apr. 9, 1964, Ser. No. 358,422
Claims priority, application Great Britain, Apr. 17, 1963, 15,119/63
4 Claims. (Cl. 250—83.3)



1. Equipment for indicating the presence of fog or like atmospheric pollution, said equipment comprising:

an infra-red radiation emitting semiconductor diode arranged to emit radiation into the atmosphere,

energising means connected to supply modulated energising current to said diode,

an infra-red detector arranged to be sensitive substantially only to said modulated radiation, and positioned to receive any radiation from the diode reflected back to the detector,

shielding means disposed to shield said infra-red detector both from direct radiation from said diode and from direct sunlight, and

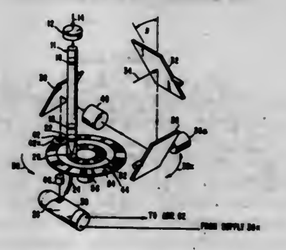
indicating means for indicating the magnitude of the detected modulated radiation.

3,317,731

CANOPUS DETECTOR INCLUDING AUTOMOTIVE GAIN CONTROL OF PHOTOMULTIPLIER TUBE

James E. Webb, Administrator of the National Aeronautics and Space Administration, with respect to an invention of Daryl D. Errett and Eugene W. Peterson, both of Santa Barbara, Calif.

Filed June 30, 1965, Ser. No. 468,647
11 Claims. (Cl. 250—203)

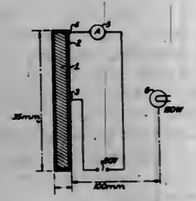


1. A star sensor for discriminating between light from a selected star of a predetermined brightness and light from other light radiating bodies, the light from said other bodies differing from the light from said selected star by a predetermined magnitude comprising:

light sensitive means;

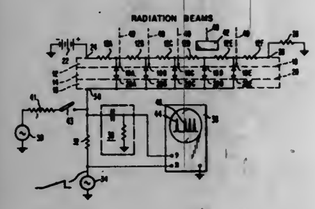
sun means for directing sunlight to said light sensitive means;
means for controlling the output of said light sensitive means as a function of said sunlight directed thereto;
optical means having a predetermined field of view for directing light from a light radiating body in the field of view thereof to said light sensitive means; and
means including threshold means for providing an output which is directly proportional to the ratio of the illuminations of the sun and the light radiating body, said output being between predetermined threshold levels when said selected star is in the field of view of said optical means.

3,317,732
PHOTOSENSITIVE DEVICE USING GLASS OF ARSENIC, SULFUR AND HALOGEN; METHOD OF USING THE DEVICE; AND METHOD OF MAKING THE GLASS
Emil Deeg, Mainz-Gonsenheim, Germany, assignor to Jenaer Glaswerk Schott & Gen., Mainz, Germany, a corporation of Germany
Filed Mar. 29, 1963, Ser. No. 269,118
Claims priority, application Germany, Apr. 3, 1962, J 21,548
11 Claims. (Cl. 250—211)



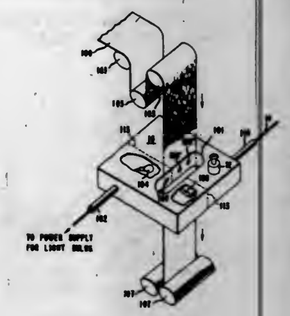
1. A photosensitive device comprising:
(a) a photoresistor;
(b) means for applying a potential to the photoresistor, said photoresistor comprising a glass having arsenic, sulfur and halogen components.

3,317,733
RADIATION SCANNER EMPLOYING RECTIFYING DEVICES AND PHOTOCONDUCTORS
John W. Horton, New York, and Robert J. Lynch, Peekskill, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed May 10, 1963, Ser. No. 279,531
20 Claims. (Cl. 250—211)



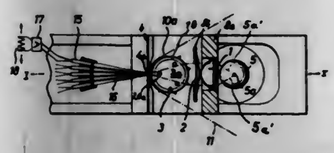
1. A radiation scanner comprising:
(a) an elongated multiple layer structure including an intermediate layer of semi-conductive material of a first conductivity type and two outer layers of semi-conductive material of a second conductivity type, the said layers having asymmetrically conductive semi-conductor junctions therebetween, said junctions having oppositely poled asymmetry and at least one of which has conductive properties responsive to radiation incident thereon;
(b) means connecting one of said outer layers at laterally spaced positions thereon to sources of different bias voltage levels to establish a potential gradient in the layer extending parallel to the said junctions;
(c) means for connecting the other outer layer to another source having a different value of bias voltage;
(d) means for applying a time variant potential difference across the said two outer layers in a direction perpendicular to the said junctions;
(e) a means connected in circuit between said outer layers for detecting functions of the current between said outer layers.

3,317,734
DEFECT DETECTOR AND STOP MOTION CONTROL SYSTEM
James Henry Martin, Jr., Waynesboro, Va., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Jan. 15, 1964, Ser. No. 337,831
4 Claims. (Cl. 250—214)



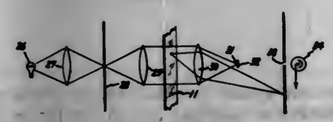
3. In combination with rope forming apparatus including driving means and spaced sets of rolls between which rope passes and in which at least one of the sets of rolls is driven, scanning means about the rope between the sets of rolls, the scanning means comprising a plurality of light sources aligned on the path of the rope between the sets of rolls and focused transverse to the normal direction of rope movement with a predetermined field defining slightly less than a normal width of rope, and a plurality of photoelectric detectors aligned with the light sources to receive light in the partial and total absence of rope therebetween, first means comprising a pre-amplifier providing an output signal to an amplifier-relay operative to stop the driving means on an extended signal from all the photoelectric detectors, means responsive to another output signal from the pre-amplifier comprising a first thyratron adapted to fire on any signal from the pre-amplifier, signalling and counting means responsive to an output signal from the thyratron, second means responsive to another output signal of predetermined polarity from the thyratron comprising a second thyratron subject to a predetermined grid bias of polarity opposite to said predetermined polarity, said second thyratron being adapted to fire upon lowering of its grid bias to a predetermined level by successive output signals from the first thyratron, relay means to stop the driving means operative upon the firing of the second thyratron, and signalling means to indicate the stopping of the driving means.

3,317,735
PHOTOELECTRIC SCANNING ARRANGEMENT INCLUDING A ROTATING CYLINDRICAL LENS
Heinrich Elsässer, Stuttgart-Valhingen, Germany, assignor to Franz Morat G.m.b.H., Stuttgart-Valhingen, Germany
Filed June 27, 1963, Ser. No. 290,977
Claims priority, application Germany, June 29, 1962, M 53,391
18 Claims. (Cl. 250—219)



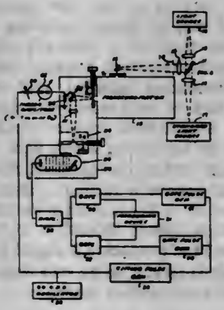
3. An illuminating arrangement comprising, in combination, a source of light; a lens system including a lens element having an outer peripheral cylindrical surface, said lens system being disposed relative to said source of light so that light rays passing transversely through said lens element converge on a narrow area of said cylindrical surface remote from said source; means supporting said lens element for rotation about the axis of said cylindrical surface; means for guiding an elongated flexible element for movement in longitudinal direction thereof about a source of radiant energy for emitting radiant energy rays toward said lens element; portion of said cylindrical surface which includes said narrow area; and drive means for driving at least one of said elements so that said cylindrical surface and said flexible element move at the same speed whereby said rays passing through, and converged by said cylindrical surface of said lens element and illuminating a narrow section of said flexible element registering with said narrow area of said cylindrical surface, impinge consecutive narrow sections of said flexible element during movement of the same without relative movement between said flexible element and said cylindrical surface of the rotating lens element.

3,317,736
APPARATUS FOR MEASURING THE PROBABILITY OF THE PRESENCE OF OPTICAL BLEMISHES
Carlyle S. Herrick, Alplaus, and Harold R. Day, Jr., Fayetteville, N.Y., assignors to General Electric Company, a corporation of New York
Filed Nov. 12, 1963, Ser. No. 322,595
7 Claims. (Cl. 250—219)



1. Apparatus for detecting and accurately counting the optical blemishes of a known, statistically significant portion of moving web comprising:
(a) a source of illumination,
(b) a dark field optical system,
(1) said dark field optical system being in two sections, a first section disposed between said source and the path of travel for said moving web and a second section in the path of parallel light rays leaving said web,
(c) a photosensitive device located approximately in line with said second section in the focal plane thereof for exposure to scattered light rays exiting from said second section,
(1) said photosensitive device generating discrete pulses of current in response to exposure to magnified images formed by said scattered rays of light,
(d) means located between said second section and said photosensitive device for controlling the admission of such magnified images to said photosensitive device,
(1) said control means being an aperture dimensioned so that substantially all magnified images admitted to said photosensitive device are presented in a positive manner one at a time,
(e) means actuated by the discrete pulses of current from said photosensitive device for counting said discrete pulses of current,
whereby an accurate count can be provided of the magnified images received by said photosensitive device and thereby of the total count of the number of optical blemishes in a statistically significant length and width of the moving web from which the average percentage probability of blemish occurrence at any station along the web can be determined.

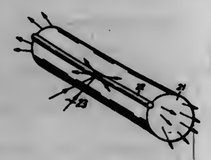
3,317,737
PHOTOELECTRIC DEVICE FOR MEASURING THE SPECTRAL LINE INTENSITIES OF A RADIATING PLASMA WITH BACKGROUND RADIATION CORRECTION MEANS
Manfred Köpsel, Neumunster, and Johannes Richter and Walter Lochte-Holtgreven, Kiel, Germany, assignors to the United States of America as represented by the Secretary of the Air Force
Filed Nov. 5, 1963, Ser. No. 321,704
2 Claims. (Cl. 250—226)



1. A device for measuring the spectral line intensities of light from a radiating plasma; comprising, a narrow band spectrometer having an input slit and an output slit; means for focusing the radiating plasma on the input slit of said narrow band spectrometer; a light-tight housing adjacent the output slit of said narrow band spectrometer; a photomultiplier within said housing; means, including an oscillating mirror, within said housing, for impressing the light from said output slit on said photomultiplier; means for driving said oscillating mirror at a predetermined frequency; a mask, having a slit therein, located between said oscillating mirror and said photomultiplier; a measuring instrument having at least two input terminals; a first circuit means, including a gate circuit, for connecting the output of said photomultiplier to one terminal of said measuring instrument; a second circuit

means, including a gate circuit, for connecting the output of said photomultiplier to the other terminal of said measuring instrument; means responsive to the means for driving said mirror at a predetermined frequency, for closing the gate in said first circuit for a predetermined time interval when said mirror is in either of its maximum deflection positions; means, responsive to the means for driving said mirror at a predetermined frequency, for closing the gate in said second circuit for a time equal to said predetermined time interval when said mirror is in its equilibrium position; and means for providing a reference intensity indication on said measuring instrument.

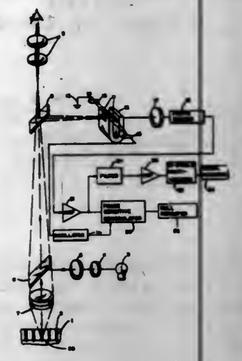
3,317,738
PHOTOELECTRIC SCANNING ARRANGEMENT USING LIGHT CONDUCTING ROD WITH FLUORESCENT PORTION
Winfried Piepenbrink, Munich, and Erwin Sick, Icking, Isartal, Germany, assignors to Licentia Patent-Verwaltungs-G.m.b.H., Frankfurt am Main, Germany
Filed Dec. 11, 1964, Ser. No. 417,593
Claims priority, application Germany, Dec. 12, 1963, S 88,681
13 Claims. (Cl. 250—227)



1. An arrangement for scanning a material on a work path, said arrangement comprising, in combinaiton:
(a) a light source for projecting light toward the material; and
(b) means for picking up the light coming from the material, said pick-up means including an elongated element in the form of a generally cylindrical rod made of a light-conductive material and constituted in part of fluorescent material, said rod extending across the width of said work path and being provided with a longitudinal groove which is generally parallel with the line along which light coming from said work path strikes said element, there being arranged in said groove a further cylindrical rod, the latter being made of fluorescent material, and photosensitive receiver means located at at least one end of said element for producing a signal in response to the light which is picked up by said element and conducted toward said receiver means.

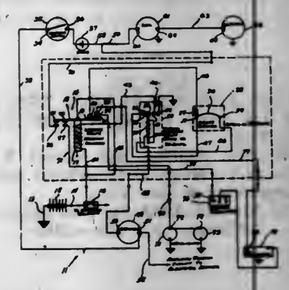
3,317,739
MICROSCOPE WITH PHOTOELECTRIC SCANNER FOR ACCURATELY DETERMINING THE POSITION OF A LINE
Philip M. Larraburu, Sherman Oaks, Calif., and Morris A. Suntop, Brighton, N.Y., assignors to Bausch & Lomb Incorporated, Rochester, N.Y., a corporation of New York
Filed Oct. 21, 1964, Ser. No. 405,467
10 Claims. (Cl. 250—232)

1. A photoelectric microscope for locating the center of a line on a scale at a reference position comprising, a scale having graduation lines spaced on a surface thereof, illuminating means for illuminating the surface of said scale, an optical system for viewing a line on said scale, a beam divider for dividing the beam of reflected light from said scale and focusing a portion of the beam of light to form an image of a portion of said scale on a focal plane, means for oscillating a wire stationarily secured at both ends approximately in said focal plane about a neutral position having a predetermined positional relation with respect to said reference position, a photosensor means sensing the magnitude of luminous flux projected through said focal plane and generating an elec-



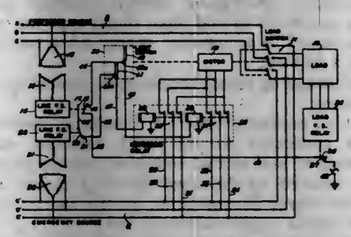
trical signal responsive thereto, an electrical readout system generating an indication when the image of the line on said scale is symmetrically positioned about said neutral position thereby establishing the precise location of the center of said line on said scale at said reference position.

3,317,740
ELECTRICAL FIRE GUARD
Stanley Saj, P.O. Box 222, 820 Brunner St., and Donald O. Burns, 1822 Rock St., both of Peru, Ill. 61354
Filed May 28, 1964, Ser. No. 370,880
7 Claims. (Cl. 307—39)



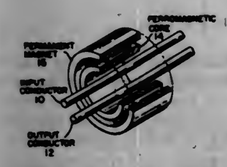
1. In a motor vehicle electrical circuit of the type including a battery, a headlight branch circuit, an ignition branch circuit and an auxiliary branch circuit, means normally connectng said headlight branch circuit, ignition branch circuit and auxiliary branch circuit to said battery and including a diode connecting said ignition branch circuit in parallel with said auxiliary branch circuit, means operating in response to a sustained overload current in said auxiliary branch circuit to disconnect the auxiliary branch circuit from the battery and to connect the ignition branch circuit and headlight branch circuit in parallel to the battery, said diode being polarized to prevent flow of current from the ignition branch circuit to the auxiliary branch circuit.

3,317,741
ELECTRICAL SWITCHING SYSTEM
James E. McClain, 1001 Park St., Greenville, Tex. 75401
Filed Nov. 1, 1963, Ser. No. 320,875
6 Claims. (Cl. 307—64)



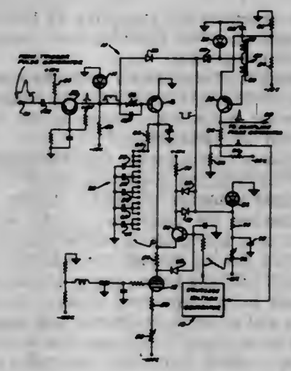
1. In an electrical power transmission system having a preferred source, an emergency source, a load circuit, and a load switch actuated by a motor to disconnect the preferred source and connect the emergency source to the load circuit when a critical fault occurs in the preferred source, the combination with said motor of a line fault sensing relay for the preferred source, a line fault sensing relay for the emergency source and a reversing relay, together with a source of current for the relays and the lines necessary to connect the relays to the motor to energize the motor automatically to cause it to move the load switch from its normal position to the emergency position responsive to fault conditions in the preferred source, said line fault sensing relay for the emergency source having a switch arranged to be opened if there is a critical fault in the emergency source, said switch being in series with a switch of the line fault sensing relay of the preferred source, whereby there will be no energizing of the motor, and hence no movement of the load switch, if there is a critical fault in the emergency source at the same time that there is a fault in the preferred source.

3,317,742
PULSE GENERATING APPARATUS
Fritz A. Guerth, 50 Lori Road, Camarillo, Calif. 93010
Filed Jan. 30, 1963, Ser. No. 255,136
11 Claims. (Cl. 307—88)



1. Apparatus for producing pulses which bear a desired time relationship to a cyclically-recurring input wave having leading and trailing edges the slope of which contains an appreciable horizontal component, and apparatus comprising:
(a) a magnetizable member composed of ferromagnetic material and characterized by the possession of a hysteresis loop having a rising portion which extends substantially vertically;
(b) a conductor to which said cyclically-recurring input wave is applied;
(c) said magnetizable member lying in the electromagnetic field of flux established around said conductor during the cyclic recurrence of said input wave;
(d) said input wave being of sufficient amplitude to induce periodic saturation of said member within a time period the duration of which is determined by the amount that the rising portion of the said hysteresis loop departs from the vertical;
(e) whereby the rapid change of flux in said member during saturation thereof will create a corresponding change in electromagnetic field intensity in the region immediately surrounding said member;
(f) means for biasing said magnetizable member so as to partially saturate the latter and hence shift, timewise along the slope of said input wave, the period during which said member is periodically saturated by said input wave; and
(g) means for detecting such change in field intensity in the form of an output pulse the width of which is determined by the duration of the said time period and the amplitude of which is an inverse function of such duration.

3,317,743
PULSE GENERATOR CIRCUIT
John V. Rogers, Portland, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg., a corporation of Oregon
Filed June 11, 1962, Ser. No. 201,457
9 Claims. (Cl. 307—88.5)



1. An electrical circuit for generating an output pulse at a predetermined time after the application of an input trigger pulse, comprising:
signal forming means for generating a ramp voltage and comparing said ramp voltage with a reference voltage to produce a difference signal when said ramp voltage exceeds said reference voltage;
first bistable control means connected to said signal forming means and adapted to change from one stable conductive state to another stable state in response to an input trigger pulse to start the generation of said ramp voltage;
second bistable control means connected to said signal forming means and adapted to change from one stable state to another stable state in response to said difference signal to produce an output pulse;
feedback means connected from said second control means to said first control means for transmitting a portion of said output pulse to said first control means in order to cause said first control means to change back to its one stable state and to stop the generation of said ramp voltage;
reversion means actuated by a portion of said output pulse for causing said second control means to change back to its one stable state; and

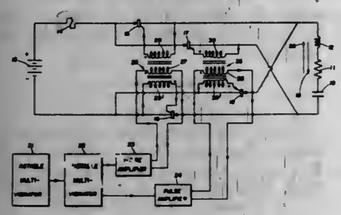
means responsive to said output pulse for changing said reference voltage by a predetermined amount for each output pulse received in order to vary said time between said input trigger pulse and said output pulse.

3,317,744

PULSE GENERATOR WITH CAPACITOR ALTERNATELY CHARGED BY D.C. PULSES THROUGH S.C.R. SWITCHING MEANS AND DISCHARGED THROUGH INDUCTOR

Maarten Geleynse, Clarkson, Ontario, Canada, assignor to Barringer Research Ltd.

Filed Aug. 8, 1963, Ser. No. 300,747
6 Claims. (Cl. 307—88.5)



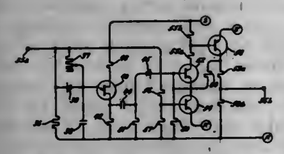
1. A pulse generator for energizing an inductive loop with high amplitude, time spaced current pulses of half sine waveform comprising:
(a) a capacitor which forms a normally open, underdamped, oscillatory circuit with the inductive loop,
(b) means for periodically supplying the oscillatory circuit with electrical energy,
(c) controllable switch means for periodically:
(i) completing the oscillatory circuit to initiate a damped sinusoidal oscillation therein,
(ii) opening the oscillatory circuit immediately after each half cycle of said oscillation whereby current flowing through the inductive loop consists of half sine pulses, energy in said oscillatory circuit being transferred between the inductive loop and the capacitor during said pulses whereby energy stored in the capacitor during a given pulse is added to the next successive pulse, and
(d) means for periodically activating said switch means to initiate said sinusoidal oscillation.

3,317,745

STATIC TIMING MEANS FOR PRODUCING AN OUTPUT CONTROL SIGNAL IF AN INPUT SIGNAL PERSISTS FOR A PREDETERMINED MINIMUM TIME INTERVAL

Leonard Scharf, Broomall, Pa., assignor to General Electric Company, a corporation of New York

Filed Nov. 4, 1963, Ser. No. 321,072
6 Claims. (Cl. 307—88.5)



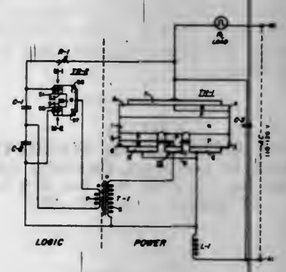
1. A timing circuit comprising:
(a) means for applying an input signal to the timing circuit;
(b) first normally inactive condition responsive means connected to the input signal applying means and arranged to be activated in response to said input signal being applied to the circuit and to be deactivated in response to the input signal subsequently being removed;
(c) normally deenergized electric energy storing means connected to said input signal applying means and arranged to accumulate energy when said input signal is applied;
(d) level detecting means connected to the energy storing means;
(e) second normally inactive condition responsive means connected to the level detecting means, activation of said second condition responsive means being initiated by the level detecting means whenever the energy accumulation by the energy storing means attains a predetermined level;
(f) means connected to the first and second condition responsive means for deriving a predetermined output control signal only while both condition responsive means are concurrently active; and
(g) feedback means interconnecting said output-control-signal-deriving means and said second condition responsive means for sustaining activation of the second responsive means, once initiated by said level detecting means, so long as said output signal is being derived.

3,317,746

SEMICONDUCTOR DEVICE AND CIRCUIT

Jearld L. Hutson, Richardson, Tex., assignor to Electronic Control Corporation, Euless, Tex., a corporation of Texas

Filed Dec. 10, 1963, Ser. No. 329,513
16 Claims. (Cl. 307—88.5)



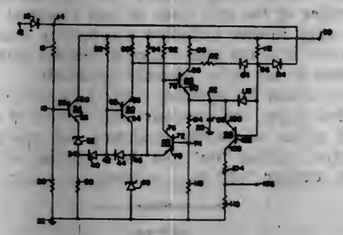
13. A switching circuit for developing a series of pulses having a predetermined phase relation to an A.C. power source comprising the source of A.C. power, a series circuit across said source of A.C. power comprising a variable resistance device, a first capacitor and a second capacitor, a circuit shunting said first capacitor comprising a first non-linear electrical impedance path conductive at one voltage level when biased in one direction and conductive initially at a higher level than said one voltage level and then at another level below said higher level when biased in the opposite direction and an inductance in series with said first non-linear electrical impedance path, a circuit shunting said second capacitor comprising a second non-linear electrical impedance path conductive at said one voltage level when biased in one direction and initially conductive at said higher level and then at said another level and said inductance in series with said second non-linear electrical impedance path, said switching circuit producing pulses across said inductance in synchronization with said source of A.C. power at a predetermined phase relation thereto.

3,317,747

DETECTION APPARATUS FOR INDICATING WHEN A VOLTAGE IS ABOVE OR BELOW NORMAL

John H. Bryant, Pinellas Park, Fla., assignor to Honeywell Inc., a corporation of Delaware

Filed Jan. 24, 1964, Ser. No. 339,979
3 Claims. (Cl. 307—88.5)



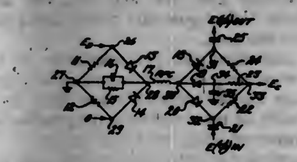
3. Voltage monitoring apparatus comprising, in combination:
first means for supplying an input voltage to be monitored;
reference voltage supplying means including first and second output means;
voltage dropping means connected to said first means;
switching means including input means and output means, said switching means providing an output whenever signals of predetermined relationships are applied to said input means;
second means connecting said first output means of said reference voltage supplying means to said input means of said switching means;
third means connecting said input means of said switching means to said first means, said switching means thereby providing an output when the input voltage to be monitored become less than a predetermined amount; and
high voltage detection means connected to said voltage dropping means, to said switching means and to said second output means of said reference voltage supplying means, said high voltage detection means providing an output of a potential such that said switching means is actuated to provide an output when the input voltage exceeds a predetermined potential.

3,317,748

EAST RESPONSE R-F SWITCHING MATRIX

Keith D. McDonald, Alexandria, Va., and Thomas S. Golden, Washington, D.C., assignors to the United States of America as represented by the Secretary of the Air Force

Filed Apr. 21, 1964, Ser. No. 361,601
2 Claims. (Cl. 307—88.5)



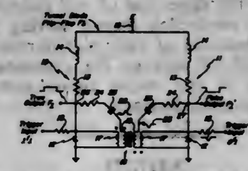
1. A diode switching circuit comprising:
(a) a source of bias voltage;
(b) an R-F choke;
(c) a signal input terminal;
(d) a signal output terminal;
(e) a pair of resistors connected in series between the signal input terminal and the signal output terminal, the junction of the two resistors connected to the bias source;
(f) a biasing resistor interposed between the single diode signal input and the signal output terminals, the junction of the two diodes connected to the R-F choke and the diodes being so poled that they are biased in the reversed direction;
(g) a single diode connected to the junction of said pair of diodes in series and to the bias source, said single diode being biased in the forward direction;
(h) a biasing resistor interposed between the single diode and the bias source;
(i) a grounded capacitor connected to the junction of said diode and biasing resistor;
(j) switching means connected to the remote terminal of said R-F choke for the application of a voltage to overcome the reverse bias and apply a forward bias to said diodes, the switching means comprising a source of switching voltage, a switching diode connected to the remote side of said R-F choke, a grounded resistor connected to the switching diode, wherein the switching voltage is connected to the junction of said resistor and said switching diode, said switching diode being poled so that the switching voltage applies a forward bias thereto;
(k) and means for isolating said switching means from said switching voltage.

3,317,749

TUNNEL DIODE FLIP-FLOP CIRCUIT HAVING MUTUALLY COUPLED INPUT CIRCUITS

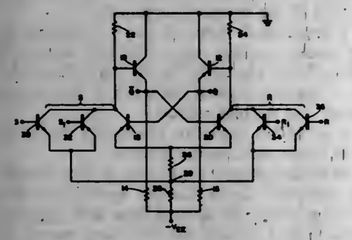
William Y. Wong, Los Angeles, Calif., assignor to The National Cash Register Company, Dayton, Ohio, a corporation of Maryland

Filed Apr. 30, 1964, Ser. No. 363,743
6 Claims. (Cl. 307—88.5)



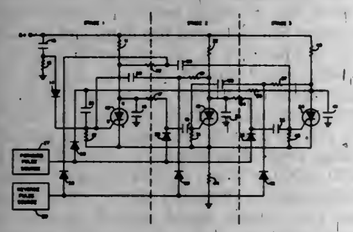
1. A flip-flop circuit comprising: bistable circuit means including a pair of separate bistable circuits connected in parallel to a current supply source and providing true and false outputs respectively for said flip-flop circuit, each of said bistable circuits including a negative resistance diode having regions of positive resistance separated by a region of negative resistance in its volt-ampere operating characteristics, and an element having a fixed resistance connected in series with said diode such that the diode has no stable point of operation in the region of negative resistance and has high- and low-voltage stable points of operation in the respective regions of positive resistance; input circuits for said flip-flop for receiving trigger signals to control the states of operation of said diodes, said input circuits including a transformer having a pair of primary windings, and a pair of secondary windings coupled to respective ones of said bistable circuits to produce both a positive-going switching signal and a negative-going switching signal, simultaneously, in response to a trigger signal applied to either one of said primary windings; and said bistable circuits being responsive to said switching signals to cause said negative resistance diodes in respective bistable circuits to switch simultaneously to opposite high and low-voltage states at said stable points of operation to produce high- and low-voltage level signals at said true and false outputs.

3,317,750
TAPPED EMITTER FLIP-FLOP
Jan A. Narud and Walter C. Seelbach, Scottsdale, Ariz., assignors to Motorola, Inc., Chicago, Ill., a corporation of Illinois
Filed Apr. 30, 1964, Ser. No. 363,959
9 Claims. (Cl. 307—88.5)



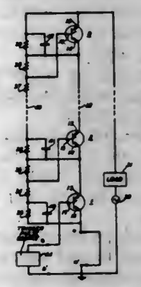
1. A bi-stable multivibrator including in combination, first and second emitter follower transistor circuits each including an output transistor, a resistance connected in series with the emitter of said output transistor, and an output circuit portion connected to the emitter of said output transistor and to said resistance; first and second holding transistor circuits each including a holding transistor having a collector connected to the base of one of said output transistors and having a base cross-connected to the emitter circuit of the other of said output transistors; first and second triggering circuits each including a triggering transistor having the emitter-to-collector path thereof connected between the emitter and collector of a corresponding one of said holding transistors, and an input circuit portion connected to the base of said triggering transistor; and a resistance connected to the emitters of said holding transistors providing a common current supply path for the same, one of said resistances having an intermediate connection therein serving to establish the switching threshold of said multivibrator at a level substantially midway between the extremes of output voltage supplied at said output circuit portions in the operation of said multivibrator.

3,317,751
REVERSIBLE RING COUNTER EMPLOYING CASCADED SINGLE SCR STAGES
John N. Libby, Burtonsville, and Harry D. Moore, Adelphi, Md., assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed May 4, 1964, Ser. No. 364,867
2 Claims. (Cl. 307—88.5)



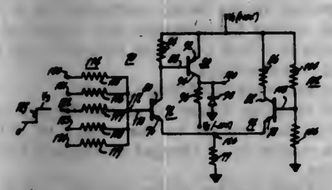
1. A reversible counter comprising:
a plurality of cascaded stages, each stage including as a switching device, a single silicon controlled rectifier having anode, cathode and gate electrodes, all of said cathodes being connected together to a source of reference potential through a common element having resistance;
the anode electrode of the silicon control rectifier of each stage being capacitor coupled to the gate electrode of the silicon control rectifier of the preceding and succeeding stages;
circuit means for applying a voltage to said cascaded stages, said voltage turning "on" the silicon control rectifier of the first stage of said cascaded stages;
each stage further including a capacitor connected in parallel with the silicon control rectifier between said circuit means and a reference potential;
control means for applying control pulses to said cascaded stages, the successive application of said control pulses selectively rendering the pulsed silicon control rectifier "on" and the preceding silicon control rectifier "off" in a sequential manner.

3,317,752
SWITCHING CIRCUIT UTILIZING BISTABLE SEMICONDUCTOR DEVICES
Paul Zak, Allentown, Pa., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed June 11, 1964, Ser. No. 374,348
5 Claims. (Cl. 307—88.5)



1. An electronic switch comprising, in combination:
a plurality of bistable semiconductor devices, each of said devices having an anode, a cathode and a gate electrode,
means for connecting the anode of each device to the cathode of the next succeeding device,
means for connecting a voltage source and utilization means between the cathode of a first of said devices and the anode of a last of said devices,
a voltage divider network connected between said cathode of said first device and said anode of said last device,
means for connecting the cathodes of the remaining devices between said first and said last device to progressively higher potential points along said voltage divider network,
means for connecting the gate electrode of said last and said remaining devices to potential points along said voltage divider network lower than the respective potentials of their corresponding cathodes,
means for reverse-biasing said first device,
means for applying trigger pulses to the gate electrode of said first device, and
capacitance means shunting elements of said voltage divider network, said capacitance means adapted for providing triggering current to said gate electrodes of said remaining and last devices in response to said trigger pulses.

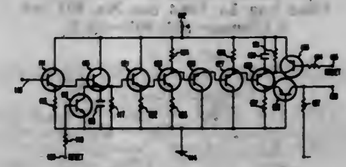
3,317,753
THRESHOLD GATE
Thomas R. Mayhew, Willingboro, N.J., assignor to Radio Corporation of America, a corporation of Delaware
Filed June 29, 1964, Ser. No. 378,695
4 Claims. (Cl. 307—88.5)



1. A threshold gate, comprising in combination:
first and second transistors of the same conductivity type with each having input, output and common electrodes,
an impedance device,
means connecting said transistors in parallel by coupling said output electrodes to a first common point and by coupling said connom electrodes through said impedance device to a second common point in said gate,
means for applying an energizing potential unconditionally across said transistors from said first common point to said second common point,
means coupled to the input electrode of said second transistor to bias said transistor to conduction to establish a threshold potential at the common electrode of said first transistor,
said threshold potential being of a polarity to render said first transistor nonconductive,
an input summing network for combining a plurality of input signals to produce a combined signal that increases substantially linearly for each additional input signal,
means coupling said input network to the input electrode of said first transistor to turn on said first transistor upon the application of input signals that create a combined signal potential greater than said first threshold potential,
the conduction of said first transistor establishing a reverse bias potential at the common electrode of said second transistor that is the only reverse bias potential applied to said second transistor from said first transistor, and
means for deriving from the output electrode of one of said transistors an output signal when said combined input signal exhibits a predetermined relation to said threshold potential.

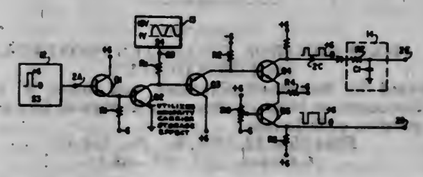
3,317,754
MAXIMUM AMPLITUDE PULSE SELECTOR
David J. Comer and Herman A. Ferrier, San Jose, Calif., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed July 2, 1964, Ser. No. 379,958
8 Claims. (Cl. 307—88.5)

8. Apparatus for receiving a series of electrical input pulses and providing an output signal each time the maximum voltage amplitude of one of said input pulses is greater than the maximum voltage amplitude of any of the preceding input pulses of said series, comprising:
an input terminal for receiving said input pulses;
a first storage capacitor;
a first switching means interconnecting said input terminal and said first storage capacitor, said first switching means being adapted to charge said first storage capacitor to a voltage corresponding to the maximum voltage level of each one of said input signals if said corresponding voltage is greater than the voltage level across said first storage capacitor;
transmission means having an input terminal connected to said first storage capacitor and having an output terminal, said transmission means being arranged to supply, at said output terminal, a voltage level corresponding to the voltage level appearing across said first storage capacitor;
a second storage capacitor;
output means; and



transistor means having three terminals, wherein one terminal is connected to said output of said transmission means, a second terminal is connected to said second storage capacitor, and a third terminal is connected to said output means, said transistor means being arranged to charge said second storage capacitor whenever the voltage amplitude at said output of said transmission means exceeds the voltage appearing across said second storage capacitor, and said output means being arranged to provide an output signal each time said transistor means charges said second storage capacitor.

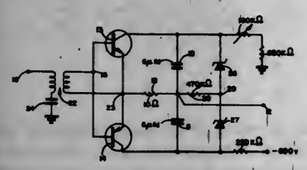
3,317,755
VARIABLE TIME-DELAY CIRCUIT EMPLOYING TRANSISTOR UTILIZING MINORITY-CARRIER-STORAGE EFFECT AND MODULATING A.C. SIGNAL-BIAS AT COLLECTOR FOR DETERMINING DELAY DURATION
Bruce E. Briley, La Grange Park, Ill., assignor to Automatic Electric Laboratories, Inc., Northlake, Ill., a corporation of Delaware
Filed July 31, 1964, Ser. No. 386,690
4 Claims. (Cl. 307—88.5)



1. A pulse width modulating circuit comprising:
a transistor having a base, emitter and collector electrode;
driver means connected to said base electrode and providing a train of pulse whose voltage alternates between a first value for saturating said transistor, whereby a large number of minority carriers are injected into the junction between said base and emitter electrodes, and a second value for initiating cutoff of said transistor, and
means connected to said collector electrode providing a modulating signal of the analog or slowly varying amplitude type, said modulating signal being dimensioned in relation to the other parameters of the circuit so that upon application of said second voltage, the immediate discharge of said injected carriers is prevented and the voltage at said collector electrode is caused to move towards a level near said

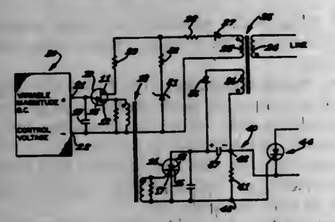
second voltage with a predetermined delay before moving in the direction of the instantaneous voltage of said modulating signal, each of said pulses of said pulse train alternately causing immediate saturation and delayed cut-off of said transistor, each said delay differing in duration in accordance with the amplitude of said modulating signal.

3,317,756
SIGNAL INTEGRATING APPARATUS
Eugene F. Laporte, Chino, Calif., assignor to North American Aviation, Inc.
Filed Aug. 24, 1964, Ser. No. 391,369
4 Claims. (Cl. 307—88.5)



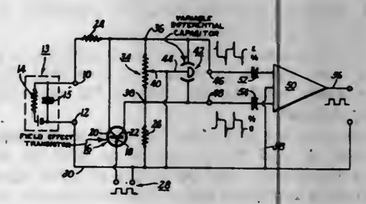
1. A pulse-signal integrator comprising:
a pair of series-interconnected capacitors connected across a D.-C. source of fixed potential, the interconnection of said capacitors forming an output terminal;
a low-impedance coupling resistor having one terminal connected to said output terminal as to be commonly in series R-C discharge circuit with each of said capacitors; and
a pair of complementary switching transistors having the control terminals thereof commonly connected by reactive impedance means to an input terminal adapted to be connected to a bipolar source of pulse input signals, the emitter-collector circuit of each said transistors being connected across a mutually exclusive one of said R-C circuits, whereby a selected one of said capacitors is shunted in response to a preselected polarity of a pulsed input applied to said input terminal.

3,317,757
PHASE CONTROL APPARATUS PROVIDING UNIFORM OUTPUT
Edward W. Buttenhoff, Excelsior, and James W. Ratz, Bloomington, Minn., assignors to Honeywell Inc., a corporation of Delaware
Filed Nov. 12, 1964, Ser. No. 410,638
6 Claims. (Cl. 307—88.5)



1. In combination
a unijunction transistor having a pair of base electrodes and an emitter electrode,
a transformer having a primary and a secondary winding,
first half wave rectification means,
first circuit means connecting said base electrodes through said primary winding and said first rectification means to a source of A.C. voltage in a manner to apply half wave energizing voltage to said base electrodes,
first capacitor means connected between said emitter electrode and one of said base electrodes, said first capacitor means being maintained in a discharged state during the alternate half cycles of the A.C. source in which operating voltage is not applied to said base electrodes,
second half wave rectification means,
second capacitor means connected through said second rectification means to the source of A.C. voltage in a manner to be charged during said alternate half cycles,
a controlled rectifier having cathode, anode and gate electrodes,
second circuit means connecting said secondary winding to said gate and cathode electrodes,
output load means,
and third circuit means connecting said cathode and anode electrodes through said output load means to said second capacitor means.

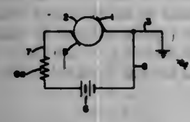
3,317,758
DRIFT-FREE D.C.-TO-A.C. CONVERTER EMPLOYING BALANCED LOOPS IN COMBINATION WITH SYMMETRICAL FIELD EFFECT TRANSISTOR
Alfred Nazareth, Jr., Rehoboth, and Walter I. Cook, Marblehead, Mass., assignors to The Foxboro Company, Foxboro, Mass.
Filed May 3, 1965, Ser. No. 452,618
8 Claims. (Cl. 307—88.5)



1. A converter for translating a D.-C. signal into an alternating signal having an amplitude proportional to the magnitude of said D.-C. signal, comprising a field effect transistor having gate, source, and drain electrodes, a source of alternating drive signals coupled to said gate electrode to drive said transistor between small and large impedance states repeatedly, a signal processing circuit loop including the source-drain path through said transistor, means for applying said D.-C. signal across said signal processing loop, means for deriving from said signal processing loop an alternating output signal responsive to the magnitude of said D.-C. signal, and circuit means coupling said gate electrode to said source and drain electrodes to provide equal impedance gate-to-source and gate-to-drain loops to balance offset voltages induced by said gate drive voltage.

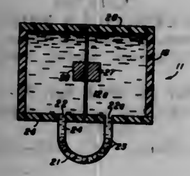
3,317,759
ROTATING ELECTRICAL CONTACTS
Lloyd P. Grobel, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York
Filed July 31, 1964, Ser. No. 386,602
3 Claims. (Cl. 307—145)

1. In a device of the type having a rotating conductive member at a first electrical potential and a primary brush in rubbing contact with said member connected to a stationary conductor at a second potential and carrying a low current, the improvement comprising:
a supplemental source of electrical current and a supplemental brush in rubbing contact with said member, said primary brush, supplemental brush and



said supplemental current source being connected in series to superimpose a supplemental current on said original current flowing between said member and said primary brush.

3,317,760
ELECTROLYTE-RESERVOIR COUPLER
George M. Coleman, 5614 Elk St., San Diego, Calif. 92114; Robert Rach, R.F.D. Box 828, Gales Ferry, Conn. 06335; and Jerome Frost Smith, Box 113, U.S.N. Hospital, Chelsea, Mass. 02150
Filed Oct. 31, 1963, Ser. No. 320,585
2 Claims. (Cl. 310—2)



1. An electrolyte-reservoir coupler for coupling physican phenomena to a U-effect tube, said coupler comprising;
a unitary inflexible housing with a flexible compliant liquid-tight diaphragm extending across said housing to define two side-by-side chambers so that movement of said diaphragm in either direction will differentially increase and decrease the pressure within the two chambers,
a U-effect tube having a passage of capillary size filled with alternate segments of dissimilar electrically conductive liquids, opposite ends of said passage communicating, respectively, with said two chambers,
a lead-in conductor to each of said chambers, and
means for displacing said diaphragm in response to said physical phenomena to, respectively, increase and decrease liquid pressure at said opposite ends of the tube passage to in turn change the potential between said lead-in conductors.

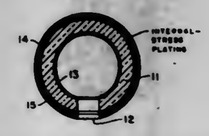
3,317,761
RESONANT AND ANTIRESONANT VIBRATORY MEMBERS ATTACHED TO A CRYSTAL
Dorothy M. Spears, Allentown, Pa., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed May 12, 1964, Ser. No. 366,908
6 Claims. (Cl. 310—8.2)

1. A piezoelectric device comprising a piezoelectric crystal adapted for resonance at a given principal frequency and which also exhibits at least one significant resonance at an unwanted frequency, at least one resilient support member for supporting at least a portion of said crystal at the periphery, the length of said resilient support member being substantially an odd number of quarter



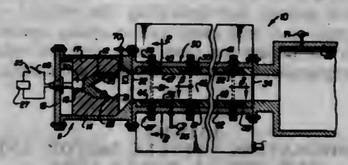
wavelengths of said principal frequency, and an even number of quarter wavelengths of said unwanted frequency.

3,317,762
PRE-STRESSED SPHERICAL ELECTRO-ACOUSTIC TRANSDUCER
Rudolph E. Corwin, Seattle, Wash., and Elbert A. Pence, Bourbonnais, Ill., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed May 22, 1964, Ser. No. 369,642
4 Claims. (Cl. 310—8.5)



1. An electro-acoustic transducer comprising:
(a) an electro-strictive ceramic shell of spherical configuration and having an access aperture therein,
(b) said ceramic shell having a first electrode extending continuously over its inner surface and a second electrode extending continuously over its outer surface,
(c) said ceramic shell being normally subject to tensile rupture upon application of excitation voltage exceeding a predetermined magnitude, and
(d) said second electrode comprising a metal coating applied by electro-deposition and characterized by comparatively high tensile stress therein and of suitable thickness to initially bias said ceramic shell in compression, whereby to enable safe application of excitation voltage exceeding said predetermined magnitude and resulting in acoustic power intensity increased beyond that normally possible.

3,317,763
PULSED ELECTRICAL POWER GENERATION
Robert C. Brumfield, Laguna Beach, Calif., assignor, by mesne assignments, to MHD Research, Inc., a wholly-owned subsidiary of Hercules Powder Company, a corporation of Delaware
Filed Apr. 2, 1964, Ser. No. 356,836
21 Claims. (Cl. 310—11)



1. Apparatus to produce a high power electrical pulse, comprising means for producing a high pressure burst of ionized gas and to travel said burst along a downstream path, said means including a combustion chamber, an explosive charge and solid organic material extending about the charge in the chamber and characterized as vaporizing

in response to charge explosion and as cushioning the explosive force transmitted toward the chamber wall, means to produce a magnetic field subject to sudden disturbance by said gas travel, and means for effecting generation of said electrical power pulse in response to said field disturbance.

3,317,764
RECIPROCATING TYPE ELECTRIC TOOL
Albert J. Dremel, Racine, Wis., assignor to Dremel Manufacturing Company, Racine, Wis., a corporation of Wisconsin
Filed May 21, 1964, Ser. No. 369,069
6 Claims. (Cl. 310—17)



4. A hand-manipulated electric-actuated tool of the reciprocating stroke type comprising a housing having two openings therein, an electric coil disposed within said housing for producing a magnetic field in response to the alternating current applied to said electric coil, a magnetically attracted plate movably mounted in said housing adjacent said electric coil within the magnetic force of the latter and being reciprocable toward and away from the latter, a working member operatively abutting said plate to reciprocate with the latter and being supported on said housing and extending therefrom through one of said two openings, a spring disposed intermediate said working member and said housing for urging said working member toward said plate in the direction of the latter's movement away from said electric coil, a cam rotatably mounted on said housing with the axis thereof extending across said plate to the side thereof opposite said electric coil for selectively limiting the movement of said plate away from said electric coil under the urging of said spring according to the rotated position of said cam for controlling the stroke of said working member, a selector knob keyed to said cam for rotating the latter and having a flange on the interior of said housing surrounding the other of said openings for retaining said knob in said housing and with said flange and said housing having notch and projection means therebetween and with said knob extending through said other of said openings and having a pointer thereon, a scale on said housing adjacent said pointer for indicating the rotated position of said knob and said cam, and a spring operative on said knob for urging the latter outwardly of said housing into engagement of said notch and projection means.

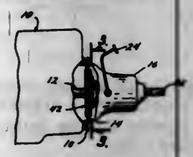
3,317,765
COMBINATION VEHICLE MOTOR AND ELECTRICAL POWER UNIT
William H. Cone, 3177 Golding Green Drive, Dallas, Tex. 75234
Filed Apr. 20, 1964, Ser. No. 361,193
4 Claims. (Cl. 310—74)

1. In combination with a vehicle engine having a block, a flywheel housing, and a rotatable driveshaft extending from the block into said flywheel housing,

electrical field windings mounted on the inner periphery of said flywheel housing and adapted to be connected to a source of electrical energy, and adapted to create a magnetic field upon being connected to said source,

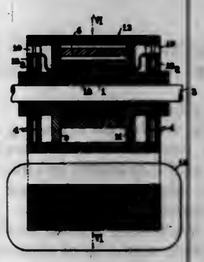
output windings in said magnetic field mounted on the inner periphery of the flywheel housing and adapted to be connected to an electrical load,

a flywheel rotor rigidly secured to said driveshaft within said flywheel housing, a vehicle transmission operatively secured to said flywheel rotor,



said flywheel rotor including a plurality of spaced apart teeth on the periphery of the rotor whereby the rotation of said rotor by said driveshaft will cause said teeth to vary the permeance of said magnetic field to induce an alternating electromotive force in said output windings; said flywheel being entirely free from engagement with any electrical windings.

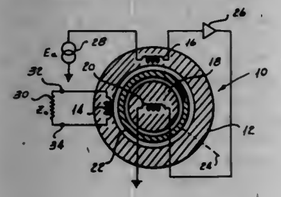
3,317,766
SYNCHRONOUS MOTORS
Jacques Paul Benea, Neuilly-sur-Seine, France, assignor to Berex Establishment, Vaduz, Liechtenstein, a company
Filed May 18, 1964, Ser. No. 368,078
Claims priority, application Switzerland, May 21, 1963, 6,397/63
2 Claims. (Cl. 310—163)



1. Synchronous motor comprising in combination a rotor comprising a shaft, an annular permanent magnet rigid with said shaft, said annular permanent magnet having a radial magnetization forming a north and a south pole each extending respectively along an angle of 120 degrees, two three-armed magnetically retentive elements disposed at spaced angular intervals along the rotor periphery, said elements being disposed on either side of said annular permanent magnet and mounted for loose rotation on said rotor shaft, means providing an elastic coupling between said annual permanent magnet and said three-armed elements to permit an angular free motion of predetermined amplitude between said annular permanent magnet on the one hand and said two three-armed elements on the other hand, and a stator comprising a magnetic core, an excitation coil carried by said core, a pair of first arms and a pair of second arms at the ends of said core, said pairs of first and second arms registering with each other and having pole faces at their ends to determine the magnetic gap in which said rotor is located, said first pair of arms being disposed

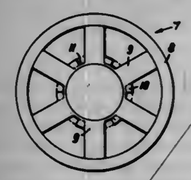
symmetrically to each other in relation to the axis of rotation and said second pair of arms being also disposed symmetrically to each other in relation to said axis of rotation, a phase-shift ring carried by each one of said first arms, said pair of first arms having at their ends cylindrical pole faces having in turn a cross-sectional configuration in the form of circula rarcs about 90-degrees long and concentric to the rotor axis, said pair of second arms having end pole faces of partially diamond-shaped cross-sectional configuration which merge into said pair of circular arcs, whereby said magnetic gap taken as a whole has the shape of a lozenge having two rounded opposed vertices.

3,317,767
COMPENSATED TACHOMETER
Joseph Zeman, Bay Shore, N.Y., assignor to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
Filed Feb. 12, 1963, Ser. No. 257,924
9 Claims. (Cl. 310—166)



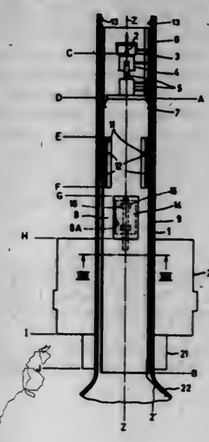
1. A tachometer including in combination an input winding, an output winding, means mounting said input and output windings in spaced relationship with an air gap therebetween, means for applying an input voltage to said input winding to produce a flux in said air gap, a rotor, means mounting said rotor for rotary movement in said air gap to cut said flux to cause a speed voltage to be generated therein, said speed voltage inducing an output voltage in said output winding, said output voltage producing a counter voltage in said rotor and means for modifying said input voltage to overcome the effect of said counter voltage.

3,317,768
MOTOR
Joseph Ludemann and Heinz Hellmann, Oldenburg, Germany, assignors to Licentia Patent-Verwertungs-G.m.b.H., Frankfurt am Main, Germany
Filed July 5, 1961, Ser. No. 121,900
Claims priority, application Germany, July 11, 1960, L 36,546
8 Claims. (Cl. 310—218)



1. A stator for alternating current motors, comprising at least one pair of lamination means, said lamination means being similar to each other and each having a main pole portion through whose center passes a radially extending reference axis and a portion which renders the respective lamination means unsymmetrical with respect to its own reference axis, said lamination means being stacked with their reference axes in alignment with each other, one of said lamination means having its portion of unsymmetry extending clockwise with respect to its reference axis and the other of said lamination means having its portion of unsymmetry extending counter-clockwise with respect to its reference axis so that portions of unsymmetry of said two lamination means are out of alignment with each other, each lamination means comprises poles each provided with two lateral projections one extending clockwise and the other counter-clockwise with respect to the reference axis, one of said projections being larger than the other, so much of said one projection which exceeds said other projection in size constituting said portion of unsymmetry.

3,317,769
CATHODE-RAY TUBE HAVING A QUADRIPOLE ELECTROSTATIC FOCUSING LENS
Keith Eric Johnson, Smallfield, near Horley, Surrey, England, assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
Filed Oct. 14, 1963, Ser. No. 315,803
2 Claims. (Cl. 313—89)

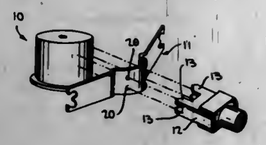


1. A cathode-ray tube including an electron gun and beam focusing means having a common optical axis, said focusing means being constituted by a quadripole electrostatic electron lens structure comprising a tubular conductive outer electrode system, a first pair of conductive plates having inwardly concave cross-sections and insulated from the outer system and located therein so as to be symmetrically disposed on either side of a first axial plane while being symmetrically intersected by a second axial plane normal to said first plane, and a second pair of conductive plates also having inwardly concave cross-sections and insulated from the outer system and located therein so as to be symmetrical with respect to the same two axial planes but in quadrature with respect to the first pair and spaced therefrom in the axial direction so as to be farther from the gun.

3,317,770
CATHODE RAY TUBE ELECTRON GUN AND SUPPORT THEREFOR
Chester O. Merchant, Owensboro, Ky., assignor to Kentucky Electronics Inc., Owensboro, Ky., a corporation of Kentucky
Filed Jan. 28, 1966, Ser. No. 523,715
2 Claims. (Cl. 313—82)

1. In an electrode component for use in a cathode ray tube, said electrode component including an electrode body comprising a cylinder for processing the cathode

ray beam and a mounting member having a thin-walled contoured face of constant thickness formed to fit the cylindrical configuration of said body for mounting thereon to serve as a strap for holding the body in place in said cathode ray tube, the improvement comprising a plurality of embossed projections formed in said mounting member, said projections including raised surface portions of substantially equal height extending from the contoured face of said mounting member to contact the outer cylindrical surface of said body, said thin-walled face having corresponding recessed surface portions on the opposite



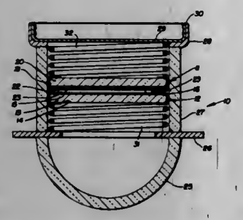
face from the embossed projections and welds formed between said cylinder and the mounting member with both members having a heated interface only in the regions of each of said embossed projections which extend only into the outer surface of the electrode body leaving the inner surface of said cylinder undeformed, with said contoured face of said mounting member being positioned in substantially face-to-face contact with the outer cylindrical surface of said body over a substantial portion of the mounting member outside the region of said welds comprising unheated interfaces surrounding each weld.

3,317,771

PHOTO-EMISSIVE ELECTRON DEVICE

Paul D. Williams, Portola Valley, Calif., assignor, by mesne assignments, to Varian Associates, a corporation of California

Filed Oct. 31, 1963, Ser. No. 320,314
5 Claims. (Cl. 313—94)



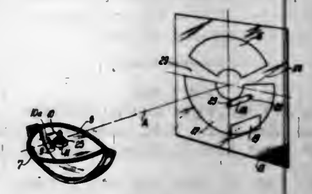
1. An electron discharge device comprising an envelope having a cylindrical dielectric side wall, an electrically conductive closure member attached to one end of said cylinder, an electrically conductive terminal ring attached to the other end of said cylinder, a transparent closure member attached to said terminal ring, a transparent anode disk in said cylinder, said disk having a transparent electrically conductive coating on its surface facing away from said transparent closure member, means forming an electrical connection between said transparent conductive coating and said terminal ring, a cathode disk between said anode disk and said conductive closure member, said cathode disk having a photoemissive surface facing said anode, dielectric spacing material between and abutting said disks, and means forming an electrical connection between said photo emissive surface and said closure member.

3,317,772

HEADLIGHT ARRANGEMENT FOR AUTOMOTIVE VEHICLES INCLUDING A REFLECTOR AND A LIGHT SHIELD MEANS

Gerhard Lindae, Fellbach, Wurttemberg, Germany, assignor to Robert Bosch G.m.b.H., Stuttgart, Germany

Filed May 5, 1964, Ser. No. 365,041
Claim priority, application Germany, May 7, 1963, B 71,785
23 Claims. (Cl. 313—113)



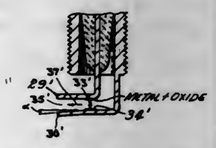
1. In a headlamp arrangement for automotive vehicles and the like adapted to travel on a ground plane and including at least two headlights having each a reflector having an optical axis parallel to said ground plane and a source of light therein, in combination, in each headlight at least one filament for dim light located at a predetermined distance in front of the focus of the respective reflector and extending along a line substantially normal to said ground plane and intersecting said optical axis; and elongated opaque shield means located at least partly in the rear of said filament and at least partly surrounding the latter and having an upper edge at least the rear portion of which is located at a level not about said optical axis and at least a portion of which extends in a plane substantially parallel to said ground plane.

3,317,773

SPARK PLUG HAVING AN ELECTRODE INCORPORATING AN ELECTRONEGATIVE MATERIAL

Kiyoshi Inoue, 182 3-chome, Tamagawayoga-machi, Setagaya-ku, Tokyo-to, Japan

Filed May 17, 1963, Ser. No. 281,365
Claims priority, application Japan, June 11, 1962, 37/23,327; Oct. 19, 1962, 37/46,309; Nov. 30, 1962, 37/52,671; Jan. 25, 1963, 38/3,499; Feb. 15, 1963, 38/7,924
4 Claims. (Cl. 313—141)



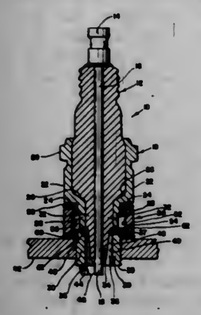
1. A sparkplug for an internal-combustion engine, comprising a generally cylindrical insulating body and a pair of spaced-apart electrodes mounted upon said body, said electrodes having extremities extending codirectionally generally transversely to the axis of said body to form therebetween an elongated spark gap transverse to said axis, said electrodes including a first electrode extending generally centrally through said body and a second electrode outwardly from said first electrode, said extremities having a region of closest approach in the vicinity of said axis and diverging outwardly therefrom, at least one of said electrodes consisting essentially, at least in said region, of a copper sparking element having between 1 and 10 weight percent cuprous oxide in solid solution therein.

3,317,774

SELF-CLEANSING SPARK PLUG WITH GAS FLOW DIRECTING MEANS

Lewis J. Hamilton, Redmond, Wash., assignor to Instant Secretary Service, Inc., Portland, Oreg., a corporation of Oregon

Filed Mar. 2, 1965, Ser. No. 436,482
10 Claims. (Cl. 313—143)



1. A sparkplug, comprising: (a) an elongate insulator having an upper end and a lower end and a center electrode extending generally axially therethrough, said insulator having a main section and an intermediate section of reduced diameter below said main section defining an inwardly offset portion and also having an end nose section below said intermediate section out of which nose extends said center electrode; (b) said sparkplug also including a metal body configured to encase the main and intermediate sections of said insulator and to include a generally radially inwardly extending external and generally downwardly facing shoulder means, said metal body also being spaced from and enveloping said insulator nose section to define an annular cavity between said nose portion and said metal body; (c) a ground electrode connected to the lower end of said metal body and spaced from said center electrode to define a spark gap with respect to said center electrode; (d) an adapter ring removably received on said sparkplug sealingly abutting said shoulder and surrounding the reduced diameter intermediate portion of said metal body to define an annular chamber between said adapter ring and said metal body, said adapter ring being adapted to sealingly engage a motor block and thereby close said chamber to the atmosphere; and (e) at least one hole in said metal body communicating between the upper end of said annular cavity and said chamber.

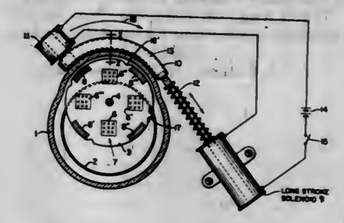
3,317,775

CATHODE RAY TUBE HAVING INTERNAL MOVABLE CARRIAGE WITH PLURAL MATRIXES OF BEAM-SHAPING APERTURES

John H. Brown, Leucadia, Calif., assignor, by mesne assignments, to Stromberg-Carlson Corporation, Rochester, N.Y., a corporation of Delaware

Filed July 17, 1964, Ser. No. 383,385
4 Claims. (Cl. 313—152)

3. In a shaped-beam cathode-ray tube, an electron gun for directing a stream of eletrons to a character-forming portion of said tube, a movable carriage within said tube for bearing at least two beam-shaping matrices located in different areas of said carriage, and means for moving said carriage to selectively present said matrices to said character-forming portion within said tube, said carriage including a portion of magnetic material and said means for moving said carriage including a solenoid, an electromagnet adjacent to the outside wall of said tube for exerting a force upon said portion of magnetic material by creating magnetic flux which passes through the wall of said tube upon the energization of said electromagnet, and means for coupling said electromagnet to the plunger of said



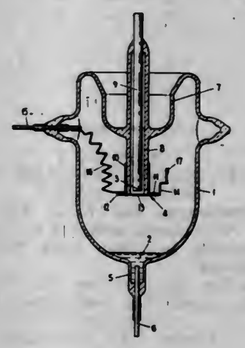
solenoid to cause the movement of said electromagnet and hence said carriage upon the actuation of said solenoid.

3,317,776

TRIGGERED ARC DISCHARGE DEVICE HAVING A LIQUID CATHODE

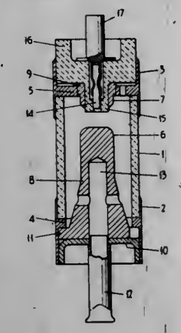
Raymond Ernest Brittain, Sutton, and William Robert Mayberry, Hounslow, England, assignors to The M-O Valve Company Limited, London, England

Filed May 18, 1964, Ser. No. 368,201
Claims priority, application Great Britain, May 20, 1963, 19,949/63
7 Claims. (Cl. 313—170)



1. An electric discharge device having a sealed envelope within which are disposed: a cathode in the form of a pool of conducting liquid; an anode which is effectively in the form of an end portion of a metal rod which is disposed coaxially within a tubular insulator, the insulator being spaced from the rod over a length of the rod contiguous with said end portion; and a trigger electrode interposed between the anode and cathode, the trigger electrode being effectively in the form of a tubular metal member which is closed at one end by a metal closure member, the tubular metal member being supported at its open end from the insulator so as to be disposed coaxial with the rod and with its closed end spaced from said end portion of the rod, the closure member being apertured to permit the passage of a discharge between the anode and cathode; the spacing between the closure member and the adjacent end of the rod lying in the range 0.5–2 millimetres and the spacing between the rod and the tubular metal member lying in the range 1–4 millimetres; the envelope having a low pressure gas filling whose pressure has a value within the range 0.3–1.0 times P, where P is that pressure of gas filling for which the value of the anode breakdown voltage would be five kilovolts in a device of identical construction and having a low pressure gas filling of the same composition.

3,317,777
ELECTRIC DISCHARGE DEVICES
Leslie Ernest Algar, Wembley, and Kenneth George Cook, Northwood, Middlesex, England, assignors to The M-O Valve Company Limited, London, England
Filed Aug. 20, 1963, Ser. No. 303,259
Claims priority, application Great Britain, Aug. 23, 1962, 32,523/62
5 Claims. (Cl. 313—182)



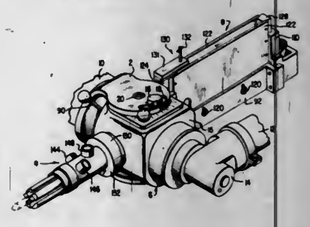
1. An electric discharge device having a sealed envelope within which are disposed a pair of main electrodes, providing between them a spark gap, and a trigger electrode for initiating a discharge between the main electrodes, the envelope having a high pressure gas filling consisting essentially of a mixture of nitrogen and at least one gas selected from the group consisting of xenon and argon in which the partial pressure of nitrogen constitutes between 10 and 90% of the total pressure.

3,317,778
GREEN RADIATION LAMP FOR OPTICAL MASER
Abraham Timmermans and Taeke Tol, Emmasingel, Eindhoven, Netherlands, assignors to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
Filed Jan. 30, 1964, Ser. No. 341,314
Claims priority, application Netherlands, Feb. 8, 1963, 288,714
3 Claims. (Cl. 313—225)



1. A source of radiation for supplying radiation energy lying at least in part in the green region of the visible spectrum and required for emission from a medium of an optical maser comprising a forced cooled high-pressure mercury-vapor discharge lamp including a light-transmissible tubular envelope, a pair of spaced electrodes therein, and a filling of mercury, a noble gas, thallium and a halogen within the envelope for maintaining a discharge between the electrodes, said electrodes being spaced apart in said envelope a distance which is at least five times the inner diameter of the envelope, said tube having a wall load under operating conditions of between 200 and 1200 watts/cm.², said filling containing a quantity of mercury between 0.5 and 5.0 mgs./cm. of the spacing between the electrodes, the quantity of thallium present being between 0.25 and 1.5 mgs./cm. of the spacing between the electrodes, the amount by weight of mercury divided by the amount by weight of thallium being between 1 and 5, the quantity of halogen present in the filling being between 80% and 150% of the quantity required to bind the whole quantity of thallium in monovalent form, the noble gas having at room temperature a pressure between 50 and 150 mms. Hg, and the voltage gradient between the electrodes being between 80 and 300 v./cm.

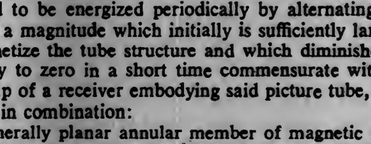
3,317,779
ELECTRODE FEEDING SYSTEM FOR ELECTRIC ARC TORCHES
Harold R. Henderson, Lancaster, Ohio, assignor to Arcair Company, Bremerton, Wash., a partnership
Filed Feb. 12, 1964, Ser. No. 344,346
6 Claims. (Cl. 314—5)



1. An electric arc torch comprising a housing; nozzle means attached to one side of said housing; a hopper attached to the opposite side of said housing for storing a plurality of electrode sections; a conveyer extending along the bottom length of said hopper and into said housing for conveying electrode sections from said hopper into said housing; means resiliently urging electrode sections stored in said hopper into frictional engagement with said conveyer means in said housing for feeding electrode sections from said conveyer to said nozzle, said feeding means comprising a block mounted in said housing for rotation about an axis extending perpendicular to the path of movement of the electrode sections between said conveyer and said nozzle; a pair of spaced feeding wheels rotatably mounted on said block, the axes of rotation of said wheels extending parallel to, and lying on either side of said axis of rotation of said block; means for rotating said block to move said wheels into engagement with an electrode section placed between said wheels, and means commonly rotating said wheels to feed electrode sections to said nozzle means at a first linear rate and driving said conveyer to convey electrode sections to said wheels at a second linear rate greater than said first linear rate.

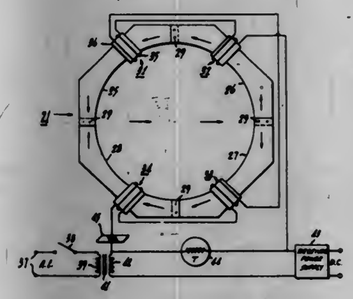
3,317,780
TRAVELING WAVE TUBE APPARATUS
Walter Revis Ayers, Sunnyvale, Calif., assignor to Varian Associates, Palo Alto, Calif., a corporation of California
Filed June 25, 1962, Ser. No. 204,952
8 Claims. (Cl. 315—3.5)

1. A fluid-cooled traveling-wave tube comprising, in combination,
(a) a cathode,
(b) an anode,
(c) a collector electrode,
(d) means interposed between said anode and said collector electrode for producing interaction between a radio frequency wave and an electron beam traveling from said cathode to said collector,
(e) a tubular body portion surrounding said means for producing interaction,
(f) said collector electrode provided with cooling fluid passageways,
(g) a tubular body cooling sleeve surrounding said tubular body portion,
(h) means for closing the ends of said body cooling sleeve about said body portion to provide a chamber surrounding said body portion,



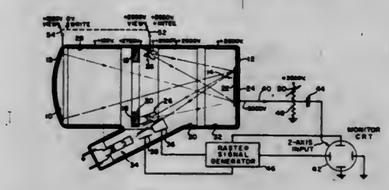
(i) means for connecting said chamber surrounding said body portion with said cooling fluid passageways of said collector electrode,
(j) means for passing cooling fluid to and from said chamber and said passageways of said collector for cooling said tube, and
(k) radio frequency coupling means for transferring electromagnetic energy between said interaction means of said tube and externally of said tubular body cooling sleeve which surrounds said tubular body portion, said radio frequency coupling means being electrically isolated from cooling fluid present in said chamber.

3,317,781
TELEVISION DEGAUSSING APPARATUS
Robert L. Barbin and Jerrold K. Kratz, Indianapolis, Ind., assignors to Radio Corporation of America, a corporation of Delaware
Filed Dec. 19, 1963, Ser. No. 331,668
4 Claims. (Cl. 315—8)



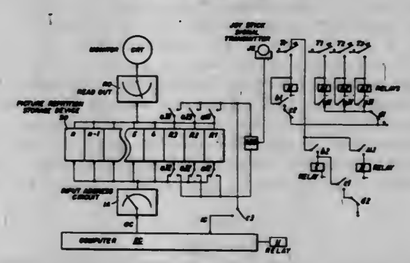
1. Degaussing apparatus for a television picture tube adapted to be energized periodically by alternating current of a magnitude which initially is sufficiently large to demagnetize the tube structure and which diminishes effectively to zero in a short time commensurate with the warm-up of a receiver embodying said picture tube, comprising in combination:
a generally planar annular member of magnetic material mounted rearwardly of the screen of said picture tube, perpendicular to the axis of said tube and surrounding the conical portion of said tube;
a plurality of pairs of coils wound about said annular member at points spaced about the periphery of said member, said coils respectively enveloping different radial cross sections of said annular member; and
means connecting the coils of each pair to said source of alternating current in a manner to aid one another in the production of magnetic flux in those portions of said annular member adjacent to said coils.

3,317,782
IMAGE INTENSIFIER STORAGE TUBE
Robert H. Anderson, Portland, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg., a corporation of Oregon
Filed Aug. 12, 1963, Ser. No. 301,399
9 Claims. (Cl. 315—11)



1. An image intensifier device, comprising:
writing means including a photocathode, for emitting electrons in response to the irradiation of said photocathode with light;
storage means including a bistable storage target for storing the charge image produced on said target by the bombardment of said target with high velocity electrons from said writing means; and
means for bombarding said target with low velocity electrons to cause bistable storage of a charge image on said target corresponding to a light image received by said photocathode.

3,317,783
PICTURE TUBE WITH SYMBOL DISPLACEMENT BY MANUALLY ACTUATED SIGNAL GENERATOR
Hansjörg Neumeister, Essen, Germany, assignor to Telefunken Patentverwertungsgesellschaft m.b.H., Hannover-Linden, Germany
Filed Feb. 12, 1964, Ser. No. 351,589
Claims priority, application Germany, Feb. 12, 1963, T 23,503
7 Claims. (Cl. 315—26)



1. A device for producing beam deflection signals for a picture screen tube, comprising, in combination:
picture repetition storage means including at least one register, the contents of which can be directly removed for obtaining beam deflection signals;
computer means having its output connected to said storage means for providing beam deflection data;
manually actuated signal generator means; and

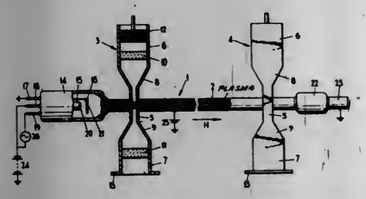
adder-subtracter means arranged for connection to receive the output of said generator means and the output of said register and to feed its output to the input of said register.

3,317,784

TRAVELLING WAVE TUBE USING A PLASMA-FILLED WAVEGUIDE AS A SLOW WAVE STRUCTURE

Ronald Leslie Ferrari, Stanmore, England, assignor to The M-O Valve Company Limited, London, England

Filed Aug. 2, 1963, Ser. No. 299,520
Claims priority, application Great Britain, Aug. 10, 1962, 30,782/62
3 Claims. (Cl. 315—39)



1. A travelling wave tube for use as an amplifier, including a sealed envelope filled with gas, a length of hollow metal waveguide the whole of the interior of which forms part of the interior of the envelope, a first radio frequency connector for feeding an input signal to the waveguide, a second radio frequency connector for deriving an output signal from the waveguide, the two connectors being spaced apart along the length of the waveguide, and an electron gun for projecting an electron beam along the length of the interior of the waveguide so as to pass the first and second connectors in that order, the electron gun being capable of providing an electron beam of sufficient density to generate within the waveguide, by ionisation of the gas therein, a plasma of density such that, with the waveguide disposed in a magnetic field directed substantially parallel to its longitudinal axis, the plasma frequency is at least as great as the cyclotron frequency corresponding to said magnetic field, and the waveguide is capable of propagating space charge waves in a forward wave mode over a range of frequencies extending below both the cyclotron frequency corresponding to said magnetic field and the normal cut-off frequency of the waveguide in the absence of the plasma, and the pressure of the gas filling lying within a range such that, with a given set of operating conditions involving appropriate values of the strength of the magnetic field, the mean velocity and density of the electron beam, and the electrostatic potential difference between the waveguide and the cathode of the electron gun and with an input signal having an appropriate frequency within said range of frequencies applied to the first connector, there may be obtained at the second connector an amplified output signal which is not masked by oscillations generated in the tube.

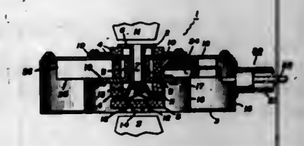
3,317,785

MAGNETRON ASSEMBLY HAVING DIELECTRIC MEANS, EXTERNAL TO ENVELOPE, FOR SETTING THE CENTER OPERATING FREQUENCY

Charles J. Truax, Ballston Lake, N.Y., assignor to General Electric Company, a corporation of New York

Filed Jan. 7, 1963, Ser. No. 249,721
5 Claims. (Cl. 315—39.77)

1. In combination, an interdigital structure magnetron, said magnetron including an evacuated envelope having a longitudinally spaced pair of anode terminals sealed through the wall of said envelope and separated by an insulative section of said wall, said anode terminals being connected to said interdigital structure, a radio frequency circuit comprising a pair of spaced, parallel conductors each electrically contacting one of said anode terminals



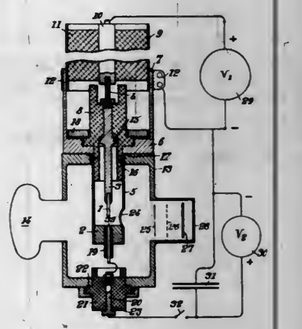
and means for controlling the center operating frequency of said circuit comprising a dielectric element disposed externally of and about said magnetron envelope between said anode terminals, said dielectric element extending peripherally about said evacuated envelope for at least about 180°.

3,317,786

LIGHT SOURCE EMITTING A CONTINUOUS SPECTRUM IN THE EXTREME ULTRA-VIOLET RANGE

Jacques Romand, Bourg-la-Reine, Boris Vodar, Paris, and Germaine Balloffet, Charenton, France, assignors to Centre National de la Recherche Scientifique, Paris, France, a society of France

Filed Apr. 23, 1962, Ser. No. 189,447
Claims priority, application France, Apr. 27, 1961, 860,084
4 Claims. (Cl. 315—58)



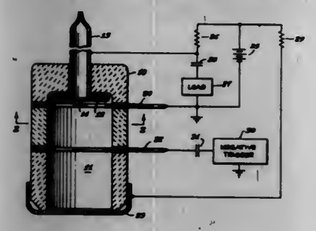
1. A light source for spectral analysis, capable of emitting a continuous spectrum ranging from visible light wavelengths to the shortest extreme ultra-violet wavelengths, this source comprising, in combination, means forming a high vacuum chamber, a main anode and a cathode located in said chamber at a distance from each other, an auxiliary anode mounted in said chamber in proximity of said cathode, electric means for producing a starting spark between said auxiliary anode and said cathode and an electric circuit, comprising a capacitor having its conducting surfaces connected with said main anode and said cathode respectively, for producing a spark between said two last mentioned electrodes, said electric circuit having an inductance lower than 0.1 microhenry and the inductance to capacity ratio of said circuit being lower than 0.2 henry/farad so as to give off in the spark an amount of energy per unit of volume sufficiently great to produce a continuous spectrum on the anode or in the vicinity thereof.

3,317,787

ELECTRONIC SWITCH WITH MEANS TO HALT THE FLOW OF ELECTRONS TO INITIATE AN ARC DISCHARGE

Robert Creveling, 1415 Park Ave. SW., Albuquerque, N. Mex. 87104

Filed Mar. 16, 1964, Ser. No. 351,945
17 Claims. (Cl. 315—168)



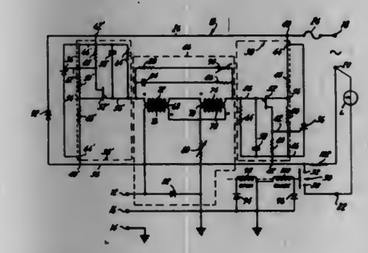
1. An electronic switch comprising within an envelope:
an ionizable atmosphere;
a first electrode, maintained at a highly positive potential;
a second, perforated electrode maintained at a lower potential than the first and spaced therefrom on one side;
means establishing a D.C. glow discharge on the other side of the second electrode with electron flow away from the second electrode;
and means for halting the flow of electrons, thereby initiating an arc discharge within the envelope.

3,317,788

LIGHTING CONTROL CIRCUIT WITH A SINGLE WIRE FROM A D.C. SOURCE CONTROLLING A PAIR OF SATURABLE REACTORS THAT REGULATE DOUBLE BASED DIODE RELAXATION OSCILLATOR FIRING NETWORKS FOR INVERSE PARALLEL SILICON CONTROLLED RECTIFIERS

David H. Lockie, New Haven, Conn., assignor to ZTX Lighting, Inc., a corporation of New York

Filed Sept. 23, 1964, Ser. No. 398,505
6 Claims. (Cl. 315—194)



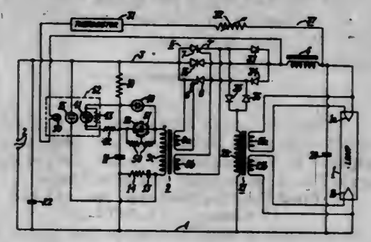
1. A circuit for controlling the power supplied to an incandescent lamp load by regulating the interval of current conduction of each half cycle of an alternating current supply, comprising:
(A) an alternating current supply;
(B) a pair of input leads connected in circuit with the alternating current supply;
(C) an incandescent lamp load series connected between one of said input leads and the alternating current supply;
(D) a pair of silicon controlled rectifiers connected in inverse parallel across said input leads;
(E) a first and a second firing circuit means connected in inverse relation across said input leads so that said first firing circuit means exercises control over an associated one of said silicon controlled rectifiers in one half of each cycle of the alternating current supply and said second firing circuit means exercises control over the associated other silicon controlled rectifier in the other half of each cycle of the alternating current supply, each of said firing circuit means including
(I) a double based diode having two bases and an emitter,
(II) circuit means connecting one base to one of said input leads,
(III) a first resistor connected in circuit with the other base and the other input lead,
(IV) a capacitor and a second resistor connected in circuit with the emitter and said other input lead, and
(V) circuit means connecting said other base in circuit with the control terminal of the associated silicon controlled rectifier, and
(F) a control network means for said firing circuit means, said control network means including
(I) two saturable reactors,
(a) each comprising a load winding and a control winding,
(II) circuit means connecting said lead windings in series aiding relationship between the emitters of the two firing circuit means,
(III) a single D.C. signal input terminal,
(IV) a ground terminal, and
(V) circuit means connecting said control windings in series opposing relationship between the single D.C. signal input terminal and the ground terminal for varying the effective impedance of the load windings and thereby regulating the charging rate on the capacitor associated with the silicon controlled rectifier then potentially effective for the prevailing half cycle of the alternating current supply,
(VI) the charging path of said capacitor including the capacitor and the second resistor of the firing circuit means associated with the silicon controlled rectifier then potentially ineffective for said prevailing half cycle and also including the load windings.

3,317,789

STABILIZED CONTROL CIRCUIT

Joe A. Nuckolls, Hendersonville, N.C., assignor to General Electric Company, a corporation of New York

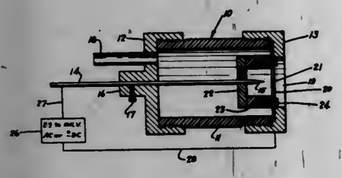
Filed Apr. 28, 1965, Ser. No. 451,508
14 Claims. (Cl. 315—194)



1. A circuit for controlling the power applied to load means comprising, in combination, a source of alternating current, load means energized by said alternating current source, controlled rectifier means connected between said alternating current source and said load means,

said controlled rectifier means being normally non-conductive to block current flow to the load means and having electrode control means to render it conductive, actuating means connected to said alternating current source and to said electrode control means for applying a control signal to said electrode control means at a predetermined time in each alternating current cycle, said actuating means including a resistance and capacitance connected together in series, and voltage sensitive symmetrical switch means connected across said capacitance, and unidirectional current blocking means connected between said controlled rectifier means and said load means for blocking reverse current from said load means.

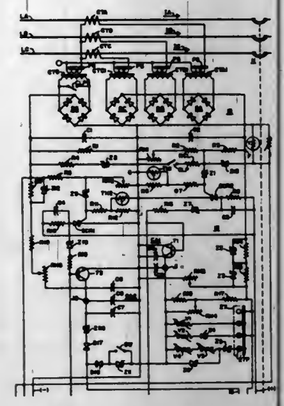
3,317,790
SONIC JET IONIZER
Kenneth T. Whitby, Minneapolis, Minn., assignor to The Regents of The University of Minnesota, Minneapolis, Minn., a corporation of Minnesota
Filed Aug. 29, 1960, Ser. No. 52,400
2 Claims. (Cl. 317—4)

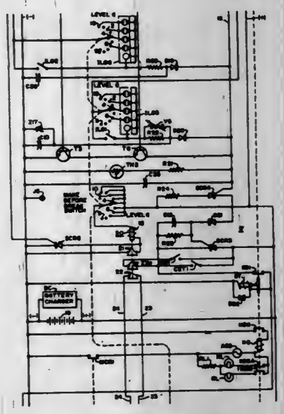


1. A gas ionizing device for operation under sonic jet flow conditions comprising a housing, a gas inlet to said housing, said housing including an electrically conductive plate, an orifice centrally disposed in said plate, the diameter of said orifice being between about 1/64 and 1/8 inch, said orifice having sharp edges, said orifice providing an ionized gas discharge port from said housing, a pointed needle electrode centrally disposed in said housing, said needle adapted for connection to a high voltage electric power source for applying a high electrical voltage to said needle, said housing being closed save for said gas inlet and orifice, said inlet adapted for connection to a source of gas under pressure sufficient that the ratio of the pressure at the orifice to the inlet gas pressure at least equals the critical pressure ratio for the gas, said needle electrode and orifice plate being electrically insulated from each other and from the housing body, aligning means within said housing spaced from said orifice and electrically insulated from the orifice plate and adapted to hold the pointed tip of said needle electrode in axial alignment with the orifice, the tip of said needle electrode having a diameter of less than 0.001 inch, said electrode tip being associated with said orifice and spaced therefrom by about ½ to 10 millimeters to produce a gas-ionizing discharge therebetween upon application of voltage to said needle electrode.

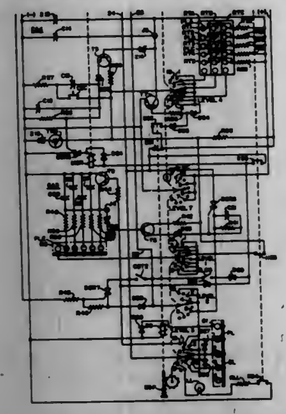
3,317,791
CIRCUIT-CONTROLLING SYSTEMS
Robert W. Price and Robert A. Few, Bloomington, Ind., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Feb. 26, 1965, Ser. No. 435,424
7 Claims. (Cl. 317—22)

1. In a reclosing switching apparatus, a pair of terminals, means connected to and energizing said terminals with a variable magnitude electrical quantity, switch means having a pair of contacts, contact closing means, contact opening means, an indexing device having an initial position and a lockout position and at least one first position and at least one second position and energizable indexing means stepping said device from one to another of its said positions, each said first position being followed by a said second position, the last said second position being followed by said lockout position, first circuit means connecting said terminals to said contact opening means and to said indexing means, said first circuit means including means sensitive to the magnitude of said quantity at said terminals at said initial and said second positions, said first circuit means being effective at magnitudes of said quantity above a first predetermined value to energize said contact opening means and said indexing means whereby said contacts open and said indexing means steps said indexing device from its said initial position and its said second positions to one of its said first positions, a second circuit means connecting a source of electrical energy to said indexing means and including said first positions of said indexing device, said second circuit means being effective when said indexing device is in a said first position to actuate said indexing means and step said indexing device from its said first position to a said second position, a third circuit means connecting a source of electrical energy to said contact closing means and including said first positions, said third circuit means being effective when said indexing device is in its said first positions to actuate said contact closing means whereby said contacts are closed, a fourth circuit means connecting a source of electrical energy to said indexing means and including said second positions and a timing device, said fourth circuit being effective upon the timing out of said timing device to actuate said indexing means to step said indexing

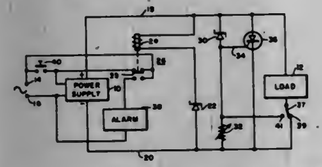




device to its said initial position, a fifth circuit connecting said terminals to said indexing means and including means sensitive to the magnitude of said quantity at said terminals and said initial and said second positions, said fifth circuit means being effective at a magnitude of said quantity above a second predetermined value to energize said indexing means to step said indexing device to its said lockout positions, said second predetermined magnitude being greater than said first predetermined magnitude.



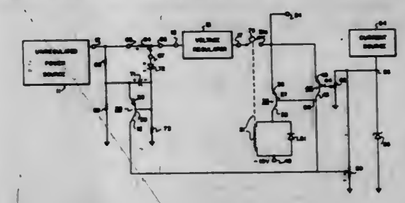
3,317,792
LOAD PROTECTION CIRCUIT
James F. Sutherland, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Mar. 20, 1964, Ser. No. 353,508
5 Claims. (Cl. 317—31)



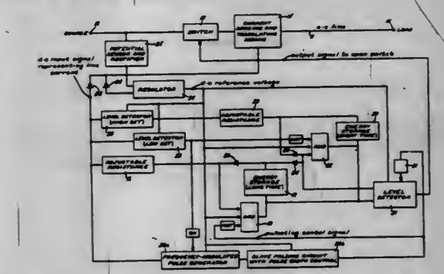
1. In a load protection circuit operative with a voltage source, the combination of first voltage sensing means operative with said voltage source for sensing the occurrence of an undervoltage condition relative to said load, second voltage sensing means operative with said voltage source for providing a control signal upon the occurrence of an overvoltage condition relative to said load, voltage control means operative with said load and responsive to said control signal for providing an undervoltage condition relative to said load, and circuit means connected across said voltage source and operative with said first voltage sensing means to control the voltage supplied to said load upon the occurrence of said undervoltage condition.

3,317,793
CIRCUITS FOR PROTECTING ELECTRICAL POWER SOURCES
John E. Peek and Robert B. White, Phoenix, Ariz., assignors to General Electric Company, a corporation of New York
Filed Oct. 5, 1964, Ser. No. 401,466
13 Claims. (Cl. 317—31)

1. A circuit for protecting an electric power source comprising: a load-input terminal; a switching means, said switching means being connected between said source and said terminal; a constant-voltage supply; and a comparator circuit, said comparator circuit being coupled to said source and to said supply, said comparator further being coupled to said switching means, said comparator circuit comparing the voltage of said source with the voltage of said supply, said comparator circuit controlling said switching means to disconnect said source from said terminal when the voltage from the source is less than a first threshold value determined by said supply, said comparator circuit controlling said switching means to disconnect said source from said terminal when the voltage from the source is greater than a second threshold value determined by said supply.



3,317,794
OVERCURRENT PROTECTIVE MEANS
William C. Kotheimer, Drexel Hill, Pa., assignor to General Electric Company, a corporation of New York
Filed Apr. 13, 1964, Ser. No. 359,274
10 Claims. (Cl. 317—36)

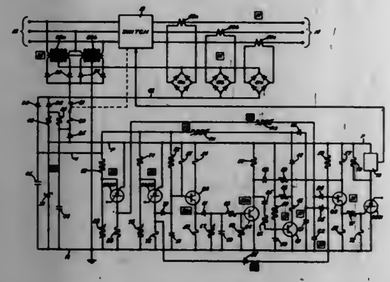


1. A protective device comprising:
(a) means adapted to be coupled to an electric current circuit for deriving therefrom a signal representative of circuit current;
(b) electric energy storing means;
(c) means responsive to said signal for supplying to said energy storing means a succession of fixed duration energizing pulses the amplitude and frequency of which are both modulated by the signal; and
(d) means connected to said energy storing means for initiating a predetermined protective function when the energy accumulated in said energy storing means attains a predetermined critical level.

3,317,795
OVERCURRENT PROTECTIVE MEANS
Floyd L. Steen, Lansdowne, Pa., assignor to General Electric Company, a corporation of New York
Filed Apr. 21, 1964, Ser. No. 361,520
10 Claims. (Cl. 317—36)

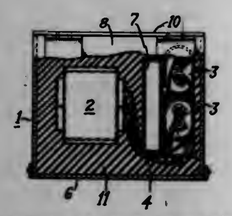
1. A protective device comprising:
(a) means adapted to be coupled to an electric current circuit for deriving therefrom an input signal representative of circuit current;

(b) first periodically operative means connected to said input signal deriving means and arranged to operate with a frequency that depends upon the magnitude of said signal;
(c) second periodically operative means connected to said first means for producing, in synchronism with operation of said first means, a succession of brief control pulses each subsisting for a predetermined substantially constant duration;
(d) electric energy storing means;



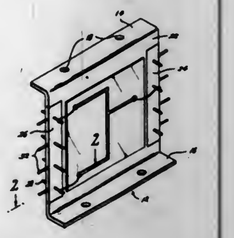
(e) means supplied by said input signal and by said control pulses for effecting intermittent energization of said energy storing means in accordance with the magnitude of said signal, the rate of occurrence of successive periods of energization and the duration of each period being respectively determined by the frequency and duration of said pulses; and
(f) means connected to said energy storing means for producing an output signal when the energy accumulated in said energy storing means attains a predetermined critical level.

3,317,796
COOLING ARRANGEMENT FOR ELECTRICAL APPARATUS
Richard L. Thompson, Hendersonville, N.C., assignor to General Electric Company, a corporation of New York
Filed Oct. 27, 1964, Ser. No. 406,828
4 Claims. (Cl. 317—100)



1. Electrical ballast apparatus comprising, in combination, a metallic container, heat transmitting potting material in said container, transformer and capacitor devices embedded laterally spaced from each other in said potting material in said container, said transformer device generating substantial heat during operation thereof, and a rectangular metallic tube member in said container separating said transformer and capacitor devices therein and spaced from all the side walls of said container, said rectangular metallic tube member having a vertically extending passage and being open at its opposite ends to the exterior of said container and being fluid tightly sealed at said opposite ends to the top and bottom walls of said container, whereby said rectangular metallic tube member is cooled by air passing upwardly by convection therethrough for cooling the interior of said container.

3,317,797
MICROELECTRONIC MODULE PACKAGE
James E. Webb, Administrator of the National Aeronautics and Space Administration, with respect to an invention of Albert L. Johnson, Jr., New Brighton, Minn.
Filed Dec. 23, 1965, Ser. No. 516,153
2 Claims. (Cl. 317—100)

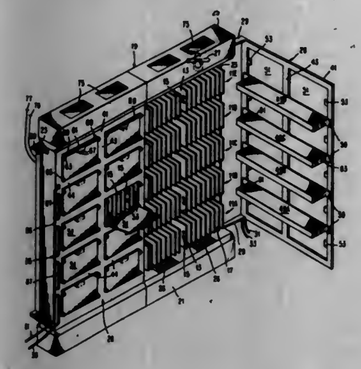


1. A microelectronic module package adapted to be mounted between a first structural member and a second structural member comprising:
(a) a heat sink formed of a flat plate member having a first side and a second side, said flat plate member having a central section, a first end flange section, and a second end flange section, said central section having first and second opposite end portions and third and fourth opposite end portions, said first end flange section and said second end flange section being integral with said first and second opposite end portions, respectively, and perpendicular to said central section;
(b) means for securing said first end flange section and said second end flange section to said first structural member and said second structural member, respectively;
(c) means for mounting electrical connectors at said central section comprising lead wire blocks flush mounted to said heat sink at said third and fourth end portions;
(d) a first series of connectors mounted in said wire blocks and extending perpendicular to said heat sink central section and outwardly from said wire blocks;
(e) a second series of connectors extending outwardly from said wire block and perpendicular to said first series of connectors;
(f) a substrate of electrically non-conducted material superimposed on at least one of said heat sink sides;
(g) an electrical circuit positioned on at least one of said heat sink sides; and
(h) means for coupling said electrical circuit to said series of connectors.

3,317,798
COOLING ELECTRICAL APPARATUS
Richard C. Chu, Peter J. Cunavelis, Julius Gerstenhaber, and John H. Seely, all of Poughkeepsie, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Apr. 13, 1966, Ser. No. 544,345
7 Claims. (Cl. 317—100)

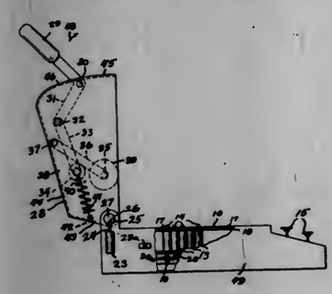
1. An electric apparatus in which cooling of longitudinally-spaced heat-generating units is required, comprised of:
a cabinet having a vertically-rotatable door and rows of heat-generating units longitudinally-spaced to provide transverse spaces between adjacent rows of units,
heat exchangers mounted on and extending from said door and arranged to be positioned in said transverse spaces between said rows of units when said door is closed, said door being rotated to closed position,

conduit means for a flow of a coolant connected to said heat exchangers and having flexible inlet and outlet conduits for accommodating the opening and closing of said door, and



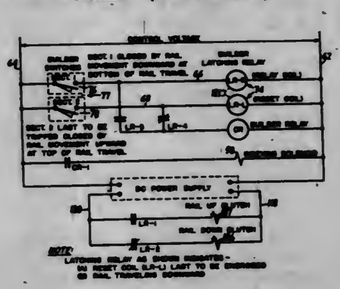
air moving means arranged to move air over said units and said heat exchangers in which the coolant would flow whereby heat is removed by said heat exchangers in said transverse spaces from the air to give a small temperature gradient.

3,317,799
IDENTIFICATION CARD SYSTEM
Lawrence H. Kellen, Rte. 5, Le Mars, Iowa 51031
Filed Nov. 20, 1964, Ser. No. 412,738
1 Claim. (Cl. 317—134)



An identification card system comprising a card having indicia thereon, said card having a plurality of predetermined openings, a device including a plurality of plungers adapted to register with certain of said openings, means for actuating said plungers to enter said certain openings, said plunger actuating means including solenoids, switches for controlling said solenoids, said device including a casing including a printing mechanism pivoted to said casing, a circuit controlling said solenoids, said circuit being broken when one of said plungers will not pass through a corresponding opening, a further solenoid for controlling said printing locking mechanism, a further circuit connected to said further solenoid, said further circuit being open when one of said plungers is inactive, said device including a casing including a recessed portion for receiving said card, pins attached within said recessed portion, said cards having further openings spaced from said openings, changing position of said pins affecting the proper positioning of said openings with respect to said plungers.

3,317,800
ELECTRIC CONTROL CIRCUIT
Frederick A. Willis, Jr., Whitinsville, Mass., assignor to Whitin Machine Works, Whitinsville, Mass., a corporation of Massachusetts
Filed Nov. 9, 1964, Ser. No. 409,899
7 Claims. (Cl. 317—137)

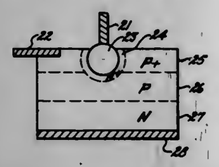


1. In apparatus for performing first, second, and third functions, the improvement comprising first and second relay coils, first, second, third, and fourth pairs of contacts governed by the first and second coils, a control relay coil, the first pair of contacts being adapted alternately to occupy first and second states and being caused to occupy the first state on energization of the first coil and the second state on energization of the second coil, the second pair of contacts being adapted alternately to occupy third and fourth states and being caused to occupy the third state on energization of the first coil and the fourth state on energization of the second coil, the third pair of contacts being adapted alternately to occupy fifth and sixth states and being caused to occupy the fifth state on energization of the first coil and the sixth state on energization of the second coil, and the fourth pair of contacts being adapted alternately to occupy seventh and eighth states and being caused to occupy the seventh state on energization of the first coil and the eighth state on energization of the second coil, and the first, second, third, and fourth pairs of contacts being prevented from changing states when both the first coil and the second coil are de-energized, the first pair of contacts in its first state facilitating performance of the first function, the second pair of contacts in its fourth state facilitating performance of of the second function, the third pair of contacts in its fifth state facilitating energization of the control relay coil, and the fourth pair of contacts in its eighth state facilitating energization of the control relay coil, and a fifth pair of contacts adapted alternately to occupy ninth and tenth states and being caused to occupy the ninth state on energization of the control relay coil and the tenth state on de-energization of the control relay coil, one of the ninth and tenth states facilitating performance of the third function, and means to effect energization and de-energization of said first and second relay coils, said first and second relay coils being connected in circuit with said means, and said control relay coil being connected in circuit with said third and fourth pairs of contacts and said means.

3,317,801
TUNNELING ENHANCED TRANSISTOR
Freeman D. Shepherd, Jr., Waltham, Mass. (8 Berkshire Road, West Chelmsford, Mass. 01863)
Filed June 19, 1963, Ser. No. 289,145
1 Claim. (Cl. 317—235)

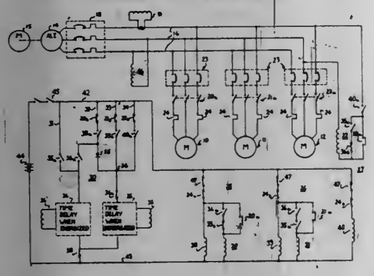
A germanium transistor having an alpha greater than one comprising four zones only with said zones having differing impurities, two of said zones having quantities of impurities corresponding to quantities of impurities contained within the various zones within a conventional

transistor, and the remaining two zones having quantities of impurities corresponding to quantities of impurities within the various zones within a conventional tunnel diode, said first two zones being designated N and P types, said second two zones being designated N+ type and P+ type, said zones being interrelated with one another such that the N+ type is in intimate contact with both the P+ type and the P type, the P type being in intimate



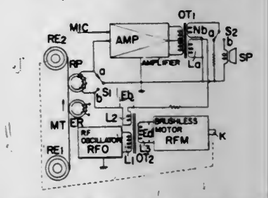
contact with the N type, the N+ type having a terminal connection designated an emitter terminal, the P+ type having a terminal connection designated a base terminal, the N type having a terminal connection designated a collector terminal, and the P+ region being an epitaxial layer regrown from a dot of indium containing one percent gallium, and the N+ region being regrown from a gallium-arsenide heterojunction.

3,317,802
SEQUENTIAL STARTING SYSTEM FOR A PLURALITY OF MOTORS
Harold S. Ogden, Erie, Pa., assignor to General Electric Company, a corporation of New York
Filed Dec. 13, 1963, Ser. No. 330,345
4 Claims. (Cl. 318—102)



1. In a system for operating a plurality of electric motors from the output of a single power generation means including a plurality of contactors one operatively associated with each of the electric motors and each including an operating coil and contacts arranged to be actuated thereby between a circuit making condition connecting the associated electric motor to the output of said power generation means and a circuit breaking condition disconnecting the associated electric motor therefrom, the combination therewith of a control circuit means for preventing overloading of the power generation means during motor starting by controlling the operation of said contactors in a predetermined sequence comprising:
(a) first and second conductors arranged to be energized when the output voltage of said power generation means exceeds a preselected level;
(b) a plurality of pilot relays, one for each of said electric motors, each having an operating coil and at least one pair of contacts arranged to be operated thereby;
(c) a plurality of condition responsive means one associated with each of said electric motors and each including means responsive to the presence of a selected condition for connecting the operating coil of the pilot relay associated with the particular motor across the first and second conductors to cause energization of the operating coil and actuation of the contacts of said pilot relay;
(d) first and second time delay means each having a plurality of contacts actuated thereby;
(e) means including contacts of said pilot relays arranged to connect said first and second time delay means in parallel across said conductors for energization therefrom in a preselected sequence;
(f) a plurality of contactor actuating circuits one for each of said contactors, each of said actuating circuits arranged to be energized through the series combination of a contact of each of said first and second time delay means so that the energization sequence of said first and second time delay means provides for the energization of the operating coils of said contactors in a preselected sequence; and
(g) current sensing means operative when the output current of said power generation means exceeds a preselected level for causing said first and second time delay means to be deenergized so that any further progression of the contactor operating coil energizing sequence is prevented until said current level returns to a selected lower level.

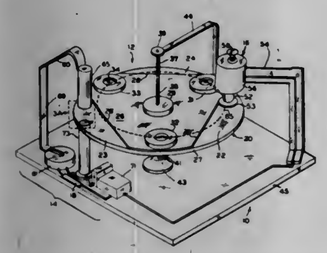
3,317,803
TAPE RECORDER HAVING A BRUSHLESS D.-C. MOTOR FOR TAPE FEEDING
Kazutoshi Ikegami, Kokubunji-machi, Kitatama-gun, Tokyo-to, Japan, assignor to Kabushiki Kaisha Hitachi Seisakusho, Tokyo-to, Japan, a joint-stock company of Japan
Filed Nov. 24, 1964, Ser. No. 413,468
Claims priority, application Japan, Nov. 27, 1963, 38/63,298
1 Claim. (Cl. 318—138)



In a tape recorder of the A.-C. bias recording type, the combination comprising a radio-frequency oscillation circuit, a brushless, direct-current motor for feeding the recording tape, said motor having a rotor and an armature, means to induce a radio-frequency signal on the rotor in accordance with the output of said oscillation circuit, means to detect said radio-frequency signal in accordance with the angular position of the rotor thereby to produce a detection signal, means to control the armature current with said detection signal as a control signal, and means to extract simultaneously an alternating-current bias signal to be supplied to the recording head from the output of said oscillation circuit.

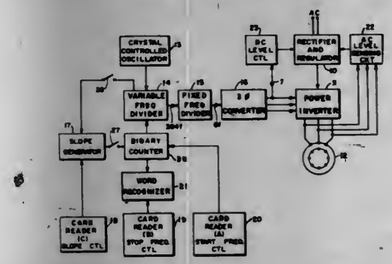
3,317,804
VARIABLE SPEED INDUCTION MOTORS INCLUDING PHOTOELECTRIC POSITION SENSING
James Newton Baker, 4307 S. Polk St., and James Franklin Baker, 4011 S. Polk St., both of Amarillo, Tex. 79110; Freddie Newton Baker, 3305 Portland Road, Salem, Oreg. 97303; and William Raymond Gazzaway, 2413 Poplar St., Amarillo, Tex. 79107
Filed Sept. 7, 1965, Ser. No. 489,796
11 Claims. (Cl. 318—138)

1. A variable speed induction motor comprising:
(a) a base, a coil, a support for said coil mounted on said base and said coil mounted thereon, a rotor rotatable about a first axis, bearings for said rotor, at least one of which bearings is supported on said base, a shaft attached to said rotor, and a cylindrical bearing wheel supported on said shaft exterior to said rotor; the cylindrical axis of said cylinder coaxial with the center of said shaft;
(b) a circular disc rotatable about an axis, the edge of said disc contacting the edge of said bearing wheel and in driving relationship thereto, an opaque and a transparent portion on at least one surface of said disc;
(c) a luminous emission source, a collimator surrounding said luminous emission source, and a support therefor; a photosensitive electric means and a support therefor, a collimator for said photosensitive electrical means, said collimators having a common optical axis;



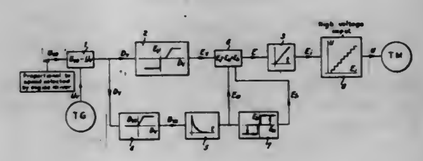
(d) a relay comprising an electromagnetic coil, a switch and switch contacts, said relay coil being in series with the photosensitive means and a voltaic source, the switch and switch contacts being in series with said coil;
(e) a beam of light linking the luminous source and the electrically photosensitive element, and a support for said light emission source and said photosensitive source, one end of said support being movable between the periphery and the center of said rotatable disc whereby the beam of light connecting said luminous emission source and the photosensitive source is movable between the periphery of said disc and a more central portion of said disc.

3,317,805
VARIABLE FREQUENCY POWER SUPPLIES FOR ELECTRIC MOTOR
Martin Kay, Wilton, Conn., and Thomas McCallum, Bedford, N.Y., assignors to American Machine & Foundry Company, a corporation of New Jersey
Filed Oct. 22, 1963, Ser. No. 318,049
11 Claims. (Cl. 318—231)



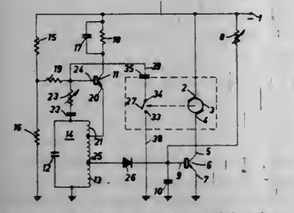
1. In a variable frequency power supply, the combination of
a fixed frequency oscillator;
a plurality of frequency divider circuits serially connected to said oscillator,
each of said frequency divider circuits being operable to provide a train of pulses having a different repetition rate, each such repetition rate bearing a fixed relationship to the operating frequency of said oscillator;
said frequency divider circuits being interconnected so that no pulse of any one of said pulse trains is coincident in time with any pulse of any other one of said pulse trains;
first circuit means connected to a first selected group of said frequency divider circuits and selectively operable to provide a single pulse train including pulses corresponding in time to
pulses in a selected one of said pulse trains provided by said first selected group frequency divider circuits connected thereto, or
pulses in any selected combination of more than one of said pulse trains provided by said first selected group of frequency divider circuits connected thereto; and
second circuit means connected to a different group of said frequency divider circuits and to said first circuit means and being operable to selectively operate and change incrementally change the frequency of pulses emerging from said first circuit means at a preselected rate.

3,317,806
SPEED REGULATOR OF AN ELECTRIC MOTOR
Rene Farinelli, Geneva, Louis Maret, Prilly, and Pierre Riondel, Geneva, Switzerland, assignors to Societe Anonyme des Ateliers de Secheron, Geneva, Switzerland
Continuation of application Ser. No. 462,995, June 10, 1965. This application Aug. 4, 1966, Ser. No. 570,378
4 Claims. (Cl. 318—305)



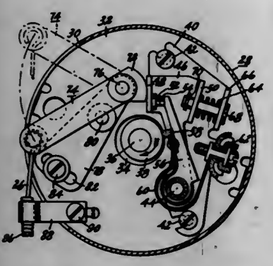
1. A speed regulator for an electric motor comprising:
(a) a speed range detector;
(b) a voltage changer branched between a high voltage power source and the motor;
(c) a regulating chain including between its inlet and outlet in series:
(1) an apparatus wherein the outlet current is constant and negative for a negative value of the voltage produced at the outlet of the speed range detector, and is zero, then variable and positive and finally constant for a positive value of said voltage;
(2) a summator; and
(3) an integrator;
(d) an anticipation chain, including between its inlet and outlet in series a non-linear element and a differentiator,
said speed range detector acting on the inlet of said regulating chain, the outlet of the latter controlling said voltage changer, and said anticipation chain being branched in parallel to a part of said regulating chain so that the inlet of the anticipation chain is connected to the outlet of said speed range detector and the outlet of the anticipation chain is connected to said summator.

3,317,807
SPEED STABILIZATION FOR D.C. MOTORS, MORE PARTICULARLY FOR TAPE RECORDERS
Josef Dorfner and Heinz Gruber, Kronach, Upper Franconia, Germany, assignors to Loewe Opta Aktiengesellschaft, Berlin, Germany, a company of Germany
Filed Nov. 26, 1963, Ser. No. 326,291
Claims priority, application Germany, Nov. 27, 1962, L 43,560
3 Claims. (Cl. 318—325)



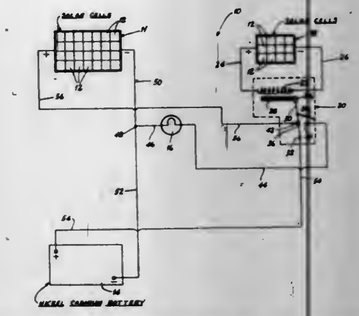
1. An arrangement for speed stabilization for D.C. motors, more particularly for small D.C. motors in tape recorders or phonographs, comprising a centrifugal governor switch mounted on the rotor shaft of said motor, an amplifier for controlling the current supplied to said motor, an oscillator circuit, the output voltage of which forming after rectification a voltage to control said amplifier, and damping means for acting on said oscillator to stop oscillation thereof and being only effective in the switch-on position of said centrifugal governor switch, said damping means being a condenser; said condenser being connected in series to said centrifugal governor switch, both said condenser and said centrifugal governor switch being further connected in parallel to said oscillator circuit; said condenser consisting of a first metal disc mounted on and insulated from the motor shaft and a second stationary metal disc mounted parallel to and in a certain distance from said first disc.

3,317,808
VARIABLE SPEED MOTOR CONTROL MECHANISM
Edward W. Yott, St. Clair Shores, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Feb. 24, 1964, Ser. No. 346,895
6 Claims. (Cl. 318—346)



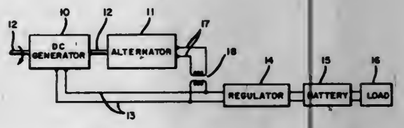
1. Speed control mechanism for a direct current motor having a motor case, an armature shaft, a speed controlling resistor connected in circuit with the motor and a pair of breaker points connected in parallel with said resistor, comprising a base plate attached to said motor case, a first contact plate secured to said base plate, a second contact plate pivotally mounted on said first contact plate and carrying one of said breaker points, a breaker arm pivotally mounted on said first contact plate and carrying the other breaker point, a first cam attached to said armature shaft, a follower attached to said breaker arm, resilient means engaging said breaker arm and urging said follower into engagement with said first cam, a second cam engageable with said second contact plate, resilient means biasing the second contact plate into engagement with said second cam, and means pivotally attached to said base plate for adjusting the position of said second cam to infinitely vary the engagement interval of said breaker points during each revolution of said armature.

3,317,809
SELF-CONTAINED ELECTRICAL LIGHTING UNIT
Grover W. Bowers, 1724 McCready, and Francis H. Kennedy, 22 Berkshire, both of Richmond Heights, Mo. 63117
Filed Dec. 26, 1963, Ser. No. 333,416
5 Claims. (Cl. 320—30)



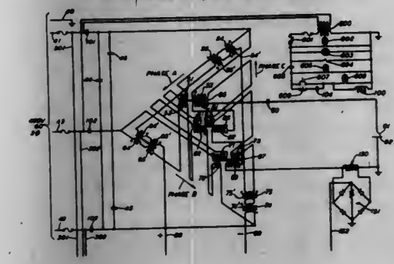
1. In combination, a self-contained electric light which comprises a battery, an electric light connected in an operative circuit with said battery, a first bank of solar cells connected in circuit with said battery for recharging thereof, a second bank of solar cells, a relay in an operative circuit with said second bank of solar cells, and a two-way switch in the circuits of said battery, light and first bank of solar cells adapted in one position of movement to complete only a circuit through said battery and first bank of solar cells for recharging of the former by the latter and in the other position of movement to complete only a circuit through said light and battery for illumination of the former by the latter.

3,317,810
BATTERY-CHARGING APPARATUS AND METHOD
Kiyoshi Inoue, 182 Yoga Tamagawa, Setagaya-ku, Tokyo, Japan
Filed May 5, 1964, Ser. No. 364,900
Claims priority, application Japan, May 27, 1963, 38/27,306; June 13, 1963, 38/30,133
5 Claims. (Cl. 320—56)



1. Apparatus for charging a battery comprising a source of direct current having an output connectable to the terminals of the battery for charging same, means for separately generating an alternating current having a frequency greater than 100 cycles per second and less than 60 kilocycles per second, and inductive coupling means for coupling the output of the alternating current generating means to the output of the direct current source while the latter is charging the battery.

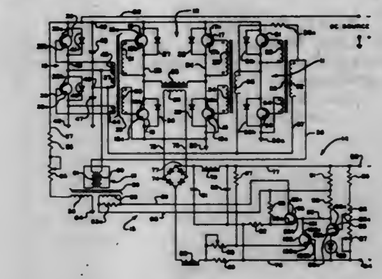
3,317,811
PROGRAMMABLE FREQUENCY MULTIPLIED SQUARE WAVE POWER SUPPLY
Neil J. Normando, Livingston, and William J. Greene, Bound Brook, N.J., assignors to Air Reduction Company, Incorporated, New York, N.Y., a corporation of New York
Filed Apr. 10, 1964, Ser. No. 358,730
9 Claims. (Cl. 321—7)



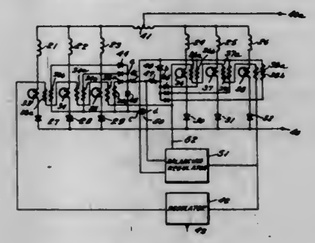
1. A system for converting polyphase alternating current power of a given frequency into single phase square-type wave power of a frequency which is a multiple of said given frequency and of amplitude which is variable in accordance with variations in a given program wave, which system comprises a plurality of saturable core power transformers equal in number to the number of phases of the polyphase power circuit, each said power transformer having a plurality of primary windings equal in number to the number of phases and each said primary winding being connected to a different phase of the polyphase power circuit, and each said power transformer having a secondary winding, means connecting all the said secondary windings in series aiding relationship to each other and to a load circuit; and a plurality of saturable core current limiting transformers equal in number to twice the number of phases, each said current limiting transformer having a current limiting winding and a control winding, said current limiting windings being connected in pairs, two said current limiting windings being in series with each other in each phase of the polyphase power circuit in such relative polarity that a current in a given phase tends to generate mutually opposing back electromotive forces in that phase, means to send unidirectional current continuously through all the said control windings in such direction as to aid the magnetizing effect of the power phase current in one current limiting winding of each said pair of current limiting windings and to oppose the magnetizing effect in the other winding of the same pair; and means to vary the amplitude of the said unidirectional current in accordance with variations in the said program wave.

3,317,812
VOLTAGE REGULATOR CIRCUIT
Lee O. Mesenhimer, Lakewood, Ohio, assignor to Lorain Products Corporation, a corporation of Ohio
Filed Aug. 3, 1962, Ser. No. 214,591
3 Claims. (Cl. 321—16)

1. The combination in a power supply, of a first square-wave generator, a second square-wave generator controlled by said first generator, a power section including a plurality of off-on conducting means comprising a plurality of transistors arranged in bridge configuration, means for operatively coupling said square-wave generators to respective off-on conducting means, the output of said power section being substantially proportional to the coincidence of conduction of said off-on conducting means, load connecting means comprising a transformer having a primary winding connected between said off-on conducting means whereby current passes through said primary winding in one direction when one of said off-on means is conducting and in the opposite direction when another of said off-on means is conducting, a secondary winding, means connecting said secondary winding across the output terminals of the power supply, variable delay means, means for connecting said variable delay means between said first and second square-wave generators to vary the control relationship therebetween thereby to vary the coincidence of conduction of said off-on means and means responsive to variations in load current and output voltage of the power supply to vary the delay introduced by said variable delay means and, in turn, the coincidence of conduction of said off-on conducting means to maintain constant output voltage of said power supply and reduce output voltage under overload conditions.



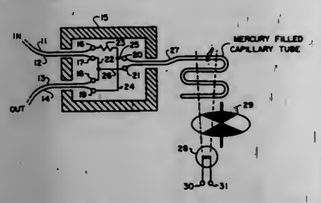
3,317,813
CURRENT BALANCING CIRCUIT FOR RECTIFIERS HAVING PHASE CONTROL REGULATORS
Johannes Schaefer, Philadelphia, Pa., assignor to I-T-E Circuit Breaker Company, Philadelphia, Pa., a corporation of Pennsylvania
Filed Nov. 6, 1963, Ser. No. 321,843
6 Claims. (Cl. 321—26)



2. In a rectifier system; a first rectifier section, a second rectifier section, first phase control regulation means connected to said first rectifier section, second phase control regulation means connected to said second rectifier section, and first and second control means connected to said first and second phase control means respectively; a first and second output phase control monitoring means connected to said first and second rectifier sections respectively, and comparator means connected to said first and second monitoring means

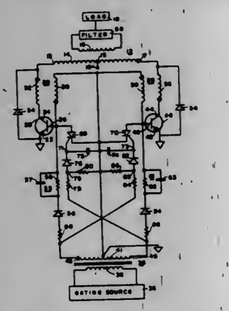
for measuring the difference in phase control regulation between said first and second sections; said comparator means being connected to one of said first or second phase control regulation means for maintaining a balanced output between said first and second rectifier sections; said first and second phase control monitoring means each measuring the voltage-time area absorbed in the forward direction by said first and second phase control means; and interphase transformer means coupling said first and second rectifier sections.

3,317,814
THERMORESISTIVE CHOPPER
Tenny D. Lode, Madison, Wis., assignor to Rosemount Engineering Company, Minneapolis, Minn., a corporation of Minnesota
Filed Jan. 4, 1965, Ser. No. 422,965
4 Claims. (Cl. 321—44)



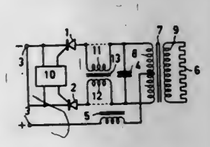
1. Means for generating an alternating voltage component having a magnitude corresponding to a unidirectional voltage signal including a source of said unidirectional voltage signal, an input circuit including a plurality of resistances in series, a resistance element within said input circuit including a path through a liquid conductor whose resistance varies as a function of temperature, means for periodically varying the temperature of said liquid conductor, an output load circuit, and means connecting said output load circuit to said input circuit.

3,317,815
DRIVE SYSTEM FOR STATIC INVERTERS
Stanley Y. Merritt, Waynesboro, Va., assignor to General Electric Company, a corporation of New York
Filed July 10, 1963, Ser. No. 293,936
12 Claims. (Cl. 321—45)



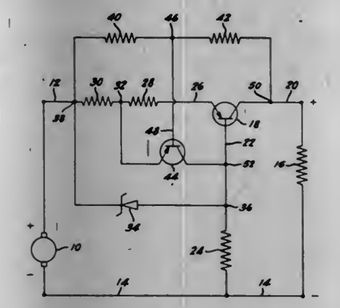
6. A circuit for converting the output of a unidirectional potential source to an alternating current output comprising first and second current transformers, each comprising a plurality of transformer coupled windings, an output transformer having a primary winding and a secondary winding, a first series arrangement of one half of said primary winding, a first of said first current transformer windings and a first transistor connected across said source, a second series arrangement of the other half of said primary winding, a first of said second current transformer windings, and a second transistor connected across said source, a load connected across said secondary winding, a second of said first current transformer windings connected in the input of said first transistor, a second of said second current transformer windings connected in the input of said second transistor, rectangular wave generating means in circuit with the respective inputs of said transistors for alternately supplying a small portion of drive to said transistors during successive half cycles of output from said generating means, said current transformer windings being so poled as to regeneratively provide current drive to a transistor rendered conductive by said generating means, a first gate controlled rectifier in circuit with the input of said first transistor, said second winding of said first current transformer and said generating means which is gated into conductivity upon the initially rendering conductive of said second transistor, a second gate controlled rectifier in circuit with the input of said second transistor, said second winding of said second current transformer and said generating means which is gated into conductivity upon the initially rendering conductive of said first transistor, first and second pumpback diodes respectively connected across said first and second series arrangement, and means in circuit with said first and second current transformers for respectively resetting said last-named transformers.

3,317,816
INVERTERS USING CONTROLLED SEMICONDUCTOR RECTIFIERS
Johannes Jacobus Wilting, Emmasingel, Eindhoven, Netherlands, assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
Filed Apr. 3, 1964, Ser. No. 357,119
Claims priority, application Netherlands, Apr. 10, 1963, 291,430
2 Claims. (Cl. 321—45)



2. An inverter comprising: at least one pair of push-pull connected, controlled semiconductor rectifiers each having a main current circuit and a control electrode, the main current circuits being connected to a D.C. supply circuit in series with a resonant circuit having inductive and capacitive portions and having series resonance properties, means for coupling said resonant circuit with a load circuit, a separate pulse generator having at least two outputs respectively connected to the control electrodes of the rectifiers for alternately applying control pulses to said control electrodes to render the rectifiers alternately conducting with a repetition frequency of less than twice the resonance frequency of the resonant circuit, the inductive portion of the resonant circuit consisting of an inductor connected in said common supply circuit of the two rectifiers and of a transformer having two identical windings, each winding being connected in the main current circuit of one of the rectifiers and having an inductance substantially equal to and no greater than half the total inductance of the resonant circuit, the voltage pulses produced across the inductor at the ignition and at the cut-off of one of the rectifiers and effective in the main current circuit of the other rectifier being substantially compensated by corresponding voltage pulses induced in the associated winding of the transformer.

3,317,817
CONSTANT CURRENT REGULATOR
Bernard J. Gershen, Edison, N.J., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Nov. 15, 1963, Ser. No. 324,018
4 Claims. (Cl. 323—4)

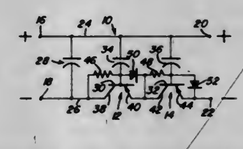


4. A current regulator comprising, an input terminal, an output terminal and a common terminal, said input terminal and said common terminal being adapted to be connected with a source of voltage, said output terminal and said common terminal being adapted to be connected with an electrical load, first and second transistors each having emitter, collector and base electrodes, a first pair of resistors having a first common junction connecting the emitter electrode of said first transistor wtih said input terminal, means connecting the collector electrode of said first transistor with said output terminal, a resistor connecting the base electrode of said first transistor with said common terminal, a Zener diode connected between said input terminal and the base of said first transistor, a second pair of resistors having a second common junction connected between said input terminal and said output terminal, means connecting the collector of said second transistor wtih the base of said first transistor, means connecting the base of said second transistor with said second common junction, and means connecting the emitter of said second transistor with said first common junction.

3,317,818
REGULATED POWER SUPPLY
Duane D. Beyer, Sunnyvale, Calif., assignor to Ampex Corporation, Redwood City, Calif., a corporation of California
Filed June 3, 1963, Ser. No. 284,955
2 Claims. (Cl. 323—22)

1. A series voltage regulator comprising first and second input terminals whereto an unregulated input voltage is applied, said second input terminal connected to ground, an output circuit whereacross a load is to be connected and whereto a regulated output signal is supplied by said regulator, a first transistor having a base, an emitter and a collector, said transistor having the emitter-collector path thereof serially connected between said first input terminal and said output circuit and being normally biased in a conductive state by the input voltage applied to said input terminals, a second transistor of opposite conductivity type to said first transistor and having a base, emitter and collector, said collector of said second transistor coupled to the base of said first transistor, bias means coupling the emitter-collector path of said second transistor between said first input terminal and said output circuit to vary the conductivity of said first transistor in direct relation to variations in the conductivity of said second transistor, a third transistor of opposite conductivity type to said second transistor and having a base, emitter and collector, said collector of said third transistor coupled to the base of said second transistor, bias means coupling the emitter-collector path of said third transistor between said first input terminal and said output circuit to vary the conductivity of said second transistor in direct relation to variations in the conductivity of said third transistor, a fourth transistor of the same conductivity type as said third transistor and having a base, emitter and collector, said collector of said fourth transistor coupled to the base of said third transistor, bias means coupling said collector of said fourth transistor to said first input terminal to vary the conductivity of said third transistor in inverse relation to variations in the conductivity of said fourth transistor, a Zener diode connected between the emitter of said fourth transistor and ground, a resistor connected between said output circuit and the common junction between the emitter of said fourth transistor and said Zener diode, and the parallel combination of a capacitor and second resistor coupled between said output circuit and the base of said fourth transistor to vary the conductivity thereof in direct relation to variations in the voltage developed across said output circuit.

3,317,819
ELECTRONIC HUM AND RIPPLE FILTER
Earle C. Brodie, 14901 NW. 5th Ave., Miami, Fla. 33168
Filed Oct. 3, 1963, Ser. No. 313,488
6 Claims. (Cl. 323—22)

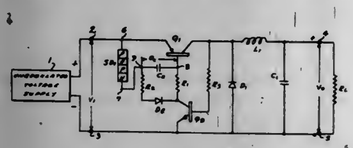


3. A transistor filter circuit including a plurality of stages, each stage having input and output electrodes connected in series between input and output terminals of one polarity and a common voltage line of the opposite polarity coupled in parallel to control electrodes of said stages, wherein the improvement comprises a biasing resistor connecting the control electrode in each stage only to one of the input and output electrodes rendering the stage conductive with a minimum potential difference between the input and output electrodes, and signal coupling capacitors connected in parallel between the control electrodes and the common voltage line to vary the conductance of each stage in accordance with voltage deviations between the input terminal and the common voltage line to provide substantially equal attenuation ratios through said stages.

3,317,820
VOLTAGE REGULATOR EMPLOYING VARIABLE DUTY CYCLE MODULATING OF THE UNREGULATED VOLTAGE
Richard A. Nylander, Lawndale, Calif., assignor to the United States of America as represented by the Secretary of the Air Force
Filed Mar. 27, 1964, Ser. No. 355,517
3 Claims. (Cl. 323—22)

1. A voltage regulator circuit comprising: a pair of input terminals, between which an unregulated voltage is applied, and a pair of output terminals, one of said input terminals constituting a point of reference potential; a direct connection of substantially zero impedance between one of said output terminals and said point of reference potential; a first transistor; an inductive reactor; a conductive connection including the emitter-collector path

of said first transistor and said reactor as series elements in the order named between the other input terminal and the other output terminal; a capacitive reactor connected across said terminals; a resistor and the collector-emitter path of a second transistor connected in the order named between the base of said first transistor and said point



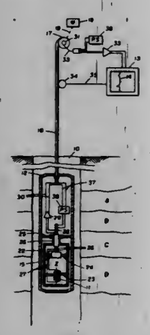
of reference potential; and a four-layer diode having one terminal connected to said other input terminal and its other terminal connected through a capacitor to the base of said first transistor and through a two-terminal network having resistance and unidirectional conductivity to the junction of said resistor and said second transistor.

3,317,821

LOGGING SYSTEM INCLUDING ELECTRICAL COIL SUPPORTED WITHOUT ROTATION FOR MEASURING SUBSURFACE FORMATION MAGNETIC FIELD GRADIENTS

Bobbie J. Patton and John L. Fitch, Dallas, Tex., assignors to Mobil Oil Corporation, a corporation of New York

Filed Feb. 6, 1964, Ser. No. 343,003
3 Claims. (Cl. 324—8)



1. A system for measuring the magnetic field gradient resulting from the magnetism of subsurface formations traversed by a borehole comprising:

a logging means for traversing said borehole and including at least one electrical coil for sensing for the magnetic field gradient resulting from the magnetism of the formations,

means including gyroscopic means for supporting said coil without rotational movement,

said borehole being free of artificially introduced magnetic material having magnetic properties which would otherwise cause substantial interference with said sensing operation,

said logging means environment at least in the vicinity of said coil being substantially free of ferromagnetic material,

said coil being supported such that the axis passing through the center thereof is substantially vertical,

said system including only passive electromagnetic field exploratory means for sensing only for the naturally occurring magnetic field gradient in said borehole, and

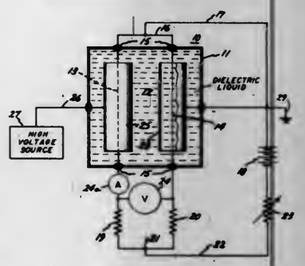
means for moving said coil in a substantially vertical direction in said borehole to induce a voltage in said coil primarily representative of a component of the magnetic field gradient in said borehole and resulting from the magnetism of the formations.

3,317,822

METHOD AND APPARATUS FOR MEASUREMENT OF HIGH VOLTAGE

Percy K. Watson, Birmingham, England, assignor to General Electric Company, a corporation of New York

Filed Jan. 15, 1963, Ser. No. 251,612
5 Claims. (Cl. 324—32)



1. A method of measuring the voltage of a high voltage source, which comprises:

(a) measuring the flow of electric charge through an electrical conductor, said conductor being in heat exchange relationship with a non-flowing dielectric liquid,

(b) imposing a non-uniform electrostatic field in said dielectric liquid in the vicinity of said conductor with said high voltage source whereby the rate of transfer of heat from said conductor to said dielectric medium is changed, and

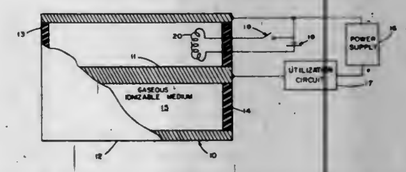
(c) measuring the flow of electric charge through said conductor after the imposition of the electrostatic field in order to detect the change in flow of electric charge resulting therefrom and thereby determine the voltage of said voltage source.

3,317,823

SELF-CHECKING IONIZATION CHAMBER TYPE RADIATION DETECTOR

Robert S. Brodsky, Annandale, Va., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Apr. 8, 1963, Ser. No. 271,530
1 Claim. (Cl. 324—33)



A self-checking ionization chamber radiation detector comprising:

(a) an ionization chamber sealing in a gaseous ionizable medium, said ionization chamber formed by a first and second electrode separated by an insulating structure therebetween,

(b) a utilization circuit connected to said second electrode,

(c) a high voltage direct current power supply connected between said first electrode and said utilization circuit,

(d) a normally nonemitting electron source disposed between the first and second electrodes within said ionization chamber, said electron source being an added electron emissive cathode filament,

(e) means for energizing said electron source consisting of a low voltage power supply for heating said cathode to its electron emissive temperature, and

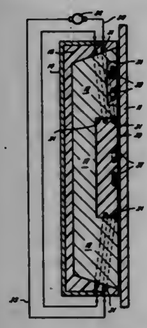
(f) switch means for holding said electron source in either its normally non-emitting state or for connecting said electron source to said heating means, said heated filament cathode emitting electrons which ionize the surrounding gaseous medium thereby providing a checking current in the utilization circuit.

3,317,824

METHOD OF AND APPARATUS FOR MAGNETICALLY INSPECTING FERROMAGNETIC MEMBERS FOR INSIDE AND OUTSIDE SURFACE DISCONTINUITIES AND ASCERTAINING THEREBETWEEN

Fenton M. Wood, Sugarland, Tex., assignor, by mesne assignments, to American Machine & Foundry Company, New York, N.Y., a corporation of New Jersey

Filed Mar. 21, 1963, Ser. No. 266,976
15 Claims. (Cl. 324—37)



1. The method of detecting both inside and outside surface discontinuities in an elongate ferromagnetic member having an inside surface radially separated from its outside surface, comprising the steps of:

establishing a magnetic field with longitudinal flux lines which extend longitudinally through said ferromagnetic member and radial flux lines that extend from said member,

causing relative movement between said field and said member in a direction generally parallel to the longitudinal flux lines of said field,

detecting variations in flux leakage of said longitudinal flux lines during such relative movement as an indication of a discontinuity in at least one of the surfaces of said members, and

detecting variations in the flux density of said radial flux lines adjacent the surface from which they extend during such relative movement as an indication of discontinuity in the surface of said member adjacent which variation in the flux density is detected.

3,317,825

THREE-WIRE GROUND TYPE ELECTRICAL RECEPTACLE TESTER

James B. Huff, 3205 Tucker Drive NW., Huntsville, Ala. 35810

Filed Oct. 14, 1964, Ser. No. 403,958
3 Claims. (Cl. 324—51)

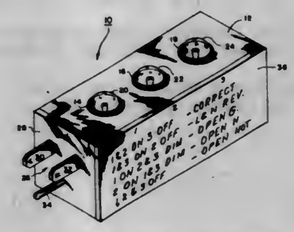
1. A test instrument for testing the wired condition of a three-wire ground type electrical receptacle having a normally energized post, a normally neutral post and a normally grounded post comprising:

(a) a portable, hand-held insulative housing;

(b) a polarized three prong electric plug for insertion into said receptacle, including, first, second and third binding post means said binding post means comprising the three prongs respectively of said electrical plug mounted on said housing and extending through the walls thereof;

(1) said first binding post means connected to the normally energized post of said receptacle,

(2) said second binding post means connected to the normally neutral post of said receptacle and,



(3) said third binding post means connected to the normally grounded post of said receptacle when the three prongs of said polarized plug are inserted in said receptacle;

(c) first, second and third electric lamps visibly mounted on said housing;

(1) said first electric lamp directly connected between said first and second binding post means.

(2) said second electric lamp directly connected between said second and third binding post means, and

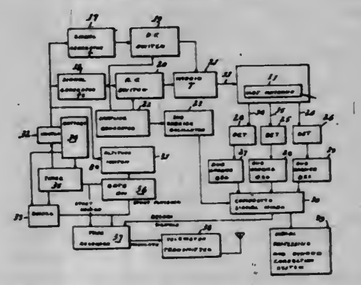
(3) said third electric lamp directly connected between said first and third binding post means whereby selected ones of said electric lamps according to the wired condition of the receptacle being tested are energized when the test instrument is connected to the receptacle thus indicating the manner in which said receptacle is wired.

3,317,826

APPARATUS FOR MEASURING PLASMA PARAMETERS ABOUT A VEHICLE

Charles M. Knop, Monte Ross, and Robert B. Hankin, Chicago, Ill., assignors, by mesne assignments, to HLF Corporation, Chicago, Ill., a corporation of California

Filed Feb. 26, 1963, Ser. No. 261,133
1 Claim. (Cl. 324—58)



Apparatus for measuring changes in plasma parameters about a vehicle comprising: means in said vehicle for generating a first signal; means in said vehicle for generating a second signal having a frequency different from

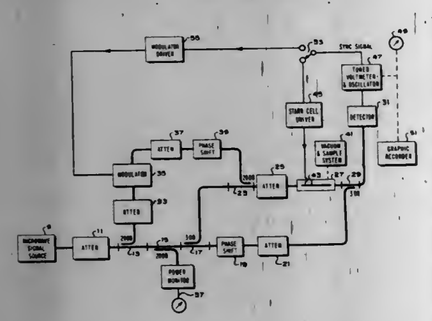
that of the first signal; a signal transmitting member having one end flush with the outer surface of said vehicle and in contact with said plasma; a switching network coupling said first and second generating means to alternately couple said signals to said transmitting member; means, including three probes extending into and spaced along said member at distances equal to one-eighth of a guide wavelength of said first signal, for measuring the standing wave in said waveguide; and means for storing and transmitting said measurements to a point of use.

3,317,827

MICROWAVE SPECTROMETER HAVING INDIVIDUALLY ADJUSTABLE REFERENCE AND TEST CHANNELS

Nicholas J. Kuhn, Cupertino, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif., a corporation of California

Filed Feb. 4, 1964, Ser. No. 342,487
12 Claims. (Cl. 324—58.5)



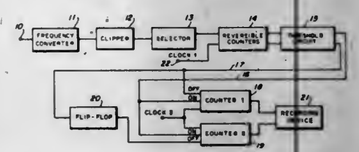
5. A spectrometer comprising:
a source for producing an electromagnetic radiation signal;
sample holding means including an element for producing an excitation field in a sample held in the sample holding means;
detecting means producing an output in response to application of an electromagnetic radiation signal thereto;
means including said sample holding means and forming a first signal path between said source and said detecting means for applying to said detecting means a first electromagnetic radiation signal which is changed from the electromagnetic radiation signal from said source by the interaction of said excitation field with the sample held in said sample holding means;
means forming a second signal path between said source and said detecting means for applying to said detecting means a second electromagnetic radiation signal of selected magnitude and phase relative to said first electromagnetic radiation signal, said detecting means producing an output in response to the resultant of electromagnetic radiation signals applied thereto; and
modulating means coupled to the sample holding means and to the means forming the second signal path for time-varying the electromagnetic radiation signal change produced by the interaction of said excitation field with the sample held in said sample holding means and for time-varying said second electromagnetic radiation signal, the selected parameters of the second electromagnetic radiation signal relative to corresponding parameters of the first electromagnetic radiation signal which provided a selected output from the detector means providing an indication of the electromagnetic radiation signal change produced by the interaction of said excitation field with the sample held in said sample holding means.

3,317,828

PULSE TIME MEASURING SYSTEM

Philip G. Schuls, Syracuse, N.Y., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy

Filed Jan. 22, 1964, Ser. No. 339,566
10 Claims. (Cl. 324—68)



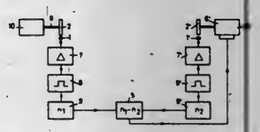
1. A pulse time measuring system for measuring rise time, fall time and overall pulse length comprising:
a voltage to frequency converter for converting an input voltage pulse to an output comprising discrete voltage pulses;
the frequency of said output changing in response to the amplitude of the input pulse;
measuring means operatively coupled to said converter for measuring successive output pulse durations for determining if the amplitude of the input voltage is increasing, decreasing or remaining constant;
rise and fall time measuring operatively coupled to the output of said measuring means for determining the rise and fall time of the input voltage pulse; and
total pulse length measuring means operatively coupled to said measuring means for measuring the overall length of the input voltage pulse envelope.

3,317,829

TRANSLATING DEVICE FOR CONVERTING A MECHANICAL MAGNITUDE INTO AN ELECTRIC FREQUENCY

Friedrich Kuhrt, Nurnberg, and Heinrich Grosshans, Erlangen, Germany, assignors to Siemens-Schuckertwerke Aktiengesellschaft, Erlangen, Germany, a corporation of Germany

Filed Sept. 20, 1960, Ser. No. 57,336
Claims priority, application Germany, Sept. 23, 1959, S 65,064
4 Claims. (Cl. 324—69)



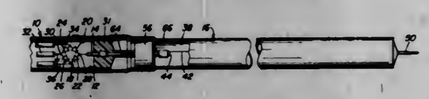
2. Apparatus for comparing the speeds of rotation of at least two rotating devices, said apparatus comprising inductive translating devices for converting each of said speeds into corresponding frequencies of an electrical magnitude, each of said devices comprising resistance plate means of semiconductor material, carrier means having an axis, drive means coupled to said carrier means for rotating it about said axis at a speed relative to said plate means which is correlative with the rotational speed to be translated, a plurality of permanent magnets mounted on said carrier and distributed thereabout at uniform distances, circuit connections attached to said semiconductor plate at opposing edges thereof for providing current in said plate and a periodic output voltage at opposing edges thereof, said plate being mounted near the travel path of said magnet to be subjected to the magnetic fields of said respective magnets during rotation of said carrier means, said plate being located in a plane defined by the magnetic axis of each permanent magnet when at the point closest to said plate during said rotation and by a line perpendicular to the tangential direction of carrier travel at said point; pulse counter means connected to the periodic output voltage circuit connections of each of the semiconductor plates; and comparator means connected to said pulse counter means for determining a function of the speeds of rotation.

3,317,830

RESPONSE NORMALIZER DELAY LINE INPUT FOR DIRECT SAMPLING PROBE

Chester N. Winningstad, Portland, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg., a corporation of Oregon

Filed Mar. 20, 1963, Ser. No. 266,689
5 Claims. (Cl. 324—72.5)



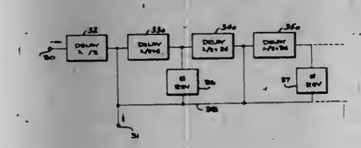
1. An apparatus for sampling electrical signals of high frequency, comprising:
an electrical probe having a hollow shield conductor;
a signal conductor including a probe tip electrode, supported inside said shield conductor and insulated therefrom with said probe tip extending out the front of said probe;
a sampling means including a sampling gate within said probe and having its input connected to the output of said probe tip electrode and means for applying a gating pulse to said sampling gate for transmitting a portion of the waveform of an input signal applied to said signal conductor, as a sample pulse through said sampling gate; and
response normalizer means attached to the front of said probe and including a section of transmission line having its output connected to the input of said sampling gate, said transmission line including an inner signal conductor connected to said probe tip electrode and an outer conductor connected to said shield conductor, for preventing transient signals produced by said change in conductive condition of said sampling means from distorting said sample pulse.

3,317,831

DELAY LINE FILTER WHEREIN PLURAL DELAY LINES ARE SERIES CONNECTED, THE TIME DELAYS OF WHICH INCREASE IN AN ARITHMETIC PROGRESSION

Nathan Marchand, Greenwich, Conn., assignor, by mesne assignments, to The Singer Company, a corporation of New Jersey

Filed May 28, 1962, Ser. No. 198,278
5 Claims. (Cl. 324—77)



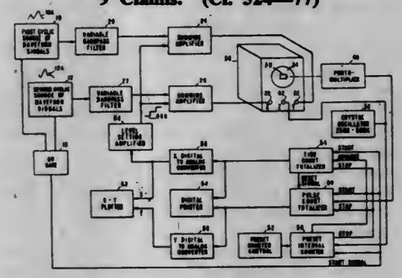
4. A filter for a frequency scanning wave having a constant phase change with time, said filter including plural delay lines of different delay times connected in cascade, and means for co-phasally combining the signal outputs of said filters, the delay times of said delay lines being selected to compensate for said phase change with time.

3,317,832

SINGLE OR JOINT AMPLITUDE DISTRIBUTION ANALYZER

James E. Webb, Administrator of the National Aeronautics and Space Administration, with respect to an invention of George M. Tetsuka, Monterey Park, Calif.

Filed May 21, 1964, Ser. No. 369,336
9 Claims. (Cl. 324—77)



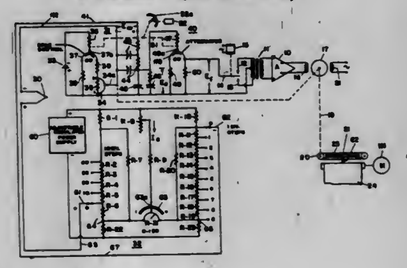
1. Apparatus for measuring the amplitude distribution of a time function which is represented by the waveform of an electrical signal comprising means for repetitively reproducing said electrical signal, means to which the output of said means for reproducing said electrical signal repetitively is applied for successively increasing the amplitude of said electrical signal by a fixed amount during each repetition of said electrical signal, means for sampling the output of said last-named means for the presence of a predetermined amplitude level and producing pulses during each sample for each occurrence of said predetermined amplitude level, means for counting said pulses, and means for recording the count achieved over each cycle of repetition of said electrical signal.

3,317,833

NULL TYPE MULTIRANGE MEASURING SYSTEM WHICH MAINTAINS CONSTANT SENSITIVITY THROUGHOUT THE SEVERAL RANGES

Charles E. Miller, Glenside, Pa., assignor to Leeds & Northrup Company, a corporation of Pennsylvania

Filed July 2, 1964, Ser. No. 380,093
6 Claims. (Cl. 324—99)



1. A measuring system comprising
a detector-amplifier,
an attenuating slidewire for said detector-amplifier including a contact,
a resistor in series with said contact of said attenuating slidewire,
said attenuating slidewire having two leg connections each including equal-valued resistors, one of them being connected across an input circuit of said detector-amplifier for applying to it a selected fraction of an error signal,

an adjustable current shunt comprising a shunting slidewire having two leg connections, one including a resistor and the other including a measuring slidewire, the resistance of said first-mentioned leg connection being equal to the equivalent resistance of the other said leg connection for providing a maximum ratio of the change in voltage across said measuring slidewire equal to the sum of the resistance of said shunting slidewire plus the equivalent resistance of one of said leg connections divided by said last-mentioned resistance,

a source of current,

a resistor in series therewith,

connections for connecting said source of current and said series resistor in series-circuit relation with said adjustable contact of said shunting slidewire and the juncture of its leg connections, adjustment of said shunting slidewire varying the current through said measuring slidewire,

an input circuit for application thereto of a voltage, the magnitude of which is to be measured, including a connection to said measuring slidewire and to said attenuating slidewire by way of said resistor connected in series with the contact of said attenuating slidewire, the difference between said voltage the magnitude of which is to be measured and that from said measuring slidewire producing an error voltage, a fractional part of which is applied to said detector-amplifier by said equal-valued resistor connected across the input circuit of said detector-amplifier, and

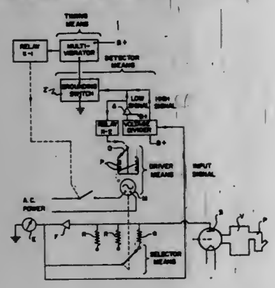
mechanical means for adjusting said shunting slidewire to vary the current through said measuring slidewire and concurrently adjusting said attenuating slidewire to maintain substantially constant said fraction of said error signal applied to said detector-amplifier independently of the level of current flowing through said measuring slidewire.

3,317,834

AUTOMATIC RANGE SWITCHING CONTROL FOR CONTINUOUSLY MONITORING AN ELECTRICAL SIGNAL INPUT

Paul L. Vitkus, Bedford, Mass., assignor to National Research Corporation, Cambridge, Mass., a corporation of Massachusetts

Filed July 10, 1963, Ser. No. 294,045
10 Claims. (Cl. 324—115)



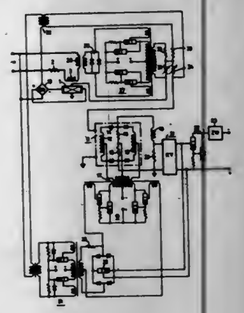
1. An automatic range switching control for monitoring an electrical signal input and comprising, in combination, a set of range defining resistances; a range selecting switch for selectively placing said resistances in circuit with input and output circuit connections, the output being an electrometer, or the like; a shaded pole electric motor for operating said range selecting switch; an electric power supply; a first relay for connecting said motor to said power supply; a unijunction multivibrator circuit having a square wave output for operating said first relay; a transistor switch for grounding the base of a unijunction transistor in said multivibrator circuit whenever said transistor switch is conducting; a voltage divider network electrically connected to the base of said switching transistor, to said input circuit connection and to a source of B voltage, the voltage divider network being arranged to inactivate said switching transistor when said input signal reaches a predetermined high signal limit; a switch operated by said first relay for grounding the base of the switching transistor; a transistorized, thermally compensated amplifier-switching circuit operating a second relay and being connected to said voltage divider network in such a manner that the second relay is operated whenever the input signal reaches a predetermined low signal limit; a third relay; said second relay operating said third relay and grounding the base of said switching transistor; said third relay reversing the direction of shading of the poles of said motor and locking itself in a position when operated; and a range limit switch operated by said motor for applying a cut-off signal to the base of said switching transistor when the range selecting switch reaches a first switch limit and for applying a cut-off signal to said amplifier when the range selecting switch reaches a second cut-off limit; a manually-operated switch for overriding the operation of said range limit switch at said first cut-off point to allow the range selecting switch to cycle to zero.

3,317,835

HALL GENERATOR WATTMETER HAVING SQUARE-WAVE SUPERIMPOSED ON HALL PLATE OUTPUT TO COMPENSATE FOR POWER FACTOR

Helmut Dietz, Ottokar Halla, and Erich Rainer, all of Nurnberg, Germany, assignors to Siemens-Schuckertwerke Aktiengesellschaft, Berlin-Siemensstadt, Germany, a corporation of Germany

Filed May 8, 1964, Ser. No. 366,040
Claims priority, application Germany, May 10, 1963, S 85,148
3 Claims. (Cl. 324—117)



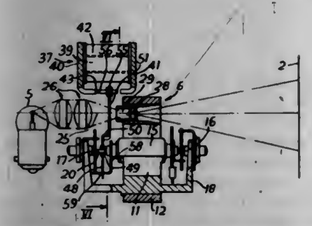
1. An electronic alternating current power metering system, comprising a Hall generator having two input circuits for respective current and voltage input magnitudes of the alternating current to be metered and having a magnetic field coil in one of said input circuits and a field-exposed Hall plate in the other of said input circuits and a Hall-plate output circuit, rectifier means connected in one of said input circuits to provide one of said input magnitudes in rectified condition as a rectified input magnitude, and integrating reactor connected to said output circuit, indicating means connected to said reactor for operation in acordance with the active power factor of the alternating current, and compensating means for compensating integrating errors due to departure of the power factor of the alternating current to be metered from unity value, said compensating means comprising a voltage source of adjustable square wave voltage and circuit means connecting said source with said voltage Hall-plate output circuit for superimposing the square wave voltage of said voltage source upon said output circuit in phase with the other of said input magnitudes.

3,317,836

ELECTRICAL INDICATING INSTRUMENTS FOR USE WITH PROGRESSIVELY VARIED OUTPUTS

George G. Welsh, St. Albans, England, assignor to The Electrical Apparatus Company Limited, St. Albans, England, a company of Great Britain

Filed May 3, 1963, Ser. No. 277,876
Claims priority, application Great Britain, May 4, 1962, 17,226/62
4 Claims. (Cl. 324—132)



1. An electrical indicating instrument comprising a magnet system including a cylindrical core surrounded by an annular air gap, a coil angularly displaced about the axis of said core to move in said air gap substantially proportionally to the instant magnitude of an electric current which is progressively variable in magnitude in a plurality of discrete steps and is supplied to said coil, a light source, a viewing screen, optical means for directing light from said source toward said screen in the form of a beam, a scale operatively associated with said coil and movable therewith, said scale having a curved zone which is traversed through said beam as said coil is angularly displaced, light-transmitting and opaque areas in said zone defining symbols each representative of a different magnitude of said electric current, said areas being so spaced that the symbol appropriate to the instant magnitude of said current will be brought into said beam by the pasage of said current through said coil, an element of magnetisable material operatively connected with said scale to be moved thereby in a given path as said coil is angularly displaced, an electromagnet fixedly mounted in proximity to said magnet system, pole-pieces on said electromagnet disposed upon opposite sides of said given path to define between them an air gap containing said given path and teeth formed on one at least of said pole-pieces to narrow said second-mentioned air gap at predetermined locations along said given path each defining a position of said element in which a different one of said symbols is accurately positioned in said light beam.

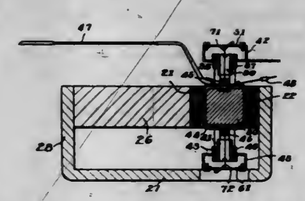
3,317,837

TAUT BAND SUSPENSION FOR INSTRUMENT INCLUDING AXIAL STOP ON SUSPENSION

Shoji Takeda and Fujio Yamaguchi, Musashino-shi, Tokyo, Japan, assignors to Kabushikikaisha Yokogawa Denki Seisakusho (Yokogawa Electric Works Ltd.), Tokyo, Japan, a corporation of Japan

Filed May 15, 1963, Ser. No. 280,601
Claims priority, application Japan, May 29, 1962, 37/28,271
6 Claims. (Cl. 324—154)

3. In a taut band suspension instrument including: a frame having an apertured wall; a movable element positioned adjacent one side of said wall and having a portion thereof in alignment with the aperture; and an elongated tension element having one end thereof secured to said movable element and the other end thereof extending through the aperture in said wall; the improvement therein comprising; a tension spring made of a resilient sheet in which a slot is formed in such a manner as to partially surround the center portion thereof so that said center portion may be resiliently displaced in a direction normal to the plane of said sheet, said spring being mounted in spaced relation to the opposite side of said wall and in substantial alignment with the aperture therein; and a stop member secured to said center portion in such a manner as to have a portion thereof overlie said sheet radially outwardly of said center portion, said tension element engaging said center portion and having its other end secured to said center portion to receive tensioned force from said tension spring; whereby said stop member is held spaced apart from the surface of said sheet radially outwardly of said center portion during normal suspension of said movable element and said stop member periodically engages the surface of said sheet radially outwardly of said center portion during periods of vibration of the instrument to prevent excessive movement of said movable element.

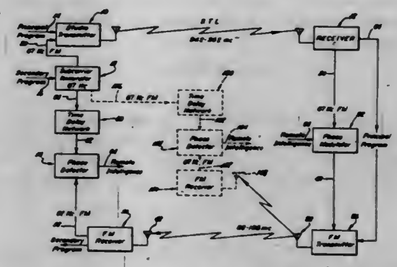


3,317,838

DETECTION OF REMOTE PHASE MODULATION OF VARIABLE FREQUENCY CARRIER

Howard M. Ham, Jr., Goleta, Calif., assignor to Moseley Associates, Inc., Santa Barbara, Calif., a corporation of California

Filed May 13, 1964, Ser. No. 367,053
8 Claims. (Cl. 325—31)



5. In a system for phase detection at a receiving station of intelligence phase modulating, at a station remote from a local station, a first carrier of variable frequency generated at the local station and transmitted by transmitting means to the remote station, the remote station including a transmitter for generating and broadcasting a second carrier modulated by said phase modulated first carrier as a subcarrier, and the receiving station including means for receiving said subcarrier and a phase detector for measuring the phase difference between the received subcarrier and a reference signal hereinafter defined,

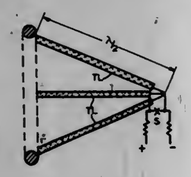
the provision of time delay means for receiving as an input signal said first carrier as generated at the local station and for producing therefrom an output signal constituting said reference signal and corresponding to said input signal but delayed therebehind by a time equal to the transit times from the local station to the remote station and thence to the receiving station minus the transit time from the local station to the receiving station.

3,317,839

CLOSED-CIRCULAR ANNULAR TANK CIRCUIT FOR SPARK GAP TRANSMITTER

Kurt Landecker, Armidale, New South Wales, Australia, assignor to Research Corporation, New York, N.Y., a corporation of New York

Filed Mar. 13, 1964, Ser. No. 351,801
Claims priority, application Australia, Mar. 20, 1963, 28,552/63
14 Claims. (Cl. 325—106)



1. Means for generation and transmission of very large pulses of radio frequency waves, said means consisting of a tank circuit constructed as a single radio frequency circuit incorporating a number of electrical reactor units arranged symmetrically and forming a closed circular and annular array, each said unit consisting of a condenser having a pair of terminals, a first and a second conductor for each said condenser connected respectively to opposite terminals of said pair, a spark gap common to all said reactor units, all said first conductors being of substantially equal length and connected to one side of said spark gap and all said second conductors being of substantially equal length and connected to the other side of said spark gap, a source of potential connected across said spark gap, and said conductors being arranged symmetrically radial in relation to said annular array, said tank circuit being extended spatially to constitute a magnetic dipole aerial the diameter of the said circuit being determined by the wave length and the radiation resistance of the signal transmitted.

3,317,840

SINGLE SIDEBAND GENERATOR

Julius Guttman, White Plains, N.Y., and Kirk Fourcher, Ridgefield, and Jonas M. Shapiro, Stamford, Conn., assignors to Manson Laboratories Inc., Wilton, Conn., a corporation of Connecticut

Filed Mar. 25, 1964, Ser. No. 354,526
17 Claims. (Cl. 325—137)

1. Single sideband generating circuit arrangement comprising, in combination,

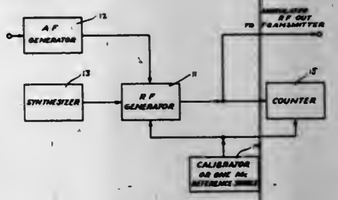
radio frequency generating means having a plurality of inputs and an output for producing sideband signals and for modulating audio modulations on a radio frequency carrier;

audio frequency generating means having an input and an output connected to an input of said radio frequency generating means for producing audio modulating signals from an upper sideband input and a lower sideband input;

means for supplying upper sideband inputs and lower sideband inputs to the input of said audio frequency generating means;

synthesizer means having an output connected to an input of said radio frequency generating means for supplying stable frequencies to said radio frequency generating means;

counter means having an input connected to the output of said radio frequency generating means and another input for indicating the frequencies of signals produced by said single sideband generating circuit arrangement;



calibrator means having an output connected to an input of said radio frequency generating means and to the other input of said counter means for supplying a reference frequency standard signal for said radio frequency generating means and for said counter means; and

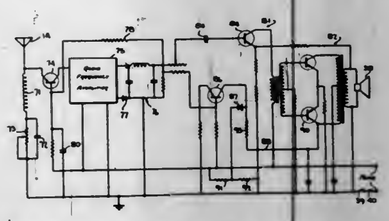
output means connected to the output of said radio frequency generating means for deriving the modulated radio frequency signals from said radio frequency generating means.

3,317,841

RADIO RECEIVER WITH ALARM MEANS OPERATIVE WHEN INPUT SIGNAL IS BELOW PREDETERMINED LEVEL

Martin Umanoff, Huntington, N.Y., assignor, by mesne assignments, to R. A. MacPlum Industries, Inc., a corporation of New Jersey

Original application Mar. 21, 1960, Ser. No. 16,206, now Patent No. 3,157,871, dated Nov. 17, 1964. Divided and this application Mar. 17, 1964, Ser. No. 352,598
2 Claims. (Cl. 325—364)



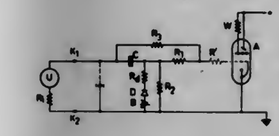
1. An alarm circuit for a radio receiver which operates to produce an oscillation when the radio input falls below a predetermined level comprising: a radio frequency amplifier-detector circuit which generates a direct current signal proportional to the radio input; an audiofrequency amplifier having its input coupled to said detector and also having a positive feed-back circuit including a transistor having a collector and also a base connected both to the output side of said detector and to ground and having also an emitter connected only to ground, said feed-back circuit being coupled between the output and input circuits to produce oscillation; and a control circuit including a biased diode connected across a portion of said feed-back circuit for short-circuiting the feed-back current when the diode is made conducting, said diode having its cathode connected to said collector of said transistor thus to be coupled through collector to base of said transistor to the detector circuit for control of its bias voltage.

3,317,842

CIRCUIT FOR TUNING INDICATION

Wilfried Hans Karl Peter Theodor Aschermann, Hamburg-Harburg, Germany, assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware

Filed July 2, 1963, Ser. No. 292,235
Claims priority, application Germany, June 28, 1962, P 29,707
16 Claims. (Cl. 325—455)



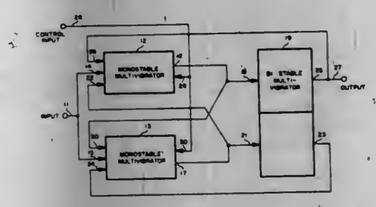
6. A tuning indicator circuit for a receiver comprising, a source of direct indication voltage which varies in amplitude with the tuning adjustment of said receiver and exhibits a resonant peak at the correct tuning position, a tuning indicator, first and second resistors serially connected between one output terminal of said indication voltage source and the input of said tuning indicator, a capacitor connected in parallel with at least one of said resistors, a third resistor connected between the junction of said first and second resistors and the other terminal of said indication voltage source, a diode connected across said second resistor and poled so that the time constant of the capacitor charge path is appreciably smaller than the time constant of the capacitor discharge path.

3,317,843

PROGRAMMABLE FREQUENCY DIVIDER EMPLOYING TWO CROSS-COUPLED MONOSTABLE MULTIVIBRATORS COUPLED TO RESPECTIVE INPUTS OF A BISTABLE MULTIVIBRATOR

David L. Emmons, Orlando, Fla., assignor to Martin-Marietta Corporation, Middle River, Md., a corporation of Maryland

Filed Feb. 1, 1966, Ser. No. 524,192
8 Claims. (Cl. 328—41)



1. A frequency divider circuit comprising:

(a) input and output lines;

(b) two monostable multivibrators for receiving input pulses from the input line and generating output pulses;

(c) bistable multivibrator for receiving pulses from said monostable multivibrators and producing output pulses;

(d) each said monostable multivibrator connected to receive inhibiting pulses from the output of the other said monostable multivibrator and from one output of said bistable multivibrator whereby only one of said two monostable multivibrators can be triggered and run at a time;

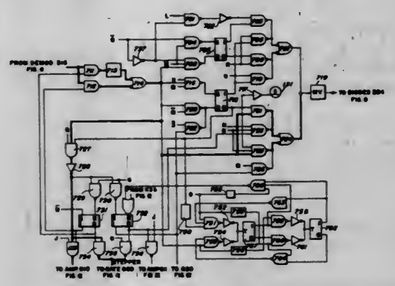
(e) said output line operable to receive pulses from only one output of said bistable multivibrator.

3,317,844

FACSIMILE - SYNCHRONIZATION - SYSTEM EMPLOYING LOGIC GATING AND TWO INTERNALLY-GENERATED OFF-SYNCHRONOUS FREQUENCIES FOR DETECTING AND SHIFTING MIS-SYNCHRONOUS CLOCK INTO SYNCHRONOUS FREQUENCY

George T. Shimabukuro, Monterey Park, Calif., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York

Filed Oct. 1, 1965, Ser. No. 492,049
5 Claims. (Cl. 328—63)



1. A system for synchronizing incoming signals having a predetermined pulse repetition frequency with locally generated signals, said system comprising:

logic means for generating periodic timing pulse patterns,

timing means responsive to selected ones of said timing pulse patterns for generating a plurality of repetitious timing signals, at least one of said timing signals having a pulse repetition frequency substantially equal to said predetermined pulse repetition frequency,

means for comparing said signals and detecting a plurality of synchronizing conditions between said incoming signals and said locally generated signals, said plurality of synchronization conditions being divided into at least a substantially synchronized condition and first and second mis-synchronized conditions wherein said first condition represents a greater mis-synchronization than said second condition,

means responsive to the detection of said first mis-synchronized conditions for applying periodic control signals to said logic means to increase the frequency of said timing signals above said predetermined frequency,

means responsive to the detection of said second mis-synchronization condition for applying periodic control signals to said logic means to shift the frequency of said timing signals above said predetermined frequency but lower than said first frequency, and

means responsive to the detection of a substantially synchronized condition for applying predetermined ones of said incoming signals as control signals to said logic means.

3,317,845

MEANS FOR TIME COMPRESSING A NARROW-BAND LOW-LEVEL SIGNAL

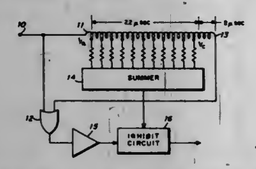
Vernon E. Terp, San Diego, Calif., assignor to the United States of America as represented by the Secretary of the Navy

Filed Dec. 21, 1964, Ser. No. 420,223
2 Claims. (Cl. 328—165)

1. Apparatus for producing a single wide-band high-level pulse of short duration in response to a low-level narrow-band signal of long duration comprising:

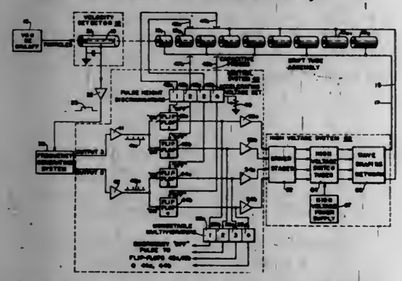
an input terminal for receiving signals to be processed, said signals having some fixed time duration,

delay means having a total delay time equal to said time duration of said signals to be processed,
said delay means having an input connected to receive singals at said input terminal,
said delay means having a plurality of outputs with each of said outputs being displaced from adjacent ones by equal time increments,
a summer connected to said plurality of delay means outputs and arranged to produce an output signal indicative of the instantaneous sum of signals present at said delay means outputs,
gating means having first and second inputs and an output and being arranged to pass signals at its first input to its output when no signals are present at its second input,
said gating means being arranged to prevent signals from passing from its first input to its output when a signal is present at its second input,



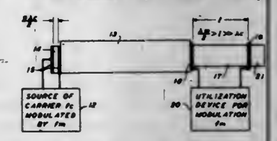
an OR gate having first and second inputs and an output and arranged to produce a signal at its output when signals are present at either of its inputs,
said first OR gate input being connected to said input terminal,
said second OR gate input being serially connected to the most time delayed output of said delay means through an additional incremental delay means, and
an amplifier, connected between said OR gate output and said gating means second input and adapted to pass only signals having a magnitude equal to or greater than the expected minimum magnitude of signals to be processed.
whereby receipt of signals having sufficient magnitude and proper time duration at said input terminal will cause said gating means to produce a high level short duration pulse indicative of same.

3,317,846
LINEAR ACCELERATOR FOR MICROMETEOROIDS HAVING A VARIABLE VOLTAGE SOURCE
Hugh L. Dryden, Deputy Administrator of the National Aeronautics and Space Administration, with respect to an invention of David G. Becker, Manhattan Beach, Joseph F. Frischtenicht, San Pedro, Bernard Hamermesh, Los Angeles, and Robert V. Langmuir, Altadena, Calif.
Filed Oct. 24, 1965, Ser. No. 505,076
12 Claims. (Cl. 328—233)



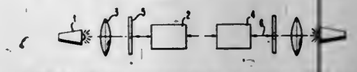
4. Particle accelerating apparatus comprising:
a series of longitudinally spaced, axially aligned hollow drift tubes disposed within a vacuum chamber;
electrostatic generator means for injecting charged microparticles into said drift tubes at an initial velocity;
high voltage supply means producing a square wave accelerating voltage;
wave shaping means for modifying and applying said square wave accelerating voltage to alternate ones of said drift tubes with an opposite polarity, said wave shaping means operable to impart a constant non-zero slope to the peaks of said square wave accelerating voltage; and
circuit means including detection means responsive to the velocity of a particle passing through said drift tubes to control the repetition rate of said square wave accelerating voltage such that each particle experiences an accelerating electric field in the gaps between said drift tubes.

3,317,847
ULTRASONIC WAVE DETECTOR
Donald L. White, Mendham, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed May 31, 1962, Ser. No. 199,178
6 Claims. (Cl. 329—198)



1. A detector for the modulation upon a modulated high frequency ultrasonic carrier signal comprising a body of piezoelectric semiconductive material having a conductivity that is in the order of magnitude of $\epsilon\omega$ where ϵ is $8.85\times10^{-14}\times$the dielectric constant of said material and ω is the angular frequency of said high frequency signal, said conductivity falling between that for which maximum piezoelectric response to said high frequency signal is exhibited and that for which maximum electron bunching takes place, and a pair of electrodes contacting said body at locations spaced apart by an amount that is large compared to the wavelength of said high frequency signal but less than the velocity of said signal in said body divided by the maximum number of expected signal maxima per unit of time.

3,317,848
NON-RECIPROCAL LIGHT AMPLIFIER
Robert W. Keyes, White Plains, N.Y., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed Jan. 20, 1964, Ser. No. 338,772
6 Claims. (Cl. 330—4.3)

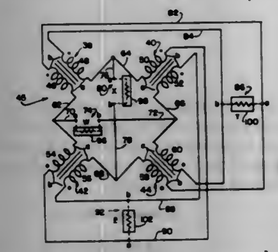


1. A light diode comprising a linear amplifier of light and a non-linear absorber element of light, the latter being in light conductivity relationship with said linear amplifier of light and having no electrical energy applied thereto to alter its absorptive characteristics, and means for sending light in opposite directions through said light diode.

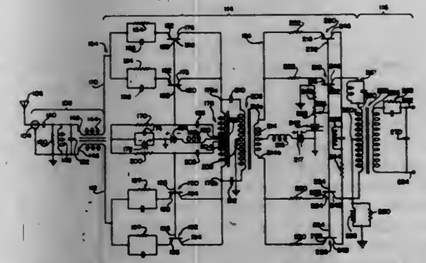
3,317,849
HYBRID CIRCUIT FOR RADIO FREQUENCY SIGNAL PROCESSING APPARATUS
William Reid Smith-Vaniz, Darien, Conn., assignor to Trak Electronics Company, Inc., Wilton, Conn.
Filed Dec. 17, 1963, Ser. No. 331,138
14 Claims. (Cl. 330—21)

10. A radio frequency multicoupler comprising in combination

(A) a pair of input conductors for receiving a balanced radio frequency signal,
(B) a balanced input amplifier stage connected with said input conductors for receiving said radio frequency signals and having a pair of output terminals, said input amplifier stage,
(1) having load impedance means connected between its output terminals,
(2) presenting a matched impedance to said input conductors over a broad range of radio frequencies, and
(3) developing at its output terminals an amplified representation of the radio frequency input signal,

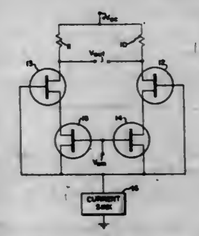


(C) a balanced output amplifier stage having a pair of input terminals and a pair of output terminals,
(1) said output amplifier stage presenting a uniform input impedance between said input terminals thereof over a relatively wide radio frequency range and isolating its input impedance from the impedance between its output terminals,
(2) said output stage developing at its output terminals an amplified representation of the radio frequency signal at its input terminals,



(D) a balanced interstage impedance transforming stage connected between said output terminals of said input amplifier stage and said input terminals of said output amplifier stage and matching the output impedance of said input amplifier stage with said input impedance of said output amplifier stage,
(E) a signal-dividing network having a pair of balanced input terminals, a plurality of output ports, and comprising at least two stages of cascaded hybrid circuits with one hybrid circuit in its first stage and two hybrid circuits in its second stage,
(1) each said hybrid circuit comprising first, second, third and fourth substantially identical transmission line transformers,
(a) each said transformer having first and second substantially identical parallel windings with first and second ends, so that currents flowing into said windings at the first ends thereof produce magnetic fluxes in the same direction,
(2) first, second, third and fourth pairs of conductors connected respectively to the winding ends of first, second, third and fourth transformers,
(a) each conductor of a pair being connected in series with a separate winding of each of said transformers,
(b) one conductor of each pair being connected to corresponding ends of adjacent transformers,
(c) the other conductor of each pair being connected to corresponding ends of opposite transformers,
(i) whereby said interconnected conductors and transformer windings form each of said hybrid circuits,
(ii) each said hybrid provides four matched ports between each of said pairs of conductors, and
(iii) each said hybrid forms two parallel circuit paths between each of two paired ports, with each path including one winding from each of said transformers,
(3) means connecting a first port of the hybrid circuit in said first stage to the output terminals of said output amplifier stage,
(4) means connecting a first matching impedance to a second port of the hybrid circuit in said first stage,
(5) means connecting the third and fourth ports of said first hybrid circuit respectively with the third port of each of said second and third hybrid circuits in said second stage,
(6) means connecting separate matching impedances to the fourth ports of said second and third hybrid circuits respectively, and
(7) means connecting the first and second ports of said second and third hybrid circuits, respectively, to separate and independent output ports of said network.

3,317,850
TEMPERATURE-STABLE DIFFERENTIAL AMPLIFIER USING FIELD-EFFECT DEVICES
David F. Hilbiber, Los Altos, Calif., assignor to Fairchild Camera and Instrument Corporation, Syosset, N.Y., a corporation of Delaware
Filed Apr. 29, 1963, Ser. No. 276,262
1 Claim. (Cl. 330—23)



A field-effect differential amplifier with a stable output independent of changes in common mode voltages, which comprises:
a pair of duplicate circuit paths, each having
a first field-effect device having a channel, a gate, two electrodes for passing current through said channel, and an electrode for applying a voltage to said gate,
means for supplying a current into a first of said two electrodes, said first electrode being unconnected to said gate,
output means couples to said first electrode,

a second field-effect device having a channel, a gate, two electrodes for passing current through said channel, and an electrode for applying a voltage to said gate,

input means coupled to the gate electrode of said second field-effect device.

means coupling a first of said two electrodes of said second field-effect device to the second of said two electrodes of said first field-effect device, and

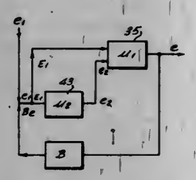
means coupling the second of said two electrodes of said second field-effect device with the gate electrode of said first field-effect device; and

a common current sink coupled to the second electrode of said two electrodes of each device, said field-effect devices and the magnitude of the current flowing into said current sink being proportioned to minimize variations in the amount of source-drain current in each of said field-effect devices while simultaneously minimizing variations in the source-gate voltage with temperature variations over a reasonable range for a predetermined value of said current magnitude.

3,317,851
FREQUENCY AND AMPLIFICATION STABILIZED HIGH POWER AMPLIFIER

Loebe Julie, Riverdale, N.Y., assignor to Julie Research Laboratories, Inc., New York, N.Y., a corporation of New York

Filed July 18, 1963, Ser. No. 297,177
5 Claims. (Cl. 330—84)



1. A stable amplifier system comprising, a system input, a main amplifier means having two inputs and a single output, feedback means for sampling a fraction of said single output and reintroducing it negatively with respect to said system input for producing an error signal, said error signal being used as one of the inputs for said main amplifier means, and preamplifier means having as an input said error signal and producing a preamplifier output for supplying said second main amplifier input.

3,317,852
TUNED MULTI-STAGE AMPLIFIER

Earl G. Hedger, San Diego, Calif., assignor to the United States of America as represented by the Secretary of the Navy

Filed July 25, 1963, Ser. No. 297,726
2 Claims. (Cl. 330—168)

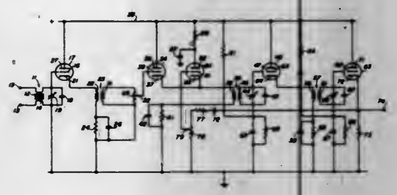
1. A multi-stage amplifier having a common ground and adapted to pass an output signal of large dynamic range with negligible phase shift comprising:

a plurality of parallel connected, tuned active elements with parallel connected tuned input circuits, each of said active elements including a cathode, anode and a control element;

a plurality of coupling transformers each having a primary winding and a secondary winding;

the primary winding having a first terminal connected to a different one of said cathodes and a second terminal connected to ground; and

the secondary winding having a first terminal connected to the control element of a following tuned active element and a second terminal connected to ground; and

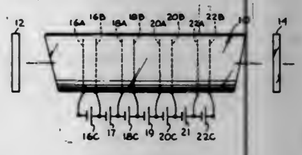


means for controlling the bandwidth of said amplifier, said means for controlling including an active control means responsive to an in-phase portion of said output signal and being connected in parallel with one said tuned active element.

3,317,853
GASEOUS LASERS

Nicholas George, Pasadena, Calif., assignor to California Institute Research Foundation, Pasadena, Calif., a corporation of California

Filed May 12, 1966, Ser. No. 557,849
5 Claims. (Cl. 331—94.5)



1. In a gaseous laser of the type having an elongated envelope with transparent ends, containing a gas for laser action and having a reflecting mirror spaced from each one of said ends to provide a resonant cavity between said mirrors, means for emitting electrons positioned within said envelope including a pair of spaced grids positioned substantially parallel to one another and substantially orthogonal to the elongated axis of said elongated envelope, said grids having openings large enough for freely passing gas molecules and electrons therethrough, and means for applying a potential to said grids for accelerating emitted electrons until they have a sufficient energy to provide inelastic collisions with molecules of the gas within said envelope to raise the energy of said gas molecules to the proper laser level.

3,317,854
BRIDGE-T OSCILLATOR CIRCUIT WITH GAIN CONTROL

John Liska, Panorama City, and Erland W. Rudy, Granada Hills, Calif., assignors to The Bendix Corporation, a corporation of Delaware

Continuation of application Ser. No. 388,396, Aug. 10, 1964. This application May 10, 1966, Ser. No. 554,265
7 Claims. (Cl. 331—110)

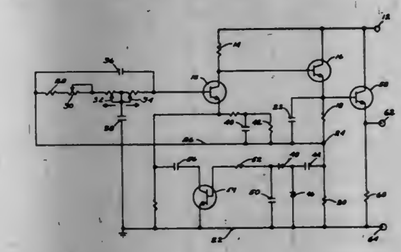
3. In an oscillator circuit comprising a power source and a first amplifying device connected to said power source;

a second amplifying device having a first electrode connected to said power source, a second electrode connected to receive the output of said first amplifying device, and a third electrode;

resistance means connected between said third electrode and a common voltage reference point;

a resonant circuit of bridge-T configuration connected to said resistance means and to the input of said first amplifying device to provide a negative feedback loop for said oscillator;

means including parallel-connected capacitance and resistance devices connected to said resistance means and to said first amplifying device to provide a positive feedback signal to said first amplifying device; and

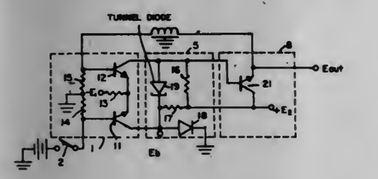


automatic gain control means including a third amplifying device having a first electrode connected to receive an input signal from said resistance means, a second electrode connected to said common voltage reference point, and a third electrode capacitively coupled to said positive feedback signal producing means and to said first amplifying device such that when the magnitude of the position feedback signal appearing at said first amplifying device varies from a desired value, a proper portion of said positive feedback signal may be connected to said common voltage reference point through said third amplifying device to bring said signal to the desired value.

3,317,855
OSCILLATOR INCLUDING A TUNNEL DIODE AS A TWO-LEVEL SWITCH

Yohan Cho, Harvard, Mass., assignor to Massachusetts Institute of Technology, Cambridge, Mass., a corporation of Massachusetts

Filed July 15, 1965, Ser. No. 472,186
10 Claims. (Cl. 331—111)



1. A signal generator comprising,

means for producing a substantially steady D.C. input signal,

means for comparing signals producing an output representative of the difference between magnitudes of said compared signals,

switching means responsive to said comparing means for producing first and second different signal levels during a pulse train,

means for delaying said different signal levels, and

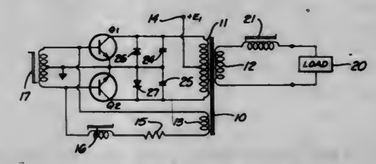
means for coupling of delayed different signal levels to said comparing means,

whereby said comparing means responds to said steady D.C. signal and said first delayed signal level to produce said output which causes such switching means to switch to said second signal level, and also responds to said steady D.C. signal and said second delayed signal level to produce said output which causes said switching means to switch to said first signal level.

3,317,856
TRANSISTOR INVERTER CIRCUIT BEING SWITCHED BEFORE OUTPUT TRANSFORMER SATURATES

Bruce L. Wilkinson, Torrance, Calif., assignor to Power Conversion Inc., Long Beach, Calif., a corporation of California

Filed May 20, 1965, Ser. No. 457,385
8 Claims. (Cl. 331—113)



1. In an inverter circuit having a pair of transistors connected in series opposition across a primary winding of the output transformer, with a secondary winding for the load and with the D.C. supply connected to the junction point of the transistors and to the center tap of the primary windings, the improvement comprising in combination:

a drive circuit connected to said transistors in driving relation for sequentially turning said transistors on and off in synchronism and out of phase with each other,

said drive circuit producing a drive current substantially in the form of a square wave with a zero current period between each positive and negative portion of the wave, with the drive current turning a transistor off prior to saturation of the core of the output transformer;

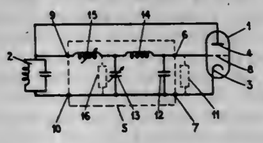
capacitor means connected across said primary winding of the transformer; and

means connected in the load side of said transformer for delaying the application of load to the secondary winding until the secondary voltage rises to substantially peak value following polarity reversal.

3,317,857
ALTERNATING CURRENT GENERATOR HAVING A PHASE SHIFTING FEEDBACK CIRCUIT

Charles Alphonse Beurtheret, Saint-Germain-en-Laye, France, assignor to Compagnie Francaise Thomson-Houston, Paris, France

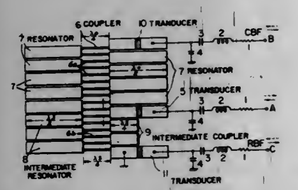
Filed Mar. 23, 1964, Ser. No. 353,777
Claims priority, application France, Mar. 26, 1963, 929,244
13 Claims. (Cl. 331—170)



1. An alternating current generator arrangement comprising, in combination, an electronic amplifier tube having a predetermined input resistance and reactance, a control grid, and input and output terminals; resonant

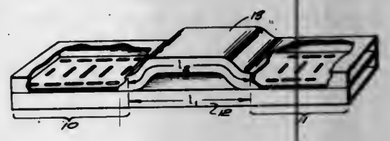
circuit means having a pair of connecting terminals connected to the output terminals of said tube; and feedback circuit means connected between said input terminals of said tube and said connecting terminals of said resonant circuit means for rendering said arrangement self-oscillating, said feedback circuit means being a four-terminal network comprising a first and a second terminal connected to said input terminals of said tube; a third and a fourth terminal connected to said connecting terminals of said resonant circuit means; a first inductor means and a second inductor means connected in series between said first and third terminal and having a junction connecting said first inductor to said second inductor, said first inductor being also connected to said first terminal; a first capacitor means connected between said first and second terminals; and a second capacitor means connected between said junction and said second and fourth terminals, the absolute magnitude of the reactance of each of said first and second capacitor means and first inductor means differing from each other by not more than a factor of 2, the absolute magnitude of the reactance of said second inductor means exceeding substantially that of said first inductor means.

3,317,858
ELECTROMECHANICAL FILTER OF CHANNEL SEPARATION FILTER TYPE COMPRISING MAGNETOSTRICTION BAR RESONATORS
Yasuo Tagawa, Tokyo-to, Japan, assignor to Kokusai Denki Kabushiki Kaisha, Tokyo-to, Japan, a joint-stock company of Japan
Filed Aug. 13, 1964, Ser. No. 389,381
Claims priority, application Japan, Aug. 23, 1963, 38/43,936
3 Claims. (Cl. 333—6)



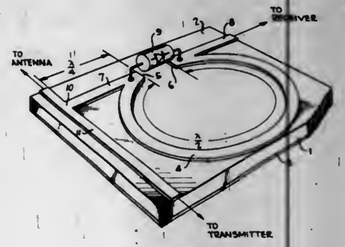
1. An electromechanical filter of the channel separation filter type comprising, a first electromechanical transducer, a second and a third electromechanical transducer, a first group of mechanical bar resonators serially connected between the first and second electromechanical transducers resonant at a first transmission frequency and having coupling pins having a length of one quarter wavelength at said first transmission frequency coupling the individual resonators of said first group, said first transmission frequency corresponding to a voice frequency band, each of said mechanical bar resonators of said first group having a length of one half wave-length at said first transmission frequency and the same vibration mode as said first transducer, a second group of mechanical bar resonators serially connected between said first and third transducers resonant at a second transmission frequency and having coupling pins having a length of one quarter wave-length at said second transmission frequency coupling the individual resonators of said second group, said second transmission frequency corresponding to a ringer circuit frequency, and said mechanical bar resonators of said second group comprise alternate bar resonators of one half wave-length and one quarter wave-length respectively of said second transmission frequency, whereby said first resonator is common to both of said groups and said groups have different pass-bands.

3,317,859
COMPENSATED DIRECTIONAL COUPLER
Edward Salzberg, Wayland, Mass., assignor to Microwave Development Laboratories, Inc., Needham Heights, Mass., a corporation of Massachusetts
Filed Dec. 28, 1964, Ser. No. 421,325
3 Claims. (Cl. 333—10)



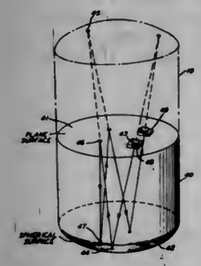
1. Apparatus for transmitting a band of signal frequencies, the apparatus comprising:
(1) a first directional coupler;
(2) a second directional coupler providing substantially looser coupling than the first coupler, the second directional coupler compensating the output of the apparatus for the frequency variation in coupling of the first directional coupler;
(3) and a phase shifter connected to transmit wave energy from one coupler to the other, the phase shifter causing the phase of wave energy delivered to the primary channel of the receiving coupler to be shifted as a function of signal frequency relative to the phase of wave energy delivered to the auxiliary channel of the receiving coupler, whereby the frequency variation in coupling of the first directional coupler is compensated by the coupling of the second directional coupler.

3,317,860
DIODE LIMITER
Robert V. Garver, Rockville, Md., assignor to the United States of America as represented by the Secretary of the Army
Filed Apr. 20, 1964, Ser. No. 361,627
3 Claims. (Cl. 333—11)



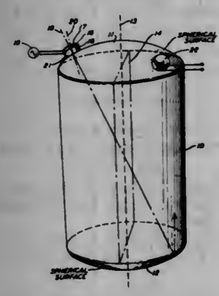
1. A high frequency diode limiter comprising:
(a) first means for providing an input transmission path for radio frequency energy,
(b) second means for providing an output transmission path for said radio frequency energy,
(c) a diode connected between said first means and said second means for providing a short circuit path between said first means and said second means when said radio frequency energy exceeds a predetermined level, and
(d) third means which is bypassed when said diode conducts and is connected between said first and said second means with an electrical length of one-half wavelength or an odd multiple thereof greater than the electrical length of said diode, said third means and said diode having substantially the same characteristic impedances.

3,317,861
SPHERICAL REFLECTOR ELASTIC WAVE DELAY DEVICE WITH PLANAR TRANSDUCERS
Rudolf Kompfner, Middletown, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Sept. 11, 1964, Ser. No. 395,664
4 Claims. (Cl. 333—30)



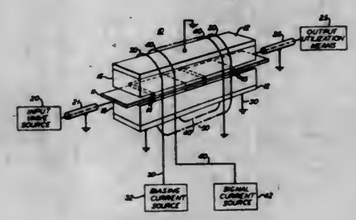
1. An ultrasonic device comprising a pair of spaced acoustical reflectors disposed along a common axis, the first of said reflectors having a plane reflecting surface and the second having a spherical reflecting surface, means associated with said first reflector for directing a beam of elastic wave energy toward said second reflector along a path displaced away from said common axis, and means for receiving elastic wave energy after multiple reflections between said reflectors.

3,317,862
OFF-AXIS ELASTIC WAVE DELAY DEVICE WITH SPHERICAL REFLECTIONS
Arthur H. Fitch, Mountain Lakes, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Sept. 11, 1964, Ser. No. 395,666
11 Claims. (Cl. 333—30)



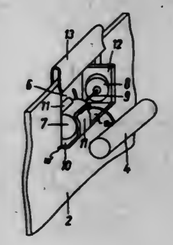
1. An ultrasonic device comprising first and second spaced acoustical reflectors disposed along a common axis, at least one of said reflectors having a spherical reflecting surface having a given focal length, means associated with said first reflector for directing a beam of elastic wave energy toward said second reflector along a path displaced away from said common axis, and means for receiving elastic wave energy after multiple reflections between said reflectors.

3,317,863
VARIABLE FERROMAGNETIC ATTENUATOR HAVING A CONSTANT PHASE SHIFT FOR A RANGE OF WAVE ATTENUATION
Dinh-Tuan Ngo, Somerset, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed May 7, 1965, Ser. No. 454,098
16 Claims. (Cl. 333—81)



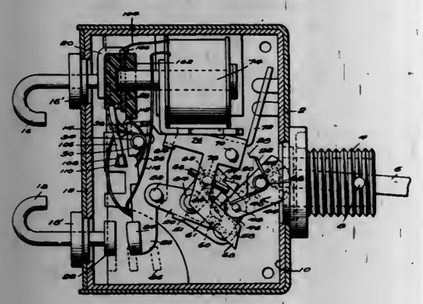
7. In combination, a wave propagating structure for a signal wave of predetermined frequency, first and second ferromagnetic means loading said structure, first field supplying means for biasing said first ferromagnetic means to a level above that corresponding to its level for ferroresonance at said frequency, and second field supplying means for biasing said second ferromagnetic means to a level a like amount below that corresponding to its level for ferroresonance at said frequency.

3,317,864
TUNER WITH CIRCUIT COMPONENT SUPPORTING PARTITION
Erich Wolter, Ingolstadt, and Karl Schwarz, Eltensheim, Germany, assignors to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm (Danube), Germany
Filed Apr. 14, 1965, Ser. No. 448,145
Claims priority, application Germany, Apr. 14, 1964, T 26,007
12 Claims. (Cl. 334—85)



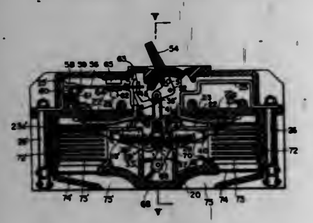
1. A tuner incorporating at least two adjacent tank circuits each having inner and outer conductors and including at least one electrically conductive partition which is common to the two adjacent tank circuits and which forms part of the outer conductor of each, said partition being provided with a recess, there being arranged in said recess a transistor having an axis and a D.C. blocking capacitor having an axis, one electrode of said transistor being connected to one plate of said capacitor, said transistor and capacitor being oriented with their axes lying at least approximately in the same straight line, said straight line being defined by the intersection of the plane of said partition and a plane which is parallel to the axis of said inner conductor.

3,317,865
CIRCUIT BREAKER WITH MOMETARY BY-PASS
George S. Harper, Cambridge, and Lyal N. Merriken, Federalsburg, Md., assignors to Airpax Electronics Incorporated, Cambridge, Md., a corporation of Maryland.
Filed Aug. 10, 1965, Ser. No. 478,559
3 Claims. (Cl. 335—12)



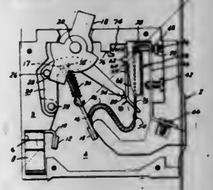
1. A circuit breaker comprising a frame, means mounting a fixed contact on the frame, a lever pivotally mounted on the frame and carrying a contact, toggle means for pivoting the lever to close and open the contacts, manual means for operating the toggle means, an electromagnet in series with the contacts, means operated by the electromagnet to trip the toggle means on a predetermined current flow through the contacts to open the contacts, and a switch plate pivotally mounted on the frame and pivoted by the lever to short circuit the contacts immediately on closing of the contacts, and pivoted to remove the short circuit immediately thereafter.

3,317,866
AUTOMATIC CIRCUIT INTERRUPTER HAVING MAGNETIC BLOWOFF MEANS
Tutomu Hanafusa, Osaka, Japan, assignor to Terasaki Denki Sangyo Kabushiki-Kaisha, Osaka, Japan
Filed Jan. 31, 1964, Ser. No. 341,585
Claims priority, application Japan, Feb. 7, 1963, 38/4,815; Feb. 20, 1963, 38/7,404; June 17, 1963, 38/30,699, 38/30,700; July 30, 1963, 38/39,864
10 Claims. (Cl. 335—16)



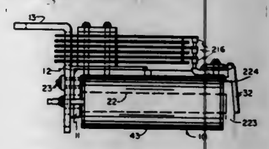
1. A circuit interrupter comprising a movable contact arm, a support member on which said movable contact arm is pivotably supported, a stationary contact arm, said contact arms being partly disposed in substantially parallel relationship, each of said contact arms having at the free end thereof a contact, operating means including resilient means operatively connected to said movable contact arm to effect opening and closing of said contacts, motive means responsive to overload current flow and spaced from said contact arms, tripping means coupled to and controlled by said motive means and including a movable member engaging one end of said resilient means, said interrupter having a longitudinally elongated groove within which said movable member moves to move the one end of the resilient means to perform a tripping operation, the said movable contact arm being rotatable to separate said contacts from each other independent of the operation of said operation means and said tripping mechanism under the force of an electromagnetic repulsion due to a flow of excessive current through both contact arms to produce an interruption of the associated circuit.

3,317,867
ELECTRIC CIRCUIT BREAKER WITH THERMAL-MAGNETIC TRIPPING ALLOWING FOR OVER-TRAVEL OF THE THERMAL MEANS
David B. Powell, Bristol, Conn., assignor to General Electric Company, a corporation of New York
Filed Dec. 13, 1965, Ser. No. 513,204
10 Claims. (Cl. 335—37)



1. In a thermal and magnetic current responsive device, the combination comprising:
(a) a support;
(b) an elongated bimetallic strip fixedly mounted at one end on said support and having its other end movable;
(c) a magnetic field piece mounted on said support in close proximity to said bimetallic strip;
(d) an armature adjacent to and magnetically engageable by said field piece during operation of the device upon passage of a large overload current through said bimetallic strip; and
(e) mounting means pivotably mounting said armature on said support, said armature being engageable by said bimetallic strip during operation of the device upon occurrence of a predetermined overload current to produce pivotal movement of said armature upon elongation of the high expansion side of said bimetallic strip and resultant bending thereof, said mounting means providing a first pivot for initial pivotal movement of said armature relative to said field piece and a second pivot for further pivotal movement of said armature relative to said field piece to accommodate overtravel of said bimetallic strip.

3,317,868
RELAY MOUNTING DISTORTION ELIMINATION BRACKET
William A. Depner, Naperville, Ill., assignor to Automatic Electric Laboratories, Inc., Northlake, Ill., a corporation of Delaware
Filed May 26, 1965, Ser. No. 458,967
4 Claims. (Cl. 335—132)



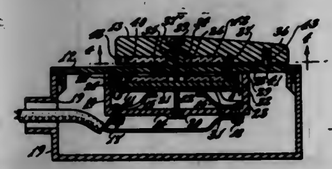
4. A bracket for the mounting of a relay to a base plate by means of at least one fastening screw, said relay being of the type comprising an L-shaped heelpiece having a first and second leg, said first leg having at least one aperture therethrough, said aperture having a predetermined diameter, said bracket being L-shaped and having a first and second leg with means for attaching said bracket to said heelpiece in an overlying relationship, said first leg of said bracket having at least one embossed portion to be received by said one aperture in said first leg of said heelpiece, said embossed portion having an outside diameter sufficiently smaller than said predetermined diameter of said one aperture so as to clear said heelpiece, and said embossed portion having a threaded aperture therethrough for receiving said one fastening screw, whereby said relay may be mounted to said base plate, substantially without transferring mechanical distortions to said relay, through the medium of said bracket.

3,317,869
REED SWITCH HAVING LARGE CURRENT CARRYING CAPACITY
Richard A. Funke, Milwaukee, Wis., assignor to Allen-Bradley Company, Milwaukee, Wis., a corporation of Wisconsin
Filed July 6, 1965, Ser. No. 469,587
10 Claims. (Cl. 335—154)



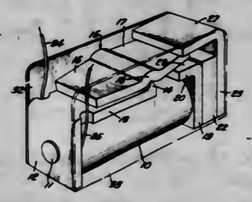
1. A sealed switch which responds to a magnetic field comprising:
(a) magnetic means electrically connected to a first lead,
(b) armature means carrying a first contact means and forming a magnetic gap with said magnetic means,
(c) said armature and magnetic means being responsive to said magnetic field at said gap,
(d) second contact means associated with said first contact means and electrically connected to a second lead,
(e) resilient means biasing said armature means to a gap-open position,
(f) said resilient means electrically connected to said first lead,
(g) said magnetic means and armature means acting to electrically shunt said resilient means when said gap is closed, and
(h) substantially non-magnetic means interposed between said first lead and said resilient means.

3,317,870
MAGNETICALLY OPERATED SWITCHES
John A. Bear, Philadelphia, Pa.; Wharton D. Bear, Administrator of said John A. Bear, deceased, assignor, by mesne assignments, to Wharton D. Bear, Philadelphia, Pa.
Filed Apr. 3, 1963, Ser. No. 270,401
2 Claims. (Cl. 335—207)



1. A magnetic switch comprising a slave unit, means journalling the slave unit for rotative oscillation only on an axis, said slave unit comprising an annular slave magnet concentric with said axis and having multiple poles evenly distributed about the periphery of the magnet, switch means controlled by motions of the slave unit, a master control unit in juxtaposed proximity to said slave unit having an axis co-extensive with the axis of said slave unit, said master unit comprising an annular master magnet concentric with said axis and having multiple poles evenly distributed about its periphery and having the same diameter and the same number of poles as the slave magnet, said master unit being rotatably oscillatable only whereby flux magnetic couples are established between the poles of the master magnet and the poles of the slave magnet in attraction and repulsion respectively to effect snap action of the slave unit in closing and opening the circuit through the switch means.

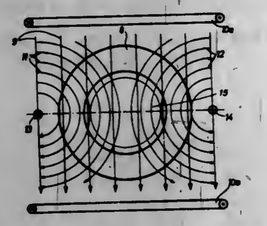
3,317,871
MAGNETICALLY OPERATED ACTUATOR
Andrew O. Adams, Inglewood, Calif., assignor to Leach Corporation, San Marino, Calif., a corporation of California
Filed Sept. 20, 1965, Ser. No. 488,545
1 Claim. (Cl. 335—230)



A motor drive comprising:
(a) a selectively energizable electromagnet having a coil, a core in the coil, a first pole piece and a second pole piece, the pole pieces being spaced apart and in magnetic flux-conductive contact with the core at opposite ends thereof, the first pole piece having an extension extending inwardly over the coil from one end thereof approximately parallel with the axis of the core, the second pole piece having an extension extending inwardly over the coil from the other end thereof approximately parallel with the axis of the core, the extensions of the pole pieces being spaced apart from each other;
(b) a permanent magnet having a north and a south magnetic pole and a pole piece member, one of the magnetic poles of the permanent magnet being in magnetic flux-conductive contact with the first pole piece of the electromagnet, the pole piece member of the permanent magnet being in magnetic flux-conductive contact with the other magnetic pole of the permanent magnet and having at least a portion extending inwardly over and approximately parallel with the extension of the first pole piece of the electromagnet, such portion being spaced apart from the extension of the first pole piece of the electromagnetic to define a gap;
(c) an armature pivotally mounted in magnetic flux-conductive contact on the second pole piece of the electromagnet, the armature having an end extending into the gap between the first pole piece of the electromagnet and the portion of the pole piece member such that the armature is in magnetic flux-conductive contact with such portion when the electromagnet is not energized, such contact establishing a flux path through the magnetic pole of the permanent magnet in contact with the pole piece member, the pole piece member of the permanent magnet, the armature, the second pole piece of the electromagnet and the core to the other magnetic pole of the permanent magnet; and

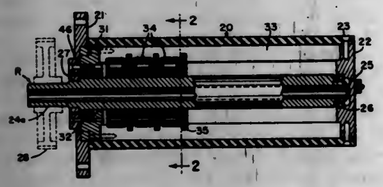
(d) means for energizing the electromagnet to produce a flux path opposed to the flux path of the permanent magnet such that the armature is repulsed from the pole piece member and attracted towards the first pole piece of the electromagnet for magnetic flux-conductive contact with such first pole piece.

3,317,872
ANNULAR TWO-POLE PERMANENT MAGNETS FOR DIRECT-CURRENT MOTORS HAVING THE FREE-POLE ARMATURES
Hellmuth Wullkopf, Hamburg-Gross, Flottbek, Germany, assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
Filed Sept. 21, 1964, Ser. No. 397,733
Claims priority, application Germany, Sept. 24, 1963, P 32,644
3 Claims. (Cl. 335—284)



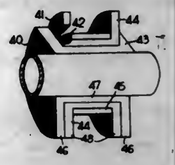
1. A method of peripherally magnetizing an annular permanent magnet body to produce therein two poles and a magnetization having a radial component which comprises a fundamental wave and the third harmonic thereof comprising the steps of placing said permanent magnet body into a diametrical homogeneous magnetic field and two oppositely-directed circular magnetic fields which lie in a plane passing through the axis of the permanent magnet body.

3,317,873
MULTI-CHANNEL ROTARY TRANSFORMER
Sydney Himmelstein, 7710 Sheridan Road, Chicago, Ill. 60626, and Howard S. Knaack, Lake Bluff, and Richard S. Tveter, Glenview, Ill.; said Knaack and said Tveter assignors to said Sydney Himmelstein
Filed May 1, 1964, Ser. No. 364,129
1 Claim. (Cl. 336—120)



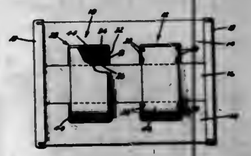
A multi-channel rotary transformer comprising a frame providing spaced bearings, a shaft journalled in said bearings, means coupled to said shaft for rotating the same, a plurality of U-shaped rotor cores affixed to said shaft in axially-spaced relation, each rotor core having radially-extending side walls confining a rotor coil, and a U-shaped stator core on said frame for each rotor, said stator core also having radially-extending side walls confining a stator coil, each stator core further including two substantially identical unitary gapless hemicylinders having a cylindrical portion integral with said stator core side walls to define a U-shape in radial section, the distance between the inner faces of the side walls of each stator core being greater than the distance between the outer faces of the side walls of the rotor core associated therewith, said stator cores each being mounted on said frame to dispose the side walls thereof in radially-overlapping relation to the side walls of the associated rotor core so as to position said outer faces of said rotor core in confronting relation with said inner faces of said stator core whereby said rotor core is received within the hemicylinders constituting the associated stator core to provide a minimum-reluctance rotary transformer characterized by air gaps existing only between the side walls of said rotor and stator cores and between the diametrally-arranged hemicylinders.

3,317,874
ROTATING TRANSFORMER
Vernon B. Honsinger, Cincinnati, Ohio, assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed June 25, 1964, Ser. No. 377,822
4 Claims. (Cl. 336—120)



1. An electric transformer comprising: a plurality of iron laminations arranged to define a first annular core member, a second annular core member concentric with said first core member; said second core member having a first set of U-shaped laminations arranged to form an annular member with the leg portions of said laminations extending radially outward, a second set of U-shaped laminations positioned between the legs of said laminations of said first set and being arranged with their legs extending radially outward to define therebetween an annular groove, a third set of laminations having a substantially rectangular shape positioned within said annular groove, said core members combining to define therebetween an annular torus; a first coil positioned within said torus and being connected to a source of current; a second coil positioned in said torus and connected to a load, one of said core members being rotatable relative to the other and each of said laminations of each of said cores lying in a plane that includes the center line of said core.

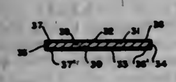
3,317,875
MAGNETIC CORE AND COIL ASSEMBLY HAVING IMPROVED INSULATION ARRANGEMENT
Charles T. Williams, Fort Wayne, Ind., assignor to General Electric Company, a corporation of New York
Filed Nov. 15, 1965, Ser. No. 507,763
6 Claims. (Cl. 336—198)



1. A magnetic core and coil assembly comprising at least one substantially rectangular prewound electrical coil having a length, a height, a width, and a winding thickness, and having winding turns that are substantially parallel to a plane passing through said length and height of said coil, a shell-type magnetic core having at least

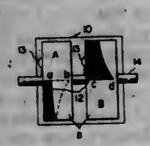
two winding openings therein, said coil being mounted on said core with a portion of said winding turns along said coil length being positioned in said winding openings, and a sheet of relatively thin insulation material consisting of an essentially rectangular inner cover and further consisting of four symmetrically positioned tabs integral therewith, each of said tabs being essentially rectangular and extending transversely from opposite longitudinal edges of said inner cover, two of said tabs extending along one longitudinal edge of said inner cover and the other two of said tabs extending along the other longitudinal edge of said cover, each of said tabs being longitudinally undercut along its respective longitudinal edge of said inner cover from opposite ends of said tabs to points separated by a distance substantially equal to the inner length of said coil, said insulation material being formed with transverse folds in said inner cover so that said inner cover fits against the inner surfaces of said coil, and being further formed with a first longitudinal fold in each of said tabs between said separated points and by a second longitudinal fold in each of said tabs that is transversely and outwardly spaced from said first longitudinal fold by a distance slightly greater than said coil winding thickness so that each of said tabs covers two respective corners of said coil along said coil length in said opening.

3,317,876
ELECTRICALLY INSULATED COPPER STRIP CONDUCTORS
Emil H. Olson, Muskegon, Mich., assignor to Anaconda Wire and Cable Company, a corporation of Delaware
Filed Sept. 14, 1964, Ser. No. 396,087
5 Claims. (Cl. 336—206)



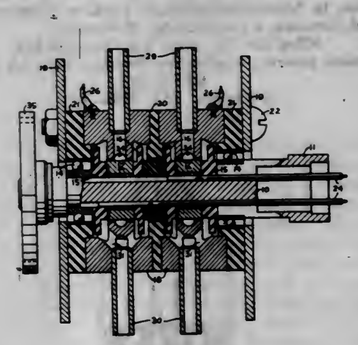
1. An electrically insulated copper strip conductor comprising:
(a) a copper strip,
(b) a metal aluminum coating on the side edge portions of the strip,
(c) an oxidic dielectric film on the aluminum coating covering and insulating the side edges of the strip, and
(d) an electric insulating film on at least one flat surface of the strip.

3,317,877
MULTIPLE REVOLUTION TYPE LOGARITHMIC VOLUME UNIT
Takao Matsumoto, 59 Kuritaya, Kanagawa-ku, Yokohama-shi, Japan
Filed Jan. 19, 1965, Ser. No. 426,552
Claims priority, application Japan, Jan. 20, 1964, 39/2,393
1 Claim. (Cl. 338—89)



A multiple revolution type logarithmic volume unit having two volume sections, each section including an annulus of insulator sheet, a resistance wire wound on said insulator sheet over an angle of 180° for providing a logarithmic characteristic and terminals for said resistance wire, a minimum resistance position of one of said sections corresponding in an axial direction to a maximum resistance position of the other of said sections, a casing, said annuli being stationarily and coaxially supported by said casing to be in side by side relationship in an axial direction, a rotatable shaft mounted in said casing in coaxial relation to said volume sections, contact arms on said shaft cooperable with the resistance wires of the respective sections, said arms being positioned on said shaft at the same angular position, a minimum resistance terminal of one section being connected with a maximum resistance terminal of the other of said sections, a logarithmic recording meter having a switching part for the digits thereof, and said contact arms being connected to said switching part.

3,317,878
HIGH SPEED SLIP RING
James D. Garis, Pekin, Steven J. Schmidt, Washington, and Charles N. Fangman, Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill., a corporation of California
Filed Dec. 17, 1964, Ser. No. 419,106
3 Claims. (Cl. 339—5)

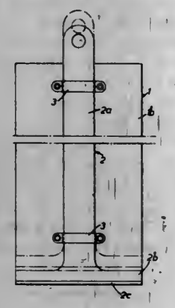


1. A slip ring comprising a rotor of electrical conducting material secured to a shaft, a stator of electrical conducting material closely spaced with respect to the rotor, an enclosure surrounding the rotor and stator, means to circulate mercury through said enclosure to substantially fill the space between the rotor and stator and to create a path for the flow of electrical current between the rotor and stator, and disc-shaped slinger means mounted on said shaft at opposite sides of said rotor to cause excess mercury to flow radially outwardly and through drain means.

3,317,879
PRINTED CIRCUIT BOARD CONNECTOR
Leslie Haynes Smith, West Bridgford, England, assignor to United-Carr Incorporated, Boston, Mass., a corporation of Delaware
Filed Sept. 21, 1964, Ser. No. 397,933
2 Claims. (Cl. 339—17)

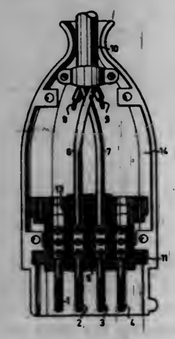
1. An edge connector having a slot provided with resilient contacts for engagement with parts of circuitry of a printed circuit board, a printed circuit board having an edge portion insertable into said slot, said board having a thickness such that it is readily insertable into the slot without making rubbing engagement with the contacts, a member slidably mounted on said board and arranged to enter the slot in the connector after the edge portion of the board has been positioned in the board, the distance between said resilient contacts and the opposed wall

of said slot being less than the thickness of said printed circuit board and said member whereby said printed cir-



cuit board is moved into engagement with said contacts when said member enters said slot.

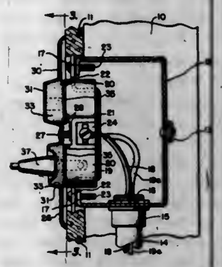
3,317,880
PLUGS WITH BUILT-IN PHASE INVERTERS
Sven Fredrik Erhard Meyer, Stockholm, Sweden, assignor to Industriaktiebolaget Elektro-Variator, Ostersund, Sweden, a corporation of Sweden
Filed Jan. 22, 1964, Ser. No. 339,508
Claims priority, application Sweden, Feb. 13, 1963, 9,559/63
8 Claims. (Cl. 339—31)



1. A plug with a built-in phase inverter comprising at least three contact pins arranged side by side in insulated relationship,
and rotatable means in said plug with two adjoining ones of said contact pins therein mounted rotatable with respect to the remainder of the plug to reposition said two adjoining ones of said contact pins with respect to a third one of said contact pins arranged in the remainder of the plug upon movement of said rotatable means
whereby the phase inversion is realized when the rotatable means is turned from one into another predetermined position.

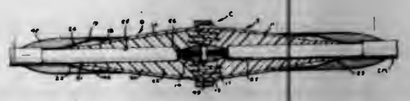
3,317,881
SAFETY DEVICE FOR ELECTRICAL RECEPTACLES
John C. Setecka, 1931 S. Austin Ave., Cicero, Ill. 60650
Filed Apr. 18, 1966, Ser. No. 544,666
4 Claims. (Cl. 339—42)

1. In a safety device for shielding electrical receptacles against accidental contact
a relatively thin non-conductive panel adapted to be mounted behind a metal face plate of an electrical receptacle;
an outwardly projecting slotted boss on said non-conductive panel;
an apertured pad of resilient rubber-like material mounted in said boss and having its inner face substantially parallel to the plane of said non-conductive panel;



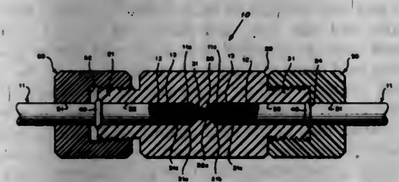
a slotted plastic sheet-like liner secured to the inner face of said pad and having slots in substantial alignment with the apertures of said resilient pad;
said pad, said panel and said guard being adapted to receive and have projected therethrough the prongs of electric plugs; said pad and said guard normally preventing the insertion of pointed objects and of fingers into contact with the plug prongs or with metal parts of a receptacle.

3,317,882
HIGH VOLTAGE COAXIAL CONNECTOR
William Ludlow Schumacher, Camp Hill, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed Oct. 5, 1964, Ser. No. 401,546
8 Claims. (Cl. 339—89)



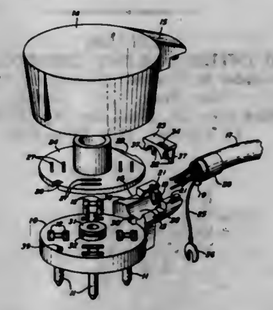
1. A high voltage coaxial connector for connection onto coaxial cable means comprising hollow metallic means including a first and a second shell member, each shell member having a section for securing outer conductor means of said coaxial cable means thereon, insulation means disposed in said shell members, each insulation means having a bore for receiving center conductor means therethrough, center connector means in said insulation means, said center connector means having an opening provided with areas of less and decreasing diameter than said bore adjacent one end of said center connector means, said opening receiving a center conductor means, connecting means disposable within said areas of said opening with said center conductor means being disposed between said areas and said connecting means, movable means comprising a frangible member disposable within said connecting means and being forcefully movable along said connecting means thereby forceably driving said connecting means into engagement with said center conductor means and said areas with said frangible member being broken from said movable means after said movable means has driven said connecting means into engagement with said center conductor means and said areas, means to secure said shell members together to interconnect said center connector means and to interconnect said outer conductor means, and insulation means for disposition over said shell members from said outer conductor means securing section onto said coaxial cable means.

3,317,883
HIGH VOLTAGE WIRE COUPLING
Walter C. Gourley, Oreland, and James R. Bellace, New Hope, Pa., assignors to the United States of America as represented by the Secretary of the Navy
Filed Mar. 31, 1965, Ser. No. 444,476
1 Claim. (Cl. 339—94)



A hermetically sealed high voltage electrical coupling for connecting opposing ends of a pair of insulated stranded electrical conductors comprising in combination:
a flexible, resilient, tough, high dielectric strength body member made of Teflon and having coaxially extending thereinto from opposite ends thereof first and second short frusto-conical bores, said member having first and second cylindrical bores each being of a diameter to receive a respective one of the conductor ends and each coaxially extending from a respective said frusto-conical bore toward the other and terminating at an interior end spaced from that of the other, and said member having a third cylindrical bore being of a diameter smaller than those of said first and second cylindrical bores and coaxially extending between said interior ends of said first and second bores and forming communication therebetween;
a contact member formed of electrical conducting material, said contact member having a cylindrical portion received within said third cylindrical bore, one end of said portion terminating in a shoulder portion integral therewith and positioned within said first cylindrical bore in engagement with the interior end thereof, said contact member further having a first tapered projection integral with said cylindrical portion and said shoulder portion and extending from said shoulder portion into and coaxially of said first cylindrical bore, and said contact means further having a second tapered projection integral with said cylindrical portion and extending from said cylindrical portion into and coaxially of said second cylindrical bore, said oppositely extending tapered projections being for insertion within the ends of a respective one of the insulated stranded electrical conductors;
a removable shoulder portion member having an axial aperture and formed of electrically conducting material, said second tapered projection of said contact member being inserted through said aperture and engaging said removable shoulder portion member, and said removable shoulder portion member further being positioned within said second cylindrical bore in engagement with the interior end thereof;
a pair of O-ring sealing means each formed for encircling a respective conductor, positionable against the surface of a respective said frusto-conical bore and having a size slightly larger than the area of said respective frusto-conical bore when the conductors are inserted within said body member; and
a pair of cap means made of Teflon and each having an aperture therethrough in axial alignment with said first, second and third cylindrical bores, each said cap threadably engaging said body member and including a surface portion cooperating with said sealing means for urging the same against the surface of a respective said frusto-conical bore and against the respective conductor depressing the surface thereof to form a mechanical interlock therewith in response to threading engagement;
whereby a hermetic seal is provided between the surface of each frusto-conical bore and the respective conductor and a good electrical connection is insured between the tapered projections and the conductors.

3,317,884
ELECTRICAL PLUG WITH CORD ANCHOR
Harry P. Lynch, Greenfield, Ind., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Sept. 9, 1964, Ser. No. 395,156
4 Claims. (Cl. 339—106)

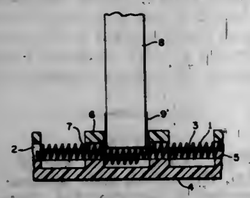


1. A plug, in combination with an electrical multiconductor cord, said plug comprising a mating cap portion and a body member, the latter including a plurality of electrical terminals, said portion and said member each having a trough section, said sections when said portion and said member are mated forming a cord access passage, the ends of the individual conductors of said cord each having an electrical cord terminal tip, said cord including anchoring means including at least one projecting member axially spaced from the terminal tip ends of said cord, a trough section of said member including a slot and attaching means, said slot being adapted to receive said projecting member of said anchoring means, cord restricting means attached to said member by said attaching means and holding said projection in said slot, and, guide means interposed between said portion and said member, said last-mentioned means guiding said terminal tips into physical and electrical contact with said terminals.

3,317,885
ELECTRICAL CONNECTOR FOR PRINTED CIRCUIT BOARDS
James Whitney Yost, Rochester, N.Y., assignor to Stromberg-Carlson Corporation, Rochester, N.Y., a corporation of Delaware
Filed Feb. 26, 1965, Ser. No. 435,446
9 Claims. (Cl. 339—176)

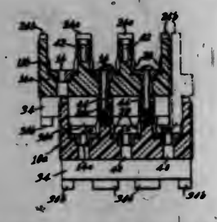
1. In combination, a plurality of circuit boards having conductive members along at least one edge thereof, a frame member having a plurality of columns of channels formed thereon and having a plurality of rows of channels transverse to said columns of channels formed thereon, said rows of channels and said columns of channels being formed in opposite planar surfaces of said frame member, a plurality of unitary elongated conductive springs each positioned within a particular one of said columns of channels and the channels forming said rows of channels, said springs being flexible in a direction transverse to the length of said springs, said frame member including a plurality of resilient side members forming said rows of channels and resiliently engaging the one edge of respective circuit

boards with the conductive members thereof in contact with and laterally deflecting said springs, and a base mem-



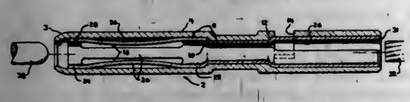
ber having a plurality of ribs in parallel overlapping alignment with the side members of said frame member for supporting said springs within said columns of channels.

3,317,886
STACKED INTERLOCKING TERMINAL BLOCKS
Alexander R. Norden, 350 Central Park W., New York, N.Y. 10025
Filed June 30, 1964, Ser. No. 379,162
11 Claims. (Cl. 339—198)



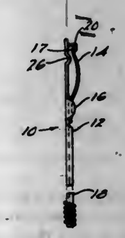
2. An assembly of modular terminal blocks, each terminal block including a unitary block of insulation having plural body portions, a corresponding number of elongated circuit connectors extending across said body portions and supported by said body portion, respectively, said block of insulation having a series of elongated insulating barriers flanking said connectors and extending integrally from said body portions, the assembly including a pair of terminal blocks one of which is disposed on the other with at least one barrier of one block of the pair disposed opposite to one said connector and the corresponding body portion of the other block of the pair, and means uniting at least one said barrier of one of said pair of terminal blocks to said corresponding body portion of the other of said pair of terminal blocks for securing said pair of terminal blocks together in staggered relation.

3,317,887
CONTACT SOCKET
Homer Ernst Henschen and Marvin Leo Yeager, Carlisle, Pa., assignors to AMP Incorporated, Harrisburg, Pa.
Filed Dec. 16, 1964, Ser. No. 418,820
2 Claims. (Cl. 339—256)



1. An electrical contact socket comprising a relatively thick-walled tubular metal sleeve member and a relatively thin-walled cylindrical metal contact member within said sleeve member, said contact socket being adapted to receive a contact pin at one end thereof and to be crimped onto a wire at the opposite end, said contact member being substantially coextensive with said sleeve member but terminating short of said one end of said sleeve member, said contact member having a plurality of axially extending slots proximate to said one end and said contact member being inwardly bowed between said slots thereby to form a plurality of axially extending semi-elliptic contact springs, said springs being integral at their forward ends with a cylindrical wall section of said contact member bearing against the internal surface of said sleeve whereby, upon insertion of a contact pin, said springs are flattened and said cylindrical wall section is moved relatively towards said one end, said other end of said socket is crimped onto an inserted wire with said sleeve member pressing said contact member against said wire, the shape of said contact member is similar to the shape of said sleeve member at said crimped end of said socket whereby said contact member is held against said wire to establish an electrical connection therewith, said contact member providing a continuous electrical path between said wire and said pin and being protected by said sleeve member.

3,317,888
BI-METAL CIRCUIT BOARD CONNECTOR
Lloyd Mancini, Hershey, Pa., assignor to Berg Electronics, Inc., New Cumberland, Pa., a corporation of Pennsylvania
Filed Dec. 31, 1964, Ser. No. 422,782
5 Claims. (Cl. 339—258)

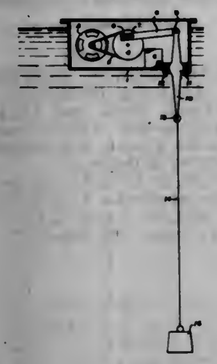


1. An electrical contact comprising an elongate base of malleable metal and a spring metal leaf contact, said base including an integral wire wrap tail portion formed at one end thereof for connection with an electrical conductor, a hook portion at the other end thereof extending away from said base and toward said one end thereof, said hook portion and base defining an opening facing said one end of said base, and a pair of tabs on said base adjacent said tail; said leaf contact lying along said base intermediate said tail and hook portions thereof and being uniformly bowed away from said base sufficiently to position the median portion thereof outwardly of said hook portion and expose the same for electrical contact to a circuit element, said tabs being folded over a flattened length of the end of said leaf contact adjacent said tail portion to hold said contact against said base and establish an electrical connection therewith, the other end of said leaf contact extending into said opening and being biased away from the base and against said hook portion.

3,317,889
METHOD OF AND MEANS FOR REPELLING SHARKS
Stanley Barrand, Woodville West, South Australia, Australia, assignor of one-half to Roy A. Bartram, Woodville West, South Australia, Australia
Filed Sept. 28, 1964, Ser. No. 399,808
Claims priority, application Australia, Sept. 30, 1963, 35,893/63
3 Claims. (Cl. 340—5)

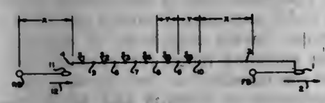
1. A method of repelling sharks in water comprising generating a repelling vibration of a frequency between 100 and 14,000 cycles per second, periodically interrupting said vibration to give an intermittent periodic vibration, and applying the vibration to the water.

3. A device for repelling sharks in water comprising a flexible line adapted to be suspended in said water, actuating means at the one end of the line to move that end of the line from side to side, means to drive the said actuating means, a sinker at the other end of the line



to keep the line taut and a lost motion device coupling said driving means to said line actuating means whereby the vibrations caused by the line moving through the water are periodically interrupted, and intermittent periodic vibrations of frequency between 100 and 14,000 cycles per second are generated.

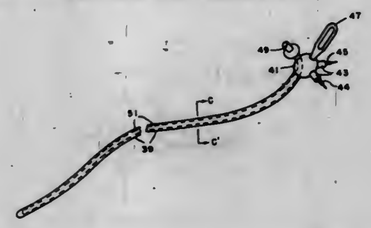
3,317,890
OVERWATER SEISMIC EXPLORATION METHOD AND APPARATUS
William A. Hensley, Jr., Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Mar. 22, 1965, Ser. No. 441,676
14 Claims. (Cl. 340—7)



1. An improved method for water-borne seismic exploration comprising pulling a series of sections of seismic detectors through the water, all of said sections being of equal length and the total number of said sections in said series being equal to a whole even integer, alternately creating seismic signals at a fixed distance from either end of said series as it is pulled through said water, said fixed distance being X, such that $X=Y(i)$, Y is the length of one of said sections and i is a whole integer that can be divided into the said total number of sections in said series to give a whole even integer, each seismic signal being created after said series has been pulled said fixed distance through said water following the next preceding created seismic signal, detecting the reflected seismic signals with said series and recording and compositing same.

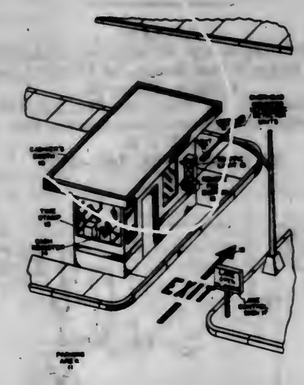
3,317,891
RESISTANCE-TYPE LINE DETECTOR
John S. Bradley, Dallas, Tex., assignor to The Atlantic Refining Company, Philadelphia, Pa., a corporation of Pennsylvania
Filed July 8, 1964, Ser. No. 381,054
4 Claims. (Cl. 340—17)

1. A line seismometer comprising
(a) an elongated flexible first tubular member composed of an electrically insulating material,
(b) granular resistor elements substantially filling the void within said tubular member, said resistor elements carrying an electric current the resistance of which varies proportional to the energy of impinging seismic waves, and



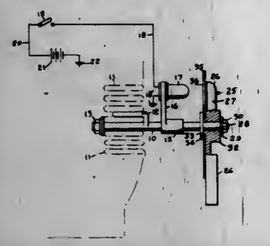
(c) a fluid-inflatable resilient second tubular member located within the confines of said first tubular member and extending substantially the length thereof for adjusting the packing of said resistor elements, thereby controlling the response of said resistor elements to said seismic waves.

3,317,892
CASHIERING CONTROL SYSTEMS FOR COLLECTING FEES FOR VEHICLES
Peter D. Schwarz, Rochester, N.Y., assignor to General Signal Corporation, Rochester, N.Y., a corporation of New York
Filed Oct. 21, 1963, Ser. No. 317,713
17 Claims. (Cl. 340—31)



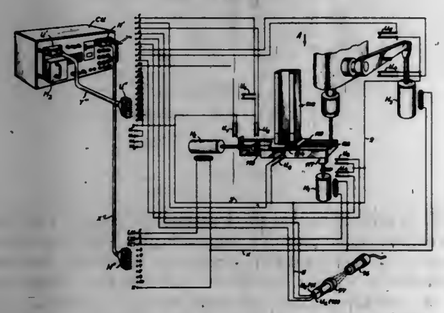
1. A control system for a cashiering location adjoining an exiting traffic lane in a vehicle facility having normally inoperable fee registering apparatus selectively rendered operable to register receipt of collected fees comprising,
(a) vehicle presence detector means for entering and leaving ends of an area of the exiting lane adjoining the cashiering location for sensing the presence of vehicles within the area,
(b) traffic direction sensing means governed by the vehicle detector means for manifesting the direction of travel of each vehicle passing within the area, and
(c) control means governed by the vehicle detecting means for rendering the registering apparatus operable to register receipt of a vehicle fee only provided it is manifested by the direction sensing means that a vehicle has been detected as having entered the area at the cashiering location while traveling in a direction for leaving the facility.

3,317,893
MOTOR VEHICLE WARNING SIGNAL
George Noel Bolinger, 515 N. Morgan St., Shelbyville, Ill. 62565
Filed Sept. 18, 1963, Ser. No. 309,817
4 Claims. (Cl. 340—96)



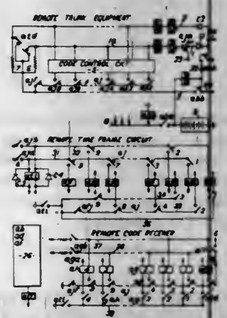
1. A motor vehicle warning signal comprising a shaft adapted to be fixed to the forward end of a motor vehicle and projecting horizontally therefrom, a fixed light bulb mounted eccentrically of said shaft, and a rotary unit mounted forwardly of said light bulb independently thereof and rotatable on said shaft, said unit having propelling elements to cause rotation thereof by motion of the air when the vehicle is moving forwardly, said unit being further provided with a planiform body between said bulb and said propelling elements, which body projects radially outwardly from said shaft a distance greater than the distance between the axis of said shaft and said light bulb, said body being cut away to such an extent as to intermittently substantially wholly expose said light bulb as said unit rotates.

3,317,894
AUTOMATION OF WORKING MACHINES
Herman Børge Funck Jensen, 16 Moller Meyersvej, Risskov, Denmark
Filed Nov. 26, 1962, Ser. No. 239,925
Claims priority, application Great Britain, Dec. 27, 1961, 46,270/61
28 Claims. (Cl. 340—147)



1. In an automation system for a working machine having a plurality of electrically controlled operation performing members adapted to be controlled by command signals to provide sequential operation of said members following a predetermined sequence in combination: a binary counter device, a plurality of data signal members on said working machine effectively providing data signals, means operatively connected with said binary counter device and operable to switch said binary counter device exclusively by said data signals, binary-to-decimal conversion means operatively connected with said counter device and providing a plurality of sequentially energizable circuit means selectively rendered effective in decoded correlation with the binary digits in response to switching of said binary device, and means operatively connecting said circuit means with said operation performing members for deriving command signals for said operation performing members from said circuit means.

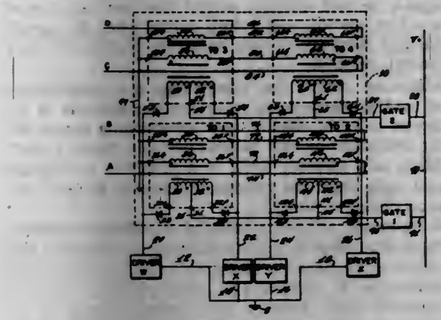
3,317,895
CONTROL OF REMOTE TELEPHONE AND LIKE EQUIPMENTS
Robert Victor Cavin, Paris, and Marcel Feuillepain, Sainte-Genevieve-des-Bois, France, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed Mar. 13, 1963, Ser. No. 264,912
Claims priority, application France, Mar. 14, 1962, 891,055, Patent 82,225
4 Claims. (Cl. 340—147)



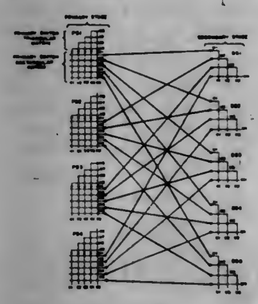
1. A signalling system for exchanging pulses between local equipment and remote equipment over transmission lines extending therebetween comprising means in said local equipment and in said remote equipment for providing coded sequences of strong and weak pulses including pulses having amplitudes of different polarity, said means including relays for inserting resistances in series with the transmission lines between the local and remote equipment to establish said weak pulses in the sequences of pulses, said local equipment and said remote equipment including marginal relays responsive to the strong pulses to transfer corresponding signals to code receiving circuits, said remote equipment including timer relays responsive to all the pulses to ensure the reception of system timing information, said local equipment including means for signalling the direction of transmission by establishing a particular coded sequence, said remote equipment including means for transmitting sequences of said weak and strong pulses to the local equipment, and means in said local equipment for utilizing the pulses received from the remote equipment in determining the condition of the system.

3,317,896
TRANSFORMER-SWITCHING MATRIX
Vernon P. Bollesen, Minneapolis, and Leo F. Slattery, St. Paul, Minn., assignors to Control Data Corporation, Minneapolis, Minn., a corporation of Minnesota
Filed June 4, 1963, Ser. No. 285,512
4 Claims. (Cl. 340—166)

1. A power steering driver for selectively generating a voltage on one of a plurality of output lines, comprising: a power steering drive matrix including a plurality of transformer components, each of said components having a pair of primary windings effectively wound in opposite sense and a plurality of secondary windings, the individual secondary windings of each component being connected in series with at least one secondary winding of another transformer component and with an output line; input control means selectively actuated to connect an external voltage source to said matrix to energize single primary windings of more than one transformer component thereby inducing voltages across the secondary windings associated with said energized primary windings, the secondary windings being wound such that the induced voltages in one series connection are additive to produce a resultant voltage on the output line in said series connection.

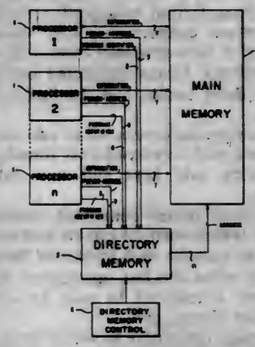


3,317,897
MULTI-STAGE SWITCHING NETWORK
Joseph A. Cecunzo, Poughkeepsie, Leon Stambler, Brooklyn, and Alfred Weiss, Kew Gardens, N.Y., assignors to the United States of America as represented by the Secretary of the Army
Filed Aug. 13, 1963, Ser. No. 301,928
3 Claims. (Cl. 340—166)



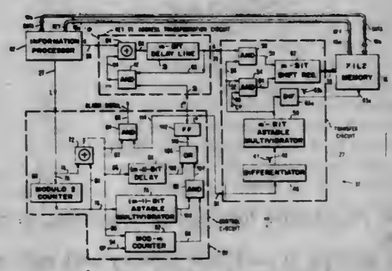
1. A multi-stage switching network comprising: a plurality of primary switches, each of said primary switches consisting of a rectangular and a triangular matrix; a plurality of triangular secondary switches; and conductor means for connecting each of said primary switches to each of the remaining primary switches through each of said secondary switches, so that a connection between lines on the same primary switch is made through a crosspoint on the triangular matrix associated with that primary switch, and a connection between lines on different primary switches is made through a crosspoint on each of the respective primary switches and a crosspoint on one of said triangular secondary matrices.

3,317,898
MEMORY SYSTEM
Herbert Hellerman, Yorktown Heights, N.Y., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed July 19, 1963, Ser. No. 296,353
34 Claims. (Cl. 340—172.5)



1. An apparatus comprising, in combination:
an addressable main memory for storing information at locations corresponding to a main memory addressing scheme;
a plurality of processors, each having a program identifier and each capable of accessing information stored in the addressable memory according to a pseudo-addressing scheme that is independent of the pseudo-addressing scheme specified by each of the other processors;
and a directory memory for converting the program identifiers, addresses in the independent pseudo-addressing schemes used in the processors into addresses in the main memory addressing scheme.

3,317,899
INFORMATION PROCESSING SYSTEM UTILIZING A KEY TO ADDRESS TRANSFORMATION CIRCUIT
Robert T. Chien, Yorktown Heights, and Charles V. Freiman, Pleasantville, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed Oct. 23, 1963, Ser. No. 318,232
29 Claims. (Cl. 340—172.5)



10. An information processing system comprising:
an information processor, said information processor providing variable length keys, data associated with said keys, and control pulses identifying the beginning and end of said keys;

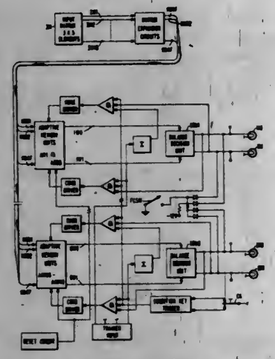
key-to-address transformation circuit connected to said information processor to transform said keys to respective addresses by polynominal division, said addresses being of digit length m and said keys being of at least digit length $m+1$, said digits being the integers modulo-k (k=2, 3, . . .), said transformation circuit having an algebraic-ring-with-unit addition means receptive of said keys, said addition means being characterized in accordance with said keys, a delay means connected to said addition means for delaying in time positions from said addition means, and feedback means connected between the output of said delay means and the input of said addition means;

file memory means connected to said information processor and said key-to-address transformation circuit for storing said keys and said data at locations therein;

transfer circuit means connected between said key-to-address transformation circuit and said file memory means to transfer said addresses therebetween commencing when the last operational digit of said key has been introduced to said key-to-address transformation circuit; and

control means responsive to said control pulses to regulate the operation of said key-to-address transformation circuit by controlling said polynomial division, said keys in an m-span cluster being transformed to different addresses, and to control the transfer therefrom via said transfer circuit means of said addresses to said file memory means, said control means generating a two-level control signal, said control signal transferring from high level to low level at the operational end of a key and remaining in the low level until after the m-th digit of the succeeding key has been introduced to said key to address transformation circuit.

3,317,900
ADAPTIVE LOGIC SYSTEM
Genung L. Clapper, Vestal, N.Y., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed Dec. 23, 1963, Ser. No. 332,528
5 Claims. (Cl. 340—172.5)



4. An adaptive logic system comprising, in combination,

a plurality of metastable memory units each unit having a plurality of stable conditions on each side of a neutral condition, each said memory unit having two output circuits, the output signals on said circuits being balanced when said memory unit is in its neutral condition and unbalanced in one direction or the other when said unit is displaced to one side or the other of said neutral condition;

input means connected to said memory units for setting said units in selected conditions;

a pair of memory output signal lines connected to the output circuits of all of said memory units;

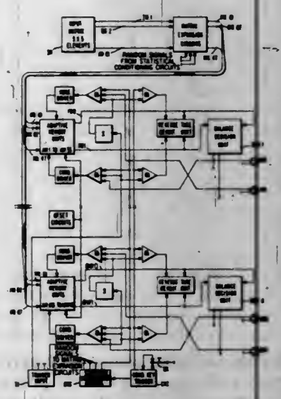
balance decision means connected to said output signal lines and responsive to signals on said lines to provide a first output when the signals on said memory output lines are equal, a second output when the signals on said memory output lines are unbalanced in a first relation, and a third output when the signals on said memory output lines are unbalanced in a second relation;

conditioning means for controlling the conditioning of said memory units to selected conditions in response to input signals, said conditioning means being controlled by said balance decision means to condition said memory units in a direction to displace said units from the condition indicated by said balance detection unit;

training means settable to selected conditions representing desired outputs, said training means governing said conditioning means to render said conditioning means responsive to govern said memory units when a variance exists between the desired output as selected by said training means and the actual output of said memory units as indicated by said balance detecting means; and

forced conditioning means for selectively disabling the control of said conditioning means by said balance decision units so that the output of said memory units is not effective in controlling their conditioning.

3,317,901
ADAPTIVE LOGIC SYSTEM WITH INPUTS APPLIED RANDOMLY ONLY DURING CONDITIONING CYCLES
Genung L. Clapper, Vestal, N.Y., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed Feb. 5, 1964, Ser. No. 342,745
8 Claims. (Cl. 340—172.5)



1. An adaptive logic system comprising, in combination,

(a) a plurality of adaptive memory units, each unit having a plurality of stable conditions to which the unit may be set in response to input and conditioning signals supplied thereto,

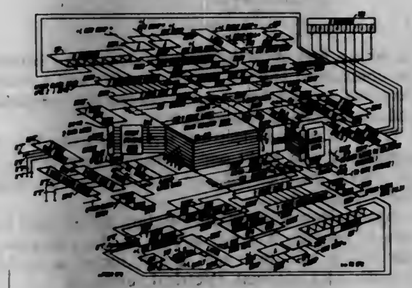
(b) a source of input signals connected to said memory units,

(c) a source of conditioning signals connected to said memory units,

(d) a common output circuit connected to said memory units and having output signals thereon of different weights in accordance with the states of the memory units, and

(e) means for inhibiting the input signals to said memory units on a random selection basis only during the conditioning of said system.

3,317,902
ADDRESS SELECTION CONTROL APPARATUS
Louis A. Michael, Vestal, N.Y., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed Apr. 6, 1964, Ser. No. 357,359
6 Claims. (Cl. 340—172.5)



1. Apparatus for selectively addressing a selectable data-containing address in one or the other of two separate and distinct data storage areas having different numbers of respective address-decoding drive lines, comprising:

address register means having bits of data for controlling address selection,

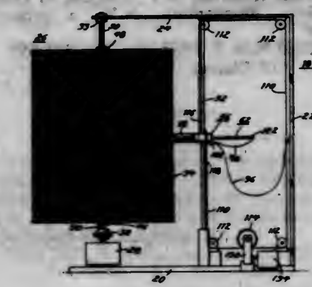
means independent of said bits for preselecting which of the areas is to be addressed,

means including means responsive to the preselecting means and an output corresponding to the data in the address register means for energizing a corresponding unique one of the drive lines in the preselected area, and

means controlled by the preselecting means and operative, upon preselection of the one area having the fewer number of drive lines, to prevent drive line energization in said one area from being influenced by any invalid combinations of data in said address register means.

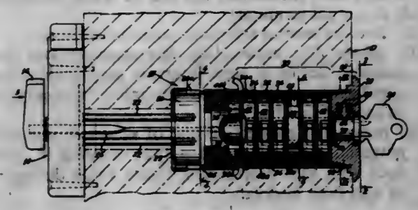
3,317,903
AIR BEARING TRANSDUCER
John Presper Eckert, Jr., Herbert Frazer Welsh, and Norman J. Appleton, Philadelphia, and Morton Silverberg, Elkins Park, Pa., assignors, by mesne assignments, to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Filed Feb. 2, 1955, Ser. No. 485,746
12 Claims. (Cl. 340—174.1)

1. A recording apparatus comprising a body provided with a record surface, a slider block head member with a bearing and signaling surface proximate a portion of the record surface of said body and having a leading and trailing edge, said head member and said body being relatively movable whereby the relative motion causes a fluid force to be exerted on the bearing surface of said head member in manner to maintain said head member displaced from said body, and suspension means including a leaf spring, said suspension means yieldably supporting said head member in proximate relation with said record surface of said body and loading said member at a point closer to said trailing edge than to said leading edge to



counteract the fluid force exerted on said head member and to thereby maintain a certain spacing of said head member from said record surface.

3,317,904
ALARM SYSTEMS
Nathan S. Clay, 290 Riverside Drive, New York, N.Y. 10025
Filed Oct. 22, 1964, Ser. No. 405,677
20 Claims. (Cl. 340—274)

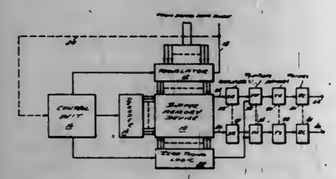


1. An alarm system for use in connection with a door or the like and including a circuit, a door actuated switch and an alarm in the circuit and a key actuated selective combinational switch arranged in control of said alarm circuit, the door-actuated switch being connected in the circuit for suppressing the effect of said selective switch so long as the door-actuated switch remains in its closed-door condition and, when in its open-door condition, for transferring control of the alarm circuit to said selective switch, said selective combinational switch including a pair of terminals and switching means for establishing a normal circuit condition between said terminals in which the alarm is inactive, said combinational switch having key-receiving means for admission and removal of a key in two mutually displaced positions and having selective means cooperable with an inserted edge-coded key in accordance with the code thereof and operable thereby and including a plurality of mutually independent key-selected elements individually in control of the switching means for establishing said normal circuit condition only when said elements are all in their normal positions, said elements being selectively "settable" to other positions with the door closed without activating the alarm by insertion and operation of a key which is then removed, said elements being selectively operable upon by reinsertion and restoring operation of an inserted key so as to restore the switching means to said normal circuit condition only by said first-mentioned key or a duplicate thereof, whereby any of a variety of keys may be used for "setting" said switching elements and whereby setting of the switching elements without proper restoring operation thereof, followed by opening of the door, causes activation of the alarm.

3,317,905
DATA CONVERSION SYSTEM

John M. Hunt, Hillcrest, N.Y., assignor to General Precision, Inc., Binghamton, N.Y., a corporation of Delaware

Filed Nov. 5, 1963, Ser. No. 321,555
11 Claims. (Cl. 340—347)



1. A data conversion system for converting multi-bit digital data words into corresponding analog voltage signals comprising,

(a) a source of multi-bit digital data words, the bits of each of said words being normally arranged in a predetermined order of bit significance;

(b) a two dimensional buffer memory device;

(c) translator means coupled between said source and said device operable to rearrange said predetermined order of bit significance of said multi-bit digital data words with at least one most significant bit both preceding and succeeding the bits of lesser significance;

(d) an output terminal;

(e) first and second reference potential sources;

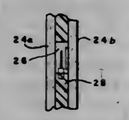
(f) means for successively interrogating said buffer memory device at time intervals proportional to the significance of said bits to determine the binary value of each of said bits; and

(g) means for connecting one of said first and second potential sources to said output terminal in accordance with said determined binary value during each of said time intervals.

3,317,906
LAMINATED GLASS HAVING ELECTRICALLY OPERATED INSTRUMENT INDICATOR MEANS EMBEDDED IN THE INTERLAYER

Donald B. Baldridge, Trenton, Mich., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

Filed July 13, 1964, Ser. No. 382,006
5 Claims. (Cl. 340—366)



1. An improved laminate comprising a pair of pellucid panels, an interposed plastic interlayer and at least one electrically operated instrument indicator means embedded in the plastic interlayer.

3,317,907
INDICATING LAMP HOUSING

Ernest L. Stagliano, Jr., Springfield, Pa., assignor to General Electric Company, a corporation of New York

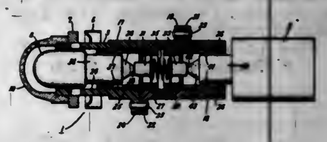
Filed Jan. 22, 1964, Ser. No. 339,531
7 Claims. (Cl. 340—381)

1. A housing for electric components such as indicating lamps, comprising:

(a) an insulating body adapted for mounting on a panel;

(b) first and second socket assemblies attached to said insulating body and respectively accessible from opposite ends of the body for detachably receiving electrical components therein, each of said socket assemblies including a socket member of conducting material and a contact button disposed at the interior end of the socket member, the socket members of said assemblies being mechanically and electrically separate from each other;

(c) means in each of said assemblies for maintaining the received component in locking relationship there-



in, with a first electrical contact established between the component and the socket member and a second electrical contact established between the component and the associated contact button;

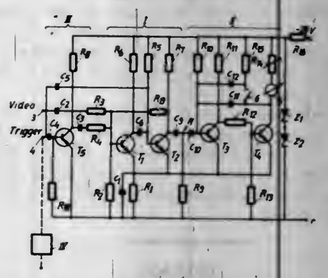
(d) first and second electrical terminals extending externally of said body and connected respectively to the socket members of said first and second socket assemblies; and

(e) means electrically interconnecting said contact buttons to provide a series circuit of the components received in said first and second socket assemblies between said external electrical terminals.

3,317,908
RADAR ALTIMETER

Hellmuth Schöneborn, Sauerlach, Munich, Germany, assignor to Bolkow Gesellschaft mit beschrankter Haftung

Filed Oct. 6, 1964, Ser. No. 401,828
Claims priority, application Germany, Oct. 9, 1963, B 73,799
11 Claims. (Cl. 343—13)

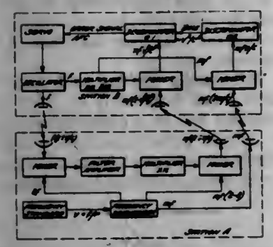


1. Device for continuous indication of the true altitude above ground of an aircraft equipped with radar, and using video and trigger pulses of the radar receiver, said device comprising, in combination, a first terminal for connection to the video pulse output of the radar receiver; a second terminal for connection to the trigger pulse output of the radar receiver; a monostable multivibrator having a normally non-conductive output circuit; current operated means connected in said output circuit and providing a measure of the duration of current flow in said output circuit; and switching means connecting the input of said multi-vibrator to said terminals; said switching means, responsive to arrival of a trigger pulse at said second terminal, flipping said monostable multivibrator to the conductive state and, responsive to arrival of the first ground echo pulse after said trigger pulse at said first terminal, flipping said monostable multi-vibrator back to the normally non-conductive state.

3,317,909
COMPENSATION FOR DOPPLER SHIFT IN AEROSPACE COMMUNICATIONS

Richard M. Waetjen, Lima, Peru, assignor to the United States of America as represented by the Secretary of the Air Force

Filed Apr. 7, 1964, Ser. No. 360,473
1 Claim. (Cl. 343—100)

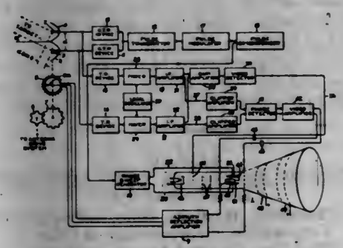


In a satellite communication system, in combination, signal generating means located at a ground station, a satellite, signal receiving means located within said satellite, signal transmitting means located within said satellite for transmitting any signals received from said ground station signal generating means back to said ground station, first signal modifying means located at said ground station for modifying the signal received back from said satellite comprising mixer means, multiplier-divider network means and oscillator means coacting to retransmit to said satellite signals having a frequency relatively free of Doppler effects of the first-order magnitude, and second signal modifying means located in said satellite comprising mixer means for retransmitting to said ground station signals having a frequency relatively free of Doppler effects of both the first-order and second-order magnitude.

3,317,910
MONOPULSE RADAR APPARATUS

Walter Hausz, Syracuse, N.Y., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Air Force

Filed Oct. 16, 1951, Ser. No. 251,582
23 Claims. (Cl. 343—113)

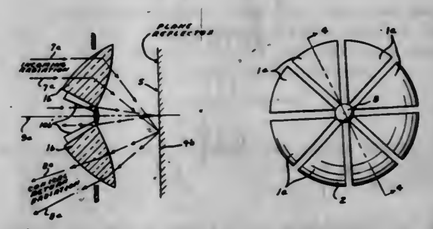


11. In combination, a pair of wave energy antennas arranged to provide a pair of output waves, in response to wave energy from a remote location, having a given characteristic and related to one another in accordance with the angular deviation of said remote location with respect to a common direction axis for said antennas, an indicator responsive to said output waves for producing an indication representing an approximation of the angular position of said remote location, means responsive to said output waves for deriving an error potential having a magnitude and sign dependent upon said angular deviation, and means for utilizing said error potential to correct said indication and provide a more precise representation of the angular position of said remote location on said indicator.

3,317,911
ELECTROMAGNETIC LENSES FOR RADIANT ENERGY COMMUNICATION SYSTEMS

Ylo E. Stahler and Allen L. Johnson, Dayton, Ohio, assignors to the United States of America as represented by the Secretary of the Air Force

Filed Nov. 7, 1963, Ser. No. 322,255
7 Claims. (Cl. 343—755)

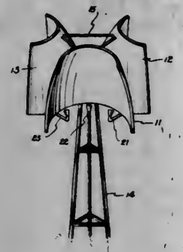


1. A lens for electromagnetic rays comprising, a biconvex lens, having a central axis and a uniform curvature starting at its periphery and terminating in radially-spaced relation to its central axis for refracting collimated electromagnetic rays passing through the lens to a focal ring concentrically surrounding said central axis, and a reflector having a plane reflecting surface extending through said focal ring perpendicular to said central axis for reflecting collimated rays refracted by said lens to said focal ring, back through said lens to be refracted thereby to form an annular outwardly expanding conical shell-like reflected electromagnetic energy beam surrounding said collimated rays in radially spaced relation thereto.

7. Means for reflecting a collimated radiant energy beam from a transmitting station back in the opposite direction in the form of an expanding conical shell-line radiant energy beam surrounding the transmitted collimated radiant energy beam in radially spaced relation thereto comprising a plane annular reflector having a central axis and comprising an annular ring-like spherical convex reflecting surface concentrically surrounding the central axis and inclining rearwardly and outwardly away from said central axis and from the direction of the incoming collimated radiant energy beam whereby a collimated radiant energy beam from a transmitting station striking said outwardly and rearwardly inclined annular convex reflecting surface is reflected back in the opposite direction in the form of an annular expanding conical shell-like returned radiant energy beam surrounding said central axis and the transmitting collimated radiant energy beam in radially spaced relation thereto, including a bi-convex electromagnetic spherical lens concentrically fixed in the center of said annular reflector having a central axis concident with the central axis of said reflector, for refracting a central portion of said transmitted radiant energy beam to a focal point on said central axis, behind said lens, and a radiant energy reflector having a plane reflecting surface extending through said focal point perpendicular to said central axis, for reflecting and refracting the aforesaid central portion of said transmitted radiant energy, beam back along the

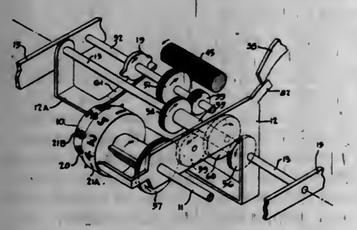
central axis toward the radiant energy transmitting station in the form of a substantially collimated returned radiant energy beam.

3,317,912
PLURAL CONCENTRIC PARABOLIC ANTENNA FOR OMNIDIRECTIONAL COVERAGE
Kenneth S. Kelleher, Mount Vernon Magisterial District, Va. (1115 Marine Drive, Alexandria, Va. 22307)
Filed July 29, 1963, Ser. No. 298,505
10 Claims. (Cl. 343—836)



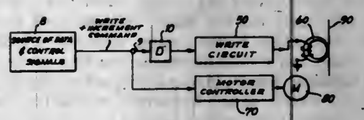
1. An omnidirectional microwave antenna having a relatively high gain characteristic in predetermined radial directions about a selected center line and adapted for use in thin route communication systems comprising a reflector assembly having a plurality of N wave energy reflective surface segments, each of said segments having a reflective surface configuration of the parabolic torus variety with respective axis of rotation, said axis of rotation being substantially equidisposed with respect to each other about said selected center line, each of said segments disposed with its respective reflective surface facing outward relative to said selected center line; and a plurality of wave energy feed means disposed to direct wave energy at each of said respective N wave energy reflective surface segments of said reflector assembly such that wave energy may be reflected therefrom in predetermined directions, said wave energy feed means being disposed in a common plane and being spaced equidistantly from the respective reflective surface segments toward which wave energy is directed.

3,317,913
MULTI-POINT RECORDERS
Albert E. Paschkis, Gwynedd Valley, Pa., assignor to Leeds & Northrup Company, a corporation of Pennsylvania
Filed May 21, 1965, Ser. No. 457,609
21 Claims. (Cl. 346—34)



1. A multi-point recorder comprising
a carriage movable transversely of a recorder chart,
a rotatable print wheel supported from said carriage for positioning of its axis of rotation in any of at least two angular positions with respect to a tilt axis and for rocking motion toward the chart about a printing axis while in any of said angular positions,
said print wheel having two peripheral rows of equally angular-spaced point-identification markers respectively on opposite sides of said tilt axis,
first print-selector means normally effective during revolutions of the print wheel about its axis of rotation alternately to preset the axis of rotation of the print wheel in first one and then the other of said two angular positions, and
means for periodically rocking said print wheel about said printing axis alternately to print point-identification symbols first in predetermined sequence from one row of said point-identification markers and in subsequently predetermined sequence from the other row of said point-identification markers.

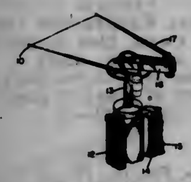
3,317,914
INCREMENTAL TAPE DRIVE RECORDING SYSTEM
Max M. Liang, San Mateo, Calif., assignor to Ampex Corporation, Redwood City, Calif., a corporation of California
Filed Jan. 2, 1964, Ser. No. 335,168
7 Claims. (Cl. 346—74)



1. In an apparatus for recording information on a recording medium while incrementing said recording medium the apparatus including, a stepping motor operatively coupled to the medium which motor experiences a lag time period prior to increment movement after being energized and an oscillation time period after the increment movement, motor controller means for energizing the motor, write circuit means operatively coupled to the recording medium, and source means for introducing write and increment signals to the write circuit means and the motor controller means respectively, the improvement comprising; delay means connected between the source means and the write circuit means for delaying for a predetermined delay time period the write signal transmitted to the write circuit means, such that the stepping motor is energized prior to energizing the write circuit means and the write circuit means writes prior to subsequent movement of the energized stepping motor.

3,317,915
MAGNETIC RECORDER WITH LINEARITY COMPENSATION
Allan R. Thompson, Westlake, Ohio, assignor to Clevite Corporation, a corporation of Ohio
Filed Nov. 12, 1964, Ser. No. 410,562
3 Claims. (Cl. 346—117)

1. A recorder for writing on a record chart, comprising, in combination: a magnet system having an air gap; a driving coil rotatable in said air gap; a recording device having a recording tip for writing on said record chart and driven by said driving coil; a non-linear rotary-to-rectilinear linkage mechanism connected between said coil and said recording device to convert the rotary motion of said coil to a rectilinear motion of said writing tip, the transverse position of the said writing tip on said record chart being a predetermined non-linear function of the rotary position of said coil; electric circuit means including signal input means and a differential error amplifier connected to said driving coil; and position-sensing non-linear transducer means connected to said driving coil to sense the angular position of said coil as it rotates and electrically connected to the electric circuit means to apply thereto an electric signal proportional to the given angular position of said coil corrected for the error due to said predetermined linkage non-linearity for said given angular position thereby to correct for the said non-linearity of said linkage mechanism.



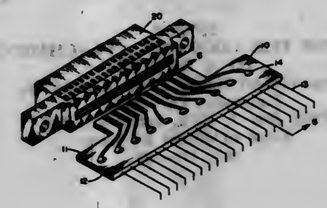
3,317,916
D'ARSONVAL MOTOR
Allan R. Thompson, Westlake, and Frank Eubel, Jr., Cleveland, Ohio, assignors to Clevite Corporation, a corporation of Ohio
Filed Nov. 9, 1964, Ser. No. 409,833
12 Claims. (Cl. 346—139)



1. A D'Arsonval motor comprising, in combination, a magnet having an air gap, a coil in said air gap, a hollow drive rod extending through said coil and connected to it, means holding and centering said hollow drive rod and said coil in respect to said magnet and for rotary motion in respect thereto, said hollow drive rod having a first end and a second end, a torsion wire extending coaxially through said hollow drive rod and having a first end and a second end, means securing the second end of said torsion wire to the second end of said hollow rod, holding and centering means connected to said magnet for holding and centering the first end of said torsion wire, and indicating means connected to the first end of said hollow rod for rotating as said rod and said coil rotate in said magnetic field.

3,317,917
STYLUS BLOCK FOR ELECTRIC WRITING
Ralph V. Little, Jr., Shaker Heights, and Harold T. Murphy, Cleveland Heights, Ohio, assignors to Clevite Corporation, a corporation of Ohio
Filed July 6, 1965, Ser. No. 469,627
4 Claims. (Cl. 346—139)

1. A stylus block for an electric writing device comprising: first and second printed circuit boards each having an inner face and an outer face, a plurality of spaced apart electrically conductive stylus means secured to the inner face of each of said boards and extending over the edge thereof, a plurality of electrically conductive circuits secured to the outer face of each of said boards and individually electrically connected through said boards to the said stylus means secured to the inner face, and means securing said two printed circuit boards together with their inner faces face to face, and with the stylus means staggered and extending in the same direction.



3,317,918
BUTADIENE POLYMERS PREPARED WITH A LITHIUM BASED CATALYST CHARACTERIZED BY HAVING AT LEAST 29 PERCENT OF THE BUTADIENE AS CIS-1,4
Frederick C. Foster, Canal Fulton, Ohio, assignor to The Firestone Tire & Rubber Company, Akron, Ohio, a corporation of Ohio
No Drawing. Filed Aug. 21, 1956, Ser. No. 605,440
3 Claims. (Cl. 260—83.7)

1. A synthetic polymer selected from the group consisting of rubbery homopolymers of butadiene-1,3 and rubbery copolymers of butadiene-1,3 and styrene; said synthetic polymer being characterized by a cis-1,4 structure of at least about 29 percent and a 1,2 structure not in excess of fifteen percent of the polymeric butadiene present in the polymer as determined by the infra-red technique hereinabove defined, said polymer being formed through utilization of a lithium base catalyst.

3,317,919
CATALYTIC POLYMERIZATION OF ETHYLENE SULFIDE
Manfred Sander, Frankfurt am Main, Germany, assignor, by mesne assignments, to Mobil Oil Corporation, a corporation of New York
No Drawing. Filed Dec. 14, 1962, Ser. No. 244,589
10 Claims. (Cl. 260—79)

1. A process for preparing crystalline poly(ethylene sulfide) having a molecular weight of at least 10,000 and a melting point of at least 205° C., which comprises polymerizing ethylene sulfide in the presence of a small amount, based on the weight of the ethylene sulfide and sufficient to catalyze the polymerization of said ethylene sulfide, of a metal selected from the group consisting of alkali metals and alkaline earth metals.

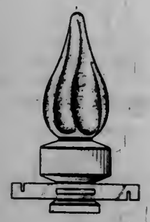
3,317,920
COPOLYMERIZATION OF ALKYLENE SULFIDES
Manfred Sander, Frankfurt am Main, Germany, assignor, by mesne assignments, to Mobil Oil Corporation, a corporation of New York
No Drawing. Filed Dec. 18, 1963, Ser. No. 331,394
2 Claims. (Cl. 260—79)

1. A process for preparing copolymers of lower molecular weight alkylene sulfides which comprises copolymerizing a mixture of alkylene sulfides containing from two to four carbon atoms in an inert polar organic liquid reaction medium and in the presence of an alkali metal.

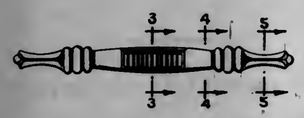
DESIGNS

MAY 2, 1967

207,527
TAG OR THE LIKE FOR ATTACHMENT TO A BOTTLE
James Gilbert Haller, 20 W. Andrew St., Lancaster, Pa. 17603
Filed July 7, 1966, Ser. No. 2,969
Term of patent 14 years
(Cl. D1—8)



207,528
PULL
La Verne E. Clayton, Rockford, Ill., assignor to Amerock Corporation, Rockford, Ill., a corporation of Illinois
Filed July 11, 1966, Ser. No. 3,010
Term of patent 14 years
(Cl. D10—8)

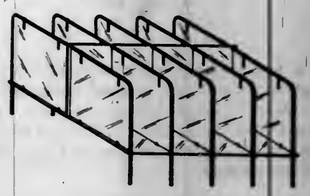




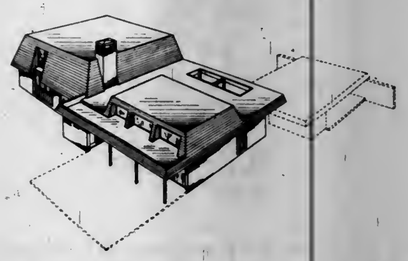
207,529
BACKING PLATE
John R. Morgan, Wheeling, Ill., assignor to Amerock Corporation, Rockford, Ill., a corporation of Illinois
Filed July 15, 1966, Ser. No. 3,096
Term of patent 14 years
(Cl. D10—8)



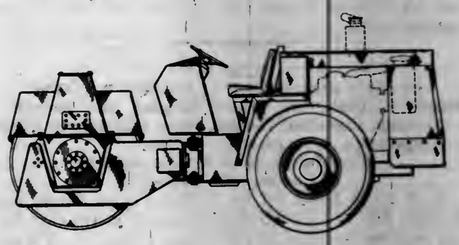
207,530
ANIMAL EXHIBITION UNIT
Robert L. Owens, 2249 Norside Drive, Alton, Ill. 62002
Filed Mar. 28, 1966, Ser. No. 1,652
Term of patent 14 years
(Cl. D12—2)



207,531
DOMESTIC DWELLING
Daniel Schwartzman, New York, N.Y., assignor to Gordon E. Sugar, Pikesville, Md.
Filed Mar. 8, 1966, Ser. No. 1,356
Term of patent 14 years
(Cl. D13—1)



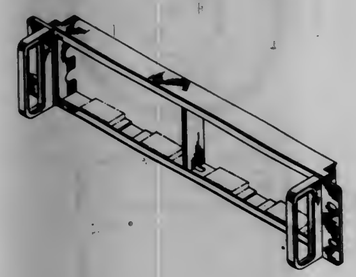
207,532
SOIL COMPACTOR
Gordon O. Garis, Golden Valley, and Raymond F. Roettger, Plymouth, Minn., assignors to Raygo, Inc., Minneapolis, Minn., a corporation of Minnesota
Filed Jan. 13, 1966, Ser. No. 595
Term of patent 14 years
(Cl. D14—3)



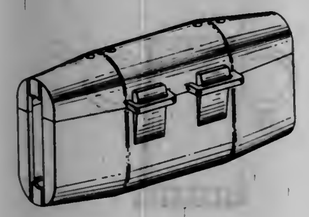
207,533
VOLUME MEASURING SYRINGE FOR DENTAL IMPRESSION MATERIAL
Paul I. Zandberg, 8208 Romaine St., Los Angeles, Calif. 90046, and Charles F. Taylor, 2160 El Cajonita St., La Habra, Calif. 90631
Filed June 27, 1966, Ser. No. 2,867
Term of patent 14 years
(Cl. D24—1)



207,534
FRONT PANEL FOR A RACK ADAPTER
Lester Dubin, Pelham Manor, Maury Paulson, Huntington, and Benjamin Shmurak, Lynbrook, N.Y., assignors to Lambda Electronics Corporation, Huntington, N.Y., a corporation of New York
Filed Mar. 23, 1965, Ser. No. 84,402
Term of patent 14 years
(Cl. D26—5)



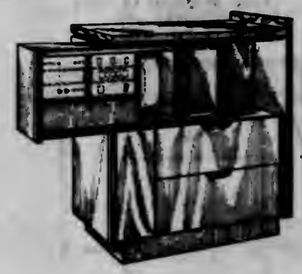
207,535
INSULATIVE COVER FOR ELECTRICAL CONDUCTORS
Frederick William Wahl, Middletown, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Continuation of design applications Ser. No. 20, and Ser. No. 88,264, Nov. 30, 1965. This application Aug. 24, 1966, Ser. No. 3,906
Term of patent 14 years
(Cl. D26—10)



207,536
RADIO CONTROL KNOB OR SIMILAR ARTICLE
Melvin H. Boldt, Glenview, Ill., assignor to Zenith Radio Corporation, Chicago, Ill., a corporation of Delaware
Filed Oct. 18, 1965, Ser. No. 87,557
Term of patent 14 years
(Cl. D26—13)



207,537
BEDSIDE CONSOLE CABINET
Charles E. Parks, Jr., Barrington, Ill., assignor to Simmons Company, a corporation of Delaware
Filed Jan. 7, 1966, Ser. No. 530
Term of patent 14 years
(Cl. D33—19)



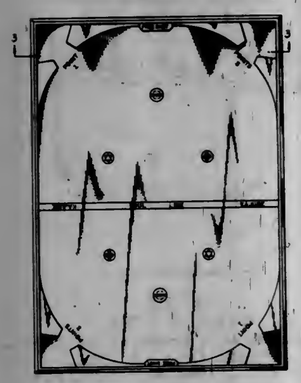
207,538
GOLF PUTTER
Carl Burkland, 2630 Broadway NE., Apt. 41, Salem, Oreg. 97303
Filed Oct. 2, 1964, Ser. No. 82,003
Term of patent 14 years
(Cl. D34—5)



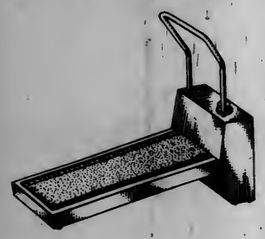
207,539
GOLF PUTTER
Carl Burkland, 2630 Broadway NE., Apt. 41, Salem, Oreg. 97303
Filed Oct. 2, 1964, Ser. No. 82,004
Term of patent 14 years
(Cl. D34—5)



207,540
GAME BOARD
Frank M. Hengle, 79 Hurlbert Ave., Akron, Ohio 44303
Filed Oct. 5, 1965, Ser. No. 87,323
Term of patent 14 years
(Cl. D34—5)



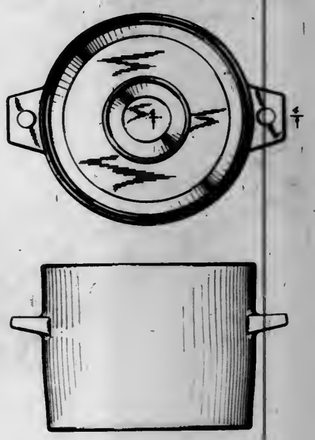
207,541
GRADED EXERCISE TREADMILL
Joseph A. Hesen, Burbank, Calif. (2415 N. Parish Place, Burbank, Calif. 91504)
Filed Feb. 18, 1966, Ser. No. 1,107
Term of patent 7 years
(Cl. D34—5)



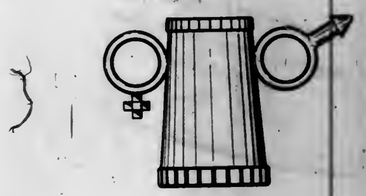
207,542
PORTABLE AIRPLANE TOY
Robert H. Wendt, Evanston, Ill. (7567 Lincoln Ave., Skokie, Ill. 60076)
Filed Mar. 28, 1966, Ser. No. 1,662
Term of patent 14 years
(Cl. D34—15)



207,543
CASSEROLE
Niels Refsgaard, Ishoj per Taastrup, Denmark, assignor to Dansk Designs Ltd., Mount Kisco, N.Y., a corporation of New York
Filed Aug. 29, 1966, Ser. No. 3,436
Term of patent 14 years
(Cl. D44—1)



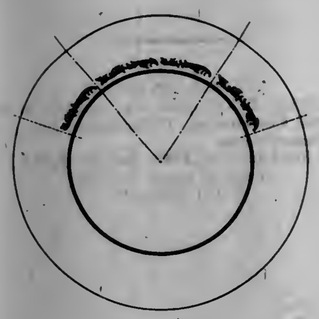
207,544
DRINKING CUP
Henry B. Melamed, 78—40 164th St., Flushing, N.Y. 11366, and Joseph F. Cullen, 310 85th St., Brooklyn, N.Y. 11209
Filed June 1, 1966, Ser. No. 2,495
Term of patent 14 years
(Cl. D44—9)



207,545
PLATE OR SIMILAR ARTICLE
Shigeru Masuda, 2486 8th St., Apt. E, Fort Lee, N.J. 07024
Filed Jan. 17, 1966, Ser. No. 625
Claims priority, application Japan Aug. 11, 1965
Term of patent 7 years
(Cl. D44—15)



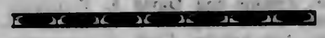
207,546
PLATE OR SIMILAR ARTICLE
Shigeru Masuda, 2486 8th St., Apt. E, Fort Lee, N.J. 07024
Filed Jan. 17, 1966, Ser. No. 626
Claims priority, application Japan July 15, 1965
Term of patent 7 years
(Cl. D44—15)



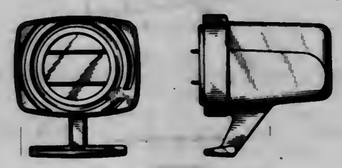
207,547
PLATE OR SIMILAR ARTICLE
Shigeru Masuda, 2486 8th St., Apt. E, Fort Lee, N.J. 07024
Filed Jan. 17, 1966, Ser. No. 639
Term of patent 7 years
(Cl. D44—15)



207,548
LINK CHAIN FOR A BRACELET OR SIMILAR ARTICLE
Yuen Sang Poon, Hong Kong, assignor to Baldwin Bracelet Corporation, New York, N.Y., a corporation of New York
Filed Feb. 14, 1966, Ser. No. 1,032
Term of patent 14 years
(Cl. D45—4)



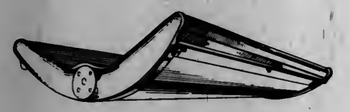
207,549
EXAMINATION LIGHT
Marcus Bodian, Los Angeles, Calif., assignor to Sunbeam Lighting Co. Inc., a corporation of California
Filed Dec. 6, 1965, Ser. No. 90
Term of patent 14 years
(Cl. D48—20)



207,550
TABLE LAMP
Jorgen de Bang, Box 4605, Nassau, Bahamas
Filed Oct. 17, 1966, Ser. No. 4,373
Term of patent 14 years
(Cl. D48—20)



207,551
OUTDOOR FLUORESCENT LIGHTING FIXTURE
Joseph H. Spaulding, deceased, late of Cincinnati, Ohio, by Ruth E. Spaulding and The North Side Bank and Trust Company, co-executors, both of Cincinnati, Ohio, and Donald J. Cobb, Highland Heights, Ky., and Gerald M. Rodmaker, Cincinnati, Ohio, assignors to Whiteway Manufacturing Company, Cincinnati, Ohio, a corporation of Ohio
Continuation of design application Ser. No. 80,141, May 25, 1964. This application Jan. 26, 1966, Ser. No. 798
Term of patent 14 years
(Cl. D48—23)

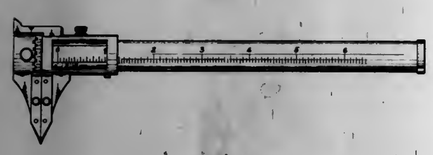




207,552
HOUSING FOR A TIMING LIGHT
George D. Perkins and David E. Workman, both of Pasadena, Calif., assignors to Pendleton Tool Industries, Inc., Los Angeles, Calif., a corporation of Delaware
Filed Sept. 14, 1965, Ser. No. 86,987
Term of patent 14 years
(Cl. D52—1)



207,553
MEASURING INSTRUMENT
Daijiro Yamamoto, Kawasaki, Japan, assignor to Yeham Numata, Yokohama, Japan
Filed Nov. 19, 1965, Ser. No. 88,156
Claims priority, application Japan Oct. 8, 1965
Term of patent 14 years
(Cl. D52—6)



207,554
DESK THERMOMETER
Louis Sugarman, 400 Narragansett Parkway, and Max B. Dressler, 88 Cushing Road, both of Warwick, R.I. 02888
Filed May 16, 1966, Ser. No. 2,308
Term of patent 3½ years
(Cl. D52—7)



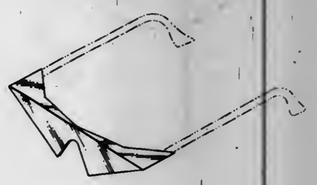
207,555
OIL FILTER WRENCH
Frank H. Liljemark, Minneapolis, Minn., assignor to Electro Specialty Manufacturing Co., Minneapolis, Minn., a corporation of Minnesota
Filed Dec. 28, 1965, Ser. No. 351
Term of patent 14 years
(Cl. D54—16)



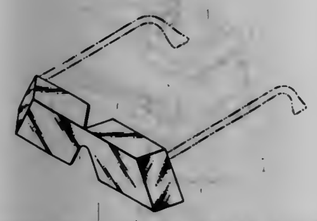
207,556
PAIR OF SPECTACLES
Robert H. Ramp, Pittsford, N.Y., assignor to Bauch & Lomb Incorporated, Rochester, N.Y., a corporation of New York
Filed Mar. 22, 1965, Ser. No. 84,397
Term of patent 14 years
(Cl. D57—1)



207,557
SUNGLASS FRONT
James J. Harley, Philadelphia, Pa., assignor to Optics International Corporation, Philadelphia, Pa., a corporation of Pennsylvania
Filed June 20, 1966, Ser. No. 2,724
Term of patent 14 years
(Cl. D57—1)



207,558
SUNGLASS FRONT
James J. Harley, Philadelphia, Pa., assignor to Optics International Corporation, Philadelphia, Pa., a corporation of Pennsylvania
Filed June 20, 1966, Ser. No. 2,725
Term of patent 14 years
(Cl. D57—1)



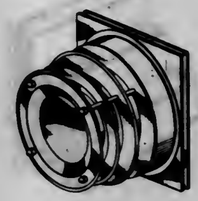
207,559
BOX
Samuel Braun, Rye, N.Y., assignor to B.C.N. Design Products, Inc., Amityville, N.Y., a corporation of New York
Filed Mar. 14, 1966, Ser. No. 1,461
Term of patent 14 years
(Cl. D58—12.6)



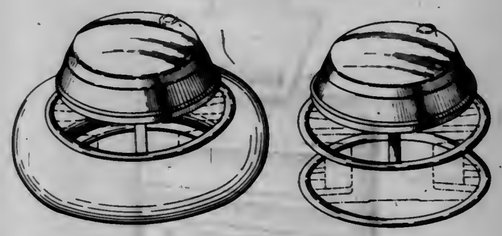
207,560
DISPLAY BOX
Samuel Braun, Rye, N.Y., assignor to B.C.N. Design Products, Inc., Amityville, N.Y., a corporation of New York
Filed June 9, 1966, Ser. No. 2,631
Term of patent 14 years
(Cl. D58—12.7)



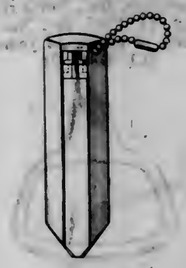
207,561
COMBINATION VENT AND AIR INTAKE TERMINAL
Karl L. Bedell, Pasadena, Calif., assignor to Williams Furnace Co., Buena Park, Calif., a corporation of Delaware
Filed Nov. 1, 1965, Ser. No. 87,972
Term of patent 14 years
(Cl. D62—3)



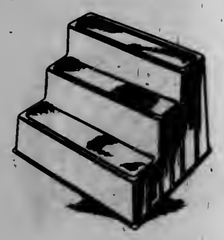
207,562
COMPRESSOR
Lucius D. Watkins, Hartland, Wis., assignor to Outboard Marine Corporation, Waukegan, Ill., a corporation of Delaware
Filed May 2, 1966, Ser. No. 2,100
Term of patent 14 years
(Cl. D71—1)



207,563
COMBINED BALL POINT PEN AND KEY CHAIN
Fred O. Bailey, Jr., McLean, Va.
(1737 H St., NW., Washington, D.C. 20006)
Filed Mar. 7, 1966, Ser. No. 1,316
Term of patent 14 years
(Cl. D74—17)



207,564
DISPLAY RACK FOR CONTAINERS OF SPICES OR THE LIKE
Lloyd M. Hartford, 833 Westover St., Battle Creek, Mich. 49015
Filed Sept. 7, 1966, Ser. No. 3,764
Term of patent 14 years
(Cl. D80—9)



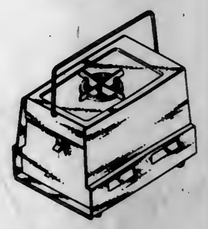
207,565
DISPLAY RACK
Shepard H. Whitman, Chicago, Ill., assignor to Master Bronze Powder Company, Inc., a corporation of Indiana
Filed Oct. 21, 1966, Ser. No. 4,365
Term of patent 14 years
(Cl. D80—9)



207,566
FREE STANDING FIREPLACE
Anthony J. Carsello, Los Angeles, Calif., assignor to Space Planner Company, Inc., North Hollywood, Calif.
Filed Sept. 13, 1965, Ser. No. 86,967
Term of patent 14 years
(Cl. D81—7)



207,567
PORTABLE BROILER AND COOKER COMBINATION
Peter L. Helgeson, Macungie, Pa., assignor to Caloric Corporation, Topton, Pa., a corporation of Pennsylvania
Filed May 23, 1966, Ser. No. 2,383
Term of patent 14 years
(Cl. D81—10)



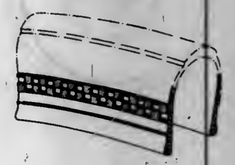
207,568
ASH TRAY STAND OR SIMILAR ARTICLE
Lloyd C. Eppler, 25 Colonial Road, Parsippany-Troy Hills, N.J. 07054
Filed Jan. 14, 1966, Ser. No. 613
Term of patent 14 years
(Cl. D85—2)



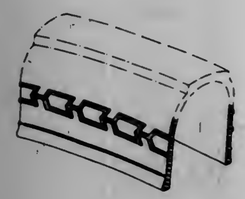
207,569
PIPE
Kikuo Hayashi, 2119½ Hoagland Ave., Fort Wayne, Ind. 46804
Filed Aug. 4, 1966, Ser. No. 3,345
Term of patent 14 years
(Cl. D85—8)



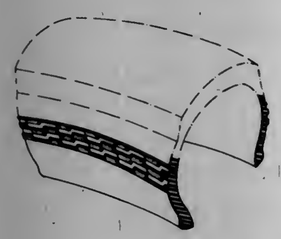
207,570
TIRE
Yukio Ueno, Osaka, Japan, assignor to Kyowa Rubber Industry Co., Ltd., Osaka, Japan
Filed Aug. 12, 1966, Ser. No. 3,445
Term of patent 14 years
(Cl. D90—20)



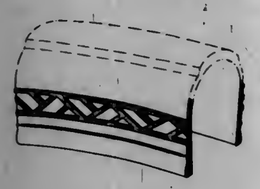
207,571
TIRE
Yukio Ueno, Osaka, Japan, assignor to Kyowa Rubber Industry Co., Ltd., Osaka, Japan
Filed Aug. 12, 1966, Ser. No. 3,446
Term of patent 14 years
(Cl. D90—20)



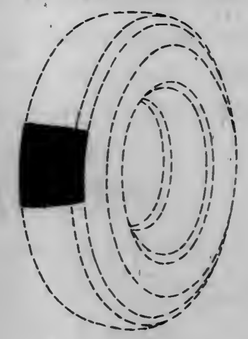
207,572
TIRE
Yukio Ueno, Osaka, Japan, assignor to Kyowa Rubber Industry Co., Ltd., Osaka, Japan
Filed Aug. 12, 1966, Ser. No. 3,447
Term of patent 14 years
(Cl. D90—20)



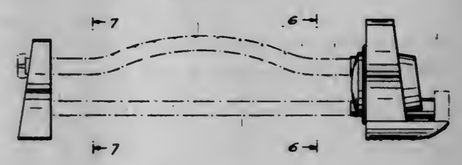
207,573
TIRE
Yukio Ueno, Osaka, Japan, assignor to Kyowa Rubber Industry Co., Ltd., Osaka, Japan
Filed Aug. 12, 1966, Ser. No. 3,448
Term of patent 14 years
(Cl. D90—20)



207,574
TIRE
Arthur C. Blankenship, Detroit, Robert F. Busch, St. Clair Shores, and William L. Shesterkin, Roseville, Mich., assignors to Uniroyal, Inc., a corporation of New Jersey
Filed Sept. 28, 1966, Ser. No. 4,058
Term of patent 14 years
(Cl. D90—20)

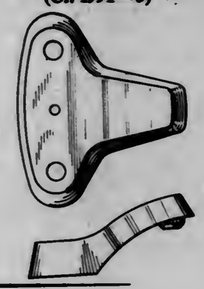


207,575
LAWN SPRINKLER
John D. Beinert, Babylon, N.Y., assignor to International Patent Research Corp., % Milton Friedman, New York, N.Y., a corporation of New York
Filed Aug. 11, 1966, Ser. No. 3,430
Term of patent 7 years
(Cl. D91—1)



207,576
FAUCET BODY
William H. Armstrong, Bloomfield Hills, Mich., assignor to Borg-Warner Corporation, a corporation of Illinois
Filed Dec. 15, 1965, Ser. No. 188
Term of patent 14 years
(Cl. D91—3)





LIST OF PLANT PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 2ND DAY OF MAY, 1967

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Boerner, Eugene S., to Jackson & Perkins Co. Chrysanthemum plant. 2,735, 5–2–67, Cl. 82.

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Boerner, Eugene S. 2,735.
Kordes, Reimer. 2,734.
Morey, Dennison H., Jr. 2,736.
Morey, Dennison H., Jr. 2,737.

Kordes, Reimer, to Jackson & Perkins Co. Rose plant. 2,734, 5–2–67, Cl. 20.

Morey, Dennison H., Jr., to Jackson & Perkins Co. Rose plant. 2,736, 5–2–67, Cl. 20.

Morey, Dennison H., Jr., to Jackson & Perkins Co. Rose plant. 2,737, 5–2–67, Cl. 20.

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AMP Inc.: *See*—
Wahl, Frederick W. 207,535.

Amerock Corp.: *See*—
Clayton, La Verne E. 207,528.
Morgan, John R. 207,529.

Armstrong, William H., to Borg-Warner Corp. Faucet body. 207,576, 5–2–67, Cl. D91—3.

B.C.N. Design Products, Inc.: *See*—
Braun, Samuel. 207,559.
Braun, Samuel. 207,560.

Bailey, Fred O., Jr. Combined ball point pen and key chain. 207,563, 5–2–67, Cl. D74—17.

Baldwin Bracelet Corp.: *See*—
Poon, Yuen S. 207,548.

Bausch & Lomb Inc.: *See*—
Ramp, Robert H. 207,556.

Blankenship, Arthur C., R. F. Busch, and W. L. Shesterkin, to Uniroyal, Inc. Tire. 207,574, 5–2–67, Cl. D90—20.

Bedell, Karl L., to Williams Furnace Co. Combination vent and air intake terminal. 207,561, 5–2–67, Cl. D62—3.

Beinert, John D., to International Patent Research Corp. Lawn sprinkler. 207,575, 5–2–67, Cl. D91—1.

Bodian, Marcus, to Sunbeam Lighting Co. Inc. Examination light. 207,549, 5–2–67, Cl. D48—20.

Boldt, Melvin H., to Zenith Radio Corp. Radio control knob or similar article. 207,536, 5–2–67, Cl. D26—13.

Borg-Warner Corp.: *See*—
Armstrong, William H. 207,576.

Braun, Samuel, to B.C.N. Design Products, Inc. Box. 207,559, 5–2–67, Cl. D58—12.6.

Braun, Samuel, to B.C.N. Design Products, Inc. Display box. 207,560, 5–2–67, Cl. D58—12.7.

Burkland, Carl. Golf putter. 207,538, 5–2–67, Cl. D34—5.

Burkland, Carl. Golf putter. 207,539, 5–2–67, Cl. D34—5.

Busch, Robert F.: *See*—
Blankenship, Arthur C., Busch, and Shesterkin. 207,574.

Caloric Corp.: *See*—
Helgeson, Peter L. 207,567.

Carsello, Anthony J., to Space Planner Co., Inc. Free standing fireplace. 207,566, 5–2–67, Cl. D81—7.

Clayton, La Verne E., to Amerock Corp. Pull. 207,528, 5–2–67, Cl. D10—8.

Cobb, Donald J.: *See*—
Spaulding, Joseph H. and R. E., The North Side Bank and Trust Co., Cobb, and Rodmaker. 207,551.

Cullen, Joseph F.: *See*—
Melamed, Henry B., and Cullen. 207,544.

Dansk Designs Ltd.: *See*—
Refsgaard, Niels. 207,543.

De Bang, Jorgen. Table lamp. 207,550, 5–2–67, Cl. D48—20.

Dressler, Max B.: *See*—
Sugarman, Louis, and Dressler. 207,554.

Dubin, Lester, M. Paulson, and B. Shmurak, to Lambda Electronics Corp. Front panel for a rack adapter. 207,534, 5–2–67, Cl. D26—5.

Electro Specialty Mfg. Co.: *See*—
Liljemark, Frank H. 207,555.

Eppler, Lloyd C. Ash tray stand or similar article. 207,568, 5–2–67, Cl. D85—2.

Garis, Gordon O., and R. F. Roettger, to Raygo, Inc. Soil compactor. 207,532, 5–2–67, Cl. D14—3.

Haller, James G. Tag or the like for attachment to a bottle. 207,527, 5–2–67, Cl. D1—8.

Harley, James J., to Optics International Corp. Sunglass front. 207,557, 5–2–67, Cl. D57—1.

Harley, James J., to Optics International Corp. Sunglass front. 207,558, 5–2–67, Cl. D57—1.

Hartford, Lloyd M. Display rack for containers of spices or the like. 207,564, 5–2–67, Cl. D80—9.

Hayashi, Kikuo. Pipe. 207,569, 5–2–67, Cl. D85—8.

Helgeson, Peter L., to Caloric Corp. Portable broiler and cooker combination. 207,567, 5–2–67, Cl. D81—10.

Hengle, Frank M. Game board. 207,540, 5–2–67, Cl. D34—5.

Hesen, Joseph A. Graded exercise treadmill. 207,541, 5–2–67, Cl. D34—5.

International Patent Research Corp.: *See*—
Beinert, John D. 207,575.

Kyowa Rubber Industry Co., Ltd.: *See*—
Ueno, Yukio. 207,570–3.

Lambda Electronics Corp.: *See*—
Dubin, Lester, Paulson, and Shmurak. 207,534.

Liljemark, Frank H., to Electro Specialty Mfg. Co. Oil filter wrench. 207,555, 5–2–67, Cl. D54—16.

Master Bronze Powder Co., Inc.: *See*—
Whitman, Shepard H. 207,565.

Masuda, Shigeru. Plate or similar article. 207,545, 5–2–67, Cl. D44—15.

Masuda, Shigeru. Plate or similar article. 207,546, 5–2–67, Cl. D44—15.

Masuda, Shigeru. Plate or similar article. 207,547, 5–2–67, Cl. D44—15.

Melamed, Henry B., and J. F. Cullen. Drinking cup. 207,544, 5–2–67, Cl. D44—9.

Morgan, John R., to Amerock Corp. Backing plate. 207,529, 5–2–67, Cl. D10—8.

North Side Bank and Trust Co., The: *See*—
Spaulding, Joseph H. and R. E., The North Side Bank and Trust Co., Cobb, and Rodmaker. 207,551.

Optics International Corp.: *See*—
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Harley, James J. 207,558.

Outboard Marine Corp.: *See*—
Watkins, Lucius D. 207,562.

Owens, Robert L. Animal exhibition unit. 207,530, 5–2–67, Cl. D12—2.

Parks, Charles E., Jr., to Simmons Co. Bedside console cabinet. 207,537, 5–2–67, Cl. D33—19.

Paulson, Maury: *See*—
Dubin, Lester, Paulson, and Shmurak. 207,534.

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Perkins, George D., and Workman. 207,552.

Perkins, George D., and D. E. Workman, to Pendleton Tool Industries, Inc. Housing for a timing light. 207,552, 5–2–67, Cl. D52—1.

Poon, Yuen S., to Baldwin Bracelet Corp. Link chain for a bracelet or similar article. 207,548, 5–2–67, Cl. D45—4.

Ramp, Robert H., to Bausch & Lomb Inc. Pair of spectacles. 207,556, 5–2–67, Cl. D57—1.

Raygo, Inc.: *See*—
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Refsgaard, Niels, to Dansk Designs Ltd. Casserole. 207,543, 5–2–67, Cl. D44—1.

Rodmaker, Gerald M.: *See*—
Spaulding, Joseph H., Cobb, and Rodmaker. 207,551.

Roettger, Raymond F.: *See*—
Garis, Gordon O., and Roettger. 207,532.

Schwartzman, Daniel, to G. E. Sugar. Domestic dwelling. 207,531, 5–2–67, Cl. D13—1.

Shesterkin, William L.: *See*—
Blankenship, Arthur C., Busch, and Shesterkin. 207,574.

Shmurak, Benjamin: *See*—
Dubin, Lester, Paulson, and Shmurak. 207,534.

Simmons Co.: *See*—
Parks, Charles E., Jr. 207,537.

Space Planner Co., Inc.: *See*—
Carsello, Anthony J. 207,566.

Spaulding, Joseph H., deceased (by R. E. Spaulding and The North Side Bank and Trust Co., co-executors), D. J. Cobb, and G. M. Rodmaker, to Whiteway Mfg. Co. Outdoor fluorescent lighting fixture. 207,551, 5–2–67, Cl. D48—23.

Spaulding, Ruth E.: *See*—
Spaulding, Joseph H., Cobb, and Rodmaker. 207,551.

Sugar, Gordon E.: *See*—
Schwartzman, Daniel. 207,531.

Sugarman, Louis, and M. B. Dressler. Desk thermometer. 207,554, 5–2–67, Cl. D52—7.

Sunbeam Lighting Co. Inc.: *See*—
Bodian, Marcus. 207,549.

Taylor, Charles F.: *See*—
Zandberg, Paul I., and Taylor. 207,533.

Ueno, Yukio, to Kyowa Rubber Industry Co., Ltd. Tire. 207,570, 5–2–67, Cl. D90—20.

Ueno, Yukio, to Kyowa Rubber Industry Co., Ltd. Tire. 207,571, 5–2–67, Cl. D90—20.

Ueno, Yukio, to Kyowa Rubber Industry Co., Ltd. Tire. 207,572, 5–2–67, Cl. D90—20.

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Wahl, Frederick W., to AMP Inc. Insulative cover for electrical conductors. 207,535, 5–2–67, Cl. D26—10.
Watkins, Lucius D., to Outboard Marine Corp. Compressor. 207,562, 5–2–67, Cl. D71—1.
Wendt, Robert H. Portable airplane toy. 207,542, 5–2–67, Cl. D34—15.
Whiteway Mfg. Co.: *See*—
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Williams Furnace Co.: *See*—
Bedell, Karl L. 207,561.
Workman, David E.: *See*—
Perkins, George D., and Workman. 207,552.
Yamamoto, Daijiro, to Yehan Numata. Measuring instrument. 207,553, 5–2–67, Cl. D52—6.
Yehan Numata: *See*—
Yamamoto, Daijiro. 207,553.
Zandberg, Paul I., and C. F. Taylor. Volume measuring syringe for dental impression material. 207,538, 5–2–67, Cl. D24—1.
Zenith Radio Corp.: *See*—
Boldt, Melvin H. 207,536.

LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 2ND DAY OF MAY, 1967

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

A.-B. Interconsult: *See*—
Welinder, Gustav A. 3,317,086.
ACF Industries, Inc.: *See*—
Bickhaus, James T., and Cook. 3,317,195.
Reifel, Allan J. 3,317,199.
Smith, Robert J. 3,317,196.
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Schumacher, William L. 3,317,882.
A/S Bergens Mekaniske Verksteder: *See*—
Gjelstwen, Hans E. 3,317,057.
Abbott Laboratories: *See*—
Kaiser, George C., King, and Scislowicz. 3,316,935.
Shah, Vipin D. 3,317,588.
Abend, Harvey: *See*—
Mackey, E. Scudder, and Abend. 3,317,344.
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Hindin, Eugene, Levitt, and Abolins. 3,317,219.
Ackerman, David S.: *See*—
Ryerson, James N., and Ackerman. 3,317,023.
Ackerman, James H.: *See*—
Larsen, Aubrey A., Siggins, and Ackerman. 3,317,569.
Ackermann, Ernest: *See*—
Hoffer, Maurice, Uldry, Ackermann, and De Bellet. 3,316,594
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Betner, Thomas E. 3,317,068.
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Adams, Andrew O., to Leach Corp. Magnetically operated actuator 3,317,871, 5–2–67, Cl. 335—230.
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Addor, Roger W., to American Cyanamid Co. 2-oximinothiolanes and related compounds. 3,317,562, 5–2–67, Cl. 260—327.
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Gongwer, Calvin A. 3,316,936.
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Albrecht, Harry A., J. T. Plati, and W. Wenner, to Hoffmann-La Roche, Inc. 2-[(2,6-dimethylpiperidino)ethyl] guanidines and intermediates. 3,317,545, 5–2–67, Cl. 260—293.
Alburn, Harvey E., and W. Dvonch, to American Home Products Corp. Potassium hydrogen sulfite addition product 6-L-(1-cytosinyl) and (1-uracilyl)-5-hydroxy-P-dioxane-2-D-carboxyaldehyde. 3,317,535, 5–2–67, Cl. 260—256.4.
Aldeborgh, David H., and E. M. Boat, to Standard Gage Co., Inc. Dial bore gage with retraction means. 3,316,650, 5–2–67, Cl. 33—178.
Aldenkamp, Albertus A., to North American Philips Co., Inc. Method of manufacturing MnBi magnets. 3,317,358, 5–2–67, Cl. 148—105.
Alexander, Guy B., and G. W. Sears, Jr., to E. I. du Pont de Nemours and Co. Thorium oxide sol. 3,317,432, 5–2–67, Cl. 252—301.1.
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Algar, Leslie E., and K. G. Cook, to The M-O Valve Co. Ltd. Electric discharge devices. 3,317,777, 5–2–67, Cl. 313—182.
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Bowles, Renile E., and R. L. Craig, to Hoerner-Waldorf Corp. Reinforced carton. 3,317,034, 5–2–67, Cl. 206—46.

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Briley, Bruce E., to Automatic Electric Laboratories, Inc. Variable time-delay circuit employing transistor utilizing minority-carrier-storage effect and modulating AC signal-bias at collector for determining delay duration. 3,317,755, 5–2–67, Cl. 307—88.5.

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Brown, Gordon P., and A. Goldman, to General Electric Co. Process for preparing polyphenoxylene compositions. 3,317,467, 5–2–67, Cl. 260—47.

Brown, James W. Rehabilitation and exercise apparatus. 3,316,898, 5–2–67, Cl. 128—25.

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Brown, Kenard D. Distillation apparatus with ultrasonic frequency agitation. 3,317,405, 5–2–67, Cl. 202—176.

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Brust, Harry F., to The Dow Chemical Co. N-haloacylphosphoric amides. 3,317,687, 5–2–67, Cl. 260—959.

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Buckley, Donald H., and R. L. Johnson, to United States of America, National Aeronautics and Space Administration. Metallic film diffusion for boundary lubrication. 3,317,341, 5–2–67, Cl. 117—65.2.

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Buhrer, Fritz. Power transmission arrangement. 3,316,994, 5–2–67, Cl. 180—53.

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Burbank, John E., to Scovill Mfg. Co. Method of making coil type zipper fastener stringers. 3,316,870, 5–2–67, Cl. 112—265.

Burford, Lyle V., to J. C. De Shazor, Jr. Carrier for bottles or cans. 3,317,234, 5–2–67, Cl. 294—87.2.

Burk, Manfred, and A. Kehrberger. Apparatus for pulling out stakes, posts and the like set in the ground. 3,317,185, 5–2–67, Cl. 254—30.

Burk, Marvin C., to Phillips Petroleum Co. Electrical measuring apparatus. 3,316,751, 5–2–67, Cl. 73—23.1.

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Baltzly, Richard, and Mehta. 3,317,604.
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Burton, Derek R., to Minister of Aviation in Her Majesty's Government of the United Kingdom of Great Britain and Northern Ireland. Apparatus for controlling the temperature of the human body. 3,316,732, 5–2–67, Cl. 62—259.

Burton, Keith M., to United States of America, Navy. Apparatus for regulating the differential pressure of a hollow submerged body. 3,316,927, 5–2–67, Cl. 137—102.

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Caldwell, Henry C., and W. G. Groves, to Smith Kline & French Laboratories. 3-tropinyl esters of substituted acrylic and thio acrylic acids. 3,317,544, 5–2–67, Cl. 260—292.

Caldwell, John R., and W. J. Jackson, Jr., to Eastman Kodak Co. Three-dimensional polycyclic bisphenol polycarbonates and polyesters. 3,317,466, 5–2–67, Cl. 260—47.

Caldwell, Richard L., to Mobil Oil Corp. Radioactive tracer technique for identifying formations contributing unwanted fluid to productive wells. 3,317,726, 5–2–67, Cl. 250—43.5.

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Calvert, John F., and R. G. Schultz, to J. F. Calvert. Short-time memory devices in multiple input-multiple output control. 3,317,719, 5–2–67, Cl. 235—151.1.

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Canazzi, Henry D. Boat hulls. 3,316,874, 5–2–67, Cl. 114—67.

Canfield, Edward F. Positioning tools. 3,316,949, 5–2–67, Cl. 145—46.

Cannon, Peter, to General Electric Co. Graphite-catalyst charge assembly for the preparation of diamond. 3,317,035, 5–2–67, Cl. 206—47.

Capowich, George, and P. A. Meck, to United Aircraft Corp. Helicopter blade tip seal. 3,316,975, 5–2–67, Cl. 170—159.

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Carter, William B., and W. C. Ziegenhain, to Continental Oil Co. Process for displacement of trialkylaluminum in the preparation of alpha olefins. 3,317,625, 5–2–67, Cl. 260—677.

Cartwright, Albert D., Jr. Plant container. 3,316,675, 5–2–67, Cl. 47—37.

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Castle, William S., H. M. Mar, and D. K. Thompson, to General Motors Corp. Dual fan engine. 3,316,717, 5–2–67, Cl. 60—226.

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Causey, Jerry L. Feeding device for invalids. 3,317,061, 5–2–67, Cl. 214—1.

Cavin, Robert V., and M. Feuillepain, to International Standard Electric Corp. Control of remote telephone and like equipments. 3,317,895, 5–2–67, Cl. 340—147.

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Cekada, Joseph, Jr., and J. W. Van Dyke, to Dow Corning Corp. Antioxidation additives. 3,317,429, 5–2–67, Cl. 252—78.

Celanese Corp.: *See*—
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Horlenko, Theodore, and Larkin. 3,317,563.
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Cestaro, Arthur T., Jr., to James Talcott, Inc. Automatic signal logging system. 3,317,672, 5–2–67, Cl. 179—2.

Chalmers, John W., to Molins Machine Co. Ltd. Packets for cigarettes or like articles. 3,317,033, 5–2–67, Cl. 206—41.

Chambran, Jacques, to Pechiney Compagnie de Produits Chimiques et Electrometallurgiques. Control of alumina content during igneous electrolysis. 3,317,413, 5–2–67, Cl. 204—67.

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Chapin, Donald W., and D. H. Fischer, to The Garrett Corp. Servo-actuating mechanism for pneumatic analog computers. 3,316,815, 5–2–67, Cl. 91—359.

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Charlson, Lynn L., to Germane Corp. Rotary fluid pressure device. 3,316,814, 5–2–67, Cl. 91—56.

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Chemical Rubber Co., The: *See*—
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Cherry, Walter L., and F. N. Anderson, to Cherry Electrical Products Corp. Snap-action switch. 3,317,688, 5–2–67, Cl. 200—67.

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Chibnik, Sheldon, to Mobil Oil Corp. Diethyl 4-benzyl pimelate and the reduction of keto-esters. 3,317,587, 5–2–67, Cl. 260—475.

Chien, Robert T., and C. V. Freiman, to International Business Machines Corp. Information processing system utilizing a key to address transformation circuit. 3,317,899, 5–2–67, Cl. 340—172.5.

Chin, Wesley S. C. Bottle cap and stand. 3,317,069, 5–2–67, Cl. 215—47.

Cho, Yohan, to Massachusetts Institute of Technology. Oscillator including a tunnel diode as a two level switch. 3,317,855, 5–2–67, Cl. 331—111.

Cholin, Roger R. Internal cable discharge device. 3,316,974, 5–2–67, Cl. 169—26.

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Chu, Richard C., P. J. Cunavelis, and J. Gerstenhaber, to International Business Machines Corp. Cooling electrical apparatus. 3,317,798, 5–2–67, Cl. 317—100.

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Claassen, Volkert, to North American Philips Co., Inc. Indol-3-yl alkylguanidine derivatives. 3,317,560, 5–2–67, Cl. 260—326.15.

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Lang, Charles F., Ritter, and Claiborne. 3,316,748.

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Clapper, Genung L., to International Business Machines Corp. Adaptive logic system with inputs applied randomly only during conditioning cycles. 3,317,901, 5–2–67, Cl. 340—172.5.

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Clark, Harold A., and L. A. Haluska, to Dow Corning Corp. Hydroxyorganosiloxanes and copolymers. 3,317,460, 5–2–67, Cl. 260—46.5.

Clark, Harold A., and E. P. Plueddermann, to Dow Corning Corp. Acryloxyalkylsilane compositions and the fabrication of structures therewith. 3,317,369, 5–2–67, Cl. 161—193.

Clark, Harold E., to Xerox Corp. Xerographic method of making a particle transparency projectible image. 3,317,317, 5–2–67, Cl. 96—1.4.

Clark, James T., to Clark-Feather Mfg. Co. Tool for installing split valve spring retainers on valve stems. 3,316,623, 5–2–67, Cl. 29—249.

Clark, William E., to Ark-Les Switch Corp. Electric switch with multiple contact actuator tie bar construction capable of multi on single switch selection. 3,317,683, 5–2–67, Cl. 200—5.

Clarke, James A., to The Dow Chemical Co. Particle board comprising magnesia-base cement and a polyelectrolyte. 3,317,442, 5–2–67, Cl. 260—9.

Clas, Willi, J. Pochert, and G. Roderburg, to Deutsche Gold- und Silber-Scheideanstalt Vormals Roessler. Mixture of carbon black and light filler aqueous suspension added to rubber latex. 3,317,458, 5–2–67, Cl. 260—41.5.

Clay, Nathan S. Alarm systems. 3,317,904, 5–2–67, Cl. 340—274.

Cleary, Robert T., to Automatic Electric Laboratories, Inc. Switching device with sensor for proximity switch. 3,317,682, 5–2–67, Cl. 200—1.

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Clement, William H., H. M. Peters, and C. M. Selwitz, to Gulf Research & Development Co. Process for purifying alpha olefins with $SnCl_4$ and HCl. 3,317,624, 5–2–67, Cl. 260—677.

Clendinning, William R., to Texas Instruments Inc. Process for applying a protective coat of silicon carbide to refractory metals. 3,317,356, 5–2–67, Cl. 148—13.1.

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Thompson, Allan R. 3,317,915.
Thompson, Allan R., and Eubel. 3,317,916.

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Coate, William C. E., to Lodge & Shipley Co. Turret for a machine tool. 3,316,786, 5–2–67, Cl. 82—36.

Cofer, Kenneth B., to Shell Oil Co. Crystalline diglycidyl ether of bisphenol A with curing agents. 3,317,470, 5–2–67, Cl. 260—47.

Coffey, Henry F., and N. R. Kuzel, to Eli Lilly and Co. Metering apparatus. 3,316,854, 5–2–67, Cl. 103—227.

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Edwards, William R., to Esso Research and Engineering Co. Soluble poly-4-methyl-1-pentene. 3,317,501, 5–2–67, Cl. 260—93.7.

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Goldsmith, Harry, and R. F. Crawford, to United States Borax & Chemical Corp. 2-isopropyl-5-(6)-chlorobenzimidazole. 3,317,554, 5-2-67, Cl. 260—309.2.

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Greffe, Andre, to Societe d'Electro-Chimie d'Electro-Metallurgie et des Acieries Electriques d'Ugine. Process for reduction of iron ores. 3,317,308, 5-2-67, Cl. 75—33.

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Grey, Gordon E., and W. W. Wilson, to Sperry Rand Corp. Bale wagon support. 3,317,062, 5–2–67, Cl. 214—6.

Griffith, James R., to United States of America, Navy. Epoxy amine resin. 3,317,468, 5–2–67, Cl. 260—47.

Griffiths, David M. L. Moving conveyor load scales. 3,316,989, 5–2–67, Cl. 177—16.

Grobel, Lloyd P., to General Electric Co. Rotating electrical contacts. 3,317,759, 5–2–67, Cl. 307—145.

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Guerth, Fritz A. Pulse generating apparatus. 3,317,742, 5–2–67, Cl. 307—88.

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Habib, Robert. Machine tool. 3,316,613, 5–2–67, Cl. 29—26.

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Hanafusa, Tutomu, to Terasaki Denki Sangyo Kabushiki-Kaisha. Antomatic circuit interrupter having magnetic blowoff means. 3,317,866, 5–2–67, Cl. 335—16.

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Harban, Arthur A., and S. Renaudo, to Phillips Petroleum Co. Polymerization of olefins in the presence of a coordination catalyst and carbonyl sulfide. 3,317,502, 5–2–67, Cl. 260—93.7.

Harlan, Warren H., to The Procter and Gamble Co. Label applying mechanism. 3,316,877, 5–2–67, Cl. 118—236.

Harley, Earl K., Jr., to Hupp Corp. Mufflers. 3,316,733, 5–2–67, Cl. 62—296.

Harlow, Willis E., and R. B. Beare, to Borg-Warner Corp. Additive dispenser. 3,316,741, 5–2–67, Cl. 68—207.

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Harris, Lionel R. F. F. H. Bray, R. G. Knight, E. A. R. Peddle, P. W. Ward, R. F. B. Speed, R. D. Allum, V. E. Mann, B. D. Simmons, W. S. Douglas, and A. D. Martin, to Her Majesty's Postmaster General, The Standard Telephones and Cables Ltd, General Electric Co. Ltd., Automatic Telephone & Electric Co. Ltd., Associated Electrical Industries Ltd., and Ericsson Telephones Ltd. Automatic telecommunication systems. 3,317,675, 5–2–67, Cl. 179—18.

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Harrison, Henry C. and H. Foldable container and blank therefor. 3,317,118, 5–2–67, Cl. 229—61.

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Hartman, Robert J., and L. C. Pizzini, to Wyandotte Chemicals Corp. Preparation of long oxyalkylene chain phosphate polyols. 3,317,638, 5–2–67, Cl. 260—978.

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Hausz, Walter, to United States of America, Air Force. Monopulse radar apparatus. 3,317,910, 5–2–67, Cl. 343—113.

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Hebert, Hugh P., to Cities Service Oil Co. Process for solvent extraction of aromatics from aromatic-paraffinic hydrocarbon mixture. 3,317,423, 5–2–67, Cl. 208—327.

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Heidner, Richard C., and C. E. Johnson, Jr., to Outboard Marine Corp. Engine. 3,317,012, 5–2–67, Cl. 192—96.

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Hellerman, Herbert, to International Business Machines Corp. Memory system. 3,317,898, 5–2–67, Cl. 340—172.5.

Heltzel, Robert E. Concrete mixer. 3,317,194, 5–2–67, Cl. 259—161.

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Mason, Ronald C., and W. B. Strzelewicz, Jr., to Whitin Machine Works. Builder motion for roving frame. 3,316,700, 5–2–67, Cl. 57—98.

Mason, Ronald C. W. B. Strzelewicz, Jr., and F. A. Willis, Jr., to Whitin Machine Works. Winding apparatus with electric control circuit. 3,316,701, 5–2–67, Cl. 57—98.

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Mifune, Akira, Ishimoto, Ikeda, and Matsui. 3,317,517.

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Mifune, Akira, S. Ishimoto, O. Ikeda, and H. Matsui, to Teijin Ltd. Process for the preparation of epsilon-caprolactam. 3,317,517, 5–2–67, Cl. 260—239.3.

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Mill, Theodore, J. O. Rodin, R. M. Silverstein, and C. Woolf, to Allied Chemical Corp. Aryl (1,1-dihydroperfluorooctyl) ureas. 3,317,598, 5–2–67, Cl. 260—553.

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Perlowski, Edward F., Jr., to General Electric Co. Projection system. 3,317,665, 5–2–67, Cl. 178—7.5.

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Reicheneder, Franz, and K. Dury, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. Derivatives of pyridazonimines and a method for their preparation. 3,317,531, 5–2–67, Cl. 260—250.

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Rudekiel, Edouard. Back-heat boiler. 3,316,886, 5–2–67, Cl. 122—379.

Rudy, Erland W.: *See*—
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Rüegg, Rudolf, and P. Schudel, to Hoffmann-La Roche, Inc. Process for producing chromans. 3,317,564, 5–2–67, Cl. 260—345.5.

Rueter, Harold L., and L. D. Thomas, to Libbey-Owens-Ford Glass Co. Rare earth chlorides in a glass polishing composition. 3,317,293, 5–2–67, Cl. 51—307.

Rueter, Harold L.: *See*—
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Ruhemann, Martin S. W., and P. Halford, to Petrocarbon Development Ltd. Purification of carbon dioxide. 3,317,278, 5–2–67, Cl. 23—150.

Ruhrchemie Aktiengesellschaft: *See*—
Feichtinger, Hans, and Noeske. 3,317,499.

Rummler, Donald R., to United States of America, National Aeronautics and Space Administration. Automatic force measuring system. 3,316,991, 5–2–67, Cl. 177—210.

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Ploeger, Richard A., and Rupprecht. 3,317,473.

Russell, Frederick S., to United States Envelope Co. Bag supply pad. 3,317,037, 5–2–67, Cl. 206—57.

Russo, Carl J., to Joseph Bancroft & Sons Co. Apparatus for producing a yarn package. 3,316,509, 5–2–67, Cl. 28—21.

Ryan Industries, Inc.: *See*—
Pauliukonis, Richard S. 3,316,726.

Ryan, John W., R. L. May, and J. de Gelder, to Mattel, Inc. Toy machine shop tool. 3,316,946, 5–2–67, Cl. 144—1.

Ryan, John W., to Dow Corning Corp. Modified polyalkylenearnine silicon compounds. 3,317,577, 5–2–67, Cl. 260—448.2.

Ryan, Thomas R. Interchangeable ornament for buttons. 3,316,601, 5–2–67, Cl. 24—113.

Ryerson & Haynes, Inc.: *See*—
Steppon, William J. 3,317,187.

Ryerson, James N., and D. S. Ackerman. Plating machine. 3,317,023, 5–2–67, Cl. 198—19.

S.E.T.E.P., Societe d'Etudes, de Recherches et d'Experimentations Industrieller de Tour Procedes Nouveaux pour l'Alliance des Textiles et de Matieres Plastiques: *See*—
Sommer, Francois N. 3,316,586.

SI Handling Systems, Inc.: *See*—
Edgar, David M., and Johnson. 3,316,456.

Sabin, Leroy J., Jr.: *See*—
Hughes, Paul R., and Sabin. 3,316,692.

Saddler, Jerry W.: *See*—
Ohlsson, Leonard W., and Saddler. 3,317,082.

Sadler, Harry J., to Hypro, Inc. Pump. 3,316,852, 5–2–67, Cl. 103—136.

Safir, Sidney R.: *See*—
Hofmann, Corris M., and Safir. 3,317,290.

Sain, Bernard S. Brake pedal depressing and holding device. 3,316,777, 5–2–67, Cl. 74—532.

Saj, Stanley, and D. O. Burns. Electrical fire guard. 3,317,740, 5–2–67, Cl. 307—39.

Sala Maskinfabriks Aktiebolag: *See*—
Kallberg, Karl A. 3,316,585.

Salzberg, Edward, to Microwave Development Laboratories, Inc. Compensated directional coupler. 3,317,859, 5–2–67, Cl. 333—10.

Sames, Societe Anonyme de Machines Electrostatiques: *See*—
Fraser, Reginald P. 3,317,138.

Sanchez, Gil C.: 95% to Leecraft Mfg. Co., Inc. Integrated electrical switch and light indicator assembly. 3,317,696, 5–2–67, Cl. 200—167.

Sandell, Erik: *See*—
Fryklof, Lars-Einar, Sandell, and Ostholm. 3,317,394.

Sander, Manfred, to Mobil Oil Corp. Method for polymerizing thiiranes. 3,317,489, 5–2–67, Cl. 260—79.

Sander, Manfred, to Mobile Oil Corp. Catalytic polymerisation of ethylene sulfide. 3,317,916, 5–2–67, Cl. 260—79.

Sander, Manfred, to Mobil Oil Corp. Copolymerization of alkylene sulfides. 3,317,920, 5–2–67, Cl. 260—79.

Sanmori, Roger L. J.-B. Internal combustion engines, particularly in engines of the two-stroke type. 3,316,889, 5–2–67, Cl. 123—51.

Sarkes Tarzian, Inc.: *See*—
Badger, Joe G., and Valdettaro. 3,316,770.

Sato, Kazuo, T. Karasawa, T. Fukazawa, E. Sekiya, and T. Sato, to Taiyo Yuden Co., Ltd. Tubular electric element manufacturing apparatus. 3,317,701, 5–2–67, Cl. 219—56.

Sato, Tokushige: *See*—
Sato, Kazuo, Karasawa, Fukazawa, Sekiya, and Sato. 3,317,701.

Satterthwaite, James G., and J. B. Macy, Jr. Demountable marine bearing. 3,317,254, 5–2–67, Cl. 308—26.

Saudicoeur, Louis J., to Lucien Ferraz & Cie. Cartridge fuses with non-porous arc-quenching material. 3,317,689, 5–2–67, Cl. 200—120.

Saulnier, Theodore A., to Radio Corp. of America. Method of metallizing luminescent screens. 3,317,337, 5–2–67, Cl. 117—33.5.

Saunders, Harry C., to Universal Oil Products Co. Method for prolonging the odor of perfumed materials with trimethylnorbornylalkylcyclohexanones. 3,317,397, 5–2–67, Cl. 167—94.

Sawyer, James G., to General Turbine Corp. Air car. 3,317,161, 5–2–67, Cl. 244—36.

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Scarpace, William F., to General Motors Corp. Closure latch. 3,317,229, 5–2–67, Cl. 292—216.

Schaefer, Johannes, to I-T-E Circuit Breaker Co. Current balancing circuit for rectifiers having phase control regulators. 3,317,813, 5–2–67, Cl. 321—26.

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Scharf, Leonard, to General Electric Co. Static timing means for producing an output control signal if an input signal persists for a predetermined minimum time interval. 3,317,745, 5–2–67, Cl. 307—88.5.

Schattner, Robert I. Germicidal fabric. 3,317,376, 5–2–67, Cl. 167—38.7.

Scheck, Artur. System for the printing of spherical objects. 3,316,837, 5–2–67, Cl. 101—115.

Schenck, Leslie M.: *See*—
Nunn, Leslie G., Jr., and Schenck. 3,317,612.

Schering Aktiengesellschaft: *See*—
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Scherr, Benjamin F.: *See*—
Carlson, Carl O., Scherr, and Rondas. 3,316,825.

Schick Electric Inc.: *See*—
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Schickle, Ernst, to Rheingold Brewerles, Inc. Automatic keg feeder. 3,317,025, 5–2–67, Cl. 198—26.

Schiess Aktiengesellschaft: *See*—
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Schindler, Karl, to Henschel-Werke A.G. Steering mechanism for vehicles with non-dirigible wheels. 3,316,992, 5–2–67, Cl. 180—6.2.

Schlachter, Herbert J.: *See*—
Stang, Charles, Jr., and Schlachter. 3,317,136.

Schmadeke, Louis F. Safety traction athletic shoe soles. 3,316,662, 5–2–67, Cl. 36—32.

Schmerling, Louis, to Universal Oil Products Co. Preparation of unsaturated carboxylic acids. 3,317,590, 5–2–67, Cl. 260—514.

Schmid, Alois, to Hoffman Maschinen G.m.b.H. Pressing machine. 3,317,094, 5–2–67, Cl. 223—57.

Schmidt, Helmut, to Kiensle Apparate G.m.b.H. Pin carriage input arrangement. 3,317,128, 5–2–67, Cl. 235—60.

Schmidt, Kenneth A., to Nalco Chemical Co. Demineralization of polar liquids, especially water. 3,317,424, 5–2–67, Cl. 210—24.

Schmidt, Steven J.: *See*—
Garla, James D., Schmidt, and Fangman. 3,317,878.

Schmitt, William C., to Milwaukee Faucets, Inc. Water mixing device for water closet storage tanks. 3,316,932, 5–2–67, Cl. 137—512.

Schneider, Jean-Claude, to Fabrique d'Horlogerie Chs Tissot et Fils S.A. Watch movement with ringing mechanism. 3,316,707, 5–2–67, Cl. 58—21.12.

Schneider, Jean-Claude, to Fabrique d'Horlogerie Chs Tissot et Fils S.A. Watch movement with ringing mechanism. 3,316,710, 5–2–67, Cl. 58—57.5.

Schneller, Rudy F., to McNeil Corp. Measuring pump. 3,316,853, 5–2–67, Cl. 103—203.

Schnepfe, Robert W.: *See*—
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Grussner, Andre, Lorch, and Schnider. 3,317,536.

Scholl Mfg. Co., Inc., The: *See*—
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Schoneborn, Hellmuth, to Bolkow Gesellschaft mit Beschrankter. Radar altimeter. 3,317,908, 5–2–67, Cl. 343—13.

Schonfeld, Edward, and C. A. Fetscher, to Nopco Chemical Co. Ester-isocyanate reaction product. 3,317,463, 5–2–67, Cl. 260—47.

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Schroeder, Carl J., to The Chemical Rubber Co. Automatic machine for washing laboratory ware. 3,316,925, 5–2–67, Cl. 134—56.

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Schroter, Hans O. Hand operated brake. 3,316,776, 5–2–67, Cl. 74—516.

Schuck, James M., and R. G. Schultz, to Monsanto Co. Polymerization of olefins using ammoniated cobalt salt impregnated carbon catalyst. 3,317,628, 5–2–67, Cl. 260—683.15.

Schudel, Peter: *See*—
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Schultz, Everett M., to Merck & Co., Inc. Preparation of [4-(2-alkylidenealkanoyl)phenoxy]-alkanoic acid by oxidation. 3,317,591, 5–2–67, Cl. 260—521.

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Schultz, James E., to H. O. Schultz, Inc. Adjustable drill head. 3,316,779, 5–2–67, Cl. 77—24.

Schultz, John M., to Borg-Warner Corp. Compressor drive system. 3,317,120, 5–2–67, Cl. 230—1.

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Calvert, John F., and Schultz. 3,317,719.

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Schumacher, William L., to AMP Inc. High voltage coaxial connector. 3,317,882, 5–2–67, Cl. 339—29.

Schumann, Alfred F. Bilge pump. 3,316,845, 5–2–67, Cl. 103—26.

Schumann, Robert W., to Northern Scientific Inc. Circuitry to represent as a waveform the relationship of two variables. 3,317,717, 5–2–67, Cl. 235—150.

Schundehutte, Karl-Heinz, F. Suckfull, and H. Nickel, to Farbenfabriken Bayer Aktiengesellschaft. Copper-containing polyazo dyestuffs. 3,317,507, 5–2–67, Cl. 260—145.

Schutte, Myles H. Method and apparatus for forming foundation members. 3,316,723, 5–2–67, Cl. 61—53.64.

Schwartz, Harold O., and H. M. Thomas, to The Wurlitzer Co. Stop tablet and filter assembly with improved separable resilient positioning means. 3,317,684, 5–2–67, Cl. 200—6.

Schwarz, Elias, and J. Neiditch, to Advance Transformer Co. Method of manufacturing a shell type transformer core for ballast structure. 3,316,621, 5–2–67, Cl. 29—155.61.

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Wolter, Erich, and Schwarz. 3,317,864.

Schwarz, Max: *See*—
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Schwarz, Peter D., to General Signal Corp. Cashiering control systems for collecting fees for vehicles. 3,317,892, 5–2–67, Cl. 340—31.

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Scott, Hugh L., to Screw Conveyor Corp. Truck tilting platform having retractable backstop. 3,317,065, 5–2–67, Cl. 214—49.

Scott, John J., and N. C. Turnbull, to Norton Co. Fusion process for production of stoichiometric UO. 3,317,284, 5–2–67, Cl. 23—355.

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Seaman Corp.: *See*—
Seaman, Harry J. 3,316,822.

Seaman, Harry J., deceased, Ann Seaman, and American City Bank and Trust Co., executors of said Harry J. Seaman, to Seaman Corp. Combined earth mover and compactor. 3,316,822, 5–2–67, Cl. 94—50.

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Alexander, Guy B., and Sears. 3,317,432.

Seeger, Ernst, to Boehringer Ingelheim G.m.b.H. Dihydropyranyl and tetrahydropyranyl carbinols and O-acyl derivatives thereof. 3,317,565, 5–2–67, Cl. 260—345.8.

Seelbach, Walter C.: *See*—
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Seeler, Henry W. Variable volume rebreathing bag for scuba system. 3,316,905, 5–2–67, Cl. 128—147.

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Seidler, David, to Chesebrough-Ponds Inc. Manicuring device. 3,316,922, 5–2–67, Cl. 132—75.

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Selby, Richard N., to E. I. du Pont de Nemours and Co. Terpolymer containing methyl methacrylate, 2-ethylhexyl acrylate and methacrylic acid and compositions containing same. 3,317,493, 5–2–67, Cl. 260—80.5.

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Sellet, Lucien, to Nopco Chemical Co. Condensate prepared by reacting formaldehyde with a reaction product of ammonia and a linear polymer containing equimolar amounts of maleic anhydride and at least one other ethylenically unsaturated monomer. 3,317,476, 5–2–67, Cl. 260—72.

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Seany, Walter J., and L. H. Shaffer, to Union Carbide Corp. Fluid encapsulation product. 3,316,691, 5–2–67, Cl. 55—66.

Setecka, John C. Safety device for electrical receptacles. 3,317,881, 5–2–67, Cl. 339—42.

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Shaffer, Lloyd H.: *See*—
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Shah, Vipin D., to Abbott Laboratories. Process of purifying cyclohexyl-ammonium-N-cyclohexylsulfamate contaminated with cyclohexylaminesulfate. 3,317,588, 5–2–67, Cl. 260—501.

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Shelton, Russell S., to Southern Textile Machinery Co., Inc. Sewing machine. 3,316,866, 5–2–67, Cl. 112—25.

Shelton, Russell S., to Southern Textile Machinery Co., Inc. Pedestal mounting for sewing machine. 3,316,869, 5–2–67, Cl. 112—258.

Shepherd, Freeman D., Jr. Tunneling enhanced transistor. 3,317,801, 5–2–67, Cl. 317—235.

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Pray, Lester W., Anderson, Sheron, and Drake. 3,317,147.

Shetty, Bola V., L. A. Campanella, and E. E. Hays, to Wallace & Tiernan Inc. Methods for treating pain. 3,317,388, 5–2–67, Cl. 167—65.

Shimabukuro, George T., to Xerox Corp. Facsimile-synchronization-system employing logic gating and two internally-generated off-synchronous frequencies for detecting and shifting mis-synchronous frequency. 3,317,844, 5–2–67, Cl. 328—63.

Shirota, Minoru, H. Endo, and K. Nakajima, to Kabushiki Kaisha Yakult Honsha. Method of new industrial cultivation of unicellular green algae such as chlorella. 3,316,674, 5–2–67, Cl. 47—1.4.

Sho, Koji, to Nippon Kogaku K.K. Shutter release device for cine cameras. 3,317,270, 5–2–67, Cl. 352—141.

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Shorr, Norman, to Pittsburgh Plate Glass Co. Traction rolls and material handling apparatus employing such rolls. 3,317,303, 5–2–67, Cl. 65—253.

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Silverman, Bernard P., to Radio Corp. of America. Integrated light sensing device. 3,317,712, 5–2–67, Cl. 235—61.11.

Silverman, Meyer S., to Pennsalt Chemicals Corp. Polymorph of calcium disilicide and its method of preparation. 3,317,279, 5–2–67, Cl. 23—204.

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Simpson, Elizabeth A.: *See*—
Simpson, John A., and Soderquist. 3,316,661.

Simpson, John A., and C. E. Soderquist, Jr., to E. A. Simpson. Variable constant-speed drive mechanism. 3,316,661, 5–2–67, Cl. 35—35.2.

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Verdol, Joseph A. 3,317,483.

Singer Co., The: *See*—
Erwin, Joseph O., Jr. 3,316,867.
Marchand, Nathan. 3,317,831.

Skaletzky, Louis L., to The Upjohn Co. 3a and 5a tertiaryamino cycloalkylene of 5 to 7 [a] benzofuranols. 3,317,527, 5–2–67, Cl. 260—247.7.

Skett, Herbert E., to R. J. Fullwood & Bland Ltd. Animal feeding apparatus. 3,317,028, 5–2–67, Cl. 198—37.

Skoultchi, Martin: *See*—
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Bollesen, Vernon P., and Slattery. 3,317,896.

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Smirl, Richard L., to Borg-Warner Corp. Multiple plate clutch constructions. 3,317,013, 5–2–67, Cl. 192—69.

Smith, Aaron H., to Signal Mfg. Co. Apparatus for selectively polishing, scrubbing and cleaning floors. 3,316,579, 5–2–67, Cl. 15—320.

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Smith, Arthur W., to Big Three Welding Equipment Co. Method of letting hydraulic packers. 3,316,969, 5–2–67, Cl. 166—48.

Smith, David F. Plaster of paris bandage. 3,316,901, 5–2–67, Cl. 128—91.

Smith, Harry A., to The Dow Chemical Co. Novel thermal stable resins and products produced therewith. 3,317,487, 5–2–67, Cl. 260—79.

Smith, Jerome F.: *See*—
Coleman, George M., Ruch, and Smith. 3,317,760.

Smith, John J. Aerosol spray nozzle. 3,317,140, 5–2–67, Cl. 239—107.

Smith, Keith J.: *See*—
Woods, Walter R., and Smith. 3,317,378.

Smith, Leslie F., R. V. Dahlstrom, J. H. Jaehnig, and M. R. Sfat to Rahn Bly Technical Laboratories, Inc. Granin modification process and product. 3,317,402, 5–2–67, Cl. 195—69.

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Crowther, Albert F., and Smith. 3,317,553.

Smith, Leslie H., to United-Carr Inc. Printed circuit board connector. 3,317,879, 5–2–67, Cl. 339—17.

Smith, Pleasant E., ¼ each to J. A. Ozbourn, T. A. Miller, and W. G. Lecocq. Cable splice spider. 3,317,658, 5–2–67, Cl. 174—138.

Smith, Robert J., to ACF Industries, Inc. Carburetor. 3,317,196, 5–2–67, Cl. 261—23.

Smith, Stanley F., and P. A. Taylor, to Rolls-Royce Ltd. Gas turbine engine combustion equipment. 3,316,714, 5–2–67, Cl. 60—39.65.

Smith, Stuart O., to National Copper Development Co. Drop leaf deck saw. 3,316,789, 5–2–67, Cl. 83—453.

Smith, Theodore D.: *See*—
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Smith, Tom, & Co., Ltd.: *See*—
Powling, Philip S. 3,316,818.

Smith-Vaniz, William R., to Trak Electronics Co., Inc. Hybrid circuit for radio frequency signal processing apparatus. 3,317,849, 5–2–67, Cl. 330—21.

Smoll, Lee V. Combination structure for automobiles. 3,317,238, 5–2–67, Cl. 296—69.

Snider, Orvill E.: *See*—
Lazarus, Stanley D., Twilley, and Snider. 3,317,519.

Snook, Russell A., to Allis-Chalmers Mfg. Co. Screen conveyor with ground engaging scoop. 3,316,977, 5–2–67, Cl. 171—25.

Snover, John A., to Metal Hydrides Inc. Preparation of amine boranes. 3,317,525, 5–2–67, Cl. 260—247.

Snyder, Orville E.: *See*—
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Societe Anonyme des Ateliers de Secheron: *See*—
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Societe d'Electro-Chimie, d'Electro-Metallurgie et des Acieries Electriques d'Ugine: *See*—
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Societe Nationale des Petroles d'Aquitaine: *See*—
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Solomon, Jack, to Lincoln Metal Products Corp. Dispenser for rolled sheets of material. 3,317,099, 5–2–67, Cl. 225—23.

Sommer, Francois N., to S.E.T.E.P., Societe d'Etudes, de Recherches et d'Experimentatons Industrielles de Tour Procedes Nouveaux pour L'Alliance des Textiles et de Matieres Plastiques. 3,316,586, 5–2–67, Cl. 18—2.

Sommer, William F., R. E. Knelsley, and A. G. Osterloh, to The National Cash Register Co. Automatic controls for accounting machines. 3,317,711, 5–2–67, Cl. 235—61.6.

Sony Corp.: *See*—
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South, Jack H. Telephone transmitted alarm unit using selector switches to transmit and receive dial and message pulses. 3,317,673, 5–2–67, Cl. 179—5.

Southern Textile Machinery Co., Inc.: *See*—
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Specht, Ronald B., to The Goodyear Tire & Rubber Co. Rubbers stabilized with the reaction product of halo olefins and phenols. 3,317,459, 5–2–67, Cl. 260—45.95.

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Spes, Hellmuth: *See*—
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Stagliano, Ernest L., Jr., to General Electric Co. Indicating lamp housing. 3,317,907, 5–2–67, Cl. 340—381.

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Stahler, Ylo E., and A. L. Johnson, to United States of America, Air Force. Electromagnetic lenses for radiant energy communication systems. 3,317,911, 5–2–67, Cl. 343—755.

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Stefcik, Andrew, and F. E. Woodward, to General Aniline & Film Corp. Biocidal composition containing an electrolyte plant nutrient. 3,317,305, 5–2–67, Cl. 71—3.

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Collins, Joseph C. 3,317,551.
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Stewart, Lawrence L., Jr., to Philip Morris, Inc. Process for the production of electrets. 3,316,620, 5–2–67, Cl. 29—155.5.

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Stockli, Alfred, M. E. Kissling, and W. Spalinger, to A. S. Stockli. Spirit burner. 3,316,957, 5–2–67, Cl. 158—97.

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Stockli, Alfred, Kissling, and Spalinger. 3,316,957.

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Straub, Melvin J., A. L. Hover, and J. C. Anderson, to Gordon Johnson Co. Machine for sealing packages. 3,316,690, 5–2–67, Cl. 53—329.

Streck, Clements, to General Aniline & Film Corp. Metallizing azoic dyeings and prints. 3,317,273, 5–2–67, Cl. 8—42.

Strike, George N. Two-sided tumbler. 3,316,658, 5–2–67, Cl. 34—126.

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Stump, William L., to E. I. du Pont de Nemours and Co. Process of drawing and crimping asymmetrically quenched polyester filaments to provide a compact ribbon-like tow for shipping and enhanced bulk in end-products. 3,316,612, 5–2–67, Cl. 28—72.

Suckfull, Fritz: *See*—
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Sumi, Masaaki: *See*—
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Sun-Freeze, Inc.: *See*—
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Sundblom, Leif J.: *See*—
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Suzuki, Teruhiko, M. Kameishi, and K. Yamamoto, to Asahi Kaesi Kugyo Kabushiki Kaisha. Spot welding method for metals by explosives. 3,316,627, 5–2–67, Cl. 29—470.1.

Swakon, Edward A., to Standard Oil Co. Ureas and alcohol products. 3,317,599, 5–2–67, Cl. 260—553.

Swallert, Sven A. Oil level indicator. 3,316,647, 5–2–67, Cl. 33—126.7.

Swenson, Rudolph E. Catheter guiding forceps. 3,316,913, 5–2–67, Cl. 128—321.

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Szczepanek, Alfred, and G. Koenen, to Chemischke Fabrik Hoesch K.-G. Liquid stabilizers for vinyl chloride polymers comprising a lead salt dissolved in an alkyl phenol. 3,317,436, 5–2–67, Cl. 252—400.

Saunmaki, Stephen A., to American Cyanamid Co. Streptomyces aureofaciens fermentation process using glyceride oil and casein. 3,317,403, 5–2–67, Cl. 195—80.

Szwarguiski, Alex N., to ACF Industries, Inc. Carburetor. 3,317,183, 5–2–67, Cl. 251—120.

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Tagawa, Yasuo, to Kokusai Denki Kabushiki Kaisha. Electromechanical filter of channel separation filter type comprising magnetostriction bar resonators. 3,317,858, 5–2–67, Cl. 333—6.

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Takai, Unokichi. Method for producing a plastic fabric having pile-like projections. 3,317,644, 5–2–67, Cl. 264—246.

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Talbot, Samuel A., deceased (by B. O. Talbot, executrix), and G. N. Webb, 30% to W. G. Finch. Coded card. 3,317,715, 5–2–67, Cl. 235—61.11.

Talcott, James, Inc.: *See*—
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Tamas, Istvan. Composition and method for inhibiting calculus deposition on human teeth. 3,317,396, 5–2–67, Cl. 167—93.

Tamny, Simon, to Wayne Mfg. Co. Sweeper gutter broom suspension. 3,316,578, 5–2–67, Cl. 15—87.

Tann, David. Fastening device including helical spring-like element. 3,316,795, 5–2–67, Cl. 85—64.

Tantlinger, Keith W., to Fruehauf Corp. Trailer construction. 3,317,239, 5–2–67, Cl. 296—100.

Tapper, Robert. Electrical hair-erector shaver. 3,316,633, 5–2–67, Cl. 30—34.2.

Tate, David P., and J. M. Augl, to The Standard Oil Co. Process for removing carbon monoxide from gases. 3,317,275, 5–2–67, Cl. 23—2.

Tatter, Ernest O. P., and P. Vazzano, to Warwick Electronics Inc. Tape cartridge changer. 3,317,212, 5–2–67, Cl. 274—11.

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Terp, Vernon E., to United States of America, Navy. Means for time compressing a narrow-band low-level signal. 3,317,845, 5–2–67, Cl. 328—165.

Terra, Pierre J., and G. Finiels, to Societe Rhodiaceta. Process for crimping a tow of vinyl alcohol polymer. 3,316,611, 5–2–67, Cl. 28—72.

Tesoro, Giuliana C., W. K. Lee, and D. R. Moore, to J. P. Stevens & Co., Inc. Polyolefins of improved dye affinity modified with unsaturated polyester resins. 3,317,633, 5–2–67, Cl. 260—873.

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Thomas, Lazarus D., and H. L. Rueter, to Libbey-Owens-Ford Glass Co. Glass polishing composition comprising a water-soluble zinc salt. 3,317,294, 5–2–67, Cl. 51—307.

Thomasset, Auguste L. Apparatus and methods for the measure of the electrical impedance of living organisms. 3,316,896, 5–2–67, Cl. 128—2.1.

Thompson, Allan R., to Clevite Corp. Magnetic recorder with linearity compensation. 3,317,915, 5–2–67, Cl. 246—117.

Thompson, Allan R., and F. Eubel, Jr., to Clevite Corp. D'Arsonval motor. 3,317,916, 5–2–67, Cl. 346—139.

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Tishler, Max, to Merck & Co., Inc. Dibenzocycloheptene compounds and processes for preparing the same. 3,317,582, 5–2–67, Cl. 260—465.

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Topcik, Barry, to Columbian Carbon Co. Butyl rubber vulcanizates prepared from compositions comprising factice, phenolic curing agent and aromatic amine. 3,317,444, 5–2–67, Cl. 260—19.

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Trolander, Hardy W., and R. W. Harruff, to The Yellow Springs Instrument Co., Inc. Extended range thermistor temperature sensing. 3,316,765, 5–2–67, Cl. 73—362.

Truax, Charles J., to General Electric Co. Magnetron assembly having dielectric means, external to envelope, for setting the center operating frequency. 3,317,785, 5–2–67, Cl. 315—39.77.

Tsuda, Takashi, S. Takei, and T. Tsujikawa, to Takeda Chemical Industries, Ltd. 2-amino-4-alkoxy-s-triazines. 3,317,528, 5–2–67, Cl. 260—249.5.

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Tsuzuki, Yoshiro. Concrete pile joint and method of assembly. 3,316,724, 5–2–67, Cl. 61—56.

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Tucker, Augustine J. Stabilized vessel for open sea operations. 3,316,871, 5–2–67, Cl. 114—.5.

Tullis, Lyell C., to Gisholt Corp. Torque control device. 3,316,782, 5–2–67, Cl. 81—52.5.

Turillon, Pierre P., to The International Nickel Co. Coin selecting device. 3,317,016, 5–2–67, Cl. 194—100.

Turkish, Michael C., to Eaton Yale & Towne Inc. Camshaft for internal combustion engine valve gear. 3,316,890, 5–2–67, Cl. 123—90.

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Tyler, Stanley R., to Dowty Fuel Systems Ltd. Fuel supply system for jet propulsion engines. 3,316,712, 5–2–67, Cl. 60—39.28.

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Umanoff, Martin, to R. A. MacPlum Industries, Inc. Radio receiver with alarm means operative when input signal is below predetermined level. 3,317,841, 5–2–67, Cl. 325—364.

Umehara, Senji, to Takeda Chemical Industries, Ltd. Method for treating peptic ulcer. 3,317,381, 5–2–67, Cl. 167—55.

Umesawa, Sumio, T. Tomioka, T. Nakamura, and Y. Hoshiide, to Nikken Chemicals Co., Ltd. Decahydroisoquinoline esters of substituted bensoic acid and methods for their preparation. 3,317,541, 5–2–67, Cl. 260—287.

Underwood, Gerald E., to The Upjohn Co. Treatment of topicalviral infections with glucocorticoids and nucleosides. 3,317,384, 5–2–67, Cl. 167—58.

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Williams, Charles T., to General Electric Co. Magnetic core and coil assembly having improved insulation arrangement. 3,317,875, 5–2–67, Cl. 336—198.

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Mason, Ronald C., Strzelewicz, and Willis. 3,316,701.

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Wilmoth, John H. and H. L. 3,316,664.

Wilmoth, John H. and H. L. Reel-type earth moving scraper. 3,316,664, 5–2–67, Cl. 37—9.

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Kaess, Gary, and Wilson. 3,316,823.

Wilson, Jack L.: *See*—
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Wilson, James H.: *See*—
Priestley, Hill M., and Wilson. 3,317,430.

Wilson, James W.: *See*—
Lazich, Radovan P. 3,316,893.

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Mill, Theodore, Rodin, Silverstein, and Woolf. 3,317,598.

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Woolston, Lionel L., R. H. Semenoff, and R. R. Armstrong, to United States of America, Navy. Bomb-fuse function selector and initiator. 3,316,807, 5–2–67, Cl. 89—1.5.

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Kaye, Saul. 3,317,431.

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Hearne, Joseph H. 3,317,649.
Schwartz, Harold O., and Thomas. 3,317,684.

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Hartman, Robert J. 3,317,639.

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Bean, Lloyd F., and Gundlach. 3,317,316.
Cary, Donald S. 3,316,805.
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Ferrari, Patrick T., Reese, and Stone. 3,316,878.
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Yoneda, Fumio: *See*—
Nitta, Yoshihiro, Yoneda, and Miyamoto. 3,317,534.

Yonkers, Edward H., to Joslyn Mfg. and Supply Co. Electrical cable terminal. 3,317,654, 5–2–67, Cl. 174—73.

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Yost, James W., to Stromberg-Carlson Corp. Electrical connector for printed circuit boards. 3,317,885, 5–2–67, Cl. 339—176.

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Young, Guy B., and S. J. Lubinski, to American Cyanamid Co. Preparation of electric blasting cap mixture containing amorphous boron and lead oxide. 3,317,360, 5–2–67, Cl. 149—2.

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ZTX Lighting, Inc.: *See*—
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Zacher, Wieland: *See*—
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Zec, Zvonimir J., to Beckman Instruments, Inc. Electrophoresis apparatus with adjustable sample application. 3,317,418, 5–2–67, Cl. 204—299.

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Carter, William B., and Ziegenhain. 3,317,625.

Ziegler, Karl: *See*—
Kroll, Wolf R., and Zosel. 3,317,570.

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Pfeifer, Willi. 3,316,702.

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Zock, Felix. Shelves. 3,316,863, 5–2–67, Cl. 108—108.

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Zuk, Paul, to Bell Telephone Laboratories, Inc. Switching circuit utilising bistable semiconductor devices. 3,317,752, 5–2–67, Cl. 307—88.5.

CLASSIFICATION OF PATENTS

ISSUED MAY 2, 1967

NOTE.—First number, class; second number, subclass; third number, patent number

2–128	3,316,556	29–470.1	3,316,627	58– 42	3,316,709	81– 3.05	3,316,780	105–240	3,316,857	136– 86	3,317,348
3– 1	3,316,557	472.7	3,316,628	57.5	3,316,710	9.51	3,316,781	241	3,316,858		3,317,349
1.2	3,316,558	473.5	3,316,630	60– 13	3,316,711	52.5	3,316,782	253	3,316,859	100	3,317,350
4–223	3,316,559	558	3,316,631	39.28	3,316,712	54	3,316,783	106– 90	3,317,327	105	3,317,351
242	3,316,560	568	3,316,629		3,316,713	82– 24	3,316,784	165	3,317,328	182	3,317,352
251	3,316,561	30– 28	3,316,632	39.65	3,316,714	33	3,316,785	176	3,317,329	233	3,317,353
286	3,316,562	34.2	3,316,633	53	3,316,715	36	3,316,786	287	3,317,330	137–102	3,316,926
5– 9	3,316,563	143	3,316,634	225	3,316,716	83–109	3,316,787	288	3,317,331		3,316,927
	3,316,564	162	3,316,635	226	3,316,717	375	3,316,788	308	3,317,332	119	3,316,928
97	3,316,565	210	3,316,636	255	3,316,718	453	3,316,789	107– 1	3,316,860	270	3,316,929
334	3,316,566	240	3,316,637	256	3,316,719	566	3,316,791	108– 51	3,316,861		3,316,930
348	3,316,567	262	3,316,638	61– 24	3,316,720	679	3,316,790	91	3,316,862	339	3,316,931
351	3,316,568	32– 2	3,316,639	39	3,316,721	84– 1.24	3,317,649	108	3,316,863	512	3,316,932
8– 42	3,317,271	14	3,316,640	53.64	3,316,723	422	3,316,792	148	3,316,864	576	3,316,933
	3,317,272	33– 18	3,316,641	53.7	3,316,722	85– 39	3,316,793	111– 6	3,316,865	578	3,316,934
	3,317,273		3,316,642	56	3,316,724	49	3,316,794	112– 25	3,316,866	595	3,316,935
158	3,316,569	20	3,316,643	62– 14	3,316,725	64	3,316,795	79	3,316,867	625.28	3,316,936
10– 25	3,316,570	79	3,316,644	55	3,316,726	68	3,316,796	158	3,316,868	625.29	3,316,937
99	3,316,571	103	3,316,645	101	3,316,727	74	3,316,797	258	3,316,869	625.66	3,316,938
12– 12.5	3,316,572	125	3,316,646	112	3,316,728	84	3,316,798	265	3,316,870	138– 30	3,316,939
146	3,316,573	126.7	3,316,647	156	3,316,729	88– 14	3,316,799	114– .5	3,316,871	31	3,316,940
13– 16	3,317,647	174	3,316,648	173	3,316,730		3,316,800	54	3,316,872	139– 88	3,316,941
14– 16	3,316,574	178	3,316,649	196	3,316,731		3,316,801	61	3,316,873	207	3,316,942
71	3,316,575		3,316,650	259	3,316,732	24	3,316,802	67	3,316,874	343	3,316,943
15– 22	3,316,576	205	3,316,651	296	3,316,733		3,316,803	117– 7	3,317,333	140– 92.3	3,316,944
23	3,316,577	34– 5	3,316,652	381	3,316,734		3,316,804	10	3,317,334	141–140	3,316,945
87	3,316,578	22	3,316,653	476	3,316,735		3,316,805	11	3,317,335	144– 1	3,316,946
250.23	3,316,583	23	3,316,654	502	3,316,736	28	3,316,806	33.5	3,317,337		3,316,947
320	3,316,579	92	3,316,655	64– 13	3,316,737	89– 1.5	3,316,807	46	3,317,338	318	3,316,948
323	3,316,584	99	3,316,656	31	3,316,738	1.204	3,316,808	47	3,317,339	145– 46	3,316,949
539	3,316,580	111	3,316,657	65– 2	3,317,296	1.815	3,316,809	53	3,317,340	148– 1.5	3,317,354
16– 44	3,316,581	126	3,316,658	30	3,317,297	28	3,316,810	65.2	3,317,341	3	3,317,355
51	3,316,582	133	3,316,659	32	3,317,298	90– 11	3,316,811	95	3,317,342	13.1	3,317,356
18– 1	3,316,585	35– 9	3,316,660	60	3,317,299	17	3,316,812	107.2	3,317,343	15.5	3,317,357
2	3,316,586	10.4	3,317,648	84	3,317,300	78	3,316,813	121	3,317,344	105	3,317,358
5	3,316,587	35	3,316,661	99	3,317,301	91– 56	3,316,814	132	3,317,336	186	3,317,359
5.1	3,316,588	36– 32	3,316,662		3,317,302	359	3,316,815	138.5	3,317,345	149– 2	3,317,360
8	3,316,589	71	3,316,663	253	3,317,303	369	3,316,816	118– 6	3,316,875	18	3,317,361
12	3,316,590	37– 9	3,316,664	66– 71	3,316,739	92– 79	3,316,817	50	3,316,876	19	3,317,362
	3,316,591	42	3,316,665	68– 6	3,316,740	93– 1	3,316,818	236	3,316,877	150– 9	3,316,950
15	3,316,592	107	3,316,666	207	3,316,741	62	3,316,819	637	3,316,878	52	3,316,951
16	3,316,593	38–108	3,316,667	70–379	3,316,742	80	3,316,820	639	3,316,879	151– 7	3,316,952
19	3,316,594	40–117	3,316,668	71– 2.5	3,317,304	94– 46	3,316,821	119– 1	3,316,880	41.73	3,316,953
39	3,316,595	142	3,316,669	3	3,317,305	50	3,316,822	4	3,316,881	152–352	3,316,954
43	3,316,596	43– 9	3,316,670	43	3,317,306	95– 1	3,316,823	5	3,316,882	156–210	3,317,363
19– .2	3,316,597	44– 10	3,317,289	64	3,317,307		3,316,824	51	3,316,883	213	3,317,364
159	3,316,598	38	3,317,290	72– 10	3,316,743	73	3,316,825	52	3,316,884	158– 4	3,316,955
21– 87	3,317,274	72	3,317,291	35	3,316,744	77.5	3,316,826	122– 6	3,316,885	88	3,316,956
23– 2	3,317,275	46– 52	3,316,671	83	3,316,745	100	3,316,827	379	3,316,886	97	3,316,957
103	3,317,276	66	3,316,672	238	3,316,746	96– 1.1	3,317,315	123– 14	3,316,887	159– 6	3,316,958
143	3,317,277	47– 1	3,316,673	332	3,316,747		3,317,316	41.69	3,316,888	161– 22	3,317,365
150	3,317,278	1.4	3,316,674	377	3,316,748	1.4	3,317,317	51	3,316,889	66	3,317,366
204	3,317,279	37	3,316,675	450	3,316,749	36	3,317,318	90	3,316,890	67	3,317,367
207	3,317,280	58	3,316,676	73– 15	3,316,750	36.1	3,317,319	136	3,316,891	175	3,317,368
225	3,317,281	48–209	3,317,292	23.1	3,316,751	36.2	3,317,320	126– 25	3,316,892	193	3,317,369
230	3,317,282	49–254	3,316,677	40.5	3,316,752	88	3,317,321	271.2	3,316,893	162–168	3,317,370
253	3,317,283	51– 5	3,316,678	49.1	3,316,753	108	3,317,322	362	3,316,894	385	3,317,371
355	3,317,284	137	3,316,679	59	3,316,754	98– 1.5	3,316,828	127– 70	3,317,346	165– 22	3,316,959
24– 31	3,316,599	307	3,317,293	67.5	3,316,755	99– 90	3,317,323	128– 2	3,316,895	26	3,316,960
73	3,316,600		3,317,294	71.4	3,316,756	98	3,317,324	2.06	3,316,897	145	3,316,961
113	3,316,601	308	3,317,295	89	3,316 757	126	3,317,325	2.1	3,316,896	166– 11	3,316,962
241	3,316,602	52–126	3,316,680	146	3,316,758	179	3,317,326	25	3,316,898	14	3,316,963
245	3,316,603	235	3,316,681	147	3,316,759	234	3,316,829	63	3,316,899	29	3,316,964
263	3,316,604	237	3,316,682	159	3,316,760	235	3,316,830	80	3,316,900	33	3,316,965
277	3,316,605	582	3,316,683	189	3,316,761	261	3,316,831	91	3,316,901		3,316,966
25– 22	3,316,606	615	3,316,684	194	3,316,762	329	3,316,832	145.5	3,316,902	42	3,316,967
120	3,316,607	741	3,316,685	317	3,316,763	404	3,316,833	145.7	3,316,903	45	3,316,968
27– 19	3,316,608	53– 28	3,316,686	355	3,316,764	100–214	3,316,834	146.6	3,316,904	48	3,316,969
28– 21	3,316,609	33	3,316,687	362	3,316,765	101– 27	3,316,835	147	3,316,905	55.7	3,316,970
72	3,316,610	62	3,316,688	402	3,316,766	114	3,316,836	156	3,316,906	99	3,316,971
	3,316,611	184	3,316,689	453	3,316,767	115	3,316,837	205	3,316,907	167– 14	3,317,372
	3,316,612	329	3,316,690	505	3,316,768	152	3,316,838	214	3,316,908	33	3,317,373
29– 26	3,316,613	55– 66	3,316,691	74– 1.5	3,316,769	364	3,316,839	218	3,316,909	38	3,317,374
34	3,316,614	204	3,316,692	10.8	3,316,770	102– 66	3,316,840	227	3,316,910	38.6	3,317,375
96	3,316,615	248	3,316,693	248	3,316,771	76	3,316,841	286	3,316,911	38.7	3,317,376
	3,316,616	56– 1	3,316,694	410	3,316,772	100	3,316,842	303	3,316,912	52	3,317,377
97	3,316,617	21	3,316,695	481	3,316,773	103– 2	3,316,843	321	3,316,913	53	3,317,378
155.5	3,316,618	25.4	3,316,696	493	3,316,774	6	3,316,844	334	3,316,914		3,317,379
	3,316,619	44	3,316,697	501.5	3,316,775	26	3,316,845	454	3,316,915	55	3,317,380
	3,316,620	57– 53	3,316,698	516	3,316,776	41	3,316,846	130– 30	3,316,916		3,317,381
155.61	3,316,621	93	3,316,699	532	3,316,777	87	3,316,847	131– 84	3,316,917	58	3,317,382
156.8	3,316,622	98	3,316,700	732	3,316,778	103	3,316,848	105	3,316,918		3,317,383
182.5	3,317,285		3,316,701	75– 33	3,317,308	113	3,316,849	143	3,316,919		3,317,384
183.5	3,317,286	99	3,316,702	43	3,317,309		3,316,850	132– 39	3,316,920	65	3,317,385
193	3,317,287	106	3,316,703		3,317,310	126	3,316,851	50	3,316,921		3,317,386
198	3,317,288	120	3,316,704	78	3,317,311	136	3,316,852	75	3,316,922		3,317,387
249	3,316,623	157	3,316,705	108	3,317,312	203	3,316,853	84	3,316,923		3,317,388
400	3,316,624	58– 3	3,316,706	118	3,317,313	227	3,316,854	133– 1	3,316,924		3,317,389
420.5	3,316,625	21.12	3,316,707	174	3,317,314	104– 88	3,316,855	134– 58	3,316,925		3,317,390
423	3,316,626	23	3,316,708	77– 24	3,316,779	172	3,316,856	136– 28	3,317,347	74	3,317,391

167– 74	3,317,392	198–133	3,317,026	220– 71	3,317,[illegible]	248– 26	3,317,166	260– 78.4	3,317,483	260–462	3,317,581
78	3,317,393	158	3,317,029	102	3,317,[illegible]	73	3,317,167		3,317,484	465	3,317,582
82	3,317,394	189	3,317,030	221– 14	3,317,[illegible]	156	3,317,168	78.5	3,317,485		3,317,583
93	3,317,395	220	3,317,031	222– 1	3,317,083	188.2	3,317,169	79	3,317,486		3,317,584
	3,317,396	200– 1	3,317,682	57	3,317,084	221	3,317,170		3,317,487	465.2	3,317,585
94	3,317,397	5	3,317,683	58	3,317,085	229	3,317,171		3,317,488	468	3,317,586
169– 15	3,316,972	6	3,317,684	136	3,317,086	316	3,317,172		3,317,489	475	3,317,587
19	3,316,973	19	3,317,685	143	3,317,087	351	3,317,173		3,317,919	501	3,317,588
26	3,316,974	46	3,317,686	178	3,317,088	359	3,317,174		3,317,920	513	3,317,589
170–159	3,316,975	47	3,317,687	183	3,317,089	398	3,317,175	79.3	3,317,490	514	3,317,590
	3,316,976	67	3,317,688	386.5	3,317,090	447	3,317,176	79.5	3,317,491	521	3,317,591
171– 25	3,316,977	120	3,317,689	402.13	3,317,091	249–119	3,317,177		3,317,492	533	3,317,592
101	3,316,978		3,317,690		3,317,092	134	3,317,178	80.5	3,317,493	540	3,317,593
172– 22	3,316,979	123	3,317,691	484	3,317,093	250– 43.5	3,317,726	82.1	3,317,494	544	3,317,594
90	3,316,980	136	3,317,692	223– 57	3,317,094	71	3,317,727	83.7	3,317,918	551	3,317,595
255	3,316,981	138	3,317,693	87	3,317,095		3,317,728	86.3	3,317,495		3,317,596
677	3,316,982	152	3,317,694	95	3,317,096	71.5	3,317,729	88.2	3,317,496	552	3,317,597
173–163	3,316,983	167	3,317,695	224– 5	3,317,097	83.3	3,317,730	91.5	3,317,497	553	3,317,598
174– 5	3,317,650		3,317,696		3,317,098	203	3,317,731	93.7	3,317,498		3,317,599
15	3,317,651	168	3,317,697	225– 23	3,317,099	211	3,317,732		3,317,499		3,317,600
68.5	3,317,652		3,317,698	97	3,317,100		3,317,733		3,317,500	555	3,317,601
	3,317,653	202–176	3,317,405	226– 19	3,317,101	214	3,317,734		3,317,501	559	3,317,602
73	3,317,654	180	3,317,406	75	3,317,102	219	3,317,735		3,317,502	561	3,317,603
	3,317,655	204– 6	3,317,407	173	3,317,103		3,317,736	94.3	3,317,503	570.5	3,317,604
86	3,317,656	15	3,317,408	183	3,317,104	226	3,317,737	94.9	3,317,504	576	3,317,605
117	3,317,657	18	3,317,409	227– 76	3,317,105	227	3,317,738		3,317,505	582	3,317,606
138	3,317,658	23	3,317,410	228– 44	3,317,106	232	3,317,739	112.5	3,317,506	583	3,317,607
140	3,317,659	29	3,317,411	229– 3.5	3,317,107	251– 58	3,317,179	145	3,317,507		3,317,608
175– 7	3,316,984	55	3,317,412	4.5	3,317,108	61	3,317,180	209	3,317,508	584	3,317,609
24	3,316,985	67	3,317,413	5.5	3,317,109	62	3,317,181	210	3,317,509	609	3,317,610
297	3,316,986	70	3,317,414		3,317,110	68	3,317,182		3,317,510	612	3,317,611
313	3,316,987	196	3,317,415	15	3,317,111	120	3,317,183	211.5	3,317,511	613	3,317,612
391	3,316,988	290	3,317,416	19	3,317,112	122	3,317,184		3,317,512	615	3,317,613
176– 78	3,317,398	299	3,317,417	23	3,317,113	252– 46.7	3,317,425	214	3,317,513	631	3,317,614
	3,317,399		3,317,418	30	3,317,114		3,317,426	233.5	3,317,514	633	3,317,615
177– 16	3,316,989	206– 38	3,317,032	33	3,317,115	49.6	3,317,427	239	3,317,515		3,317,616
132	3,316,990	41	3,317,033	38	3,317,116	75	3,317,428	239.3	3,317,516	650	3,317,617
210	3,316,991	46	3,317,034	58	3,317,117	78	3,317,429		3,317,517	653	3,317,618
178– 4.1	3,317,660	47	3,317,035	61	3,317,118	152	3,317,430		3,317,518	653.3	3,317,619
5.4	3,317,661	56	3,317,036	62	3,317,119	180	3,317,431		3,317,519	666	3,317,620
	3,317,662	57	3,317,037	230– 1	3,317,120	301.1	3,317,432	239.5	3,317,520	668	3,317,621
6.7	3,317,663	62	3,317,038	58	3,317,121	316	3,317,433	240	3,317,521	672	3,317,622
7.5	3,317,664	208– 97	3,317,419	101	3,317,122		3,317,434	242	3,317,522		3,317,623
	3,317,665	264	3,317,420	207	3,317,123	321	3,317,435	243	3,317,523	677	3,317,624
7.87	3,317,666		3,317,421	273	3,317,124	400	3,317,436	246	3,317,524		3,317,625
23	3,317,667	327	3,317,422	233– 11	3,317,125	431	3,317,437	247	3,317,525	680	3,317,626
69	3,317,668		3,317,423	22	3,317,126	455	3,317,438	247.2	3,317,526	681.5	3,317,627
69.5	3,317,669	209–120	3,317,039	26	3,317,127		3,317,439	247.7	3,317,527	683.15	3,317,628
88	3,317,670	166	3,317,040	235– 60	3,317,128	254– 30	3,317,185	249.5	3,317,528	827	3,317,629
179– 1	3,317,671	315	3,317,041	61	3,317,129	93	3,317,186	249.6	3,317,529	849	3,317,630
2	3,317,672	210– 24	3,317,424	61.11	3,317,712	126	3,317,187	250	3,317,530	854	3,317,631
5	3,317,673	86	3,317,042		3,317,713	133	3,317,188		3,317,531	860	3,317,632
6.3	3,317,674	94	3,317,043		3,317,714	256– 13.1	3,317,189	251	3,317,532	873	3,317,633
18	3,317,675	96	3,317,044		3,317,715	48	3,317,190	253	3,317,533	878	3,317,634
22	3,317,676	130	3,317,045	61.6	3,317,711	259– 4	3,317,191	256.4	3,317,534	881	3,317,635
27	3,317,677		3,317,046	83	3,317,130	147	3,317,192		3,317,535	929	3,317,636
90	3,317,678	139	3,317,047	92	3,317,716	161	3,317,193	256.5	3,317,536	959	3,317,637
100.2	3,317,679	234	3,317,048	98	3,317,131		3,317,194	268	3,317,537	978	3,317,638
	3,317,680	241	3,317,049	123	3,317,132	260– 5	3,317,440		3,317,538		3,317,639
	3,317,681	331	3,317,050	131	3,317,133		3,317,441	279	3,317,539	261– 23	3,317,195
180– 6.2	3,316,992	332	3,317,051	150	3,317,717	9	3,317,442	286	3,317,540		3,317,196
33	3,316,993	393	3,317,052	150.31	3,317,718	18	3,317,443	287	3,317,541	24	3,317,197
53	3,316,994	439	3,317,053	151.1	3,317,719	19	3,317,444	290	3,317,542	27	3,317,198
69.1	3,316,995	211– 34	3,317,054	154	3,317,720	26	3,317,445		3,317,543	51	3,317,199
181– .5	3,316,996	124	3,317,055	176	3,317,721	27	3,317,446	292	3,317,544	64	3,317,200
	3,316,997	176	3,317,056	200	3,317,134	28.5	3,317,447	293	3,317,545	263– 32	3,317,201
24	3,316,998	212– 58	3,317,057	236– 68	3,317,135	29.6	3,317,448	294	3,317,546	33	3,317,202
30	3,316,999	74	3,317,058	78	3,317,136		3,317,449	294.7	3,317,547	50	3,317,203
31	3,317,000	214– 1	3,317,059	238– 8	3,317,137	29.7	3,317,450		3,317,548	264– 1	3,317,640
36	3,317,001		3,317,060	239– 15	3,317,138		3,317,451	294.9	3,317,549	102	3,317,641
184– 7	3,317,002		3,317,061	102	3,317,139	32.6	3,317,452	296	3,317,550	230	3,317,642
81	3,317,003	6	3,317,062	107	3,317,140	33.4	3,317,453	302	3,317,551	234	3,317,643
187– 8.5	3,317,004	7	3,317,063	127	3,317,141		3,317,454	304	3,317,552	246	3,317,644
16	3,317,005	42	3,317,064	130	3,317,142	37	3,317,455	307	3,317,553	258	3,317,645
188– 32	3,317,006	49	3,317,065	189	3,317,143		3,317,456	309.2	3,317,554	308	3,317,646
	3,317,007	83.36	3,317,066	204	3,317,144	39	3,317,457		3,317,555	267– 57	3,317,204
69	3,317,008	519	3,317,067	240– 2.25	3,317,722	41.5	3,317,458	309.6	3,317,556	269– 76	3,317,205
73	3,317,009	215– 39	3,317,068	47	3,317,723	45.95	3,317,459	325	3,317,557	272– 8	3,317,206
78	3,317,010	47	3,317,069	84	3,317,724	46.5	3,317,460		3,317,558	273– 43	3,317,207
171	3,317,011		3,317,070	241– 5	3,317,145		3,317,461	326.15	3,317,560	54	3,317,208
192– .096	3,317,012	54	3,317,071	242– 3	3,317,146	47	3,317,462	326.3	3,317,559	109	3,317,209
69	3,317,013	219– 10.55	3,317,699	26.4	3,317,147		3,317,463	327	3,317,561	122	3,317,210
98	3,317,014		3,317,700	43	3,317,148		3,317,464		3,317,562	186	3,317,211
193– 43	3,317,015	56	3,317,701	54	3,317,149		3,317,465	343	3,317,563	274– 11	3,317,212
194–100	3,317,016	79	3,317,702	55.12	3,317,151		3,317,466	345.5	3,317,564	275– 15	3,317,213
195– 2	3,317,400	111	3,317,703		3,317,152		3,317,467	345.8	3,317,565	277–170	3,317,214
51	3,317,401	137	3,317,704	55.2	3,317,150		3,317,468	345.9	3,317,566	188	3,317,215
69	3,317,402	149	3,317,705	58.3	3,317,153		3,317,469	346.1	3,317,567	216	3,317,216
80	3,317,403	312	3,317,706	71.2	3,317,154		3,317,470	346.8	3,317,568	280– 11.35	3,317,217
	3,317,404	367	3,317,707	71.8	3,317,155		3,317,471	347.4	3,317,569	150	3,317,218
197– 1	3,317,017	412	3,317,708	75.3	3,317,156	50	3,317,472	349	3,317,570	415	3,317,219
27	3,317,018	449	3,317,709	75.5	3,317,157	55	3,317,473	429	3,317,571	285– 1	3,317,220
98	3,317,019	543	3,317,710	78.1	3,317,158	57	3,317,474		3,317,572	39	3,317,221
	3,317,020	220– 3.8	3,317,072	84.52	3,317,159	67	3,317,475	429.7	3,317,573	55	3,317,222
172	3,317,021	4	3,317,073	118.62	3,317,160	72	3,317,476	439	3,317,574	299	3,317,223
198– 10	3,317,022	9	3,317,074	244– 36	3,317,161	73	3,317,477	440	3,317,575	363	3,317,224
19	3,317,023	19	3,317,075	42	3,317,162		3,317,478	446	3,317,576	287– 14	3,317,225
24	3,317,024	31	3,317,076	102	3,317,163	77.5	3,317,479	448.2	3,317,577	93	3,317,226
26	3,317,025		3,317,077	110	3,317,164		3,317,480		3,317,578	189.36	3,317,227
33	3,317,027	35	3,317,078	158	3,317,165		3,317,481	453	3,317,579		3,317,228
37	3,317,028	40	3,317,079	246–445	3,317,725	78	3,317,482	462	3,317,580	292–216	3,317,229

292–281	3,317,230	307– 88.5	3,317,754	315– 8	3,317,781	321– 45	3,317,816	330–168	3,317,852	339–258	3,317,888
336.3	3,317,231		3,317,755	11	3,317,782	323– 4	3,317,817	331– 94.5	3,317,853	340– 5	3,317,889
294– 33	3,317,232		3,317,756	26	3,317,783	22	3,317,818	110	3,317,854	7	3,317,890
74	3,317,233		3,317,757	39	3,317,784		3,317,819	111	3,317,855	17	3,317,891
87.2	3,317,234		3,317,758	39.77	3,317,785		3,317,820	113	3,317,856	31	3,317,892
112	3,317,235	145	3,317,759	58	3,317,786	324– 8	3,317,821	170	3,317,857	96	3,317,893
296– 35	3,317,236	308– 22	3,317,253	168	3,317,787	32	3,317,822	333– 6	3,317,858	147	3,317,894
63	3,317,237	26	3,317,254	194	3,317,788	33	3,317,823	10	3,317,859		3,317,895
69	3,317,238	37	3,317,255		3,317,789	37	3,317,824	13	3,317,860	166	3,317,896
100	3,317,239	132	3,317,256	316– 23	3,317,263	51	3,317,825	30	3,317,861		3,317,897
297– 89	3,317,240	191	3,317,257	25	3,317,264	58	3,317,826		3,317,862	172.5	3,317,898
285	3,317,241	207	3,317,258	317– 4	3,317,790	58.5	3,317,827	81	3,317,863		3,317,899
353	3,317,242	310– 2	3,317,760	22	3,317,791	68	3,317,828	334– 85	3,317,864		3,317,900
389	3,317,243	8.2	3,317,761	31	3,317,792	69	3,317,829	335– 12	3,317,865		3,317,901
410	3,317,244	8.5	3,317,762		3,317,793	72.5	3,317,830	16	3,317,866		3,317,902
299– 76	3,317,245	11	3,317,763	36	3,317,794	77	3,317,831	37	3,317,867	174.1	3,317,903
301– 37	3,317,246	17	3,317,764		3,317,795		3,317,832	132	3,317,868	274	3,317,904
	3,317,247	74	3,317,765	100	3,317,796	99	3,317,833	154	3,317,869	347	3,317,905
	3,317,248	163	3,317,766		3,317,797	115	3,317,834	207	3,317,870	366	3,317,906
	3,317,249	166	3,317,767		3,317,798	117	3,317,835	230	3,317,871	381	3,317,907
303– 24	3,317,250	218	3,317,768	134	3,317,799	132	3,317,836	284	3,317,872	343– 13	3,317,908
	3,317,251	312–223	3,317,259	137	3,317,800	154	3,317,837	336–120	3,317,873	100	3,317,909
54	3,317,252	231	3,317,260	235	3,317,801	325– 31	3,317,838		3,317,874	113	3,317,910
307– 39	3,317,740	249	3,317,261	318–102	3,317,802	106	3,317,839	198	3,317,875	755	3,317,911
64	3,317,741	342	3,317,262	138	3,317,803	137	3,317,840	206	3,317,876	836	3,317,912
88	3,317,742	313– 80	3,317,769		3,317,804	364	3,317,841	338– 89	3,317,877	346– 34	3,317,913
88.5	3,317,743	82	3,317,770	231	3,317,805	455	3,317,842	339– 5	3,317,878	74	3,317,914
	3,317,744	94	3,317,771	305	3,317,806	328– 41	3,317,843	17	3,317,879	117	3,317,915
	3,317,745	113	3,317,772	325	3,317,807	63	3,317,844	31	3,317,880	139	3,317,916
	3,317,746	141	3,317,773	346	3,317,808	165	3,317,845	42	3,317,881		3,317,917
	3,317,747	143	3,317,774	320– 30	3,317,809	233	3,317,846	89	3,317,882	350– 46	3,317,265
	3,317,748	152	3,317,775	56	3,317,810	329–198	3,317,847	94	3,317,883	160	3,317,266
	3,317,749	170	3,317,776	321– 7	3,317,811	330– 4.3	3,317,848	106	3,317,884	181	3,317,267
	3,317,750	182	3,317,777	16	3,317,812	21	3,317,849	176	3,317,885	351– 30	3,317,268
	3,317,751	225	3,317,778	26	3,317,813	23	3,317,850	198	3,317,886	352–140	3,317,269
	3,317,752	314– 5	3,317,779	44	3,317,814	84	3,317,851	256	3,317,887	141	3,317,270
	3,317,753	315– 3.5	3,317,780	45	3,317,815						

Classification of Designs

D 1– 8	207,527	D26– 13	207,536	D44– 15	207,545	D52– 6	207,553	D62– 3	207,561	D85– 8	207,569
D10– 8	207,528	D33– 19	207,537		207,546	7	207,554	D71– 1	207,562	D90– 20	207,570
	207,529	D34– 5	207,538		207,547	D54– 16	207,555	D74– 17	207,563		207,571
D12– 2	207,530		207,539	D45– 4	207,548	D57– 1	207,556	D80– 9	207,564		207,572
D13– 1	207,531		207,540	D48– 20	207,549		207,557		207,565		207,573
D14– 3	207,532		207,541		207,550		207,558	D81– 7	207,566		207,574
D24– 1	207,533	15	207,542	23	207,551	D58– 12.6	207,559	10	207,567	D91– 1	207,575
D26– 5	207,534	D44– 1	207,543	D52– 1	207,552	12.7	207,560	D85– 2	207,568	3	207,576
10	207,535	9	207,544								

Classification of Plants

P. – 20	2,734	P. – 20	2,736	P. – 20	2,737	P. – 82	2,735

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

(U.S. States, Territories and Armed Forces, the Commonwealth of Puerto Rico, and the Canal Zone)

(NOTE.—CODES ARE CHANGED AS OF JANUARY 1, 1967)

Alabama	1	Kentucky	21	Oregon	41
Alaska	2	Louisiana	22	Pennsylvania	42
American Samoa	3	Maine	23	Puerto Rico	43
Arizona	4	Maryland	24	Rhode Island	44
Arkansas	5	Massachusetts	25	South Carolina	45
California	6	Michigan	26	South Dakota	46
Canal Zone	7	Minnesota	27	Tennessee	47
Colorado	8	Mississippi	28	Texas	48
Connecticut	9	Missouri	29	Utah	49
Delaware	10	Montana	30	Vermont	50
District of Columbia	11	Nebraska	31	Virginia	51
Florida	12	Nevada	32	Virgin Islands	52
Georgia	13	New Hampshire	33	Washington	53
Guam	14	New Jersey	34	West Virginia	54
Hawaii	15	New Mexico	35	Wisconsin	55
Idaho	16	New York	36	Wyoming	56
Illinois	17	North Carolina	37	U.S. Air Force	57
Indiana	18	North Dakota	38	U.S. Army	58
Iowa	19	Ohio	39	U.S. Navy	59
Kansas	20	Oklahoma	40		

(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

PATENTS

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3,317,306
3,317,666
3,317,825
4 : 3,316,815
3,316,980
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DESIGN PATENTS

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6 : 2,736

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36 : 2,735

U.S. DEPARTMENT OF COMMERCE

OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

May 2, 1967 Volume 838 Number 1

TRADEMARKS

NOTICES

Withdrawal of Attorney

To expedite the handling of requests for permission to withdraw as attorney, under Rule 36, the request should be submitted in triplicate (original and two copies) and indicate thereon the present mailing address of the attorney who is withdrawing.

JOSEPH SCHIMMEL,
Solicitor.

Apr. 18, 1967.

CONDITION OF TRADEMARK APPLICATIONS AS OF MARCH 31, 1967

Total number of applications awaiting action [excluding renewals and Sec. 12 (c)] 17,856
Date of oldest new application ..... Jan. 24, 1966
Date of oldest amended application (filing date) ..... April 10, 1964

C. M. WENDT, Director, Trademark Examining Operation

TRADEMARK EXAMINING DIVISIONS, EXAMINERS AND TRADEMARK CLASSES UNDER EXAMINATION	Oldest Application: New	Oldest Application: Amended
(I) L. J. BETTENDORF, Classes 2, 4, 5, 8, 11, 12, 13, 14, 15, 16, 17, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 39, 41, 42, 43, 44	1-24-66	7-30-64
(II) F. H. WETHERBEE, Classes 1, 3, 6, 7, 9, 10, 18, 22, 38, 40, 45, 46, 47, 48, 49, 50, 51, 52; Service Marks, Classes 100, 101, 102, 103, 104, 105, 106, 107; Collective Membership Marks, Class 200; Certification Marks, Classes A and B	4-14-66	4-10-64
Renewals (All Classes)	2-23-67	.....
Sec. 12 (c) Publications (All Classes)	3-1-67	.....

Applications filed during the month of March 1967—2,606

Registration Issued ..... 338—No. 828,058 to No. 828,395
Renewals Issued 85

For the quarter—January 1, 1967 through March 31, 1967

Applications filed 6724
Registrations issued 5222
Renewals issued 901
Cancellations under Section 8 1192

The TRADEMARK SECTION of the OFFICIAL GAZETTE, issued weekly, is mailed under the direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402 to whom all subscriptions should be made payable and all communications addressed; subscription price, $12.00 per annum, foreign mailing $4.00 additional; single copies, 25 cents each.

PRINTED COPIES OF TRADEMARK REGISTRATIONS are furnished by the Patent Office for 20 cents each. Address orders to the Commissioner of Patents, Washington, D.C., 20231.

MARKS PUBLISHED FOR OPPOSITION

SECTION 1

The following marks are published in compliance with section 12(a) of the Trademark Act of 1946. Application for the registration of these marks in more than one class has been filed as provided in section 30 of said act as amended by Public Law 772, 87th Congress, approved Oct. 9, 1962, 76 Stat. 769. Opposition under section 13 may be filed within thirty days of this publication. See Rules 2.101 to 2.105.

A separate fee of twenty-five dollars for each class opposed must accompany the opposition.

[NOTE: For publication of marks presented in applications for registration in one class, see section 2.]

SN 207,460. Pritchett & Gold and E.P.S. Company Limited, Essex, England. Filed Dec. 4, 1964.

VYON

Owner of British Reg. Nos. 742,201 and 742,202, dated May 10, 1955, and 800,479, dated Jan. 18, 1960.

Class 1—Raw or Partly Prepared Materials

For Porous Polymeric Plastics Material Sold in Tube or Sheet Form for the Manufacture of a Variety of Plastic Products.

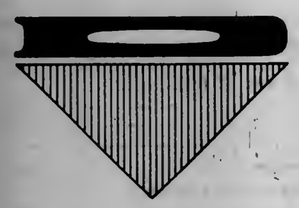
Class 21—Electrical Apparatus, Machines, and Supplies

For Storage Batteries and Parts Thereof.

Class 31—Filters and Refrigerators

For Fluid Filtering Materials Made of Polymeric Plastics and Used for Limiting the Size of the Particles Allowed Passage.

SN 230,618. Despatch Oven Company, Minneapolis, Minn. Filed Oct. 20, 1965.



The drawing is lined for the color red, but no claim is made to color.

Class 21—Electrical Apparatus, Machines, and Supplies

For Solid State A.C. Power Modulating System.
First use Aug. 26, 1965.

Class 34—Heating, Lighting, and Ventilating Apparatus

For Industrial Ovens and Furnaces, Including Tube-Type Furnaces, and Curing Ovens for Textiles.
First use June 11, 1965.

Class 44—Dental, Medical, and Surgical Appliances

For Hot Air Sterilizers for Hospitals and Laboratories.
First use June 29, 1965.

SN 236,947. Zynolyte Products Company, Compton, Calif. Filed Jan. 21, 1966.

ZYNOLYTE

Class 5—Adhesives

For Epoxy and Vinyl Glue.
First use at least as early as March 1964.

Class 16—Protective and Decorative Coatings

For Lacquer Thinner and Paint Thinner; Clear Semi-Gloss Wood Interior Finishes; Redwood Natural Color, and Gloss Finishes; Wood Undercoat Finish for Preserving Natural Wood Color; Metallic Protective Finishes for Use on Metal and Wood Surfaces; Interior and Exterior Hammer-Finish for Metal, Wood, Leather, and Paper; Polyurethane Interior and Exterior Wood Finishes; Lustrous Hard-Finish Brushing and Spray-On Lacquers for Wood, Metal, Ceramics, Glass, Paper, and Plastics; Frosting Finish for Rendering Clear Glass or Plastic Translucent; Epoxy Tub and Tile Color Finish; Clear Gloss Linoleum Finish; Epoxy Spray-On Appliance Finishes; Rubber-Base Concrete Coating for Interior and Exterior Cement Surfaces; and Protective Spray Color Coating for Application to Metal Surfaces Subjected to High Temperatures.
First use at least as early as 1928.

Class 52—Detergents and Soaps

For Paint and Varnish Remover; Brush and Roller Cleaner; and Rug and Upholstery Shampoo.
First use Dec. 31, 1965.

SN 242,415. Colgate-Palmolive Company, New York, N.Y. Filed Apr. 1, 1966.



The drawing is lined for the colors red and blue.

Class 4—Abrasives and Polishing Materials

For Wood Floor Polish.
First use Aug. 31, 1964.

Class 6—Chemicals and Chemical Compositions

For Dust Cloth Spray, Air Fresheners, Fungicides, and Insect Repellent.
First use Aug. 27, 1964.

Class 52—Detergents and Soaps

For Glass Cleaner, Rug and Upholstery Shampoos, Oven Cleaners, Wax Remover, and a Silicone Coating for Use on Ovens To Facilitate Cleaning.
First use Sept. 27, 1963.

SN 242,534. Samson Products Incorporated, Ashland, Nebr. Filed Apr. 4, 1966.



Class 12—Construction Materials

For Concrete Step Forms.
First use February 1966.

Class 19—Vehicles

For Fertilizer Trailers.
First use September 1965.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Fertilizer Applicator Tines.
First use November 1961.

SN 244,495. International Foam Corporation, Chicago, Ill. Filed Apr. 28, 1966.

ELAST-O-PAD

Class 39—Clothing

For Shoe Innersoles.

Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

For Carpet Padding, Mattress Covers, and Carpet Underlay.
First use Mar. 24, 1966.

SN 245,836. Mass Action Sales Systems, Inc., Dallas, Tex. Filed May 17, 1966.



Class 13—Hardware and Plumbing and Steam-Fitting Supplies

For Hardgoods, To Wit, Stainless Steel Pots and Pans.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Stainless Steel Flatware.
First use Apr. 25, 1966.

SN 247,437. Clairol Incorporated, New York, N.Y. Filed June 7, 1966.

NICE 'N SOFT

Class 51—Cosmetics and Toilet Preparations

For Hair Tinting, Dyeing, and Coloring Preparation.
First use Oct. 25, 1965.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Apr. 5, 1966.

SN 247,438. Clairol Incorporated, New York, N.Y. Filed June 7, 1966.

COOL 'N EASY

Class 51—Cosmetics and Toilet Preparations

For Hair Tinting, Dyeing, and Coloring Preparation.
First use Oct. 25, 1965.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Apr. 5, 1966.

SN 247,440. Clairol Incorporated, New York, N.Y. Filed June 7, 1966.

GAY 'N BREEZY

Class 51—Cosmetics and Toilet Preparations

For Hair Tinting, Dyeing, and Coloring Preparation.
First use Oct. 25, 1965.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Apr. 5, 1966.

SN 247,441. Clairol Incorporated, New York, N.Y. Filed June 7, 1966.

NICE 'N LIGHT

Class 51—Cosmetics and Toilet Preparations

For Hair Tinting, Dyeing, and Coloring Preparation.
First use Oct. 25, 1965.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Apr. 5, 1966.

SN 247,442. Clairol Incorporated, New York, N.Y. Filed June 7, 1966.

NICE 'N GLOWY

Class 51—Cosmetics and Toilet Preparations

For Hair Tinting, Dyeing, and Coloring Preparation.
First use Oct. 25, 1965.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Apr. 5, 1966.

SN 247,444. Clairol Incorporated, New York, N.Y. Filed June 7, 1966.

NEAT 'N EASY

Class 51—Cosmetics and Toilet Preparations

For Hair Tinting, Dyeing, and Coloring Preparation.
First use Oct. 25, 1965.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Apr. 5, 1966.

SN 247,448. Clairol Incorporated, New York, N.Y. Filed June 7, 1966.

QUICK 'N BREEZY

Class 51—Cosmetics and Toilet Preparations

For Hair Tinting, Dyeing, and Coloring Preparation.
First use Oct. 25, 1965.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Apr. 5, 1966.

SN 247,457. Clairol Incorporated, New York, N.Y. Filed June 7, 1966.

NICE 'N FAST

Class 51—Cosmetics and Toilet Preparations

For Hair Tinting, Dyeing, and Coloring Preparation.
First use Oct. 25, 1965.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Apr. 5, 1966.

SN 247,459. Clairol Incorporated, New York, N.Y. Filed June 7, 1966.

NICE 'N GAY

Class 51—Cosmetics and Toilet Preparations

For Hair Tinting, Dyeing, and Coloring Preparation.
First use Oct. 25, 1965.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Apr. 5, 1966.

SN 248,754. Ridge Tool Company, Elyria, Ohio. Filed June 23, 1966.

WORK SAVER

Class 21—Electrical Apparatus, Machines, and Supplies

For Electric Motors, for Use in Power Drives and Threading Machines.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Benders, for Conduit and Tubing; Brackets, Adapters, for Geared Threaders; Power Tool Actuated Brushes, for Cleaning Copper Fittings, Internal and External; Carriages, for Holding Pipe and Bolt Threaders on Power Drives; Carriers, for Pipe and Nipple Threading Dies, Carrying Cases for Tools; Chasers for Threading Dies; Chucks for Power Drives, Pipe Threading Machines, Drill Presses and Lathes; Chucks for Nipples and Adapters Therefor; Cutters, Pipe, Tubing Facing and Cable Cutters and Blades Therefor; Dies, Threading, Beveling, Grooving and Sizing Dies; Die Head Adapters, for Lathes and Drill Presses; Die Stocks, Plain and Ratchet; Drills, Twist; Drill Guides; Drives, Power for Rotating Pipe and Rods; Drive Bars, for Transmitting Power; Drive Shafts, With Universal Joints Therein; Extractors, for Screws, Bolts and Nipples; Extractor Kits; Flaring Tools, for Tubes; Handles, Plain and Ratchet Type for Dies and Reamers; Holders for Holding Copper Tubing While Soldering; Keys, Chuck; Loops, for Geared Threaders; Machines, Pipe and Bolt Threading; Machines, Motor Driven Tube Brushing; Oilers, Hand Operated Squirt Type; Racks, for Holding Die Heads; Reamers, Spiral and Straight Flute for Pipe; Screw Driver Bits; Soil Pipe Assembly Tools; Speed Reducers and Reversible Speed Reducers for Electric Drills; Stands for Supporting and Holding Tools; Vise Holding Stands for Pipe Threading Machines and Power Drive; Supports, for Supporting Pipe During Threading Operation; Support Arms, for Supporting Threaders on Power Drives; Taps, for Threading Pipe; Threaders, for Pipes and Bolts, Hand and Geared; Tool Trays; Hand Operated Dollies for Transporting Vises; Tube Soldering Clips; Vises, Chain Pipe Holding, Bench, Kit, Post, Yoke, Machinist, Drill Press and Wood Worker; Wrenches, Pipe and Monkey, Compound Leverage, Chain Pipe, Extractor, Strap, Hex, Spud and Basin; Saws, Hack and Compass and Blades Therefor; and Adjustable End Wrenches.
First use January 1942.

SN 250,006. Marcafin S.A., Geneva, Switzerland. Filed July 11, 1966.

PULLMAN

Owner of Swiss Reg. No. 181,031, dated Apr. 26, 1960.

Class 51—Cosmetics and Toilet Preparations

For Talcum Powder, Personal Deodorant, and Eau de Toilette.

Class 52—Detergents and Soaps

For Toilet Soap.

SECTION 2

The following marks are published in compliance with section 12(a) of the Trademark Act of 1946. Opposition under section 13 may be filed within thirty days of publication. See Rules 2.101 to 2.105.

A fee of twenty-five dollars must accompany the opposition.

[NOTE: For publication of marks presented in a combined application for registration in more than one class, see section 1.]

Class 1—Raw or Partly Prepared Materials

SN 242,442. Eastern Magnesia Talc Co., Inc., Burlington, Vt. Filed Apr. 1, 1966.

EMTAL

Owner of Reg. No. 635,366.
For Talcs.
First use July 19, 1955.

SN 243,916. Mobil Oil Corporation, New York, N.Y., by change of name from Socony Mobil Oil Company, Inc., New York, N.Y. Filed Apr. 19, 1966.

TREE-HEET

For Fuel Block—Namely, a Composition of Materials Used in Heating Orchards and Other Outdoor Spaces.
First use Nov. 1, 1964.

SN 244,373. E. B. & A. C. Whiting Company, Burlington, Vt. Filed Apr. 26, 1966.

DuraStar

Owner of Reg. Nos. 611,250 and 611,251.
For Thermoplastic Filaments.
First use at least as early as Dec. 3, 1965.

SN 248,264. L. Teweles Seed Co., Milwaukee, Wis. Filed June 16, 1966.

HYBIENS

For Soybean Seed.
First use June 2, 1966.

Class 2—Receptacles

SN 212,521. Free Drop Top, Inc., North Hollywood, Calif. Filed Feb. 23, 1965.

FREE! DROP TOP

For Rigid-Type Trash and Waste Cans, and Closures Therefor.
First use on or before July 1, 1964.

SN 237,297. Boise Cascade Corporation, Boise, Idaho. Filed Jan. 26, 1966.

PAK ALONG

Applicant disclaims the word "Pak" apart from the mark as shown.
For Cartons—Namely, Paperboard Cartons for Carrying and Dispensing Cylindrical Objects.
First use Oct. 6, 1965.

SN 242,252. International Paper Company, New York, N.Y. Filed Mar. 30, 1966.

PLASTIBOARD

For Folding Shipping Cartons Made of Paper and Plastic.
First use Mar. 11, 1966.

SN 242,375. Molded Container Corporation, Portland, Oreg. Filed Mar. 31, 1966.

NESTEGG

For Egg Cartons.
First use Oct. 19, 1961.

Class 3—Baggage, Animal Equipments, Portfolios, and Pocketbooks

SN 241,723. Abercrombie & Fitch Company, New York, N.Y. Filed Mar. 24, 1966.

EXPLORER

For Luggage.
First use Feb. 25, 1966.

SN 254,659. Anson Incorporated, Providence, R.I. Filed Sept. 19, 1966.

PORT-OF-CALL

For Credit Card Case.
First use June 14, 1966.

Class 4—Abrasives and Polishing Materials

SN 265,009. Simonis Company, Chicago, Ill. Filed Feb. 20, 1967.

NON-SCUFF

Owner of Reg. No. 791,246.
For Floor Wax.
First use at least as early as June 1952.

Class 5—Adhesives

SN 262,378. Aleene's Fibre & Floral Supply Company, d.b.a. Aleene, Temple City, Calif. Filed Jan. 12, 1967.

Aleene's
"TACKY"

The term "Tacky" is disclaimed apart from the mark as shown.
For Glue.
First use Apr. 5, 1965.

SN 265,241. American Adhesives, Inc., Brooklyn, N.Y. Filed Feb. 23, 1967.



For Adhesives of All Types—Namely, Adhesive Formulations in Both Liquid and Solid Form and Having a Vegetable, Animal or Synthetic Base, for Use in Book Binding, Packaging, Paper Converting, Laminating, Cloth Combining, and Cementing of Wood, Metals, and Other Materials.
First use Jan. 3, 1967; during 1937 in a different form.

Class 6—Chemicals and Chemical Compositions

SN 207,010. Coastal Chemical Corp., Garfield, N.J. Filed Nov. 27, 1964.

COASTAL
ISO CLOR

Owner of Reg. Nos. 749,993 and 722,731.
For Swimming Pool Water Purifier, in Tablet Form, Used as a Bactericide, Disinfectant, and Algaecide.
First use Oct. 1, 1963.

SN 236,752. Hess Oil & Chemical Corporation, Perth Amboy, N.J. Filed Jan. 18, 1966.

SAF-T-KLEEN

For Chlorinated Solvents.
First use Oct. 15, 1965.

SN 249,339. Walter G. Legge Company, Inc., New York, N.Y. Filed June 30, 1966.

STATICO

For Anti-Static Compound.
First use Apr. 6, 1966.

SN 254,519. Cominco Ltd., Montreal, Quebec, Canada. Filed Sept. 15, 1966.

Cominco

Priority claimed under Sec. 44(d) on Canadian application filed Mar. 24, 1966; Reg. No. 148,910, dated Jan. 13, 1967. Owner of U.S. Reg. Nos. 706,165, 773,946, and others.
For Chemical Substances—Namely, Sulphuric Acid, Sulphur Dioxide, Chlorine, Ammonia, and Sodium Hydroxide.
First use May 12, 1966; in commerce July 1, 1966.

SN 254,522. Cominco Ltd., Montreal, Quebec, Canada. Filed Sept. 15, 1966.



Priority claimed under Sec. 44(d) on Canadian application filed Mar. 19, 1966; Reg. No. 148,909, dated Jan. 13, 1967.
For Chemical Substances—Namely, Sulphuric Acid, Sulphur Dioxide, Chlorine, Ammonia, and Sodium Hydroxide.
First use May 12, 1966; in commerce July 1, 1966.

SN 258,243. National Lead Company, New York, N.Y. Filed Nov. 8, 1966.

CQ

For Viscosity Control Agent for Well Drilling Fluids.
First use Mar. 9, 1966.

SN 258,608. Stiles-Kem Sales Corporation, Waukegan, Ill. Filed Nov. 14, 1966.

CHECKMATE

For Liquid Corrosion Inhibiting Chemical Composition.
First use Aug. 15, 1966.

Class 7—Cordage

SN 243,163. The Papercraft Corporation, Pittsburgh, Pa. Filed Apr. 11, 1966.

ULTRALON

For Fiber Incorporated as a Component of Ribbon.
First use Sept. 17, 1965.

SN 247,596. John H. Graham & Co., Inc., d.b.a. John H. Graham Co., New York, N.Y. Filed June 8, 1966.

KCP

For Twine.
First use Mar. 17, 1966.

Class 8—Smokers' Articles, Not Including Tobacco Products

SN 245,183. S. M. Frank & Co., Inc., New York, N.Y. Filed May 9, 1966.

KAYWOODIE

Owner of Reg. Nos. 540,157, 761,791, and others.
For Pipe Cleaning Fluid.
First use December 1956.

SN 245,184. S. M. Frank & Co., Inc., New York, N.Y. Filed May 9, 1966.

BEE

For Pipe Cleaning Fluid.
First use December 1937.

SN 256,752. MSL Industries, Inc., Chicago, Ill. Filed Oct. 19, 1966.



For Cigarette Lighters and Ash Trays.
First use on or about Aug. 30, 1966.

Class 9—Explosives, Firearms, Equipments, and Projectiles

SN 249,624. Colt's Inc., Hartford, Conn. Filed July 6, 1966.
Owner of Reg. No. 416,686.

MUSTANG

For Rifles.
First use Jan. 7, 1966.

Class 10—Fertilizers

SN 247,951. Pan American Hydroponics, Inc., Dallas, Tex. Filed June 13, 1966.

AUTO-GRO

For Plant Nutrients.
First use Mar. 19, 1965.

SN 254,520. Cominco Ltd., Montreal, Quebec, Canada. Filed Sept. 15, 1966.

Cominco

Priority claimed under Sec. 44(d) on Canadian application filed Mar. 24, 1966; Reg. No. 148,910, dated Jan. 13, 1967. Owner of U.S. Reg. Nos. 545,491, 773,946, and others.
For Fertilizers.

SN 254,523. Cominco Ltd., Montreal, Quebec, Canada. Filed Sept. 15, 1966.



Priority claimed under Sec. 44(d) on Canadian application filed Mar. 19, 1966; Reg. No. 148,909, dated Jan. 13, 1967.
For Fertilizers.

Class 12—Construction Materials

SN 209,124. Tri-Ex Tower Corporation, Tulare, Calif. Filed Dec. 30, 1964.

Tri-Ex

For Prefabricated Structural Towers—Namely, Sectional Towers, Self-Supporting Towers, Tilt-Over Towers, Crank-Up Towers, Guyed Towers, Rotatable Towers, and Guying Accessories for Such Towers.
First use on or about May 15, 1952.

SN 235,665. Grefco, Incorporated, Philadelphia, Pa., assignee of Great Lakes Carbon Corporation, New York, N.Y. Filed Jan. 3, 1966.

Metalastic

For Bonded Met. tyl Expansion Joint Product for Use as Flashing Materials.
First use Sept. 16, 1965.

SN 237,216. General Refractories Company, Philadelphia, Pa. Filed Jan. 25, 1966.

OLIVE HILL

For Refractory Brick.
First use 1911.

SN 237,333. General Refractories Company, Philadelphia, Pa. Filed Jan. 26, 1966.

ACIDO

For Refractory Brick and Tile.
First use June 25, 1923.

SN 237,984. Macnaughton-Brooks Limited, Weston, Toronto, Ontario, Canada. Filed Feb. 3, 1966.

CHEMSET

For Chemical Resistant Setting and Grouting Compounds for Tile, Floor Brick, and Construction Joints.
First use Feb. 13, 1964; in commerce Feb. 13, 1964.

SN 239,476. K-S-H Plastics, Inc., St. Louis, Mo. Filed Feb. 23, 1966.

SEVILLE

For Decorative Plastic Panels.
First use Nov. 17, 1965.

SN 240,003. International Paper Company, New York, N.Y. Filed Mar. 2, 1966.

RUSTIC VARI-SAWN

The word "Rustic" is disclaimed apart from the trademark as shown.
For Plywood.
First use Nov. 23, 1965.

SN 242,241. Harsco Corporation, Harrisburg, Pa. Filed Mar. 30, 1966.

TRI-PANEL

For Temporary Prefabricated Hoist Towers.
First use Dec. 22, 1965.

SN 250,054. Tombill Corporation, Franklin Park, Ill. Filed July 11, 1966.

SWIFT-SET

For Dry Cement and Sand Mixes.
First use June 2, 1966.

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

SN 237,512. National Manufacturing Co., Sterling, Ill. Filed Jan. 25, 1966.

EASYWARE

For Builders' Hardware—Namely, Screen and Storm Door Latches, Hinges, Hooks, and Turnbuckles; Sliding Door Hardware Sets—Namely, One Piece Door Hanger Rail With and Without Facia, Bumpers, Flush Pulls; Cup Pulls, and Surface Pulls, Door Hangers, Rail and Parts.
First use Oct. 12, 1965.

SN 237,656. Caldwell Manufacturing Company, Rochester, N.Y. Filed Feb. 1, 1966.

SPIRA-LIFT

Owner of Reg. No. 656,996.
For Window Sash Balances.
First use Dec. 5, 1958.

SN 237,904. Aerpat A.G., Zug, Switzerland. Filed Jan. 13, 1966.

AVLATCH

For Chassis Latch and Handle.
First use Dec. 12, 1962; in commerce Dec. 12, 1962.

SN 237,905. Aerpat A.G., Zug, Switzerland. Filed Jan. 13, 1966.

AVSAFE

For Self-Retaining Bolts.
First use Sept. 14, 1965; in commerce Sept. 14, 1965.

SN 237,906. Aerpat A.G., Zug, Switzerland. Filed Jan. 13, 1966.

AVBOLT

For Threaded Tension Fasteners.
First use Jan. 22, 1963; in commerce Jan. 22, 1963.

SN 239,465. Trefileries Leon Bekaert, PVBA, Zwevegem, Belgium. Filed Feb. 23, 1966.

SKRINET

Owner of Belgium Reg. No. 3,624, dated Feb. 28, 1964.
For Plastic-Coated Iron and Steel Wire, Wire Netting and Wire Mesh Made From These Wires.

SN 239,660. Rain Bird Sprinkler Manufacturing Corp., Glendora, Calif. Filed Feb. 25, 1966.

POP-A-WAY

For Pop-Up Irrigation Sprinklers.
First use Sept. 29, 1964.

SN 239,736. Continental Oil Company, Ponca City, Okla. Filed Feb. 28, 1966.

MARK VII

For Plastic Pipe.
First use January 1964.

SN 240,075. Daniel Industries, Inc., Houston, Tex., assignee of Daniel Orifice Fitting Company, Houston, Tex. Filed Mar. 3, 1966.

CHEXTER

For Check Valves.
First use on or before June 1, 1964.

SN 242,981. Henry Valve Company, Melrose Park, Ill. Filed Apr. 8, 1966.

SENTRY

Owner of Reg. No. 655,886.
For Relief Valves for Refrigeration Systems.
First use at least as early as Mar. 11, 1952.

SN 243,167. Ric-Wil, Incorporated, Barberton, Ohio. Filed Apr. 11, 1966.

IMPERIAL

For Prefabricated Conduit Systems.
First use on or about Nov. 30, 1953.

SN 243,261. Parker-Hannifin Corporation, Cleveland, Ohio. Filed Apr. 12, 1966.

SUPER-LOK

For Couplings for Metal Tubes.
First use April 1965.

SN 244,840. Samuel Moore and Company, Mantua, Ohio. Filed May 3, 1966.

KRIMP-FLEX

Owner of Reg. No. 683,893.
For Hose Fittings.
First use July 1964.

SN 245,154. Bridgeport Brass Company, Bridgeport, Conn. Filed May 9, 1966.

ARISTOCRAFT

For Tubular Plumbing Supplies, Including, Traps, Sink Supply Lines and Shower Curtain Rods, Sink Strainers, Toilet Tank Fittings, Showerheads, Washers, Including, Faucet Washers, and Aerators.
First use Mar. 11, 1966.

SN 246,828. Vacuum Die Casting Corporation, Newark, N.J. Filed May 27, 1966.

BREWOLATOR

For Drip-Type Infusion Coffee and Beverage Makers.
First use Feb. 2, 1966, on instruction sheets packaged with the goods.

SN 247,250. Leland K. Nelson, Ogden, Utah. Filed June 3, 1966.



Applicant disclaims per se rights to the generic designation "Cleets."
For Boot Attachment To Prevent Slipping.
First use Mar. 1, 1966.

SN 247,685. First Manufacturing Corporation, Bronx, N.Y. Filed June 9, 1966.

LAWN CRUISER

The word "Lawn" is disclaimed apart from the mark as a whole.
For Lawn Sprinklers.
First use Apr. 6, 1966.

SN 250,629. "Automatic" Sprinkler Corporation of America, Youngstown, Ohio. Filed July 20, 1966.

HIDEAWAY

Owner of Reg. Nos. 667,538, 774,827, and others.
For Adjustable Fittings for Ceiling Mounted Sprinklers.
First use July 8, 1966.

SN 250,729. "Automatic" Sprinkler Corporation of America, d.b.a. Powhatan Brass and Iron Works of Ranson, Youngstown, Ohio. Filed July 21, 1966.

POWHATAN

For Fire Protection Devices—Namely, Hose Valves Including Globe and Angle Valves, Gate Valves, Roof Manifolds, Wall Hydrants, Sidewalk Connections, Fire Department Connections, Stand Pipe Connections, Roof Connections, Shut Off Nozzles, Fog Nozzles, Cellar Nozzles, Play Pipes, Nozzle Tips, Plain and Siamese and Gated Y's, Single, Double and Triple Hydrant Gate Valves, Line Valves, Water Thieves, Ball Valves, Inline Valves, Connections and Adaptors, Hydrant and Suction Hose Connections, Elbows, Strainers, Caps, Hose Couplings, Nozzle Holders, Running Board Plates, Equipment Holders, Fire Truck Fittings, Expansion Rings, Hose Expanders and Valves, Including Gas Service Stops, Lock Stops, Steam Stops, Water Stops and Bibbs.
First use 1892.

SN 252,662. Joints, Inc., Gardena, Calif. Filed Aug. 18, 1966.

CALDER

For Accessories for Pipelines—Namely, Couplings, Coupling Bushings, Stoppers, and Plugs.
First use Jan. 14, 1961.

SN 255,419. Ciba Corporation, d.b.a. Ciba Products Company, New York, N.Y. Filed Sept. 29, 1966.



For Reinforced Plastic Pipe and Pipe System, Including Fittings Therefor.
First use May 12, 1966.

SN 258,299. The Fanner Manufacturing Company, Division of Textron Inc., Providence, R.I. Filed Nov. 9, 1966.

SUPERLOCK

Owner of Reg. No. 788,646.
For Preformed Helical Devices for Gripping a Cable To Form a Dead End Bight.
First use Jan. 13, 1965.

Class 14—Metals and Metal Castings and Forgings

SN 243,838. The Carpenter Steel Company, Reading, Pa. Filed Apr. 20, 1966.

VACUMELTROL

Owner of Reg. Nos. 635,779 and 645,027.
For Steel in the Form of Wire, Strips, Bars, Billets, and Shapes.
First use Oct. 8, 1958.

SN 254,521. Cominco Ltd., Montreal, Quebec, Canada. Filed Sept. 15, 1966.



Priority claimed under Sec. 44(d) on Canadian application filed Mar. 24, 1966; Reg. No. 148,910, dated Jan. 13, 1967. Owner of U.S. Reg. Nos. 545,491, 773,946, and others.
For Wrought and Unwrought Metals, Alloys and Inter-Metallic Compounds—Namely, Aluminium, Antimony, Arsenic, Bismuth, Cadmium, Gold, Indium, Lead, Silver, Tellurium, Thallium, Tin, Zinc, Bismuth Telluride, Indium Antimonide, and Indium Arsenide.

SN 254,524. Cominco Ltd., Montreal, Quebec, Canada. Filed Sept. 15, 1966.



Priority claimed under Sec. 44(d) on Canadian application filed Mar. 19, 1966; Reg. No. 148,909, dated Jan. 13, 1967.

For Wrought and Unwrought Metals, Alloys and Inter-Metallic Compounds—Namely, Aluminium, Antimony, Arsenic, Bismuth, Cadmium, Gold, Indium, Lead, Silver, Tellurium, Thallium, Tin, Zinc, Bismuth Telluride, Indium Antimonide, and Indium Arsenide.

Class 15—Oils and Greases

SN 234,216. The Lea Manufacturing Co., Waterbury, Conn. Filed Dec. 8, 1965.

LEA LUBEWAX

The word "Lubewax" per se is disclaimed. Owner of Reg. No. 539,247 and others.

For Aqueous Solution for Lubricating Metallic Parts.

First use Sept. 30, 1964.

SN 234,421. Hess Oil & Chemical Corporation, Perth Amboy, N.J. Filed Dec. 13, 1965.

REDI-FLO

For Petroleum Products for Heating Purposes.

First use on or about July 28, 1965.

SN 236,147. Rohm & Haas Company, Philadelphia, Pa. Filed Jan. 10, 1966.



Owner of Reg. No. 797,392.

For Liquid Lubricant for General Purpose Applications.

First use on or about Dec. 17, 1965.

SN 236,754. Hess Oil & Chemical Corporation, Perth Amboy, N.J. Filed Jan. 18, 1966.

SHORT RANGE

For Petroleum Spirits for Use in Industry, Science, Agriculture, and Horticulture.

First use Oct. 1, 1963.

SN 243,918. Mobil Oil Corporation, New York, N.Y., by change of name from Socony Mobil Oil Company, Inc., New York, N.Y. Filed Apr. 19, 1966.

MOBILTEMP

Owner of Reg. Nos. 337,002, 647,004, and others.

For Lubricating Oils.

First use Apr. 1, 1964.

SN 244,689. Dri-Slide, Inc., Fremont, Mich. Filed May 2, 1966.

BUX

Owner of Reg. No. 708,947.

For Lubricating Oils and Greases.

First use no later than Mar. 22, 1965.

Class 16—Protective and Decorative Coatings

SN 228,819. The Glidden Company, Cleveland, Ohio. Filed Sept. 28, 1965.

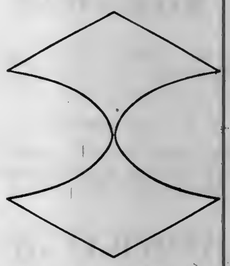
GACOTE

Owner of Reg. No. 443,714.

For Blends of Chlorinated Rubber and Bituminous Materials for Use as Protective Paint Coating Compositions and the Like.

First use Apr. 4, 1960.

SN 247,932. S. C. Johnson & Son, Inc., Racine, Wis. Filed June 13, 1966.



Owner of Reg. Nos. 482,218, 482,253, and others.

For Preparations With Fungicidal and Preservative Properties for Coating and/or Beautifying Agricultural Products and Other Edibles.

First use Mar. 31, 1959.

SN 248,068. Textron Inc., Providence, R.I. Filed June 14, 1966.

TEXKEL

For Concrete Floor Sealer and Protective Coating, Especially for Protecting Old and New Concrete Surfaces.

First use Apr. 5, 1966.

SN 249,091. United Coatings, Inc., Chicago, Ill. Filed June 27, 1966.

COLOR-TOUCH

For Interior, Dripless Latex Paint.

First use May 20, 1966.

SN 249,757. The Glidden Company, Cleveland, Ohio. Filed July 7, 1966.

POLY-LURE

Owner of Reg. No. 688,183.

For Enamel.

First use Mar. 2, 1966.

SN 249,833. Butler Manufacturing Company, Kansas City, Mo. Filed July 8, 1966.

BUTLER-TONE

Owner of Reg. No. 716,746.

For Paint Enamel.

First use in or about May 1960.

SN 250,025. Quikrete Company, Columbus, Ohio. Filed July 11, 1966.

TRAFFIC TOP

For Liquid Coal Tar Emulsion Used as a Protective Coating and Sealer for Asphalt Pavements.

First use 1951.

SN 264,364. E. I. du Pont de Nemours and Company, Wilmington, Del. Filed Feb. 10, 1967.

VARIPRIME

For Corrosion Inhibiting Primer Paint.

First use Oct. 21, 1966.

SN 264,636. Minnesota Mining and Manufacturing Company, St. Paul, Minn. Filed Feb. 14, 1967.

NEXTEL

For Flat Finish Paint.

First use Feb. 7, 1967.

Class 17—Tobacco Products

SN 242,996. P. Lorillard Company, New York, N.Y. Filed Apr. 8, 1966.

TRUE



Applicant asserts no trademark rights in the structure of the filter end of the cigarette, except as shown on the drawing. The drawing is lined for shading; but no claim is made to coloring. Owner of Reg. No. 819,409.

For Cigarettes.

First use Apr. 6, 1966.

SN 247,005. Carreras Limited, Basildon, Essex, England. Filed June 1, 1966.

WESBURY

Owner of British Reg. No. B873,507, dated Dec. 23, 1964.

For Cigarettes, Cigars, and Smoking Tobacco.

SN 251,140. Lane Limited, New York, N.Y. Filed July 27, 1966.

CHARATAN

Owner of Reg. No. 42,497.

For Smoking Tobacco.

First use October 1954.

SN 261,181. Philip Morris Incorporated, New York, N.Y. Filed Dec. 21, 1966.

OLD DELFT

For Smoking Tobacco.

First use Dec. 12, 1966.

Class 18—Medicines and Pharmaceutical Preparations

SN 240,747. Laboratories Biosedra, Malakoff, France. Filed Mar. 11, 1966.

BIOSEDRA

Owner of French Reg. No. 128,214, dated June 26, 1959.

For Pharmaceutical and Veterinary Preparations.

SN 250,413. Stanlabs, Inc., Portland, Oreg. Filed July 15, 1966.

PEDI-DENT

For Sodium Fluoride Drops for Use as an Aid in the Prevention of Dental Caries.

First use Apr. 15, 1964.

Class 19—Vehicles

SN 231,701. Rolls-Royce, Limited, Derby, England. Filed Oct. 27, 1965.

SILVER CLOUD

Owner of British Reg. No. 733,827, dated Sept. 8, 1954.

For Automobiles and Parts Therefor.

SN 236,829. Kangol Magnet Limited, London, England. Filed Jan. 19, 1966.



The safety harness shown on the drawing is disclaimed apart from the mark as shown. The lining represents actual lining on the mark, but is not lining for color.

For Safety Belts and Safety Harnesses, All Being Fittings for Seats of Land Vehicles and Aircraft, and Buckles and Fastening Fittings, All of Common Metal, for Use With Said Safety Belts and With Said Safety Harnesses.

First use April 1962; in commerce September 1963.

SN 243,081. Blue Bird Body Company, Fort Valley, Ga. Filed Apr. 11, 1966.

BLUE BIRD

Owner of Reg. Nos. 725,275, 732,400, and others.
For Automotive Parts—Namely, Windows, Doors, Bumpers, Body Metal Parts, Bumper Guards, and Bus Body Replacement Parts.
First use July 1935.

SN 244,686. The Dorsett Plastics Co., Santa Clara, Calif. Filed May 2, 1966.

TUFCORE

For Wood Block Sandwich Reinforcing Structure Incorporated in a Boat Hull.
First use Feb. 10, 1966.

SN 244,687. The Dorsett Plastics Co., Santa Clara, Calif. Filed May 2, 1966.

SOLICORE

For Wood Block Sandwich Reinforcing Structure Incorporated in a Boat Hull.
First use Feb. 23, 1966.

SN 248,210. Cardwell Westinghouse Company, Chicago, Ill. Filed June 16, 1966.



Owner of Reg. Nos. 719,359 and 772,170.
For Railway Car Brake Adjusters.
First use June 9, 1964.

SN 248,379. Wagonmaster Enterprises, Inc., Claremont, Calif. Filed June 17, 1966.



For Camper for Station Wagon.
First use July 1, 1964.

Class 20—Linoleum and Oiled Cloth

SN 255,408. The Goodyear Tire and Rubber Company, Akron, Ohio. Filed Sept. 26, 1966.

AQUASHIELD

For Vinyl Flooring.
First use Oct. 12, 1965.

Class 21—Electrical Apparatus, Machines, and Supplies

SN 177,657. Regency Electronics, Inc., Indianapolis, Ind. Filed Sept. 24, 1963.

RANGE GAIN

For Radio Transmitting and Receiving Sets.
First use Dec. 3, 1962.

SN 210,132. Kaman Aircraft Corporation, Bloomfield, Conn. Filed Jan. 18, 1965.

Ørbitron

For Ion and Neutron Generators.
First use Nov. 24, 1964.

SN 213,952. Delta Products, Inc., Grand Junction, Colo. Filed Mar. 12, 1965.

DELTAKIT

For Electronic Automobile Ignition Systems in Kit Form.
First use Jan. 15, 1965.

SN 216,064. Demco Electronics, Inc., Bristol, Ind. Filed Apr. 8, 1965.

DEMCO

For Radios, Radio Transmitters and Receivers and Power Converters.
First use Oct. 20, 1960.

SN 224,122. Ripley Company, Inc., Middleton, Conn. Filed July 23, 1965.

SunSwitch

Applicant disclaims the term "Switch" apart from the mark as shown, except that applicant preserves whatever common law rights have been acquired by reason of such use.
For Electrical and Electronic Controls and Switches Including Photoelectric Switching Devices, and Street Light Control Switches.
First use 1947 on street light control switches.

SN 230,125. Aquariums Incorporated, Maywood, N.J. Filed Oct. 14, 1965.

77

For Electrical Aquarium Heater.
First use in or about January 1952.

SN 231,816. Dunning Industries, Inc., Greensboro, N.C. Filed Oct. 29, 1965.

RANCH CRAFT ORIGINALS



No claim is made to the word "Originals" apart from the mark as shown.
For Electrical Lamps.
First use July 1964.

SN 232,848. Revere Copper and Brass Incorporated, New York, N.Y. Filed Nov. 8, 1965.

REVERE

Owner of Reg. Nos. 383,380, 726,644, and others.
For Electrically Heated Utensils—Namely, Skillets, Coffee Percolators, and Serving Trays.
First use Aug. 26, 1963, on electrically heated skillets; July 15, 1940, on related goods.

SN 232,568. Lightolier Incorporated, New York, N.Y. Filed Nov. 12, 1965.

LYTEGEM

For Lighting Fixtures.
First use Aug. 20, 1965.

SN 232,853. Prescolite Manufacturing Corporation, San Leandro, Calif. Filed Nov. 17, 1965.

PARKSCAPE

For Electric Lighting Fixtures.
First use Oct. 29, 1965.

SN 232,854. Prescolite Manufacturing Corporation, San Leandro, Calif. Filed Nov. 17, 1965.

MOONSCAPE

For Electric Lighting Fixtures.
First use Oct. 29, 1965.

SN 237,517. Aluminum Company of Canada Limited, Montreal, Quebec, Canada. Filed Dec. 3, 1965.

ARVIDAL

Priority claimed under Sec. 44(d) on Canadian application filed June 17, 1965; Reg. No. 146,220, dated July 22, 1966.
For Electrical Conductors—Namely, Aluminum Cable.

SN 240,098. International Rectifier Corporation, El Segundo, Calif. Filed Mar. 3, 1966.

IRECT-O-PAK

For Remote Control Transmitters, Public Address Amplifiers, and A.C. to D.C. House Power Converters.
First use Feb. 26, 1965.

SN 241,517. Rexall Drug and Chemical Company, d.b.a. Rexall Drug Company, Los Angeles, Calif. Filed Mar. 21, 1966.

ELECTREX

Owner of Reg. Nos. 288,965 and 288,985.
For Flashlight Batteries.
First use 1959.

SN 241,897. Holophane Company, Inc., New York, N.Y. Filed Mar. 25, 1966.

WALLPACKETTE

Owner of Reg. No. 774,876.
For Luminaires for Incandescent or Mercury Lamps.
First use Jan. 10, 1966.

SN 241,981. Compagnie Francaise Thomson Houston-Hotchkiss Brandt, Paris, France, by change of name from Compagnie Francaise Thomson-Houston, Paris, France. Filed Mar. 28, 1966.

ESICON

Priority claimed under Sec. 44(d) on French Reg. No. 701,167, dated Oct. 20, 1965.
For Electronic Instruments and Apparatus, Particularly, Thermionic Tubes.

SN 242,249. Inner Toast, Inc., Chicago, Ill. Filed Mar. 30, 1966.



For Electrical Appliance—Namely, Bun and Bread Warmer and Toaster.
First use Mar. 25, 1966.

SN 242,250. Inner Toast, Inc., Chicago, Ill. Filed Mar. 30, 1966.

INNER TOAST

For Electrical Appliance—Namely, Bun and Bread Warmer and Toaster.
First use Mar. 25, 1966.

SN 242,430. C. P. Clare & Company, Chicago, Ill. Filed Apr. 1, 1966.



For Electrical Apparatus and Supplies—Namely, Electromagnetically and Magnetically Operated Relays and Switching Assemblies, Printed Circuits, Logic and Control Circuits and Systems, Manually Operated Switches, Keys and Switching Assemblies, Windings, and Mounting Strips, Bases and Covers for Relays.
First use September 1959.

SN 242,618. Lamcor Incorporated, Anaheim, Calif. Filed Apr. 4, 1966.

LAMCOR

For Electric Adapters, Attachment Caps, Cord Connector Bodies, Power Supply Cords, Extension Cords, Portable Cables, Flexible Cords, and Electric Wire.
First use Mar. 7, 1956.

SN 242,873. AMP Incorporated, Harrisburg, Pa. Filed Apr. 7, 1966.

PICABOND

For Electrical Connectors.
First use Mar. 23, 1966.

SN 242,892. Electric Comfort Heating, Inc., Richmond, Va. Filed Apr. 7, 1966.

ECH

For Electric Water Heaters.
First use June 3, 1963.

SN 242,974. Gonset, Inc., Anaheim, Calif. Filed Apr. 8, 1966.

GONSET

Owner of Reg. No. 710,520.
For Radio Transmitters, Receivers, and Parts Thereof.
First use February 1948.

SN 243,198. Litton Precision Products, Inc., Van Nuys, Calif. Filed Apr. 11, 1966.

ORCON

For Electrical Switches and Connectors.
First use on or about Mar. 10, 1966.

SN 243,562. Knapp-Monarch Company, St. Louis, Mo. Filed Apr. 15, 1966.

JACK FROST

Owner of Reg. No. 215,265.
For Electric Fans.
First use July 14, 1925.

SN 243,805. Security Electronics Corporation, Chicago, Ill. Filed Apr. 19, 1966.

SECUR

For Electric Burglar Alarms.
First use at least as early as Sept. 30, 1964.

SN 251,983. Womack Electronics, Inc., Danville, Va. Filed Aug. 9, 1966.

The design of the television tube is disclaimed apart from the mark. Owner of Reg. Nos. 752,858 and 810,968.
For Antennas; Resistors; Insulators; Antenna Accessories and Hardware—Namely, Lead-In and Communication Wire; Stand-Offs, Ratchet Chimney Mounts, and Microphones.
First use Mar. 19, 1964.

SN 259,690. Universal Precision, Inc., Endicott, N.Y. Filed Nov. 30, 1966.

UPI

For Transformers, Coils, Power Supplies, Inverters, and Converters.
First use May 2, 1962.

SN 261,701. Matsushita Electric Industrial Co., Ltd., Osaka, Japan. Filed Dec. 30, 1966.

National

Owner of Japanese Reg. No. 626,789, dated Oct. 17, 1963; and U.S. Reg. Nos. 769,858, 809,822, and others.
For Electronic Flash Units and Flash Guns.

SN 262,653. James B. Nobles, d.b.a. Censco, Northbrook, Ill. Filed Mar. 8, 1967.

SPORTSPLEXER

For Electrical Digital Timer-Indicator Device, Used Primarily To Show Relevant Current Information Such as the Time and Score of Athletic Events, Election Vote Totals, etc.
First use Feb. 20, 1964.

Class 22—Games, Toys, and Sporting Goods

SN 236,430. John R. Tusson, New Orleans, La. Filed Jan. 13, 1966.

STUDY-CRAFT

For Items of Equipment Sold as a Unit for Playing Educational Games.
First use Nov. 13, 1965.

SN 239,695. American Character, Inc., New York, N.Y. Filed Feb. 28, 1966.

TOODLES TODDLES

For Dolls.
First use Feb. 10, 1966.

SN 244,756. Sportsways, Inc., Paramount, Calif. Filed May 2, 1966.

MALIBU DIVER

Applicant makes no claim to the word "Diver" apart from the mark as shown.
For Regulators and Combined Regulators and Pressure Gauges for Underwater Diving Equipment.
First use Nov. 1, 1961.

SN 244,758. Sportsways, Inc., Paramount, Calif. Filed May 2, 1966.

ORCA

For Regulators and Combined Regulators and Pressure Gauges for Underwater Diving Equipment, Swim Fins, and Surfboards.
First use 1963.

SN 245,003. Howard M. McCoy, d.b.a. Innovations Research, Severna Park, Md. Filed May 5, 1966.

POKE-A-DOT

For Equipment Comprising Cards for Playing a Promotional Game.
First use Mar. 28, 1966.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

SN 224,658. Solo Kleinmotoren G.m.b.H., Maichingen, Wurttemberg, Germany. Filed July 30, 1965.

SOLO

For Motorized Milling Machines, Cultivators and Tillers, Motorized Scythes and Mowers, and Power Saws.
First use 1956 on cultivators and tillers; in commerce April 1957.

SN 225,780. The La Fleur Corporation, Los Angeles, Calif. Filed Aug. 16, 1965.

LA FLEUR

For Rotating and Reciprocating Fluid Handling Machinery—Namely, Pumps, Turbines, and Compressors; and Bearings for Pumps, Turbines, and Compressors.
First use on or about Sept. 30, 1961.

SN 233,782. Dodge Manufacturing Corporation, Mishawaka, Ind. Filed Dec. 2, 1965.

DYN-ADJUST

For Adjustable Speed Drives of the Variable Sheave Type.
First use June 2, 1965.

SN 233,797. The Glidden Company, Cleveland, Ohio. Filed Dec. 2, 1965.

GLIDDEN

Owner of Reg. Nos. 705,452, 715,617, and others.
For Electric Powered Hand Tools—Namely, Drills, Sanders, Grinders, Shrub and Hedge Trimmers, and Saws.
First use Oct. 2, 1965.

SN 235,155. Babson Bros. Co., Oak Brook, Ill. Filed Dec. 23, 1965.

ALAMO

For Vacuum Pumps for Milking Systems.
First use Feb. 26, 1965.

SN 235,360. Twin King Corporation, New York, N.Y. Filed Dec. 27, 1965.

TWIN KING

For Sewing Machines, and Parts Thereof.
First use Dec. 17, 1964.

SN 235,619. Peter A. Aron, d.b.a. The Autobot Company, Katonah, N.Y. Filed Jan. 3, 1966.

AUTOBOT

For Automatic Manipulator.
First use Nov. 15, 1965.

SN 235,630. D & W Sales, Inc., Oregon, Wis. Filed Jan. 3, 1966.

D & W REEL LIFT

No registration rights are claimed for the words "Reel Lift," apart from the mark shown, but applicant waives none of its common law rights in the mark shown or any feature thereof.
For Reel Lifts.
First use Apr. 28, 1965.

SN 235,833. Kinetic Developments, Incorporated, Ardmore, Pa. Filed Jan. 5, 1966.

HELIFUGE

For Centrifugal Separating Apparatus.
First use Oct. 27, 1965.

SN 236,388. George H. Kelley, San Francisco, Calif. Filed Jan. 13, 1966.

PLANT EASE

Owner of Reg. No. 817,349.
For Garden Tool.
First use July 1, 1965.

SN 237,605. Viking Drill and Tool Co., Inc., d.b.a. North American-Viking Drill Corporation, St. Paul, Minn. Filed Jan. 28, 1966.

BRITE-FLUTE

For Twist Drills, Boring Bits, and Related Drill Products.
First use Sept. 13, 1965.

SN 238,593. Aktiebolaget Kronsager, Lidkoping, Sweden. Filed Feb. 11, 1966.

KRON

For Hack Saw and Power Saw Blades, Band Saw Blades for Wood and Metal, and Saws and Hack Saw Frames.
First use Nov. 9, 1915; in commerce March 1955.

SN 239,416. Joloda Transport Equipment Ltd., Liverpool, England. Filed Feb. 23, 1966.

JOLODA

For Trolley Apparatus Comprising One or More Bogies, a Trackway and a Load-Carrying Platform, and Parts Thereof, for Handling Materials.
First use Sept. 29, 1960; in commerce May 25, 1964.

SN 239,857. Abrasive Developments Limited, Henley-in-Arden, Solihull, England. Filed Mar. 1, 1966.

LAQUA

Priority claimed under Sec. 44(d) on British Reg. No. 888,330, dated Dec. 17, 1965.
For Machines for Grinding, Polishing, Finishing, and Abrading of Metal and Other Surfaces, and Parts Therefor.

SN 240,346. Rex Trading Corporation, Newark, N.J. Filed Mar. 7, 1966.

REX

For Sewing Machines and Parts Therefor.
First use Oct. 2, 1962.

SN 240,857. Frank D. Connolly, d.b.a. General Fire Service Reg'd, Montreal, Quebec, Canada. Filed Mar. 14, 1966.

HYDROMAT

Priority claimed under Sec. 44(d) on Canadian application filed Feb. 19, 1966; Reg. No. 148,441, dated Dec. 9, 1966.
For Portable Device for Washing and Cleaning Exterior Jackets of Hoses.
First use at least October 1964; in commerce at least Nov. 1, 1965.

SN 241,266. Mobile Aerial Towers, Inc., Fort Wayne, Ind. Filed Mar. 17, 1966.

HI-RANGER
EHV
SPECIAL

The drawing is lined for the color red. Owner of Reg. No. 764,249.
For Aerial Towers Capable of Being Mounted on Trucks.
First use Feb. 18, 1966.

SN 241,471. Industrial Machinery Co., Inc., Fort Worth, Tex. Filed Mar. 21, 1966.



For Conveying and Elevating Equipment for Bulk Materials, Including Mixers, Bucket Elevators, Drag Conveyors, and Screw Conveyors.
First use at least as early as Jan. 4, 1966.

SN 241,530. O. R. Sellers, d.b.a. Redi-Steam Manufacturing Co., Waco, Tex. Filed Mar. 21, 1966.

Redi-Wash

Owner of Reg. No 778,324.
For Car Washing Machines.
First use Jan. 15, 1966.

SN 241,741. Bowen Tools, Inc., Houston, Tex. Filed Mar. 24, 1966.

BOWEN

For Specialty Tools and Parts Therefor—Namely, Spears, Line Wipers, Bailers, Bumper Subs, Blanking Plugs, Wire Line Blocks, Blowout Preventers, Overshots, Casing Expansion Joints, Wipers, Casing Rollers, Casing Scrapers, Die Collars, Jars, Control Heads, Couplings, Subs, Cutters, Oil Well Jars, Junk Mills, Junk Subs, Lubricator Accessories, Lubricator Unions, Mill Guides, Milling Shoes, Mud Desanders, Oversize Guides, Packer Retrievers, Power Subs, Power Swivels, Pump Rod Oilers, Stabilisers, Rope Sockets, Rotary Shoes, Strippers, Taper Taps, Sinker Bars, Skirt Guides, Stuffing Boxes, Lubricator Swages, Tool Traps, Blanking Plugs, Unlatching Joints, Wall Hook Guides, Washover Shoes, Whipstocks, Wing Unions, Wire Line Retrievers, Overshot Bowls, Cable Guides, Cable Hangers, Cable Injectors, Casing Hangers, Casing Thumpers, Wire Line Cleaners, Differential Pressure Regulators, Drills, Wire Line Grabs, Guided Mill Assemblies, Hand Hoists, High Pressure Seal Assemblies, Jet Boot Baskets, Knuckle Joints, Liner Hangers, Liner Washers, Paraffin Scrapers, Power Kellys, Power Subs, Swivels, Transfer Asemblies, and Tubing Injectors.
First use about January 1922.

SN 244,747. Scrub-A-Dub International, Inc., Nashville, Tenn. Filed May 2, 1966.

BODY HUGGER

For Automatic Car Wash Equipment.
First use Jan. 8, 1966.

SN 244,986. Gray Company, Inc., Minneapolis, Minn. Filed May 5, 1966.



For Dispensing Systems for Lubricants and Various Other Fluids and Parts and Accessories Thereof; Pressurized Fluid Spraying Systems for Spraying Paints, Mastic Materials and Cleaning Solutions and Parts and Accessories Thereof; Fluid Pumping Systems and Parts and Accessories Thereof; Service Reel Assemblies for Lubricants and Various Other Fluids; Air Powered Pumps; Air Compressors; Agitator Units for Mixing Fluids; and Spray Guns and Parts Thereof.
First use Feb. 7, 1964, on service reel assemblies.

SN 245,032. UTD Corporation, Athol, Mass. Filed May 5, 1966.

AccuRated

For Metal Cutting Tools—Namely, Taps, Drills, Reamers, End Mills, Milling Cutters, Gear Cutters, Hobs, Carbide Tools, Inserted Blade Cutters, Dies, and Screw Plates.
First use Mar. 29, 1966.

SN 245,525. Supercussion Drills, Inc., San Antonio, Tex. Filed May 12, 1966.



The word "Super" is disclaimed apart from the mark as shown.
For Well Drilling Tools.
First use Jan. 19, 1966.

SN 247,095. Sta-Hi Corporation, Newport Beach, Calif. Filed June 2, 1966.

STA-HI

Owner of Reg. No. 707,764.
For Machines for Use in the Printing Arts—Namely, Printing Presses, Matrix Formers, Matchers, Trimmers, Pre-Dryers and Dryers, Plate Curvers, Plate Mounters, Rotary Shavers, Paper Stackers, Paper Wrappers, Paper Strappers, Stack Pacers, Turning Apparatus for Paper Conveyors, Grinders and Routers; Stereo Plate Color Register Apparatus—Namely, Punches, Slitters and Trimmers; and Vertical Power-Lift Form Files and Matrix Temperature Regulators.
First use 1928.

SN 247,291. Wiegand Engineering Corporation, Fort Worth, Tex. Filed June 3, 1966.

FLEETWASH

For Automatic Vehicle Wash Installation and Parts Thereof.
First use Jan. 10, 1961.

SN 248,161. Dan H. Patten, Sr., d.b.a. Stas-On Engineering, Salt Lake City, Utah. Filed June 15, 1966.

STAZ-ON

For Concrete Roof Tile Machinery.
First use Sept. 1, 1964.

SN 248,380. Washington Forge, Incorporated, Englishtown, N.J. Filed June 17, 1966.

FLEETWOOD DESIGNER

For Handles for Table and Kitchen Cutlery, Sold Only as a Part of Such Cutlery.
First use on or about Apr. 1, 1965.

SN 248,867. The Warren Rupp Company, Mansfield, Ohio. Filed June 23, 1966.

SLUDGE-MASTER

For Pumps.
First use on or about June 13, 1966.

SN 252,161. Ernest R. Casale, d.b.a. Casale Engineering, City of Industry, Calif. Filed Aug. 11, 1966.

CE

For Automotive and Marine Power Drive Transmissions, Timing Gear Trains, and Related Gearing Equipment.
First use June 23, 1966.

Class 24 — Laundry Appliances and Machines

SN 237,749. Save-N-Iron Sales Corporation, New Orleans, La. Filed Feb. 1, 1966.

SAVE-N-IRON

For Flat Iron Holder.
First use July 29, 1965.

SN 243,506. E. R. Wagner Manufacturing Company, Milwaukee, Wis. Filed Apr. 14, 1966.

Wagner
OVER 60 YEARS OF FINE QUALITY

The words "of Milwaukee" and "Over 60 Years of Fine Quality" are disclaimed apart from the mark as shown.
Owner of Reg. No. 504,596.
For Electrical Clothes Dryers.
First use Mar. 3, 1966.

Class 26—Measuring and Scientific Appliances

SN 183,199. Baker Machinery Company, Kennewick, Wash. Filed Dec. 18, 1963.

WEIGH-O-MATIC

For Electrical Machinery for Packaging Produce in Measured Amounts.
First use Oct. 7, 1957.

SN 230,104. W. L. Walker Company, Tulsa, Okla. Filed Oct. 13, 1965.



For Testing and Measuring Equipment Used in Sampling and Testing Petroleum, Petroleum Products and Chemicals—Namely, Beakers, Oil Test and Sampling Bombs and Accessories Used Therewith, Glass and Plastic Bottle, Tank Gauging and Measuring Equipment, Centrifuges and Equipment Associated Therewith; Graduated Cylinders; Laboratory Flash and Firepoint Testing Equipment; Oil Sample Heaters; Hydrometers; Moisture Testers; Pipettes; Tank Samplers; Tank Strapping Equipment; Thermometers and Accessories; Oil Thieves; and Control Valves.
First use Feb. 5, 1965.

SN 231,722. C. W. Brabender Instruments, Inc., South Hackensack, N.J. Filed Oct. 28, 1965.

PREP CENTER

For Laboratory Mixer and Extruder for Small Batch Preparations.
First use May 12, 1965.

SN 231,789. Visual Impact Materials, Incorporated, Tempe, Ariz. Filed Oct. 28, 1965.



The mark comprises a fanciful representation of a projector. The lining appearing in the mark on the drawing is to indicate the color gray.
For Film Projectors and Slide Projectors.
First use Sept. 9, 1965.

SN 231,824. Griswold Machine & Engineering, Inc., Union City, Mich. Filed Oct. 29, 1965.

CORDMASTER

For Cord Measuring and Severing Machines.
First use May 24, 1965.

SN 232,509. Ametek, Inc., East Moline, Ill. Filed Nov. 12, 1965.

RAMTEC

For Electronic System To Control Servo Valves Designed Specifically To Automatically Control an Electro-Hydraulic Closed Loop System.
First use Oct. 11, 1965.

SN 232,564. Dr. Derald George Langham, d.b.a. Genesa, Fallbrook, Calif. Filed Nov. 12, 1965.

GENESA

For Scientific Three Dimensional Models Used as Teaching Aids.
First use Sept. 30, 1959.

SN 234,927. Nuclear-Chicago Corporation, Des Plaines, Ill., assignee of Nuclear-Chicago Corporation, Des Plaines, Ill. Filed Dec. 20, 1965.

UNILUX

For Liquid Scintillation Counting Systems for Detecting and Measuring Radioactivity Levels of Radioactive Isotopes Dissolved in Liquid Solution Form.
First use Apr. 9, 1965.

SN 239,780. Modern Linotypers, Inc., Baltimore, Md. Filed Feb. 28, 1966.

MODERN-NEG

For Reproduction Negatives Suitable for Use in Printing Processes.
First use Jan. 10, 1966.

SN 239,975. Datatype Corporation, Hialeah, Fla. Filed Mar. 2, 1966.

TAL-A-MATIC

For Electronic Computers.
First use June 1965.

SN 242,308. Illinois Testing Laboratories, Inc., Chicago, Ill. Filed Mar. 31, 1966.

ALNOR

Owner of Reg. No. 341,746.
For Instruments and Apparatus for the Measurement of Temperature, Dew-Point, Movement and Pressure of Air and Other Gases; Instruments and Apparatus for the Measurement of Electrical Resistance, Voltage and Current; Instruments and Apparatus for the Measurement of Temperatures of Metals, Fluids and Other Materials; Control Apparatus for Industrial Processes Using Measurements of the Quantities and Conditions Described Above; and Parts of All Such Instruments and Apparatus.
First use in or about March 1921.

SN 244,204. Fabri-Tek Incorporated, Minneapolis, Minn. Filed Apr. 25, 1966.

FABRI-TEK

For Computers Used in Teaching Computer Techniques.
First use Sept. 14, 1965.

SN 259,625. Minnesota Mining and Manufacturing Company, St. Paul, Minn. Filed Nov. 29, 1966.

DRY-KEY

For Sheet Material Having a Light-Sensitive and Heat-Activated Coating Useful for Proofing Photographic Negatives.
First use July 15, 1966.

Class 27—Horological Instruments

SN 234,394. Croton Watch Company, Inc., Croton-on-Hudson, N.Y. Filed Dec. 13, 1965.

IRONCLAD

For Watches.
First use on or about Oct. 4, 1965.

SN 238,518. Gerimex, Inc., New York, N.Y. Filed Feb. 10, 1966.



For Watches, Clocks, Watch Movements, and Clock Movements.
First use Mar. 22, 1965.

SN 239,934. Sauter Freres & Cie. S.A. Fabrique d'Horlogerie Pierpont, Bienne, Switzerland. Filed Mar. 1, 1966.

PIERPONT

For Watches, Parts of Watches, and Watch Casings.
First use 1938; in commerce 1938.

SN 242,028. Medco, Inc., Kansas City, Mo. Filed Mar. 28, 1966.

CITRON

For Watches.
First use Mar. 11, 1966.

Class 28—Jewelry and Precious-Metal Ware

SN 237,340. Gorham Corporation, Providence, R.I. Filed Jan. 26, 1966.

GOSSAMER

For Sterling Silver Flatware.
First use Dec. 30, 1965.

SN 241,675. National Silver Company, New York, N.Y. Filed Mar. 23, 1966.



Translation of the mark "Perlas Amante" is "sweetheart pearls." Exclusive right to the use of the word "Perlas" and "Isle of Majorca Spain" is disclaimed apart from the mark as shown.
For Manufactured Pearls.
First use Feb. 21, 1966.

SN 258,458. Herff Jones Co., Indianapolis, Ind. Filed Nov. 14, 1966.



The mark consists of a fanciful design of the letters "M" and "J."
For Jewelry.
First use Oct. 24, 1966.

Class 29—Brooms, Brushes, and Dusters

SN 242,256. International Playtex Corporation, Dover, Del., by assignment and change of name from Johnson & Johnson, New Brunswick, N.J. Filed Mar. 30, 1966.

FLEX-ACTION

Owner of Reg. No. 591,669.
For Toothbrushes.
First use Nov. 15, 1965.

SN 243,494. Tackmer Corporation, Palo Alto, Calif. Filed Apr. 14, 1966.

NEAT TRICK

For Roller-Type Lint Remover.
First use Sept. 21, 1965.

Class 30—Crockery, Earthenware, and Porcelain

SN 218,030. Royal Worcester Limited, Worcester, England. Filed May 4, 1965.

ISLAND WORCESTER

Applicant disclaims the term "Worcester" apart from the mark as shown. Owner of British Reg. No. 852,386, dated Aug. 2, 1963; and U.S. Reg. No. 17,953.
For Earthenware—Namely, Dinner, Tea, and Coffee Ware, and Ornamental Ware.

Class 31—Filters and Refrigerators

SN 246,827. Vacuum Die Casting Corporation, Newark, N.J. Filed May 27, 1966.

BREWOLATOR

For Filter Paper for Use in a Drip-Type Infusion Coffee and Beverage Maker.
First use May 4, 1966.

SN 247,748. SN 247,748. The Young Machinery Company, Inc., Muncy, Pa. Filed June 9, 1966.

UNI-CAGE

For Filter for Product Separation and Dust Filtering.
First use Sept. 11, 1961.

Class 32—Furniture and Upholstery

SN 238,714. Congoleum-Nairn Inc., Kearny, N.J. Filed Feb. 14, 1966.

SERENADE

For Tables.
First use June 1960.

SN 246,919. Massey-Ferguson Industries Limited, Toronto, Ontario, Canada. Filed May 31, 1966.

SUNAR

For Desks, Tables, Credenzas, Bookcases, and Letter Trays.
First use Sept. 8, 1964; in commerce Feb. 8, 1966.

SN 247,319. Breneman, Inc., Cincinnati, Ohio. Filed June 6, 1966.

ALUMILUX

For Inner Layer for Fabric Window Shades.
First use January 1966.

SN 249,090. United Chair Company, Leeds, Ala. Filed June 27, 1966.

Caribe

For Office Chairs.
First use June 6, 1966.

SN 255,415. Burgess-Day, Inc., Libertyville, Ill. Filed Sept. 29, 1966.

CAROUSEL

For Telephone Booth Structures.
First use July 21, 1966.

SN 262,749. Arlington Aluminum Company, Detroit, Mich. Filed Jan. 18, 1967.

TRAVELER

For Display Cases and Racks.
First use January 1964.

Class 33—Glassware

SN 233,996. Compagnie des Cristalleries de Saint-Louis, Saint-Louis-les-Bitche, Moselle, France. Filed Dec. 6, 1965.

SAINT-LOUIS

For Glassware and Crystalware—Namely, Dinner Sets, Tableware, Hollow Ware, and Vases.
First use Dec. 13, 1951; in commerce 1952.

SN 252,712. Santa Claus Industries, Inc., d.b.a. The Waterloo Idea Companies, Waterloo, Iowa. Filed Aug. 19, 1966.

WICO 711 SILVER-GARD

The words "Silver-Gard" are disclaimed apart from the mark as shown. Owner of Reg. No. 792,017.
For Glassware—Namely, Beverage Glasses, Salt and Pepper Sets, Cocktail Sets, Beverage Servers, Cream and Sugar Sets, Bowls, Dishes, Trays, Oil and Vinegar Sets, Condiment Sets, Relish Servers, Casseroles, Coffee Carafes, Cups, Cordial Glasses, Punch Bowl Sets, and Bridge Set Units Which Include Glass Ash Trays and Beverage Glasses, Sold With an Anti-Tarnish Coating.
First use May 10, 1966.

Class 34—Heating, Lighting, and Ventilating Apparatus

SN 228,112. Atwood Vacuum Machine Company, Rockford, Ill. Filed Sept. 20, 1965.

Owner of Reg. No. 774,436.
For Water Heaters.
First use December 1964.

SN 233,898. Goodwin of California Incorporated, Berkeley, Calif. Filed Dec. 3, 1965.

HACIENDA

For Barbecue Braziers Including Fire Box and Grill.
First use July 10, 1963.

SN 245,869. Vida-Weld Pty. Limited, Taren Point, New South Wales, Australia. Filed May 17, 1966.

VIDALLOY

For Electrodes for Electric Welding.
First use July 1965; in commerce July 1965.

Class 35—Belting, Hose, Machinery Packing, and Nonmetallic Tires

SN 244,872. Agway, Inc., Syracuse, N.Y. Filed May 4, 1966.

AGWAY

For Automobile Tires, Tractor Tires, Truck Tires, Agricultural Implement Tires; and Garden Hose.
First use Mar. 5, 1964.

SN 245,639. The Weatherhead Company, Cleveland, Ohio. Filed May 13, 1966.

WEATHERHEAD

For Rubber, Plastic, and Fabric Tubing and Hosing; and Tube and Hose Assemblies.
First use at least as early as 1934.

SN 264,714. H. B. Egan Manufacturing Company, Muskogee, Okla. Filed Feb. 15, 1967.

CAMEL

The drawing is lined for red. Owner of Reg. No. 212,511.
For Pneumatic-Tire Inner-Tube Patches.
First use Nov. 14, 1925.

Class 36—Musical Instruments and Supplies

SN 238,728. Ann Faught, d.b.a. Space Records, Albuquerque, N. Mex. Filed Feb. 14, 1966.

SPACE RECORDS

Applicant disclaims the word "Records" apart from the mark as shown.
For Phonograph Records.
First use Oct. 23, 1965.

SN 242,374. Minnesota Mining and Manufacturing Company, St. Paul, Minn. Filed Mar. 31, 1966.

CANTATA

For Magnetic Tape Reproducing Machine and Recorded Tape for Use Therein.
First use Aug. 31, 1965.

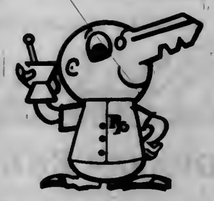
SN 258,448. Womack Electronics, Inc., Danville, Va. Filed Nov. 14, 1966.

Rebellion

For Guitars.
First use June 30, 1966.

Class 37—Paper and Stationery

SN 247,944. Moss Key-Rec Systems, Inc., Dayton, Ohio. Filed June 13, 1966.



No claim is made to the symbol "R" per se. Owner of Reg. No. 771,901.
For Partially Printed Business Forms—Namely, Prescription Record Forms.
First use in or about March 1966.

SN 256,020. U.S. Victor Fountain Pen Co., Inc., Houston, Tex. Filed Oct. 7, 1966.

USV

For Ball Point Fountain Pens, Fountain Pens in Custom Made Kits, and Ball Pens, Marking Pens, Fountain Pens, and Mechanical Pencils.
First use about August 1966.

Class 38 — Prints and Publications

SN 212,790. The London Press Exchange Limited, London, England. Filed Feb. 25, 1965.

TELPEX

Priority claimed under Sec. 44(d)) on British Reg. No. 875,099, dated Feb. 2, 1965.
For Printed Reports on Surveys or Testings Made in Connection With Business or Advertising Programmes.

SN 236,161. Thomas E. Skinner, Inc., Indianapolis, Ind. Filed Jan. 10, 1966.

MAGNETIPS

For Product and Engineering Information Pamphlets.
First use Nov. 15, 1965.

SN 239,925. PAMS, Inc., Dallas, Tex. Filed Mar. 1, 1966.

Colour-way

For Musical Instrument Instruction Book Containing Phonograph Records as a Part Thereof.
First use Oct. 27, 1965.

SN 240,904. The Gottschalk Company, Inc., Brookings, S. Dak. Filed Mar. 14, 1966.

THE NEGOTIATORS

For Bulletin Issued Periodically.
First use Feb. 1, 1966.

SN 241,882. Emblematics, Inc., Boston, Mass. Filed Mar. 25, 1966.

COLLEGE 'SCOPE

For Periodical Booklet for Presenting Vital Statistics of Accredited Colleges.
First use November 1960.

SN 243,650. Discoscene, Inc., Philadelphia, Pa. Filed Apr. 18, 1966.

DISCOSCENE

For Periodic Magazine Devoted to Teen-Age Entertainment—Namely, Popular Music and Recordings, Movies, Television, Sports, Fashions, Parties, and Related Areas of Entertainment.
First use Mar. 9, 1966.

SN 244,256. Servaire Metropolitan Service Company, Berwyn, Ill. Filed Apr. 25, 1966.

CURRAN'S "CRACKER BARREL QUOTES"

For Newsletter Used in Promoting the Service and Sales of Heating and Air-Conditioning Equipment.
First use Apr. 19, 1965.

SN 244,679. The Christian Science Publishing Society, Boston, Mass. Filed May 2, 1966.

"First the blade, then the ear, then the full grain in the ear"

For Newspapers.
First use Nov. 25, 1908.

SN 248,905. Frank H. Fleer Corporation, Philadelphia, Pa. Filed June 24, 1966.

BACK-SLAPPER

For Comic Stickers.
First use May 10, 1966.

SN 249,081. The Sperry and Hutchinson Company, New York, N.Y. Filed June 27, 1966.

Ideabook

For Catalogs Containing Descriptions of the Merchandise of Applicant Which May Be Obtained Upon the Redemption of the Applicant's Trading Stamps.
First use at least as early as January 1959.

SN 249,502. Colormax Corporation, Kansas City, Mo. Filed July 5, 1966.

COLORMAX

For Post Cards, Color Slides, and Motion Picture Travel Films.
First use June 1963 on post cards.

SN 249,711. American Greetings Corporation, Cleveland, Ohio. Filed July 7, 1966.

Katy Kards

No claim is made to the word "Kards" apart from the mark as shown.
For Greeting Cards.
First use May 19, 1966.

SN 250,028. Rexall Drug and Chemical Company, d.b.a. Tupperware, Los Angeles, Calif. Filed July 11, 1966.

TUPPER TOPICS

Owner of Reg. Nos. 797,112 and 797,114.
For House Organ.
First use 1956.

SN 250,500. Medical Economics, Inc., Oradell, N.J. Filed July 18, 1966.

msr quarterly

Owner of Reg. Nos. 765,930 and 765,931.
For Quarterly Publication—Namely, a Periodical Reference Book Dealing With Surgical and Medical Instruments, Equipment, and Supplies.
First use during January 1965.

SN 250,621. The Taylor-Merchant Corporation, New York, N.Y. Filed July 20, 1966.

PLAN-A-SHOW

For Film Strips.
First use as early as February 1966.

SN 253,585. Kenneth B. Smilen and Kenneth Safian (joint owners), New York, N.Y. Filed Sept. 1, 1966.

THE DUAL MARKET PRINCIPLE REPORT

For Reports Concerned With Stock Market News, Analyses, and Advice.
First use November 1961.

Class 39 — Clothing

SN 190,278. Mrs. Sigmar Ouroumoff, née Huguette Bereau, Paris, France. Filed Apr. 3, 1964.

MAMAN CHIC

Owner of French Reg. No. 489,831, dated July 29, 1960 (Seine); Natl. Inst. No. 148,794.
For Dresses, Skirts, and Trousers for Pregnant Women.
First use June 10, 1963; in commerce June 10, 1963.

SN 227,127. Botany Industries Inc., New York, N.Y., by assignment, merger and change of name from H. Daroff & Sons, Inc., Philadelphia, Pa. Filed Sept. 3, 1965.

BOTANAIRE

For Men's and Young Men's Suits.
First use on or about Sept. 10, 1962.

SN 246,091. Merchandising International S.A., Geneva, Switzerland. Filed May 19, 1966.

RE-NU-ALL

Priority claimed under Sec. 44(d) on Swiss Reg. No. 215,624, dated Feb. 9, 1966.
For Shoes, Soles, Heels, Heel Tips, Tips and Inner Soles.

SN 249,212. Bear Brand Hosiery Co., Chicago, Ill. Filed June 29, 1966.

SHEERETTES

For Ladies' Hosiery.
First use Feb. 1, 1939.

SN 249,616. Joseph Bancroft & Sons Company, New York, N.Y. Filed July 6, 1966.

DRESSETTE

For Women's and Misses' Hosiery, Stockings, Half-Hose, Textured Hosiery, and Tights, Both Full-Fashioned and Seamless.
First use Dec. 27, 1952.

SN 249,649. Mabel Julianelli, d.b.a. Julianelli, New York, N.Y. Filed July 6, 1966.

Mabelina

For Ladies' Shoes.
First use at least as early as Apr. 30, 1966.

SN 249,656. McGregor-Doniger Inc., New York, N.Y. Filed July 6, 1966.

Mc GREGOR

The drawing is lined for gold, but that particular color is not an essential feature of the mark. Owner of Reg. No. 654,147.
For Shoes.
First use June 27, 1966.

SN 252,554. Tie Rak Stores, Detroit, Mich. Filed Aug. 17, 1966.

TIE RAK

Applicant claims use for all of the United States except for the States of California, Colorado, Georgia, Minnesota, Missouri, Oregon, Texas, and Washington. Without waiver of any common law rights, applicant disclaims the word "Tie" apart from the mark as shown.
For Haberdashery, Particularly Neckwear, Belts, Suspenders, and Handkerchiefs.
First use at least as early as August 1954 on neckwear.
Subj. to Concurrent Use Proceeding with Jack F. and Ann Maria Ellen Beck.

SN 258,647. Shelburne Shirt Co., Inc., New York, N.Y. Filed Nov. 15, 1966.

Crystalaire*

For Men's and Boys' Wearing Apparel—Namely, Dress and Sport Shirts.
First use 1953.

SN 258,746. I. Cohen & Sons, Inc., Boston, Mass. Filed Nov. 16, 1966.

COMANCHE-MOC

For Shoes.
First use July 1953.
Subj. to Intf. with SN 245,600.

SN 259,697. Rough Rider, Inc., Napa, Calif. Filed Nov. 30, 1966.

SILVERADO

For Sportswear—Namely, Men's Slacks and Sport Coats; and Ladies' Slacks, Blouses, Jackets, Shells, and Shifts.
First use Aug. 1, 1966.

SN 264,709. Hat Corporation of America, New York, N.Y. Filed Feb. 15, 1967.

CAVANAGH

Owner of Reg. Nos. 267,193, 579,411, and others.
For Men's Hats, Caps, Overcoats, Topcoats, Suburban Coats, Raincoats, Suits, Sport Jackets, Slacks, Shirts, Sweaters, Neckties, Mufflers, Underwear, Pajamas, Hosiery, Belts, and Gloves.
First use February 1913 on men's hats.

Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

SN 245,808. Cannon Mills Company, Kannapolis, N.C. Filed May 17, 1966.

CASABLANCA STRIPE

No claim is made to the exclusive use of the word "Strike" apart from the other features of the mark as shown.
For Towels, Wash Cloths, Sheets, and Pillowcases.
First use Apr. 22, 1966.

SN 245,843. National Research Corporation, Cambridge, Mass. Filed May 17, 1966.

ASTROLON

For Metallised Plastic Laminate Which Is Marketed as a Heat Reflective Fabric.
First use on or about Mar. 14, 1966.

SN 250,164. Maxwell Industries, Inc., New York, N.Y. Filed July 13, 1966.

CHARDON MARCHÉ

For Piece Goods for Making Into Dresses, Jackets, Raincoats, and Like Ready Wearing Apparel.
First use Apr. 1, 1966.

SN 251,791. Carletex Corp., New York, N.Y. Filed Aug. 5, 1966.

CARLETEX 1-2-3 SKIRT

Applicant disclaims the word "Skirt" apart from the mark as shown.
For Piece Goods, Sold by the Yard, Adapted for Separation Into Lengths of Goods Ready for Quick Assembly Into a Skirt.
First use on or before Mar. 18, 1966.

Class 43—Thread and Yarn

SN 250,374. Glen Raven Knitting Mills, Inc., Glen Raven, N.C. Filed July 15, 1966.

GLEN SET

Owner of Reg. No. 378,364.
For Yarns of Natural or Synthetic Fibers or Combinations Thereof.
First use Feb. 8, 1966.

Class 44—Dental, Medical, and Surgical Appliances

SN 251,163. Thiokol Chemical Corporation, Bristol, Pa. Filed July 27, 1966.

PHONOCARDIOTIMER

For Medical Appliance Suitable for Use in Conjunction With a Stethoscope in Medical Diagnosis Based on Auscultation.
First use February 1966.

SN 258,868. Johnson & Johnson, New Brunswick, N.J. Filed Nov. 17, 1966.

DERMIPAD

Owner of Reg. No. 719,395.
For Surgical Dressings.
First use July 25, 1966.

Class 45—Soft Drinks and Carbonated Waters

SN 241,433. Colonial Maid Syrup Products, Inc., White Plains, N.Y. Filed Mar. 21, 1966.



The lining on the drawing constitutes lining which forms part of the drawing and does not represent color.
For Flavored Syrup for Making Soft Drinks.
First use Feb. 3, 1966.

Class 46—Foods and Ingredients of Foods

SN 219,469. Shakey's, Inc., Burlingame, Calif. Filed May 21, 1965.



For Pizzas and Ingredients for Making Same—Namely, Flour Blends for Making Doughs, and Spice Blends for Seasoning and Flavoring Purposes.
First use Mar. 15, 1965.

SN 230,835. International Minerals & Chemicals Corporation, d.b.a. Ac'cent International, Skokie, Ill. Filed Oct. 21, 1965.

Sa-són Ac'cent

Applicant disclaims the word "Sa-Son" apart from the mark as a whole without prejudice to its common law rights or rights under the provisions of section 6(b) of the 1946 Trademark Act. Owner of Reg. No. 435,707.
For Food Savoring Powders Comprising Monosodium Glutamate.
First use Sept. 8, 1965.

SN 231,395. The Creamette Company, Minneapolis, Minn. Filed Oct. 23, 1965.

CREAMETTES

Owner of Reg. Nos. 90,907, 811,448, and others.
For Frozen Foods—Namely, Frozen Spaghetti and Meat in Sauce, Frozen Macaroni and Tuna and Frozen Macaroni and Beef.
First use February 1965.

SN 232,876. Truns, Inc., Brooklyn, N.Y. Filed Nov. 17, 1965.

HOSPITALITY

For Ham, Bacon, Sausage, and Other Prepared Meat Products.
First use Nov. 9, 1965.

SN 233,126. Philadelphia Chewing Gum Corporation, Havertown, Pa. Filed Nov. 22, 1965.

MIGHTY BUBBLE

The word "Bubble" is disclaimed apart from the mark as shown.
For Chewing Gum.
First use Nov. 2, 1965.

SN 233,867. Mad River Orchard Co., Entiat, Wash. Filed Nov. 26, 1965.

SPARKLING RADIANCE

For Fresh Deciduous Fruits.
First use Oct. 22, 1965.

SN 233,896. General Mills, Inc., Minneapolis, Minn. Filed Dec. 3, 1965.

BAKE UPS

The word "Bake" is disclaimed apart from the mark as shown; applicant waives none of its common law rights in its entirety or any feature thereof.
For Filled Baked Products Composed of Layers of Baked Dough With Intermediate Filler Layer of Fruit Intended To Be Warmed in a Toaster Before Serving.
First use Nov. 12, 1965.

SN 235,551. Cream Products Company, Inc., Cicero, Ill. Filed Dec. 30, 1965.



For Liquid Imitation Cream, Liquid Imitation Whipping Cream, and Sour Tasting Non-Dairy Dressing.
First use on or about July 24, 1965.

SN 235,773. General Mills, Inc., Minneapolis, Minn. Filed Jan. 4, 1966.

CRISPOS

For Protein Bits Having a Flavor Like Smoke-Cured Bacon To Be Used as a Garnish or an Ingredient in the Preparation of Goods.
First use Sept. 10, 1965.

SN 236,086. General Mills, Inc., Minneapolis, Minn. Filed Jan. 10, 1966.

QUICKWICH

For Filled Baked Products Composed of Layers of Baked Dough With Intermediate Filler Layer of a Fruit Nature Intended To Be Warmed in a Toaster Before Serving.
First use Dec. 27, 1965.

SN 236,658. Societe de Produits de Regime Darry, d.b.a. Darry S.A., Pierrecourt, near Nesle-Normandeuse, Seine-Maritime, France. Filed Jan. 17, 1966.

DARRY

Owner of French Reg. No. 147, dated May 22, 1951 (Neufchatel); Natl. Inst. No. 494,834.
For Toasted Rusks.

SN 236,660. Societe de Produits de Regime Darry, d.b.a. Darry and/or Darry S.A., Pierrecourt, near Nesle-Normandeuse, Seine-Maritime, France. Filed Jan. 17, 1966.



No claim is made to the exclusive use of the word "Roties" apart from the mark as a whole. The French word "Roties" translated into English means "toasts." Owner of French Reg. No. 201, dated Nov. 24, 1964 (Neufchatel-en-Bray); Natl. Inst. No. 236,121.

For Toasted Bread.

SN 237,288. Agway, Inc., Syracuse, N.Y. Filed Jan. 26, 1966.



For Fresh Fruit—Namely, Apples, Peaches, Pears, Nectarines, and Plums; Fresh Potatoes; Fresh Eggs and Egg Products—Namely, Egg Whites and Egg Yolks in Liquid, Frozen, and Dried Form; Poultry and Poultry Products—Namely, Whole and Cut-Up Fowl in Fresh, Canned, and Frozen Forms; Dried Beans; Breakfast Cereals; and Flour.

First use Dec. 15, 1965.

SN 238,225. N. K. Hurst Company, Inc., Indianapolis, Ind. Filed Feb. 7, 1966.



The word "Brand" is disclaimed.

For Dry Food Products—Namely, Dry Beans, Peas, Lentils, Popcorn, Rice, and Sugar.

First use January 1951.

SN 239,745. Delta Rice, Inc., Hollandale, Miss. Filed Feb. 28, 1966.

DELTA CHIEF

For Rice.
First use Oct. 14, 1965.

SN 239,746. Delta Rice, Inc., Hollandale, Miss. Filed Feb. 28, 1966.

DELTA BOY

For Rice.
First use Oct. 14, 1965.

SN 239,783. Moorman Manufacturing Company, Quincy, Ill. Filed Feb. 28, 1966.

MOORPEP

For Dog Food.
First use Feb. 3, 1966.

SN 240,176. Hunt-Wesson Foods, Inc., Fullerton, Calif., assignee of Hunt Foods and Industries, Inc., d.b.a. Blue Plate Foods, Inc., New Orleans, La. Filed Mar. 4, 1966.

BLUE PLATE

Owner of Reg. Nos. 274,578, 539,817, and others.

For Mayonnaise, Sandwich Spread, Salad Dressing, Salad Oil, Worcestershire Sauce, French Dressing, Canned Shrimp, Canned Oysters, Canned Crab Meat, Snack Spread Containing Salad Dressing, Sweet Relish, and Pimientos, Barbeque Sauce, Hot Dog and Hamburger Relish, Orange Marmalade, Canned Vegetables, and Frozen Shrimp.

First use at least as early as 1927 on mayonnaise and sandwich spread.

SN 240,293. General Foods Corporation, White Plains, N.Y. Filed Mar. 7, 1966.

GAINES VARIETY

The word "Variety" is disclaimed apart from the mark as shown. Owner of Reg. Nos. 342,441, 732,817, and others.

For Dog Food.
First use Feb. 10, 1966.

SN 242,402. Super Food Services, Inc., Chicago, Ill. Filed Mar. 31, 1966.

TABLE TREAT

Owner of Reg. Nos. 653,842, 783,308, and 796,043.

For Food Products—Namely, Margarine, Canned Fruits, and Spices.

First use Aug. 2, 1956.

SN 243,038. Swift & Company, Chicago, Ill. Filed Apr. 8, 1966.

TEXGRAN

For Textured Soy Flour.
First use on or about Mar. 17, 1966.

SN 243,256. National Biscuit Company, New York, N.Y. Filed Apr. 12, 1966.

FRUITONS

For Dried Fruit Mixtures.
First use Feb. 25, 1966.

SN 244,102. A. Giuliani & Bro., San Francisco, Calif. Filed Apr. 22, 1966.



The lining shown in the drawing is an actual part of the mark and does not represent color. The English translation of the Italian word "Campanile" is "small belfry."

For Edible Olive Oil.
First use September 1928.

SN 244,650. Anadama Bread, Inc., Rockport, Mass. Filed May 2, 1966.

ANADAMA

Owner of Reg. Nos. 564,430 and 616,365.

For Bread, Particularly a Cocktail Sandwich Bread.

First use at least as early as July 14, 1965.

SN 246,474. The Nestle Company, Inc., White Plains, N.Y. Filed May 24, 1966.

TASTER'S CHOICE

Owner of Reg. No. 726,567.

For Coffee.
First use May 9, 1966.

SN 247,609. Glades County Sugar Growers Cooperative Assn., Moore Haven, Fla., assignee of Lowry & Co. Inc., New York, N.Y. Filed June 8, 1966.

FLO-CANE

For Sugar.
First use December 1964.

SN 248,050. Pacific Aromatics, Inc., Los Angeles, Calif. Filed June 14, 1966.

PACCO

For Food Flavors and Fruit-Flavored Food Beverage Bases.
First use May 8, 1948.

SN 248,408. Francisco Armada, Playa-Ponce, Puerto Rico. Filed June 20, 1966.

Armada

For Crackers, Candies, Jellies, Jams, and Marmalades.
First use Sept. 8, 1931.

SN 250,896. General Mills, Inc., Minneapolis, Minn. Filed July 25, 1966.

BEADS

For Cereal Derived Ready To Eat Snacks.
First use Apr. 25, 1966.

SN 257,684. Allen Products Company, Inc., d.b.a. Allen Products Co., Inc., Allentown, Pa. Filed Nov. 1, 1966.

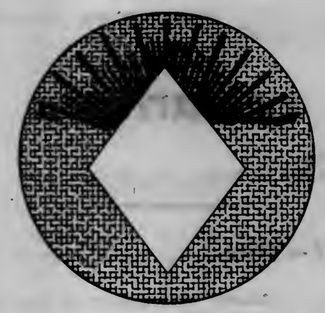


Owner of Reg. Nos. 785,326, 782,941, and 794,233.

For Animal Food for Domesticated Pets—Namely, Dogs and Cats.

First use at least as early as 1961.

SN 258,747. Horn's Poultry, Inc., Mattoon, Ill. Filed Nov. 16, 1966.



The drawing is lined for yellow, but color is not claimed as an integral portion of the mark.

For Frozen Onion Rings.
First use Sept. 22, 1966.

SN 259,369. Golden Grain Macaroni Co., d.b.a. Ghirardelli Chocolate Co., San Leandro, Calif. Filed Nov. 25, 1966.



Owner of Reg. Nos. 205,776, 426,706, and 438,352.

For Candy.
First use Aug. 30, 1966.

SN 261,423. The East Asiatic Company, Inc., d.b.a. Danfoods Co., Los Angeles, Calif. Filed Dec. 27, 1966.

Debonnaire

The word "Debonnaire" means "affable and courteous; graceful and gay."
For Cheese.
First use Apr. 13, 1966.

SN 261,783. Kellogg Company, Battle Creek, Mich. Filed Jan. 3, 1967.

POKES

For Cereal Derived Snack Food Products and Fried Snack Food Products of a Vegetable Base.
First use Dec. 22, 1966.

SN 263,096. Mars, Incorporated, d.b.a. M & M Candies, Wilmington, Del. Filed Jan. 23, 1967.

TRACK

For Candy.
First use Dec. 9, 1966.

SN 265,147. Tasty Baking Company, Philadelphia, Pa. Filed Feb. 21, 1967.

creamies

For Cakes.
First use Sept. 30, 1938.

Class 47 — Wines

SN 252,814. California Wine Association, San Francisco, Calif. Filed Aug. 22, 1966.

ELEVEN CELLARS

Owner of Reg. Nos. 555,107, 585,513, and 599,171.
For Wine.
First use Apr. 13, 1951.

SN 262,908. Llords & Elwood Winery, Los Angeles, Calif. Filed Jan. 20, 1967.

Llords & Elwood

For Wines.
First use 1937.

Class 49 — Distilled Alcoholic Liquors

SN 252,945. J. T. S. Brown's Son Company, d.b.a. Oak Dale Distilling Co., Cincinnati, Ohio. Filed Aug. 23, 1966.

STONEBROOK

For Bourbon Whiskey.
First use Aug. 18, 1966.

SN 261,350. Haas Brothers, d.b.a. Kent Ltd., San Francisco, Calif. Filed Dec. 23, 1966.

KENT DELUXE

Applicant disclaims the word "DeLuxe" apart from the association shown, without waiver of applicant's common law rights therein.
For Blended Whiskey.
First use Jan. 3, 1962.

Class 50 — Merchandise Not Otherwise Classified

SN 237,628. International Electric Fence Company Inc. Albert Lea, Minn. Filed Jan. 18, 1966.

STOK-FOUNT

Owner of Reg. No. 598,294.
For Automatic Electric Waterers for Farm Animals.
First use Mar. 1, 1952.

SN 244,734. Polyform Products, Inc., Schiller Park, Ill. Filed May 2, 1966.

SCULPEY

For Modeling Plastic Compound for Making Designs, Molds, or the Like.
First use Feb. 24, 1966.

SN 247,252. Pryor Marking Products, Inc., Chicago, Ill. Filed June 3, 1966.

ROTADATE

For Panels for Visual Informational Use.
First use Dec. 3, 1962.

Class 51 — Cosmetics and Toilet Preparations

SN 240,546. Revlon, Inc., New York, N.Y. Filed Mar. 9, 1966.

'SILK OF INTIMATE'

Owner of Reg. No. 736,888.
For Perfume.
First use Dec. 1, 1965.

SN 240,945. Wm. Peck Sales Co., Inc., New York, N.Y. Filed Mar. 14, 1966.

ARROW

For Men's Toiletries—Namely, Men's Cologne and Men's Aftershave Lotion.
First use at least as early as Mar. 4, 1966.

SN 241,621. American Aloe Corporation, Chicago, Ill. Filed Mar. 23, 1966.

ALUSION

For Face Powders and Cream Foundations.
First use Dec. 4, 1964.

SN 257,768. Chesebrough-Pond's Inc., New York, N.Y. Filed Nov. 2, 1966.

MERMAID

For Anti-Perspirant Deodorant.
First use Oct. 12, 1966.

SN 263,429. American Home Products Corporation, New York, N.Y. Filed Jan. 27, 1967.

SUDDEN BLUSH

For Cosmetic Preparation for Imparting Color to the Face.
First use Jan. 5, 1967.

Class 52 — Detergents and Soaps

SN 253,627. Bison Corporation, Canton, Ohio. Filed Sept. 1, 1966.

BISOTHENE

For Degreasing Solvent Used in the Metal Finishing Industry.
First use on or about June 1, 1964.

SN 255,397. Alberto-Culver Company, Melrose Park, Ill., assignee of Masury-Young Company, Melrose Park, Ill. Filed Sept. 29, 1966.

RIGHT TOUCH

Owner of Reg. Nos. 820,037 and 825,084.
For Dish Washing Detergent for Use in Household.
First use Sept. 1, 1966.

SN 255,398. Alberto-Culver Company, Melrose Park, Ill., assignee of Masury-Young Company, Melrose Park, Ill. Filed Sept. 29, 1966.

LIGHT TOUCH

Owner of Reg. Nos. 814,789 and 825,084.
For Dish Washing Detergent for Use in Household.
First use Sept. 1, 1966.

SN 265,143. Simonis Company, Chicago, Ill. Filed Feb. 21, 1967.

SIMONIZ

Owner of Reg. Nos. 137,701, 563,838, and others.
For Toilet Bowl and Urinal Cleaner.
First use Feb. 21, 1964.

SERVICE MARKS

Class 102 — Insurance and Financial

SN 237,474. North Coast Life Insurance Company, Spokane, Wash. Filed Jan. 27, 1966.

NORCO
NORTH COAST

For Underwriting of Life Insurance.
First use May 27, 1965.

SN 237,684. First Investors Life Insurance Company, New York, N.Y. Filed Feb. 1, 1966.

FI

For Insurance Services, To Wit, the Underwriting of All Types of Life, Health, Accident, and Disability Income Insurance.
First use Dec. 13, 1962.

Class 105 — Transportation and Storage

SN 250,042. Consolidating Services, Inc., Huntington, W. Va., assignee of Service Warehouse Corporation, Huntington, W. Va. Filed July 11, 1966.

TRANSOLIDATE

Owner of Reg. No. 813,671.

For Coordinated Storing, Handling and Consolidating of Shipments of Products in Transit to Consignees.

First use June 22, 1966; May 7, 1965, in a different form.

Class 107 — Education and Entertainment

SN 203,411. Maryland Baptist College Corporation, Baltimore, Md. Filed Oct. 6, 1964.



No claim is made to "Maryland Baptist College" apart from the mark. The words "Deo Gloria" translated into English mean "for the glory of God."

For Conducting Classes in Religious Missionary Work, and Conducting Religious Conventions and Seminars.

First use on or about July 21, 1964.

TRADEMARK REGISTRATIONS ISSUED

PRINCIPAL REGISTER

Class 1 — Raw or Partly Prepared Materials

828,058. K. Big Kernel Pet Foods, Inc. MULTIPLE CLASS (Classes 1 and 22). SN 209,833. Pub. 1-4-66. Filed 1-13-65.

828,059. DYNACELL. International Pulp Sales Company. SN 242,253. Pub. 1-31-67. Filed 3-30-66.

828,060. TYVEK. E. I. du Pont de Nemours and Company. SN 242,720. Pub. 1-10-67. Filed 4-5-66.

828,061. FIBERCRYL. Rexall Drug and Chemical Company, assignee of Fiberfil, Inc. SN 243,115. Pub. 10-25-66. Filed 4-11-66.

828,062. CAL PRO. Cowan Stone Company. SN 248,216. Pub. 2-14-67. Filed 6-16-66.

828,063. AMIDGLAS. Rexall Drug and Chemical Company, assignee of Fiberfil, Inc. SN 248,223. Pub. 2-7-67. Filed 6-16-66.

828,064. GRILLIT. Husky Briquetting, Inc., d.b.a. Husky-Dominion Briquets. SN 249,012. Pub. 2-14-67. Filed 6-27-66.

828,065. LAMITEX. Franklin Fibre-Lamitex Corp. SN 249,521. Pub. 2-14-67. Filed 7-5-66.

Class 2 — Receptacles

828,066. FONTANA. Ray Control Corp. SN 238,787. Pub. 2-14-67. Filed 2-14-66.

Class 3 — Baggage, Animal Equipments, Portfolios, and Pocketbooks

828,067. STAFFORD GIFTS AND DESIGN. Ernest Hazel, Jr., Inc. MULTIPLE CLASS (Classes 3 and 37). SN 211,726. Pub. 2-14-67. Filed 2-10-65.

828,068. CHEETAH. The Pop-Op Corporation. SN 245,951. Pub. 2-14-67. Filed 5-18-66.

828,069. GI JOE AND DESIGN. Hassenfeld Bros. Inc. SN 246,308. Pub. 2-14-67. Filed 5-23-66.

828,070. CHEETAH (DESIGN). The Pop-Op Corporation. SN 247,954. Pub. 2-14-67. Filed 6-13-66.

Class 4 — Abrasives and Polishing Materials

828,071. ZENITH. Zenith Radio Corporation, assignee of Churchill Chemical Company. SN 193,106. Pub. 4-20-65. Filed 5-11-64.

828,072. ASTRO SHIELD. Nord-Viscount Corp., assignee of Federated Chemical Corp. SN 241,009. Pub. 2-14-67. Filed 3-9-66.

Class 5 — Adhesives

828,073. SOLABOND. Textron Electronics, Inc., d.b.a. Spectrolab. SN 196,920. Pub. 2-14-67. Filed 7-1-64.

828,074. STICKY ICK. Eskimo Radiator Mfg. Co. SN 234,633. Pub. 2-14-67. Filed 12-15-65.

828,075. FIRMA-GRIP. Binney & Smith Inc. SN 236,876. Pub. 2-14-67. Filed 1-20-66.

828,076. REZ-N-GLUE. Schwartz Chemical Co. Inc. SN 248,365. Pub. 2-14-67. Filed 6-17-66.

828,077. REZ-N-BOND. Schwartz Chemical Co. Inc. SN 248,366. Pub. 2-14-67. Filed 6-17-66.

Class 6 — Chemicals and Chemical Compositions

828,078. NISSO HI-CHLON. Nippon Soda Kabushiki Kaisha. SN 157,537. Pub. 2-14-67. Filed 1-28-63.

828,079. MURVENTIN. The Murphy Chemical Company Limited. SN 196,697. Pub. 2-14-67. Filed 6-29-64.

828,080. ALNAPOL. Alnapol Distributing Company, assignee of Alnapol, Inc. SN 228,871. Pub. 2-14-67. Filed 9-29-65.

828,081. FORMULA 50:50. Moser Paper Company. SN 231,180. Pub. 2-14-67. Filed 10-22-65.

828,082. SALINEX. Magnet Cove Barium Corporation. SN 232,005. Pub. 2-14-67. Filed 11-2-65.

828,083. WONDER. Texize Chemicals, Inc. SN 234,483. Pub. 2-14-67. Filed 12-13-65.

828,084. RACON. Racon Incorporated. SN 235,426. Pub. 2-14-67. Filed 12-28-65.

828,085. BUBBLE BREAKER. bilab. SN 236,946. Pub. 2-14-67. Filed 1-14-66.

828,086. VALET. United Merchants and Manufacturers, Inc. SN 237,053. Pub. 2-14-67. Filed 1-21-66.

828,087. K. Big Kernel Pet Foods, Inc. SN 237,625. Pub. 8-9-66. Filed 1-27-66.

828,088. K AND DOG DESIGN. Big Kernel Pet Foods, Inc. SN 237,633. Pub. 5-3-66. Filed 12-28-65.

828,089. HATCOL. W. R. Grace & Co. SN 238,630. Pub. 2-14-67. Filed 2-11-66.

828,090. RESTORE. Standard International Corporation. SN 240,355. Pub. 2-14-67. Filed 3-7-66.

828,091. REHANSAR. Armour Pharmaceutical Company. SN 240,699. Pub. 2-14-67. Filed 3-11-66.

828,092. REHANCIT. Armour Pharmaceutical Company. SN 240,700. Pub. 2-14-67. Filed 3-11-66.

828,093. MC INDUSTRIES AND DESIGN. Emcee Industries, Inc. SN 242,970. Pub. 2-14-67. Filed 4-8-66.

828,094. TRI-CIDE. Eli Lilly and Company. SN 248,486. Pub. 2-14-67. Filed 6-20-66.

828,095. CRABICIDE. Eli Lilly and Company. SN 248,487. Pub. 2-14-67. Filed 6-20-66.

828,096. PREEN. Eli Lilly and Company. SN 248,489. Pub. 2-14-67. Filed 6-20-66.

828,097. BUG OUT. Eli Lilly and Company. SN 248,490. Pub. 2-14-67. Filed 6-20-66.

828,098. OSMOSE K-33. Osmose Wood Preserving Co. of America, Inc. SN 248,840. Pub. 2-14-67. Filed 6-23-66.

828,099. METSO SPHERES. Philadelphia Quartz Company. SN 249,355. Pub. 2-14-67. Filed 6-30-66.

828,100. PERMATEX AND DESIGN. Permatex Company, Inc. SN 250,861. Pub. 2-14-67. Filed 7-22-66.

828,101. DYFONATE. Stauffer Chemical Company. SN 256,246. Pub. 2-14-67. Filed 10-11-66.

Class 8—Smokers' Articles, Not Including Tobacco Products

828,102. SAFTI-SQUARE. Frank J. Curran Co. SN 246,887. Pub. 2-14-67. Filed 5-31-66.

Class 9—Explosives, Firearms, Equipments, and Projectiles

828,103. FREEDOM FIREWORKS. Trojan Fireworks Co. SN 238,468. Pub. 2-14-67. Filed 2-9-66.

Class 10—Fertilizers

828,104. LO-BI. Norsk Hydro-Elektrisk Kvaelstofaktieselskab. SN 246,711. Pub. 2-14-67. Filed 5-26-66.

Class 11—Inks and Inking Materials

828,105. NOVO-PICO-SCRIPT AND DESIGN. Firma Dr. Adolf Hölken. MULTIPLE CLASS (Classes 11 and 37). SN 226,136. Pub. 2-14-67. Filed 8-20-65.

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

828,106. BABY (DESIGN). Reliance Products Corporation. SN 222,974. Pub. 2-14-67. Filed 7-8-65.

828,107. PITCH-LOK. Republic Industrial Corporation. SN 232,721. Pub. 2-14-67. Filed 11-15-65.

828,108. AQUA HOT. A. O. Smith Corporation. SN 233,837. Pub. 2-14-67. Filed 12-2-65.

828,109. PETRO. Clayton Mark & Company. SN 246,798. Pub. 2-14-67. Filed 5-27-66.

Class 14—Metals and Metal Castings and Forgings

828,110. Q-TEMP. United States Steel Corporation. SN 258,963. Pub. 2-14-67. Filed 11-18-66.

Class 15—Oils and Greases

828,111. NO-LOAD. The No-Load Company. SN 204,492. Pub. 2-14-67. Filed 10-21-64.

Class 16—Protective and Decorative Coatings

828,112. BLAIR SPRAY VAR AND DESIGN. Blair Art Products, Inc. SN 225,862. Pub. 2-14-67. Filed 8-17-65.

Class 17—Tobacco Products

828,113. LONGPAR. Philip Morris Incorporated. SN 246,921. Pub. 2-14-67. Filed 5-31-66.

828,114. TOM THUMB. Philip Morris Incorporated. SN 246,922. Pub. 2-14-67. Filed 5-31-66.

Class 18—Medicines and Pharmaceutical Preparations

828,115. PSYCHOPRONT. Heinrich Mack Nachf., Chem.-Pharmazeutische Fabrik, Kommanditgesellschaft. SN 198,842. Pub. 2-14-67. Filed 7-30-64.

828,116. TALAMO. Richardson-Merrell Inc. SN 223,724. Pub. 2-14-67. Filed 7-19-65.

828,117. DOCTOR'S ORDERS. Dover Laboratories, Inc. SN 234,546. Pub. 2-14-67. Filed 12-14-65.

828,118. DUOPRIN. Dunhall, Inc. SN 234,547. Pub. 2-14-67. Filed 12-14-65.

828,119. NUTRINS. General Nutrition Corporation. SN 235,178. Pub. 2-14-67. Filed 12-23-65.

828,120. X-SEED. Hazleton-Nuclear Science Corporation. SN 242,127. Pub. 2-14-67. Filed 3-29-66.

828,121. BURNACAIN. Park Laboratories, Incorporated. SN 243,573. Pub. 2-14-67. Filed 4-15-66.

828,122. VERSACLOX. Bristol-Myers Company. SN 247,191. Pub. 2-14-67. Filed 6-3-66.

828,123. KLINIT. Eisai Company, Limited. SN 247,788. Pub. 2-14-67. Filed 6-10-66.

828,124. PEN-BL. Bristol-Myers Company. SN 249,407. Pub. 2-14-67. Filed 7-1-66.

828,125. SQUARE SHAKE. American Home Products Corporation. SN 252,782. Pub. 2-14-67. Filed 8-22-66.

828,126. FACE GUARD. American Home Products Corporation. SN 252,783. Pub. 2-14-67. Filed 8-22-66.

828,127. FLURA-GEL. Kirkman Laboratories, Inc. SN 258,869. Pub. 2-14-67. Filed 11-17-66.

Class 19—Vehicles

828,128. CREST HOME AND DESIGN. Chickasha Mobile Homes of Missouri, Inc. SN 224,073. Pub. 2-14-67. Filed 7-23-65.

828,129. CAMBER COMPENSATOR. European Motor Products, Inc. SN 224,734. Pub. 2-14-67. Filed 8-2-65.

828,130. FENTON AND DESIGN. Fenton Company. SN 226,633. Pub. 2-14-67. Filed 8-27-65.

828,131. BRITE-VUE. Yankee Metal Products Corp. SN 237,267. Pub. 2-14-67. Filed 1-25-66.

828,132. THE RAIL. The Huffman Manufacturing Company. SN 240,441. Pub. 2-14-67. Filed 3-8-66.

828,133. DONZI. Teleflex Incorporated. SN 240,676. Pub. 2-14-67. Filed 3-10-66.

828,134. COST-BUSTR. Butler Manufacturing Company. SN 241,859. Pub. 2-14-67. Filed 3-25-66.

828,135. FORESTER AND DESIGN. Forest City Industries, Inc. SN 242,353. Pub. 2-14-67. Filed 3-31-66.

828,136. SWINGER. Persons-Majestic Mfg. Company. SN 242,481. Pub. 2-14-67. Filed 4-1-66.

Class 21—Electrical Apparatus, Machines, and Supplies

828,137. ST AND DESIGN. Sarkes Tarzian, Inc. MULTIPLE CLASS (Classes 21 and 26). SN 220,558. Pub. 2-14-67. Filed 6-7-65.

828,138. TELECON. Toa Musen Co., Ltd. SN 235,731. Pub. 2-14-67. Filed 1-3-66.

828,139. F AND DESIGN. Fostoria Corporation. SN 239,037. Pub. 2-14-67. Filed 2-17-66.

828,140. ELECTRI-COMFORT. Sola Basic Industries, Inc. SN 239,672. Pub. 2-14-67. Filed 2-25-66.

828,141. SWIDGET. Continental Wirt Electronics Corporation. SN 240,505. Pub. 2-14-67. Filed 3-9-66.

828,142. SYDEWYNDER. Continental Wirt Electronics Corporation. SN 240,506. Pub. 2-14-67. Filed 3-9-66.

828,143. ARISTOCRAT. Betty M. Dwyer, d.b.a. D & B Mfg. Co. SN 240,597. Pub. 2-14-67. Filed 3-10-66.

828,144. DELWYN. Rotron Manufacturing Company, Inc. SN 240,664. Pub. 2-14-67. Filed 3-10-66.

828,145. MISCELLANEOUS DESIGN. Rotron Manufacturing Company, Inc. SN 240,665. Pub. 2-14-67. Filed 3-10-66.

828,146. SINCLAIR AND DESIGN. Sinclair Refining Company. SN 240,966. Pub. 2-14-67. Filed 3-14-66.

828,147. WIZARD. Charles Engineering, Inc. SN 241,029. Pub. 2-14-67. Filed 3-15-66.

828,148. IT'S SOUND BUSINESS TO PUT SOUND IN SPORTS! Fedtro, Inc. SN 241,059. Pub. 2-14-67. Filed 3-15-66.

828,149. WELLSTAR AND DESIGN. Wells Television, Inc. SN 241,108. Pub. 2-14-67. Filed 3-15-66.

828,150. MERCAD. Electrochimica Corporation. SN 241,444. Pub. 2-14-67. Filed 3-21-66.

Class 22—Games, Toys, and Sporting Goods

828,058. (See Class 1 for this trademark.)

828,151. SNAP ACTION. Tudor Metal Products Corporation. SN 213,497. Pub. 2-14-67. Filed 3-5-65.

828,152. ROD-AC. Roddy Recreation Products, Inc. SN 220,154. Pub. 8-30-66. Filed 6-1-65.

828,153. TIGERMATIC. The Ohio Art Company. SN 221,400. Pub. 3-1-66. Filed 6-17-65.

828,154. BABY (DESIGN). Reliance Products Corporation. SN 222,973. Pub. 2-14-67. Filed 7-8-65.

828,155. SAFE-T-BONE. Items, Inc., d.b.a. Safe-T-Bone Co. SN 227,297. Pub. 2-14-67. Filed 9-7-65.

828,156. $QUANDER. The Avalon Hill Company. SN 227,547. Pub. 2-14-67. Filed 9-10-65.

828,157. PLAZER AND DESIGN. Multiple Products, Inc. SN 229,671. Pub. 2-14-67. Filed 10-8-65.

828,158. RACE TRAP AND DESIGN. Multiple Products, Inc. SN 232,336. Pub. 2-14-67. Filed 11-8-65.

828,159. HAND AND HAMMER WITHIN A CIRCLE (DESIGN). Putter-Craft Company. SN 233,890. Pub. 2-14-67. Filed 11-26-65.

828,160. JBZ AND DESIGN. Joseph B. Zahn & Sons, Inc. SN 234,984. Pub. 2-14-67. Filed 12-20-65.

828,161. TIGERS. De Luxe Reading Corporation. SN 235,170. Pub. 10-25-66. Filed 12-23-65.

828,162. CG. Championship Games, Inc. SN 237,084. Pub. 2-14-67. Filed 1-24-66.

828,163. RADIO JET. Radio Steel & Mfg. Co. SN 237,481. Pub. 2-14-67. Filed 1-27-66.

828,164. HUSH-UP TOY. Mego Corp. SN 238,959. Pub. 2-14-67. Filed 2-16-66.

828,165. FAULK'S. Paul D. Faulk. SN 240,513. Pub. 2-7-67. Filed 3-9-66.

828,166. TT AND DESIGN. True Temper Corporation. SN 240,808. Pub. 2-14-67. Filed 3-11-66.

828,167. "BARRAGE." Wolf Brandt. SN 241,427. Pub. 2-14-67. Filed 3-21-66.

828,168. TARGETSMAN EXPRESS. Colt's Inc. SN 241,637. Pub. 2-14-67. Filed 3-23-66.

828,169. ANIMAL YACKER. Mattel, Inc. SN 241,792. Pub. 2-14-67. Filed 3-24-66.

828,170. MILLION DOLLAR SOLITARE. Regal Games Manufacturing Co. SN 241,801. Pub. 2-14-67. Filed 3-24-66.

828,171. A STOCKIN' FEET GAME AND DESIGN. Milton Bradley Company. SN 241,855. Pub. 2-14-67. Filed 3-25-66.

828,172. TWISTER. Milton Bradley Company. SN 241,857. Pub. 2-14-67. Filed 3-25-66.

828,173. AQUA-BALANCE. The General Tire & Rubber Company. SN 242,357. Pub. 2-14-67. Filed 3-31-66.

828,174. HYDRO-FILM. Shakespeare Company. SN 242,398. Pub. 2-14-67. Filed 3-31-66.

828,175. HYDRO-SHEAR. Shakespeare Company. SN 242,399. Pub. 2-14-67. Filed 3-31-66.

828,176. THE OAKMONTER. Claudea-Mark Corporation. SN 242,561. Pub. 2-14-67. Filed 4-4-66.

828,177. SHARPSHOOTER. Lowville-American Co., Inc. SN 242,828. Pub. 2-14-67. Filed 4-6-66.

828,178. SHARK. Lowville-American Co., Inc. SN 242,829. Pub. 2-14-67. Filed 4-6-66.

828,179. MICKEY FINN. Jack Finn, Inc. SN 243,974. Pub. 2-14-67. Filed 4-21-66.

828,180. CHEETAH. The Pop-Op Corporation. SN 245,954. Pub. 2-14-67. Filed 5-18-66.

828,181. CHEETAH (DESIGN). The Pop-Op Corporation. SN 247,956. Pub. 2-14-67. Filed 6-13-66.

828,182. UNIVERSE. Parker Brothers, Inc. SN 250,173. Pub. 2-14-67. Filed 7-13-66.

828,183. CAROM-BOWL. Brunswick Corporation. SN 256,035. Pub. 2-14-67. Filed 10-10-66.

828,184. KING-SPOT. Cordell Tackle, Inc. SN 256,201. Pub. 2-14-67. Filed 10-11-66.

828,185. NITE-GLO. Mattel, Inc. SN 257,021. Pub. 2-14-67. Filed 10-24-66.

828,186. TALKIN' PATTER PILLOWS. Mattel, Inc. SN 257,022. Pub. 2-14-67. Filed 10-24-66.

828,187. M-16 MARAUDER. Mattel, Inc. SN 258,759. Pub. 2-14-67. Filed 11-16-66.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

828,188. GOLIATH. Jack Foster, d.b.a. Goliath Products. SN 227,100. Pub. 2-14-67. Filed 9-1-65.

828,189. FAST PAK. Walker Manufacturing Company. SN 228,421. Pub. 2-14-67. Filed 9-22-65.

828,190. CORO-VANE. Corken Pump Company. SN 230,134. Pub. 2-14-67. Filed 10-14-65.

828,191. CORO-FLO. Corken Pump Company. SN 230,135. Pub. 2-14-67. Filed 10-14-65.

828,192. COMPLETTMATIC. Complett S.p.A. SN 230,790. Pub. 2-14-67. Filed 10-21-65.

828,193. AERO-KLEEN. Power Cleaning Supply Co. SN 232,933. Pub. 2-14-67. Filed 11-18-65.

828,194. PACTOR AND DESIGN. Pactor Corporation. SN 233,734. Pub. 2-14-67. Filed 12-1-65.

828,195. SPEED-E-SPOOL. Kearney & Trecker Corporation. SN 235,196. Pub. 2-14-67. Filed 12-23-65.

828,196. KITCHEN MATES. Arrow Plastic Manufacturing Co. MULTIPLE CLASS (Classes 23 and 26). SN 239,483. Pub. 2-14-67. Filed 2-24-66.

828,197. THERMO-MEND. Stafast Corporation. MULTIPLE CLASS (Classes 23 and 40). SN 256,254. Pub. 2-14-67. Filed 10-12-66.

Class 26—Measuring and Scientific Appliances

828,137. (See Class 21 for this trademark.)

828,196. (See Class 23 for this trademark.)

828,198. MONROE EXECUTIVE. Monroe International Corporation. SN 198,572. Pub. 2-14-67. Filed 7-27-64.

828,199. COMBI-PAK. Tiffen Optical Co. SN 210,914. Pub. 2-14-67. Filed 1-28-65.

828,200. OTIS. Otis Engineering Corporation. SN 232,140. Pub. 2-14-67. Filed 11-4-65.

828,201. GSI. General Semiconductors, Inc. SN 237,832. Pub. 1-10-67. Filed 2-2-66.

828,202. EDONAR. Vernon Photographic Corporation. SN 239,473. Pub. 2-14-67. Filed 2-23-66.

828,203. DYNA-MIX. Fisher Scientific Company. SN 239,890. Pub. 2-14-67. Filed 3-1-66.

828,204. SELLSTROM. Sellstrom Manufacturing Company. MULTIPLE CLASS (Classes 26 and 39). SN 240,208. Pub. 2-14-67. Filed 3-4-66.

Class 27 — Horological Instruments

828,205. UNION. Pennant Watch Corp., assignee of Lucien Piccard Watch Corp. SN 240,929. Pub. 2-14-67. Filed 3-14-66.

Class 28 — Jewelry and Precious-Metal Ware

828,206. INDIE. Shiman Bros.-Colonial, Inc. SN 240,796. Pub. 2-14-67. Filed 3-11-66.

828,207. H AND A (DESIGN). The House of Adler, Inc. SN 240,914. Pub. 2-14-67. Filed 3-14-66.

Class 29 — Brooms, Brushes, and Dusters

828,208. HEADMASTER. I. Sekine Company, Inc. SN 236,260. Pub. 2-14-67. Filed 1-12-66.

Class 30 — Crockery, Earthenware, and Porcelain

828,209. MPC-100. Amphenol Corporation. SN 237,073. Pub. 2-14-67. Filed 1-24-66.

Class 32 — Furniture and Upholstery

828,210. HANA RACK. Hana Corporation. SN 242,599. Pub. 2-14-67. Filed 4-4-66.

828,211. FRANKIE HOT DOGS. Frankie Hot Dogs, Inc. SN 244,481. Pub. 2-14-67. Filed 4-28-66.

828,212. BEAUTYMATE. Snyder Manufacturing Company. SN 258,871. Pub. 2-14-67. Filed 11-17-66.

Class 33 — Glassware

828,213. CASCADE. American Saint Gobain Corporation. SN 240,696. Pub. 2-14-67. Filed 3-11-66.

828,214. CHEETAH. The Pop-Op Corporation. SN 245,956. Pub. 2-14-67. Filed 5-18-66.

828,215. CHEETAH (DESIGN). The Pop-Op Corporation. SN 247,958. Pub. 2-14-67. Filed 6-13-66.

Class 34 — Heating, Lighting, and Ventilating Apparatus

828,216. CANDELRAMA. Flavor-Seal Corporation, d.b.a. Nu-Trend Products Company. SN 223,707. Pub. 2-14-67. Filed 7-19-65.

828,217. HOME-MARK. Retail Stores Service, Inc. SN 240,659. Pub. 2-14-67. Filed 3-10-66.

Class 35 — Belting, Hose, Machinery Packing, and Nonmetallic Tires

828,218. SIKKUFIT. Simmerwerke W. Simmer K.G. SN 216,923. Pub. 2-14-67. Filed 4-20-65.

828,219. RUB-R-SLAT AND DESIGN. Legg Company, Inc. SN 233,113. Pub. 2-14-67. Filed 11-22-65.

Class 36 — Musical Instruments and Supplies

828,220. CHEETAH. The Pop-Op Corporation. SN 245,952. Pub. 2-14-67. Filed 5-18-66.

828,221. CHEETAH (DESIGN). The Pop-Op Corporation. SN 247,957. Pub. 2-14-67. Filed 6-13-66.

Class 37 — Paper and Stationery

828,067. (See Class 3 for this trademark.)

828,105. (See Class 11 for this trademark.)

828,222. ALL-RITE. All-Rite Pen Company, Inc., assignee of All-Rite Pen Incorporated. SN 217,075. Pub. 2-14-67. Filed 4-22-65.

828,223. SCRIPTON. Scripto, Inc. SN 243,178. Pub. 2-14-67. Filed 4-11-66.

828,224. SPARTAN. Star Office Supply Co., Inc. SN 251,477. Pub. 2-14-67. Filed 8-1-66.

828,225. AN-DU-SEPTIC. Binney & Smith Inc. SN 258,957. Pub. 2-14-67. Filed 11-18-66.

Class 38 — Prints and Publications

828,226. SUNBURST (DESIGN). Expanse Publications, Inc., assignee of Wilfred C. Bockelman. SN 232,445. Pub. 2-14-67. Filed 11-10-65.

828,227. THE SPIRIT. Will Eisner. SN 238,940. Pub. 2-14-67. Filed 2-16-66.

828,228. PAPERBOARD PACKAGING. Bettendorf Publications Inc. SN 239,113. Pub. 2-14-67. Filed 2-18-66.

828,229. THE VOICE IN THE WILDERNESS AND DESIGN. Christ Temple Apostolic Faith Assembly. SN 239,591. Pub. 2-14-67. Filed 2-25-66.

828,230. THE STREATER FORUM. Streater Store Fixtures, Inc. SN 240,122. Pub. 2-14-67. Filed 3-3-66.

828,231. COIN-A-PRAISE. Elmer Josephs, d.b.a. E. J. Enterprises. SN 242,611. Pub. 2-14-67. Filed 4-4-66.

828,232. OUTDOORS CALLING!. Benedict-Nerpel, Inc. SN 243,629. Pub. 2-14-67. Filed 4-18-66.

828,233. SCI. Institute for Scientific Information, Inc. SN 251,258. Pub. 2-14-67. Filed 7-29-66.

828,234. IC. Institute for Scientific Information, Inc. SN 255,035. Pub. 2-14-67. Filed 9-26-66.

828,235. SPACE-VISION. The Tru-D Company. SN 257,918. Pub. 2-14-67. Filed 11-4-66.

828,236. UTLX ACTION. Union Tank Car Company. SN 258,005. Pub. 2-14-67. Filed 11-3-66.

Class 39 — Clothing

828,204. (See Class 26 for this trademark.)

828,237. KUREHA. Kureha Spinning Company Limited. MULTIPLE CLASS (Classes 39, 42, and 43). SN 223,201. Pub. 2-14-67. Filed 7-13-65.

828,238. JUST MADE FOR BOYS—AND VICE VERSA. Donmoor-Isaacson, Inc. SN 225,545. Pub. 2-14-67. Filed 8-12-65.

828,239. CASBEN AND DESIGN. Casben Productions Limited. SN 229,498. Pub. 2-14-67. Filed 10-7-65.

828,240. BUDGETWIST. Carson Pirie Scott & Co. SN 230,233. Pub. 2-14-67. Filed 10-15-65.

828,241. FILIPPO VERDE BY VERDE. Strathmore Shoe Co., Inc. SN 231,275. Pub. 2-14-67. Filed 10-22-65.

828,242. PEEPS AND DESIGN. C. W. Anderson Hosiery Company. SN 236,350. Pub. 2-14-67. Filed 1-13-66.

828,243. SINNER'S SANDALS. Barbara K. Seelicke. SN 237,040. Pub. 2-14-67. Filed 1-21-66.

828,244. SIDOSTE. T:mi Sidoste, om Lauri Molsa ja Kumpp. SN 242,775. Pub. 2-14-67. Filed 4-1-66.

828,245. LA JOLLA IMAGINATION IN CLOTHES AND DESIGN. Auerbach and Company. SN 243,828. Pub. 2-14-67. Filed 4-20-66.

828,246. TIDBITS. Midland Shoe Co. SN 243,885. Pub. 2-14-67. Filed 4-20-66.

828,247. ACTIONWEAR. Monsanto Company. MULTIPLE CLASS (Classes 39 and 42). SN 245,880. Pub. 2-14-67. Filed 5-18-66.

928,248. LOLLI-LEGS. Modern Globe, Inc. SN 246,344. Pub. 2-14-67. Filed 5-23-66.

828,249. SIZE ONE. Genesco Inc. SN 246,555. Pub. 2-14-67. Filed 5-25-66.

828,250. TODAY'S GIRL. Hanes Corporation. SN 247,919. Pub. 2-14-67. Filed 6-13-66.

828,251. THE HOUSE OF QUAKER. Quaker Lace Company. MULTIPLE CLASS (Classes 39 and 42). SN 248,650. Pub. 2-14-67. Filed 6-22-66.

828,252. TOTE 'N TRAVEL. Bopear Travel Ltd. SN 257,581. Pub. 2-14-67. Filed 10-31-66.

828,253. CALI-DREAM. Charles Deiber, d.b.a. C. Deiber Company. SN 258,452. Pub. 2-14-67. Filed 11-14-66.

828,254. SUDO. Melville Shoe Corporation. SN 258,753. Pub. 2-14-67. Filed 11-16-66.

828,255. SANDROVERS. Melville Shoe Corporation. SN 258,754. Pub. 2-14-67. Filed 11-16-66.

828,256. GUNSTOCK. Melville Shoe Corporation. SN 258,756. Pub. 2-14-67. Filed 11-16-66.

828,257. RAC T. Cooper's, Incorporated. SN 259,055. Pub. 2-14-67. Filed 11-21-66.

Class 40 — Fancy Goods, Furnishings, and Notions

828,197. (See Class 23 for this trademark.)

828,258. KILROY AND DESIGN. Kai Dyzmann. SN 222,836. Pub. 2-14-67. Filed 6-1-66.

Class 42 — Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

828,237. (See Class 39 for this trademark.)

828,247. (See Class 39 for this trademark.)

828,251. (See Class 39 for this trademark.)

828,259. MENTRO. The Wool "O" Company. SN 244,282. Pub. 2-14-67. Filed 4-25-66.

828,260. WOODCO. P. Kaufmann, Inc., d.b.a. Joseph W. Woods Company. SN 250,000. Pub. 2-14-67. Filed 7-11-66.

Class 43 — Thread and Yarn

828,237. (See Class 39 for this trademark.)

Class 44 — Dental, Medical, and Surgical Appliances

828,261. DRI-PANTS. H.G. Enterprises. SN 212,758. Pub. 2-14-67. Filed 2-25-65.

828,262. DERMICEL. Johnson & Johnson. SN 258,865. Pub. 2-14-67. Filed 11-17-66.

Class 45 — Soft Drinks and Carbonated Waters

828,263. GREEN SPOT AND DESIGN. Capitol Food Industries, Inc., d.b.a. Green Spot Company. MULTIPLE CLASS (Classes 45 and 46). SN 228,006. Pub. 2-14-67. Filed 9-17-65.

828,264. CREST (DESIGN). Riva Distributing Company. SN 234,366. Pub. 2-14-67. Filed 12-10-65.

828,265. CHERRY-OLA. A. J. Canfield Company. SN 236,461. Pub. 1-3-67. Filed 1-14-66.

828,266. SHIELD (DESIGN). California Packing Corporation. MULTIPLE CLASS (Classes 45 and 46). SN 240,046. Pub. 2-14-67. Filed 3-3-66.

828,267. PINK PUSSYCAT. Pink Pussycat of Hollywood. SN 243,478. Pub. 2-14-67. Filed 4-14-66.

828,268. MISCELLANEOUS DESIGN. Colony Imports, Inc. SN 245,567. Pub. 2-14-67. Filed 5-13-66.

828,269. ARROWHEAD PURITAS AND DESIGN. Arrowhead and Puritas Waters Inc., d.b.a. Arrowhead Puritas Waters. SN 245,665. Pub. 2-14-67. Filed 5-16-66.

828,270. GUARINDA. PepsiCo, Inc. SN 256,696. Pub. 2-14-67. Filed 10-19-66.

Class 46 — Foods and Ingredients of Foods

828,263. (See Class 45 for this trademark.)

828,266. (See Class 45 for this trademark.)

828,271. N-NICOLET. Nicolet-Krommenie N.V. SN 180,524. Pub. 2-14-67. Filed 11-4-63.

828,272. BELL AND DESIGN. Bell Brand Foods, Ltd. SN 197,659. Pub. 2-14-67. Filed 7-13-64.

828,273. COASTAL OF CAROLINA. Coastal Fruit Co., Inc., d.b.a. Coastal Institutional Distributors. SN 204,766. Pub. 12-20-66. Filed 10-26-64.

828,274. SUPERIOR CHICK TO PULLET AND DESIGN. Anderson, Clayton & Co., assignee of Doric Corporation, d.b.a. Superior Feed Mills. SN 206,138. Pub. 2-14-67. Filed 11-13-64.

828,275. SUPERIOR AND SHIELD DESIGN. Anderson, Clayton & Co., assignee of Doric Corporation, d.b.a. Superior Feed Mills. SN 206,139. Pub. 2-14-67. Filed 11-13-64.

828,276. KIDS LOVE IT AND DESIGN. The Kroger Co. SN 209,096. Pub. 2–14–67. Filed 12–30–64.

828,277. ACME IDEAL AND DESIGN. Acme Markets, Inc. SN 210,399. Pub. 2–14–67. Filed 1–22–65.

828,278. DARI-POP. The Cornelius Company. SN 213,392. Pub. 2–14–67. Filed 3–5–65.

828,279. GRASSHOPPERS. Fairmont Foods Company. SN 218,627. Pub. 2–14–67. Filed 5–12–65.

828,280. BOOTHBURGERS. Consolidated Foods Corporation, d.b.a. Booth Fisheries. SN 224,392. Pub. 2–14–67. Filed 7–28–65.

828,281. PEEK-A-VUE. J. A. Joffe & Co., Inc. SN 232,077. Pub. 2–14–67. Filed 11–3–65.

828,282. EL ZARAPE AND DESIGN. El Zarape Tortilla Factory, Inc. SN 232,537. Pub. 2–14–67. Filed 11–12–65.

828,283. MI-LEM'. Martrude Corp. SN 233,186. Pub. 2–14–67. Filed 11–23–65.

828,284. ZING. Leaf Brands, Inc. SN 234,283. Pub. 2–14–67. Filed 12–9–65.

828,285. GENEPESCA. Genepesca S.p.A. SN 234,322. Pub. 2–14–67. Filed 12–8–65.

828,286. KLOMPEN. Progress Food Products, Inc. SN 234,459. Pub. 2–14–67. Filed 12–13–65.

828,287. HONEY SWEET. Michigan Fruit Canners, Inc. SN 235,692. Pub. 2–14–67. Filed 1–3–66.

828,288. LA CENA. Vicente Puig, Jr., d.b.a. Vicente Puig & Company. SN 236,680. Pub. 2–14–67. Filed 1–17–66.

828,289. FOSTERFRY. Sternco Industries, Inc. SN 237,602. Pub. 2–14–67. Filed 1–28–66.

828,290. COOKIE-TIME IS ANYTIME. Euram Foods, Inc., d.b.a. Veltman Cookie Company. SN 238,063. Pub. 2–14–67. Filed 2–4–66.

828,291. CHICKEN (DESIGN). International Minerals & Chemical Corporation, d.b.a. Ac'cent International. SN 238,531. Pub. 2–14–67. Filed 2–10–66.

828,292. LA ANDALUZA AND DESIGN. Pallares Hermanos, S.A. SN 239,171. Pub. 2–14–67. Filed 2–18–66.

828,293. TAKSI. Paterson, Simons & Ewart Limited. SN 239,172. Pub. 2–14–67. Filed 2–18–66.

828,294. SLENDER SLICED FOR MODERN FLAVOR AND DESIGN. Peter Eckrich and Sons, Inc. SN 239,244. Pub. 2–14–67. Filed 2–21–66.

828,295. PACE. National Dairy Products Corporation. SN 239,647. Pub. 6–28–66. Filed 2–25–66.

828,296. VACU-EGG. Ballas Egg Products Corporation. SN 240,056. Pub. 2–14–67. Filed 3–3–66.

828,297. CORRAL. Chas. Pfizer & Co., Inc. SN 240,190. Pub. 2–14–67. Filed 3–4–66.

828,298. J & J AND DESIGN. J & J Soft Pretzel Co., Inc. SN 241,379. Pub. 2–14–67. Filed 3–18–66.

828,299. LIQUID GOLD. Southern Fruit Distributors, Inc. SN 244,752. Pub. 2–14–67. Filed 5–2–66.

828,300. POLYMINE-Y. Marine Colloids, Inc. SN 245,411. Pub. 2–14–67. Filed 5–11–66.

828,301. TOYO. Tomooka Bros. SN 253,099. Pub. 2–14–67. Filed 8–25–66.

828,302. HUNTSINGER RANCH. Huntsinger Ranch. SN 257,563. Pub. 2–14–67. Filed 10–31–66.

828,303. MELETONE. Western Dairy Products, Inc. SN 257,683. Pub. 2–14–67. Filed 11–1–66.

828,304. CHUCKY AND DESIGN. Harry Buller, d.b.a. Harry Buller Farms. SN 259,050. Pub. 2–14–67. Filed 11–21–66.

828,305. LUCAS BLUE & GOLD. Carl Casella, d.b.a. Carl Casella Co. SN 259,053. Pub. 2–14–67. Filed 11–21–66.

Class 47 — Wines

828,306. CHERRYDORO. San Antonio Winery, Inc., d.b.a. San Antonio Winery. SN 241,601. Pub. 11–29–66. Filed 3–22–66.

828,307. DRAGON LADY. Fredonia Products Co., Inc., d.b.a. Winston Wine Company. SN 242,448. Pub. 2–14–67. Filed 4–1–66.

828,308. SPECIAL OCCASION. The May Department Stores Company, d.b.a. May Company. SN 246,090. Pub. 2–14–67. Filed 5–19–66.

828,309. CESARE AND DESIGN. Cucamonga Vineyard Company, d.b.a. Cucamonga Vineyard Co. SN 259,056. Pub. 2–14–67. Filed 11–21–66.

Class 49 — Distilled Alcoholic Liquors

828,310. POLMOS WISNIOWKA ETC. AND DESIGN. Przedsiebiorstwo Handlu Zagranicznego "Agros," assignee of Rolimpex Centrala Handlu Zagranicznego. SN 189,944. Pub. 2–14–67. Filed 3–30–64.

828,311. POLMOS WODKA WYBOROWA AND DESIGN. Przedsiebiorstwo Handlu Zagranicznego "Agros," assignee of Rolimpex Centrala Handlu Zagranicznego. SN 189,945. Pub. 2–14–67. Filed 3–30–64.

828,312. POWER'S. John Power & Son Limited. SN 220,789. Pub. 2–14–67. Filed 6–9–65.

828,313. HIGHLAND BANNER. John Gross & Co. SN 225,760. Pub. 2–14–67. Filed 8–16–65.

828,314. APPLETON. Schieffelin & Co. SN 233,949. Pub. 2–14–67. Filed 12–3–65.

828,315. ARROW. Heublein, Inc. SN 243,988. Pub. 2–14–67. Filed 4–21–66.

828,316. GRIFFIN. R. Stevenson, Taylor & Company Limited. SN 245,028. Pub. 2–14–67. Filed 5–5–66.

Class 50 — Merchandise Not Otherwise Classified

828,317. PLASTI-STRAW AND DESIGN. I-Gene Straw Co. (Ohio corporation), assignee of I-Gene Straw Co. (firm). SN 206,944. Pub. 4–12–66. Filed 11–25–64.

828,318. FAST STEM. Faster-Form Corporation. SN 235,825. Pub. 2–14–67. Filed 1–5–66.

828,319. JOSEPHINE TUSSAUD. Josephine Tussaud Inc. SN 236,857. Pub. 2–14–67. Filed 1–19–66.

828,320. CREATIVE HOUSE AND DESIGN. Creative House Promotions, Inc. SN 240,860. Pub 2–14–67. Filed 3–14–66.

828,321. PRETTY PRETENDERS AND DESIGN. International Artware Corporation. SN 248,708. Pub. 2–14–67. Filed 6–22–66.

828,322. FEATHER FUN. Nesbit Industries, Incorporated. SN 250,673. Pub. 2–14–67. Filed 7–20–66.

828,323. STEREOFOLDS. Donald D. Hedberg, d.b.a. Dyna-Slide Company. SN 253,529. Pub. 2–14–67. Filed 8–31–66.

828,324. HOLIDAY FOREST. Robert Q. Bekins, Jr., d.b.a. Holiday Forest. SN 253,837. Pub. 2–14–67. Filed 9–6–66.

828,325. HF. Robert Q. Bekins, Jr., d.b.a. Holiday Forest. SN 253,838. Pub. 2–14–67. Filed 9–6–66.

828,326. POLYCAPTOR. Rowland Products, Incorporated. SN 254,630. Pub. 2–14–67. Filed 9–16–66.

Class 51 — Cosmetics and Toilet Preparations

828,327. HABIT ROUGE DE GUERLAIN. Guerlain, Inc., assignee of Guerlain Perfumery Corporation. MULTIPLE CLASS (Classes 51 and 52). SN 223,481. Pub. 4–5–66. Filed 7–16–65.

828,328. CLORO–5. Professional Research Laboratory, Inc. SN 224,880. Pub. 12–27–66. Filed 8–3–65.

828,329. 7 O'CLOCK. The Gillette Company. SN 238,077. Pub. 2–14–67. Filed 2–4–66.

828,330. TUF. World Wide Cosmetics, Inc. SN 239,847. Pub. 2–14–67. Filed 2–28–66.

828,331. WICKED WAHINE. Royal Hawaiian Perfumes, Ltd. SN 243,169. Pub. 2–14–67. Filed 4–11–66.

828,332. LIME RICKEY. Seaforth Corporation. SN 243,179. Pub. 2–14–67. Filed 4–11–66.

828,333. TWO HEARTS (DESIGN). King Research, Inc. SN 243,561. Pub. 2–14–67. Filed 4–15–66.

828,334. T-LAK. Pierre Pelissard. SN 244,020. Pub. 2–14–67. Filed 4–21–66.

828,335. STYLAC. La Maur, Inc. SN 244,226. Pub. 2–14–67. Filed 4–25–66.

Class 52 — Detergents and Soaps

828,327. (See Class 51 for this trademark.)

828,336. LA ROSA AND DESIGN. Frank C. La Rosa. SN 208,688. Pub. 2–14–67. Filed 12–22–64.

828,337. SUPER CLEANSER. Allied Chemical Corporation. SN 226,604. Pub. 2–14–67. Filed 8–27–65.

828,338. ICC CHEMICALS AND GLOBE DESIGN. Inter-Continental Chemical Corporation. SN 237,704. Pub. 2–14–67. Filed 2–1–66.

828,339. SAFETY-BAR. Samuel Heagan Bayles and Samuel M. Peck (joint owners). SN 238,155. Pub. 2–14–67. Filed 2–7–66.

828,340. EASY-OFF. American Home Products Corporation. SN 238,595. Pub. 2–14–67. Filed 2–11–66.

828,341. K. Big Karnel Pet Foods, Inc. SN 239,711. Pub. 11–1–66. Filed 2–28–66.

828,342. BEYOND. The Procter & Gamble Company. SN 243,580. Pub. 2–14–67. Filed 4–15–66.

828,343. BIO-SHEEN. Cosmetics Manufacturing Company, d.b.a. Cosmetco. SN 246,049. Pub. 2–14–67. Filed 5–19–66.

828,344. MORPHOS. Heatbath Corporation. SN 247,143. Pub. 2–14–67. Filed 6–8–66.

828,345. WANTED. Solar Chemical Company, d.b.a. Solar Chemical Co., Inc. SN 258,463. Pub. 2–14–67. Filed 11–14–66.

Service Marks

Class 100 — Miscellaneous

828,346. FERNAND AUBRY "VISAGISTE." Fernand Aubry. SN 185,001. Pub. 2–14–67. Filed 1–20–64.

828,347. PRO-TECH AND DESIGN. Pro-Tech, Inc. SN 191,437. Pub. 2–14–67. Filed 4–17–64.

828,348. GOLDEN EAGLE. Golden Eagle Motor Inn, Inc. SN 209,084. Pub. 2–14–67. Filed 12–30–64.

828,349. AUTO-CABANA CLUB. Maurice L. Presley. SN 212,696. Pub. 2–14–67. Filed 2–24–65.

828,350. MID-DRY SYSTEM. Midland Laboratories. SN 218,457. Pub. 2–14–67. Filed 5–10–65.

828,351. MISCELLANEOUS DESIGN. Medcomp Research Corporation. SN 228,476. Pub. 2–14–67. Filed 9–23–65.

828,352. DESIGN IMAGE. Walter Buser, d.b.a. Design Image. SN 228,625. Pub. 2–14–67. Filed 9–27–65.

828,353. SERV-A-LINE DUS-TAC. J. R. Parachek, d.b.a. Serv-A-Line Co. SN 232,788. Pub. 2–14–67. Filed 11–16–65.

828,354. TWO HEARTS (DESIGN). Institute for Human-Animal Relationship, Inc. SN 242,363. Pub. 2–14–67. Filed 3–31–66.

828,355. SCA AND DESIGN. Servo Corporation of America. SN 242,753. Pub. 2–14–67. Filed 4–5–66.

Class 101 — Advertising and Business

828,356. TOPS IN STOPS. Nida Brooks Adams, d.b.a. Tops in Stops. SN 150,382. Pub. 2–14–67. Filed 8–3–62.

828,357. THE PIECE GOODS SHOP ETC. AND DESIGN. The Piece Goods Shop, Inc. SN 203,200. Pub. 2–14–67. Filed 10–2–64.

828,358. RUGBY, N. DAK. GEOGRAPHICAL CENTER OF NORTH AMERICA AND DESIGN. Chamber of Commerce of Rugby, North Dakota. SN 211,968. Pub. 2–14–67. Filed 2–12–65.

828,359. PAUL BUNYAN. Brainerd Baxter Corporation. SN 224,574. Pub. 6–7–66. Filed 7–30–65.

828,360. FARMARKET. Southern Nitrogen Company, Inc. SN 226,799. Pub. 2–14–67. Filed 8–30–65.

828,361. BUILDER MART AND DESIGN. Builder Marts of America, Inc. SN 240,061. Pub. 2–14–67. Filed 3–3–66.

828,362. CABALLERO (DESIGN). Yuma County Chamber of Commerce. SN 241,295. Pub. 2–14–67. Filed 3–17–66.

Class 102 — Insurance and Financial

828,363. FRONTAL VIEW OF PAUL REVERE ON HORSE-BACK (DESIGN). The Paul Revere Variable Annuity Insurance Company. SN 240,113. Pub. 2–14–67. Filed 3–3–66.

828,364. HONEYCOMB (DESIGN). Drexel Equity Fund, Inc. SN 241,528. Pub. 2–14–67. Filed 3–18–66.

828,365. HOUSEHOLD. Household Finance Corporation. SN 242,984. Pub. 2–14–67. Filed 4–8–66.

Class 104 — Communication

828,366. COMSAT. Communications Satellite Corporation. SN 242,564. Pub. 2–14–67. Filed 4–4–66.

Class 105 — Transportation and Storage

828,367. VITAFIED. Jack A. Gregory, d.b.a. Gergory Storage Systems. SN 240,906. Pub. 2–14–67. Filed 3–14–66.

828,368. PLEASURE HOLIDAYS. Marits, Inc. SN 242,466. Pub. 2–14–67. Filed 4–1–66.

Class 106 — Material Treatment

828,369. DESIGN OF HUMAN AND CAMERAS. District Photo, Inc., d.b.a. The Camera Centers and/or the Camera Center. SN 235,394. Pub. 2–14–67. Filed 12–28–65.

Class 107 — Education and Entertainment

828,370. AUDIO-ANIMATRONICS. WED Enterprises, Inc., assignee of WED Enterprises Inc. SN 192,128. Pub. 2–14–67. Filed 4–23–64.

828,371. CERTIFIED PROFESSIONAL SECRETARY. The National Secretaries Association (International). SN 215,254. Pub. 2–14–67. Filed 3–29–65.

828,372. DOCTOR IN THE KITCHEN. National Dairy Council. SN 235,520. Pub. 2–14–67. Filed 12–29–65.

Collective Membership Marks

Class 200

828,373. THE AMERICAN GUILD OF ENGLISH HANDBELL RINGERS AND DESIGN. The American Guild of English Handbell Ringers, Inc. SN 241,007. Pub. 2–14–67. Filed 2–25–66.

828,374. INTERNATIONAL CAMPING AND DESIGN. International Camping, Incorporated, International Camping Club Division. SN 242,251. Pub. 2–14–67. Filed 3–30–66.

Certification Marks

Class A — Goods

828,375. THIOKOL LP ETC. AND DESIGN. Thiokol Chemical Corporation. SN 240,365. Pub. 2–14–67. Filed 3–7–66.

828,376. GINNY HEN. Virginia Poultry Products Commission. SN 258,945. Pub. 2–14–67. Filed 11–17–66.

828,377. VIRGINIA PRODUCED EGGS AND DESIGN. Virginia Poultry Products Commission. SN 258,946. Pub. 2–14–67. Filed 11–17–66.

SUPPLEMENTAL REGISTER

These registrations are not subject to opposition.

Class 6 — Chemicals and Chemical Compositions

828,378. Package Pavement Company, Inc., Carmel, N.Y. SN 248,631. Filed 6–21–66.

ICE-MELT

For Snow and Ice Melting Preparation.
First use Feb. 19, 1965.

Class 18 — Medicines and Pharmaceutical Preparations

828,379. Polamer Drug Co., Inc., d.b.a. Polamer Drug Co., South River, N.J. SN 239,310. Filed P.R. 2–21–66; Am. S.R. 2–23–67.

CHERRY'S FAMOUS SALVE

For Drawing Salve.
First use Feb. 10, 1966.

828,380. Aloe Creme Laboratories, Inc., Fort Lauderdale, Fla. SN 251,264. Filed P.R. 7–29–66; Am. S.R. 12–8–66.

ALO-OINTMENT

For Salve for the Treatment of Minor Burns, Cuts, Bites, and Skin Irritations.
First use Feb. 7, 1963.

Class 22 — Games, Toys, and Sporting Goods

828,381. Browning Arms Company, Morgan, Utah. SN 263,992. Filed 2–6–67.

Browning

For Bows and Arrows.
First use on or about Aug. 6, 1962.

828,382. Browning Arms Company, Morgan, Utah. SN 263,993. Filed 2–6–67.

Browning

For Bows and Arrows.
First use on or about Aug. 6, 1962.

Class 32 — Furniture and Upholstery

828,383. Fidelity File Box, Inc., Minneapolis, Minn. SN 231,558. Filed P.R. 10–24–65; Am. S.R. 2–23–67.

ROLLFILE

For Filing Cabinets and Filing Cabinet Units Constructed of Steel Reinforced Corrugated Fiber Board.
First use Nov. 1, 1964.

Class 36 — Musical Instruments and Supplies

828,384. Strum & Drum, Inc., Chicago, Ill., assignee of Norman R. Sackheim, Chicago, Ill. SN 214,015. Filed P.R. 3–12–65; Am. S.R. 12–16–66.

STRUM & DRUM

For Musical Instruments—Namely, Guitars, Drums, Harmonicas, and Ukeleles.
First use on or about Feb. 26, 1965.

Class 37 — Paper and Stationery

828,385. Three M Associates, Inc., New York, N.Y. SN 237,263. Filed P.R. 1–25–66; Am. S.R. 12–13–66.

PACKAGE PLANNED for all SMALL GIFTS

For Gift Wrapping Material—Namely, Plastic Sheeting.
First use Nov. 16, 1965.

Class 38 — Prints and Publications

828,386. Chilton Company, Philadelphia, Pa. SN 242,329. Filed P.R. 3–31–66; Am. S.R. 3–7–67.

ELECTRONIC COMPONENT NEWS

For Periodical Publication in the Nature of a Business or Trade Magazine.
First use Feb. 21, 1966.

Class 46 — Foods and Ingredients of Foods

828,387. United Fruit Company, Boston, Mass. SN 237,498. Filed P.R. 1–27–66; Am. S.R. 2–27–67.

FYFFES

For Bananas.
First use Nov. 24, 1965.

Class 47 — Wines

828,388. United Vintners, Inc., d.b.a. Lejon Champagne Cellars, San Francisco, Calif. SN 261,419. Filed 12–27–66.



The word "Vin" is the French equivalent of the word "wine" and "Kafe," a misspelling of the French word "cafe" signifies "coffee." Owner of Reg. Nos. 401,266, 655,608, and 750,982.
For Wines.
First use Nov. 29, 1965; Apr. 21, 1965, as to "Vin Kafé."

Class 49 — Distilled Alcoholic Liquors

828,389. Moritz Thienelt Likorfabrik "Echte Kroatzbeere," Holzbuttgen, Germany. SN 206,279. Filed P.R. 11–16–64; Am. S.R. 9–30–65.



The mark consists of the conformation of a bottle, together with the tag, label and wording thereon. The words "Echte Kroatzbeere" mean "true blackberry." Owner of German Reg. No. 772,231, dated Mar. 1, 1962.
For Blackberry Liqueur.

Class 50—Merchandise Not Otherwise Classified

828,390. Markit, Inc., Cleveland, Ohio. SN 224,955. Filed P.R. 8-4-65; Am. S.R. 1-5-67.

MARKIT



For Self-Adhesive Roll for Labels.
First use June 23, 1965.

828,391. Glastex Manufacturing Corporation, Chamblee, Ga. SN 252,172. Filed P.R. 8-11-66; Am. S.R. 2-23-67.

TRED RITE

For Traction Surface on a Chair Mat Which Permits Easier Movement of a Castered Chair on Carpeted Floors.
First use Feb. 5, 1965.

Class 51—Cosmetics and Toilet Preparations

828,392. Clairol Incorporated, New York, N.Y. SN 224,512. Filed P.R. 7-29-65; Am. S.R. 3-6-67.

CLAIROL GIVES YOUR LIPS A LICK OF SOMETHING NEW

Owner of Reg. Nos. 302,839, 624,182, and 799,640.
For Lip Gloss.
First use July 21, 1965.

828,393. Clairol Incorporated, New York, N.Y. SN 224,514. Filed P.R. 7-29-65; Am. S.R. 3-6-67.

CLAIROL CREATES A LIP GLOSS TO DEW YOUR LIPS WITH A HINT OF COLOR

Owner of Reg. Nos. 302,339, 799,640, and others.
For Lip Gloss.
First use July 21, 1965.

828,394. Parke, Davis & Company, Detroit, Mich., assignee of Aeroplast Corporation, Dayton, Ohio. SN 226,602. Filed P.R. 8-27-65; Am. S.R. 2-1-67.

SKRUB KREME

For Skin Conditioning Preparation.
First use on or about July 2, 1965.

Service Mark

Class 101—Advertising and Business

828,395. Campbell Associates, Inc., Washington, D.C. SN 228,003. Filed P.R. 9-17-65; Am. S.R. 1-10-67.

OWN YOUR OWN BUSINESS SHOW

For Staging Trade Shows for Businesses Seeking To Operate Through Franchises.
First use March 1965.

TRADEMARK REGISTRATIONS RENEWED

226,948. SUPEREX. Cl. 12. 4-26-27.
227,374. FLUID HEAT. Cl. 34. 5-3-27.
227,926. ROSSI APERITIVO AND DESIGN. Cl. 47. 5-17-27.
228,722. HAWK-EYE BRAND AND DESIGN. Cl. 1. 6-7-27.
230,012. STERLING STUMP SOCK. Cl. 39. 7-12-27.
230,150. BATES. Cl. 37. 7-12-27.
230,457. FAIR PLAY. Cl. 22. 7-26-27.
230,527. STIMPSON. Cl. 13. 7-26-27.
230,779. BRUNSWICK. Cl. 36. 8-2-27.
230,783. BADGER AND DESIGN. Cl. 23. 8-2-27.
231,135. SAIRSET. Cl. 12. 8-16-27.
231,271. RITEX. Cl. 11. 8-16-27.
231,297. REPCAL. Cl. 13. 8-16-27.
427,084. SYROCO WOOD. Cl. 2. 1-28-47.
427,420. CHOISI SUISSE. Cl. 27. 2-11-47.
427,556. REPLIQUE. Cl. 51. 2-11-47.
427,822. THE SCALPEL. Cl. 38. 2-25-47.
427,834. MAYFAIR. Cl. 21. 2-25-47.
427,949. RAYMIX. Cl. 1. 3-4-47.
427,951. SLINKY JAMES. Cl. 22. 3-4-47.
428,074. WHITE SHADOWS. Cl. 51. 3-11-47.
428,515. HOMESTYLE. Cl. 42. 3-25-47.
428,619. CHRYSLER. Cl. 19. 3-25-47.
428,625. JANTZEN AND DESIGN. Cl. 51. 3-25-47.
428,792. NEPTUNA. Cl. 28. 4-1-47.
428,865. THE SAD SACK. Cl. 38. 4-8-47.

428,892. LUMITE. Cl. 42. 4-8-47.
428,895. V & O. Cl. 23. 4-8-47.
428,896. VO. Cl. 23. 4-8-47.
428,993. CORO CRAFT AND DESIGN. Cl. 28. 4-15-47.
429,001. JOHNNYE JUNIOR SPORTSWEAR AND DESIGN. Cl. 39. 4-15-47.
429,153. ELCONAP. Cl. 26. 4-22-47.
429,175. WESTREX. Cl. 26. 4-22-47.
429,309. SOLTROL. Cl. 6. 4-29-47.
429,353. ATTAQUE. Cl. 51. 4-29-47.
429,391. CONSTELLATION. Cl. 28. 4-29-47.
429,561. GAY-BRITE. Cl. 4. 5-6-47.
429,897. ANTENNA-GINEERS. Cl. 21. 5-20-47.
430,017. TOGETHER. Cl. 28. 6-3-47.
430,023. EVENING STAR. Cl. 28. 6-3-47.
430,225. ORTHOCIDE. Cl. 6. 6-10-47.
430,345. MOBIL-FLAME. Cl. 6. 6-10-47.
430,425. SLEEPWELL. Cl. 44. 6-10-47.
430,587. WEAR-RIGHT. Cl. 39. 6-17-47.
430,647. CARRCRAFT. Cl. 39. 6-17-47.
430,904. CULLEX. Cl. 6. 7-1-47.
431,003. NAPOLEON AND DESIGN. Cl. 51. 7-1-47.
431,112. WHY WE SAY. Cl. 38. 7-8-47.
431,430. RIGHT ON TIME AVALON AND DESIGN. Cl. 27. 7-22-47.
431,482. MORNING STAR. Cl. 28. 7-22-47.
431,556. CANDY CUPBOARD. Cl. 46. 7-29-47.
431,557. CANDY CUPBOARD AND DESIGN. Cl. 46. 7-29-47.
431,586. FREIT AND DESIGN. Cl. 15. 7-29-47.
431,625. CYCLON. Cl. 23. 7-29-47.
431,102. MOHAWK AND DESIGN. Cl. 35. 8-19-47.
432,109. NATIONAL AND DESIGN. Cl. 12. 8-19-47.
432,131. ZIPPO. Cl. 8. 8-19-47.

TRADEMARK REGISTRATIONS CANCELED

Section 8

681,353. ESPRO. Cl. 12. 7-7-59.
684,017. SITSONDE. Cl. 26. 8-25-59.
684,734. OVERSHOT. Cl. 23. 9-8-59.
685,957. GEORGIAN RECORDING CORP. AND DESIGN. Cl. 36. 9-29-59.
685,998. STILLWATER KNIT AND DESIGN. Cl. 39. 9-29-59.
686,238. TORNADO AND DESIGN. Cl. 22. 10-6-59.
686,523. CRAFT ADHESIVE. Cl. 5. 10-13-59.
686,635. HYDREX. Cl. 34. 10-13-59.
687,438. STAPH-O-SOL. Cl. 6. 11-3-59.
688,143. SILVER SEAL PRODUCT AND DESIGN. Cl. 6. 11-17-59.
688,690. KICKER. Cl. 22. 11-24-59.
689,231. GP AND DESIGN. Cl. 50. 12-1-59.
690,133. STAT-PACK. Cl. 21. 12-22-59.
690,318. VIBRANT. Cl. 42. 12-22-59.
690,319. FJORD. Cl. 42. 12-22-59.
692,509. CASSEROLE. Cl. 46. 2-2-60.
692,655. QUICK-COUSTIC. Cl. 12. 2-9-60.
695,519. VINYLAY. Cl. 12. 4-5-60.

The following registrations issued Mar. 14, 1961

712,336. PAL-A-BIN. Cl. 2.
712,334. NI-WARE. Cl. 2.
712,337. CREST+PAK AND DESIGN. Cl. 2.
712,338. SCOOTER. Cl. 3.
712,339. FLEXITE. Cl. 4.
712,347. VAPO-PHOS. Cl. 6.
712,356. DENDEX. Cl. 6.
712,364. PLANTCO. Cl. 10.
712,366. DOCO. Cl. 12.
712,368. CAVALIER. Cl. 12.
712,369. CADET. Cl. 12.
712,370. TAKAPART. Cl. 12.
712,373. DOC-PORT. Cl. 12.
712,379. STEP-TRIM. Cl. 12.
712,385. DINE-A-CRAFT. Cl. 13.
712,402. GELONIDA ANTINEURALGICA. Cl. 18.
712,406. SANYA. Cl. 18.
712,407. CORTASEP. Cl. 18.
712,415. HACKS AND DESIGN. Cl. 18.
712,420. OR-A-AZMA. Cl. 18.
712,424. CYCLE-AID. Cl. 18.
712,422. QUIVAL. Cl. 18.
712,426. COANDADYNE. Cl. 19.
712,428. HI-GLO. Cl. 19.
712,431. SEAT-A-BED. Cl. 19.
712,434. RABAR. Cl. 19.
712,438. DELTA OHM AND DESIGN. Cl. 21.
712,445. AMRAD. Cl. 21.
712,447. NEOX. Cl. 21.
712,449. DYNA-MITE. Cl. 21.
712,450. "TUF-PLATE." Cl. 21.
712,454. CUBIT. Cl. 22.
712,457. CAD-E-MOBILE. Cl. 22.
712,460. DI-VI-DO. Cl. 22.
712,461. BONGO BONES. Cl. 22.
712,462. WOBBLE WALK. Cl. 22.
712,463. WATCH DOG AND DESIGN. Cl. 22.
712,477. SUPER 600. Cl. 23.
712,483. DARNOGRAM. Cl. 23.
712,486. FOG-GUN. Cl. 23.
712,498. IMPERIAL STAR. Cl. 28.
712,500. ROTO PACK. Cl. 32.
712,502. TORFLEX. Cl. 32.
712,503. PEOPLE'S CHOICE. Cl. 32.
712,507. MERRY-GO-ROUND. Cl. 32.
712,509. MAWABI. Cl. 32.
712,520. AERO TAPE. Cl. 36.
712,523. STENO-VOICE. Cl. 36.
712,526. EF AND DESIGN. Cl. 37.
712,527. W/V KRAFTSMAN WESTVACO QUALITY PAPER AND DESIGN. Cl. 37.
712,531. FLEET PRODUCT NEWS. Cl. 38.
712,536. ANNY. Cl. 38.
712,541. STACY-ADAMS PREPS AND DESIGN. Cl. 39.
712,542. HAGGAR PICTURA WORSTEDS AND DESIGN. Cl. 39.
712,543. HAGGAR ANZAC WEAVE AND DESIGN. Cl. 39.
712,549. SWABBY BLUE BY CORBIN LTD. Cl. 39.
712,551. TRUB-N-TRAY. Cl. 39.
712,554. WINKLE PICKERS. Cl. 39.
712,555. TAB-A-BELT. Cl. 39.
712,561. WISH FAN AND DESIGN. Cl. 40.
712,563. SLUMBERLITE. Cl. 42.
712,564. SLUMBERLETTE. Cl. 42.
712,565. SLUMBERPAD. Cl. 42.
712,567. TROY EMBLEM. Cl. 42.
712,568. STRING OF PEARLS. Cl. 42.
712,569. CHUN KING CANTONEASY KITCHEN HOLIDAY. Cl. 46.
712,574. VITA-MEAL. Cl. 46.
712,576. MARCATIGRE AND DESIGN. Cl. 46.
712,578. MR. ICKSEL. Cl. 46.
712,584. SCARLET DESIRE. Cl. 46.
712,585. GOLDEN DESIRE. Cl. 46.
712,588. HI-FLO. Cl. 46.
712,589. JELLY ORBIT SPACESHIP AND DESIGN. Cl. 46.
712,590. 7 SEAS HUZPUPPIES. Cl. 46.
712,593. HENRI'S SALAD-TANG AND DESIGN. Cl. 46.
712,606. SURE-BAND. Cl. 50.
712,613. LOILL. Cl. 51.
712,617. FIRMWAVE. Cl. 51.
712,618. TEXIN. Cl. 52.
712,620. KURBIO. Cl. 52.
712,629. PBS AND DESIGN. Cl. 101.
712,630. AQUA-PLAN. Cl. 102.
712,631. TOP THOROUGH OVERALL PROTECTION AND DESIGN. Cl. 102.
712,634. THERM-O-CRETE. Cl. 103.
712,637. LITTLE DUFFER AND DESIGN. Cl. 107.
712,641. TREEFEED. Cl. 10.
712,650. SAFE-T-CAP AND DESIGN. Cl. 19.
712,654. WASH-PRUFE. Cl. 40.

TRADEMARK REGISTRATIONS—NEW CERTIFICATES

New Certificates issued under sections 7(c), 7(f), 7(g) of the Trademark Act of 1946 for the unexpired term of the original registrations.

544,598. BACKPACKER. Cl. 22. Pacific Laminates. 7–3–51. New Cert. Sec. 7(c) to Browning Arms Company, Morgan, Utah.

694,694. WASH-UP. Cl. 52. Lensclean, Inc. 3–15–60. New Cert. Sec. 7(c) to Holland-Rantos Company, Inc., New York, N.Y.

714,892. EXA-BORD. Cl. 12. The Deka Corporation. 5–9–61. New Cert. Sec. 7(c) to Gillespie-Rogers-Pyatt Co., Inc., New York, N.Y.

723,164. DAINTY. Cl. 46. Easton Potato Chip Company. 10–24–61. New Cert. Sec. 7(c) to Golden Kernel, Inc., Kutztown, Pa.

731,870. SMART SHOPPER. Cl. 38. Ian Seeds, doing business as Ian Seeds Enterprises. 5–22–62. New Cert. Sec. 7(c) to Robert D. Weldon, Lexington, Ohio.

738,130. WEJ-IT. Cl. 13. Kirel, Inc. 9–25–62. New Cert. Sec. 7(c) to Wej-It Expansion Products, Inc., Bloomfield, Colo.

768,452. TOP TREAT AND DESIGN. Cl. 46. National Tea Co. 4–21–64. New Cert. Sec. 7(c) to So Fresh Produce Co., Chicago, Ill.

787,251. REGAL CROWN AND DESIGN. Cl. 46. Murray-Allen Imports, Inc. 3–23–65. New Cert. Sec. 7(c) to Goodwood Investments Limited, Nassau, Island of New Providence, Bahama Islands.

796,831. REGAL. Cl. 46. Murray-Allen Imports, Inc. 9–28–65. New Cert. Sec. 7(c) to Goodwood Investments Limited, Nassau, Island of New Providence, Bahama Islands.

806,608. TRANS-VAL. Cl. 13. Hills-McCanna Company. 4–5–66. New Cert. Sec. 7(c) to Trans Valve Inc., Chicago, Ill.

816,851. TRANS-VAL-SAUNDERS. Cl. 13. Hills-McCanna Company. 10–18–66. New Cert. Sec. 7(c) to Trans Valve Inc., Chicago, Ill.

REGISTRATIONS PUBLISHED UNDER SEC. 12(c)

The following marks registered under the act of 1905, or the act of 1881, are published under the provisions of section 12(c) of the Trademark Act of 1946. These registrations are not subject to opposition but are subject to cancellation under section 14 of the act of 1946.

Class 4—Abrasives and Polishing Materials

429,034. Apr. 15, 1947. H. C. Harding, Inc., Philadelphia, Pa. Pub. by registrant.

HUMDINGER

For Needle Polisher and Preserver Preparation.

Class 6—Chemicals and Chemical Compositions

193,474. Dec. 30, 1924. The Texas Company, Houston, Tex., and New York, N.Y. Pub. by Texaco Inc., New York, N.Y.

TEXACO

For Insecticides.

426,981. Jan. 21, 1947. Monsanto Chemical Company, St. Louis, Mo. Pub. by Monsanto Company, St. Louis, Mo.

QUINOSIN

For Chemical Products for Use in Combating Fungi in the Agricultural Field.

Class 9—Explosives, Firearms, Equipments, and Projectiles

62,480. May 7, 1907. The Eastern Dynamite Company, Kenvil, N.J. Pub. by E. I. du Pont de Nemours and Company, Wilmington, Del.



For High Explosives and Blasting Supplies, Embracing Caps or Detonators, Electric Fuses, and Fuse Consisting of Hemp or Cotton and Powder Covered by Single, Double or Triple Tape.

Class 12—Construction Materials

63,506. June 25, 1907. Oklahoma Portland Cement Company, Ada, Indian Territory. Pub. by Ideal Cement Company, Denver, Colo.

OK

For Portland Cement.

222,846. Jan. 11, 1927. Glassweave Mfg. Co., Bladen, Nebr. Pub. by Flex-O-Glass, Inc., d.b.a. Warp Bros., Chicago, Ill.

Glassweave

For Window Lights.

Class 14—Metals and Metal Castings and Forgings

222,035. Dec. 21, 1926. Firth-Sterling Steel Company, McKeesport, Pa. Pub. by Firth Sterling Inc., Pittsburgh, Pa.

STERLING

For Steel.

Class 17—Tobacco Products

431,447. July 22, 1947. Lane Tobacco, Ltd., now by change of name to Lane Limited, New York, N.Y. Pub. by registrant.

OLD RARITY

For Smoking Tobacco.

Class 18—Medicines and Pharmaceutical Preparations

429,292. Apr. 29, 1947. Haack Bros. Manufacturing Pharmacists, Inc., Portland, Oreg. Pub. by Lemmon Pharmacal Company, Sellersville, Pa.

Theocardone

For Tablets Containing Certain Drugs—Namely, Theobromine and Phenobarbital, for Treatment Under Direction of a Physician, in Cases of Heart Ailment.

Class 22—Games, Toys, and Sporting Goods

423,426. Sept. 3, 1946. Tillotson Rubber Co., Inc., Needham Heights, Mass. Pub. by Tillotson Corporation, Needham Heights, Mass.

TILLY-TOY

For Rubber Toys.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

422,440. July 23, 1946. United Knitting Machine Company, Cheltenham, Pa. Pub. by Mary Weisbecker, Lansdale, Pa.



For Hosiery Making Machine Parts.

426,019. Dec. 10, 1946. Henry Disston & Sons, Incorporated, Philadelphia, Pa. Pub. by H. K. Porter Company, Inc. Pittsburgh, Pa.

GOLD MEDAL

For Files and Rasps.

426,781. Jan. 14, 1947. Aerojet Engineering Corporation, Pasadena, Calif. Pub. by Aerojet-General Corporation, El Monte, Calif.

AEROJET

For Thrust Motors Whose General Purpose Is To Provide Thrust by Means of a Combustion Process.

426,814. Jan. 14, 1947. Firth Sterling Steel Company, McKeesport, Pa. Pub. by Firth Sterling Inc., Pittsburgh, Pa.

SUPER HI-MO

For High Speed Steel Tool Bits for Turning, Facing, Boring, and Like Operations.

428,106. Mar. 11, 1947. Flynn & Emrich Company, Baltimore, Md. Pub. by registrant.

F&E

For Electrically Operated Ice Cubing (Cutting) Machines and Sand Mixing Machines.

436,377. Feb. 3, 1948. Reverse Stitch Manufacturing Co., Whittier, Calif. Pub. by Revco Products, Whittier, Calif.

REVCO

For Sewing Machine Attachments and Parts Comprising Reverse Stitch Attachments, Bobbin Winders, Bobbin Winder Adapters, and Clutches.

Class 25 — Locks and Safes

62,577. May 14, 1907. The H. B. Ives Company, New Haven, Conn. Pub. by registrant.

Crescent

For Sash Fasteners.

Class 28 — Jewelry and Precious-Metal Ware

392,600. Jan. 6, 1942. Joseph H. Meyer Bros., Brooklyn, N.Y. Pub. by The Richelieu Corp., Holbrook, N.Y.

IRIDELLE

For Necklaces, Bracelets, Finger Rings, Jewelry Clips, Brooches, and Earrings.

Class 34 — Heating, Lighting, and Ventilating Apparatus

427,893. Feb. 25, 1947. Airkem, Inc., Carlstadt, N.J. Pub. by registrant.

airkem

For Odor Controlling Equipment Consisting of Deodorant Dispensing Vaporizers for Use as Parts of Ventilating or Air-Conditioning Apparatus, and Fan Driven Deodorant Dispensing Units for Use in Deodorising and Ventilating Rooms, Automobiles, Airplanes, Railroad Cars and Ships.

Class 35 — Belting, Hose, Machinery Packing, and Nonmetallic Tires

427,178. Jan. 28, 1947. The Mohawk Rubber Company, Akron, Ohio. Pub. by registrant.

SUPER CHIEF

For Pneumatic Tires and Inner Tubes for Pneumatic Tires.

Class 38 — Prints and Publications

429,535. May 6, 1947. Quality Weaving Company, Philadelphia, Pa. Pub. by registrant.



For Woven Labels.

437,826. Mar. 30, 1948. Texas Hardware Boosters Club, Pearsall, Tex. Pub. by registrant.



For Periodical Publication.

Class 39 — Clothing

224,504. Mar. 1, 1927. Clarence L. Harvey, d.b.a. Fireman's Supply Co., Belleville, N.J. Pub. by United States Rubber Company, New York, N.Y.

SIREN

For Rubber Boots and Shoes.

Class 44 — Dental, Medical, and Surgical Appliances

228,466. May 31, 1927. The Paper Novelty Company, Green Bay, Wis. Pub. by Diana Manufacturing Company, Green Bay, Wis.

De Luxe

For Sanitary Napkins.

Class 46 — Foods and Ingredients of Foods

226,258. Apr. 5, 1927. The Kroger Grocery & Baking Co., Cincinnati, Ohio. Pub. by The Kroger Co., Cincinnati, Ohio.

Country Club

For Butter.

429,137. Apr. 22, 1947. Gustave C. Brunn, d.b.a. Baltimore Spice Company, Baltimore, Md. Pub. by The Baltimore Spice Company, Garrison, Md.

OLD BAY

For Seasonings for Meat, Sea Food, and Other Food Products—Namely, Pumpkin Pie Seasoning, Apple Butter Seasoning, Catsup Seasoning, Cake Seasoning, Meat Seasoning, Poultry Seasoning, Braunschweiger Seasoning, Sausage Seasoning, Frankfurter Seasoning, Bologna Seasoning, Fish Seasoning, Relish Seasoning, Gravy Seasoning, Hamburger Seasoning, Ground Allspice, Whole Allspice, Bay Leaves, Mixed Pickle Spice, Celery Salt, Onion Powder, Ground Sage, Celery Seed, Ground Mace, Paprika, Ground Thyme, Ground Black Pepper, Cayenne Pepper, Garlic Salt, Ground Red Pepper, Ground Mustard, Onion Salt, Mustard Seed, Curry Powder, Ground Turmeric, Ground White Pepper, Ground Marjoram, Garlic Powder, Cardamon, Chili Powder, Whole Black Pepper, Poppy Seed, Dry Parsley, Onion Flakes, Garlic Flakes, Cumin Seed, Caraway Seed, Ground Cloves, Whole Cloves, Whole Cinnamon, Ground Cinnamon, Whole Nutmeg, Ground Nutmeg, Ground Ginger in Dry Formation.

Class 48 — Malt Beverages and Liquors

59,887. Jan. 22, 1907. J. & R. Tennent Ltd., Glasgow, Scotland. Pub. by Tennent Caledonian Breweries Limited, Glasgow, Scotland.

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For Ale, Stout, and Porter.

Class 51 — Cosmetics and Toilet Preparations

434,422. Nov. 18, 1947. Michel Pasquier, New York, N.Y. Pub. by George J. Basciani, New York, N.Y.

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STREET

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Acme Milling Co., to General Grain, Inc., Indianapolis, Ind. 62,740, ren. 5–2–67. Cl. 46.

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Adams, Stacy, Co., Brockton, Mass. 712,541, canc. Cl. 39.

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American Guild of English Handbell Ringers, Inc., The, Los Angeles, Calif. 828,373, pub. 2–14–67. Cl. 200.

American Home Products Corp., New York, N.Y. 828,125–6, pub. 2–14–67. Cl. 18.

American Home Products Corp., New York, N.Y. 828,340, pub. 2–14–67. Cl. 52.

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Anderson, Clayton, & Co., Houston, Tex., from Doric Corp., d.b.a. Superior Feed Mills, Oklahoma City, Okla. 828,274–5, pub. 2–14–67. Cl. 46.

Armour Pharmaceutical Co., Chicago, Ill. 828,091–2, pub. 2–14–67. Cl. 6.

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Browning Arms Co., Morgan, Utah. 828,381–2. Cl. 22.

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Flex-O-Glass, Inc.: *See*—
Glassweave Mfg. Co.
Fluid Heat Corp., The, Baltimore, Md., to John Wood Co., East Orange, N.J. 227,374, ren. 5–2–67. Cl. 34.
Flynn & Emrich Co., Baltimore, Md. 428,100, 12(c) pub. 5–2–67. Cl. 23.
Forest City Industries, Inc., Forest City, Iowa. 828,135, pub. 2–14–67. Cl. 19.
Fortuna Fontana & Co.: *See*—
Societa Anonima Lucchese Olii Vini.
Foster, Jack, d.b.a. Goliath Products, North Hollywood, Calif. 828,188, pub. 2–14–67. Cl. 23.
Fostoria Corp., Fostoria, Ohio. 828,139, pub. 2–14–67. Cl. 21.
Frankie Hot Dogs, Inc., New York, N.Y. 828,211, pub. 2–14–67. Cl. 32.
Franklin Fibre-Lamitex Corp., Wilmington, Del. 828,065, pub. 2–14–67. Cl. 1.
Fredonia Products Co., Inc., d.b.a. Winston Wine Co., Fredonia, N.Y. 828,307, pub. 2–14–67. Cl. 47.
Free Sewing Machine Co., Los Angeles, Calif. 712,483, canc. Cl. 23.
Freit Laboratories, Inc., Jacksonville, Fla. 431,588, ren. 5–2–67. Cl. 15.
Gardner, Vincent T., Phoenix, Ariz. 712,461, canc. Cl. 22.
Garner, Fay, Longmont, Colo. 684,734, canc. Cl. 23.
Genepesca S.p.A., Rome, Italy. 828,285, pub. 2–14–67. Cl. 46.
General Features Corp., New York, N.Y. 431,112, ren. 5–2–67. Cl. 38.
General Grain, Inc.: *See*—
Acme Milling Co.
Rothwell, Bernard J.
General Implement Corp., Clearwater, Fla. 712,486, canc. Cl. 23.
General Nutrition Corp., Pittsburgh, Pa. 828,119, pub. 2–14–67. Cl. 18.
General Semiconductors, Inc., Tempe, Ariz. 828,201, pub. 1–10–67. Cl. 26.
General Shoe Corp., to Genesco Inc., Nashville, Tenn. 429,561, ren. 5–2–67. Cl. 4.
General Tire & Rubber Co., The, Akron, Ohio. 828,173, pub. 2–14–67. Cl. 22.
Genesco Inc.: *See*—
General Shoe Corp.
Genesco Inc., Nashville, Tenn. 828,249, pub. 2–14–67. Cl. 39.
Georgian Recording Corp., Park Ridge, Ill. 685,957, canc. Cl. 36.
Gillespie-Rogers-Pyatt Co., Inc.: *See*—
Deka Corp., The.
Gillette Co., The, Boston, Mass. 828,329, pub. 2–14–67. Cl. 51.
Glassweave Mfg. Co., Bladen, Nebr., by Flex-O-Glass, Inc., d.b.a. Warp Bros., Chicago, Ill. 222,840, 12(c) pub. 5–2–67. Cl. 12.
Glastex Mfg. Corp., Chamblee, Ga. 828,391. Cl. 50.
Golden Eagle Motor Inn, Inc., Charlotte, N.C. 828,348, pub. 2–14–67. Cl. 100.
Golden Kernel, Inc.: *See*—
Easton Potato Chip Co.
Goldschmidt, Jorgen I., Copenhagen, Denmark. 712,620, canc. Cl. 52.
Goliath Products: *See*—
Foster, Jack.
Goodwood Investments Ltd.: *See*—
Murray-Allen Imports, Inc.
Goodyear Tire & Rubber Co., The, Akron, Ohio. 62,266, ren. 5–2–67. Cl. 35.
Gostel, Charles, Bruxelles-Neder-Over-Heembeek, Belgium. 688,690, canc. Cl. 22.
Grace, W. R., & Co., New York, N.Y. 828,089, pub. 2–14–67. Cl. 6.
Gray Realty Corp., Chicago, Ill. 712,407, canc. Cl. 18.
Green, A. P., Fire Brick Co., to A. P. Green Refractories Co., Mexico, Mo. 231,135, ren. 5–2–67. Cl. 12.
Green, A. P., Refractories Co.: *See*—
Green, A. P., Fire Brick Co.
Green Spot Co.: *See*—
Capitol Food Industries, Inc.
Gregory, Jack A., d.b.a. Gregory Storage Systems, Kansas City, Mo. 828,367, pub. 2–14–67. Cl. 105.
Gregory Storage Systems: *See*—
Gregory, Jack A.
Grish Bros., St. John, Ind. 686,238, canc. Cl. 22.
Gross, John, & Co., Baltimore, Md. 828,313, pub. 2–14–67. Cl. 49.
Guerlain, Inc., from Guerlain Perfumery Corp., New York, N.Y. 828,327, pub. 2–14–67. Multiple Class (Classes 51 and 52).
Guerlain Perfumery Corp.: *See*—
Guerlain, Inc.
H.G. Enterprises, Kansas City, Mo. 828,261, pub. 2–14–67. Cl. 44.
Haack Bros. Mfg. Pharmacists, Inc., Portland, Oreg., by Lemmon Pharmacal Co., Sellersville, Pa. 429,292, 12(c) pub. 5–2–67. Cl. 18.
Haggar Co., Dallas, Tex. 712,542–3, canc. Cl. 39.
Haldy, Geo. P., Co.: *See*—
Haldy, George P.
Haldy, George P., to Haldy's, Inc., d.b.a. Geo. P. Haldy Co., Cedar Rapids, Iowa. 223,686, ren. 5–2–67. Cl. 51.
Haldy's Inc.: *See*—
Haldy, George P.
Hamilton Co., The: *See*—
Hamilton Seed & Coal Co.
Hamilton Seed & Coal Co., to The Hamilton Co., Cedar Rapids, Iowa. 228,722, ren. 5–2–67. Cl. 1.
Hana Corp., Park Ridge, Ill. 828,210, pub. 2–14–67. Cl. 32.
Hanes Corp., Winston-Salem, N.C. 828,250, pub. 2–14–67. Cl. 39.
Harding, H. C., Inc., Philadelphia, Pa. 429,034, 12(c) pub. 5–2–67. Cl. 4.
Harvey, Clarence L., d.b.a. Fireman's Supply Co., Belleville, N.J., by United States Rubber Co., New York, N.Y. 224,504, 12(c) pub. 5–2–67. Cl. 39.
Hassenfeld Bros. Inc., Pawtucket, R.I. 828,069, pub. 2–14–67. Cl. 8.
Hawaiian Pineapple Co., Ltd., San Francisco, Calif., and Iwilei, Territory of Hawaii, to Castle & Cooke, Inc., d.b.a. Dole Co., and Hawaiian Pineapple Co., Honolulu, Hawaii. 224,558, ren. 5–2–67. Cl. 46.
Hazel, Ernest, Jr., Inc., Washington, Mo. 828,067, pub. 2–14–67. Multiple Class (Classes 8 and 37).
Hazleton-Nuclear Science Corp., Palto Alto, Calif. 828,120, pub. 2–14–67. Cl. 18.
Heatbath Corp., Springfield, Mass. 828,344, pub. 2–14–67. Cl. 52.
Hedberg, Donald D., d.b.a. Dyna-Slide Co., Evanston, Ill. 828,323, pub. 2–14–67. Cl. 50.
Hemphill, Edward C., d.b.a. Sleep Shade Co., San Francisco, Calif. 430,425, ren. 5–2–67. Cl. 44.
Henbleiu, Inc., Hartford, Conn. 828,315, pub. 2–14–67. Cl. 49.
Henri's Food Products: *See*—
Henri's Food Products Co., Inc.
Henri's Food Products Co., Inc., d.b.a. Henri's Food Products, Milwaukee, Wis. 712,593, canc. Cl. 46.
Hermanos, Pallares, S.A., Cabra, Cordoba, Spain. 828,292, pub. 2–14–67. Cl. 46.
Hills-McCanna Co., to Trans Valve Inc., Chicago, Ill. 806,608, new cert. Cl. 13.
Hills-McCanna Co., to Trans Valve Inc., Chicago, Ill. 816,851, new cert. Cl. 13.
Holiday Forest: *See*—
Bekins, Robert Q., Jr.
Holland-Rantos Co., Inc.: *See*—
Lensclean, Inc.
House of Adler, Inc., The, Denver, Colo. 828,207, pub. 2–14–67. Cl. 28.
Household Finance Corp., Chicago, Ill. 828,365, pub. 2–14–67. Cl. 102.
Houston Ready-Cut House Co., Houston, Tex. 712,462, canc. Cl. 22.
Huffman Mfg. Co., The, Miamisburg, Ohio. 828,132, pub. 2–14–67. Cl. 19.
Humphreys Homeopathic Medicine Co., New York, N.Y., to Humphreys Medicine Co., Inc., Rutherford, N.J. 61,160, ren. 5–2–67. Cl. 18.
Humphreys Medicine Co., Inc.: *See*—
Humphreys Homeopathic Medicine Co.
Huntsinger Ranch, Acton, Calif. 828,302, pub. 2–14–67. Cl. 46.
Hupp Corp.: *See*—
Zulli, Walter J.
Hurst, R. D., Co.: *See*—
Hurst, Robley D.
Hurst, Robley D., d.b.a. R. D. Hurst Co., Seattle, Wash. 712,431, canc. Cl. 19.
Husky Briquetting, Inc., d.b.a. Husky-Dominion Briquets, Cody, Wyo. 828,064, pub. 2–14–67. Cl. 1.
Husky-Dominion Briquets: *See*—
Husky Briquetting, Inc.
IXL Food Co., San Leandro, Calif. 712,578, canc. Cl. 46.
Ideal Cement Co.: *See*—
Oklahoma Portland Cement Co.
I-Gene Straw Co., from I-Gene Straw Co., Johnstown, Ohio. 828,317, pub. 2–14–67. Cl. 50.
Institute for Human-Animal Relationship, Inc., Washington, D.C. 828,354. pub. 2–14–67. Cl 100.
Institute for Scientific Information, Inc., Philadelphia, Pa. 828,233–4, pub. 2–14–67. Cl. 38.
Inter-Continental Chemical Corp., Cincinnati, Ohio. 828,338, pub. 2–14–67. Cl. 52.
International Artware Corp., Cleveland, Ohio. 828,321, pub. 2–14–67. Cl. 50.
International Camping, Inc., Springfield, Va. 828,374, pub. 2–14–67. Cl. 200.
International Minerals & Chemical Corp., d.b.a. Ac'cent International, Skokie, Ill. 828,291, pub. 2–14–67. Cl. 46.
International Pulp Sales Co., New York, N.Y. 828,059, pub. 1–31–67. Cl. 1.
Interstate Adhesive Co.: *See*—
Sabella, Edward.
Irresistible, Inc., to The Nestle-Le Mur Co., New York, N.Y. 431,003, ren. 5–2–67. Cl. 51.
Items, Inc., d.b.a. Safe-T-Bone Co., St. Louis, Mo. 828,155, pub. 2–14–67. Cl. 22.
Ives, H. B., Co., The, New Haven, Conn. 62,577, 12(c) pub. 5–2–67. Cl. 25.
J & J Soft Pretzel Co., Inc., Pennsauken, N.J. 828,298, pub. 2–14–67. Cl. 46.
James Industries, Inc.: *See*—
James, Richard T.
James, Richard T., to James Industries, Inc., Brookline and Hollidaysburg, Pa. 427,951, ren. 5–2–67. Cl. 22.
Jamieson Laboratories, Inc., Santa Monica, Calif. 712,447, canc. Cl. 21.
Jantzen Inc.: *See*—
Jantzen Knitting Mills.
Jantzen Knitting Mills, to Jantzen Inc., Portland, Oreg. 428,625, ren. 5–2–67. Cl. 51.

Joffe, J. A., & Co., Inc., Mount Vernon, N.Y. 828,281, pub. 2–14–67. Cl. 46.
Johnson & Johnson: *See*—
Chicopee Mfg. Corp. of Georgia.
Johnson & Johnson, New Brunswick, N.J. 828,262, pub. 2–14–67. Cl. 44.
Johns-Manville Corp.: *See*—
Johns-Manville, Inc.
Johns-Manville, Inc., to Johns-Manville Corp., New York, N.Y. 226,948, ren. 4–2–67. Cl. 12.
Josephs, Elmer, d.b.a. E.J. Enterprises, Minneapolis, Minn. 828,231, pub. 2–14–67. Cl. 38.
Kaufmann, P., Inc., New York, N.Y. 828,260, pub. 2–14–67. Cl. 42.
Kearney & Trecker Corp., West Allis, Wis. 828,195, pub. 2–14–67. Cl. 23.
King Research, Inc., Brooklyn, N.Y. 828,333, pub. 2–14–67. Cl. 51.
Kirel Inc., to Wej-It Expansion Products, Inc., Bloomfield, Colo. 738,130, new cert. Cl. 13.
Kirkman Laboratories, Inc., Portland, Oreg. 828,127, pub. 2–14–67. Cl. 18.
Korach Bros. Co.: *See*—
Korach Bros.
Korach Bros., to Korach Bros. Co., Chicago, Ill. 429,001, ren. 5–2–67. Cl. 39.
Kroger Co., The: *See*—
Kroger Grocery & Baking Co.
Kroger Co., The, Cincinnati, Ohio. 828,276, pub. 2–14–67. Cl. 46.
Kroger Grocery & Baking Co., The, by The Kroger Co., Cincinnati, Ohio. 226,258, 12(c) pub. 5–2–67. Cl. 46.
Kureha Spinning Co., Ltd., Osaka, Japan. 828,237, pub. 2–14–67. Multiple Class (Classes 39 and 43).
Labelon Tape Co., Inc., Rochester, N.Y. 689,231, canc. Cl. 50.
La Maur, Inc., Minneapolis, Minn. 828,335, pub. 2–14–67. Cl. 51.
Lane Ltd.: *See*—
Lane Tobacco, Ltd.
Lane Tobacco, Ltd., now by change of name Lane Ltd., New York, N.Y. 431,447, 12(c) pub. 5–2–67. Cl. 17.
La Rosa, Frank C., Omaha, Nebr. 828,336, pub. 2–14–67. Cl. 52.
Larter & Sons, to Larter & Sons, Newark, N.J. 59,485, ren. 5–2–67. Cl. 28.
Leaf Brands, Inc., Chicago, Ill. 828,284, pub. 2–14–67. Cl. 46.
Legg Co., Inc., Halstead, Kans. 828,219, pub. 2–14–67. Cl. 85.
Lejon Champagne Cellars: *See*—
United Vintners, Inc.
Lemmon Pharmacal Co.: *See*—
Haack Bros. Mfg. Pharmacists, Inc.
Lensclean, Inc., to Holland-Rantos Co., Inc., New York, N.Y. 694,694, new cert. Cl. 52.
Leonard Electronics, Inc., Montebello, Calif. 712,438, canc. Cl. 21.
Levene, Louis L., d.b.a. Tapapart Products, New York, N.Y. 712,370, canc. Cl. 12.
Levering Coffee Co., Baltimore, Md., to Ward Foods, Inc., New York, N.Y. 60,103, ren. 5–2–67. Cl. 46.
Lewis Food Co., d.b.a. Ross Food Co., Los Angeles, Calif. 712,574, canc. Cl. 46.
Lilly, Eli, and Co., Indianapolis, Ind. 828,094–7, pub. 2–14–67. Cl. 6.
Linco Chemical Co., The: *See*—
Silver Seal Products Co.
Lionel Trading Co. Inc., New York, N.Y., to Parfums Corday Inc., Hollywood, Calif. 225,387, ren. 5–2–67. Cl. 51.
Litton Systems, Inc.: *See*—
Westrex Corp.
Loill Products Co.: *See*—
Bergman, Leonard D.
Lopez, Raphael, Paris, France, to Revlon, Inc., New York, N.Y. 427,556, ren. 5–2–67. Cl. 51.
Lovell and Covel Co., to New England Confectionery Co., Cambridge, Mass. 431,556–7, ren. 5–2–67. Cl. 46.
Lowville-American Co., Inc., Lowville, N.Y. 828,177–8, pub. 2–14–67. Cl. 22.
M & J Finance Corp.: *See*—
Manufacturers & Jobbers Finance Corp.
Mack, Heinrich, Nachf., Chem.-Pharmazentischefabrik, Kommanditgesellschaft, Bavaria, Germany. 828,115, pub. 2–14–67. Cl. 18.
Magnet Cove Barium Corp., Houston, Tex. 828,082, pub. 2–14–67. Cl. 6.
Magnetic Amplifiers, Inc., New York, N.Y. 690,133, canc. Cl. 21.
Maimin, H., Co., Inc., New York, N.Y. 431,625, ren. 5–2–67. Cl. 23.
Mfgs & Jobbers Finance Corp., d.b.a. M & J Finance Corp., Shelby, N.C. 712,630, canc. Cl. 102.
Marine Colloids, Inc., Springfield, N.J. 828,300, pub. 2–14–67. Cl. 46.
Mark, Clayton, & Co., Evanston, Ill. 828,109, pub. 2–14–67. Cl. 13.
Markit, Inc., Cleveland, Ohio. 828,390. Cl. 50.
Martini & Rossi Corp.: *See*—
Martini & Rossi.
Martini & Rossi, Turin, Italy, to Martini & Rossi Corp., New York, N.Y. 227,926, ren. 5–2–67. Cl. 47.
Martis, Inc., St. Louis, Mo. 828,368, pub. 2–14–67. Cl. 105.
Martrude Corp., Glendale, N.Y. 828,283, pub. 2–14–67. Cl. 46.
Masters Sporting Goods Co., Inc., Collierville, Tenn. 712,460, canc. Cl. 22.
Mattel, Inc., Hawthorne, Calif. 828,169, pub. 2–14–67. Cl. 22.
Mattel, Inc., Hawthorne, Calif. 828,185–7, pub. 2–14–67. Cl. 22.
May Co.: *See*—
May Department Stores Co., The.
Maydee Mfg. Corp., Brooklyn, N.Y. 712,463, canc. Cl. 22.
May Department Stores Co., The, d.b.a. May Co., Los Angeles, Calif. 828,308, pub. 2–14–67. Cl. 47.
Medcomp Research Corp., Cincinnati, Ohio. 828,351, pub. 2–14–67. Cl. 100.
Mego Corp., New York, N.Y. 828,164, pub. 2–14–67. Cl. 22.
Melville Shoe Corp., New York, N.Y. 828,254–6, pub. 2–14–67. Cl. 39.
Merkin, M. J., Paint Co., Inc., New York, N.Y., to Merkin Paint Co., Inc., Baltimore, Md. 224,583, ren. 5–2–67. Cl. 16.
Merkin Paint Co., Inc.: *See*—
Merkin, M. J., Paint Co., Inc.
Meyer, Joseph H., Bros., Brooklyn, N.Y., by The Richelieu Corp., Holbrook, N.Y. 392,600, 12(c) pub. 5–2–67. Cl. 28.
Michaels Bros., New York, N.Y., to Artic Import Co., Chicago, Ill. 427,834, ren. 5–2–67. Cl. 21.
Michaels Stern & Co., to Michaels Stern & Co. Inc., Rochester, N.Y. 223,580, ren. 5–2–67. Cl. 39.
Michaels Stern & Co., Inc.: *See*—
Michaels Stern & Co.
Michigan Fruit Canners, Inc., Benton Harbor, Mich. 828,287, pub. 2–14–67. Cl. 46.
Microfibres, Inc.: *See*—
Rayon Processing Co. of R.I. Inc., The.
Midland Laboratories, Dubuque, Iowa. 828,350, pub. 2–14–67. Cl. 100.
Midland Shoe Co., St. Louis, Mo. 828,246, pub. 2–14–67. Cl. 39.
Mil-Ko Products Ltd., Hamilton, Ontario, Canada. 712,588, canc. Cl. 46.
Mobil Oil Corp.: *See*—
Socony-Vacuum Oil Co., Inc.
Vacuum Oil Co.
Modern Globe, Inc., Pawtucket, R.I. 828,248, pub. 2–14–67. Cl. 39.
Mohawk Condensed Milk Co., Rochester, N.Y., to Carnation Co., Los Angeles, Calif. 60,660, ren. 5–2–67. Cl. 46.
Mohawk Rubber Co., The, Akron, Ohio. 427,178, 12(c) pub. 5–2–67. Cl. 35.
Mohawk Rubber Co., The, Akron, Ohio. 431,102, ren. 5–2–67. Cl. 35.
Monroe International Corp., Orange, N.J. 828,198, pub. 2–14–67. Cl. 26.
Monsanto Chemical Co., by Monsanto Co., St. Louis, Mo. 426,981, 12(c) pub. 5–2–67. Cl. 6.
Monsanto Co.: *See*—
Monsanto Chemical Co.
Monsanto Co., St. Louis, Mo. 828,247, pub. 2–14–67. Multiple Class (Classes 39 and 42).
Montres Choisi S.A., Bienne, Switzerland. 427,420, ren. 5–2–67. Cl. 27.
Mora Chemical Corp., Seattle, Wash. 712,641, canc. Cl. 10.
Morits Thienelt Likorfabrik "Echte Kroatzbeere," Holsbuttgen, Germany. 828,389. Cl. 49.
Morris, Philip, Inc., New York, N.Y. 828,113–4, pub. 2–14–67. Cl. 17.
Moser Paper Co., Chicago, Ill. 828,081, pub. 2–14–67. Cl. 6.
Multiple Products, Inc., Bronx, N.Y. 828,157–8, pub. 2–14–67. Cl. 22.
Murphy Chemical Co. Ltd., The, Weathampsteda, Near St. Albans, England. 828,079, pub. 2–14–67. Cl. 6.
Murray-Allen Imports, Inc., to Goodwood Investments Ltd., Nassau, Island of New Providence, Bahama Islands. 787,251, new cert. Cl. 46.
Murray-Allen Imports, Inc., to Goodwood Investments Ltd., Nassau, Island of New Providence, Bahama Islands. 796,831, new cert. Cl. 46.
National Dairy Council, Chicago, Ill. 828,372, pub. 2–14–67. Cl. 107.
National Dairy Products Corp., Chicago, Ill. 828,295, pub. 2–14–67. Cl. 46.
National Screen Co., Inc., Suffolk, Va. 432,109, ren. 5–2–67. Cl. 12.
National Secretaries Association (International), Kansas City, Mo. 828,371, pub. 2–14–67. Cl. 107.
National Tea Co., to So Fresh Produce Co., Chicago, Ill. 768,452, new cert. Cl. 46.
Neilson Chemical Co., of Calif.: *See*—
Neilson, H. Raymond.
Neilson, H. Raymond, d.b.a. Neilson Chemical Co. of Calif., Los Angeles, Calif. 712,347, canc. Cl. 6.
Nesbit Industries, Inc., Chicago, Ill. 828,322, pub. 2–14–67. Cl. 50.
Nestle-Le Mur Co., The: *See*—
Irresistible, Inc.
New England Confectionery Co.: *See*—
Lovell and Covel Co.
Nicolet-Krommenie N.V., Krommenie, Netherlands. 828,271, pub. 2–14–67. Cl. 46.
Nippon Soda Kabushiki Kaisha, Tokyo, Japan. 828,078, pub. 2–14–67. Cl. 6.
No-Load Co., The, Clyde, Ohio. 828,111, pub. 2–14–67. Cl. 15.
Nord-Viscount Corp., Brooklyn, N.Y., from Federated Chemical Corp., Livingston, N.J. 828,072, pub. 2–14–67. Cl. 4.
Norsk Hydro-Elektrisk Kvaelstofaktieselskab, Oslo, Norway. 828,104, pub. 2–14–67. Cl. 10.
Norwich Pharmacal Co., The, Norwich, N.Y. 712,424, canc. Cl. 18.

Nu-Trend Products Co.: *See*—
Flanor-Seal Corp.
Ohio Art Co., The, Bryan, Ohio. 828,153, pub. 3–1–66. Cl. 22.
Ohio Willow Wood Co., The: *See*—
Sterling Stocking Co.
Oklahoma Portland Cement Co., Ada, Okla., by Ideal Cement Co., Denver, Colo. 63,506, 12(c) pub. 5–2–67. Cl. 12.
Oneida Community Ltd., Kenwood, to Oneida Ltd., Oneida, N.Y. 59,707, ren. 5–2–67. Cl. 28.
Oneida Ltd.: *See*—
Oneida Community Ltd.
Oneida Ltd., Oneida, N.Y. 430,017, ren. 5–2–67. Cl. 28.
Oneida Ltd., Oneida, N.Y. 430,023, ren. 5–2–67. Cl. 28.
Oneida Ltd., Oneida, N.Y. 431,482, ren. 5–2–67. Cl. 28.
Osmose Wood Preserving Co. of America, Inc., Buffalo, N.Y. 828,098, pub. 2–14–67. Cl. 6.
Otis Engineering Corp., Dallas, Tex. 828,200, pub. 2–14–67. Cl. 26.
Pacific Laminates, to Browning Arms Co., Morgan, Utah. 544,598, new cert. Cl. 22.
Package Pavement Co., Inc., Carmel, N.Y. 828,378. Cl. 6.
Packard-Bell Electronics Corp., Los Angeles, Calif. 712,520, canc. Cl. 36.
Pactor Corp., West Sacramento, Calif. 828,194, pub. 2–14–67. Cl. 23.
Paper Novelty Co., The, by Diana Mfg. Co., Green Bay, Wis. 228,466, 12(c) pub. 5–2–67. Cl. 44.
Parachek, J. R., d.b.a. Serv-A-Line Co., Toledo, Ohio. 828,353, pub. 2–14–67. Cl. 100.
Parfums Corday Inc.: *See*—
Lionel Trading Co. Inc.
Parfums Corday, Inc., New York, N.Y., to Parfums Corday, Inc., Hollywood, Calif. 429,353, ren. 5–2–67. Cl. 51.
Park Laboratories, Inc., Chicago, Ill. 828,121, pub. 2–14–67. Cl. 18.
Parke, Davis & Co., Detroit, Mich., from Aeroplast Corp., Dayton, Ohio. 828,304. Cl. 51.
Parker Bros., Inc., Salem, Mass. 828,182, pub. 2–14–67. Cl. 22.
Pasquier, Michael, by G. J. Basciani, New York, N.Y. 434,422, 12(c) pub. 5–2–67. Cl. 51.
Paterson, Smons & Ewart Ltd., London, England. 828,293, pub. 2–14–67. Cl. 46.
Pennant Watch Corp., from Lucien Puccard Watch Corp., New York, N.Y. 828,205, pub. 2–14–67. Cl. 27.
Pepsico, Inc., New York, N.Y. 828,270, pub. 2–14–67. Cl. 45.
Permatex Co., Inc., Brooklyn, N.Y. 828,100, pub. 2–14–67. Cl. 6.
Persons-Majestic Mfg. Co., Worcester, Mass. 828,136, pub. 2–14–67. Cl. 19.
Pet Inc.: *See*—
Cox Confectionery Co.
Peters & Russell, Inc., Springfield, Ohio. 712,428, canc. Cl. 19.
Pfizer, Chas., & Co., Inc., New York, N.Y. 828,297, pub. 2–14–67. Cl. 46.
Philadelphia Quartz Co., Philadelphia, Pa. 828,099, pub. 2–14–67. Cl. 6.
Phillips Petroleum Co., Bartlesville, Okla. 429,309, ren. 5–2–67. Cl. 6.
Photocircuits Corp., Glen Cove, N.Y. 712,450, canc. Cl. 21.
Piece Goods Shop, Inc., The, Huntington, W. Va. 828,357, pub. 2–14–67. Cl. 101.
Pierce, S. S., Co., Boston, Mass. 223,788, ren. 5–2–67. Cl. 46.
Pierre Pellisard, Casablanca, Morocco. 828,334, pub. 2–14–67. Cl. 51.
Pink Pussycat of Hollywood, Los Angeles, Calif. 828,267, pub. 2–14–67. Cl. 45.
Plant Care Specialties, Inc., Medina, Ohio. 712,364, canc. Cl. 10.
Polamer Drug Co.: *See*—
Polamer Drug Co., Inc.
Polamer Drug Co., Inc., d.b.a. Polamer Drug Co., South River, N.J. 828,379. Cl. 18.
Pop-Op Corp., The, New York, N.Y. 828,068, pub. 2–14–67. Cl. 3.
Pop-Op Corp., The, New York, N.Y. 828,070, pub. 2–14–67. Cl. 3.
Pop-Op Corp., The, New York, N.Y. 828,180–1, pub. 2–14–67. Cl. 22.
Pop-Op Corp., The, New York, N.Y. 828,214–15, pub. 2–14–67. Cl. 33.
Pop-Op Corp., The, New York, N.Y. 828,220–1, pub. 2–14–67. Cl. 36.
Porter, H. K., Co., Inc.: *See*—
Disston, Henry, & Sons, Inc.
Potlatch Forests, Inc., Lewiston, Idaho. 712,337, canc. Cl. 2.
Power Cleaning Supply Co., Rockford, Ill. 828,193, pub. 2–14–67. Cl. 23.
Power, John, & Son Ltd., Dublin, Ireland. 828,312, pub. 2–14–67. Cl. 49.
Preferred Business Service Corp., Oak Park, Ill. 712,629, canc. Cl. 101.
Presley, Maurice L., Sylacauga, Ala. 828,349, pub. 2–14–67. Cl. 100.
Procter & Gamble Co., The, Cincinnati, Ohio. 828,342, pub. 2–14–67. Cl. 52.
Professional Apparel Co., Oakland, Calif. 712,551, canc. Cl. 39.
Professional Research Laboratory, Inc., New Haven, Conn. 828,328, pub. 12–27–66. Cl. 51.
Progress Food Products, Inc., New York, N.Y. 828,286, pub. 2–14–67. Cl. 46.
Pro-Tech, Inc., Springfield, Pa. 828,347, pub. 2–14–67. Cl. 100.
Protectoseal Co. of America, Inc., to The Protectoseal Co., Chicago, Ill. 224,912, ren. 5–2–67. Cl. 2.
Protectoseal Co., The: *See*—
Protectoseal Co. of America, Inc.
Przedsiebiorstwo Handlu Zagranicznego "Agros," from Rollimpex Centrala Handlu Zagranicznego, Warsaw, Poland. 828,310–11, pub. 2–14–67. Cl. 49.
Puccard, Lucien, Watch Corp.: *See*—
Pennant Watch Corp.
Puig, Vicente, & Co.: *See*—
Puig, Vicente, Jr.
Puig, Vicente, Jr., d.b.a. Vicente Puig & Co., New York, N.Y. 828,288, pub. 2–14–67. Cl. 46.
Puritan Fashions Corp.: *See*—
Reliance Mfg. Co.
Putter-Craft Co., New York, N.Y. 828,160, pub. 2–14–67. Cl. 22.
Quaker Lace Co., Philadelphia, Pa. 828,251, pub. 2–14–67. Multiple Class (Classes 39 and 42).
Quaker Oats Co., The: *See*—
Du Pont, Eugene.
Quality Weaving Co., Philadelphia, Pa. 429,535, 12(c) pub. 5–2–67. Cl. 38.
Racon Inc., Wichita, Kans. 828,084, pub. 2–14–67. Cl. 6.
Radio Steel & Mfg. Co., Chicago, Ill. 828,163, pub. 2–14–67. Cl. 22.
Ray Control Corp., New York, N.Y. 828,066, pub. 2–14–67. Cl. 2.
Rayon Processing Co. of R.I. Inc., The, Central Falls, to Microfibres, Inc., Pawtucket, R.I. 427,949, ren. 5–2–67. Cl. 1.
Reddy-Rack Corp.: *See*—
Roto-Pack Corp.
Regal Games Mfg. Co., Chicago, Ill. 828,170, pub. 2–14–67. Cl. 22.
Regent Belt Co., Inc., New York, N.Y. 712,555, canc. Cl. 39.
Reliance Mfg. Co., Chicago, Ill., to Puritan Fashions Corp., New York, N.Y. 223,606, ren. 5–2–67. Cl. 39.
Reliance Products Corp., Woonsocket, R.I. 828,106, pub. 2–14–67. Cl. 13.
Reliance Prodnets Corp., Woonsocket, R.I. 828,154, pub. 2–14–67. Cl. 22.
Republic Brass and Mfg. Co., Los Angeles, Calif., to Crane Co., New York, N.Y. 231,297, ren. 5–2–67. Cl. 13.
Republic Industrial Corp., New York, N.Y. 828,107, pub. 2–14–67. Cl. 13.
Retail Stores Service, Inc., Baltimore, Md. 828,217, pub. 2–14–67. Cl. 34.
Revco Products: *See*—
Reverse Stitch Mfg. Co.
Revere, Paul, Variable Annuity Insurance Co., The, Worcester, Mass. 828,363, pub. 2–14–67. Cl. 102.
Reverse Stitch Mfg. Co., by Revco Products, Whittier, Calif. 436,377, 12(c) pub. 5–2–67. Cl. 23.
Revlon, Inc.: *See*—
Lopez, Raphael.
Rexall Drug and Chemical Co.: *See*—
Syracuse Ornamental Co.
Rexall Drug and Chemical Co., Los Angeles, Calif., from Fiberfil, Inc., Evansville, Ind. 828,061, pub. 10–25–66. Cl. 1.
Rexall Drug and Chemical Co., Los Angeles, Calif., from Fiberfil, Inc., Evansville, Ind. 828,063, pub. 2–7–67. Cl. 1.
Reynolds Aluminum Supply Co., Atlanta, Ga. 712,379, canc. Cl. 12.
Ribbontrim, Inc., New York, N.Y. 712,654, canc. Cl. 40.
Richelieu Corp., The: *See*—
Meyer, Joseph H., Bros.
Richardson-Merrell Inc., Cincinnati, Ohio. 828,116, pub. 2–14–67. Cl. 18.
Riva Distributing Co., San Francisco, Calif. 828,264, pub. 2–14–67. Cl. 45.
Riverside & Dan River Cotton Mills, Inc., Schoolfield, and Danville, to Dan River Mills, Inc., Danville, Va. 224,653, ren. 5–2–67. Cl. 42.
Riverside & Dan River Cotton Mills, Inc., n.b.c.o.n. Dan River Mills Inc., to Dan River Mills Inc., Danville, Va. 428,515, ren. 5–2–67. Cl. 42.
Roddy Recreation Products, Inc., Gardena, Calif. 828,152, pub. 2–14–67. Cl. 22.
Rollimpex Centrala Handlu Zagranicznego: *See*—
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Rohm & Haas Co.: *See*—
Rohm & Haas Co., Inc.
Rohm & Haas Co., Inc., to Rohm & Haas Co., Philadelphia, Pa. 222 909, ren. 5–2–67. Cl. 16.
Ross Food Co.: *See*—
Lewis Food Co.
Rothwell, Bernard J., Boston, Mass., to General Grain, Inc., Indianapolis, Ind. 62,189, ren. 5–2–67. Cl. 46.
Roto-Pack Corp., from Reddy-Rack Corp., Washington, D.C. 712,500, canc. Cl. 32.
Rotron Mfg. Co., Inc., Woodstock, N.Y. 828,144, pub. 2–14–67. Cl. 21.
Rowland Products, Inc., Kensington, Conn. 828,326, pub. 2–14–67. Cl. 50.
Royal Bead Novelty Co., Inc.: *See*—
Royal Craftsmen, Inc.
Royal Craftsmen, Inc., to Royal Bead Novelty Co., Inc., New York, N.Y. 428,792, ren. 5–2–67. Cl. 28.
Royal Hawaiian Perfumes, Ltd., Honolulu, Hawaii. 828,331, pub. 2–14–67. Cl. 51.
Sabella, Edward, d.b.a. Interstate Adhesive Co., Farmingdale, N.Y. 686,523, canc. Cl. 5.
Sackheim, Norman R.: *See*—
Strum & Drum, Inc.
Safe-T-Bone: *See*—
Items, Inc.
Sales Affiliates, Inc., New York, N.Y. 712,617, canc. Cl. 51.

San Antonio Winery: *See*—
San Antonio Winery, Inc.
San Antonio Winery, Inc., d.b.a. San Antonio Winery, Los Angeles, Calif. 628,306, pub. 11–29–66. Cl. 47.
Sarkes Tarzian, Inc., Bloomington, Ind. 828,137, pub. 2–14–67. Multiple Class (Classes 21 and 26).
Schering Corp., Bloomfield, N.J. 712,422, canc. Cl. 18.
Schieffelin & Co., New York, N.Y. 828,314, pub. 2–14–67. Cl. 49.
Schjeldahl, G. T., Co., Northfield, Minn. 684,017, canc. Cl. 26.
Schwartz Chemical Co. Inc., Long Island City, N.Y. 828,076, pub. 2–14–67. Cl. 5.
Schwartz Chemical Co. Inc., Long Island City, N.Y. 828,077, pub. 2–14–67. Cl. 5.
Schweitzer Equipment Co.: *See*—
Schweitzer, Howard V.
Schweitzer, Howard V., d.b.a. Schweitzer Equipment Co., Cleveland, Ohio. 686,635, canc. Cl. 34.
Scientoy Co., Arlington, Va. 712,454, canc. Cl. 22.
Scripto, Inc., Atlanta, Ga. 828,223, pub. 2–14–67. Cl. 37.
Seaforth Corp., New York, N.Y. 828,332, pub. 2–14–67. Cl. 51.
Seeds, Ian, d.b.a. Ian Seeds Enterprises, to R. D. Weldon, Lexington, Ohio. 731,870, new cert. Cl. 38.
Seeds, Ian, Enterprises: *See*—
Seeds, Ian.
Seelicke, Barbara K., Minneapolis, Minn. 828,243, pub. 2–14–67. Cl. 39.
Sekine, I., Co., Inc., New York, N.Y. 828,208, pub. 2–14–67. Cl. 29.
Sellstrom Mfg. Co., Palatine, Ill. 828,204, pub. 2–14–67. Multiple Class (Classes 26 and 39).
Seltzer, Fred, Corp., Lincolnwood, Ill. 712,498, canc. Cl. 28.
Serv-A-Line Co.: *See*—
Parachek, J. R.
Servo Corp. of America, Hicksville, N.Y. 828,355, pub. 2–14–67. Cl. 100.
7 Seas Huspuppies Corp., The, London Bridge, Va. 712,590, canc. Cl. 46.
Shakespeare Co., Kalamazoo, Mich. 828,174–5, pub. 2–14–67. Cl. 22.
Shapiro and Son Curtain Corp., New York, N.Y. 712,568, canc. Cl. 42.
Sherkra Laboratories, Winnetka, Ill. 712,406, canc. Cl. 18.
Shiman Bros.-Colonial, Inc., New York, N.Y. 828,206, pub. 2–14–67. Cl. 28.
Silver Seal Products Co., from The Linco Chemical Co., Detroit, Mich. 688,143, canc. Cl. 6.
Simmerwerke W. Simmer K.G., Kufstein, Austria. 828,218, pub. 2–14–67. Cl. 35.
Sinclair Refining Co., New York, N.Y. 828,146, pub. 2–14–67. Cl. 21.
Sleep Shade Co.: *See*—
Hemphill, Edward C.
Slumberest Co., Georgetown, Ky. 712,563–5, canc. Cl. 42.
Smith, A. O., Corp., Milwaukee, Wis. 828,108, pub. 2–14–67. Cl. 13.
Snyder Mfg. Co., Philadelphia, Pa. 828,212, pub. 2–14–67. Cl. 32.
Snyder Mfg. Co., to Snyder Mfg. Co., Philadelphia, Pa. 429,897, ren. 5–2–67. Cl. 21.
Societa Anonima Lucchese Olii Vini, d.b.a. Fortuna Fontana & Co., Lucca, Italy. 712,576, canc. Cl. 46.
Societe Francaise d'Etudes et de Realistions d'Inventions Coanda, Clichy, Seine, France. 712,426, canc. Cl. 19.
Socony-Vacuum Oil Co., Inc., to Mobil Oil Corp., New York, N.Y. 430,845, ren. 5–2–67. Cl. 6.
So Fresh Produce Co.: *See*—
National Tea Co.
Sola Basic Industries, Inc., Milwaukee, Wis. 828,140, pub. 2–14–67. Cl. 21.
Solar Chemical Co., Inc.: *See*—
Solar Chemical Co.
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Sommerville, John D., and Co., Ltd., Oakville, Ontario, Canada. 712,509, canc. Cl. 32.
Southern Fruit Distributors, Inc., Orlando, Fla. 828,299, pub. 2–14–67. Cl. 46.
Southern Nitrogen Co., Inc., Savannah, Ga. 828,360, pub. 2–14–67. Cl. 101.
Spectrolab: *See*—
Textron Electronics, Inc.
Spring-Air Co., The, Chicago, Ill. 712,503, canc. Cl. 32.
Stafast Corp., New York, N.Y. 828,197, pub. 2–14–67. Multiple Class (Classes 23 and 40).
Standard International Corp., Andover, Mass. 828,090, pub. 2–14–67. Cl. 6.
Star Office Supply Co., Inc., New York, N.Y. 828,224, pub. 2–14–67. Cl. 37.
Stauffer Chemical Co., New York, N.Y. 828,101, pub. 2–14–67. Cl. 6.
Stentor's Inc., New York, N.Y. 712,523, canc. Cl. 36.
Sterling Stocking Co., to The Ohio Willow Wood Co., Mount Sterling, Ohio. 230,012, ren. 5–2–67. Cl. 39.
Sternco Industries, Inc., Harrison, N.J. 828,289, pub. 2–14–67. Cl. 46.
Stevenson, R., Taylor & Co., Ltd., Dumbarton, England. 828,316, pub. 2–14–67. Cl. 49.
Stimpson, Edwin B., Co., Inc.: *See*—
Stimpson, Edwin B., Co.
Stimpson, Edwin B., Co., to Edwin B. Stimpson Co., Inc., Brooklyn, N.Y. 230,527, ren. 5–2–67. Cl. 13.
Strathmore Shoe Co., Inc., Brockton, Mass. 828,241, pub. 2–14–67. Cl. 39.
Streater Store Fixtures, Inc., Albert Lea, Minn. 828,230, pub. 2–14–67. Cl. 38.
Strum & Drum, Inc., from N. R. Sackheim, Chicago, Ill. 828,384. Cl. 36.
Stubnitz Greene Corp., Adrian, Mich. 712,502, canc. Cl. 32.
Sucetti, Glenn, Grass Valley, Calif. 692,655, canc. Cl. 12.
Super Mold Corp. of Calif., Lodi, Calif. 712,477, canc. Cl. 23.
Superior Feed Mills: *See*—
Dorie Corp.
Syracuse Ornamental Co., Syracuse, N.Y., to Rexall Drug and Chemical Co., d.b.a. Syroco, Los Angeles, Calif. 427,084, ren. 5–2–67. Cl. 2.
Syroco: *See*—
Rexall Drug and Chemical Co.
Takapart Products Co.: *See*—
Levene, Louis L.
Teleflex Inc., North Wales, Pa. 828,133, pub. 2–14–67. Cl. 19.
Templeton, James H., Pilot Mountain, N.C. 712,637, canc. Cl. 107.
Tennent Caledonian Breweries Ltd.: *See*—
Tennent, J. & R., Ltd.
Tennent, J. & R., Ltd., by Tennent Caledonian Breweries Ltd., Glasgow, Scotland. 59,887, 12(c) pub. 5–2–67. Cl. 48.
Texaco Inc.: *See*—
Texas Co., The.
Texas Co., The, Houston, Tex., and New York, N.Y., by Texaco Inc., New York, N.Y. 193,474, new cert. Cl. 6.
Texas Hardware Boosters Club, Pearsall, Tex. 437,826, 12(c) pub. 5–2–67. Cl. 38.
Texize Chemicals, Inc., Greenville, S.C. 828,063, pub. 2–14–67. Cl. 6.
Textron Electronics, Inc., d.b.a. Spectrolab, Sylmar, Calif. 828,073, pub. 2–14–67. Cl. 5.
Thiokol Chemical Corp., Bristol, Pa. 828,375, pub. 2–14–67. Cl. A.
Three M Associates, Inc., New York, N.Y. 828,385. Cl. 37.
Tiffen Optical Co., Roslyn Heights, N.Y. 828,199, pub. 2–14–67. Cl. 26.
Tillotson Corp.: *See*—
Tillotson Rubber Co., Inc.
Tillotson Rubber Co., Inc., by Tillotson Corp., Needham Heights, Mass. 423,426, 12(c) pub. 5–2–67. Cl. 22.
Toa Musen Co., Ltd., Shinagawa-ku, Tokyo, Japan. 828,138, pub. 2–14–67. Cl. 21.
Tomooka Bros., Santamaria, Calif. 828,301, pub. 2–14–67. Cl. 46.
Tops In Stops: *See*—
Adams, Nida B.
Transportation Supply Publishing Corp., Chicago, Ill. 712,531, canc. Cl. 38.
Trans-Valve Inc.: *See*—
Hills-McCanna Co.
Trojan Fireworks Co., Norwalk, Calif. 828,103, pub. 2–14–67. Cl. 9.
Troy Blanket Mills, Troy, N.H. 712,567, canc. Cl. 42.
Truckstell Mfg. Co., Cleveland, Ohio. 712,650, canc. Cl. 19.
Tru-D Co., The, Los Angeles, Calif. 828,235, pub. 2–14–67. Cl. 38.
True Temper Corp., Cleveland, Ohio. 828,166, pub. 2–14–67. Cl. 22.
Tudor Metal Products Corp., Brooklyn, N.Y. 828,151, pub. 2–14–67. Cl. 22.
Tussaud, Josephine, Inc., Scottsdale, Ariz. 828,319, pub. 2–14–67. Cl. 50.
Twentier's Research, Inc., Phoenix, Ariz. 712,608, canc. Cl. 50.
T :mi SiDoste, om. Lauri Molsa ja Kumpp, Tampere, Finland. 828,244, pub. 2–14–67. Cl. 39.
Union Asbestos & Rubber Co., Chicago, Ill. 681,353, canc. Cl. 12.
Union Tank Car Co., Chicago, Ill. 828,236, pub. 2–14–67. Cl. 38.
United Fruit Co., Boston, Mass. 828,387. Cl. 46.
United Knitting Machine Co., Cheltenham, by Mary Weisbecker, Lansdale, Pa. 422,440, 12(c) pub. 5–2–67. Cl. 23.
United Merchants and Manufacturers, Inc., New York, N.Y. 828,086, pub. 2–14–67. Cl. 6.
United States Rubber Co.: *See*—
Harvey, Clarence L.
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United States Steel Corp., Pittsburgh, Pa. 828,110, pub. 2–14–67. Cl. 14.
United Vintners, Inc., d.b.a. Lejon Champagne Cellars, San Francisco, Calif. 828,388. Cl. 47.
V & O Press Co., Inc., The, to The V & O Press Co., Inc., Hudson, N.Y. 428,896, ren. 5–2–67. Cl. 23.
Vacuum Oil Co., Rochester, to Mobil Oil Corp., New York, N.Y. 62,821, ren. 5–2–67. Cl. 15.
Veltman Cookie Co.: *See*—
Euram Foods, Inc.
Vernon Photographic Corp., Mount Vernon, N.Y. 828,202, pub. 2–14–67. Cl. 26.
Virginia Poultry Products Commission, Richmond, Va. 828,376–7, pub. 2–14–67. Cl. A.
Walker Mfg. Co., Racine, Wis. 828,189, pub. 2–14–67. Cl. 23.
Walker, T. V., & Son, Inc., Burbank, Calif. 712,368–9, canc. Cl. 12.
Wallace & Co., Brooklyn, N.Y. 712,589, canc. Cl. 46.
Ward Foods, Inc.: *See*—
Levering Coffee Co.
Warner Brothers Co., The, Bridgeport, Conn. 224,451, ren. 5–2–67. Cl. 39.
Warner-Lambert Pharmaceutical Co., Morris Plains, N.J. 712,402, canc. Cl. 18.

Warp Bros.: *See*—
Glassweave Mfg. Co.
Wear-Right Gloves, Inc.: *See*—
Wimelbacher & Rice, Inc.
Weber, Valentine, d.b.a. Electric Heat Control Apparatus Co., to Electric Heat Control Apparatus Co., Inc., Newark, N.J. 429,153, ren. 5–2–67. Cl. 26.
Wed Enterprises, Inc., from Wed Enterprises Inc., Glendale, Calif. 828,370, pub. 2–14–67. Cl. 107.
Wedgwood, Josiah, Ltd.: *See*—
Wedgwood, Josiah, & Sons Ltd.
Wedgwood, Josiah, & Sons Ltd., Etruria, Stoke Upon Trent, to Josiah Wedgwood Ltd., Barlaston, Stoke-on-Trent, England. 60,198, ren. 5–2–67. Cl. 30.
Wedgwood, Josiah, & Sons Ltd., Etruria, to Josiah Wedgwood Ltd., Barlaston, Stoke-on-Trent, England. 62,522, ren. 5–2–67. Cl. 30.
Weisbecker, Mary: *See*—
United Knitting Machine Co.
Wej-It Expansion Products, Inc.: *See*—
Kirel Inc.
Weldon, Robert D.: *See*—
Seeds, Ian.
Wells Television, Inc., New York, N.Y. 828,149, pub. 2–14–67. Cl. 21.
West Virginia Pulp and Paper Co., New York, N.Y. 712,527, canc. Cl. 37.
Westall, E., Co.: *See*—
Westall, Evelyn.
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Western Dairy Products, Inc., San Francisco, Calif. 828,303, pub. 2–14–67. Cl. 46.
Westrex Corp., New York, N.Y., to Litton Systems, Inc., Beverly Hills, Calif. 429,175, ren. 5–2–67. Cl. 26.
White Hudson and Co., Ltd., Southport, England. 712,415, canc. Cl. 18.
Wimelbacher & Rice, Inc., to Wear-Right Gloves, Inc., New York, N.Y. 430,587, ren. 5–2–67. Cl. 39.
Winston Wine Co.: *See*—
Fredonia Products Co., Inc.
Wisconsin Knife Works, Inc., Clinton, to Wisconsin Knife Works, Inc., Beloit, Wis. 230,783, ren. 5–2–67. Cl. 23.
Wood, John, Co.: *See*—
Fluid Heat Corp.
Wood, Joseph W., Co.: *See*—
Kaufmann, P., Inc.
Wool "O" Co., The, Philadelphia, Pa. 828,259, pub. 2–14–67. Cl. 42.
World Wide Cosmetics, Inc., Chicago, Ill. 828,330, pub. 2–14–67. Cl. 51.
Wright, Helene, Palo Alto, Calif. 712,561, canc. Cl. 40.
Wyandotte Worsted Co., Inc., Waterville, Maine. 390,818–19, canc. Cl. 42.
Yuba City Steel Products Co., Yuba City, Calif. 712,336, canc. Cl. 2.
Yankee Metal Products Corp., Norwalk, Conn. 828,131, pub. 2–14–67. Cl. 19.
Yuma County Chamber of Commerce, Yuma, Ariz. 828,362, pub. 2–14–67. Cl. 101.
Zenith Radio Corp., Chicago, from Churchill Chemical Co., Galesburg, Ill. 828,071, pub. 4–20–65. Cl. 4.
Zippo Mfg. Co., Bradford, Pa. 432,131, ren. 5–2–67. Cl. 8.
Zuill, Walter J., Syracuse, N.Y., to Hupp Corp., Cleveland, Ohio. 61,797, ren. 5–2–67. Cl. 24.

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U.S. DEPARTMENT OF COMMERCE

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Errata

In the OFFICIAL GAZETTE, issue of Jan. 31, 1967, under "List of Patentees," p. vii, second column, line 87, for "Celanese Coatings" read *Celanese Coatings Company;* p. xxvi, first column, line 92, for "Celanese Coatings" read *Celanese Coatings Company;* p. xxix, second column, line 7, strike out "Short, Glen A. 3,301,920."; same page xxix, second column, lines 38 to 40, strike out the following:

Short, Glen A., to Shell Oil Co. Isotactic polypropylene modified with ethylenepropylene copolymer. 3,301,920, 1-31-67, Cl. 260—878.

Adjudicated Patents

(D.C. Ill.) Wardell Patent No. 2,503,143 (188—88), for UNVULCANIZED ELASTOMER IN A DEVICE FOR PURPOSE OF DAMPENING UNDESIRABLE VIBRATIONS SET UP BY FLEXING OF SPRINGS, *Held* invalid and not infringed. *Blake* v. *Bassick Co.*, 262 F. Supp. 910; — USPQ —.

(D.C.N.Y.) Grashow Patent No. 2,509,563 (174—153), for AUTOMOBILE ANTENNA. Claims 1 to 3, 7 to 9, and 11 to 13 *Held* invalid. *General Bronze Corp.* v. *Ward Products Corp.*, 262 F. Supp. 936; 151 USPQ 532.

(D.C. Calif.) Molitor Patent No. 2,629,134 (274—310), for METHOD OF MANUFACTURING ARTICLES FROM VINYL RESINS, *Held* valid. *Sun Rubber Co.* v. *Mattel, Inc.*, 263 F. Supp. 287; — USPQ —.

(D.C. Ill.) Blake Patent No. 2,704,663 (267—1), for AUTOMATIC FURNITURE LEVELING GLIDE INCORPORATING "BOUNCING PUTTY," *Held* valid and infringed. *Blake* v. *Bassick Co.*, 262 F. Supp. 910; — USPQ —.

(C.A. Va.) McDonough Patent No. 2,736,323 (132—7), for PERMANENT WAVING SOLUTIONS AND METHODS. Claims 1, 13, 14, 17, 18 and 22 *Held* invalid. *Tidewater Patent Development Co.* v. *Kitchen*, 271 F.2d 1004; 152 USPQ 36.

(D.C.N.Y.) Grashow Patent No. 2,917,743 (343—713), for AUTOMOBILE ANTENNA APPARATUS. Claims 7 to 9 and 13 to 17 *Held* invalid. *General Bronze Corp.* v. *Ward Products Corp.*, 262 F. Supp. 936; 151 USPQ 532.

(D.C. Wis.) Podlesak Patent No. 2,919,990 (99—178), for METHOD OF CONTINUOUSLY PRODUCING PACKAGED UNITS, *Held* invalid. *National Dairy Products Corp.* v. *Borden Co.*, 261 F. Supp. 771; 151 USPQ 700.

(C.A. Calif.) Quick Patent No. 2,953,906 (62—81), for REFRIGERATION APPARATUS, *Held* invalid. *Recold Corp.* v. *Nurse*, 371 F.2d 562; 152 USPQ 297.

(D.C. Pa.) Baut and Baut Patent No. 3,064,380 (161—4), for ART GLASS PANEL. Claim 3 *Held* valid and infringed. *Baut* v. *Pethick Construction Co.*, 262 F. Supp. 350; 152 USPQ 212.

(D.C.N.Y.) Laguerre Patent No. 3,140,038 (229—54), for HANDLE AND CLOSURE DEVICE FOR THERMOPLASTIC BAGS, *Held* invalid. *C-Thru Products, Inc.* v. *Uniflex, Inc.*, 262 F. Supp. 213; 152 USPQ 303.

(D.C.N.Y.) Laguerre Patent No. 3,227,358 (131—207), for HANDLE AND CLOSURE DEVICE FOR THERMOPLASTIC BAGS, *Held* invalid. *Id.*

Adverse Decisions in Interferences

In the designated interferences involving the indicated claims of the following patents final decisions have been rendered that the respective patentees were not the first inventors with respect to the claims listed.

Patent No. 2,936,435, D. A. Buck, HIGH SPEED CRYOTRON, decided Mar. 10, 1967, Interference No. 92,260, claims 5, 9, 10, 11, 12, 14 and 15.

Patent No. 2,985,805, H. Nelson, SEMICONDUCTOR DEVICES, decided Mar. 23, 1967, Interference No. 95,234, claims 1, 2, 3, 4, 7 and 8.

Patent No. 3,074,977, H-J. Mannhardt, K-H. Bork, K. Bruckner and H. Metz, PROCESS FOR THE MANUFACTURE OF 16-METHYLENE CORTICOIDS AND INTERMEDIATES OBTAINED THEREIN, decided Mar. 17, 1967, Interference No. 94,787, claims 1, 2, 3 and 4.

Patent No. 3,079,396, W. E. Walles, PROCESS FOR MAKING N-VINYL-5-METHYL-2-OXAZOLIDINONE AND 5-METHYL-2-OXAZOLIDINONE, decided Aug. 31, 1966, Interference No. 94,381, claim 4.

Patent No. 3,083,183, U. Boschert and R. B. Dean, PROCESS FOR PRODUCING PHENOLIC RESINS USING ZINC BORATES AS CONDENSING AGENTS, decided Aug. 22, 1966, Interference No. 94,224, claims 1, 2, 5 and 6.

Patent No. 3,085,927, A. W. Pesch, PROCESS FOR PREPARATION OF FIBERS HAVING DIFFERING CHARACTER-

New Applications Received During March 1967

Patents	8024
Designs	478
Plant Patents	9
Reissues	25
Total	8536

Issue—May 9, 1967

Patents	1339	No. 3,317,921 to No.	3,319,259, incl.
Designs	44	No. 207,577 to No.	207,620, incl.
Plant Patents	1	No. 2,738	
Reissues	4	No. 26,199 to No.	26,202, incl.
Total	1388		

ISTICS, decided Dec. 22, 1966, Interference No. 94,357, claim 4.

Patent No. 3,098,225, H. C. Anderson, MEASURING PROCESS, decided Mar. 30, 1967, Interference No. 95,610, claim 1.

Patent No. 3,154,468, P. C. Aichenegg, C. D. Emerson and N. B. Jarnevic, PROCESS OF KILLING NEMATODES AND FUNGI WITH HALO VINYL AND HALOETHYL THIO CYCLIC IMIDES, decided Mar. 23, 1967, Interference No. 95,435, claims 7, 8, 9, 11, 12, 13 and 14.

Patent No. 3,191,733, T. J. Weir, TORQUE TRANSMITTING FLUID COUPLING, decided Mar. 22, 1967, Interference No. 95,413, claims 1, 2, 3, 4, 16, 17 and 18.

Patent No. 3,191,733, T. J. Weir, TORQUE TRANSMITTING FLUID COUPLING, decided Mar. 22, 1967, Interference No. 95,414, claims 5, 6, 7, 8 and 15.

Erratum

In the OFFICIAL GAZETTE of Oct. 25, 1966, vol. 831, p. 1327, second column, under the heading "Adverse Decisions in Interferences," line 24, for "claims 18 and 20" read *claims 18, 20 and 21.*

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF MARCH 27, 1967

PATENT EXAMINING OPERATIONS AND GROUPS	Actual Filing Date of Oldest Case Awaiting Action	
	New	Amended
CHEMICAL EXAMINING OPERATION—I. MARCUS, Director.		
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—R. L. CAMPBELL, Manager. Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	8-27-63	4-27-62
GENERAL ORGANIC CHEMISTRY, GROUP 120—G. D. MITCHELL, Manager. Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	7-25-63	9-12-61
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING; GROUP 140—M. STERMAN, Manager. Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping and Treating Processes.	1-15-64	1-16-62
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—J. R. LIBERMAN, Manager. Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	12-11-63	3-28-62
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Manager. Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	9-16-63	12-12-61
ELECTRICAL EXAMINING OPERATION—N. H. EVANS, Director.		
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—M. L. LEVY, Manager. Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	7- 9-63	9-21-62
SECURITY, GROUP 220—S. BOYD, Manager. Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedos, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	3-17-65	9- 9-63
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—E. J. SAX, Manager. Communications; Multiplexing Techniques; Facsimile; Date Processing, Computation and Conversion; Storage Devices and Related Arts.	8-22-63	7-20-61
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—F. M. STRADER, Manager. Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	9- 3-63	11- 3-61
PHYSICS, GROUP 280—R. L. EVANS, Manager. Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	2- 3-64	6-24-63
DESIGNS, GROUP 290—S. BOYD, Manager. Industrial Arts; Household, Personal and Fine Arts.	10-22-65	6-10-65

Total number of pending applications (excluding Designs)	188,923
Total number of Design applications pending	4,080
Total number of applications awaiting action (excluding Designs)	139,029
Total number of Design applications awaiting action	2,368
Date of oldest new application awaiting action	July 9, 1963
Date of oldest amended application awaiting action	July 20, 1961

EXPIRATION OF PATENTS

The patents within the range of numbers indicated below expire during May 1967, except those which may have been extended under the provisions of the Veterans Patent Extension Act (64 Stat. 316 as amended by 66 Stat. 321) and those which may have expired earlier due to shortened terms under the provisions of Public Law 600. A list of Veterans' patents which have been extended appears in the *Annual Index of Patents—1963.*

Patents..... Numbers 2,505,748 to 2,510,050, inclusive

Plant Patents..... Numbers 938 to 945, inclusive

PATENT EXAMINING OPERATIONS AND GROUPS (Continued)	Actual Filing Date of Oldest Case Awaiting Action	
	New	Amended
MECHANICAL EXAMINING OPERATION—F. H. BRONAUGH, Director.		
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Manager Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid, Flexible and Special Receptacles and Packages.	4-19-65	9-26-63
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—N. BERGER, Manager Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders; Woodworking; Tools; Cutlery; Jacks; Fasteners.	1-15-65	10-25-62
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Manager Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, Etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	9-18-64	7-17-62
HEAT AND POWER ENGINEERING, GROUP 340—C. F. GAREAU, Manager Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission.	7-16-65	6-23-64
FIXED CONSTRUCTIONS, SUPPORTS, AND HARDWARE, GROUP 350—T. J. HICKEY, Manager Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures.	5- 4-65	4-26-63
TEXTILES, CLEANING AND FLUID HANDLING, GROUP 360—W. S. COLE, Manager Fluid Handling, including Valves; Conduits; Filling Receptacles; Lubrication; Joint Packing; Bathroom Fixtures; Centrifugal Separators; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes and their Manufacture; Sewing Machines; Winding and Reeling.	2-16-65	7-25-62

DECISIONS IN PATENT AND TRADEMARK CASES

U.S. Court of Customs and Patent Appeals

GORDON GOULD *v.* ARTHUR L. SCHAWLOW AND CHARLES H. TOWNES

No. 7511. Decided August 4, 1966

[53 CCPA 1403; 363 F.2d 908; 150 USPQ 634]

1. INTERFERENCE—EVIDENCE—35 U.S.C. 102(g).

"Both Schawlow and Gould rely on their filing dates of July 30, 1958, and April 6, 1959, respectively, for constructive reduction to practice of the subject matter in interference, neither party alleging an actual reduction to practice prior to those dates. Under such circumstances it is, of course, well established interference law that the junior party, here Gould, must prove by a preponderance of the evidence (1) conception of the invention prior to July 30, 1958, and (2) reasonable diligence in reducing it to practice commencing from a time just prior to July 30, 1958, to his filing date of April 6, 1959. 35 U.S.C. 102(g)."

2. SAME—CONCEPTION—EVIDENCE.

"We think it is clear from the contentions of the parties and the expert testimony that the pages of Exhibit 1 are susceptible of numerous interpretations, each ostensibly plausible, as to what was actually in Gould's mind when he wrote those pages. In our opinion, Gould's notebook #1 is too ambiguous to justify the conclusion that he possessed 'a definite and permanent idea of the complete and operative invention,' or that he made his invention 'sufficiently plain to enable those skilled in the art to understand it.' See *Townsend* v. *Smith*, 17 CCPA 647, 36 F.2d 292, 4 USPQ 269."

3. SAME—DILIGENCE—EVIDENCE.

"Even were we to disregard for the moment the necessity for corroboration and thus give Gould's testimony the full weight to which properly corroborated testimony in an interference is entitled, we find the testimony in and of itself insufficient to adequately establish *what* Gould did and *when* he did it. Little attempt has been made to identify particular activity with particular times during the critical period of concern—July to December 1958 and especially July, August and September 1958—or to establish how such activity related to reducing to practice the subject matter of the counts. In our view, Gould's testimony taken as a whole does not set forth adequate facts to support a finding of that continuity of activity which constitutes reasonable diligence."

4. SAME—SAME—SAME.

"While reasonable diligence does not require that one abandon his means of livelihood to further his reduction to practice, it was incumbent upon Gould, if he intends to rely on the taking of time from his normal employment as acts of diligence, to establish *what* was done and *when* it was done. Merely stating, for example, that he took off 6½ days in July, 2 days in August, and 3 days in September does not enable us to ascertain the extent of time gaps in his activity. The months of July and August, bracketing Schawlow's entry into the field, are critical to Gould's case, and a lapse of nearly two months would result if 6½ days were taken at the start of that period and the 2 days at the end. The party chargeable with diligence must account for the entire period during which diligence is required."

5. SAME—SAME—SAME.

"We agree with the Board that Gould has not shown the relevance of the August conversation with Dr. Berman to reducing the laser of the counts to practice or overcoming obstacles in the way of a reduction to practice. Something more than mere conversation or keeping an idea under consideration is required to constitute diligence. See *Cottrell* v. *Shafer*, 25 CCPA 1171, 97 F.2d 121, 37 USPQ 726."

6. SAME—SAME—CORROBORATION.

"In any event, there is yet another requirement of the law of reasonable diligence, relating to the necessity of providing adequate corroboration of that diligence, which we feel Gould has not met. It is no reflection upon a

party to an interference that a court refuses to accept his uncorroborated testimony. The long standing requirement for additional evidence tending to confirm and strengthen or to demonstrate the probability of truth of an inventor's testimony has arisen because his opponent in an interference proceeding is rarely in a position to present evidence contradicting the inventor's statements as to his acts of invention."

7. SAME—SAME—CORROBORATION.

"Quite apart from those contentions, whether the counts be broadly or narrowly construed, the fact remains that Exhibit 9 is also wholly insufficient to establish the continuity of activity required for reasonable diligence. Gould concedes as much in his brief, and at oral argument counsel for Gould recognized that the notebook 'probably could not attest to his continuous diligence.' The notebook is not adequate corroboration of diligence if it establishes, in connection with other testimony, *what* Gould did but not *when* he did it. We simply cannot ascertain from the notebook and testimony during what portion of the period from November 1957 to December 1958 the bulk of the work summarized in Exhibit 9 was completed. While we do not depreciate the amount of time complex theoretical work of the sort represented in the notebook might require, the total period of time sought to be blanketed by the notebook is great—on the order of 13 months—and we, like the Board, have no way of satisfying ourselves that unexplained lapses have not occurred."

8. SAME—SAME—WORDS AND PHRASES—"DUE DILIGENCE."

"It appears to us that the distinction between 'due diligence' and 'reasonable diligence' is at best a question of semantics. See *Beidler* v. *Caps*, 17 CCPA 703, 36 F.2d 122, 4 USPQ 58."

APPEAL from the Patent Office. Interference No. 92,015.

AFFIRMED.

Darby & Darby (*Robert R. Keegan*, *Harvey W. Mortimer* of counsel) for appellant.

Arthur J. Torsiglieri, *Edwin B. Cave* for appellees.

Before WORLEY, *Chief Judge*, and RICH, MARTIN, SMITH, and ALMOND, JR., *Associate Judges*

WORLEY, *Chief Judge*, delivered the opinion of the court.

Gould[1] appeals from the decision of the Board of Patent Interferences which awarded priority of invention of the subject matter set forth in four counts to the senior party, Schawlow and Townes (Schawlow).[2] After reviewing a voluminous record in light of appellant's allegations of reversible error, but finding none, we affirm that decision.

The invention relates to an apparatus for *l*ight *a*mplification by *s*timulated *e*mission of *r*adiation, better known by the acronym "laser."

It appears that amplification of electromagnetic radiation by stimulated emission of radiation was first realized on a practical basis by devices[3] operating in the microwave frequency range. The laser is described in the record as an extension of the maser principle to optical wavelengths, i.e. infrared, visible and ultraviolet light. No matter in what portion of the electromagnetic spectrum it is designed to operate, it appears that the heart of a maser-like device is a working medium, generally a gas or solid, containing atoms or molecules which

[1] Gould is involved on application Serial No. 804,539, filed April 6, 1959, assigned in 1960 to TRG, Inc., a subsidiary of Control Data Corporation. In November 1957, the time Gould alleges conception of the invention in issue, he was a graduate student in physics at Columbia University and also worked as a research associate in the Columbia Radiation Laboratory. While the subject matter of his thesis bore no relation to lasers or masers, his work at Columbia Radiation Laboratory related to optically pumped microwave masers.

[2] Schawlow and Townes are involved on Patent No. 2,929,922, issued March 22, 1960, on an application filed July 30, 1958, and assigned to Bell Telephone Laboratories, Inc. The counts correspond to claims 4, 5, 8 and 9 of that patent.

At the time of interest here, Dr. Townes was a professor of physics at Columbia University and also served as a consultant to Bell Telephone Laboratories. Dr. Schawlow was employed as a research physicist at Bell Telephone Laboratories.

[3] It seems that the invention of such devices for *m*icrowave *a*mplification by *s*timulated *e*mission of *r*adiation, known as "masers," is generally attributed to the same Dr. Townes who is a party to this interference. For his contributions to the maser field, he shared the 1964 Nobel Prize in physics.

have one or more sets of energy levels. Unlike the situation ordinarily prevailing in a volume of matter at equilibrium, where the lower energy states of the material will be more heavily populated with atoms or molecules than the higher energy levels, the laser working medium contains material in which a higher energy level is populated by a significantly greater number of atoms than is a lower energy level of the material. A working medium in such a non-equilibrium condition is said to have an "inverted population" or "negative temperature." The means used to excite or "pump" the working medium to create an inverted population of atoms or molecules may comprise a source of electromagnetic energy, for example, a strong light of suitable wavelength directed at the working medium.

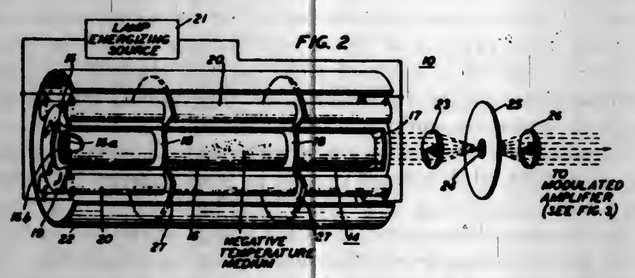
The record also shows that a medium in which a population inversion exists may be stimulated to emit its stored energy by wave energy (microwave energy in a "maser" and light energy in a "laser") of the frequency corresponding to the energy separation of the inverted pair of energy levels, thus amplifying the stimulating signal. In marked contrast to white light from the sun or an electric light bulb, which consists of a whole spectrum of colors and which is emitted in a random, non-directional manner when excited atoms spontaneously return to a lower energy level, the light radiation emerging from the laser device here under conditions of stimulated emission is both "temporally coherent" (a term used to describe the monochromatic nature of the emitted light) and "spatially coherent" (a term used to describe the tendency of the emergent light to undergo little divergence or spreading).

The counts of the interference relate to a laser comprising an active medium with the requisite energy level characteristics, means for pumping that medium, and a cavity resonator to enhance the laser operation. The cavity employed in microwave masers which characteristically has dimensions of the order of one wavelength, e.g. 1–100 centimeters, cannot be conveniently employed in light amplifiers because of the shortness ($10^{-5}-10^{-2}$ cm.) of light wavelengths. Rather, a cavity is utilized which has dimensions on the order of thousands or more of light wavelengths. Typically, the cavity defined by the counts is formed by a pair of spaced, plane, parallel optical reflectors, at least one of which is partially transparent, and side members through which pumping energy is admitted and some of the spontaneous and undesired stimulated emission, deviating in its travel from an axis perpendicular to the reflecting end plates, is allowed to escape. The laser employing a pair of opposed reflectors is now termed a Fabry-Perot laser, since the structure involved is reminiscent of the so-called Fabry-Perot interferometer used by physicists for a number of years. The desired output beam of the laser is built up or amplified by repeated passes back and forth along the axis perpendicular to the reflecting end plates, ultimately passing out of the cavity through the partially transparent end reflecting member in coherent form.

With the advent of devices capable of amplifying radiation other than microwaves, the term "maser" has assumed a more general meaning—*m*olecular *a*mplification by *s*timulated *e*mission of *r*adiation. The Schawlow patent uses the expression "optical maser" to denote an apparatus preforming the function of the "laser." As a consequence, the counts employ the expression "maser." Count 1, to which we have

added numerals keyed to FIG. 2 of the Schawlow patent reproduced below, is representative:

1. A maser generator comprising a chamber (14) having end reflective parallel members (16, 17) and side members (15), a negative temperature medium disposed with said chamber, and means (20) arranged about said chamber for pumping said medium, said side members being transparent to the pumping energy and transparent to or absorptive of other energy radiated thereat.



Some controversy has arisen in the parties' briefs and at oral argument as to the various forms of laser devices within the scope of the counts. We find it unnecessary to treat that issue for reasons which will become evident later in this opinion, and will proceed on the assumption that the counts are as broad as Gould asserts.

[1] Both Schawlow and Gould rely on their filing dates of July 30, 1958, and April 6, 1959, respectively, for constructive reduction to practice of the subject matter in interference, neither party alleging an actual reduction to practice prior to those dates. Under such circumstances it is, of course, well established interference law that the junior party, here Gould, must prove by a preponderance of the evidence (1) conception of the invention prior to July 30, 1958,[4] and (2) reasonable diligence in reducing it to practice commencing from a time just prior to July 30, 1958, to his filing date of April 6, 1959. 35 U.S.C. 102(g). The Board found that Gould had failed to prove either conception or diligence. We shall consider those issues separately.

Conception

In attempting to discharge his burden of proof, Gould relies primarily on his own testimony coupled with Exhibit 1, which is a bound notebook identified as notebook #1. Pages 1 to 9, the only pages relevant here, were witnessed November 13, 1957, by a notary public. The notary testified that, while he did not read the contents of that notebook and would not have understood them had he tried to do so, "those pages were full" at the time he signed on the margins. The Board, but for two "insignificant exceptions" relating to additions Gould admitted making after the date of notarization, accepted Exhibit 1 as a "genuine and authentic document existing substantially as when notarized."

However, the Board held that pages 1 to 9 of Exhibit 1 did not disclose "an operative embodiment of the subject matter of the counts," stating:

* * * In particular, the notebook No. 1 does not specifically indicate how the pump light is to be applied to the active medium nor that the sides of the

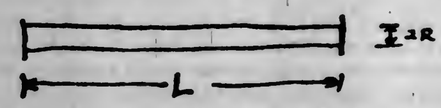
[4] Schawlow and Townes submitted testimony and documentary exhibits to establish their conception earlier than their filing date. The Board did not find it necessary to consider that evidence, nor do we.

cavity are transparent to the laser light. Gould himself testified that the disclosure of the notebook No. 1 does not explicitly show a laser with "side members being transparent to the pumping energy and transparent to or absorptive of other energy radiated thereat" although he did indicate his belief that it was obvious that such was the construction of the side members of the apparatus of FIGURE 1 of the disclosure. * * * Although it is urged that one skilled in the art would realize that the walls of the tube illustrated on page 1 of notebook No. 1 were non-reflective and, specifically, were transparent to both pumping and laser light we are not prepared to accept this unsubstantiated conclusion.

Set forth below are the drawing and associated text in Gould's notebook which he relies on to establish conception:

SOME ROUGH CALCULATIONS ON THE FEASIBILITY OF A LASER: LIGHT AMPLIFICATION BY STIMULATED EMISSION OF RADIATION

Conceive a tube terminated by optically flat



partially reflecting parallel mirrors. The mirrors might be silvered or multilayer interference reflectors. The latter are almost lossless and may have high reflectance depending on the number of layers. A practical achievement is 98% in the visible for a 7-layer reflector. * * *

Consider a plane standing wave in the tube. There is the effect of a closed cavity; since the wavelength is small the diffraction and hence the lateral loss is negligible.

If the tube contains an excess of atoms in a higher electronic state, a plane travelling wave may grow by inducing transitions in the atoms, which must add energy to the wave * * *.

* * * * * * *

There are several possibilities for excitation:

A. Optical excitation from an external discharge. * * *

* * * * * * *

The Narrow Beam

B. The (coherent) beam of light would emerge from the partially transmitting mirrors as a wave which was plane to within a fraction of wavelength, that is the beam would have an angular divergence 10^{-5} or better. At a distance of one kilometer the beam would have broadened ~1 centimeter. Thus the beam could travel long distances essentially unweakened. Application to communication, radar etc. are obvious. * * *

It is true, as the Board noted, that Gould has conceded that his notebook disclosure does not state "in so many words" that the side walls of the contemplated device are "transparent to the pumping energy and transparent to or absorptive of other energy radiated thereat," as count 1 requires. However, Gould submits that "even a relatively untrained layman" should be able to understand that the disclosed apparatus meets the terms of the counts in those respects, and that the Board erred in failing to consider expert testimony on that issue. In addition to his own testimony, Gould introduced expert testimony intended to estabalish that Exhibit 1 constitutes a sufficiently full and clear conception to enable one of ordinary skill to build an operative laser. Schawlow also introduced expert testimony to show that Exhibit 1 was insufficient in that respect. Inasmuch as the experts testified in 1963 regarding material written by Gould in 1957 we are unable to determine how much, if any, their views might be affected by knowledge of the requisite structure of a laser device acquired during the intervening years. At any rate, in

order to illustrate the conflicting views of even the experts in this field, we quote at length from their testimony.[5]

Gould states in his brief with respect to the nature of the side walls of the disclosed device:

The count requires that the sides of the tube be transparent to the pumping energy. This is clearly taught by the Gould disclosure as it refers to *optical* excitation from an *external* discharge. If the medium within the tube is to be excited optically from an external discharge clearly some portion of the tube has to be transparent. Gould has already stated that the flat ends of the tube are 98% reflective so that it is impossible to fail to understand from the disclosure that the sides of the tube are transparent to the pumping energy, that is the "optical excitation from an external discharge."

* * * * * * *

Counts 1 and 2 also call for the sides to be transparent to or absorptive of "other energy. * * * it is quite clear from Gould notebook No. 1 that the sides are *transparent* to this [laser] light. If the side walls were *reflective*, the tube would *actually* constitute a closed cavity. Gould clearly explains that the cavity is not closed in actuality. He states "there is the *effect* of a closed cavity; since the wavelength is small the diffraction and hence the lateral loss is negligible." [*] Gould's statement also clearly indicates that if it were not for the fact that diffraction effects are small there would be nothing to prevent the loss of laser light through the sides of the tube. That is, they are transparent.

In answer to the argument marked by [*], Schawlow urges:

However, it is to be noted that this statement is prefaced by the statement "Consider a plane standing wave" indicating that the subsequent discussion was concerned particularly with such a wave. The plane standing wave could be expected to be the dominant wave in a cavity having parallel reflective end members and is the one in which Gould was primarily interested. Such a wave corresponds to the wave bouncing back and forth between the two end members, without striking the side members. It is evident that for such a wave the parallel end members bound the field configuration and simulate a closed cavity. In other words, for the case postulated of only a plane standing wave, the nature of the side members is irrelevant; they can be reflective or non-reflective with little effect on the plane standing wave. This explains why Gould said nothing about the side members. For the case he analyzed in which only a plane standing wave was considered, the side members were, in fact, unimportant. What was unappreciated by Gould (and also apparently initially by Townes, too) was that unless the side members were made transparent or absorptive (i.e. non-reflective) of the stimulated light, additional undesired oscillatory modes could also be simultaneously excited. This failure to appreicate that a large number of modes were likely to be excited simultaneously was understandable because it was not a problem in the mircowave maser, the area of Gould's maser expertise. In other words, Gould did not then recognize that there was a problem and, accordingly, made no effort to provide a solution.

Gould, in turn, contends in his reply brief:

* * * "Additional undesired oscillatory modes could also be simultaneously excited" [referring to Schawlow's statement above] means, in plain English, that rays of laser (stimulated) light could be emitted over a wide range of angles and thus the highly useful, narrow, almost non-diverging beam of the Fabry-Perot laser would not be produced. It is possible to understand this intuitively in terms of the fact that laser light rays could bounce off the side walls of the laser if they were reflective, and thus the laser output would not be restricted to rays which were almost precisely perpendicular to the parallel plane reflectors.

[5] For example, one of Gould's witnesses, Dr. Peter Bender of the National Bureau of Standards, testified that one of three essential elements of a laser, in addition to a working medium and means for producing a population inversion in the working medium, is a structure "capable of giving some feed-back of radiation emitted by the atoms or molecules to obtain a high degree of coherence" and "which allowed substantial energy generation in only a few of the resonant modes of the structure * * *." He further stated:

Q41. What is one of the simplest examples of such a structure? A. The so called Fabry-Perot cavity.
Q42. What does a Fabry-Perot cavity consist of essentially? A. This consists of flat parallel mirrors.
* * * * * * *
Q60. A third essential of a laser structure of the type which we are discussing, I believe you stated was the structure? A. Yes.
Q61. And I believe you gave an example of such a structure as being a Fabry-Perot cavity? A. Yes.
Q62. What type of structure is suggested in that notebook [Exhibit 1]? A. The notebook suggests just this type of structure.
* * * * * * *
Q81. Are there any further significant elements enumerated there [in patent claim 4, count 1], besides the three that we have been talking about? A. It does refer to the side members being transparent. However, this appears to me to be implicit in Gould's notebook number one.
Q82. Is it an implicit requirement of a laser, assuming that it is to be optically pumped? A. It in general is necessary, in order to achieve a high degree of coherence. It is also of course necessary to permit the pumping radiation to enter the cavity.
* * * * * * *
Q101. In what way can you obtain this condition of coherency to a considerable degree in some of the related phenomena that we have been discussing in a laser? A. The use of a structure with the reflecting mirrors at the end, and with the longitudinal dimension considerably longer than the transverse dimensions, accomplishes this purpose.

Another Gould witness, Dr. Peter Franken, professor of physics at the University of Michigan, appears to have been more equivocal than Dr. Bender:

Q38. Professor Franken, let me now direct you more specifically to Exhibit 1, and ask you if there is an optical cavity disclosed in that document? A. Yes. On page 1 is described an optical cavity usually referred to as one of the Fabry-Perot type.
Q39. Does this document use that terminology expressly? A. The words "Fabry-Perot" do not appear in Exhibit 1. I use the term myself because it is in common usage today to describe this particular type of cavity.
Q40. What are the features of this particular type cavity that you find that characterize it as a Fabry-Perot in your mind? A. It consists of optically flat, plane, parallel, partially reflecting mirrors separated in this instance by a length significantly greater than the diameter of the mirrors. I am referring specifically to the figure and the description of page 1.
* * * * * * *
Q88. Referring to this Exhibit No. 1, Gordon Gould's notebook, and specifically the notarized pages, do you find in there a sufficient disclosure for one ordinarily skilled in the art to follow and produce a laser, more specifically, a Fabry-Perot laser? A. Yes.
* * * * * * *
Q113. Does it [the structure of Exhibit 1] have non-reflective side members? A. The construction of the side members isn't specified.
Q114. Does it have reflected side members? A. These are not indicated.
Q115. If you were to build a device, would you build it with reflective side members? A. What device do you have in mind?
Q116. The device that is suggested here. A. I would not.
Q117. Why would you not build it that way? A. Because this document does not instruct me to and, in addition, this document teaches me, further on, that I must project pumping radiation through the active medium.
Q118. What, then, would be the inferred teaching with respect to the reflectivity of the side members? A. The presumption is that the side members serve only a structural function; that is, a means of maintaining the parallelness and separation of the plates and a means of containing the active medium.
I want to add that I am interpreting your question to mean how would I go about constructing the device described in this notebook.
Q119. Would one ordinarily skilled in the art in November, 1957 go about construction of the device in the same way according to the teaching of this document, in your opinion? A. I think so.
* * * * * * *
Q124. Is a mechanism for pumping the laser medium indicated? * * * A. We are clearly instructed to provide optical excitation from an external discharge. The geometry of that arrangement is not specified, nor is the exact nature of the sources.
* * * * * * *
Q130. Are the side members of the apparatus, let us say the apparatus on page 1 of the notebook of Gould, transparent to the pumping energy and transparent or absorptive of other energy? * * * A. As I mentioned before, the structure of the side members is not specified in this notebook.
Q131. If the device were to be constructed by one of ordinary skill in the art in November, 1957, would it be constructed with side members transparent to the pumping energy and transparent to or absorptive or other energy? A. It would surely be constructed transparent to the pumping energy. Whether or not these walls would be constructed to have particular absorption bands, such as to eliminate undesirable radiations, would depend on the ingenuity of the person and is a matter of conjecture.
Q132. I believe that takes care of the pumping energy. With respect to other energy, would the side walls be either transparent or absorptive of other energy, as well as the pumping energy? To clarify my question, I don't mean all other energy, obviously. A. Specific instructions for these aspects of the design are not included in this notebook.
Q133. I am referring back to my previous question. I am trying to get a full answer to my previous question, which was the manner in which this would be constructed by one ordinarily skilled in the art following the teaching of the notebook in November, 1957, not the previous question with regard to specific instructions. A. The only definite statements that I can make are that the side walls would be transparent to the pumping radiation and would serve or satisfy some of the obvious structural requirements.
Q134. Can you say anything with respect to the laser radiation and the characteristics of the side walls with respect to it? A. Not from this notebook.

Although Dr. Franken, like Dr. Bender, likened the device disclosed by Exhibit 1 to what is now known as a Fabry-Perot device, it is never made clear how that conclusion is reached in view of the admitted absence of clear teaching with respect to the side walls. Nor is it clear what relation the side walls necessarily bear to a Fabry-Perot device, particularly in view of both parties' testimony that the Fabry-Perot cavity consists only of spaced flat parallel mirrors.

Schawlow's expert, Dr. C. G. B. Garrett of Bell Telephone Laboratories, testified:

Q46. Does Exhibit 1 discuss any method of pumping an active medium? A. There is only one sentence which might have some bearing on that. This is the sentence on page 5, "optical excitation from an external discharge." No specific disclosure is made at this point or elsewhere in Exhibit 1 as to how such excitation is to be achieved.
* * * * * * *
Q54. Is there any indication in Exhibit 1 of what kind of external discharge would be used to provide the excitation? A. No.
* * * * * * *
Q60. Is there any indication in Exhibit 1 of how the light from the external discharge is to be coupled to the active medium? A. No.
* * * * * * *
Q94. In your opinion, could an ordinarily skilled physicist have followed the disclosure in Exhibit 1 and build an operable laser in 1957. A. No.

It is urged that Gould perfectly understood the necessity of non-reflective side walls to produce a non-divergent beam of light as evidenced by the last paragraph quoted from Exhibit 1.

As the last word in this already lengthy interchange of argument, Schawlow points out:

> * * * It is now known that when the side walls of a laser are made reflective of the stimulated light there is a tendency for the laser to oscillate in a plurality of modes of slightly different wavelengths and directions. * * * Appellant's reply brief takes the position that Gould necessarily understood this perfectly because he postulated that the device he described would provide a non-diverging beam. It is difficult to see how this postulate establishes that he in fact appreciated that non-reflective side members were essential to this desired result. Obviously if he failed to appreciate that reflective side walls resulted in additional modes and a diverging beam, he would believe that he would achieve a non-diverging beam independently of the nature of the side walls.

As reflected above, most of the testimony and the parties' arguments hereinbefore quoted are concerned with whether Gould conceived a laser device with side members "transparent to or absorptive of other energy radiated thereat," referring to stimulated laser light undesirably deviating from a path perpendicular to the reflective end members.

[2] We think it is clear from the contentions of the parties and the expert testimony that the pages of Exhibit 1 are susceptible of numerous interpretations, each ostensibly plausible, as to what was actually in Gould's mind when he wrote those pages. In our opinion, Gould's notebook #1 is too ambiguous to justify the conclusion that he possessed "a definite and permanent idea of the complete and operative invention," or that he made his invention "sufficiently plain to enable those skilled in the art to understand it." See *Townsend* v. *Smith*, 17 CCPA 647, 36 F.2d 292, 4 USPQ 269.

As was stated in *Mergenthaler* v. *Scudder*, 11 App. D.C. 264:

> * * * But if drawings be exhibited and relied on, as evidence of the conception of the invention, they must show *a complete conception, free from ambiguity* or doubt, and such as would enable the inventor or others skilled in the art to reduce the conception to practice without any further exercise of inventive skill. (Emphasis supplied.)

We agree with the Board that Gould has not proved by a preponderance of the evidence that his conception of the laser device described in Exhibit 1 included side members which are non-reflective, viz, transparent to or absorptive of other energy, particularly undesired stimulated laser light, radiated thereat.

But even assuming for purpose of discussion, as did the Board, that Gould properly discharged his burden of proving conception of the invention, which we do not think is the case, he still must prove reasonable diligence in reducing that conception to practice in order to prevail. That question we now consider.

Diligence

To establish reasonable diligence during the critical period from just prior to July 30, 1958, to April 6, 1959, Gould relies principally on his own testimony; that of his wife, Ruth; Exhibit 9, a notebook said to represent a "distillation" of his efforts from November 1957 to December 1958; and the testimony of his patent attorney relating to their joint activities from December 1958 to April 1959.

Little or no question has been raised by either the Board or Schawlow concerning Gould's diligence from December 1958 to his filing

date of April 6, 1959. The record shows that during that time Gould's attorney prepared the present application[*] while concurrently engaged in a 40-day patent infringement trial in Utica, New York. Under the circumstances, we do not think further discussion of the activities of Gould or his attorney during that period of time is necessary.

It appears from Gould's testimony that, shortly after recording his alleged conception in Exhibit 1, he became cognizant of the potential high cost of building his proposed device, and also became "aware of the considerable experimental difficulties in dealing with the alkali elements," the material he proposed as a working medium in that notebook. He began to consider "other possibilities that might be easier * * * to build," stating that "I was more interested in seeing it [the laser] built than trying to protect myself in my patent interests." He testified that he worked on such theoretical considerations evenings and weekends at home and in libraries, studying "a large amount of background material" and making "rough calculations in connection with that background material." As an example of some of the things he did during that period Gould stated he "conceived of a number of other pumping mechanisms besides optical pumping," and spent "maybe a hundred hours" searching the "M.I.T. wave length tables" for coincidences between strong spectral lines to find "elements that could be optically pumped." He also described the laser invention "briefly" to his patent attorney in January 1958, and was advised at that time that Columbia University would have no patent rights in that invention. The motivation for that visit to his attorney, Gould stated, was that he realized "more and more what an important development" the laser would be, having written the notebook consituting Exhibit 1 and having made a further study of the background material.

In the belief he would not be able to do experimental work on the laser at Columbia University until he had completed his thesis, Gould simultaneously sought to locate a research facility where experimental laser work could be done. To that end he visited Stevens Institute of Technology sometime between November 1957 and February 1958, where Professor Bostick told Gould that there were insufficient funds available at Stevens to support work in the laser field. Gould stated he described the laser "in great detail" in March 1958 to his friend, Dr. Alan Berman, an individual "knowledgeable in the area of masers, generally," upon seeking employment to work on the laser at Hudson Laboratories, where Dr. Berman was associate director.

In late March 1958, Gould left Columbia University without completing his Ph.D. degree requirements, and joined the staff at TRG, Inc. According to Gould, his reason for leaving Columbia and joining TRG was to have an opportunity to do experimental work on the laser, having understood from his interviews with Dr. Daly of that company that he would have such an opportunity after completing his initial assignment on a research contract relating to a rubidium gas frequency standard, a project which occupied Gould's working time until the end of May 1958. While on that project, he

[*] Schawlow points out that Gould's activity directed toward filing his patent application appears to have begun only after Gould saw, on or about December 1, 1958, a preprint of a paper published December 15, 1958, by Schawlow and Townes in the *Physical Review*. The preprint, substantially identical in text to the printed article, described in detail the particular laser invention here in issue. Schawlow contends that similar circumstances have been deemed to require more convincing proof of diligence than might otherwise have been the case, citing *Andrew* v. *Downs*, 56 App. D.C. 398, 8 F.2d 1014. Since we find Gould has not met his burden of proving reasonable diligence by a preponderance of the evidence, we think it unnecessary to rule on the issue presented by Schawlow.

disclosed his laser concept to co-worker Newstein. His next project was to write a proposal to build a rubidium maser which occupied his time until June 13; in the ensuing months through October, Gould apparently was engaged in experimental work on the rubidium maser.

During his free time from March to June 1958, Gould stated he "was busy formulating and writing down in a notebook the principles of the laser." The notebook referred to apparently is Exhibit 9, about which we will have more to say later. Gould testified he took 6½ days off from work at TRG in July, telling Dr. Goldmuntz, TRG's president, that he wished to finish writing his thesis.[7] Actually, Gould stated, the real purpose of taking time off was "to get this laser notebook written," since he believed he would never finish it in a reasonable time by working on it only on weekends and evenings. Gould testified he took off two days in August, three days in September, 13½ days in October and 12 days in November for the same purpose. In August, Gould again talked to Dr. Berman concerning the laser, explaining "how it worked and what its applications would be."

Toward the end of September 1958, Gould first informed Dr. Goldmuntz of his ideas concerning the laser, and was subsequently assigned to write, on company time, a proposal[8] describing the device and methods of building it. By the middle of December 1958, the proposal was completed and submitted to various government agencies and Aerojet General Corporation for evaluation. The Advanced Research Projects Agency subsequently awarded TRG a research contract totaling nearly a million dollars for development of the subject matter of the proposal.

Summarizing his activities over the period November 1957 to December 1958, Gould estimated he spent "approximately a thousand hours" acquiring the knowledge which enabled him to devise the ideas expressed in Exhibit 9, and that there were no months or weeks during that period in which he did not "work on the laser."

In commenting on Gould's evidence of diligence, the Board stated:

> * * * we do not find that a sufficient account has been made of the critical period so that we can assure ourselves that no unexplained lapse appears therein. Occurences such as Gould's failure to participate in the reconditioning of his boat in the spring of 1958, and conversations such as those with co-worker Newstein at TRG, Inc. and with Dr. Alan Berman at beach parties in May and August, 1958 do not corroborate specific significant acts directly related to giving the invention a physical embodiment. Such evidence is far too fragmentary, and leaves to mere inference that Gould was actively engaged in reducing the invention to practice during this crucial period. We are not prepared to make this inference.

Nor are we. [3] Even were we to disregard for the moment the necessity for corroboration and thus give Gould's testimony the full weight to which properly corroborated testimony in an interference is entitled, we find the testimony in and of itself insufficient to adequately establish *what* Gould did and *when* he did it. Little attempt has been made to identify particular activity with particular times during the critical period of concern—July to December 1958 and especially July, August and September 1958—or to establish how such activity related to reducing to practice the subject matter of the counts. In our view, Gould's testimony taken as a whole does not

[7] Goldmuntz testified that, during the summer of 1958, Gould did ask for time off "to work on his thesis and related matters."

[8] While that proposal is not part of the present record, testimony shows that it describes various laser devices, as well as many systems incorporating laser devices.

set forth adequate facts to support a finding of that continuity of activity which constitutes reasonable diligence. Merely stating that there were no weeks or months that he "did not work on the laser" is not enough, absent supporting facts showing specifically what that "work" consisted of and when it was performed.

Much of Gould's more detailed testimony, as summarized above, relates to the period November 1957 to March 1958. Apart from his general assertions that there were no weeks or months in 1958 that he did not work on the laser, we find the only relevant activities from July to September 1958 referred to by Gould are his acts of taking off from work at TRG in those months and his discussion with Dr. Berman in August.[9] Gould asserts the Board erred in basing its decision as to the question of diligence in part on the extent to which Gould took days off from TRG to record his ideas in Exhibit 9. [4] While reasonable diligence does not require that one abandon his means of livelihood to further his reduction to practice, it was incumbent upon Gould, if he intends to rely on the taking of time from his normal employment as acts of diligence, to establish *what* was done and *when* it was done. Merely stating, for example, that he took off 6½ days in July, 2 days in August, and 3 days in September does not enable us to ascertain the extent of time gaps in his activity. The months of July and August, bracketing Schawlow's entry into the field, are critical to Gould's case, and a lapse of nearly two months would result if 6½ days were taken at the start of that period and the 2 days at the end. The party chargeable with diligence must account for the entire period during which diligence is required. Gould has not done so here. As in *Ireland* v. *Smith*, 25 CCPA 1258, 97 F.2d 95, 37 USPQ 807:

> We may surmise that appellant was probably diligent * * * but mere surmise cannot take the place of proof * * *.

[6] In any event, there is yet another requirement of the law of reasonable diligence, relating to the necessity of providing adequate corroboration of that diligence, which we feel Gould has not met. It is no reflection upon a party to an interference that a court refuses to accept his uncorroborated testimony. The long standing requirement for additional evidence tending to confirm and strengthen or to demonstrate the probability of truth of an inventor's testimony has arisen because his opponent in an interference proceeding is rarely in a position to present evidence contradicting the inventor's statements as to his acts of invention.

While recognizing the validity of the above principles, Gould contends the Board erred in failing to consider the testimony of his wife, Ruth, as to his diligence throughout the critical period. It is Gould's position that his wife's testimony, considered with his own, provides "basic support" for the proposition that he was working continuously "throughout the year 1958" on refinements necessary to achieving a less complicated reduction to practice of the laser invention.

Although the Board did not mention Mrs. Gould's testimony, we will examine her testimony in somewhat greater detail in view of Gould's emphasis thereon here. On direct examination, she stated that, *prior* to and apparently shortly after Gould's incorporation in

[5] We agree with the Board that Gould has not shown the relevance of the August conversation with Dr. Berman to reducing the laser of the counts to practice or overcoming obstacles in the way of a reduction to practice. Something more than mere conversation or keeping an idea under consideration is required to constitute diligence. See *Cottrell* v. *Shafer*, 25 CCPA 1171, 97 F.2d 121, 37 USPQ 726.

November 1957 of his conception ideas in the notebook constituting Exhibit 1:

> He was supposed to be [working on his thesis], but he was not spending as much time on it as he should have. He was spending most of it working on the laser.

She further stated that at "that time" he worked "three or four times a week" at his desk, "calculating, reading the literature."

On cross examination, Schawlow's counsel elicited testimony that, although she possessed a Ph.D. degree in biophysics, she understood Gould's work on lasers, as well as his work at Columbia University, "only vaguely."

The following colloquy on redirect is, in our opinion, the only testimony of Mrs. Gould which can reasonably be said to bear any relation to Gould's activities after he left Columbia University in March 1958:

> RDQ83. And from the time that he left Columbia he was working on the laser, and not on the thesis, according to your understanding? A. Yes.
>
> * * * * * * *
>
> RDQ85. And how long did this continue, this work at home? I refer you to the time when a contract proposal was made of which you were advised.[10] Did this work continue until that time? A. Definitely.
>
> RDQ86. And beyond? A. I am not aware of any sharp time when it really stopped. It seems to me from the time he said he had conceived the idea he was continuously working on it.

In *Kendall* v. *Searles*, 36 CCPA 1045, 173 F.2d 986, 81 USPQ 363, this court said with respect to similar testimony:

> The testimony of appellant's other corroborating witnesses, namely, his wife and son, was of a general nature to the effect that appellant from the time of his conception worked continuously on the development of his idea. Their evidence, which was not specific as to dates and facts, does not constitute the kind of corroboratory evidence required to establish appellant's diligence during the critical period.

That statement is applicable here. In our view, Mrs. Gould's testimony fails to corroborate Gould's claim of diligence during the period July-December 1958, which is presumably the reason the Board did not mention it.

Gould relies on one other piece of evidence—the bound notebook variously identified as Exhibit 9 and notebook No. 2—which he contends is "singularly impressive corroboration of diligence * * * from late 1957 through to December, 1958." In his brief, Gould describes Exhibit 9:

> * * * It comprises more than 87 pages of description and analysis and improved forms of the laser. The exact date when notebook No. 2 was commenced is not accurately known. The notebook is not a journal but is rather a summary and a record of extensive analyses from which only the successful results are recorded in the notebook itself. The notebook is not dated on every page. It is known, however, that the first 23 pages were completed by August 28, 1958, by virtue of the signature and date placed therein by Lawrence A. Wills. The concluding page number 87 is dated December 1, 1958 (by Richard T. Daley and December 2, 1958, by Gordon Gould).

Schawlow points out that Wills and Daley, whose dated signatures appear on pages 23 and 87 of Exhibit 9, were not called as witnesses to establish the authenticity of the signatures or dates, and that no evidence has been introduced other than Gould's testimony that Exhibit 9 was even in existence on those dates. Schawlow also argues

[10] The record does not identify just what "contract proposal" was contemplated by counsel or Mrs. Gould, or establish whether it bears any relation to the proposal submitted by TRG to government agencies in December 1958. It has been noted above that there is mention in the record of another proposal relating to a rubidium maser on which Gould states he worked in June 1958.

that Gould has not pointed out the relevance of much of the contents of Exhibit 9 to the subject matter in issue or what portions may be said to contribute to a reduction to practice.

[7] Quite apart from those contentions, whether the counts be broadly or narrowly construed, the fact remains that Exhibit 9 is also wholly insufficient to establish the continuity of activity required for reasonable diligence. Gould concedes as much in his brief, and at oral argument counsel for Gould recognized that the notebook "probably could not attest to his continuous diligence." The notebook is not adequate corroboration of diligence if it establishes, in connection with other testimony, *what* Gould did but not *when* he did it. We simply cannot ascertain from the notebook and testimony during what portion of the period from November 1957 to December 1958 the bulk of the work summarized in Exhibit 9 was completed. While we do not depreciate the amount of time complex theoretical work of the sort represented in the notebook might require, the total period of time sought to be blanketed by the notebook is great—on the order of 13 months—and we, like the Board, have no way of satisfying ourselves that unexplained lapses have not occurred.

Finally, Gould contends that the Board has taken a "formalistic approach" to the doctrine of reasonable diligence in its statement:

> * * * we are not convinced that he was proceeding with due diligence in reducing the subject matter of the counts to practice during that portion of the critical period just prior to and after July 30, 1958, the record date of the senior party's entry into the field.

Whatever *due* diligence may be, Gould asserts, it would appear to reflect a particularly high standard, more than the "reasonable diligence" required by statute, and may not properly be required to establish priority.[11] The effect of the Board's holding, Gould contends, is to deny him the benefit of the principle that

> * * * An inventor who is the first to conceive an invention can prevail, no matter how limited his resources may be, and no matter how long it should take him to complete the invention, if he devotes those resources at his command with reasonable and continuous diligence toward the actual reduction to practice of the invention.

Similar arguments have been made over the years, but the fact remains that the presence or absence of reasonable diligence must necessarily be determined by the evidence adduced in each case. Here the Board held, and properly so, that Gould had failed to provide sufficient evidence to discharge his burden of proving reasonable diligence in reducing the invention to practice.

Gould would have us believe that his alleged efforts to construct a simpler and less expensive embodiment of his conception are penalized, rather than rewarded, by the patent statutes—statutes which have contributed mightily to the unprecedented advances of this country in so many fields. But such is not the case. Congress has wisely provided the same opportunity for the inventor whose attic is his laboratory as for the giants of modern industry to file a patent application and obtain the protection thereby afforded. We are aware of no valid reason why Gould could not have taken advantage of his opportunity to timely file his application and obtain the benefits of a constructive reduction to practice as did Schawlow. See *Schweyer* v. *Thomas*, 21 CCPA 859, 68 F.2d 953, 20 USPQ 273.

[8] [11] It appears to us that the distinction between "due diligence" and "reasonable diligence" is at best a question of semantics. See *Beidler* v. *Caps*, 17 CCPA 703, 36 F.2d 122, 4 USPQ 58.

Clearly it was the intent of Congress to assure the first inventor who had completed the mental act of invention that he should not be deprived of his reward by reason of delays which he could not reasonably avoid in giving his invention to the public. But we must bear in mind that it was not alone to reward the inventor that the patent monopoly was granted. The public was to get its reward and have the advantage of the inventor's discovery as early as was reasonably possible. * * * [12]

Our review of the record with due regard for Gould's arguments convinces us that the Board did not err in awarding Schawlow and Townes priority of invention.

The decision is affirmed.

AFFIRMED.

MARTIN, *J.*, concurring, with whom SMITH, *J.*, joins.

In my view the proofs of Gould are satisfactory to show conception of side walls that are transparent to the pumping energy. Gould's Exhibit 1 refers to "Light Amplification" by stimulated emission of radiation and the excitation is optical from an external discharge. Thus, I agree with Gould that a side wall meeting that requirement of the counts was conceived.

However, I do not think that conception of the requirement, "transparent to or absorptive of other energy radiated thereat," meaning non-reflective side walls so that other modes would not be excited, was established. Although some lateral loss was expected, that does not establish the concept of non-reflectivity of the side walls.

In my view, that is as far as this court need go and discussion of diligence is dictum, as clearly what has not been conceived as of a given date cannot be proven as constructively reduced to practice by showing diligence from that date. However, I find it necessary to add the following comments since I feel the Board misconstrued the requirement of diligence when appellant urged that he was working toward an actual reduction to practice of a working laser, that is, a physical embodiment of the invention.

The Board noted appellant has failed to prove "specific significant acts *directly related to* giving the invention *a physical embodiment.*" [Emphasis added.] There is, however, but a single standard for diligence regardless of whether the parties rely on an actual reduction to practice or, as here in the case of *both* parties, a constructive reduction to practice. The Board, in looking for specific significant acts *related* to a physical embodiment, seems to be setting a standard of diligence that cannot be met or is not required in any constructive reduction to practice case. This is particularly true where, as here, the nature of the invention is highly theoretical and actual reduction to practice is a financial impossibility for all but corporations or the government.

I do not think that any standard of diligence should penalize either the privilege afforded inventors of obtaining a constructive reduction to practice by filing a patent application or the inventor's attempts to continue toward an actual reduction to practice. To me the question is whether appellant has been diligent in working on *the invention*, whether toward preparation of papers for filing an application or toward construction of a physical embodiment. Leaving one's drawing board for the work bench should not be a presumptive "lapse" or break in the chain of diligence, even where at the work bench it

[12] *Hull* v. *Davenport*, 24 CCPA 1194, 90 F.2d 103, 33 USPQ 506.

becomes apparent that the physical embodiment is far off, and it is necessary to fall back on a constructive reduction to practice. This seems to be true particularly where the legal conclusion of whether the application satisfies 35 U.S.C. 112 is not necessarily predictable. I would give little legal effect to an intervening contact with an attorney as the question is whether the inventor was diligent in working on the invention.

I do not mean to imply that I take issue with the majority's conclusion as to diligence and corroboration. Rather, I do not find it necessary to reach the issue. I simply do not wish to place any stamp of approval on the Board's language.

PATENT SUITS

Notices under 35 U.S.C. 290; Patent Act of 1952

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2,736,895, C. A. Cochrane, HIGH FREQUENCY RADIO AERIALS; **2,867,801**, Mariner and Cochrane, same, filed Dec. 29, 1966, Ct. Cl., Doc. 432–66, *Elliott-Automation Ltd. et al.* v. *The United States.*

2,742,462, G. Geber, NEW N-(5-NITRO-2-FURFURYLIDENE)-3-AMINO-2-OXAZOLIDONES, filed Feb. 7, 1967, D.C., N.D. Calif. (San Francisco), Doc. 46486, *The Norwich Pharmacal Co.* v. *Barlas Feed Company.*

2,748,480, B. Weissman, ARTIFICIAL DENTURE, filed Dec. 5, 1963, D.C., E.D.N.Y. (Brooklyn), Doc. 63C–1286, *Whaledent, Inc.* v. *Lajos Salomon.* Stipulation and order discontinuing action, Mar. 10, 1967.

2,756,361, K. J. Germeshausen, GASEOUS-DISCHARGE DEVICE AND METHOD OF MAKING THE SAME, filed Mar. 6, 1967, D.C. Mass. (Boston), Doc. C.A. 67–207–G, *EG & G, Inc.* v. *Xenon, Inc.*

2,785,810, V. J. Kneib, BALE LOADING MACHINE, filed Mar. 13, 1967, D.C., Kans. (Kansas City), Doc. KC–2631, *Vincent J. Kneib and Kneib Manufacturing Co.* v. *Clyde Lorenz, doing busines as Lorenz Manufacturing Co.*

2,790,718, A. L. Nugey, PROCESS OF MANUFACTURING FERMENTED BEVERAGES, filed Aug. 12, 1963, D.C. Del. (Wilmington), Doc. 2722, *Patents Management Corporation* v. *Charles Pfizer & Co., Inc.* Complaint dismissed with prejudice and counterclaim is dismissed without prejudice, Mar. 13, 1967.

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2,867,801. (See 2,736,895.)

2,896,284, M. Bishaf, SAFETY BELT AND BUCKLE, filed Mar. 26, 1965, D.C., N.D. Ill. (Chicago), Doc. 65c473, *Pontonier, Inc.* v. *Jeffrey-Allan Industries, Inc.* Dismissed on stipulation, Feb. 27, 1967.

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3,000,164, R. R. Kiecker, COMBINED CORN PICKING AND STALK SEVERING DEVICE, filed Feb. 17, 1967, D.C. Minn. (St. Paul), Doc. 2–67–43, *Raymond R. Kiecker* v. *Gehl Bros. Mfg. Co.*

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3,003,725, H. E. Woolbright, MOUNTING PLATE FOR OUTBOARD MOTORS, filed Mar. 15, 1967, D.C., E.D. Wis. (Milwaukee), Doc. 67–C–85, *Brunswick Corporation* v. *Outboard Marine Corp.*

3,024,518, E. B. Newton, METHODS OF MAKING PILE FABRICS, filed Mar. 3, 1967, D.C., W.D. Va. (Lynchburg), Doc. 67–C–6–L, *Deering Milliken Research Corporation* v. *Burlington Industries, Inc.*

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3,000,605, Copeland and Neier, FEED MIXER, filed Dec. 9, 1965, D.C. Nebr. (Omaha), Doc. O2428, *James V. Copeland and Benjamin R. Neier* v. *Rankin-Davey Construction Company, doing business as Henke Machine and Manufacturing Company.* Consent decree, defendant enjoined, dismissing defendant's counterclaim.

3,007,047, Weinstein and Scott, DYEING SYNTHETIC FIBERS WITH ALKYL NAPHTHALENE COMPOSITION, filed Aug. 9, 1966, D.C., W.D.N.C. (Charlotte), Doc. 2160, *The Tanatex Chemical Corporation* v. *Charlotte Chemical Laboratories, Inc.* Consent judgment Jan. 4, 1967.

3,008,242, Armbruster and Woodcock, WALL-HUNG FIXTURE CARRIER COMBINATION WITH A DEVICE FACILITATING WALL FINISHING, filed Mar. 9, 1967, D.C., N.D. Ohio (Cleveland), Doc. C67–168, *Josam Manufacturing Co.* v. *Zurn Industries, Inc.*

REISSUES

MAY 9, 1967

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

26,199
AGAR PREPARATION AND PROCESS OF PRODUCING THE SAME

Albert J. Leo, La Grange, and Harold W. McGhee, Naperville, Ill., assignors to National Pectin Products Company, Chicago, Ill., a corporation of Illinois

No Drawing. Original No. 3,119,697, dated Jan. 28, 1964, Ser. No. 165,222, Jan. 9, 1962. Application for reissue Nov. 19, 1965, Ser. No. 510,448

8 Claims. (Cl. 99—131)

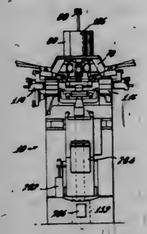
4. The process of preparing an improved cold water soluble agar composition which comprises: forming an aqueous mixture of water, agar and a crystallization controller selected from the class consisting of dextrose, fructose, invert sugar, maltodextrine and sorbitol, in which the agar constitutes approximately five to twelve percent of the mixture, and the amount of the crystallization controller used is in the range of one-half to ten times the amount of the agar; thoroughly agitating said aqueous mixture while maintaining the same at substantially the boiling temperature of the water; and thereafter drying the resulting product.

26,200
APPARATUS FOR LASTING FOOTWEAR

Jacob S. Kamborian, 70 Crestwood Road, West Newton, Mass. 02165, Robert B. Dunlap, Midway, and Henry v. d. Benken, West Roxbury, Mass.; said Dunlap and said Benken assignors to said Kamborian

Original No. 3,165,771, dated Jan. 19, 1965, Ser. No. 100,979, Apr. 5, 1961. Application for reissue Aug. 16, 1966, Ser. No. 579,180

46 Claims. (Cl. 12—10.5)



1. A shoe lasting machine comprising: a shoe support, mounted for vertical movement, for supporting bottom-up a last having a shoe upper and insole thereon; wiper means positioned rearwardly of the shoe support and mounted for horizontal movement from a retracted to a forward position; retarder means positioned above the wiper means and mounted for movement toward and away from the wiper means; a pincers support positioned on each side of the shoe support; a pincers located on each pincers support and positioned forwardly of the wiper means in its retracted position and above the shoe support, each pincers comprising a first jaw slidably mounted in the associated pincers support for movement toward and away from the center line of the last, a first motor mounted on the pincers support and connected to the jaw for effecting said movement of the jaw, a second jaw movably mounted on the first jaw for movement toward and away from the first jaw, and a second motor mounted on the first jaw and connected to the second jaw for effecting said movement of the second jaw; means for moving the retarder means toward the wiper means to press the toe portion of the upper margin against the wiper means; means for actuating the second motors to move the second jaws toward the first jaws to thereby cause the pincers to grip the forepart portions of the upper margin; means for lowering the shoe support an amount sufficient to bring the insole below the bottom of the wiper means; wiper drive means actuable to move the wiper means from its retracted to its forward position across the insole to wipe the toe portion of the upper margin down upon the insole; and means operative concomitantly with the actuation of the wiper drive means for actuating the first motors to cause the pincers to move toward each other.

26,201
PRODUCTION OF SAUCES AND PUREES FROM FRUITS AND VEGETABLES

James A. Rowse, Mason, N.H. (R.F.D., Greenville, N.H. 03048)

Original No. 3,103,438, dated Sept. 10, 1963, Ser. No. 151,868, Nov. 13, 1961. Application for reissue Nov. 3, 1964, Ser. No. 422,479

8 Claims. (Cl. 99—100)

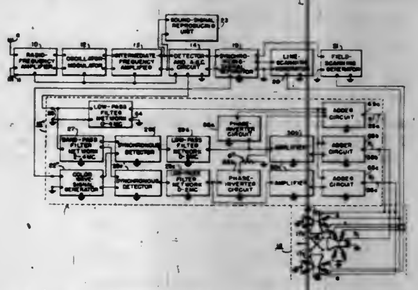
1. A continuous method of producing apple sauce from whole, uncooked apples, comprising the following steps: crushing the whole apples in the presence of an edible antioxidant, helically conveying under centrifugal force a continuous thin layer of the crushed apples, including the edible juicy pulp and the skin, seeds and other inedible solids thereof, through a narrow passageway, and simultaneously centrifugally screening edible, juicy pulp from the inedible solids, to continuously extract the juicy pulp as apple sauce, and continuously discharging the inedible solids from the passageway.

26,202
COLOR-SIGNAL DETECTION SYSTEM

Bernard D. Loughlin, Huntington, N.Y., assignor to Hazeltine Research, Inc., Chicago, Ill., a corporation of Illinois

Original No. 2,728,813, dated Dec. 27, 1955, Ser. No. 297,739, July 8, 1952, which is a division of Ser. No. 159,212, May 1, 1950. Application for reissue Nov. 1, 1956, Ser. No. 619,912

15 Claims. (Cl. 178—5.4)



14. In color television receiver apparatus having a tricolor picture reproducing tube, the combination of a monochrome signal source, a first color difference signal source, a second color difference signal source, a first mixer circuit having a plurality of inputs, a second mixer circuit having a plurality of inputs, a third mixer circuit having a plurality of inputs, with said monochrome signal source connected to one of the inputs of each of said mixer circuits, with said first color difference signal source connected to another input of said first mixer circuit, and with the second color difference signal source connected to another input of the third mixer circuit.

15. In a color-television receiver that is adapted to reproduce images in color in response to a subcarrier that is phase and amplitude modulated with color difference signals and a brightness signal, apparatus for extracting selected component color signals comprising in combination a first synchronous detector adapted to derive a first color difference signal, a second synchronous detector adapted to derive a second color difference signal, an adder coupled to receive the outputs of color difference signals supplied by said synchronous detectors, said adder being adapted to add said color difference signals in such relative portions as to derive a third color difference signal, and a plurality of combining circuits each being coupled to receive the brightness signal and a different one of said color difference signals derived respectively from the outputs of said synchronous detectors and said adder.

PLANT PATENTS

GRANTED MAY 9, 1967

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

2,738
ARTICHOKE PLANT

Johnson C. Montgomery, 3660 Altamont Way, and James D. Bird, 3661 Altamont Way, both of Redwood City, Calif. 94062

Filed Jan. 3, 1966, Ser. No. 519,812

1 Claim. (Cl. Plt.—89)

A new and distinct variety, in the form of a cultivated sport, of artichoke plant, substantially as herein-disclosed, characterized as to novelty by its lack of spines on the tips of the phyllaries; by its high proportion of edible bud material; and by its robust growth and outstanding bearing qualities.

PATENTS

GRANTED MAY 9, 1967

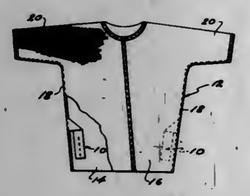
GENERAL AND MECHANICAL

3,317,921
HAIR SPRAY SHIELD
Suzy A. Zarzour, 1780 Decarie Blvd., Apt. 3, St. Laurent, Quebec, Canada
Filed June 11, 1964, Ser. No. 374,347
Claims priority, application Canada, Oct. 29, 1963, 887,905
4 Claims. (Cl. 2—9)



1. A face shield, comprising, a body of ovoid outline of transparent stiff but flexible sheet material bowed into a cone so as to have a curved margin at one end adapted to fit against the forehead and temples and a tapered part at the other end adapted to serve as a handle, the margins of the body at the tapered part being brought into proximity, and means retaining them in that position to retain the body in cone shape.

3,317,922
INFANT'S GARMENT WITH DIAPER-ATTACHING TABS
William Walter Artzt, New York, N.Y., assignor to Kapart, Inc., a corporation of Pennsylvania
Filed June 22, 1964, Ser. No. 376,802
4 Claims. (Cl. 2—111)



1. An infant's garment comprising a body having front and back portions, sewed seams joining together said front and back portions along the opposite sides of said body, and a pair of diaper-attaching tabs of non-wicking material located within said body adjacent the opposite sides thereof, each of said tabs having an elongated main part and an upper part with one lateral edge offset relative to said main part, said upper part being diagonally folded over toward said offset lateral edge to double the thicknesses of said material in said upper part, and said offset lateral edge of the folded-over upper part of each tab being secured in the adjacent sewed seam so that the main part of the tab is spaced from said seam.

3,317,923
REVERSIBLE GARMENT WITH INTERLOCKING SEAMS AND METHOD FOR MAKING THE SAME
Daisy O. Levi, Goulds, Fla. (6270 NW. 37th Ave., Miami, Fla. 33147)
Filed Aug. 27, 1965, Ser. No. 483,142
2 Claims. (Cl. 2—227)



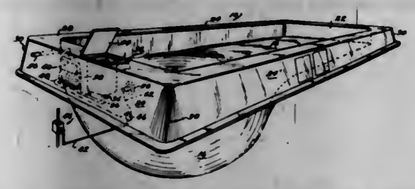
1. A reversible legged garment comprising a front side section and a back side section, said sections being superimposed on one another and arranged congruent with respect to each other, said sections each having adjacent upper waist edges, opposite lower leg edges, remotely-disposed pairs of side edges, center edges extending inwardly from said upper waist edges toward said lower leg edges, lower inner leg edges extending inwardly from said lower leg edges toward said center edges and connecting at their inner ends with the inner ends of said center edges to define crotch portions, each of said sections being formed of two plies of fabric materials, each of said plies including a pair of side-by-side panels, said upper waist edges of each of said front and back sections being joined in a two-ply seam and their lower leg edges joined in a two-ply seam, said sections at their remotely-disposed side edges being joined in a four-ply seam, each of the panels of said plies of said front section having their adjacent center edges joined in a four-ply seam extending from the upper waist edge of said front section to its said crotch portion, the center edges of each pair of panels of each of the plies of the back section being connected, respectively, in a two-ply seam extending from said crotch portions to points adjacent to but spaced from its said waist edge, the portions of the plies of said back section left unconnected by said last named seam being reverted with the adjacent pairs of edges opposite the adjacent pairs of edges of opposite plies being secured in a four-ply seam, means releasably connecting the reverted center edges of said opposite plies of said back section, and said plies of said front and back sections being connected in a four-ply arrangement by a continuous line of stitches extending along said lower inner leg edges of said sections, said last-named line of stitches extending from the lower leg edges at one side of said garment to the lower leg edges at the other side of said garment, said last-named line of stitches interlocking said crotch portions and interlocking with said seams joining said back center edges and said front center edges.

3,317,924
VASCULAR PROSTHESES
Harry H. Le Veen, 85—35 Midland Parkway, Jamaica, N.Y. 11432, and Leonard D. Kurtz, 46 Woodmere Blvd., Woodmere, N.Y. 11598
No Drawing. Filed May 27, 1963, Ser. No. 283,528
6 Claims. (Cl. 3—1)

1. A method of fabricating a vascular prosthetic article of pre-determined porosity comprising winding a non-absorbable fiber filament suitable for vascular prosthetic use onto a form in a first direction to provide a first helically wound layer of filament on said form, winding said filament in a second opposite direction to provide a second helical layer of filament disposed over said first layer to thereby form a plurality of points of intersection of said filament and to increase the thickness of the wall of the hollow article so formed while at the same time reducing the porosity of said wall, continuing said winding by repeating winding in alternating opposite directions a pre-determined number of times to provide an article of pre-determined wall porosity which porosity renders said article suitable for prosthetic use, and fusing the fiber filaments together at said points of intersection to provide an integral vascular prosthetic article.

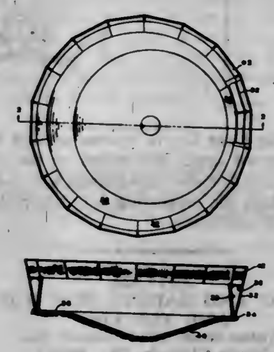
4. A vascular prosthetic comprising a hollow tubular article having a wall comprising a plurality of layers of a fiber filament suitable for vascular prosthetic use and wound in the form of a helix, each helical layer being of opposite hand such that a plurality of points of intersection of fibers is present between each helical layer, said article having a pre-determined porosity suitable for vascular prosthetic use and being established by the number of helical layers constituting said wall, and the fiber of each layer being fused to each adjacent layer only at said points of intersection.

3,317,925
SWIMMING POOL CONSTRUCTION
Robert M. Vance, P.O. Box 6226, Tucson, Ariz. 85716
Filed May 15, 1963, Ser. No. 280,512
3 Claims. (Cl. 4—172)



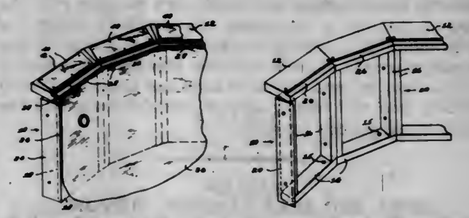
1. A unitary, integrally constructed, self-supporting swimming pool having a shallow end portion which in use is disposed substantially entirely above ground and a deep end portion which in use has its bottom recessed to a substantial depth into the ground, said swimming pool comprising: a bottom wall having a substantially horizontal first section which will engage the top of the ground when said pool is in use, said first section defining the bottom of said shallow end portion, and a second section disposed below the level of said first section so as to be disposed within and engage the surface of a cavity dug in the ground when said pool is in use, said second section being continuous with said first section and defining the bottom of said deep end portion; an inner side wall formed integrally with and circumscribing said bottom wall and extending upwardly therefrom, at least that portion of said inner side wall which is above the level of said first bottom wall section being substantially vertical; an outer side wall surrounding and spaced from said inner side wall, the lower extremity of said outer side wall terminating in a peripheral flange which lies in the horizontal plane of said first bottom wall section so as to engage the top of the ground when said pool is in use; a connecting wall portion formed integrally with the upper extremities of said inner and outer side walls and including a generally horizontal surface of substantial width; and water treatment equipment including a pump and filter disposed between said inner and outer side walls, said inner side wall having apertures therethrough for the passage of water to and from said water treatment equipment.

3,317,926
SWIMMING POOLS
Raymond L. Hall, Fairfield, N.J. (19 Hamilton Court, Whippany, N.J. 07981)
Filed Oct. 26, 1964, Ser. No. 406,228
16 Claims. (Cl. 4—172)



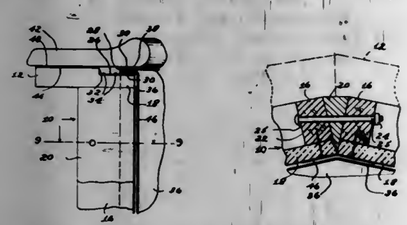
1. An above ground structure for swimming pools and the like and adaptable for prefabricated construction and comprising: (1) a base frame; (2) a plurality of base plates attached to the base frame; (3) an inside post member attached to and extending upwardly from each base plate; (4) an outside post member attached to and extending upwardly from each base plate; (5) a plurality of platform members each attached to adjacent pairs of inside and outside post members and at a predetermined distance above the base frame; (6) an inside panel attached to and extending from adjacent inside post members and from the base frame to the platform; (7) an outside panel attached to and extending from adjacent outside post members and from the base frame to a preselected point which is at least the ground level; and (8) a water retaining means extending around the perimeter formed by the plurality of platform members and simultaneously extending downwardly to the base frame and on the floor surface formed within the base frame.

3,317,927
SWIMMING POOL CONSTRUCTION
Eugene H. Shields, 45 Hartman Drive, Hamilton Square, N.J. 08690
Filed Oct. 30, 1964, Ser. No. 407,815
14 Claims. (Cl. 4—172)



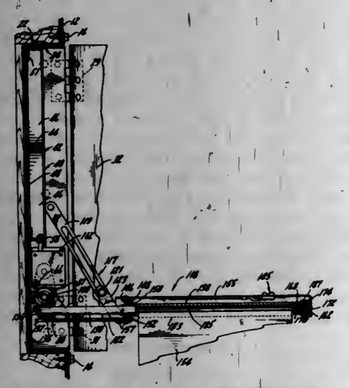
1. In a swimming pool construction including a plurality of horizontally extending wall panels connected at their ends to vertical supports having their outer end surfaces in right angular relation with said panels and arranged in end to end relation to form a wall enclosure with, at least, a portion of said wall in generally curving

formation; the opposed outer surfaces of the vertical supports being in normally flat contact relation but having shims of tapered cross-sectional shape inserted between each opposed pair in said curving portion for arranging and maintaining the panels in said curving formation, said



shims extending from top to bottom of said supports, a flexible waterproof sheet, and means on the tops of said wall panels for detachable engagement with the edge portion of said sheet for supporting it in suspended relation inside said wall enclosure.

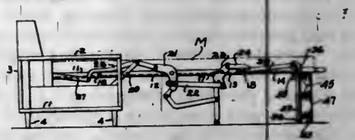
3,317,928
LOWERING AND RAISING SEAT FOR TUBS AND THE LIKE
Anton Root, 1814 Jackson St., North Chicago, Ill. 60064
Filed Sept. 25, 1964, Ser. No. 399,276
12 Claims. (Cl. 4—185)



1. A bath chair package to be mounted on the wall at one of the ends of the tub which includes, in combination, an outer housing adapted to be rigidly fixed to the wall, an inner housing having a plurality of sides, one of said sides pivoted on a vertical axis to the outer housing so that the inner housing may swing to a position over the side of the tub, a retractable seat assembly within the inner housing, a seating surface in said assembly, said seating assembly movable to active position so the seating surface may be used, means to raise and lower the seating surface, and said seating surface movable back into the inner housing when inactive.

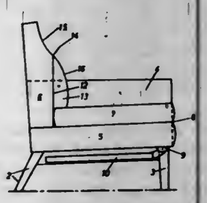
3,317,929
SOFA BED SEAT CUSHION SUPPORT
Rembert W. La Beaume, St. Louis, Mo., and Joseph R. Faszold, Fort Smith, Ark., assignors to Foster Bros. Mfg. Co., St. Louis, Mo., a corporation of Delaware
Filed Dec. 13, 1965, Ser. No. 523,817
8 Claims. (Cl. 5—30)

1. In a sofa bed construction, a series of frame sections having pivot connections to each other successively and movable about said connections to a folded sofa-forming position with the outermost section inverted over an intermediate section and to an unfolded coplanar bed-forming position, there being wire mesh panels between the sides of said sections adapted and constructed to engage and to support a mattress throughout the length thereof and of said sections when the sections are folded and unfolded, a cushion support structure carried by one of said frame sections beneath the latter when the sections are unfolded, said structure including a series of bars extending substantially parallel to the



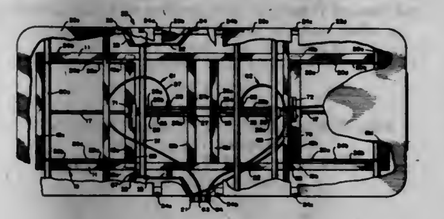
section wire mesh panel, there being a group of coil springs each anchored at one end to one of said bars and projecting therefrom, transversely of the general plane of said bars means automatically positioning said cushion support structure being spaced above the section wire mesh panel when the sections are in sofa-forming position and below the section wire mesh panel when the sections are in bed-forming position and being carried on the bar-supporting frame section independently of the wire mesh panel in both positions.

3,317,930
BED-SETTEES AND THE LIKE
Ole Wiberg, Danisch Nienhof uber Kiel, Germany
Filed Nov. 23, 1965, Ser. No. 509,277
Claims priority, application Denmark, Nov. 23, 1964, 5,766, 5,767
3 Claims. (Cl. 5—42)



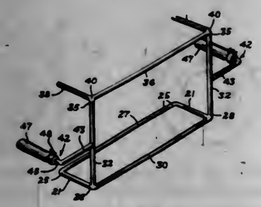
1. In a bed-settee of the type comprising: a back section; a seat section; and a foot section, said sections being movable relative to each other between a settee position wherein said back section is generally upright, said seat section is generally horizontal, and said foot section is retracted beneath said seat section and a bed position wherein said seat, back and foot sections are generally coplanar, the improvement which comprises the provision of a back section comprising a main portion and an auxiliary portion, said auxiliary portion being connected to said main portion by fabric hinge means for pivotal movement about a horizontal axis located nearer to the upper end of said back portion than to the lower end thereof when said back portion is in said upright position, said two portions having flat surfaces in engagement with each other when said back section is in said upright position, said auxiliary portion being of a thickness which increases proceeding away from said horizontal axis, said main portion having a recess formed therein of configuration complementary to said auxiliary portion, said auxiliary portion being received in said recess when said sections are in said bed position with said flat surfaces effectively horizontal and coplanar.

3,317,931
ADJUSTABLE BED
Roland A. Benoit, Fresh Meadows, and Robert F. Gingras, Danielson, N.Y., assignors to Royalmetal Corporation, New York, N.Y., a corporation of Illinois
Filed Aug. 13, 1965, Ser. No. 479,430
11 Claims. (Cl. 5—68)



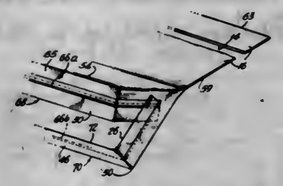
1. An adjustable bed comprising:
(a) a support frame;
(b) a movable frame movable vertically relative to said support frame;
(c) means for moving said movable frame upward and downward;
(d) a mattress support member movable with said movable frame and having a plurality of panels pivotally linked together;
(e) a first extendable telescoping assembly having one end thereof pivotally connected to said support frame and the other end thereof coupled to said movable frame and to said mattress support member;
(f) a second extendable telescoping assembly having one end thereof pivotally connected to said support frame and the other end thereof coupled to said mattress support member;
(g) means for locking said extendable telescoping assemblies in their extended positions said telescopic assemblies being located above the lower level of the bed when in inoperative position.

3,317,932
BEDCLOTHES SUPPORT
Michael J. Gibbons, Sr., 116 W. Thruston Blvd., Dayton, Ohio 45419
Filed May 11, 1966, Ser. No. 549,237
4 Claims. (Cl. 5—319)



1. A support for bedclothes adapted for use on a mattress having a predetermined thickness and resting on a flat surface comprising, a pair of horizontal lower legs adapted to be inserted between the flat surface and the bottom of the mattress, a lower horizontal cross bar interconnecting said lower legs and having a length less than the width of the mattress so that said lower legs are held firmly between the mattress and the flat surface, a vertical member extending upwardly from one end of each of said lower legs to a position a preset distance above the top surface of the mattress, a horizontal stabilizing bar on each of said vertical members spaced above said lower legs a distance substantially equal to the predetermined thickness of the mattress for engaging the top surface of the mattress for holding said vertical members in position, said stabilizing bar means each having a first section connected to one of said vertical members and extending parallel to the end of the mattress toward the sides thereof and a second section on the outer end of said first section perpendicular thereto for engaging the top surface of the mattress, a pair of upper legs on the upper ends of said vertical members parallel to said lower legs for supporting the bedclothes, and an upper cross bar interconnecting said upper legs to provide rigidity to the support.

3,317,933
MATTRESS COVER
Hans P. Meyer, White Plains, and Kurt H. Meyer, Riverdale, N.Y., assignors to Air-Tech Industries, Inc., New Rochelle, N.Y.
Filed Feb. 11, 1965, Ser. No. 431,863
4 Claims. (Cl. 5—335)

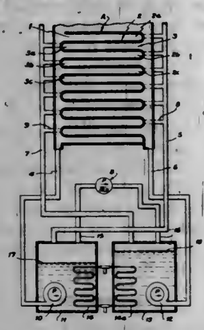


1. A waterproof mattress cover comprising
a continuous sheet of waterproof material slightly more than twice as long as the mattress it is intended to cover, said sheet being folded back upon itself at a center line between the ends thereof, whereby one end of said cover is formed without a seam,
means along opposite side edges of said cover transverse to said one end and within the inside of said cover for sealing the top and bottom sides of said cover to one another with a very tight seam at the outside of said cover,
a mouth at the other end of said cover from said one end for receiving a mattress therethrough,
said mouth including an upper and a lower jaw-like section provided by terminating said sealing means short of the mouth end of said cover,
a zipper along the mouth end and extending around a portion of said opposite side edges to said sealing means at said side edges for sealing said mouth end of said cover,
and a waterproof flap on one of said jaw-like sections for overlying said zipper.

3,317,934
CHANGE IN PRESSURE MATTRESS
Arnold Hinrichs, Lubeck, Germany, assignor to Otto Heinrich Dräger, Lubeck, Germany
Filed Oct. 9, 1964, Ser. No. 402,811
Claims priority, application Germany, Oct. 24, 1963, D 42,794
3 Claims. (Cl. 5—349)

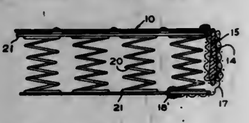
1. A change in pressure mattress comprising liquid impermeable flexible membrane means forming two separate adjacent sets of liquid receiving hollow chambers adapted to be alternately expanded and at least partially collapsed, tank means for supplying liquid to each set

of chambers, reversible pump means associated with said tank means for forcing liquid into one set of chambers



while withdrawing liquid from the other set of chambers and for recirculating the liquid through said chambers, and heat exchanger means in said tank means.

3,317,935
INSULATOR PADS
Irvin Berger, Southfield, Mich., assignor to Young Spring & Wire Corporation, Detroit, Mich., a corporation of Michigan
Filed Nov. 26, 1965, Ser. No. 509,743
6 Claims. (Cl. 5—360)



1. An insulator pad comprising
a sheet of flexible material,
a plurality of parallel strands interwoven through said flexible material,
flexible cords extending transversely of said strands and connected to and joining the ends of said strands,
said sheet having a portion extending outwardly beyond the confines of the strands and cords in a direction beyond one periphery thereof,
an edge pad,
and means for fastening said edge pad to said portion of said sheet which extends beyond the confines of said strands and cords in such a manner that said edge pad extends parallel to one of said strands and said cords,
said sheet of flexible material being folded over said edge pad and fastened to itself and to said edge pad.

3,317,936
SAFETY DEVICE FOR BOATS
Donald W. Johnson, 618 Hodge Ave., and Jack L. Hutchison, 1221 Iowa Ave., both of Ames, Iowa 50010
Filed Mar. 22, 1965, Ser. No. 441,492
9 Claims. (Cl. 9—14)



1. In a safety device for boats,
a small housing element having an interior compartment,
first and second spring loaded reel means in said compartment,
a first length of line operatively secured at one of its ends to said first reel means and extending outwardly from said housing,
a second length of line operatively secured at one of its ends to said second reel means and extending outwardly from said housing,
said first length of line having attachment means at its other end for attachment to a boat,
said second length of line having attachment means at its other end for attachment to a person.

3,317,937
SURFBOARD
John P. Gallagher, 2415 Foxhall Road, NW., Washington, D.C. 20007
Filed June 15, 1965, Ser. No. 464,047
3 Claims. (Cl. 9—310)



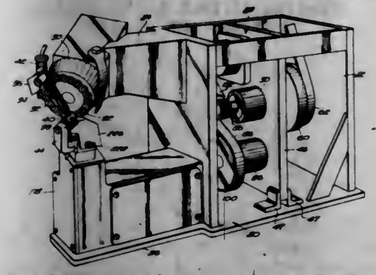
1. A surfboard comprising a rigid body portion and a rigid head portion, means pivotally connecting the body and head portions for pivotal movement therebetween on an axis transverse to the longitudinal axis of the surfboard and in the plane of the surfboard, resilient strip means normally urging the head portion and the body portion into rectilinear alignment, said resilient strip means permitting the said head portion of the surfboard to move upwardly about said pivotal connection to thereby prevent the leading edge of the head portion from penetrating the water.

3,317,938
METHOD OF MAKING A SELF-LOCKING FASTENER
Thomas L. McKay, Los Angeles, Calif., assignor to Long-Lok Corporation, Los Angeles, Calif., a corporation of California
Original application Feb. 12, 1964, Ser. No. 344,329, now Patent No. 3,263,726, dated Aug. 2, 1966. Divided and this application Mar. 24, 1966, Ser. No. 537,076
9 Claims. (Cl. 10—10)



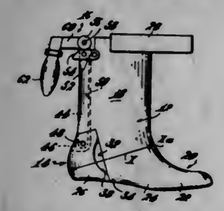
1. A method of equipping a screw-threaded fastener with deformable resilient plastic material for self-locking action, characterized by the steps of:
placing an elongated body of the plastic material in a position generally longitudinally of the fastener over the crests of the turns of the screw thread;
displacing the elongated plastic body towards the root diameter of the screw thread with consequent penetration of the plastic body by the turns of the screw thread and consequent insertion of portions of the plastic body into the valleys of the turns of the screw thread; and
applying force to the crests of the turns of the screw thread along the region of the displaced plastic material to make deformations in the turns of the screw thread with the deformations overhanging the valleys to retain the portions of the plastic material in the valleys.

3,317,939
FOLDING MACHINE
Ernest F. Stacey, Hamilton, Mass., assignor to Rotary Machine Company, Lynn, Mass., a corporation of Massachusetts
Filed Oct. 15, 1964, Ser. No. 404,077
10 Claims. (Cl. 12—55)



1. In a folding machine having a work-feeding roll for advancing material through the machine, a plow for turning an edge of the material, a rotary head having a rotary series of folding discs cooperating with said roll and plow for folding said edge into contact with said material, and a substantially rigid frame for supporting the elements of said machine, the improvement comprising,
a power transmission for driving said head and roll, said transmission including,
a unitary plate removably mounted in said frame; and
first and second commonly powered means for respectively driving at different speeds said series of discs and said work-feeding roll from a remote source of rotational power and being releasably coupled to said series, said roll and said source;
said means all being mounted on said plate as substantially the sole support thereof.

3,317,940
TWO-PART LAST FOR THE MANUFACTURE OF FOOTWEAR
Herbert Ludwig, Desmastr. 112, Usen, near Bremen, Germany
Filed Dec. 8, 1965, Ser. No. 512,358
3 Claims. (Cl. 12—135)



1. A two-part last comprising a forward part having top, bottom and rear sides, said rear side containing a rearwardly facing recess and said recess having a transversely flat, downwardly and forwardly extending inclined surface which intersects the bottom side substantially at the arch, and a back part which has a rear side which is rearwardly convex and a front side containing a transverse recess confronting said inclined surface at the rear side of the forward part, said recess being of such depth as to enable the back part to pass around the corner where said inclined surface intersects the bottom side to effect foreshortening of the bottom without rearward displacement of the back part relative to the forward part.

3,317,941
ADHESIVE BONDING OF BACKSEAMS
Raymond Hanson, Leicester, England, assignor to United Shoe Machinery Corporation, Flemington, N.J., a corporation of New Jersey
Filed Sept. 17, 1964, Ser. No. 397,213
Claims priority, application Great Britain, Nov. 27, 1963, 46,781/63
4 Claims. (Cl. 12—146)



1. A method of forming an adhesively bonded backseam in shoe uppers comprising skiving a curved edge portion of a first shoe quarter to provide an angularly skived face defining said curved edge portion, providing an elongated template having wrap surfaces comprising an angular end face and a generally longitudinal face, a guide surface, and a curved edge corresponding in shape to the curved edge portion of said first quarter formed at the intersection of the angular end face and the longitudinal face, positioning a second shoe quarter against the longitudinal face of the wrap surface with a curved edge portion of said second shoe quarter extending beyond the curved edge of the template, coating at least one of the members comprising the angular end face of the wrap surface and the curved edge portion of the second quarter with adhesive, folding the curved edge portion of the second quarter over said curved edge of the template whereby the curved edge portion of the shoe quarter is positioned in abutting relation to the angular end face and is bonded thereto by said coating of adhesive, removing that portion of the curved edge portion of the second quarter extending above the guide surface of the template thereby to provide a skived face on said second quarter which forms a continuous flat surface in combination with said guide surface, coating at least one of the skived faces of the shoe quarters with adhesive, and positioning the first quarter against the guide surface of the template with the skived face of the first quarter in alined abutting relation with the skived surface of the second quarter.

3,317,942
EXTENSIBLE CONVEYANCE GANGWAY
Joseph C. Wollard, Miami Springs, John S. Slaney, Opa-Locka, and Lester L. Preiss, Miami, Fla., assignors to Wollard Aircraft Service Equipment Inc., a corporation of Florida
Filed Apr. 29, 1964, Ser. No. 363,362
5 Claims. (Cl. 14—71)

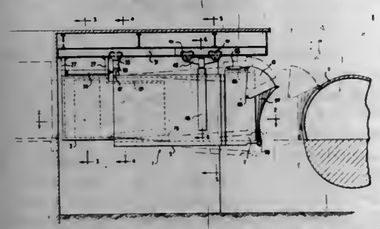
1. A conveyance gangway comprising
(a) first passageway means supported in fixed position adjacent a terminal building,
(b) a projecting passageway portion forming part of the first passageway means, the projecting passageway portion having an open end,
(c) a floor in the first passageway means,
(d) a section of the floor in the first passageway means being hinged at a point intermediate the ends of the first passageway means for swinging movement in a vertical plane with the swingable end of the hinged floor section extending at least to the neighborhood of the open end of the projecting passageway portion, the swingable end of the floor section being unsupported by the first passageway means,
(e) a movable passageway means having one end portion in movable telescopically mating relationship

with the open end of the projecting passageway portion, the movable passageway means having a free end,

(f) a floor in the movable passageway means,

(g) means positioning the floor of the movable passageway means and the swingable end of the hinged floor section for sliding support of the swingable end of the hinged floor section contiguous to the floor of the movable passageway means,

(h) an inextensible support means for supporting the telescoping end portion of the movable passageway means, the inextensible support means being mounted for movement along the line of telescoping movement of the movable passageway means relative to the first passageway means, the inextensible support means including means providing a pivotal connection with the movable passageway means to support the movable passageway means for swinging movement in a vertical plane,

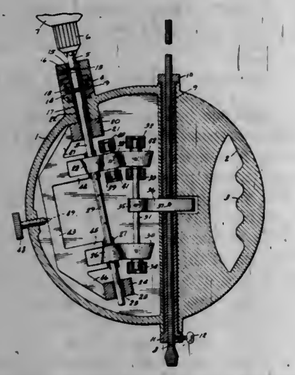


(i) extensible support means for supporting the free end of the movable passageway means spaced along the movable passageway means away from the inextensible support means, the extensible support means being mounted for movement along the line of telescoping movement of the movable passageway means relative to the first passageway means,

(j) means associated with the extensible support means for raising and lowering the free end of the movable passageway means, and

(k) means associated with the free end of the movable passageway means forming a conveyance engaging vestibule.

3,317,943
SEWER ROD ATTACHMENT FOR DRILL
George M. Primm, 4736 Forest Ave., Downers Grove, Ill. 60515
Filed Oct. 22, 1965, Ser. No. 501,429
8 Claims. (Cl. 15—104.3)



1. In a sewer rod attachment for an electric drill, a casing,

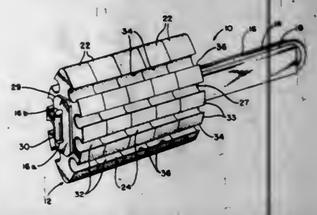
a drive shaft in said casing and projecting thereout for engagement in the chuck of a drill,

a drive sleeve for a sewer rod extending through said casing,

means to secure a sewer rod in a desired position of adjustment in said drive sleeve, and

a reversible transmission in said casing between said drive shaft and said drive sleeve.

3,317,944
MULTI-PURPOSE SPONGE BRUSH
Maurice A. Napier, Sr., 841 Timberline Drive, Akron, Ohio 44313, and Maurice A. Napier, Jr., 9937 Gabriella Drive, North Royalton, Ohio 44133
Filed Dec. 15, 1965, Ser. No. 514,034
2 Claims. (Cl. 15—244)



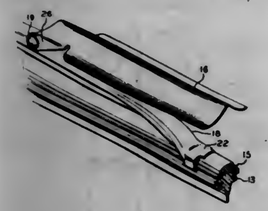
1. A multi-purpose sponge brush of the character described, comprising; a handle; a bale wire disposed complemental to the longitudinal sides of said handle and secured thereto; said bale wire having spaced longitudinally extending ends projecting forwardly of the handle; a bun composed of a plurality of separable sponge segments; each said segment having spaced arcuate cut-outs along its peripheral edge; each said segment having spaced apertures; said extending ends of said bale wire passing through said spaced apertures in each said segment aligning said arcuate cut-outs on each said segment; said alignment of said arcuate cut-outs defining spaced longitudinal grooves on said bun; and said bale wire securing said bun to said handle.

3,317,945
MOLDED WINDSHIELD WIPER BLADE
Arthur L. Ludwig, Hastings, Mich., assignor to Hastings Manufacturing Company, Hastings, Mich., a corporation of Michigan
Filed Sept. 17, 1965, Ser. No. 488,224
26 Claims. (Cl. 15—250.36)



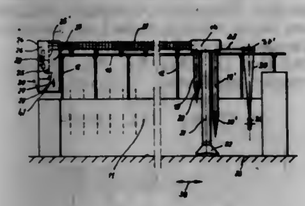
1. A molded self-cleaning windshield wiper blade adapted for use under winter driving conditions comprising a unitary elongated and longitudinally curved body formed from elastomeric material, said body being tapered longitudinally in its plane of curvature from its center toward its ends and having a smoothly curved concave edge constituting a wiping edge and a thin longitudinally curved convex edge opposite said concave wiping edge having a curvature greater than that of the wiping edge.

3,317,946
WINDSHIELD WIPER ASSEMBLY
John W. Anderson, 578 Broadway, Gary, Ind. 46402
Filed June 30, 1964, Ser. No. 379,081
8 Claims. (Cl. 15—250.42)



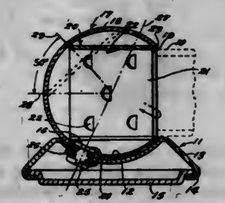
1. A windshield wiper assembly comprising a wiper blade element conformable to both flat and curved surfaces and having operatively associated therewith a pressure-distributing assembly comprising a plurality of mutually articulated members adapted to distribute pressure, from a wiper arm to relatively limited spaced-apart areas on said wiper element and in a direction towards said windshield, one of said members having longitudinal portions laterally and downwardly spaced progressively away from a plane defined by the longitudinal axis of the wiper blade element and the uppermost portion of said one member, said portions having, adjacent their lower linear edges, longitudinally channeled elements whereby to turn reversingly upward, air flowing generally downwardly thereupon, whereby to increase downward pressure on the blade as the velocity of air impinging thereon increases.

3,317,947
PNEUMATIC CLEANING INSTALLATION
Ernst Jacobi and Heinz Beck, both of Derchingerstr. 43, Augsburg, Germany
Filed Nov. 9, 1964, Ser. No. 409,692
Claims priority, application Germany, Nov. 12, 1963, J 24,732
30 Claims. (Cl. 15—312)



1. A travelling pneumatic cleaning installation for textile machinery and the like comprising in combination, at least one carriage adapted to be moved over a line of the machinery to be cleaned; at least two chambers on said carriage; a fixed stationary fan-filter unit in the vicinity of said machinery, said fan-filter unit having a suction inlet end and a pressure outlet end; at least two collapsible and extensible pipe means, one of said pipe means being permanently connected at one end thereof to said suction inlet end of said unit and at the other end thereof with one of said chambers and the other of said pipe means being permanently connected at one end thereof to said pressure outlet end of said unit and at the other end thereof with the other of said chambers, whereby said chambers are held at a pressure different from atmospheric pressure and the pressure in one chamber different from the pressure in the other chamber; and a number of ducts communicating at one end thereof with said chambers, respectively, and each having an other open end directed towards said machinery so as to produce between said open ends of said ducts currents of air for cleaning purposes.

3,317,948
UNIVERSAL FURNITURE GLIDE
Frederick N. Reynolds, Augusta, Ky., assignor to The F. A. Neider Company, Augusta, Ky., a corporation of Kentucky
Filed Mar. 4, 1965, Ser. No. 437,188
4 Claims. (Cl. 16—42)

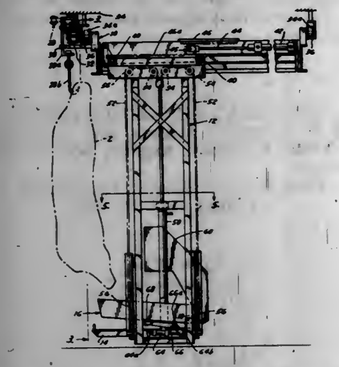


1. A furniture glide unit comprising a base having a substantially horizontal floor engaging bottom portion, means on the base providing an upwardly opening, semi-spherical socket having a vertical center line, said socket having a bearing hole formed therein offset with respect to the center line of said socket, a hollow, spherical casing member seated in the socket and having a leg receiving opening formed therethrough, a tubular leg engaging retainer means positioned within the spherical member, in alignment with the opening therein, a bearing hole formed in the spherical member offset with respect to the axial center line of the retainer, and pivot means extending through the bearing holes in the socket and spherical casing member, the axis of said pivot means forms an acute included angle with said axial center line, said spherical casing member and said socket having substantially the same radii whereby upon rotation of the casing member in the socket and around the pivot means the angular relation of the floor engaging bottom portion and the leg engaging retainer means may be varied.

3,317,949
APPARATUS FOR DRESSING SLAUGHTERED ANIMALS
Anthony M. Garcia and Lloyd H. Redford, Cleveland, Ohio, assignors to Earl C. Gibbs, Inc., Cleveland, Ohio, a corporation of Ohio
Filed Apr. 12, 1965, Ser. No. 447,283
19 Claims. (Cl. 17—24)

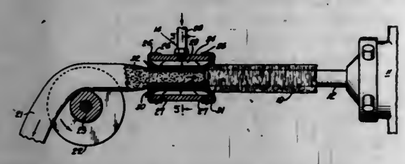
1. A mechanism for use in eviscerating a slaughtered animal which is adapted for suspension from an overhead conveyor means comprising, a trolley frame, movable lengthwise with the movement of the conveyor means, a carriage mounted on said trolley frame and movable in a direction transverse of the trolley frame, a work platform supported on said carriage and adapted for movement vertically with respect to the carriage, means on said carriage for coupling the carriage and thus coupling the trolley frame to the conveyor means for moving the trolley frame and said carriage and said platform with the conveyor means, a receptacle means mounted on said platform and adapted to receive the viscera therein, fluid powered

motor means for selectively moving said carriage transversely of said trolley frame and for moving said platform vertically with respect to said carriage, means for controlling the actuation of said fluid powered motor means, a receiving platform mounted adjacent said trolley frame and adapted to receive the viscera from said receptacle means, means for reciprocating said receiving platform in



a generally horizontal plane, sterilizing means coacting with said receptacle means for sterilizing said receptacle means upon ejection of the viscera therefrom, said receptacle means being pivoted to said work platform, and fluid powered motor means for pivoting said receptacle means in a generally vertical plane with respect to said work platform.

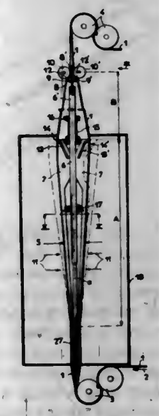
3,317,950
METHOD FOR CONTROLLING THE STUFFING RATE OF SAUSAGES AND THE LIKE
Francis J. Ziolko, Somerville, N.J., assignor to Johnson & Johnson, a corporation of New Jersey
Filed Nov. 26, 1965, Ser. No. 509,865
5 Claims. (Cl. 17—45)



1. In a method of packaging food products, the improvement which comprises:
(a) forcing the food product under pressure through a stuffing horn into a shirred casing that is mounted thereon;
(b) confining the casing between the stuffing horn and a movable body;
(c) applying fluid pressure to said movable body during the period when the food product is being forced into the casing whereby the casing is uniformly pressed against the exterior surface of the stuffing horn.

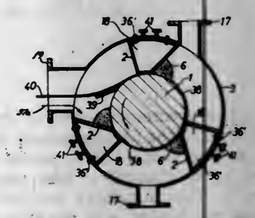
3,317,951
TUBE DRAWING APPARATUS
Jacques Hureau, Paris, France, assignor to Society Generale Alimentaire, G.A.S.A., Neuilly-sur-Seine, France
Filed Sept. 28, 1964, Ser. No. 399,495
Claims priority, application France, Oct. 3, 1963, 949,458
11 Claims. (Cl. 18—1)

1. Apparatus for both drawing lengthwise and stretching sideways a tube of synthetic material having any length and at least partly reticulated walls, comprising first drive means for imparting to the tube a given speed, second drive means disposed apart from said first drive means for imparting to the tube a speed greater than said given speed, the difference in speed determining the extent of lengthwise drawing, a core body having a frusto-conical portion, which includes a circumferential series of stiff, elongated members, inclined in relation to the frusto-conical portion axis to define the frusto-conical surface of said portion, the larger end of said frusto-conical portion having an extension with a smaller cross-section than said larger end, and said core body being disposed in



the path of the tube between said first and second drive means with the cross-section of its frusto-conical portion increasing from said first towards said second drive means, for the tube being pulled thereon lengthwise, during operation, for sideways stretching in a plastic condition by said second drive means, and a pair of laterally spaced abutment means on opposite sides of the tube path between said extension of the core body and said second drive means, and cooperating, during operation, through the tube wall with said core extension to maintain said core body between said first and second drive means against the pulling action of said second drive means.

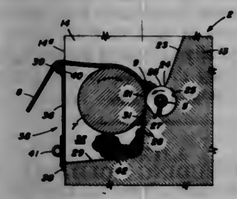
3,317,952
MIXING AND KNEADING APPARATUS
Wolf Rodenacker, Dormagen, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
Filed Oct. 18, 1962, Ser. No. 231,426
Claims priority, application Germany, Feb. 8, 1957, F 22,304
24 Claims. (Cl. 18—2)



1. Apparatus for the kneading of material, comprising a roller, means for rotating said roller, and impingement means disposed proximate to the roller and fixably mounted with respect to said roller, said impingement means being for accumulation of material to be kneaded

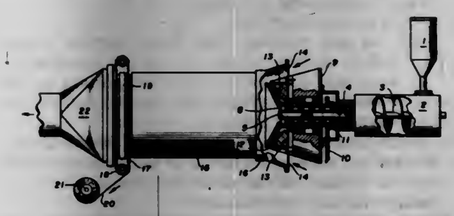
in a wedge between the impingement means and the roller and in which the material moves for the kneading thereof, the accumulation and movement being response of the material through action of the roller in forcing it into impingement with the impinging means, and a baffle disposed between the roller and impingement means within and transverse to the wedge of material, the baffle being spaced from the roller whereby in the kneading of the material, relatively large size particles will accumulate above the baffle and be retained there for extra kneading thereof.

3,317,953
PROCESSING APPARATUS FOR PLASTIC MATERIALS
Thomas O. Hale and William E. Webber, Indianapolis, Ind., assignors to United States Rubber Company, New York, N.Y., a corporation of New Jersey
Filed July 22, 1965, Ser. No. 473,929
8 Claims. (Cl. 18—2)



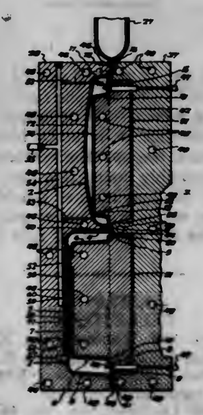
1. Apparatus for processing plastic material, comprising first and second rotary members positioned adjacent one another to form a nip therebetween, one of said members comprising a roll member; frame means for rotatably supporting said rotary members and including a wall member positioned below said nip and in spaced relation thereto for receiving masses of overflow material which drops from said nip; and means including said roll member and a panel member biased toward but variably spaced from said roll member for transferring said masses from said wall member toward said nip.

3,317,954
APPARATUS FOR PRODUCING FIBERS
Thomas E. Crompton, Cary, N.C., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Filed June 16, 1965, Ser. No. 464,411
9 Claims. (Cl. 18—2.6)



1. Apparatus for producing fine fibers of a synthetic organic polymer comprising a substantially horizontally disposed, substantially cylindrical-shaped enclosure, a conoid disc rotatably mounted in one end of said enclosure, said disc having a convex surface and a concave surface, said concave surface facing into said enclosure, means to rotate said disc about a substantially horizontal axis, an aperture located centrally in said disc, tubular feeding means extending outwardly from said convex surface and adapted to supply molten polymer through said aperture and onto the concave surface of said disc, pressure means adapted to apply pressure to the polymer contained in said feeding means, heating means adapted to heat said convex surface to a temperature above the melting point of said polymer, an annular opening in said enclosure located on the convex side of said disc and surrounding the periphery of said disc, vacuum means located at the end of said enclosure opposite said disc adapted to establish a vacuum within said enclosure sufficient to pull atmospheric air through said annular opening at a rate of between 1500 and 6000 feet per minute, and gathering means located in said enclosure between said vacuum means and said disc and adapted to remove fibers from said zone, said vacuum means being the sole means to transport fibers from said disc to said gathering means.

3,317,955
APPARATUS FOR BLOW MOLDING HOLLOW CONTAINERS
Peter T. Schurman, Snyder, and Raymond C. Confer, Gasport, N.Y., assignors to W. R. Grace & Co., New York, N.Y., a corporation of Connecticut
Filed Dec. 21, 1964, Ser. No. 420,023
9 Claims. (Cl. 18—5)

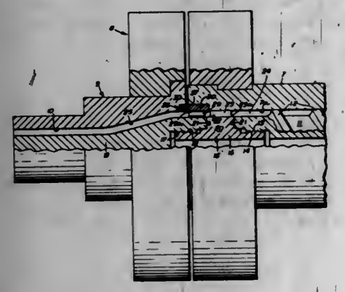


1. In blow molding apparatus for forming a thermoplastic container having mating parts joined by a hinge with each part being of hollow double wall construction, means for forming a tubular parison of thermoplastic material, mold sections adapted to be moved into engagement about such parison, said mold sections when engaged forming a pair of cavities one of which has the shape of one of the container parts and the other of which has the shape of the other of the container parts, said mold sections also engaging the parison on opposite sides thereof to pinch and weld the parison between said cavities thereby providing the hinge and dividing the parison into a pair of hollow sections within said cavities, and means for introducing fluid into the parison sections to expand the same into conformity with the respective cavities.

3,317,956
MIXING DEVICE FOR EXTRUDING APPARATUS
André M. Lippens, Baltimore, Md., assignor to Hedwin Corporation, New York, N.Y., a corporation of Maryland
Filed Dec. 22, 1964, Ser. No. 420,387
5 Claims. (Cl. 18—12)

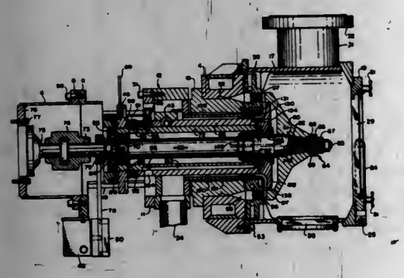
1. A mixing device for extrusion apparatus of the type including a delivery barrel, a relatively rotatable feed screw therein, and an extrusion die; said mixing device

comprising at least a pair of coaxial mixing rings, one of said rings being attached to and rotatable with said screw and the other of said rings being fixed within said barrel, opposite peripheries of respective rings having transversely slotted, longitudinally offset, annular rims which extend in radially opposite directions and alternately intersect the flowpath of material being fed through said delivery barrel to said extrusion die, whereby said flowpath is subjected to a series of sequential interrup-



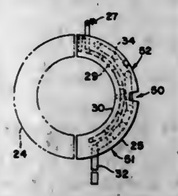
tions, the annular rim of at least one of said rings being of a width less than that of said one ring and laterally off-center on the ring so that one boundary of said rim is spaced a greater distance from the corresponding boundary of its ring than is the opposite boundary of said rim, and means for reversibly connecting said one ring to its support, whereby the longitudinal spacing of the rims of respective rings within said barrel may be selectively varied by reversing the position of said one ring on its support.

3,317,957
PELLETIZER
Eugene E. Heston and Waldemar E. Kmentt, Akron, Harold J. Robins, Medina, and John F. Stroup, Cuyahoga Falls, Ohio, assignors to NRM Corporation, Akron, Ohio, a corporation of Ohio
Filed June 11, 1965, Ser. No. 463,246
20 Claims. (Cl. 18—12)



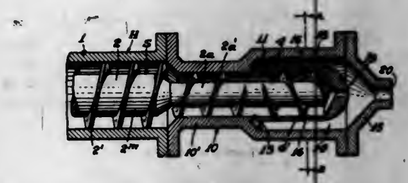
1. An underwater pelletizer for converting extrudate to granular form comprising a water housing, an annular die face having a plurality of apertures therein through which such extrudate passes into said water housing, a rotating cutter for cutting such extrudate into pellets, a shaft on which said cutter is mounted extending coaxially within said die face, and an annular inlet water passage for said housing extending axially through said die face about said shaft and terminating in an annular opening juxtaposed to the rotating cutter and die face.

3,317,958
EXTRUDER
John F. Stroup, Cuyahoga Falls, and Ernest S. Theiss, Kent, Ohio, assignors to NRM Corporation, Akron, Ohio, a corporation of Ohio
Filed Aug. 17, 1964, Ser. No. 390,160
7 Claims. (Cl. 18—12)



7. A heat transfer unit for extruder barrels comprising a cylindrical jacket for the barrel comprised of at least two cast aluminum cylindrical shells adapted to be clamped to said barrel, continuous heat transfer conducting means embedded in each cast aluminum cylindrical shell, and longitudinally extending exterior groove means in each shell enabling the same to flex and conform to said barrel when clamped thereto.

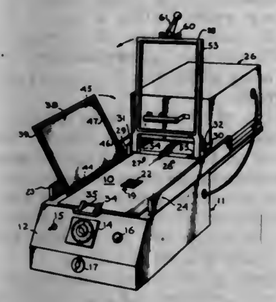
3,317,959
METHOD OF EXTRUDING MOLDABLE MATERIAL AND SCREW TYPE EXTRUDER
Heinz List, St. Jakobstrasse 43, Prattein, Switzerland
Filed Oct. 10, 1963, Ser. No. 315,198
Claims priority, application Switzerland, Oct. 12, 1962, 11,990/62
8 Claims. (Cl. 18—12)



8. A screw type extruder comprising
(1) a housing having
  (a) a discharge portion provided with at least radially opening apertures,
(2) a screw rotatably and oscillatingly mounted within said housing and including
  (a) a main portion and
  (b) an end portion, said main portion having helical threads adapted to convey material toward said end portion, said end portion having helical threads adapted to convey material toward said main portion,
(3) jacket means spacedly surrounding said discharge portion and defining therewith at least a single chamber, the interior of said discharge portion communicating with said chamber, and
(4) a nozzle plate closing said chamber and being provided with outlet means.

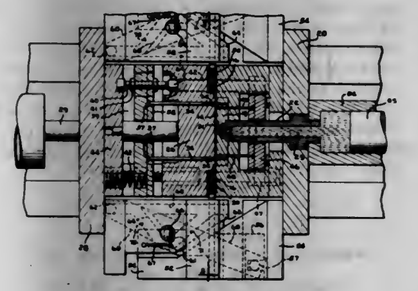
3,317,960
THERMOPLASTIC FORMING MACHINES
Richard R. Kramer, Los Angeles, Calif., assignor to American Thermoform Corporation, Culver City, Calif.
Filed Mar. 12, 1962, Ser. No. 179,113
7 Claims. (Cl. 18—19)

1. A machine for providing thermoplastic sheet copies of original material, including the combination of a base member, an air pervious platen positioned on but separate from the base member, the platen including a resilient rim member, clamping frame means mounted on the base member and including a resilient seal member registering with the rim members of the platen, whereby an air-sealed plenum chamber having relatively low volume



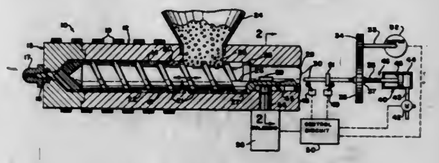
is defined between the base plate and a thermoplastic sheet positioned between the platen and the clamping frame means, means communicating with the base plate surface for evacuating the plenum chamber, and means for heating a thermoplastic sheet positioned between the platen and the clamping frame means.

3,317,961
APPARATUS FOR FORMING PARTS
Constantine N. Drevalas, Wheaton, and Theodore W. Kalbow, Berwyn, Ill., and James H. Tomlin, Fort Lauderdale, Fla., assignors to Western Electric Company, New York, N.Y., a corporation of New York
Filed Dec. 6, 1963, Ser. No. 328,702
9 Claims. (Cl. 18—30)



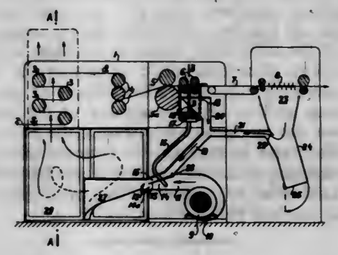
1. An apparatus for making parts which comprises:
a pair of relatively movable die sections cooperable in a closed position to form a mold cavity for molding an article having a flat web and a plurality of parts extending from the web in parallel and laterally spaced relation to each other, and for retaining the molded article in one of the die sections with the parts accessible during relative movement between the die sections to open position;
means for effecting relative movement between said die sections to open position;
shearing means mounted for movement transversely of said one die section and parallel and adjacent to the web of the molded article supported thereby; and
means operable in response to relative movement of the die sections toward open position for actuating said shearing means to effect the shearing of the parts from the web.

3,317,962
INJECTION MACHINE POSITIVE STOP
Albert Reynolds Morse, Cleveland, Ohio, assignor to Injection Molders Supply Co., Inc., Cleveland, Ohio, a corporation of Ohio
Filed Mar. 17, 1965, Ser. No. 440,514
15 Claims. (Cl. 18—30)



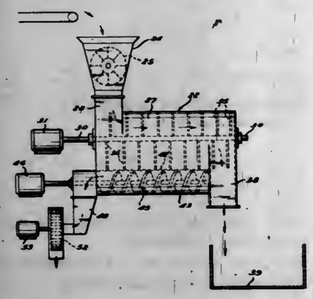
1. A plastic molding device having a rotating screw which comprises in combination,
means to rotate said screw intermittently and means to stop said screw in a predetermined radial position.

3,317,963
MACHINE FOR THE PRODUCTION OF A CONTINUOUS STAPLE FIBER PRODUCT FROM BUNDLES OF CONTINUOUS SYNTHETIC FILAMENTS
František Šob and František Weidenhöfer, Brno, Czechoslovakia, assignors to Elitex, Sdružení podniku textilního strojírenství, Liberec, Czechoslovakia
Filed June 2, 1964, Ser. No. 372,065
Claims priority, application Czechoslovakia, June 5, 1963, 3,233/63
7 Claims. (Cl. 19—.56)



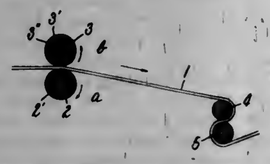
1. A machine for the production of a continuous staple fiber product from bundles of continuous synthetic filaments, comprising
(a) means for cutting a bundle of continuous synthetic filaments,
(b) means for loosening the cut filaments or a continuous product containing staple fibers,
(c) means for combing said product, and
(d) a pneumatic system comprising
  (1) means for producing a current of air,
  (2) duct means for said air current,
  (3) flow means within said duct means, dividing a length of said duct means into an overpressure and an underpressure channel,
  (4) means associated with said duct means and flow means for producing suction,
  (5) suction duct means leading away from said loosening means and combing means and joining said underpressure channel, and
  (6) overpressure branch duct means diverging from said overpressure channel and leading to said loosening means.

3,317,964
PROCESS FOR SEPARATING PITH FROM BAGASSE
Eduardo J. Villavicencio, Mario Sierra Rojas, and Salvador Escobar, Mexico City, Mexico, assignors to Cia. Industrial de Ayotla, S.A., Mexico City, Mexico
Filed Nov. 16, 1962, Ser. No. 238,227
1 Claim. (Cl. 19—34)



A dry process of producing substantially pith free fiber from bagasse comprising feeding at a metered rate, fresh fragments of bagasse having a moisture content of up to 50 percent in one end of a fixed cylindrical vessel having a treating zone including a circumferentially continuous inner surface of unobstructed uniform diameter, at least a portion of said surface being a foraminous material, moving the fragments of bagasse in a helical path around the inner periphery of the vessel from said one end to the other end by contact with rotary agitating members rotating at an angular speed sufficient to maintain the bagasse fragments spread in a layer over the inner surface of the vessel to subject the bagasse to transverse rubbing because of the differential speed between the portion of the bagasse at a zone adjacent the surface of the vessel and a zone radially inward adjacent the agitating members whereby the individual fibrous fragments of bagasse are forced across each other by reason of the differential speed of rotation to loosen the pith particles therefrom while subjecting the fragments to an outwardly directed radial current of air over the foraminous portion of the periphery of the vessel so as to prevent the moisture from causing the pith to adhere to the fiber and to remove the loosened pith particles, and discharging processed bagasse fibers from said other end of said vessel to produce a fiber containing less than 9 percent retained pith particles.

3,317,965
TOW FILAMENT SEPARATING APPARATUS
Zenji Murakami, Zyoto-ku, Osaka, Japan, assignor to Osaka Kiko Kabushiki Kaisha, Osaka, Japan
Filed Sept. 11, 1964, Ser. No. 395,869
1 Claim. (Cl. 19—65)



An apparatus for separating from each other the filaments of a tow moving in a longitudinal direction, while maintaining the width of the tow substantially constant, said apparatus comprising:

(a) first and second sets of rollers through which the tow is passed in the longitudinal direction in sequence, said sets being spaced apart in said longitudinal direction,

(b) said second set of rollers being tow delivering rollers having continuous surfaces,

(c) said first set of rollers being tow filament gripping and releasing rollers comprising a cylindrical roller, a screw roller, and means for driving said cylindrical and screw rollers at the same surface speed,

(d) said cylindrical roller being resiliently surfaced,

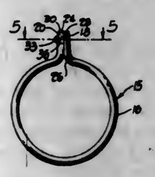
(e) said screw roller having a square thread land forming its outer surface throughout the length thereof with a groove between adjacent turns of said land, and being spring pressed toward said resiliently surfaced roller,

(f) said second set of rollers being driven at a surface speed greater than the surface speed of said first set of rollers by an amount which applies tension to the tow and longitudinally stretches respective filaments of the tow within the elastic limit of said filaments while said respective filaments are nipped by said second set of rollers and by the land and resilient surfaces of said first set of rollers,

(g) said second set of rollers being located to draw the tensioned tow from said first set of rollers at an angle from the tangent plane therebetween on the side of said plane toward said resiliently surfaced roller, thereby to snub said tensioned tow over a corresponding arc of the resilient surface of said resilient roller,

(h) whereby as the tentioned tow is being longitudinally drawn continuously through said first set of rollers by said second set of rollers, tow filaments of said tensioned tow which are nipped between the land and resilient surfaces of said first set of rollers are longitudinally elastically stretched between said sets and, as rotation of said screw roller moves the groove thereof into a position overlying the so stretched filaments and releases the nip thereon, the so released filaments are drawn longitudinally forward through said groove against the snubbing effect of their said arcuate contact with said resiliently surfaced roller by the contraction of the stretched portions thereof extending to said second set of rollers, so that as the tow is moved longitudinally by said sets of rollers, each of the individual filaments thereof is elastically longitudinally stretched and released relative to the adjacent filaments thereof while the tow as a whole is snubbed over said arc of said resilient surface, thus separating the filaments while maintaining substantially constant the width of the tow.

3,317,966
HOSE CLAMP
Anthony M. Gildone, 26580 Oriole Ave., Euclid, Ohio 44117
Filed Feb. 16, 1966, Ser. No. 527,977
3 Claims. (Cl. 24—27)



1. A hose clamp comprising a resilient loop portion and two end portions on the loop projecting outwardly therefrom, to present substantially radial arms, said arms being positionable with opposing surfaces in abutting relationship to each other when the loop is resiliently expanded to a large diameter, a recess in one of said opposing surfaces

shaped to receive a surface of the other of said arms, and a dome-shaped protuberance extending from the opposing surface of the other said arms, receivable in the said recess, spaced inwardly from the outer end of the arm, and located beyond the mid-point along the arm, in a direction away from the loop portion.

3,317,967
ADJUSTABLE TOGGLE-LEVER-TYPE STRAP TIGHTENER
Samuel J. Rounds and James G. Rounds, both of R.D. 1, Henderson, N.Y. 13650
Filed June 7, 1965, Ser. No. 461,898
4 Claims. (Cl. 24—70)



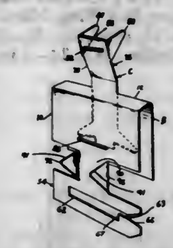
1. A connecting and take-up and tension applying device for a tension member comprising an elongate plate having a transverse slot in one end, and attachment means at the other, and a channel sectioned member having a web and side flanges, the web being of a width to receive the plate in nesting relation within the channel, said channel member, at one end having an integral tongue extension from the web thereof, of a width less than the length of said plate slot, said tongue extending at an angle from the inside plane of said web, in the direction of said side flanges, and having an arcuate portion concave in the opposite direction, said channel member having opposite pivot apertures in its flanges adjacent the tongue end of the flanges, said apertures being spaced from the inside plane of the web of said channel member by a distance greater than the thickness of said plate, and means pivoted in said apertures for attachment to a tension member.

3,317,968
CLAMPING MEANS FOR ORNAMENTAL TRIM
Irving M. Plastock, 2470 64th St., Brooklyn, N.Y. 11204
Filed Oct. 28, 1964, Ser. No. 407,064
3 Claims. (Cl. 24—73)



1. A clamp comprising a substantially triangular shaped body with closely spaced front and rear walls, narrow overlapping side walls, said body being open at the wide end, opposed teeth on the wide end for engaging and clamping an article therebetween, and a neck portion at the narrow end of the body, said neck portion being tubular to receive a flexible supporting member and constituting a closure member for said narrow end, said neck portion being formed with an outstruck loop for receiving a flexible member.

3,317,969
FASTENING DEVICE
Robert J. Holton, Rocky River, Ohio, assignor to Thaerman Products, Inc., Cleveland, Ohio, a corporation of Ohio
Original application Jan. 2, 1962, Ser. No. 163,938, now Patent No. 3,230,591, dated Jan. 25, 1966. Divided and this application June 1, 1965, Ser. No. 460,370
7 Claims. (Cl. 24—73)



1. A fastening device for mounting a cover or the like in closed position on a container, said device comprising a generally U-shaped body having a pair of spaced, generally parallel legs extending downwardly from a base portion and adapted for securement over a marginal edge of a container, one of said legs including at least one generally vertical extending web portion bent outwardly therefrom which provides a support to receive in supporting relation thereon a cover when applied in a closed position with a container, a deformable locking arm struck-out from the material of said body and intergally attached at one end to said body for pivotal movement through a generally vertical plane toward and away from a cover when in position on said web portion, said arm including at least one generally vertically extending flange portion bent outwardly adjacent the free end thereof and adapted for overlying engagement against a confronting upper surface of a cover for retaining the same in closed position on said web portion.

3,317,970
SEAT BELT BUCKLE
Andrew J. Van Noord, Grand Rapids, Mich., assignor to Kent Engineering, Grand Rapids, Mich., a partnership
Filed Sept. 4, 1964, Ser. No. 394,452
3 Claims. (Cl. 24—75)



3. A safety seat belt buckle, comprising;

a wrap-around housing having a pair of side rail strength bearing members provided therein and extending fore and aft along opposite sides thereof,

said housing being formed to retain said side rails relatively positioned therein and being open at opposite ends and across the top thereof,

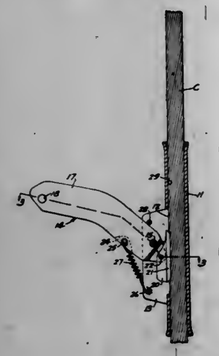
seat belt adjustment means engaged between said side rails at one end of said housing and seat belt latching means engaged between said side rails at the other end thereof,

said adjustment means including a stop member and an adjustment bar movable relative to each other and means for actuating one thereof relative to the other for permitting the adjustment of a seat belt on said bar,

said actuating means being guided on said side rails and being operative from outside said housing through said one housing end,

and a singular cover member extending the full length of and closing the top of said housing and including an inbent lip for operation of said latching means.

3,317,971
ROPE SAFETY CLAMP DEVICE
Roy E. Meyer, Red Wing, Minn. 55066
Filed Feb. 23, 1965, Ser. No. 434,518
4 Claims. (Cl. 24—134)



1. A cable clamp safety device comprising

an elongate tubular body member embracing a vertically oriented safety cable and being slidable therealong, said body member having an aperture therein intermediate the ends thereof,

a pair of spaced apart projections integrally formed with said body member and projecting outwardly therefrom,

an elongate operator member having one end positioned between and pivotally connected with said projections for limited vertical swinging movement about a horizontal axis, said operator member projecting upwardly and outwardly from said body member and being bent intermediate its ends to define inner and outer portions having an obtuse included angle therebetween,

said operator member having means adjacent the end of said outer portion for attachment to a safety appliance such as a workman's safety belt,

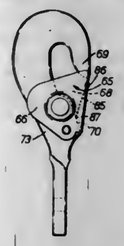
a cable-engaging shoe positioned within the aperture in said body member and being pivotally connected with the inner end of said inner portion of the operator member and having a friction face which cooperates with said body member for clamping a cable therebetween,

means on said projections for limiting upward swinging movement of said operator member,

yieldable means extending between and interconnected with said operator member and said body member for normally urging said operator member in a downward direction and thereby urging said cable-engaging shoe into engagement with the safety cable.

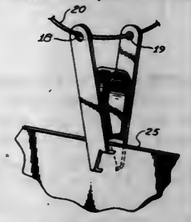
the coefficient of friction of said device with respect to the safety cable including the weight moment of the operator member and the force of said yieldable means, being slightly less than the magnitude and direction of the force of gravity acting on said device whereby said device will freely slide downwardly with respect to the safety cable at a predetermined rate in the absence of a downwardly directed force exerted on the outer end portion of the operator member.

3,317,972
CONNECTORS
Frank Bernard Harley, Egham, England, assignor to Harley Patents (International) Limited, Egham, England, a company of England
Filed Feb. 15, 1965, Ser. No. 432,785
Claims priority, application Great Britain, Feb. 24, 1964, 7,609/64
1 Claim. (Cl. 24—241)



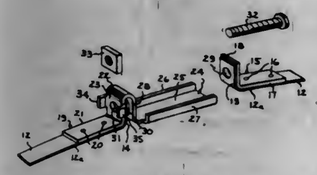
A connector comprising a platelike main body, said body affording two spaced portions to provide an open mouth through which another part may be passed, a shroud comprising a U-shaped member having a pair of sides lying one on each side of the main body and an interconnecting base, the shroud being pivoted to one of said spaced portions by means passing through said portion and said pair of sides, the shroud being capable of pivotal movement from a closed position in which the base extends across the mouth to an open position in which another part can pass through the mouth, and latching means to retain the shroud in the closed position, said latching means comprising at least one spring-biased plunger mounted in a hole in the body but normally having an end projecting therefrom, the said projecting end lying in a locking aperture of substantially the same size as the said end, said locking aperture being formed in a member abutting the surface of the body in a contact plane and being located within a space formed beneath an outwardly pressed region of the side of the shroud, said outwardly formed region having a hole formed therein in alignment with the locking aperture, and a press button having a first portion lying within the said hole, a second portion comprising a retaining shoulder arranged to abut the inner surface of the outwardly pressed region around the periphery of the hole, and a third portion having a size and shape no larger than said locking aperture and abutting the end of the plunger whereby inward pressure on the press button causes said third portion to force the plunger into or beyond the said contact plane.

3,317,973
MINIMUM SURFACE CLAMP
Lewis C. Finkle, 6260 N. Loma Ave., Temple City, Calif. 91780
Filed May 21, 1965, Ser. No. 457,737
2 Claims. (Cl. 24—252)



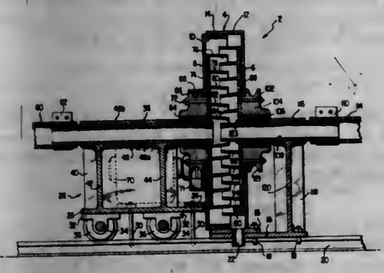
1. A minimum surface clamp comprising first and second legs; spring means having one end secured to the inner surface of each of said first and second legs to normally hold said legs at an angle to one another; the ends of said legs farthest apart serving as finger grips for opening the clamp against the force of said spring means; and staggered finger means projecting inwardly from the other ends of said legs nearest together to engage and support a piece of material placed between the fingers after the clamp is opened, said staggered finger means comprising only two fingers projecting from each leg at opposite sides thereof and at locations separated along the length of the leg, the pair of fingers on one leg being staggered with respect to the fingers on the other leg.

3,317,974
CLAMP
Robert R. Sisler, Louisville, Ky., assignor to General Electric Company, a corporation of New York
Filed May 3, 1965, Ser. No. 452,671
1 Claim. (Cl. 24—279)



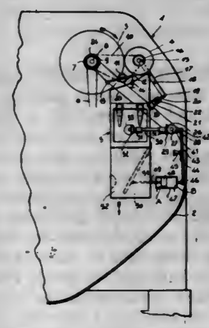
In a clamp, a flexible band, each end of said band being formed as a radially outwardly projecting tab, a first reinforcing member attached to said band adjacent the first end and including a portion contiguous with the outer surface of the first of said tabs, a second reinforcing member attached to said band adjacent the other end thereof, said second reinforcing member including a return bent portion extending radially outward from said band, the inner leg of said return bent portion being contiguous with the outer surface of said second tab, said second reinforcing member further including a channel portion extending endwise of said other end of said band to receive said first end of said band, said tabs, said projecting portion of said first reinforcing member and the outer leg of said return bent portion of said second reinforcing member being apertured to receive a tightening bolt, and said inner leg of said return bent portion being provided with a threaded opening to engage the bolt.

3,317,975
ROTARY DISC DISINTEGRATOR
Benjamin J. Parmele, 1601½ Princess St., Wilmington, N.C. 28401
Filed Oct. 28, 1964, Ser. No. 407,067
8 Claims. (Cl. 241—284)



1. A disintegrating machine comprising a support, first and second discs having opposed working faces with a plurality of interdigitating radially spaced annular flanges thereon, first means mounting the first disc on said base for rotation about an axis, second means including a trackway parallel to said axis and a chassis engaging said trackway mounting said second disc on said support for rotation about a horizontal axis aligned with the aforesaid axis, said chassis being movable on said trackway to provide variable axial spacing between the discs, at least some of said annular flanges which are adjacent to one another being inclined inwardly towards the axes of said discs whereby adjustment of the axial spacing between the discs provides adjustment of the radial spacing between the adjacent inclined annular flanges, a casing surrounding said discs, means for rotating said discs in opposite directions, means for feeding material to be disintegrated centrally between said discs, and outlet means in the periphery of said casing for the egress of material after the latter has passed between said annular flanges.

3,317,976
METHOD FOR WASHING AND FULLING FABRICS
Attilio Bertoldi, Manerbio, Brescia, Italy (% Ing. A. Giambrocono, Galleria Regina Giovanna 36/3, Milan, Italy)
Filed Oct. 21, 1963, Ser. No. 317,430
Claims priority, application Italy, Oct. 26, 1962, 21,196/62; June 28, 1963, 13,127/63
1 Claim. (Cl. 26—20)

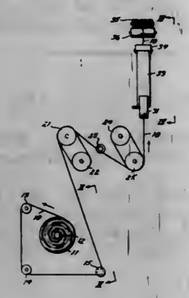


In a method for treating textile goods, the steps of continuously transporting the goods along a closed path for a given time period, and simultaneously treating the goods during one portion of said time period at one frequency and magnitude of intermittently applied pressure to full the same and during the other portion of said given time period at a lower frequency and higher magnitude of intermittently applied pressure to wash the goods, applying said intermittent pressure first in a first direction extending transversely of said path and then in a second direction perpendicular to said first direction and also extending transversely of said path, and treating said goods alternately to said one magnitude and frequency of pressure and said other magnitude and frequency of pressure so as to provide alternate fulling and washing treatments.

3,317,977
METHOD AND APPARATUS FOR UNWINDING AND TREATING STRAND FROM A TRAVERSE-WOUND PACKAGE
Robert K. Stanley, Media, Pa., assignor to Techniservice Corporation, Lester, Pa., a corporation of Pennsylvania
Filed July 31, 1964, Ser. No. 386,489
The portion of the term of the patent subsequent to Aug. 25, 1981, has been disclaimed
10 Claims. (Cl. 28—1)

1. In treatment of a multi-component strand separable into a plurality of strand components, the steps of pulling

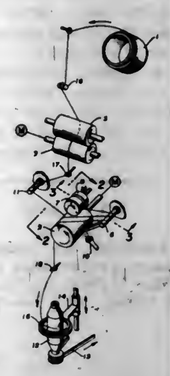
the strand away from a traverse-wound source thereof and along a path, equalizing the tension in successive increments of the strand and throughout its length by passing it through a succession of alternating straight and curved portions of the path, each interconnecting curved portion having a fixed axis about which it curves, there being a plurality of the interconnecting curved portions freely movable along their axes, whereupon the adjacent straight portions are shiftable laterally, passing it through a treating zone wherein the treatment is tension-dependent, and separating the treated multi-component strand into a plurality of strands.



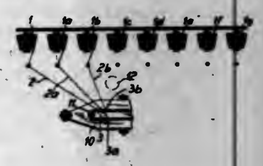
2. Apparatus for strand treatment comprising means for supporting a traverse-wound package of separable, multicomponent strand for unreeling, a plurality of rolls mounted for rotation on fixed axes paralleling the package axis, a friction-free guide located at an intermediate position with regard to the package ends, means for pulling the strand from the package and about the rolls as a group and the guide, the strand describing an angle of at least about a quarter circle between leaving the package and the guide and being free to move axially along the rolls between the package and the guide, means for applying a tension-dependent treatment to the strand, and means for separating the strand into a plurality of strands following interim tension-dependent treatment thereof.

3,317,978
STRETCH YARN TEXTURING PROCESS AND APPARATUS
Euell K. McIntosh, Pensacola, Fla., and Hiram B. Taylor, Hartselle, Ala., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Filed Aug. 28, 1964, Ser. No. 392,731
5 Claims. (Cl. 28—1)

1. Apparatus for drawing and texturing undrawn thermoplastic yarn comprising,
driven feed roll means for forwarding yarn at one speed,
a draw roll assembly comprising,
a draw roll for forwarding a yarn delivered thereto from said feed roll means at a faster speed than said one speed,
a separator roll near said draw roll,
a heater roll having a heated surface driven in an opposite direction from and in close spaced peripheral adjacency to said draw roll providing a clearance therebetween of a size approximating the dimension of a yarn normally traveling therethrough to prevent a nip being exerted on the yarn,
said separator roll being positioned in relation to said heated surface such that a yarn, traveling from said separator roll into contact with said draw roll via said clearance, contacts at one side thereof the periphery of said heated surface substantially immediately prior to contact of the opposite side thereof with said draw roll.



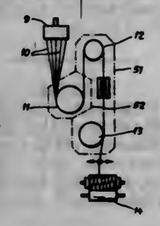
3,317,979
METHOD AND DEVICE FOR DRAWING WARP THREADS FROM A CREEL TO A WARPER
Stefan Furst, Monchen-Gladbach, Germany, assignor to Walter Reiners, Monchen-Gladbach, Germany
Filed Mar. 8, 1965, Ser. No. 437,704
Claims priority, application Germany, Mar. 7, 1964, R 37,394; Mar. 14, 1964, R 37,450
24 Claims. (Cl. 28—32)



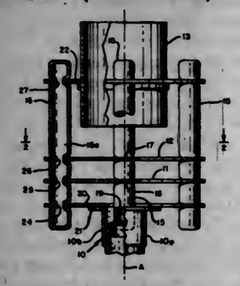
13. With a beam warper having a thread comb and a creel for an array of warp-thread spools, in combination, a device for drawing the threads from the spools through the thread comb of the warper comprising a thread holder in front of each vertical row of the creel array and having means for attaching the respective threads from the spools of said row, and means for joining said thread holders to pass them to the thread comb of the warper.

3,317,980
MACHINE FOR TREATING TEXTILE THREAD
Rudolf C. Jaeggli, Winterthur, Switzerland, assignor to Rieter Machine Works, Ltd., Winterthur, Switzerland, a corporation of Switzerland
Filed Sept. 16, 1964, Ser. No. 396,890
5 Claims. (Cl. 28—71.3)

1. In a machine for treating textile thread material and including means for drafting thread material and heated rotatable guide elements for guiding and heating thread material:
stationary housing means surrounding said rotatable elements,
said housing means being provided with sluice means forming passages for thread material running from the outside into said housing means and unto said guide elements and for thread material running from said guide elements and from the inside to the outside of said housing means, said sluice means including means inhibiting exchange of gaseous matter at the inside and the outside of said housing means.



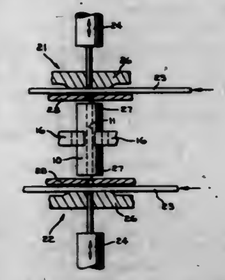
3,317,981
EXPANDING HOLLOW PLASTIC POSTS ON OPPOSITE SIDES OF ELECTRODE APERTURES FOR GRIPPING ELECTRODES
Joseph M. Drees, Saratoga, Calif., assignor to Sylvania Electric Products Inc., a corporation of Delaware
Filed Nov. 18, 1963, Ser. No. 324,267
4 Claims. (Cl. 29—25.13)



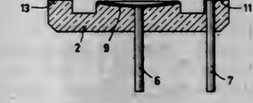
1. The method of assembling an electron gun having a plurality of electrodes consisting of the steps of
aligning and spacing the electrodes along an axis,
inserting end-sealed tubular thermo-plastic posts through aligned openings in said electrodes,
heating the electrodes and posts to a temperature at which the post walls soften and the pressures within the posts increase to cause said walls to expand whereby to grip the electrodes at the openings, and
cooling the assembly whereby the posts harden in their expanded state.

3,317,982
METHOD OF MASKING HOLES IN CAPACITOR BODIES
William J. Fanning, Melrose Park, Ill., assignor to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York
Filed July 29, 1964, Ser. No. 385,868
3 Claims. (Cl. 29—25.42)

1. A method of plugging the end of a hole formed in a wound capacitor by an arbor during the winding of the capacitor which comprises:
forming a strip of plastically deformable dielectric material from which closure plugs may be punched for filling the ends of the holes;
placing a strip and a capacitor in a die and in the path of a punch having a flat end which is slightly larger than the cross section of the hole in the capacitor and with the end of the capacitor adjacent the strip and in alignment with the punch; and
punching a closure plug of the plastically deformable dielectric material from the strip and deformably pressing the closure plug into the hole with the punch until the outer end of the plug becomes flat and flush with the end surface of the capacitor.



3,317,983
METHOD OF MAKING A VIBRATORY CAPACITOR
Cornelis Teunis de Wit, Petrus Van Hoesel, and Gerardus Johannes Boon, all of Eindhoven, Netherlands, assignors to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
Filed Oct. 7, 1964, Ser. No. 402,226
Claims priority, application Netherlands, Nov. 25, 1963, 300,961
3 Claims. (Cl. 29—25.42)

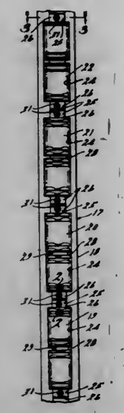


2. A method of manufacturing a vibratory capacitor comprising molding a first and second body part at least one of which has imbedded therein and extending therefrom at least two conductors, shaping a face of each body part, said shaping including uncovering a portion of the conductors in at least one of said body parts, vapor depositing a thin metallic film on each said shaped face thereby covering said exposed conductors, said film providing a stationary capacitor electrode, and positioning a vibrating body part having a movable electrode between and in spaced relation from said shaped faces of said first and second body parts.

3,317,984
BROACH
Eric W. Jacobson, Birmingham, Mich., assignor to Colonial Broach & Machine Company, Warren, Mich., a corporation of Delaware
Filed Jan. 25, 1965, Ser. No. 427,680
13 Claims. (Cl. 29—95.1)

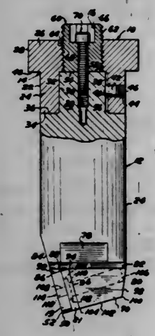
1. In a broach having a series of lands formed in the body thereof by grooves provided therebetween, the forward section of the broach being tapered, the rear section being cylindrical followed by annular finishing teeth which progressively increase in diameter, spaced flats on the forward tapered section being disposed parallel to the broach axis and of increasing length on the front to the rear lands thereof, flats on the lands of the rear section which slope

outwardly and decrease in length on the front to the rear lands thereof, the front section producing spaced slots in a bore, the rear section removing the metal between the



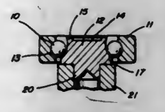
slots to machine the bore to substantially the desired diameter, the finishing teeth being annular and increasing in diameter to finish the bore to final diameter.

3,317,985
CUTTING TOOL HOLDER
Sherwood J. Basch, Fruitport, Mich., assignor to Morton Manufacturing Company, Muskegon Heights, Mich., a corporation of Michigan
Filed July 26, 1965, Ser. No. 474,868
9 Claims. (Cl. 29—96)



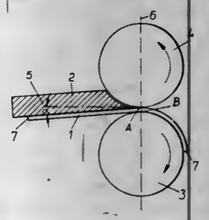
1. A cutting tool holder, comprising
a tool holder cap member,
a tool bit carrier disposed coaxial with said tool holder cap member,
one of said members having an axial bore therein and the other member having an axial prolongation axially slidably engaging said bore,
said cap member having a threaded outer bore therethrough,
an adjusting screw threaded through said threaded outer bore into abutting engagement with said prolongation,
said adjusting screw having a smooth inner bore therethrough and said carrier member having a threaded inner bore coaxial with said smooth bore,
a locking screw rotatably mounted in said smooth bore and extending therethrough into threaded engagement with said threaded inner bore,
and means on said tool bit carrier member for securing a cutting tool bit thereto.

3,317,986
COMPONENTS FOR BALL BEARING ASSEMBLIES AND METHOD OF MAKING THE ASSEMBLIES
Walter S. Sutowski, 6976 Crestview Drive, Brecksville, Ohio 44141
Filed Feb. 11, 1965, Ser. No. 431,899
5 Claims. (Cl. 29—148.4)



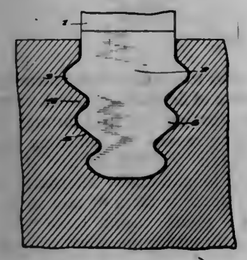
1. The process of assembling a ball bearing device composed of inner race member, outer race member and a plurality of balls interposed therebetween, comprising the steps of, providing an outer race member having an annular raceway formed inwardly thereof, providing an inner race member of peenable metal having an annular shoulder forming a portion of an outer raceway outwardly thereof, said shoulder being curved on a first radius complementing the radius of a said ball, said inner race member having a solid end surrounded by an annular flange extending therearound, said annular flange extending around the inner race member at an axial distance from said shoulder and protruding in an axial direction away from said shoulder, said flange and inner race member having an outer wall extending from said shoulder and being curved on a second radius greater than said first radius, said flange having an inner inclined wall sloping upwardly and outwardly from said solid end, said outer wall of the flange correspondingly sloping upwardly and outwardly for inclining said flange radially outwardly, arranging the race members concentrically with the balls disposed therebetween and the race members supported with said shoulder directed upwardly, pressing the flange of said inner race member downwardly to peen the flange outwardly over said balls to displace said outer wall from said second radius to said first radius whereby the said shoulder and outer wall provide an outer raceway on said inner race member for said balls.

3,317,987
METHOD AND DEVICE FOR ROLLING THINWALL BEARINGS
Erich Roemer, Kapellenstrasse 60, Wiesbaden, Germany
Filed Jan. 25, 1965, Ser. No. 427,783
Claims priority, application Germany, Feb. 1, 1964, G 39,758
8 Claims. (Cl. 29—149.5)



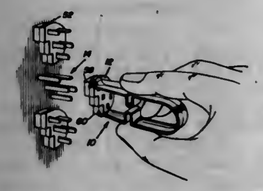
1. The method of forming thinwall straight, arcuate bearing shells which are axially straight throughout their entire axial length, from strip material coated with anti-friction metal, said method including the steps of bending the strip material and subsequently finish-rolling the bent material with simultaneous reduction in the thickness thereof by at least .5%, preferably 1.0%.

3,317,988
METHOD FOR FASTENING BLADES INTO TURBINE ROTORS
Wilhelm Endres, Ennetbaden, Switzerland, assignor to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland, a joint-stock company
Filed Dec. 9, 1963, Ser. No. 329,116
Claims priority, application Switzerland, Dec. 14, 1962, 14,714/62
1 Claim. (Cl. 29—156.8)



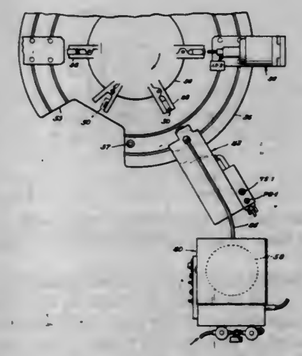
The method of fastening metallic blades into turbine rotors which comprises the steps of initially dimensioning all surface portions of the root parts of the blades and the corresponding wall surface portions of a peripherally extending undercut groove on the rotor into which the root parts of the blades are inserted with such tolerances that an initial gap would ordinarily remain between all confronting surface portions of the blade root part and groove wall, inserting the root parts of the blades in said groove, filling out said initial gap between all confronting surface portions of said root parts of said blades and the groove wall with a layer of heat-resistant metallic powder softer than the metal from which the root part of the blade is formed, said powder being taken from the group consisting of iron, copper, nickel and nickel-copper alloys, and then subjecting said metallic powder to artificial oxidation thereby expanding said layer and putting the same under compressive stress between said confronting surface portions to rigidly secure the root part of each said blade within said undercut groove and effect uniform loading of the root part of each blade.

3,317,989
CONNECTOR INSTALLATION TOOL
John V. Cull, P.O. Box 7342, Dallas, Tex. 75209
Filed Aug. 12, 1965, Ser. No. 479,074
11 Claims. (Cl. 29—203)



1. For use with a connector mounted on electrical terminals, a connector installation tool comprising a body of resilient material, U-shaped leg means extending inwardly from opposing side walls of said body whereby said leg means will contact upon compression of said body, head portions integral with said body and at opposing ends of said side walls, said head portions comprising first and second jaws respectively, said jaws being movable towards each other upon compression of said body whereby said tool can be used to grip and carry connectors either toward or away from electrical terminals, said head portions including first and second stop tabs respectively adjacent said first and second jaws whereby a connector held between said jaws will be free to move laterally of said jaws in only one direction.

3,317,990
SET SCREW DRIVER
Kenneth A. McHenry, Clinton, and Lester A. Amtsberg, Utica, N.Y., assignors to Chicago Pneumatic Tool Company, New York, N.Y., a corporation of New Jersey
Filed July 29, 1964, Ser. No. 386,037
23 Claims. (Cl. 29—407)



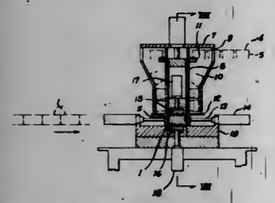
1. A method for applying fastener elements to workpieces comprising the steps of receiving randomly oriented and axially aligned fastener elements from a supply source, rejecting all fastener elements which are not oriented in a desired manner, passing in axial alignment all desirably oriented fastener elements to an escapement means, operating the escapement means to release one fastener element at a time, passing a released fastener element to a holding station, releasing a fastener from the holding station to a fastener driving means, and operating the fastener driving means to drive the fastener into engagement with a workpiece.

3,317,991
METHOD OF FABRICATING PREOXIDIZED SILVER-CADMIUM OXIDE ELECTRICAL CONTACTS
Frédrik O. Haarbye, Indianapolis, Ind., assignor to P. R. Mallory & Co. Inc., Indianapolis, Ind., a corporation of Delaware
Filed Apr. 2, 1965, Ser. No. 445,038
7 Claims. (Cl. 29—420.5)

6. The method of manufacturing preoxidized silver-cadmium oxide materials comprising the steps of:
(a) superheating a molten metal, consisting of silver and cadmium, to be atomized to a temperature of about 1260° C.;
(b) pouring said molten metal into a cast iron funnel, said funnel having a graphite insert with a plurality of spaced apart apertures, said molten metal leaving said funnel in a plurality of spaced apart streams;
(c) subjecting said molten streams to an air-water jet, said jet breaking up said molten metal streams into small fragments;

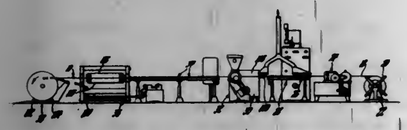
(d) collecting and cooling the resulting silver-cadmium shot;
(e) air drying said shot and screening said shot for size;
(f) oxidizing said shot at a temperature of about 825° C. in an oxygen-containing atmosphere for 5–24 hours;
(g) compacting said shot;
(h) extruding said shot;
(i) and cold working said extruded shot to final shape.

3,317,992
METHOD OF AND APPARATUS FOR METAL CLADDING REFRACTORY BRICK
Duncan Macmillan Kerr, Carmel, Calif., assignor to The Ohio Fire Brick Company, Oak Hill, Ohio, a corporation of Ohio
Filed Oct. 16, 1964, Ser. No. 404,305
3 Claims. (Cl. 29—450)



1. The method of cladding brick with a pair of symmetrical steel casings of substantially U shape which consists of:
(a) feeding a pair of U-shaped casings to the feed hopper of an assembly jig with the legs of the U-shaped casings resting at the top of the hopper in a manner that when released the casings extending downwardly and will drop by gravity and turn sidewise to align the legs of the pair of casings towards one another,
(b) spreading the legs of each of said pair of casings and moving them over the side and edges of a premolded brick that has recesses formed therein,
(c) compressing said casings by bringing their legs together in intimate engagement with said pre-molded brick with the edges of the legs juxtaposed, and,
(d) simultaneously striking the legs of the casing with a die in alignment with the recesses in the molded brick to displace the metal into said recesses to interlock therewith.

3,317,993
APPARATUS AND METHOD FOR MAKING FLEXIBLE CONDUITS
William Henry Davenport Bronse, Toronto, Ontario, Canada, and Alvin A. Cadwallader, Hatboro, and Donald R. Pierce, Upper Dublin Township, Montgomery County, Pa., assignors to Teleflex Incorporated, North Wales, Pa., a corporation of Delaware
Filed Dec. 4, 1961, Ser. No. 156,856
17 Claims. (Cl. 29—527)

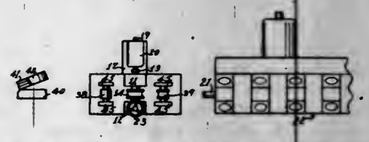


1. The method of continuously forming flexible conduit comprising the steps of continuously punching holes in a flexible metal strip member at relatively closely spaced intervals throughout the length thereof so as to leave solid strip portions intermediate adjacent of said holes, next alternately offsetting adjacent of said solid strip portions to form bridge portions projecting from opposite faces of said strip, heat treating said punched and formed strip to harden the same, quenching the heat treated strip, again heat treating the strip to temper the same, extruding a plastic casing about said punched and formed strip in such a way that said casing assumes the same general configuration as the strip, and cooling said strip to set said plastic.



6. An apparatus for continuously forming flexible conduit from a source of flexible strip stock comprising means for continuously feeding said strip through said apparatus, a device including means for punching spaced holes in said strip and means for forming said strip between said holes to provide longitudinally alternate bridge portions projecting from opposite faces of said strip, and a second device forming a plastic casing about said strip so that said casing etxends within the space adjacent each bridge portion.

3,317,994
METHOD OF CONDITIONING METAL FOR HOT FORMING
Daniel B. Cofer, George C. Ward, and Dale D. Proctor, all of Carrollton, Ga., assignors to Southwire Company, Carrollton, Ga., a corporation of Georgia
Filed Aug. 19, 1964, Ser. No. 390,666
11 Claims. (Cl. 29—528)

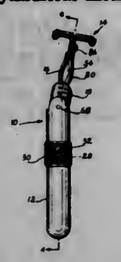


2. In a method of hot-forming a non-homogenized continuously cast copper bar, the steps of feeding said bar at a hot-forming temperature to a compressing means, initially compressing said bar by a single compression of said bar to the extent necessary to reduce its cross-section by at least 36% and to substantially destroy its dendritic structure, and subsequently compressing said bar by a plurality of sequential compressions in each of which the cross-section of said bar is changed to the extent necessary to provide a hot-formed product having a predetermined cross-section.

3,317,995
SLIDABLE BLADE TYPE SAFETY RAZOR HAVING AN ADJUSTABLE RAZOR HEAD AND BLADE EXPOSURE MEANS
Max Bord, 3835 Sedgwick Ave., Bronx, N.Y. 10463
Filed Mar. 11, 1965, Ser. No. 438,847
4 Claims. (Cl. 30—37)

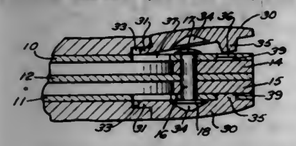
1. A safety razor for use with a double-edged injector blade, comprising a hollow handle portion and a head portion adapted to have said double-edged blade injected therein; first means pivotally connecting said head portion to said handle portion for selectively placing said head portion in an angularly inclined position with respect to the longitudinal axis of said handle portion, second means disposed within said hollow handle adapted to engage said

first means to lock said head portion in said selected position, and concomitantly therewith selectively placing one of the cutting edges of said blade in its shaving position, said second named means comprising a substantially cylindrical member vertically movable between an upper and a lower position within said handle, a collar slidably mounted upon said handle and connected to said cylindrical member, and a spring member interposed between the bottom of said handle and the bottom of said cylindrical member to bias said cylindrical member and said collar



upwardly, said cylindrical member being movable downwardly to its lower position by a corresponding downward movement of said collar, in which position said cylindrical member is disengaged from said first named means to permit of pivotal movement thereof to place said head portion in said selected angularly inclined position, and said cylindrical member being movable upwardly to its upper position by the biasing force exerted thereon by said spring member, in which position said cylindrical member engages said first named member, locking the same and said head portion in said selected position.

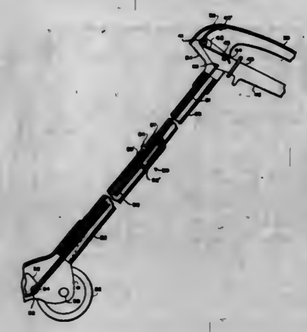
3,317,996
KNIFE BOLSTER ASSEMBLY
Antonio Paolantonio, Johnston, R.I., assignor to Colonial Knife Company, Inc., a corporation of Rhode Island
Filed July 6, 1965, Ser. No. 469,431
3 Claims. (Cl. 30—164)



1. In a knife a liner plate having an opening adjacent one end, a rivet having a head that retains the plate in assembled position and said rivet is adjacent said opening, a cover over a portion of said liner plate terminating in an edge short of said rivet head, said terminating portion having an undercut pocket in the edge thereof extending from the edge away from said rivet head, a bolster secured on the uncovered end of said plate having a finger extending into said pocket and a protuberance extending into said opening in said plate and locked therein by having a riveted end.

3,317,997
TELESCOPING ADJUSTABLE LONG HANDLE MULTIPURPOSE SHEARS
Lars Hedstrom, Mendham, and Rudolph J. Wertepny, Orange, N.J., assignors to J. Wiss and Sons Co., Newark, N.J.
Filed Oct. 11, 1965, Ser. No. 505,092
13 Claims. (Cl. 30—248)

1. Long-handle, multipurpose tool, comprising in combination: a substantially long, telescoping handle, said handle consisting of at least two tubular parts, one of said parts adapted to slidingly move within the other of said parts; a stationary blade affixed to one of said parts; a movable blade pivotally mounted on said stationary blade; a movable lever rotatably mounted on the other of said parts; at least two members located in said handle, said members operable with one another when under tension, one of said members being linked to said mov-



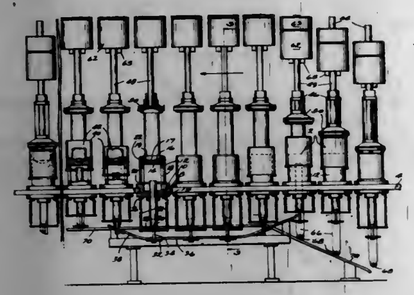
able blade, the other of said members being linked to said lever, said members being slidably arranged with one another, whereby the closing of said lever activates one of said members which in turn activates the other of said members which in turn closes said blades; and means for holding said parts of said handle in an extended and collapsed position.

3,317,998
INTERLOCKED BLADE AND HOLDER HAVING RESILIENT LATCHING MEANS
John J. Matwijcow, 31 Charles Terrace, New Market, N.J.
Filed Sept. 20, 1965, Ser. No. 488,429
4 Claims. (Cl. 30—338)



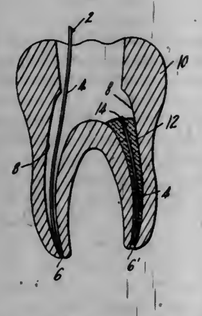
1. A cutting tool comprising an elongated handle and a blade, said blade including a flat body portion having a planar shank extending from one side thereof and a cutting edge on another side, said shank having a pair of substantially parallel sides and a detent projecting from one flat side of said shank adjacent the end thereof remote from said body portion, said handle including a pair of opposed substantially flat surfaces and at least one tapered end, said tapered end having a flat slot therein lying in a plane substantially intermediate said flat surfaces of said handle and in a plane parallel to said flat surfaces, at least portions of the edges of said slot being parallel and dimensioned to receive said shank, said handle having an internal groove aligned and communicating with said slot for the slidable reception of said detent, said handle having a channel formed in one flat face thereof aligned with said groove and extending therethrough into communication with said flat slot, an L-shaped detent means formed of resilient material including a long leg seating in said channel and a perpendicular short leg, said handle having an aperture therein receiving said short leg for retention of said detent means, and a lug on the end of said long leg remote from said short leg extending through said channel and slot, said lug having a flat surface normally perpendicular to said long leg engageable with said detent and an opposite inclined camming surface permitting insertion of said detent into said groove behind said flat surface.

3,317,999
CHEESE MOLDING PRESS
Kenneth W. Royer and Denis C. Kolpack, Mayville, Wis., assignors to Purity Cheese Company, Mayville, Wis., a corporation of Wisconsin
Filed Oct. 23, 1965, Ser. No. 503,181
10 Claims. (Cl. 31—44)



1. A cheese molding press comprising the combination with a rotary table, of an annular series of concave lower molds mounted on the table, a corresponding series of complementary upper molds respectively having means for raising and lowering them with respect to the lower molds, confining sleeves surrounding said molds and being telescopically reciprocable between advanced and retracted positions with respect to the lower molds, and respective means for operating the sleeves and the upper molds in a sequence in which the sleeves are advanced above the lower molds to receive curd to be molded and the upper molds are thereupon lowered toward the lower molds, the sleeve moving downwardly toward its retracted position while confining the curd on the lower molds, the upper molds being raised and the sleeves being held retracted to expose the molded cheese after predetermined circuit of said table.

3,318,000
DENTAL ROOT CANAL FILLING POINT
Lawrence Paris, 11 5th Ave., Augusta, Maine 04330
Filed Apr. 6, 1964, Ser. No. 357,569
4 Claims. (Cl. 32—15)



1. A dental root canal filling point adapted to be placed in a tooth root canal from which the pulp has been removed and to remain permanently in place therein, comprising an elongated relatively thin shank having permanently connected to one extremity thereof a terminal enlargement of greater diameter than the adjacent portion of the shank and adapted to be placed in the root canal, said terminal enlargement having a smoothly curved convex exterior surface substantially circular in cross section at its greatest transverse dimension, whereby upon manipulation by the operator of the filling point in the root canal, the operator can accurately determine the exact position at which the canal is engaged by the point, by virtue of the fact that the filling point makes frictional engagement with the root canal wall only at the enlargement.

3,318,001
DENTAL DEVICE FOR USE IN THE MAKING OF A CROWN OR INLAY
Robert Rubin, 19 E. 71st St., New York, N.Y. 10021
Filed Feb. 15, 1965, Ser. No. 432,673
5 Claims. (Cl. 32—40)



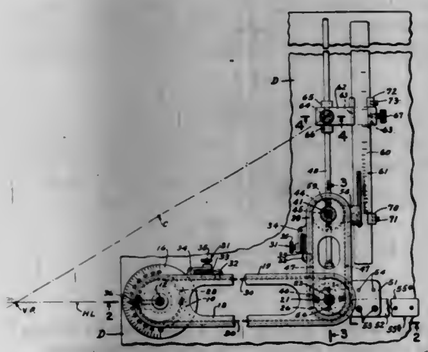
1. A dental device for holding the die of an abutment tooth which is to have a crown built thereon, adapted to be releasably held as an artificial root in a model of the mouth portion which includes said abutment tooth, a cup for holding impression material of which the die is to be fashioned, and an elongated stem extending from the exterior of the cup, away therefrom along the line of direction of the height of the cup; said cup overhanging the stem; the transverse cross section of said stem being substantially crescent-shaped.

3,318,002
DENTAL BURNISHING TOOL
Frank Klein, 693 Palisade Road, Union, N.J. 07083
Filed Oct. 22, 1964, Ser. No. 405,682
2 Claims. (Cl. 32—59)



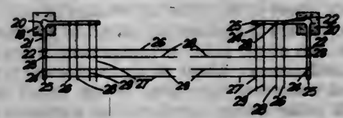
1. A burnishing tool adapted to be secured to a rotatable flexible shaft comprising a pin holder provided with a plurality of recesses axially formed therein communicating with the periphery of the holder, a plurality of pins of substantially the same diameter as the recesses and rotatably positioned in the holder recesses, a first plate positioned against one end of said pin holder having a radial dimension sufficient to provide a bearing surface for one end of each of said pins, a first shaft extending from said first plate and adapted to be connected to the rotatable flexible shaft, and a second plate positioned against the other end of said pin holder having a radial dimension sufficient to provide a bearing surface for the other end of each of said pins, and a second shaft extending from said second plate and engaging said first plate to secure said pin holder and said pins between said plates.

3,318,003
PERSPECTIVE DRAWING DEVICE AND COMBINATION OF PERSPECTIVE AND PARALLEL DRAWING DEVICE
Igor A. Pirogow, Georgetown Road, R.D., Erieville, N.Y. 13061
Filed Sept. 9, 1965, Ser. No. 486,158
15 Claims. (Cl. 33—77)



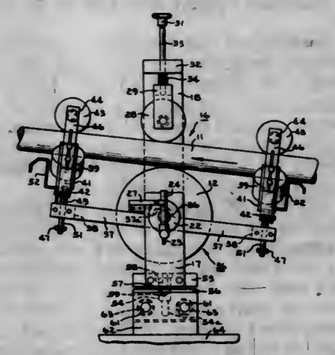
1. A drawing device at least for perspective drawing comprising base means, a single pivotal arm, arm pivot means having a vertical axis and pivotally mounting the arm on the base means, a lever, lever pivot means having a vertical axis and pivotally mounting the lever on the arm at a point spaced from the arm pivot means including a lever pivot mounted on the arm, an operating connection between the base means and the lever to maintain the lever in the same relative angular position with respect to the base means throughout the pivotal movement of the arm including a first fixed member secured to the lever and a second fixed member secured to the base means, and a connecting linkage between the fixed members; ruling edge means including a ruling edge member having a ruling edge, the ruling edge means being pivotally mounted on the lever pivot, and the ruling edge being in alignment with the axis of the lever pivot; and ruling edge control mechanism including a control pivot frame, control frame pivot means pivotally mounting the control frame on the lever at a point spaced from the lever pivot means and having a control frame pivot with a vertical axis, a first connecting member fixed to the arm at the lever pivot, a second connecting member secured to the control frame, a connecting linkage between the connecting members, a control pivot means having a vertical axis and carried by the control frame, the control pivot means including a control pivot having a vertical axis located on a line extending from the axis of the lever pivot means and vertical to a line between the axes of the arm pivot means and the lever pivot means when the lever is vertical to a line between the axes of the arm pivot and the lever pivot, guide means carried by the control pivot having its axis at right angles to the axis of the control pivot, and control rod means secured to the ruling edge means and extending at right angles to the ruling edge and slidably received by the guide means carried by the control pivot means.

3,318,004
METHOD OF BUILDING
John Glendenning Payne, Forawyle, Hermitage, Berkshire, England, assignor to Brick-Quick Appliances Limited, Hermitage, England, a British company
Filed June 2, 1965, Ser. No. 460,678
Claims priority, application Great Britain, June 2, 1964, 22,828/64
5 Claims. (Cl. 33—85)



1. A method of building including the steps of providing a datum position and datum level at the corners of the building to be erected by casting in situ in the ground at the corners of the building reference blocks each with locating means for receiving an indicator device, indicating the positions of the trenches for foundations of the building by mounting on each reference block an indicator device extending perpendicular to the building walls to be erected substantially at ground level and mounting extended guide members between the indicator devices parallel to but spaced from the walls, and indicating the lines of the various courses as the building walls are built up by mounting extended guide members parallel to the walls to be erected at progressively increasing heights between upstanding arms of indicator devices mounted on the reference blocks.

3,318,005
STRAND MEASURING DEVICE
Warren E. Petersen, Omaha, Nebr., assignor to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York
Filed June 8, 1964, Ser. No. 373,266
2 Claims. (Cl. 33—134)



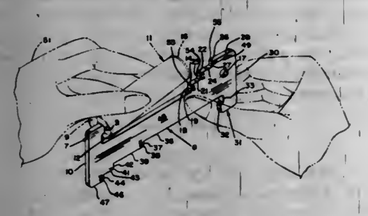
1. A device for measiuring the length of a longitudinally advancing strand, which comprises:
- a support member mounted for movement between limits in opposite directions transversely with respect to the direction of travel of the strand;
- resilient means biasing said support member toward a position intermediate the limits of movement of said support member;
- a turret mounted on said support member for rotation about an axis extending substantially perpendicular to the direction of travel of the strand and to the path of movement of said support member;
- a counter wheel mounted on said turret for rotation about an axis perpendicular to the axis of rotation of said turret;

means urging the advancing strand into firm engagement with said counter wheel such that the strand rotates said counter wheel;

elongated rocker frame means mounted at its longitudinal midpoint for rotation about the axis of rotation of said counter wheel; and

first and second roller means mounted on said rocker frame means adjacent the opposite ends thereof and movable therewith about the axis of rotation of said counter wheel in the plane of rotation of said wheel, for supporting the advancing strand at points on opposite sides of the point of engagement of the strand with said counter wheel so as to prevent any substantial transverse movement of the strand relative to said roller means and such that a portion of the strand between said roller means always extends in the plane of rotation of said counter wheel tangent to said wheel despite transverse movement of the strand.

3,318,006
COIN GAUGE
Theodore Martinez, 1066 Williams St., San Leandro, Calif. 94579
Filed May 3, 1965, Ser. No. 452,708
2 Claims. (Cl. 33—168)



1. A gauge for checking the length of tubularly wrapped stacks of coins of different sizes, comprising:

(a) a hand-held support elongated in an axial direction;

(b) a hook-shaped foot connected to said support and projecting therefrom laterally to said axis, said foot having a toe adapted for pivotally and successively engaging an end of each of a plurality of stacks of tubularly wrapped coins, said hook portion providing a recess between the toe and the support adapted for receiving the rolled projecting folded edges of the wrappers enclosing said stacks; and

(c) a plurality of stepped lands and gauging edges formed on the other end of said support, said gauging edges being directed toward and spaced axially away from said toe at different predetermined distances such that each gauging edge is adapted to receive the other end of a stack of coins of different predetermined numbers, thicknesses and diameters;

(d) said toe having a maximum dimension transversely to said axis and outside of said recess which is less than the diameter of the smallest-diameter coin for cooperation with each of said gauging edges; and

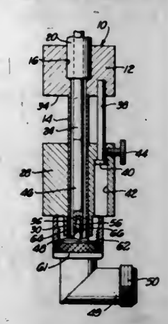
(e) at least one of said gauging edges being chamfered to reduce its area and facilitate cutting the rolled projecting folded edge of the wrapper at said other end of a stack.

2. A method of gauging the length of a tubularly wrapped stack of coins having a rolled and projecting wrapper edge at each end, which comprises the steps of:

(a) engaging one end of said stack at a region spaced radially inwardly from said projecting edge to the toe of a gauging element, said toe having a maximum dimension which is less than the diameter of the coins in said stack;

(b) pivoting the said stack on said toe and thereby moving the other end toward and adjacent to a gauging edge to bring the side of the stack against a land and simultaneously cutting said projecting edge by said gauging edge.

3,318,007
PRECISION CONNECTOR GAUGE
John Edward Goetz, Santa Monica, Calif., assignor to Measurement Specialties Laboratory, Inc., Van Nuys, Calif., a corporation of California
Filed May 28, 1965, Ser. No. 459,739
8 Claims. (Cl. 33—172)



1. A gauge adapter for use with a dial indicator having a movable elongated spindle, said adapter comprising:

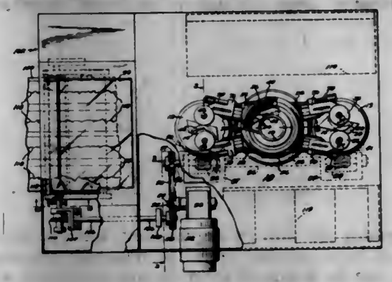
a tubular base fixture adapted to be fitted to the dial indicator and having an elongated tubular track member through which the spindle extends;

a tubular collar member slidably mounted on the tubular track member and occupying a first position wherein said collar member is wholly mounted on the tubular track member and being movable to a second position wherein the outer end of the tubular collar member extends beyond the outer end of said tubular track member; and

means coupling said tubular collar member to said base fixture for selectively and releasably holding said tubular collar member in said two positions including a guide pin attached to said base fixture and disposed in an elongated cavity in the tubular collar member, said guide pin and cavity being spaced from and generally parallel to said tubular track member.

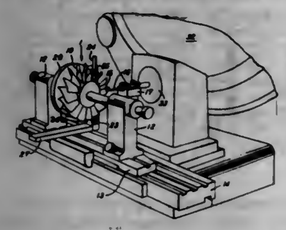
3,318,008
METHOD AND APPARATUS FOR REGISTERING OR RECORDING THE ACCURACY OF REPRODUCED CONTOURS
Eugene Peter Schellens, Essex, Conn., assignor to Schellens True Corporation, Essex, Conn., a corporation of Indiana
Filed Aug. 28, 1964, Ser. No. 392,789
13 Claims. (Cl. 33—174)

7. In a method of comparing an unlimited part of the entire uniplanar profile contour of a specimen article with that of a master article, the improvement which comprises the steps of, simultaneously tracing serially related components of the entire uniplanar profile contour of said master article, simultaneously describing in space separate paths having configurations respectively like that of said serially related components, subjecting serially related uniplanar components of the profile contour of a specimen article to comparison with the configuration of said separate paths, and simultaneously making separate records of the discrepancies between the uniplanar profile contour components of the specimen article and the uniplanar profile contour components of the master



article respectively, whereby a comparison of the entire profile contours of both articles can be made within the time required to trace only a component of said contours.

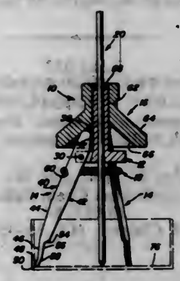
3,318,009
BLADE EXAMINING APPARATUS
Earl J. Tiebler, Dearborn, and Glen A. Weinert, Detroit, Mich., assignors to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed Dec. 10, 1964, Ser. No. 417,352
6 Claims. (Cl. 33—174)



1. An apparatus for examining the cross-sectional contour of a blade having a curved surface comprising, means mounting said blade for rotation about an axis and movement axially, a stationary probe contacting a point on the radius of said blade whereby axial movement of said blade effects a rotation of said blade by reaction of the curved surface of said blade against said probe, a slide member movable axially with said blade and being reciprocable in a different direction, means between said blade and slide members for transferring the circumferential travel of said blade against said probe to a corresponding travel of said slide member in said different direction, a reticle carried by said slide member consisting of a shadow casting aperture, a screen, and optical projection means cooperating with said aperture for projecting the moving image of said reticle onto said screen during a combined axial and different direction movement of said slide member effected by a combined rotational and axial movement of said blade as it is traversed by said probe whereby the path of movement of said image on said screen defines a cross-sectional contour of said blade at said radius.

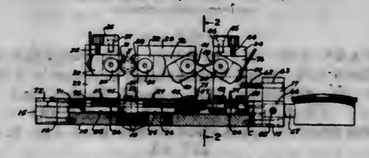
3,318,010
CENTER LOCATOR
Stephen E. Mahl, Riegelsville, Pa. (R.D. 1, Box 171, Kintnersville, Pa. 18930)
Filed June 30, 1965, Ser. No. 468,289
3 Claims. (Cl. 33—191)

1. A center locator including a mounting member, at least three legs positioned equidistant about said mounting member, said legs each extending generally longitudinally of said member from an inner end positioned inward of one end of the member to an outer end positioned forward of said one end of the member, means pivotally connecting each leg to said one end of the member, means for equally resiliently biasing the outer ends of said legs toward each other and a common center forward of and in alignment with said member, an adjusting member adjustably mounted on said mounting member, said adjusting member engaging the inner ends of said legs and selectively moving these inner ends toward each other, and consequently the outer ends away from each other, against the biasing means, and means for indicating the common center between the outer ends of the legs, said mounting member comprising an elongated threaded shank having a laterally enlarged head on one end thereof forming the aforementioned one end of



the mounted member, said legs being pivotally connected to the enlarged head outward of the shank, said adjusting member including an internally tapered portion surrounding said shank and overlying the inner ends of said legs, said tapered portion converging toward the second end of the shank and terminating in a portion threadedly engaged with the shank for adjustment of the adjusting member therealong, said biasing means resiliently biasing the inner ends of the legs away from each other and into contact with the tapered portion, movement of the adjusting member along the shank varying the points of engagement of the inner ends of the legs with the tapered portion, and thereby varying the distance of the outer ends of the legs from the common center.

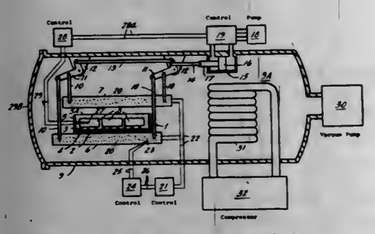
3,318,011
DIMENSIONAL GAGE WITH TANDEM PEDESTALS
Paul W. Johnson, Bloomfield, Conn., assignor to The Johnson Gage Company, Bloomfield, Conn., a corporation of Connecticut
Filed Dec. 24, 1964, Ser. No. 421,037
15 Claims. (Cl. 33—199)



1. A dimensional gage adapted to use an indicator having a contactor comprising a base having parallel side walls, pedestal means including a first pedestal and at least one intermediate pedestal and a last pedestal, pedestal mounting means carried by the base and the pedestals to mount the latter on the base in tandem relation, said pedestal mounting means mounting said intermediate and the last pedestal for longitudinal gaging movement towards

and away from the first pedestal and each other whereby all pedestals other than the first have gaging movement, pedestal stop means for each intermediate pedestal carried by one of either said intermediate pedestal or base and engaging the other to limit the movement of said intermediate pedestal towards the first pedestal and permit freedom of movement in the opposite direction towards the last pedestal, gaging mechanism including a plurality of gaging means carried by the pedestals, each gaging means including at least one first gaging element carried by the first and each intermediate pedestal and a cooperating gaging element for each first gaging element carried by each intermediate and the last pedestal, and indicator mounting means carried by the gage and located such that the movement of the movable pedestals is indicated on indicator means to be carried by said indicator mounting means.

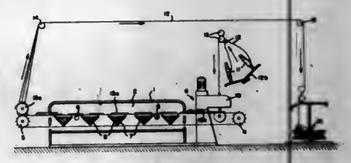
3,318,012
METHODS OF FREEZE-DRYING MATERIAL, PARTICULARLY FOODSTUFF MATERIAL
Hugh Percy Thompson, Swindon, England, assignor to Vickers Limited, Millbank, London, England, a British company
Filed May 17, 1965, Ser. No. 456,448
Claims priority, application Great Britain, May 19, 1964, 20,691/64
8 Claims. (Cl. 34—5)



1. In a method of freeze-drying frozen material containing water in which the water content of the material to be dried is removed and drawn off as ice directly from the ice state to the water vapor state, while the material is located in a container in a vacuum chamber and therein subjected to vacuum conditions and heated by a heater positioned adjacent to the material in the container, the improvement comprising throttling the flow of the water vapor from the container by moving the heater and the container relative to each other, and varying the thermal conductivity of the water vapor in the container by adjusting the extent to which the vapors flowing from the container are throttled.

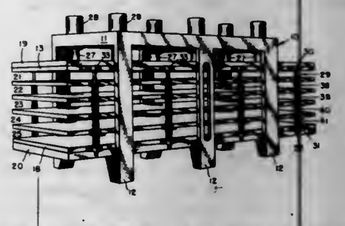
3,318,013
YARN CONDITIONING ARRANGEMENT
Ernst Erb, Basel, Switzerland, assignor to Erba Maschinenbau A.G., Basel, Switzerland
Filed Jan. 6, 1964, Ser. No. 335,993
Claims priority, application Switzerland, Jan. 9, 1963, 229/63
4 Claims. (Cl. 34—12)

1. A method of dampening yarns and filaments such as wool and synthetic yarns which will be damaged if they have sharp bends therein or pressure exerted thereon at localized points when they are heated during the dampening, comprising the steps of laying the yarn to be treated on an endless belt while positively guiding the yarn into accurate and substantially identical loops with smoothly curved peripheries while at the same time moving the belt at a speed so that the loops overlap without the overlying loops exerting localized pressure on underlying loops, turning the row of loops upside down and laying it on an endless air permeable belt, and conveying the row of overlapping loops through a treatment chamber and



dampening the yarn in the chamber, whereby when the row of loops emerges from the treatment chamber the loops can be drawn off from the top of the row without interference.

3,318,014
VENEER REDRYING PRESS AND METHOD OF OPERATION
James D. Whitlow, Greensboro, N.C., assignor to Dependable Machine Company, Inc., Greensboro, N.C., a corporation of North Carolina
Filed Mar. 29, 1965, Ser. No. 443,246
13 Claims. (Cl. 34—13.8)

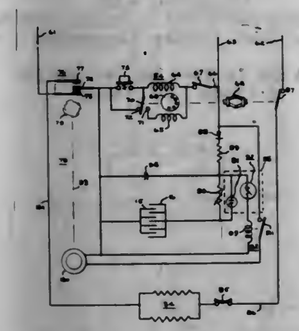


9. In an hydraulically operated veneer press having a plurality of stacked horizontal heated platens vertically displaceable between limits and forming a veneer-receiving chamber between platens for drying and compressing veneer strips, the improvement for separating the platens rapidly after the application of heat and pressure to release moisture and vapor between platens comprising a plurality of spaced-apart quick release means in juxtaposition to said platens, each of said means having resilient means for yieldably biasing said platens apart whereby upon pressure release for compressing veneer strips said resilient means will separate the platens.

3,318,015
AUTOMATIC DRYER CONTROL CIRCUIT
Matt F. Metzger, Jeffersonville, Ind., assignor to General Electric Company, a corporation of New York
Filed Feb. 5, 1965, Ser. No. 430,568
8 Claims. (Cl. 34—45)

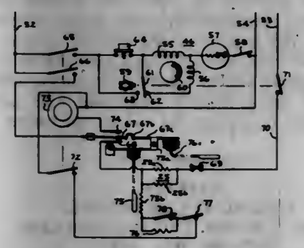
1. In a fabric dryer including a chamber for receiving fabrics to be dried, drying means arranged to cause evaporation of moisture from the fabrics, and means for tumbling fabrics in the chamber; a control system for the dryer comprising:
(a) a timer mechanism for inactivating the dryer after a predetermined period timer operation, said timer being adapted to be connected across a source of electrical energy by a circuit including a normally closed switch,
(b) spaced conductors positioned so as to be bridged by fabrics tumbling in the chamber so that the electrical resistance across said conductors is low when there is substantial moisture in the fabrics bridging said conductors and increases as the fabrics approach dryness,

(c) said conductors being adapted to be connected across the source of electrical energy in an electric series circuit arrangement with a glow tube so that said glow tube emits light when the resistance across said conductors is low and ceases to emit light as the resistance increases, and



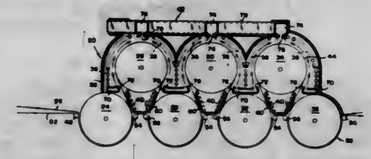
(d) light sensitive means positioned in light receiving relationship with said glow tube and operatively connected with said switch to cause said switch to be open when said glow tube is emitting light.

3,318,016
AUTOMATIC DRYER CONTROL CIRCUIT
Glenn R. Chafee, Jr., Louisville, Ky., assignor to General Electric Company, a corporation of New York
Filed June 21, 1965, Ser. No. 465,263
11 Claims. (Cl. 34—45)



1. A fabric drying machine comprising:
(a) a fabric drying container;
(b) main heating means for supplying drying heat to fabrics in said container;
(c) a control circuit adapted to connect said main heating means to a source of electrical energy;
(d) a timer connected in said control circuit and adapted to deactivate said drying machine after a first predetermined period of timer operation,
(e) thermostat means connected in said control circuit and adapted to cause alternative operation of said main heating means and said timer,
(f) a bias heater connected in said control circuit and adapted to raise the operating temperature range of said thermostat means,
(g) said timer being adapted to disconnect said bias heater from said control circuit after a second predetermined period of timer operation, said second period of timer operation being less than said first period of timer operation.

3,318,017
HEAT TREATING METHOD AND APPARATUS
Horace L. Smith, Jr., Richmond, Va., assignor to Hupp Corporation, Cleveland, Ohio, a corporation of Virginia
Continuation of application Ser. No. 254,674, Jan. 29, 1963. This application May 2, 1966, Ser. No. 547,128
6 Claims. (Cl. 34—114)



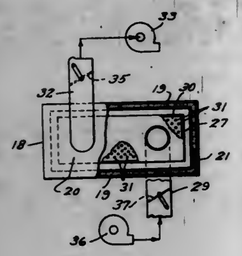
1. Apparatus for heat treating a continuous, moving sheet of material, comprising:
(a) a plurality of substantially horizontally disposed drying rolls alternately located in first and second, vertically spaced apart decks and adapted to have a sheet of material contacting, respectively, their upper and lower surface portions, all of said rolls being internally heated;
(b) belt means for holding said sheet material against the rolls in one of said decks only, the other of said decks being entirely free of such belt means to permit volatiles evolved from the material being dried to escape freely from adjacent the surface of said material; and
(c) radiant heater means for applying radiant energy directly to the exposed surface of said sheet only in the deck which is free of belt means so that said radiant energy is transferred with maximum efficiency from said heater means to said material;
(d) whereby there are drying rolls free of said belt means and with external heater means therearound to transfer radiant energy from said heater means to said material in sufficiently large amounts to significantly increase the rate at which said material is dried and yet belt means pressing said material against a sufficient number of drying rolls to prevent the formation of wrinkles in said material and to insure a heat conductive relationship between the material and the drying rolls.

3,318,018
COOLING AND PROTECTIVE MEANS FOR PRINTED WEB MATERIAL
Nelson M. Steele, Beloit, Wis., and Charles Rodman Lake, Warrensville Heights, Ohio, assignors to Beloit Corporation, Beloit, Wis., a corporation of Wisconsin
Filed Dec. 31, 1964, Ser. No. 422,645
3 Claims. (Cl. 34—62)

3. An apparatus for retarding the moisture loss of printed webs and for cooling the resins and pigments of printing ink coatings on the webs to temperatures sufficiently low to prevent the resins and pigments from redepositing on succeeding printing platens comprising,
a cooling hood adapted to extend along and across a printed web,
a plenum within said hood and spaced inwardly of the margins of said hood,
the space between said plenum and said hood forming a peripheral air passageway extending about the printed coating of the web,
an air exhaust duct leading from said hood,
exhaust blower means connected with said air exhaust duct and exhausting air from said hood along said peripheral air passageway and establishing an air curtain about the printing on the web,

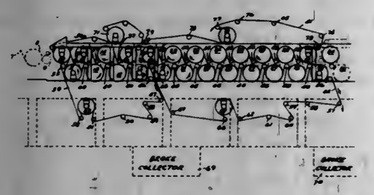
an air supply duct having communication with said plenum,

supply blower means supplying cooled air to said air supply duct,



and orifice means defining the bottom portion of said plenum, within said air curtain, and directing cooled air onto the printed coating on the web within the margins of said air curtain.

3,318,019
DRYER
Thomas G. McKie and Elmer E. Crist, Beloit, Wis., assignors to Beloit Corporation, a corporation of Wisconsin
Filed Feb. 3, 1965, Ser. No. 429,977
3 Claims. (Cl. 34—111)



1. In a drying apparatus for fibrous webs,

a series of drying cylinders,

felts passing partially about said drying cylinders and maintaining a web in intimate contact with said drying cylinders,

a felt drying cylinder spaced above said drying cylinders,

a series of felt rolls training the felt from the outgoing drying cylinder to a position disposed above said felt drying cylinder and in advance thereof and backwardly to and partially about said felt drying cylinder,

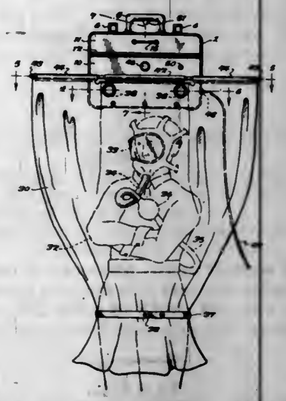
a second series of felt rolls training the felt from said felt drying cylinder to the incoming of said drying cylinders,

said felt rolls all being disposed on the inside of the felt away from the side of the felt having contact with the drying cylinders to free said felt rolls from broke or other debris that may be carried by the felt as it leaves the outgoing drying cylinder,

said second series of felt rolls including a last felt roll training the felt to the incoming drying cylinder,

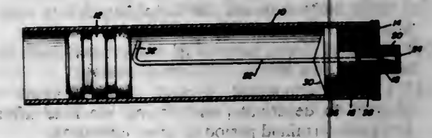
and a doctor in association with the incoming drying cylinder of the series of drying cylinders doctoring any broke from the incoming drying cylinder that may be carried to said drying cylinder as the felt passes about said last felt roll to said incoming drying cylinder.

3,318,020
BREATHING MASK LEAK DETECTOR AND TRAINING AID
Arthur E. Miller and Wesley J. Roland, Buffalo, N.Y., assignors to Scott Aviation Corporation, Lancaster, N.Y.
Filed Oct. 12, 1964, Ser. No. 403,196
5 Claims. (Cl. 35—8)



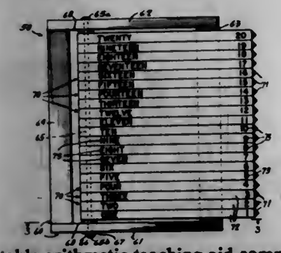
1. A breathing mask leak detector and training aid comprising a carrying case including a closure member therefor, a foldable flexible enclosure of substantially transparent material open at one end, means securing said enclosure adjacent its other end to said case for being suspended therefrom over the upper portion of a human body, and means carried by said container for introducing and circulating through said enclosure a gas containing a physiological reaction producing chemical, said enclosure being foldable into said case and said closure member confining the folded enclosure within said case.

3,318,021
TRAINING CARTRIDGE
Stanley J. Sarnoff, 7507 Hampden Lane, Bethesda, Md. 20014
Filed May 5, 1965, Ser. No. 453,301
7 Claims. (Cl. 35—17)



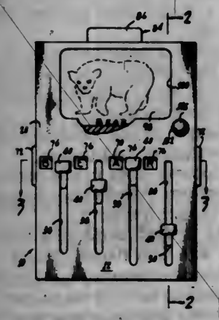
6. A training cartridge comprising a body, a plunger at one end of the body, a stopper at the other end of the body, a needle within the cartridge body having one end in position to be engaged by the plunger in its movement axially of the bore, a fluid filling the space within the body, said needle being devoid of a continuous duct running through the needle, to thereby prevent flow of fluid through the interior of the needle, and means interconnecting the interior of the cartridge body with the outer atmosphere to allow for escape of fluid from within the cartridge body on displacement of the plunger.

3,318,022
TEACHING AIDS AND EDUCATIONAL TOYS
Saul James Dorn, 917 N. Brodhead Road, Center Township, Aliquippa, Pa. 15001
Filed May 26, 1966, Ser. No. 553,147
12 Claims. (Cl. 35—31)



1. A portable arithmetic teaching aid comprising a support sized for lap or table use by a child being taught and having right and left side edges, a plurality of elongated consecutively numbered counters arranged side by side in a series, hinge means individually mounting one end of each counter on said support along an axis extending from front to rear of the supoprt and spaced between said side edges, each counter being sized for selective positioning to overlie and extend beyond one of said side edges and to swing on said hinge means to overlie and extend beyond the other of said side edges, each counter having a visibly exposed surface when in one and the same of said selective positions bearing a number corresponding to the relative position of the counter in the series, each counter having a free end extending sufficiently beyond the respective right and left side edges of said support for finger access to an underside thereof for flipping from one position to the other by said child and for binding a plurality of consecutive counters in groups.

3,318,023
EDUCATIONAL DEVICE
Raymond M. Myers, 441 Latona Ave., Trenton, N.J. 08618
Filed Jan. 27, 1965, Ser. No. 428,489
10 Claims. (Cl. 35—35)



1. An educational device comprising:

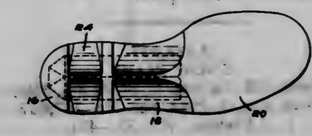
(a) a support;

(b) at least two pairs of answer selection members individually movable thereon to selected positions under the control of a user; each member including an electrical contact, one member of each pair having a continuous electrical connection to one member of the other pair;

(c) an element removably positioned on the support, and bearing a representation to be identified by arranging each answer selection member in a correctly selected position in respect to the several remaining members, said element including a pair of jumper strips, one for each pair of members, each strip providing a bridge between the contacts of its associated, paired members when their positions have been correctly selected; and

(d) an electrical signal circuit carried at least in part by said members, said circuit including said contacts so as to be operated through the jumpers in said correctly selected positions of the answer selection members.

3,318,024
BLAST PROTECTIVE FOOTWEAR
Edwin S. Fujinaka and John L. MacDonald, Chicago, Ill., Edward R. Barron, Framingham, Mass., and George M. Stewart, Bel Air, Md., assignors, by direct and mesne assignments, to the United States of American as represented by the Secretary of the Army
Filed May 31, 1966, Ser. No. 554,937
13 Claims. (Cl. 36—2.5)



1. Protective footwear to attenuate the force of a blast from an underfoot explosion of an anti-personnel land mine on the heel and arch of the foot of the wearer thereof comprising

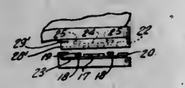
an upper section and a lower section to form the heel, shank and sole portions of said footwear, said lower section embodying an elongated blast-resistant deflector, wedge-shaped in transverse section, extending over substantially all of the heel and shank portions thereof, said deflector comprising sidewalls of high tensile strength, non-shatterable material formed to define a wedge open at the top and having the apex thereof directed downwardly, a sheet of high tensile strength, non-shatterable material extending across and covering the open top of said deflector and forming the top wall thereof, and the interior of said deflector being filled with non-elastic, shock-absorbing material.

3,318,025
SOLE AND HEEL STRUCTURE FOR SHOES
Rodolfo Barriga Antelo, 6802 Dartmouth St., Forest Hills, N.Y. 11375
Filed May 20, 1963, Ser. No. 281,579
7 Claims. (Cl. 36—30)



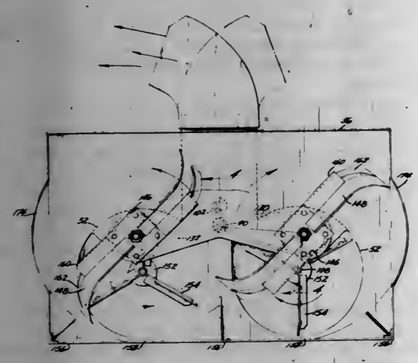
1. A composite sole structure for shoes comprising an upper element adapted to be permanently secured to the shoe, a tread element removably secured to said upper element, interlocking stud and receptacle means carried by said elements for removably securing them one to the other, one of said elements having a ridge spaced inwardly from and about substantially the entire periphery thereof and the other element having a cooperating peripheral groove.

3,318,026
HEEL STRUCTURE FOR SHOES
Rodolfo B. Antelo, 6802 Dartmouth St., Forest Hills, N.Y. 11325
Filed May 31, 1966, Ser. No. 553,855
6 Claims. (Cl. 36—42)



1. A composite heel structure for shoes comprising an upper element adapted to be permanently secured to the shoe, a tread element removably secured to said upper element, one of said elements having a ridge spaced inwardly from and about substantially the entire periphery thereof and the other element having a cooperating peripheral groove, and a forward wall on said tread portion having means for engaging said upper element at a point in close proximity to the shoe.

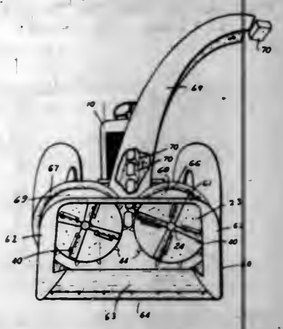
3,318,027
SNOW PLOW
Arthur McNeal, 401 1st Ave. S., St. James, Minn. 56081
Filed Apr. 3, 1964, Ser. No. 357,067
2 Claims. (Cl. 37—43)



1. A snow plow for connection to a vehicle power take-off having two directions of rotation comprising a pair of feeder wheels, a pair of blower wheels each disposed in tandem with a respective one of said feeder wheels, means connected to the power take-off for rotating said feeder and said blower wheels in only one direction, and a deflector disposed in communication with said blower wheels, said feeder wheels each including a pair of blades extending from a center of a respective one of said feeder wheels in one plane and terminating in a semi-cylindrical portion, the axis of the semi-cylindrical portion being skew to the axis of blade rotation.

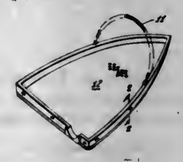
3,318,028
SNOW LOADING DEVICE
Evert Wandscheer, Sioux Center, Iowa 51250
Filed Aug. 10, 1964, Ser. No. 388,524
19 Claims. (Cl. 37—43)

1. A snow loader comprising a housing adapted to be carried by a mobile power source, said housing being formed with an open end, a pair of drums rotatively journalled adjacent each other on substantially parallel axes in said housing, said axes being substantially parallel to the direction of usual motion of said mobile power source, power transmission means between said power source and said drums for rotation of said drums in opposite directions, thereby rotating toward each other at



one surface, cleats on the surface of said drums, whereby material entering said open end is picked up by said cleats and compressed between said drums to form blocks.

3,318,029
ACCESSORY FOR STEAM PRESSING DEVICE
Sidney Jacobson, Sepulveda, Calif. (4225 Mary Ellen St., Sherman Oaks, Calif. 91403)
Filed Mar. 17, 1966, Ser. No. 542,987
3 Claims. (Cl. 38—97)

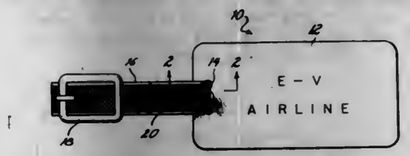


1. A method of fabricating an accessory shoe for a hand iron, characterized by the steps of:
providing a frame shaped and dimensioned to enclose the perimeter of the bottom of the iron with said frame forming a downwardly facing recess;
bonding a sheet of a low friction, high temperature plastic to a metal reinforcement sheet to form a laminated sheet;
punching distributed small apertures in said laminated sheet with the punching operation directed from the plastic face of said laminated sheet to the opposite face of said laminated sheet;
cutting the material of said laminated sheet to the general configuration of said frame;
forming a peripheral flange in said perforated laminated sheet to conform with the configuration in plan of said recess in said frame;
assembling the flanged perforated laminated sheet to said frame with said flange of said laminated sheet extending into said recess of said frame; and
applying pressure to said frame to contract said recess into permanent clamping engagement with said flange of said perforated laminated sheet.

3,318,030
LUGGAGE TAG
Mark Stern, Pelham Manor, N.Y., assignor to Aluminum Development Corporation, Pelham Manor, N.Y.
Filed Apr. 26, 1965, Ser. No. 450,968
7 Claims. (Cl. 40—21)

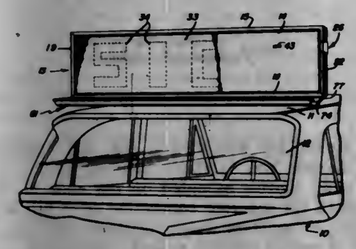
1. A luggage tag comprising a flat tag member for supporting indicia thereon, an elongated slot extending through said member adjacent a side edge thereof, the

walls of said slot including curved portions defining three sections of increased slot widths, each of said sections of increased slot width being defined by a pair of opposed arcuate openings in the walls of said slot, said sections of increased slot width being spaced apart by



opposed substantially straight sections of said slot wall, the middle one of said sections of increased slot width being larger than the remaining sections, a flexible supporting member for said tag member extending through said slot, and a clasp for selectively connecting the ends of said supporting member.

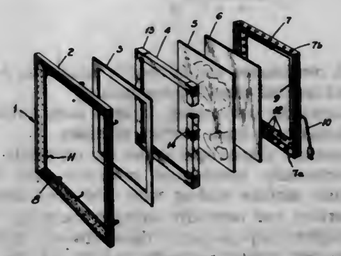
3,318,031
ADVERTISING SIGN FOR MOTOR VEHICLES
William E. Whaley and William E. Whaley, Jr., Louisville, Ky., assignors to William E. Whaley Company, Louisville, Ky., a partnership
Filed Aug. 30, 1965, Ser. No. 487,102
16 Claims. (Cl. 40—129)



1. An advertising sign adapted to be mounted on the roof of a motor vehicle having a battery comprising a holder for a card having advertising material thereon and including means for mounting the holder on the roof of the vehicle, a source of light, means carried by said source of light independent of and separable from said holder for supporting the source of light from said holder so that it lights up the advertising material on the card carried by the holder, and means carried by said holder for activating said source of light and adapted to be connected to the battery of the vehicle to be energized thereby.

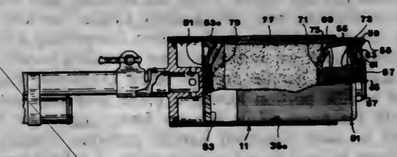
3,318,032
ILLUMINATED DISPLAY FRAME
Edward C. Robison, 9302 Molokai Drive, and David A. Schonleber, 22071 Malibu Lane, both of Huntington Beach, Calif. 92646
Filed Aug. 12, 1965, Ser. No. 479,100
4 Claims. (Cl. 40—152.2)

1. An illuminated display frame, comprising an outer polygonal frame having a recess extending completely around its interior edges;
a rectangular insert positioned on, and protruding beyond the periphery of said recess;
a plurality of prismatic translucent lists mounted on top of and extending completely along the edges of said insert, the width of said translucent lists corresponding substantially to that of said insert, so as to prevent a direct view of said translucent lists from the front of said outer frame, said translucent lists protruding upwardly beyond said recess and the back of said outer frame, forming elevated edges, which extend continuously along the interior edge of said outer frame;
a picture mounted on and within the outer elevated edges of said translucent lists;
a plurality of fastening means securing said insert, translucent lists and picture to the back of said outer frame;
a backing base mounted on the back of said picture;
a plurality of ribs mounted on top of and along the edges of said backing base;



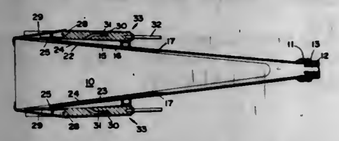
a plurality of flanges extending downwardly and oblique outwardly from said ribs to the back of said outer frame, so as to form a housing therewith;
a plurality of light sources mounted on the inner sides of said flanges, alongside with and adjacent the outer projecting elevated sides of said translucent lists, so as to transmit light through the latter to the front surface of said picture, thereby illuminating the same;
a plurality of fastening means to secure the attachment of said flanges to the back side of said outer frame so as to interlock said backing base, picture, translucent lists, insert and outer frame.

3,318,033
GRENADE LAUNCHING ARRANGEMENT
Irwin R. Barr, Lutherville, Md., assignor to AAI Corporation, Cockeysville, Md., a corporation of Maryland
Filed Sept. 29, 1965, Ser. No. 491,309
10 Claims. (Cl. 42—1)



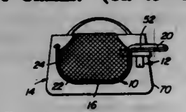
1. A grenade launcher adapter for a gun having a barrel thereon of smaller diameter than a grenade to be launched, comprising:
a barrel extension having a barrel portion adapted to receive a grenade, and a clamp portion,
said barrel portion having a bore therein with a first helically rifled extent and a second smooth bore extent of larger diameter than the inner land area of said rifled extent,
said smooth bore extent being at and extending inwardly from the open discharge end of said bore and of a length adapted to accommodate a protruding side handle on a grenade,
said clamp portion having a longitudinal bore therein for communication between the bore of said barrel portion of said barrel extension and the bore of said gun barrel.

3,318,034
MOUNTING MECHANISM
Albert M. Stott, Southampton, and Ozyp Nimylowycz, Philadelphia, Pa., assignors to the United States of America as represented by the Secretary of the Army
Filed Dec. 10, 1965, Ser. No. 513,127
3 Claims. (Cl. 42—1)



1. A mechanism for releasably mounting a reversely-oriented tapered projectile comprising,
a rearwardly converging, tapered cone having buttress thread type inner surface portions,
a conically shaped split collet for internally carrying a frictionally interlocked projectile and having an outer surface mating with said cone inner surface portion and normally engaged therewith with some longitudinal clearance therebetween, and
releasable means normally restraining movement of said collet relative to said cone.

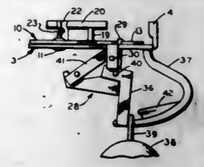
3,318,035
COMBINATION CREEL MOUNTING CLAMP AND FOLDABLE FISH LANDING NET
Herman M. Hovland, 326 W. Winona, Duluth, Minn. 55803
Filed Dec. 1, 1964, Ser. No. 415,083
6 Claims. (Cl. 43—12)



1. A combination creel mounting clamp and foldable fish landing net comprising a generally C-shaped clamp for clamping attachment to a portion of a fishing creel, a plate-like fish landing net mounting means on said clamp, a foldable fish net frame, a fish net thereon, said fish net frame comprising two substantially similar sections pivotally secured together, each section comprising a somewhat curvilinear arc portion and an extending handle portion, each said handle portion being U-shaped, said U-shaped handle portion having a plane generally coinciding with the plane of its fish net frame section, a hinge secured to said U-shaped handle portions limiting the movement of said frame sections from a folded position parallel to each other to an open net position in the same plane with each other, the legs of each U-shaped handle portion being spaced apart a distance corresponding to the thickness of said plate-like mounting means, said U-shaped handle portions when in folded parallel position being in a position to cooperate with and be mounted on said mounting means on said clamp.

3,318,036
SINKER RELEASE DEVICE FOR FISHING LINES
Wayne McGuire, 321 North Gate Road, Walnut Creek, Calif. 94598
Filed Feb. 15, 1965, Ser. No. 432,549
13 Claims. (Cl. 43—43.12)

11. A sinker released device including a body provided with means thereon for slidably supporting the same on a fishing line, a sinker weight releasably secured to said body, retaining means pivoted on said body for normally preventing release of said weight from said body, means operatively connecting said retaining means with the outer



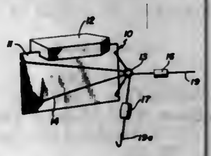
end of said line whereby said retaining means is actuated to permit release of said weight when the tension in said outer end exceeds a predetermined amount.

3,318,037
FLEXIBLE SINKER
Lyle E. Harrison, 724 Dundee Way, Stockton, Calif. 95207, and Leon John Schafer, Stockton, Calif.; said Shafer assignor to said Harrison
Filed Jan. 4, 1965, Ser. No. 423,110
2 Claims. (Cl. 43—42.72)



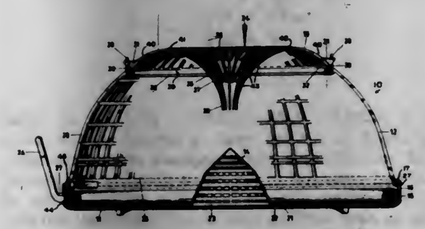
2. A sinker for weighting a fish line comprising a tube of flexible and yieldable material having a longitudinal bore, swivels mounted on the ends of the tube and adapted for separate connection to a fish line, and a plurality of separate weight elements press-fitted into the bore in spaced relation to each other along the bore.

3,318,038
FISHING APPARATUS
Jacques Marcel Pierre Delsol, Paris, France, assignor to Societe Depeon, Paris, France, a corporation of France
Filed Jan. 22, 1965, Ser. No. 427,405
Claims priority, application France, Jan. 31, 1964, 962,160; Nov. 12, 1964, 994,566
2 Claims. (Cl. 43—43.13)



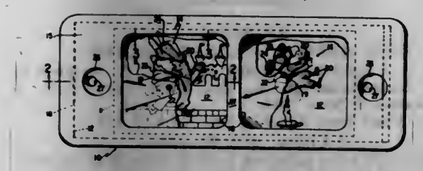
1. Fishing apparatus, comprising a plate having a float at its upper end to maintain the plate vertical in the water, a ring mounted on one of the sides of the plate, and means providing an elastic connection between the ring and the plate, the means being configurated to provide an irregular quadrangular pyramid, the apex of which is the ring, thus enabling the plate automatically and instantaneously to adapt itself to current in a river to move along the current and to absorb vibrations to which the apparatus is subject.

3,318,039
JOINT FOR ENGAGING THE BASE OF A LOBSTER TRAP WITH THE BODY
James Ian MacDonald, 5 Havelock St., Amherst, Nova Scotia, Canada, and Kurt Hermann Muecke, 4324 8th Ave. SW., Calgary, Alberta, Canada
Original application June 6, 1963, Ser. No. 286,060, now Patent No. 3,232,000, dated Feb. 1, 1966. Divided and this application Dec. 20, 1965, Ser. No. 517,180
3 Claims. (Cl. 43—100)



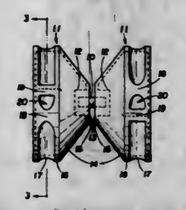
1. A lobster trap including a base portion, a body portion and a top entry portion, all fabricated from open mesh material; said base portion being substantially flat; said body portion being tubular and having open upper and lower ends; said lower end being covered by said base portion; said base portion having an integral cylindrical peripheral wall whose upper margin is formed with downwardly-opening sectoral channel members uniformly angularly spaced about said periphery; said body portion having a cylindrical lower margin formed with upwardly opening, sectoral channel members uniformly angularly spaced about said margin and being detachably engageable with said base channel members by axial interfitting of respective margins of said base and said body portion and ensuing relative rotation to register all of said channel members in cupping relation, said body portion having horizontal sectoral flanges spaced above and bridging the ends of adjacent channel members, the ends of said sectoral flanges overlying the ends of said assembled channel members, whereby to prevent axial displacement of said body portion relative to said base portion.

3,318,040
MOVABLE FIGURE CARD TOY
Benjamin Kimberg, 425 Riverside Drive, New York, N.Y. 10025
Filed Aug. 4, 1964, Ser. No. 387,473
10 Claims. (Cl. 46—37)



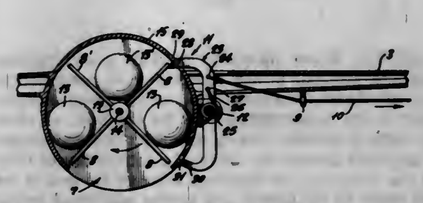
1. A toy comprising a bottom sheet, a transparent top sheet, a frame having a top and bottom for movably mounting said bottom sheet therebetween with its top holding said top sheet above said bottom sheet in a fixed position, said frame having means for exposing a portion of said bottom sheet for manual engagement to effect movement of said bottom sheet, a figure between said sheets formed of resilient sheet material cut to shape to provide a body and at least one extremity extending outwardly from the body, means for securing a portion of the body of said figure to the underside of said top sheet, and means spaced laterally from said securing means for securing another portion of said figure to the top side of said bottom sheet, whereby movement of said bottom sheet effects accentuated distortive movement of said figure.

3,318,041
CORD OPERATED HUMMING REEL
Arthur George Denman, 2503 12th Ave. SW., Calgary, Alberta, Canada
Filed May 11, 1964, Ser. No. 366,391
1 Claim. (Cl. 46—60)



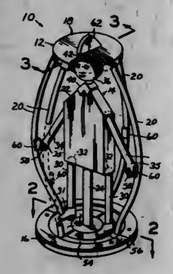
A reel adapted to be rotated by a cord manipulated by an operator and comprising in combination, a central spindle, a pair of substantially circular hollow body portions secured in opposition on each end of said spindle, each of said body portions comprising an inner circular face portion situated normal to the axis of said spindle, an inclined conical wall portion extending outwardly from the perimeter of said face portion, on outer cylindrical wall portion, the axis of said cylinder being located in a plane substantially parallel with longitudinal axis of said spindle, an outer face enclosing the hollow interior of said hollow body portions, at least one annular trough extending around substantially the entire periphery of said cylindrical wall portion; barrier means extending across said trough; a bridge member extending over said trough adjacent to said barrier means, and defining therewith an opening therebetween, and an aperture formed in said trough beneath said bridge member giving access to said hollow interior.

3,318,042
TETHERED BOMBER PLANE AND MECHANISM FOR RELEASING BOMBS
Tobin Wolf, 447 Essex Ave., Bloomfield, N.J. 07003
Filed Mar. 29, 1965, Ser. No. 443,408
6 Claims. (Cl. 46—77)



1. A toy airplane comprising a fuselage having an opening in the lower portion thereof, a magazine for storing a plurality of bombs movably mounted in the fuselage above the opening, means for constantly urging the magazine to move to successive positions for dropping a bomb at a time through the opening, escapement mechanism for preventing movement of said magazine, a tether connected to said mechanism for swinging the plane in an orbit, and means responsive to a jerk of predetermined magnitude on the tether for operating the escapement mechanism for permitting movement of said magazine to a next successive position to drop a bomb.

3,318,043
MAGNETICALLY ANIMATED DOLL
Charles E. Abbott, 3308 SW. 40th Place, Oklahoma City, Okla. 73119
Filed Mar. 18, 1965, Ser. No. 440,893
2 Claims. (Cl. 46—238)



1. An animated doll, comprising: a doll-like figure; a circular base, said base having a central socket in its upper surface; means mounting said doll-like figure vertically above said base comprising a shaft connected at one end to said doll-like figure in depending relation and rotatably supported at its other end by the socket in said base; a cage surrounding said doll-like figure, said cage comprising a ring rotatably supported by said base, an upper disk positioned above the uppermost limit of said doll-like figure and a plurality of spaced-apart support rods interconnecting said ring and said upper disk; a permanent magnet supported by the head and each hand and each foot of the doll-like figure; and other permanent magnets supported, respectively, by said disk, said support rods and said base in cooperating position with the first said permanent magnets.

3,318,044
ARTIFICIAL SUPPORTING MEANS FOR NATURAL FLOWERS
Morton E. Klee, 433 N. Newberry St., York, Pa. 17404
Filed Oct. 20, 1965, Ser. No. 498,280
10 Claims. (Cl. 47—55)



1. Artificial flower means to produce a combination natural and artificial flower comprising in combination, an artificial flower stem comprising an elongated artificial member having connecting means on one end, an elongated coupling member having means on one end shaped to be projected through the calyx of a natural flower from which the stem has been detached adjacent the end of the natural calyx of the flower and having additional means on the other end pre-shaped to interlock with said calyx, said coupling member when projected through said calyx having additional means positioned adjacent the detached end of the natural calyx and arranged to connectingly engage said connecting means on said artificial stem, and an artificial cup-like calyx longitudinally movable on said stem toward the calyx of said natural flower to receive and conceal said connecting means and at least the outer end of the natural calyx of the natural flower when connected to said artificial stem and thereby provide a natural appearing flower having natural scent and beauty mounted upon an artificial stem.

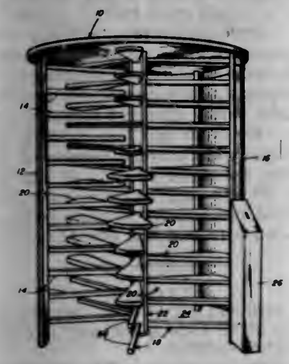
3,318,045
MOUNTING MEANS FOR TURNSTILE ROTOR
William A. Lambertson, Staten Island, N.Y., assignor to Perey Manufacturing Co., Inc., New York, N.Y., a corporation of New York
Filed June 30, 1965, Ser. No. 468,315
2 Claims. (Cl. 49—42)



1. In a turnstile which includes a plurality of radial arms arranged in vertical rows, a central support comprised of vertical angle plates disposed around the turnstile axis and arranged to present a plurality of pairs of opposed supporting surfaces located at opposite sides of the arms in each vertical row, a corresponding plurality of arm supporting brackets for connecting the arms to said central support, each arm supporting bracket comprising a unitary structure having two branch portions arranged in end-on-end relation but angled with respect to each other and in correspondence with the angle in said vertical plate, each branch portion comprising a web and a pair of flanges depending from opposite sides of said web, one branch of each supporting bracket forming with an oppositely facing branch portion of a companion supporting bracket a radial socket for receiving the end of a radial arm, the supporting brackets being arranged with the webs of the branches thereof in abutment with said supporting surfaces and the flanges gripping the associated radial arm, and bolt means interconnecting each pair of parallel supporting surfaces and extending through the webs of the supporting bracket branches and the radial arm associated therewith, the improvement wherein the webs of said supporting bracket branches are of arcuate section curving outwardly from the supporting surfaces with only the sides of the webs in abutment with said supporting surfaces, the flanges of said branches being parallel spaced from each other and extending generally perpendicular to said supporting surfaces, the webs being sufficiently deformable when subjected to forces tending to flatten them and applied by said supporting surfaces when said bolt means are tightened, to produce bodily pivoting of the flanges in the direction of each other whereby the grip of said flanges on the radial arm associated therewith is increased.

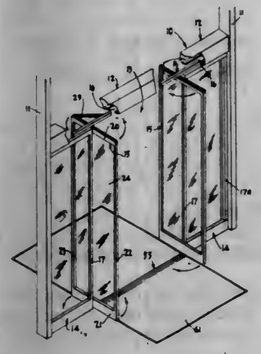
3,318,046
WIDE ARMED TURNSTILE ROTOR
William A. Lambertson, Staten Island, N.Y., assignor to Perey Manufacturing Co., Inc., New York, N.Y., a corporation of New York
Filed June 30, 1965, Ser. No. 468,335
1 Claim. (Cl. 49—42)

In a turnstile rotor carrying vertical rows of radial arms thereon with the arms in each row being arranged symmetrically about a vertical plane passing through the rotor axis, with the planes associated with the several rows being uniformly angularly spaced, the arms in each row being radially coextensive with each other, the improvement wherein the arms in each row are constituted of an upper, a middle, and a lower series of arms, the upper and lower series arms in each row being of identical shape and having each an inner section of regular shape and an outer section having vertical side surfaces, the outer section uniformly increasing in width in a direction away from said inner section, the middle series arms in each row being of identical shape and having each an inner section and an outer section having vertical side surfaces, the outer section of each middle series arms increasing in width in a direction away from its associated inner section at a greater divergence than the outer section of each upper and lower series arm whereby the side surfaces of the middle series arms of one row are



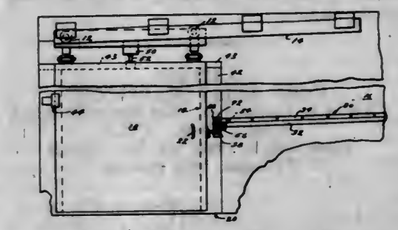
angularly spaced a lesser distance from the near side surfaces of the middle series arms of the adjacent rows than the side surfaces of the upper and lower series arms of said one row are spaced from the side surfaces of the corresponding upper and lower series arms of said adjacent rows.

3,318,047
COMBINATION SLIDING AND PIVOTED DOOR
Laurence F. Carson, London, Ontario, Canada, assignor to Pittsburgh Plate Glass Company, Pittsburgh, Pa.
Filed Dec. 17, 1965, Ser. No. 514,570
Claims priority, application Canada, Jan. 16, 1964, 893,366; June 14, 1965, 933,190
24 Claims. (Cl. 49—149)



1. A mounting for a sliding panel adapted to slide horizontally and pivot about a vertical axis comprising a first bar having first and second pivots at opposed ends thereof, the axis of said pivots being parallel, and said first pivot being pivotally securable to said panel adjacent a vertical edge thereof, a second bar pivotally secured at one end thereof to the second pivot, guide means for said second bar permitting reciprocation thereof along a horizontal axis, and a further pivot having the axis normal to the reciprocation of said second bar and slidably engaging said panel intermediate the vertical edges thereof, said further pivot providing a vertical axis of rotation for said panel irrespective of its sliding position and having means to prevent sliding of said panel during selected rotation thereof about said vertical axis.

3,318,048
COMBINATION GUIDE AND LATCH ROLLER
Fortune Odend'hal, Hagerstown, Md., assignor to Jamison Cold Storage Door Company, Hagerstown, Md., a company of Maryland
Filed May 27, 1965, Ser. No. 459,348
4 Claims. (Cl. 49—223)

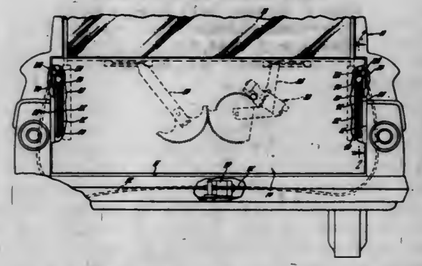


1. In the combination of a wall having a door opening; a door for covering the opening, and a substantially horizontal overhead mounting means on said wall for suspending the door for horizontal sliding movements relative to the door opening, whereby the door opening may be opened and closed by sliding movements of said door, the improvement comprising:

a guide means mounted on a wall portion adjoining said door opening and at a position spaced downwardly from and parallel to said overhead mounting means said guide means including a track portion projecting outwardly from said wall,

engagement means carried by said door for riding along said track portion of the guide means, said engagement means having two separate members for contacting and engaging opposed vertical surfaces of said track portion, whereby said door is positively maintained in a position outwardly from the wall in all open positions, said engagement means further including means for moving said door toward the wall when said door is moved to its closed position.

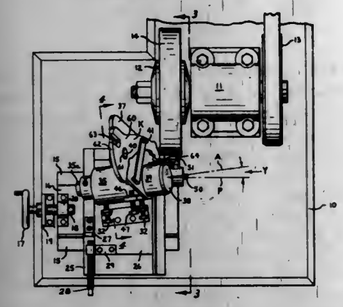
3,318,049
VEHICLE CLOSURE
Alfonsas Ariauskas, Livonia, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Sept. 28, 1964, Ser. No. 399,513
4 Claims. (Cl. 49—280)



1. In a vehicle body including a closure member movable between open and closed positions with respect to a body member, the combination comprising, latch means movable between latched and unlatched positions, resilient means biasing said latch means to latched position, a rotatable shaft journaled on one of said members, cam means rotatably mounted on said shaft and having an operating cam surface, means for rotating said cam means relative to said shaft, first means operatively connected to said latch means and engageable by said cam surface upon movement of said cam means for moving said latch means to unlatched position against the action

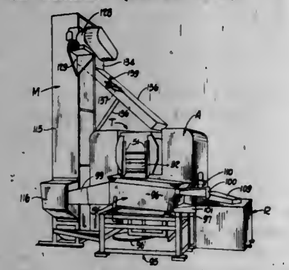
of said resilient means, second means secured to said shaft for rotation therewith, third means operatively connecting said second means and said closure member for moving said closure member between open and closed positions, and lost motion means interconnecting said cam means and said second means to provide for successive movement of said first connecting means and said third connecting means.

3,318,050
CORN KNIFE SHARPENER
Charles E. Leckington, 1530 Springhill Road, Albany, Oreg. 97321
Filed Sept. 8, 1964, Ser. No. 394,661
7 Claims. (Cl. 51—96)



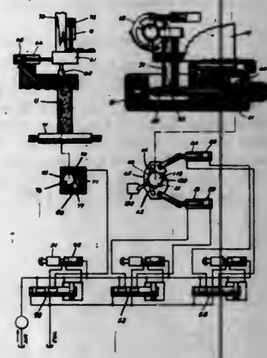
1. A corn knife sharpening machine comprising a honing wheel mounted for rotation on a horizontal axis and having a cylindrical working surface, a horizontal slide movable transversely of said axis toward and away from said wheel, a knife holder mounted for rotational movement on said slide about an axis which is inclined vertically from horizontal and inclined laterally toward said wheel axis, means for clamping a knife on said holder, and a positioning block on said holder arranged to engage a portion of the knife blade directly behind the blade surface to be ground and press said blade surface against said wheel surface when said slide is moved toward said wheel.

3,318,051
FINISHING APPARATUS
John F. Rampe, 3417 Fairfax Road, Cleveland Heights, Ohio 44118
Filed Apr. 3, 1964, Ser. No. 357,212
12 Claims. (Cl. 51—163)



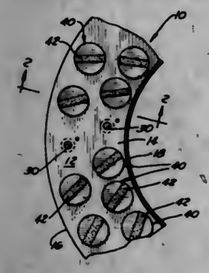
1. Vibratory finishing apparatus including a frame structure, a tub carrying member having a pair of uprights and a cross member extending between said uprights, resilient shear mount means on said frame structure for supporting said tub carrying member on said uprights, a work carrying tub mounted on said tub carrying member between said uprights and above said cross member thereof, said tub having its longitudinal axis extending substantially normally to said cross member and having a charging opening in the top thereof and a discharge opening in one end thereof, a drive shaft having its axis extending substantially normally to said cross member of said tub carriage, said shaft having an eccentric portion having bearing in said cross member, means for rotating said shaft, a counterpoise structure having a pair of side members connected by a transverse member, resilient shear mount means on said frame structure for supporting said counterpoise structure on said side members thereof, said drive shaft having a second eccentric portion offset substantially 180° from said first eccentric portion and having bearing in said transverse member of said counterpoise structure, the center of mass of said tub carrying member and tub with designed load therein and the center of mass of said counterpoise structure being disposed in close juxtaposition to said axis of said drive shaft.

3,318,052
DEVICE FOR MAINTAINING OPERATIVE RELATION BETWEEN A DRESSING TOOL AND GRINDING WHEEL
Daniel H. Ruth, Waynesboro, Pa., assignor to Landis Tool Company, Waynesboro, Pa.
Filed Oct. 1, 1964, Ser. No. 400,851
6 Claims. (Cl. 51—165)



1. In a grinding machine,
(a) a grinding wheel support,
(b) a grinding wheel rotatably mounted on said wheel support,
(c) means for effecting relative feeding and retracting movements of said wheel support including
(d) a reversible increment feeding means for said grinding wheel,
(e) said increment feeding means serving to advance said wheel suport progressively farther for each grinding operation because of wheel wear,
(f) said increment feeding means being operable by a fixed amount for retracting said wheel support,
(g) a dressing tool periodically and progressively separated from said grinding wheel because of said wheel wear,
(h) a second increment feeding mechanism for feeding said dressing tool toward the operative face of said grinding wheel,
(i) and means movable with said first increment feeding means and operable after a predetermined number of grinding cycles to actuate said second increment feeding mechanism to advance said dressing tool to operative relation with said grinding wheel.

3,318,053
GRINDING WHEEL WITH PREDETERMINATELY ORIENTED FIXED REPLACEABLE ABRASIVE SEGMENTS
Harold C. Miller, Chicago, Ill., assignor to Super-Cut, Inc., Chicago, Ill., a corporation of Illinois
Filed Jan. 7, 1965, Ser. No. 424,073
4 Claims. (Cl. 51—209)



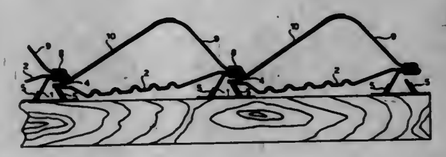
1. A rotary grinding wheel comprising a wheel body adapted in connection with use of the wheel to be driven in one direction about its axis and having on one side thereof an annular planar working face in concentric relation with said axis, a plurality of spaced apart mounting adapters positioned adjacent to said working face of the wheel body and provided with substantially flat, coplanar, outer working faces, elongated, block-like, abrasive segments extending transversely across, and fixedly connected to, the outer working faces of the mounting adapters, formed of abrasive particles distributed substantially uniformly throughout hard matrices, having substantially flat and coplanar, outer grinding surfaces, and oriented with respect to one another to provide a predetermined grinding pattern, means effective releasably to clamp each adapter against said working face of the wheel body, and interengaging means fixedly disposed on each adapter and the adjacent portion of the wheel body and effective in cooperation with the associated clamping means to prevent angular turning movement of the adapter.

3,318,054
LOAD SUSPENSION APPARATUS AND RELATED METHODS
Salvatore Vincent Giardina, Brooklyn, N.Y., assignor of one-half to Pasquale Fichera, Brooklyn, N.Y.
Original application Mar. 8, 1962, Ser. No. 178,439, now Patent No. 3,201,906, dated Aug. 24, 1965. Divided and this application Nov. 24, 1964, Ser. No. 413,534
27 Claims. (Cl. 52—39)



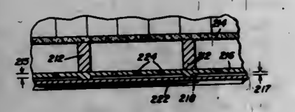
4. In combination with an overhead structure provided with spaced bores one of which is vertical and the other of which is inclined away from the vertical bore at an angle, a hanger assembly comprising means including horizontal and vertical arms connected to each other, said horizontal arm being in face-to-face relation with said overhead structure and being provided with spaced holes corresponding to said bores, one of said holes being vertical and the other hole being inclined, an inclined collar on said horizontal arm and concentric with and encircling said inclined hole, said inclined hole and collar being concentric with said inclined bore and said vertical hole being concentric with said vertical bore, a pin extending through said inclined collar, hole and bore and frictionally engaging within the latter, a dome-shaped head on said pin and abutting against said collar, an expansion shield in said vertical bore, a threaded bolt extending through said vertical hole and threadably engaging in said shield to expand the latter within said vertical bore, a spring clip including a flat portion on and at right angles to said bolt, a head on said bolt sandwiching said clip portion against said horizontal arm and said horizontal arm against said structure,, said clip further including an arcuate extension extending from said flat portion and engaging said dome-shaped head such that a tendency of said pin to move out of said inclined bore is resolved into vertical and horizontal vector forces the latter of which is applied to said bolt in shear, a suspension member, and means connecting said suspension member to said vertical arm.

3,318,055
ROOF COVERING FOR BUILDINGS AND THE LIKE
Renato Piana, Cascine Vica, Turin, Italy, assignor to S.a.s. Skermat di Ing. Renato Piana & C., Cascine Vica, Turin, Italy
Filed Apr. 27, 1964, Ser. No. 362,813
Claims priority, application Italy, May 2, 1963, 9,082/63
2 Claims. (Cl. 52—90)



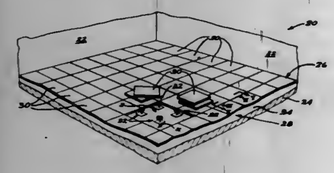
1. A roof covering for buildings and the like having a sloped supporting structure comprising a plurality of elongated substantially rectangular plates each matching the slope in length and made of transparent plastic material, each of said plates being formed along one longitudinal edge portion with a channel-shaped element extending the length thereof and defining a slot directed inwardly from said one longitudinal edge portion and formed along the other longitudinal edge portion with portions bent backwardly on opposite sides of the plate defining a pair of hook-shaped elements directed inwardly from said other longitudinal edge portion, one of said hook-shaped elements engaging said channel-shaped element and extending into said slot of an adjacent plate, a plurality of second plates coextensive in length with said first mentioned plates and having longitudinal edge portions superimposed on the longitudinal edge portions of said first mentioned plates with the intermediate portions thereof bowed outwardly and spaced from said first mentioned plates, one of said longitudinal edge portions of each of said second plates extending into said slot and the other of said longitudinal edge portions of each of said second plates extending into the other of said hook-shaped elements, and means for anchoring said channel-shaped element to said sloped supporting structure.

3,318,056
VENTILATING WALL CONSTRUCTION WITH STUD LOCATION INDICATORS
Joseph H. Thompson, New Castle, Pa., assignor to Cue-Thompson & Company, Cleveland, Ohio, a partnership composed of Dewin E. Cue and Joseph H. Thompson
Filed Mar. 25, 1957, Ser. No. 648,150
1 Claim. (Cl. 52—105)



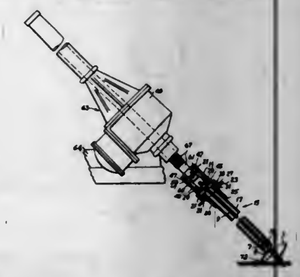
A building construction comprising in combination with studding having interior surfacing materials secured to the inner surface thereof, an insulative exterior sheathing secured to the outer surface of said studding, said sheathing having a plurality of apertures extending therethrough, said sheathing having vertically extending projections spaced from said apertures, said projections being of the same width as and spaced in alignment with said studding providing a visual indication of the location of said studding, siding positioned against said sheathing, and fasteners securing said siding to said studding extending through said projections.

3,318,057
PEDESTAL FLOOR CONSTRUCTION
George R. Norsworthy, Little Sutton, Wirral, Cheshire, England, assignor to H. H. Robertson Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Mar. 24, 1964, Ser. No. 354,276
17 Claims. (Cl. 52—126)



1. A floor supporting pedestal comprising:
a base adapted to be mounted on a generally horizontal surface;
a head member secured to said base and being vertically adjustable relative thereto, said head member having a spherical upper surface;
a plate-like leveling pad having a generally flat surface and opposed thereto, a generally spherical surface corresponding to the spherical upper surface of said head member;
the spherical surfaces of said head member and said leveling pad being abutted whereby said flat surface of said leveling pad is angularly adjustable with respect to said base to position said flat surface substantially horizontal; and
a plate-like cap member having opposed upper and lower flat surfaces corresponding in horizontal cross section with said leveling pad and being larger in perimeter than said leveling pad, said lower flat surface of said cap member resting on said flat surface of said leveling pad and being slideable thereover, whereby said upper flat surface of said cap member provides a supporting surface for panel portions which supporting surface is vertically, angularly and laterally adjustable with respect to said base.

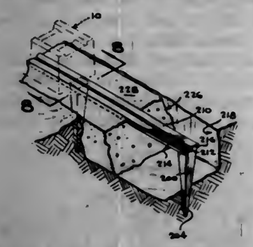
3,318,058
APPARATUS FOR INSTALLING EARTH ANCHORS
Ross J. Sullivan, Columbia, S.C., assignor to A. B. Chance Company, Centralia, Mo., a corporation of Missouri
Original application Feb. 25, 1960, Ser. No. 11,012, now Patent No. 3,148,510, dated Sept. 15, 1964. Divided and this application Apr. 24, 1964, Ser. No. 362,259
6 Claims. (Cl. 52—157)



1. In an assembly for rotatably installing an anchor in the ground through the medium of power driven mechanism, where the anchor comprises an elongated guy rod provided with a screw at the normally lowermost end thereof, a wrench-engaging part adjacent the screw, and means proximal to the normally uppermost end of the rod presenting a shoulder, the combination with said anchor of:
an elongated torque tube housing the rod and having a wrench portion at the normally lowermost extremity thereof engageable with said part;
a hollow supporting body coupled with said tube remote from said portion and registering with the tube;
a pair of reciprocable dogs carried by the body and presenting normally upwardly facing surfaces spaced from said part, when said rod is fully inserted in the tube, a distance substantially equal to the distance between said shoulder and said part,
said body being provided with rectilinear guide means associated with said dogs and defining a path of travel for each dog extending in substantially radial relationship to the longitudinal axis of said tube,
each of said dogs having an inner end engageable by said shoulder-defining means as the rod is inserted into the tube,
said dogs being disposed for movement away from said axis along respective paths upon said insertion and engagement by the shoulder-defining means; and
yieldable means coupled with said dogs and biasing the latter toward said axis upon said movement of the dogs away from the axis by engagement of the shoulder-defining means therewith whereby, as said shoulder clears the dogs and reaches the level of said surfaces, the dogs return to a position beneath the shoulder to prevent longitudinal shifting of the anchor in the tube.

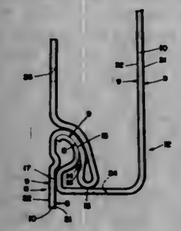
3,318,059
WALL FOUNDATION CONSTRUCTION INVOLVING BLOCK HAVING MORTAR RETENTION MEANS
Lyle E. Wright, Lanham, Md., assignor to Universal Building Products Corporation, Washington, D.C.
Filed May 16, 1966, Ser. No. 557,852
2 Claims. (Cl. 52—169)

1. In a wall construction:
a footing including a plurality of upstanding, earth engaging stake elements arranged at spaced locations and having horizontally coaligned upper ends;
elongated plate means secured along the stake element upper ends, the plate means having a top surface arranged in a substantially uni-planar horizontal line;
a concrete footing formed about the stake elements and subjacent the plate, the footing having an upper surface level with the top surface of the plate means;
the stake element upper ends having slots formed therein;
the plate means having downwardly extending crimp sections fastened in engagement with the slots;



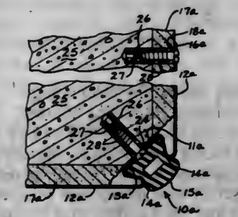
the plate means having side flanges and embracing the upper ends of the stakes with the flanges extending over either side thereof;
a plurality of blocks arranged in courses, the blocks each including a main block body portion;
a plurality of enlarged facing elements secured to the main block body portions; and
the facing elements defining mortar retention areas.

3,318,060
DIELECTRIC COATED ALUMINUM PANEL SIDING
Marvin R. Collins, Akron, Ohio, assignor to Alsco, Inc., Akron, Ohio, a corporation of Delaware
Continuation of application Ser. No. 179,370, Mar. 13, 1962. This application Dec. 8, 1965, Ser. No. 517,178
8 Claims. (Cl. 52—173)



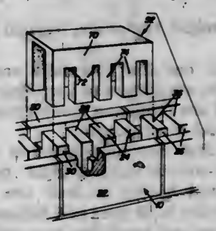
4. A wall comprising an array of similar elongated, prefinished panels of electrically conductive material in parallel, overlapping relationship, each panel having a dielectric corrosion-resistant protective coating which is applied thereto before the panels are installed in said array, adjacent pairs of panels in said array, each pair including a first panel and a second panel connected along their overlapping zone by an interlocking joint, said interlocking joint including a first part of said joint formed along said overlapping zone of said first panel having a channel having opposed wall surfaces and a second part of said joint formed along said overlapping zone in said second panel, said second part projecting into said channel and engaging both of said opposed wall surfaces thereof, portions of said first and second part providing said engagement between said second part and at least one of said opposed wall surfaces being free of said dielectric coating and providing an electrical connection between each pair of panels along the interlocking joint therebetween, all exterior surfaces of said panels being covered by said dielectric coating, each panel being formed with a dielectric coated portion between its exterior surface and its part of said interlocking joint, said dielectric coated portion of said first panel being in face-to-face adjacency with the dielectric coated portion of said second panel along a zone adjacent to said interlocking joint so that said interlocking joint is hidden from view from the exterior of said wall and so that a barrier is provided to resist entry of corrosion-producing contaminants into said interlock, a chemical primer coating provided on each panel along portions thereof free of dielectric coating, said chemical primer coating providing electrical contact while resisting corrosion along the portions free of said dielectric coating and an electrical ground connected to at least one panel of said array.

3,318,061
RENEWABLE CORNER GUARD
Blair E. Stentz, Murfreesboro, Tenn., assignor to United Service Equipment Co., Inc., Palmer, Mass., a corporation of Delaware
Filed Nov. 7, 1963, Ser. No. 322,155
3 Claims. (Cl. 52—288)



1. A corner guard, for use on a building wall corner wherein said wall has a plaster layer of a predetermined thickness comprising, in combination, an elongated base member, two elongated side members extending outwardly from said base member and having inwardly directed retaining lips, said base member and said side members defining a dovetailed seat, said side members having inwardly off-set outer ends, said off-set being equal to such predetermined thickness of such plaster layer, an elastomeric bumper removably retained within such dovetailed seat, said bumper having opposed longitudinally extending arcuate recesses, said retaining lips mating with such side recesses when said bumper is retained in such dovetailed seat, and mounting means on said side members for securing said building corner guard to a building corner.

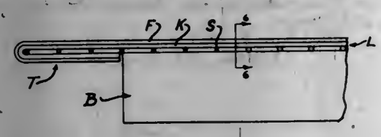
3,318,062
PRECAST INSULATING MASONRY UNIT AND INSULATING FILLER
Paul R. Grants, 715 Hazel St., Roselle Park, N.J. 07204
Filed Mar. 26, 1964, Ser. No. 354,961
10 Claims. (Cl. 52—309)



9. An insulated building block comprising a preformed monolithic hollow masonry block having a pair of upstanding side walls connected by a plurality of upstanding, longitudinally spaced and transversely extending partitions defining upwardly opening recesses therebetween,

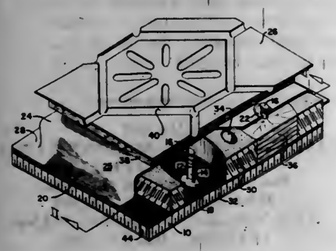
portions of each of said partitions terminating upwardly a spaced distance below the upper edges of said side walls and defining a longitudinal passage through said block, a one-piece elongated and generally horizontal filler of heat insulating and preformed material, said filler including an upper longitudinal portion extending through said passage and depending portions spaced longitudinally along said longitudinal portion and received in said recesses.

3,318,063
BUILDING INSULATION
Robert S. Stone, Shaker Heights, D. Gifford Wilcox, Tallmadge, and Charles J. McBride, Chagrin Falls, Ohio, assignors to The Cleveland Fabricating Company, Inc., Cleveland, Ohio, a corporation of Ohio
Filed May 26, 1964, Ser. No. 370,319
13 Claims. (Cl. 52—404)



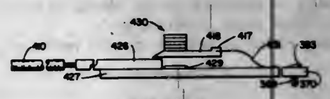
1. A building insulation comprising:
a fibrous inorganic insulating blanket,
a laminated flat facing applied to one face of the blanket, said facing comprising a plurality of sheets forming a laminated vapor barrier structure and a reenforcing scrim web interposed between said laminated structure and the blanket; said blanket being adherent to the back of the laminated structure through openings in the reenforcing web.

3,318,064
THERMAL INSULATION SYSTEM
Albert D. Mayfield and Mark H. Kite, Fort Worth, Tex., assignors to General Dynamics Corporation, Fort Worth, Tex., a corporation of Delaware
Filed Nov. 15, 1963, Ser. No. 323,997
9 Claims. (Cl. 52—613)



1. A light weight, composite, thermal insulation system comprising:
(A) at least one low thermally conductive fastener adapted for attachment to a structural member;
(B) at least one insulation module positioned over said fastener and comprising:
(1) a first insulating material of high density, quasi-structural, semi-rigid board form, said material having at least one aperture therein operative to fit over said fastener,
(2) a second insulating material of low density, fibrous layered form,
said second insulating material positioned in said aperture in said first insulating material and around said fastener,
(3) a highly heat resistant, pan like member containing said first and second insulation material on at least three sides to thus form said module, said member having an aperture therein corresponding in position to said fastener,
(4) a high temperature-resistant sheet element attachable to the open end of said pan member and interposed between said pan and the structural member to thereby encapsulate said module,
(C) a low density, fibrous insulation blanket overlaying said module and surrounding a portion of said fastener passing therethrough; and
(D) a heat shield of refractory material overlaying said insulation blanket and attached to said fastener at the end remote from said structural panel and forming an integrated, thermally low conductive insulation system.

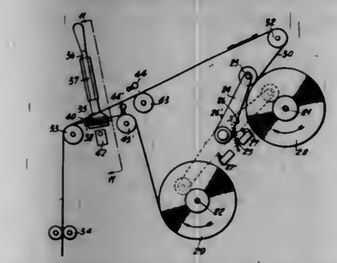
3,318,065
CONNECTOR CLIP AND METHOD AND APPARATUS FOR ASSEMBLING UNITS WITH SAID CLIP
James C. De Shazor, Jr., 3314 Coy Drive, Sherman Oaks, Calif. 91403
Original application Apr. 3, 1963, Ser. No. 270,341, now Patent No. 3,255,566. Divided and this application Oct. 7, 1964, Ser. No. 412,273
9 Claims. (Cl. 53—48)



1. In an apparatus for transferring a plurality of cans having substantially cylindrical sidewalls and integral top and bottom walls, including: a feed conveyor moving a succession of the cans in abutting rows longitudinally on the conveyor with the axes of rotation of the cans being disposed vertically thereon; a support located at one end of the conveyor to receive the rows of cans from the conveyor; a vertically disposed, movable pusher plate located at one side of the support and parallel to the direction of movement of the rows of cans; a stop plate located at a second side of the support transverse to the direction of movement of the rows of cans to stop the movement of the cans when they abut the stop plate; power means operatively connected to the pusher plate to move the pusher plate and cans on the support transversely of the feed conveyor; a second conveyor disposed adjacent the support to receive the cans moved transversely by the power means; a top plate positioned above and substantially parallel to said support to overlie the rows of cans positioned on the support; guide means operatively related to the top plate to guide the plate upwardly and transversely of the feed conveyor; biasing means on the guide means to normally maintain the top plate in a downward position engaging the tops of the cans positioned on the support; and a backing plate integral with the underside of the top plate and engageable with the sides of the cans in one row away from the pusher plate; said pusher plate being engageable with an edge of the top plate such that upon activation of the power means and movement of the pusher plate to transfer the cans the top plate is moved upwardly and transversely of the feed conveyor until said backing plate is out of engagement with the side of the cans thereby permitting transverse transfer of the cans.

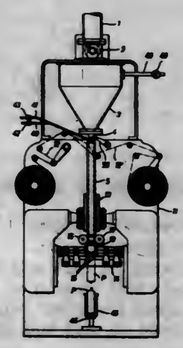
4. In an apparatus for forming a package unit by uniting a plurality of cans with a connector unit, comprising: as assembling station, including: feed conveyors to supply a pair of parallel rows of cans to said station; a top uniting assembly positioned in the path of the feed conveyors and having a supply of said connector units, slide means for removing a single connector unit from said supply and moving the connector unit to a position over the feed conveyors, holding means to receive the connector unit from the slide means and move the unit into connecting relationship with the top of a plurality of cans at the assembling station; a bottom uniting assembly positioned in the path of the feed conveyor adjacent the top uniting assembly, and having a supply of said connector units, slide means for removing a single unit from said supply and moving the connector unit to a position under the feed conveyors, and holding means to receive the connector unit from the slide means and move the unit into connecting relationship with the bottom of said plurality of cans which have previously been top connected at the top uniting assembly.

3,318,066
DEVICE FOR REPLACING THE ROLLS AND JOINTING THE BAND OF CELLOPHANE OR THE LIKE, AS WELL AS DISCARDING THE DEFECTIVE PRODUCTS IN CELLOPHANE-WRAPPING MACHINES
Ariosto Seragnoli, Bologna, Italy, assignor to G. D. Società in Accomandita Semplice di Enzo Seragnoli & Ariosto Seragnoli, Bologna, Italy
Filed Dec. 24, 1963, Ser. No. 333,117
Claims priority, application Italy, Dec. 29, 1962, Patent 680,650
3 Claims. (Cl. 53—53)



1. A device for feeding a continuous web of thermowelding cellophane to a wrapping machine, for wrapping of articles in the cellophane web, by rapidly joining the leading end of a web to be drawn from a new supply roll to the trailing end of a web which is being drawn from a nearly exhausted roll, said device comprising, in combination, two spindles each arranged to have a respective cellophane web roll mounted thereon; a manually operable thermowelding device spaced from said spindles and including a stationary support and a manually operable pressure member having a heated welding head thereon, said welding head having a first position in which it is spaced from said stationary support and a second position in which it is pressed against said stationary support; said pressure member having an extension; a first switch closed by said extension when said pressure member is pressed against said stationary support; means guiding the cellophane webs from the rolls and over said stationary support, said guiding means including means operable to hold the leading end of the web from a new supply roll above said support and aligned with the other web in spaced relation with the latter; a feeler arm oscillatable about an axis positioned between said spindles and respectively movable to engage the roll on either of said spindles to pivot toward the spindle carrying the roll with which the feeler arm is then cooperating as the latter roll decreases in diameter; a pair of second switches connected in parallel with each other and operable by said feeler arm, one of said switches being closed by said feeler arm when the roll on one spindle approaches exhaustion and the other of said switches being closed by said feeler arm when the roll of the other spindle approaches exhaustion; an alarm device connected in circuit with said switches and operated upon closure of either of said switches; means for rejecting the article which has been wrapped with the part of the cellophane web including the junction between said leading and said trailing ends, said rejecting means including a turntable rotated step by step about an upright axis in timed relation with the wrapping machine; said turntable having, at its periphery, pockets open at both ends for receiving and transferring groups of cellophane wrapped articles from a receiving station to following stations; a stationary support extending beneath said pockets through a predetermined arc of the periphery of said turntable for maintaining articles in said pockets while travelling from said receiving station to a removal station; a rejection station intermediate said receiving station and said removing station, said stationary support being interrupted at said rejection station; finger means extending beneath said pockets at said rejection station and movable between a projected position in which they maintain articles in said pockets at said rejection station and retracted position in which they permit articles in pockets at said rejection station to fall from said turntable; means biasing said finger means to the advanced position; electromagnetic means operable, when energized, to retract said finger means to the retracted position; a memory and delay device operated in timed relation with the wrapping machine; an energizing circuit for said electromagnetic means including a third switch; said memory and delay device being operable, responsive to closure of said first switch, to close said second switch to energize said electromagnetic means a predetermined time interval following closure of said first switch and corresponding to the time required for the article wrapped with a cellophane web, including the junction of said leading and trailing ends, to reach said rejection station; an auxiliary supply station disposed between said rejection station and said article removal station; and a magazine at said auxiliary supply station operable to supply properly wrapped articles to empty pockets, from which articles have been dropped at said rejection station, reaching said auxiliary supply station.

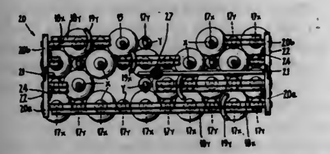
3,318,067
APPARATUS FOR PACKAGING POURABLE COMMODITIES
Alfred Gräfingholt, Stuttgart-Bad Cannstatt, Germany, assignor to Fr. Hesser Maschinenfabrik-Aktiengesellschaft, Stuttgart-Bad Cannstatt, Germany, a corporation of Germany
Filed Nov. 15, 1963, Ser. No. 324,107
Claims priority, application Germany, Nov. 27, 1962, H 47,521
7 Claims. (Cl. 53—112)



6. Apparatus for packaging pourable commodities comprising an airtight container with a bottom outlet, a pipe section connected to and depending from said container,

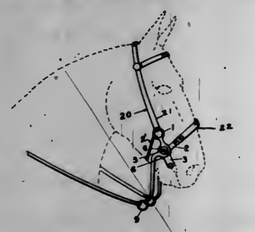
a hollow shaping and filling mandrel mounted below said container outlet, and surrounding said pipe section, a closure member at the lower discharge end of said pipe section, valve-controlled gas and exhaust conduits opening into the interior of said mandrel, means below said mandrel for closing successive lengths of the packaging tubing and means for resiliently applying the packaging tubing against said mandrel around the periphery of the latter.

3,318,068
PACKING OF FRUIT
Izak Johannes Voullaire, P.O. Box 543, Mildura, Victoria, Australia
Filed July 24, 1964, Ser. No. 384,986
Claims priority, application Australia, July 26, 1963, 33,478/63
6 Claims. (Cl. 53—164)



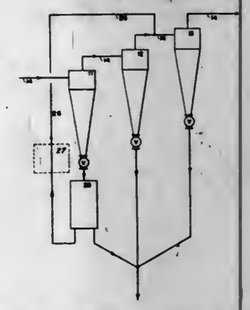
2. An apparatus for mechanically packing fruit in cases wherein the pieces of fruit are arranged in predetermined layer formation each layer being made up of a number of rows each row containing a given number of pieces of fruit and having alternate rows staggered relative to one another by an amount approximately equal to half the diameter of the fruit, and having the rows of fruit in one layer staggered by a similar amount in relation to the row immediately below it; the combination comprising a suction operated pick-up device for picking up said layers, one layer at a time, said pick-up device comprising a single suction head having rows of suction cups arranged and disposed so as to provide two sets of suction cups, each set separately coupled to a source of vacuum and alternately operable, and each set corresponding to said predetermined row formation for alternate layers.

3,318,069
HACKAMORE BIT
Zellie C. Cunard, Tonawanda, N.Y., assignor to Lillian R. Cunard, Tonawanda, N.Y.
Filed Feb. 7, 1966, Ser. No. 525,710
6 Claims. (Cl. 54—6)



1. A combination bridle bit and hackamore comprising
two laterally spaced main brackets,
two spaced cheek pieces,
pivot means disposed on each said main bracket engaging one said cheek piece at an intermediate part of each said cheek pieces and swingably supporting a said cheek piece on each said main bracket,
a nose strap,
nose piece means on each said main bracket connected to said nose strap,
a chin strap,
and chin strap support means on said cheek pieces on a first side of said pivot means connected to said chin strap,
and rein means on a second part of said cheek pieces on a side of said pivot means remote from said chin strap support and spaced from said pivot means, two spaced adjustable brackets are supported on said main brackets,
and mouth piece bar means attached to each said adjustable bracket and extending therebetween,
each said adjustable bracket is supported on each said main bracket by said pivot means.

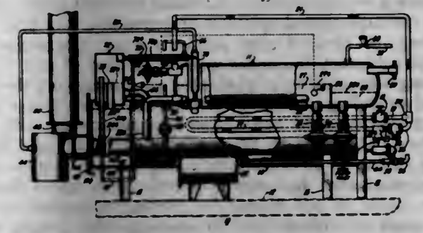
3,318,070
CYCLONE SEPARATION PROCESS AND APPARATUS
Karl Zeiss, Kronberg, Taunus, Diederich Wilm, Dortmund-Brechten, Willi Flasskamp, Stierstadt, Taunus, Eduard Broft, Frankfurt am Main, and Adam Lukas, Mannheim, Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany
Filed July 12, 1963, Ser. No. 295,294
Claims priority, application Germany, July 12, 1962, D 39,357
10 Claims. (Cl. 55—1)



1. In a process for the recovery of entrained carbon black particles from the original aerosol gas stream resulting from the carbon black forming process by conducting said gas stream directly from said forming process to the first of a series of cyclonic separating zones comprising a primary cyclonic separating zone in which the major portion of the entrained carbon black particles are separated out at least one secondary cyclonic separating zone, the improvement which comprises incorporating into said gas stream as it passes from the next-to-last to the last of the full series of said cyclonic separating zones a relatively substantial loading of solid particles coarser than most of the original carbon black particles still entrained in said gas stream as it leaves said next-to-last cyclonic separating zone.

3,318,071
METHOD AND APPARATUS FOR DEHYDRATING AND SEPARATING LIQUIDS FROM GASEOUS FLUIDS
Gene O. Sinex, P.O. Box 1177, Farmington, N. Mex. 87401
Filed Nov. 23, 1964, Ser. No. 413,169
31 Claims. (Cl. 55—32)

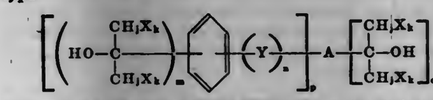
1. A dehydrating and recirculating method for treating well fluids containing liquid and gaseous components, comprising passing a circulating liquid desiccant in intimate contact with the gaseous components of the well fluid to absorb moisture therefrom and collecting the resultant dry gas, heating said desiccant to a temperature so as to cause the water to vaporize, separating the resultant water vapor from the desiccant to produce partially reconcentrated desiccant, and subsequently elevating and reconcentrating said desiccant by intimate contact with



said dry gas in a gas lift for circulating said desiccant and for removing moisture therefrom during elevation.

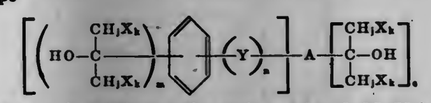
3,318,072
METHOD AND COMPOSITION EMPLOYING AN ARYL HALOMETHYL CARBINOL FOR CHROMATOGRAPHY
John Frank, Morristown, N.J., assignor to Allied Chemical Corporation, New York, N.Y., a corporation of New York
No Drawing. Filed July 10, 1964, Ser. No. 381,905
15 Claims. (Cl. 55—67)

1. A composition suitable for use in gas chromatography consisting essentially of an amount effective in gas chromatography of an aryl halomethyl carbinol of the type



where X is a halogen of atomic number 9–35, Y is selected from the group consisting of oxygen, sulfur and alkylene of 1 to 4 carbon atoms, A is an aromatic hydrocarbon radical of 6 to 12 carbon atoms in the aryl ring structure, j is 0 to 1, k is 2 to 3, $j+k$ is 3 at each carbon atom, m, n and p each is 0 to 1, q is 1 to 2 and $p+q$ is 1 to 2, on a solid inert, chromatographic sorbent support.

9. A method for gas chromatography which consists essentially of passing an inert carrier gas containing a vaporous sample of mixed, close-boiling organic compounds which have a carbon chain length of 12 or less carbon atoms through a chromatographic column having as the stationary phase an aryl halomethyl carbinol of the type



where X is a halogen of atomic number 9–35, Y is selected from the group consisting of oxygen, sulfur and alkylene of 1 to 4 carbon atoms, A is an aromatic hydrocarbon radical of 6 to 12 carbon atoms in the aryl ring structure, j is 0 to 1, k is 2 to 3, $j+k$ is 3 at each carbon atom, m, n and p each is 0 to 1, q is 1 to 2 and $p+q$ is 1 to 2, and identifying the presence of a desired component of said sample resolved by said column.

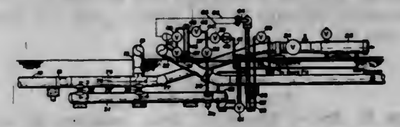
3,318,073
GRAVITY INSENSITIVE DEGASIFYING RESERVOIR
Ashley P. Adkins, Santa Monica, Calif., assignor to North American Aviation, Inc.
Continuation of application Ser. No. 224,123, Sept. 17, 1962. This application July 9, 1965, Ser. No. 473,903
5 Claims. (Cl. 55—202)

1. A separating reservoir adapted to receive and contain under pressure gas, liquid and a mixture thereof and to deliver substantially gas-free liquid independently of any gravitational and inertial forces acting thereon comprising a tank having fluid inlet and outlet means; means for dividing said tank into at least a first and second closed chamber; and means for providing fluid communication between said chambers through a restricted arcuate path passing through said dividing means and oriented to discharge fluid from said first chamber into



said second chamber with a tangential flow component whereby a fluid induced vortex is generated in said second chamber, said restricted arcuate path being adapted to transmit liquid into said second chamber from said first chamber by siphon effects, said fluid communication means comprising a plurality of arcuate conduits each extending through an arc of at least 180°, with each said conduit having its inlet adjacent the tank wall and its outlet located radially inwardly of its outlet.

3,318,074
GAS PIPELINE DRIP SYSTEM
Ben Robert Keller, Sr., 5221 Valerie, Bellaire, Tex. 77401
Filed Aug. 16, 1965, Ser. No. 479,785
9 Claims. (Cl. 55—204)

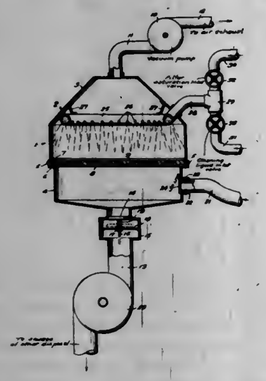


1. Liquid removal means for a high pressure gas pipeline which comprises:
(a) an unobstructed pipeline section having a closure means at the end thereof,
(b) conduit means extending upward from said pipeline section for directing a continuous flow of gas from said pipeline at a point spaced from said end with an abrupt change in direction of gas flow at said point,
(c) a liquid reservoir positioned below said point, and
(d) a flow channel leading to said reservoir from a bottom opening in said pipeline section located directly opposite the location of said conduit.

3,318,075
VACUUM CLEANER
Curtis L. Wilson, P.O. Box 1094, Sierra Vista, Ariz. 85635
Filed Apr. 15, 1965, Ser. No. 448,551
1 Claim. (Cl. 55—228)

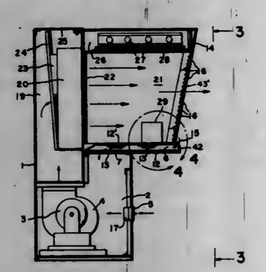
A vacuum cleaner comprising in combination, a tank including an upper shell and a lower shell connected to

said upper shell, there being an offset, annular shoulder in the upper end of said lower shell, a filter supported by said shoulder, an air-exhaust pipe leading from said upper shell, a vacuum pump in said air-exhaust pipe, an inlet hose connected to said lower shell, a flap valve normally closing said hose when said vacuum pump is inactive, a waste disposal pipe connected to the lower end of said lower shell, there being a chamber in said disposal pipe and having a diameter larger thereof, a spring biased valve mounted in said chamber and normally closing said waste disposal pipe when said vacuum pump is activated, a pump in said disposal pipe and disposed below said



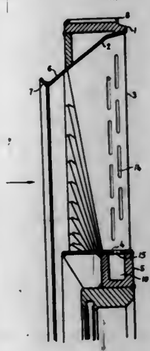
valve, said last named pump being adapted to open said spring-biased valve when activated and said vacuum pump is inactive, to draw waste material from said lower shell through said disposal pipe, an annular pipe supported by the inner wall of said upper shell and spaced above said filter in said tank, there being a series of spraying holes in said annular pipe, a first inlet pipe connected at one end to said annular pipe, a T-coupling connected to its other end, second and third pipes connected to said T-coupling and a valve in each second and third pipes whereby a cleaning fluid and a detergent may be alternately or in combination admitted to said annular pipe and sprayed over said filter.

3,318,076
DUST-FREE BENCH
Arthur K. Baker, Chandler, Ariz., assignor, by mesne assignments, to Arthur K. Baker and Esther M. Baker, Chandler, Ariz.
Filed Aug. 14, 1964, Ser. No. 389,581
4 Claims. (Cl. 55—350)



1. A dust-free bench structure comprising a bench housing, a hollow bench having a substantially impervious and horizontal upper working surface and a spaced lower surface, said surfaces terminating at the front of said bench in a forward edge portion, said bench being supported upon said housing and projecting forwardly thereof to provide knee-space therebelow, said hollow bench defining a duct therewithin and being provided with a series of mutually spaced apertures arranged in a tranverse row along the forward edge portion thereof communicating with said duct, the upper working surface of said bench being substantially horizontal for supporting work thereon and extending to said apertures at the forward edge portion thereof, said bench duct communicating with the interior of said bench housing, a blower within said housing having its input communicating through said housing and said bench duct with said apertures, a coarse filter at the intake of said blower for filtering air sucked in use through said bench forward apertures and through said duct and entering said housing, a fine filter positioned adjacent said hollow bench, a mulit-apertured grille adjoining said bench working surface and extending substantially perpendicularly to and substantially vertically above the same, and an output duct connecting the output of said blower to said multi-apertured grille and including said fine filter for driving air through the latter and through said grille, said grille serving to direct the air over said bench working surface in substantially laminar flow, a portion of this air being sucked back in through said bench forward apertures and returned to said blower in use, thereby effecting recirculation of such air, thusly not only providing a cleaner environment above the work bench but also preventing the ingress of outside contaminated air resulting, in the the absence of said apertures, from the production of eddy currents over the forward upper surface of the bench due to the presence of work thereon or of the operator's hands, as well as reducing the velocity of air flow past the bench operator and improving his comfort.

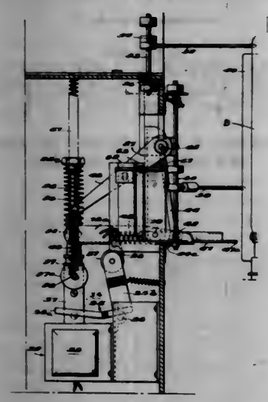
3,318,077
DEVICE FOR REMOVING WATER FROM THE STAGES OF STEAM TURBINES
Jan Škopek, Dobrany, Czechoslovakia, assignor to Závody V.I. Lenina Plzeň, národní podnik, Plzeň, Czechoslovakia
Filed Oct. 16, 1963, Ser. No. 316,767
1 Claim. (Cl. 55—447)



In a stationary guide wheel for a turbine, in combination:

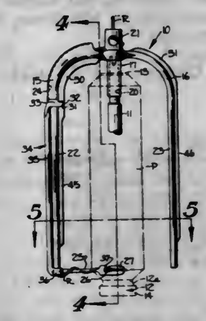
(a) a central hub having a horizontal axis and being formed with an annular channel therein;
(b) a peripheral crown radially spaced from said hub and coaxial therewith;
(c) an outer shrouding defining a duct with said crown, said shrouding being interposed between said crown and said hub;
(d) an inner shrouding contiguously adjacent said hub, said inner shrouding being interposed between said hub and said outer shrouding;
(e) a plurality of blades extending radially between said shroudings and being angularly spaced about said axis,
  (1) each blade having a hollow interior radially extending relative to said axis and an outer surface formed with openings therein communicating with said interior for leading water collecting on said surface into said interior,
  (2) a first group of said blades being located above said axis, and a second group of said blades being located below said axis,
  (3) said inner shrouding being formed with a plurality of passages respectively providing communication between the interiors of the blades of said first group and said channel, and between the interior of one blade of said second group and said channel,
  (4) said outer shrouding being formed with a plurality of apertures respectively providing communication between the interiors of the blades of said second group and said duct; and
(f) means for discharging water by gravity from said duct.

3,318,078
DOFFER-DONNER MECHANISM FOR SPINNING MACHINES AND THE LIKE
Agnew H. Bahnson, Jr., and James F. King, Jr., Winston-Salem, N.C., assignors to The Bahnson Company, Winston-Salem, N.C., a corporation of North Carolina
Filed Sept. 21, 1961, Ser. No. 139,650
14 Claims. (Cl. 57—53)



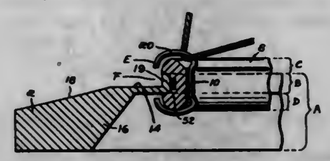
1. Apparatus for doffing full bobbins in succession from a line of spindles on a textile working machine comprising a support structure arranged to travel along the line of spindles, a bobbin lifter mechanism including a lifter arm movable between a retracted position clear of the spacers between the spindles and an extended position engaging the bobbin to be doffed, an electro-responsive actuating means coupled to said bobbin lifter mechanism, an energizing circuit for said electro-responsive actuating means, a switch having its contacts arranged in said energizing circuit, and a bobbin feeler member located in the path of and actuatable by the bobbin to be doffed for controlling said switch contacts to thereby control actuation of said bobbin lifter mechanism.

3,318,079
REINFORCED TEXTILE FLYER
Clarence Jackson Costner, Bessemer City, N.C., assignor to Ideal Industries, Inc., Bessemer City, N.C., a corporation of North Carolina
Filed Nov. 27, 1964, Ser. No. 414,100
8 Claims. (Cl. 57—117)



1. A rotary textile flyer having an inverted substantially U-shaped body comprising a pair of opposed arcuate upper sections and a pair of opposed elongate first and second legs depending from the upper sections, said first leg being hollow, a presser mounted for angular movement on said first leg and having a presser foot thereon for directing roving therefrom in a package-forming operation; a rib connected to and extending along a major portion of the length of each leg, said ribs being in diametrically opposed relationship and projecting radially of the axis of the flyer with said ribs being of lesser width than the corresponding legs and cooperating therewith to create substantial turbulence in the air around the legs during rotation of the flyer to minimize accumulation of lint on said legs.

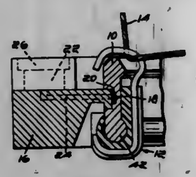
3,318,080
SPINNING RING AND HOLDER
Andrew J. Wayson, Needham, Mass., assignor to Merriman, Inc., a corporation of Massachusetts
Filed Apr. 14, 1964, Ser. No. 359,667
7 Claims. (Cl. 57—120)



1. The combination of a vertical type spinning ring and holder in which the spinning ring is of such small vertical dimension that the upper end of the traveler adjacent the normal upper surface of the holder is so close thereto as to make positioning of the yarn within said traveler by the operator economically unfeasible, the said normal upper surface of said holder being flat all around the ring except at a small area of limited circumferential extent immediately adjacent the ring in which area the upper surface is depressed to increase substantially the vertical distance between the said depressed surface and the upper end of the traveler, the limited circumferential extent of said depressed area being sufficient to permit the introduction of an operator's finger without interference from the adjacent undepressed parts of said holder, whereby when the traveler is located adjacent said area an operator, holding the yarn

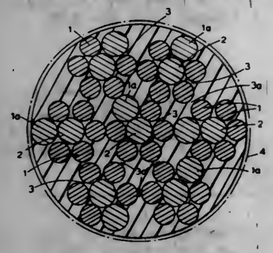
in conventional manner and with his finger against said depressed surface, will be able to position the yarn readily under the hook of the traveler.

3,318,081
TWO-PART TRAVELER
Andrew J. Wayson, Needham, and Angelo G. Bucchianeri, Millis, Mass., assignors to Merriman, Inc., a corporation of Massachusetts
Filed Sept. 9, 1964, Ser. No. 395,171
6 Claims. (Cl. 57—125)



1. A two-part traveler of the type slidably mounted on a spinning ring comprising the combination of: a ring engaging member shaped to engage one edge only of the said ring and formed of a material having good wear resistant properties relative to said ring, a yarn engaging member separable from said ring engaging member and formed of a material having good wear resistant properties relative to the yarn in frictional engagement therewith, and means for interconnecting said members whereby said yarn engaging member can engage only the other edge of said ring and may be quickly replaced when worn.

3,318,082
PLASTICS IMPREGNATED ROPE
Peter Philip Riggs, Cattawade, near Manningtree, England, assignor to Macwhyte Company, Kenosha, Wis., a corporation of Wisconsin
Filed June 15, 1964, Ser. No. 375,175
Claims priority, application Great Britain, June 14, 1963, 23,895/63
16 Claims. (Cl. 57—149)



4. A multi-stranded plastics impregnated wire rope, wherein the strands are twisted about a core formed by an identical such strand, each strand comprising a plurality of outside wires of equal diameter and one outside wire of larger diameter, all such wires being intentionally spaced apart from each other over at least portions of their length and twisted about a king wire.

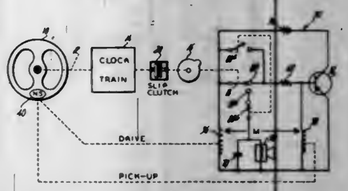
7. A strand for a rope, comprising an outer lay of twisted wires, wherein most of said twisted wires are of substantially equal diameter and, as viewed in cross-section, are in tangential contact with a common imaginary enveloping circle, but wherein at least one of said twisted wires is of larger diameter and projects beyond said enveloping circle.

3,318,083
PROCESS FOR FALSE TWIST-CRIMPING YARN
Reginald Selby Gilchrist, London, England, assignor to The Klinger Manufacturing Company Limited, London, England
Filed May 8, 1964, Ser. No. 366,693
Claims priority, application Great Britain, May 10, 1963, 18,712/63
4 Claims. (Cl. 57—157)



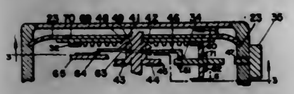
1. A method of crimping yarn comprising a first step of heating and then false twisting the yarn on the run in one direction; and a second step of heating the yarn to a lesser extent than in the first step and then false twisting the yarn on the run in the opposite direction to, and to an equal or greater degree than the false twisting in the first step; positively tensioning the yarn while it is being heated and false twisted on the run in said one direction by drawing the yarn under tension through the first step; and positively feeding the yarn through said second step.

3,318,084
TRANSISTOR ALARM CLOCK
Alan E. Patrick, Athens, Ga., assignor to General Time Corporation, New York, N.Y., a corporation of Delaware
Filed Oct. 2, 1964, Ser. No. 401,058
13 Claims. (Cl. 58—38)



1. An alarm timepiece including:
a mechanical device for performing a periodic movement;
a time train operating in response to movement of said mechanical device;
and means including a switching circuit arranged to pick up a pulsating input from said moving mechanical device and to produce a corresponding output for impulsing said mechanical device in synchronism with said movement thereof to sustain such movement;
said circuit including an electrical-to-audio transducer;
said circuit further including a switch operated by said time train at a predetermined time;
wherein the improvement comprises:
said transducer and said switch being arranged to connect said transducer to said circuit to apply voltage modulated by said pulsating input from said time-train-operating mechanical device to energize said transducer pulsatingly in synchronism with said periodic movement of said mechanical device when said switch is operated.

3,318,085
SETTING MEANS FOR UNIVERSAL TIMEPIECE
Shao-Tang Lee, 25 Chi-Kuang St., Taichung City, Taiwan
Filed Dec. 11, 1964, Ser. No. 417,841
5 Claims. (Cl. 58—43)



1. A multi-local time telling watch comprising a case, said case including a peripheral wall, a dial exposing face, a back, and a rim on said wall surrounding said face, indicia on said rim indicating different time zones, a local time dial ring fixed to said case about said face inward of said rim, said dial ring having numbers thereabout radially aligned with the rim indicia and corresponding with the equivalent time in the different time zones, an enlarged central dial mounted within said dial ring in a predetermined relationship therewith and for selective rotation relative thereto, said central dial having numbers thereon corresponding to the hours in a day and relating to time based on a specific meridian, said dial ring numbers being radially aligned with the central dial numbers, an hour hand rotatably mounted centrally of said central dial and projecting radially in overlying relation thereto and in a predetermined relationship with said central dial and said dial ring, said hour hand indicating, in conjunction with said dial ring, the time in a specific locale, said hour hand simultaneously, in conjunction with said central dial, indicating a time based upon a different meridian from the indicated local time on the dial ring, means for physically changing the relationship between the hour hand and the dial ring for indicating time in a different locale while at the same time retaining the relationship between the hour hand and the central dial for continuing to indicate the time based upon said different meridian, said last-mentioned means comprising means for selectively fixing said hour hand to said central dial, and means for simultaneously rotating and setting said central dial and said hour hand in a new relationship relative to the dial ring, said means for simultaneously rotating said central dial and said hour hand including a rotatable winding stem, a gear associated with said stem and meshed with a track fixed to said central dial, and means for selectively locking said gear to said stem for rotation therewith.

3,318,086
CLOSURE FOR ALARM CLOCKS OR THE LIKE
Joe M. Whitaker, Athens, Ga., and Donald E. Protzmann, Litchfield, Conn., assignors to General Time Corporation, New York, N.Y., a corporation of Delaware
Filed Oct. 22, 1965, Ser. No. 501,728
10 Claims. (Cl. 58—53)

1. In a clock or the like for manipulation by a tool, the combination comprising, a housing having an opening, a mechanism having a metal plate dimensioned to fit inside said opening substantially filling the same, said housing having a groove formed in the inside wall thereof in alignment with the plate, said plate having a slot extending along the edge thereof defining a narrow tab having a region of attachment at one end and a region of reduced cross-section spaced therefrom, said tab enclosing a tool opening intermediate the regions of attachment and reduced cross-section so that upon twisting of a tool in the slot the tab is bodily twisted in the plane of the plate and about its region of attachment for swinging of the tab



edgewise into the groove in the housing for retention of the plate therein and so that upon twisting of a tool in the opposite direction the tab is swung out of the groove to free the plate.

3,318,087
TORSION OSCILLATOR
Robert Favre, Lausanne, Switzerland, assignor to Fabriques Movado and Manufacture des Montres Universal, Perret Freres S.A., Geneva, Switzerland
Filed July 8, 1965, Ser. No. 470,511
Claims priority, application Switzerland, July 10, 1964, 9,047/64; Apr. 22, 1965, 5,637/65
5 Claims. (Cl. 58—131)

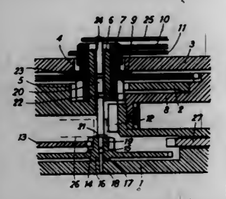


1. A torsion oscillator for a clockwork movement carried inside a frame comprising at least one flexible, metallic, blade of general rectangular shape having a vertical axis of symmetry and consisting of two inter-connected elementary spring parts forming with each other an angle other than 180° along said vetrical axis, said axis forming the oscillatory axis for said elementary spring parts, said blade having radial slots cut therein perpendicularly to said axis thereby forming in each of said elementary springs a succession of sections extending outwardly and radially from said axis so as to increase the operative length of said elementary springs, said blade having medial and terminal sections, said terminal sections being secured to an oscillatory mass, said oscillator operating mainly under flexional conditions.

3,318,088
MOBILE ORGAN OF THE GOING TRAIN OF A WATCH MOVEMENT
Maurice Jeanmonod and Jean-Claude Schneider, La Chaux-de-Fonds, Switzerland, assignors to Fabrique d'Horlogerie Chs. Tissot et fils S.A., Le Locle, Switzerland, a limited company
Filed Nov. 4, 1965, Ser. No. 506,303
Claims priority, application Switzerland, Nov. 19, 1964, 14,914/64
5 Claims. (Cl. 58—139)

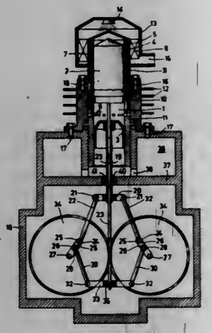
1. A watch movement comprising a first frame member, a toothed member rotatably mounted adjacent said frame member, one of said members containing a bore receiving a pivot stem carried by the other, and one of said members providing an annular abutment engaging the other and coaxial with said stem, a second frame member spaced from said toothed member and disposed on the opposite side thereof relative to said first frame member, said second frame member having a wall defining an elongated passage aligned with said stem and open at both ends, and a shaft insertable and removable through

said passage for engagement and disengagement respectively with said toothed member, said shaft extending be-



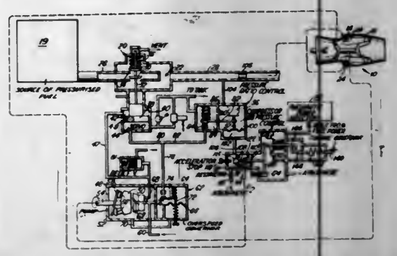
yond both sides of said second frame member and having a surface in bearing engagement with said wall.

3,318,089
HOT-GAS PISTON ENGINES
Henricus Cornelis Johannes Beukering and August Albert Liebe, both of Emmasingel, Eindhoven, Netherlands, assignors to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
Filed Sept. 2, 1965, Ser. No. 484,660
Claims priority, application Netherlands, Sept. 10, 1964, 6,410,513
4 Claims. (Cl. 60—24)



1. A hot-gas piston engine of the displacer type comprising two identical cranks located one on each side of a plane passing through the center line of the engine, which cranks form parts of two crank shafts which can rotate synchronously and at least substantially in phase and in opposite directions and the center lines of which lie in parallel on each side of the said plane through the center line of the engine, each connection between a piston and a displacer respectively and a crank on a crank shaft including a piston connecting rod and a displacer connecting rod respectively which piston connecting rods and displacer connecting rods respectively have substantially the same length, one end of each piston connecting rod being secured to a yoke to which the piston rod is connected and one end of each displacer connecting rod being secured to a further yoke to which the displacer rod is connected, the yokes being located one on each side of the plane passing through the center lines of the crank shafts, characterized in that the connection between at least one yoke and the associated piston rod or displacer rod is formed by a pivotal coupling the center line of which extends in parallel with the center lines of the crank shafts.

3,318,090
FUEL FLOW CONTROL UNIT FOR GAS TURBINE ENGINES
Albert Jubb and Keith Anthony Hatchett, Derby, England, assignors to Rolls-Royce Limited, Derby, England
Filed Nov. 30, 1964, Ser. No. 414,562
Claims priority, application Great Britain, Dec. 2, 1963, 47,568/63
5 Claims. (Cl. 60—39.28)



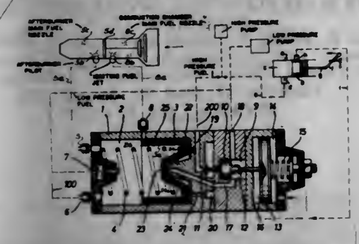
1. A fuel flow control unit for use with a gas turbine engine of the type having compressor means, combustion equipment and turbine means arranged in flow series, the turbine means being drivingly connected to the compressor means, together with a source of pressurized fuel, the fuel flow control unit comprising a fuel supply conduit connecting the source of pressurized fuel with the combustion equipment, valve means mounted in the fuel supply conduit to control the flow of fuel therethrough, first control means for varying the degree of opening of the valve means in dependence upon the ratio between a selected proportion of the delivery pressure of the compressor means and the pressure of the fuel downstream of the valve means, said first control means comprising a piston having opposite pressure faces of different areas, a pump connected to supply hydraulic fluid directly to the piston face of smaller area and connected to supply hydraulic fluid at a pressure functionally related to, but less than, pump delivery pressure to the piston face of larger area, and pressure responsive means for varying the pressure of the hydraulic fluid in contact with the piston face of larger area in response to changes in the ratio between the selected proportion of the delivery pressure of the compressor means and the pressure of the fuel downstream of the valve means, and second control means for selecting that proportion of the delivery pressure of the compressor means upon which the operation of the first control means depends, thereby varying the power output of the gas turbine engine.

3,318,091
FUEL IGNITER FOR A JET TURBINE ENGINE AFTERBURNER
Eberhard Bader, Stuttgart-Mohringen, Germany, assignor, by mesne assignments, to Man-Turbo G.m.b.H., Munich, Germany
Filed July 9, 1965, Ser. No. 470,764
Claims priority, application Germany, July 15, 1964, M 61,729
1 Claim. (Cl. 60—39.82)

An afterburner ignition system for a turbine jet engine comprising a main fuel supply in a main combustion chamber, a turbine, an afterburner fuel supply in an afterburner, a first igniting fuel nozzle in the main combustion chamber in advance of the turbine, a second pilot burner fuel nozzle in the ignition zone for the afterburner fuel supply, and a fuel metering device for feeding fuel to the first fuel nozzle and the second fuel nozzle;

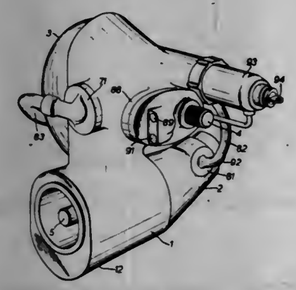
said device comprising a cylinder, a piston having a skirt slidable in said cylinder, spring means for urging said piston toward one end of said cylinder,

high pressure fuel supply means joined to said cylinder for forcing said piston toward the opposite end of said cylinder, low pressure fuel supply means joined to said cylinder for feeding fuel into said opposite end of said cylinder, low pressure pipe line means joined between said opposite end of said cylinder and said second nozzle for feeding fuel to said second nozzle, a circumferential groove in the piston skirt, a bore extending through said skirt from



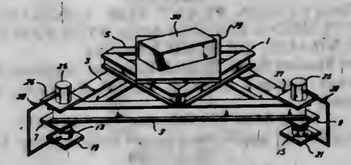
said groove, and check valve means in the wall of the cylinder connected to said first fuel nozzle for the flow of low pressure fuel from said cylinder to said first fuel nozzle when said piston is moved by the high pressure fuel supply means to align said bore and groove with said check valve means and after fuel has been fed to said second fuel nozzle, and then to shut off the fuel to said first fuel nozzle upon further piston movement.

3,318,092
HYDRAULIC APPARATUS
Kenneth R. Boydell, Bredons Hardwicke, near Tewkesbury, England, assignor to Dowty Technical Developments Limited, Cheltenham, England, a British company
Filed July 7, 1965, Ser. No. 470,026
Claims priority, application Great Britain, July 10, 1964, 28,519/64
5 Claims. (Cl. 60—53)



1. A hydrostatic power transmission comprising a pair of bearing housings, hydraulic pump and motor units which have their drive shafts rotatably mounted in the bearing housings, and which are equipped with tilt heads that are hydraulically interconnected with one another to transmit power between the shafts, said bearing housings being fixed in relation to one another so that a common plane passing through the drive shaft and head axes of one unit intersects a common plane passing through the drive shaft and head axes of the other unit, at an angle within the range of 70° to 110°, the line of intersection between the two planes passing through or close to the point of intersection between the drive shaft axis and the head axis of each unit.

3,318,093
HYDRAULIC DRIVE MECHANISM
James E. Webb, Administrator of the National Aeronautics and Space Administration, with respect to an invention of Kentaro Tsutsumi, Auburndale, Mass.
Filed Jan. 13, 1965, Ser. No. 425,362
1 Claim. (Cl. 60—54.5)



A motor driven hydraulic mechanism for effecting movement of a load in response to an electrical signal comprising:

(A) a drive section including a hydraulic chamber having first and second end walls, a hydraulic fluid in said chamber for transmitting energy from the motor to the load;

a flexible bellows means disposed within the hydraulic fluid and having a first end wall thereof affixed to said first end wall of said hydraulic chamber;

said flexible bellows means having a thrust nut extending therethrough and through each said first end walls and into operative relationship with the motor;

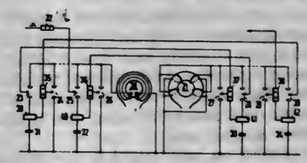
a drive screw axially aligned and threaded partially into said thrust nut, the end of said drive screw protruding from said thrust nut fixedly secured within a second end wall of said flexible bellows means so that rotation of said thrust nut by the motor causes movement of said second end wall along the thrust nut axis thereby varying the fluid volume in said lower housing chamber;

(B) a power transmitter section having disposed therein a pressure responsive assembly comprising:

a movable support cap for contacting the load and a flexible bellows assembly, said cap being affixed to said bellows assembly, and

a hydraulic conduit having one end communicating with said hydraulic chamber and the other end communicating with the interior of said flexible bellows assembly in said power transmitter section so that movement of said thrust nut causes correlative movement of said load contacting support cap.

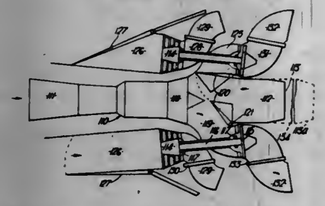
3,318,094
ALTERNATING PINCH PLASMA DRIVE
Alois Koller, Erlangen, Germany, assignor to Siemens-Schuckertwerke Aktiengesellschaft, Berlin-Siemensstadt, Germany, a corporation of Germany
Filed Mar. 4, 1965, Ser. No. 437,318
Claims priority, application Germany, Mar. 5, 1964, S 89,898
7 Claims. (Cl. 60—202)



1. A plasma accelerator, comprising a plasma vessel having a plasma outlet opening and pinch effect means for ejecting compressed plasma through said opening, said

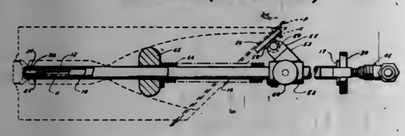
pinch effect means comprising theta pinch field windings and Z pinch field means on said vessel, and periodic electric energizing means connected to said windings and field means for alternately producing a Z pinch and a theta pinch.

3,318,095
JET PROPULSION PLANT FOR AIRCRAFT WITH GAS TURBINE ENGINE AND WITH FAN DRIVEN BY EXHAUST OF SUCH ENGINE
Leonard Stanley Snell, Bristol, England, assignor to Bristol Siddeley Engines Limited, Bristol, England, a British company
Filed May 7, 1965, Ser. No. 453,972
Claims priority, application Great Britain, May 14, 1964, 20,165/64
3 Claims. (Cl. 60—226)



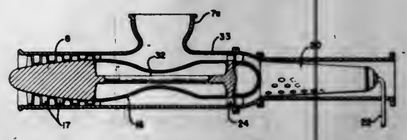
1. A jet propulsion power plant comprising a gas turbine engine, a fan supported for rotation about a fixed axis substantially parallel to that of the engine, a second turbine, a shaft drivingly connecting the second turbine to the fan, a main duct for the exhaust from the engine, a second duct containing the second turbine, means for diverting the gases from the main duct into the second duct to drive the second turbine, a third duct containing the fan and having an inlet thereinto and an outlet therefrom, means for closing the inlet, and means for varying the direction of discharge from the outlet.

3,318,096
PURGE DEVICE FOR THRUST ENGINES
James E. Webb, Administrator of the National Aeronautics and Space Administration, with respect to an invention of Vincent M. Partsch, Simi, Calif.
Filed Jan. 19, 1966, Ser. No. 521,755
9 Claims. (Cl. 60—258)



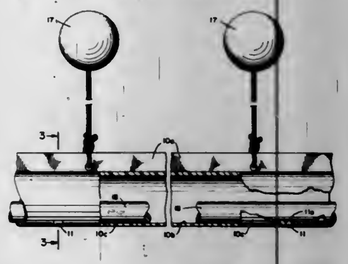
1. A device for use in back purging a thrust engine of the type compirsing a propellant injector system and a thrust chamber, said device comprising:
a tubular mandrel having a bore extending axially therethrough, said mandrel having an inlet and adapted to be connected to a source of purging fluid;
an expansible seal means mounted on the other end of said mandrel;
an actuator sleeve mounted on said mandrel in sleeved relationship thereto, said sleeve having an outer diameter of a size whereby said device is adapted to be inserted into the thrust chamber of a thrust engine in a substantially coaxial relationship thereto with said expansible seal means adjacent the injector face of the thrust engine; and
means mounted on said mandrel for effecting a controlled longitudinal movement of said mandrel relative to said sleeve, said seal means being expansible in response to longitudinal movement of said mandrel when said mandrel moves longitudinally relative to said sleeve in the direction of said inlet end, whereby said seal means is adapted to be expanded into fluid-tight sealing engagement with the inner wall of a thrust chamber when said device is inserted into the thrust chamber with said seal means adjacent the injector face of the thrust engine.

3,318,097
AIR MASS FLOW MULTIPLIER FOR THRUST AUGMENTATION
Palmer R. Wood, Scottsdale, and Frank R. Wallace, Jr., Phoenix, Ariz., assignors to The Garrett Corporation, Los Angeles, Calif., a corporation of California
Filed Oct. 12, 1964, Ser. No. 403,072
15 Claims. (Cl. 60—262)



1. An air mass flow multiplying means comprising:
(a) means forming a duct with inlets at opposite ends for receiving compressed air bled from an extraneous source and atmospheric air, and an outlet intermediate said ends; and
(b) turbocompressor means in said duct, said turbocompressor means utilizing such bleed air to compress atmospheric air, the exhaust from the turbine portion of said turbocompressor means and said compressed air being delivered to said outlet.

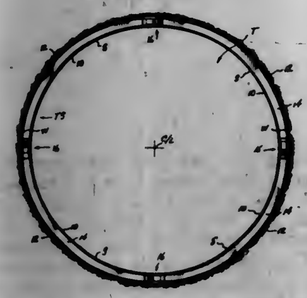
3,318,098
WATERWAY DE-ICING APPARATUS
William M. Hoddinott and David C. Hoddinott, both of 6 Rose St., Milford, Conn. 06460
Filed Jan. 3, 1964, Ser. No. 335,598
3 Claims. (Cl. 61—1)



1. A waterway de-icing apparatus comprising
(a) a length of hose of plastic material adapted to be submerged in the body of said waterway,
(b) means for suspending said hose in the stratum of said waterway having the greatest density,
(c) said latter means including buoys connected along said hose, and cooperating counterbalancing elongated weight means disposed internally within said hose whereby said buoys and weight means are proportioned so that said hose is maintained suspended in said waterway,
(d) said hose having a series of apertures adjacent the bottom of said hose and spaced to the side of said elongated weight means whereby said apertures are directed toward the bottom of said waterway,

(e) and each of said apertures being defined by a smooth tapering wall surface that diverges toward the exterior surface of said hose whereby said aperture is rendered substantially conical in cross-section.

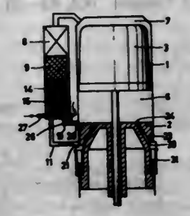
3,318,099
ADJUSTABLE TUNNEL SETS
David B. Sugden, Kingston Beach, Tasmania, Australia, assignor to James S. Robbins and Associates, Inc., Seattle, Wash., a corporation of Washington
Filed July 6, 1964, Ser. No. 380,370
14 Claims. (Cl. 61—45)



1. In a tunnel set, a pair of rolled steel beam sections related end-to-end and joined together by expansible joint means, said joint means comprising: a pair of mutually sidelapping joint elements having mating joint faces formed on the inner sides thereof, said joint faces being directed generally perpendicular to the center line of the tunnel, and being formed to include mating projections and recesses, each said joint element being formed to include a bolt receiving slot opening, extending therethrough axially of the tunnel, with each said bolt receiving slot opening being at least partly in register with the other, and being elongated generally axially of its joint element; and a transverse bolt extending through both of the slot openings, and axially of the tunnel and perpendicular to said joint faces, said bolt serving to detachably and adjustably secure said joint elements and hence said tunnel set sections together, said slot openings permitting longitudinal movement of said joint elements relative to each other for the purpose of adjusting the tunnel set to fit the girth of the tunnel at its location in the tunnel, and said mating projections and recesses serving to prevent relative rotation of said joint elements about the transverse bolt.

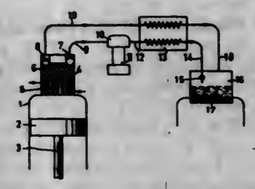
3,318,100
HOT-GAS RECIPROCATING APPARATUS
Jacobus Pieter Reinhoudt and Herman Fokker, both of Emmasingel, Eindhoven, Netherlands, assignors to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
Filed July 16, 1965, Ser. No. 472,561
Claims priority, application Netherlands, July 24, 1964, 6,408,550
16 Claims. (Cl. 62—6)

1. A hot gas reciprocating apparatus comprising a cylinder provided with a working medium therein, a piston adapted for reciprocation in said cylinder, a displacer in said cylinder, said piston, displacer and cylinder forming at least one compression space having a variable volume of said working medium and at least one expansion space having a variable volume of said working medium, said spaces when operative having different average temperatures and communicating with each other, a first heat exchanger arranged in said communication between said spaces, at least two separate ducts connecting said first heat exchanger with one of said spaces, a control device in said apparatus which when said working medium flows in one direction conducts said working medium through one of said separate ducts and when said



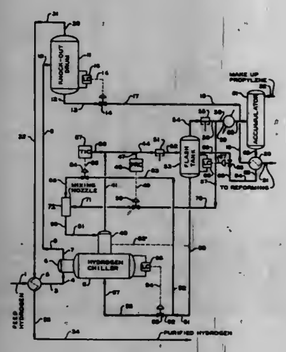
working medium flows in the other direction conducts said working medium through the other of said separate ducts, and at least one of said ducts comprising a second heat exchanger wherein said working medium exchanges heat.

3,318,101
DEVICE FOR PRODUCING COLD AT LOW TEMPERATURES AND COMPRESSION DEVICES SUITABLE FOR USE IN SAID DEVICES
Johannes Rudolphus van Geuns, Emmasingel, Eindhoven, Netherlands, assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
Filed Feb. 4, 1965, Ser. No. 430,402
Claims priority, application Netherlands, Feb. 4, 1964, 6,401,303
11 Claims. (Cl. 62—6)



1. A low temperature device provided with a working medium comprising at least one compressor for compressing said working medium, said compressor being provided with a cooler being in open communication with said compressor, said cooler being adapted to conduct away the compression heat, a first heat exchanger, an outlet valve for said compressed medium being in communication with said first heat exchanger, a cold source traversed by said compressed medium whereby it is further cooled, a second heat exchanger, an outlet for said second heat exchanger, an expansion member in which said medium expands, said outlet for said second heat exchanger communicating with said expansion member, an inlet valve communicating with said first heat exchanger, said expanded medium being passed back at least partly to said compressor through said first and second heat exchangers and said inlet valve whereby said expanded and compressed medium are in thermal contact, said first heat exchanger being at least in part a regenerator, said regenerator part being in open communication with the compression space of said compressor, said outlet and inlet valves being in communication with said first heat exchanger being located at the side of said regenerator remote from said compression space.

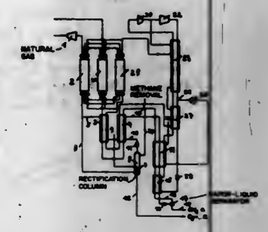
3,318,102
VAPOR-LIQUID MIXING TO CONTROL REFRIGERATING TEMPERATURE IN LIQUEFACTION OF GASEOUS MATERIAL
Miles L. Henderson, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Aug. 24, 1964, Ser. No. 391,437
4 Claims. (Cl. 62—9)



1. A method for maintaining a cooling zone for an impure hydrogen stream containing at least 80 mol percent hydrogen and from 10 to 20 mol percent of hydrocarbons having from 1 to 7 carbon atoms per molecule at a constant temperature and pressure notwithstanding no or low load cooling conditions which cause decreased pressures and therefore temperatures in said zone which comprises in response to said decreased pressures providing a stream of hot propylene which is at a temperature in the range of from 150° F. to 170° F. and a pressure in the range of from 265 p.s.i.a. to 275 p.s.i.a., providing a stream of cool propylene which is at a temperature in the range of from —45° F. to —55° F. and a pressure in the range of from 18 p.s.i.a. to 13 p.s.i.a., mixing said hot propylene and cool propylene respectively in a weight ratio of from 2/1 to 4/1 to thereby form a mixture which is at a temperature in the range of from —45° F. to —55° F. and a pressure in the range of from 18 p.s.i.a. to 13 p.s.i.a. and adding the mixture to said zone in amounts sufficient to raise pressure in said zone to the desired constant pressure, and passing impure hydrogen in heat exchange with said cooling zone.

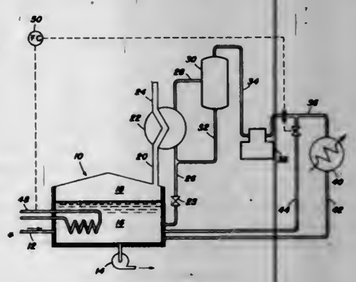
3,318,103
PROCESS FOR LIQUEFACTION OF C_2 AND HEAVIER HYDROCARBONS FROM NATURAL GAS WITH REMOVAL OF CO_2 AND H_2O IMPURITIES
Fritz Jakob, Achmuhle, Germany, assignor to Gesellschaft für Linde's Eismaschinen Aktiengesellschaft, Hollriegelskreuth, near Munich, Germany
Filed Feb. 24, 1964, Ser. No. 346,640
Claims priority, application Germany, Feb. 23, 1963, G 37,128
12 Claims. (Cl. 62—13)

1. A process for the liquefaction of natural gas containing methane and minor amounts of water vapor, carbon dioxide, and C_2 and higher paraffinic hydrocarbons, said natural gas being substantially devoid of unsaturated hydrocarbons, which process comprises the steps of:
(a) passing the natural gas through a first cooling stage in a reversible heat exchanger at a temperature sufficiently low to freeze out the water vapor, a portion of the CO_2, and a minimum amount of hydrocarbons;
(b) passing the resultant dry gas through a second cooling stage at a temperature sufficiently low to condense substantially all of the C_2 and higher paraffinic hydrocarbons, and a minimum amount of methane; and



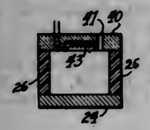
(c) passing the resultant methane-containing gas through a third cooling stage at a temperature sufficiently low to liquefy said resultant methane-containing gas, with the additional provision that the temperature in the first stage is maintained so that any CO_2 remaining in the gas phase after said first stage is soluble in the condensate obtained in the second stage.

3,318,104
METHOD AND APPARATUS FOR STORING LOW-BOILING LIQUIDS
Theodore R. Roszkowski, 50 Egerton Gardens, London, England
Filed Dec. 13, 1965, Ser. No. 513,337
10 Claims. (Cl. 62—45)



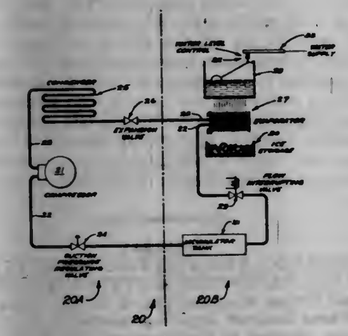
1. Apparatus for storage at atmospheric pressure of liquids boiling below normal atmospheric temperatures that comprises:
a storage tank having a vapor space therein;
unrestricted passage means communicating with said vapor space and the atmosphere;
refrigeration means in indirect heat exchange relation with said passage means and capable of condensing vapors from said vapor space within said passage means;
heating means within said tank and capable of vaporizing liquid therein; and
control means operable to maintain vapor within said vapor space and prevent loss of vapor to the atmosphere and inspiration of air, said control means controlling said heating means to maintain a load on said refrigeration means.

3,318,105
METHOD AND APPARATUS FOR PRODUCING CLEAR ICE UNDER QUIESCENT CONDITIONS
James E. Burroughs, Mount Prospect, and James K. Nelson, Des Plaines, Ill., assignors to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois
Filed Sept. 30, 1965, Ser. No. 491,574
6 Claims. (Cl. 62—71)



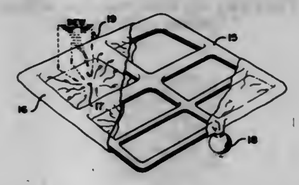
1. A method of producing clear ice under quiescent conditions from demineralized water comprising the steps of charging demineralized water into means defining a cavity; providing a freezing surface in contact with said water to be frozen; cooling said water locally of said freezing surface so that ice is frozen thereon and proceeds to build up layer on layer; and concurrently supplying thermal energy, by heating means, in a localized zone of said water charge to retard freezing along the upper surface thereof and to maintain an unobstructed path through liquid water in said charge between each particle of water in the charge and the atmosphere above said charge until the ice is in condition to be harvested, whereby the occlusion of a body of liquid water in ice is avoided.

3,318,106
BELLOWS TYPE LIQUID SOLIDIFYING APPARATUS
Alan L. Litman, 114 Hartwood Drive, Pittsburgh, Pa. 15208
Filed Oct. 29, 1965, Ser. No. 518,497
11 Claims. (Cl. 62—189)



11. Liquid solidifying apparatus comprising, in combination:
a totally enclosed bellows having a horizontally-elongated, axially distortable wall that is corrugated in longitudinal cross section to form a plurality of peripherially extending troughs;
refrigeration means including conduit means for uninterruptedly introducing a spray of liquid refrigerant into said bellows and for exhausting evaporated refrigerant from said bellows;
means for depositing droplets of a liquid to be solidified on the exterior of said bellows along its length, said liquid depositing means comprising a liquid reservoir positioned above said bellows and having orifice means therein for gravity release of liquid therefrom onto said bellows, said orifice means comprising a pair of liquid outlet openings in fluid communication with said reservoir, said outlet openings being aligned with opposed sides of one of said troughs whereby pairs of droplets discharged therefrom are deposited on either side of the uppermost portion of one of said troughs, said droplets being pre-chilled as they flow around the periphery thereof whereby a major portion of the droplets is solidified in the form of a crescent along the lowermost portion of said trough;
means for regulating the liquid level within said reservoir to control the gravity flow of liquid therefrom; and
means for periodically expanding and contracting said distortable wall in the direction of its length whereby solidified deposits formed thereon are automatically disengaged therefrom.

3,318,107
DEW COLLECTING METHOD AND APPARATUS
John E. Riley, Vienna, and Robert W. Smith, Oakton, Va., assignors to Melpar, Inc., Falls Church, Va., a corporation of Delaware
Filed Aug. 11, 1965, Ser. No. 478,897
6 Claims. (Cl. 62—272)

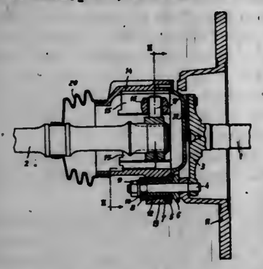


1. An article for collecting dew from the atmosphere comprising:
a sheet of material having a hydrophilic surface, said sheet having relatively low absorptivity of radiation in the range 0.3 to 2.0 microns and relatively high emissivity of radiation in the range of 5 to 30 microns;
means operatively associated with said sheet for thermally insulating said sheet from a supporting surface on which it is to be placed;
means operatively associated with said sheet for collecting the dew accumulated on said hydrophilic surface, and
an inflatable rig structure for carrying said sheet;
wherein said means for thermally insulating comprises air adjacent said rib structure between said sheet and said supporting surface.

3,318,108
ELASTIC UNIVERSAL SLIDING JOINT FOR DRIVING HALF-SHAFTS OF MOTOR VEHICLE DRIVING WHEELS
Jean Cadiou, Paris, France, assignor to Societe Anonyme Andre Citroen, Paris, France, a corporation of France
Filed July 15, 1965, Ser. No. 472,115
Claims priority, application France, July 23, 1964, 982,836, Patent 1,409,909
4 Claims. (Cl. 64—8)

1. Universal elastic sliding joint for an output shaft of an automotive vehicle connecting two rotary members comprising on one hand a sliding coupling comprising a casing having straight grooves therein, a stub shaft fixed to one of said rotary members, radially extending pivot pins on said stub shaft, rollers mounted on said pins for free sliding and rotational movement engaged in said

grooves and, on the other hand, an elastic coupling comprising a plate fixed to the other of said rotary members, a plurality of studs each surrounded by a sheath of elastomer fixed to said plate, a brake disc secured by said



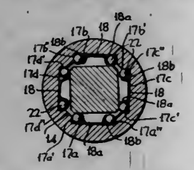
studs on said plate, said casing having three radial external projections with recesses in which said sheaths and studs are held and said grooves and the axes of said other rotary member and said studs being substantially parallel.

3,318,109

BALL BEARING SLIP DRIVE

Carl T. Ressler and Paul Mitchell, Pottstown, Pa., assignors to Neapco Products, Inc., Pottstown, Pa, a corporation of Delaware

Filed July 23, 1965, Ser. No. 475,323
7 Claims. (Cl. 64—23)



1. A ball bearing slip drive comprising a rectangular shaft,

a tubular sleeve having an axial passage therethrough adapted to receive said shaft,

said passage having its sidewalls formed by two pairs of opposed channels extending from one end of said sleeve to the other, the bottoms of said channels in each pair being at opposite sides of said passage and parallel to each other and perpendicular to said other pair of opposed channels,

a ball retainer secured in each of said channels,

each said ball retainer comprising an elongated member having straight sides and curved ends, said straight sides of said retainer cooperating with the sides of said channel to provide spaced straight ball races,

a pair of end caps for said sleeve,

curved portions carried by said end caps and cooperating with said curved ends of said retainers to provide arcuate ball races which in combination with said respective straight ball races define endless ball paths,

a plurality of balls in said ball races and movable therein along said endless paths as said sleeve and said shaft move axially relative to each other,

the width of each side of said shaft being sufficiently less than the spacing between the opposed balls in said opposed channels at opposite sides of said sleeve so that when torque is applied to said shaft in either direction four corners of said shaft engage said balls while there is clearance between the other four corners of said shaft and said balls to permit said balls to roll back to the opposite end of said sleeve without restricting the length of slip of said shaft relative to said sleeve, and

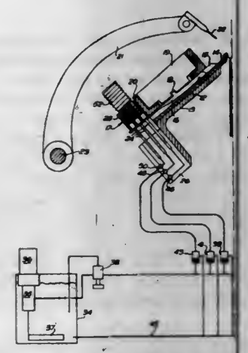
means providing relief at the arcuate ball races to enable said balls to change direction of movement in said ball paths while free of load.

3,318,110

FLAT BED KNITTING MACHINES

Samuel Anthony Monk, Fish Pool, and Brian Arthur Monk, Mansfield, England, assignors of one-third to S. A. Monk (Sutton-in-Ashfield) Limited, Sutton-in-Ashfield, England, a corporation of the United Kingdom

Filed Feb. 11, 1965, Ser. No. 431,803
Claims priority, application Great Britain, Feb. 14, 1964, 6,260/64; July 29, 1964, 30,085/64
18 Claims. (Cl. 66—70)



1. A flat bed knitting machine comprising a pair of cooperating needle beds arranged at an angle to one another, a series of latched needles disposed for axial movement in tricks formed in each of said needle beds, a cam box arranged to be traversed lengthwise of each of said needle beds to effect axial movement of said needles, and needle selection means associated with said needles in each of said needle beds, wherein said needle selection means comprise an actuator device arranged to provide an operative connection between each of said needles and cams provided in said cam boxes, a fluid operated plunger operatively associated with each of said actuator devices, pressure applying means for biasing said plungers into an inoperative position, and control means for selectively moving said plungers into an operative position so that actuation of selected needles can be effected by said cam boxes.

3,318,111

APPARATUS FOR KNITTING POCKETS ON A FULL-FASHIONED KNITTING MACHINE

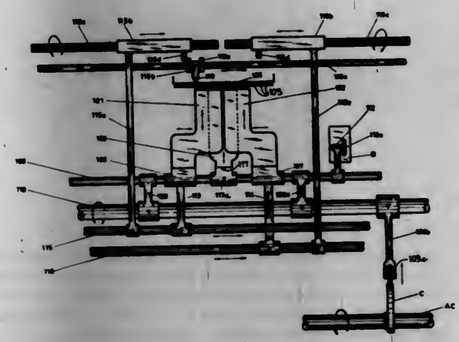
Edouard Simon, deceased, late of Troyes, Aube, France, by Pierre Jonquet, legal representative, Troyes, Aube, France, assignor to Etablissements Simon S.A., Troyes, Aube, France, a French company

Filed June 22, 1966, Ser. No. 559,495
4 Claims. (Cl. 66—89)

1. In a multiple section full-fashioned knitting machine, each section including a needle presser bar, a row of spring beard needles, said needles being movable adjacent one side of said needle presser bar to at times impart a pressing motion to all the needles in unison during each knitting cycle and at other times to prevent pressing of the needles, and means for feeding yarn to the needles to form a selvedged width of fabric; the combination therewith of means for forming a pocket in a central portion of the fabric comprising

(a) three needle pressing blades operable upon a central group of adjacent needles to move the same into engagement with said presser bar and to close the beards thereof,

(b) means for supporting one of said needle pressing blades in a fixed position longitudinally of said row of needles and for moving the other two needle pressing blades in a selective step-by-step manner between a superposed position with said one needle pressing blade and a position adjacent opposite sides of said one blade where all three blades are in a substantially side-by-side position, said blades being engageable with increasing and decreasing numbers of adjacent needles in successive courses, said selective step-by-step movement of said other two needle pressing blades occurring between the knitting of successive courses, and



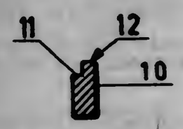
(c) means for restricting the longitudinal travel of said yarn feed means to a distance corresponding to the number of adjacent needles operated upon by said needle pressing blades and to thereby form successive partial courses of varying lengths that correspond to the number of needles engaged by said needle pressing blades.

3,318,112

LADY'S STOCKING MANUFACTURED ON A CIRCULAR KNITTING MACHINE

Robbert P. M. Hin, Aerdenhout, Netherlands, assignor to Nittex A.G., Vaduz, Liechtenstein, a corporation of Liechtenstein

Filed Dec. 21, 1964, Ser. No. 419,835
Claims priority, application Netherlands, Oct. 20, 1964, 6,412,217
3 Claims. (Cl. 66—108)



1. In a circular knitting machine having a complement of independent needles and sinkers for knitting an arcuate area of run-resistant fabric contiguous to a complementary arcuate area of conventional fabric, with the yarn passing course-wise without interruption from one arcuate area into the other arcuate area, said area of run-resistant fabric having yarn loops in selected courses of a larger size than the yarn loops in the area of conventional fabric, the combination including:

(a) each sinker having a neb and two yarn drawing ledges, one ledge being disposed above the other,

(b) a plurality of said sinkers, at least equal in number to the number of sinker wales in the arcuate area of run-resistant fabric, having relatively low butts, and the remainder of said sinkers having relatively high butts,

(c) and a radially movable sinker cam for acting on said sinker butts to retract the sinkers, said sinker cam having two cam surfaces, one for the high sinker butts and the other for the low sinker butts,

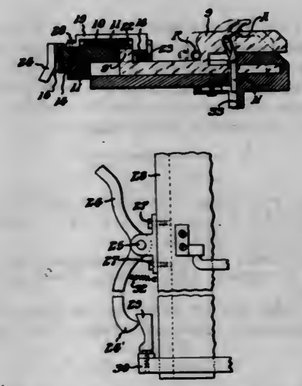
(d) whereby when said sinker cam is in a radially advanced position the sinkers are retracted so that yarn is drawn over the higher yarn drawing ledges of the low butt sinkers and over the lower yarn drawing ledges of the high butt sinkers, and when said sinker cam is in a radially retracted position the sinkers are retracted so that the yarn is drawn over the lower yarn drawing ledges of all the sinkers.

3,318,113

METHOD AND APPARATUS FOR FASHIONING CIRCULAR KNIT FABRIC

Max Nebel, Wiesbaden, Germany, assignor to Hanes Corporation, a corporation of North Carolina

Continuation of application Ser. No. 361,801, Apr. 22, 1964. This application July 12, 1965, Ser. No. 480,220
9 Claims. (Cl. 66—108)



3. A method of fashioning a tubular knit fabric on a circular knitting machine having a needle cylinder, sinkers and knitting cams, the fabric having a length of yarn per course in alternate courses greater than the length of yarn per course in the intervening courses, the steps comprising

(a) progressively lowering the needle cylinder and sinkers in relation to the knitting cams,

(b) moving cam reading means with the needle cylinder to read a stationary cam, and

(c) in knitting the alternate courses, and in response to said reading, progressively varying the extent to which the sinkers penetrate the needle circle during knocking over of the stitches so that the ratio of the length of yarn per course in the alternate courses to that in the intervening courses is selectively controlled.

3,318,114

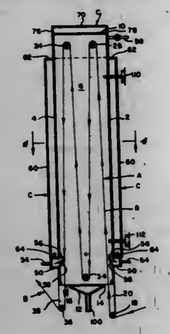
METHOD AND APPARATUS FOR SETTING THE COLOR OF DYED TUBULAR FABRICS

Harry Schneider, Orwigsburg, Pa., assignor to Pottsville Bleaching and Dyeing Company, Port Carbon, Pa., a corporation of Pennsylvania

Filed Aug. 14, 1964, Ser. No. 389,759
2 Claims. (Cl. 68—5)

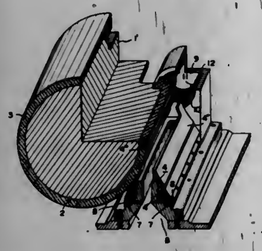
1. Apparatus for steaming elongated pieces of wet dyed tubular fabric to set the dye without wrinkling or delaminating, comprising an enclosed chamber of greater vertical than horizontal interior dimension having inlet and outlet openings at the lower part thereof, means for supporting a continuous length of tubular fabric within

said chamber and for moving it into the chamber through said inlet opening, then through the chamber, and then out of the chamber through the outlet opening, said supporting means within the chamber being constructed and arranged to provide a tortuous path for the fabric which



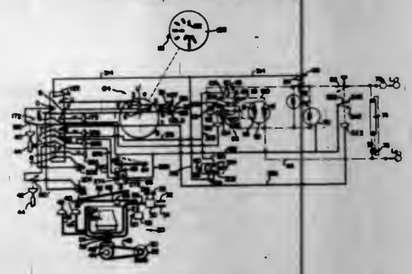
has greatly elongated reaches vertically of the interior of the chamber, means for introducing superheated steam containing a small amount of moisture into said chamber, and means for maintaining a homogeneous superheated steam atmosphere within the chamber during the passage of the tubular fabric therethrough.

3,318,115
APPARATUS FOR CONTINUOUSLY LEADING TEXTILES INTO OR OUT OF A PRESSURE-TREATING CHAMBER
Seitaro Fujihashi, Kyoto, Japan, assignor to Kyoto Machinery Company, Ltd., Kyoto, Japan, a corporation of Japan
Filed Jan. 29, 1965, Ser. No. 429,058
Claims priority, application Japan, May 18, 1964, 39/38,346
1 Claim. (Cl. 68—5)



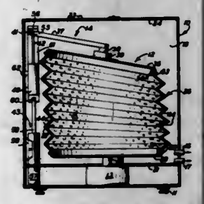
An apparatus for continuously leading textiles into and out of a pressure-treating chamber comprising a feeding roll device comprising two rolls pressed against each other and set in front of each of a textile inlet port and outlet port of a pressure-treating chamber, a fluid-tight tube of a truncated tapered cross-section made of a soft elastic substance and connected at the base end to each of the textile inlet port and outlet port, both side walls opposed to each other at the free end of said fluid-tight tube being pressed against the respective peripheral surfaces opposed to each other of both rolls of said feeding roll device by a fluid pressure in said pressure-treating chamber, and a fluid-tight ring made of a soft elastic substance and set in a pressure chamber provided at each end of each of said textile inlet port and outlet port and communicating with said pressure-treating chamber, said ring being pressed against the end surfaces of both rolls of said feeding roll device, so that a textile to be treated may be led into and out of said pressure-treating chamber through both rolls of each of said feeding roll devices, said fluid-tight tubes and said textile inlet port and outlet port.

3,318,116
HIGH AND LOW LEVEL SPEED CONTROL FOR AN AUTOMATIC WASHING MACHINE
Roy W. Houser, Orange, and John B. Jaksha, Anaheim, Calif., assignors to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware
Filed Oct. 24, 1965, Ser. No. 504,725
17 Claims. (Cl. 68—12)



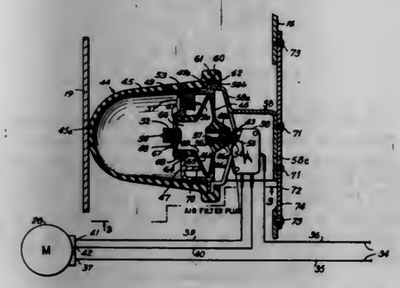
1. A combination to control an automatic washing machine having a non-rotatable tub, a centrifugal container in said tub, agitating means for said container, a machine motor and transmission means for driving said container and agitating means at high and low speeds, and liquid introducing means for said tub, comprising:
high and low speed controlling vacuum actuator means controlling said machine motor and transmission means to produce said high and low speeds;
liquid controlling vacuum actuator means controlling said liquid introducing means;
a vacuum distributing program means having vacuum transmitting line means connected to said vacuum actuator means;
upper water level valve means connected to said tub and controlling said liquid controlling vacuum actuator means and said vacuum distributing program means;
and lower water level valve means connected to said tub and controlling said high and low speed controlling vacuum actuator means.

3,318,117
WASHING MACHINE
Guillermo Solomon Padial, Apartado 13068, Madrid, Spain
Filed Jan. 8, 1965, Ser. No. 424,232
9 Claims. (Cl. 68—21)



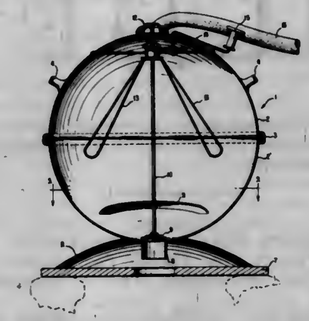
1. A washing machine comprising a housing, a flexible washing tub rotatably mounted within the housing and having a flexible, collapsible side wall and end retaining plates forming a clothes holding chamber, means for maintaining one of said end plates at an angle to the other plate during a portion at least of the cycle of operation of the machine, and means for rotating the tub while said one plate is so disposed.

3,318,118
DEVICE FOR EFFECTIVELY UTILIZING PHYSICAL FORCE APPLIED THERETO TO ACTUATE A CONTROL MEMBER
Kurt Leonart Ohlson, Farsta, Sweden, assignor to Aktiebolaget Electrolux, Stockholm, Sweden, a corporation of Sweden
Filed Nov. 12, 1965, Ser. No. 507,413
Claims priority, application Sweden, Nov. 13, 1964, 13,736/64
9 Claims. (Cl. 68—24)



1. A device of the character described for utilizing physical force applied thereto to actuate a control member, said device comprising:
first and second containers for air,
a partition,
said first container being disposed at one side of said partition and said second container being disposed at the other side of said partition,
said first container being in communication with said second container at a first apertured zone of said partition and said first container being in communication with the atmosphere at a second apertured zone of said partition which is outside of said second container,
first valve means at the first apertured zone,
first resilient means for biasing said first valve means to a closed position at said first apertured zone, said first resilient means functioning to move said first valve means to its closed position by a first biasing force which acts transversely of said partition toward said first container,
second valve means at the second apertured zone,
second resilient means for biasing said second valve means to its closed position at said second apertured zone, said second resilient means functioning to move said second valve means to its closed position by a second biasing force which acts transversely of said partition in a direction from said first container,
said second container having an opening establishing communication between the interior thereof and the atmosphere,
said first container including a first wall which is bendable and bodily movable inward responsive to physical force applied to its outer surface,
said first valve means moving from its closed position against the action of said first resilient biasing means responsive to inward bodily movement of said first wall to effect flow of air through said first apertured zone from said first container to said second container,
said second container including a second wall which is bendable and bodily movable outward responsive to flow of air thereto from said first container through said first apertured zone,
the region of said second container having said opening moving bodily outward responsive to the bodily outward movement of said second wall of said second container,
means at the vicinity of said opening which is adapted to actuate the control member responsive to bodily outward movement of said region of said second container,
and said second valve means moving from its closed position against the action of said second resilient biasing means responsive to outward bodily movement of said second container to flow air through said second apertured zone from the atmosphere to said first container.

3,318,119
DIAPER WASHER AND STORAGE RECEPTACLE
Robert W. Barks, Chadds Ford, Pa., assignor to Satellite Developing Corporation, a corporation of Delaware
Filed Aug. 2, 1963, Ser. No. 299,614
4 Claims. (Cl. 68—132)

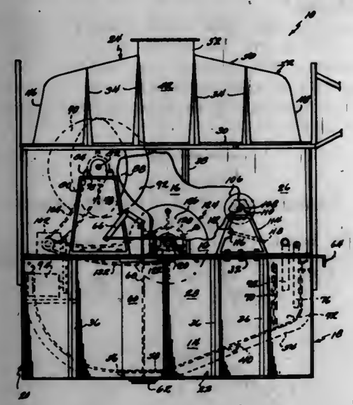


1. A diaper washer comprising:
(a) a spherical housing to contain the diapers during washing, having an opening through which to insert and remove the diapers, a water inlet opening, and a drain nozzle in the lower portion of said housing;
(b) rotating agitators extending into said housing in the upper portion thereof for scrubbing the diapers in and rinsing them with the water; and
(c) an upwardly convex drain plate installed in the bottom of the housing above said drain nozzle between said agitator and the bottom inner surface of said housing and having portions of its edge in spaced relation from the inner surface of said housing to form a discharge passage to said drain nozzle.

3,318,120
COMBINATION PADDLE BECK
Thomas E. Davis, Burlington, N.C., assignor to Burlington Engineering Sales Company, Inc., Graham, N.C., a corporation of North Carolina
Filed Nov. 6, 1964, Ser. No. 409,443
2 Claims. (Cl. 68—135)

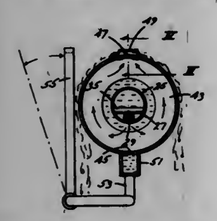
1. Apparatus for treating textiles comprising a vessel having a bottom wall, a rear wall, a forward wall and end walls adapted to contain a treating fluid, a first means to convey said textile in rope form through said liquid comprising a drive reel and an idler reel, said drive reel mounted on a drive reel shaft extending between said end walls and positioned between said end walls adjacent said rear wall, said idler reel positioned between said end walls adjacent said forward wall and a second means to convey said textile in batch form through said liquid comprising a paddle, said paddle mounted on a paddle shaft extending between said end walls and positioned between said end walls intermediate said drive reel and said idler reel and drive means to drive said first and second textile conveying means, said drive means including first clutch means connected to said drive reel shaft, second clutch means

connected to said paddle shaft and motor means operatively and selectively disengageably connected to said drive reel shaft and said paddle shaft through said first



and second clutch means to convert said apparatus from means to treat said textile in rope form to means to treat textile in batch form.

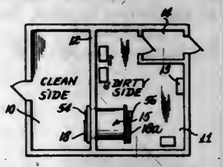
3,318,121
LIQUID TREATING APPARATUS
Horace P. Fry, Jr., West Chester, Pa., assignor to FMC Corporation, Philadelphia, Pa., a corporation of Delaware
Filed Apr. 7, 1965, Ser. No. 446,182
8 Claims. (Cl. 68—189)



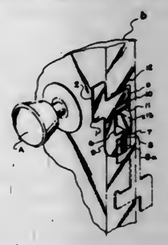
1. Apparatus for liquid treating annular yarn packages including a tubular enclosure for containing at least one annular yarn package, walls at the ends of said enclosure, a distributor extending longitudinally of said enclosure for discharging liquid into the central portions of yarn packages which are contained within said enclosure, means for supporting said enclosure with its longitudinal axis at an angle to a vertical plane, and an opening formed along the top of said enclosure for permitting liquid to drain therefrom.

3,318,122
CLEANSING APPARATUS FOR USE IN HOSPITALS
George N. Starr and Norvin L. Pellerin, New Orleans, La., assignors to Pellerin Milnor Corporation, New Orleans, La., a corporation of Louisiana
Continuation of application Ser. No. 387,083, Aug. 3, 1964. This application July 15, 1966, Ser. No. 565,672
14 Claims. (Cl. 68—210)

14. In combination with first and second enclosures, a partition separating one of said enclosures from the other, a laundry machine mounted in said partition and comprising a housing provided with two separate doors, one affording access to said machine from each side of said partition, and interlocking mechanism which prevents both doors from being open at the same time, the improved means for preventing the air in said second enclosure from being contaminated by air reaching it from said first enclosure which comprises a first passageway in said housing connecting the interior thereof with a source of air which is less contaminated than that in said first enclosure and a second passageway connecting the interior of said housing with said first enclosure, and pressure responsive valve means connected to open and close said passageways, said valve means being connected to open said first passageway only when the air pressure inside said housing is less than that at said air source, and to open said second passageway only when the air pressure inside said housing is greater than that in said first enclosure.



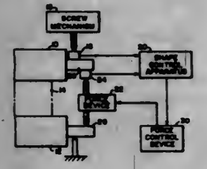
3,318,123
LOCK LATCH HOLDER
Anthony F. Piazza, 10016 Santa Anita Ave., Montclair, Calif. 91763
Filed Mar. 30, 1965, Ser. No. 443,877
1 Claim. (Cl. 70—447)



The combination of a door, a door lock having a latch bolt extending through an edge of said door, a transverse notch in a top portion of said bolt, and a lock latch holder, said holder comprising a thin flat member having a first end portion including longitudinally extending handle means and an adjacent member transverse to said handle means, a second end portion opposite said first end portion of said lock latch holder including means comprising an intermediate longitudinal slot, said holder adjustably secured to the edge of said door below said bolt by a screw extending through said slot to permit said first end portion to be adjustably rotated by movement of said handle means about the screw to a position above said bolt and then to be moved downward to engage said transverse member in the transverse notch in said lock bolt, said transverse member having lug means for laterally securing said latch holder in said notch.

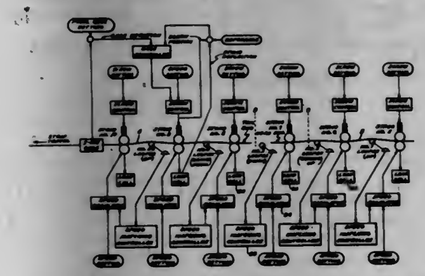
3,318,124
WORKPIECE SHAPE CONTROL
Richard G. Plaisted, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Dec. 10, 1964, Ser. No. 417,323
13 Claims. (Cl. 72—8)

1. In apparatus for controlling the shape of a workpiece strip passing between the rolls of a rolling mill, the combination of first force sensing means positioned relative to said rolling mill to sense a first force between said rolls operative with the center of said strip for providing a first control signal in accordance with said first force, second force sensing means positioned relative to said rolling mill to sense a second force between said rolls operative with one edge of said strip for providing a second control signal in accordance with said second force,



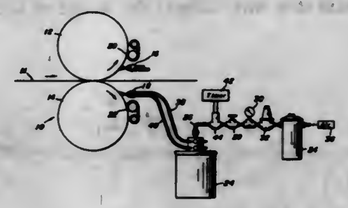
signal comparison means for providing a third signal in accordance with a predetermined relationship between said first signal and said second signal, and roll force control means responsive to said third signal for applying a workpiece strip shape correction force to said pair of rolls in accordance with said third signal.

3,318,125
LOOPER CONTROL SYSTEM AND METHOD OF OPERATING FOR ROLLING MILLS
Charles C. Pullen, Bethlehem, Pa., assignor, by mesne assignments, to Bethlehem Steel Corporation, a corporation of Delaware
Filed Dec. 18, 1964, Ser. No. 419,310
19 Claims. (Cl. 72—14)



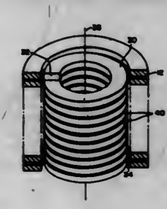
1. In a multi-stand rolling mill adapted to operate simultaneously on a work piece and having at least one looper positioned between two successive stands and adapted to control the speed of the next preceding stand, a control system for the looper comprising:
(a) means associated with a preceding stand for generating a first signal indicative of the presence of strip in the stand and a second signal indicative of the absence of strip in the stand,
(b) means associated with the next succeeding stand for generating a first signal indicative of the presence of strip in the stand and a second signal indicative of the absence of strip in the stand, and
(c) means for raising the looper in response to, and only to, the following signals from said signal generating means, viz.
(i) a signal from a preceding stand indicating the presence of strip therein,
(ii) a signal from the next succeeding stand indicating the absence of strip therein, and
(iii) a subsequent signal from said next succeeding stand indicating the presence of strip therein.

3,318,126
METHOD OF ROLLING STEEL STRIP MATERIAL
John H. Werthman, Leechburg, Pa., assignor to Allegheny Ludlum Steel Corporation, Brackenridge, Pa., a corporation of Pennsylvania
Filed Apr. 3, 1964, Ser. No. 357,148
12 Claims. (Cl. 72—39)



1. In the method of temper rolling a steel strip member in a rolling mill having a pair of roll members, the improvement which comprises, placing a volatile substance on the surface of at least one of said members, said substance being placed on at a location and in an amount such that it will have evaporated leaving only a tightly adherent, thin, invisible film at the bite of the rolls as the material is entering the mill, and thereafter temper rolling the steel strip whereby said film provides increased elongation without detrimentally marking the surface of the strip.

3,318,127
FORMING APPARATUS
John J. Astleford, Jr., Sharon, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Aug. 24, 1964, Ser. No. 391,597
8 Claims. (Cl. 72—56)

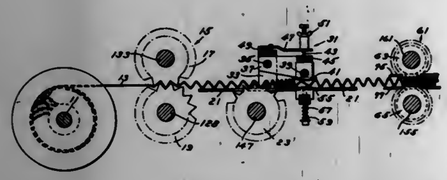


1. Magnetic forming apparatus for forming a metallic workpiece comprising first means for producing a current pulse having a predetermined magnitude and pulse time, an electric conductor shaped to provide a magnetic field having predetermined characteristics when current flows therethrough, second means for selectively connecting said electrical conductor with said first means, field shaping means disposed in inductive relation with said electrical conductor, said field shaping means having at least two continuous helical turns of electrically conductive material defining an aperture therein for receiving the metallic workpiece.

3,318,128
PLAITING
Eugene E. Rhodes, Belleville, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed Apr. 15, 1964, Ser. No. 359,986
8 Claims. (Cl. 72—187)

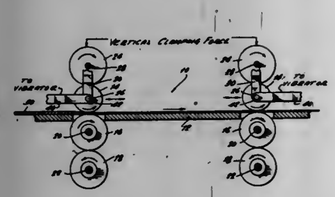
1. The method of plaiting a preformed strip of deformable sheet material having regularly spaced segments

separated by alternately reversed partial folds which comprises introducing said strip between a matched pair of counterrotating rolls each of which have a plurality of transversely extending lands of even profile equally spaced about their perimeters with adjacent lands of each of said rolls separated by transversely extending grooves of even profile, engaging alternate folds of said strip with lands of the first of said rolls, engaging alternate and opposite folds of said strip with lands of the second of said rolls,



impelling said strip with said lands of said first and second rolls between said rolls in a manner such that alternate folds of said strip are positioned within grooves of said first roll, opposing folds of said strip are positioned within grooves of said second roll, and the cooperative rotational action of said rolls effects additional closure of said folds, said rolls being spaced apart a distance sufficient to prevent significant deformation of said segments by opposing pressures from said rolls and to maintain the lands thereof out of interdigital relationship.

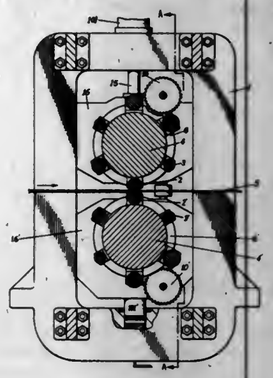
3,318,129
METHOD OF ULTRASONIC DRAWING OF SHEET METAL
Leo Gross, 36—11 217th St., Bayside, N.Y. 11361
Filed Mar. 29, 1965, Ser. No. 443,418
10 Claims. (Cl. 72—199)



1. A method of rolling metal comprising the steps of passing metal of a discrete thickness between rollers while simultaneously applying force to at least one of said rollers to compress said metal, and applying ultrasonic vibration to said metal while passing said metal between said rollers to reduce the thickness of said metal.

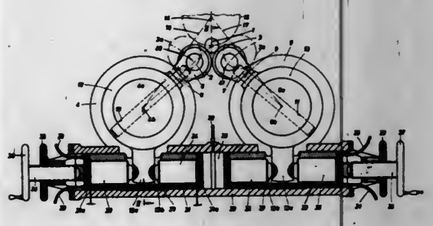
3,318,130
BACKED MILL WITH READILY EXCHANGEABLE WORKING ROLLS
Michael G. Sendzimir, % T. Sendzimir, Inc., P.O. Box 1350, Waterbury, Conn. 06720
Filed Jan. 11, 1965, Ser. No. 424,571
16 Claims. (Cl. 72—226)

1. A rolling mill structure with reducing means acting on both sides of the workpiece, at least one of said reducing means having rigid backing means and at least three comparatively slender working rolls distributed axially around the periphery of said backing means, said working rolls being rotatably mounted at their necks in such manner that each of said working rolls may be selectively brought into contact with the workpiece and



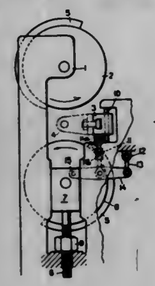
held in a position to cooperate with the said other reducing means in reducing said workpiece.

3,318,131
MULTIPLE-ROLL ROLLING MILL FOR EXCHANGEABLE WORK ROLLS OF SUBSTANTIALLY VARYING DIAMETER
Karl Josef Neumann, St. Ingbert, Saar, Germany, assignor to Verwaltungsgesellschaft Moeller & Neumann offene Handelsgesellschaft, St. Ingbert, Saar, Germany
Filed Nov. 2, 1964, Ser. No. 408,427
Claims priority, application Germany, Oct. 31, 1963, V 24,787
5 Claims. (Cl. 72—243)



1. Multiple-roll rolling mill including two sets of rolls on both sides of the rolling gap; each roll set comprising a work roll of small diameter, two driven, horizontally spaced intermediate rolls engaging said work roll and two horizontally spaced backing rolls arranged at a fixed distance from one another for engaging each one of said two intermediate rolls; said intermediate rolls being supported in chocks carried on guide means mounted for adjustment radially of the axial center lines of said backing rolls, said guide means including pivot elements movable about the axial center lines of said backing rolls; a diplacement device for moving said pivot elements both symmetrically to change the horizontal distance of said intermediate rolls from each other for adapting said distance to the actual working roll diameter, and in the same pivot direction to set the axial center lines of said intermediate rolls unsymmetrically and out of alignment with the connection lines between the axial center of the working roll and the backing rolls to absorb the components force resulting from the rolling pressure, the driving rotation moment and the strip tension, taken up by said pivot elements.

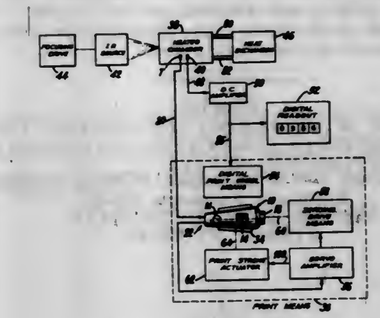
3,318,132
CARRIER FOR AUXILIARY DEVICES ON A CROSS ROLLING MILL
Jiří Holub, Prague, Czechoslovakia, assignor to Šmeralovy závody, národní podnik, Brno, Czechoslovakia
Filed June 30, 1964, Ser. No. 379,126
Claims priority, application Czechoslovakia, July 6, 1963, 3,920/63
11 Claims. (Cl. 72—250)



1. In a rolling mill, in combination:
(a) a mill stand;
(b) two rolls mounted on said stand for rotation about axes extending in a common direction;
(c) adjusting means for moving one of said rolls relative to the other roll in a direction transverse of said common direction;
(d) a carrier;
(e) guide means on said stand and engaging said carrier for guiding movement of the same in said transverse direction; and
(f) motion transmitting means interposed between said one roll and said carrier for moving said carrier a first distance in said transverse direction when said one roll moves a second distance in said transverse direction, said first distance being smaller than and a predetermined fraction of said second distance.

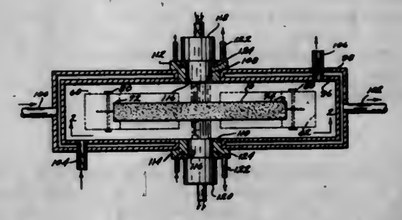
3,318,133
APPARATUS FOR CALIBRATING THERMISTOR THERMOMETERS
Steven Hahn, New York, N.Y., assignor, by mesne assignments, to Round Hill Associates, Inc., New York, N.Y., a corporation of New York
Filed Aug. 27, 1964, Ser. No. 392,507
6 Claims. (Cl. 73—1)

1. Apparatus for calibrating a thermistor thermometer which includes a movable scale adapted to have indicia recorded thereon, and a null indicating circuit for transmitting a signal except when a null is indicated, including a mechanically adjustable means connected to said scale for adjusting a parameter of said circuit to indicate a null, and a thermistor, said apparatus comprising a heat chamber, said thermistor being positionable in said heat chamber, a thermoelectric element in said heat chamber for generating a signal having a characteristic representing the temperature of said heat chamber, means for supporting said thermometer, indicia printing means operatively positioned with respect to said thermometer when the latter is supported by said supporting means, said indicia printing means including means responsive to the characteristic of the signal generated by said thermoelectric means for positioning printing indicia representing the temperature of said heat chamber opposite said movable



scale and electromechanical means mechanically connected to said mechanically adjustable means and responsive to signals from said null indicating circuit for adjusting said mechanically adjustable means to minimize the signal from said null indicating circuit.

3,318,134
THERMAL INSTRUMENT CALIBRATION SYSTEM
Frederick C. Stempel, Brea, and Raymond A. Whitmore, La Habra, Calif., assignors to Hy-Cal Engineering, Santa Fe Springs, Calif., a corporation of California
Filed Sept. 30, 1964, Ser. No. 400,474
14 Claims. (Cl. 73—1)



1. A calorimeter calibration system comprising:
thermally radiating panel means having a pair of oppositely disposed radiating surfaces;
thermal radiation control means coupled to said radiating panel means for controlling its radiant heat flux rate over a predetermined range of B.t.u.'s per square foot per second and further including:
a source of alternating current electric energy,
a step-down transformer having primary and secondary windings,
an ignitron phase control electric energy flow control network interconnected between said source and said primary winding,
a pair of high current capacity electrodes connected to said secondary winding, and
means for securing said electrodes in high current capacity relationship to respective ones of said electrode engaging surfaces of said radiating block,
mounting means disposed contiguously to each of said radiating surfaces for holding in a precisely re-

peatably replaceable position with respect thereto, a radiant thermal energy transducer in incident energy sensing exposure relationship toward each of said radiating surfaces; and

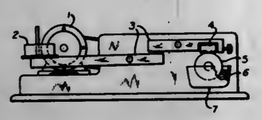
longitudinally movable electrode supporting means for holding said electrode securely against any lateral displacement while permitting longitudinal expansion of said radiating block.

3,318,135

METHOD OF MEASURING THE DYNAMIC CORROSIVENESS OF LUBRICATING MATERIALS IN LIQUID FORM FOR METALS

Sohei Tamaki, 7–51 Kodan Jutaku, 73 Shinohara-machi, Kohoku-ku, Yokohama, Japan

Filed June 26, 1964, Ser. No. 378,122
6 Claims. (Cl. 73—10)



1. A method for determining the corrosive wear property of liquid lubricating materials comprising the steps of

selecting a corrosive sensitive metal test piece from the group consisting of copper and corrosive sensitive non-ferrous metals and alloys,

selecting a metal member relatively harder than said test piece,

movingly contacting said test piece with said metal member and continuously lubricating the contacting surfaces thereof with a liquid lubricating material thereby producing a wear scar on said test piece,

simultaneously applying to said contacting surfaces of said movingly contacting test piece and metal member pressure of a magnitude such that frictional wear is negligible in comparison to corrosive wear, and

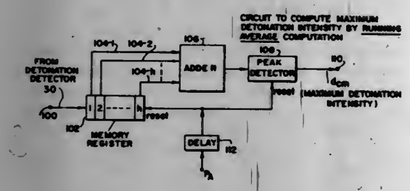
measuring said scar.

3,318,136

METHOD AND APPARATUS FOR TESTING FUELS

John W. Payne, Woodbury, Harry R. Weber, Haddonfield, and William E. Beal, Glassboro, N.J., assignors to Mobil Oil Corporation, a corporation of New York

Filed June 9, 1964, Ser. No. 373,620
14 Claims. (Cl. 73—35)



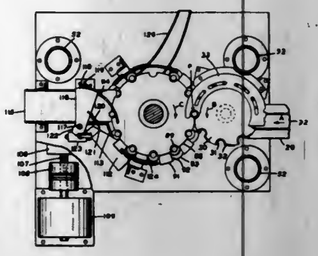
1. In a system for detecting the combustion quality of a fuel under test, wherein the fuel is used in a combustible mixture to power a test engine having a repetitive operating cycle, the combination of regulating means for varying the proportion of fuel in the combustible mixture so that it passes through the proportion producing maximum intensity detonation in the engine, means for generating a detonation signal during each operating cycle representative of the intensity of detonation during the cycle, means for storing as a discrete signal the detonation signal for each operating cycle, means for generating signals which are a function of said stored discrete signals, and means for generating a signal representative of the peak value of said function, which indicates the maximum intensity of detonation of the combustible mixture in the engine.

3,318,137

ROTARY INSPECTION APPARATUS

John Lester Denlinger and Thomas E. Smith, both of Lancaster County, Pa., assignors to Armstrong Cork Company, Lancaster, Pa., a corporation of Pennsylvania

Filed Feb. 8, 1965, Ser. No. 430,887
12 Claims. (Cl. 73—45.3)



1. Inspection apparatus comprising rotary support means, at least one inspection head means supported by said rotary support means, said head means including body means, said body means having at least one article-receiving portion for receiving an article to be inspected, sleeve means surrounding said body means, bias means associated with said sleeve means, follower means on said sleeve means, cam means to actuate said follower means on said sleeve means, article support means supported below said head means by said rotary support means, means to supply at least one article to be inspected to said article support means, means to rotate said rotary support means about a given axis, said rotary support means supporting said article support means and said head means co-axially and parallel to but spaced from said given axis for rotation thereabout, means to move said article support means toward said head means to position said article in an inspection position with respect to said head means, means to apply a reduced pressure in an area between said head means and said article to be inspected, means to move said support means away from said head means, said rotary support means including means to receive rejected articles from said head means and said article support means, means to discharge a rejected article from said receiving means, and means to discharge an acceptable article.

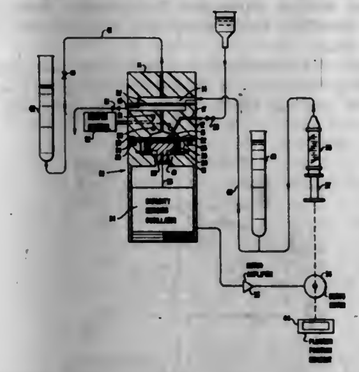
3,318,138

OSMOMETER FOR USE WITH AQUEOUS SOLUTIONS

Francis B. Rolfson, San Pablo, Calif., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

Filed Feb. 1, 1965, Ser. No. 429,541
6 Claims. (Cl. 73—64.3)

6. In an osmometer for the determination of the osmotic pressure of aqueous solutions, wherein said osmometer comprises a cell having a pair of chambers separated by a semi-permeable membrane, and means for determining the pressure in one of said chambers; and wherein one of said chambers contains the aqueous solution whose osmotic pressure is to be determined and said other chamber contains the solvent for said solution, the improvement comprising: constructing said cell from a plastic material having substantially the same volume expansion with temperature as that of water.

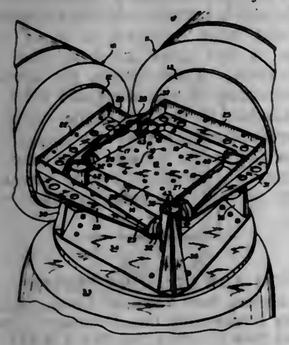


3,318,139

MULTI-DEGREE-OF-FREEDOM FORCE TRANSMITTING STRUCTURE

Richard F. Crook, East Haven, Conn., assignor to Textron Electronics, Inc., Providence, R.I., a corporation of Delaware

Filed Sept. 15, 1964, Ser. No. 396,618
6 Claims. (Cl. 73—71.6)



1. Apparatus for coupling a specimen to a plurality of vibration exciters whose excitation axes are related orthogonally comprising:

an auxiliary table for mounting the specimen,

at least two groups of two or more structural beam members, the members within a group being parallel and disposed around said auxiliary table, the longitudinal axes of the members in any group being related orthogonally to the longitudinal axes of the members in any other group,

means for coupling each group of said beam members to a different vibration exciter for excitation along their respective longitudinal axes,

and a separate thin walled cylinder sandwiched between each of said beam members and said auxiliary table, the axis of each of said cylinders being parallel to the longitudinal axis of the adjacent beam member, said cylinders being joined to both the auxiliary table and the corresponding beam member along the elements of the cylinder in contact therewith, the material and construction of said cylinders being such that each cylinder behaves as a rigid body for communicating movement between the beam member joined thereto and the auxiliary table for all movement in the direction of the cylinder axis, and behaves as a highly compliant flexible body in response to relative movement between the auxiliary table and the corresponding beam member in all other directions.

3,318,140

DEVICE FOR MEASURING GROUND WATER PRESSURE

Donald Shields, 41 Strath Ave., Toronto, Ontario, Canada, and Kenneth Peaker, 27 Bratty Road, Downsview, Ontario, Canada

Filed Feb. 23, 1965, Ser. No. 434,429
5 Claims. (Cl. 73—73)



1. A ground water pressure measuring device for installation in the ground in direct contact therewith comprising a container having closures at each end and a resilient water-permeable porous sidewall formed of sintered plastic material having a pore size below about 50 microns, an inert filling of uniformly sized granular material in the container for supporting the sidewall thereof, and a flexible tube fixed in one end closure for transmitting pressure from the interior of the container to pressure measuring means when the container has been installed in the ground.

3,318,141

STOCKING STRETCHING TEST DEVICE

Merrill J. Woodfin, Morristown, Tenn., assignor to Sport-Wear Hosiery Mills, Inc., Etowah, Tenn., a corporation of Tennessee

Filed Apr. 24, 1964, Ser. No. 362,327
4 Claims. (Cl. 73—95)

1. a device for determining and indicating the stretch or elasticity of fabric stockings having a heel portion intermediate a foot portion and a leg portion terminating respectively in a toe end and a cuff end, said device comprising:

an elongated support means having upper and lower ends;

base means;

said support means being coupled at its lower end with said base means;

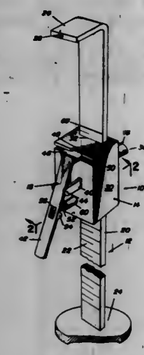
said support means including an angularly offset portion at its upper end;

said support means, between said base means and said angularly offset portion, extending in substantially vertical disposition and having a non-circular cross-sectional configuration,

a hooked needle fixed to said angularly offset portion to enable a stocking to be mounted by its heel portion;

carriage means including a weighted body having a non-circular bore extending therethrough at least

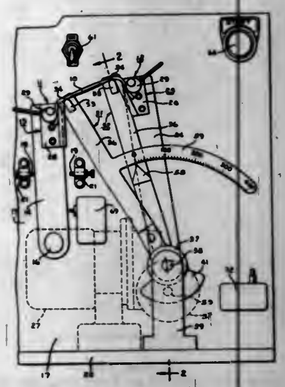
substantially corresponding to the cross-sectional configuration of said support means;
said support means extending through said carriage means bore to enable said carriage means to slide along said support means between said base means and said angularly offset portion;
locking means for fixedly securing said carriage means to said support means in a selected spaced relation to said angularly offset portion generally corresponding in length to the length of either the foot portion or the leg portion of the stocking;



clamp means mounted upon said carriage means in generally vertical alignment with said hooked needle for releasably engaging the toe end or the cuff end of the stocking;
said locking means being releasable to permit said carriage means to slide downwardly on said support means under the influence of gravity acting on said weighted body after the selected end of the stocking has been engaged by said clamping means;
and indicia means on said support means to indicate the amount of stretch or elasticity in the portion of the stocking being tested by the final position of said carriage means on said support means.

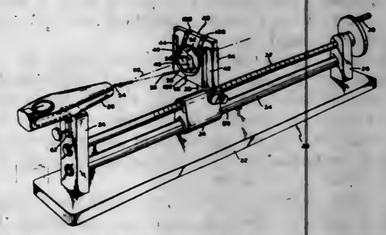
3,318,142
DEVICE FOR DETERMINING THE ELONGATION CHARACTERISTICS OF ELONGATED ARTICLES
John H. Shoemaker, Dannebrog, Nebr., assignor to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York
Filed Feb. 10, 1964, Ser. No. 343,764
5 Claims. (Cl. 73—95)

1. A device for elongating an elongated article to its breaking point for determining the elongation characteristics of the article, which comprises:
first and second movable clamping mechanism for clamping the article at longitudinally spaced points thereon;
first and second index members movable relative to one another and to said clamping mechanisms, said index members being firmly engageable with longitudinally spaced portions of the article intermediate the portions of the article clamped in said clamping mechanisms in a manner such as to prevent slippage of the article longitudinally relative to said index members during the elongation of the article, said first clamping mechanism being movable relative to said second clamping mechanism to elongate the article to its breaking point, and said second clamping mechanism and said index members being movable by the article in the same direction as said first clamping mechanism;
releasable means for connecting said index members to one another for movement as a unit and so as to prevent relative movement therebetween, with said index members being positioned a preselected distance apart;
stop means for limiting the movement of said second clamping mechanism with said first clamping mechanism so that the article begins to elongate; and



means responsive to the movement of said second clamping mechanism with said first clamping mechanism just prior to the cessation of the movement of said second clamping mechanism by said stop means, for releasing said releasable connecting means so that the subsequent elongation of the portion of the article between said index members causes one of said index members to move relative to the other of said index members, and responsive to the breaking of the article, for operating said connecting means to reconnect said index members to one another to prevent further relative movement therebetween, whereby the elongation of the portion of the article between said index members readily can be determined by the amount of the movement of said one index member relative to the other.

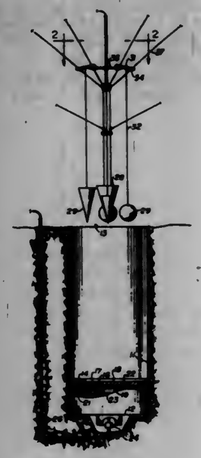
3,318,143
PULL-TAB CLOSURE TESTER
Thomas F. Helms, New Fairfield, Conn., assignor to Country Engineering Inc., Danbury, Conn.
Filed June 12, 1964, Ser. No. 374,631
6 Claims. (Cl. 73—96)



2. A force-indicating testing device for determining the forces required to tear away a removable tear-out segment of a container, comprising in combination:
(A) elongated support means,
(B) an elongated feed screw rotatably mounted on the support means,
(C) elongated guide means mounted on the support means and extending parallel to the rotatable feed screw,

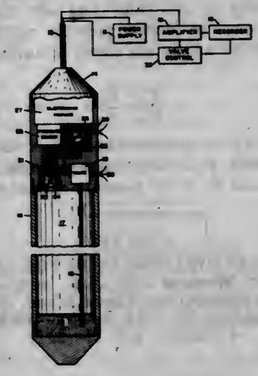
(D) a traversing carriage movable along the guide means and disengageably and drivingly engaged with the feed screw,
(E) a force-indicator mounted on the support means,
(F) a testing jig assembly secured to the traversing carriage and aligned to hold and present a container component to be tested with its removable tear-out segment facing the force-indicator, incorporating means forming an open-sided aperture having an edge spaced to overlap the rim of a container component to expose a tear-out segment for testing,
(G) and force-transmitting means connecting the tear-out segment to the force-indicator,
whereby rotation of the feed screw drives the carriage away from the force-indicator, applying tear-out force to tear away the tear-out segment, the amount of which force is continuously indicated by the force-indicator.

3,318,144
SUPERSONIC TEST FACILITY
Russell E. Duff, Livermore, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Aug. 7, 1964, Ser. No. 388,335
3 Claims. (Cl. 73—147)



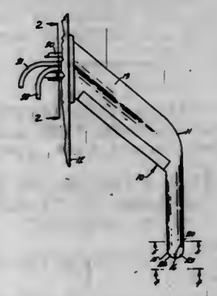
1. A supersonic test facility for testing the reaction of test objects to a relatively long duration supersonic flow of the order of one millisecond comprising,
(a) a reinforced cavity of predetermined dimensions having one open end and one closed end,
(b) an assembly including high explosive disposed across said closed end of said cavity, said high explosive having a preselected uniform thickness,
(c) means for uniformly detonating said explosive across a transverse plane therein for generating a substantially planar supersonic detonation product flow, said detonating means and said explosive thickness selected together such that, on detonation of said explosive, a planar profile of said detonation product flow having a high pressure supersonic flow of the order of at least a millisecond duration is achieved at the open end of said cavity, and
(d) means for positioning at least one object test in proximity to said open end of said cavity to be coincident with said preselected planar profile of said detonation product flow.

3,318,145
APPARATUS FOR MEASURING DIFFERENTIAL PRESSURES
Ralph D. Lynn and Robert A. Kirby, Tulsa, Okla., assignors, by mesne assignments, to Esso Production Research Company, Houston, Tex., a corporation of Delaware
Filed Nov. 12, 1964, Ser. No. 410,568
3 Claims. (Cl. 73—152)



1. A system for measuring small pressure changes at high absolute pressures which comprises a housing member enclosing a reference pressure chamber, said housing having first and second passageways therein leading from said chamber to the exterior of said housing, a differential pressure transducer mounted within said first passageway for detecting and measuring any differences in pressure between said reference pressure chamber and the exterior of said housing, valve means within said second passageway, means for amplifying and recording the output of said transducer, means for opening said valve whenever the output from said transducer reaches a predetermined maximum, and means for closing said valve when the output from said transducer returns to zero.

3,318,146
PRESSURE SENSING INSTRUMENT FOR AIRCRAFT
Richard V. De Leo, Hopkins, and Floyd W. Hagen, Minneapolis, Minn., assignors to Rosemount Engineering Company, Minneapolis, Minn., a corporation of Minnesota
Filed Feb. 14, 1966, Ser. No. 534,274
13 Claims. (Cl. 73—180)



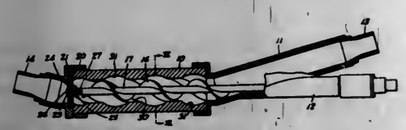
1. A sensing instrument for sensing the angular position of an axis of an object moving relative to a fluid medium with respect to a first plane, said object having a leading

end exposed to the fluid medium, a first pair of pressure sensing ports on the object and facing in upstream direction, said first pair of ports having their axes lying in a second plane at right angles to said first plane and disposed at predetermined angles with respect to the axis of said object, a second pair of pressure sensing ports having their axes lying in said first plane, the axes of said second pair of ports being disposed at predetermined angles with respect to the axis of said object, a single pressure port having an axis coinciding with the axis of the object, and means to receive pressure signals from said ports and provide a separate signal according to the formula

$$\frac{P_1-P_2}{P_T-P_4}$$

where P_1 and P_2 are pressures at each of the first pair of ports respectively, P_4 is the average pressure at the second pair of ports and P_T is the pressure at said single port.

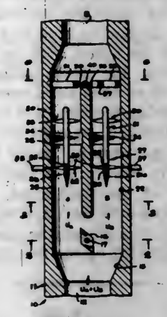
3,318,147
RATE OF FLOW INDICATOR FOR MORTAR
John T. Barton, Montour Falls, N.Y., assignor to Perkins Pipe Linings, Inc., Grand Island, N.Y.
Filed Sept. 29, 1964, Ser. No. 400,039
4 Claims. (Cl. 73—231)



1. Apparatus for measuring the flow of plastic mortar comprising a cylindrical flow tube through which the mortar passes, a screw member mounted coaxially in said flow tube for variable rotation by and in proportion to the flow of mortar through said tube, said tube having and internal bore only slightly larger than the outside diameter of said screw to defined therewith a cylindrical shear surface, said bore having generally longitudinal channel means formed in its internal peripheral surface and extending obliquely with respect to the direction of extent of the convolutions of said screw, means supplying mortar to said flow tube under pressure whereby mortar substantially fills said channel means and the convolutions of said screw so that the mortar in said channel and in said screw convolutions is subject to shear along said cylindrical shear surface to retard movement of mortar in said screw convolutions in an angular direction and thus tend to cause substantially all of the mortar passed by said apparatus to flow through said screw convolutions in an axial direction to rotate the screw in proportion to the rate of flow of mortar therethrough.

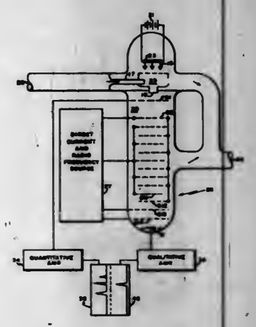
3,318,148
MASS FLOWMETER
Frederick F. Liu, Northridge, Calif., assignor to Quantum Dynamics, Inc., Tarzana, Calif., a corporation of California
Filed June 7, 1965, Ser. No. 461,646
14 Claims. (Cl. 73—231)

1. A mass flowmeter comprising:
a fluid passage;
partition means for dividing said passage into two separate channels;
regulating means upstream of said partition means for providing different flow velocities in said two channels;
means for measuring a first quantity proportional to the differential flow velocity in said channels;
means for measuring a second quantity proportional to the differential fluid force in said channels; and



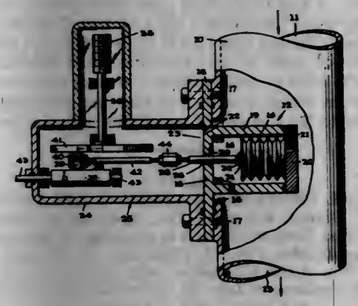
means for dividing said first quantity by said second quantity to obtain a quotient proportional to mass flowrate through said passage.

3,318,149
GAS CHROMATOGRAPHY SYSTEM
Peter F. Varadi, 1435 Bedford St., Stamford, Conn. 06905
Continuation of application Ser. No. 184,881, Apr. 3, 1962. This application Sept. 30, 1965, Ser. No. 498,191
3 Claims. (Cl. 73—23.1)



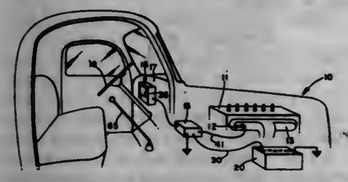
3. In a gas chromatograph having a capillary separation column for a carrier gas containing sample components, a mass spectrograph quantitative and qualitative analyzer comprising:
(A) an evacuated ionization chamber connected to receive the entire output of the capillary separation column, said chamber comprising electron accelerating means, the energy of the electrons accelerated thereby being less than the ionization potential of said carrier gas but sufficiently high to ionize said sample components;
(B) tunable mass separation means for separating by species a first portion of the ions from said ionization chamber;
(C) a qualitative detector electrode for detecting each of said species;
(D) a quantitative electrode for receiving a second portion of the ions from said ionization chamber before separation and for detecting the overall quantity thereof; and
(E) pump means connected to exhaust the un-ionized carrier gas from said ionization chamber.

3,318,150
VOLUME CORRECTING INTEGRATOR FOR FLUID METERS
Willis E. Rose, Connersville, Ind., assignor to Dresser Industries, Inc., Dallas, Tex., a corporation of Delaware
Filed Oct. 12, 1964, Ser. No. 403,081
9 Claims. (Cl. 73—233)



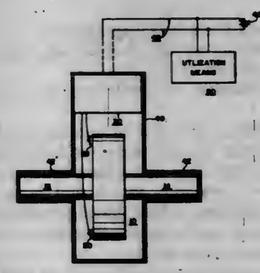
1. A volume correcting integrator for fluid meters comprising a variable ratio integrating mechanism having an input directly proportional to the volumetric flow of the flowing fluid being metered at the existing pressure and temperature thereof and an output indicative of said volumetric flow corrected to a standard base pressure and temperature, a sealed flexible container for confining a sample of fluid of the same composition as the flowing fluid, said flexible container being fixedly supported at one end and having its other end free to move in response to variations in the volume of the contained fluid due to variations in the pressure and temperature thereof, means forming an environmental chamber in which said flexible container is supported, means defining an opening in said chamber for normally admitting some of the flowing fluid to the interior of said chamber so as to subject said flexible container to a temperature and an external pressure substantially equal to those of the flowing fluid, means connected to the free end of said flexible container for varying the ratio between the input and the output of said integrating mechanism, and means connected to the free end of said flexible container for closing said chamber opening to prevent access of the flowing fluid to said chamber when the pressure in said chamber falls below a predetermined range.

3,318,151
AUTOMATIC TEMPERATURE RECORDER FOR VEHICLE EXHAUST MANIFOLD AND METHOD OF USING SAME
Jack B. Behrendt, 2113 Trudie Drive, San Pedro, Calif. 90732; Charles L. Hess, 3307 W. 116th St., Inglewood, Calif. 90303, and Henry R. Bergquist, Los Alimitos, Calif.; said Bergquist assignor to said Behrendt and said Hess
Filed Feb. 27, 1961, Ser. No. 91,755
6 Claims. (Cl. 73—346)



4. That method of monitoring and policing the driving habits of cross-country cargo vehicle drivers to obtain efficient use of the vehicle equipment without risk of abusive use of the equipment on hilly and mountainous terrain, said equipment being of the type employing multiple stage gear transmission system having numerous forward drive gear ratios, said method comprising, continuously electrically sensing the exhaust manifold temperature so long as the engine is opearting, graphically recording the temperature readings on a calibrated chart while said chart is traveling at a predetermined rate, displaying the current chart readings to the driver in readily readable form while he is engaged in driving, and utilizing the displayed temperature recordings as a guide in shifting gear ratios to maintain maximum vehicle speed with the engine operating at a substantially constant optimum power output speed but without allowing the observed engine exhaust manifold temperature to exceed a predetermined safe value, and removing the portion of the temperature chart at the end of a given trip for review to establish that the trip was made in accordance with prescribed operating conditions governing the use of the vehicle.

3,318,152
TEMPERATURE SENSOR
John H. Thompson, Pittsburgh, Dale D. Skinner, Turtle Creek, Robert H. Whittaker, Franklin, and Fred G. Gell, Verona, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed July 16, 1963, Ser. No. 295,393
7 Claims. (Cl. 73—362.8)

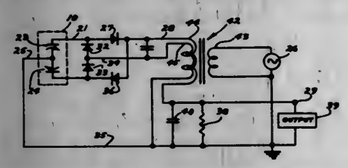


1. A temperature sensor comprising:
a high heat conductive flexural mode disk resonator capable of oscillation at a predetermined frequency and having a frequency temperature coefficient such that said predetermined frequency changes with the change in temperature; and
high heat conductive support means integral with and forming a substantially lossless bond with said resonator.

3,318,153
DIODE LOOP CAPACITOR COMPARATIVE CIRCUIT INCLUDING A PAIR OF TRANSFORMER WINDINGS COUPLED IN PHASE
Tenny Lode, Madison, Wis., assignor to Rosemount Engineering Company, Minneapolis, Minn., a corporation of Minnesota
Original application Dec. 4, 1962, Ser. No. 242,166, now Patent No. 3,271,669, dated Sept. 6, 1966. Divided and this application May 16, 1966, Ser. No. 550,548
10 Claims. (Cl. 73—398)

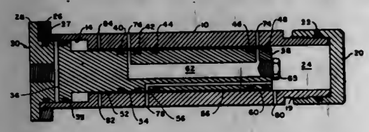
9. Measurement circuitry comprising an electrical bridge having four rectifying arms connected for conduction in the same direction in a closed series loop and a pair of input junctions across one diagonal and a pair of output junctions across the other diagonal, a pair of series connected capacitors which are variable relative to each other connected across said input junctions and

having a terminal between said capacitors, a pair of transformer windings coupled in phase between said terminal and said output junctions respectively, means to energize



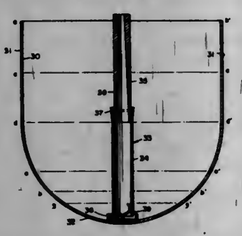
said transformer windings and a resistive load output connected in series between said terminal and one of said transformer windings.

3,318,154
SAMPLING APPARATUS
John F. Rendina, Wilmington, Del., assignor, by mesne assignments, to Hewlett-Packard Company, Palo Alto, Calif., a corporation of California
Filed Feb. 26, 1965, Ser. No. 435,578
7 Claims. (Cl. 73—422)



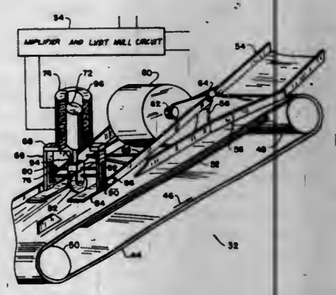
1. A fluid sampling device comprising:
a housing having an axially extending bore,
a piston in said bore,
a sample chamber of predetermined volume in said piston,
means forming a plurality of annular conduits between the periphery of said piston and said housing,
means for displacing said piston axially between first and second positions within said bore,
means for applying a fluid under pressure to the outermost ones of said conduits thereby to reduce leakage into said sampling device,
and means including radial conduits in said housing that are connectable with at least two fluid streams and radial conduits in said piston for interconnecting said sample chamber alternatively in first and second fluid streams corresponding to said first and second piston positions.

3,318,155
SAMPLING OF LIQUIDS WITH STRATA OF VARYING COMPOSITION
Julius Theodore Johnson, 348 20th St. SE., Cedar Rapids, Iowa 52403
Filed Aug. 14, 1964, Ser. No. 389,748
11 Claims. (Cl. 73—425.4)



1. A method for sampling a liquid body with horizontal strata of varying composition, which strata at various depths vary in cross-sectional area, said method comprising slowly lowering a sampling tube having a varying free cross-sectional area from the upper level of said liquid substantially to the bottom thereof, drawing liquid sample into said tube from the liquid body as it is lowered therethrough only through a passage of constant effective area at the lower portion of said tube while maintaining the liquid level in said tube substantially even with the upper liquid level of said liquid body, and maintaining throughout the sampling operation a ratio of free cross-sectional area in said sampling tube at said liquid level to maximum cross-sectional area in said sampling tube substantially equal to the ratio of cross-sectional area of the particular stratum from which sample is drawn into the lower end of the tube to the stratum of maximum cross-section.

3,318,156
PHYSICAL PROPERTIES TESTING APPARATUS
Harry W. Dietert, Kerrville, Tex., assignor to Harry W. Dietert Co., Detroit, Mich., a corporation of Michigan
Original application Feb. 18, 1963, Ser. No. 259,069, now Patent No. 3,168,926, dated Feb. 9, 1965. Divided and this application July 30, 1964, Ser. No. 386,351
6 Claims. (Cl. 73—432)

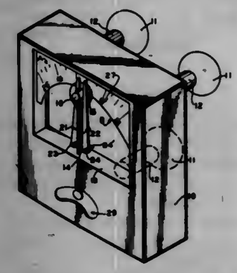


1. Physical properties testing apparatus comprising means for providing a substantially uniform sample of granular material including a moving endless belt on which a sample of granular material is deposited, guiding sides and a strike off plate positioned over the belt to permit passing thereby of only a uniform cross section of the sample of granular material, means for substantially uniformly compacting the uniform sample of granular material, a sled supported for movement over the top of the compacted uniform sample of granular material, means supported by and movable with respect to the sled for producing movement relative thereto proportional to the physical properties of the compacted sample of granular material, and means for producing an electrical signal proportionate to said relative movement.

3,318,157
ACCELERATION-DECELERATION INDICATOR
Iben Browning, Sunnyvale, and Edward R. Strand, Santa Clara, Calif., assignors, by mesne assignments, to Edward R. Strand
Filed Nov. 17, 1964, Ser. No. 411,814
1 Claim. (Cl. 73—492)

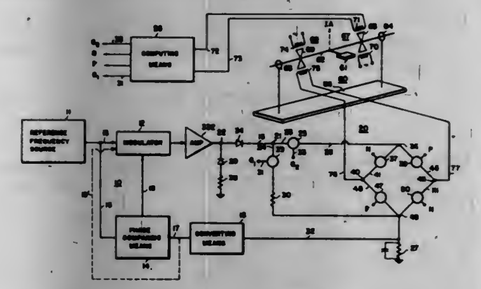
Apparatus for testing acceleration and braking of a vehicle comprising: a housing; a leaf spring member; means for supporting the lower end of said spring member in said housing; a weight member; means for connecting the upper end of said spring means to said weight member for permitting said weight to be moved in variable accordance with acceleration and deceleration forces applied to said housing; a pair of indicating arms located on opposite sides of said weight member; means for rotatably supporting said indicating arms within said housing whereby said arms are displaced in response to forces

applied to said weight member and remain in their displaced position when said forces are relieved; an auxiliary leaf spring member, means for mounting the lower end of said auxiliary leaf spring member immediately adjacent the lower end of said first spring member with said auxiliary leaf spring member lying adjacent said first spring member along its entire length for providing a greater resistance to forces applied to said weight means on one side of said spring member; a scale associated with said indicating arms and provided with indicia for



indicating the displacement of each of said arms during movement of said weight under acceleration or deceleration forces and thereby the magnitude of the acceleration and deceleration forces whereby during acceleration or deceleration, the arms are moved to positions associated with said indicia for indicating the forces applied during a test and said arms remain in said displaced position when said forces are relieved, a spirit level for indicating a position for said housing with said first and said auxiliary spring members positioned vertically therein.

3,318,158
CONSTANT ENERGY PULSE GENERATING APPARATUS
Gayle C. Bromander, New Brighton, Minn., and Howard E. Jones, Largo, Fla., assignors to Honeywell Inc., a corporation of Delaware
Filed Aug. 30, 1963, Ser. No. 305,635
12 Claims. (Cl. 73—517)



6. A pulse rebalance system comprising:
(a) an inertial sensor having force rebalance means;
(b) a reference frequency source providing an output signal;
(c) converting means providing an output signal having a frequency which varies in accordance with the magnitude of a signal applied thereto;
(d) a phase comparing means connected to receive said output signal from said reference frequency source and said signal from said converting means, and providing an output which is indicative of the phase therebetween;
(e) a modulator connected to receive said output from said phase comparing means and said output signal from said reference frequency source, said modulator providing output pulses having substantially constant energy as controlled by said output from said phase comparing means and varying at the frequency of said signals from said reference frequency source;
(f) means connecting said output pulses from said modulator to said force rebalance means in said inertial sensor in a manner to cause said force rebalance means to rebalance said inertial sensor;
(g) filtering means connected to receive pulses from said modulator indicative of the energy applied to said force rebalance means and providing an output signal indicative of the average energy in said pulses applied to said force rebalance means; and
(h) means connecting said output signal of said filtering means to said converting means.

3,318,159
TIMED ACTUATING DEVICE FOR AEROSOL DISPENSER
Edward Cielaszyk, Oglesby, Ill., assignor to General Time Corporation, New York, N.Y., a corporation of Delaware
Filed Sept. 13, 1965, Ser. No. 486,926
10 Claims. (Cl. 74—3.52)

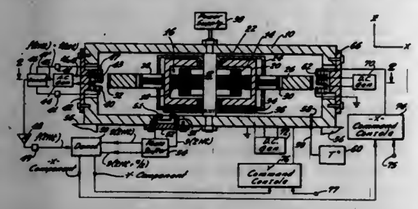


1. In a timing device for periodically and automatically causing operation of a valve to effect an aerosol spray, the combination of:
an actuating element adapted for rotation in a first and a second direction and rotatable in intermittent steps in said first direction for a timed duration,
a timed driven member for intermittently rotating said actuating element in said first direction,
biasing means arranged to increasingly urge said element in said second direction when intermittently stepped in said first direction during said timed duration,
control means coupled to said actuating element and adapted to prevent escapement of said element in said second direction when stepped in said first direction during said timed duration,
means rotatable in unison with said actuating element adapted to decouple said control means from said element at the end of said timed duration for allowing said biasing means to rotate said actuating element in said second direction, and
valve operating means also rotatable in unison with said actuating element when rotated in said second direction for operating said valve to effect an aerosol spray.

3,318,160
VIBRA-ROTOR GYROSCOPE
Harold F. Erdley, Jerome S. Lipman, and Sidney Shapiro, Los Angeles, Calif., assignors to Litton Systems, Inc., Beverly Hills, Calif.
Filed July 31, 1964, Ser. No. 386,596
34 Claims. (Cl. 74—5.4)

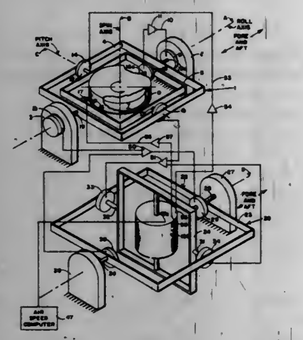
1. An improved inertial instrument comprising: a frame; an inertial element rotatable with respect to said frame about a first axis, said inertial element being capable of vibratory motion about a second axis angularly dis-

posed with respect to said first axis; means for rotating said inertial element about said first axis at a preselected frequency of rotation; sensor means stationary with respect to said frame and responsive to vibratory motion of said rotating inertial element for generating sensing



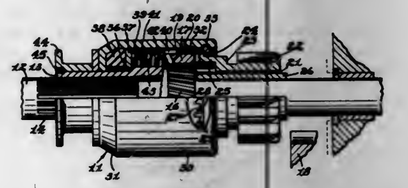
signals representative of said vibratory motion; and torquer means stationary with respect to said frame for defining a set of reference axes fixed relative to said frame and for applying individual torquing forces directly to said rotating inertial element about said reference axes.

3,318,161
CONTROL SYSTEM FOR GYRO-VERTICALS
Clare E. Barkalow, Comstock Park, and Henry C. Daubert, Jr., Grand Rapids, Mich., assignors to Lear Siegler, Inc.
Original application May 5, 1960, Ser. No. 26,997, now Patent No. 3,167,763, dated Jan. 26, 1965. Divided and this application Apr. 23, 1964, Ser. No. 362,041
9 Claims. (Cl. 74—5.34)



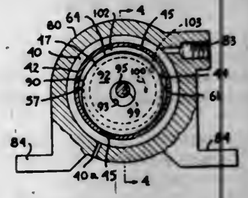
1. In a means for preventing errors in gyro-verticals for craft, the combination comprising: a displacement gyroscope with its gyro axis normally vertically oriented; a gyro-compensated pendulum operatively connected to said displacement gyroscope for erecting said displacement gyroscope; a stable servo platform means; said gyro-compensated pendulum being mounted on said stable servo platform means in a predetermined relative position with respect to said displacement gyroscope; said stable servo platform means being movably mounted for movement to different positions so as to maintain the same relative position of said displacement gyroscope and said gyro-compensated pendulum, and servo mechanisms operatively connected to said displacement gyroscope and said stable servo platform means and adapted to cause said movement of said stable servo platform means simultaneously with movement of said displacement gyroscope, whereby the relative position of said gyro-compensated pendulum to said displacement gyroscope is maintained.

3,318,162
STARTER DRIVE
John J. Sabatini, Horseheads, N.Y., assignor to The Bendix Corporation, a corporation of Delaware
Filed May 27, 1965, Ser. No. 459,273
6 Claims. (Cl. 74—6)



1. Starter gearing for an internal combustion engine adapted to be supported on a power shaft comprising:
a sleeve slidably, but non-rotatably, connected to the power shaft, said sleeve having external splines formed on one extremity;
a pinion journalled on the power shaft for axial movement into and out of engagement with a gear of an engine to be started;
a driven clutch member operatively connected to the pinion;
a driving clutch member threaded on the sleeve splines, said clutch members having complementing inclined torque transmitting teeth adapted to provide an indexing and an overrunning clutch connection;
a barrel housing having an open end slidably supported adjacent the other extremity of the sleeve and spatially encompassing the clutch members;
means within the housing adjacent the open end thereof for confining the clutch members within the housing;
means in the housing for normally biasing the clutch members into engagement;
means in the housing adapted to engage the clutch members to limit relative rotation therebetween upon indexing including an axially-extending member adapted to interconnect the clutch members, preventing substantially all angular displacement opposing indexing between said clutch members when the pinion and the engine gear are in end-to-end abutment; and
means to prevent the axially-extending member from interconnecting the clutch members during overrunning clutch connections.

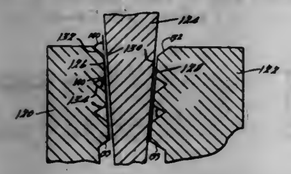
3,318,163
VIBRATION MECHANISM
Carl G. Matson, Kewanee, Ill., assignor to Vibrator Manufacturing Company, Neponset, Ill., a corporation of Illinois
Filed Feb. 17, 1964, Ser. No. 345,431
24 Claims. (Cl. 74—87)



1. In a fluid operated vibrator, a source of pressurized fluid, housing means connected to said source including means defining a generally circular orbit, orbiting means having a diameter at least 60% of the diameter of said

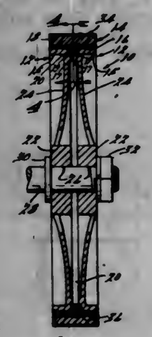
orbit and being constrained in said orbit in said housing means, and means in said housing means positionally controlled by said orbiting means for establishing an orbiting fluid outlet.

3,318,164
FRICTION DISC DRIVE
Robert E. McCollum, Birmingham, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed Dec. 1, 1964, Ser. No. 415,123
10 Claims. (Cl. 74—199)



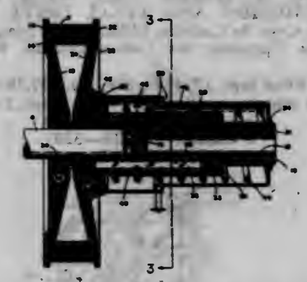
1. A friction disc drive comprising driving and driven friction discs having engageable mutually adjacent facing friction surfaces, means mounting said discs for relative rotation about parallel axes, and surfaces having a film of lubricant therebetween, means clamping said surfaces against one another for the drive of one by the other through said film of lubricant, and means to retard the rate of lubricant film formation between said surfaces comprising a sharp-edged depression in the face of one of said surfaces.

3,318,165
CONTACT WHEEL
Howard J. McAleer, Detroit, and Albert A. Jadach, Royal Oak, Mich., assignors to Formax Manufacturing Corporation, Detroit, Mich., a corporation of Michigan
Filed May 25, 1964, Ser. No. 370,011
15 Claims. (Cl. 74—230.7)



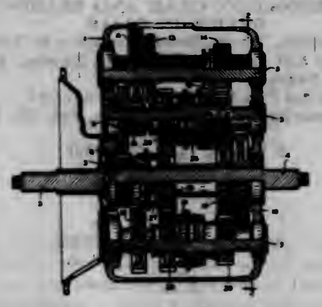
10. A contact wheel comprising: a disposable rim member having an annular metallic band member, a soft, flexible annular ring of an elastomeric material supported upon and fixed to the outer surface of said band member, and an annular ring member fixed to said band member; flange means located within said rim member for radially supporting said rim member and being selectively movable into frictional engagement with said ring member for preventing relative axial and rotational movement between said flange means and said rim member; and means located along the axis of said contact wheel for providing a clamping force for selectively, removably holding said flange means in said frictional engagement.

3,318,166
NON-LUBRICATED VARIABLE SPEED MOTOR PULLEY
Vern A. Anderson, Oil City, Pa., and George L. Durney, deceased, late of Rouseville, Pa., by June L. Durney, widow, Rouseville, Pa., assignors, by mesne assignments, to Eaton Yale & Towne Inc., Cleveland, Ohio
Filed Nov. 27, 1964, Ser. No. 415,220
3 Claims. (Cl. 74—230.17)



1. A variable speed pulley adapted to be mounted on a shaft and to coact with a belt comprising:
a first flange fixedly connected to the shaft and having an elongated hub axially projecting from one side thereof,
a second flange having an elongated hub projecting from one side thereof and slidably disposed about the elongated hub of the first flange in non-contacting relationship, the elongated hub of said second flange having a pair of axially spaced annular grooves, a pair of graphite bushings to prevent fretting, said bushings being disposed in said annular grooves and in bearing engagement with the surface of said elongated hub of said first flange for providing a sliding surface for relative movement between said first and second flanges,
means for operatively connecting said first and second flanges, and means for urging said second flange towards said first flange.

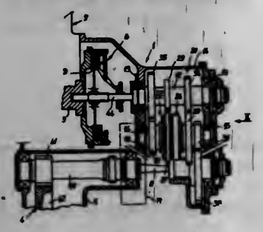
3,318,167
TRI-SHAFT TRANSMISSION
Barry L. Frost, Jackson, Mich., assignor to Clark Equipment Company, a corporation of Michigan
Filed Dec. 23, 1964, Ser. No. 420,506
6 Claims. (Cl. 74—331)



1. In a transmission unit, an input shaft, an output shaft, a first gear secured on said input shaft, a first counter shaft, a second gear secured on said first counter shaft and meshing with said first gear, a third gear secured on said first counter shaft, a second counter shaft, a fourth gear secured on said second counter shaft and meshing with said third gear, a third counter shaft, a fifth gear se-

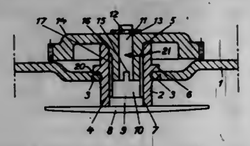
cured on said third counter shaft and meshing with said fourth gear, and means for selectively establishing and disestablishing driving connection between said counter shafts and said output shaft.

3,318,168
TRANSMISSION MECHANISMS FOR VEHICLES HAVING A POWER UNIT WITH BUILT-IN TRANSMISSION AND FINAL DRIVE
Gaëtan de Coye de Castelet, Billancourt, France, assignor to Regie Nationale des Usines Renault, Billancourt, France
Filed Sept. 17, 1964, Ser. No. 397,104
Claims priority, application France, Sept. 25, 1963, 948,633, Patent 1,378,948
5 Claims. (Cl. 74—359)



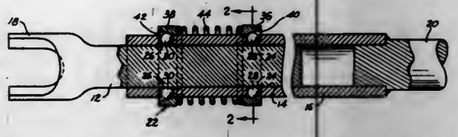
1. A transmission for vehicles having an engine with a crankshaft, a clutch and gearbox assembly coupled directly to the output end of the engine crankshaft and a differential disposed beneath the engine and connected by a transmission shaft to said assembly, characterized in that said gearbox comprises a primary shaft, two first pinions fixedly mounted on said primary shaft, two lay shafts parallel to said primary shaft, two loosely rotating second pinions on each said lay shaft in constant meshing engagement with said two first pinions on said primary shaft, synchronizer means on each said lay shaft, sliding ring means on each said synchronizer to selectively cause one of said loosely rotating second pinions to become rotatably solid with the lay shaft on which it is mounted, a third pinion rotatably solid with each lay shaft, a counter pinion common to and in constant engagement with said third pinions, an output shaft in axial alignment with said transmission shaft, said counter pinion being rotatably rigid with said output shaft.

3,318,169
COMBINATION GEAR AND BEARING DEVICE IN DIALS
Erling Tronslien, Tyreso, Sweden, assignor to Telefonaktiebolaget LM Ericsson, Stockholm, Sweden, a corporation of Sweden
Filed Feb. 9, 1965, Ser. No. 431,254
Claims priority, application Sweden, Feb. 20, 1964, 2,034/64
5 Claims. (Cl. 74—432)



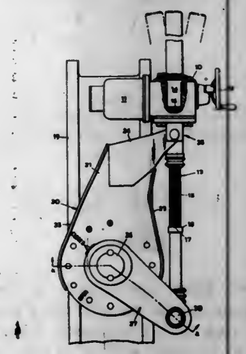
1. A bearing assembly for a dial of a telephone set, said assembly comprising in combination; a dial frame including a bore; a finger wheel support member; a driving gear; a bearing bushing extending through said bore in the frame secured thereto and protruding from both sides of the frame; and a shaft, said shaft mounting on one end said support member and on the other end said gear and defining a journal at each end, said journals being journalled in said bushing at opposite ends thereof, the shaft portion intermediate said journals having an outer diameter less than the inner diameter of said bushing to define an annular space between the bushing and the shaft.

3,318,170
NO-LASH AXIALLY MOVABLE STEERING COLUMN
Dean E. Runkle, South Bend, Ind., assignor to The Bendix Corporation, a corporation of Delaware
Filed Aug. 5, 1965, Ser. No. 477,537
17 Claims. (Cl. 74—493)



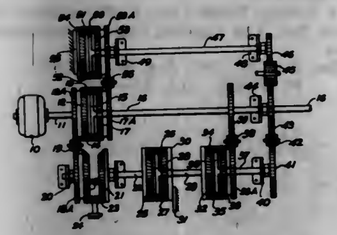
1. An axially movable steering column comprising first and second shafts, one of which is axially movable with respect to the other of said shafts, said first shaft having a polygonal shape and said second shaft having a corresponding polygonal bore therein for receiving said first shaft, radially extending passage means located in one of said shafts, and a plurality of spring loaded members located in said passage means, said spring loaded members each being in abutment with a different polygonal surface of the other of said shafts at a location off center of the abutting polygonal surface to cause rotation and continuous frictional engagement of one of said shafts with respect to the other of said shafts to thereby eliminate torsional lash therebetween.

3,318,171
ACTUATORS
Harry Wilkinson and Desmond Ernest Hutchinson, Bradford, England, assignors to The English Electric Company Limited, London, England, a British company
Filed May 22, 1964, Ser. No. 369,542
Claims priority, application Great Britain, May 31, 1963, 21,916/63
7 Claims. (Cl. 74—625)



1. In or for a spindle-operated device having a high-torque operator mechanism for controlling the spindle, the said device including a housing out of which the said spindle projects, a high-torque operator mechanism comprising a torque arm mounted on the spindle and projecting radially from the spindle, a rigid flat plate secured to the said housing in the vicinity of the spindle and lying in a plane normal to the spindle axis, and a power unit having a casing pivoted to the plate by a pivot pin lying parallel to the spindle, and an operating shaft extending from the casing and lying with its axis in the plane of the plate for applying an axial thrust reacted through the pivot pin with a non-torsional shear force on the plate, the free end of the operating shaft being pivotally connected to the free end of the torque arm for transmitting a torque to the spindle through the said arm.

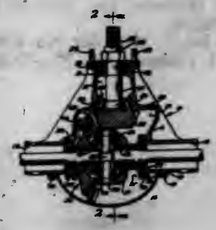
3,318,172
POWER TRANSMISSION
Thomas A. Cummins, 3848 Edinburgh, Drive, Youngstown, Ohio 44511
Filed Feb. 8, 1965, Ser. No. 431,124
5 Claims. (Cl. 74—682)



1. A power transmission having a drive shaft and a driven shaft and mechanical proportional mechanism interconnecting the same including a first differential having a plurality of interrelated elements with an input element connected to said drive shaft and an output element connected to said driven shaft, a second shaft, a gear set having a plurality of interrelated elements with an input element drivingly connected to said drive shaft and an output element connected to said second shaft, one of said interrelated elements being rotatably arranged on a fixed support, a third shaft, a second gear set having a plurality of interrelated elements with an input element connected to said second shaft and an output element connected to said third shaft, one of said interrelated elements being fixed against rotation, a fourth shaft, a second differential having a plurality of interrelated elements with an input element connected to said third shaft and an output element connected to said fourth shaft, one of said interrelated elements drivingly connected to said driven shaft, a fifth shaft, means drivingly connecting said fourth and fifth shafts, a third gear set having a plurality of interrelated elements, with an input element connected to said fifth shaft and an output element drivingly connected to a third element of said first differential and one of said interrelated elements being fixed against rotation.

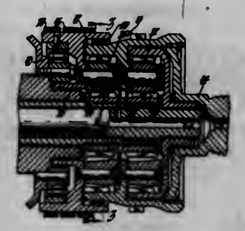
3,318,173
DIFFERENTIAL GEAR ASSEMBLY
Stanley V. Puidokas, Kenosha, Wis., assignor to American Motors Corporation, Kenosha, Wis., a corporation of Maryland
Filed Mar. 19, 1965, Ser. No. 441,117
2 Claims. (Cl. 74—713)

1. A differential gear assembly comprising:
(a) a housing defining a chamber having an elongated exit, said housing having a passage above said exit and connecting said chamber and exit and a conduit below said exit and extending from said chamber and joining said exit outward of said passage;
(b) a case rotatably mounted in said housing chamber, said case having an interior adapted to contain differential gears for actuating drive axles;
(c) a ring gear attached to the exterior of said case;
(d) a pinion shaft having a pinion engaging said ring gear for driving same, said shaft also extending through said exit and being adapted to be connected to a source of power;
(e) a pair of spaced opposedly mounted cup and cone type roller bearings rotatably supporting said pinion shaft in said housing exit, one of said bearings being larger than the other bearing, said larger bearing being adjacent said pinion, said smaller bearing being located in said exit inward of said conduit joining therewith;



(f) a combination shim baffle mounted in said housing between said pair of bearings, said shim baffle having a shim portion contacting the cup of said larger bearing for optimum positioning of said pinion relative to said ring gear, said shim baffle also having an annular baffle portion surrounding said shaft and forming a generally close radial clearance therewith, said baffle portion having a side recessed away from said larger bearing to provide axial clearance with the cone portion of said larger bearing, said baffle portion restricting the flow of lubricant through said clearance to said larger bearing and maintaining a reservoir in said exit of lubricant pumped therein by said ring gear through said passage during assembly operation, said reservoir providing lubricant for said smaller bearing, said lubricant from said reservoir returning through said conduit to said chamber after lubricating said smaller bearing;
(g) means for securing said shaft in said bearings.

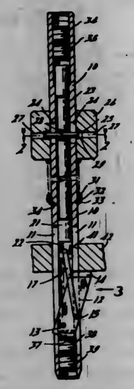
3,318,174
TRANSMISSION
Samuel A. Clapp, Ann Arbor, and Kenneth E. Snyder, Northville, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed July 30, 1964, Ser. No. 386,262
10 Claims. (Cl. 74—753)



1. In a transmission, a first gear unit comprising a planet carrier supporting a planet pinion gear in mesh with a ring gear and a sun gear, a second planetary gearing unit including a reaction planet carrier supporting a second planetary pinion gear in mesh with said sun gear and a second ring gear, said second ring gear being rotatable as a unit with said first gear unit carrier, a power delivery shaft driven by said first gear unit carrier, a transmission power input shaft, first and second engageable and releasable clutches effective when engaged to connect said first gear unit ring gear and said sun gear

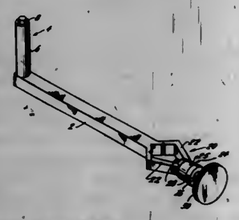
to said power input shaft, and a ring carried by said second gear unit ring gear for reducing gear noise in said transmission, said ring contacting said second gear unit carrier for braking said carrier against rotation upon release of said clutches.

3,318,175
CUTTING TOOL
Stuart A. Cogsdill, Orchard Lake, Mich., assignor to Cogsdill Tool Products, Inc., Detroit, Mich., a corporation of Michigan
Filed July 7, 1965, Ser. No. 470,006
11 Claims. (Cl. 77—73.5)



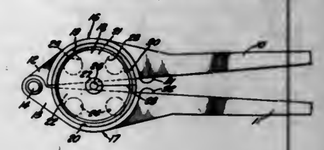
1. In a back-facing tool, a cylindrical body having a diametrically disposed slot, a blade having a sloping cutting edge at one end and a sloping section at the other end which is parallel to the cutting edge, a pivot securing said blade in the bottom of said slot passing through the blade and the body rearwardly of the center thereof, a rod within the body above the blade, a pin within the slot extending through said rod with the ends extending beyond said body, a link pivoted to the rod and to the blade at a point forwardly of the center of the body, means for moving the rod and link in reciprocation for moving the blade outwardly into cutting position when moved in one direction and for retracting the blade within the body when moved in the opposite direction, and means for engaging the end of the blade opposite to that having the cutting edge when the blade is in cutting position.

3,318,176
WRENCH HAVING A PENTAGONAL SOCKET WITH THREADED ADJUSTMENT MEANS
Herbert F. Geier, Jr., 17 Aberdeen Place, Fair Lawn, N.J. 07410
Filed Oct. 21, 1965, Ser. No. 500,149
5 Claims. (Cl. 81—175)



1. A wrench comprising
a shank,
socket means integral with one end of said shank,
and handle means positioned at the other end of said shank,
said socket means comprising an enclosure which is substantially pentagonal in shape and formed from side members and an end member, said side members converging with each other to form one angle of said enclosure positioned adjacent to said one end of said shank, said end member forming the side of said enclosure opposite said angle and having an insert therein which is extensible into said enclosure at selectively varying distances from said angle.

3,318,177
TELEPHONE HANDSET CAP TOOL HAVING A PAIR OF HANDLES AND A CUP-SHAPED INSERT THEREIN
Woodford J. Crump, South Gate, Calif., assignor to Aircraft Tools Inc., Los Angeles, Calif., a corporation of California
Filed Oct. 22, 1965, Ser. No. 502,243
10 Claims. (Cl. 81—300)



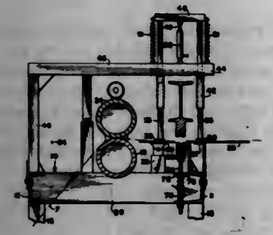
1. A cap wrench comprising
a pair of handles hinged at one end, each of said handles including an enlarged section having a face, an interior arcuate side, and at least one aperture, and
a substantially cup-shaped resilient insert means having protrusions extending through said apertures to couple said insert means with said handles enabling the arcuate sides of said handles to engage the periphery of said insert means, said insert means having a tapered interior surface for mating with the periphery of a cap whereby movement of said handles together causes said arcuate sides to exert force against the periphery of said insert means which in turn grips the periphery of said cap.

3,318,178
DEVICE FOR EJECTING TOBACCO LEAF-TRIMMINGS
Jean Marcel Richard, Charenton, France, assignor to Service d'Exploitation Industrielle des Tabacs et des Allumettes, Paris, France, a French public establishment
Filed June 7, 1965, Ser. No. 461,625
Claims priority, application France, June 9, 1964, 977,581
7 Claims. (Cl. 83—98)



1. Device for ejecting tobacco leaf trimmings which remain on the cutting die-plate of a machine for wrapping rod-shaped smoking products after cutting from a tobacco leaf the maximum number of wrappers which said leaf is capable of supplying, said ejection process being intended to take place during that period of the work cycle of the machine in which the last piece cut from the leaf is transferred to the wrapping unit, comprising means for blowing fluid under pressure adapted to sweep the table which supports the cutting die-plate and in the zone of said die-plate, means for receiving leaf-trimmings which are swept by said fluid, said receiving means being placed on the path of said fluid and on the other side of the supporting table relatively to said blowing means, means for exerting a periodical sucking action in said receiving means on the die-plate zone of the supporting table, and means for actuating in synchronism said blowing means and said sucking means for a predetermined portion of the work cycle of the machine.

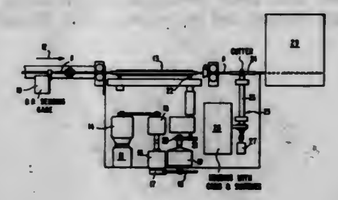
3,318,179
FEEDING AND CUTTING MACHINE FOR SHEET MATERIAL
Norman E. Elsas, Atlanta, Ga., assignor to Nemo Industries, Inc., Atlanta, Ga., a corporation of Georgia
Filed Mar. 11, 1965, Ser. No. 438,861
3 Claims. (Cl. 83—201)



1. An improvement in a fabric cutting machine of the type which feeds an elongate strip of woven fabric intermittently forward and, during non-feed intervals, clamps the fabric and then cuts it along a predetermined cutting line, comprising:
(A) first clamping means for holding one edge of the forwardly fed fabric, during a non-feed interval, at points spaced from the front and rear sides of the cutting line while leaving that portion of the fabric, extending along the cutting line between said first clamping means and the opposite edge, free so that an operator may manually engage the fabric along said opposite edge, and, through such engagement, manipulate the fabric to align a visible transverse member on the fabric with the cutting line; and
(B) manually controlled means operative, when actuated by the operator while said fabric is in said alignment, to engage and hold the fabric in such alignment and cut the aligned fabric parallel to a visible transverse member on the fabric.

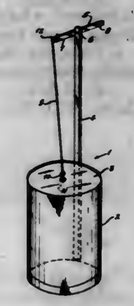
3,318,180
GLASS TUBE GAUGING AND CUTTING APPARATUS
Francis E. Bauman and Harry J. Costill, Vineland, N.J., assignors to Owens-Illinois, Inc., a corporation of Ohio
Filed Sept. 20, 1965, Ser. No. 488,416
12 Claims. (Cl. 83—287)

1. In an apparatus for continuously drawing a glass tube in a horizontal direction including a gauging mechanism for continuously gauging the diameter of the tube, said gauging mechansm producing an electrical signal variable with variations in the diameter of the tube, and a cutting device for severing the continuous tube into elongated segments, said cutting device comprising a first cutting means driven for intermittent engagement with the continuously moving tube to sever the tube at spaced points along the length thereof, selectively operable second cutting means for engaging and severing the continuously moving tube at points intermediate said spaced points, and means responsive to the electrical signal produced by said gauging mechanism for operating said second cutting means, said first and second cutting means



cooperating to sever the tube into segments having a length in accordance with the gauged diameter of the individual segment.

3,318,181
MUSICAL DEVICE
William E. Benner, 1219 Avant Drive, St. Louis County, Mo. 63137
Filed Feb. 19, 1965, Ser. No. 434,045
8 Claims. (Cl. 84—173)

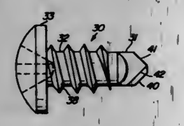


1. A musical instrument comprising a drum portion having a closed side wall and at least one end wall, an upright member attached to the side wall of the drum portion and extending beyond one end of the drum, an operator member pivotally attached to the upright member adjacent to its free end, said operator member having a first portion which extends over the drum and another portion which extends outwardly therefrom to form a handle, and a cord of flexible material connected at one end to the operator member at a position thereon that is over the drum and at the other end of a central location on the end wall of the drum portion.

3,318,182
SELF-THREAD-FORMING SCREW WITH DRILL POINT AND METHOD OF MAKING SAME
Raymond H. Carlson, Rockford, Ill., assignor to Textron Industries, Inc., Rockford, Ill., a corporation of Delaware
Filed Nov. 3, 1965, Ser. No. 506,234
10 Claims. (Cl. 85—41)

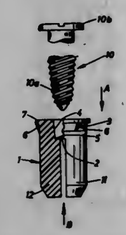
1. A self-drilling, self-thread-forming screw, comprising;
(a) an elongated shank having a rolled thread provided with an inwardly tapered forward end;
(b) a driving head at one end of said shank; and

(c) an extruded drill point at the other end of said shank,
(d) said drill point having an effective transverse width at least equal to the root diameter of the threads on said shank, and
(e) said drill point having flutes extending the full length thereof and on opposite sides thereof;



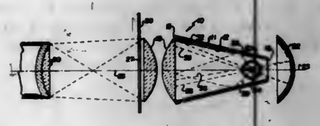
(f) the entire length of said drill point having an elongated grain structure extending in the same direction as the longitudinal axis of said screw and the transition region between said drill point and said shank also having an elongated grain structure therein as a result of the extrusion thereof, whereby the tensile strength of the metal of said drill point and of said transition region at the junction of said shank and said drill point is of relatively higher strength as compared to the strength of the metal of said shank.

3,318,183
EXPANSION ANCHOR
Artur Fischer, Tumlingen, Kreis Freudenstadt, Germany
Filed Dec. 4, 1964, Ser. No. 415,874
Claims priority, application Germany, Dec. 7, 1963, F 41,500
1 Claim. (Cl. 85—84)



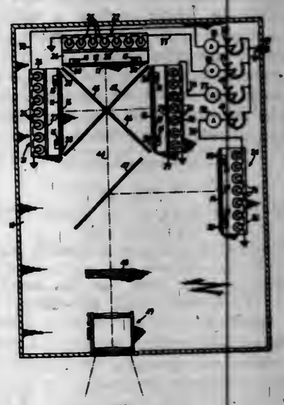
An expansion anchor, comprising an anchoring member adapted to be received in an expansion anchoring hole, said anchoring member comprising an elongated elastic body having a frusto-conical bore extending inwardly from one end toward but short of the other end of said member and increasing in cross-sectional area in direction toward said one end, a substantially radially extending internal face located at the inner end of said bore, and transverse slot means extending diametrically inwardly from said other end toward but short of said one end, said slot means dividing the corresponding portion of said anchoring member into a plurality of tongues movable away from each other and said slot means dividing said internal face and communicating with said bore; and fastener means including an elongated screw having a head and a leading end and conically tapering from said head to said leading end, said elongated screw having a length greater than the depth of said frusto-conical bore, and adjacent said head thereof a diameter greater than the diameter of said frusto-conical bore and in the region of its leading end a diameter greater than the diameter of said transverse slot means so that upon insertion of said elongated screw into said bore said leading end bears against said internal face and moves said tongues apart while penetrating into said slot means.

3,318,184
LIGHT PROJECTION OPTICAL APPARATUS
James G. Jackson, 215 Argyle St., Port Alberni, British Columbia, Canada
Filed Nov. 2, 1964, Ser. No. 408,274
15 Claims. (Cl. 88—24)



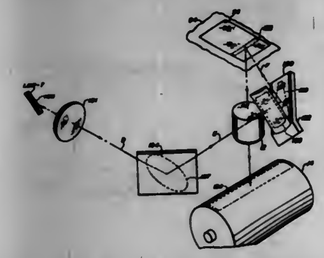
1. Light projection optical apparatus comprising a main tubular conical internal reflector having a large open outer end and a small open inner end, condenser lens means at said outer end of the reflector positioned normal to the axis of the latter and through which passes all light travelling directly through and reflected by said reflector, a light source at the inner end of the reflector on said axis to direct light through the reflector, the space in the conical reflector between the light source and said condenser lens means being unobstructed, and a rear reflector shaped and positioned on the side of the light source remote from said conical reflector to direct substantially all light from said source not directed into the conical reflector back into said inner end and along the conical reflector.

3,318,185
INSTRUMENT FOR VIEWING SEPARATION COLOR TRANSPARENCIES
Hermann Kott, Essex Fells, N.J., assignor to Publication Corporation, New York, N.Y., a corporation of New York
Filed Nov. 27, 1964, Ser. No. 414,130
3 Claims. (Cl. 88—24)



1. A viewer for separation color transparencies comprising a base member, a plurality of transparency supports mounted on the base member, a plurality of illuminators, each associated with one of the transparency supports, to illuminate transparencies mounted on the transparency supports with different colors of light respectively, and semitransparent mirror means for reflecting colored light from at least one of the transparency supports and transmitting light of a different color from another transparency support along a common axis to provide a synthesized color image, including a black printer transparency support mounted on the base member, a white light illuminator to illuminate a transparency mounted on the black printer transparency support and neutral partially reflective mirror means for reflecting light from the black printer transparency support along the common axis in conjunction with the synthesized color image.

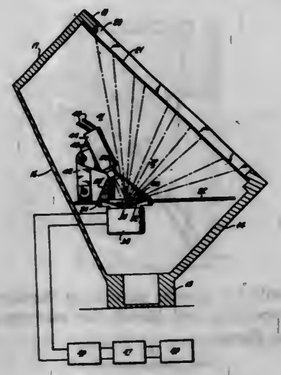
3,318,186
OPTICAL SYSTEM FOR REPRODUCTION MACHINES
Richard M. Bobbe, David C. Harper, and George G. Hart, Rochester, N.Y., assignors to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Feb. 3, 1965, Ser. No. 430,020
1 Claim. (Cl. 88—24)



In a card handling device for scanning opaque data cards for projection onto a light sensitive surface, the combination of:
a card carriage for carrying a card and being movable between start-of-scan and end-of-scan positions,
an elongated source being tilted a predetermined angle relative to the vertical,
a lens system for collimating light rays from said source,
a cylindrical strip lens in the optical path of the collimated light rays and arranged with its axis tilted at said predetermined angle for converging the same in the width dimension of the elongated light source to produce an elongated, relatively narrow, beam of light to effect a light line in a predetermined focal plane,
reflecting means interposed between said strip lens and said focal plane directing said elongated beam of light onto the data area of a card to position the longitudinal axis of the light line transverse to the direction of movement of a card as it is moved by the carriage between said positions,
said data area being movable approximately in said focal plane of said cylindrical strip lens whereby said data area is illuminated and scanned by said light line as the card is moved between said positions,
and means for projecting the image rays emanating from the illuminated opaque data area onto the light sensitive surface.

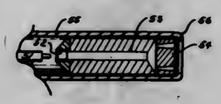
3,318,187
DISPLAY DEVICE AND REFLECTIVE ELEMENTS THEREFOR
Raymond Prohaska, Brooklyn, N.Y., assignor to Charles Washburn, New York, N.Y.
Filed Aug. 20, 1965, Ser. No. 481,303
12 Claims. (Cl. 88—24)

1. In a display device including a plurality of movable light-reflecting elements utilized to reflect a changeable light array, wherein said light-reflecting elements each comprise a pair of similar faceted halves of cut transparent stones which together form a unitary element, said



element having flat inner internally reflecting faces, said faces being cemented to each other to form said unitary element.

3,318,188
HAND WEAPON
Mathew C. Hengel, Hayward, and Arthur T. Bichl and Robert Mainhardt, Diablo, Calif., assignors to MB Associates, a corporation of California
Original application Nov. 29, 1962, Ser. No. 240,784, now Patent No. 3,212,402, dated Oct. 19, 1965. Divided and this application Aug. 12, 1965, Ser. No. 534,541
7 Claims. (Cl. 89—1.806)

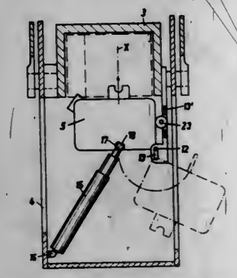


1. A pistol-type weapon adapted to fire rocket-type missiles comprising a launching means, a rocket-type projectile including a nose portion positioned in said launching means, said projectile including forward igniting means, a spring biased impacting, igniting and restraining means carried by said weapon and pivotally mounted adjacent to said launching means and beyond the nose of said projectile for pivotal movement into said launching tube, latch means engaging said impacting-restraining means, and trigger means for releasing said latch means for actuating said impacting, igniting and restraining means to cause it to strike the igniting means in the nose of said projectile to ignite the propellant thereof and to delay forward progress of the projectile until said propellant is completely ignited.

3,318,189
AUTOMATIC WEAPON, MOUNTED IN AN ARMOURED TURRET
Karl Fammler, Dusseldorf, and Richard Koine, Dusseldorf-Neulichtenbroich, Germany, assignors to Firma Rheinmetall G.m.b.H., Dusseldorf, Germany
Filed Jan. 27, 1966, Ser. No. 523,304
Claims priority, application Germany, Feb. 6, 1965, R 39,836
9 Claims. (Cl. 89—33)

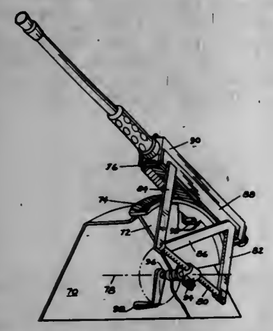
1. An automatic weapon having a shield and mounted in an armoured turret so that it can swivel in a vertical direction, said weapon having a vertical longitudinal central plane, belt feeder means detachably connected to

said weapon for feeding ammunition thereto, spindle means disposed in a plane parallel to said central plane of the weapon, means mounting said belt feeder means



on said spindle for pivotal movement thereon, and means guidedly supporting said spindle for movement thereof in said parallel plane.

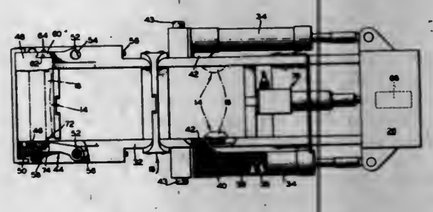
3,318,190
ELEVATING MECHANISM
Anthony J. Suchocki, Clawson, Mich., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Army
Filed June 16, 1965, Ser. No. 464,588
5 Claims. (Cl. 89—41)



1. A gun elevating mechanism comprising a platform, a sector gear subscribing an arc fixably mounted on said platform, a pod for holding at least one gun, a rack having a length substantially equal to the peripheral length of said sector gear, said rack being fixably mounted on said pod and in engagement with said sector gear, a roller follower means mounted on said sector gear and said rack preventing separation thereof, a driven means fixably mounted on said pod in parallel spaced relation to said rack means, a drive means transmitting a linear force to said driven means whereby said linear force is translated into a tilting force by said roller follower means as said roller follower means maintains said rack coincident with a tangent to the arc of said sector gear.

3,318,191
MACHINE GUN WITH A MOUNT FOR REDUCING THE RECOIL FORCES APPLIED TO THE TRUNNIONS
Frederick P. Reed, Ludlow, Mass., assignor to the United States of America as represented by the Secretary of the Army
Filed July 9, 1965, Ser. No. 470,942
4 Claims. (Cl. 89—42)

1. A machine gun including a nonrecoiling mass having a mount assembly; a recoiling mass having a receiver assembly slidingly mounted on said mount assembly to provide for reciprocation of said recoiling mass between a forward and a rearward position; a barrel disposed for reciprocation in said receiver between a forward loading position and a rearward firing position; said recoiling mass being displaceable to the rearward position by discharge of a cartridge in said barrel; an energy storing device arranged to be energized by displacement of said recoiling mass by the cartridge discharge and to apply the stored energy against said recoiling mass in a forward direction; sear means for releasably holding said recoiling mass adjacent the rearward position against displacement by the stored energy in said device each firing cycle, said sear means including a pair of sears respectively mounted on opposite sides of said mount assembly for pivotal displacement respective to a cooperating pair of lugs on said receiver assembly, a surface on each of said sears disposed of said lugs, said surfaces on said sears and said lugs being for contact with a mating surface on the cooperating ones angularly formed so that when in fixed contact said recoiling mass is held thereby adjacent the rearward position and so that forward displacement of said recoiling

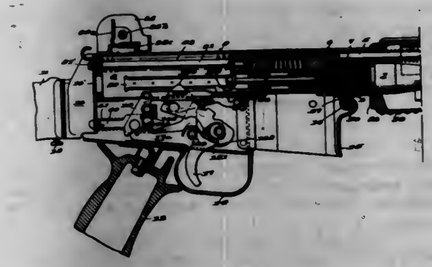


mass relative to said sears rotates said sears to a release position clear of said lugs, and a pair of locks disposed for releasably blocking pivotal displacement of said sears to maintain said surfaces on said sears and said mating surfaces on said lugs in fixed contact; and means for actuating said locks to release said sears and free said recoiling mass in time to apply the energy in said device against the energy imparted to said recoiling mass by discharge of the cartridge before said recoiling mass reaches the forward position for reducing the energy effective against said nonrecoiling mass, said means for actuating said locks including an electric solenoid arranged when energized to actuate said locks from positions blocking displacement of said sears, a microswitch mounted on said mount assembly and arranged to electrically energize said solenoid, and a cam actuator located on said barrel for engagement with said microswitch to energize said solenoid when said barrel is adjacent the firing position during rearward travel thereof so that the energy in said device drives said recoiling mass forwardly when the cartridge is discharged.

3,318,192
LOCKED ACTION RIFLE FOR AUTOMATIC AND SEMI-AUTOMATIC SELECTIVE FIRING
Arthur Miller and Charles H. Dorchester, Costa Mesa, and George C. Sullivan, North Hollywood, Calif., assignors to Armalite, Inc., Costa Mesa, Calif., a corporation of California
Filed Feb. 12, 1965, Ser. No. 432,198
8 Claims. (Cl. 89—142)

7. In a rifle for automatic and semi-automatic selective firing, an upper receiver portion comprising sheet metal formed into a generally rectangular tube, a lower receiver portion comprising a sheet metal box of a length and width generally coextensive with said upper receiver portion, an action made up of elements housed within said upper receiver portion and said lower receiver portion, hinge portions formed on the forward ends of said

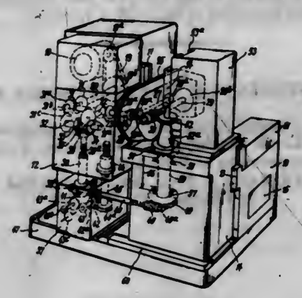
upper and lower receiver portions to afford a hinge about a transverse axis, means to mount a barrel provided on the forward end of said upper receiver portion, a pair of guide rods mounted in said upper receiver portion, a bolt carrier mounted on and guided by said guide rods to move within said upper receiver portion substantially free of the walls of said upper receiver portion, a bolt in said bolt carrier, means to rotate said bolt to lock and unlock said bolt from engagement with means on the rearward end of said barrel, said action including a trigger formed from a metal stamping folded to form two side portions and pivotally mounted in said lower receiver portion, a spacing member welded to and between said side portions, said trigger having a sear thereupon, a hammer of sheet metal construction folded to provide parallel sides, said hammer having a sear abutment thereupon engageable by said sear on said trigger,



an automatic sear abutment at the opposite extremity from said trigger sear abutment and a slot in its leading face intermediate its extremities, a trigger disconnect formed from a single metal stamping and pivotally mounted between the side portions and said trigger and extending through the slot in said hammer so as to be engageable with the leading face of said hammer, an automatic sear mechanism pivotally mounted in the upper portion of said receiver adjacent said hammer and engageable with said automatic sear abutment on said hammer, said automatic sear mechanism including a sear extension to permit the utilization of a short bolt carrier, and a selective firing control means mounted for rotation in said receiver and located between adjacent extremities of said automatic sear mechanism, said trigger and said trigger disconnect to determine the operating conditions of said automatic sear mechanism, said trigger and said trigger disconnect.

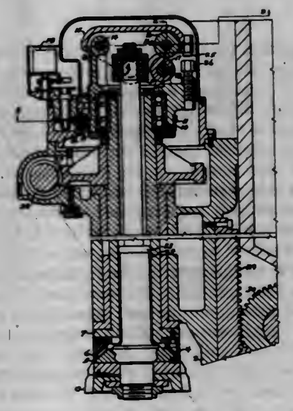
3,318,193
GEAR SHAPING MACHINE
Otto Rogg, Munich, Germany, assignor to Carl Hurth Maschinen- und Zahnradfabrik, Munich, Germany
Filed Jan. 7, 1966, Ser. No. 519,391
Claims priority, application Germany, Nov. 29, 1960, H 41,074
10 Claims. (Cl. 90—4)

1. In a machine for treating gears and similar toothed workpieces by means of hobs and analogous tools, a drive including a shaft rotatable in a predetermined direction; a tool holder turnable about the axis of said shaft; a tool supporting member rotatably mounted in said tool holder; a motion transmitting connection between said shaft and said tool supporting member, said connection including a backlash eliminating device which is operative when said shaft rotates in said predetermined direction; and a rotary work supporting member adjacent to said tool holder, said work supporting member being positioned with reference to said tool supporting member in such a way that, in response to turning of said tool holder about the axis of said shaft, a left-hand or right-hand tool affixed to said tool supporting member can treat a work-



piece on said work supporting member while said shaft rotates in said predetermined direction.

3,318,194
GEAR SHAPER BACK-OFF MECHANISM
Arthur Insley Bean, Springfield, Vt., assignor to The Fellows Gear Shaper Company, Springfield, Vt., a corporation of Vermont
Filed July 22, 1965, Ser. No. 473,941
7 Claims. (Cl. 90—7)



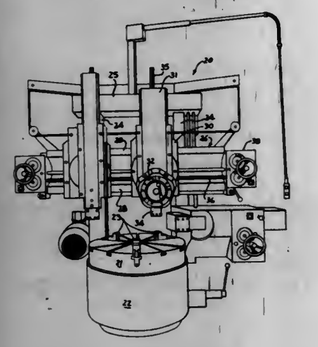
1. In a machine of the character described for forming gears by the gear shaper process, a base, a work spindle rotatably journalled in said base adapted to have mounted thereon a work gear to be formed, a cutter spindle mounted on said base adjacent to said work spindle and adapted to hold a cutter thereon in position to incise said work gear to be formed, means to rotate said cutter spindle in timed rotation with said work spindle, means to reciprocate said cutter spindle relative to said work spindle, means to back off said cutter from said work gear during the non-cutting reciprocation of said cutter spindle, and means to vary the direction of action of said back-off means while said work gear is being formed, said last named means being operative in accordance with any change in the relationship of cutter and work which would affect the conditions causing rub between cutter and work during the non-cutting stroke of said cutter spindle, said cutter spindle having means for mounting a cutter spindle adapter thereon on which a cutter is mounted, means to clutch and declutch said adapter from rotation with

said cutter spindle, means to control the direction of movement of said cutter spindle adapter and means to change the direction of the action of said last named means whereby said direction of back-off is varied.

3,318,195
CONTROLS FOR MACHINE TOOLS AND THE LIKE

Arthur O. Fitzner, Fond du Lac, Wis., assignor to Giddings & Lewis Machine Tool Company, Fond du Lac, Wis., a corporation of Wisconsin

Filed Oct. 4, 1961, Ser. No. 142,964
31 Claims. (Cl. 90—13)



1. In a system for controlling the positioning of a movable machine tool member in accordance with a repetitive program, the combination comprising a member mounted for movement, means for moving said member to successive positions, a reader responsive to successive blocks of information supplied thereto for creating successive sets of position information signals indicative of the desired positions of said member and for creating coded selection signals from at least some of said blocks, control means connected to receive said sets of position information signals and connected to said moving means for causing the latter to move said member to the corresponding positions, and means for modifying the operation of said control means, said last-named means comprising a plurality of adjustable signal sources, means responsive to each of said coded selection signals for selecting one of said sources to be effective during positioning of said member according to the corresponding set of position information signals, and means for superimposing the output of said selected signal source on said control means, whereby said member is caused to move to a position displaced from that designated by a set of position information signals according to the adjusted output of the selected source.

3,318,196
DIGITAL ACTUATOR WITH MEANS TO CONTROL PISTON ACCELERATION AND DECELERATION

Robert M. Cox, Northridge, Clyde F. Czernek, Sepulveda, and Kenneth F. Turner, Woodland Hills, Calif., assignors to CGC Associates, Inc., Van Nuys, Calif., a corporation of California

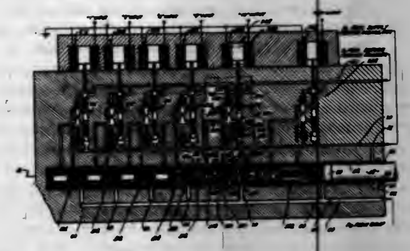
Filed Nov. 27, 1964, Ser. No. 414,371
17 Claims. (Cl. 91—168)

1. In a digital actuation system, the combination comprising:

an adder piston;

a load piston coaxial with said adder piston and in face-to-face contact therewith;

and means for accelerating and decelerating said adder piston and said load piston in either direction along their common axis including means for producing on said load and adder pistons forces which are exactly equal in magnitude but opposite in direction during

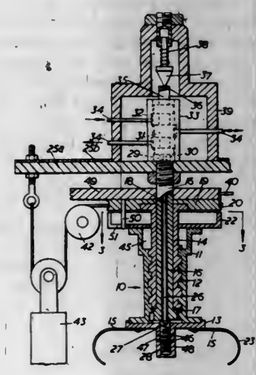


the accelerating and decelerating phases, whereby time optimal performance of said adder piston and said load piston during said accelerating and decelerating phases is obtained.

3,318,197
SERVO POSITIONING DEVICE

John B. McNamee, Ermington, New South Wales, Australia, assignor to McNamee Industries Pty. Limited, Ermington, New South Wales, Australia, an Australian company

Filed July 8, 1964, Ser. No. 381,188
Claims priority, application Australia, July 22, 1963, 33,260/63
8 Claims. (Cl. 91—380)

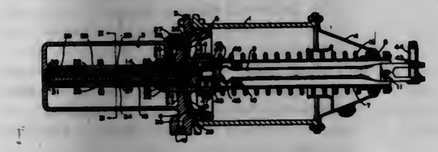


1. A servo positioning device consisting of the combination of a cylinder, a piston in said cylinder, a valve arranged to control passage of fluid into and from the piston of said cylinder, a rectilinearly movable rod arranged by its movement to move said valve, a first rotatable member coaxially surrounding and arranged by its rotation to impart rectilinear motion of said movable rod, a second rotatable member located coaxially within and in threaded engagement with said first rotatable member, said second rotatable member also surrounding said rod, a non-rotatable hollow member located coaxially within said second rotatable member, and a connection between said piston and said second rotatable member arranged upon movement of said piston to impart rotation to said second rotatable member in a circular direction such as to restore the relative positions of said first and second rotatable members and the return to their original positions of said rectilinearly movable rod and said valve.

3,318,198
BRAKE CYLINDER HAVING AUTOMATIC VOLUME CONTROL AS RELATED TO PISTON TRAVEL

George K. Newell, Penn Township, Westmoreland County, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa., a corporation of Pennsylvania

Filed June 30, 1965, Ser. No. 468,318
6 Claims. (Cl. 91—401)



1. In a brake cylinder means,

(a) a cylinder means,

(b) a pressure head connected to said cylinder means and having a pressure chamber, to which fluid under pressure is supplied and released via an intake and exhaust means, and a central bore,

(c) a non-pressure head connected to said cylinder means and having a central orifice,

(d) a psiton means slidable in said cylinder means and having a central orifice means therein,

(e) tube means fixed to said orifice means and extending through the said orifice of said non-pressure head,

(f) rod means concentric to said tube means,

(g) lost-motion means between said rod means and said tube means,

(h) valve means, secured in the said orifice means, which abuts said rod means and extends into and communicates with said central bore of said pressure head, said valve means including a normally seated valve which is unseated by lost-motion movement between the said rod means and said tube means incidental to movement of said piston means out of a normal position,

(i) chamber means in said pressure head surrounding said central bore,

(j) sleeve means coaxial to said valve means and fitted into the central bore,

(k) another tube means coaxial with and secured to said valve means,

(l) passage means communicating said valve means with said intake and exhaust means,

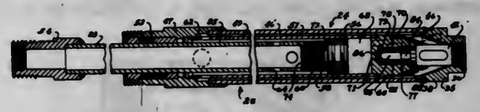
(m) another passage means communicating said chamber means and said valve means through said sleeve means and said another tube means and controlled by said another tube means which is concentric to and internal of said sleeve means whereby the said another tube means closes off communication with select sections of said chamber means successively and prevents flow of fluid under pressure to the said sections past the valve of said valve means, as travel said piston means out of a normal position inside said cylinder means increases thus compensating for the volume increase in the pressure chamber due to the increasing travel of said piston means.

3,318,199
FLUID FEED LINES

John T. Parrett, Benton Harbor, Mich., assignor to Benton Harbor Engineering Works, Incorporated, a corporation of Michigan

Filed Oct. 21, 1965, Ser. No. 499,464
16 Claims. (Cl. 91—462)

1. A fluid system, comprising: a first member, a second member engaging said first member and being extensible with respect thereto, motor means associated with said second member, a source of fluid under pressure; and feed line means for conveying fluid from said source to said motor means including a first tube fixed with respect to said first member, a second tube fixed with respect to said second member and in telescopic relation with said first tube so that upon extension of said second member the

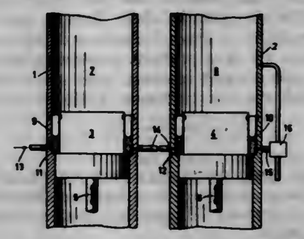


tubes will extend, means connecting said second tube to deliver fluid to said motor means, means for preventing the buckling of said tubes under pressure including means for restraining extension of the inner one of said tubes from the outer one of said tubes.

3,318,200
DEVICE INCLUDING AT LEAST TWO SEALS IN THE FORM OF ROLLING DIAPHRAGMS

Johan Adriaan Rietdijk, Emmasingel, Eindhoven, Netherlands, assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware

Filed Dec. 3, 1964, Ser. No. 415,673
Claims priority, application Netherlands, Dec. 13, 1963, 301,823
4 Claims. (Cl. 92—61)



1. A device for maintaining the correct liquid pressure on at least two rolling diaphragms located in separate cylinders each having a reciprocating piston therein, said diaphragms each separating two spaces in which one space has a medium therein and the other space is filled with said liquid wherein pressure variations occur in the spaces of said different diaphragms, said liquid spaces being connected in series, comprising a liquid supply pipe for the first liquid space, a connecting line for connecting said liquid spaces, a discharge line for the last liquid space, and a control device provided to maintain a pressure difference over each diaphragm which is substantially constant during each stroke of said piston, said connecting line being so proportioned that the liquid volume flowing through at the pressure difference prevailing across said line is such as to control the level of concentration of medium from one space diffusing to the liquid of said other adjacent space and dissolving therein.

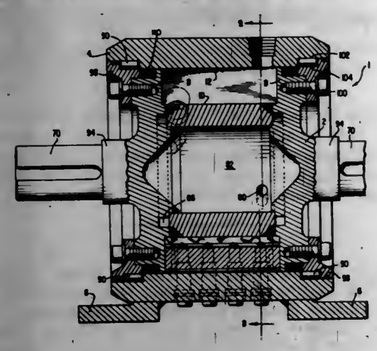
3,318,201
ROTARY HYDRAULIC ACTUATOR WITH IMPROVED SEALING MEANS

William L. Blake, Franklin Lakes, N.J., assignor to William Blake and Company Incorporated, Franklin Lakes, N.J.

Filed Feb. 2, 1965, Ser. No. 429,773
1 Claim. (Cl. 92—121)

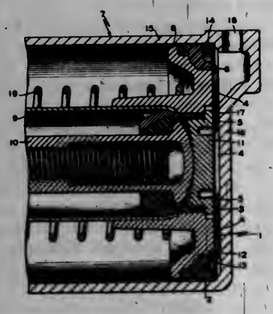
A rotary fluid actuator comprising, a housing having a cylindrical bore extending therethrough, a rotor rotatably mounted coaxially within said cylindrical bore, a pair of radially extending flanges on said rotor defining an annular pressure chamber between said rotor and said cylindrical bore, a fixed vane mounted on the surface of

said cylindrical bore, a movable vane mounted on said rotor, said fixed and movable vanes dividing said annular pressure chamber into a pair of subchambers, fluid passage means for directing fluid under pressure to each of said subchambers, and seal means between said flanges and said housing for preventing the flow of fluid therebetween, said seal means including an elongated packing



element having a cross section in the general shape of an isosceles trapezoid with a pair of parallel grooves formed in the longer parallel side and spaced equal distance from the non parallel ends thereof, said parallel grooves terminating at spaced intervals along the length of said element by dam portions preventing the flow of fluid along said parallel grooves, said spaced intervals being less than the circumference width of said vanes.

3,318,202
PISTON AND PACKING CUP ASSEMBLY
Donald C. Means, Export, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa., a corporation of Pennsylvania
Filed Sept. 29, 1964, Ser. No. 400,261
1 Claim. (Cl. 92—245)



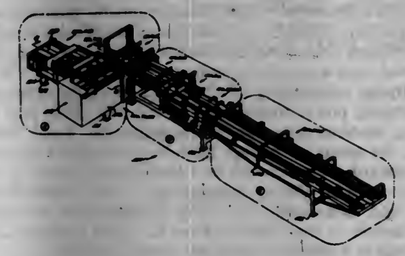
A piston assembly and cylinder comprising:
(A) a cylinder having a bore,
(B) a piston having a flat pressure face and a peripheral groove surrounding said piston, and
(C) a packing cup including:
(a) a central flat disc-like portion of relatively thin membranous and uniform thickness of the order of 1/32 of an inch supported against fluid pressure forces by said flat pressure face on said piston, and
(b) a skirt in the form of an annular U-shaped channel integrally molded with said central disc-like portion in surrounding relation thereto, said skirt having:
(i) an inner concentric cylindrical portion supporting said central disc-like portion and conformingly contoured to said peripheral groove so as to frictionally hold said packing cup on said piston,
(ii) an outer cylindrical sealing lip portion,
(iii) a bight portion integrally joining said outer sealing lip portion and said inner cylindrical portion and being of substantially greater thickness than said outer sealing lip portion and said inner cylindrical portion,
(iv) said outer cylindrical sealing lip portion in its free condition, having an outer peripheral surface which is conically tapered from its free end toward the bight portion,
(v) the outer sealing lip portion of said packing cup being peripherally constricted upon installation in said cylinder bore such that a certain portion of said outer peripheral surface contacts the wall of the cylinder bore in sealing and sliding relation, the amount of such contracting portion of said peripheral surface being such as to be axially spanned in part by said bight portion whereby said bight portion exerts a constant biasing effect on said outer sealing lip portion for effecting said sealing and sliding contact.

3,318,203
APPARATUS FOR FORMING A ROLLED EDGE ON CONTAINERS MADE OF SHEET MATERIAL
Robert Georges Eugène Durat, Jouet-sur-l'Aubois, Cher, France
Filed Aug. 10, 1965, Ser. No. 478,688
Claims priority, application France, Apr. 27, 1965, 14,779, Patent 87,743
7 Claims. (Cl. 93—36.5)

1. In an apparatus for forming rolled edges on a container of revolution made of sheet material, mounted on a fixed support comprising, in combination, a central part which is coaxial with the container mounted in its fixed support and which has formed thereon rearwardly of its periphery a circular hollow half-torus shaped throat at a distance from the container axis equal to the distance from said axis of the container edge to be rolled down, a movable hollow supporting member coaxial with and spaced from the rear of said part, a plurality of jaws mounted on said supporting member, radially movable in said space in contact with said central part and said supporting member and projecting radially forwardly from the periphery of said central part, said jaws having formed thereon facing said part on their forwardly projecting portions a circular hollow quarter-torus shaped groove which, when said jaws are in their retracted positions, jointly form with said throat a rolling die the section of which is a hollow three-quarter-torus opening out

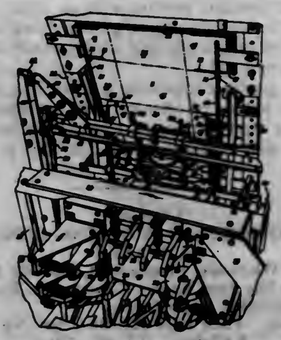
in the direction of the container, means for applying said jaws against said flange under slight pressure, means for applying said central part against said jaws under slight pressure, means for axially displacing said supporting member toward the container whereby to roll back the edge thereof externally in said die and move said supporting member away from the container after formation of the rolled edge, means for radially displacing said jaws between said supporting member and said central part on completion of the rolled edge whereby to open said die, means for reclosing said jaws on recession of said supporting member from the container with its rolled edge, and means for controlling said displacing means, the improvement comprising, in combination, means for rotatably mounting said rolling die about the axis of the container and means for rotating said rolling die.

3,318,204
MACHINE FOR AND METHOD OF FORMING PRODUCE TRAYS
Walton B. Crane, Arcadia, and John C. Peterson, Watsonville, Calif., assignors to Allied Plastics Company, Los Angeles, Calif., a corporation of California
Filed Mar. 9, 1964, Ser. No. 350,511
29 Claims. (Cl. 93—37)



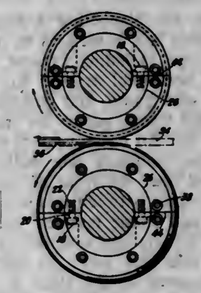
6. In a machine for forming a produce tray from a pair of top and bottom forming blanks which are cut and creased to provide the top forming blank with hinged panels having parallel hinge lines along one edge of the respective panels and a projecting locking tab formation along the opposite edge of at least one panel, and to provide the bottom forming blank with a bottom forming panel having a locking slot to receive said tab formation after said panels of said top forming blank have been folded about said hinge lines to erected positions wherein the latter panels are located substantially in parallel planes approximately normal to said top forming blank, the combination comprising:
an elongate frame including a bed to slidably support said top forming blank for movement from one station, through an intermediate station, to a following station spaced along said frame,
conveyor means on said frame for feeding said top forming blank from said one station, through said intermediate station, to said following station,
folding means on said frame at said intermediate station for folding said panels of said top forming blank about said hinge lines to said erected position upon movement of said top forming blank from said one station to said intermediate station, and
supporting means on said frame at said intermediate station for supporting said bottom forming blank in an initial position wherein said locking slot is disposed to mate with said tab formation on said top forming blank upon movement of the latter from said intermediate station to said following station, whereby said bottom forming blank is carried to said following station by said top forming blank.

3,318,205
HORIZONTAL BOX FORMERS
Frank M. Lefief, Palo Alto, Calif., assignor, by mesne assignments, to Kliklok Corporation, New York, N.Y., a corporation of Delaware
Filed Nov. 10, 1964, Ser. No. 410,097
15 Claims. (Cl. 93—51)



1. A machine for forming folding boxes from flat box blanks, the machine comprising, in combination, an open-ended box forming die disposed with its axis substantially horizontal; a horizontal box forming plunger movable into, and out of, said die by a stroke sufficiently long for the plunger end to clear the mouth of the die by a gap when retracted, and to project from the end of the die when extended; a box removal means comprising a first vacuum cup pivotally mounted about a horizontal axis transverse to the plunger and die axes for arcuate movement of the mouth of the cup from a first substantially vertical position in which it lies substantially in the plane of the end surface of the extended plunger into a second substantially horizontal position, so as to remove a box driven by the plunger through the die and simultaneously set the box upright; a blank feeder comprising a second vacuum cup mounted for substantially vertical reciprocating movement through said gap, the path of the feeder cup crossing the path of the end of the plunger; and means for operating said plunger, said removal means and said feeder in timed relationship.

3,318,206
UNITIZED ROTARY SCORER
Frederick R. Kuehn and William K. Barnes, both of Baltimore, Md., assignors to Koppers Company, Inc., a corporation of Delaware
Filed Oct. 18, 1966, Ser. No. 587,445
2 Claims. (Cl. 93—58.1)



1. Rotary scoring apparatus for scoring a web, comprising:
a pair of identical diametrically split cooperating scorers respectively secured for rotation with a pair of parallel adjacent shafts;

each of said scorers adapted for mounting either a male or female diametrically split profile upon a shoulder portion of reduced diameter adjacent one end of said scorers by a plurality of screws extending axially through said profiles into the major portion of said scorers;

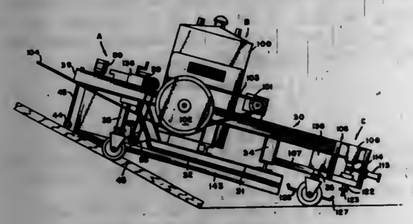
said female profile comprising a composite ring having an inner metallic portion with an outer elastomeric portion bonded thereto of greater diameter than said scorer for supporting said web opposite the other of said scorers; and

said male profile comprising a score ring sandwiched between a pair of identical back-up rings of lesser diameter than said score ring for forming a score in said web conforming substantially to said male profile.

3,318,207
PROCESS FOR SKID-PROOFING CONCRETE SURFACES
Jack Holton Whiteside, Plaquemine, Iberville Parish, La., assignor to Slip Pruf Service Corporation, Baton Rouge, La., a corporation of Louisiana
No Drawing. Filed June 22, 1964, Ser. No. 377,062
8 Claims. (Cl. 94—22)

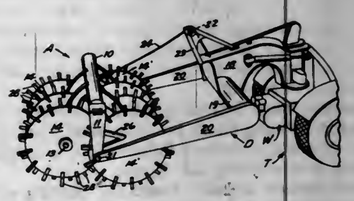
1. A process for treating a concrete surface to improve its resistance to skidding, which process comprises applying to such a surface an aqueous acid fluoride in a concentration equivalent to from 0.01 to 18.0 weight percent hydrogen fluoride, to cause the acid fluoride to attack the concrete surface and reduce its slipperiness, and terminating the attack before the visual appearance of the surface has significantly changed.

3,318,208
PAVING MACHINE
Harry D. Durston, Kennewick, and Alfred Perry, Moses Lake, Wash., assignors to J. A. Terteling & Sons, Inc., Boise, Idaho
Filed July 8, 1965, Ser. No. 486,581
30 Claims. (Cl. 94—44)



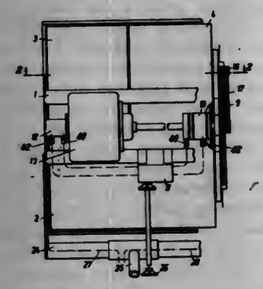
30. A machine for blanketing a sloping foundation with paving material laid in sections by movement of the machine up the slope, including a frame, means for moving said frame, a horizontal strikeoff bar suspended from the front end of said frame, said strikeoff bar extending transversely of said frame, means for raising and lowering said strikeoff bar during movement of said frame up or down the slope, confining side walls for the paving material supported near the front of said frame, means for varying the distance between said side walls, a spreader supported by said frame between said confining side walls, means for moving said spreader in a reciprocating motion between said side walls, to distribute and mix paving material poured on the slope in advance of the machine, a float body suspended from said frame aft of said spreader, the float body including a panel, the lower face of which is adapted for engagement with the paving material, the forward terminal of said panel extending upwardly at an angle to provide a forward, upwardly inclined nose portion for pushing ahead of the machine surplus material placed in its path, said nose portion being in contiguous engagement with said confining side walls, thereby forming a hopper-like member for receiving the paving material, material intercepter means transversely of the float body at the upper terminal of said nose portion, and protruding outwardly therefrom, to prevent paving material from rising over the nose portion to the upper face of the float body, said panel being slightly downwardly inclined, with respect to the frame, from the nose portion to the aft edge thereof, to form a depressed encrusting pan for effecting a floating and troweling of the paving material as the float body moves thereover, a tubular vibrator between said nose portion of the float body and said spreader extending transversely of the frame through said side walls, spaced brackets carried by said nose portion, and extending forwardly thereof, in supporting engagement with said tubular vibrator, resilient means interposed between each of said brackets and nose portion of the float body, to prevent transmission of vibrations to the float body, means for actuating said vibrator to densify the paving material, a finisher depending from said frame aft of said float body and operable on the surface crust formed by said depressed encrusting pan of the float body, means for setting the angle of attack of said finisher with respect to the paving material, to determine the depth and glaze of the encrustation to be formed by the finisher, means for effecting constant downward pressure of said finisher on the paving material, and an assembly on said frame aft of said finisher, for forming transverse contraction joints in said paving material, said assembly including a blade depending from said frame transversely of the direction of movement of said frame, power means for forcing said blade into the paving material and for withdrawing the blade therefrom, the assembly further including means for preventing forward movement of said blade with respect to the paving material during engagement of the blade therewith, said latter means effecting movement of the blade with respect to the frame toward its initial position after the blade is withdrawn from the paving material.

3,318,209
COMPACTOR
Eugene V. Schultz, Fargo, N. Dak., assignor of one-half to Percy M. Schultz, Bismarck, N. Dak.
Filed Nov. 30, 1964, Ser. No. 414,722
17 Claims. (Cl. 94—50)



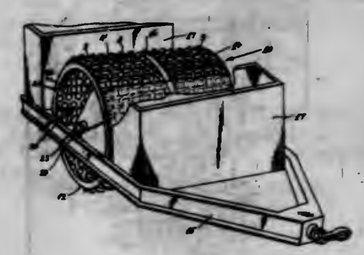
1. Ground compacting apparatus comprising draft means including a pair of elongate laterally spaced apart drag arms extending in the direction of travel of said apparatus and adapted for attachment to a vehicle for pulling same, and a compacting unit comprising an elongate frame member transversely disposed with respect to the intended direction of travel of said apparatus, each end portion of said member having an elongate draft member depending therefrom, the lower end portions of said draft members rotatably supported by said drag arms about a first horizontal axis transverse to said intended direction of travel, said frame member having axle supporting structure extending laterally downwardly therefrom from each side thereof intermediate said draft members, axle means supported by the lower end portions of said axle supporting structure, said axle means providing at least two parallel horizontal wheel axes transversely oriented and horizontally spaced with respect to said intended direction of travel, and compacting wheels mounted on said axle means for rotation about each of said wheel axes, the wheels operating on adjacent axes being in staggered overlapping relationship and uniformly axially spaced from each other, said wheels being physically spaced from each other whereby material picked up by the outer peripheries thereof and moving radially inwardly thereof is free to drop back onto the ground, said frame member and said draft members being tiltable about said first axis between a first position in which all of the compacting wheels are in lowered operative ground engaging compacting position and a second position in which the wheels operating about one of said axes are in a raised inoperative position and in which the weight of said last mentioned wheels is carried by the rest of the wheels still engaged with the ground, and power operated means for raising said last mentioned wheels and holding them in said inoperative position.

3,318,210
ROAD ROLLER
Karl Heinz Schwamborn, Boppard (Rhine), and Paul Otto Schaich, Munich, Germany, assignors to Bomag Bopparder Maschinenbaugesellschaft m.b.H., Boppard, Germany
Filed Mar. 4, 1965, Ser. No. 437,023
Claims priority, application Germany, Mar. 11, 1964, B 75,861
4 Claims. (Cl. 94—50)



1. A steerable road roller comprising a frame, a first roller drum rotatably supported by said frame adjacent one end thereof, a second roller drum assembly rotatably supported by said frame adjacent the opposite end thereof, said second roller drum assembly including a drive axle, first and second partial drums arranged side by side with a slight spacing therebetween and rotatably supported on said axle and together being substantially the same width as said first roller drum, a clutch between said first and second partial drums including a driving part carried on said drive axle and a slippable part carried by respective ones of said first and second partial drums for rotating said partial drums with said axle and for permitting slippage and non-rotation of one of said first and second partial drums, a sealing jacket disposed around said clutch and substantially bridging the slight spacing between said first and second partial drums, means connected to said tubular axle to rotate said axle, and brake means for selectively braking a respective one of said first and second partial drums.

3,318,211
EARTH COMPACTION ROLLER CONSTRUCTION
William E. Grace, c/o W. E. Grace Mfg., Co., 6000 Lamar St. S., Dallas, Tex. 75215
Filed Dec. 17, 1964, Ser. No. 419,121
1 Claim. (Cl. 94—50)



A roller for breaking and compacting earth, stone and the like, comprising a hollow cylindrical integrally formed perforated drum-shaped body structure, means for rotatably mounting said structure to rotate on its central axis, said structure having a multiplicity of uniformly distributed openings, each of the openings having an inner smaller hexagonal rim, adjacent inner rims of the openings being separated by straight webs, each of the openings having a larger outer hexagonal rim, adjacent outer rims of the openings being contiguous with each other, the inner and outer rims of each opening being defined by inner and outer opposing straight edges respectively of six trapezoidal flat faces, said faces having abutting narrow end edges defining three straight short grooves, said faces having abutting side edges defining straight ridges alternating with the grooves, each of the ridges being defined by one of said webs and two adjacent flat faces inclined to the plane of the one web, the outer rims of each of the openings having three alternate outwardly extended points and three alternate recessed points located outwardly of the inner rims of the openings and inwardly of the outwardly extended points, whereby the outwardly extended points and ridges serve to pierce and cut the earth and stone while the recessed points and flat faces serve to compact the earth and stone, said faces flaring outwardly between the inner and outer rims of the openings so that crushed earth and stone tend to slide off said faces and out of the openings.

3,318,212
DUPLEX XEROGRAPHIC REPRODUCTION
Daniel Rubin, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Sept. 20, 1965, Ser. No. 492,980
6 Claims. (Cl. 95—1.7)

1. Apparatus for forming xerographic reproductions on two sides of a copy sheet comprising:

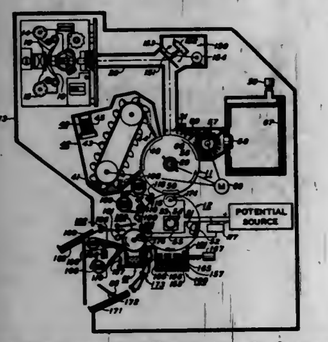
(a) first support means on which to support a first tackifiable xerographic powder image of copy containing a solvent soluble component;

(b) second support means arranged opposite said first support means and adapted to support a second tackifiable xerographic powder image of copy containing a solvent soluble component;

(c) solvent generator means to generate a vapor atmosphere of a solvent of said solvent soluble component of the powder images;

(d) drive means connected to said supports to pass powder images on their respective supports through said atmosphere of solvent vapor to render the powder images tackified and to bring the tackified images to an opposed superposed registered relation;

(e) copy advance means operative in timed relation with said drive means to advance a copy sheet into a sandwich relation intermediate the superposed relation of said tackified images on their supports; and,



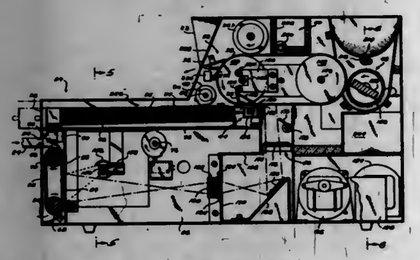
(f) separating means to effect removal of a copy sheet from said last recited relation.

3,318,213

ELECTROPHOTOGRAPHIC REPRODUCING APPARATUS

Charles J. Kowalski, New York, N.Y., assignor to Cartofax Corporation, New York, N.Y., a corporation of New York

Filed Dec. 1, 1964, Ser. No. 415,071
25 Claims. (Cl. 95—1.7)



1. An electrophotographic reproducing apparatus adapted to reproduce documents by electrostatic printing comprising:

a housing;

an original document transport means supported by said housing for receiving an original document to be copied and transport it for exposure and subsequent removal;

a copy paper transport and electrically conductive web supported by said housing for receiving a sheet of copy paper having a photoconductive insulating stratum thereon and transporting it for receiving thereon an image of the original document and then subsequent removal, ground means for electrically grounding said web;

synchronization means for synchronizing the operation of the original document transport means and the copy paper transport web;

a charger supported by said housing adjacent said web for electrostatically charging said paper while being transported by said web, said charge being generated between the charger and the grounded web;

an optical exposure means supported by said housing for directing the image of the original document onto the charged copy paper while both are being transported to discharge those areas of the charged copy paper irradiated with light while maintaining the remaining areas in a charged condition for subsequent developing into a visible image of the original document;

an image developing means supported by said housing operable to develop the image on the copy paper by applying a developing material including a toner of opposite polarity to that of the undischarged areas of the paper;

image fixing means supported by said housing for fixing the visible image on the copy paper;

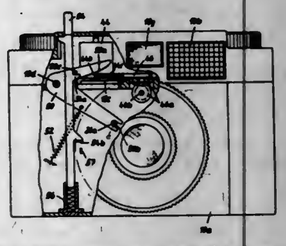
and copy paper removal means for cooperating in removing the copy paper having the fixed image of the original document thereon.

3,318,214

PHOTOGRAPHIC CAMERA

Franz Singer and Helmut Müller, Munich, and Johann Isztl, Karlsfeld, near Munich, Germany, assignors to Compur-Werk Gesellschaft mit beschränkter Haftung & Co., Munich, Germany, a firm of Germany

Filed May 26, 1964, Ser. No. 370,322
Claims priority, application Germany, May 30, 1963, C 30,078
13 Claims. (Cl. 95—10)



1. A photographic camera comprising an adjustable diaphragm, a first control member movable to vary the aperture of the diaphragm, exposure meter means, a second control member movable in accordance with measurements recorded by said exposure meter means, said first control member being moved by movement of said second control member when adjusting said diaghragm in accordance with said exposure meter means, and a manually adjustable switch member having a control cam moved thereby, characterized by the fact that there is a transmission member having a first part connected in driving relation to said first control member during all exposure operations of all kinds, a second part operatively connected to said second control member, and a third part operatively engaged with said control cam on said switch member, said control cam having one cam zone with no rise for engaging said third part of said transmission member when said manually adjustable switch member is set for exposure operations of one kind and having at least one other cam zone with an inclination for engaging said third part of said transmission member when said manually adjustable switch member is set for exposure operations of a different kind.

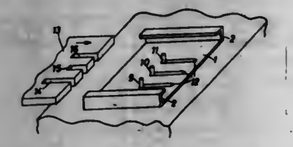
3,318,215

FLASH-EXPOSURE STRUCTURE FOR CAMERAS

Albert Schiks, Munich-Obermenzing, Germany, assignor to Agfa Aktiengesellschaft, Leverkusen-Bayerwerk, Germany

Continuation of application Ser. No. 239,573, Nov. 23, 1962. This application Mar. 23, 1966, Ser. No. 536,926
26 Claims. (Cl. 95—11.5)

1. In a camera, in combination, a camera housing having a top face; setting means for setting one of the exposure factors, said setting means arranged in said camera housing and adapted to be in different setting positions corresponding to different values of said exposure determining factors; receiving means in said top face of said camera housing for receiving an illuminating arrangement, said illuminating arrangement insertable into said receiving means by linear movement in an axial direction normal to said top face of said camera housing; and an actuating member mounted in said camera housing movable also in said axial direction normal to said top face of said camera housing between an inoperative position and an axially spaced operated position and having an actuated portion extending into the path of said illuminating arrangement so as to be moved thereby upon



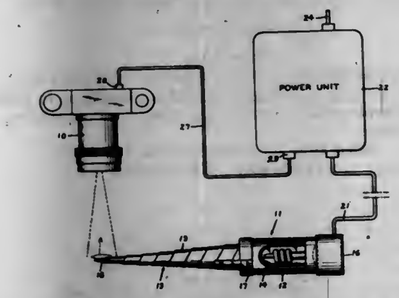
insertion of said illuminating arrangement into said receiving means in said top face of said camera housing from said inoperative to said axially spaced operated position thereof, and having also an actuating portion thereof cooperating with said setting means so as to influence movement of said setting means between said setting positions thereof by movement between said inoperative and operated positions upon insertion of said illuminating arrangement in said receiving upon insertion of said flash arrangement into said receiving means and removal of said illuminating arrangement therefrom, respectively.

3,318,216

PHOTOGRAPHIC TRANSILLUMINATION

Edward R. Hajjar, 210 Congress St., Brooklyn, N.Y. 11201, and Martin M. Rotker, 1290 Lafayette Ave., Bronx, N.Y. 10474

Filed June 3, 1964, Ser. No. 372,327
2 Claims. (Cl. 95—11.5)



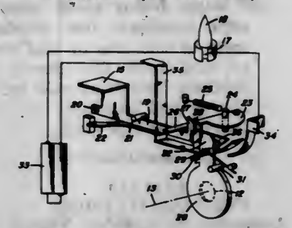
1. Apparatus especially adapted for photographing the internal condition of organic bodies comprising, in combination with a camera; an elongated tapered solid homogeneous body of high light transmitting methyl methacrylate resin terminating substantially in a point, a small platform substantially at said end point inclined longitudinally in the direction of taper and declined downwardly with respect thereto, substantially the entire surface of said tapered body covered with a light-blocking material leaving essentially only the platform uncovered, a source of high intensity light having a strength capacity in excess of 1,000 peak candle power and positioned closely adjacent the opposite end of said body, a housing of light-blocking and heat-dissipating material enclosing and securing said light source, means detachably securing the last-mentioned end of said body to said housing adjacent said light source, current conducting means having one end connected to the high intensity light source, an electronic power source connected to the other end of said current conducting means and adapted to supply current at high voltage to actuate said light source, said power source comprising a source of low voltage and means to step-up said voltage to a high level, and synchronizing means connecting said power source and camera to release current from said power source in cooperation with the camera actuating means whereby the light source is energized and high intensity light caused to emit from said platform while the camera shutter is open.

3,318,217

PHOTOFLASH SYNCHRONIZING MECHANISM

Paul J. Ernisse, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Filed Feb. 23, 1965, Ser. No. 434,410
4 Claims. (Cl. 95—11.5)



1. In a photographic camera, a mechanism for synchronizing photoflash with camera shutter operation comprising:

an impact-type shutter including a shutter blade movable between a closed position preventing exposure and an open position permitting exposure, and means biasing the shutter blade to its closed position;

an impact driver movable from a cocked position along a path of movement to a released position and means biasing the driver to move from the cocked position to the released position and strike the shutter blade in its movement to thereby move the shutter blade from the closed position to the open position;

a photoflash synchronizing switch including a pair of normally open switch elements connectable in an electrical circuit with an ignitable photoflash lamp and a source of electrical potential; and

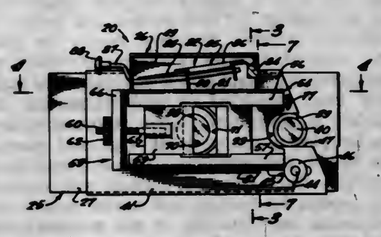
a control cam mounted for movement independently of the shutter blade and responsive to the driver during movement of the driver to its released position to close the switch elements and ignite the photoflash lamp.

3,318,218

MULTIPLE-IMAGE DEVICE

William G. Yax, 478 W. Baker Ave., Fullerton, Calif. 92632

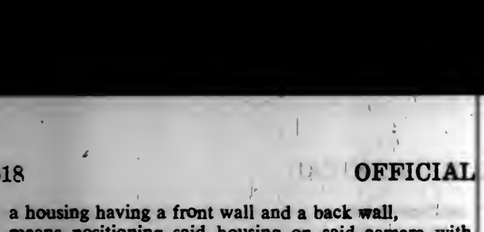
Filed Jan. 28, 1966, Ser. No. 523,620
8 Claims. (Cl. 95—36)



1. In combination with a camera having a lens for transmitting light to an area of photographic film within said camera, a multiple-image device comprising

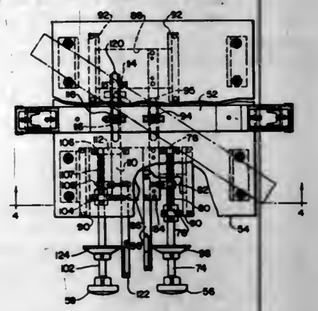
a housing having a front wall and a back wall,
means positioning said housing on said camera with said back wall adjacent said lens,
said front and back walls having openings therethrough for transmitting light through said housing to said lens,
a mask in said housing,
means guiding said mask for rectilinear movement relative to said housing,
a detent for holding said mask in a first position relative to said housing,
a stop for limiting the movement of said mask from said first position to a second position,
and resilient means biasing said mask to said second position,
said mask having an opening therethrough, said opening having opposed parallel edges,
said edges falling along substantially the same imaginary line chordal with respect to said lens in said two positions of said mask for thereby alternately blocking light from said lens on either side of said imaginary line in said two positions of said mask.

3,318,219
COPYING MACHINE
Donald F. Anderson, St. Anthony Village, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware
Filed May 25, 1964, Ser. No. 369,893
9 Claims. (Cl. 95—73)



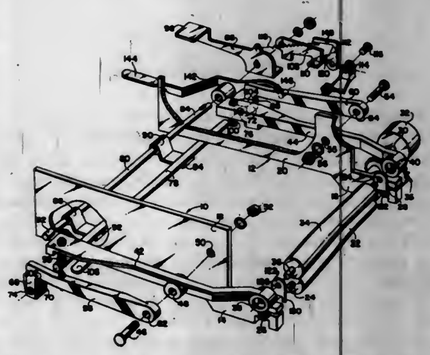
1. A copying machine comprising, in combination: exposure means for reflex exposure of a light-sensitive intermediate sheet material and an original, including a light source, a transparent supporting surface, and a retractable pressure-cover; heating means for heating the exposed intermediate in contact with a copy sheet, including a heat source having a smooth contact surface and a retractable pressure-pad; advancing and retracting means for moving an elongate strip of said light-sensitive intermediate sheet material to place a section thereof tautly into position for said reflex exposure, thence into position for said heating, and thence back to the exposure position; first feed means for placing a graphic original beneath said pressure-cover and in smooth pressure-contact with a said section of said intermediate sheet supported on said transparent supporting surface in position for reflex exposure; second feed means for placing a copy-sheet upon said pressure-pad and in smooth pressure-contact with said section of said intermediate sheet disposed beneath said contact surface in position for heating; and control means for causing advancing and retracting of said pressure-cover, advancing and retracting of said pressure-pad, and advancing and retracting of said strip of intermediate sheet material in copying sequence for producing on said copy-sheet a copy of said graphic original.

3,318,220
PHOTOMECHANICAL APPARATUS
Glenn J. Battaglia, Kanpur, Uttar Pradesh, India, and Gregory E. Lindin, Newton Highlands, Mass., assignors to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware
Filed Sept. 11, 1964, Ser. No. 395,783
5 Claims. (Cl. 95—75)



1. An apparatus for the selective exposure of a light-sensitive material contiguous a sheet of lenticular film, said apparatus comprising a housing; means for advancing a sheet having elongated rows of lenticules thereon through said housing so that the axes of said lenticules are parallel to the path of said sheet through said housing; an elongated light source in said housing directing light on said sheet; means positioned between said light source and said sheet for variably controlling the amount of radiant energy received by said sheet; means for collimating said light interposed between said light source and said sheet; means for moving said elongated light source in a direction which is transverse to the path of said sheet through said housing; and means for rotating said elongated light source about a point intermediate its ends in a plane which is parallel to the plane of said sheet.

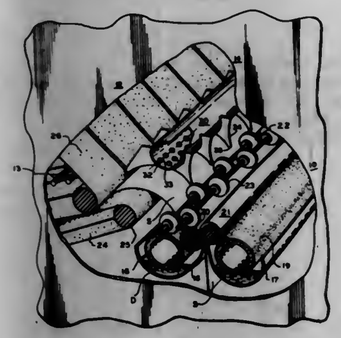
3,318,221
PHOTOGRAPHIC PROCESSING APPARATUS
Herman E. Erikson, Winchester, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware
Filed Jan. 29, 1965, Ser. No. 429,080
14 Claims. (Cl. 95—89)



1. Apparatus for processing a photographic film assembly having a pair of liquid-confining sheets and adapted to be processed by a liquid spread in a uniformly thin layer between said sheets, said apparatus comprising, in combination:
(a) a pair of elongated, rotatably mounted, pressure-applying members;

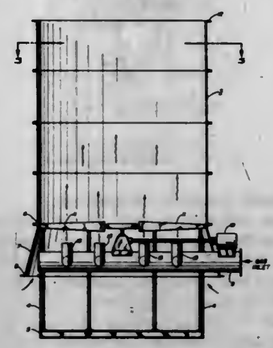
(b) means for mounting said members for movement from a first position, wherein said members are spaced from one another, to a second position, wherein said members are in contacting engagement with their axes of rotation substantially parallel;
(c) means for biasing at least one of said members for movement relative to the other from said first toward said second position of said members;
(d) movable spacer means for maintaining said members in said first position against the force of said biasing means when said spacer means is in an operative position; and
(e) means for moving said spacer means to an inoperative position in response to rotation of at least one of said members, whereby said biasing means moves said members to said second position with at least one of said members rotating when the latter meet in said contacting engagement.

3,318,222
PAPER GUIDING AND EVAPORATION CONTROL IN MOIST REPRODUCTION MACHINES
Stanley J. Klem, Jr., Binghamton, N.Y., assignor to General Aniline & Film Corporation, New York, N.Y., a corporation of Delaware
Filed June 8, 1964, Ser. No. 373,343
3 Claims. (Cl. 95—94)



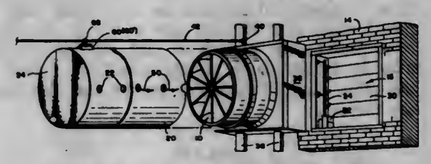
1. A paper guiding and liquid developer evaporation control arrangement for guiding moist paper without streaking the same and for controlling the rate of evaporation of a developer solution in a moist reproduction machine of the type having a developer section with liquid developer solution stored in a solution-carrying tank positioned adjacent a drying section having a hot air drying means, said paper guiding and evaporation control arrangement comprising:
feeding means for moistening and feeding a sheet material from said developer section in a generally upward direction,
transport means for transporting the so-moistened sheet material through said dryer section, said transport means being physically spaced apart from said feeding means whereby the sheet material fed by said feeding means is not directed toward said transport means,
manifold means positioned in the space between said feeding means and said transport means and containing a source of cool air under pressure, said manifold means having a plurality of exit openings for continuously directing a curtain of cool air between said developer section and said dryer section and in a direction transverse to the path of the moistened sheet material whereby the rate of evaporation of said developer solution and the directing of the sheet material toward said transport means are simultaneously controlled by said curtain of cool air.

3,318,223
METHOD AND MEANS FOR DISPOSAL OF WASTE GAS
Joseph L. Maher, Tulsa, Okla., assignor to Crest Engineering, Inc., Tulsa, Okla., a corporation of Oklahoma
Filed Aug. 6, 1965, Ser. No. 477,728
8 Claims. (Cl. 98—1)



1. A method of dispersing waste gas of petroleum production through a vertical stack which is supported well above a horizontal surface, including,
conducting waste gas of petroleum production to the lower end of the vertical stack,
distributing the waste gas at predetermined positions in a horizontal plane at the lower end of the stack,
flowing air through the plane in which the gas is distributed,
creating a predetermined turbulence in zones above the positions of gas distribution to form a mixture which is non-hazardous,
and discharging the mixture from the top of the stack.

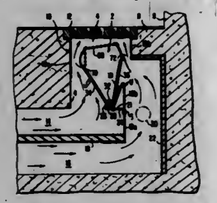
3,318,224
VENTILATING AND CIRCULATING AIR SYSTEM TUBE HANGER
Hoy R. Bohanon, Muskogee, Okla., assignor to Acme Engineering and Manufacturing Corporation, Muskogee, Okla., a corporation of Oklahoma
Filed Oct. 18, 1966, Ser. No. 587,603
9 Claims. (Cl. 98—33)



1. In a ventilating and circulating system including a shutter assembly mounted within a wall of a building and a fan having an intake portion located a pre-determined space from said shutter assembly, the combination with said shutter assembly and said fan of a tube assembly connected to the discharge of said fan, said tube assembly being made of non-rigid material permitting air pressure from said fan to hold said tube in its contemplated shape during use, said tube assembly further including a plurality of continually-spaced openings of predetermined size along the extent thereof, a supporting

member located above said tube and at least one clip assembly suspending said tube from said supporting member.

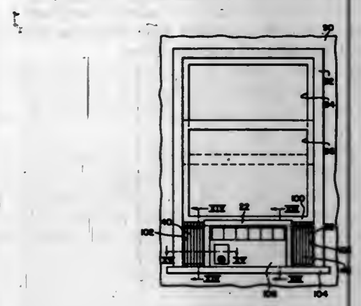
3,318,225
DAMPER ASSEMBLY
Douglass H. May, 2713 Lakeport Drive, Bridgeton, Mo. 63042
Filed Oct. 15, 1965, Ser. No. 496,267
11 Claims. (Cl. 98—38)



1. A damper assembly, comprising:
(a) means defining a pair of air conduits having a common partition in a common passage defined between two opposed walls spaced from one another and from said common partition, said conduits being adapted to conduct relatively cool and warm air,
(b) a pair of damper plates disposed in generally V-forming configuration with edges thereof which form the apex of the V disposed adjacent said common partition, said damper plates having surfaces disposed away from the apex of the V which lie respectively opposite the opposed walls and which cooperate with said opposed walls to define throats controlled by the damper plates,
(c) a drive shaft,
(d) means mounting said drive shaft for rocking about an axis extending along the apex of the V formed by the damper plates,
(e) a driving connection between said drive shaft and one of said damper plates,
(f) a pivotal connection between said drive shaft and the other of said damper plates, whereby said damper plates may swing towards and apart from one another,
(g) the other of said plates being biased to swing apart from said one plate,
(h) means for limiting the apart swinging of said damper plates,
(i) and means for rocking said drive shaft about said axis in one direction or the other, whereby the relative widths of said throats may be varied by simultaneous swinging of said damper plates between positions wherein said surfaces lie away from said opposed walls and whereby the width of the throat controlled by the surface on said one damper plate may be independently varied when the surface of the other damper plate lies against the wall opposite thereto.

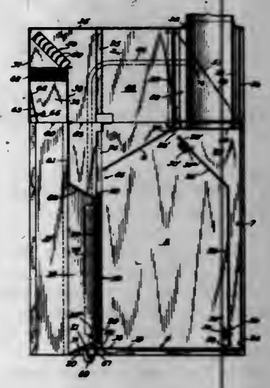
3,318,226
MOUNTING ASSEMBLY FOR ROOM AIR CONDITIONERS
Michael D. Ulich, Columbus, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Jan. 29, 1965, Ser. No. 428,909
9 Claims. (Cl. 98—94)

8. A wing panel for use in closing the space between an appliance mounted within a window opening and the frame of said window opening, comprising a generally rectangular sheet formed from frangible, plastic material, said sheet having an upper portion which is offset from the plane of said sheet, ridge means projecting outwardly from said sheet for providing abutment surfaces adapted to engage said frame, said ridge means extending along one side edge and a bottom of said sheet and being offset with respect to said one edge and said bottom, and a plu



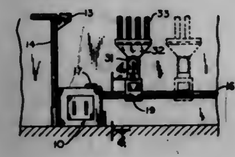
rality of uniformly spaced, parallel grooves formed in at least one face of said sheet, the grooves extending parallel with said one side edge and the sheet being severable along lines defined by said grooves for reducing the width of said wing panel.

3,318,227
FUME HOOD
Laurence N. Nelson, Onsted, Mich., and Frederick J. Viles, Norwood, and Richard I. Chamberlin, Hanover, Mass., assignors to Kewaunee Manufacturing Company, Adrian, Mich., a corporation of Michigan
Filed Mar. 10, 1965, Ser. No. 438,501
15 Claims. (Cl. 98—115)



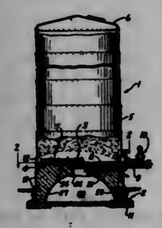
2. In a fume hood for providing substantially 70% auxiliary air and 30% room air, the combination of a housing having a bottom pan providing an interior work surface, a front wall, a rear wall, a movable closure for the front wall cooperable when in closed position with the housing structure to operatively enclose the work surface or to expose said surface when in open position, a back baffle, said housing having an air exhaust opening adjacent the bottom of the back baffle communicating with the interior adjacent said work surface for receiving exhaust air flowing rearwardly across the latter, said housing having a second air exhaust opening adjacent the top of the back baffle for receiving exhaust air flowing upwardly and rearwardly in said housing, exhaust means including an exhaust plenum chamber and an exhaust duct operatively communicating with said air exhaust openings for receiving exhaust air flowing therethrough, vertically disposed air jet means at opposite sides of said housing for discharging auxiliary air into said housing along the side walls thereof, and horizontally disposed air jet means extending across the housing arranged for discharging auxiliary air therein.

3,318,228
FEED MIXING AND PROCESSING MECHANISM
Paul R. Bernard, Eldora, Iowa 50627
Filed Mar. 18, 1964, Ser. No. 352,799
14 Claims. (Cl. 99—235)



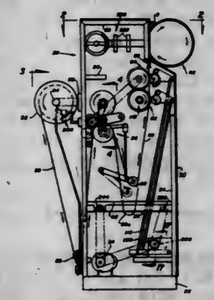
14. In a feed mixing and processing mechanism, comprising in combination,
a first auger,
a metering device operatively connected to said first auger and in communication with the interior thereof,
a supply means for supplying feed material to said metering box,
means on said metering box for controlling the rate of feed material flow from said metering box,
said first auger adapted to convey said feed material to a feed handling means.
and power means for operating said first auger and said feed handling means.

3,318,229
STORAGE STRUCTURE
Jerry A. Hansen, Jr., Arlington Heights, Ill., assignor to A. O. Smith Harvestore Products, Inc., Arlington Heights, Ill., a corporation of Delaware
Filed July 20, 1965, Ser. No. 473,387
13 Claims. (Cl. 99—235)



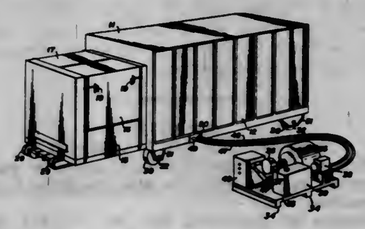
1. A storage structure, comprising a vessel to contain a stored material, a foundation to support the vessel, said foundation defining a chamber located beneath the level of said stored material, a pressure responsive member disposed within the chamber, means for exposing one surface of the pressure responsive member to atmospheric pressure, and means for exposing the opposite surface of the pressure responsive member to the internal pressure of the vessel whereby the pressure responsive member will balance variations in pressure between the atmosphere and said internal pressure.

3,318,230
TYING MACHINE
Frank E. Hilton, Portland, Oreg., assignor to Package Containers, Inc., Portland, Oreg., a corporation of Oregon
Filed May 12, 1965, Ser. No. 455,105
26 Claims. (Cl. 100—4)



1. A tying machine comprising:
reel means for storing a supply of typing tape,
loop-forming means for forming a length of said tape into a loop about an article to be tied,
and tape-feeding means, including first draw roll means adjacent said loop-forming means for feeding a predetermined length of said tape in a forward direction into said loop-forming means whereby a loop of tape is formed about said article,
second draw rolls means operable after said first draw roll means for feeding said tape in a reverse direction and thereby withdrawing a length of tape from said loop-forming means,
and third draw roll means remote from said loop-forming means and operable concurrently with and at the same speed as said first draw roll means for drawing tape from said reel means as said first draw roll means feeds tape into said loop-forming means.

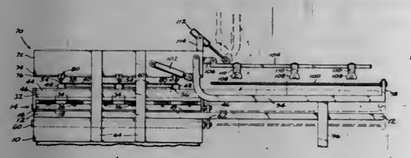
3,318,231
PACKING CONTAINER WITH REMOTE POWER UNIT
Wallace M. Felts, Fort Worth, Tex., assignor to Fruehauf Trailer Company, Detroit, Mich., a corporation of Michigan
Filed Oct. 11, 1965, Ser. No. 494,443
1 Claim. (Cl. 100—52)



In a hydraulic assembly including a portable container, a hydraulic cylinder having an extending piston rod and a packer blade on the extending end thereof, all within said container, a remote power unit adapted to be positioned outside of said container, said unit including a motor and a pump driven thereby, a double solenoid valve of the open center type having separate actuating coils, a reservoir, an intake line connecting the bottom

of said reservoir with said pump, a discharge line connecting said pump with said solenoid valve, a return line connecting said solenoid valve with said reservoir, operating lines connecting said solenoid valve with opposite ends of said hydraulic cylinder, means directing flow to one or the other of said operating lines, said means including a pressure operated switch in each said operating line and electrically connected by a circuit with a said coil of said double solenoid valve, a quick disconnect coupling in each said operating line between the pressure switch mounted therein and said cylinder whereby said container may be readily removed without moving said power unit, said means also including a relay, the armature of which alternately connects one and the other of said circuits with a source of power when one or the other of said pressure switches is closed by pressure in the operating line in which it is mounted.

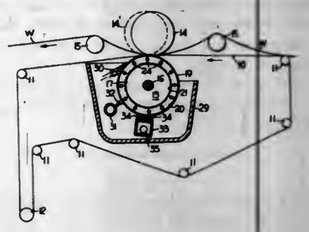
3,318,232
APPARATUS FOR FORMING SHEET PLASTIC AND LAMINATING IT TO AN UNDERLAYMENT
Robert R. Bartron, 8210 Stellacoom Blvd., Tacoma, Wash. 98498, and Thomas W. Coventry, 78—1220 Cardero St., Vancouver, British Columbia, Canada
Filed Apr. 29, 1963, Ser. No. 276,330
10 Claims. (Cl. 100—93)



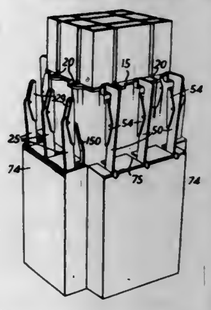
1. Press apparatus comprising:
(a) platen press means including upper and lower platens positioned for receiving between them an assembly to be pressed,
(b) track means supporting the lower platen and extending beyond the apparatus,
(c) drive means connected to the lower platen for reciprocating it on the track means between a working position within the press and a loading position outside the same, and
(d) loading rack means stationed above the lower platen in its loading position and comprising a horizontal frame pivotally connected to the upper platen a plurality of spaced parallel horizontal rods connected to the frame at their outer ends only and lying in a plane above the plane of the working surface of the lower platen, and drive means connected to the frame for moving it angularly between working and retracted positions.

3,318,233
SLEEVE AND ROLL ASSEMBLY
Donald R. Curtis, Appleton, Wis., assignor, by mesne assignments, to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Continuation of application Ser. No. 371,532, June 1, 1964. This application July 8, 1966, Ser. No. 563,922
4 Claims. (Cl. 100—121)

1. A roll assembly comprising a cylindrical roll and a fabric sleeve shrunken tightly around the periphery and between the ends of said roll, said sleeve comprising shrinkable synthetic fibers interwoven in a mesh fabric defining pores adapted to adsorb liquid thereon, and means for securing to the roll portions of said sleeve overhanging the roll, said means comprising an annular ring coaxial with said roll for engaging an intermediate portion of said overhanging sleeve and an outer annular clamp connected through said ring to said roll for pressing the end of said overhanging portion against said ring to thereby secure said overhanging portion to said roll.



3,318,234
PRESSES
George M. Robertson and George K. Charles, both of Cow and Gate House, North St., Guildford, England
Filed July 14, 1965, Ser. No. 471,870
14 Claims. (Cl. 100—232)

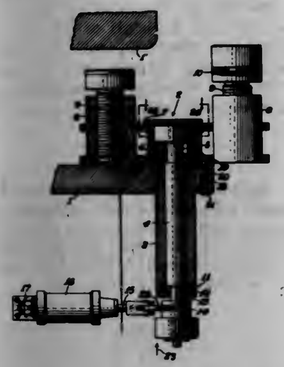


1. A press for compressing a body of cuboidal or rectangular parallelepiped form, comprising three sets of opposed pressure applicators through which pressure can be applied to each of the faces of said body to be compressed; individual piston and cylinder units operatively coupled to respective ones of each of said sets of applicators and operable to move at least one applicator of a selected set towards an opposing applicator of said selected set to apply pressure to opposed faces of said body; individual fluid supply lines to each of said piston and cylinder units; valve means operatively connecting said supply lines to a common source of fluid under pressure; and flow restricting means in said supply lines restricting the supply of said fluid to said cylinder units at rates such that said piston and cylinder units apply pressure to each pair of opposed faces of said body in succession in a predetermined sequence.

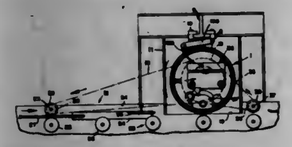
3,318,235
HYDRAULIC PRESS BRAKE
Eduard Hänni, Rosengartenstrasse 10, Zofingen, Switzerland
Filed Oct. 12, 1964, Ser. No. 403,106
Claims priority, application Austria, Oct. 18, 1963, A 8,376/63
4 Claims. (Cl. 100—257)

1. In a press, in combination:
(a) a press table;
(b) a ram movable toward and away from said table in a predetermined direction;
(c) a carrier mounted on said table for rotation about an axis extending in said direction;
(d) a plurality of stops;

(e) securing means securing said stops to said carrier for axial adjustment thereon, said stops being spacedly arranged about the periphery of said carrier for movement toward and away from respective positions of alignment with said ram in said direction when said carrier rotates about said axis; and
(f) means for indexing said carrier about said axis.

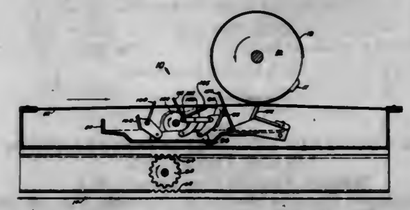


3,318,236
ELECTROSTATIC DRUM PRINTER
Robert C. Mueller, Fremont, Calif., assignor to Unimark Corporation, San Ramon, Calif., a corporation of California
Filed Oct. 24, 1965, Ser. No. 504,449
11 Claims. (Cl. 101—118)



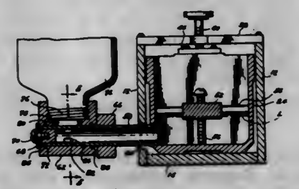
1. In an electrostatic printing apparatus of the type for electrostatic printing by electrostatically conducting a dry printing powder from an electrically conductive system across an air gap onto the article to be printed upon, a cylinder including as a part thereof an electrically conductive screen having a group of openings formed thereon defining the area and shape of the design to be printed and said openings being adapted to pass said printing powder therethrough, means for supporting an article to be printed upon adjacent to and spaced from the outer surface of said cylinder in opposed relation to said screen upon rotation of said cylinder about its axis, the improvement comprising,
(a) an endwall at one end of said cylinder closing said one end, and the opposite end of said cylinder being open;
(b) means connected with said endwall supporting it and said cylinder for said rotation of the latter about its axis;
(c) a powder supply container and powder dispensing means associated therewith for discharging powder from said container onto the radially inwardly facing surface of said screen;
(d) a support within said cylinder for supporting said powder supply container stationary within said cylinder during rotary movement of said cylinder and for reciprocable horizontal movement of said container into and out of the open end of said cylinder and for supporting said container when the latter is outside said open end to provide access to said container for filling the latter during rotation of said cylinder.

3,318,237
SILK SCREEN PRINTING MACHINE
Stancil I. Ramsey, 4009 Harvey Parkway Oklahoma City, Okla. 73118
Filed Aug. 2, 1965, Ser. No. 476,246
15 Claims. (Cl. 101—124)



1. In a machine for printing an impression on paper stock and the like, the improvement comprising:
a cylindrical roll rotatably mounted in said machine for carrying the stock to be printed;
a stencil mounted for horizontal reciprocating movement below said roll relatively toward and away from said roll;
a stationary ink reservoir mounted below said stencil;
ink pump means rotatably disposed in said reservoir for delivering ink from said reservoir to the underside of said stencil;
a spreader blade spaced from said ink pump means and mounted below and movable from a position out of engagement with said stencil to a position engaging said stencil at a point not in vertical alignment with said roll to distribute the ink on the underside of said stencil;
a squeegee blade mounted below said stencil and below and in vertical alignment with said roll and movable into engagement with said stencil to force the ink through said stencil onto the stock carried by said roll and movable away from said stencil; and,
means for moving said spreader blade and squeegee blade into engagement with said stencil in timed relationship with the reciprocating movement of said stencil.

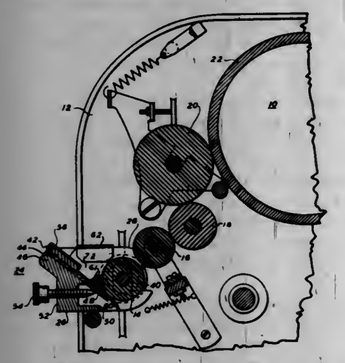
3,318,238
INK FOUNTAIN SUPPLY AND DRAIN MEANS
Ira S. Gottscho, Milburn, N.J., assignor to Adolph Gottscho, Inc., Hillside, N.J., a corporation of New York
Filed Oct. 16, 1964, Ser. No. 404,415
1 Claim. (Cl. 101—363)



In a marking apparatus having an ink reservoir and a rotatable inking roll extending into the reservoir for picking up ink from the latter, the combination of a container for a supply of ink having a neck with an opening through which ink can flow into and out of the container, a tube fixed in the reservoir adjacent the bottom thereof and opening into the reservoir, at least a portion of said tube being directed horizontally outwardly of the reservoir, a mounting member having a bore re-

ceiving said horizontally directed tube portion so as to be turnable on the latter, said mounting member having a socket opening radially outward of said bore and a radial passage between said bore and said socket and in which said container neck is mounted, and said tube having spaced circumferential openings communicating with said mounting member passage when the latter is positioned to dispose said container above the tube and thereby effect barometrically controlled flow of ink from the container into the reservoir for maintaining a constant level of ink in the reservoir and also when the mounting member is turned to dispose the container below said tube and thereby cause substantially complete draining of ink from the reservoir back to said container.

3,318,239
INK FOUNTAIN LINER AND INSTALLATION MEANS THEREFOR
William Wintzer, East Orange, N.J. (% Handcraft Co., 224 Market St., Newark, N.J. 07102)
Filed Oct. 29, 1964, Ser. No. 407,328
15 Claims. (Cl. 101—364)

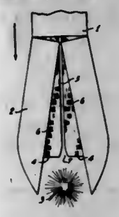


1. A disposable liner for use with an ink fountain having end walls and a doctor blade extending therebetween and secured along the upper edge thereof to the main body of the ink fountain, said disposable liner comprising a sheet of flexible material resistant to the corrosive action of solvents in printing inks, said sheet being formed to provide a bottom wall extending between the end walls of and covering the doctor blade of the ink fountain, said bottom wall further having a lip adapted to extend beyond the edge of the doctor blade, said sheet being formed to provide a raised portion extending the length of the sheet above the plane of the remaining portion of the sheet and adapted to fit about the upwardly extending flange of the fountain at the point of securemen of the blade to the fountain and conforming to the contour of the fountain at the point where the doctor blade is secured thereto.

3,318,240
MATRIX MAT FOR PLASTIC PRINTING PLATE
Winfred Doyle Boggess, Indianapolis, Ind., assignor to The Beveridge Paper Company, Indianapolis, Ind., a corporation of Indiana
No Drawing. Filed Feb. 21, 1966, Ser. No. 528,806
5 Claims. (Cl. 101—401.2)

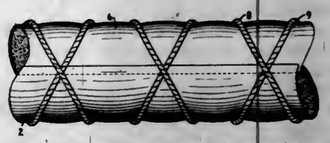
5. A stereotype mat comprising co-felted cellulose fibers and discrete particles of a filler, said mat having present at the molding and casting surface thereof a uniform coating of plasticized polyvinyl alcohol, said polyvinyl alcohol containing no more than 5% residual acetate groups, said polyvinyl alcohol coating carrying on its surface from about .5 to about 3 pounds per 1,000 square feet of mat surface of a release improving agent, said release improving agent being a polyfluoroalkyl phosphate characterized as a clear, light brown liquid having an alcoholic odor, 33% solids, a density of 8.85 lbs./gal. at 77° F., a viscosity of 10 cps. at 77° F., a flash point, Tag Open Cup, of 105° F., a pH of 7.0, said polyfluoroalkyl phosphate being soluble in water in all proportions, slightly soluble in polar solvents and having negligible solubility in non-polar solvents, said polyfluoroalkyl phosphate being unaffected by aging, freezing and pH changes of 7.0 and up.

3,318,241
DISPERSAL OF ROCKETS
Bert B. Gould, Berkeley, Calif., assignor, by mesne assignments, to MB Associates, San Ramon, Calif.
Continuation of application Ser. No. 118,685, June 21, 1961. This application Feb. 4, 1965, Ser. No. 431,778
4 Claims. (Cl. 102—7.2)



4. A warhead for a projectile or rocket comprising in combination:
(a) a protective covering enclosing a holding structure;
(b) a plurality of miniature rockets within said covering;
(c) said covering being hermetically sealed and having an inert gas filling;
(d) said plurality of miniature rockets within said cover being held by said holding structure;
(e) each of said rockets having a fuse therein which is self-igniting in the presence of oxygen but which will not ignite in the presence of the inert gas filling;
(f) means for removing said protective covering;
(g) said rockets partially dispersing when said protective covering is removed and said ignition means causing further dispersal of the rockets upon contact of the self-igniting fuses of the rockets with air.

3,318,242
PACKAGED EXPLOSIVE PRODUCT
George L. Griffith, Coopersburg, Pa., assignor to Trojan Powder Company, Allentown, Pa., a corporation
Filed June 23, 1965, Ser. No. 466,158
13 Claims. (Cl. 102—24)



1. A flexible continuous detonable cartridge of packaged detonable explosive, comprising a continuous column of a detonable explosive composition; a wrapper of flexible sheet material, continuous for substantially the entire length of the package, folded substantially parallel to the longitudinal axis of column over the column of detonable explosive into close contact therewith in a manner to completely enclose and package the column within the folded sheet, with the folded-over edges thereof abutting each other in a generally longitudinal seam, the detonable explosive column filling substantially all of the volume of the space within the folded sheet, and being substantially uniform in density and free from air pockets; and a reinforcing wind of filamentary material tightly wound about the package in a plurality of spaced apart windings in a manner to hold the longitudinal seam closed, retain the explosive column within the package and impart flexibility to the package due to the spacing and the tightness of the windings.

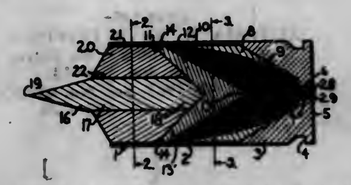
3,318,243
STATIC PROTECTED DETONATOR
Paul H. Miller, Tamaqua, Pa., assignor to Atlas Chemical Industries, Inc., Wilmington, Del., a corporation of Delaware
Filed May 5, 1964, Ser. No. 364,916
8 Claims. (Cl. 102—28)



1. An electric explosion initiator of the type having a shell member containing an explosive charge positioned in said shell member, an igniting assembly positioned in firing relation to said charge, a sealing plug in physical contact with said shell member, and a pair of leg wires passing through said plug in electrical contact therewith and electrically connecting said igniting assembly, wherein the composition of the sealing plug comprises:
(A) A martix of flexible binding material of high electrical resistance having therein;
(1) a dispersion of secondary electron emitter material and a non-linear resistance material;
(2) said secondary electron emitter material having a particle size which passes through a 325 mesh U.S.S. screen; and
(3) said non-linear resistance material having a particle size that will pass a 60 mesh U.S.S. screen and be retained on a 400 mesh U.S.S. screen.

3,318,244
CARTRIDGE
Charles E. Rostocil, Pittsburg, Kans. (2700 Peterson Way, 60–B, Costa Mesa, Calif. 92626)
Filed July 1, 1965, Ser. No. 468,716
12 Claims. (Cl. 102—38)

1. A cartridge comprised of:
(a) a shell casing having side walls and a rearward portion with said rearward portion having an inner surface generally conical in shape tapering inwardly and rearwardly thereof,
(b) a shaped charge in the rearward portion of the shell casing in abutting relation to said inner surface for producing shock waves and directing said waves forwardly within the shell casing,
(c) a means for detonating the shaped charge connected to said shell casing,
(d) a projectile bundle comprised of:
(1) a buffer means disposed between the shaped charge and the projectile to protect the projectile from deformation,
(2) a projectile of smaller caliber diameter than the shell casing having a rearward portion abutting the forward edge of the buffer means and having side portions,



(3) means for supporting the projectile in a centered position within the shell casing.

3,318,245
AMMUNITION FOR TOY GUNS
Giampiero Ferri, Via Stoppani 38, and Jori Marinai, Via Stoppani 29, both of Florence, Italy
Filed Aug. 12, 1965, Ser. No. 479,112
Claims priority, application Italy, Aug. 21, 1964, 18,291/64
6 Claims. (Cl. 102—86.5)



1. Strip of ammunition for toy guns comprising, a row of spaced explosive caps arranged along a line passing substantially through their centers, each of said caps being formed as a cup-like container with an explosive charge therein, stalk means interconnecting each cap to the other along a side laterally offset from the row of said caps, and a series of spaced stops along said stalk means, each of said stops being arranged alongside each cap and being engageable by advancing means of a toy gun.

3,318,246
PHOSPHIDE COATING ON REFRACTORY METALS
Harley A. Wilhelm, Ames, Iowa, and James H. Witte, Cincinnati, Ohio, assignors to the United States of America as represented by the United States Atomic Energy Commission
Filed Mar. 23, 1965, Ser. No. 442,218
3 Claims. (Cl. 102—92.5)



1. An object of manufacture comprising: a shaped body of a metal of the class consisting of tantalum, nio-

bium, tungsten and alloys predominantly of these metals, the surface of which is coated with a phosphide of the said metal formed in situ.

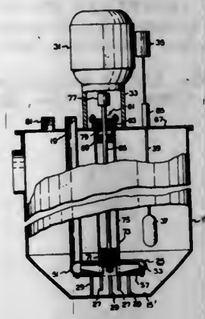
3,318,247
AUTOMATIC PUMP CONTROL
Clyde E. Yost, 700 S. Villa Drive, Evansville, Ind. 47714
Filed Mar. 12, 1965, Ser. No. 439,324
10 Claims. (Cl. 103—25)



1. An automatic pressure control unit for sensing predetermined maximum and minimum pressure levels of an exterior fluid comprising:
containing means for containing an interior fluid,
switching means for controlling an electrical switch by maintaining said electrical switch in a first position when an exterior fluid pressure is acting on said interior fluid and the exterior fluid pressure is above a predetermined minimum level and by maintaining said electrical switch in a second position when said interior fluid is isolated from said exterior fluid pressure and when said exterior fluid pressure is below said minimum value,
valve means in direct communication with said exterior fluid pressure for alternately allowing said exterior fluid pressure to act on said interior fluid and isolating said interior fluid from said exterior fluid pressure,
mechanical means for producing a mechanical force on a portion of said valve means which is greater than the force on said portion of said valve means produced by the exterior fluid pressure when said exterior fluid pressure is below said maximum level and is less than the force on said portion of said valve means produced by the exterior fluid pressure when said exterior fluid pressure is above said maximum level, and
electrical means for producing an electromagnetic force on said valve means when said electrical switch is in said first position.

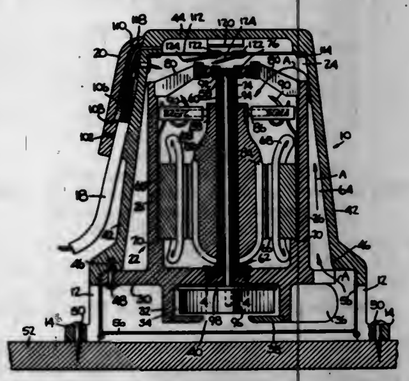
3,318,248
DISINTEGRATING TYPE SEWAGE DISPOSAL SYSTEM
Ulysses P. Rembold, Rices Landing, Pa., assignor of one-half to Harry M. Roberts, Baltimore, Md.
Filed June 3, 1964, Ser. No. 372,304
4 Claims. (Cl. 103—26)

4. Apparatus for sewage disposal, comprising a generally circular tank having an ingress at a location near the top thereof adapted for a sewer pipe connection and having an egress through the top thereof adapted to accommodate a discharge pipe; a centrifugal pump having a plurality of blades to define an impeller disposed near the bottom of the tank; a motor mounted externally of the tank, on the top thereof, and including a drive shaft extending internally of the tank to said impeller for driving the latter; a housing for the impeller having an inlet opening in its underside and an outlet opening in its upperside, a discharge pipe connected to the outlet opening and extending beyond the tank through the egress opening and adapted for connection to a sewage disposal system; a plurality of moveable vertical rod-like beaters carried by the



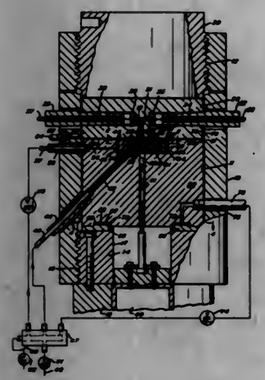
impeller blades and extending through said inlet opening to terminate above the bottom of said tank; a plurality of fixed vertical rod-like beaters disposed between the housing for the pump and the bottom of said tank and located outwardly of the moveable beaters; a switch for said motor; and a float disposed within the tank and connected to said switch switch to energize the motor whenever the liquid level in said tank exceeds a predetermined level; said tank accommodating said beaters in freely spaced apart relation to permit the liquid to circulate around all beaters.

3,318,249
SUBMERSIBLE DRIVE APPARATUS
Robert Loeser, 1005 E. Glen Ave., Ridgewood, N.J. 07450
Filed Aug. 5, 1965, Ser. No. 477,551
21 Claims. (Cl. 103—25)



1. A submersible drive apparatus comprising an inner cup shaped housing with a closed bottom and an open top, an outer cup shaped housing having a closed end, said outer housing being inverted over the open end of said inner housing and enveloping same, means securing said housings together in a manner admitting fluid communication to the interior of said inner housing via the clearance existing between said housings, drive means located within said inner housing and means transmitting the output of said drive means outside said housings.

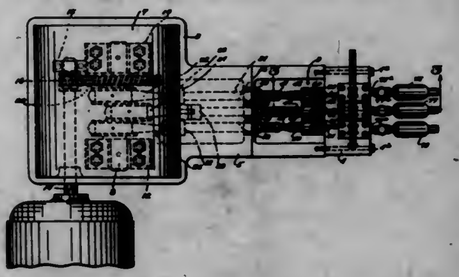
3,318,250
HIGH PRESSURE DIAPHRAGM COMPRESSORS AND PUMPS
John C. Bowen, Huntingdon Valley, Pa., assignor to Pressure Products Industries, Inc., Hatboro, Pa., a corporation of Pennsylvania
Filed Mar. 9, 1966, Ser. No. 533,081
20 Claims. (Cl. 103—44)



1. A diaphragm compressor or pump comprising
a first diaphragm mounting head;
a second diaphragm mounting head,
one of said mounting heads having a diaphragm movement limiting plate mounted thereon,
a diaphragm interposed between said heads,
said plate and one of said mounting heads having spaced portions dividing said portions into a process fluid chamber and an actuating fluid chamber,
means for applying an actuating fluid pressure against said diaphragm, and
sealing means for preventing leakage of fluid between said diaphragm and at least one of said heads;
said sealing means including a pressure applying member in engagement with said diaphragm, and
a resilient member engaging said pressure applying member and urging it toward said diaphragm.

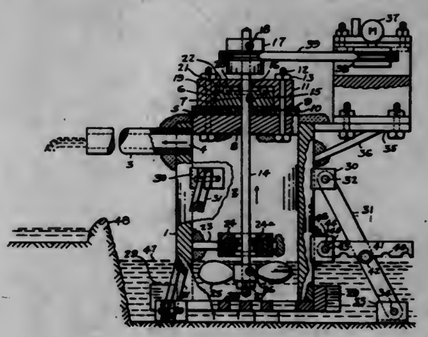
3,318,251
METHOD AND APPARATUS FOR PUMPING FLUID BODIES
Frederick H. Smith, Lynnfield, Mass., assignor to Manton Gaulin Manufacturing Company, Inc., Everett, Mass., a corporation of Massachusetts
Filed June 21, 1965, Ser. No. 465,409
8 Claims. (Cl. 103—49)

1. In a diaphragm pump of the class described a base, power driving means in the base, a pump enclosure body mounted at one end of the base and having inlet and outlet ports for receiving and discharging a product fluid, said enclosure body being further recessed to form a plurality of chambers for receiving separated volumes of hydraulic fluid therein, tubular diaphragm members located in the chambers, valve means in said inlet and outlet ports and connected to the diaphragm members for controlling flow of product fluid therethrough, reciprocating plunger members supported in the frame and connected to the power driving means, cylindrical seal boxes for receiving said plungers, said cylindrical seal boxes being detachably connected to one side of the pump enclosure body and communicating with respective hydraulic fluid chambers, pressure relieving accumulator



members connected to an opposite side of the enclosure body for mounting pressures exerted by the plunger at a predetermined value and a fluid filling receptacle and control valve connected between the pressure relieving accumulator members and the enclosure body.

3,318,252
FLUID PUMP
Claude C. Nichols, P.O. Box 182, Vinton, La. 70668
Filed June 2, 1964, Ser. No. 371,997
4 Claims. (Cl. 103—87)

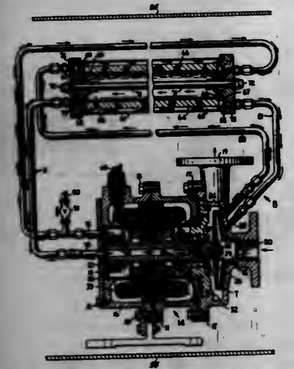


1. In combination with a fluid pump and a motor mounted thereon for imparting rotation to rotatable elements of said pump, said pump having rotatable shaft with propeller attached thereto disposed within a vertical intake pipe including a discharge pipe attached to said intake pipe and in communication therewith, a plurality of stationary fins attached to the exterior surface of the outer vertical wall of said intake pipe and extending downwardly to the lower edge thereof and extending outwardly therefrom.

3,318,253
PUMPS WITH HEAT EXCHANGER FOR PUMPING SLURRIES
Joseph F. Campolong, Windham County, Conn., assignor to Pall Corporation, Glen Cove, N.Y., a corporation of New York
Filed Jan. 21, 1965, Ser. No. 427,008
18 Claims. (Cl. 103—87)

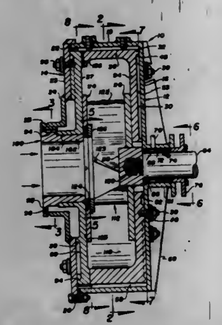
1. A heat exchanger for pumps having two sides for heat exchange, one side having an inlet and an outlet adapted to be connected to a coolant-pumped fluid flow circuit including a pump chamber, the second side having an inlet and an outlet adapted to be connected to a fluid flow circuit including the motor rotor chamber of the

pump, a porous member separating the two sides and constituting a heat transferring barrier allowing flow of



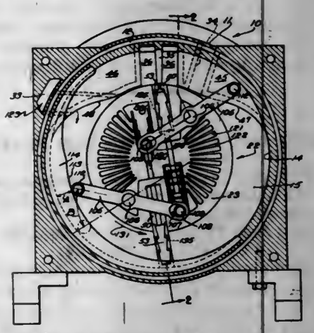
fluid between the two sides of the heat exchanger, while blocking passage of any solid particles suspended within the pumped liquid.

3,318,254
CENTRIFUGAL DREDGE PUMP
Herbert G. Palmberg and Donald G. Jackson, both of Astoria, Oreg., assignors to Palmberg Construction Co., Astoria, Oreg., a corporation of Oregon
Filed May 28, 1965, Ser. No. 459,564
6 Claims. (Cl. 103—114)



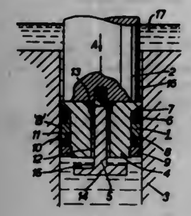
1. A centrifugal dredge pump comprising:
a casing including a first portion having a substantially flat side wall and a substantially cylindrical end wall integral with said side wall along one edge of said end wall,
said casing including a second portion defining a second substantially flat wall portion,
means for releasably securing said second casing portion to the edge of said end wall opposite the said one edge thereof,
a liner in said casing defining a pump chamber and including a first portion having a side wall positioned adjacent and substantially parallel to said first casing portion side wall and a substantially cylindrical end wall positioned adjacent and substantially parallel to said first casing portion end wall,
a plurality of jack bolts threaded through said casing end wall for engaging said liner end wall and adjusting the position of said liner with respect to said casing,
said liner including a second portion defining a second side wall adapted to engage the free edge of said first liner portion end wall and being positioned adjacent said second casing portion,
said liner portions being spaced at least in part from said casing to define cavities therebetween,
said liner portions defining passageway means from said pump chamber through said liner to permit the passage of fine silt and the like into said cavities,
an impeller rotatably mounted in said pump chamber including a pair of annular, plane surfaced side plates and a plurality of vanes supported between said side plates,
a shaft for said impeller removably secured at one end to the impeller side plate adjacent the side wall of said liner first portion and extending outwardly through said side walls of said casing and liner first portions,
said casing second portion having an axial opening and a tubular projection extending outwardly coaxially of said opening,
said liner second portion having an axial opening and a tubular projection extending outwardly coaxially of said opening and said casing projection but being of lesser outward projection than said casing projection,
an inlet defining tubular nose piece of hard, wear-resistant metal slidably mounted within said projections and snugly engaging the inner surface of said projections,
interengaging means on said nose piece and said casing projection for retaining said nose piece against rotation about its axis,
said means being engageable in a multiple number of rotative positions of said nose piece,
the inner surface of said second liner portion being substantially planar and the inner end of said nose piece being substantially coplanar with said liner inner surface,
the side plate of said impeller adjacent said liner inner surface comprising a ring of hard, wear-resistant metal alloy snugly engaging said nose piece inner end.

3,318,255
ROTATING CHAMBER MECHANISM
Alfred E. Timperley, 170 Zinnia Drive, Cranston, R.I. 02910
Filed July 29, 1964, Ser. No. 385,959
9 Claims. (Cl. 103—135)



1. In a rotary mechanism of the type described, a rotor having a body, a guide slot in said body with side walls extending generally axially and outwardly of the axis of rotation of the rotor, a gate in said slot and means to move said gate inwardly and outwardly of said slot, said gate comprising relatively expandible parts engaging said side walls and means to move said parts toward and away from said side walls to effect an expanding and contracting relation of said gate.

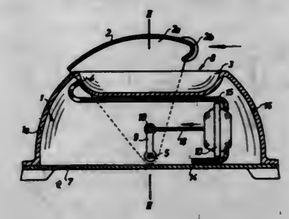
3,318,256
MEANS FOR PRESSURISING LIQUIDS
Derek Green, St. Annes, England, assignor to United Kingdom Atomic Energy Authority, London, England
Filed Jan. 29, 1965, Ser. No. 429,104
Claims priority, application Great Britain, Feb. 20, 1964, 7,238/64
1 Claim. (Cl. 103—178)



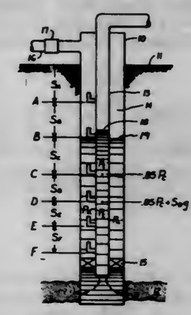
Means for pressurising liquids comprising a barrel having a cylindrical bore, a loose fitting plunger entered into the bore of the barrel, a cylindrical body member movable in the bore of the barrel, sealing means sealing circumferentially between the cylindrical body member and the bore of the barrel, said sealing means comprising a mitre sealing ring held between an oblique face on the body member and a thrust ring fixed on the body member, a rubber sealing ring being disposed around the thrust ring in sealing contact with the bore of the barrel, coupling means retaining the body member in front of the plunger when the plunger is moved in the barrel, said coupling means having a lost motion characteristic such that the plunger is movable longitudinally in the barrel between limits relative to the cylindrical body member, a duct extending from end to end of the body member, duct sealing means operable to close said duct when the plunger is in end to end abutment with the body member on a liquid pressurising stroke of the plunger, said duct having a conical mouth opening to face the adjacent end face of the plunger, said duct sealing means comprising a mitre sealing ring having a conical face engaging with the conical mouth of the duct and a flat annular end face engaging to seal with the end face of the plunger when the plunger is in end to end abutment with the body member on a liquid pressurising stroke of the plunger, the flat annular end face of the mitre sealing ring being disengaged from sealing with the end face of the plunger, such that the duct is open when the plunger parts from the cylindrical body member on a return non-pressurising stroke of the plunger by an amount governed by the lost motion characteristic of the coupling means between the cylindrical body member and the plunger, a reservoir for liquid being provided in connection with the barrel for feeding of liquid into the bore of the barrel so that on the return non-pressurising stroke of the plunger liquid can flow between the plunger and the bore of the barrel and then through the duct in the body member to replenish liquid in the bore of the barrel below the cylindrical body member.

3,318,257
PASTURE PUMP FOR WATERING CATTLE
Gerhard Niemöller, Ratekau, near Lubeck, Germany
Filed Nov. 12, 1965, Ser. No. 507,451
Claims priority, application Germany, Nov. 12, 1964, N 25,810
8 Claims. (Cl. 103—208)

1. A pasture pump for watering cattle, comprising an elongated housing, an elongated watering trough forming the top portion of said housing, a pump protectedly arranged within said housing below said trough having its discharge connected to said trough, a shaft extending transversely through and rotatably supported by said housing, below said trough, drive means between said shaft and said pump, a thrust member secured to said shaft and straddling said trough, said thrust member including a barrier portion normally obstructing the access to said trough, said barrier portion being engageable by said cattle so as to pivot said thrust member downwardly, thereby exposing said trough rotating said shaft and actuating said pump for discharging water into said trough.



3,318,258
GAS LIFT SYSTEM
Charles Russell Luigs, Longview, Tex., assignor to U.S. Industries, Inc., Longview, Tex.
Filed Oct. 30, 1963, Ser. No. 320,109
5 Claims. (Cl. 103—232)

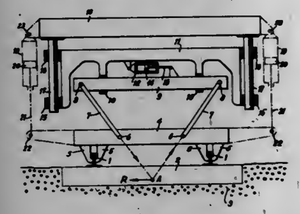


1. An intermittent gas lift system for periodically producing fluid from a well bore comprising in combination an eductor tube extending into the well fluid; means for providing lifting gas adjacent the eductor tube; a plurality of pressure operated gas lift operating valves mounted on the eductor tube and controlled by both the pressure of the lifting gas and the pressure in the eductor tube, the valves being located below the static fluid level of the well, said valves, except the uppermost valve, being spaced so that the minimum and maximum pressure in the eductor tube opposite the valve which opens and injects gas into the eductor tube to lift the fluid above it to the surface always lies within the range of 55 to 85 percent of a predetermined value, said value being the gas pressure required to open the next valve above when the pressure of the well fluid adjacent the said next valve above is at said minimum pressure.

3,318,259
DEVICE FOR SHIFTING A SECTION OF RAILWAY TRACK LAID ON ITS BED OF BALLAST

Eugène E. Oville, Lausanne, Switzerland, assignor to Matisa Materiel Industriel S.A., Lausanne, Switzerland, a Swiss joint-stock company

Filed Mar. 17, 1964, Ser. No. 352,567
Claims priority, application Switzerland, March 18, 1963, 3,389/63
9 Claims. (Cl. 104—2)

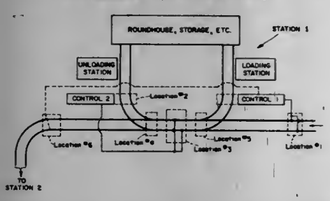


1. A device for shifting a part of a railway track having sleepers resting on a bed of ballast, said device comprising: an articulated frame constituted by two superposed transverse members and two connecting members which are hingeably connected to said transverse members, rail grippers carried by the lower of said transverse members, and at least one shifting jack for acting on said frame to shift said track, the articulation points of one connecting member defining a straight line which intersects a straight line passing through the articulation points of the second connecting member at a point located at the level of the railway track sleepers.

3,318,260
AUTOMATIC RAILWAY

Forrest W. Gillespie, 15 E. Linwood Ave.
Maple Shade, N.J. 08052

Filed Dec. 13, 1963, Ser. No. 330,316
4 Claims. (Cl. 104—88)

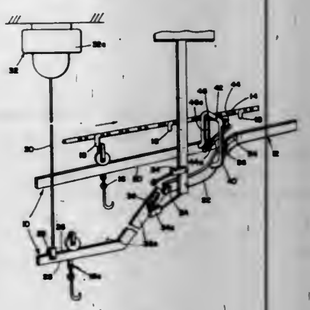


1. An automatic railway system to be operated with individual self powered freight cars, wherein said railway system includes a main track and spur tracks with load-unload stations therealong and wherein there is included off-track and on-track switches in said main track in close proximity to said load-unload stations, comprising in combination: first counter means wherein the value of a distance to be travelled by an associated one of said individual freight cars can be recorded, said first counter means located on each of said individual freight cars; second counter means wherein the value of the distance actually travelled by an associated one of said individual freight cars is recorded, said second counter means located on each of said individual freight cars; comparison means coupled to each of said first and second counter means to compare the values in each counter means and in response to a match of said values transmit a radio frequency match signal; first radio frequency signal receiving means located at each of said load-unload stations to receive said match signal and thereby control an associated one of said off-track switches to cause an individual freight car transmitting a match signal to be shunted off said main track; each load-unload station having a main track signaling location disposed on its approach side which transmits a first oncoming-car signal in response to the presence of a freight car in said main track signaling location; and second signal receiving means located at an associated load-unload station and coupled to both an associated on-track switch and to said first main track signaling location to render said on-track switch passable to an oncoming freight car in response to said first oncoming-car signal.

3,318,261
CONVEYOR SYSTEMS

Anthony M. Garcia and Lloyd H. Redford, Cleveland, Ohio, assignors to Earl C. Gibbs, Inc., Cleveland, Ohio, a corporation of Ohio

Filed Apr. 12, 1965, Ser. No. 447,149
10 Claims. (Cl. 104—91)



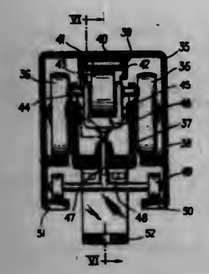
1. In a transfer conveyor mechanism comprising, a double track system, said double track system including a pair of generally laterally disposed tracks each being adapted to support movable trolley means thereon, one of said tracks including a generally angular shaped section pivotable in a generally vertical plane with respect to the other of said tracks, means for moving said section in said generally vertical plane, a single track system disposed adjacent said double track system, and mechanical switching means for connecting the tracks of said double track system to the track of said single track system.

3,318,262
FLUID PROPULSION DEVICE

Jean Victor Ganzinotti, Brive-Correze, France, assignor to Etablissements Maille et Vagneux, Paris, Seine, France, a company of France

Filed Dec. 16, 1964, Ser. No. 418,712
Claims priority, application France, Dec. 17, 1963, 957,425
2 Claims. (Cl. 104—155)

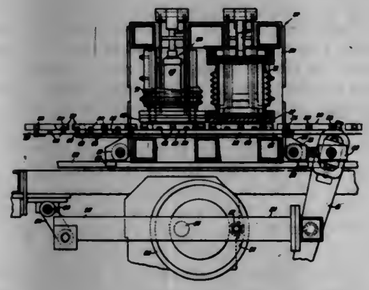
1. An arrangement for actuating a moving body displaceable on a guide track by means of a fluid under pressure, comprising a guide track, a moving body suspended therefrom, at least one flexible conduit having at least one deformable wall which is disposed along said track, at least one roller mounted to rotate freely and connected to said moving body supported by and suspended from said track so that its weight has no influence on said conduit and serving to cause flattening of said conduit locally, and supply means for selectively supplying said conduit with fluid under pressure to one side or the other of the point of application of said at least one roller on said conduit, wherein said conduit is surrounded by a rigid frame assembly, the upper portion thereof being solid and attached to said track, the said frame assembly having at least one side open and the open side being closed by a longitudinally flexible strip mounted freely within said frame assembly, the said strip serving as an intermediate member between the said at least one roller which runs on it and said conduit and being moreover capable of co-operating with said frame assembly to form a casing and thus prevent any excess expansion of said conduit.



3,318,263
MANUFACTURE OF CONFECTIONERY

Maurice Stanley Jeffery, Solihull, England, assignor to Baker Perkins Limited, Peterborough, England, a company of Great Britain

Filed Dec. 7, 1964, Ser. No. 416,536
4 Claims. (Cl. 107—3)

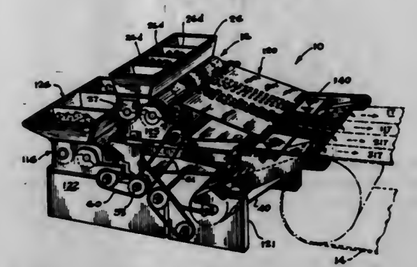


1. In apparatus for moulding confectionery comprising a chain conveyor for advancing moulds, each having a plurality of mould cavities extending in columns and rows and with minute holes in their bases, in continuous procession to a filling station and thence through a cooling zone to a discharge station past which the moulds travel in inverted position, a demoulding unit comprising, in combination with said chain conveyor and the moulds carried thereby, a band conveyor which travels beneath the chain conveyor at the discharge station, a carriage at the discharge station, means for reciprocating the carriage to perform forward strokes alternating with return strokes, a pressure plate on the carriage of area sufficient to cover a mould, a mould support mounted on the carriage and disposed between the moulds and the band conveyor and formed with openings permitting of downward discharge of confectionery from the mould cavities on to the band conveyor, means for moving the pressure plate downwardly on each forward stroke of the carriage into sealing engagement with a mould beneath it, thereby pressing said mould against said mould support, and subsequently raising the pressure plate from the mould, and means for blowing air through the pressure plate while in sealing contact with the mould to discharge the confectionery from all of the cavities in the mould on to the band conveyor.

3,318,264
APPARATUS FOR PRODUCING AND CONVEYING CONFECTIONS

Edward A. Weidenmiller, 8100 Austin Ave., Morton Grove, Ill. 60053

Filed Mar. 15, 1965, Ser. No. 439,890
4 Claims. (Cl. 107—8)

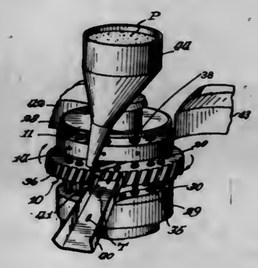


4. In combination with a pair of confection forming machines, a transfer device comprising a transfer belt contiguous with each said machine for receiving formed blanks therefrom, intermediate conveyor means having separate portions adapted to receive blanks from said transfer belts, a nose plate for said conveyor disposed adjacent a relatively wide continuous band movable through an oven or the like, all portions of said conveyor being mounted about said nose plate for movement to deposit blanks carried thereby onto said band in uniform segregated files of blanks having like characterictics.

3,318,265
TABLET PUNCH ASSEMBLY

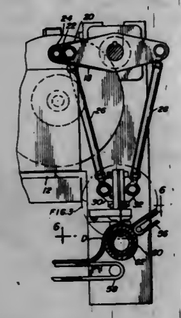
Edward P. Winters, Waukegan, and Whitney L. Pearson, Lake Bluff, Ill., assignors to Abbott Laboratories, North Chicago, Ill., a corporation of Illinois

Filed Mar. 16, 1964, Ser. No. 352,012
1 Claim. (Cl. 107—17)



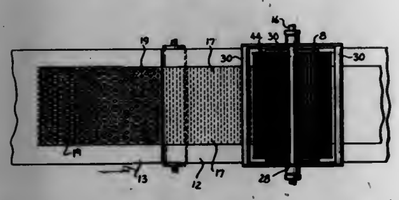
A rotary tabletting machine comprising an upper head, a bore defined by said upper head extending vertically therethrough and including a keyway, a tablet punch including a punch body, a neck, and a punch tip, a peripheral groove defined by said neck, a key member including a key seated in said keyway and a collar encompassing said neck and means mounted on said collar in engagement with a portion of said peripheral groove and rotatably adjustably mounting said neck in said collar.

3,318,266
HIGH SPEED CUTTER
Harold M. Rich, Northbrook, Mariano V. Artiaga, Chicago, Andrew Wolf, Deerfield, Hans Van Eikeren, Lincolnwood, John L. De Keizer, Northbrook, and Arthur Storrie, Chicago, Ill., assignors to Kitchens of Sara Lee, Inc., Chicago, Ill., a corporation of Maryland
Filed Feb. 11, 1965, Ser. No. 431,919
11 Claims. (Cl. 107—69)



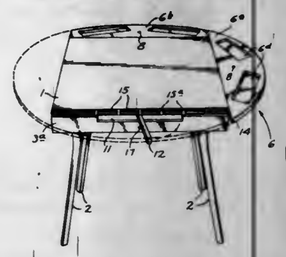
10. Apparatus for forming a pattern of openings in a continuous sheet of dough or the like comprising
a first conveyor belt,
an independently driven roller adjacent the terminus of said first conveyor belt,
a second conveyor belt adjacent and beneath said roller,
and a high speed cutter positioned above said roller and adapted to cut a pattern of staggered slits in said sheet as the same passes therebeneath,
said second conveyor belt operating at a rate of travel in excess of the rate of travel of said first conveyor belt whereby said sheet is caused to stretch and form said openings.

3,318,267
ROTARY CUTTER
Mariano V. Artiaga, Chicago, Glen Tranter, Lombard, Arthur Storrie, Chicago, Hans Van Eikeren, Lincolnwood, and Andrew Wolf, Deerfield, Ill., assignors to Kitchens of Sara Lee, Inc., Chicago, Ill., a corporation of Maryland
Filed Nov. 9, 1964, Ser. No. 409,660
9 Claims. (Cl. 107—69)



8. Apparatus for forming diamond shaped holes in a sheet of material comprising:
a rotary cutter having a plurality of spaced radially extending blades adapted for rotation about an axis;
a first conveyor for delivering said sheet of material into contact with said plurality of blades;
said blades being arranged to be moved forward by said sheet of material to force the cutting edges of said blades into said material as they rotate to form slits therein; and
a second conveyor positioned adjacent and below said first conveyor and traveling at a higher speed than said first conveyor and receiving said sheet of material from said first conveyor after slits have been formed therein by said blades whereby the slits cut in said sheet of material are expanded into diamond shaped holes.

3,318,268
EXTENSIBLE TABLE
Edward R. Hagwell, 1530 Ocean Beach Highway, Longview, Wash. 98632
Continuation of application Ser. No. 417,359, Dec. 10, 1964. This application Feb. 15, 1966, Ser. No. 552,653
2 Claims. (Cl. 108—25)

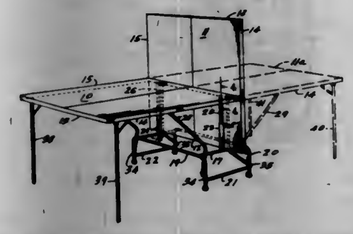


1. An extensible table comprising a cover member including a rectangular table top and frame structure joined to the underside of said table top; compartment structure having an open top supporting the cover member with the table top substantially horizontal and in an elevated position above the ground, and with the cover member closing off the compartment structure to form an enclosed compartment; said frame structure including an upper marginal region which is disposed above the top of said compartment structure; multiple, separable extension pieces sized to fit within the compartment adapted to be placed against the four side margins of the table top to enlarge the size of the table; means under each side margin of the table top mounted on said upper marginal portion of the frame structure, having extended and retracted positions, for supporting an extension piece with such piece in place against the side margin of the table top; said means on moving between extended and retracted positions relative to the table top having an inner portion moving in a space above the compartment structure; and means hingedly joining the frame structure of the cover member to the compartment structure enabling the cover member together with any extension pieces supported by said extensible means to be swung to one side of the compartment structure, thereby to open up the top of the compartment structure.

3,318,269
COLLAPSIBLE TABLE
James D. Kinn, Maumee, Ohio, assignor to National Canvas Products Corp., Toledo, Ohio, a corporation of Ohio
Filed Oct. 22, 1965, Ser. No. 500,957
6 Claims. (Cl. 108—112)

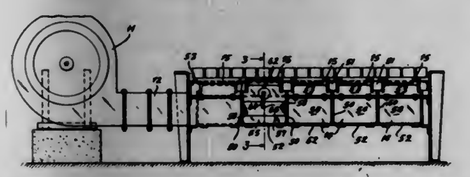
1. A collapsible table comprising, in combination, a pair of top sections, each having an inner end, an outer end, an upper surface and a lower surface, which sections, when said table is open, are held in generally horizontal position with their inner ends in abutment to form a continuous surface, a support frame including a pair of spaced apart horizontal support bars extending below and generally normal to the abutting inner ends of said open top sections and a pair of horizontal frame members extending below and generally parallel to said abutting inner ends, a support pole extending upwardly from each of said horizontal support bars toward said abutting inner ends when said sections are in open position, means for individually pivoting each of said top sections from said

open position to a closed position wherein such closed top section is generally vertical with its inner end resting upon said horizontal support bars and with its upper surface closely adjacent and parallel to said vertical support poles, said pivot means including a pair of spaced apart parallel pivot arms extending from upper pivot points on the lower surface of each of said top sections intermediate its inner and outer ends to lower pivot points on said frame below said horizontal frame members, each of said pivot arms comprising an elongate angle member having a lower portion extending between said horizontal frame



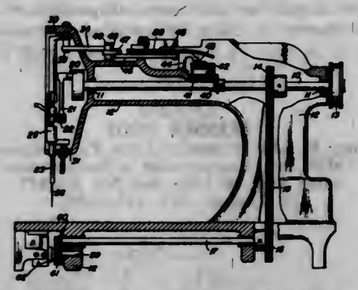
members upwardly from said lower pivot points, and an upper portion extending from said upper pivot points at an angle to said lower portion such that, when said table section is in open, horizontal position, the lower portions of each pair of pivot arms rest against and are prevented from further outward movement by one of said horizontal frame members and such that, when said table section is in closed, vertical position, the upper portions of each pair of pivot arms are closely adjacent and parallel to said lower surface of said vertical table section, and means to hold said top sections in horizontal position.

3,318,270
REFUSE DISPOSAL
Frank S. Simpson, Alton, Ill., assignor to Illinois Stocker Company, Alton, Ill., a corporation of Delaware
Filed Oct. 26, 1964, Ser. No. 406,517
5 Claims. (Cl. 110—7)



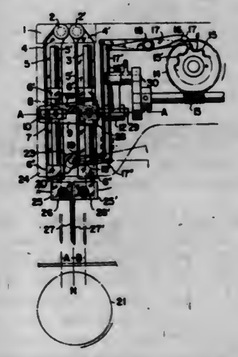
1. In a refuse incinerator of the type having a traveling grate for sustaining and moving a bed of burning refuse, said grate having apertures therethrough, the improvement which comprises a series of separate compartments extending crosswise of the direction of travel of said grate and below said grate for directing air through those of said apertures disposed above the individual compartments respectively, a source of air under pressure of at least twelve inches of water, said source communicating with all compartments of the series, each compartment of the series having a damper controlling its communication with said source, separate means in each compartment responsive to changes in pressure in that compartment, said means moving in one direction when the compartment pressure increases and moving in the opposite direction when the compartment pressure decreases, and means responsive to movement of said pressure responsive means for actuating the damper for that compartment to open the damper when the pressure in that compartment increases and to close it when the pressure in that compartment decreases.

3,318,271
BUTTON-HOLE SEWING MACHINES
Nicola De Robertis and Corrado De Robertis, both of 566 E. 187th St., Bronx, N.Y. 10458
Filed Apr. 2, 1964, Ser. No. 356,811
3 Claims. (Cl. 112—65)



1. In a single-thread chain-stitch button-hole sewing machine having a needle and a pair of loopers coacting therewith: means for reciprocating the needle; mechanism for swinging the needle laterally to produce a stitch bite of the same length at the ends of the button hole as on the sides thereof, said mechanism including a cam, a cam follower, and linkage adjustable to predetermine the length of the stitch bite; and looper-driving mechanism comprising a cam, a cam follower, a rack on said cam follower, a pair of pinions engaging said rack, and a looper shaft carrying each of said pinions, said loopers being adjustably fixed on said looper shafts, the shapes of the cams predetermining the movements and dwells of the needle and loopers respectively, causing one looper to coact with the needle at one end of the stitch and the invention of Gebele and Singer, which patent shows other looper to coact with the needle at the other end of the stitch.

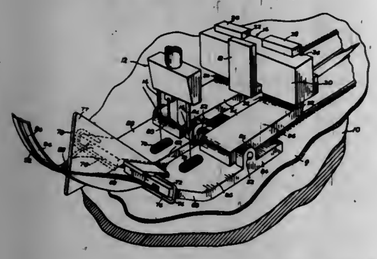
3,318,272
AUTOMATIC ZIG-ZAG SEWING MACHINE PROVIDED WITH A DOUBLE NEEDLE ACTION, NEEDLE-BAR DEVICE
Bunsaku Taketomi, 9, 2-chome, Uchiyama-cho, Chikusa-ku, Nagoya-shi, Japan
Filed Oct. 28, 1964, Ser. No. 407,052
Claims priority, application Japan, Oct. 31, 1963, 38/58,896
3 Claims. (Cl. 112—158)



1. An automatic zig-zag sewing machine provided with a double needle action, needle-bar device comprising a pair of needle-bar frames adapted to support needle bars, each of said needle bars having a needle holder at its lower end so as to dispose two needles in close proximity, means to pivotally suspend said needle-bar frames sub-

stantially in parallel relation, means to interconnect said needle bars to cause them to move in unison and in synchronism in the vertical direction, a pair of cams each cooperating with a different one of said needle-bar frames, means to bias said needle-bar frames against respective cooperating cams, and a zig-zag motion inducing mechanism to impart to said cams independent oscillatory motions thereby to cause symmetrical or asymmetrical patterns to be sewn by a single forward sewing run.

3,318,273
PRESSER FOOT
George F. Eddy, Conneaut Lake, Pa., assignor to Talon, Inc., a corporation of Pennsylvania
Filed Aug. 20, 1964, Ser. No. 390,947
11 Claims. (Cl. 112—235)



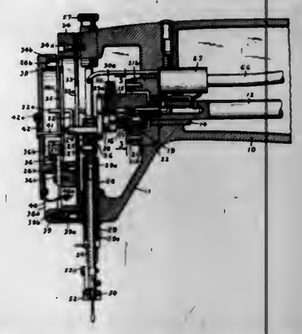
1. In a presser foot for a double needle sewing machine which is adapted to attach simultaneously the separable stringer tapes of a slide fastener chain to the marginal portions of an opening in a garment or the like moving past the sewing station, said presser foot including a toe portion for directing the moving garment into a given plane and a sole portion which slidably rides on the upper surface of the garment as it moves in said given plane, the improvement comprising:

first means located on said toe portion of said presser foot for orienting each of said stringer tapes to move in separate paths past the bottom surface of said toe portion, said first means including an arcuate member having a portion spaced from the botom surface of said toe portion a distance substantially equal to the thickness of said tape; and,

second means formed in the bottom surface of said toe portion and said sole portion for maintaining each of said stringer tapes in a given path of movement from said first means to the sewing station of said double needle sewing machine at which point each of said stringer tapes is sewn to said garment.

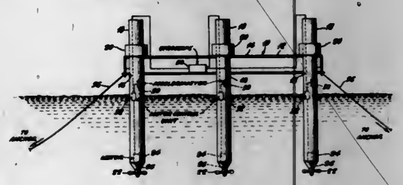
3,318,274
TAKE-UP MECHANISM AND DRIVE MECHANISM FOR SEWING MACHINES
Edgar Scholj, Hinsdale, Ill., assignor to Union Special Machine Company, Chicago, Ill., a corporation of Illinois
Filed Mar. 5, 1964, Ser. No. 349,702
24 Claims. (Cl. 112—248)

1. In a sewing machine having a frame with an overhanging arm with a head portion at its outer end, a drive shaft journalled in said arm, a reciprocatory needle bar mounted in the head portion of said arm, a needle carried by said bar, complementary means cooperating with said needle for producing a multiple thread stitch, connections from said shaft for reciprocating said needle bar and operating said complementary means to form a line of stitching, means for directing thread to said needle, thread take-up means in the path of said thread for imparting a take-up action thereto, connections from said shaft for operating said thread take-up means, the combination which comprises a rotary member in at least one of said connections from said drive shaft to said needle bar, said complementary means and said thread take-up means, said rotary member being mounted for rotation in a direction opposite to that of said shaft about an axis removed from but parallel with the axis of said shaft, means carried by said drive shaft providing a first center of mass eccentric to the axis thereof, and means



carried by said rotary member providing a second center of mass eccentric to the axis of rotation of said rotary member, said two mass providing means being so constructed and arranged that their combined inertia forces provide an active component along the line of movement of said needle bar and have components that are opposite to each other in a direction transverse to that of the movement of said needle bar.

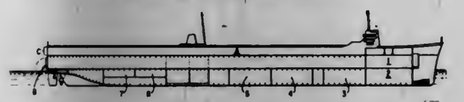
3,318,275
FLOATING PLATFORM
Sheldon B. Field, Floral Park, N.Y., assignor to John J. McMullen Associates, Incorporated, New York, N.Y., a corporation of New York
Filed Feb. 1, 1965, Ser. No. 429,473
2 Claims. (Cl. 114—0.5)



1. A marine platform assembly for use in a body of water comprising a horizontally disposed platform, a plurality of vertically disposed hollow columns mounted to said platform and extending downward therefrom into the body of water, said columns being adapted to displace sufficient amounts of water as to displace said platform above the free surface of the water, stabilizing means mounted on each column for selectively imparting an upward and downward force to its respective column, and sensing means mounted on the assembly for controlling the direction of force imparted by each of the stabilizing means so that the platform is stabilized for roll, pitch and heave, and wherein said stabilizing means comprises blades rotatably mounted on the columns and adapted to selectively impart positive and negative thrust to the columns when said blades are rotated within the ambient, and means connected to said blades for rotating the same, and wherein the sensing means comprises a gyroscope, and wherein the sensing means further comprises an accelerometer mounted in each column, and a control unit in each column connected to the outputs of said accelerometer and

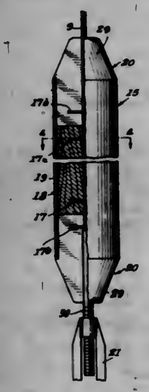
gyroscope, said stabilizing means further comprising pitch control means responsive to the output of said control unit for selectively controlling the blade pitch between positive, negative and zero pitch depending upon the output of said control unit.

3,318,276
OCEAN-GOING BARGE CARRIER
Frank A. Nemec, New Orleans, La., assignor to Lykes Bros. Steamship Co., Inc., a corporation of Louisiana
Filed Oct. 22, 1965, Ser. No. 508,631
6 Claims. (Cl. 114—43.5)



1. In a marine carrier of the type comprising a hull, a plurality of storage decks, one above the other, each having at least one loading opening through the carrier hull at the level thereof, and means for selectively submerging the carrier to waterlines above each of said decks, whereby barges may be floated into and out of place on each of said decks, the improved construction in which at least the uppermost storage deck is an unobstructed, generally plane area bounded by substantially straight and parallel fore and aft bulkheads set apart by at least half the total width of the carrier whereby barges substantially equal in width to the spacing between said bulkheads may be stored thereon, the loading openings to said storage decks are at least as wide as said spacing, and the loading opening of at least the lowest storage deck is provided with water-tight sealing means.

3,318,277
SHROUD GUARD
Joseph A. Palm, 2447 Grivey Ave., Anaheim, Calif. 92804
Filed Mar. 15, 1965, Ser. No. 439,833
3 Claims. (Cl. 114—102)



1. A shroud guard comprising:

(a) an elongated tube of plastic material strung over the shroud,

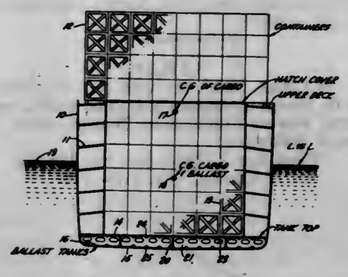
(b) a plurality of metal discs affixed to the shroud in spaced relation to each other,

(c) sectional core members engaged with some of said discs to retain the latter against endwise movement along the shroud, the tube being fitted over the core members,

(d) said tube having ends extending beyond said core members, and

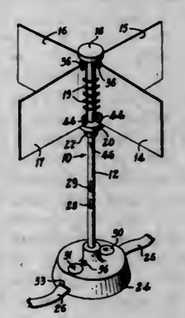
(e) a tapered cap engaged with two other discs fixed in each tube end and extending beyond the ends of the tube.

3,318,278
BALLASTING OF SHIPS
Earl E. Huebotter, Houston, Tex., assignor to National Lead Company, New York, N.Y., a corporation of New Jersey
Filed Oct. 17, 1966, Ser. No. 587,031
5 Claims. (Cl. 114—125)



1. The process of altering the center of gravity of a vessel having liquid ballast tanks therein which comprises the step of filling into said ballast tanks, in a quantity sufficient to alter said center of gravity by a preselected amount, a liquid composition consisting essentially of water; ground barite in a quantity sufficeint to impart a density from about 125 to about 150 pounds per cubic foot to said composition; a gelling agent in a quantity sufficient to inhibit settling of said barite; and a deflocculating agent in a quantity sufficient to prevent excessive gelation of said gelling agent upon long standing.

3,318,279
WARNING DEVICE
Andrew A. Padilla, 92 Edgewood Drive, Orangeburg, N.Y. 10962
Filed Oct. 23, 1965, Ser. No. 503,101
5 Claims. (Cl. 116—63)



1. A wind driven device comprising, in combination:

(a) a rigid rod;

(b) a spiral member positioned concentric with said rod and being of such a diameter as to be capable of rotation with respect to said rod;

(c) a plurality of slats, each of said slats having a plurality of holes proximate one edge thereof, said spiral

member being intertwined in said holes whereby said slats are individually positionable about the periphery of said spiral member;

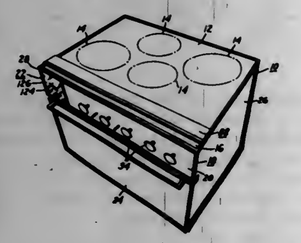
(d) an upper cap clip and a lower cap clip, each cap clip having a plurality of clips depending therefrom;

(e) means for rotatably securing said upper cap clip to said rod;

(f) means for rotatably securing said lower cap clip to said rod;

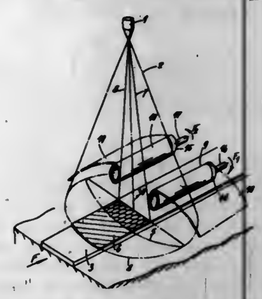
said slats being fixed in selected positions about the periphery of said spiral member by engaging said clips in said upper and lower cap clips, said positioned slats, said clips and said spiral member being rotated together about said rod by said wind.

3,318,280
PLURAL DIAL RANGE INDICATOR
Robert D. Hodgson, Bloomfield Hills, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Apr. 1, 1964, Ser. No. 356,512
2 Claims. (Cl. 116—124)



1. In a cooking appliance, an outer cabinet including a horizontal upper cooking surface, enclosure means located at the top front of said outer cabinet, said enclosure means including a front panel and a rear baffle plate, a plurality of light transparent indicator dials, means for rotatably supporting each of said dials in spaced relationship to one another between said front panel and said rear baffle plate of said enclosure means, each of said dials having an outer ring portion thereon forming an outer peripheral surface with indicia thereon, means forming an elongated horizontally disposed window in said enclosure means overlying each of said dials for viewing the indicia on each of the peripheral surfaces thereof, means forming a plurality of spaced openings in said rear baffle plate, each of said dials being located in line and forwardly of one of said rear baffle plate openings, a light source within said outer cabinet and located rearwardly of said rear baffle plate in line with each of said spaced apart baffle plate openings, said outer ring portion of each of said dials including an angular rear surface covering one of said baffle plate openings, each of said rear surfaces on said ring portions receiving light from one of said openings and directing it through said ring portion for illuminating indicia on the outer peripheral portion on each of said dials, and means including a horizontal baffle disposed between said front panel and said rear baffle including spaced apart upwardly facing openings therein, each of said upwardly facing openings being located about a portion of an upper segment of the outer peripheral portion of one of said dials, said horizontal baffle and said rear baffle shielding said light source from view through said horizontal window and separating each of said dials from one another as viewed through said horizontal window to maintain a clear differentiation between lighted indicia on the outer peripheral portion of each of said indicator dials.

3,318,281
SPRAY APPARATUS EMPLOYING MASKING MEANS
Alain Edouard Plegat, Asnieres, Seine, France, assignor to Societe Anonyme des Usines Chausson, Asnières, Seine, France, a company of France
Filed Mar. 4, 1963, Ser. No. 262,486
Claims priority, application France, Mar. 6, 1962, 890,195, Patent 1,324,354
14 Claims. (Cl. 118—2)



1. A device for the uniform spray deposition of fusible material on a longitudinally moving article comprising:

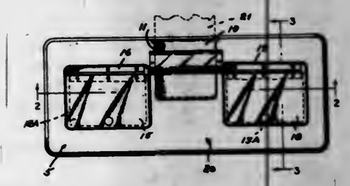
a spray gun for projecting a jet of fusible material, in atomized form perpendicularly to the article to be coated; and

means to both control the transverse extent of deposition on said article and

recover excess fusible material deposited beyond said desired transverse extent,

said means comprising a pair of generally cylindrical rollers disposed between said spray gun and said article with their axes generally parallel to the longitudinal movement of said article and at each transverse edge of the coating produced equidistant from the axis of the jet to define the transverse extent of fusible material deposition on said article by intercepting a portion of the peripherical zone of the fusible material jet, means to rotate said rollers in opposite directions to move the surfaces thereof upwardly and outwardly from the axis of said jet, and means to serape each of said rollers to remove solidified fusible material therefrom.

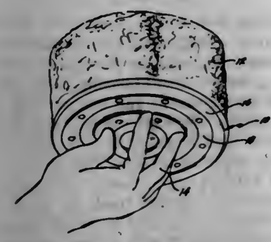
3,318,282
FINGERPRINT KIT
George G. Bean, P.O. Box 377, Mere Point, Brunswick, Maine 04011
Filed June 11, 1964, Ser. No. 374,313
4 Claims. (Cl. 118—9)



1. In a device for use in connection with the cashing or transferring of such instruments as negotiable instruments and tickets, a support including a central area in the form of a rearwardly opening recess, a pair of recesses, one on each side of said central recess, one including an inking pad and the other ink removing means whereby the instrument may be provided with fingerprints of the person presenting it for payment and the ink coated fingers then cleaned, said central recess accommodating the end of

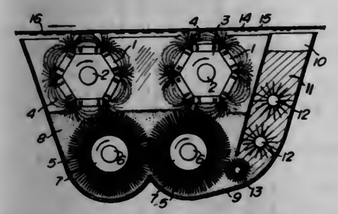
the instrument bearing the prints, and a magnifying lens attached to said support above said central recess to enable the clarity of the prints to be appraised.

3,318,283
CAKE CIRCLE
James A. Maclam, Comstock Park, and Robert E. O'Brien, Grand Rapids, Mich., assignors to Kirkhof Manufacturing Corporation, Grand Rapids, Mich., a corporation of Michigan
Filed Mar. 4, 1965, Ser. No. 437,187
4 Claims. (Cl. 118—500)



1. A cake circle comprising: a polymeric disk having a cake receiving surface, and a plurality of concentric strengthening ribs depressed thereinto to cooperatively form an underlying support surface; said ribs being spaced to form annular finger-receiving track means therebetween on the disk underside; and a plurality of spaced, projecting, finger-drive and indexing cogs in said track between said ribs.

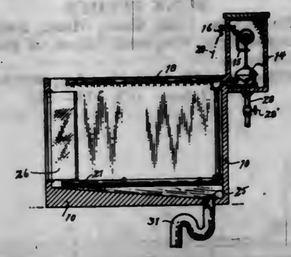
3,318,284
APPARATUS FOR DEVELOPING ELECTROSTATIC IMAGES OF RECORDS
Toku Hojo and Motoji Matsuda, Yokohama-shi, Japan, assignors to Hitachi, Ltd., Tokyo, Japan, a corporation of Japan
Filed Jan. 27, 1965, Ser. No. 428,455
Claims priority, application Japan, Jan. 30, 1964, 39/4,266
7 Claims. (Cl. 118—637)



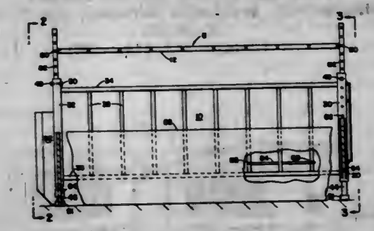
1. An apparatus for developing electrostatic images of record, comprising a magnetic brush for development, rotating in light pressure contact with the surface of a running electrostatic recording carrier, known per se, and an insulated brush having a large number of fine metal wires planted around a rotating shaft, said insulated brush being in deep intersection with said magnetic brush during rotation, and also being mostly immersed into developing agent in a reservoir.

3,318,285
DOG AND PET TOILET
James L. Betham, 3329 Pine St., Lynwood, Calif. 90262
Filed Aug. 16, 1965, Ser. No. 479,990
1 Claim. (Cl. 119—1)

In a pet accommodating toilet, the combination of a walled enclosure having an inclined flooring and vertical side walls, a drainage outlet at a low point in said inclined flooring having connections with a disposal means, a direct entrance opening in an end wall of said enclosure having an inwardly swinging door through which a pet may enter said enclosure, a second opening in a side wall of said enclosure having an outwardly swinging door through which a pet may leave said enclosure, said swinging doors being biased to a closed position by suitable means, a flush tank mounted above said enclosure having a conventional float control and discharge valve means with an operating lever for said discharge valve means, flushing water distributing pipes connected to the discharge valve means from said flush tank through ports for projecting jets of water over floor and side walls of said enclosure, and a discharge valve control means connected between the swinging door of said second opening and said discharge valve, whereby the water from said flush tank will operate to wash excrement from the walls and floor of said enclosure as the pet leaves.



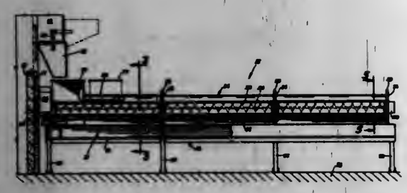
3,318,286
FARROWING PEN
Walter S. Hargett, Jr., 4816 Cutler Drive NW., Huntsville, Ala. 35810
Filed June 14, 1965, Ser. No. 463,640
1 Claim. (Cl. 119—20)



A farrowing pen comprising: a base; a pair of spaced end members; a plurality of stanchions each secured to said base; a plurality of corner posts, one post slidably mounted on each stanchion; a first side rail means extending between a first pair of said corner posts and disposed for vertical movement therewith; a second side rail means extending between a second pair of said corner posts and disposed for vertical movement therewith; said spaced end members being slidably secured with the posts whereby said end members and said side rail means enclose a substantially rectangular central portion means for securing said side rail means to said posts; means for slidably supporting said posts on said stanchions and including means for adjusting the vertical position of said posts at a desired height from said base; a top member including vertical adjustment means for securing said top member to said stanchions in a vertically adjustable relation at a plurality of fixed elevations, said top member being disposed for vertical movement independent of the vertical adjustment of said posts; a pair of side pens each respectively disposed on opposite sides of said central portion; a collar at each corner of said end members, each of

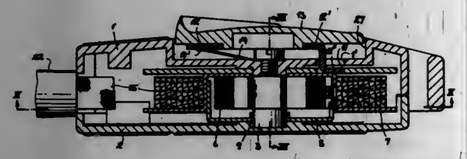
said stanchions being mounted in one of said collars; means securing said stanchions to said collars; and said base comprising a first strap extending between said collars positioned at corners of one of said end members and a second strap extending between said collars positioned at corners of the other of said end members.

3,318,287
BUNK FEEDER
Floyd E. Buschbom, Long Lake, Minn., assignor to Van Dale Corporation, Wayzata, Minn., a corporation of Minnesota
Filed Oct. 22, 1965, Ser. No. 500,601
11 Claims. (Cl. 119—56)



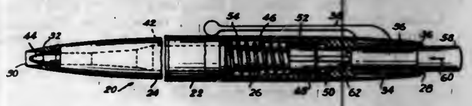
1. In a bunk feeder, a pair of spaced elongated wall members, hopper means slidably positioned on at least one of said members for movement longitudinally of said member and hood means for covering a longitudinal portion of the space between said members, said hood means being secured to and projected from the hopper means.

3,318,288
DOG-LEASH ASSEMBLY
Herbert Müllritter, Lauscher Strasse 41, Duren, Germany
Filed Apr. 6, 1966, Ser. No. 540,563
Claims priority, application Germany, Apr. 7, 1965, K 50,820
10 Claims. (Cl. 119—109)



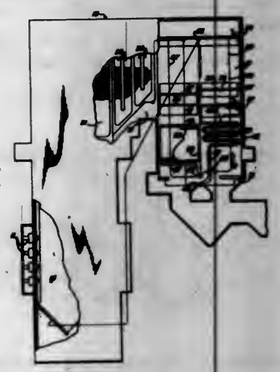
1. A dog-leash assembly comprising a leash, a pillbox-shaped housing having a peripheral exit slot for said leash, a central stud in said housing, a reel rotatable about said stud within said housing, a coil spring anchored to said stud and to said reel while surrounding said stud for tending to hold said reel in a predetermined starting position in which said leash is wound therearound and fully retracted into said housing, a disk rigid with said reel and transverse to the axis thereof, said disk being provided with at least one eccentric perforation, said housing having an aperture aligned with said perforation in a predetermined angular position of said reel, a control member provided with rocker feet and with a detent penetrating said aperture, said member being accessibly disposed on the outside of said housing, and a flat spring secured to said housing and engaging said rocker feet for retaining said member on said housing and biasing it toward a position in which said detent engages in said perforation, thereby releasably arresting said reel.

3,318,289
BI-STABLE MECHANISM
William Marynissen, Ho-Ho-Kus, N.J., assignor to Northern Industrial Products, Hackensack, N.J., a corporation of New Jersey
Filed May 11, 1965, Ser. No. 454,778
9 Claims. (Cl. 120—42.03)



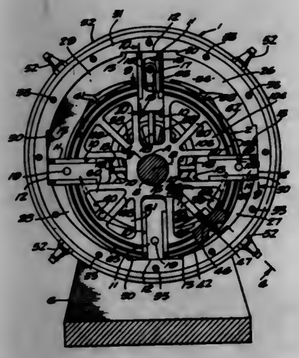
1. A writing instrument comprising a tubular casing, a non-rotatable, axially displaceable actuator in said casing, a rotatable and axially displaceable ratchet in said casing, spring means in said casing, said actuator directly engaging the spring means and being sandwiched between said spring means and said ratchet, means to force said ratchet against said actuator and to displace the ratchet and actuator together against the force of the spring means, said ratchet and actuator including cooperating means whereby the ratchet tends to rotate when forced against the actuator, position establishing means to hold the ratchet selectively in one of two axially spaced positions depending on the angle of rotation of the ratchet, and a writing element coupled to said ratchet and selectively extending from the casing depending on the axial position of the ratchet.

3,318,290
ECONOMIZER ARRANGEMENT
Walter P. Gorzegno, Florham Park, N.J., assignor to Foster Wheeler Corporation, New York, N.Y., a corporation of New York
Filed May 11, 1966, Ser. No. 549,343
9 Claims. (Cl. 122—510)



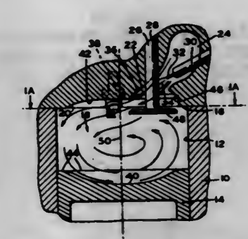
1. An economizer arrangement for use as a support means within a vapor generator, said economizer arrangement comprising:
- a series of first economizer tubes and a series of second economizer tubes arranged for parallel flow;
- a series of left stringer tubes vertically oriented in a common vertical plane;
- a series of right stringer tubes including a series of upper portions and a series of lower portions externally secured together, said series of right stringer tubes being located in a common vertical plane parallel to the common vertical plane of the series of left stringer tubes;
- a series of central stringer tubes located intermediate the series of left stringer tubes and the series of right stringer tubes, said series of central stringer tubes being located in a common vertical plane parallel to the common vertical plane of the series of left stringer tubes;
- means for connecting substantially one-half of the series of first economizer tubes to the upper portion of the series of right stringer tubes and for connecting the remaining half to the lower portion of the series of right stringer tubes; and,
- means for connecting the lower portion of the series of right stringer tubes and the series of second economizer tubes to the series of left stringer tubes and the series of central stringer tubes.

3,318,291
ROTARY ENGINE
Robert V. Hallenbeck, Vancouver, British Columbia, Canada (5563 S. 178th St., Seattle, Wash. 98188), and Samuel R. Hallenbeck, Vancouver, British Columbia, Canada (1101 SW. Dakota, Seattle, Wash. 98106)
Filed Oct. 13, 1964, Ser. No. 405,331
7 Claims. (Cl. 123—8)



1. An internal combustion engine comprising
- a first rotor including a housing rotatable about a first axis,
- a second rotor within said housing rotatable about a second axis in spaced parallelism with said first axis,
  - said second rotor having a plurality of guide passageways extending therein from the periphery thereof,
  - said guide passageways being in opposed pairs, plurality of vanes,
  - one of said vanes being received in each of said guide passageways and reciprocative relative thereto,
- and means interconnecting the vanes in opposed pairs of said guide passageways for maintaining said vanes in a fixed spaced relationship,
  - said housing having a substantially flat surface adjacent each of said vanes,
  - said flat surfaces being chordal with respect to an imaginary circle concentric with the axis of rotation of said housing,
  - said housing including port means for providing ingress and egress for gases to the space between said housing and said second rotor intermediate said vanes,
    - said port means being in said side walls of said housing,
  - said second rotor including a circular rim,
  - said port means being positioned intermediate said vanes,
    - the radially inner edge of each of said port means being defined by an arc having a radius substantially equal to the radius of said rim,
      - said radius having a center point substantially on a circle concentric with said first axis,
      - said circle having a radius substantially equal to the spacing between said axes.

3,318,292
INTERNAL COMBUSTION ENGINE
Laszlo Hideg, Dearborn Heights, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed Dec. 10, 1964, Ser. No. 417,328
7 Claims. (Cl. 123—32)

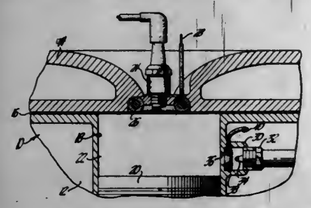


1. An internal combustion engine utilizing a swirl induced stratified charge combustion process comprising, a cylinder bore slidably receiving a piston therein, a cylinder head closing said bore and together with said piston and the walls of said bore defining a combustion chamber therebetween, an air intake passage in said head member, an air intake port connected to said passage and opening into said chamber and closed by a reciprocable valve member movable into and out thereof, said port being offset to one side of the axis of said bore and symmetrically arranged on a centerline of said bore, said passage and bore having configurations so constructed and arranged for cooperation with said valve to provide the flow of a charge of air into said chamber essentially tangential to said centerline and with a general motion from one side of said chamber to the other along the head surface, the facing surfaces of said piston and head being arcuately shaped so as to together with the walls of said bore induce a swirling of said charge of air around an axis essentially at right angles to the bore axis to vaporize any fuel injected therein, a liquid fuel injector positioned to inject fuel as a liquid against a surface of one of said intake passage and said port and said valve so as to be picked up by an edge portion of said air charge as it flows therepast into said combustion chamber to provide a side-by-side arrangement of an essentially vertically disposed fuel impregnated edge air portion of the charge and a residual air portion, and spark ignition means offset from the axis of said bore and projecting into said chamber into said fuel impregnated air portion for igniting said portion.

3,318,293
INTERNAL COMBUSTION ENGINE FUEL CHARGE STRATIFICATION BY ELECTROSTATIC FORCES
Robert Hickling, Warren, and John C. Kent, Birmingham, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed May 14, 1965, Ser. No. 455,718
11 Claims. (Cl. 123—32)

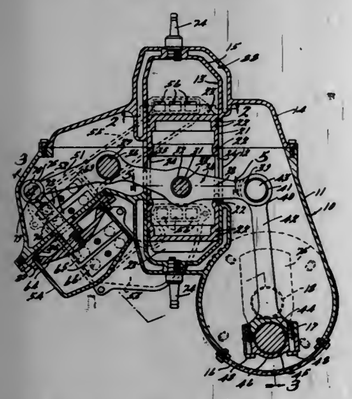
1. In an internal combustion engine having a combustion chamber,
- means to supply fuel droplets to said combustion chamber, and

means to electrically charge the fuel droplets supplied to said chamber and to provide an electric field in



said chamber to act upon said charged fuel droplets and thereby concentrate said droplets in a predetermined portion of said chamber.

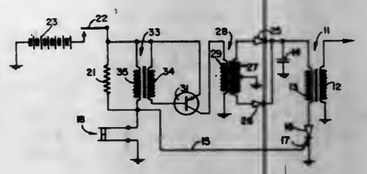
3,318,294
TWO-CYCLE PRESSURE CHARGED ENGINE
Gerald Harris, 8015 Agnes, Detroit, Mich. 48214
Filed Apr. 12, 1965, Ser. No. 447,301
6 Claims. (Cl. 123—61)



5. In an autocycle engine having a casting containing a double-ended cylinder, having inlet and outlet ports at opposite ends thereof, a double-acting piston within the cylinder reciprocable from one to the other end thereof, a rocker bar pivoted to the piston and extending through diametrical slots in the cylinder walls, means for pivoting the bar on a fixed pivot secured to the casting, means pivotally connecting the rocker bar to a connecting rod which is joined to a throw of the crankshaft, an auxiliary cylinder having a piston therein and a rod extending therefrom, an extension on said rocker bar connected to the rod of said auxiliary cylinder, said casting having passageways from the auxiliary cylinder to said inlet ports, a manifold from a carburetor communicating with said auxiliary cylinder, and valve means between the manifold and passageways to the inlet ports which are opened and closed by the movement of the piston in the auxiliary cylinder.

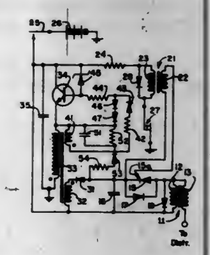
3,318,295
IGNITION SYSTEM
Theodore A. Byles, Villa Park, Ill., assignor to Motorola, Inc., Franklin Park Ill., a corporation of Illinois
Filed Jan. 5, 1965, Ser. No. 423,487
2 Claims. (Cl. 123—148)

1. In an ignition system for an internal combustion engine, which system has an ignition coil for supplying high voltage firing pulses to the internal combustion engine and mechanical breaker points operable in synchronism with the internal combustion engine, a firing circuit for providing intermittent current flow in the ignition coil to produce firing pulses therein, including a combination, capacitor means and switch means connected in series with the ignition coil, said switch means being responsive to pulses applied thereto to complete a circuit to discharge said capacitor means through the ignition coil, a first transformer having a primary winding and a secondary winding, full wave rectifier means connecting said secondary winding to said capacitor means for charging the same from the voltage induced in said secondary winding and from the voltage backswing induced in said



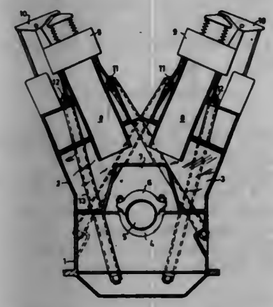
secondary winding, transistor means connecting said primary winding of said first transformer to potential supply means for controlling the supply of energy thereto, and a second transformer isolated from said first transformer and having a secondary winding connected to said transistor means for controlling the conduction therof and having a primary winding adapted for connection in series with the breaker points across the potential supply means, said second transformer thereby controlling the conduction of said transistor means in accordance with the operation of said breaker points.

3,318,296
ELECTRONIC APPARATUS
Arthur G. Hufton, Villa Park, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed Feb. 1, 1965, Ser. No. 429,412
11 Claims. (Cl. 123—148)



1. An ignition system of the capacitor discharge type, for an internal combustion engine, including in combination, a firing circuit including an ignition capacitor and means for discharging the same in synchronism with the engine to produce firing pulses, charging means coupled to said ignition capacitor for charging the same between discharges, said charging means including saturable oscillator means operative to provide a single charging pulse to said ignition capacitor upon the application of a trigger pulse to said oscillator means, and means coupling the ignition capacitor to said oscillator means so that the reverse voltage developed across said ignition capacitor is applied as a trigger pulse to said oscillator means to initiate operation of said oscillator means to recharge said ignition capacitor.

3,318,297
ARRANGEMENT IN V-TYPE COMBUSTION ENGINES
Halvard Krabberöd, Goteborg, Sweden, assignor to Aktiebolaget Gotaverken, Goteborg, Sweden
Filed Feb. 14, 1966, Ser. No. 527,012
2 Claims. (Cl. 123—195)



1. A V-type combustion engine comprising at least one pair of cylinders the axes of which make an angle with each other; cylinder heads; a cylinder frame; a crankshaft; a crankshaft bearing having an upwardly facing bearing cap; a bearing frame; and stay bolts on either side of each cylinder for transmitting the combustion pressure from the cylinder to said bearing frame; said stay bolts extending from said cylinder through the cylinder frame and past the crankshaft bearing to said bearing frame, and being disposed each at an angle to the axis of said cylinder such that the vertex of said angle is pointing toward the cylinder head.

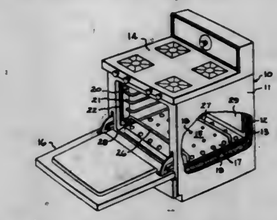
3,318,298
ARCHERY BOW ARROW REST ACCESSORY
Fred B. Bear, Grayling, Mich., assignor to Bear Archery Company, Grayling, Mich., a corporation of Michigan
Filed Feb. 2, 1965, Ser. No. 429,823
5 Claims. (Cl. 124—24)



1. An attachment for archery bows provided with a sight window, comprising, a mounting plate removably connected to said bow within the sight window, said plate having a horizontal cut-out portion adjacent the lower edge thereof and a tapped opening therethrough above said cut-out portion, a replaceable arrow rest fitted in said cut-out portion and projecting from the outer face of said plate, a threaded arrow plate fitted through said tapped opening and provided with an exposed outer face disposed above said arrow rest, whereby, said arrow plate may be axially adjusted to vary the position of the outer face thereof relative to said arrow rest.

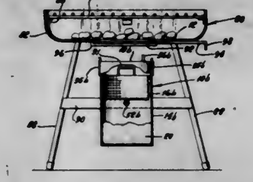
3,318,299
SELF-CLEANING OVEN WITH REMOVABLE PANELS
Walter E. Lewis, Louisville, Ky., assignor to General Electric Company, a corporation of New York
Filed Dec. 2, 1965, Ser. No. 511,074
6 Claims. (Cl. 126—19)

1. A baking oven including walls forming an oven cavity defined by a box-like oven liner with a front opening that is adapted to be closed by an oven door, an enlarged heating means of rectangular configuration with generally uniform radiation activity thereacross for cooking food placed within the cavity, a plurality of removable wall panels supported from the oven liner, said panels being relatively movable such that at least one panel at a time may be placed in an inverted position in an area



of intense heat existing immediately adjacent the enlarged heating means whereby the temperature of the inverted panel may be elevated to levels above the maximum cooking temperatures so that accumulated food soils on the panel will be transformed into gaseous degradation products, said enlarged heating means having a rectangular configuration at least as large as the configuration of the largest panel.

3,318,300
EXTINGUISHING APPARATUS AND METHOD
William M. Witty, 25854 E. 27th St., San Bernardino, Calif. 92404
Filed Oct. 6, 1965, Ser. No. 493,389
12 Claims. (Cl. 126—25)

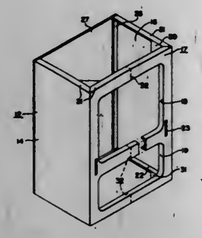


1. Apparatus for extinguishing burning but only partially consumed pieces of charcoal, said apparatus comprising a closed container having a first area for pieces of charcoal and a second area for granular extinguishing material, means defining an excess door to said first area for inserting and removing the pieces of charcoal, means defining a perforated separator between said first area and said second area for retaining the pieces of charcoal in said first area, and a quantity of granular non-flammable extinguishing material normally disposed in said second area and comprised of grains sufficiently small to pass through said perforated separator, whereby the charcoal is extinguished by reorienting the container so that the granular material passes through the separator into the first area, and the charcoal and the granular material are separated by again reorienting the container so that the granular material passes through the separator into the second area.

3,318,301
RANGE BODY CONSTRUCTION
Raymond D. Schibley, Ashland, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed June 24, 1965, Ser. No. 466,786
3 Claims. (Cl. 126—37)

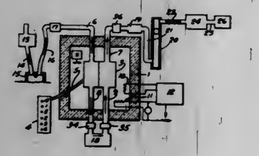
1. In a range construction, body structure having substantially parallel side walls, a solid panel connecting corresponding ends of said side walls and forming the rear of

said body structure, a front wall extending across the other ends of said side walls, said front wall comprising parallel spaced apart portions integral with one of said side walls and a plurality of parallel spaced apart portions integral with the other of said side walls, said front wall further comprising a plurality of filler members disposed in parallel spaced apart relationship and interconnecting



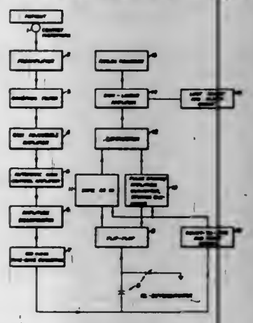
the parallel spaced apart portions of said one of said side walls with the parallel spaced apart portions of said other of said side walls thereby forming a plurality of openings in said front wall, one of said openings providing access to at least one oven liner adapted to be supported behind one of said openings and another of said openings being suitable for receiving a utility drawer.

3,318,302
APPARATUS FOR THE MEASUREMENT OF PHYSIOLOGIC EVAPORATIVE WATER LOSS
Thomas Adams, Oklahoma City, Okla., assignor to the United States of America as represented by the Secretary of the Army
Filed Oct. 22, 1964, Ser. No. 405,879
3 Claims. (Cl. 128—2)



1. Apparatus for measurement of physiologic evaporative water loss comprising:
(a) An insulated housing enclosing a thermal conductivity cell, air circulating means, heat supply and thermal sensing means;
(b) a capsule member having an inlet and an outlet, said capsule member including a body portion having a cavity therein, the cavity communicating with said inlet and outlet and opening downwardly to enclose a test surface, said inlet extending downwardly into said cavity;
(c) a plurality of conduits passing through said insulated housing and connected to said thermal conductivity cell;
(d) air supply means including dehydrating means connected through said capsule member to a first pair of said plurality of conduits connected to said thermal conductivity cell, the inlet of said capsule member directing dehydrated air to a test surface, the outlet connected to the first pair of said plurality of conduits for exhausting humid air from said capsule member into said cell;
(e) a second pair of said plurality of conduits connected through a dehydrating means to said first pair of conduits and directing dehydrated air through said thermal conductivity cell, said second pair of conduits connected through a flow meter sequentially to a pressure damping and pump means;
(f) terminal connector means connected to said thermal conductivity cell for applying the output of said thermal conductivity cell to a bridge circuit; and
(g) recording means connected to the output of said bridge circuit.

3,318,303
METHOD AND APPARATUS FOR OBSERVING HEARTBEAT ACTIVITY
Konrad Hammacher, Kuehlwetterstrasse 28, 4 Dusseldorf, Germany
Filed Jan. 14, 1965, Ser. No. 429,193
Claims priority, application Germany, Dec. 6, 1962, H 47,593; Jan. 16, 1964, H 51,405
29 Claims. (Cl. 128—2.05)

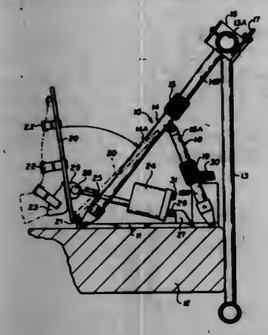


1. Apparatus for determining the heartbeat frequency comprising: sensing means for producing electrical output signals representative of pulsating heart action; a bandpass filter having a passing range with a lower frequency limit of about 30 cycles per second to 55 cycles per second and being connected to said sensing means; discriminator and pulse producing means connected to said filter and responsive to at least two time-separated characteristic information as represented by said output signals after passage thereof through said filter, and as occurring during each heart action cycle, and producing corresponding output pulses; separating means connected to said pulse producing means and having at least two output channels for separating said measuring pulses so that each channel receives a series of output pulses with each pulse of any one series corresponding to one characteristic information per heart action cycle; and comparator means connected to said channels for mutually comparing the pulse rates of said series.

3,318,304
MECHANICAL DEVICE FOR REDUCING BLOOD CLOTTING IN LEGS
Vladimir Gurewich, 1165 Park Ave., New York, N.Y. 10028
Filed Sept. 18, 1963, Ser. No. 309,713
13 Claims. (Cl. 128—25)

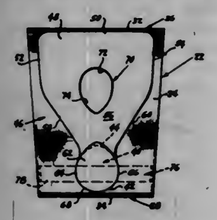
1. In combination with a bed, a power operated foot exerciser for inducing blood flow in the leg of a patient confined to the bed comprising,
(a) a base plate,
(b) means for connecting said base plate adjacent the foot of the bed,
(c) an upwardly extending foot pedal,
(d) means for securing a foot of the patient to said foot pedal,

(e) horizontal pivot means extending perpendicular to the longitudinal axis of the bed for connecting said foot pedal to said base plate to impart oscillatory movement to said foot without imparting substantial oscillatory movement to the leg of the patient,



(f) actuating means for pivoting said foot pedal about said pivot means, and
(g) power means for driving said actuating means.

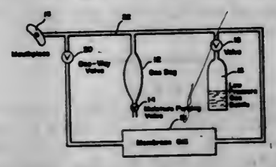
3,318,305
KNEE AND LEG SUPPORT
August L. Schultz, 415 N. Lawler St., Mitchell, S. Dak. 57301
Filed Apr. 22, 1965, Ser. No. 450,136
10 Claims. (Cl. 128—80)



1. A knee support comprising:
an elastic frusto-conical sleeve having an inner and outer surface, an upper larger and a lower smaller peripheral edge, a horizontal stretch characteristic, and a vertical non-stretch characteristic;
a first cushion comprising a relatively thick resilient pad of a geometric configuration secured to said inner surface adjacent said lower edge;
a second cushion comprising a flat relatively thin pad of resilient material secured to said inner surface, said second cushion comprising a lower portion overlying and covering said first cushion, an upper portion of greater width than said lower portion, and an intermediate portion connecting said upper portion to said lower portion, said upper and intermediate portions forming an aperture above said first cushion.

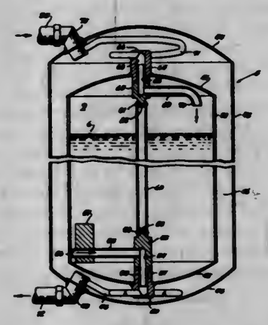
3,318,306
GILL TYPE UNDERWATER BREATHING APPARATUS
Lewis H. Strauss, 9012 Congressional Court, Potomac, Md. 20854
Filed Mar. 25, 1965, Ser. No. 442,697
1 Claim. (Cl. 128—142)

An underwater closed circuit breathing system containing as an integral part thereof a mouth-piece, gas bag with moisture purging valve, low pressure gas bottle with associated valve and a one-way valve in combination with an artificial gill-like device for exchanging oxygen and carbon dioxide with those constituents dissolved in water, comprising layers of capillaries, each of said layers including:
(A) pairs of plates having channels of predetermined non-linear configuration defined by ridges located on the inside surfaces thereof, said channels terminating at their ends in inlet and outlet plenums for the passage of water;
(B) a closed membrane including a gas inlet supported within said outlet plenum and connected to said mouthpiece and a gas outlet supported in said inlet plenum and connected to said low pressure gas bottle having a high diffusion rate of oxygen and CO_2 compressed between said plates to define inner



channels for the passage of gas between those portions of said bag abutting said ridges of said channels while defining outer channels for flowing of water in an opposite direction from the passage of the gas, said outer channels being aligned with said inner channels; and
(C) gas means located in said gas bottle for equalizing gas and hydrostatic pressure comprising octafluorocyclobutane (C_4F_8) which has a low diffusion rate through said membrane bag and which is incapable of being dissolved to any great extent in water, said octafluorocyclobutane being introduced into said closed bag at a pressure sufficient that when combined with atmospheric pressure, gaseous pressure inside said membrane will be equivalent to hydrostatic pressure.

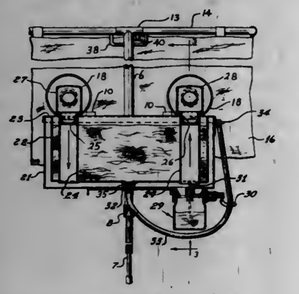
3,318,307
BREATHING PACK FOR CONVERTING LIQUID AIR OR OXYGEN INTO BREATHABLE GAS
Sebastian V. Nicastro, Eggertsville, Erie, N.Y., assignor to The Firewel Company, Inc., Buffalo, N.Y., a corporation of Ohio
Filed Aug. 3, 1964, Ser. No. 387,135
5 Claims. (Cl. 128—142.2)



1. In a portable pack for converting liquid air or oxygen into gaseous form for breathing use in work where the pack is subject to being held in various positions, the combination comprising a container for a body of said liquid and for a head of gas evolved from said liquid and having a side wall shell enclosed by upper and lower end heads, an open-ended liquid outlet tube movably mounted

in the bottom of said container, an open-ended gas pressurizing tube movably mounted in the top of said container, a liquid outlet conduit communicating with said liquid outlet tube, means converting the liquid in said liquid outlet conduit into gas for breathing purposes, a gas pressurizing conduit communicating with said gas pressurizing tube, means converting a part of the liquid in said liquid outlet conduit into gas and conducting such gas to said gas pressurizing conduit, and means actuated by gravity to move the open end of said liquid outlet tube to its lowest position and the open end of said gas pressurizing tube to its highest position within said container, whereby in angular positions of said container with reference to the vertical, the gas pressurizing tube will discharge gas into said gas head and thereby avoid recondensing said gas into said body of liquid and whereby in all such angular positions of said container said liquid outlet tube will expel a large total quantity of said liquid.

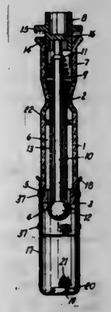
3,318,308
EQUIPMENT FOR RESPIRATORY TREATMENT
James R. Grosholz, Strafford, Pa., assignor to Air-Shields, Inc., Hatboro, Pa., a corporation of Delaware
Filed Nov. 26, 1963, Ser. No. 325,994
3 Claims. (Cl. 128—191)



1. Apparatus for use in treating respiratory ailments and adapted for use with a tent providing an enclosure for a patient on a bed, the apparatus comprising an outer elongated open topped receptacle providing an air chamber and having means for mounting said outer receptacle on the bed frame with the long dimension paralleling a side of the tent, an inner elongated open topped receptacle providing a cooling chamber and being of smaller length and width than the outer receptacle and positioned within the outer receptacle with intervening space between the sides and bottom of the two receptacles, means adjacent the top edges of the receptacles for closing the space between the sides thereof, a pair of upright tubes with their lower ends secured to and opening through the bottom wall of the inner receptacle, separable connectors for coupling the upper ends of said tubes with the interior of the tent, and means associated with the bottom wall of the outer receptacle in the region of the lower end of one of the tubes for establishing an upward flow of air therein and thereby effect circulation of air into the tent and from the tent back into and downwardly through the other of the tubes and thence through the space between the receptacles to the lower end of the first tube.

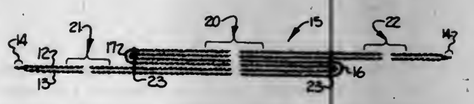
3,318,309
PRESSURIZED MEDICINAL FOAM APPLICATOR
Max E. Bowen, 30885 W. Six Mile Road, Livonia, Mich. 48152
Filed June 26, 1964, Ser. No. 378,333
16 Claims. (Cl. 128—225)

1. A container and applicator for a foamed medication characterized by a tubular pressure containing vial having an outlet opening in one end and a restriction of reduced internal diameter intermediate of its ends,
an extension on said vial at the other end from said restriction,
a valve rod extending through said vial with an enlarged head positioned externally of said outlet opening,
a sleeve of deformable stretchable material extending around said rod and through said restriction,
an abutment on said rod in said extension,
a spring coiled around said rod and compressed between said abutment and said restriction and entering the end of said sleeve in said restriction to seal the sleeve to the vial,



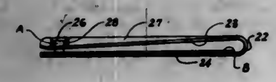
deformable sealing material sealed between said head and the edge of said outlet opening by the pressure of said spring,
a cap slidably mounted in said extension to press said rod and unseal said head and said sealing material from said vial,
a probe fitting over the end of said vial and around said head and having an end insertable into a body opening with a discharge opening through the end of the probe,
and a charge of foamable medicating liquid and propellant foaming gas sealed in said vial between said head and said restriction.

3,318,310
DIAPER
William M. Pittendreigh, Greenville, and Dale W. Kern, Ware Shoals, S.C., assignors to Riegel Textile Corporation, a corporation of Delaware
Filed Apr. 8, 1965, Ser. No. 446,688
7 Claims. (Cl. 128—284)



1. A generally rectangular prefolded diaper having a long dimension and a short dimension and formed from diaper material having selvage edges, said prefolded diaper comprising an absorbent center panel formed of a plurality of layers of diaper material and side panels extending transversely outwardly from said center panel and having outer longitudinal edges, said panels extending along the long dimension of said diaper in a generally parallel relationship, said prefolded diaper being permanently secured together in the prefolded condition, and said prefolded diaper being folded with a multiple reverse fold so that said outer longitudinal edges thereof extend along the long dimension of said diaper and are formed by said selvage edges to resist wear along said outer longitudinal edges and provide maximum wear resistance and so that a conventional size prefolded diaper with a wider-than-normal center panel may be formed from narrower-than-normal diaper material.

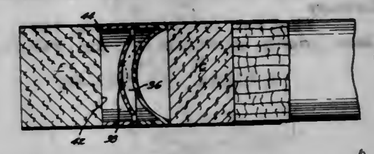
3,318,311
CARD HOLDER
John T. Gressette, 402 Shannon Drive 29607, and Fillmore G. Wilson, 522 Cleveland St. 29601, both of Greenville, S.C.
Filed Oct. 6, 1965, Ser. No. 493,451
2 Claims. (Cl. 129—18)



1. A holder for cards including: a base support member; a vertically spaced upper support member in alignment with said base support member; said support members forming legs of a substantially U-shaped bracket resiliently biased toward one another; a vertical post fixed to one of said legs and extending toward said other leg; means associated with said post for limiting the movement of one of said legs away from the other; said means including an opening in said other leg receiving the post and an abutment on the free end of said post for limiting the movement of said other leg away from said one leg, means positioned on said other leg defining an opening for receiving the abutment for protectively encompassing the same; said cards each having an aperture therein of predetermined size adjacent but spaced from a marginal portion thereof, and a slot having a transverse dimension less than a transverse dimension of said aperture joining said aperture and extending to the adjacent margin of each of said cards; said post having one dimension sufficient to pass through the slot and a second dimension larger than said slot but receivable in said aperture; said post being accessible for accommodating a card when the post is passed through the slot and when the post is received within the aperture permitting turning of the card when the post is received within the aperture to a position placing said one dimension of said post in another direction opposite the transverse dimension of the slot, whereby a plurality of cards may be placed individually or as a group upon the holder and turned to a position where such cards are confined on the post but removable therefrom individually or as a group by turning same to a position wherein the post may be received within the slot.

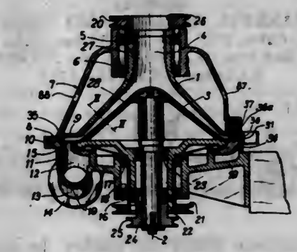
3,318,312
CIGARETTE ASSEMBLY
Joseph A. Curtis, Jr., 917 Cambridge, Apt. H, Anaheim, Calif. 92805
Filed July 27, 1964, Ser. No. 385,111
7 Claims. (Cl. 131—10.5)

1. A cigarette including an assembly, comprising:
(a) a wrapper in which tobacco is contained from tip to mouthpiece thereof;
(b) a first plug of porous filter material disposed in said mouthpiece rearwardly of said tobacco;
(c) a first part of said assembly disposed in said mouthpiece rearwardly of said first plug, which first part includes a concave-convex web having a first cylindrical flange extending rearwardly therefrom that is in abutting contact with the interior surface of said mouthpiece and adhered thereto, with said web having an orifice formed therein, with the forward edge of said first flange being in abutting contact with the rear surface of said first plug to permit said web and first plug to define a first confined space that is maintained at a negative pressure when a smoker draws on said cigarette, which negative pressure causes smoke from said tobacco to be drawn uniformly through the entire transverse area of said first plug to obtain a maximum filtering action from said first plug, and with said smoke discharging rearwardly from said orifice as a high velocity jet; and
(d) a second part of said assembly disposed in said mouthpiece rearwardly of said first part and in abutting contact with the rear edge of said first flange, which second part includes a cylindrical flange that is adhered to the interior surface of said mouthpiece,



a ring that extends inwardly from the forward end of said second flange, a concave-convex partition supported from the inner edge of said ring on which said jet impinges as a smoker draws on said cigarette, which jet deposits deleterious products of combustion contained therein on said partition as it impinges on a concave surface thereof, with said smoke thereafter being deflected forwardly and outwardly into a second confined space defined by said first flange, said web and said partition, to flow rearwardly therefrom through a plurality of circumferentially spaced ports formed in said ring, and with the length of said first flange determining the longitudinal spacing between the rear extremity of said orifice and said partition.

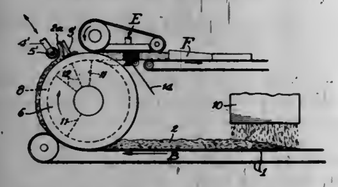
3,318,313
TOBACCO MANIPULATING MACHINE
Willy Rudszinat, Hamburg-Lohbrugge, and Günter Wahle, Hamburg-Bramfeld, Germany, assignors to Hauni-Werke Korber & Co. K.G., Hamburg-Bergedorf, Germany
Filed Oct. 12, 1964, Ser. No. 414,044
Claims priority, application Germany, Oct. 11, 1963, H 50,523; Oct. 12, 1963, H 50,537; Jan. 11, 1964, H 51,340; Jan. 15, 1964, H 51,371
16 Claims. (Cl. 131—84)



1. A centrifugal tobacco rod making machine, comprising rotor means including a pair of walls having a common axis of rotation and defining between themselves a space having a substantially radially outwardly extending annular portion; a stator including an annular closure means surrounding said walls and defining an annular chamber communicating with the radially outermost region of said annular portion; a rotary foraminous annulus having a surface adjacent to said chamber and being disposed in a plane substantially normal to said axis; means for directing a stream of tobacco laden

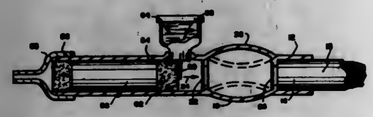
air axially through one of said walls and into said annular portion so that the particles of tobacco follow the action of centrifugal force and move substantially radially toward said chamber; and means for withdrawing air through said annulus so that the tobacco remains in said chamber and forms a rod along said surface of the annulus, said closure means having an outlet through which the rod is discharged from said chamber.

3,318,314
APPARATUS FOR PRODUCING A CONTINUOUS TOBACCO ROD
Carl Stelzer, Hamburg-Bergedorf, Germany, assignor to Hauni-Werke Korber & Co. K.G., Hamburg-Bergedorf, Germany
Filed Feb. 10, 1960, Ser. No. 7,911
Claims priority, application Germany, Feb. 17, 1959, H 35,644
6 Claims. (Cl. 131—84)



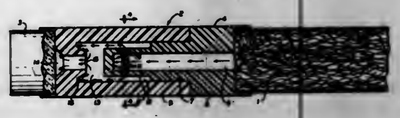
4. In a tobacco rod making machine, in combination, a conveyor adapted to advance a filler stream; tobacco feeding means adapted to feed tobacco to said conveyor so as to form on said conveyor a filler stream containing an excess of tobacco over that required for the tobacco rod, said conveyor being adapted to move in an elongated path to advance said filler stream toward a rod forming means; tobacco compressing means located adjacent to said conveyor and being arranged to move in a path having a component which is transversely directed with respect to said elongated path and being adapted to compress spaced portions of the stream against said conveyor providing compacted spaced zones therein; and trimming means located adjacent to said elongated path and downstream of said compressing means for removing said excess of tobacco from the stream thereby forming a filler stream having a uniform cross section and having compacted zones alternating with zones of lesser density.

3,318,315
CIGARETTE HOLDER AND SMOKER
Ralph H. Orter, P.O. Box 235, Mayer, Ariz. 86333
Filed June 18, 1964, Ser. No. 376,087
3 Claims. (Cl. 131—171)



1. In a cigarette holder and smoker, the combination of: a hollow body; a mouthpiece on one end of said body; a cigarette holder on the other end of said body; a resilient hollow partially collapsible chamber portion of said body disposed between said mouthpiece and said cigarette holder; a chamber inlet check valve between said chamber portion and said cigarette holder; and a chamber outlet check valve between said chamber portion and said mouthpiece, whereby successive manual compression and release of said chamber portion successively causes opening and closing of said check valves, and thereby causes fluid flow through said check valves from said cigarette holder to said mouthpiece; a filter cartridge in said body; a moisture reservoir coupled to said body and communicating with said filter for supplying moisture thereto; said reservoir disposed between said chamber and said filter whereby smoke drawn from a cigarette may traverse the effluent from said reservoir and carry the same into the filter, thereby cleansing the smoke.

3,318,316
PLASTIC FILTER FOR CIGARETTES
Luis Parra Banderas, Norte 74, 3532 Col. La Joya; Leon Sevilla Cohen, Garcia Diego 188, Dep. 3, Col. de los Doctores; Jose Sevilla Cohen, Romero de Terreros 1056, Dep. 17, Col. Narvarte; and Sergio Jimenez Cazares, Calzada de la Viga 1802, Dep. 4, Col. Heroes de Churubusco, all of Mexico City, Mexico
Filed Nov. 4, 1964, Ser. No. 408,873
3 Claims. (Cl. 131—187)



1. In a filter cigarette, a plastic filter comprising
a first cylindrical member, and
a second cylindrical member,
said first cylindrical member including integrally a first cylinder of largest outer diameter, a second cylinder of median outer diameter and a third cylinder of smallest outer diameter,
said first cylindrical member having a first cylinder end at said first cylinder and a third cylinder end at said third cylinder and having a blind axial bore extending throughout the length of said first, second and third cylinders open at said first cylinder end engaging a cigarette portion and closed at said third cylinder end,
a tube disposed transversely in said third cylinder and terminating at the periphery of the latter,
said tube having a plurality of perforations to provide communication between said axial bore and the space surrounding said third cylinder,
said second cylindrical member having an outer diameter substantially identical with that of said first cylinder of said first cylindrical member and an inner diameter substantially identical with said outer diameter of said second cylinder of said first cylindrical member and having an axial length greater than that of said second and third cylinders together,
said second cylindrical member having a first end and a second end,
said first cylinder of said first cylindrical member having an abutting end adjacent said second cylinder,
said first end of said second cylindrical member engaging said abutting end of said first cylinder of said first cylindrical member, and
said second cylindrical member has an opening at its second end to engage a cellulose filter.

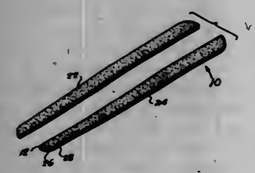
3,318,317
ACTIVATED CARBON SMOKE FILTER
Reavis C. Sproull and Richard M. Berger, Richmond, Va., assignors to American Filtrona Corporation, a corporation of New York
Filed May 21, 1964, Ser. No. 369,236
The portion of the term of the patent subsequent to Nov. 16, 1982, has been disclaimed
3 Claims. (Cl. 131—265)

1. In a smoke means of the type wherein a quantity of tobacco is ignited and smoke is drawn therefrom by a smoker, the improvement which comprises a filter means interposed between the smoker and the tobacco, said filter means comprising an elongated plug disposed in said smoking means such that smoke passes therethrough to reach the smoker, said plug consisting essentially of the following constituents:
(a) at least in excess of 50 percent by weight of activated carbon particles, said activated carbon particles having a maximum dimension which is a small fraction of the minimum dimension of said plug; and
(b) at least about 10 percent by weight of partially solvated, water soluble, resin particles, said resin being operative essentially alone to effect bonding bridges between juxtaposed constituents; said plug further being characterized by:
(i) said activated carbon particles serving as the major active component of said plug and being active to remove both solid and gas phase constituents from smoke passing through said plug during utilization of said smoking means;



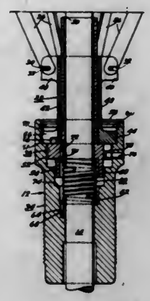
(ii) said resin essentially alone serving as a binder between said constituents and defining a multiplicity of discrete bonding means predominantly individually smaller than said activated carbon particles;
(iii) said constituents cooperating through said bonding means to give structural continuity to said plug as a self-sustaining, substantially particulate stable body in the form of a continuous porous matrix with the discrete bonding means and constituents providing a labyrinth of smoke passage therethrough;
(iv) said constituents being co-mingled in any cross-section of said body and with said activated carbon particles randomly arranged in said plug such that a multiplicity of said activated carbon particles are present in substantially any cross-section of said body; and
(v) said body deriving its stability substantially only from said cooperation between said bonding means and said constituents.

3,318,318
EMERY BOARD
Carl S. Gewirz, 5020 Garfield St. NW., Washington, D.C. 20016
Filed Mar. 13, 1964, Ser. No. 351,640
5 Claims. (Cl. 132—76.4)



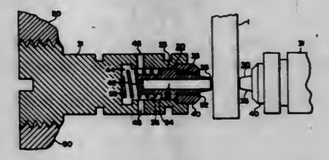
1. An emery board comprising an elongated flat main body having an abrading surface with a central portion thereof normally unused, and a weakened area in said body extending longitudinally along said central portion from one end of said body to the other end of said body whereby said body may be broken to expose new edges for use from the normally unused portion.

3,318,319
UMBRELLA RUNNER ASSEMBLY
Wayne S. Evans, Jr., Huntingdon Valley, Pa., assignor to S. W. Evans & Sons, Inc., Philadelphia, Pa., a corporation of Pennsylvania
Filed May 28, 1965, Ser. No. 459,804
6 Claims. (Cl. 135—43)



1. An umbrella runner assembly having self-contained locking means for securing the assembly to an umbrella shaft and adapted to automatically lock the assembly upon contact with a limit stop on the shaft, said assembly comprising a cylindrically coiled spring in overlying engagement with the shaft for locking said assembly to the shaft, said spring in its relaxed condition having an internal diameter smaller than the diameter of the shaft means for expanding said spring to adjust the position of said assembly on the shaft, and means responsive to contact with a limit stop on the shaft for releasing the spring from the expanded condition to automatically lock the assembly to the shaft.

3,318,320
RETRACTABLE NOZZLE FLAPPER VALVE
Wayne B. Lloyd, Catonsville, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Feb. 7, 1964, Ser. No. 343,351
6 Claims. (Cl. 137—82)

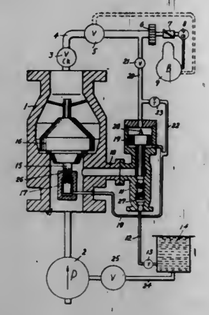


1. An improved flapper valve construction comprising a flapper valve, and a retractable tapered-thin-wall-tip nozzle means biased to a particular projecting position proximate to said flapper valve for the influencing of flow of fluid through said nozzle means and displaceable to a retracted protected position by a non-tip-damaging force delivered by said flapper valve.

3,318,321
MINIMUM AMOUNT CONTROL FOR CENTRIFUGAL TYPE BOILER FEED PUMPS
Wilhelm Odendahl, 46 Homerichstrasse, Gummersbach-Steinenbrück, Germany
Filed Aug. 30, 1965, Ser. No. 483,553
Claims priority, application Germany, Aug. 29, 1964, O 10,348
4 Claims. (Cl. 137—117)

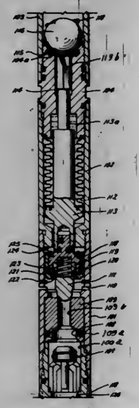
1. A system for protecting against overloading of a centrifugal boiler feed pump during low-load and no-load operation comprising: a centrifugal pump having an inlet

line connected to a supply reservoir and a delivery pipe connected to a boiler, a hydraulically operated minimum amount valve incorporated in a first by-pass line leading from said delivery pipe to said supply reservoir, a flow operated valve in said delivery pipe downstream of said first by-pass line, said minimum amount valve having a control cylinder with a control piston means therein, a



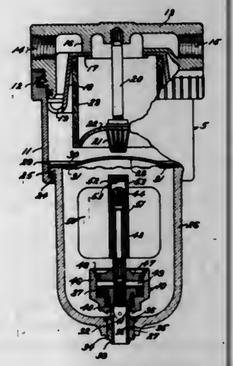
second valved by-pass line leading from said flow operated valve to one side of said control piston means of said minimum amount valve, a feed regulating valve in said delivery pipe between said boiler and said flow operated valve, a line connecting said delivery pipe downstream of said feed regulating valve to another side of said control piston means exposing said other side of said control piston means to boiler feed pressure.

3,318,322
PRESSURE RESPONSIVE GAS LIFT VALVE
Henry U. Garrett, Longview, Tex.
(9820 Main St., Houston, Tex. 77035)
Filed Dec. 21, 1964, Ser. No. 419,870
10 Claims. (Cl. 137—155)



1. A pressure responsive valve comprising,
a housing having an inlet and outlet connected by a flowway,
a main valve and seat controlling the flowway,
a pressure dome in the housing,
a flexible expansible chamber-type fluid motor sensitive to a differential in dome pressure and inlet fluid pressure for actuating the main valve,
said motor defining a sealed chamber,
an incompressible liquid filling said chamber,
means isolating the fluid motor from the dome upon extension of the fluid motor to a selected position and establishing communication between the fluid motor and dome when the fluid motor is contracted beyond said selected position,
and means connecting the fluid motor to the main valve and providing for further extension of the fluid motor beyond said selected position after seating of the main valve.

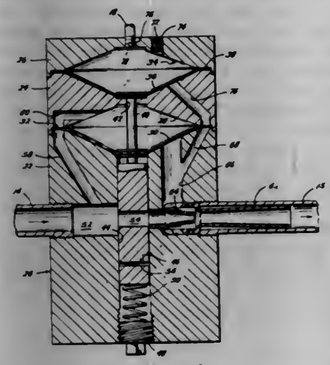
3,318,323
AUTOMATIC DRAIN VALVES
Kenneth White Pearson, Yeovil, England, assignor to Wilkerson Corporation, Englewood, Colo., a corporation of Colorado
Filed Apr. 22, 1964, Ser. No. 361,680
Claims priority, application Great Britain, Jan. 27, 1964, 3,470/64
4 Claims. (Cl. 137—195)



1. A device within a compressed air line for removing water therefrom, said device including a receptacle through which the air flows, said receptacle having means for separating the water from the air and retaining the same, a water outlet from the receptacle to atmosphere, automatic means within the outlet controlling the discharge therethrough, said automatic means including a tubular element fixed in said outlet, and having radial passages for the discharge from said receptacle, a flange on the tubular element forming a piston, a sleeve valve encircling the piston and tubular element and reciprocable of both to open and close said radial passages, a closure movable of the tubular element above the piston and fitting within the upper end of the sleeve valve forming an expansible chamber therebetween, the upper end of the tubular element having a restricted passage for the admission of air from the receptacle into the element, radial passages within the tubular element admitting air from the element into the chamber, a float reciprocable of the tubular element upon the rise and fall of water within the receptacle, a valve at the upper end of the tubular element and operative by the float to close the upper end of the tubular element when the float is at its lowermost position, means within the tubular element for the continuous escape of air from the element and chamber to atmosphere at a rate less than that entering its upper end and thereby effect the gradual closing of the sleeve valve, said float and valve movable upon the rise of collected water admitting air into the element and chamber causing the upward movement of the sleeve valve and the opening of the radial passages for the discharge of collected water, and expansible means between the piston

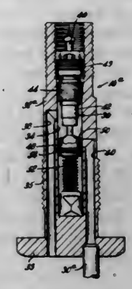
and valve exerting an additional force to the closing of the sleeve valve upon the gradual escape of air from the chamber to atmosphere.

3,318,324
AIR REPLENISHING DEVICE FOR AIR PRESSURE OPERATED WATER SUPPLY SYSTEM
Arthur P. Ruth, 5025 Jensen Drive, Houston, Tex. 77026
Filed Mar. 25, 1964, Ser. No. 354,527
2 Claims. (Cl. 137—209)



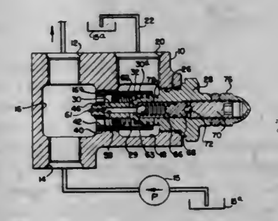
1. In a water supply system the combination with a tank provided with an outlet pipe through which water may flow under the pressure exerted by air compressed in the tank above the water therein due to a rise in the level of water in the tank, of means for replenishing the air in the tank comprising a casing having a flowway therethrough through which water may flow from the tank and a bore intersecting the flowway, plunger means slidably disposed in the bore for longitudinal movement therein into and out of a position to open the flowway, said casing having a first internal chamber into which the bore opens at one end and into which the plunger means is extended and a second internal chamber spaced from said first chamber, a first flexible diaphragm extending across said first chamber, and a second flexible diaphragm extending across said second chamber, said plunger means being connected to the diaphragm in said first chamber, said casing having an opening from said first chamber into said second chamber and means slidably extended through said opening and connecting said diaphragms to cause the diaphragms to flex together, means for allowing an inflow of air into said second chamber on one side of the second diaphragm upon flexing of said second diaphragm in response to movement of the plunger means into flowway opening position and to causing an outflow of air from the second chamber on said one side of the second diaphragm into said tank in response to movement of said plunger means out of flowway opening position, said casing having a passageway opening into the flowway upstream of said bore and leading into said first chamber on one side of said first diaphragm to apply the pressure of water from the tank to said first diaphragm to urge the first diaphragm in a direction to move the plunger means into flowway opening position and passageways in communication with said flowway downstream of said bore and leading into said chambers at locations to cause flexing of the diaphragms in a direction to move the plunger means into flowway opening position upon the outflow of water through the flowway, and means for moving the plunger means out of flowway opening position upon cessation of such outflow of water through the flowway.

3,318,325
DUAL CHAMBERED TIRE VALVE
George F. Siedow, Akron, Ohio, assignor to The Firestone Tire & Rubber Company, Akron, Ohio, a corporation of Ohio
Filed May 13, 1963, Ser. No. 279,979
4 Claims. (Cl. 137—234.5)



1. A unitary valve for a dual air-chamber, comprising
a body having a bore with an open outer end and an inner end,
passages in said body for communicating the bore with each of two air-chambers,
a valve core, having a closure mounted thereon, located in said bore and separating the outer and inner ends thereof and having a passageway therethrough terminating adjacent said passages at its inner end,
a first positive sealing member on said closure comprising a gasket axially slideably engaging said bore and normally isolating said passages from each other,
a second sealing member on said closure normally isolating at least one of said passages from said inner end of said passageway, and
means for moving said first and second sealing members simultaneously to connect said passages with each other and with said open outer end.

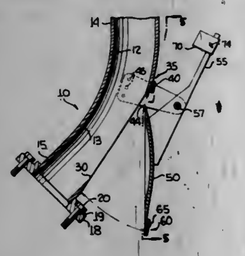
3,318,326
RELIEF VALVE
Anthony Nevulis, Wickliffe, Ohio, assignor to The Ohio Brass Company, Mansfield, Ohio, a corporation of New Jersey
Filed Jan. 28, 1965, Ser. No. 428,729
13 Claims. (Cl. 137—491)



1. A relief valve for use in a fluid system comprising, a body having a cylindrical-like stem projecting outwardly therefrom, a hollow cylindrical main poppet member mounted for axial movement on said stem, said stem including a larger cylindrical portion adjacent the juncture of the stem with the body and a smaller cylindrical portion adjacent the distal end of said stem, spaced sealing

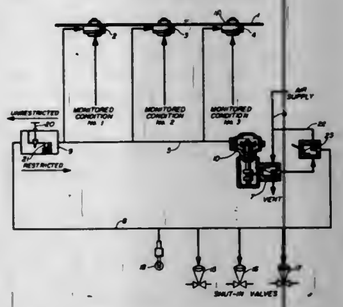
means coacting between said larger stem portion and the interior of said poppet member and between the latter and said smaller stem portion and sealing the interior of said poppet member against egress of fluid therefrom, a hollow cylindrical-like valve seat anchored to the distal end of said stem, said valve seat comprising, an end wall anchored to said stem and a generally axially extending side wall circumferentially encompassing said stem, said valve seat being adapted for engagement by said poppet member, said end wall having a plurality of apertures therethrough for exposing said poppet member to system pressure, resilient means disposed interiorly of said poppet member and urging the latter into sealing engagement with said seat, the sealing area at said seat being less than the sealing area at said larger stem portion for providing a fluid unbalancing force to supplement said resilient means, said valve seat having a circumferential skirt encompassing a portion of the axially extending exterior of said poppet member and providing a throttling section, fluid transmitting passageway means extending axially through said stem from said distal end, aperture means communicating said passageway means with the interior of said poppet member, metering means disposed in said passageway means for restricting the flow of pressurized fluid into the interior of said poppet member, said valve having a chamber therein spaced from said metering means and said aperture means, said chamber having an exit port, a pilot valve seat communicating said passageway means with said chamber, a pilot valve member disposed in said chamber, and including resilient means urging said pilot valve member into engagement with said pilot valve seat, said pilot valve member being adapted to open at a predetermined fluid pressure lower than a predetermined system pressure at which said main poppet is adapted to open, whereby said main poppet member is placed in a condition of floating equilibrium at said predetermined system pressure.

3,318,327
AUTOMATIC DUMP VALVE
William A. Himes and Alfred E. Graham, Newport News, Va., assignors to Newport News Shipbuilding and Dry Dock Company, Newport News, Va., a corporation of Virginia
Filed Apr. 10, 1964, Ser. No. 358,895
7 Claims. (Cl. 137—527.8)



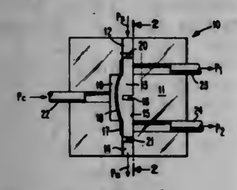
1. Automatic dump valve apparatus for use in the suction pumping line of underwater mining operations at great depths and wherein the normal operating pressure within said apparatus is less than the ambient pressure, comprising an elongated body means having a passageway formed longitudinally therethrough, said body means having an opening formed therein providing communication between said passageway and the exterior of said body means, valve means pivotally supported by said body means and shaped substantially complementary to said opening in said body means so as to close said opening when in closed position, said valve means pivoting to an open position automatically under certain conditions so as to cause material moving in one direction through the passageway in said body means to pass outwardly of said body means, and sealing means for providing a seal between said body means and said valve means and for preventing leakage between said body means and said valve means, said sealing means being mounted outwardly of said body means and said valve means and providing a fluid-tight seal therebetween when said valve means is in its closed position, said sealing means including a first sealing portion fixedly secured to the outer portion of said body means, said sealing means also including a second sealing portion fixedly secured to the outer portion of said valve means, the sealing portions cooperating to provide an effective fluid-tight seal completely around said valve means when in its closed position, said first sealing portion extending about the upper portion of said opening in the body means with the first sealing portion extending inwardly of the edge portions of the opening so as to engage the valve means in its closed position, said first sealing portion extending about approximately ⅛ of the edge portion of said opening, said second sealing portion extending about the lower edge portion of said valve means and extending outwardly thereof for engaging the outer surface of the body means when said valve means is in its closed position, said second sealing portion extending out approximately ⅞ of the edge portion of said opening when the valve means is in its closed position.

3,318,328
ALARM SYSTEM
Kenneth J. Schrader, Tulsa, Okla., assignor to Combustion Engineering, Inc., New York, N.Y., a corporation of Delaware
Filed May 26, 1965, Ser. No. 458,936
7 Claims. (Cl. 137—557)



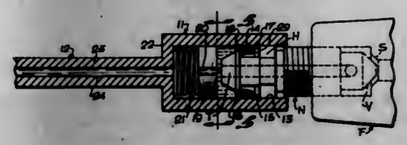
1. An alarm system including,
a fluid pressure manifold conduit,
a supply of fluid pressure connected to the manifold to normally maintain the manifold pressurized and in an inoperative condition,
a plurality of monitor valves connected in parallel to the manifold, each valve having a first position in which the valve retains the pressure of the supply within the manifold and a second position in which the valve simultaneously vents the manifold pressure to atmosphere and annunciates the second position,
and a conduit connected to each valve and receiving a fluid pressure generated by a separate normal monitored condition of a process which fluid pressure will hold the valve in its first position, the valve being moved to its second position when the monitored condition changes a predetermined amount from normal.

3,318,329
FLUID-OPERATED LOGIC DEVICES
Richard E. Norwood, Endicott, N.Y., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed July 24, 1964, Ser. No. 384,921
10 Claims. (Cl. 137—599)



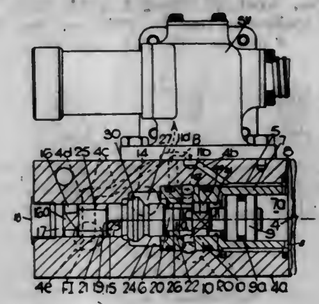
1. Fluid control apparatus comprising:
means defining a flow path for pressurized fluid from an inlet to an outlet and including two spaced flow restrictors with a chamber and ridge therebetween;
diaphragm means in said chamber movable by a fluid pressure signal against said ridge for terminating flow through said chamber; and
means forming an outlet channel connected to said flow path between said restrictors for providing fluid from said path at a pressure indicative of the presence of said fluid pressure signal.

3,318,330
TOOL FOR BLEEDING HYDRAULIC BRAKES
Donald G. Dobbs, 4011 NW. 189th Terrace, Carol City, Fla. 33054
Filed June 24, 1964, Ser. No. 377,726
7 Claims. (Cl. 137—614.2)



1. A tool for bleeding automotive hydraulic brakes at the rotary valve wheel cylinder fittings, said fittings being of the type having a screw-threaded valve member with a polygonal nut for operating the valve and a nipple extending from the valve member through which hydraulic fluid is bled when the valve is screwed open, comprising, in combination a tubular body portion adapted at one end to fit over and engage said polygonal nut of said valve member for engagement with the fitting for unitary rotational motion therewith, a handle fixed with respect to said body portion to facilitate turning said body portion for opening and closing the valve fitting, said handle including fluid drainage means communicating with said tubular body portion for the drainage of hydraulic fluid expelled through said nipple when said valve is screwed open, and a check valve in said body portion for sealing off the tip end of an engaged fitting to prevent the drawing in of air when the valve fitting is in open condition, said handle portion having a cross-bar secured to the other end thereof, and said fluid drainage means comprising passageways in said handle portion and said crossbar.

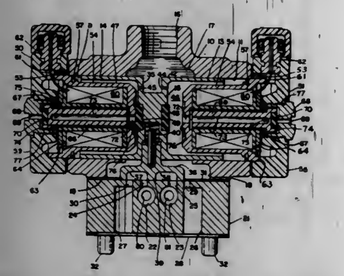
3,318,331
CONTROL VALVE FOR HIGH PRESSURE HYDRAULIC CYLINDERS AND THE LIKE
Frank Town, Burton Joyce, England, assignor to W. E. & F., Dobson, Limited
Filed Jan. 14, 1965, Ser. No. 425,401
Claims priority, application Great Britain, Jan. 18, 1964, 2,313/64
3 Claims. (Cl. 137—625.63)



1. A control valve particularly adapted to control high pressure hydraulic cylinders and the like, said control valve comprising a valve body having a longitudinal bore, one end of said longitudinal bore being of increased diameter relative to the other end and forming an enlarged piston receiving chamber, a first cylindrical sealing surface disposed intermediate said piston receiving chamber and said opposite end, a service chamber disposed in said longitudinal bore adjacent said first cylindrical sealing surface, an axially facing first valve seat in said service chamber disposed adjacent said first cylindrical sealing surface, a service outlet communicating with said service chamber and adapted for connection to said high pressure hydraulic cylinder, a second cylindrical sealing surface formed in said longitudinal bore adjacent said service chamber, a second axially facing valve seat being disposed intermediate said second cylindrical sealing surface and said service chamber in axial opposition to said first valve seat, a fluid supply inlet communicating with said longitudinal bore intermediate said service chamber and said other end, said fluid inlet also communicating with a first feed duct formed in said valve body, said first feed duct adapted for selective communication with a second feed duct, said second feed duct communicating with said end portion of said bore of increased diameter to permit application of high pressure into said end portion, a third duct and return outlet port communicating with said longitudinal bore intermediate a third cylindrical sealing surface formed in said portion of increased diameter, a valve spindle having an enlarged piston portion at one end slidably positioned in said longitudinal bore and having said enlarged piston portion disposed in said enlarged piston receiving chamber, sealing means on said enlarged piston portion engaging said third cylindrical sealing surface to isolate one end of said piston receiving chamber from the other end whereby said valve spindle will shift in response to pressure acting on said enlarged piston portion, a first cylindrical sealing portion on said valve spindle adapted for movement into and out of engagement with said first cylindrical sealing surface to thereby control flow between said service chamber and said return outlet port, a second cylindrical sealing portion on said valve spindle adapted for movement into and out of engagement with said second cylindrical sealing surface during movement of said valve spindle towards said opposite end, and an enlarged valve head on said spindle disposed in said service chamber and having axially facing seating portions on opposite sides thereof for sealing

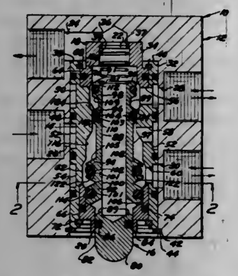
engagement with said first and second axially facing valve seats in response to longitudinal movement of said valve spindle.

3,318,332
VALVE OPERATING MECHANISM
Zdenek J. Lansky, Winnetka, and Kurt W. Leibfritz, Norridge, Ill., assignors to Parker-Hannifin Corporation, Cleveland, Ohio, a corporation of Ohio
Original application Jan. 20, 1960, Ser. No. 3,580, now Patent No. 3,141,115, dated July 14, 1964. Divided and this application Dec. 26, 1963, Ser. No. 333,295
4 Claims. (Cl. 137—625.64)



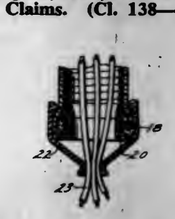
1. A valve operating mechanism comprising a main housing which includes a cylinder, a solenoid housing closing each end of the cylinder and in axial alignment therewith, a free valve operating piston reciprocable in said cylinder between said solenoid housings, said solenoid housings having exhaust passages therethrough communicating with the respective cylinder end, conduit means for introducing pressure fluid to each end of the cylinder, solenoid operated valve elements within said solenoid housings for opening and closing the respective exhaust passages for selectively exhausting pressure fluid from said cylinder ends to cause said piston to move toward the cylinder end being exhausted, valve means at each end of the piston engageable with the respective solenoid housing for closing the exhaust passage therethrough when the piston has moved to the cylinder end being exhausted to thereby cut off further loss of pressure fluid.

3,318,333
PRESSURE-SEALED PISTON-AND-CYLINDER ASSEMBLY
Orla H. McCollum and Paul L. McCollum, Novi, Mich., assignors to Novi Tool and Machine Company, Novi, Mich., a corporation of Michigan
Filed Jan. 28, 1965, Ser. No. 428,715
2 Claims. (Cl. 137—625.69)



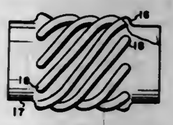
1. A pressure-sealed piston valve assembly, comprising
a piston valve cylinder structure having an axial bore therein with enlargements adjacent thereto and having axially-spaced pressure fluid intake, fluid exhaust and fluid service ports communicating with said bore at intervals therealong;
a piston valve plunger reciprocably mounted in said bore and having a plurality of axially-spaced enlarged piston valve heads thereon slidably engaging said bore and movable between said bore and said enlargements, said piston valve heads having annular circumferential sealing ring grooves therein;
each piston valve head during operation having one face exposed to high pressure fluid within a high pressure fluid space and an opposite face exposed to low pressure fluid within a low pressure fluid space;
each piston valve head having a pressure fluid relief passageway extending from its respective sealing ring groove to its respective opposite face;
said piston valve plunger having a longitudinal passageway therethrough communicating directly and continuously with said fluid exhaust port;
said piston valve plunger having a lateral port extending transversely outward from said longitudinal passageway and placed in communication with said low pressure fluid space in response to the reciprocation of said valve plunger;
and a sealing ring of resilient material mounted in each groove in sealing engagement with said bore;
each said passageway extending through its respective piston valve head from a location on the inner side of its respective sealing ring directly to the low pressure space adjoining its respective opposite face.

3,318,334
CONDUIT WITH ENLARGED END AND METHOD OF FORMING SAME
Joe E. Fuzzell, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill., a corporation of California
Filed Apr. 6, 1964, Ser. No. 357,615
4 Claims. (Cl. 138—109)



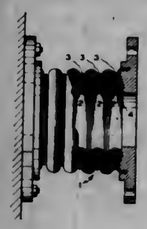
1. In a conduit which comprises a tubular metal body enclosed by a plastic cover, an enlargement adjacent the end of the conduit comprising a portion of the plastic cover folded back upon itself and disposed between the body and the cover and extending to the end of the metal body, and said tubular metal body being form sustaining whereby the enlargement projects outwardly of the tubular conduit.

3,318,335
TORSIONAL PIPE COUPLING
Chester M. Heller, 2411 N. 54th St., Philadelphia, Pa. 19131
Filed Oct. 15, 1963, Ser. No. 319,632
33 Claims. (Cl. 138—121)



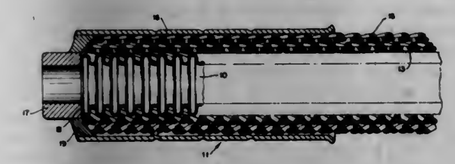
1. An integral, unitary torsional pipe coupling for use in a pressure carrying system comprising a conduit having inlet and outlet terminals, said terminals being connected to adjacent ends of the said pressure carrying system, said conduit having a plurality of spiral corrugations formed in the wall thereof and extending along the length thereof, said corrugations being subjected to the pressures carried by the said pressure carrying system and said conduit being yieldable to torsional forces carried within the said pressure carrying conduit and applied to the said terminals.

3,318,336
HIGH PRESSURE BELLOWS
Kenneth L. Treiber, 402 Villamay Blvd., Alexandria, Va. 22307
Filed Oct. 7, 1964, Ser. No. 402,366
2 Claims. (Cl. 138—121)



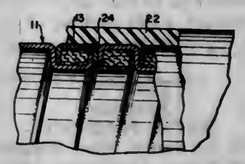
1. In a bellows device, a cylindrical bellows means having convolutions in the surface thereof, first ring support means positioned in said convolutions within said bellows means and second ring support means positioned in said convolutions externally of said bellows means, said first ring support means having a first tear drop configuration in cross-section, said first tear drop configuration having an apex directed toward the central axis of said bellows means, said second ring support means having a second tear drop configuration in cross-section, said second tear drop configuration having an apex directed away from the central axis of said bellows, and said first and second ring support means having substantially the same radial dimensions.

3,318,337
REINFORCED FLEXIBLE CORRUGATED METAL HOSE ASSEMBLY
William A. Bauer, Oxford, Conn., assignor to Anaconda American Brass Company, a corporation of Connecticut
Filed July 17, 1964, Ser. No. 383,354
4 Claims. (Cl. 138—130)



1. In a flexible metal hose assembly having a corrugated metal hose core, and end fitting assemblies attached to the respective ends of said core, reinforcement means in combination therewith comprising a first layer of a plurality of stranded cables helically wound side-by-side about the corrugated metal hose core and attached to the respective end assemblies, and a second layer of a plurality of stranded cables helically wound side-by-side about said first layer with a helical extension opposite to the helical extension of said first layer and attached to the respective end assemblies.

3,318,338
JACKETED STRIP-WOUND METAL HOSE
Thomas Donald Craig, Mattoon, Ill., assignor to Anaconda American Brass Company, a corporation of Connecticut
Filed Aug. 13, 1964, Ser. No. 389,310
2 Claims. (Cl. 138—131)



1. Jacketed strip-wound metal hose having axially interlocking helical convolutions in which each convolution is movable to a fully axially compressed position in which adjoining convolutions are in direct contact with one another such that there is only a small space between the convolutions at their outer surfaces and an axially extended position in which adjoining convolutions are spaced a substantial distance apart, and a seamless jacket of plastic material fitting snugly about the outer surface of said hose and substantially filling said space between adjoining convolutions when said hose is unbent and in said axially compressed position with its axis substantially straight to provide a mechanical interlock between the jacket and the hose, whereby axial displacement of the jacket relative to the hose is substantially precluded by said mechanical interlock and upon bending of the jacketed hose adjacent convolutions can move away from each other only on the outside of the bend and wrinkling of the jacket due to movement of convolutions toward each other on the inside of the bend is substantially precluded.

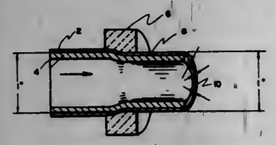
3,318,339
REINFORCED HOSE STRUCTURE
Charles Stowell, Erie, and Benjamin Haytock III, Fairview, Pa., assignors to Continental Rubber Works, Erie, Pa., a corporation of Pennsylvania
Filed Apr. 7, 1964, Ser. No. 357,907
1 Claim. (Cl. 138—138)



In combination, a hose and reinforcing means therefor, said hose comprising an outer cover made of abrasion resistant material,
a tubular lining of waterproof material,
a matrix tube of resilient material concentric to said lining and said cover and spaced substantially half way therebetween and spaced therefrom,
fabric material in the space between said cover, said matrix and said lining and said matrix,
said fabric material being attached to said lining, said cover, and said matrix,
a spiral wire imbedded in said matrix material and bonded thereto,

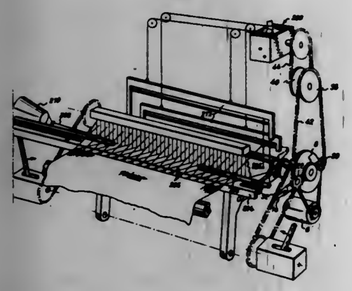
said wire having a plurality of turns adjacent the end thereof in engagement with each other and a plurality of turns further from said end at a greater spacing than said first turns said first turns being wound in at least two concentric layers, a nipple that goes inside an end of said hose and extending a distance thereinto, said first turns of wire being disposed concentric to said nipple and overlying the inner end thereof, a said plurality of said first groups of turns being provided adjacent said one end of said hose.

3,318,340
METAL PRODUCT
Maurice L. Torti, Jr., Boston, Mass., assignor to National Research Corporation, Cambridge, Mass., a corporation of Massachusetts
Filed June 19, 1964, Ser. No. 376,492
3 Claims. (Cl. 138—140)



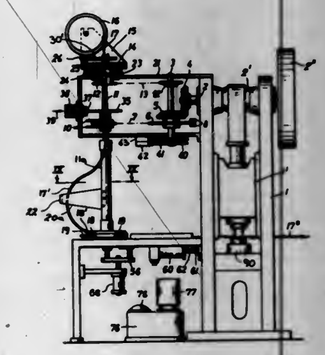
2. A composite tube with a corrosion resistant outer surface for heat transfer apparatus and the like and comprising a thin wall tantalum outer tube surrounding a thick wall inner tube made of a metal having a heat transfer coefficient at least substantially equal to that of the tantalum and a modulus of elasticity less than that of the tantalum, the two tubes being free of bonds to each other, and in abutting relation with the inner tube having a high residual compressive stress and the outer tube having a high residual tensile stress so that the tubes exhibit substantial interface pressure at room temperature and all operating temperatures.

3,318,341
LOOM REVERSING MEANS
Georges Nollet, 6 bis Ave. Foch, Mouveaux, France
Filed July 28, 1965, Ser. No. 475,464
12 Claims. (Cl. 139—1)



1. In a loom apparatus of the type including a shed, a stationary weft supply located outside the shed, a loom motor, first loom means driven by said motor, and heald operating means adapted to be driven by said motor in a given timed relationship relative to said first loom means; the invention which comprises
a loom sprocket gear connected with said first loom means for simultaneous driven movement therewith;
means including a second sprocket gear for driving said heald operating means;
adjustable means affording a continuous and positive mechanical connection between said second sprocket gear and said loom sprocket gear to thereby effect driving of said heald operating means, said adjustable means being operable to vary the instantaneous angular relationship of said second sprocket gear relative to said loom sprocket gear; and
operating means for operating said adjusting means to establish one of two predetermined angular relationships between said loom sprocket gear and said second sprocket gear.

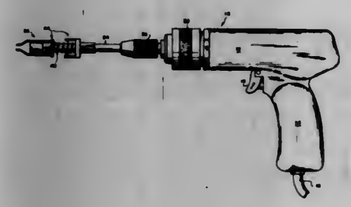
3,318,342
WIRE-LOOPING MACHINE
Heinrich Schmidt, Dusseldorf-Oberkassel, Germany, assignor to Hein, Lehmann & Co. Aktiengesellschaft, Dusseldorf, Germany, a corporation of Germany
Filed Sept. 9, 1964, Ser. No. 395,220
11 Claims. (Cl. 140—102)



1. In a machine for forming a succession of equispaced closed loops on a wire, comprising a support, a spindle on said support, rotatable mounting means in line with said spindle for holding a supply reel for a wire to be looped, a first pin, a second pin and a third pin spacedly positioned parallel to one another along a path for said wire transverse to the axis of said spindle, said first pin being coaxial with said spindle, said second pin being disposed between said first and third pins at a predetermined distance from said axis, first holder means for said first and second pins displaceable in axial direction of said spindle between one position in which said first and second pins are withdrawn from said path, second holder means for said third pin displaceable in axial direction of said spindle between one position in which said third pin traverses said path and another position in which said third pin is withdrawn from said path, a carrier connected with said second holder means and reciprocable along said path together with said third pin, continuously operable drive means, coupling means between said drive means and said spindle for entraining the latter through a full turn about its axis to form a loop of wire during a fraction of an operating cycle of said drive means and for maintaining said spindle stationary against rotation during the remainder of said cycle, and timer means controlled by said drive means and coupled with said first and second holder means and said carrier for sequentially performing the following operations in the course of said cycle:
(1) displacement of said first holder means into said one position thereof during standstill of said spindle, thereby introducing said second pin into a second loop previously formed in said wire, said third pin being concurrently maintained by said carrier at a location relatively remote from said axis with said second holder means in said one position thereof;

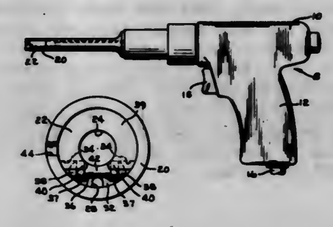
(2) displacement of said second holder means into said other position thereof upon beginning rotation of said spindle;
(3) movement of said carrier to a location relatively close to said axis at which said third pin is aligned with a third loop formed in said wire before said second loop;
(4) displacement of said second holder means into said one position thereof for introducing said third pin into said third loop;
(5) displacement of said first holder means into said other position thereof upon completion of the rotation of said spindle and formation of a loop around said first pin whereby said first and second pins are withdrawn from their respective loops; and
(6) advancement of said carrier into said relatively remote location with entrainment of said wire by said third pin over a distance sufficient to align said second pin with a loop formed earlier in said wire,
the combination therewith of transmission means connecting said drive means with said mounting means for continuously rotating the latter together with said supply reel about the axis of said spindle, and feed means operable at the beginning of each new cycle for drawing from said supply reel a length of slack wire sufficient to permit the advancement of said carrier into said relatively remote location without substantial tensioning of the entrained wire.

3,318,343
TOOL ATTACHMENT FOR SPREADING LOOSE ELEMENTS AWAY FROM WORK
Hugh L. Dryden, Deputy Administrator of the National Aeronautics and Space Administration with respect to an invention of Anthony J. Charnosky, Wilkes-Barre, Pa.
Filed July 23, 1964, Ser. No. 384,811
9 Claims. (Cl. 140—124)



1. An apparatus for spreading elements away from a tool head secured to the free end of a shank comprising:
(a) sleeve means slidably mounted on said shank and bifurcated at the end adjacent to said tool head,
the fingers formed by said bifurcated sleeve means extending over and converging forward of said tool head thereby forming at least a partial enclosure around said tool head for preventing said elements from contacting said tool head as said tool head is moved through said elements; and
(b) bias means connected to said sleeve means for biasing said sleeve means in a forward direction toward said tool head,
said tool head being removed from within said partial enclosure for performing work by sliding said sleeve means along said shank against said bias thus bringing said tool head into engagement against the inner surface of said housing thereby causing said fingers to be spread apart by said tool head and any elements engaged by said fingers to be spread away from said exposed tool head.

3,318,344
WIRE WRAPPING TOOL
Gilbert J. Lamoureux, Oak Park, Ill., assignor to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York
Filed Nov. 10, 1964, Ser. No. 410,284
5 Claims. (Cl. 140—124)



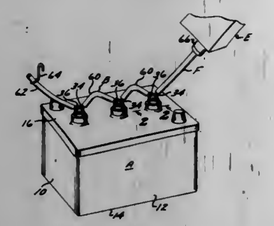
1. In a tool for winding wire around a terminal, the combintion of:
a rotary bit having a substantially flat end, an axial bore extending from said end for receiving a terminal therein, a groove extending from said end in parallel and laterally spaced relation to said bore for receiving an end portion of a wire which is to be wrapped around the terminal, and a bearing recess in the end portion thereof disposed transversely and eccentrically of said bore and intersecting said groove;
means including a stationary sleeve for supporting said bit for rotation; and
a roller rotatably supported in said transversely disposed bearing recess of said bit for rotary movement with said bit for guiding the wire along a predetermined path as the wire is withdrawn from said groove and wound onto the terminal.

3,318,345
STORAGE BATTERY FILLING DEVICE
Richard W. Beall, Jr., 500 Poinsettia Ave., Manhattan Beach, Calif. 90266
Filed Mar. 15, 1965, Ser. No. 439,797
11 Claims. (Cl. 141—59)

1. A device adapted to be connected to a flexible tube extending from a deformable resilient non-vented container holding an acid solution to fill each of the individual cells of a storage battery with said solution to a predetermined level therein above the plates in said cell, each of which cells have a threaded inlet opening formed in the upper portion thereof, with a target ring situated below said opening, which device includes:
(a) a plurality of threaded tubular members that can removably engage said threaded inlets;
(b) a plurality of inverted elongate cup-shaped bodies longitudinally disposed in said tubular members, each of which bodies have spaced first and second passages formed in the upper portion thereof;
(c) first means for sealingly and rotatably supporting said bodies in said tubular members;
(d) second means for dividing the interior of each of said bodies into first and second longitudinally extending spaces that are in communication with said first and second passages;
(e) a plurality of corrugated resilient tubes depending from the lower ends of said bodies, with the lowermost of each of said corrugations being adapted to seat on one of said target rings;
(f) a plurality of tubular extensions depending from said lowermost corrugations, with the external diameter of said extensions being less than the interior diameter of said target rings;

(g) a plurality of flexible conduits that extend between said bodies, with the ends of each conduit being in communication with a first passage in one of said bodies and a second passage formed in an adjacently disposed one of said bodies;

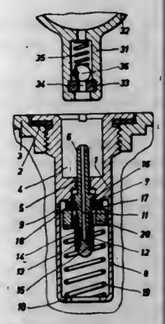
(h) third means for connecting said flexible tube to said first pasage in one of said bodies that is disposed in a first end-positioned cell in said battery, which container when held above said battery discharges acid solution into said end-positioned cell due to force of gravity until said solution has risen above the lower end of said tubular extension to the extent that the pressure is increased on air confined in said cell to the extent that said solution rises in said second space and flows through said second passage to sequentially fill the balance of said cells in said battery; and



(i) fourth means in communication with said second passage formed in a one of said bodies disposed in a second end-positioned cell for indicating that all of said cells have been filled with said solution, with the air under pressure in said cells above said solution therein forcing said solution therefrom through said conduits towards said container when said container is moved to a position lower than that of said battery, whereupon said flow of solution to said container continues until said predetermined level is reached at which the liquid level in said cells is slightly below the lower extremity of said extensions and the spaces above said solution in said cells is vented to the ambient atmosphere through said conduits and fourth means.

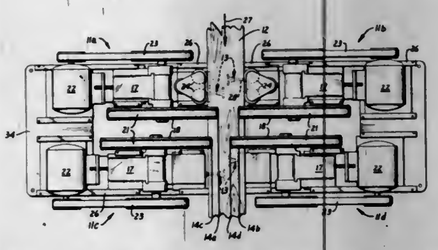
3,318,346
GAS LIGHTER
Wolfgang Maltner, Oberstedten, Taunus, Germany, assignor to Heinrich Maltner G.m.b.H., Offenbach am Main, Germany
Filed Nov. 13, 1964, Ser. No. 410,858
Claims priority, application Germany, Nov. 19, 1963, M 58,977
6 Claims. (Cl. 141—293)

1. In a gas lighter, in combination, a container adapted to contain a combustible gas and adapted to be filled with the combustible gas from a pressurized tank which contains the combustible gas under pressure in liquid form, for example, said container having a wall provided with an aperture; pressure responsive non-return valve means carried by said wall of said container and comprising a hollow tubular member slidably arranged in said aperture and having end portions respectively located within and without said container for placing the interior of the latter in communication with the interior of a pressurized tank when the latter is placed in engagement with said hollow tubular member, said non-return valve means opening only in response to an increase in the pressure within said hollow tubular member to admit fluid into said container; and a pressure-relief venting valve means carried by said wall of said container and said hollow tubular member, said hollow tubular member being slidable from a normal inactive position into an active position deeper into said container in response to placing of said hollow tubular member in communication with said tank and said pressure-relief valve means responding to such sliding and



opening for relieving the pressure in the interior of said container so that the pressure in the interior of the container cannot maintain said pressure responsive non-return valve means closed in opposition to the pressure of the fluid acting on said pressure responsive non-return valve means to open the latter.

3,318,347
METHOD AND APPARATUS FOR MULTIPLE RESAWING
John A. Alich, Burlingame, Calif., assignor to Turner Machinery Co., Inc., San Francisco, Calif.
Filed June 19, 1963, Ser. No. 289,000
1 Claim. (Cl. 143—22)



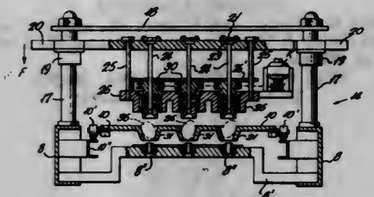
An apparatus for making multiple cuts lengthwise through an elongated workpiece moving end first through the apparatus, comprising a plurality of saw units, each of said saw units including a saw member and motor drive therefor mounted on a base member; a plurality of positioning means for moving and adjustably holding each of said saw units in laterally spaced relation to the other saw units for making longitudinal cuts through the workpiece at desired lateral spacings; each of said positioning means including a guideway for said base member extending laterally with respect to the path of movement of the workpiece; power-operated means connected to said guideway and base member for displacing said base member along said guideway to a selected position; and indexing means on said guideway and base member formed for holding said base member at the preselected position on said guideway, said indexing means including a reversing electric motor for displacing said saw units, switching means formed for operating said motor in a desired direction of rotation in response to an error signal, and sensing means connected to said saw and switching means and formed for supplying such error signal to the switching means when said saw unit is not located at a preselected position, said sensing means including a Selsyn unit consisting of a generator having provision for displacing its shaft to a selected rotary position and a control transformer linked to the generator so as to generate an error signal when the rotary position of its shaft no longer corresponds with the rotary position of the generator shaft, a pinion gear on the shaft of said control transformer, a rack gear secured to said saw unit and meshed with said pinion gear for rotating the control transformer shaft in accordance with lateral movement of the saw unit, and an amplifier connected between said control transformer and said switching means for amplifying said error signal.

3,318,348
ADJUSTABLE DADO AND TONGUE CUTTING TOOL
John W. Oehrli, 251 Tranquillo Road, Pacific Palisades, Calif. 90272
Filed Jan. 8, 1965, Ser. No. 424,245
20 Claims. (Cl. 144—238)



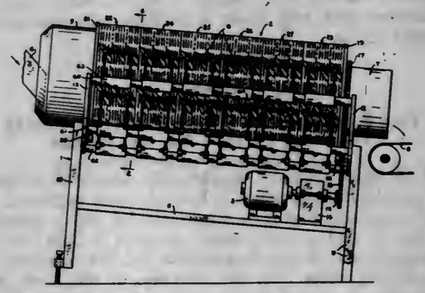
1. An adjustable dado cutting tool comprising:
a rotary supporting member having a central axis of rotation,
rotary cutter means including two generally diametrically opposed sets of circumferentially spaced cutters having a common medial plane,
cooperating means on said supporting member and said cutter means rotatably mounting said cutter means on said supporting member for angular adjustment of said cutter means relative to said supporting member in such manner that each said cutter set undergoes rotational motion about an adjustment axis inclined at a given acute angle relative to said rotation axis and inclined at the approximate complement of said given angle relative to said medial plane, whereby said cutter means is adjustable relative to said supporting member between a minimum cutting width position wherein said medial plane is approximately normal to said rotation axis and a maximum cutting width position wherein said medial plane is inclined to said rotation axis,
means for securing said cutter means to said supporting member for rotation of said supporting member and cutter means about said rotation axis in unison to cut a dado,
said medial plane intersecting said adjustment axis at a point, and a plane normal to said adjustment axis at said point intersecting said medial plane along a line of intersection approximately normal to said rotation axis,
each said cutter set including a leading cutter with a radial cutting edge approximately parallel to said medial plane for cutting a side wall of the dado and a lateral cutting edge extending transverse to said medial plane for cutting the bottom wall of the dado,
each said cutter set further including a number of cutters following the respective leading cutter and each having a lateral cutting edge extending transverse to said medial plane for cutting the bottom wall of the dado,
one entire cutter set being located at one side of said line of intersection and the other entire cutter set being located at the opposite side of said line of intersection, and
said leading cutter of each cutter set being located at one side of an axial plane normal to said line of intersection and containing said rotation axis and the trailing cutter of each cutter set being located at the opposite side of said axial plane.

3,318,349
DEVICE FOR STONING FRUITS
Giordano Tomelleri, 22 Via Montorio, Verona, Italy
Filed Dec. 14, 1964, Ser. No. 417,916
Claims priority, application Italy, Dec. 17, 1963, 25,874/63
4 Claims. (Cl. 146—27)



1. A device for removing a stone from a fruit comprising conveyor means, at least one cavity provided on the conveyor means adapted to contain a fruit, said cavity having a base portion, an aperture being provided in said base portion, drive means to move the conveyor means intermittently, rotatable means for rotating said fruit to position the fruit correctly in the cavity, drive means to rotate said rotatable means, means to move said rotatable means into contact with and away from the fruit, an ejector member movable into contact with and withdrawable from the fruit, said ejector member being adapted to penetrate the fruit after said rotatable means has moved into contact with and has positioned said fruit correctly in said cavity, said ejector member being adapted to push the stone out of the fruit and through said aperture in the base of the cavity, means being provided to maintain said rotatable means in contact with said fruit when said ejector is being withdrawn from said fruit to retain the fruit within the cavity.

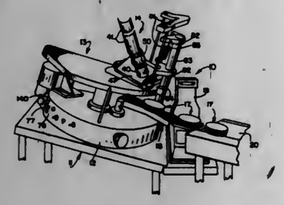
3,318,350
BEAN SNIPPER MACHINE
Joe R. Urschel, 202 Michigan Ave., Valparaiso, Ind. 46383
Filed June 7, 1965, Ser. No. 461,713
25 Claims. (Cl. 146—86)



16. In combination: a tubular cylinder mounted for rotation, said cylinder being adapted to receive a mass of elongate products having reduced ends and being pro-

vided with elongate zig-zag slots which are disposed both longitudinally and circumferentially with at least some of the slots being disaligned circumferentially, an elongate mounting disposed alongside said cylinder, a plurality of longitudinally spaced knife assemblies mounted alongside said cylinder, each of said knife assemblies including a support, an elongate knife for shearing off any ends of the gproduct protruding through the slots, and a plurality of elongate resilient means respectively connecting said supports to said mounting providing the sole means for positioning and urging the knives obliquely against the periphery of said cylinder in a manner whereby the contacting areas between said knives and solid portions of the cylindrical wall between said slots will vary throughout the length of the knives when the cylinder is rotated.

3,318,351
SLICING MACHINE
Theodore G. Werder, Des Plaines, Ill., assignor to Great Lakes Stamp & Mfg. Co., Inc., Chicago, Ill., a corporation of Illinois
Filed July 24, 1964, Ser. No. 384,911
10 Claims. (Cl. 146—94)



1. A loaf feeder for use with a slicing machine having a substantially horizontal, rotatable slicer blade, which feeder comprises the combination of a tubular feed member adapted to continuously receive the product loaves to be sliced and feed said loaves downwardly to the slicer blade, at least the cut-off side of the lower end of said tubular feed member being beveled so as to cooperate with the slicer blade to produce a scissors-like cutting action on a product loaf extending from said tubular member when said member is disposed with its axis obliquely to the plane of the slicer blade, a mounting assembly for mounting said tubular feed member obliquely with respect to the slicer blade, said mounting assembly including a bearing pad adapted to engage the upper surface of the rotatable slicer blade for supporting said mounting assembly and said tubular feed member on said blade, the lower surface of said bearing pad being substantially co-planar with the cut-off side of the lower end of said tubular feed member whereby said member is maintained in accurate alinement with said blade to produce said scissors-like cutting action.

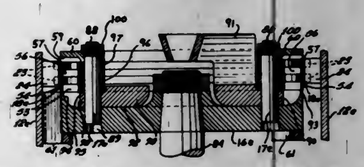
3,318,352
BREAD DICER
Fred P. Seltzer, R.D. 2, Enon Valley, Pa. 16120
Filed June 17, 1964, Ser. No. 375,824
2 Claims. (Cl. 146—150)

1. A bread dicer of the character described, comprising a receptacle in which a loaf of bread is placed, the said receptacle having a removable lid and a plurality of equally spaced and parallel openings in both the said receptacle and the said removable lid, the openings being slightly wider than the thickness of the blade of a knife that is placed therein and moved downward the full length of each opening, thereby dicing the said loaf of bread, and an end plate that also has a plurality of recesses the full length and width thereof and in the underside thereof, the recesses being in line with the openings in both the said receptacle and the said removable lid, the said end plate slidably fitting in the said



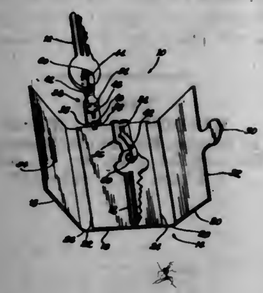
receptacle and exerting enough pressure on the end of the said loaf of bread to hold it in place and form after it is diced.

3,318,353
EMULSIFIER
Alvin W. Hughes, 4 N. 194 Church Road, Bensenville, Ill. 60106
Filed June 29, 1964, Ser. No. 378,857
3 Claims. (Cl. 146—192)



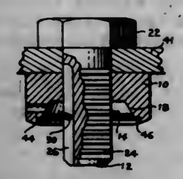
1. In an emulsifier of the multi-ring type for shearing in suspension particles of sausage and other materials and including at least two rotatable concentric rings between which is placed a non-rotatable perforate sizing ring out of contact with said rotatable rings during operation, each of said two rotatable rings having radial passageways through which the material being sheared in suspension may be centrifugally moved, one of said rotatable rings being a feed ring and the other a discharge ring, the radial passageways in said feed ring having the radial outer ends of such passageways closed to direct the fed material toward perforations in said sizing ring, the radial inner end portions of said passageways in said feed ring being open, the discharge ring having the radial outer ends of its passageways open for the discharge of material, and a substantial length of its passageways open for reception of material discharged by perforations of said sizing ring, clamping studs radially within an inner edge of said sizing ring and by means of which said rotatable rings are held in alinement, at least one of said multi-rings being a spacing member, said spacing member having portions functioning as side walls of radial guide channels for said feed ring through which material is centrifugally moved radially outwardly, and a drive shaft to which said rotatable rings are connected for rotation, the combination therewith of the improvement for reducing the friction between the side walls of the radial channels through which material being sheared is supplied by said feed ring, said improvement including: (a) the number of such radial feed channels being reduced below twenty and to at least four, (b) the side walls of such feed channels diverging radially outward, (c) the side walls of at least some of said channels forming an angle of about 90° to other of said channel side walls, and (d) at least some of those side walls being to one side of said clamping studs and extending radially beyond the axis of said studs by a substantial amount to enhance the centrifugal thrust imparted to the material being emulsified.

3,318,354
KEY CASES
Bernard Borisof, Chicago, Ill., assignor to Lectro-Stik Company, Chicago, Ill., a co-partnership
Filed Aug. 4, 1965, Ser. No. 477,149
18 Claims. (Cl. 150—40)



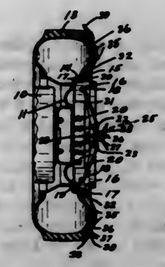
1. A key pouch,
comprising a folder made of flexible sheet material,
said folder having a central panel and two side panels formed integrally with said central panel and connected to opposite side edges thereof,
said side panels being foldable over said central panel in overlapping relation,
and a plurality of key retaining loops formed integrally with said central panel and connected to the upper edge thereof.
each of said loops having a hinge portion of reduced thickness connected integrally to said central panel,
said hinge portion being readily flexible whereby said loop is readily swingable against and away from said central panel,
each loop comprising a strip having an inner portion adjacent said hinge portion and an outer end portion at the end of said strip remote from said hinge portion,
and a pair of cooperative fastening elements on said inner and outer end portions of said loop for disengageably connecting said outer portion to said inner portion for retaining a key or the like on said loop.

3,318,355
POSITIVE LOCK FASTENER
Francis D. Dwyer, 306 Washington Ave., Urbana, Ohio 43078
Filed Sept. 2, 1964, Ser. No. 393,889
5 Claims. (Cl. 151—28)



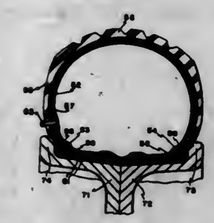
1. In a fastener device, the combination including a body having a generally circular cavity of axial extent, said body having a radially disposed opening in the wall thereof surrounding said cavity, a sheet member having a central perforation and having a circular outer periphery, said sheet member being disposed concentrically in said cavity and occupying a plane substantially normal to the axis of said cavity, retainer means secured to said sheet member and projecting radially beyond the outer periphery thereof, and means of said body engaging said retainer means to attach said sheet member to said body, said retainer means being flimsy in relation to said sheet member whereby a peripheral portion of said sheet member may be swaged into said opening with inappreciable resistance from said retainer means.

3,318,356
TRACTION DEVICE
John R. Vust, 415 W. 2nd St., Sioux City, Iowa 51103
Filed Oct. 1, 1965, Ser. No. 492,073
3 Claims. (Cl. 152—216)



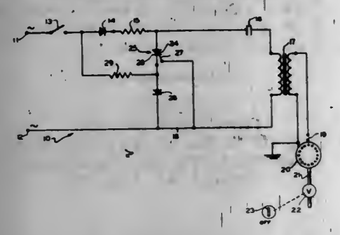
1. A traction device comprising a pair of opposed shoe members, means for radially expanding said shoe members so that said shoe members will tightly engage the inner annular portion of a wheel rim, traction means attached to said shoe members and being adapted to project beyond the peripheral boundaries of a tire mounted on said wheel, said expanding means including a centrally positioned plate, rigid means pivotally attached to said plate and said shoes, means for forcing said plate inwardly toward said wheel to thereby force said shoe members radially outwardly.

3,318,357
PNEUMATIC TIRE
Chester F. Schwall, Jr., Akron, Ohio, assignor to The General Tire & Rubber Company, a corporation of Ohio
Filed Apr. 23, 1965, Ser. No. 450,471
2 Claims. (Cl. 152—363)



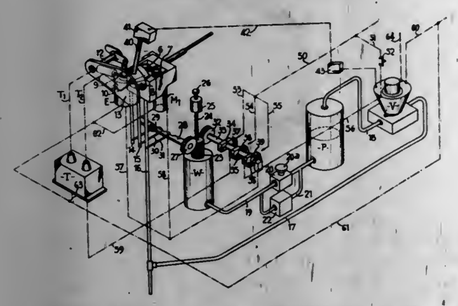
1. In combination with a wheel having a rim provided with a removable flange, a filament wound tire devoid of bead means and having a totally enclosed air chamber and means for introducing air into and retaining it within said chamber, the improvement comprising a substantially axially incompressible and radially inextensible flat rigid spacer in substantial axial alignment with the rim flanges and adapted to exert a pressure against said flanges when the removable flange is assembled on to the wheel to maintain the tire on the rim of the wheel.

3,318,358
BURNER IGNITER SYSTEM
William F. Potts, Ottawa, Ontario, Canada, assignor to Liberty Combustion Corporation, Syracuse, N.Y., a corporation of New York
Filed Mar. 4, 1966, Ser. No. 531,906
7 Claims. (Cl. 158—28)



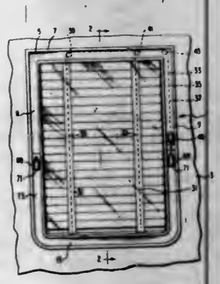
1. An electrically operated igniter device for a burner having a fluid fuel supply, comprising: a source of alternating electric current; a transformer; a first series combination of one source terminal, a switch, the anode and cathode of a first rectifier, and a first resistor connected in that order to one terminal of a capacitor; a second series combination of the other terminal of the capacitor and the primary winding of the transformer connected in that order through a point of reference potential to the other source terminal; a silicon controlled rectifier having its anode connected to the junction of the first rectifier and the capacitor, having its gate terminal connected to the point of reference, and having its cathode connected through the anode and cathode, in that order, of a second rectifier to the point of reference, the cathode of the silicon controlled rectifier being also connected through a second resistor to the junction of the switch and the first rectifier; and spaced electrodes adapted to be fixed in proximity to the burner, said electrodes being in series circuit with the secondary winding of the transformer, one electrode being grounded, and the electrodes forming therebetween a gap for a rapidly recurring spark for igniting the burner whenever the switch is closed.

3,318,359
CONTROL DEVICE FOR METALIZING GUN
Louis Minjolle, Evreux, France, assignor to Commissariat à l'Energie Atomique, Paris, Seine, France, a French body corporate
Filed Sept. 2, 1965, Ser. No. 484,667
Claims priority, application France, Sept. 9, 1964, 987,546
12 Claims. (Cl. 158—125)



1. Device for controlling the ignition and extinction of a metalizing gun including gas supply conduits supplying combustible gas, comburent gas and operating projecting gas and flow control means for controlling the flow through said gas supply conduits, said device comprising a jack, an exchanger, means connecting the exchanger to the gas supply conduit of the projecting gas, means connecting the jack to the exchanger so that the latter supplies liquid to the jack for actuation of the jack by the pressure of the gas in the projecting gas supply conduit, means connecting the jack to said flow control means, means for igniting the gun, means connecting the gun igniting means to the jack, so the jack responsive to the pressure of the gas supplied to the exchanger will cause the igniting means to ignite the gun and upon a drop in the pressure of the gas supplied to the exchanger below a given value will cause the igniting means to extinguish the gun.

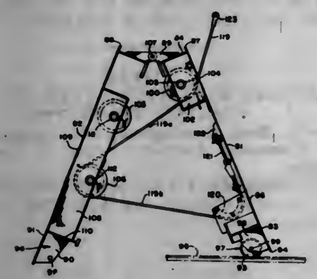
3,318,360
WINDOW WITH BLIND
Sven E. Persson, Box 20034, Malmo, Sweden
Filed Aug. 24, 1965, Ser. No. 482,196
1 Claim. (Cl. 160—107)



Window structure including a fixed frame, a sash, pivot means for pivotally mounting the sash for vertical swinging movement on the fixed frame about a horizontal axis intermediate the height of the sash, the sash having top and side portions, a Venetian blind suspended from said top sash portion, cords for raising and lowering the Venetian blind, cords for turning the slats of the Venetian blind, all of said cords extending through the interior of said top sash portion and through the interior of one said side sash portion, said one side sash portion being closed on all lateral sides to protect the cords from dirt and wear, and a unit disposed within said one side sash portion and including a plurality of spaced guide means about which said cords are trained, said unit having a plurality of separate closely spaced holes that open through the front side of the sash closely adjacent said axis and through which said cords emerge, said cords terminating in free ends.

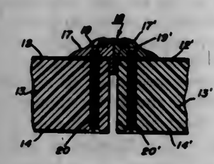
3,318,361
ARTICULATED COVER FOR AN OPENING
Wallace Hamilton, Chagrin Falls, Ohio, assignor to Lewis Welding and Engineering Corporation, a corporation of Ohio
Filed Mar. 1, 1965, Ser. No. 436,116
12 Claims. (Cl. 160—193)

1. A rope operated articulated cover for a framed opening said cover being pivotally anchored along one edge thereof to said frame and comprising in combination:
(a) a plurality of adjacently aligned cover panels; supported over said opening;
(b) hinge means coacting between confronting marginal edges of the panels for 180° of relative rotation between successive panels;
(c) first means for changing the direction of application of force applied at the free end of a rope extensible through the cover, and having a major component of force normal to the cover when in the closed position to a direction substantially parallel to the cover when in opened position said means being mounted on an axis parallel to the hinge axis and disposed between the hinge axis and the center of gravity of the panel most remote from said pivotal anchor;
(d) second means for changing the direction of application of force applied at the one end of the part of rope, said second means being mounted on an axis parallel to and spaced from the axis of said hinge



means and carried by the panel next adjacent to the panel including the first direction changing means;
(e) a rope reeved between said first and second direction changing means and providing a part of rope coacting between the first and second direction changing means in tension to rotate the panels about the hinge means; and
(f) means for anchoring one end of the rope to the cover.

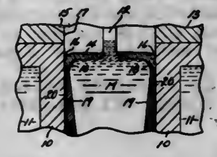
3,318,362
COVER FOR CHEST-TYPE CABINET
Edward F. Joyce 3rd, 205 Rockaway St., Boonton, N.J. 07005
Filed Nov. 23, 1964, Ser. No. 412,964
1 Claim. (Cl. 160—229)



A cover comprising a pair of lids; a first metal hinge member engaging one lid and having a circular socket formed therein which socket extends the full length of said member; a second metal hinge member engaging the other lid and having a similar socket formed therein; a longitudinal channel formed in and extending the full length of each of the hinge members; a metal pintle coupling together the two hinge members, said pintle having cylindrical side edges disposed in and rotatable within the sockets formed in the said hinge members; and screws passing through holes formed in the lids and having ends threaded into the opposed walls defining the channel formed in the associated hinge member.

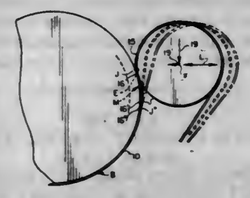
3,318,363
CONTINUOUS CASTING METHOD WITH DEGASSED GLASS-LIKE BLANKET
Norman P. Goss, Mentor, Ohio, assignor to Oglebay Norton Company, Cleveland, Ohio, a corporation of Delaware
Filed Mar. 18, 1965, Ser. No. 440,720
6 Claims. (Cl. 164—82)

1. In the method of continuously casting metal by passing molten metal into the top of a mold having walls at a temperature which will congeal metal and having an open-top passageway and continuously withdrawing the bar of at least partially congealed metal at the bottom of the mold by substantially continuous relative movement between the metal and mold walls, and wherein there is maintained on top of the molten metal in the mold and in direct contact with the metal, a layer of substantially liquid glass-like or molten salt material having a high fluidity



below the melting point of the metal being cast, and wherein the sole heat supplied in the mold other than from the glass-like or molten salt layer is obtained from the metal being cast; the novel step of preheating the glass-like or molten salt material before using it in said layer, to a temperature and for a period of time sufficient to substantially degas said glass-like or molten salt material.

3,318,364
BAND SUPPORTING MEANS
Thomas L. Bray, Birmingham, Ala., and Daniel B. Cofer, Dale D. Proctor, and George C. Ward, Carrollton, Ga., assignors to Southwire Company, Carrollton, Ga., a corporation of Georgia
Filed Mar. 21, 1966, Ser. No. 535,808
7 Claims. (Cl. 164—153)



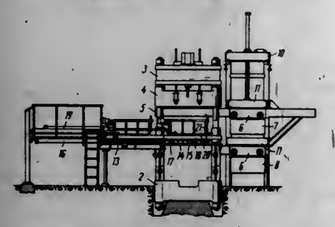
1. In a casting machine; a casting wheel having an annular casting groove formed therein; a band having an arcuate portion engaging said casting wheel and closing a length of said casting groove to form a mold having an entry end for receiving a molten metal, said band having a second portion continuous with said arcuate portion and tangential to said casting wheel substantially at said entry end of said mold; and band supporting means positioned adjacent said entry end of said mold for supporting said second portion of said band with a band wheel over which said band passes between said casting wheel and a means independent of said band supporting means for maintaining a substantially constant tension in said band, said band supporting means including power means for moving said band wheel into a plurality of stationary positions relative to said casting wheel along a line of motion which is substantially parallel to a chord of said casting wheel and said band supporting means including resilient means for allowing yieldable movement of said band wheel from each of said plurality of stationary positions along said line of motion; the arrangement of said band supporting means being such that each of said plurality of stationary positions of said band wheel along said line of motion provides a particular position of said entry end of said mold and being such that said yieldable movement of said band wheel allows the separation of said casting wheel and said

band wheel for the relatively upobstructed passage of an object between said casting wheel and said band wheel.

3,318,365
APPARATUS FOR PRODUCING HALF MOLDS BY PRESSING

Ivan Sergeevich Isaev, Afanasy Grigorjevich Vedenov, Alexandr Alexandrovich Karabchevsky, Alexandr Grigorjevich Kulikov, Vasily Georgievich Rats, Alexandr Jakovlevich Shutkevich, and Grigory Mikhailovich Jafet, all of Leningrad, U.S.S.R., assignors to Kirovsky maschinostroitelnyi metallurgichesky Zavod, Leningrad, U.S.S.R.

Filed Jan. 5, 1965, Ser. No. 423,480
3 Claims. (Cl. 164—194)

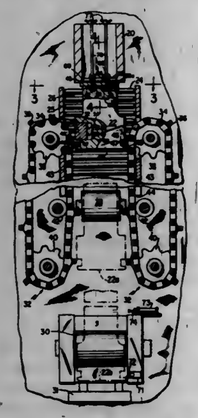


1. An apparatus for producing foundry half molds by flask pressing, comprising a base, columns carried by said base, a press including a movable molding cross-head mounted on said columns above the flask and provided with a through opening, means for feeding a molding mixture into a flask provided with a bottom board through said opening, further columns located immediately adjacent the press, a frame mounted on said further columns, at least two punches mounted on said frame, means for moving said frame and punches vertically, and means for alternatively moving said punches horizontally under the cross-head, with said cross-head transmitting pressure from the punches to the mixture in the immovable flask.

3,318,366
CONTINUOUS CASTING APPARATUS HAVING MOLD PLUG

Justin E. Foldessy, Ogden Dunes, Ind., assignor to United States Steel Corporation, a corporation of Delaware

Filed June 19, 1964, Ser. No. 376,317
7 Claims. (Cl. 164—274)

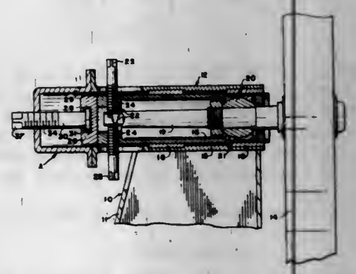


1. In a continuous casting apparatus including a substantially vertical open-ended mold in which a casting is formed and pinch roll means located at a substantial distance below said mold for controlling the rate of descent of said casting, the improvement comprising a unitary mold closure plug adapted to be inserted into the lower end of said mold, the length of said plug being substantially less than the distance between the bottom of said mold and said pinch roll means, said plug being unsupported by said pinch roll means until said plug is in contact with said pinch roll means, and power driven means laterally displaced from the path of said plug for supporting the plug and for controlling the rate of descent thereof as said plug descends from its initial position in the lower end of said mold to said pinch roll means.

3,318,367
ADJUSTABLE BELT WHEEL-TYPE CONTINUOUS CASTING APPARATUS

Thomas L. Bray, Birmingham, Ala., assignor to Southwire Company, Carrollton, Ga., a corporation of Georgia

Filed May 9, 1966, Ser. No. 550,531
7 Claims. (Cl. 164—276)

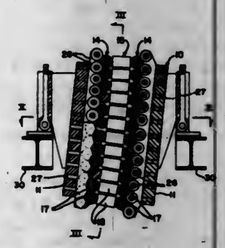


1. In a casting machine having a mold formed by a peripheral groove in a casting wheel rotatable about an axis of rotation and by a band which engages the periphery of the casting wheel, a band supporting means for supporting said band adjacent said periphery of said casting wheel so as to hold said band against said periphery of said casting wheel, said band supporting means including a support wheel rotatable about an axis of rotation substantially parallel to said axis of rotation of said casting wheel and positioned to receive said band on its peripheral surface, and linear motion means for moving said support wheel along a line of motion substantially parallel to said axis of rotation of said casting wheel.

3,318,368
ROLLER SPRAY APRON

Herbert Lemper, Pittsburgh, Pa., assignor to Mesta Machine Company, a corporation of Pennsylvania

Filed Sept. 9, 1964, Ser. No. 395,158
6 Claims. (Cl. 164—282)

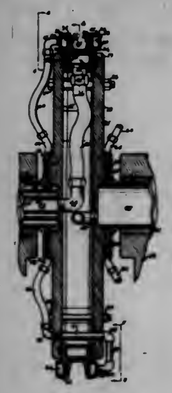


1. In a roller spray apron for continuous casting machines having roller banks disposed so as to form a channel of rectangular cross section to support and restrain the four sides of a continuous metal slab emanating from a continuous casting mold, the improvement of providing roller banks for the wide sides of said metal slab comprising a multiplicity of closely spaced parallel centerless work rollers mounted within the roller spray apron adjacent to each of the wide sides of said metal slab and extending across the full width thereof at right angles to the centerline thereof, a multiplicity of spaced narrow-faced back-up rolls mounted on backer plates and disposed in rows with their axes between each of said centerless rollers on the side thereof away from said metal slab with each of said back-up rolls bearing against two adjacent centerless rollers in support thereof, there being at least two back-up rolls in each of said rows, and further providing roller banks disposed adjacent each of the narrow sides of the metal slab whereby said rectangular channel is formed.

3,318,369
COOLING SYSTEM FOR CASTING WHEEL

Thomas L. Bray, Birmingham, Ala., and George C. Ward, Carrollton, Ga., assignors to Southwire Company, Carrollton, Ga., a corporation of Georgia

Filed Nov. 25, 1964, Ser. No. 413,930
7 Claims. (Cl. 164—283)



1. A casting wheel including a casting ring defining a peripheral casting groove having side surfaces and an intermediate bottom surface, and a plurality of successive segmented coolant conducting tubes in heat exchange relation with at least one of said surfaces.

3,318,370
APPARATUS FOR CASTING THIN-WALLED CAST IRON PARTS

Daniel E. Groteke and James A. Stavrolakis, Louisville, Ky., assignors to American Radiator & Standard Sanitary Corporation, New York, N.Y., a corporation of Delaware

Filed July 2, 1964, Ser. No. 379,919
3 Claims. (Cl. 164—306)

1. In an apparatus for press-forming thin walled cast iron parts, and having;

(a) a gas tight, pressurized holding furnace, having an opening in the top portion thereof;

(b) a snorkel tube mounted on said holding furnace, and extending into molten metal in said furnace;

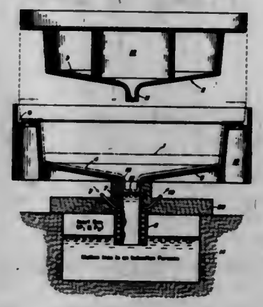
(c) a female die mounted above said snorkel tube and having an opening in operative communication with said snorkel tube;

(d) a male mold mounted proximate said female die, said female die and said male mold being spaced apart so as to provide a mold cavity;

(e) means to selectively increase and decrease the gas pressure within said hold furnace and thereby force molten metal from said furnace, upwardly through said snorkel tube and into said mold cavity;

(f) means to cause molten metal in said mold cavity to cool and solidify, the improvement comprising:

said male mold having a central core projection position so as to project through said opening in said female die and below the level to which molten metal solidifies, and heating means to

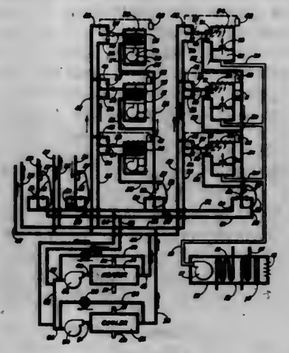


heat the molten metal within said snorkel tube and maintain the upper level of the molten iron above the bottom of the said central core projection during the molding operation, whereby decreasing the pressure in said holding furnace after solidification of the metal in said mold cavity causes the level of the molten metal to drop from a point above the bottom of said core projection to a point below the bottom of said core projection.

3,318,371
AIR CONDITIONING SYSTEMS

Charles W. Egbert, Ridgewood, N.J., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois

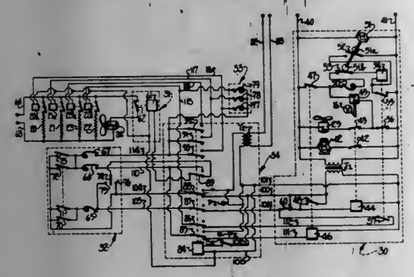
Continuation of application Ser. No. 834,069, Aug. 17, 1959. This application July 1, 1963, Ser. No. 292,801
5 Claims. (Cl. 165—2)



1. A method of air conditioning multi-room buildings comprising the steps of simultaneously making available a chilled and a heated heat-exchange fluid to said rooms; supplying said chilled fluid and circulating room air in heat-exchange relation with said chilled fluid when cooling is required; supplying said heated fluid and circulating room air in heat exchange relation with said heated fluid when heating is required; returning said heat-exchange

fluid through a plurality of common returns to a fluid heater or a fluid cooler; and routing said fluid within any of said common returns to said heater or said cooler dependent on the temperature of said fluid.

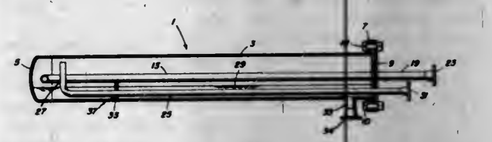
3,318,372
EMERGENCY CONTROL SYSTEM FOR A HEAT PUMP AND METHOD
Earl R. Shell, Rte. 1, Box 196, Hudson, N.C. 28638
Filed June 21, 1965, Ser. No. 465,507
3 Claims. (Cl. 165—29)



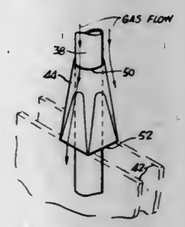
1. A heating system protected against failure to transfer heat to a conditioned area in response to a temperature therein below a desired temperature comprising:
an electrically energizable heat pump for transferring heat to the conditioned area,
an electrically energizable auxiliary heater for transferring heat to the conditioned area,
first and second temperature sensitive electrical switches in the conditioned area respectively responsive to temperatures below a first predetermined temperature and to temperatures below a second predetermined temperature lower than said first predetermined temperature,
a third temperature sensitive electrical switch in the outdoor ambient atmosphere responsive to temperatures below a third predetermined temperature, and
emergency control means interposed among and electrically interconnecting said heat pump, said auxiliary heater, and said first, second and third switches said means normally connecting said first switch to said heat pump for controlling the energization thereof and said second and third switches in series connection to said auxiliary heater for controlling the energization thereof and, upon the occurrence of an emergency condition, disconnecting said heat pump and said auxiliary heater respectively from said first and third switches and connecting said second switch to said auxiliary heater for controlling the energization thereof so that said first switch normally controls the transfer of heat from said heat pump while said second and said third switches together normally control the transfer of heat from said auxiliary heater and so that, upon the occurrence of an emergency condition, said second switch controls the transfer of heat from said auxiliary heater.

3,318,373
FREEZE-PROOF HORIZONTAL HEAT EXCHANGER
Merton W. Church, Jr., Trenton, Mich., assignor to Wyandotte Chemicals Corporation, Wyandotte, Mich., a corporation of Michigan
Filed Mar. 22, 1965, Ser. No. 441,517
4 Claims. (Cl. 165—110)

1. In a horizontal heat exchanger for heating a fluid with condensing steam, a shell comprising a horizontal cylinder closed at both ends, a condensate outlet disposed in the bottom of said shell, at least one fluid conducting tube disposed within said shell wherein the temperature of a liquefied gas disposed within said tube is initially below the freezing point of water, inlet and outlet means connected to said tube passing through said shell, and a steam inlet tube passing through said shell extending along the bottom of said shell with the end opposite the inlet end open for discharge of steam within said shell above the level of condensate remaining therewithin.



3,318,374
PROTECTORS FOR HEATING SURFACES OF BOILER TUBES
Frank Block, Montreal, Quebec, Canada, assignor to Dominion Bridge Company Limited, Montreal, Quebec, Canada
Filed Sept. 17, 1965, Ser. No. 488,126
8 Claims. (Cl. 165—134)



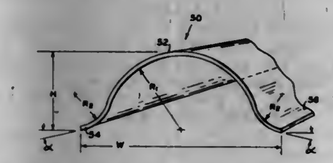
1. In a boiler for the generation of steam or like installation wherein hot abrasive gases flow over boiler tubes positioned axially in the path of said gas flow and wherein shield means are positioned on each side of said tubes transverse to the direction of said gas flow and provide abrupt surface transitions to the flow of said gas thereover, tube protector means adapted to substantially surround said tubes and positioned adjacent said shield plates, said protector means comprising substantially conical thimbles extending in the direction of gas flow from an annular lip substantially surrounding each of said tubes to a substantially rectangular base adjacent the shield means, the conical surface angle of said thimbles lying within the range 0°–10° to the axes of said tubes and providing for the smooth flow of said gas over said abrupt surface transitions.

3,318,375
BLOCK-TYPE HEAT EXCHANGER
Johann Linder, also known as Hans Linder, Kreis Wertingen, near Augsburg, and Klaus Schmidt, Kreis Newburg (Danube), Germany, assignors to Siemens-Planiawerke Aktiengesellschaft für Kohlefabrikate, Meitingen, near Augsburg, Germany, a corporation of Germany
Filed Sept. 4, 1964, Ser. No. 394,529
9 Claims. (Cl. 165—164)

1. A device for heat exchange between two media, comprising a block formed of a single piece of material and having two groups of channels for said respective media, both channel groups extending in the same longitudinal direction, the channels of one group having a round cross section surrounded by said material, the channels of the other group having a slot-shaped cross section which extends inwardly from the perimeter of said block and is open at said perimeter, partition means for subdividing said longitudinal channels of said other group into lengthwise sequential portions, said partition means being adapted to deflect a flow of one of the media through said channels of said other group, and a jacket surrounding said block and having respective inlet and outlet ducts for one of said media, said jacket and block forming between each other a gap space extending around said block and communicating with said slot-shaped channels.



3,318,376
HEAT TRANSFER FLUID CONDUIT WRAPPING FOR VESSELS
Bernhard Vihl, 2 Glenwood St., Clifton, N.J. 07013
Filed Apr. 13, 1966, Ser. No. 559,699
30 Claims. (Cl. 165—169)

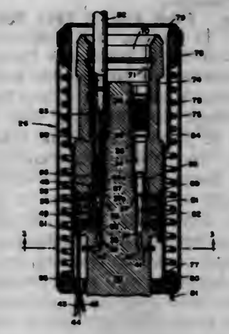


1. A heat transfer fluid conduit wrapping for vessels adapted for attachment to a surface of a vessel by welding, the transverse cross-section of the wrapping being in the form of a trough having a rounded central portion and outwardly curved flaring edge portions, and the radius of curvature of each of said edge portions being about one third of the radius of curvature of said central portion.

3,318,377
PRODUCTION WELLHEAD ASSEMBLY
Lloyd G. Otteman, Metairie, La., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware
Filed Apr. 30, 1964, Ser. No. 363,753
11 Claims. (Cl. 166—.6)

1. In a well installation having pressure-fluid actuated components located underwater at an offshore location, a re-entry head on said well installation comprising:
a body member having a pair of longitudinally fluid passageway bores closed at their lower ends and extending downwardly from the upper end of said body member,
flushing conduit means interconnecting the lower end of said pair of longitudinal bores whereby fluid may be flushed down one bore and up the other bore,
side conduit means through the wall of said body member in communication between at least one of said longitudinal bores and at least one of said pressure-actuated components of said well installation,

said body member having means above said side conduit means for receiving and sealing a removable flow conductor, and
valve means in said side conduit means for controlling fluid flow therethrough,



said bore having said side conduit means being provided below said side conduit means with an internal annular seal surface engageable by sealing means of a well tool.

3,318,378
METHOD OF SEALING VUGGY REGIONS IN WELL BORES
Chester L. Coshow, 1113 Center St., Collinsville, Okla. 74021
Filed Mar. 23, 1964, Ser. No. 353,891
1 Claim. (Cl. 166—4)



In a well drilling procedure, the method of sealing vuggy regions encountered in the course of said procedure, comprising the steps of drilling a bore subsurfacedly of a rock formation, circulating water within said bore during the drilling thereof, determining the location of a vuggy region upon observing loss of the circulating water, drilling beyond the vuggy region, curtailing water circulation, withdrawing the drill from the bore, placing an open-ended drill pipe into the bore, introducing lost-circulation-material into the bore through said open-ended drill pipe whereby said material extends the length of said vuggy region and beyond the upper and lower extremities thereof, positioning a suitable explosive charge substantially centrally and longitudinally of said lost-circulation-material, detonating said charge thereby compacting said material surfacedly of said vuggy region and by the heat derived through the detonation of said explosive charge fusing the combined exposed surface and lost-circulation-material compacted therein, resuming water circulation and drilling of the bore until the desired depth is established.

3,318,379
FORMING FOAM UNDER RESERVOIR CONDITIONS IN PETROLEUM RECOVERY PROCESS

Donald C. Bond and George G. Bernard, Crystal Lake, Ill., assignors, by mesne assignments, to Union Oil Company of California, Los Angeles, Calif., a corporation of California

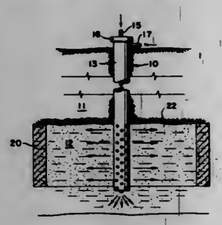
No Drawing. Filed Aug. 5, 1964, Ser. No. 387,768
13 Claims. (Cl. 166—9)

1. In the recovery of petroleum from a subterranean formation penetrated by an injection well and a production well wherein a surfactant is first injected into said formation through said injection well, said surfactant being capable of producing a stable foam under formation conditions upon the intimate contact of liquid and gas; and then thereafter disposing a sufficient amount of gas in proximity to said surfactant to generate a foam and thereafter driving said foam through a portion of said formation toward said production well, the improvement which comprises injecting into said formation through said injection well a substantially nongaseous, surfactant-free liquid after said surfactant injection and prior to foam generation, said liquid being sufficient in quantity to substantially displace said surfactant a radial distance equal to about 3–6% of the distance between said injection well and said production well, whereby the generation of foam within that portion of said formation immediately adjacent said injection well is substantially inhibited.

3,318,380
METHOD OF FORMING FLUID-CONFINED UNDERGROUND STORAGE RESERVOIRS

Ralph E. Tenny, Houston, Tex., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

Filed Aug. 26, 1963, Ser. No. 304,365
16 Claims. (Cl. 166—9)



1. In a well borehole traversing at least a portion of a permeable formation bounded by a horizontally extensive relatively impermeable layer, the method of forming a fluid storage reservoir in the formation, comprising:

(a) displacing a barrier fluid through the formation from the borehole;

(b) establishing said barrier fluid as a continuous vertically extensive wall of closed periphery located around the borehole in a position contacting said relatively impermeable layer and spaced radially from said borehole; and

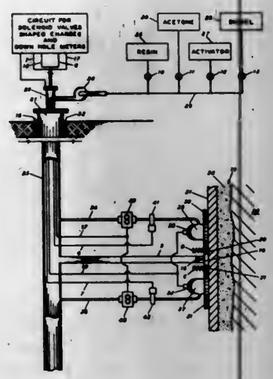
(c) maintaining said wall at said position through rigidifying of said barrier fluid.

3,318,381
METHOD AND APPARATUS FOR INJECTING FLUIDS INTO EARTH FORMATIONS

Harry Brandt, Davis, Calif., assignor to Chevron Research Company, a corporation of Delaware

Filed Sept. 30, 1964, Ser. No. 400,444
5 Claims. (Cl. 166—35)

4. A method of injecting liquid into an earth formation penetrated by cased well, the casing of said well having a plurality of vertically-spaced perforations comprising the steps of packing off each of a plurality of selected perforations of the casing in said well, establishing a flow path from the surface to each of the packed-off perforations, flowing a liquid substance down said flow path to each of the packed-off perforations and applying pressure to move

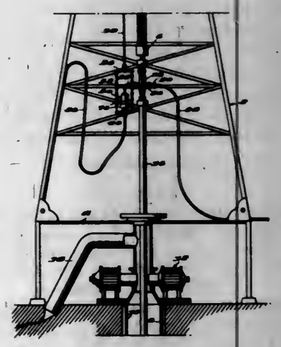


said liquid through said perforations and out into the formation behind said perforations, metering the amount of said liquid passing to each of said packed-off perforations and halting flow of said liquid to each of said perforations after a predetermined amount of liquid has flowed thereto.

3,318,382
METHOD AND APPARATUS FOR SETTING WELL CASING

John C. Holden and Edward B. Cook, Duncan, Okla., and Schley J. Babin, New Orleans, and George J. Nix, Morgan City, La., assignors to Halliburton Company, Duncan, Okla., a corporation of Delaware

Filed Aug. 21, 1964, Ser. No. 397,357
19 Claims. (Cl. 166—46)



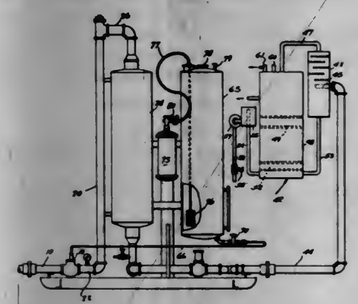
14. A method of assembling a coupling between a rotary hose and an inlet pipe to the casing when the top of the casing is at a substantial height above the floor of the drilling rig comprising: securing a first coupling member on the inlet pipe with the central axis of said member being substantially upright, securing a second coupling member on the rotary hose, fastening the second coupling member to a hoist line with the central axis of the second coupling member substantially upright, one

of said couplings including a plurality of latch dogs biased toward an unlatched position, the other of said couplings including a shoulder in position to be engaged by said dogs to prevent separation of said couplings and a latch member for camming said dogs into engagement with said shoulder, and raising the second coupling member until said other coupling shoulder is positioned adjacent said dogs with said latch member maintaining said dogs in engagement with said shoulder, whereby said second coupling member is securely connected with the first coupling member.

3,318,383
APPARATUS FOR COLD TREATING MINERAL OIL

Purdy Lee Sisson, Oklahoma City, Okla., assignor to Par-A-Gone, Inc., Mount Gilead, Ohio, a corporation of Oklahoma

Filed Oct. 27, 1964, Ser. No. 406,695
8 Claims. (Cl. 166—68)



1. In an apparatus for cold treating of crude mineral oil containing an aqueous emulsion of paraffin or asphalt, a supply line for said oil, a control valve in said supply line, a riser, a first conduit connecting said supply line to the bottom of said riser, a first means in said riser for converting a body of said oil, when contained therein into the form of an ascending ebullient column, a treating tower adjacent to and spaced from said riser, a second conduit connecting the top of said riser with the top of said tower, a second means in said tower for converting a body of said oil, when contained therein, into the form of a descending whirling ebullient column, a separator tower positioned adjacent said treating tower for recovering the treated oil in separate fractions of oil containing solution of paraffin or asphalt and water, and a third conduit connecting the bottom of said treating tower with said separator tower.

3,318,384
PRESSURE ACTUATED PACKER AND ANCHOR ASSEMBLY

Cicero C. Brown, 8490 Katy Road, Houston, Tex. 77024

Filed Nov. 23, 1964, Ser. No. 413,002
14 Claims. (Cl. 166—120)

1. In a well tool adapted to be set in a well pipe including,

a tubular support comprising an upper mandrel and a lower mandrel,

a releasable connection between said upper mandrel and said lower mandrel preventing longitudinal movement between said upper and said lower mandrels,

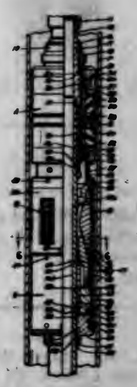
an anchoring assembly encircling the support and comprising a housing, an upper expander, a lower expander spaced therebelow, and gripping members spaced about and co-acting with the expanders,

movement of the expanders toward each other expanding the gripping members into pipe-gripping position and movement of the expanders away from each other allowing said gripping members to retract from pipe-gripping position,

an abutment secured to said tubular support,

pressure-actuated means on said tubular support and having two parts movable longitudinally relative to each other, one part being attached to said tubular support and the other part being attached to one of said expanders, said one part also being releasably attached to the anchoring assembly housing,

said anchoring assembly housing being releasably attached to said upper expander and releasably attached to said lower expander,



movement of said parts of said pressure-actuated means in one direction effecting release of said one part from said housing to move said anchoring assembly against said abutment and movement of said parts in said one direction thereafter effecting release of said housing from said expanders and effecting a relative movement of the expanders in a direction to move the upper and lower expanders with respect to each other to thereby urge the gripping members into pipe-gripping position, and

means for conducting a pressure fluid to the parts of the pressure-actuated means to move the parts thereof in that direction which urges the gripping members into pipe-gripping position.

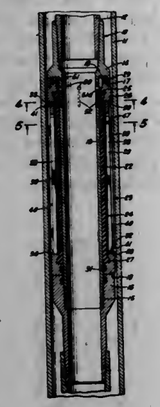
3,318,385
ANCHOR DEVICE FOR WELL TOOLS

Martin B. Conrad, P.O. Box 568, Carpinteria, Calif. 93013

Filed Apr. 12, 1966, Ser. No. 549,096
18 Claims. (Cl. 166—212)

4. An anchor device for use in a well bore comprising: a tubular body means including a mandrel adapted to be lowered into a well bore, said mandrel being adapted to receive an axial load in either direction, fluid-tight, pressure-transmitting sleeve means encircling said mandrel, load-supporting, well bore engaging elements circumferentially disposed about said sleeve means with spaces therebetween and expansible means interconnecting said engaging elements, said engaging elements being radially movable between contracted and extended positions, means for coupling said engaging elements to said mandrel in an axial load-supporting position yet permitting radial movement to said contracted and extended positions, said coupling means including means for contacting surfaces of said engaging elements at opposite ends of said engaging elements, and maintaining said contact under

operating conditions of said device for confining said sleeve means and preventing extrusion outwardly thereof, backing means interposed between said sleeve means and engaging means so as to be disposed over said spaces to



bridge the same in said contracted and extended positions, and means for establishing fluid communication to the interior of said sleeve means for application of pressure to said sleeve means.

3,318,386
WELL FLUID FLOW REGULATOR
Henry U. Garrett and Clifford M. Peters, Longview, and Robert W. Dinning, Kilgore, Tex., assignors, by mesne assignments, to said Garrett
Original application Jan. 26, 1955, Ser. No. 484,164, now Patent No. 3,045,759, dated Aug. 24, 1962. Divided and this application Apr. 16, 1962, Ser. No. 187,904
16 Claims. (Cl. 166—224)



12. A valve for controlling flow of fluid into or out of a conduit in a well and adapted to have its operating characteristics changed while it is disposed in the well by a manipulation controlled from the earth's surface which comprises, in combination,

a housing, a passage in said housing for flow of fluid between the interior and exterior of said conduit,

a charge chamber in said housing having a movable wall,

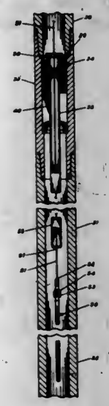
a valve member connected to said movable wall and controlling flow through said passage and urged to one of its passage-opening and passage-closing positions by fluid pressure in said charge chamber,

a passageway communicating between the interior of said charge chamber and the exterior of said housing for permitting the pressure of well fluid exterior of the housing to be applied to that in said chamber,

valve means controlling flow through said passageway and including a part movable to open and close said valve means, and

means movable through said conduit to move said part and being controllable from the earth's surface.

3,318,387
DRILLING METHOD AND APPARATUS
Harold W. Jones, Bakersfield, Calif., assignor to Chevron Research Company, a corporation of Delaware
Filed Sept. 28, 1964, Ser. No. 399,806
2 Claims. (Cl. 166—224)



1. Apparatus for use during operations in a well comprising a flapper valve means having a central opening, a flap adapted to open downwardly covering said opening, means for mounting said flapper valve means in a drill string, a wire line tool of smaller diameter than the opening in said flapper valve means, lug means on the exterior of said tool means, a sleeve arranged around said tool, said fishing tool being freely movable within said sleeve and the said sleeve being insertable into the opening of said flapper valve means, shoulder means on the upper end of said sleeve contactable with the lug means on said tool for hanging said sleeve on said tool, flange means on the upper end of said sleeve which will not pass through the opening in said flapper valve means, and means for running said tool and said sleeve carried thereon into the drill string and through the opening in said flapper valve.

3,318,388
MARINE PROPELLER
Otto L. Bihlmire, 115 Pendle St., South Bend, Ind. 46637
Filed Jan. 21, 1966, Ser. No. 536,480
4 Claims. (Cl. 170—160.5)

1. A marine propeller, comprising:

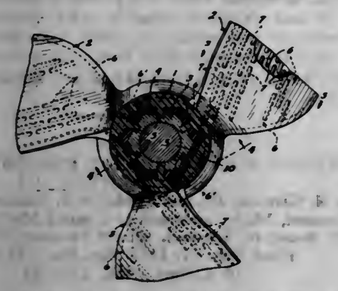
(a) a hub and integral blades radiating therefrom, each made of moldable yieldable and original form-regaining plastic material;

(b) the hub having a co-axially disposed multi-sided opening therethrough;

(c) a metal bushing of cross-sectional external shape corresponding to and of less cross-sectional size than, that of said multi-sided opening and engaged therein;

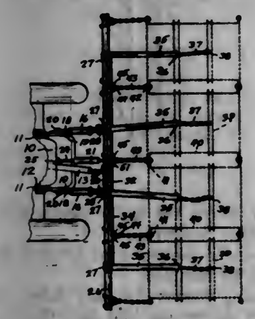
(d) the bushing having a plurality of relatively spaced pockets in its outer periphery;

(e) a sleeve made of shock cushioning resilient material snugly engaged over and about said bushing and within said coaxially disposed hub opening, portions of which are formed with openings therethrough aligned with said pockets; and



(f) portions of the hub plastic material constituting shearable pins engaged through said sleeve openings and in the aligned bushing pockets.

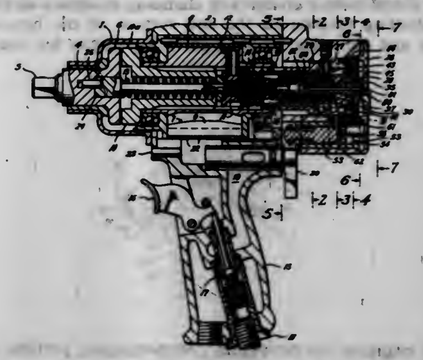
3,318,389
FLEXIBLE ROTARY HOE CONTROL AND CARRIER
Clarence A. Kirchner, Avoca, Minn. 56114
Filed Oct. 29, 1964, Ser. No. 407,339
6 Claims. (Cl. 172—445)



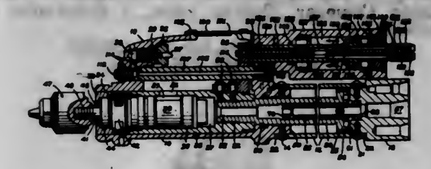
5. In combination with the three-point suspension system of a tractor having a power source, a framework for supporting an agricultural tool thereon, said suspension system including raisable members, a transversely positioned pipe rotatably journalled on said suspension system, further framework portions extending from said pipe and adapted to support said tool, a flexible element wound about said pipe and attached to a rigid portion of said tractor whereby raising of said pipe will cause rotation of said pipe, further flexible elements wound on said pipe and attached to said tool, said further flexible elements being reeled onto said pipe incidental upon rotation of said pipe.

3,318,390
MECHANISM FOR CONTROLLING TENSION IN FASTENERS
Martin D. Hoza, Albert J. Meyer, and William S. Smith, all of Houston, Tex., assignors to Reed Roller Bit Company, Houston, Tex., a corporation of Texas
Filed Oct. 28, 1964, Ser. No. 407,061
16 Claims. (Cl. 173—12)

15. A power operated tool for driving a threaded fastener including automatic control means to permit the tool to tighten the fastener to an initial preselected torque and a further means actuated by said control means to permit the tool to turn the fastener a preselected number of degrees to supply a final torque to said fastener.



3,318,391
MACHINE TOOL
Eugene Linsker, Dayton, Ohio, assignor to Rockwell Manufacturing Company, a corporation of Pennsylvania
Filed Mar. 15, 1965, Ser. No. 439,576
10 Claims. (Cl. 173—19)

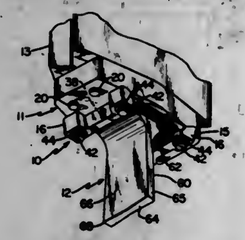


1. An improved compact power tool comprising a housing, a rotary motor slidably mounted within said housing for movement in an axial direction, a linear action motor mounted within said housing, means for connecting said linear action motor to said rotary motor to provide for advancement and retraction of said rotary motor in relation to said housing, control means mounted within the forward portion of said housing, a device for controlling the length of stroke and dampening the rate of advancement of said linear action motor, means for mounting said device on said housing in a laterally spaced relationship to said linear action motor, a piston slidably mounted within said device for transferring fluid contained therein and having tubular piston rod means extending therefrom, an adjustable stop member slidably mounted within said rod means and adapted to engage said control means, dampening control means adjustably connected to said stop member and adapted to connect with said rod means to provide for concurrent movement of said stop member and said rod means, and means connecting said stop member to said linear action motor for advancing said stop member with said rotary motor until said stop member engages said control means which is adapted to reverse said linear action motor for retracting said rotary motor and said stop member.

3,318,392
HAMMER TOOL ATTACHMENT AND TOOL
Kenneth H. Hoen, 2396 Orchard Lane, Littleton, Colo. 80120
Filed Feb. 14, 1964, Ser. No. 345,006
11 Claims. (Cl. 173—132)

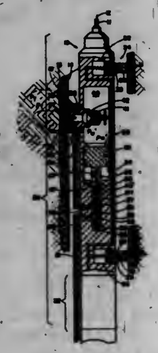
1. In a powered hammer and the like having a hammer head provided with a tool-engaging end surface, the combination of a tool comprising an attaching head disposed

in abutting relation to the end surface, said attaching head including peripheral clamp-engaging portions thereon; and a tool holder comprising clamping members secured in abutting relation to the end surface of the hammer head and including wedging surface portions for releas-



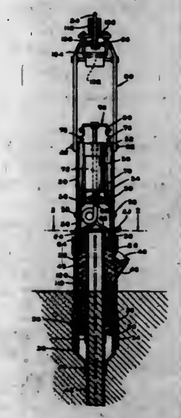
ably engaging the peripheral clamp-engaging portions on said attaching head, and adjustable securing means between said clamping members and said attaching head to urge said clamping members against said clamp-engaging portions whereby to rigidly position said attaching head against the end surface of the hammer head.

3,318,393
FORMATION TREATMENT
Timothy D. Brown, Houston, Tex., assignor to Halliburton Company, Duncan, Okla., a corporation of Delaware
Filed Apr. 7, 1964, Ser. No. 358,036
9 Claims. (Cl. 175—4.52)



4. Wireline apparatus for treating a permeable earth formation zone traversed by a borehole including a casing comprising: a body adapted to be lowered within said borehole by a means of a wireline; perforator means including explosive material disposed in said body for perforating said casing along a predetermined axis to establish fluid communication with the formation therebeyond when said explosive material is fired; sealing means on said body for isolating said fluid communication from the general environment of said borehole by sealing off an area of casing wall when urged thereagainst, said sealing means defining with said body and casing wall a space through which said perforator means operates in establishing said fluid communication; means on said body for urging said sealing means into engagement with said casing wall; a chamber in said body containing a fluid for injection into said formation; a fluid flow passageway connecting with said chamber and terminating in fluid communication with said space; a check valve in said passageway adjacent said termination permitting fluid flow in said passageway from said chamber to said space but blocking fluid flow in the opposite direction; and means for displacing said injection fluid from said chamber via said passageway, check valve, space and perforation into said formation, a second chamber containing said explosive charge and being a receptacle for detritus developed when said casing is perforated by firing of said explosive material, said passageway being exclusive of said second chamber such that said injection fluid is prevented from flowing in a direction and in a path which extends from said second chamber into said space.

3,318,394
METHOD AND APPARATUS FOR OBTAINING SOIL SAMPLES
Gale R. Gleason, Jr., and Frederick J. Oblinsacher, Mount Pleasant, Mich., assignors to Central Michigan University Board of Trustees, Mount Pleasant, Mich.
Filed Feb. 19, 1965, Ser. No. 434,048
10 Claims. (Cl. 175—5)

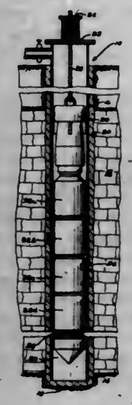


1. A sampler device for use in benthonic exploration and the like which comprises,
(a) an open-ended sampler tube adapted to be plunged into soil to be sampled,
(b) a mounting means for said tube comprising a a jacket for supporting said tube therein to provide a refrigerant chamber around said tube,
(c) means in said jacket to permit the introduction of refrigerant from the outside of said jacket,
(d) a second means for storing a supply of refrigerant adjacent said jacket comprising a piston and cylinder arrangement,
(e) means for cocking said piston against a resilient force in a position poised to drive refrigerant into said jacket, and
(f) releasing means for tripping said cocking means to release said piston.

3,318,395
METHOD AND APPARATUS FOR CUTTING A HOLE IN THE WALL OF A WELL
Joseph H. Messmer, O'Hara Township, Allegheny County, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware
Filed Dec. 28, 1964, Ser. No. 421,259
9 Claims. (Cl. 175—14)

1. A method of cutting an opening in the wall of a well comprising igniting a solid rocket propellant in a capsule supported in the well by a wire line, said solid rocket propellant having solid particles of an abrasive disseminated therethrough, burning the rocket propellant,

and discharging the combustion products and entrained particles of abrasive outwardly at a high velocity across the wall of the well.



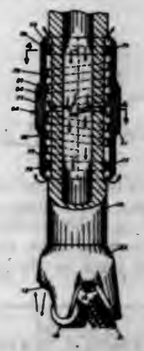
5. Apparatus for running into a well on a wire line and cutting an opening in the wall of the well comprising a capsule suspended from the wire line, an outwardly directed nozzle at the lower end of the capsule, a solid rocket propellant within the capsule, particles of an abrasive material disseminated throughout the solid rocket propellant, and igniting means adjacent the nozzle adapted to ignite the solid rocket propellant.

3,318,396
ROTARY DRILLING PROCESS
Rodolfo J. Tailleur, San Tome, Venezuela, assignor to Gulf Oil Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
No Drawing. Filed Sept. 24, 1963, Ser. No. 311,231
8 Claims. (Cl. 175—72)

1. A method of drilling a well through clay and shale formations by a rotary drilling process in which an aqueous liquid is circulated down the well through one of a drill pipe and the annulus surrounding the drill pipe and returned upwardly through the well through the other of said drill pipe and annulus, said method comprising admixing with said liquid a potassium compound in amounts to give a concentration of potassium ion in the liquid in excess of 50 parts per million, circulating the liquid through the well, and periodically adding to the liquid additional potassium compound to maintain the concentration of potassium ion in the drilling mud liquid in excess of 50 parts per million.

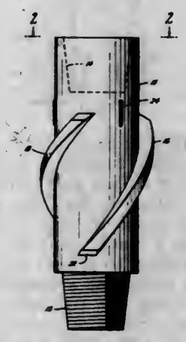
3,318,397
APPARATUS FOR USE IN WELL DRILLING
John De Wayne Combes, New Orleans, La., assignor to Chevron Research Company, a corporation of Delaware
Filed Oct. 6, 1964, Ser. No. 401,870
5 Claims. (Cl. 175—73)

1. Apparatus for drilling a well comprising a drill bit, pipe means for rotating said drill bit, a tubular member, means for rotatably mounting said tubular member around said pipe means so that the longitudinal axis of said tubular member is parallel to the longitudinal axis of said pipe means to form an annular chamber between the outside of said pipe means and the inside of said tubular member, mud vane means formed on the inside wall of said tubular member responsive to mud flow to rotate said tubular member in a direction opposite to the normal rotational direction of said drill bit, port means in said pipe means for diverting a portion of the drilling mud passing therethrough to said annular chamber to cooperate with said mud vane means to rotate said tubular member



and passageway means in said tubular member downstream of said mud vane means for returning drilling mud from said annular chamber directly to the well.

3,318,398
DRILL COLLAR STABILIZER
Dale R. Owen, deceased, 311 Claymore Drive, Lafayette, La. 70501; Ray F. Fry, as tutor of Lauren Owen, Tracy Owen, and Kelly Owen, minor children of said Dale Owen
Filed June 30, 1964, Ser. No. 379,100
12 Claims. (Cl. 175—323)

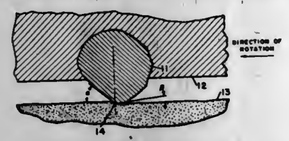


1. A stabilizer suitable for connection in a drill string, said stabilizer comprising a tubular body; means at each end of said body for permitting connection in a drill string; at least to substantially helical bars fixed mounted on and circumferentially spaced around the external surface of said body; and at least one ridge substantially longitudinally disposed on said external surface of said body between each adjacent pair of said bars near the ends of said bars which trail during entry into a well bore.

3,318,399
DIAMOND BITS AND SIMILAR TOOLS
Norman E. Garner, Houston, Tex., assignor to Esso Production Research Company, a corporation of Delaware
Filed Mar. 22, 1965, Ser. No. 441,663
3 Claims. (Cl. 175—329)

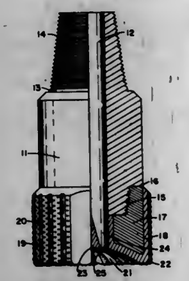
1. A tool for penetrating rock and similar materials which comprises:
(a) a tool body composed at least in part of a metallic matrix; and,
(b) a plurality of rounded diamonds of irregular shape embedded in the surface of said matrix and pro-

truding therefrom, said diamonds including drilling points extending beyond the matrix surface for engaging the material to be penetrated and at least a majority of said diamonds being oriented so that



the angle between the diamond surface at the leading edge of each stone and a plane passing through the apex of the drilling point parallel to the matrix surface is greater than the angle between the diamond surface and said plane at the trailing edge of said stone.

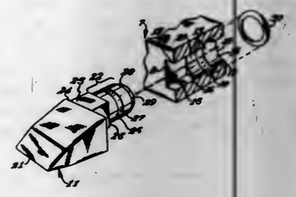
3,318,400
HOLLOW CROWN DIAMOND BIT
Alexander B. Hildebrandt, Tulsa, Okla., assignor to Esso Production Research Company, a corporation of Delaware
Filed Mar. 31, 1965, Ser. No. 444,232
2 Claims. (Cl. 175—329)



1. A diamond drill bit comprising:
(a) a body member containing an axial passageway for transmitting drilling fluid through said member;
(b) a crown attached to the lower end of said body member, said crown including (i) a concave lower surface having a convex rim with a radius of curvature between about 10 percent and about 30 percent of the crown radius and a concave spherical center section converging with said convex rim, said center section having a radius of curvature between about 50 percent and about 250 percent of the crown radius; (ii) a conical cavity in said center section at the longitudinal axis of the crown; (iii) a fluid passageway communicating with said passageway in said body member and terminating in a discharge port in said lower surface near the longitudinal axis of said crown; and (iv) a plurality of waterways in said lower surface, said waterways extending from said discharge port to the crown periphery; and
(c) a plurality of particulate cutting elements embedded in said lower surface and protruding therefrom between said waterways.

3,318,401
AUGER HEAD
Ralph E. Carbert, Minneapolis, Minn., assignor to Tel-E-Lect Products, Inc., a corporation of Minnesota
Filed Feb. 4, 1964, Ser. No. 342,447
2 Claims. (Cl. 175—413)

1. Earth-boring apparatus for use in conjunction with an auger comprising:
(a) a rigid head member adapted to be mounted in supported relation upon such an auger,
(b) said head member having an elongated recess formed therein and extending inwardly from the outer surface thereof to receive and rigidly support a tooth member therein,
(c) said head member including wall structure defining said recess and having a groove formed in said wall structure intermediate the ends of said recess extending transversely of the longitudinal axis of said recess,
(d) a tooth removably mounted on said head member and having an engaging portion at one of its ends and having an elongated shank portion received within said head member recess and supporting said engaging portion exteriorly upon said head member,
(e) said shank portion being of substantially the same size and configuration as the portion of said recess into which said shank portion is received and being received therein in close-fitting relation,
(f) said shank portion having a cooperating groove formed in its exterior surface and extending transversely of the longitudinal axis of said shank portion and directly opposite said groove in said head member wall structure,

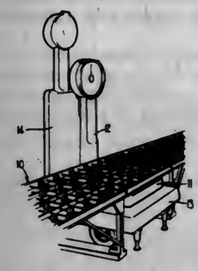


(g) a continuous annular retaining member made of firm compressible material disposed between said shank portion and said wall structure and within said grooves and retaining in cooperation with said grooves said shank member within said head member recess to thereby cooperatively support said tooth upon said head member, and
(h) one of said grooves being of a depth less than the radial cross-sectional dimensions of said retaining member but of sufficient depth to receive and retain said compressible retaining member therewithin without damage thereto as said shank portion is inserted within said recess to being said grooves into juxtaposition and to thereafter confine said retaining member in cooperation with the other of said groove in uncompressed but interlocking relation to said tooth and said head member,
(i) means carried by said head member and engaging said tooth and preventing said tooth from rotation about a longitudinal axis thereof.

3,318,402
WEIGHER WITH ERROR DETECTING SUPPLEMENTAL WEIGHER
Stanley Harry Kendrick, Brampton, Ontario, Canada, assignor to British Nylon Spinners Limited, Pontypool, England, a corporation of Great Britain
Filed Dec. 9, 1964, Ser. No. 417,057
Claims priority, application Great Britain, Dec. 17, 1963, 49,868/63
8 Claims. (Cl. 177—46)

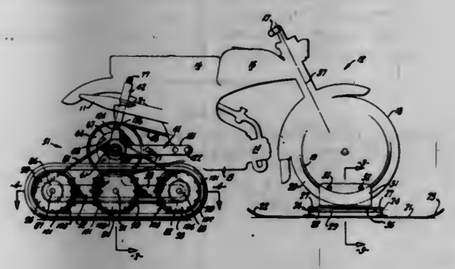
1. Weighing apparatus the output of which is an electrical signal, a characteristic of said signal varying in a predetermined manner with respect to the magnitude of the measured quantity, comprising at least two weighing

machines for simultaneous weighing, each of said machines being capable of performing independently the desired measuring action, and comparing means for comparing said relevant characteristic of said electrical sig-



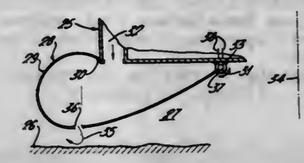
nals emitted from said machines and, if said compared characteristics are within predetermined limits of each other, for feeding one of said electrical signals to a data indicating device.

3,318,403
SNOW BICYCLE
Harry P. Hansen, 2741 Park Hills Drive, Sacramento, Calif. 95821
Filed July 2, 1965, Ser. No. 469,200
6 Claims. (Cl. 180—5)



1. A snow bicycle comprising:
(a) a bicycle frame including a pair of shock absorbers on the after end thereof;
(b) a front steering wheel on said frame;
(c) adjustable ski means detachably mounted on said front wheel for supporting said front wheel in the snow;
(d) a prime mover on said frame; and,
(e) a rear driving assembly mounted on the after end of said frame, said driving assembly including:
(1) a frame work having a spaced pair of horizontal fore and aft members, a first and second pair of vertical members disposed in transverse alignment adjacent the central portion of said fore and aft members;
(2) a drive shaft journaled on the central two of said vertical members;
(3) a power sprocket mounted on said drive shaft and operatively connected to said prime mover for rotating said drive shaft;
(4) a pair of horizontal, transverse jack shafts journaled on the outermost two of said vertical members;
(5) means for connecting the lower ends of said pair of shock absorbers to said pair of jack shafts;
(6) a drive sprocket mounted on said drive shaft between said central two of said vertical members;
(7) a plurality of transverse, horizontal driven shafts journaled on said fore and aft framework members;
(8) a plurality of driven wheels on the outermost ends of said driven shafts;
(9) a pair of tire treads disposed on said driven wheels; and,
(10) sprocket means on said driven shafts and operatively connected to said drive sprocket for rotating said driven shafts and said driven wheels.

3,318,404
AIR CUSHION CENTER OF PRESSURE DISPLACING MEANS FOR GROUND EFFECT VEHICLES
Leslie Arthur Hopkins and Alan Ritson Tripp, Southampton, England, assignors to Hovercraft Development Limited, London, England, a British company
Filed Apr. 28, 1965, Ser. No. 451,373
Claims priority, application Great Britain, Apr. 29, 1964, 17,826/64
8 Claims. (Cl. 180—7)

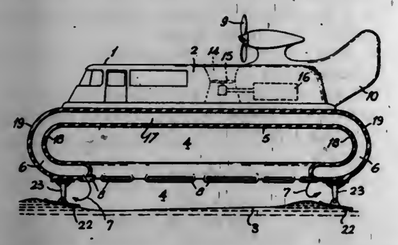


1. A vehicle for travelling over a surface and which, in operation, is supported above said surface by at least one cushion of pressurized gas contained beneath the vehicle body, comprising a flexible wall member of inflatable construction extending downwardly from the vehicle body for at least partially containing the cushion along one side of the cushion periphery, said wall member having one part fixed to one point on the vehicle body and having a cross-section, viewed in a direction normal to said one side of the cushion periphery, which, when inflated, curves outwardly from said one point on the vehicle body and thereafter downwardly and inwardly, towards the cushion, means for inflating the wall member, and means adjustably connecting another part of the wall member to another point on the vehicle body, said last-named means being operable to displace said other part of the wall member in a substantially horizontal direction relative to the vehicle body and thereby vary the profile of said cross-section, so as to displace, in a substantially horizontal direction, the centre of pressure of the cushion relative to the vertical axis passing through the centre of gravity of the vehicle.

3,318,405
FLEXIBLE SKIRT DEFLECTING MEANS FOR GROUND EFFECT VEHICLES
Christopher Sydney Cockerell, Bassett, Southampton, England, assignor to Hovercraft Development Limited, London, England, a company of Great Britain and Northern Ireland
Filed May 6, 1965, Ser. No. 453,686
Claims priority, application Great Britain, Sept. 1, 1958, 27,978/58
The portion of the term of the patent subsequent to May 11, 1982, has been disclaimed
5 Claims. (Cl. 180—7)

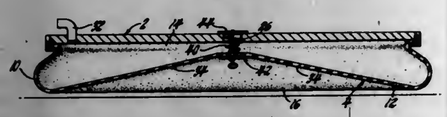
1. A vehicle of the type adapted for travelling or hovering over the surface of land or water supported on a cushion of pressurised gas comprising a body having an

undersurface capable of sustaining the pressure in said cushion, flexible means extending below said body and forming at least part of the peripheral boundary for said cushion, deflector means attached to and extending below said flexible means adapted to engage the surface over



which the vehicle is operating so as to maintain said flexible means out of contact with said surface, and means for introducing gas into the space beneath said body and within said flexible means to form said pressurised gas cushion.

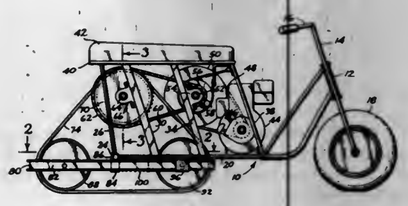
3,318,406
LOAD COMPENSATING AIR CUSHION SUPPORT
Jerold W. Scheel, Santa Barbara, Calif., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed May 11, 1965, Ser. No. 454,939
7 Claims. (Cl. 180—7)



1. A fluid cushion load supporting device comprising, a hollow body including a substantially inflexible upper wall and a dished flexible lower wall disposed in proximate relation to a surface and forming a plenum chamber therebetween, means providing communication between said hollow body and said plenum chamber, and spring means extending between said inflexible wall and the central portion of said flexible lower wall acting to permit progressive downward displacement of said central portion in response to progressive increase in load imposed on said device.

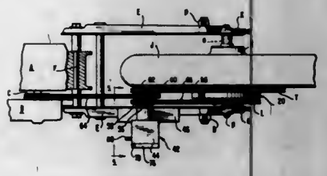
3,318,407
TRACK DRIVE CYCLE
Merle L. Deardorff, Puyallup, Wash., assignor to Willys L. Olander, Tacoma, Wash.
Filed Nov. 19, 1964, Ser. No. 412,498
1 Claim. (Cl. 180—9.24)

A track drive cycle comprising
(a) a cycle frame,
(b) a steering wheel assembly mounted forwardly on the frame,
(c) a pair of laterally spaced elongated hanger members,
(d) pivot means mounting the hanger members intermediate their ends on the frame rearwardly of the steering wheel for pivotal movement on an axis transversely of the frame, the pivot means including a transverse support member between the hanger members joining the latter together,
(e) a pair of traction belt guide wheels arranged in tandem between the hanger members,
(f) fixed bearing means adjacent one end of the hanger members supporting one of the guide wheels for rotation,
(g) movable bearing means mounted for longitudinal sliding movement on the hanger members adjacent the opposite end of the latter and supporting the other guide wheel for rotation,
(h) a U-shaped support member secured at its terminal ends to the movable bearing means with its closed end extending toward said transverse support member,
(i) a drive sprocket journaled in the frame above the guide wheels and in the same vertical plane,
(j) an endless traction belt mounted on the guide wheels and sprocket in driving engagement with the latter,



(k) spring means interposed between the closed end of the U-shaped support member and the transverse support member operatively interengaging the hanger members and movable bearing means and urging the latter resiliently away from the fixed bearing means for maintaining the traction belt in tension on the drive sprocket and guide wheels, and
(l) drive means mounted on the frame and connected to the sprocket for driving the same.

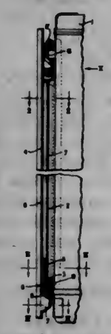
3,318,408
CHANGE-SPEED MECHANISM
William C. N. Hopkins, P.O. Box 551, Walnut Creek, Calif. 94597
Filed Sept. 14, 1964, Ser. No. 396,081
20 Claims. (Cl. 180—33)



20. In combination, a motorcycle having a frame, motor-driven transmission means supported on said frame and including a drive sprocket, an axle-mounted rear wheel including a hub connected with said frame, a first pair of sprockets of unequal diameter, means connecting said pair of sprockets and spaced relation coaxially with said rear wheel, said means including a drum having a drum face and a cylindrical periphery, said drum face being interposed between said wheel hub and the smaller of said first pair of sprockets, the larger of said first pair of sprockets being a ring sprocket mounted on said drum periphery, a housing rigidly connected with said frame, a shaft rotatably journaled in said housing and extending therefrom, three additional sprockets mounted on said shaft externally of said housing, a first endless chain connecting the intermediate one of said three additional sprockets with said transmission drive sprocket,

second and third endless chains connecting the other two of said additional sprockets with said first pair of sprockets, respectively, key means movably mounted on said shaft in engagement with said intermediate sprocket for connecting said intermediate sprocket alternately with said other two additional sprockets, respectively, and means enclosed within said housing for selectively shifting said key means.

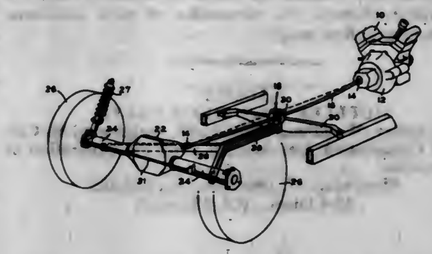
3,318,409
RADIATOR MOUNT
Kurt Kiehule, Esslingen, Germany, assignor to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed Mar. 23, 1965, Ser. No. 442,133
Claims priority, application Germany, Apr. 3, 1964, D 44,070
9 Claims. (Cl. 180—68)



8. An elastic fastening arrangement for the radiator in motor vehicles having a relatively fixed vehicle part, comprising
lateral guide means on said radiator,
mounting support means on said relatively fixed vehicle part,
the lateral guide means and mounting support means being each provided with spaced cooperating abutment surface means,
and means elastically supporting the radiator on said fixed part in and transversely to the longitudinal direction of the vehicle including elastic rail means disposed between said lateral guide means and said mounting support means and having an extension substantially fitting into the space between cooperating abutment surface means, and further elastic connecting means on each vehicle side between said lateral guide means and said mounting support means to oppose the spring forces of the elastic rail means.

3,318,410
FLEXIBLE DRIVE SHAFT
Harold W. Johnson, Farmington, James Knowles, Bloomfield Hills, and Thomas R. Stockton, Northville, Mich., assignors to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed Mar. 2, 1965, Ser. No. 436,474
6 Claims. (Cl. 180—70)

1. A motor vehicle having a frame and an engine-transmission unit mounted on said frame, a rear axle pivotally connected to said frame about a transverse horizontal axis, and a one-piece flexible drive shaft connecting said transmission to said rear axle for a drive thereof, said drive shaft having splined connections at opposite ends to said transmission and rear axle, and means secured to said frame slidably supporting an intermediate



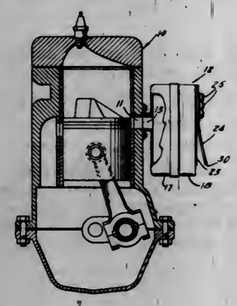
portion of said shaft, said splined connections and slidable support means permitting bending of said shaft during pivotal movement of said rear axle about said axis.

3,318,411
SIGNAL GENERATOR
Ralph A. Doubt, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Dec. 18, 1964, Ser. No. 419,346
3 Claims. (Cl. 181—.5)

1. Signal generating apparatus comprising an elongated generally cylindrical hollow member; a first generally cylindrical weight having one section thereof formed as a spherical segment; means resiliently securing said first weight to said elongated member so that said first weight is free to move away from said elongated member, said one section of said first weight facing the interior of said hollow member; a second generally cylindrical weight having one end formed as a spherical segment; means positioning said second weight in an intermediate region of said elongated member so that said one end of said second weight faces said first weight; means closing the end of said elongated member which is remote from said first weight so as to form a chamber between said second weight and said remote end of said elongated member, said chamber being adapted to contain an expansible material and a means capable of initiating rapid expansion of said material, whereby expansion of said material serves to propel said second weight through said elongated member toward said first weight; and a plurality of additional generally cylindrical weights positioned within and partially filling said hollow member, each of said additional weights having ends formed as spherical segments, said additional weights being of progressively smaller masses in the direction said member extends away from said first weight, said second weight and said additional weights each having a diameter substantially equal to but

slightly smaller than the inner diameter of said hollow member, whereby said second weight strikes the additional weight of smallest mass and the resulting impact is transmitted through the remainder of said additional weights to said first weight.

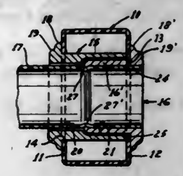
3,318,412
MUFFLER WITH REED VALVE
Jay R. Bailey, Woodland Hills, Calif., assignor to McCulloch Corporation, Los Angeles, Calif., a corporation of Wisconsin
Filed Mar. 17, 1966, Ser. No. 535,185
10 Claims. (Cl. 181—65)



1. A muffler for an internal combustion engine comprising:
(a) a closed walled structure forming an expansion chamber and having an exhaust inlet and an exhaust outlet;
(b) a relatively thin, elongated flexible metallic reed having one end fixed at a point to a wall of said structure and extending externally over a wall of said structure;
(c) a free end of said reed, opposite said fixed end, extending over said exhaust outlet and terminating adjacent the distal end of said outlet with respect to said fixed end; and
(d) a rigid reed stop outwardly of said reed and having substantially the elongated configuration of said reed,
(e) said stop having one end fixed at a point to said fixed end of said reed and to the wall thereunder and having an opposite free end extending over said reed and said outlet,
(f) said fixed end of said stop being spaced from said outlet a distance sufficient to permit the reed to deflect away from the outlet to permit adequate exhaust discharge,
(g) said stop being curved gradually outwardly from its fixed end and the chamber wall over which it extends so that its free end is spaced said sufficient distance from said outlet and so that the exhaust will cause the reed to deflect against said stop as it deflects away from said outlet.

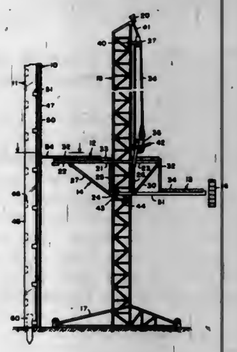
3,318,413
LADDER JOINT CONSTRUCTION
Richard L. Werner, Sharon, Pa., and Lawrence A. Kocina, Simsbury, Conn., assignors to R. D. Werner Co., Inc., Greenville, Pa., a corporation of Pennsylvania
Filed Oct. 23, 1965, Ser. No. 502,954
10 Claims. (Cl. 182—46)

1. A joint for a tubular ladder rail having aligned openings in spaced rail sides thereof, one of said openings being of relatively greater diameter than said substantially opposite opening, a rung, a two-part ferrule telescoped over an end portion of said rung, said two-part ferrule comprising a first tubular member having an enlarged peripheral flange at one end projecting radially outwardly thereof, said first member having a portion telescoped over an end portion of a said rung in engagement therewith and a second portion telescoped over the end portion of said rung in spaced relation thereto, the said ferrule and rung assembly projecting through the said relatively greater diameter opening in one of said rail sides, the said ferrule flange abutting portions of the rail sides surrounding said larger diameter opening and



an end of said first tubular member abutting inner wall surfaces of the rail side surrounding the opening of relatively lesser diameter in said opposite rail side, said second tubular member having a portion projecting through said opening of lesser diameter and occupying the space between the second portion of said first member and the rung end portion, and having a peripheral flange at one end projecting radially outwardly thereof in abutting engagement with the outer wall surfaces of the rail side surrounding the opening of lesser diameter.

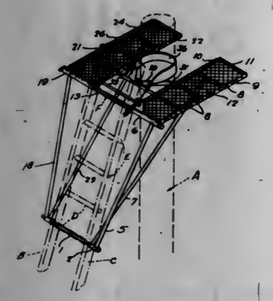
3,318,414
SCAFFOLDING
Ralph L. Meek, 1441 Larkin Williams, Fenton, Mo. 63026
Filed Aug. 30, 1965, Ser. No. 483,494
9 Claims. (Cl. 182—115)



1. In a scaffold:
(a) a support means,
(b) a work platform means movably mounted on and carried by the support means for height adjustment,
(c) means connected to the work platform means selectively raising or lowering the work platform means on the support means,
(d) a bottom support,
(e) access means supported by and extending upwardly from the bottom support to a position adjacent the work platform means, and

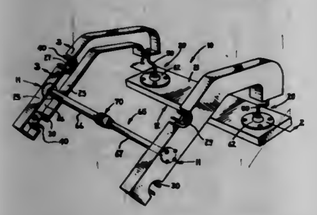
(f) means slidably interconnecting the access means and work platform means and rigidly attached to one of said latter two means to maintain connection between the work platform means and access means and to maintain access to the work platform means from the access means upon height adjustment of the work platform means on the support means.

3,318,415
PLATFORM FOR LADDERS
Aldis J. Christie, Sr., Hooksett Road, Auburn, N.H. 03032
Filed Mar. 15, 1966, Ser. No. 534,539
8 Claims. (Cl. 182—116)



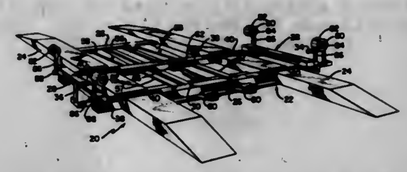
1. A platform attachable to a ladder with tubular rungs comprising a pair of rods each insertable through a different rung of the ladder, at least one platform having an end connected to one of said pair of rods, a second pair of rods each having an end connected to the other of said first pair of rods, one of said second pair of rods having its opposite end connected to said one of said first pair of rods, the other of said second pair of rods having its opposite end connected to said platform and means connected to said platform and capable of detachably encircling an upright object.

3,318,416
STEPLADDER ACCESSORY
Billie Robinson, 1042 N. Centennial St., Indianapolis, Ind. 46222
Filed Oct. 13, 1965, Ser. No. 495,547
5 Claims. (Cl. 182—214)



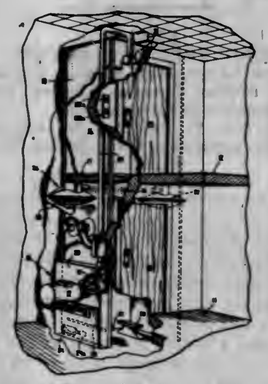
1. An attachment for ladders having rungs comprising a pair of brackets, each of said brackets having a pair of recesses adapted to receive and engage adjacent rungs of the ladder, means holding said brackets in adjustable spaced relation, support means secured to said brackets and adapted to engage an object against which the ladder is supported, said brackets being elongated, the recesses of each pair of recesses being on opposite longitudinal sides of their respective brackets, each of said brackets being adapted to operate as a beam with the force from said object acting in a direction to bend said brackets, and said force counteracted at the engagement of said rungs with said brackets at said recesses.

3,318,417
APPARATUS FOR ELEVATING VEHICLES
Robert Eugene Royce, 4345 S. Santa Fe, Englewood, Colo. 80110
Filed Oct. 7, 1965, Ser. No. 493,753
14 Claims. (Cl. 187—8.41)



1. An apparatus for elevating a vehicle comprising a support means; a pair of members mounted on said support means for translatory movement therealong toward and away from each other; means for elevating said pair of members; means for sensing a first predetermined relation between said members and a portion of a vehicle to be disposed therebetween and generating a signal in response thereto; means responsive to said generated signal for controlling said elevating means and for effecting translatory movement of said members toward each other; means for sensing a second predetermined relation between said members and a vehicle to be disposed therebetween and generating a signal in response thereto; and means responsive to said second generated signal for controlling said elevating means and said means for effecting translatory movement of said pair of members.

3,318,418
PNEUMATIC ELEVATOR
William C. Kilpatrick, Jr., 706 Fairoaks Drive, New Castle, Ind. 47362
Filed Feb. 3, 1966, Ser. No. 524,754
6 Claims. (Cl. 187—17)



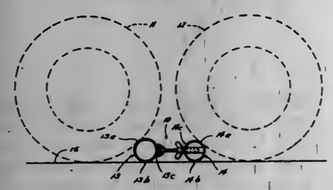
1. In a pneumatic elevator installation of the type wherein a car moves as a piston vertically within a hoistway in response to pneumatic pressure existing in the

hoistway beneath the car between a lower level at which the car is properly positioned with respect to a lower car-access door in the hoistway and an upper level at which the car is properly positioned with respect to an upper car-access door, means for arresting and leveling the car at the said upper car-access door comprising an air vent port for venting air from said hoistway, said port co-operating with said car so that as said car reaches proper position with relation to said upper car-access door said port is unmasked by the car in an amount sufficient to reduce the pressure in the hoistway space beneath the car to a value sufficient to hold the car immobile at the upper level.

3,318,419
CHOCK ASSEMBLY FOR TANDEM WHEELS

Ray S. Chastain, P.O. Box 504, Le Fors, Tex. 79054

Filed Mar. 8, 1966, Ser. No. 532,752
5 Claims. (Cl. 188—32)



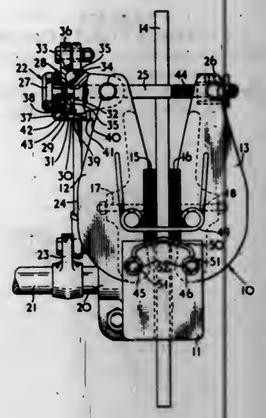
1. A chock assembly for placing between two tandem wheels to hold the wheels from rolling in either direction, comprising two cylindrical chocks for positioning, between tandem wheels, with their longitudinal axes parallel, said chocks, when so positioned, having their side surfaces in line contact with the ground for sliding along the ground into engagement with tandem wheels with at least a portion of the side surface of each chock making substantially line contact with one wheel, and means extending between the chocks to move the chocks apart into line contact with the wheels and to exert a balanced separating force thereon along a line that intersects the line of contact between the chocks and the wheels approximately midway of its ends to hold the chocks in engagement with tandem wheels, said moving and holding means including means secured to the chocks for holding the chocks from rotating around their longitudinal axes as they are moved apart into engagement with the wheels by said means.

3,318,420
SPOT TYPE DISC BRAKES

Richard Albert Adams, West Rainton, England, assignor to Dunlop Rubber Company Limited, London, England, a corporation of Great Britain

Filed Nov. 12, 1964, Ser. No. 410,517
Claims priority, application Great Britain, Nov. 12, 1963, 44,543/63
7 Claims. (Cl. 188—73)

1. In a brake assembly having an operating system of both manual and pedal type actuation, the structure comprising: a high mechanical advantage leverage actuator including two relatively movable members which provide angular movement therebetween and providing frictional forces for resisting such movement, camming means disposed between said relatively movable members, a pressure plate having a pivotal mounting at one end thereof and connected to said leverage actuator at the opposite end thereof, a rigid support providing pivotal suspension for said pressure plate, a friction element combined with said pressure plate to be movable thereby in a brake-applying direction responsively to relative movement between said pressure plate and said support, said friction element being movable relatively to said support responsively to wiping engagement force between said friction element and its opposed braking surface, self-energizing means for biasing said friction element and pressure plate in an oblique brake-applying direction to provide an increased braking engagement force between said friction

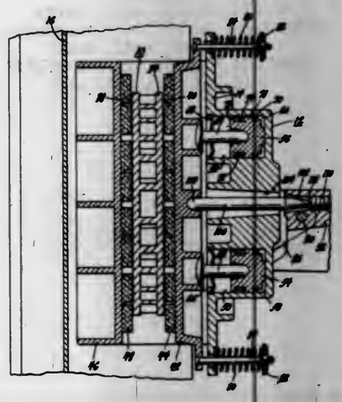


element and its opposed friction surface, said relatively movable members adapted to generate internal friction losses which are opposed to and effectively nullify through said leverage actuator the increased reaction force established by said self-energizing means against input effort by the operator.

3,318,421
BRAKE ADJUSTING SYSTEM

Robert M. Van House, Edward J. De Hoff, and Anton F. Erickson, all of Dayton, Ohio, assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Oct. 26, 1964, Ser. No. 406,292
6 Claims. (Cl. 188—106)



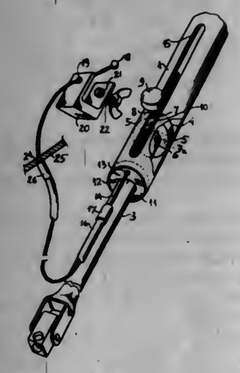
1. A brake assembly having a brake shoe, a primary brake actuating mechanism for said brake shoe, a secondary brake actuating mechanism for said brake shoe actuatable independently of said primary actuating mechanism,

first calibrated automatic adjusting means for said primary actuating mechanism, and second automatic adjusting means for said secondary actuating mechanism calibrated to adjust said secondary actuating mechanism at substantially the same calibration as the first calibrated automatic adjusting means when said secondary actuating mechanism is actuated to maintain adjustment thereof as the brake shoe wears in substantially equal adjustment with the adjustment of said primary actuating mechanism.

3,318,422
TOW BAR CONTROLLED BRAKE ACTUATING DEVICE FOR TOWED VEHICLES

Eugenio Frescura, Via Alberto da Prezzate 31, Bergamo, Italy

Filed Oct. 25, 1965, Ser. No. 505,179
Claims priority, application Italy, Oct. 27, 1964, 23,108/64, Patent 739,160
5 Claims. (Cl. 188—112)



1. A tow bar controlled brake actuating device for towed vehicles, wherein the tow bar has an outer tubular member and an inner stem member elastically movable therein, in the longitudinal direction thereof, comprising a Bowden wire having a flexible sheath member and a cable member slidable therein, first fastening means for connecting one end of said cable member to the brake pedal of the towed vehicle, second fastening means for fixing the other end of said cable member on said stem of the tow bar, a first stop member rigid with said outer tubular member and adapted to stop the relative movement of one end of said sheath member with respect to said outer tubular member, a second stop member rigid with the frame of the towed vehicle and adapted to prevent relative movement of the other end of said sheath member with respect to said frame, thereby to pull said cable member and to actuate the brake when relative movement occurs between said outer tubular member and said stem member.

3,318,423
VEHICLE BRAKE PART

Walter Dunki, Zurich, Switzerland, assignor to Escher Wyss Aktiengesellschaft, Zurich, Switzerland, a corporation of Switzerland

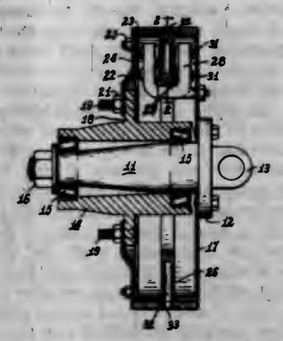
No Drawing. Filed Sept. 8, 1964, Ser. No. 396,275
Claims priority, application Switzerland, Oct. 10, 1963, 12,453/63
11 Claims. (Cl. 188—251)

1. A vehicle frictional brake part subjected to stress by sliding friction, consisting of a high-carbon, austenitic iron alloy having a proportion of free carbon.

3,318,424
AIR COOLING MEANS FOR DISC BRAKES

Emmett G. Morrison, 319 Illinois Ave., Elgin, Ill. 60120

Filed May 6, 1966, Ser. No. 548,320
2 Claims. (Cl. 188—264)

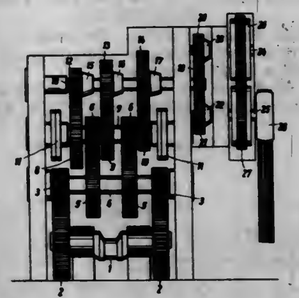


1. In a vehicle brake assembly, a spindle, a wheel hub mounted on said spindle, an external circumferential flange on said hub, a circumferential brake housing surrounding said hub, a wall connecting said brake housing with the hub flange, an internal circumferential flange in said brake housing, a plurality of circumferentially spaced substantially radial recesses in said internal circumferential flange, said recesses being closed on their inner ends and opening onto the outer circumferential surface of said internal flange, and the brake housing having openings therein in register with said recesses.

3,318,425
DRIVING MECHANISM FOR UNIVERSAL CRANK-SHAFT EXTRUSION PRESSES

Walter vom Dorp, Rheydt, and Georg Weber, Monchen-Gladbach, Germany, assignors to Mannesmann-Meer Aktiengesellschaft, Monchen-Gladbach, Germany, a corporation of Germany

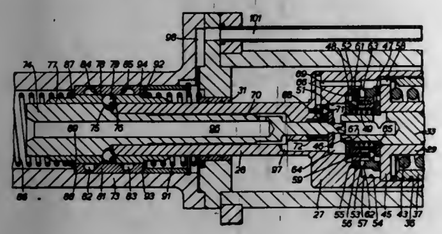
Filed Sept. 22, 1964, Ser. No. 398,451
2 Claims. (Cl. 192—4)



1. In a driving mechanism, for use in connection with a universal crank shaft extrusion press including a rotatable crank shaft operable to produce active and, respectively, idling strokes of the extrusion die, the combination of a primary pair of primary driven gears adapted to be in driving connection with said crank shaft, an energizable primary driving gear, and a power transmission connected between said primary driving gear and said primary driven gears and including a series of secondary gears comprising secondary driving gears and a secondary driven gear in mesh with each of said secondary driving gears and forming therewith a meshing secondary gear pair, the secondary driving gear of each secondary

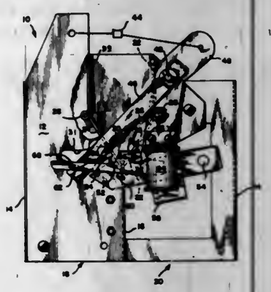
pair being releasably actuatable to be rotated and thereby to transmit rotary energy to the secondary driven gear, and control means including brakes and clutches arranged in connection with certain of said secondary gears and operable selectively to actuate some of the secondary gears of said power transmission and, respectively, to de-activate others, adapted thereby to adjust the rotary speed of said crank shaft for changing the ratio of the rotational speeds of said crank shaft during the active and idling strokes, to change the size of the angle of rotation of the crank shaft during the active strokes and, respectively, the idling strokes, and to change the direction of rotation of the crank shaft, said primary driving gear being operable to be driven at variable speed, said power transmission and primary driving and primary driven gears comprising a first shaft, said driving gear being mounted on said first shaft and including a fly-wheel, a second shaft, a second gear including a fly-wheel and being mounted on said second shaft and in mesh with said primary driving gear, whereby said first and second shafts rotate in opposite directions, an idler pinion freely rotatable on each of said first and second shafts, a clutch for each pinion mounted on each of said first and second shafts, a third shaft, a third gear mounted on said third shaft and being disposed between and meshing with both said pinions, each of said clutches being operable to connect for rotation its pinion to the respective shaft alternatively, thereby to rotate said third shaft selectively in either of the two opposite directions, a series of clutches and idler secondary gears of different diameter assigned thereto mounted on said third shaft, whereby one of said idler secondary gears of said series may selectively releasably be connected to said third shaft, a series of pinions meshing with said idler secondary gears of said series, a fourth shaft mounting said series of pinions, brakes mounted on said fourth shaft, a fifth shaft, transmission secondary gearing operatively connecting said fourth and fifth shafts and being in driving connection with said primary driven gears, said fourth shaft thereby being in positive driving connection with said crank shaft, so that energization of said brakes will brake the rotation of said crank shaft.

3,318,426
HYDRAULICALLY OPERATED FRICTION ROD BRAKE
David John Barden Forster, Cheltenham, England, assignor to Dowty Hydraulic Units Limited, Gloucester, England, a British company
Filed Mar. 24, 1965, Ser. No. 442,460
Claims priority, application Great Britain, Apr. 10, 1964, 14,950/64
18 Claims. (Cl. 192—8)



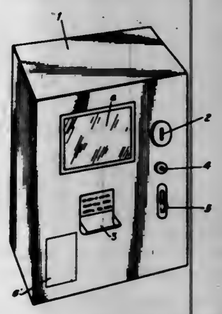
1. In combination, a guide, a controlled member slidable along the guide, a control member through which force may be transmitted to the controlled member to move it along the guide, friction pad means carried by the controlled member, spring means to urge the friction pad means into frictional engagement with the guide, a piston and cylinder unit operatively connected with the spring means, and valve means responsive to force exerted by the control member on the controlled member to adjust pressure in the piston and cylinder unit to remove at least a substantial part of the force exerted by the spring means on the friction pad means.

3,318,427
DEVICE FOR ACCUMULATING AND DISPENSING COINS
Arnold E. Ristau, 329 Taylor St., and Alfred G. Ristau, 328 Sarah St., both of Kaukauna, Wis. 54130
Filed Aug. 17, 1965, Ser. No. 480,358
7 Claims. (Cl. 194—2)



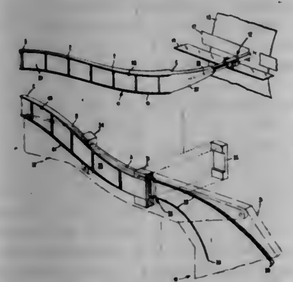
1. A coin accept or reject device for a coin operated dispensing system, comprising
a housing having side walls and end walls forming a chamber,
a dividing wall separating the chamber into a coin collecting and a coin returning section,
a pair of vertical walls positioned above and on either side of the dividing wall,
a door pivotally connected to the lower end of each of the vertical walls,
means for biasing the doors toward each other with their lower ends meeting at a point immediately above the dividing wall,
and lever means operatively connected to both doors to release the biasing means on one or the other of the doors in response to an electrical signal indicating the absence or the presence of an article to be dispensed.

3,318,428
METHOD FOR AUTOMATICALLY PREPARING RECORDING AND DELIVERING IDENTIFICATION TICKETS
Stefan Georg Klein, London, England, assignor to Identymatic Trust, Vaduz, Liechtenstein
Filed Mar. 23, 1965, Ser. No. 442,075
1 Claim. (Cl. 194—2)



In a method for automatically preparing, recording and delivering identification tickets from an issuing machine, wherein upon insertion of a prescribed amount of money into said machine, operations are initiated and controlled in a definite sequence, the steps of
(a) bringing for access before the person to whom said ticket is to be issued from said machine both said ticket which is to be issued and a duplicate record thereof which is retained within the machine;
(b) receiving positive, color-impressed finger prints of said person, said prints being made with the same fingerprinted color material, and identical prints being placed separately on said ticket and said record; and
(c) issuing said finger-printed ticket to said person while simultaneously, within said machine, rendering said duplicate finger printed record inaccessible to said person.

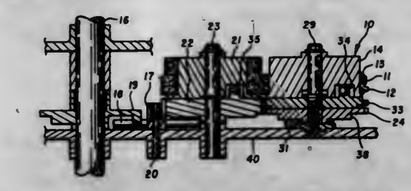
3,318,429
WIRE HARNESS STRUCTURE FOR MATRIX PRINTING APPARATUS
Robert C. Burns, Conklin, Tatsuo Hasegawa, Endwell, and Victor R. Simpson, Owego, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Oct. 18, 1965, Ser. No. 497,164
13 Claims. (Cl. 197—1)



1. In a printing machine having print wires between a movable support at a printing line and a stationary print wire control mechanism, a flexible harness for said wires comprising:
a plurality of flexible, elongate elements arranged parallel to each other in an intermediate portion so that each element could be intersected by a single straight line and converging at one end thereof in a transition portion to form a rectangular character matrix securable to said support and having a connecting portion at the other end of said intermediate portion securable to said mechanism; and
a coating of resilient material incasing said elements for providing a unitary, flexible structure with said coating having gradually increasing thickness on said intermediate portion adjacent said transition and connecting portions to gradually decrease the flexibility thereof.

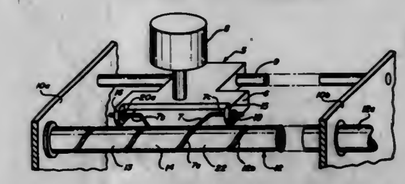
3,318,430
SELECTIVE PRINTING ASSEMBLY HAVING PRINTING SURFACES AT DIFFERENT LEVELS
Alfred K. Boyd, Houston, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Filed Oct. 11, 1965, Ser. No. 494,509
7 Claims. (Cl. 197—18)

1. A print mechanism for recording a plurality of channels of information on a strip of paper, comprising in combination, a print wheel having a series of raised dots and a series of raised numerals around the periphery of said wheel, a cam wheel having an indentation on its periphery for controlling the spacing between said print wheel and said strip of paper, drive means for rotating said print wheel and said cam wheel and periodically engaging said print wheel with said strip of paper, spacing



means for engaging said cam wheel to limit the travel of said print wheel to a first position while printing a dot when said spacing means is on the periphery of said cam wheel, and enabling said print wheel to travel to a second position for printing a dot and a number when said spacing means is in said indentation on said cam wheel.

3,318,431
SPRING AND SCREW COMBINATION CARRIAGE DRIVE MEANS
Lloyd J. Lapointe, West Hartford, and Ralph L. Parker, Rockville, Conn., assignors to Royal Typewriter Company, Inc., Hartford, Conn., a corporation of Delaware
Filed Jan. 14, 1966, Ser. No. 520,712
4 Claims. (Cl. 197—90)

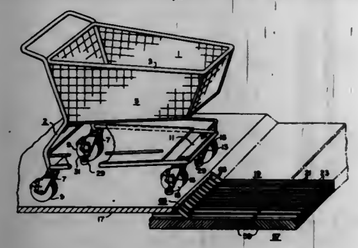


1. A motion converting device comprising in combination,
a frame,
a threaded lead screw journalled for rotation on said frame,
a carriage adapted to be moved axially by said lead screw,
and a spring having each end fastened to said carriage and having at least one coil which is threaded on said lead screw whereby rotation of said lead screw causes movement of said carriage in an axial direction.

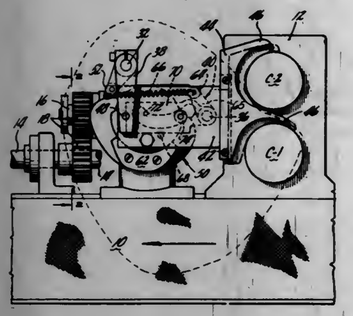
3,318,432
WHEELED TRANSPORTATION ASSEMBLIES
Clyde M. Mullis, Glen Rock, Larry Tosato, Millburn, and Robert A. Bogyo, Paramus, N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Sept. 22, 1965, Ser. No. 489,199
12 Claims. (Cl. 198—16)

1. In a transportation assembly, a moving walk having a cleated treadway, said treadway having a portion exposed to carry load relative to a first landing, a landing comb at said landing having teeth meshing with the cleats of said treadway to assist in guiding load between the landing and the treadway and to clear debris from the grooves between said cleats, a cart having a load-bearing body and a supporting wheel having a horizontal axis, said wheel being provided with a pair of axially-spaced rim cleats which are circular about the axis of the wheel for meshing with the cleats of the treadway and for supporting the cart on a smooth surface, wheel-supporting means

mounted on said cart body, means mounting the wheel on the supporting means for rotation about the wheel axis, and cleaning means comprising a wheel cleaner associated with the wheel-supporting means, said cleaner having a pair of teeth extending in opposite directions about the wheel axis into the groove between said rim cleats, whereby the last-named teeth clean foreign matter out of said groove in each direction of rotation of the wheel about its axis.

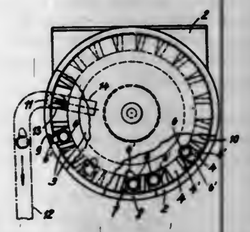


3,318,433
APPARATUS FOR MOVING GLASS CONTAINERS ONTO A MOVING CONVEYOR
George E. Rowe, Wethersfield, Conn., assignor to Emhart Corporation, Bloomfield, Conn., a corporation of Connecticut
Filed Nov. 5, 1965, Ser. No. 506,462
8 Claims. (Cl. 198—24)



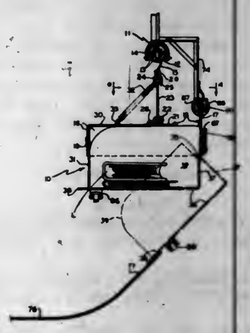
1. An apparatus for sweeping an article from a fixed support at a side of a moving horizontal conveyor and for moving it onto the conveyor, said apparatus comprising a fixed support for articles at the side of the conveyor, a head rotating on a vertical axis, a pusher carried by said head but movable relative thereto and operable to engage said article on said support and to sweep it through a substantial arc onto the conveyor and to then release it while continuing to rotate with the head, a first lever pivotally supported by said head and connected to said pusher, a second lever pivotally supported by said head and having a connection with said pusher, means for pivoting said first and second levers relative to the head during rotation thereof including first and second stationary cams, a cam follower connected to said first lever and engaging said first cam during rotation of the head to move said pusher generally rectilinearly outwardly relative to the head while rotating therewith and into engagement with the article at the side of the conveyor and then generally rectilinearly inwardly relative to the head to release the article on the conveyor, and a cam follower connected to said second lever and engaging said second cam to retard rotation of said pusher with the head during release of the article.

3,318,434
APPARATUS FOR THE AUTOMATIC FEED OF PULL-OFF CLOSURES
Willy Waller, Oberallmendstr. 16, Zug, Switzerland
Filed Mar. 16, 1965, Ser. No. 440,238
3 Claims. (Cl. 198—33)



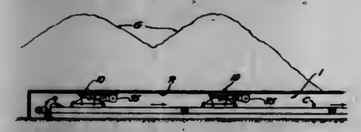
1. An apparatus for automatically feeding pull-tab caps to a sealing machine adapted to apply such caps to respective receptacles, comprising a rotatable cap-sorting drum provided with a circumferential area of cavities each dimensioned to receive a respective pull-tab cap with its respective tab extending outwardly thereof; support means for said drum including a ring closely surrounding said drum and substantially coplanar with said cavities, said ring being provided with a recess extending therealong for accommodating those tabs of caps in said cavities which project outwardly of said drum, and an abutment in the path of the outwardly projecting tabs at the end of said recess for engagement with the outwardly extending tabs upon entrainment of the respective caps therepast by feed drum for rotating each of the caps in the respective cavity to swing the respective outwardly extending tab into the cavity behind the body of the respective cap in the sense of rotation of said drum; supply means on said support means for feeding said caps to said cavities in succession at a point rearwardly of said abutment in the direction of rotation of said drum; and discharge means for serially removing said caps from said cavities at a location forwardly of said abutment in the sense of rotation of said drum.

3,318,435
CONVEYOR CARRIER
Frederick B. Scott, Syracuse, N.Y., assignor to Syracuse Supply Company, Syracuse, N.Y., a corporation of New York
Filed Mar. 3, 1966, Ser. No. 531,392
7 Claims. (Cl. 198—38)



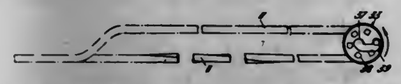
1. In a conveyor system including a load carrying trolley and its supporting track, an article carrier having an open frame adapted to be suspended from the conveyor system, a container having one side open, pivotally mounted on the carrier frame for discharge from the open side, latch means carried by the frame and releasably supporting said container against discharge in non-discharge position, latch release means on said frame and including a trip adapted to engage a stationary detent for actuation by movement of the carrier along the track, and at least one discharge station disposed along the track having a detent adapted to engage the carrier trip for container discharge, and means responsive to conveyor movement of said carrier for restoring the container to its latched non-discharge position.

3,318,436
BULK MATERIAL FEEDER
Joe R. Ray, 1798 Grace Ave., San Jose, Calif. 95125
Filed Apr. 8, 1966, Ser. No. 541,318
7 Claims. (Cl. 198—60)



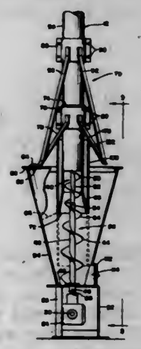
1. A bulk material feeder for controlling gravitational flow of granular material from a mound thereof onto a conveyor; comprising
(a) a frame supported beneath said mound of granular material,
(b) a throat formed in said frame providing a restricted passage therethrough,
(c) a shaker tray having side walls spaced approximately the width of said throat and open ends spaced from each other a distance slightly greater than the angle of repose of the granular material flowing through said throat,
(d) means for pivotally suspending said shaker tray from said frame in centered relation to said throat, for shaking movement in a lengthwise direction, and
(e) a power driven eccentric journaled on said frame having a connecting rod pivotally connected to said tray for moving said shaker tray to and fro for spilling granular material alternately from opposite ends of said shaker tray.

3,318,437
SOLIDS HANDLING EQUIPMENT
Charles Thomson, Esher, England, assignor to Solar Thomson Engineering Company Limited, Cobham, England
Filed Aug. 12, 1965, Ser. No. 479,161
Claims priority, application Great Britain, Oct. 2, 1964, 40,265/64
4 Claims. (Cl. 198—62)



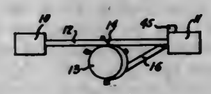
1. Solids feeding means for supplying containers with solids, said means comprising a horizontal feed plate rotatable about a vertical axis, said plate having a plurality of feed holes spaced around a common circle centered on said axis; locating means for maintaining the openings of said containers in register with said holes as the plate rotates; and a stationary enclosure closed at the bottom by said plate and adapted to receive solids to be fed to the containers, said enclosure including a first portion extending over an area traversed by a portion of said plate between the axis of rotation and said holes so that solids are carried within said first portion by said plate, and a second portion extending over an area traversed by said holes for receiving solids from said first portion of the enclosure and allowing them to pass through the holes into the containers, said second portion including a passageway closed at the end opposite to the end at which solids enter, and a section preceding said passageway, said passageway and said section both being substantially longer in the direction of rotation than a feed hole.

3,318,438
VERTICAL AUGER LOADER
Richard R. Neebel and Richard E. Doerfer, Cedar Falls, Iowa, assignors to Kewanee Machinery & Conveyor Company, Kewanee, Ill., a corporation of Illinois
Filed July 29, 1965, Ser. No. 475,755
13 Claims. (Cl. 198—64)



1. A vertical lift auger-type conveyor comprising in combination, a conical shaped loading hopper having a steeply sloped sidewall, an auger rotatably supported on the bottom wall of the auger to turn about the vertical axis thereof, the lower flightings of the auger being adapted for loading from the hopper, the remaining upper flightings of the auger being enclosed by a tube and constituting the conveying section of the auger, the tube being supported by the hopper against rotation, a slip tube slidably supported on the lower end of the tube to variably enclose the load flightings of the auger and means for releasably supporting the slip tube at selected heights relative to the bottom wall of the hopper to permit adjusting the loading rate of the auger.

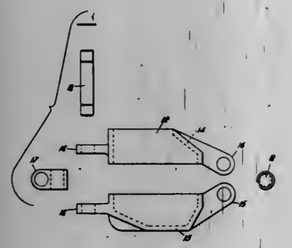
3,318,439
CONVEYOR SYSTEM
William T. Sullivan, Oxford City, Ohio, assignor to Kornylak Corporation, Hamilton, Ohio, a corporation of New Jersey
Filed Apr. 12, 1965, Ser. No. 447,306
7 Claims. (Cl. 198—75)



1. A conveying system comprising a main conveyor for conveying articles from a first machine to a second machine, live storage conveyor means adjacent the main conveyor for storing articles from the first machine, means

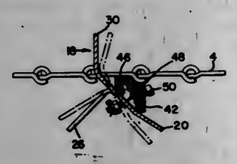
for diverting articles from the main conveyor during operation of the said main conveyor to the live storage conveyor, and means responsive to commands from the second machine for conveying articles from the live storage conveyor to the main conveyor.

3,318,440
SOLIDS HANDLING EQUIPMENT
Charles Thomson, Esher, England, assignor to Solar Thomson Engineering Company Limited, Surrey, England
Filed July 23, 1965, Ser. No. 474,286
Claims priority, application Great Britain, Oct. 2, 1964, 40,265/64
11 Claims. (Cl. 198—140)



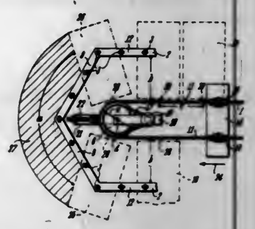
1. A conveyor comprising a plurality of buckets, each bucket comprising two complementary parts, a coupling member disposed between each pair of adjacent buckets, and two pivot pins connecting said parts and pivotally connecting each coupling member with its two adjacent buckets to form a bucket chain, said pins lying wholly within the lateral boundaries of the buckets, and having axes lying in planes at right angles to each other.

3,318,441
MANURE CONVEYOR SYSTEM FOR POULTRY HOUSES AND THE LIKE
Everett M. Keen and Anthony J. Siciliano, Millville, N.J., assignors to Keen Manufacturing Corporation, Millville, N.J., a corporation of New Jersey
Filed Oct. 21, 1965, Ser. No. 499,958
5 Claims. (Cl. 198—175)



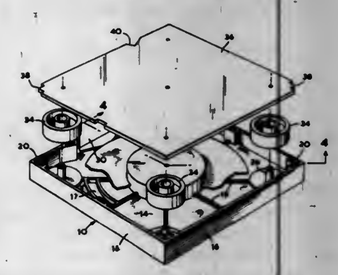
1. A manure conveyor system for poultry houses and the like comprising a trough having a substantially smooth flat floor adapted to receive droppings, a pair of endless chains disposed in parallelism along the opposite sides of the trough, a series of substantially equally spaced scraper flights disposed transversely of the trough each comprising a blade having a front edge resting on the floor of the trough and extending substantially entirely across said floor, and means at the opposite ends of each blade loosely connecting the blade to a selected pair of the links of the chain with freedom for tilting movement of the blade to press said front edge thereof down into scraping engagement with the floor when the chains are moved to pull the blades along the trough.

3,318,442
APPARATUS FOR MECHANIZING THE CULTIVATION OF PLANTS
Gertrud Lange, Holzgartenstrasse 9, Stuttgart, Germany, and Günter Schöll, Mulbergerstrasse 21A, Esslingen (Neckar), Germany
Filed July 14, 1965, Ser. No. 471,917
Claims priority, application Germany, July 17, 1964, L 48,321
12 Claims. (Cl. 198—181)



1. In a conveyor installation for the mechanization of plant cultivation and the like, wherein a multiplicity of generally horizontal tables are displaced along an endless elongated path by an endless flexible element passing around respective drive disks at opposite ends of said path, the improvement wherein:
(a) said endless flexible element is a cable;
(b) said tables are mounted at one side thereof on said cable and extend outwardly therefrom; and
(c) said installation includes first support means including a rail extending around said path and outwardly thereof for supporting at least part of the weight of said tables upon their movement around said path, and second support means disposed along said cable and carrying at least another part of the weight of said tables,
each of said tables being provided with an arm having at least a portion bent at an obtuse angle to the horizontal tables and extending inwardly and downwardly therefrom with respect to said path, said arms connecting the respective tables to said cable, said arms engaging said disks during passage therearound.

3,318,443
DISPENSING CONTAINER FOR BAND SAW BLADES
Donald A. Hillis, 4828 Yonge St., Willowdale, Ontario, Canada
Filed Oct. 8, 1964, Ser. No. 402,491
6 Claims. (Cl. 206—52)



1. A dispensing container for band saw blades and the like comprising a pair of cooperating body members secured together along a meeting line to define therebetween a saw blade receiving chamber, said saw blade receiving chamber having opposed side walls and end walls extending between said side walls, spaced co-operating bearing ribs on the inner surface of each body member, said ribs extending from the center portion of said body members substantially to the periphery thereof, a plurality of rollers, means mounting said plurality of rollers on said body for rotation in said chamber with their rolling surfaces at right angles to the plane of the bearing surfaces of said bearing ribs, said rollers being spaced apart in a circular arrangement with their rolling surfaces adapted to roll with respect to the outside face of a coil of saw blade in said chamber as it is uncoiled from said chamber, one of said end walls being formed with an opening through which the free end of a coil of saw blade can be drawn in use.

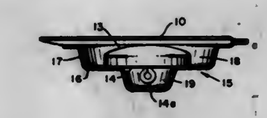
3,318,444
PAD OF INDIVIDUALLY DETACHABLE BAGS
Sidney Welcher, 20 Elk Ave., and Albert Einbinder, 3 Bon Air Ave., both of New Rochelle, N.Y. 10804
Filed June 10, 1964, Ser. No. 374,136
5 Claims. (Cl. 206—57)



1. A pad comprising a stack of generally coextensive rectangular bags of flexible heat-sealable plastic material with aligned edges on at least one side, each bag having a closed bottom remote from said one side, having a closed top forming said one side, and being provided with a weakened zone extending completely across it close to said one side and substantially parallel to said aligned edges; a header of a relatively stiff material overlying said aligned edges and extending beyond said zone, said header being folded about said aligned edges on one of the minor sides of said stack and forming a pair of aligned aprons extending completely across the stack and terminating substantially flush with the major sides thereof while extending from said aligned edges beyond said weakened zone, the major sides of the bags of the stack being closed; and fastening means joining said header to said bags at a location between said closed top and said zone.

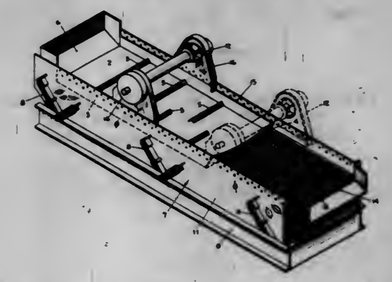
3,318,445
BUTTON PACKAGE
Charles Schner III, Woodmere, N.Y., assignor to Schner-Block Co., Inc., Inwood, N.Y., a corporation of New York
Filed Feb. 9, 1966, Ser. No. 526,143
8 Claims. (Cl. 206—78)

1. A package of a plurality of buttons or the like, comprising
(a) a molded traylike rear element of lightweight, rigid, but readily tearable, thermoplastic foam material;
(b) said rear element being imperforate and defining a plurality of stepped recesses therein receiving the articles packaged and any subsequent appurtenances extending therefrom;
(c) a transparent, planar front element heat-sealed to said rear element in predetermined marginal and



central areas thereof in a manner whereby each of said recesses is completely closed off to retain the article contained therein.

3,318,446
CLEANING AND SEPARATING DEVICE
Daniel Grow, Ringtown, Pa. 17967
Filed May 14, 1965, Ser. No. 455,937
2 Claims. (Cl. 209—3)

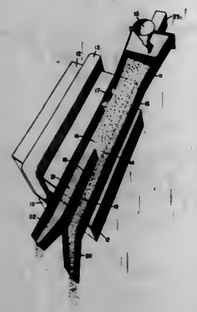


1. A device for cleaning crushed stone in a mixture of said crushed stone, dirt, sand and other extraneous matter associated therewith comprising, a vibrating conveyor provided with sides at right angles to the bottom plate of said conveyor and extending on a line parallel to the direction of vibration of the conveyor, means for introducing a water slurry of said mixture onto said bottom plate at one end thereof, barrier means positioned across the other end of said conveyor, and a plurality of baffles affixed to the bottom of said conveyor spaced along the conveyor from feed in end to the discharge end, said baffles at the feed in end extending the entire width of the conveyor, and the remainder of the baffles extending from the sides to the center-line of the conveyor and being staggered with respect to one another along a portion of the length of said conveyor means for imparting vibratory motion to said vibrating conveyor, and means for positioning said vibratory unit at any desired location along the length of said conveyor, said barrier means impeding the progress of the mixture and causing particle contact and scrubbing just prior to discharge from said conveyor.

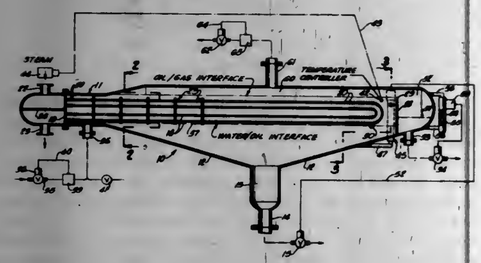
3,318,447
SEPARATION OF HIGH AND LOW QUALITY ELECTRODE COKES
John L. Ellingboe, Jr., Littleton, and John H. Runnels, Denver, Colo., assignors to Marathon Oil Company, Findlay, Ohio, a corporation of Ohio
Filed Feb. 3, 1964, Ser. No. 341,976
4 Claims. (Cl. 209—213)

1. A method for recovering petroleum coke having a relatively lower coefficient of thermal expansion from an initial mass of petroleum coke comprising:
subjecting a continuous stream of finely divided particles of said initial mass of petroleum coke to a high intensity magnetic field, and

separating those particles of petroleum coke which are attracted by said magnetic field and which are characterized by a coefficient of thermal expansion which is lower than that of said initial mass of petroleum coke.



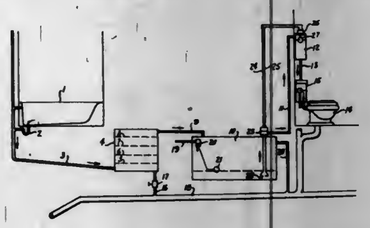
3,318,448
FLUID SEPARATING AND CLEANING METHOD AND APPARATUS
William E. Fryer, 1215 Louise Ave., Arcadia, Calif. 91006
Filed Sept. 6, 1963, Ser. No. 307,222
11 Claims. (Cl. 210—71)



6. That method of placing crude oil separator apparatus in operation initially which comprises flooding with water all interior surfaces to be contacted by contaminated crude oil to be subjected to cleaning treatment, heating said water to a temperature approximating normal operating temperature for said apparatus thereby assuring that the apparatus surfaces are first wetted with hot water, and gradually introducing dirty oil to the upper portion of the apparatus to float the oil on said water and form an oil-water interface while lowering the water level by withdrawing water from the bottom portion at a rate coordinated with the rate of crude oil introduction until the oil-water interface between oil floating on the water has fallen to the desired operating level for normal use of said apparatus.

8. A continuously operating crude oil separator apparatus having an elongated tubular shell having walls and closed at its ends and supported with its axis disposed horizontally, means for maintaining the lower portions of said shell flooded with water and the upper portions thereof flooded with oil to form an oil-water interface, finned steam heating pipes extending horizontally through the top portion of said shell above the normally-prevailing oil-water interface and connected with header means therefor in one end of the shell, clean oil skimming weir means across the other end of said shell with its upper edge close to the top thereof, said shell having an oil and sand collecting sump and having upwardly diverging walls merging at their upper portions thereof with the lower portion of the walls of said shell, said diverging walls sloping at an angle in excess of the angle of repose of submerged sand therein whereby substantially all sand settling out of said crude oil gravitates readily along said sloping walls directly into said sump, and means for withdrawing oil and water from said sump.

3,318,449
WATER RE-USE SYSTEM
Clyde E. Jennings, 419 N. Bridge St., Visalia, Calif. 93277, and Clarence A. Rowland, 94 Morningside Drive, Rte. 2, Hidden Valley, Loomas, Calif. 95650
Filed Aug. 3, 1966, Ser. No. 569,867
10 Claims. (Cl. 210—104)

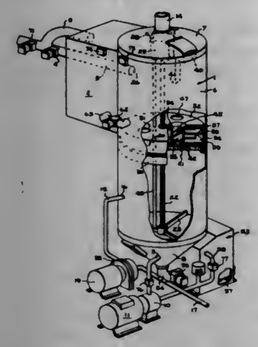


8. A self-acting system for reclaiming used cleaning water and the like for toilet flushing purposes comprising
a filter vessel for filtering the used water,
a first conduit for supplying the used water to the filter,
a storage tank for storing the filtered water,
a second conduit interconnecting the filter vessel and the storage tank for conducting the filtered water from the filter to the storage tank,
an auxiliary flush tank,
a third conduit interconnecting the storage tank and the auxiliary flush tank for conducting the filtered water therebetween,
a toilet fixture,
a fourth conduit interconnecting the toilet fixture and the auxiliary flush tank to conduct the filtered water therebetween,
a fifth conduit interconnecting the filter vessel and a sewer line and means in said fifth conduit for selectively permitting water to flow from the filter vessel to the sewer line, and
means responsive to the liquid level in the auxiliary flush tank for causing the filtered water to flow from the storage tank to the auxiliary flush tank to replenish the filtered water supplied to the toilet fixture.

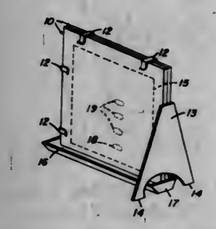
3,318,450
HOME WASTEWATER TREATING UNIT HAVING A MOVABLE FILTER
Kenneth S. Watson and Robert P. Farrell, Jr., Louisville, Ky., assignors to General Electric Company, a corporation of New York
Filed Aug. 3, 1964, Ser. No. 387,110
2 Claims. (Cl. 210—134)

2. A wastewater treating unit comprising:
a vertical chamber including side walls and having a raw wastewater inlet in the upper portion thereof and an outlet in the lower portion thereof spaced from the bottom of said chamber, means for periodically introducing air into the bottom of said chamber to aerate the wastewater contained therein, and means for periodically removing sludge from the bottom of said chamber,

a member mounted in said chamber for movement between a normal position above said inlet and a second position below said outlet,
said member including a peripheral edge portion in sliding sealed engagement with said chamber side walls and including a housing and a filter element below said housing for removing suspended solids from said wastewater during movement of said member to its second position,
said housing including top and bottom walls, a tube opening into said top wall and extending to a point spaced from said bottom wall, and a plurality of portions surrounding said tube and defining a labyrinth passage within said housing having its inlet communicating with the lower end of said tube and an outlet in the top wall of said housing,
drive means effecting movement of said member,
means disposed above said member for dispensing solid pellets of chlorinating material into the upper end of said tube upon initial downward movement of said member towards its second position, and means operable when said member is in its second position for removing liquid from above said member through said outlet.

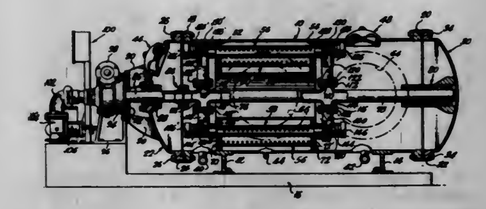


3,318,451
THIN-LAYER CHROMATOGRAPHIC CHAMBER AND SUPPORT DEVICE
Edwin P. Przybylowicz and Albert D. Baitsholts, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed June 14, 1965, Ser. No. 463,735
13 Claims. (Cl. 210—198)



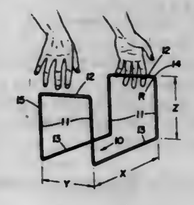
1. A flexible chromatographic element chamber and support device comprising:
a tray for containing an eluant solvent;
a pair of support plates having inner surface layers and raised mating edges for sealing the element in a thin volume open along one edge;
means for supporting said plates with the open edge in said tray while maintaining said mating edges in engagement; and
means co-operating with said plates for supporting said element therebetween so that at least the major portion of its adsorbent surface does not engage either of said layers thereby preventing flooding thereof.

3,318,452
BACKWASH MEANS FOR AN OPEN ENDED MULTIPLE TUBE FILTER ASSEMBLY
Renard P. Adams, 87 Nottingham Terrace, Buffalo, N.Y. 14216
Filed Feb. 1, 1966, Ser. No. 524,276
10 Claims. (Cl. 210—333)



1. Filtering apparatus for removing contaminants from a liquid comprising a filter housing, said filter housing including an inlet section and an outlet section, an inlet conduit in communication with said inlet section, an outlet conduit in communication said outlet section, a plurality of spaced filter tubes disposed within the outlet section, the opposite ends of each of said tubes within the outlet section being open to said inlet section, backwash means movably supported in said housing, said backwash means being movable into position to be in communication with opposite ends of one of said tubes at a particular time, the backwash means being movable so as to be in communication with the opposite open ends of different ones of said filter tubes in a sequential manner.

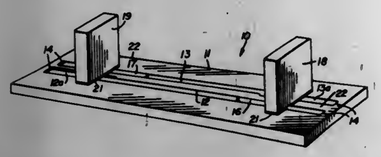
3,318,453
REVERSIBLE FILE HOLDER
John Richard Cavanagh, Toronto, Ontario, Canada, assignor to International Arms Limited, Nassau, Bahamas
Filed Feb. 25, 1965, Ser. No. 435,177
4 Claims. (Cl. 211—11)



1. A reversible file holder comprising in combination: a continuous length of rigid material of uniform cross-section, bent to define four parallel spaced apart leg members of an equal length dimension Z; two parallel spaced apart support members of a dimension X connecting opposite pairs of the same ends of said legs; and two other support members of a different dimension Y extending between the other opposite pairs of said legs at the other ends thereof in parallel spaced

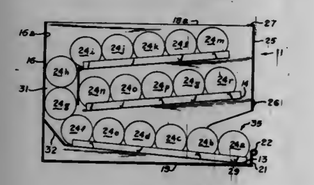
apart relationship, but at right angles to said first mentioned support members, the dimensions X, Y, and Z being proportioned relative to the width W of a file to be handled thereby and wherein Z is of a length between $W/2$ and W, X is of a length between $W/2$ and $3W/2$, and Y is of a length between $W/4$ and $W/2$, and wherein X is greater than Z and Z is greater than Y.

3,318,454
SHELF WITH ADJUSTABLE BOOKENDS
Gerald M. Donlin, 701 7th Ave. N., St. Cloud, Minn. 56301
Filed June 15, 1966, Ser. No. 557,731
2 Claims. (Cl. 211—43)



1. A shelf with adjustable bookends, comprising in combination a horizontally elongated shelf panel provided in its upper surface with a pair of spaced parallel and longitudinally coextensive undercut grooves, said grooves terminating at closed ends spaced longitudinally inwardly from the ends of said shelf panel, and a pair of upstanding and opposing bookend members movable toward and away from each other on said shelf panel, said bookend members being provided at the bottom thereof with guides slidable longitudinally in the respective grooves, said guides having a cross-section corresponding to the undercut grooves, whereby to prevent removal of the guides from the grooves and separation of the bookend members from the shelf panel, said widened end portions being located at the respective opposite ends of said grooves.

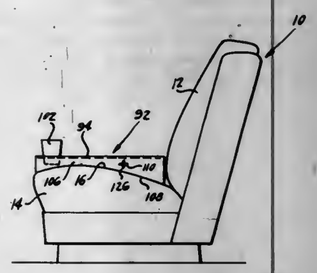
3,318,455
DISPENSING RACK
George Takahashi, Chicago, Ill., assignor to Century Display Mfg. Corp., Franklin Park, Ill., a corporation of Illinois
Filed Aug. 30, 1965, Ser. No. 483,578
2 Claims. (Cl. 211—49)



1. A rack adapted for dispensing cylindrical containers, comprising,
- a frame which includes a vertically extending back wall, a pair of integral oppositely disposed parallel oriented side walls extending from said back wall, and an upper front partial panel member in oppositely disposed parallel orientation with said back wall,
- a top shelf,
- at least one intermediate shelf,
- a bottom shelf,
- said shelves being mounted to said frame in general vertical alignment with each other,
- each of said shelves being provided with parallel oriented track members in spaced apart relationship to each other defining a plurality of container-receiving channels on said shelves for accommodating said containers in side wall to side wall relationship with each other when the end walls of said containers are in engagement with said track members,
- said upper front partial panel terminating above said bottom shelf for permitting access to said bottom shelf for enabling removal of cylindrical containers contained thereon,
- said front panel being hingedly mounted to said frame permitting access to said top and intermediate shelves,
- said top and intermediate shelves being inclined rearwardly,
- a vertical chute defined by the back wall of said frame and the back end of said shelves,
- said vertical chute being slightly wider than the outer diameter of the cylindrical containers adapted to be dispensed from said rack,
- said bottom shelf being inclined forwardly from said vertical chute and being provided with an inclined guide member positioned in said chute for directing cans from said chute onto said bottom shelf,
- a vertically extending lower front partial panel member extending across the front of said bottom shelf adjacent the bottom of said frame for preventing containers on said bottom shelf from indavertently rolling off,
- a top-hinged pivotally mounted bracket provided at the back end of the channel on said intermediate shelf for preventing cylindrical containers contained in said channel on said intermediate shelf from being transmitted into said vertical chute when the portion of said vertical chute immediately adjacent said channel of said intermediate shelf is occupied with other cylindrical containers to be dispensed,

whereby cylindrical containers can be dispensed from said rack on a first in–first out basis without jamming in said vertical chute.

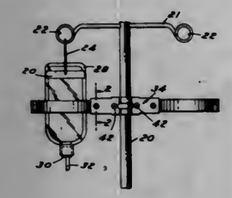
3,318,456
CAR SEAT TRAY
Howard A. Lipe, 2600 Keating St., Apt. 408, Washington, D.C. 20031
Filed Apr. 9, 1965, Ser. No. 446,869
8 Claims. (Cl. 211—72)



1. A car seat tray comprising a substantially planar surface having lateral edges and forming at least one aperture for the reception of a cup; depending spaced apart support means for holding said planar surface substantially horizontal on a bench type automobile seat, said support means comprising two spaced apart elongated planar support members, each having a substantially straight upper edge and a concave lower edge configured to conform to a cross section of the upper surface of a bench type car seat taken longitudinally of a car, and

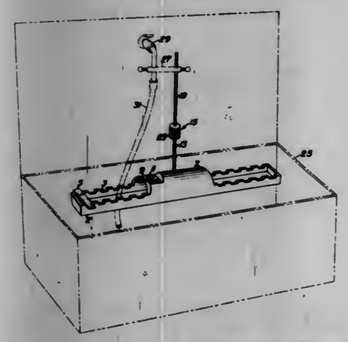
means connecting each of said support members to said planar surface adjacent said lateral edges, said support members being integral with and forming a continuation of said planar surface.

3,318,457
ASSEMBLY FOR USE IN INTRAVENOUS FEEDING
Irwin R. Krasnoff, 1731 Barrington Place, Ann Arbor, Mich. 48103
Filed Oct. 18, 1966, Ser. No. 587,535
4 Claims. (Cl. 211—74)



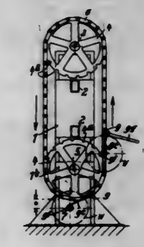
1. An assembly for use in intravenous feeding which comprises:
- (a) a standard in the form of a T-shaped support having a vertical staff and a bottle support loop at each end of the horizontal bar of the T,
- (b) a cross-clamp having a body portion with a central area recessed to receive a portion of the vertical staff and a pair of parallel horizontal flanges extending to each side of said recess,
- (c) means releasably movable toward said central area to lock said cross clamp on said vertical staff,
- (d) a bottle clasp at each end of said body portion comprising a root portion slidably received in each of said pairs of flanges and flexible branch portions positioned to resiliently embrace an inverted intravenous supply bottle supported on a loop of said standard, and
- (e) means to position said root portion of said bottle clasp in one of a plurality of positions of horizontal adjustment in a pair of flanges to accommodate various T-bar widths and bottle sizes.

3,318,458
ADJUSTABLE SLIDE STAINING HOLDER
Sidney Rothberg, 5508 Elderon Ave., Baltimore, Md. 21215
Filed June 24, 1965, Ser. No. 466,870
9 Claims. (Cl. 211—113)



1. An adjustable slide staining holder for use in maintaining stained slides in a level position, comprising an open structural rectangular unit having engagement slots therein for mounting slides thereon, said unit having a solid surface midway between said ends, a suspension rod attached centrally to said solid surface, a leveling device fastened to said surface, an extension rod, means of coupling said suspension rod to said extension rod, and means fastening said extension rod onto a faucet.

3,318,459
DEVICE INCLUDING A CHAIN DRIVE FOR STORING AND DISPLAYING ROLLED-UP MERCHANDISE
Willy Schneider, Vorst, Post Schwenke, Westphalia, Germany; Ingeborg Schneider, nee Hefendehl, heir of said Willy Schneider, deceased
Filed Oct. 12, 1965, Ser. No. 495,150
Claims priority, application Germany, June 22, 1965, Sch 37,260
8 Claims. (Cl. 211—122)

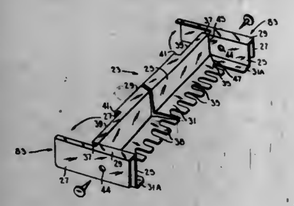


1. A device for storing and displaying rolls of rolled-up merchandise in sheet-form, such as floor coverings of various materials, comprising in combination:
- (a) a pair of uprights;
- (b) substantially horizontal beams joining said pair of uprights to form a stand jointly with said pair of uprights;
- (c) a first pair of sprocket wheels arranged at a relatively low level each adjacent one of said first pair of uprights and supported by said stand;
- (d) a second pair of sprocket wheels arranged at a relatively high level each adjacent one of said pair of uprights and supported by said stand;
- (e) a pair of endless plate link chains each supported by one of said first pair of sprocket wheels and one of said second pair of sprocket wheels, said pair of chains including hollow link-connecting pins;
- (f) a pair of hooks each pivotally supported on one end thereof by one of said pair of chains;
- (g) manually operable means for varying the spacing between the points of pivotal support of said pair of hooks and said link-connecting pins of the pair of chain links of said pair of chains immediately adjacent said points of pivotal support; and
- (h) pin means for supporting rolls of merchandise, said pin means being inserted into a pair of hollow link-connecting pins and projecting at right angles axially inward from the pair of planes generally defined by said pair of chains.

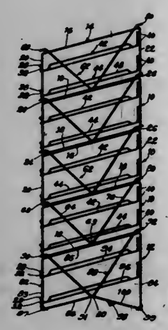
3,318,460
GARMENT-HANGER BAR
Kenneth F. Becker, Hanley Hills, Mo. (7701 Underhill Drive, St. Louis, Mo. 63133)
Filed July 1, 1965, Ser. No. 468,713
11 Claims. (Cl. 211—123)

1. A garment-hanger bar composed of bendable sheet metal, comprising a substantially straight downwardly open channel shape having a top wall with downwardly extending front and rear walls, a ledge extending outwardly from the front wall, said channel shape having

relieving slits adjacent its ends in the top and rear walls, notches in the ledge adjacent said slits, each slit being shaped to relieve end portions of the bar for bending on the front, each notch in the ledge permitting said bending, whereby several bars may be nested for shipment and thereafter end portions of the channel shape may be manually bent across said front wall to form downwardly open transversely extending supporting hooks having top and side walls.



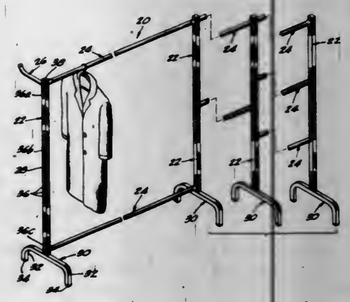
3,318,461
DISPLAY STAND
Howard J. Marschak, Evanston, Ill.
(855 W. North Ave., Chicago, Ill. 60622)
Filed May 10, 1965, Ser. No. 454,432
8 Claims. (Cl. 211—133)



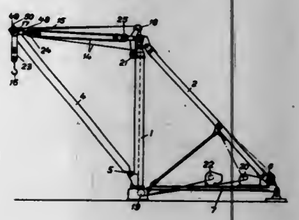
1. A tier of trays, baskets, containers or like structures, in which each such structure has a pair of spaced side members of a generally parallelogram configuration, said side members having self-contained retaining means adapted to receive a portion of the side member of the adjacent upper structure and to interlock and couple the two adjacent side members to form a tier of such structures, said self-contained retaining means comprising a coupling member formed of a looped wire member which is welded to the side member to extend upwardly of the parallelogram of the side member at opposite ends thereof.

3,318,462
KNOCKDOWN MODULAR RACK
Andrew Spiegl, 4603 Ethel Ave., Sherman Oaks, Calif. 91403, and Sidney H. Bacon, 18631 Pasadero Drive, Tarzana, Calif. 91356
Filed May 24, 1965, Ser. No. 458,179
4 Claims. (Cl. 211—177)

1. A modular knockdown rack comprising: a pair of generally identical normally upright tubular supporting posts of rectangular cross-section, each said post having vertically spaced, axially extending and axially aligned slots in at least two sides thereof and a lower supporting base; and a normally horizontal tubular supporting bar having its ends flattened to form connecting keys engageable in adjacent pairs of said post slots, respectively, thereby to releasably interlock said bar and posts, each said key comprising flat contacting side walls having integrally joined normally upper and lower edges and axially presented edges, there being a normally upper generally L-shaped locking slot in each said key having a first leg disposed in a plane generally normal to the axis of the respective bar and a second leg extending from the lower end of said first leg and axially through said axially presented edges of the respective key side walls, there being a second normally lower locking slot in each said key disposed in said plane of said first leg of the adjacent upper locking slot and opening through said normally lower edges of the respective key side walls, said locking slots of each said key defining upper and lower locking tongues engageable in an adjacent pair of said post slots, respectively; each said key having a position of interlocking engagement with its respective post wherein the wall portions of the respective post below the respective upper and lower post slots engage in said first slot leg and said lower slot, respectively, of the adjacent key.

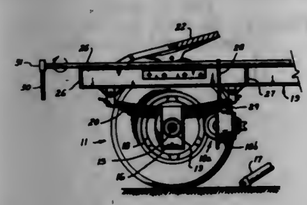


3,318,463
HEAVY HOISTING CRANE
Arne Mattson and Bengt Angersson, Vasteras, Sweden, assignors to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden, a corporation of Sweden
Filed Jan. 27, 1965, Ser. No. 428,399
Claims priority, application Sweden, Feb. 3, 1964, 1,292/64; Feb. 4, 1964, 1,347/64; Mar. 24, 1964, 3,688/64; Apr. 2, 1964, 4,057/64; June 1, 1964, 6,647/64; Nov. 5, 1964, 13,342/64
4 Claims. (Cl. 212—48)



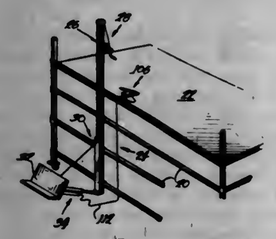
1. Hoisting crane for specially heavy hoisting, comprising a substantially vertical crane mast part, bar parts supporting the crane mast, a crane arm part turnable around a vertical as well as around a horizontal axis and attachment means fixing the position of the crane mast part and its supporting bar parts, said main parts of the crane being removably fixed to each other and to said attachment means, the weight of each such part being less than 10 percent of the maximum lifting capacity of the crane, a platform carrying winch machinery for the operation of the crane, said crane mast part and one of the supporting bar parts being fastened to the platform, the crane mast part being foldable in the longitudinal direction of the platform, and means including a pivoted support trestle connectable to the winch machinery for raising the mast part.

3,318,464
APPARATUS FOR SUSPENDING A DIFFERENTIAL GEAR ASSEMBLY DURING INSTALLATION ON AN AXLE
Wilburn K. Vernor, 805 Pin Money Drive, Clute, Tex. 77531
Filed Jan. 17, 1966, Ser. No. 521,014
2 Claims. (Cl. 212—134)



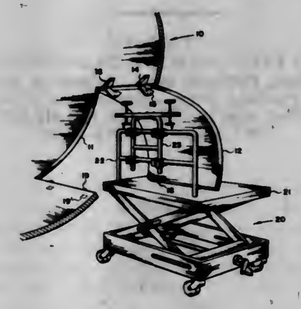
1. Apparatus for suspending a third member for mounting on the axle of a truck where the truck has a fifth wheel mounted on its bed directly above the position where the third member is to be connected to the axle, comprising, an elongated shaft axially movable horizontally parallel to the longitudinal axis of the truck under the fifth wheel and above the bed to be slidably and rotatably supported by the bed and a flexible line having one end attached to the shaft and one end adapted to be attached to the third member to wrap around the shaft as it is rotated and lift the third member sufficiently to be moved into position to be mounted on the axle by sliding the shaft axially on the bed under the fifth wheel.

3,318,465
LOAD LIFTING APPARATUS
William J. Fisher, Du Page County, Ill., assignor of one-half to Gerson Electric Construction Company, Chicago, Ill., a corporation of Illinois
Filed May 10, 1965, Ser. No. 454,591
8 Claims. (Cl. 214—1)



8. An apparatus for lifting a load to an elevated position comprising in combination:
(a) vertical track means adapted to be secured to a supporting structure,
(b) a carriage assembly slidably secured to said track means,
(c) elongated means for supporting a load carrying platform pivotally secured at the lower end to the lower end of said carriage assembly,
(d) means for carrying a load connected to the upper end of said elongated means,
(e) means for pivoting said elongated supporting means from a substantially horizontal to a near-vertical position and for slidably moving said carriage assembly and said elongated supporting means along said vertical track means, and
(f) means connected between said load carrying platform and said elongated supporting means including means for extending said platform relative to said elongated supporting means.

3,318,466
TOOL FOR REMOVING AND REPLACING COMPONENT STRUCTURES OF AIRCRAFT
Conwell B. Baxley, Douglasville, Ga., assignor to Lockheed Aircraft Corporation, Burbank, Calif.
Filed June 16, 1965, Ser. No. 464,488
2 Claims. (Cl. 214—1)

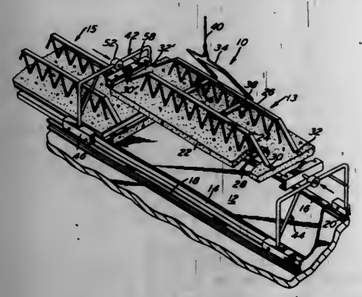


1. The combination with a rollable workstand having a vertically adjustable platform and an upstanding railing along one side thereof, of a tool adapted for cooperation with said workstand in the removal and replacement of component structures of aircraft comprising a plurality of parallelly disposed rigid members interconnected by at least one rigid crosspiece, engagements carried by each said member and projecting therefrom at right angles to each said crosspiece, said engagements of each said member being in spaced relation one to another for coaction with complemental means carried by said railing whereby said members are secured to said workstand in an upright position, a support fixedly secured to the upper corresponding ends of said members, a vertically and horizontally adustable extension adapted to contact a component structure to be removed and replaced from the aircraft mounted on said support adjacent each of its ends, and an upright projection on said support locating the center of weight distribution thereon whereby said component structure may be positioned with reference thereto.

3,318,467
CONCRETE PANEL MANIPULATING APPARATUS
Woodrow W. Frantz, Nazareth, Pa., assignor to Conodec Inc., Easton, Pa., a corporation of Pennsylvania
Filed Mar. 28, 1966, Ser. No. 537,768
5 Claims. (Cl. 214—1)

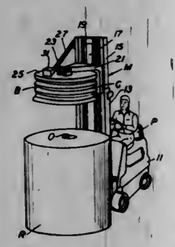
2. Concrete panel manipulating apparatus comprising first and second frames each supporting a panel engaging member mounted for rotation about a horizontal axis, said members projecting towards each other and being C-shaped in transverse cross section for receiving an end

of a panel member disposed between said frames, means on each member for coupling each member to an end of a panel received therein so that each member supports



an end of a panel while being rotatable therewith through an arc of 180° about said axis, said means including notches on the free edges of at least one of the legs defining each C-shaped member.

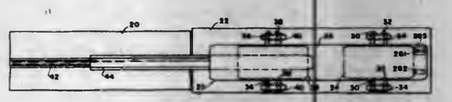
3,318,468
VACUUM TYPE LOAD HANDLING MECHANISM
John E. Olson, Portland, Oreg., assignor to Hyster Company, Portland, Oreg., a corporation of Nevada
Filed Aug. 19, 1964, Ser. No. 390,538
19 Claims. (Cl. 214—650)



10. In a suction type load pick-up apparatus.
a bellows closed at its opposite ends,
means supporting said bellows with its longitudinal axis vertical,
a vacuum head at the lower end of said bellows for engaging a load,
a source of vacuum communicating with the interior of said bellows,
first valve means for placing the interior of said bellows in communication with the ambient air,
and second valve means for controlling the communication of said head with the interior of said bellows and for placing said vacuum head in communication with ambient air while maintaining a negative pressure within the interior of said bellows.

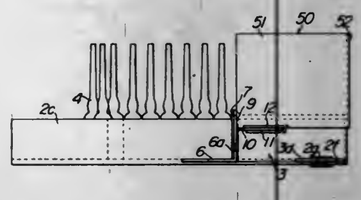
3,318,469
EXTENSIBLE CARRIER FOR A PARKING APPARATUS
Allen R. Bigler, 6210 E. Burnside, Portland, Oreg. 97215
Continuation of application Ser. No. 267,090, Mar. 22, 1963. This application Mar. 19, 1965, Ser. No. 443,776
8 Claims. (Cl. 214—95)

5. In a carrier for a parking apparatus,
an elongated, inverted channel,
a first crab in one end portion of the channel and fixed against movement relative to the channel,
a second crab in the other end portion of the channel and movable along the channel,
elongated guide rails fixed to the inner faces of the flanges of the channel,



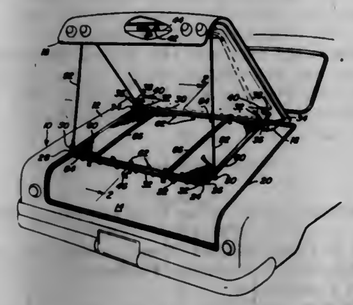
elongated guide shoes on the sides of the second crab engaging and positioned above the guide rails,
and means for moving the second crab along the channel.

3,318,470
APPARATUS FOR HANDLING AMPULES
Hideo Tatibana, 2–33 Showadori, Nakano-ku, Tokyo, Japan
Filed Feb. 28, 1966, Ser. No. 530,553
5 Claims. (Cl. 214—301)



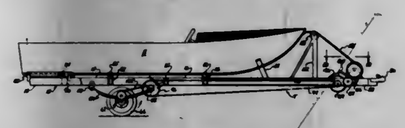
1. An apparatus for handling ampules comprising in combination feeding means, receiving means, retaining means and transferring means, said feeding means comprising a substantially horizontal table consisting of ampule-supplying and arranging areas and provided with an electro-magnetic vibrator fixed thereto and with parallel partition walls on the upper face of the ampule-arranging area to define parallel paths for the ampules, whereby the ampules supplied to and set upright on the ampule-supplying area at random travel into the ampule-arranging area as arranged into rows within the paths and are fed to the receiving means, said receiving means comprising a floor, parallel partition walls on the floor corresponding to the partition walls of the feeding means and an end wall provided on the floor traverse to the partition walls, and adapted, when the receiving means is set so that the floor is in continuation and at the same level with the table of the feeding means with the partition walls thereon in horizontal alignment with the partition walls of the feeding means, to receive ampules from the feeding means between the partition walls on the floor until stopped by the end wall, said retaining means comprising ampule supporting parallel banks rigidly connected each other with the center-to-center distances therebetween same with the distances between the partition walls of the receiving means and registering means for registering the retaining means with respect to the receiving means so that the ampule supporting banks are placed above the partition walls of the receiving means in vertically aligned relation, whereby the shoulders of the ampules received in the receiving means are held on the ampule supporting banks when the ampule receiving means together with the retaining means are turned upside-down and the receiving means is removed from engagement with the ampules, said transferring means comprising a sloping bed for receiving ampules from the retaining means at the upper portion of the bed as the ampules are pushed out from the retaining means along the ampule supporting banks line by line of the ampules to slide on the bed down onto a conveyor.

3,318,471
VEHICLE TRUNK LID CLOTHES CARRIER
Weldon M. Barr, Mount Vernon, Ohio (3500 W. Lakeview, Sebring, Fla. 33870)
Filed Nov. 12, 1965, Ser. No. 507,313
7 Claims. (Cl. 214—450)



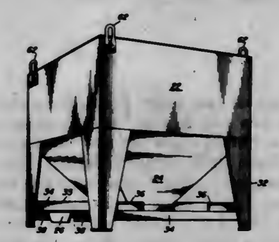
1. In combination with a vehicle luggage compartment cover which is generally horizontally disposed when closed and of the type hingedly secured along its front marginal edge portion to a portion of a vehicle body defining a corresponding boundary of a luggage compartment opening for movement between a closed position and a rearwardly and upwardly inclined open position, a clothes carrier supported solely from said cover and including an open support frame having a first marginal side edge portion hingedly secured to said one edge portion beneath the latter for rotation about an axis generally paralleling the axis of rotation of said cover relative to said body portion, coacting latch means carried by the free swinging edge portion of said frame and said cover releasably securing said free swinging edge portion of said frame to said cover, said frame including a flexible support panel stretched across and supported therefrom and extending from said first side edge portion to the remote side edge portion of said frame, and at least one clothes hold-down member extending between opposite marginal edge portions of said frame and disposed over the side of said support panel facing said cover and at least one elongated flexible tension member secured between said free swinging edge portion and said cover limiting swinging movement of the free edge portion of said frame away from said cover to a position with said frame generally horizontally disposed when said cover is in its open position.

3,318,472
TRAILER
Hadley T. Clark, 1213 17th Ave., Rockford, Ill. 61108; Gladys J. Clark, executor of said Hadley T. Clark, deceased
Filed Apr. 28, 1965, Ser. No. 451,561
17 Claims. (Cl. 214—506)



1. A trailer comprising a frame, spring suspension means mounted on the frame for resiliently supporting the same, wheel support means mounted on the spring suspension means for turning movement relative thereto about a generally horizontal first pivot axis, wheel means and means mounting the wheel means on the wheel support means for rotation about a second axis eccentric from the first pivot axis, said spring suspension means including a member pivotally connected to said frame for movement about a third axis generally parallel to said first pivot axis, a first sprocket wheel connected to said wheel support means for rotation therewith about said first pivot axis, a second sprocket wheel rotatably supported on said frame substantially concentric with said third axis, connecting means operatively connecting said first and second sprocket wheels whereby the wheel support means is rotated when the second sprocket wheel is rotated, and operating means for rotating said second sprocket wheel and thereby raising and lowering the trailer.

3,318,473
PORTABLE DISPENSING BIN
Benjamin D. Jones, A. E. Mullinix Road, Woodbine, Md. 21797, and Robert E. Wheeler, Marriottsville, Md. 21104
Filed Aug. 11, 1964, Ser. No. 388,831
5 Claims. (Cl. 214—621)

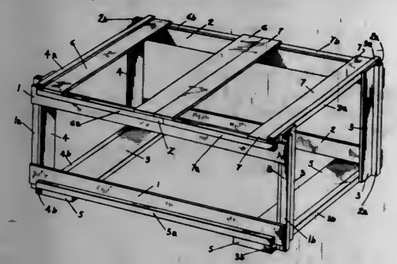


1. A bin for handling by the prongs of a forklift truck, comprising structure defining a container having its bottom terminating in the form of a hopper having an opening in its bottom, a first pair of horizontally spaced channels mounted to said structure on a pair of opposite sides of said opening and extending in one direction for engaging the prongs of said forklift truck to obtain said handling, a guide support frame positioned between said first pair of channels, a gate slidably mounted within said guide support frame for sliding between said first pair of channels and sealing said opening, said sliding gate having a pair of flanges extending along the longitudinal edges thereof, said guide support frame including a pair of spaced channel members for receiving said pair of flanges of said sliding gate, a second pair of horizontally spaced channels mounted to said structure on a different horizontal level than said first pair of channels and extending at substantially right angles to said first pair of channels and on a different pair of opposite sides of said opening for engaging said prongs when positioned substantially at right angles to said one direction to obtain said handling the hopper opening, gate and guide support frame each being located substantially at the uppermost surface of said first pair of channels and at the lowermost surface of said second pair of channels.

3,318,474
INTERLOCKING DEMOUNTABLE CONTAINER
Lawrence F. McDonald, 25 Mountain View Ave., East Greenbush, N.Y. 12061
Filed Aug. 28, 1964, Ser. No. 392,784
1 Claim. (Cl. 217—12)

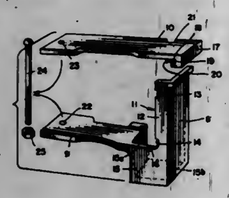
A self-interlocking knockdown container, comprising a plurality of walls held together by eight tightly interlocking corners, said container further comprising a tightly corner interlocking bottom, two tightly corner interlocking sides, two tightly corner interlocking ends, and a two-sectioned similarly constructed tightly corner interlocking top, wherein said two ends each have an upper top and double corner interlocking member fastened

along the tops of said ends and overhanging said container ends, to which they are each fastened, said two-sectioned container top having side flanges fastened underneath each side of each top section, and extending along the outside of the top edges of said side members and projecting under said upper top overhanging ends of said container ends, thus directly and closely embracing the tops of said two container sides, other container top members abutting said tops of said ends, and secured to said side flanges, and still other top members also abutting



each other, one of said latter abutting top members overhanging said top side flanges, at their separation points, a container in which, when the two similarly constructed top sections have their corner members fitted under the top corner members of said two container ends and said two container top sections are pressed downward into position over the tops of said two container sides, they thereupon stiffen and tend to tighten the interlocking of said bottom, the ends and the sides of said container with said two-sectioned container top.

3,318,475
WIRE CONNECTION COVER
William E. Allison, 2109 Burlington St., Ottawa, Ill. 61350
Filed June 29, 1964, Ser. No. 379,047
3 Claims. (Cl. 220—3.94)



1. A wire connection cover adapted for use in protecting the connection between electrical wires and terminals on the housing of a remote controlled vehicle gear shifting mechanism having a flanged neck thereon for mounting on a vehicle differential, said cover comprising

(a) a first elongated leg having a flange extending from one of the longitudinal edges thereof adapted to abut a side of the neck on the housing, said flange being relatively wide adjacent one end thereof and being relatively narrow throughout the remainder of its length, said first leg and flange being adapted to form a protective covering about the terminals,

(b) a second leg extending outwardly from adjacent one end of said first leg and spaced intermediate the ends of said first leg and adapted to pass along a second side of the said neck,

(c) a third leg extending outwardly from adjacent the other end of said first leg and adapted to pass along a third side of the said neck,

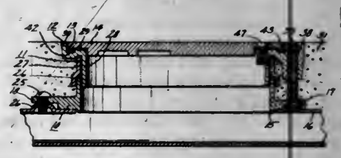
(d) an opening through one of said legs to permit the electrical wires to be received within said protective covering for connection to the terminals,

(e) and means for releasably connecting said legs together when the cover is on the housing, thereby locking the assembled cover in position for protecting the electrical wire connections from deterioration from chemicals, weather, and the like,

(f) a side member connecting one end of said second leg with the relatively wide part of said flange, and

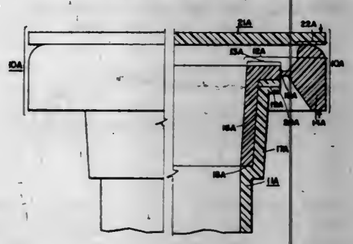
(g) An end member connecting together said first leg, said side member, and the relatively wide part of said flange, thereby forming a box-like enclosure at one end of said first leg.

3,318,476
JUNCTION UNIT FOR UNDERFLOOR WIRE DISTRIBUTION SYSTEM
Edward B. Clark, Milford, Conn., assignor to Jones & Laughlin Steel Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Continuation of application Ser. No. 157,225, Dec. 5, 1961. This application Jan. 26, 1965, Ser. No. 430,232
3 Claims. (Cl. 220—3.4)



3. A junction unit for use with a wiring header duct in an underfloor wire distribution system comprising: a header ring, means for fastening the header ring to a wiring header duct, an elevating ring having a lower portion which fits over the upper end of the header ring and having an upper cylindrical portion resting on the upper end of the header ring, a leveling ring having a lower cylindrical portion positioned within the elevating ring and having a flange extending outwardly from the upper end of the cylindrical portion over the upper end of the elevating ring, means connecting the leveling ring and the header ring for adjustably positioning the leveling ring above the elevating ring, and a cover fitting against the flange.

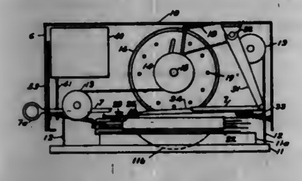
3,318,477
PLASTIC CLOSURES FOR PREFORMED CONTAINER BODIES
Charles A. Southwick, Jr., Hope, N.J., and John S. Rynhart, Perkiomenville, Pa., assignors to Plastomatic Corporation, Malvern, Pa., a corporation of Pennsylvania
Filed Mar. 29, 1965, Ser. No. 443,328
12 Claims. (Cl. 220—47)



1. Closure means for an open-ended container body comprising

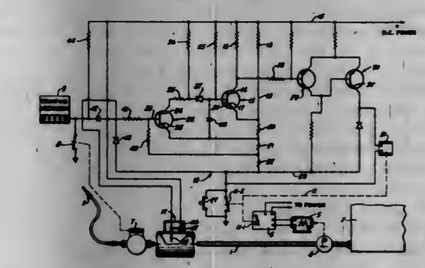
a deformable collar element having a body-engaging portion shaped and dimensioned to fit the open end of said container body and having a tear-off rim joined to said body-engaging portion of the collar element by a thin intermediate rupture section which can be broken by application of pressure to said rim when said collar element is stiffened by attachment to the container body.

3,318,478
VENDING MACHINE
Walter R. Hart, 33 5th Ave., Port Washington, N.Y. 11050
Filed Oct. 19, 1965, Ser. No. 497,613
14 Claims. (Cl. 221—227)



1. A vending machine for folded papers comprising a housing having a horizontal opening, a vertically movable platform in said housing for supporting a stack of folded papers, means for progressively raising said platform as papers are dispensed to maintain the top paper of said stack approximately in horizontal alignment with said opening, feeding means engaging the fold of the top paper to move it horizontally into said opening for withdrawal by a customer, and control means connected with said raising means and engaging the top paper of the stack to control said raising means to position the top paper of the stack substantially at the level of said opening, said control means being movable by said top paper as it is moved horizontally by said feeding means to lower said platform.

3,318,479
DATA ACQUISITION MONITORING SYSTEM
Tim H. Houle, Wauwatosa, Wis., assignor to A. O. Smith Corporation, Milwaukee, Wis., a corporation of New York
Filed July 6, 1964, Ser. No. 380,400
8 Claims. (Cl. 222—23)



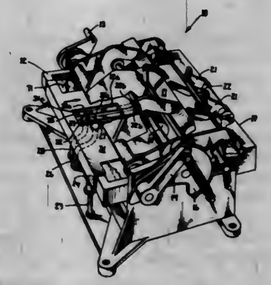
1. In a flow responsive control system for controlling and recording liquid flow wherein the flow is controlled by an electrically operated means and a pulse switch is driven by a flow meter and is connected to open and close a pulsing circuit to a quantity flow device, the improvement comprising

a relay means having normally closed contacts for conditioning the electrically operated means,

a timing circuit including a normally conducting transistor and a normally non-conducting transistor interconnected whereby the conducting transistor is turned off by turning on of the non-conducting transistor and the normally conducting transistor is then turned on a selected period after the non-conducting transistor reverts to its normal state, said timing circuit having input circuit means for connection to the pulsing circuit to fire the normally non-conducting transistor in accordance with the pulse transmission to the quantity flow device, and

an amplifier having an input means connected to the output means of the normally conducting transistor and having an output means connected to control the relay means to operatively disable the electrically operated means if the liquid flow fails to successively actuate the pulse switch at a faster rate than said selected period.

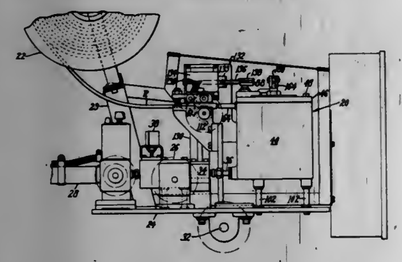
3,318,480
PRINTER TICKET SCANNING APPARATUS
Robert C. H. Simpson, 6102 N. Parker Ave., Indianapolis, Ind. 46220
Filed June 7, 1965, Ser. No. 462,017
5 Claims. (Cl. 222—30)



1. In a registering counter for totaling product delivery of the type having a movable, invoice ticket-receiving table manually movable between an initial position, a start-print position and a finish-print position, and adapted to print a starting product condition indicia on an invoice ticket accommodated on the ticket-receiving table when in start-print position and to print a finish product condition indicia on the invoice ticket when the ticket-receiving table is in finish-print position, a means for preventing unauthorized product delivery comprising: a first air pressure line terminating in a first orifice adjacent to and obstructed by the ticket-receiving table when in either its initial or its finish-print positions, a second and a third air pressure line terminating in a second and a third orifice, respectively, which are adjacent to said table but unobstructed thereby in any of the table positions, a source of control air pressure for pressurizing all three of said air pressure lines, first and second pressure responsive switches closed upon a predetermined pressure decrease in said first and second air pressure lines respectively, a third pressure responsive switch closed upon a predetermined pressure increase in said third air pressure line, a product delivery controller operable when electrically energized to deliver a product from storage, circuit means connecting said first, second and third pressure responsive switches and said product delivery controller with a source of electrical power whereby said controller is energized only when all three of said pressure responsive switches are closed, and an invoice ticket adapted to be accommodated on the ticket-receiving table having an aperture therethrough which registers with said second orifice when the table is in its start-print position, said third orifice being positioned relative to the ticket-receiving table so as to be obstructed by said invoice ticket only when said ticket is in proper position on the table, whereby said pressure responsive switches

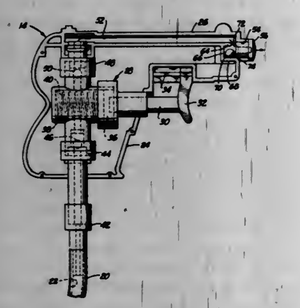
can energize said product delivery controller only when the ticket-receiving table has properly positioned on it said apertured invoice ticket and the ticket-receiving table is in its start-print position.

3,318,481
DEVICES FOR MELTING AND DISPENSING MOLTEN THERMOPLASTIC MATERIAL
Harry Phillips, Hamilton, and Roland B. Lessard, Salem, Mass., assignors to United Shoe Machinery Corporation, Boston, Mass., a corporation of New Jersey
Filed Dec. 27, 1965, Ser. No. 526,652
15 Claims. (Cl. 222—56)



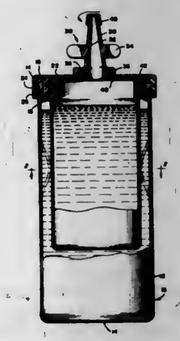
1. A device for melting and dispensing molten thermoplastic material supplied in the form of a solid flexible rod comprising a melt body formed to provide a melt chamber of a size and shape to present relatively large surface areas to the opposite sides of the leading end of a solid rod of thermoplastic material fed into said chamber, an inlet passageway leading into one end of the chamber and an outlet passageway leading outwardly from the opposite end of the chamber, means for heating said melt body, a valve in said inlet passageway, means for feeding the leading end of a solid rod of thermoplastic material through the inlet passage and said valve into the melt chamber, and means responsive to pressure of molten material in said melt chamber for opening and closing said valve and for controlling the operation of said rod feeding means.

3,318,482
WATER GUN
Carl Voce, Gardena, Calif., assignor to Eldon Industries, Inc., Hawthorne, Calif., a corporation of California
Filed May 7, 1965, Ser. No. 454,039
3 Claims. (Cl. 222—79)



1. A water gun, said water gun comprising:
a reservoir comprising an enclosed receptacle adapted to contain water and means to withdraw water from said receptacle from adjacent the bottom thereof;
a gun comprising a gun shaped structure having a handle and having a barrel, a pump located in said handle, said pump being adapted to be manually operated, said pump having an intake connection and a discharge connection, said intake connection being connected to said means to withdraw water from said receptacle, a discharge nozzle adapted to direct the flow of water outwardly therefrom in accordance with the orientation of said barrel, a closed discharge water passage connected between said discharge connection of said pump and said discharge nozzle, and gravity operated valve structure within said discharge water passage adjacent said nozzle, said gravity operated valve structure preventing water flow out of said reservoir when said nozzle is directed generally downwardly.

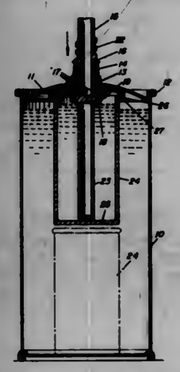
3,318,483
COMPARTMENTED SQUEEZE DISPENSING DEVICE
John Paul Modderno, Gambrills, Md., assignor to Modern-Lab., Inc., Baltimore, Md., a corporation of Maryland
Filed June 13, 1966, Ser. No. 557,181
7 Claims. (Cl. 222—136)



1. A compartmented dispensing device for separately storing ingredients of a multi-component system until use is desired comprising, a resilient outer container having an opening in one end thereof, an inner container having an opening in one end thereof, said inner container adapted to fit inside said outer container to form a compartment between the containers, closure means adapted to be attached to the open end of each container, said closure means attached to said inner container including a rotatable discharge means therein communicating with said inner container so that rotation of said discharge means disengages said inner container from its closure means when a portion of said outer container is compressed to hold said inner container so as to effect communication between said inner and outer containers.

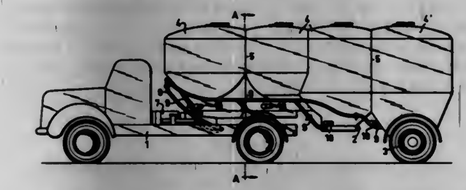
3,318,484
COMPARTMENTED PRESSURIZED DISPENSING DEVICE
John P. Modderno, Gambrills, Md., assignor to Modern-Lab., Inc., Baltimore, Md., a corporation of Maryland
Filed May 17, 1965, Ser. No. 456,051
4 Claims. (Cl. 222—136)

1. A compartmented dispensing device for separately storing ingredients of a multi-component pressure dispensing system until use is desired, comprising an outer container having an opening in one end thereof, dispensing valve means mounted in said opening for discharging the contents of the device to the atmosphere, an inner container having an opening in one end thereof disposed within said outer container, a closure for said inner container mounted in said outer container opening supporting said inner container in said outer container, and means operatively connected to said valve means for disengaging



said inner container and means connecting said valve means and said closure normally maintaining said disengaging means in its inoperative position; whereby a downward pressure exerted on said valve means effects disengagement of said inner container from said closure to permit communication between said containers.

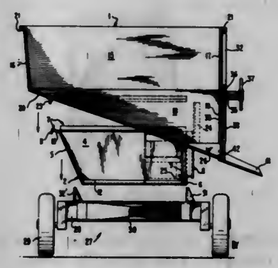
3,318,485
TANK VEHICLES FOR THE TRANSPORTATION OF POWDERY MATERIALS
Lars Erik Landeborg, Malmo, Sweden, assignor to Franz Wherrman AB Konsulterande Ingeniorsbyra, Malmo, Sweden, a Swedish firm
Filed June 16, 1965, Ser. No. 464,389
6 Claims. (Cl. 222—136)



1. A tank vehicle for transporting powdery materials, comprising a chassis, a closed container resting on said chassis, flat vertical partitions in said container subdividing it into several upright partial containers, said flat vertical partitions being made from thinner sheet metal than said outer side walls, each of said partial containers having arc-shaped outer side walls, pneumatic means for creating an overpressure in said partial containers and for pressing out powdery material from the bottom end thereof, and means for providing permanent pressure equalizing communication between said partial containers adjacent the top thereof.

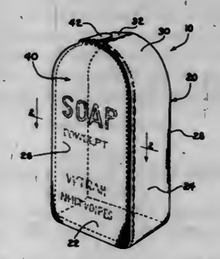
3,318,486
GRAVITY FLOW DISPENSING BODY
Paul C. Felix, Taylorville, Ill., assignor to Circle Steel Corporation, Taylorville, Ill., a corporation of Illinois
Filed Feb. 26, 1965, Ser. No. 435,500
7 Claims. (Cl. 222—143)

1. A gravity flow material dispensing body of the type adapted for connection to a wagon gear comprising, a base structure having at least three upwardly diverging wall portions, flanges provided on the upper edges of said wall portions, a hopper member having at least three upwardly diverging side wall portions and a downwardly converging bottom wall means, said hopper member being partially nested in and supported by said base structure with said bottom wall means extending into said base structure, connecting means attached to said bottom wall



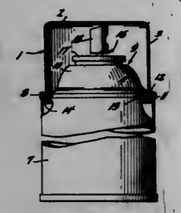
means transverse and longitudinal thereof, and means connecting said connecting means to said flanges, whereby during shipment with the hopper member disconnected from said base structure a plurality of base structures may be nested within each other and a plurality of hopper members may be nested within each other.

3,318,487
COMPOSITE PACKAGE
Bryant Edwards, Clarendon Hills, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill., a corporation of Delaware
Filed June 28, 1965, Ser. No. 467,314
7 Claims. (Cl. 222—173)



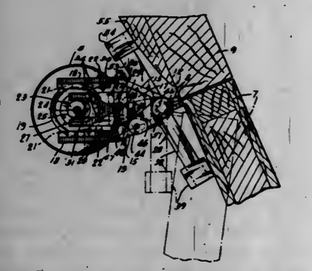
1. A composite package comprising an elongated container body of polygonal transverse cross section and having one open side, said container body having a vertical height substantially greater than either the width or depth thereof and including a supporting base portion extending substantially normal to said one open side and having a surface area of sufficient size so as to be capable of supporting said elongated container body in an upright position, a peripherally extending and substantially circumferentially continuous flange integrally joined to and inwardly directed from material portions adjacent the periphery of the one open side for a relatively small distance in proportion to the extent of the opening of the one open side, a panel element substantially coextensive with and resting upon the peripherally extending and substantially circumferentially continuous flange and being joined thereto by sealing means, and opening means provided in said composite pacgage to permit egress of the contents thereof.

3,318,488
PLASTIC AEROSOL CAP WITH VENT NOTCHES IN SKIRT, AND AEROSOL CAP ASSEMBLY
Charles Oden Barnes, Ellicott City, Md., assignor to The Eastern Cap and Closure Company, Baltimore, Md., a corporation of Maryland
Filed Mar. 18, 1965, Ser. No. 440,814
6 Claims. (Cl. 222—182)



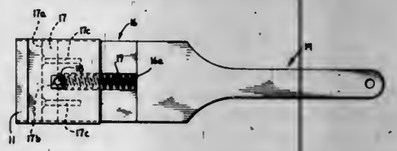
1. An assembly of a cylindrical dispensing container having an inwardly and upwardly tapered annular neck portion on which a valve dispensing unit is positioned, the said neck portion having a ring at its lower extremity of larger circumferential dimensions than any portion of the annular neck above it and having a circular recess directly below the said ring in the neck portion, which neck portion and valve dispensing unit are formed of metal subject to corrosion by moisture, and the bottom of the neck portion is joined to the top portion of the cylindrical side of the said container, forming a seam, a circumferential chuck wall between the bottom of the neck portion and the upstanding wall, an inverted cup-shaped plastic cover for the container, the lowermost extremity of the cylindrical skirt of the cover having a slightly outwardly projecting off-set and also an inwardly-vertically tapering off lowermost portion coming to a pointed edge slightly above the bottom rim of the cover to fit into the said circular recess below the ring on the annular neck, said skirt also having a plurality of substantially equi-spaced notches therein opening into the rim of the skirt which are of a sufficient height and dimension each that when the rim edge of the skirt rests upon the chuck wall channel of the container there is ample space through the said notches for the passage of air between the inside of the plastic protective cover and the outside of the assembly.

3,318,489
DOOR OPERATED SPACE CONDITIONING DISPENSER
Howard K. Graves, Cleveland, Ohio, assignor to Ray Dolac Enterprises, Inc., Niles, Ill., a corporation of Illinois
Filed Dec. 6, 1965, Ser. No. 511,661
9 Claims. (Cl. 222—180)



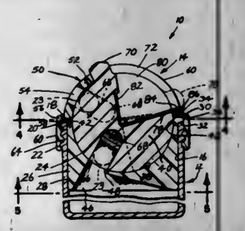
1. In combination in an assembly for dispensing an atmosphere-conditioning material such as deodorant into a room space responsive to swinging of a door about a hinge mounting it on a door frame;
a door hinge replacement pin;
a bracket mounted on and entirely supported by said replacement pin so that the assembly can be dropped into place by removing the conventional hinge pin from the hinge of the door and replacing it with said replacement pin;
means carried by said bracket and said replacement pin for operating an atomizing-nozzle-equipped dispensing container responsive to swinging movement of the door about said replacement pin; and
means on said bracket for supporting the dispensing container in position to be operated on by said operating means.

3,318,490
POINTING TOOL
Loren M. Ware, Kennard, Ind., assignor of one-half to Joseph E. Johns, Shirley, Ind.
Filed Aug. 26, 1965, Ser. No. 482,691
2 Claims. (Cl. 222—340)



1. A tool for injecting mortar into a crevice comprising: a handle member having a bifurcated end of reduced cross-section, a plunger facing member spanning the bifurcated end of said handle member and secured thereto, a tubular, mortar-accommodating housing slidably receiving said reduced cross-section portion of said handle member, a removable fastener extending transversely through said housing and through the bifurcation of said handle, and a compression spring bottoming at one of its ends against said fastener and at its other end against the base of said handle member bifurcation, whereby mortar accommodated in said housing is ejected therefrom by said reduced cross-section portion of said handle when said handle is driven into said housing against the biasing force of said spring.

3,318,491
CONTAINER HAVING A TRAP-CHAMBER DISPENSING MEANS
Jervis C. Williamson, Watrous Ave. and Rte. 95, Mystic, Conn. 06355
Filed June 14, 1965, Ser. No. 463,553
6 Claims. (Cl. 222—363)



1. A container apparatus for storing and dispensing articles comprising a container defining an interior for storing articles and having an opening therein, a resilient plug disposed within said opening having a surface defining a generally hemispherical socket and an aperture communicating with said container interior and with said socket surface, said plug including an integrally formed annular lip projecting inwardly from said socket surface and a lip receiving recess adjacent thereto, said lip before assembly being disposed in a generally radial plane, a generally spherical dispenser received in assembly in said socket for rotational movement therein, said dispenser in assembly deflecting said lip generally inwardly from said radial plane into said recess, said dispenser including at least one article recess for receiving an article to be dispensed and being rotatable between a loading position wherein said recess communicates with said aperture and a dispensing position wherein said recess opens exteriorly of said container to dispense the article, and retaining means for holding said dispenser in position within said socket for rotational movement therein.

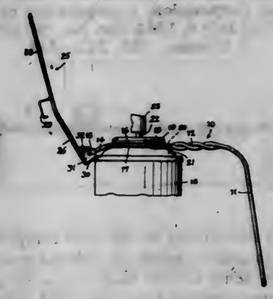
3,318,492
PRESSURE DISPENSER ATTACHMENT
Edwin J. Haas, 18706 Bernice Ave., Cleveland, Ohio 44135
Filed June 30, 1965, Ser. No. 468,509
7 Claims. (Cl. 222—402.11)



4. Seating means for seating a first member with respect to a second member; said first member having means defining a flat bearing surface; said second member having a collar having an end edge adapted to seat against said flat bearing surface; means for retaining said collar seated against said flat bearing surface; a resilient annulus carried by said edge of said collar; said annulus having a neck portion projecting into said collar; and said collar and said neck portion having interfitting projection and recess means for retaining said annulus against said edge.

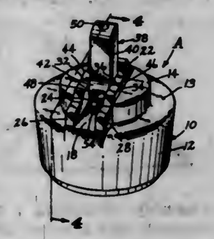
3,318,493
HANDLE AND ACTUATING DEVICE FOR ATTACHMENT TO AEROSOL CONTAINERS
Jobby Belpedio, 2209 North Ave., Bridgeport, Conn. 06604
Filed Nov. 26, 1965, Ser. No. 509,843
10 Claims. (Cl. 222—402.15)

1. A handle and actuating device for attachment to an aerosol container; said container including a circular cap at its upper end having a downwardly directed peripheral edge, an annular reduced neck providing an annular recess beneath said edge, and a depressible valve actuating spray nozzle projecting upwardly centrally of said cap for projecting a spray laterally therefrom; said device comprising:
(A) a handle and retaining member comprising:
(1) a substantially ring-shaped ring part comprising opposed segmental curved portions for disposition beneath said edge of said cap,
(2) a handle part extending rearwardly and downwardly from said ring part,
(3) opposed leg parts extending forwardly from said segmental curved portions of said ring part, and
(4) outwardly extending trunnion pivot parts extending outwardly from the forward ends of said leg parts; and
(B) an actuating lever member comprising:
(1) a forward part pivotally engaged by said pivot parts,
(2) an intermediate part normally extending rearwardly over said ring part,
(3) a finger part for engagement with said spray nozzle to depress it upon depression of said actuating lever member,
(4) a thumb-engaging part extending rearwardly from said intermediate part, and



(5) cam means carried by said lever member and engageable in an operative position of said lever member with said leg parts to force them toward each other to contract said ring part into clamping relation beneath said edge of said cap, and in an inoperative position of said lever member wherein it is swung forwardly from said operative position to allow said leg parts to move away from each other and said ring part to expand.

3,318,494
DISPENSING CLOSURE CAP FOR CONTAINER HAVING FRANGIBLE SEALING MEANS
Alvin J. Porter, Excelsior, and Donald W. Mathison, Minneapolis, Minn., assignors to Product Design & Engineering, Inc., Minneapolis, Minn.
Filed Oct. 4, 1965, Ser. No. 492,802
5 Claims. (Cl. 222—534)



4. A dispensing closure cap having frangible sealing means comprising in combination:
(a) a base member for securement to a container,
(b) a spout including an arm portion terminating in
(c) a base portion,
(d) means for pivotally mounting said spout base portion on said base member,
(e) said spout having an outlet passageway extending therethrough,
(f) said base member having an outlet hole leading from the interior thereof to said spout base portion for alignment with said outlet passageway of said spout,

(g) a plug connected at its base to said base member and sealing off said outlet hole,

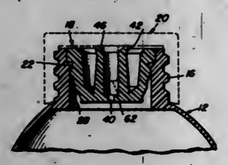
(h) said spout base having a walled recess formed therein and into which said plug extends, said plug being severed from said outlet hole by the pressure of the wall of the recess thereagainst upon the pivotal rotation of said spout upon said base number.

3,318,495
CAN HAVING A TEAR STRIP CLOSURE
William L. Roberts, Murrysville, Pa., assignor to United States Steel Corporation, a corporation of Delaware
Filed July 8, 1964, Ser. No. 381,037
2 Claims. (Cl. 222—541)



1. A metal can having an end wall comprising an inner tinplate ply, an outer tinplate ply bonded to said inner ply, said inner ply being thicker than said outer ply and having at least one preformed opening, said outer ply having two score lines extending along opposite sides of said opening and a third score line connecting the two first-named score lines near the edge of the wall, the portion of said outer ply bounded by the score lines forming a strip which covers said opening, a tab formed integrally with said outer ply by winding a portion of said strip remote from said third-named score line, and a plastic coating over said tab and within the winding, which tab can be grasped for manually peeling the strip back along the two first-named score lines and breaking it off at the third-named score line, thus separating the two plies in the area covered by the strip and exposing said opening, but leaving said inner ply intact.

3,318,496
CONTAINER CLOSURE WITH AXIAL PLUG
Robert A. Ayotte, Mays Landing, and Robert J. Musel, Linwood, N.J., assignors to Wheaton Plastics Company, Mays Landing, N.J., a corporation of New Jersey
Filed Jan. 26, 1965, Ser. No. 428,070
1 Claim. (Cl. 222—546)



A container assembly comprising a container having a hollow neck member with a screw thread on the exterior thereof, a one-piece insert plug member receivable in said neck member, said insert plug member being made of flexible material, said insert plug member including a base portion therein having an inlet communicating with the interior of said container when said insert plug member is positioned within said hollow neck member, an integral tubular outlet member carried by said insert plug member and extending upwardly from said inlet, said tubular outlet member terminating at its upper end in a dispensing outlet, said inlet of said base portion being of substantially smaller cross-sectional area than the internal cross-sectional are of said tubular outlet member, said insert plug member including an outer wall which engages the neck of said container, said outer wall being separated by an annular space from said tubular outlet member, a bead projecting radially inwardly from the inner surface of said neck member adjacent but spaced from the outer and normally upper end of said neck member, said insert plug member including an undercut region in said outer wall thereof whereby when said insert plug member is inserted in said neck member said bead and said undercut region will engage with each other to interlockingly engage said members with each other, said neck member being of greater internal diameter above than below said bead to define a shoulder above said bead, said outer wall of said insert plug member terminating at the normally upper end thereof in a flange-like portion which extends radially outwardly from the normally upper end of said outer wall and which lies above said undercut region, said flange-like portion being adapted to seat on said shoulder when said plug member is engaged with said neck member, the normally upper surface of said flange-like portion being flush with the normally upper end of said neck member, a closure cap engaging said neck member, said closure cap including a top wall and a side wall depending downwardly from said top wall, said side wall being internally threaded to mate with said screw thread on the exterior of said hollow neck portion, said closure cap including a stem member depending downwardly from the under surface of the top wall of said cap, said stem member being receivable in said dispensing outlet of said insert plug member and extending into said tubular outlet member for a substantial portion of the length of said tubular outlet member whereby said insert plug member may be preassembled with said closure cap prior to placement of said insert plug in said neck portion of said container, the diameter of said stem member being so dimensioned relative to the internal diameter of said tubular outlet member as to provide a primary sealing action when said stem member is received in said tubular outlet member, said dispensing outlet of said tubular outlet member being tapered to facilitate dispensing from said outlet and to facilitate insertion of said stem member in said tubular outlet member, the dispensing outlet end of said tubular outlet member terminating above the normally upper end of said outer wall of said insert plug member and above the normally upper end of said neck member whereby when the internally threaded closure cap is completely engaged with the externally threaded neck member of said container the under surface of the top wall of said closure cap compressively engages the dispensing outlet end of said tubular outlet member to provide a secondary sealing action.

3,318,497
LOOP-MAKING APPARATUS AND METHOD
Philip E. Nimmo, Jr., Clifton, N.J., assignor to Sun Chemical Corporation, New York, N.Y., a corporation of Delaware
Filed Sept. 27, 1962, Ser. No. 226,574
19 Claims. (Cl. 223—46)



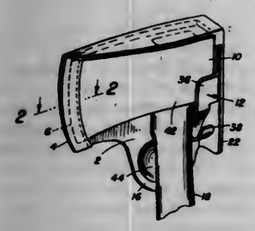
1. A loop-making machine comprising means for supplying ribbon and backing therefor; said backing being stiff relative to said ribbon; drive means for establishing relative reciprocal motion between the ribbon and the backing by engaging the backing; and means for initially fastening the ribbon to the backing and for fastening the ribbon to the backing at spaced-apart intervals along the ribbon and the backing at selected dwell times during the motion to form anchored loops.

3,318,498
COLLAR STIFFENER
Elsie Stein Younglove, 4431 Miami, St. Louis, Mo. 63116
Filed Aug. 2, 1965, Ser. No. 476,409
2 Claims. (Cl. 223—83)



1. A unitary collar form comprising a flat elongate strip of stiffly flexible, water-impervious, slick, tough plastic, said strip having parallel long sides, and slidably gripping means integral with said strip extending from the plane of the strip from one flat surface of the strip and disposed near an end thereof, said gripping means slidably gripping said strip, said gripping means including spaced apart lip means in the vicinity of the other end, the two ends being superposed and crossing one another at substantially right angles.

3,318,499
SHEATH FOR A WOODSMAN'S TOOL
Nillo W. Kallio, 1709 Englewood Terrace, Pekin, Ill. 61554
Filed Sept. 7, 1965, Ser. No. 485,178
3 Claims. (Cl. 224—2)



1. A sheath for an axe having a head and a handle, the head including a cutting and a hammer element, the sheath comprising:

a support,

a socket to receive the cutting edge, fixedly mounted on the support,

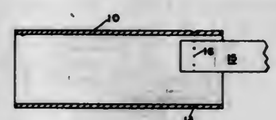
means carried by the support to restrain the hammer element and opposed to said socket,

a latch mounted on the support and movable thereon between a first position to engage and secure the head and a second position to release the head,

means to bias the latch into said first position,

means rigidly carried by the support in close proximity to the handle for engagement by a user of the sheath to withdraw the axe from the sheath while holding the latch in said second position against the bias of said biasing means, said rigidly carried means comprising an extension of the support, the extension including a concave surface adapted to underlie the handle, said rigidly carried means extending vertically below and beyond all other structure whereby the handle is exposed on three sides to such engagement.

3,318,500
PROCESS FOR CUTTING RIGID TUBING
Douglas L. Swanson, Erie, Pa., assignor to Swanson-Erie Corporation, Erie, Pa., a corporation of Pennsylvania
Filed June 11, 1964, Ser. No. 374,319
2 Claims. (Cl. 225—2)

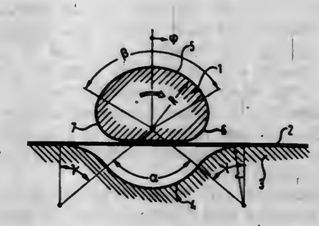


1. A process for severing brittle tubular material comprising

forming a circumferential groove completely around said tubular material,

and heating said tubular material on a narrow band around the inner periphery thereof directly opposite said groove whereby said end of said tubular material is severed.

3,318,501
ARRANGEMENT FOR STAGE-WISE ADVANCEMENT OF RECORDING CARRIERS
Hermann Plieninger, Neuglching, Germany, assignor to Siemens & Halske Aktiengesellschaft Berlin and Munich, a corporation of Germany
Filed June 28, 1965, Ser. No. 467,383
Claims priority, application Germany, July 1, 1964, S 91,814
6 Claims. (Cl. 226—139)



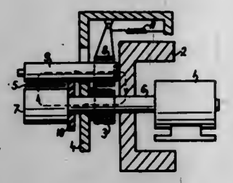
1. Apparatus for the stagewise moving of strip, band, and similarly formed recording carriers, comprising a pair of spaced clamping devices disposed for intermittent engagement with a recording carrier to alternately apply braking forces thereto, a rotatable cam disposed between said clamping devices, constructed to intermittently engage such a recording carrier, extending between said clamping devices, operative to form a loop in said carrier perpendicularly to the advancing movement of the latter, said cam being arranged to produce such a loop when said clamping devices are in one of their alternate operative positions, a guide member disposed adjacent said cam for guiding said recording carrier, said guide member having a recess therein disposed opposite said cam and of a size to receive a portion of the latter, said recess having a portion which is uniformly spaced from the axis of said cam and which extends over an angle of generation which is less than the angle of generation of the uniform high portion of said cam.

3,318,502

ROLLER DRIVE FOR NON-MAGNETIC RECORDING TAPE MAGNETICALLY ACTUATED

Otakar Horna, Prague, Czechoslovakia, assignor to Výzkumný ústav matematických stroju, Prague, Czechoslovakia

Filed July 6, 1965, Ser. No. 469,442
Claims priority, application Czechoslovakia, July 17, 1964, 4,165/64
9 Claims. (Cl. 226—180)



1. A roller drive comprising, in combination:
(a) a support;
(b) first and second bearing means mounted on said support for movement relative to each other, said bearing means respectively having a first axis and a second axis;
(c) first and second roller means,
(1) each roller means having a journal portion received in said first and second bearing means respectively for rotation about said axes; a contact portion having an exposed contact face about the associated axis; and another portion,
(2) said three portions of each roller means being spaced in the direction of the associated axes, and
(3) said first roller means having a fourth portion axially interposed between said contact portion and said other portion thereof,
(4) said faces of said contact portions moving toward and away from a tape engaging position during said relative movement of said bearing means, said faces being spacedly adjacent each other when in said position thereof;
(d) magnetizable means interposed between said other portions of said roller means to constitute with said roller means a magnetic circuit having a gap between said contact faces;
(e) conductive coil means mounted on said support and covering said fourth position of said first roller means for inducing magnetic flux in said circuit when electric current is passed through said coil means; and
(f) actuating means for actuating rotation of one of said roller means.

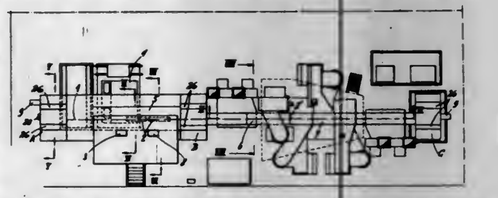
3,318,503

EQUIPMENT FOR SOLDERING HEAT EXCHANGER NESTS, MORE PARTICULARLY FOR COOLING RADIATORS AND RADIATORS OBTAINED

Alain Edouard Plegat, Asnieres, France, assignor to Societe Anonyme des Usines Chausson, Asnieres, France, a company of France

Filed Aug. 13, 1963, Ser. No. 301,791
Claims priority, application France, Aug. 21, 1962, 907,391, Patent 1,345,595
7 Claims. (Cl. 228—18)

1. Equipment for soldering heat exchanger, more particularly cooling radiator cores, comprising a set of cells for surrounding and supporting said radiator cores, protruding members protruding laterally from said cells at both ends thereof to constitute supporting members therefor, a first supporting way having guiding members for said supporting members of said cells extending lengthwise and onto which said cells are positioned, a first rotating device having several passages for said cells rotatably mounted at one end of said first supporting way, sliding actuator means disposed parallel to said first supporting way to slide said cells from said first supporting way to one of said passages of said first rotating device, an oscillatorily mounted pivoting support disposed parallel to said first rotating device, said pivoting support having a sloped corridor arranged to be in alignment with one of said passages of said first rotating device when stopped, a tank filled with a flux located beneath said pivoting support and into which said pivoting support is bathed when actuated, a second supporting way having guiding members for said supporting members of said cells, said second supporting way being sloped to be aligned with said corridor of said pivoting support when stopped, a driving member provided to rotate said rotating device to bring cells in alignment with said corridor of said pivoting support when said support is at rest and



then from said pivoting support to said second supporting way after actuation of said pivoting support whereby said cells are successively bathed into said flux and then supported in inclined position by said pivoting support and sloped second supporting way thus causing draining thereof, a second rotating device having passage for said cells and located in close relationship with said second supporting way from which said cells are inserted into one of said passages of said second rotating device by said driving means, driving members for said second rotating device for the actuation of said device to rotate said cells from the inclined position to a vertical position, a third supporting way having guiding members for said cells provided to support said cells in vertical position, said third supporting way being located adjacent said second rotating device, means to slide said cells from said second rotating device to said third supporting way and then along said third supporting way, first soldering assembly means associated with said third supporting way whereby a portion of said radiator cores supported by said cells are soldered, second soldering assembly means for soldering the portion of said radiator cores not soldered by said first soldering assembly means, and means for feeding said radiator cores from said first soldering assembly means to said second soldering assembly means.

3,318,504

PACKING FOR A NUMBER OF EGGS OR OTHER FRAGILE OR DELICATE OBJECTS

Erik Louis Hartmann, Tvaervej, Birkerod, Denmark, assignor to Skandinavisk Emballage Aktieselskab, Lyngby, Denmark, a joint-stock company

Filed Jan. 8, 1964, Ser. No. 336,553
Claims priority, application Denmark, Jan. 14, 1963, 172/63
4 Claims. (Cl. 229—2.5)

1. In a packing for a number of eggs and other fragile or delicate objects, including a lower part having two parallel rows of side-by-side individual depressions for the lower portions of the objects, a cup-shaped upper part with a flat bottom and a surrounding oblique lateral wall of undulating outline, and an angularly-shaped flap, said lower part and said upper part being hinged together at one edge of said lower part and said flap being swingably connected by a hinge to said lower part at another edge of said lower part, wherein the improvement comprises a lower part having vertically-extending projections located between the rows of depressions with each projection located centrally of each group of four depressions, said projections having supporting surfaces approximately in the plane of the upper surface of the lower part and a flap structure, which, when the flap is folded inwardly over the lower part, includes an oblique wall extending upwardly from a posi-



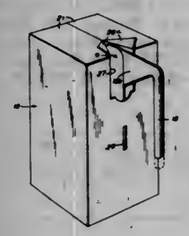
tion adjacent said hinge and a flat wall extending inwardly from the upper part of said oblique wall, said flat wall of the flap having a free projecting edge located in the plane of the flat wall, spaced inverted conically shaped hollow projections carried by and extending downwardly from the flat wall of the flap adjacent the free edge, said flap projections having closed lower ends resting respectively on the supporting surfaces of said vertically-extending projections of the lower part and constituting guiding members for the upper portions of the objects carried in the depressions of the lower part and also constituting distance members between said lower part and the flat bottom of said upper part when the latter is closed over the flap and the lower part of the packing.

3,318,505

PLASTIC CONTAINER WITH INTEGRAL DISPENSING TUBE

Charles E. Garrison, Valley Cottage, N.Y., and Donald G. Kneller, Lutherville, and Charles A. Speas, Towson, Md., assignors to Hedwin Corporation, New York, N.Y., a corporation of Maryland

Filed Apr. 9, 1965, Ser. No. 446,866
8 Claims. (Cl. 229—7)



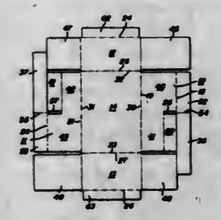
6. In a composite package, an outer carton and an inner container, the latter having a body portion, an elongated, flexible, semi-rigid dispensing tube connected to and projecting from an adjacent side wall of said container, said dispensing tube being foldable at its base laterally onto said adjacent side wall for insertion of said container into said carton, the top of said carton being closed by overlapping outer and inner flaps respectively hinged to the upper extremities of right angularly disposed side walls of said carton, one of said carton side walls and the adjacent hinged inner flap being provided with a common severable area which extends from the upper portion of said carton side wall into said last-named hinged inner flap adjacent the point of connection of said tube to said container side wall, and the adjacent corners of the meeting edges of respective outer flaps being upwardly foldable along crease lines, whereby, when said corners are folded upwardly, said severable area may be removed to provide an access opening through which said flexible tube may be withdrawn from said outer carton.

3,318,506

SHELL BOX FOR BOTTLE CARRIERS

George V. Woodling, 22077 W. Lake Road, Rocky River, Ohio 44116

Filed Oct. 23, 1965, Ser. No. 502,952
3 Claims. (Cl. 229—27)

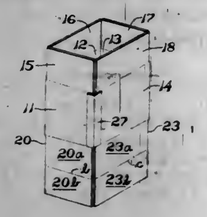


1. A shell box constructed of a paper blank and comprising at least first and second subcompartments with each disposed to receive a bottle carrier, said shell box comprising first and second opposed side walls with each having a top edge and a bottom edge and first and second opposed end walls with each having a top edge and a bottom edge, a base having outer side edges foldably connected respectively to the bottom edges of said side walls and having outer end edges foldably connected respectively to the bottom edges of said end walls, at least a cross-partition disposed substantially perpendicular to said side walls and extending therebetween, said first side wall comprising a first side portion disposed between said partition and said first end wall and a second side portion disposed between said partition and said second end wall, said second side wall comprising a third side portion disposed between said partition and said first end wall and a fourth side portion disposed between said partition and said second end wall, said first subcompartment being bounded by said first and third side portions, said first end wall and said partition, said second subcompartment being bounded by said second and fourth side portions, said second end wall and said partition, said first end wall having first and second side flange panels foldably connected thereto and respectively secured to said first and third side portions, said second end wall having third and fourth side flange panels foldably connected thereto and respectively secured to said second and fourth side portions, one of said side portions of said first side walls having a first down-turned flange side panel foldably connected to the top edge thereof and juxtaposed in face-contacting relation against a side surface thereof, one of said side portions of said second side wall having a second down-turned flange side panel foldably connected to the top edge thereof and juxtaposed in face-contacting relation against a side surface thereof, said first and second down-turned flange side panels respectively having first and second ends, said cross-partition having first and second outer ends foldably connected respectively to said first and second ends of said down-turned flange side panels.

3,318,507
MULTIPLE-COMPARTMENT CARTON

Casimir J. Gorzelany, 136 Meadow St., Shelton, Conn. 06484, and Kevin P. White, 53 Emmett Ave., Derby, Conn. 06418

Filed Dec. 14, 1965, Ser. No. 513,737
4 Claims. (Cl. 229—27)



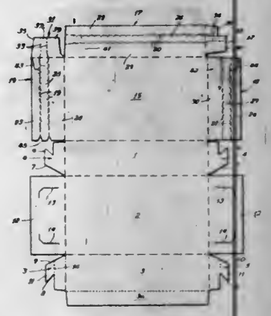
1. A multiple-compartment carbon formed from a single carton blank which carton comprises four vertical side panels of equal height which define a structure that is rectangular in cross-section, two of the said side panels which oppose each other each having a rectangular-shaped flap attached to its bottom edge, each of said flaps being scored along a score extending parallel to the bottom edge of the side panel to which it is attached to divide said flaps into two sections, each of said flaps being folded inwardly into the interior of said carton with the section of each said flap immediately adjacent the side panel to which it is attached folded back against the interior surface of the side panel to which it is attached and with the remaining section of each said flap being folded laterally inwardly into the carton to form a lateral partition that divides the interior of the carton into an upper compartment and a bottom compartment, the other two side panels which oppose each other each having a rectangular-shaped flap attached to its bottom edge which flaps each are scored along a score extending parallel to the bottom edge of the side panel to which it is attached to divide said flaps into two sections, each of said latter-mentioned flaps being folded with the section of each said flap immediately adjacent the side panel to which it is attached folded laterally which sections together form the bottom of the carton and with the remaining section of each said latter-mentioned flap being folded vertically inwardly into the carton and contiguous with each other to form a vertical partition that divides the said bottom compartment of said carbon into two compartments and which supports the said lateral partition formed by the first-mentioned pair of flaps in a horizontal position, the height of the said vertical partition formed by the sections of the latter-mentioned pair of flaps being essentially equal to the length of the said sections of the first-mentioned pair of flaps that are immediately adjacent to the side panels to which the flaps of which they are a part are attached, and rectangular-shaped closing flaps of sufficient length to close the top opening of the carton, said closing flaps being attached to the top edges of the said side panels.

3,318,508
DROP-FRONT TEAR STRIP CARTON

Kenneth T. Buttery, Kalamazoo, Mich., assignor to KVP Sutherland Paper Company, Kalamazoo, Mich., a corporation of Delaware

Filed Feb. 1, 1965, Ser. No. 429,449
14 Claims. (Cl. 229—51)

1. A carton formed of an integral blank cut and scored to provide a bottom member having inner end wall members attached thereto, a rear wall member, an inner front wall member, and end flaps attached to said rear and inner front wall members, said rear wall end flaps and said inner front wall member end flaps being provided with latching protuberances and said bottom member end flaps being provided with complementary slits engaging and retaining said protuberances, said inner front wall member end flaps each being provided with a severance line permitting said protuberances to be detached, a cover hingedly connected to the upper edge of said rear wall member and provided with cover flaps comprising outer end wall members and an outer front wall member, terminal extensions connected to ends of said cover flaps securing said ends to adjacent cover flap ends, said cover flaps and said terminal extensions each being provided with a pair of spaced-apart substantially parallel fracture scores defining a tear strip, said outer end wall members being secured to said inner end wall members and to said inner front wall member end flaps below

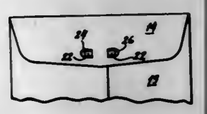


the lower of the fracture scores of said outer end wall members, and said outer front wall member being secured to said inner front wall member below the lower of the fracture scores of said outer front wall member, the tear strips of said cover flaps being secured together in alignment by the tear strips of said terminal extensions, and areas of said outer end wall members secured to said inner front wall member end flaps being provided with severance lines permitting said areas to be detached from said outer end wall members whereby, when said tear strip is removed, said inner front wall member end flaps may be detached from said protuberances and said inner front wall member unfolded to permit the contents of said carton to be removed through the resulting open front thereof.

3,318,509
ENVELOPE FASTENERS

Donald H. Bushey, 786 Main St., Shrewsbury, Mass. 01545

Filed Dec. 17, 1964, Ser. No. 419,168
4 Claims. (Cl. 229—78)

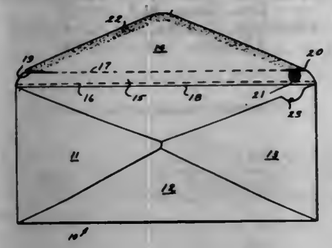


1. An envelope comprising front and rear panels, a closure flap hingedly connected to said front panel, and a fastener attached to said back panel by a central base portion thereof at a position to underlie the flap when folded, and having elongated bendable prongs extending laterally from substantially opposite sides of said base portion and normally lying substantially flat against the back panel, said flap having two spaced apart slots overlying the end portions of said prongs, thereby exposing the end portions of said prongs through the slots.

3,318,510
ENVELOPE

Frederick H. Quarles III, 2401 Fontaine Ave., Charlottesville, Va. 22901, and Milton L. Goff III, Vineyard Haven, Mass. (314 Windsor Ave., Wayne, Pa. 19087)

Filed Sept. 21, 1965, Ser. No. 488,956
1 Claim. (Cl. 229—85)



In an envelope having a body portion with an open side for receiving articles to be carried by said envelope, and a sealing flap for closing and sealing the open side of the envelope body, the improvement comprising:

an opening means included in said sealing flap for opening said envelope after it has been closed and sealed, said opening means further comprising a tear strip formed integrally with the sealing flap of the envelope by two rows of substantially parallel perforations through the sealing flap, and including a precut portion into at least one terminal end of said tear strip and in alignment with at least one of said rows of perforations for assisting in the ultimate removal of said tear strip from the sealing flap,

an attachment means between the tear strip of the sealing flap and the contents of the envelope for removing the contents of the envelope with the tear strip after the envelope has been opened by the tear strip, said attachment means comprising an adhesive portion carried on a face of said tear strip which is adjacent to an exposed part of the envelope contents, and

an opening in a body portion of said envelope in the area where said adhesive portion will be positioned when said sealing flap is folded over the body portion of the envelope, whereby the adhesive portion of said tear strip can be attached to the contents of the envelope when the sealing flap of the envelope is folded over the envelope body.

3,318,511
PASTED VALVE BAG WITH FLEXIBLE ELASTIC INSERT

Howard J. Winegard, Trenton, N.J., assignor to Union Camp Corporation, New York, N.Y., a corporation of Virginia

Filed July 28, 1966, Ser. No. 568,607
9 Claims. (Cl. 229—62.5)

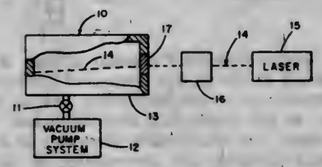


1. A pasted valve bag having side walls and an inturned corner flap, a portion of said side walls being folded inwardly and overlapping said corner flap to form a valve opening in one corner, an elastic valve insert secured to and extending inwardly between said overlapping side walls and said corner flap, said elastic valve insert having a stretchable opening in communication with the interior of said bag for receiving a filling spout.

3,318,512
METHOD FOR DEGASSING A VACUUM SYSTEM

William I. Linlor, Mountain View, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Mar. 18, 1966, Ser. No. 536,948
4 Claims. (Cl. 230—69)



1. A method of degassing a vacuum system including a vacuum vessel, comprising:

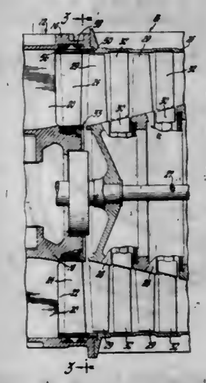
(a) pumping the gaseous components from a vacuum system to form and maintain a vacuum in the system, and

(b) scanning a lasser beam across successive areas on the inner surfaces of said system whereby impurities are desorbed from the material and removed from the system.

3,318,513
VARIABLE VANE RING

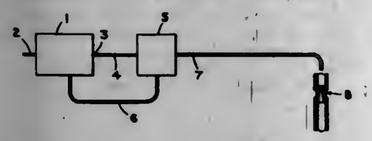
Kenneth O. Johnson, Camby, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Mar. 3, 1965, Ser. No. 436,732
8 Claims. (Cl. 230—114)



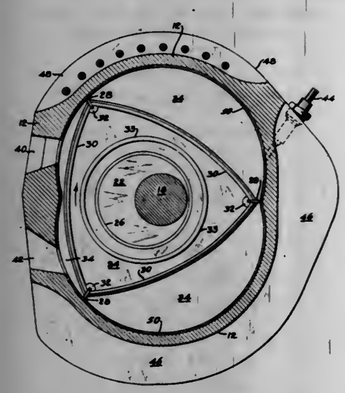
1. An inlet for a compressor, comprising a housing having an annular passage therethrough, a plurality of guide vanes rotatably mounted in said annular passage, a first control ring connected to each guide vane and rotatable about the axis of said housing, a second control ring spaced from said first control ring, said second control ring connected to each guide vane and rotatable about said axis, actuating means to rotate said first and second control members simultaneously in opposite directions whereby said guide vanes are caused to rotate to change their exit angle, a hook extending axially from each of said guide vanes beyond said annular passage, and spring means beyond said annular passage operatively connected to said hooks whereby said guide vanes are biased axially as they are rotated.

3,318,514
MINIMUM DISCHARGE PRESSURE REGULATOR FOR ROTARY COMPRESSORS
Richard O. Garbus, Springfield, Mass., assignor to Worthington Corporation, Harrison, N.J., a corporation of Delaware
Filed Nov. 30, 1965, Ser. No. 506,070
2 Claims. (Cl. 230—206)



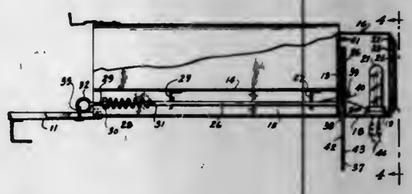
1. In a compressible fluid pressure system including, a compressor, a discharge line connected downstream of said compressor, an oil-gas separating tank in said discharge line, an oil return line connecting said tank to said compressor, the combination therewith of a venturi means in said discharge line downstream of the oil-gas separating tank for controlling the upstream pressure above a predetermined value when the pressure downstream of said venturi means drops below a predetermined value, and maintaining the pressure drop across the venturi means below a predetermined value under normal system operating conditions.

3,318,515
WEAR RESISTANT CONSTRUCTION FOR ROTARY MECHANISMS
Charles Jones, Paramus, N.J., assignor to Curtiss-Wright Corporation, a corporation of Delaware
Filed June 7, 1965, Ser. No. 461,632
7 Claims. (Cl. 230—238)



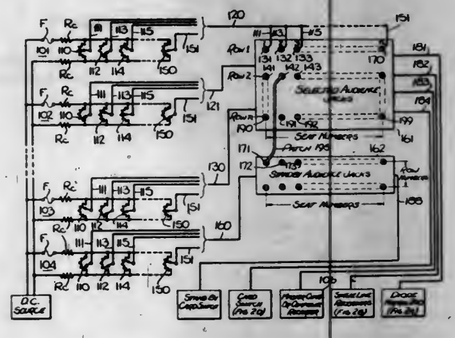
1. In a rotary mechanism having an outer body comprising a pair of axially-spaced end walls and a peripheral wall interconnecting said end walls to form a cavity with the inner surface of said peripheral wall having a multi-lobe profile; a rotor supported for relative planetary rotation within said cavity, a plurality of circumferentially-spaced radially movable seal members carried by said rotor for sealing engagement with the multi-lobe inner surface of said peripheral wall thereby forming a plurality of working chambers which upon relative rotation of said outer body and said rotor vary in volume; a wear resistant construction for the sealing surfaces of said seal members and the inner surface of said peripheral wall wherein each said seal member is comprised of an alloy metal whose major constituent is iron and said multi-lobe inner surface of said peripheral wall has a relatively thin layer liner securely bonded thereto and conforming to the multi-lobe profiles of said inner surface, said liner comprising a carbide composition material.

3,318,516
RURAL MAIL BOXES
Ernest Otto Scheerer, 777 Vaughn Ave., Toms River, N.J. 08753
Filed Sept. 16, 1966, Ser. No. 579,950
7 Claims. (Cl. 232—35)



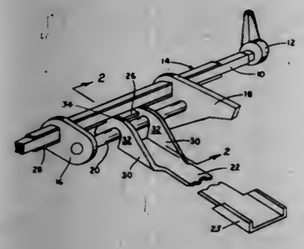
1. The combination with a rural mail box which includes surrounding bottom, top and side walls, a rear wall and a hinged front door, of an extension housing secured to said rear wall and enclosing a chamber, an elongated actuating member slidably mounted longitudinally of the box adjacent to and parallel with one of said surrounding walls, said rear wall having a first hole therein in alignment with said member, an electric socket with a chain operated switch mounted in said chamber having the chain thereof secured to the rear end of said member, a lamp in said socket, the front end of said member being attached to said door, said member having a length such that when said door is closed said rear end of the member extends into said chamber and when said door is fully opened said rear end of the member moves forwardly of said chamber, said chain having a length such that when said rear end of said member extends into said chamber as aforesaid the chain is relaxed and when said rear end of the member moves forwardly of said chamber as aforesaid the chain is fully tensed and said lamp socket switch is operated, said housing having a window therein.

3,318,517
AUDIENCE REACTION MEASURING SYSTEM
Ralph R. Wells, Van Nuys, Calif., assignor, by mesne assignments, to Screen Gems, Inc., New York, N.Y., a corporation of Delaware
Filed Mar. 1, 1965, Ser. No. 436,046
21 Claims. (Cl. 235—52)



1. A system for measuring the response of an audience to an occurrence comprising a plurality of rating devices individually distributable to members of said audience, each of said devices having means for producing a signal indicative of the response of an audience member to an occurrence, a plurality of channels corresponding to the plurality of categories into which the audience is divisible, means for selecting the categories of said plurality of categories related to each audience member, means responsive to said selecting means for connecting the signal of each of said rating devices of each audience member to the channels of said plurality thereof corresponding to the categories related to the audience member, and means connected to said plurality of channels for processing the signals thereon, whereby the signals from the rating device can be processed in term of the categories.

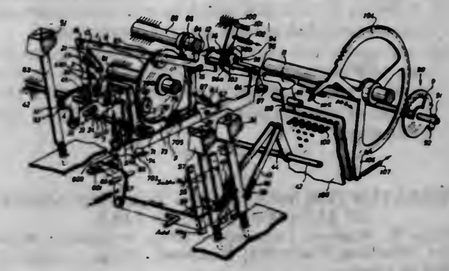
3,318,518
PULL STRAP FOR VOTING MACHINE
Ransom F. Shoup, Bryn Mawr, Pa., assignor to The Shoup Voting Machine Corporation, Bala-Cynwyd, Pa., a corporation of Pennsylvania
Filed May 24, 1966, Ser. No. 552,512
3 Claims. (Cl. 235—55)



1. In a voting machine, the combination of an interlock,
a voting spindle,
a butterfly cam fixedly carried by said spindle and including a pin disposed parallel to said spindle, and
a pull strap for connecting said spindle to said interlock, said pull strap having one end thereof engageable with said interlock and having a notch in its other end, said notch being in a plane substantially normal to the axis of said pin and engageable with, and disengageable from, said pin by rotation of said strap about an axis parallel to the axis of said pin and without dismantling said pin.

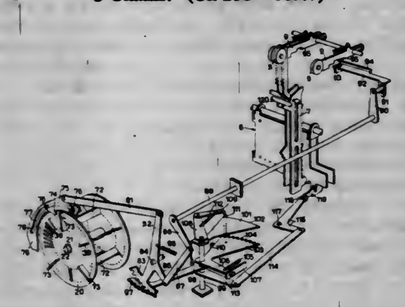
3,318,519
APPARATUS FOR TRANSFERRING VALUES BETWEEN THE REGISTERS OF A CALCULATOR
Paul Thevis, Oberndorf (Neckar), Germany, assignor to Olympia Werke AG., Wilhelmshaven, Germany
Filed Apr. 20, 1965, Ser. No. 449,436
Claims priority, application Germany, Apr. 20, 1964, O 10,093
19 Claims. (Cl. 235—60)

3. In a multiplying calculator, in combination, input storage means movable between a home position and at least one storing position for storing numbers; sensing means for sensing the position of said input storage means; transfer means operable for sensing a number stored in said input storage means; a register movable between a normal position and a transfer position connected with said transfer means so that numbers can be transferred between said transfer means and said register; driven operating means; means for starting said operating means; a first coupling device including first and second coupling means movable from a disengaged position to coupling positions for coupling said operating means with said register for moving the latter to and from said transfer position, said first coupling means in said coupling position thereof actuating said starting means to start said operating means; a function key; and a second coupling device having first and second coupling positions for coupling said function key with said first and second coupling means, respectively, for movement of the same by said function key to said coupling positions, respectively, so that said first coupling means actuates said starting means when said function key is operated in said first coupling



position of said second coupling device, said second coupling device being settable for movement to said first or second coupling positions by said sensing means and assuming said first coupling position when said input storage means is in a storing position and said second coupling position when said input storage means is in said home position whereby the start of transfer operations between said register and said transfer means depends on the position of said input storage means.

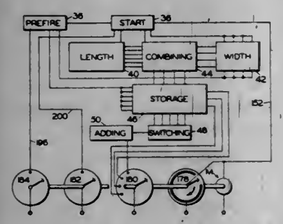
3,318,520
PROGRAM CONTROL DEVICE FOR AN ADDING OR ACCOUNTING MACHINE
Sergio Garberi and Giuseppe Ricciardi, Ivrea, Italy, assignors to Ing. C. Olivetti & C., S.p.A., Ivrea, Italy
Filed Apr. 5, 1965, Ser. No. 445,656
Claims priority, application Italy, Apr. 11, 1964, 8,358/64
5 Claims. (Cl. 235—60.47)



4. In an adding or accounting machine comprising an amount set up mechanism transversely movable step by step, a plurality of amount printing members conditionable for printing, a program control device having a movable support adapted to be sequentially arrested in a set of stations, and a differentially settable function control member, the combination comprising:
(a) an element associated with each one of said stations and secured to said support at a variable distance with respect to the associated station,
(b) means adapted to be engaged by said element during the movement of said support from a station to another station for setting said function control member according to said distance,

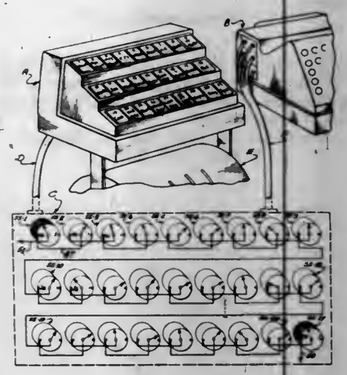
(c) a transversely movable member connected to said function conditioning control member for conditioning a number of said printing members corresponding to said distance,
(d) an intermediate member connected to said function control member and having a smooth edge having a length proportional to said plurality,
(e) a locking member conditionable for locking said machine and having a toothed edge as long as and parallel to said straight edge,
(f) a sliding element connected to said mechanism and normally adapted to slide on said smooth edge,
(g) and means for causing said sliding element to engage said toothed edge for conditioning said locking member when a number of orders higher than said number of printing members has been set up on said mechanism.

3,318,521
APPARATUS FOR MEASURING THE DIMENSIONS OF LUMBER AND THE LIKE
Delmer W. Wagner, Terrebonne, Oreg., assignor to Whittier Moulding Company, Redmond, Oreg., a corporation of Oregon
Filed Mar. 20, 1964, Ser. No. 353,328
6 Claims. (Cl. 235—98)



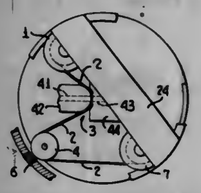
1. Apparatus for measuring the multiplied dimensions of lumber and like dimension material, comprising:
(a) conveyor means for the material,
(b) a plurality of groups of first electric signal producing means, each group representing a different one of the dimensions and each signal producing means of each group being operable to produce an output signal representing a given numerical value of the associated dimension of the material,
(c) a plurality of actuators one for each first signal producing means and arranged at predetermined spaced intervals parallel to the corresponding dimension of the material on the conveyor means for operation by the material,
(d) a plurality of second electric signal producing means each having an input connecting together the outputs of a different one of said first signal producing means in each group thereof and each responsive thereto to produce an electric output signal representing the numerical value corresponding to the multiplication of the associated group of dimensions of the material,
(e) a plurality of groups of electric signal storage means, each group representing a different numerical value and the storage means of each group representing different digits of the corresponding numerical value,
(f) multiple electrical connector means connecting the outputs of the plurality of second signal producing means to the plurality of signal storage means in accordance with the numerical value represented by each output signal,
(g) a plurality of electric output means each operatively associated with a different group of signal storage means, and
(h) sequence control means operatively connecting each signal storage means of a group one at a time sequentially to be the associated output means.

3,318,522
AUTOMATED TALLYING SYSTEM
Richard E. Heyes, 2010 Maginn Drive, Glendale, Calif. 91202
Filed May 2, 1966, Ser. No. 546,639
8 Claims. (Cl. 235—146)



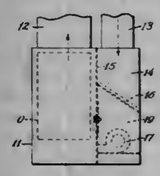
1. A system for price tallying items of different type articles and automatically producing a printed record of the total number of items of each type counted, the total extended price for all of the items of each type, and the total price for all items counted, comprising:
(a) a keyboard having a key for each type of article to be counted;
(b) electrically operable adder-printer means for printing article type identification data in response to applied electrical input signals representative thereof, for printing article type item total data in response to applied electrical input signals representative thereof, and for printing article type total price data in response to applied electrical input signals representative thereof; and
(c) computing and storage apparatus including a multi-position, electrically actuable master programming switch having its actuation means coupled to a source of electrical current through control circuit means for selective movement of said switch through its various positions to a normal rest position, said computing and storage apparatus also including data accumulation and storage means for each of the keys of said keyboard and coupled thereto, each of said data accumulation and storage means having at least first, second and third storage sections, said first section storing data representative of the identity of the associated key, said second section accumulating data representative of the number of actuations of said associated key, said third section accumulating data representative of the number of actuations of said associated key multiplied by the item price for an article of the particular type identified by said associated key, each of certain switch positions of said master programming switch being coupled to the data accumulation and storage means for a different one of said keys for the selective readout of data in said storage means and generation of electrical output signals representative thereof, each of said data accumulation and storage means having its output coupled to the input of said adder-printer means, whereby selective movement of said master programming switch through said certain switch positions will sequentially read the data in each of said data accumulation and storage means into said adder-printer means.

3,318,523
TIMING MECHANISMS
Peter Bauer and John P. Morton, Bethesda, Md., assignors to Bowles Engineering Corporation, Silver Spring, Md., a corporation of Maryland
Filed Oct. 2, 1964, Ser. No. 401,066
23 Claims. (Cl. 235—201)



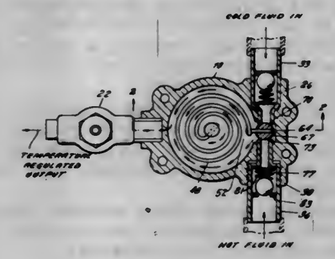
7. A timing mechanism comprising an indefinite length of perforated tape, said tape having a plurality of time indicia each representing a different time interval, said indicia being in the form of patterns of perforations in said tape and being arranged serially along the length of said tape, a supply means for storing said tape, a take-up means for receiving said tape, a sensing station arranged along the path of said tape for sensing the indicia on said tape, means for feeding the tape from said supply means to said take-up means so as to present different indicia to said sensing station, said sensing station including means for blowing a fluid against said tape and means responsive to the pattern of streams of fluid passing through said tape, for determining the time interval represented by said pattern of perforations.

3,318,524
AIRFLOW REGULATOR
Orlo W. Kehm, 1851 34th St. NW., Rochester, Minn. 55901
Filed June 21, 1965, Ser. No. 465,288
8 Claims. (Cl. 236—10)



1. A heating system for heating an area including;
a heat chamber,
a heat exchange unit in said heat chamber,
heating ducts connecting said heat chamber to the area to be heated,
a cold air chamber,
cold air ducts connecting said cold air chamber to the area to be heated,
a blower connected between said cold air chamber and said heat chamber to force air into said heat chamber,
a by-pass passage between said heat chamber and said cold air chamber,
a by-pass damper in said passage movable from passage open position to passage closed position, and thermostatically controlled means operable upon increases in temperature in said heat chamber to move said damper toward closed position and upon decreases in temperature in said heat chamber to move said damper toward open position.

3,318,525
FLUID TEMPERATURE REGULATION MIXING VALVE
John H. Andresen, Jr., Hewitt, N.J., assignor to John F. Baier, New York, N.Y.
Filed Apr. 2, 1965, Ser. No. 444,989
4 Claims. (Cl. 236—12)



1. A temperature regulating device comprising:
a housing; a spirally wound, spaced coil temperature responsive element; a ball valve; a pair of opposed valve seats; first means for connecting fluids of different temperatures for flow through a respective one of said valve seats; second means connecting the discharge from said valve seats to said housing; and adjusting means for setting an initial position for said ball valve;
said housing having flat end walls and having a first wall joining said end walls;
a spirally wound, spaced coil temperature responsive element disposed within said housing; said temperature responsive element being spaced from said walls of said housing;
said first wall of said housing being shaped to conform to the shape of said spirally wound, spaced coil, temperature responsive element disposed within said housing; said flat end walls of said housing being spaced apart a first predetermined distance;
said spirally wound, spaced coil, temperature responsive element comprising a plurality of windings;
said windings each having a top and a bottom edge; said top edges being substantially coplanar in a first plane and said bottom edges being substantially coplanar in a second plane;
said temperature responsive element having a height substantially equal to said first predetermined distance;
said temperature responsive element having an outermost winding and a next outermost winding, which are spaced substantially a second distance apart;
said outermost winding being spaced substantially said second distance from said first wall of said housing;
said temperature responsive element being designed to contract and expand in response to variations in the temperature of a surrounding fluid in said housing;
said temperature responsive element having an outer end;
said ball valve being connected to said outer end of said temperature responsive element and being movable in opposite directions dependent upon the contraction and expansion of said element;

said pair of opposed valve seats being disposed in said walls of said housing; said ball valve being disposed between said valve seats for substantially reciprocal movement toward one of said valve seats and away from the other;

said first means being connected to said valve seats for connecting fluids of different temperatures for flow through a respective one of said valve seats;

said second means connecting the discharge from said valve seats to said housing tangentially to said temperature responsive element, whereby a mixture of the fluids is caused to enter said temperature responsive element tangentially and circulate therearound and emerge axially and whereby the fluids circulate around said temperature responsive element to effect radial contraction and expansion thereof;

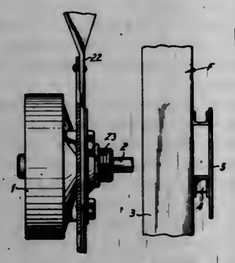
said temperature responsive element having an inner end; said adjusting means being secured to said inner end of said temperautre responsive element;

said adjusting means comprising a rotative shaft and support means for supporting said shaft; said element being carried by said shaft;

said support means comprising a cover for said housing; said shaft being supported by said cover and means providing detent engagement between said shaft and said cover to hold said shaft in adjusted positions;

said adjusting means being manually adjustable to selected positions to set an initial position of said ball valve with respect to said valve seats.

3,318,526
COOLING ARRANGEMENT FOR AN AUTOMOTIVE INTERNAL COMBUSTION ENGINE
Siegfried Möbius, Schweinfurt am Main, Germany, assignor to Fichtel & Sachs A.G., Schweinfurt am Main, Germany, a corporation of Germany
Filed July 15, 1965, Ser. No. 472,367
Claims priority, application Germany, July 17, 1964, F 43,465
13 Claims. (Cl. 236—35)



1. In an automotive vehicle, in combination:

(a) an automotive-type radiator arranged for passage of air therethrough in a predetermined direction during normal movement of said vehicle;

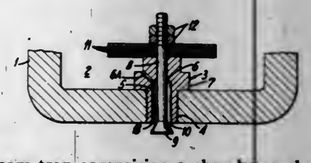
(b) fan means spaced from said radiator in said direction for drawing air through said radiator;

(c) disengageable clutch means for driving said fan means;

(d) temperature responsive clutch actuating means interposed between said fan means and said radiator and exposed to the flow of ambient air for engaging and disengaging said clutch means in response to ambient air temperature; and

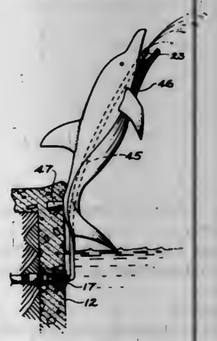
(e) baffle means for enhancing flow of passing air in a direction from said radiator to said actuating means and for reducing flow of air to said actuating means from all other directions, said baffle means including a baffle member extending transversely of said predetermined direction and aligned with said actuating means in said direction, said baffle member being mounted on said radiator, and being offset from said radiator in a direction away from said actuating means.

3,318,527
STEAM TRAPS
Frank Ralph Marx, Cheltenham, and Timothy John Burrett, Bagendon, near Cirencester, England, assignors, by mesne assignments, to Sarco Company, Inc., New York, N.Y., a corporation of New York
Filed Aug. 3, 1964, Ser. No. 387,053
Claims priority, application Great Britain, Aug. 2, 1963, 30,831/63
6 Claims. (Cl. 236—59)



1. A steam trap comprising a chamber and a valve for controlling escape of fluid from the chamber, the valve having an operating member which in use is arranged to be subjected, in the valve opening direction, to a force dependent on the pressure of fluid in the chamber and, in the valve closing direction, to a force applied thereto by a temperature-responsive means disposed in the chamber, the force applied by the temperature-responsive means increasing with increasing temperature in the chamber, wherein the temperature-responsive means includes a pile of bimetallic elements, the elements being arranged in pairs and such that the elements of each pair become concave towards each other upon heating thereof, and wherein each element is in the form of a plurality of crossed beams, the beams being of a different length one from another and the elements being of the same size and shape and orientated so that in the pile, beams of the same length are in alignment.

3,318,528
FOUNTAIN
Tudor D. Williams, 12127 Laurel Terrace, Studio City, Calif. 91604
Filed Feb. 1, 1965, Ser. No. 429,444
4 Claims. (Cl. 239—17)



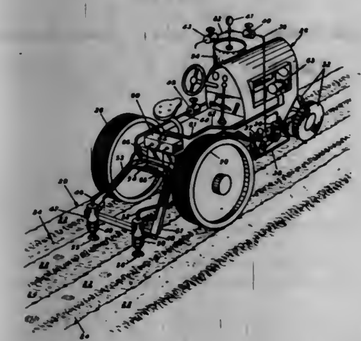
1. In combination:

a swimming pool;

a recirculating filter system for said pool including a water return line through which filtered water from said pool is returned to the pool, said return line extending through the sidewall of said pool below the normal water level in said pool and having an open end exposed at the inner side of said wall below said normal water level through which said filtered water normally discharges into said pool; and

an ornamental fountain including a water conduit, a fitting on one end of said conduit press-fitted in said open end of said return line, the opposite end of said conduit being located above said normal water level, and a spray head on said opposite end of said conduit.

3,318,529
APPARATUS FOR APPLYING MULCH HAVING AN INTERMITTENTLY OPERATED SOLENOID VALVE
Richard L. Ferm, El Cerrito, Sidney V. Smith, Yuba City, and Charles E. Moran, Berkeley, Calif., assignors to Chevron Research Company, a corporation of Delaware
Original application July 15, 1963, Ser. No. 294,897. Divided and this application Dec. 29, 1965, Ser. No. 535,625
4 Claims. (Cl. 239—69)



1. Apparatus comprising a movable member, reservoir means on said movable member containing a fluid mulch material having a viscosity of between 20 and 200 S.S.F. at 77° F., pressure means for applying pressure on the said mulch material, an outlet from said reservoir means having a conduit extending therefrom, normally closed valve means on said conduit to prevent flow through said conduit, nozzle means on the downstream side of said valve means, said nozzle means having a delivery range of from 1.0 to 2.0 gallons per minute of said mulch and adapted to produce a radially expanded spray of relatively constant density of from .05 gallon per square yard to .2 gallon per square yard with mulch material having a viscosity of between 20 and 200 S.S.F. at 77° F., said nozzle means positioned to direct a circular spray of said mulch material at the surface of the soil from a position above the soil when said valve means are opened to produce a spot of mulch on the soil having a density of from .05 to .2 gallon per square yard and actuating means for periodically opening said normally closed valve means for a predeterminable time and predeterminable intervals.

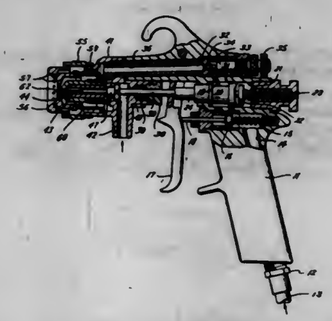
3,318,530
MATERIAL DISCHARGE GUN
Omer Rhodes, Houston, Tex., assignor to Clemtex Ltd., Houston, Tex., a limited partnership
Filed Aug. 24, 1964, Ser. No. 391,720
1 Claim. (Cl. 239—117)

A pneumatic spray gun for spraying a metallic coating material, the combination comprising:

a gun body having a nozzle end and at least one passage therethrough for receiving pressurized air and for discharging said air in a predetermined air pattern out said nozzle end,

inlet means connected to said gun body for receiving said coating material under pressure,

a cylinder forming an unobstructed chamber connected at a generally right angle to said inlet means for receiving said coating material, one end of said cylinder having a reduced diameter forming a discharge opening and mounted for emitting said material through said air pattern and the other end of said cylinder having a frusto conical shaped valve seat concentric with central axis of said cylinder and positioned substantially rearward of said discharge opening and adjacent said inlet means with the smallest diameter of said valve seat being at least twice the diameter of said discharge opening, whereby a given quantity of spray material will pass therethrough in the open position at a substantially lower velocity than through said discharge opening,



a frusto conical shaped valve of resilient material supported adjacent to said valve seat and for seating therein in a closing relationship, the axial length of the frusto conical portion of said valve being of a greater length than the axial length of said valve seat,

said valve being mounted on a valve stem axially aligned with said cylinder,

means for moving said valve and valve stem axially with respect to said valve seat, whereby said valve is thereby opened and closed,

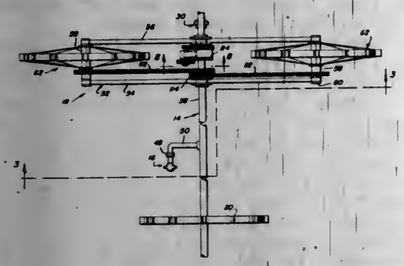
resilient biasing means for normally urging said valve and valve stem to a closed position when said gun is not being operated, and

an extension needle connected to the front end of said valve stem and projecting into said discharge opening in loose fitting relationship when said valve is in the closed position, whereby an opening is maintained through said discharge opening even during times when coating material residue tends to build up therein.

3,318,531
IRRIGATION PIPE PROPELLING APPARATUS
Elmer Funk, Aberdeen, Idaho, assignor of one-third each to Elmer A. Funk and Harold A. Funk, both of Aberdeen, Idaho
Filed Aug. 9, 1965, Ser. No. 478,313
14 Claims. (Cl. 239—212)

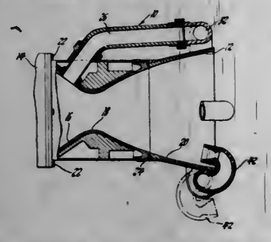
1. In an irrigation system having an elongated conduit adapted to be connected at a plurality of spaced locations to a supply pipe, means for propelling said conduit from one of said locations to another comprising a source of electrical energy, at least one propelling frame rotatably supporting the conduit, a drive motor rotatably mounted by the frame, gear means drivingly connecting the conduit to the motor for rotation thereof in response to energization of the motor, electrical conductor means fixedly mounted on the conduit and electrically connecting the

motor to the source of electrical energy, and traction wheel means mounted by the frame and drivingly con-



nected to the conduit for movement thereof between said locations when the motor is energized by said source of electrical energy.

3,318,532
GAS INJECTION THRUST VECTOR CONTROL SYSTEM FOR ROCKET ENGINES
Arthur W. Gaubatz, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Apr. 29, 1964, Ser. No. 363,356
6 Claims. (Cl. 239—265.23)



1. A secondary gas injection thrust vector control system adapted to be used in conjunction with a rocket engine having an exhaust nozzle for an exhaust gas stream passing through said exhaust nozzle, said system comprising:

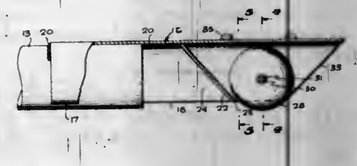
a plurality of thrust vector control nozzles swingably mounted to the downstream end of said exhaust nozzle such that they are adapted to move in and out of said exhaust gas stream said control nozzles being in constant open communication;

constantly open means to bleed gases from said exhaust stream at an upstream location and conduct the bleed gases constantly to said thrust vector control nozzles during operation of said engine for injection into said exhaust stream;

and actuating means to control the position of said thrust vector control nozzles and determine the angle of injection through a range of opposite, transverse, and rearward angles of said bleed gases into said exhaust stream thereby vectoring the resultant thrust produced by said rocket engine.

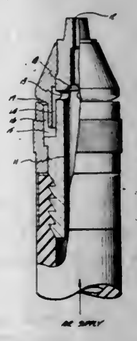
3,318,533
EXHAUST PIPE EXTENSION CONTAINING SPHERICAL, RUBBER ROLLER
Kirk Besoyan, Hollywood, Calif., assignor of one-third to Elwood L. Hancel, Los Angeles, Calif., and one-third to David G. Schwartz, Los Angeles, Calif.
Filed Nov. 16, 1964, Ser. No. 411,335
4 Claims. (Cl. 239—288.5)

1. An exhaust pipe extension, comprising a generally tubular body having an inner end and an outer end and characterized by a relatively wide opening extending from the outer end of the body longitudinally thereof for a substantial distance, said body being adapted to receive and be attached at its inner end to the end portion of an automobile exhaust tailpipe with said opening fac-



ing downwardly, and a roller mounted in said body near the outer end thereof for rotation on an axis extending transversely of the body, said roller projecting through the opening in the body and therebelow.

3,318,534
AIR NOZZLE
Jack Stolteben, 1323 Oak St., South Pasadena, Calif. 91030
Filed June 7, 1965, Ser. No. 461,787
7 Claims. (Cl. 239—291)

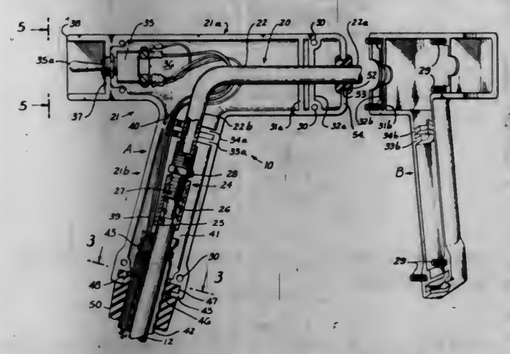


1. In a nozzle arrangement having an outlet for the main flow of fluid and a plurality of apertures disposed inwardly of the main outlet for directing a sheaf of protective air around the main outlet, the improvement which comprises:

a chamber connecting the plurality of apertures to an annular outlet inclined toward the main outlet, the chamber having two passageways for twice reversing the flow of air passing from a main nozzle source to the annular outlet.

3,318,535
FLUID SPRAY GUN ASSEMBLY
Russel W. New, Dallas, Tex., assignor to Cook Machinery Co., Inc., Dallas, Tex.
Filed Oct. 5, 1964, Ser. No. 401,614
10 Claims. (Cl. 239—310)

3. A hand held fluid spray gun for washing automobiles and the like, comprising, a generally L-shaped flow pipe having an outlet leg and an inlet leg, a nozzle attached to the outlet leg and a flexible hose connected to the inlet leg through which fluid is forced through the pipe and out the nozzle attached to the outlet leg, a pistol shaped housing having a grip portion and a barrel portion; the grip portion enclosing the inlet leg of the pipe and a portion of the hose connected thereto, the barrel portion enclosing a portion of the outlet leg of the pipe, said hous-



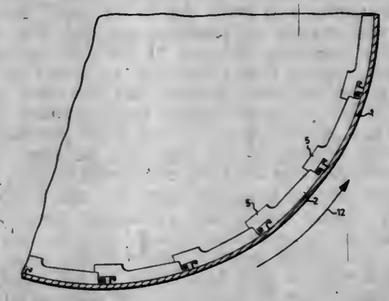
ing being hollow with at least two transverse ribs; one being located to engage the outlet leg and one being located to engage the inlet leg of the pipe and hold the pipe against movement relative to the housing.

3,318,536
PROCESS FOR FINELY GRINDING MEAL OF WHEAT, RYE AND SIMILAR GRANULAR FRUITS OR CEREALS
Hermann Graumann, 45 Kennemerstraatweg, Heiloo, Netherlands
Filed May 27, 1964, Ser. No. 370,510
Claims priority, application Netherlands, May 27, 1963, 293,254
1 Claim. (Cl. 241—6)

A process for finely comminuting meal consisting substantially of protein-embedded grains of starch having a particle size greater than about 45 microns which comprises passing the meal between a pair of highly polished smooth rollers which have a hard surface of ultrafine grain structure and which rotate under pressure at the same peripheral speed, wherein the overall particle size of the meal is reduced by liberating the protein from the starch grains without substantial damage to the grains.

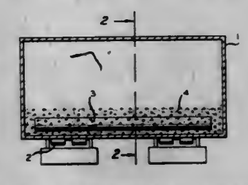
3,318,537
ROTARY GRINDING DRUM WITH PANEL-LIKE LINING ELEMENTS
Åke Wilhelm Wallin and Bo Klas Gerhard Persson, Trelleborg, Sweden, assignors to Trelleborgs Gummifabriks Aktiebolag, Trelleborg, Sweden, a corporation of Sweden
Filed Nov. 19, 1964, Ser. No. 412,416
Claims priority, application Sweden, Nov. 22, 1963, 12,901/63
2 Claims. (Cl. 241—183)

1. A rotary grinding mill, comprising a substantially cylindrical rotary shell defining a grinding chamber, a liner on the inner surface of said shell, comprising a plurality of rubber panels, mounted in a close series around the inner circumference of said shell, a first and a second marginal portion on each of said panels, being oppositely located on each of said panels and extending axially of said shell, a lifting rib integrally formed on said first marginal portion of each of said panels and projecting into the grinding chamber, a flange integrally formed on said second marginal portion of each of said panels, said flange being thinner than the rest of said panel and extending along the inner surface of said shell, a nose integrally formed on the free axially extending edge of said flange, said nose projecting from said flange inwardly towards the center axis of said shell, and means on said



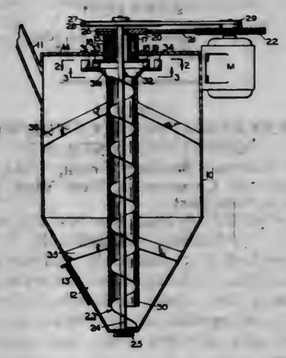
first marginal portion of each of said panels engaging said flange of an adjacent one of said panels between said nose and the rest of said adjacent panel.

3,318,538
DRY BLENDING
Donald G. Needham, Ramona, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Dec. 8, 1964, Ser. No. 416,712
6 Claims. (Cl. 241—178)



1. A method of dry blending a particulate polymer with a pigment comprising feeding agglomerated pigment and particulate polymer into a tumbler, rotating said tumbler about a horizontal axis, contacting said pigment and said polymer with a rod substantially large enough to comminute agglomerated pigment, and allowing the rod to fall freely within the tumbler as it rotates.

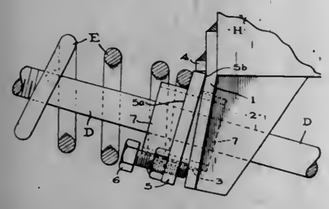
3,318,539
FEED GRINDER
Jonas J. Byberg, Silverton, Oreg. 97381
Filed May 3, 1965, Ser. No. 452,783
1 Claim. (Cl. 241—186)



A feed grinder including a tank, a rotating auger in said tank, a conveyor tube surrounding said auger, a pair of co-axial discs spaced a short distance apart in parallel

horizontal planes and located near the top of the tank coaxial with the auger and conveyor tube, the lower of said discs being an annular disc having a central opening, means securing said lower disc to the auger shaft, the auger and conveyor tube leading to said lower disc, means rotatably supporting the upper of said discs, means for imparting rotation to said upper disc, said lower disc having a greater peripheral diameter than said upper disc, a series of equally spaced impeller blades mounted on the lower face of said upper disc, said blades positoned adjacent the periphery of said upper disc, the edges of said blades adjacent said lower disc terminating within a short clearance distance from said lower disc, and a series of equally spaced substantially rectangular anvil blades mounted on the upper face of said lower disc and positioned adjacent the outer periphery of said lower disc, the inner edges of said anvil blades on said lower disc being spaced from the respective outer edges of said impeller blades on said upper disc by a distance of not less than ¼-inch.

3,318,540
JAW CRUSHER
George T. Gilbert, Bayport, Minn., assignor to Poor & Company, Inc., Chicago, Ill., a corporation of Delaware
Filed Dec. 16, 1964, Ser. No. 418,754
5 Claims. (Cl. 241—217)



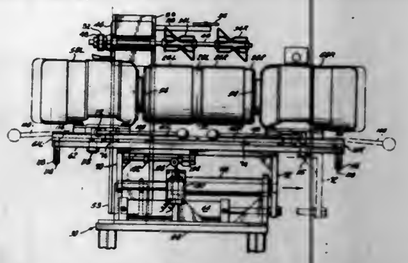
1. An adjustable tension rod spring support assembly for the movable jaw of a jaw crusher, said assembly including, a crusher frame part, a bracket fixed on said frame part and having an opening through which the tension rod passes to connect with the movable jaw, and means on the bracket adapted to maintain an axis of a coil spring surrounding the rod to coincide with the axis of the rod as the angular relationship of the rod changes with respect to said opening.

ERRATUM

For Class 241—284 see:
Patent No. 3,317,975

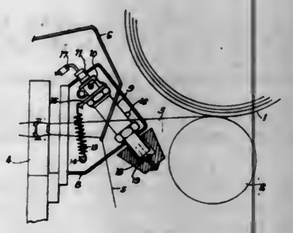
3,318,541
METHOD AND APPARATUS FOR WINDING CONTINUOUS STRAND
Samuel R. Genson, Bowling Green, Ohio, assignor to Johns-Manville Corporation, New York, N.Y., a corporation of New York
Filed Feb. 9, 1965, Ser. No. 436,985
9 Claims. (Cl. 242—18)

1. The method of continuously winding a continuous strand, comprising: winding the strand on a winding tube mounted on a first arbor; positioning a second arbor, mounting a winding tube, adjacent to but out of frictional engagement with said first arbor, and with one of the winding tubes being in telescoping relation with at least a portion of both the first and the second arbors but in axial spaced relation with the other of said winding tubes; transferring the strand from said winding tube on said first arbor onto the surface of one of said first and second arbors and then onto said winding tube on said second



arbor while said one of said winding tubes is in said telescoping relation.

3,318,542
DEVICE IN A YARN WINDING MACHINE FOR SLACKENING A YARN END PRIOR TO KNOTTING OF THE SAME
George Emiel Gilbos, Bredestraat 240, Alost, Belgium
Filed Mar. 3, 1966, Ser. No. 531,601
Claims priority, application Belgium, Aug. 29, 1963, 42,927, Patent 636,740
4 Claims. (Cl. 242—35.6)

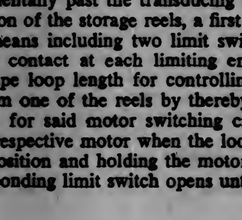


1. In a yarn package winding machine having a driving guide drum for rotating a yarn package, said drum when rotated in a forward direction rotating said yarn package to wind yarn onto said package and when rotated in a reverse direction rotating said yarn package to unwind yarn from said package, a supply bobbin, knotter mechanism, means for drawing the respective yarn ends of said package and bobbin into said knotter mechanism; the combination of means for rotating said drum successively in said directions comprising a member reciprocable in a straight line and arranged to engage the periphery of said drum to effect limited rotation thereof in said directions, the movement of said member in one direction effecting said reverse rotation of said drum and the movement of said member in an opposite direction effecting said forward rotation of said drum, means to reciprocate said member in synchronism with the operation of said knotter mechanism whereby immediately prior to the knotting of said yarn ends said drum is rotated in said reverse direction to unwind and relax the yarn end of said package and following said knotting of said yarn ends said drum is rotated in said forward direction to tension the knotted yarn ends.

3,318,543
FRICTION ROLL HOLDER
Francis J. Moore, 3825 Joppa Ave., Minneapolis, Minn. 55416
Filed Oct. 22, 1965, Ser. No. 509,694
1 Claim. (Cl. 242—55.2)

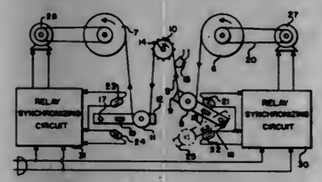
An adaptor element for toilet paper roll holders or the like which roll holders include a roll housing member having a substantially concave recessed portion for receiving a roll of paper therein and a pair of trunnion elements spaced adjacent the recess to receive a roll holder thereon which roll holder includes a pair of telescoping members normally provided for rotation within the trunnions, said adaptor including:

(a) a longitudinally extending portion receivable over one of the telescoping sections of said roll holder and positionable thereon against longitudinal movement;
(b) a pair of ear elements extending longitudinally outward from the adaptor and arranged to engage op-



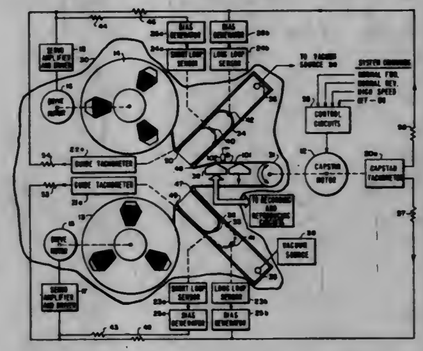
posite sides of said trunnion member to prevent rotation of the combined adaptor and roll holder within said trunnion;
(c) a roll canting element extending normally outward from said adaptor and securely attached thereto which canting element normally cants a roll of paper received thereon into friction contacting position wherein the opposite ends of the roll received thereon will engage the inner surfaces of said concave recess of said housing whereby a friction force is provided therebetween to normally prevent rotation of the roll about the canting element.

3,318,544
A.C. MOTOR SERVO MECHANISM FOR TAPE TRANSPORTS
John Paul Jones, Jr., Wynnewood, Pa., assignor to Navigation Computer Corporation, Norristown, Pa., a corporation of Pennsylvania
Filed Sept. 10, 1963, Ser. No. 307,886
12 Claims. (Cl. 242—55.12)



1. In a tape transport for digital recording apparatus, a pair of tape storage reels adapted to receive a supply of tape for thereby dispensing and taking-up excessive tape, alternating current motors coupled to drive each of the storage reels, motor switching circuits for maintaining each motor independently in energized or de-energized state when receiving corresponding control signals, transducing means, tape drive means for advancing tape incrementally past the transducing means independent of motion of the storage reels, a first tape loop length detection means including two limit switches spaced for momentary contact at each limiting end position of a range of tape loop length for controlling the dispensing of tape from one of the reels by thereby producing control signals for said motor switching circuits and energizing the respective motor when the loop length reaches one limit position and holding the motor energized when this corresponding limit switch opens until the other limit switch is contacted thereby de-energizing the motor when the loop length departs from a predetermined range, and a second similar tape loop length detection means including limit switches for controlling the take-up of tape on the remaining reel by thereby energizing its motor when the loop length reaches a limit position and de-energizing the motor when the loop length departs from a predetermined range, and means retaining a relatively constant tension on the tape throughout said range, whereby each motor is intermittently operated to transport a predetermined amount of tape while permitting independent high speed incremental processing of the tape past the transducing means.

3,318,545
WEB TRANSPORT SYSTEM
Richard Tobey, Los Angeles, Calif., assignor to Ampex Corporation, Redwood City, Calif., a corporation of California
Filed Nov. 14, 1963, Ser. No. 323,760
27 Claims. (Cl. 242—55.12)



5. A variable speed, intermittent and bidirectional movement transport system for web material comprising: supply and takeup reels for said web material; a single drive capstan positioned between said supply and takeup reels in continual engagement with said web material; buffer means for providing a loop storage of the web material on either side of said capstan between said reels; control means for controlling the speed and the direction of said drive capstan including means for controlling acceleration and deceleration of said drive capstan at a first rate when accelerating and decelerating between low speeds in either direction, and controlling acceleration and deceleration of said drive capstan at a slower rate when accelerating and decelerating to and from a high speed.

3,318,546
TAPE TRANSPORT SYSTEM
Benton Bejach, Los Angeles, Calif., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware
Filed Sept. 28, 1964, Ser. No. 399,517
9 Claims. (Cl. 242—55.12)

1. In a tape transport system wherein a tape traveling from a first power driven supply reel to a second power driven taken-up reel is conducted past a transducer station by tape guide means and a drive capstan assembly and wherein retractable nip-roller means presses the tape against the drive capstan to actuate the tape, the improvement comprising:

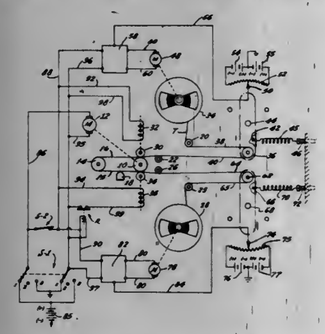
a first direct current motor to actuate the supply reel, said motor being reversible in response to reverse in the direction of current flow therethrough;

first responsive means responsive to the tension in a first portion of the tape between the supply reel and the drive capstan to create signals of one polarity when the tension in the first portion of the tape rises above a predetermined magnitude and to create signals of the opposite polarity when the tension in the first portion drops below the predetermined magnitude;

first regulating means for the first motor to energize the motor in the direction to lower said tension in response to the signals of the one polarity from the first responsive means and to energize the motor in the direction to increase said tension in response to the signals of the opposite polarity thereby to maintain the tension of the first portion of the tape substantially at said predetermined magnitude;

a second direct current motor to actuate the take-up reel, said second motor being reversible in response to reverse in the direction of current flow therethrough;

a second responsive means responsive to the tension in a second portion of the tape between the drive capstan and the take-up reel to create signals of a given



polarity when the tension in the second portion drops below a given magnitude and to create signals of the polarity opposite to the given polarity when the tension in the second portion rises above the given magnitude;

a second regulating means for the second motor to energize the motor in the direction to raise the tension in said second portion in response to the signals of said given polarity from the second responsive means and to energize the second motor in the direction to lower the tension in said second portion in response to signals of the polarity opposite from the given polarity from the second responsive means, thereby to maintain the tension of said second portion of the tape substantially at said given magnitude; and

control means to reverse the direction of rotation of the drive capstan thereby to change the take-up reel to a supply reel and change the supply reel to a take-up reel, said control means being effective also to reverse the direction of current flow through the two motors to reverse the effect on the two motors of the polarity of said signals.

3,318,547
TAPE TRANSPORT SYSTEM
Benton Bejach, Los Angeles, Calif., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware
Filed Sept. 28, 1964, Ser. No. 399,518
11 Claims. (Cl. 242—55.12)

1. In a tape transport system, the combination of:

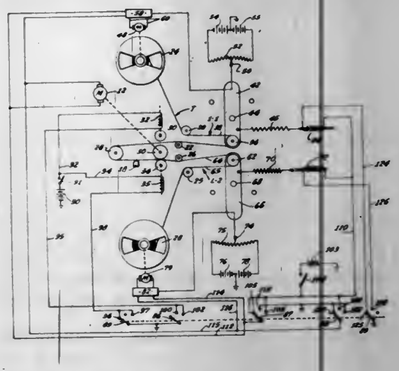
a supply reel;

a take-up reel;

a drive capstan;

guide means to direct the tape from the supply reel to the drive capstan and from the drive capstan to the take-up reel;

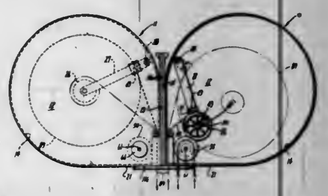
a nip-roller to press the tape against the drive capstan to drive the tape and thus divide the traveling tape into an ingoing section from the supply reel and an outgoing section to the take-up reel;



transducer means adjacent one of said two sections of the tape; and

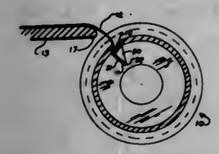
means to sense the tension in the two sections of the tape, respectively and to regulate the two reels, respectively, in accord with the sensed tensions to maintain given tensions in the two sections with the given tension always substantially higher in said ingoing section than in the outgoing section.

3,318,548
FILM MAGAZINE
William A. Palmer, Menlo Park, Calif., assignor to W. A. Palmer Films, Inc., San Francisco, Calif., a corporation of California
Filed Oct. 30, 1964, Ser. No. 407,709
13 Claims. (Cl. 242—55.13)



1. In a magazine, a case, an arm, means for pivotally mounting the arm in the case to permit swinging movement of the arm within the case, a film core, means for rotatably mounting the film core on the arm, a drive roller mounted in the case, means yieldably urging the film core towards the drive roller so that the drive roller engages the film core or the film carried thereby to cause rotation of the film core as the drive roller is rotated, and a guide roller mounted in said case and adapted to be yieldably urged toward said film core to engage the film core or film carried thereby at a location removed from that engaged by the drive roller so that the resistance of the guide roller and the driving force supplied by the drive roller put the film therebetween in tension as the film is wound.

3,318,549
WEB ATTACHMENT MEANS FOR SPOOLS
James Keith Macomber, Rockville Centre, N.Y., assignor to Consolidated Lithographing Corporation, Long Island, N.Y., a domestic corporation
Filed Jan. 5, 1965, Ser. No. 423,496
3 Claims. (Cl. 242—74)



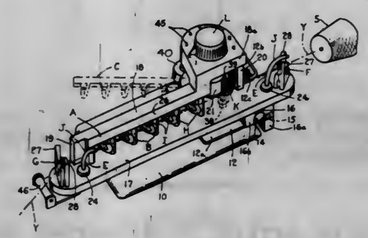
1. A spool, adapted for use as a take-up device for a web: comprising an outer substantially cylindrical surface around a longitudinal axis with at least one longitudinal slot in said surface comprising a pair of facing walls disposed inwardly from said surface, at least one substantially sharp bearing edge formed at the corner of the first of said walls and the surface of the cylinder, at least one other substantially sharp bearing edge formed on the second of said walls substantially parallel to said first mentioned bearing edge and at a smaller radius from said axis than said first mentioned bearing edge, said second mentioned bearing edge being displaced from a plane which includes said first mentioned bearing edge and said axis of said spool, and bearing means contiguous with said first wall substantially in a plane at an obtuse angle to the plane of said first wall and cutting through the plane in which said first mentioned edge and said axis lie.

3,318,550
TAPE MEASURE REEL
Andre Quenot, Besancon, Doubs, France, assignor to Quenot & Cie, Besancon, France
Filed May 25, 1965, Ser. No. 458,583
Claims priority, application France, Mar. 13, 1965, 9,169
4 Claims. (Cl. 242—107.3)



1. A tape measuring device comprising a housing having upper and lower walls having an opening, a generally circular shank in said housing which is rigidly attached to the housing and extends approximately centrally axially thereof, tape guide means surrounding said shank and adapted to rotate thereabout, a coil spring attached by its inner end to the shank so as to coil and uncoil about the latter, a flexible tape located between the spring and said housing and whose inner end is attached to the outer end of the spring while its outer free end can be pulled through the opening in the housing for measuring purposes, at least one annular guide surface on the tape guide means for guiding the tape when it is being unwound for measuring purposes or wound for storage, at least two radially extending recesses in said tape guide means, a braking member located in each recess; the arrangement being such that the tape can be manually unwound and withdrawn from the housing to a desired extent so as uncoil the spring from an unstressed to a stressed condition and can then be released so that the tape and the spring are re-coiled, the tape in its re-coiling action rotating the tape guide means by fricional contact so that the braking members are urged into braking contact with the upper wall of the housing, whereby the rotational speed of the tape guide means and the rate at which the tape is rewound are controlled.

3,318,551
YARN TENSIONING DEVICE
Robert F. Parks and William B. Karst, Greenville, S.C., assignors to Steel Heddle Manufacturing Company, Paris, S.C., a corporation of Pennsylvania
Filed June 28, 1965, Ser. No. 467,388
4 Claims. (Cl. 242—154)

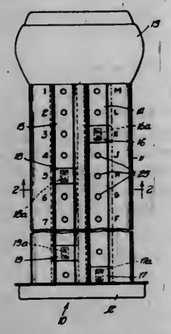


1. A yarn tensioning device including, an elongated housing, a plurality of longitudinally spaced aligned pins carried by said housing, an arm pivotally mounted on one side of said pins, resilient means normally urging said arm outwardly away from said pins, longitudinally spaced aligned yarn guides on the other side of said pins spaced transversely from said pins forming a yarn channel, a yarn inlet in alignment with said yarn channel spaced outwardly of the yarn guide adjacent thereto, a yarn outlet in alignment with said yarn channel spaced outwardly of the other of the yarn guides, a plurality of spaced loops carried by said arm in alignment with said pins spaced longitudinally to pass between said pins when said resilient means is overcome to permit said arm to move to a position adjacent the pins, open yarn passageways in said loops in alignment with said yarn channel, and outwardly tapering guide surfaces urging yarn between the guides and the housing for guiding the yarn into the inlet and outlet and into the loops.

3,318,552
PNEUMATIC CARRIER
Joseph E. Panza, Birmingham, and George G. Hart, Wayne, Mich., assignors to The Grover Company, Detroit, Mich., a corporation of Michigan
Filed Feb. 28, 1966, Ser. No. 530,558
9 Claims. (Cl. 243—32)

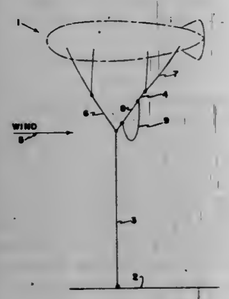
1. In a carrier for use in a pneumatic tube, the combination comprising: a tubular body portion substantially of electrically non-conductive and non-ferromagnetic material, the periphery of said tubular body portion including at least one longitudinal track; at least one continuous electrically conductive element disposed along said track; and a pair of non-ferromagnetic members engaged in said track, each of said members carrying a signaling magnet, at least a portion of each of said members being electrically conductive and arranged such that each of said members presents an exposed, electrically conductive contacting surface electrically connected to said continuous element, at least one of said pair of members being selectively positionable along said track such that as said carrier passes through said pneumatic

tube the spacing between said pair of members can be read either by electrical sensing means including a pair



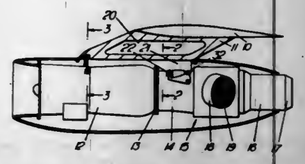
of compatibly-spaced electrical contactors or by magnetic sensing means including a pair of compatibly-spaced magnet sensing coils.

3,318,553
ANGLE OF ATTACK COMPENSATING BRIDLE SYSTEM FOR LIGHTER-THAN-AIR BALLOON
Robert S. Ross, Northfield Center, Ohio, assignor to Goodyear Aerospace Corporation, Akron, Ohio, a corporation of Delaware
Filed Mar. 10, 1965, Ser. No. 438,508
3 Claims. (Cl. 244—33)



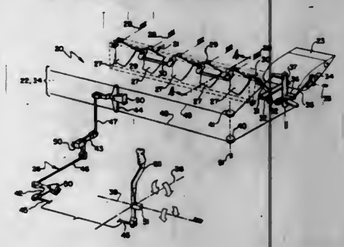
1. In a suspension tethering system for a lighter-than-air balloon, the combination of
a bridle system connecting to the forward and the rearward portions of the balloon,
a tether cable operatively connected in swivel relation to the bridle system near the middle thereof,
a pair of stretchable resilient elastic members associated with the bridle system and each connected at one end thereof to the tether cable and at the other end to respective rearward portions of the bridle system whereby each of such members elongate the bridle system between the rearward portions of the balloon and the tether cable upon an increase of tether cable loads to thereby equalize cable tensions in the bridle system, and
separate limit eable means associated with each of the pair of elastic members and connected at their ends in the same manner as the elastic members to limit the maximum stretchable length of the elastic members, and act as permanent support cables of the bridle system.

3,318,554
MOUNTING ARRANGEMENT FOR ENGINES
Peter Arthur Ward, Derby, John Albert Mullins, Darley Abbey, Derby, and Martin Hume Bryan-Brown, Etwall, England, assignors to Rolls-Royce Limited, Derby, England
Filed Aug. 2, 1965, Ser. No. 476,532
Claims priority, application Great Britain, Sept. 22, 1964, 38,705/64
3 Claims. (Cl. 244—54)



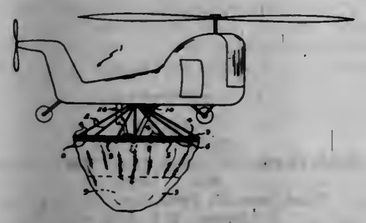
1. A mounting arrangement for a gas turbine engine comprising deflector means to deflect the exhaust gases of the said engine, and attachment means for connecting the said deflector means to the said engine, a first mounting means comprising a pivotable link connected between the deflector means and aircraft structure which swings in a direction substantially perpendicular to the axis of the engine and whtich supports part of the weight of the engine and transmits the loads produced on the deflector means by the exhaust gases of the engine to aircraft structure, and stay means which prevent angular movement of the engine about its axis, and second mounting means positioned forwardly of said first mounting means for connecting the said engine directly to aircraft structure to support the remainder of the weight of the engine.

3,318,555
AIRCRAFT FLIGHT CONTROL SYSTEM
Emery C. Swogger, Columbus, and Harris L. Woods, Reynoldsburg, Ohio, assignors to North American Aviation, Inc.
Filed Apr. 21, 1966, Ser. No. 549,755
6 Claims. (Cl. 244—90)



1. An aircraft flight control system for effecting changes in aircraft roll attitude about an aircraft longitudinal axis in response to manual control movements applied to a control input means, and comprising:
(a) wing means having two outboard regions that are symmetrically-opposed relative to the aircraft longitudinal axis and that are each defined by upper and lower mold line surfaces,
(b) control input means positioned for manual movement in alternate opposite directions from a neutral condition associated with normal laterally stabilized flight to change the roll attitude of said wing means,
(c) aileron means located in each of said two opposed wing outboard regions and each positioned to be moved in alternate opposite directions from a neutral condition associated with normal laterally stabilized flight according to an essentially linear function of a control movement,
(d) mechanical force-transmitting means connecting said aileron means and control input means together in a manner whereby manual movement of said control input means at all times results in correlated movement of each of said aileron means, and
(e) spoiler assembly means having essentially flat aerodynamic lift-reducing surface members located in each of said wing means outboard regions transverse to the aircraft longitudinal axis and mechanically connected to said aileron means to be rotated at all times in alternate opposite directions about axes that are generally parallel to the aircraft longitudinal axis in correlated response to manual control movements applied to said control input means and said aileron means,
one of said spoiler assembly means being rotated throughout a right angle to a position whereat said surface members are projected transversely above said wing means upper mold line surface when rotated fully in one direction from a neutral condition associated with laterally stabilized flight, the other of said spoiler assembly means being rotated entirely within the limits of said wing means upper and lower mold line surfaces in an opposite direction from said neutral condition and simultaneously with said one spoiler assembly means.
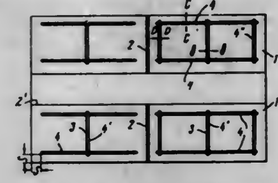
3,318,556
VTOL AIRCRAFT LANDING SITE FABRICATION
Angelos Vasiloff and William M. Roquemore, both of Dayton, Ohio, assignors to the United States of America as represented by the Secretary of the Air Force
Filed Feb. 8, 1966, Ser. No. 526,968
6 Claims. (Cl. 244—114)



1. The method of preparing a site which comprises the steps of preparing a flat supporting sheet having size and shape similar to the site, suspending the sheet below a supporting aircraft to form a bag-like container, filling the container while substantially above the site with a soft self-hardening plastic formulation in sufficient quantity to cover the site to a predetermined substantially uniform thickness, releasing the bag-like container and contents at a substantially predetermined altitude above said site for free gravity fall and impact on the site to cause the contents to radially spread the bag out flat over the site and cover the surface of the spread out bag to said predetermined thickness, and permit the same to harden to form a self-hardened supporting surface.

3,318,557
AEROSTATIC SUPPORT FOR MACHINES AND APPARATUS
Viktor Petrovich Zhed, Uchebny pereulok 2, kv. 57; Solomon Aizikovich Sheinberg, Rostovskaya naberezhnaya 3, kv. 46; and Maria Andreevna Pavlova, 5 Verkhne-Mikhailovsky proezd 28, kv. 61, all of Moscow, U.S.S.R.
Filed July 12, 1965, Ser. No. 471,134
4 Claims. (Cl. 248—20)

1. An aerostatic support for machines and the like comprising a load-carrying member having a substantially flat under surface adapted to be disposed in facing relation to a base surface, said under surface having open channels therein the opposite ends of each of which communicate with atmosphere and which open channels divide said under surface into at least three sections each separated by a channel, said under surface having a plurality of grooves therein defining downwardly open passageways having closed ends, said member having a plurality of pressurized gas-feeding holes extending therethrough with each in respective communication with a passageway for conducting pressurized gas into the passageways, so as to provide a pressurized supporting gas cushion beneath said member and there being at least one passageway and associated hole related with each separate section.



3,318,558
FASTENING DEVICE AND ASSEMBLY
Albert T. Buttrisz, Westlake, Ohio, assignor to Timerman Products, Inc., a corporation of Ohio
Original application Aug. 31, 1964, Ser. No. 393,160. Divided and this application Mar. 17, 1966, Ser. No. 535,085
11 Claims. (Cl. 248—27)

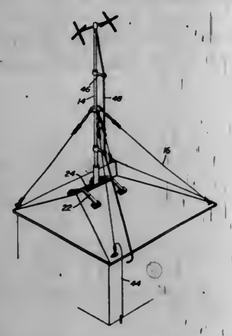


1. A fastening device for securing an article to a support member having an aperture therein comprising, a base having a window-like opening for slidably receiving therethrough a portion of said article, a retainer means extending outwardly adjacent the upper end of said window-like opening for engagement with the portion of said article received through said window-like opening, attachment means disposed adjacent the lower end of said window-like opening for securement of the device to said support member, said attachment means including a leg bent outwardly from the general plane of said base for engagement with the confronting underside of said support member, and a resilient tongue struck-out adjacent the bottom of said window-like opening for receiving therebetween a marginal portion of said support member.

3,318,559
ANTENNA MOUNTING BASE
Gordon T. Mullen, 2061 Euclid Ave., Long Beach, Calif. 90815
Filed Nov. 15, 1963, Ser. No. 324,062
4 Claims. (Cl. 248—43)

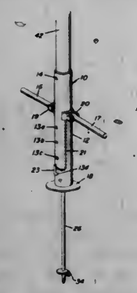
1. An antenna mast support for a building roof comprising a base, said base including a pair of elongated spaced parallel base bars, a crossbar, said crossbar extending between base bars and having the opposite ends thereof secured to the base bars at an intermediate point

along the length thereof, a stub shaft rigid with and extending vertically from the crossbar for telescopic reception within the lower end of a hollow antenna mast, and a



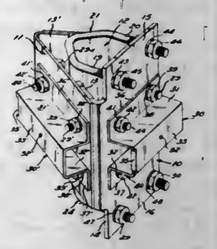
hollow cylinder rigidly secured to the crossbar in surrounding spaced relation to the stub for telescopic reception of the mast which is received over the stub, said hollow cylinder extending vertically beyond the stub.

3,318,560
MAST ASSEMBLY AND GROUND ENGAGING SUPPORT THEREFOR
Charles H. Garrette, Jr., and Harry M. Ryan, Richmond, Va., assignors to Armed Forces Equipment Development Corporation, Richmond, Va., a corporation of Virginia
Filed Aug. 3, 1964, Ser. No. 387,240
7 Claims. (Cl. 248—44)



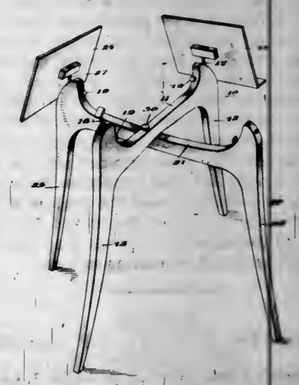
6. A portable antenna mast assembly comprising a tubular housing, a series of axially spaced holes defined in the walls of said housing, a shaft retractable into and partly projectable from one end of said housing, the projectable portion of said shaft being beveled at the end, an auger blade mounted on the projectable portion of said shaft, an aperture defined by said shaft registerable with said holes, a pin adapted to be inserted through said holes and said aperture to retain said shaft in a projected position, a pair of handles pivotally mounted on said housing for applying torque to said housing, a ground flange mounted at the lower end of said housing for securing said assembly to the ground, a plurality of telescoping tubes of varying diameter, a spring urged pin located at the lower portion of each tube but the outermost one, an integral guide track defined by each tube but the innermost one, extending the length thereof, and terminating at the upper portion of said tube in an enlarged cavity, said pin being adapted to ride in said track to maintain said tubes in constant axial relationship and to extend into said cavity to maintain said tubes in an extended position, means at the upper portion of said innermost tube for receiving an antenna, and means to secure said outermost tube with respect to the other end of said housing.

3,318,561
ANTENNA SUPPORT BRACKET
Arthur A. Finke, Newbury, Larry H. Kline, Beachwood, and Harold Pikler and Archibald Robertson, Jr., South Euclid, Ohio, assignors to Antenna Specialists Co., a corporation of Ohio
Filed May 12, 1965, Ser. No. 455,262
8 Claims. (Cl. 248—229)



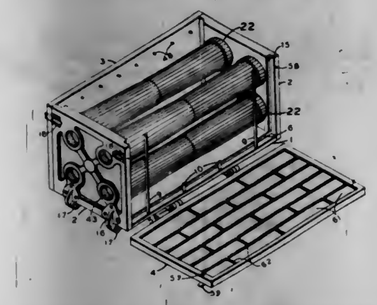
1. An antenna support bracket for attachment to a mast comprising a plurality of plates attached to and angularly disposed with respect to each other to provide a hollow tubular structure of polygonal cross-section to surround the mast, bracket clamping means carried by one of said plates and extending inwardly therefrom for engagement with the mast, and boom-clamping means on the outside of certain of said plates, at least, for clamping engagement with respective antenna-supporting booms extending laterally of the plates and disposed with respect to each other at an angularity determined by the angular disposition of the plates to which said booms are clamped, whereby actuation of said bracket clamping means to clamp the bracket to a mast will not distort the angularity of said booms with respect to each other.

3,318,562
MUSIC STAND
Ralph Hersh, 55 Vernon Place, Mount Vernon, N.Y. 10552
Filed June 10, 1965, Ser. No. 462,926
5 Claims. (Cl. 248—460)



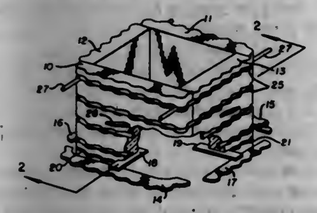
1. A multiple copy holder stand comprising at least two support members, each of said support members comprising a central horizontally extending portion and respective downwardly extending leg portions from each respective end of the central portion, means joining the central portions of each support member intermediate their ends to each other to form an upright stand in the assembled relation supported on the downwardly extending leg portions of each support member, a plurality of copy holder boards, and adjustable fastening means to secure a respective one of said copy holder boards to the respective portions of each support member adjacent the ends of the central portions thereof, said joining means comprising a pivotal connection positioned off center with respect to the ends of said support members permitting a pair of said copy holders adjacent the ends of one of said support members to be moved toward and away from a pair of copy holders adjacent the ends of the other support member and providing more space from the copy holders at one end of each support members to said pivotal connection than from the copy holders at the other ends of each support member to said pivotal connection.

3,318,563
CONCRETE BLOCK MOLD ASSEMBLY
George G. Downing, Palo Alto, Calif. (9019 Riderwood Drive, Sunland, Calif. 91040)
Filed July 8, 1964, Ser. No. 381,061
12 Claims. (Cl. 249—140)



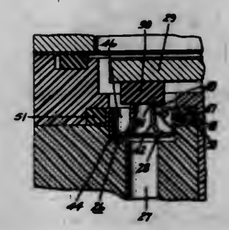
3. A concrete block mold assembly comprising:
a base plate, a pair of end plates, a front plate, and a back plate, all of said plates being connected together to form an open top mold; and
at least one hollow core assembly supported at opposite ends by two of said plates and including means disposed within the hollow core space to effect a separation of said core assembly into separate core portions, and each end of said core assembly having an end face sealed flush against the interior surface of the adjacent supporting plate.

3,318,564
HOT TOP AND ADJUSTABLE WIPER STRIPS THEREFOR
Michael E. La Bate, 116 Orchard Ave., Ellwood City, Pa. 16117
Filed Feb. 2, 1965, Ser. No. 429,845
6 Claims. (Cl. 249—197)



5. A hot top formed of four vertically standing slab-like sections of consumable material each of which has a groove in its outer side adjacent to and parallel with its lower edge, means for holding the slab-like sections in a structure with open top and bottom, and means for closing the area between said hot top and an ingot mold in which it is positioned, said means comprising a plurality of wiper strips having integral right angular tabs thereon positioned in said grooves with said tabs extending into said hot top through said openings therein, said wiper strips being movable relative to said hot top.

3,318,565
PILOT CONTROLLED VALVE
Leon H. Cutler, New Haven, Conn., assignor to General Electric Company, a corporation of New York
Filed Jan. 27, 1964, Ser. No. 340,213
4 Claims. (Cl. 251—45)

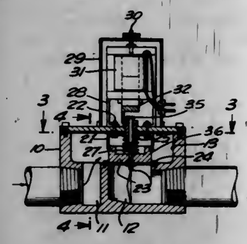


1. In a pilot controlled valve including a valve body a main pressure responsive valve including a diaphragm for controlling the flow through said pilot controlled valve, an inlet leading to said main pressure responsive valve and an outlet leading from said main pressure responsive valve, a pilot system formed in said valve body for controlling the fluid pressure applied to said main valve, said pilot system including a chamber formed in said valve body over said diaphragm, a bleeder opening in the diaphragm for introducing fluid into said chamber from said inlet at substantially the inlet pressure for closing said diaphragm, and a relief passageway in said valve body leading from said chamber to said outlet for releasing fluid from said chamber to allow said diaphragm to open; a control means for said pilot system comprising a pilot valve in said relief passageway, said pilot valve including a metal eyelet port mounted in a seat in said valve body, and a closure member positioned over said port, said eyelet port having a central barrel forming a flow passage therethrough and said closure member engaging the mouth of said barrel to close said pilot port, said barrel terminating in an integral upwardly turned skirt forming an annular rim around said barrel, and a flange extending outwardly from said annular rim, said flange being adjacent said seat in said valve body, a gasket engaging said annular rim, said flange and said valve body for effecting a fluid seal therebetween, and said rim being spaced from said barrel and therewith forming an annular groove for catching foreign particles carried by the fluid passing into said barrel.

3,318,566
SOLENOID VALVE
Gus Pike, 10901 Atkinson Ave., Inglewood, Calif. 90303, and Walter M. Cromer, 2138 E. 88th St., Los Angeles, Calif. 90002
Filed Sept. 23, 1963, Ser. No. 310,943
2 Claims. (Cl. 251—48)

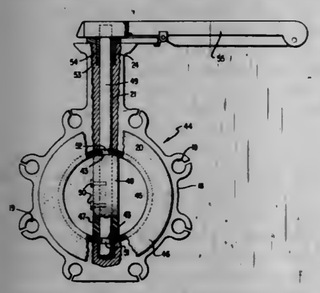
1. A solenoid-operated normally-closed valve comprising:
a valve body forming a valve chamber having inlet and outlet openings, a circular valve seat formed around said outlet opening, a valve guide opening formed in a wall of said chamber opposite said valve seat, and a bleeder opening in said chamber wall;

a hollow cylindrical valve guide housing extending from said chamber wall with said openings communicating with the interior thereof;
a cylindrical valve member reciprocably disposed within said housing and having an outer end adapted to engage said valve seat;
pressure seal means between the periphery of said valve member and the wall of said housing;
a valve guide stem secured to the inner end of said valve member and extending through said valve guide opening;



a solenoid supported external to said valve body and including a plunger;
spring means normally biasing said valve member towards said valve seat;
means providing a lost-motion coupling between said plunger and said valve guide stem;
and a flap valve secured outside said valve body and normally closing said bleeder opening.

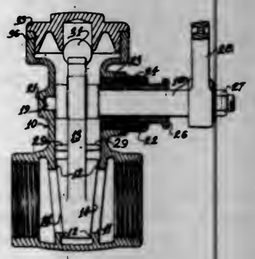
3,318,567
BUTTERFLY VALVE AND METHOD FOR CONSTRUCTING THE SAME
Bruce M. Gifford, Houston, Tex., assignor to Mono Valve Corporation, Conroe, Tex., a corporation of Texas
Filed May 22, 1964, Ser. No. 369,553
17 Claims. (Cl. 251—306)



1. A method for constructing a butterfly valve which includes shaping a section of sheet material to form a valve housing section with an enclosed fluid conduit having a fluid input opening and a fluid output opening, simultaneously molding a layer of substantially resilient material to the inner surfaces of said fluid conduit between said fluid input and output openings to provide a valve seat of predetermined size and a layer of corrosion-resistant moldable material to the outer surfaces of said valve housing section, movably mounting a fluid control means within said fluid conduit between said input and output openings so that such control means is movable to and from a position wherein the peripheral surfaces thereof are in sealed contact with said valve seat.

10. A butterfly valve comprising a valve housing section of sheet material having at least two substantially parallel surfaces and including a fluid conduit extending between the parallel surfaces thereof, the surfaces of said fluid conduit being rough cut and irregular, a shaft passage formed in said housing section and extending on either side of said fluid conduit, a molded valve seat of resilient, moldable material molded in place within said fluid conduit to the irregular surfaces thereof, said valve seat having a smooth inner surface which defines a fluid passage accurately centered within said valve housing section and an irregular outer surface which fills the irregularities in the surface of said fluid conduit, a molded fluid control means within said fluid passage, said molded fluid control means having an outer edge molded to conform to the configuration of said valve passage and cooperating with said valve seat to close said passage, a valve shaft connected to said molded fluid control means, said shaft extending through said shaft passage, and a molded layer of anti-corrosive moldable material molded to the exposed surfaces of said housing section not covered by said valve seat.

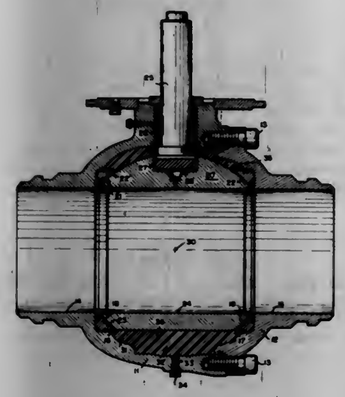
3,318,568
VALVE ACTUATING MECHANISM
Carl A. Blomstran, Birmingham, Ala., assignor to Stockham Valves & Fittings, Inc., a corporation of Delaware
Filed Aug. 13, 1964, Ser. No. 389,260
4 Claims. (Cl. 251—259)



1. In actuating mechanism for moving a first valve seat mounted adjacent one end of a gate valve disc toward and away from a second valve seat carried by a valve body:
(a) a pivot member adjacent the opposite end of said disc from said first valve seat,
(b) means limiting lateral movement of said pivot member relative to the valve body and permitting free, straight line sliding of said pivot member toward and away from said second valve seat so that said first valve seat is adapted to move in a straight line toward and away from seated position and then in an arcuate direction to open and closed positions,
(c) there being an opening through said disc intermediate said pivot member and said first valve seat defining a closed yoke-type cam follower,
(d) a rotatable stem extending through said opening,
(e) a cam carried by said stem engaging said cam follower and defining therewith a positive motion cam which permits motion of said disc only with motion of said cam,
(f) said cam and closed yoke-type cam follower being of a shape and arranged to move said first valve seat in a substantially straight line into and out of contact with said second valve seat and limit movement of said first valve seat to substantially straight line movement as it moves into and out of contact with said second valve seat, and

(g) said cam and closed yoke-type cam follower also being of a shape and arranged to move said first valve seat in an arcuate path selectively from closed to open positions after said first valve seat is moved to unseated position relative to said second valve seat.

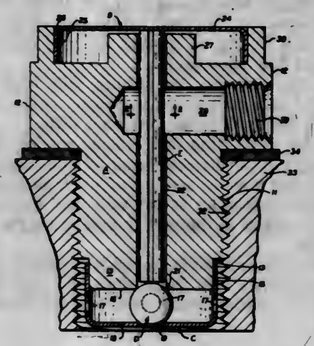
3,318,569
PLUG VALVE ASSEMBLY AND METHOD OF MAKING
Paul A. Manor, Pittsburgh, Pa., assignor to Rockwell Manufacturing Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed May 8, 1964, Ser. No. 365,997
11 Claims. (Cl. 251—315)



1. In a plug valve assembly having a body formed with fluid inlet and outlet passages opening at their inner ends into a valve plug cavity, means providing axially spaced apart valve plug seating surfaces positioned in said cavity respectively in surrounding relation to the inner ends of said passages, a ported ball type plug structure supported on said seating surfaces within said cavity for rotation between positions where it respectively blocks and provides fluid communication between said passages, and surface means on said plug structure and coacting with said seating surfaces to provide annular seals around the inner ends of said passages when said plug structure is rotated to its blocking position, said plug structure, said body, and said means providing said seating surfaces delimiting an internal space, the improvement comprising a solid filler substantially entirely occupying said space and having a running clearance with said plug structure, said filler being formed from a material which is different from the material forming the means providing said seating surfaces.

3,318,570
BLEEDER VALVES
Donald Bruce Lane, 25 N. Court, North Park, Roslyn Heights, N.Y. 11577
Filed Dec. 18, 1963, Ser. No. 332,337
3 Claims. (Cl. 251—321)

1. A bleeder valve comprising a plug having an axial bore defining a valve seat at the inner end of the plug and a cross-bore communicating with the axial bore for discharging bled fluid, an inner apertured spring cap press-fitted to the inner end the plug, a ball yieldably held by the said inner cap against the said seat, a valve operating rod in the said axial bore, and an outer cap member, press-fitted to the outer end of the plug, having a central axially movable diaphragm portion engageable with the said rod for forcing the same axially to unseat the ball so as to permit discharge of fluid, said diaphragm portion



of said outer cap member being of greater elasticity than said spring cap.

3,318,571
FABRICATED VALVE BUSHING
William B. Jeffrey, Irwin, Pa., assignor to Westinghouse Air Brake Company, Wilmerding, Pa., a corporation of Pennsylvania
Filed July 23, 1964, Ser. No. 384,594
7 Claims. (Cl. 251—367)

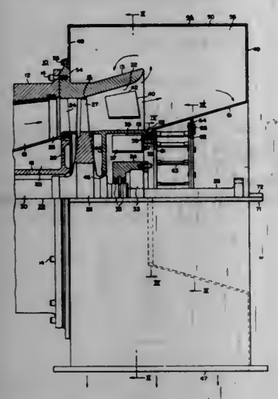


1. A fabricated valve bushing comprising:
(a) a pair of coaxially disposed hollow cylindrical segments having the same inside and outside diameters,
(b) a port segment disposed between and in coaxial relationship with said cylindrical segments and having the same inside and outside diameters as said cylindrical segments,
(c) said port segment comprising an annular member having a pair of axially opposing end surfaces, each end surface disposed adjacent the end of a different one of said cylindrical segments, one of said end surfaces having radially disposed groove means therein providing passage means between one of said end surfaces and the end of the adjacent cylindrical segment for intercommunicating the interior and exterior of the bushing, and
(d) means bonding said cylindrical segments and said port segment into a unitary structure.

3,318,572
ELASTIC FLUID POWER PLANT APPARATUS
Augustine J. Scalzo, Philadelphia, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Mar. 9, 1965, Ser. No. 438,270
8 Claims. (Cl. 253—39)

1. In an elastic fluid utilizing machine comprising: an outer tubular shell structure,

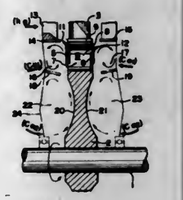
an inner tubular shell structure disposed concentrically with said outer shell and jointly therewith defining an annular flow passageway for elastic fluid,
a rotor structure disposed within said outer shell structure and having an annular array of blades disposed in said flow passageway,
means for rotatably supporting said rotor about its central axis comprising a bearing and a bearing retainer disposed within said inner shell,
means for supporting said bearing retainer including a plurality of struts connected to said inner shell in a tangential manner and to said outer shell structure,
said struts extending across said flow passageway and being subject to thermal change in length during operation,
said struts being effective to apply torsional forcus tending to rotate said inner shell and said bearing retainer to accommodate said thermal change,



the improvement comprising,
a housing disposed in communication with said flow passageway,
said housing having a first annular wall and a second annular wall,
means connecting said first wall to one of said shells, and
means connecting said second wall to the other of said shells,
one of said connecting means having a high degree of torsional flexibility thereby to impose a minimal torsional restraint on said struts, and having a high degree of rigidity in axial and radial directions, thereby to transmit the fluid pressure loading forces imposed on the housing to the associated shell.

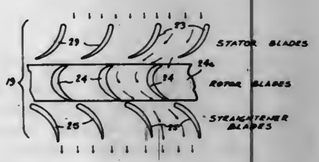
3,318,573
APPARATUS FOR MAINTAINING ROTOR DISC OF GAS TURBINE ENGINE AT A LOW TEMPERATURE
Masakatsu Matsuki and Tadao Torisaki, both of Tokyo, Japan, assignors to The Director of National Aerospace Laboratory of Science and Technology Agency, Akiyoshi Matsuura, Tokyo, Japan
Filed Aug. 16, 1965, Ser. No. 479,912
Claims priority, application Japan, Aug. 19, 1964, 39/46,214
3 Claims. (Cl. 253—39.15)

1. Rotor for a gas turbine engine, comprising a rotor disc mounted on a rotatable shaft, a plurality of blades mounted in spaced relation around the periphery of the disc, each blade comprising a working portion, a stem and a root portion, guide plates arranged on both sides of the rotor adjacent the stems and so positioned to leave a gap between the bottom edge of the plate and the rotor on one side and a gap between the top edge of the plate and the tops of the blade stems on the other side of the rotor to form cooling fluid entry and exit gap openings, respectively, at different radial distances from the rotor for the space formed between the guide plates, tongue elements on the guide plates extending laterally therefrom and cooperating with the inner nozzle rings of the engine,



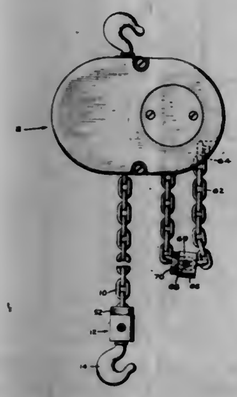
and guide rings spaced from the rotor to divide the spaces adjacent the rotor into inner and outer pocket portions for circulating cooling fluid within the outer pocket portions adjacent the guide plates, tongue elements and rings and prevent high temperature gases from entering the outer pocket portions, and circulating the cooling fluid in the inner pocket portions over the faces of the disc.

3,318,574
GAS TURBINE
Ronald A. Tyler, Ottawa, Ontario, Canada, assignor to Canadian Patents and Development Limited, Ottawa, Ontario, Canada, a corporation of Canada
Filed Nov. 30, 1964, Ser. No. 414,650
2 Claims. (Cl. 253—59)



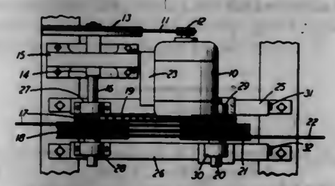
1. An axial flow gas turbine comprising,
(a) stator means,
(b) rotor means including a set of rotor blades having concave surfaces for receiving gas from said stator means, and, at rotor standstill, for imparting to said gas a component of velocity in a circumferential direction,
(c) a set of straightener blades located immediately downstream of the rotor blades,
(d) each said straightener blade comprising a fixed axially extending tail portion, and, upstream thereof, a nose portion pivotally connected to said tail portion,
(e) means for moving said nose portion between a pair of positions, in a first of which positions said nose portion extends axially as a continuation of said tail portion, and in the second of which positions said nose portion is inclined to the axial direction for receiving said gas having said circumferential component at rotor standstill and for deflecting said gas to discharge the same substantially axially,
(f) and means sensitive to the speed of rotation of said rotor means,
(g) said sensitive means (f) being connected to said moving means (e) for moving the nose portions of said straightener blades from said second position towards said first position upon detection by said sensitive means (f) of a speed of said rotor means above a low speed, for rendering said straightener blades substantially non-deflecting to gas flow.

3,318,575
CUSHIONING DEVICE FOR HOIST CHAINS
Harold V. Hawkins, 4895 Meadowbrook Road, Clarence 14031, and Ralph A. Dick, 4148 Fireside Drive, Williamsville, N.Y. 14221
Filed May 18, 1965, Ser. No. 456,780
1 Claim. (Cl. 254—167)



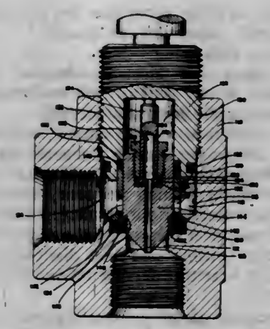
In a chain hoist system comprising a main hoist frame, a load lift chain training therethrough and having at one end thereof a load lift block and being slack-looped at its other end into dead-end connection with said frame, the improvement comprising a cushion device for dampening the shock stresses on said system caused by accidental running-out of said chain slack loop, said cushion device comprising a cushion formed of energy absorbing material apertured to accommodate said chain in non-rotative relation therethrough and disposed thereon to encircle said chain ahead of the dead-end connection thereof and being so dimensioned and securely positioned on the chain as to collide with said frame prior to tautening of the chain slack-looped portion, a second cushion device interposed between said frame and said load lift block for dampening the shock stresses on said system caused by accidental collision of said load lift block against said frame, said cushion devices comprise a cylindrical body have a transverse opening, a cross-pin received in said opening and projecting through one of the links of said chain, and a cushioned block encircling said chain and set against one end face of said cylindrical body.

3,318,576
WINCH SYSTEM FOR AUTOMATIC PIT CLEANER
Gerald L. Kitson, 9709 Belding Road NE., Rockford, Mich. 49341
Original application Dec. 30, 1963, Ser. No. 334,506, now Patent No. 3,240,323, dated Mar. 15, 1966. Divided and this application Mar. 14, 1966, Ser. No. 534,240
6 Claims. (Cl. 254—175.5)



1. A winch system for use with a pit cleaner comprising a pair of axially spaced sheaves, means for driving one of said sheaves, cable means repeatedly looped about said sheaves, the said sheaves being of the same diameter and traveling at the same speed, the said cable being wrapped about said sheaves in series and parallel whereby the cable loops are maintained in driving and in driven engagement with said first and second sheaves thereby distributing the power therebetween, a motor unit including a drive pulley thereon, a driven wheel and a geared speed reducer coupled to said first shaft, a belt between said drive pulley and said wheel, said first sheave driving the said loops which distribute the power between the said first and second shafts, a pair of parallel rails carrying a first pair of aligned shaft bearing assemblies supporting the first shaft, and a second pair of aligned shaft bearing assemblies to support the second shaft and to maintain the proper tension in the said cable loops between and about said sheaves whereby fixing the shaft bearing assemblies in a position corresponding to proper tension applies tension between the said sheaves and assures driving engagement between the dual sheaves and the cable.

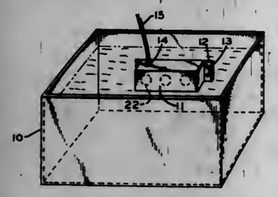
3,318,577
HIGH PRESSURE VALVE HAVING SOFT SEATING AND BALANCED SEAL
George W. Banks, 24824 43rd Ave. S., Kent, Wash. 98031
Filed May 24, 1965, Ser. No. 457,939
11 Claims. (Cl. 251—332)



1. A high pressure control valve, comprising: (a) a valve body having a generally cylindrical wall defining a central valve chamber with a seat-receiving bottom surface, and at least two orifices opening into said valve chamber, a first orifice opening generally coaxially into said valve chamber through said bottom surface and a second orifice opening into said valve chamber above said bottom surface through said valve wall; (b) a barrel member detachably received in the upper portion of the chamber, said barrel having a chamber centrally disposed therein defining a closure chamber for receiving a valve closure member; (c) a valve closure member disposed in said closure chamber for reciprocating movement therein, and including a control stem extending upwardly therefrom through said closure chamber and said barrel, the lower end of said closure member having a depending annular closure wall means with a seat-engaging surface at the lower end thereof and also having an upwardly recessed annular cavity around the inside of said closure wall, the lower end of said closure member also having a depending metering pin portion; (d) annular, generally upstanding flexible by-pass means located on said bottom surface and being surrounded on its outside diameter by a plastic seat means extending between the by-pass and valve chamber wall so that the by-pass has limited lateral movement, said by-pass means being adapted to be contacted by said metering pin portion in such a way that travel of said closure member is not obstructed by contact

of said by-pass and said metering pin portion; and (e) said annular closure wall being of sufficient diameter to engage said plastic seat so that when said valve is closed said by-pass means is received in said annular cavity in such a way that said metering pin portion extends into said by-pass in its closed position, and said by-pass means is in spaced relation to the deepest part of said annular cavity.

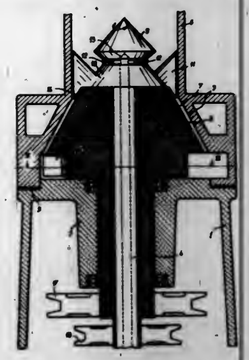
3,318,578
CLEANING APPARATUS
Norman G. Branson, Stamford, Conn., assignor, by mesne assignments, to Branson Instruments, Inc., Stamford, Conn., a corporation of Delaware
Filed Mar. 22, 1965, Ser. No. 441,609
17 Claims. (Cl. 259—1)



1. In a sonic cleaning apparatus the combination of: a sealed, liquid immersible enclosure;
said enclosure containing:
(a) at least one electromechanical transducer coupled to one wall of said enclosure for providing thereto vibratory energy;
(b) an electrical power circuit which includes heat dissipating circuit elements for receiving low frequency line voltage electrical energy and converting it to high frequency energy coupled to said transducer for causing, when energized, said transducer to proyide the vibratory energy;
(c) means causing said heat dissipating elements to be in heat transferring relationship with said enclosure;
(d) electrical circuit connecting means disposed on said enclosure for providing low frequency line voltage electrical energy from without said enclosure to said electrical circuit,
whereby when the exterior of said enclosure is immersed in a liquid and said circuit is energized, said transducer is adapted to cavitate said liquid and said liquid by its contact with said enclosure acts as a heat sink for said heat dissipating elements.

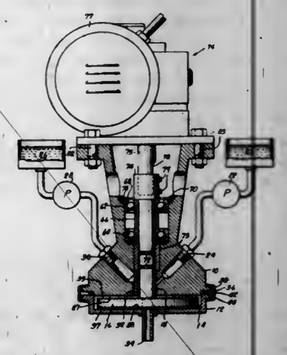
3,318,579
APPARATUS FOR MIXING FLOURY MATERIALS SUCH AS PLASTER
Pierre Alexandre Foucault, 5 Rue de Saint Cyr, Marly-le-Roi, France
Filed Dec. 21, 1964, Ser. No. 419,878
Claims priority, application France, Dec. 23, 1963, 958,273, Patent 1,455,028
6 Claims. (Cl. 259—6)

1. A device for mixing at least two constituents, comprising a housing having a vertical frusto-conical chamber and a vertical round casing coaxial with said chamber and extending thereabove, the end of said chamber having the smaller diameter registering with the lower end of said casing; a frusto-conical member rotatably mounted in said chamber and defining therewith a throttle passage extending between said member and said chamber; a frusto-conical hub rotatably mounted in said casing and providing an extension of said frusto-conical member; at least one helicoidal blade fixed to said hub and extending, with a small clearance, to said casing; said hub having a head portion the top of which has an oblique guide surface so that a powdered constituent introduced into the casing is distributed and deflected obliquely downwards in the direction of the wall of the casing and of the blade; a plurality of liquid outlet orifices extending through



the bottom portion of said head; a first vertical hollow shaft extending through said frusto-conical member and being fixed to said hub; means to pass a liquid constituent through said hollow shaft and said orifices; and means to rotate said first shaft and said frusto-conical member independently to effect the mixing of said constituents.

3,318,580
MIXING APPARATUS
Sergio Simonetti, Stamford, Conn., assignor to Sonic Engineering Corporation, Norwalk, Conn., a corporation of Connecticut
Filed May 8, 1964, Ser. No. 366,071
14 Claims. (Cl. 259—8)

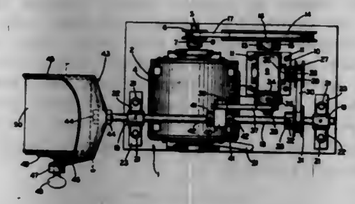


11. A cylindrical mixing wheel adapted for rotation about its axis provided with axial end surfaces, each of said surfaces being provided with spaced, transverse ridges all of which are substantially straight line and parallel.

3,318,581
MIXING DEVICE
James T. Dougherty, 3125 Dunbarton Drive NW., Canton, Ohio 44708
Filed July 11, 1966, Ser. No. 564,294
6 Claims. (Cl. 259—72)

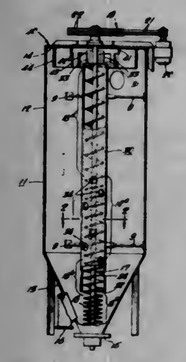
1. A mixing device comprising a driven shaft, bearing means supporting said shaft for rotation around its axis, and for longitudinal reciprocation along said axis, a can holder at one end of said shaft, means upon said holder

for clamping a can therein at right angles to the axis of said shaft, means for continuously rotating said shaft in one direction, and means for simultaneously reciprocating



said shaft longitudinally so as to continuously rotate the can end over end and simultaneously reciprocate it laterally.

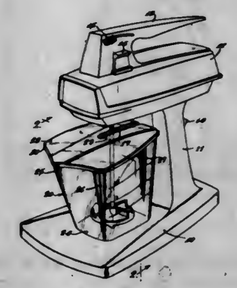
3,318,582
MIXER
Chester Donald Fisher, Muncy, Pa., assignor to Sprout, Waldron & Company, Inc., Muncy, Pa., a corporation of Pennsylvania
Filed Nov. 4, 1965, Ser. No. 506,317
16 Claims. (Cl. 259—97)



1. A mixer for mixing granular materials comprising: a substantially vertical casing having a top wall and a bottom wall connected thereto, a mixing tube supported in said casing naving an upper discharge and lower inlet end spaced from said top wall and said bottom wall respectively, a variable pitch conveying screw mounted in said tube for moving said material up said tube from said inlet to said outlet, said screw having a finer pitch at said inlet than at said outlet, a radial enlargement connected to said mixing tube and having an outwardly and downwardly flared upper portion, a plurality of circumferentially spaced apertures positioned in said flared portion to provide a passageway for the flow of said material in said casing into the conveying screw.

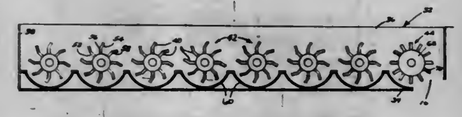
3,318,583
DRINK MIXER ATTACHMENT
James A. Wright, Chicago, and Worthy L. Chambers, Lombard, Ill., assignors to Sunbeam Corporation, Chicago, Ill., a corporation of Illinois
Filed June 8, 1966, Ser. No. 556,004
4 Claims. (Cl. 259—108)

1. In a stand supported mixer comprising a base, a stand connected to said base, a mixer supported at the upper end of said stand, and two bearing collars positioned in said base for rotatably supporting the shaft of a mixer bowl supporting turntable in two different positions, said mixer being pivotally supported on said stand at its rear end and having means at its front end for drive connecting a pair of mixer beater shafts thereto, said mixer in its mixing position being horizontally disposed with said collars being located beneath said front end; an improved drink mixer attachment for said stand supported mixer, comprising a drink mixer jar, said jar having a pair of bosses formed on the bottom thereof which are adapted to be received by said collars, a shoulder formed on said base, said shoulder conforming to the peripheral contour



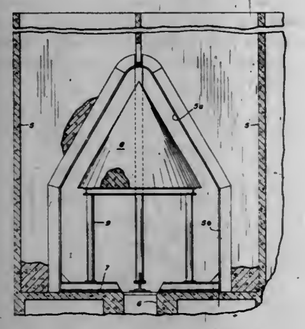
of the jar bottom, said shoulder being nonsymmetrically oriented with respect to said collars, and a removable cover for said jar, said cover having a slot formed therein, said slot extending from through one of the peripheral edges of said cover towards the center thereof, said slot being located beneath the front end of said mixer in alignment with the shaft of a drink mixer tool which is adapted to be drive connected to the front end of said mixer whereby said drink mixer tool extends through the slot in said cover and into said jar when said jar is positioned on said base.

3,318,584
CONCRETE MIXER AND CONVEYOR
Carl K. Smith, Mathis, Tex., assignor to Amsted Industries Incorporated, Chicago, Ill., a corporation of New Jersey
Filed Aug. 24, 1965, Ser. No. 482,047
13 Claims. (Cl. 259—162)



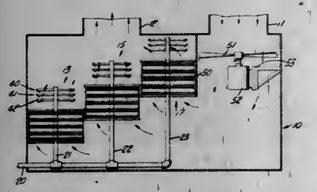
1. Mixing apparatus of the character disclosed comprising, in combination, a receptacle having an inlet end and a discharge end, a plurality of paddle cylinders rotatably mounted in the receptacle and arranged on axes transverse to the longitudinal direction of the receptacle, a cylindrical trough receiving the lower portion of each paddle cylinder, the paddle cylinders being closely adjacent each other and arranged in a linear series with their axes lying in a common plane parallel with the bottom of the receptacle, each paddle cylinder including a central shaft and a plurality of paddles extending generally radially therefrom, the paddles being arranged in a plurality of axial rows spaced circumferentially around the shaft, the paddles being spaced apart in axial direction in each row, and being staggered in succession from one row to the next circumferentially of the shaft.

3,318,585
FLOW CONE FOR BIN OUTLET
John C. Anderson, Welch, W. Va., assignor to United States Steel Corporation, a corporation of Delaware
Filed Nov. 4, 1965, Ser. No. 506,373
1 Claim. (Cl. 259—180)



A coal blending bin comprising walls, floor, and partitions, said partitions intersecting at a common point to form a plurality of cells in conjunction with said walls and floor, a common discharge opening in said floor for all cells, a cone supported above said opening, said cone being several times larger than said opening and supported at a height about the cone diameter above said opening, said partitions, in the vicinity of their intersection having a downwardly sloping inner edge conforming generally to the slope of the cone and a vertical inner edge extending downwardly to the floor from the cone edge.

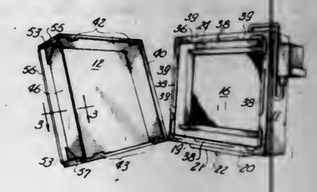
3,318,586
MASS TRANSFER UNIT USING SPACED FLEXIBLE MATERIALS, AND METHOD OF CONSTRUCTION
Diven Meredith, 46025 Arabia St., Indio, Calif. 92201
Filed Jan. 11, 1965, Ser. No. 424,520
19 Claims. (Cl. 261—30)



1. A heat exchanger comprising a central core having at least two arrays of radially extending members, a plurality of spacer members extending axially between the radial members, flexible strand material wound to form layers around the core, the layers being spaced apart by adjacent spacer members so that radial spaces are formed between the flexible material, means to apply liquid to an end of the core, the flexible material in wound position having spaces between strands of material adapted to hold a liquid flowing in a thin layer thereon by capillary attraction to form liquid surfaces adapted to be contacted by gas, and means to provide an axial flow of gas between the spaced contacting surfaces formed by the layers.

11. A method of construction of heat exchangers comprising attaching an upper array of radial rib members to a central core, and attaching a lower complementary array of radial rib members to the central axial core, winding a flexible liquid gas contact surface forming material around the central core between the upper and lower arrays of radial members to form layers, and inserting axial spacer members between adjacent layers of material between upper and lower complementary radial rib members whereby the wound material forms layers providing spaces between strands thereof such that by capillary attraction liquid is held in a film, forming spaced liquid and gas contact surfaces.

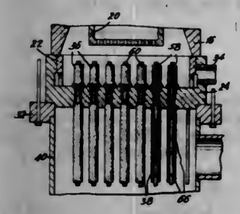
3,318,587
HUMIDIFYING APPARATUS
Paul E. McDuffee, 216 N. Elmwood Drive, Aurora, Ill. 60506
Filed July 22, 1964, Ser. No. 384,477
6 Claims. (Cl. 261—64)



1. A humidifier apparatus adapted for use with a furnace system which includes means to circulate heated air, said humidifier apparatus comprising a housing formed of front and rear detachable sections, an evaporating filter pad maintained within one of said housing sections substantially completely closing an opening therein, water distribution means maintained in position above said evaporating filter pad for delivery of water thereto, said front housing section having on the rear surface thereof a peripheral flange member having a regular interrupted bent terminal portion, the rear housing section having a port therein radially spaced from its axis, said rear housing section being adapted for rotation with respect to said front housing section whereby the port can be variously disposed relative to the opening in said front housing section, said rear housing section having a peripheral flange member thereon provided with regularly spaced extensions adapted for slidable engagement with the bent terminal portion of the flange member on said front housing section when said rear section is in more than one position relative to said front section whereby said front and rear housing sections may be joined to form a substantially unitary structure and means to supply water to said water distribution means.

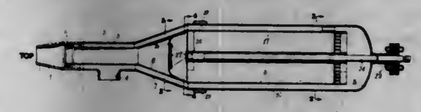
3,318,588
HIGH PERFORMANCE FALLING-FILM COOLER-ABSORBER
Richard R. Russell, Warrensville Heights, and Frank L. Bridges, Olmsted Falls, Ohio, assignors to Union Carbide Corporation, a corporation of New York
Filed Dec. 21, 1964, Ser. No. 419,841
4 Claims. (Cl. 261—153)

1. In a falling-film type gas absorber comprising a heat exchanger having a tube bundle, a distribution section having a tube sheet, and a plurality of upstanding vertical weir tubes in said tube sheet, the improvement which comprises a plurality of smooth surfaced gas velocity increasers, means for suspendably disposing said increasers from the tops of said weir tubes, means for spacing said velocity increasers from the inside surface of said tubes of said tube bundle so as to form an annulus of constant



diameter between the inside surface of each tube and said gas velocity increaser and means whereby the length of said velocity increasers is varied.

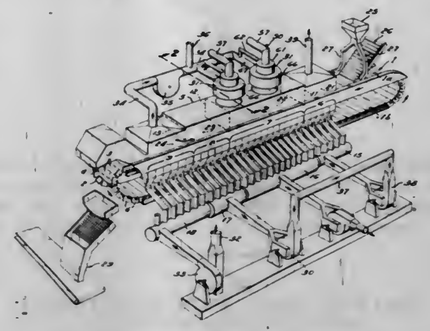
3,318,589
DESUPERHEATER
Henry C. Herp, Jr., Louisville, Ky., assignor to Girdler Corporation, Louisville, Ky., a corporation of Ohio
Filed Dec. 28, 1964, Ser. No. 421,551
8 Claims. (Cl. 261—160)



1. In an apparatus for the purpose described, an outer casing comprising an entrance fitting, a collar, a member having an exit fitting, a transition member, a cylindrical member and an end closure member, and an inner structure comprising a cylindrical sleeve open at one end, a transition member and a tubular extension, the said parts of the inner structure being located within corresponding parts of the outer structure and spaced therefrom so as to provide a passageway for gas between the structures, means connecting an end of the said tubular extension of the inner structure to said collar in a gas tight fashion whereby gases entering the said entrance fitting are caused to traverse the inner structure to the closed end of the outer structure and then to return in the annular spaces between the inner and outer structures to the exit fitting, and means in the said sleeve to cool said gases.

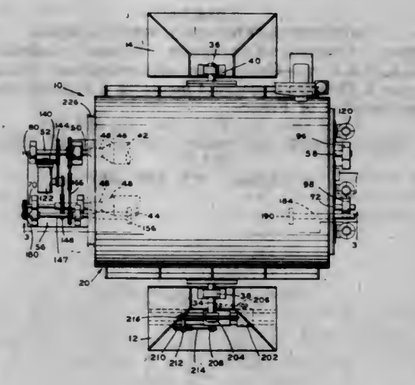
3,318,590
MOVING BED AGGLOMERATION APPARATUS
Clee C. Winterling, Amherst, Ohio, assignor to Arthur G. McKee & Company, Cleveland, Ohio, a corporation of Delaware
Filed Feb. 10, 1965, Ser. No. 431,531
17 Claims. (Cl. 263—28)

1. Apparatus for heating finely divided material comprising a chamber having an opening adapted to have heating gas discharged therefrom; means for causing said finely divided material to travel past said chamber in proximity to said discharge opening where it is exposed to heating gas discharged from said chamber; a nozzle having a discharge opening for introducing into said chamber a mixture of primary combustion air and particulate solid fuel that produces ash upon combustion; means for supplying secondary combustion air to said chamber in proximity to the discharge opening of said nozzle and intermixing said secondary combustion air with said fuel and primary combustion air to cause efficient combustion of said fuel to produce hot gaseous combustion products after ignition of said fuel; means for supplying tempering air, at a lower temperature than said hot gaseous combustion products, to said hot gaseous combustion products at a location in said chamber spaced from the discharge opening of said nozzle; and means for mixing said tempering



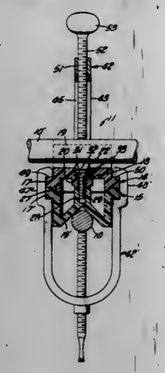
air with said hot gaseous combustion products to produce hot heating gas of desired substantially uniform lowered temperature and to cause said heating gas to sweep interior portions of said chamber to prevent accumulation of ash thereon.

3,318,591
BATCH TYPE ROTARY BARREL GAS ATMOSPHERE FURNACE
Walter H. Holcroft, Detroit, Mich., assignor to Holcroft & Company, Detroit, Mich., a corporation of Michigan
Filed Sept. 28, 1964, Ser. No. 399,571
20 Claims. (Cl. 263—34)



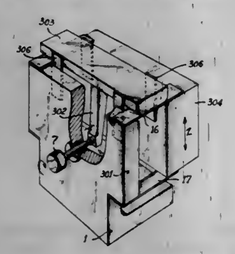
1. In an apparatus for heat treating parts in a controlled atmosphere, the combination of a substantially gas tight heating chamber having enclosing walls including opposite end walls defining the lengthwise extent of said chamber, a cylindrical retort of a length less than the distance between said end walls located and supported entirely within said chamber, rollers beneath said cylindrical retort for rotatably supporting the same, said rollers having means for rolling supporting contact for substantially the entire length of said cylindrical retort first means for rotating said rollers to thereby frictionally drive said retort, and independent second means independent of said rotating rollers for driving said retort in rotation upon slippage occurring between said retort and said first means.

3,318,592
HOLDING DEVICE
Arnold M. Steffen, Box 2662, Van Nuys, Calif. 91404
Filed Oct. 20, 1964, Ser. No. 405,031
11 Claims. (Cl. 269—45)



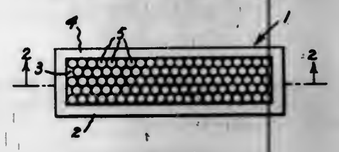
1. A holding appliance, adapted to clamp a work piece in an angular position in a plane comprising; a clamping block member having a yoke rotatably mounted relative thereto, said clamping block member having an end part having an end flange having a square annular shoulder, said yoke having legs having end portions providing square shoulders shaped to receive therein the said annular square shoulder of said flange whereby the yoke is rotatable relative to the clamping block, the yoke having means for clamping a work piece to said clamping block whereby the work piece and yoke can be rotated to any angular position relative to the clamping block member.

3,318,593
MICROPOSITIONING MECHANISM
Jacques Guernet, Courbevoie, France, assignor to C.A.M.E.C.A.—Compagnie d'Applications Mechaniques à l'Electronique au Cinema et à l'Atomistique, a corporation of France
Filed Dec. 15, 1964, Ser. No. 418,513
Claims priority, application France, Dec. 17, 1963, 957,394
6 Claims. (Cl. 269—60)



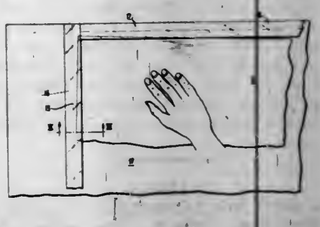
1. A mechanism for providing limited displacements of a member in a given direction, comprising: a rigid support; first coplanar and parallel elastic strips; second coplanar and parallel elastic strips extending in a plane parallel to said first strips; said strips extending in respective planes normal to said direction and having ends rigidly connected to said support and to said member respectively and having respective intermediate portions; a rigid bar rigidly connected to said intermediate portions of said first strips; first and second further parallel elastic strips directed along said given direction and rigidly connecting said bar to said support and said member respectively; and means for pivoting said bar about the line of intersection of the planes respectively tangent to said first strips and said first further strips.

3,318,594
GRIPPING DEVICE
Perry W. Welser, Rochester, Mich., assignor to General Electric Company, a corporation of New York
Filed Jan. 8, 1964, Ser. No. 336,496
3 Claims. (Cl. 269—265)



1. A gripping element comprising a plurality of cemented carbide spheres fixedly mounted in contact with each other on a supporting base so as to prevent relative motion between said spheres and said base, the portion of said spheres facing away from said supporting base forming the exposed surface of said gripping element, said spheres being sufficiently closely spaced so as to present a substantially continuously gripping surface over at least a portion of said element, said gripping element adapted for use in a gripping device to releasably but securely hold a part against movement by frictional contact between the part and the exposed surface of the gripping element.

3,318,595
FASTENING DEVICE
Heinz-Hermann Schmitz, 7 Franziskanerstrasse, 4152 Kempen, Germany
Filed Dec. 28, 1964, Ser. No. 421,338
Claims priority, application Germany, Dec. 28, 1963, Sch 34,392
11 Claims. (Cl. 269—289)

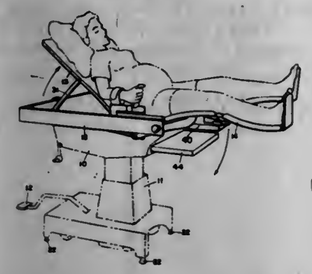


1. A fastening device for fastening paper and foil sheets to relatively smooth surfaces, comprising relatively narrow thin elastic rail means provided with self-adhesive edges along the outer sides thereof, said rail means being mounted on said surfaces by said self-adhesive edges so as to clamp the sheet to be fastened at least on one side thereof.

3,318,596
SURGICAL TABLE
Robert P. Herzog, Erie, Pa., assignor to American Sterilizer Company, Erie, Pa., a corporation of Pennsylvania
Filed May 15, 1964, Ser. No. 367,807
6 Claims. (Cl. 269—324)

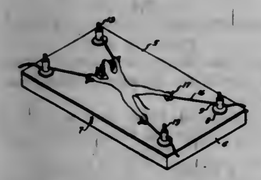
1. A surgical table comprising:
a pedestal,
a back section,

a seat section,
a pair of laterally spaced leg sections,
means on said pedestal swingably attaching said back section and said leg sections thereto,
means connecting said leg sections and said back section whereby they swing vertically in synchronism with each other,



means on said table accessible from one end thereof for moving said leg sections laterally relative to said pedestal and each other, vertically, and for extending said leg sections longitudinally relative to said pedestal, said means to extend said leg sections comprising a transverse member slidably supported on said table, said leg sections being attached to said transverse member and means for sliding said transverse member longitudinally.

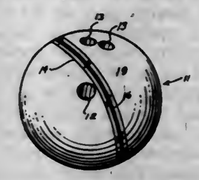
3,318,597
DISSECTING BOARD AND HEAD CLAMP
Jamalabo Abel Briggs, 515 W. 168th St., New York, N.Y. 10032
Filed Nov. 9, 1964, Ser. No. 409,684
3 Claims. (Cl. 269—328)



1. A dissecting board and head clamp apparatus for dissecting small animals, comprising, a steel plate, limb anchors, each anchor comprising a magnetic base for positioning firmly on the plate, an adjustable clamp mounted on the base, an elastic cord extending from the adjustable clamp, and a limb clamping means secured to one end of the elastic cord, a head clamp, a magnetic block forming the base of the head clamp, brackets upstanding from the block in a spaced relationship, and thumb screws extending towards each other through threaded holes formed through the brackets to clamp a body segment of the animal therebetween.

3,318,598
BOWLING BALL HAVING MEANS FOR INDICATING A CORRECT HOOKED DELIVERY
Henry Ruskin, Cranford, N.J., assignor to Ruskin Development & Manufacturing Corp., Flushing, N.Y.
Substituted for abandoned application Ser. No. 109,696, May 12, 1961. This application Sept. 16, 1966, Ser. No. 579,894
10 Claims. (Cl. 273—63)

10. A bowling ball for knocking down ten pins including a body portion having a thumb hole and a finger hole spaced from said thumb hole, and means for indicating a correct hooked delivery of the ball comprising equatorial circumferential indicating means extending completely around said bowling ball and between said thumb hole and said finger hole, said circumferential



indicating means being so oriented relative to said thumb hole and said finger hole that said indicating means will come into clear non-wobbling view just before reaching the ten pins only after a correct hooked delivery.

3,318,599
SIMULATED SHOOTING GAME WITH CONCEALED STRIKING PORTIONS
Jack Zimmerman, Roaring Brook Lake, Putnam Valley, N.Y. 10579
Filed Nov. 10, 1964, Ser. No. 410,133
6 Claims. (Cl. 273—101.2)



1. In a shooting game, a floor, a target supported by said floor and having an upper visible portion disposed above said floor and a lower hidden portion disposed therebelow, a movable aiming member positioned above said floor and movable between positions in and out of aiming registry with said visible portion, a striking member positioned below said floor and connected to and movable with said aiming member, said striking member having a striker element movable between retracted and projected positions, said striker element being so proportioned and positioned that when it is in a predetermined projected position it is engageable with said hidden target portion when said aiming member is in operative aiming registry with said visible target portion, said target having a platform resting upon said floor, said hidden target portion being a bar extending down from said platform and being positioned directly below and of the same width as a predetermined section of said visible target portion.

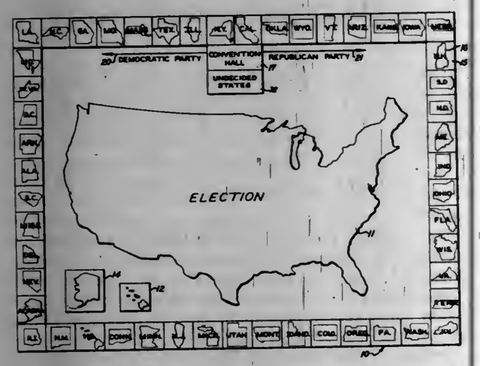
3,318,600
SPINNING TOP GAME
Marvin I. Glass, Chicago, Edward S. Larson, Jr., Libertyville, and Gunars Licitis, Lombard, Ill., assignors to Marvin Glass & Associates, Chicago, Ill., a partnership
Filed Dec. 9, 1964, Ser. No. 417,075
3 Claims. (Cl. 273—115)



1. Game apparatus comprising a playing board having a handle portion along an edge thereof providing the sole means for supporting the board by a player, said board including a generally smooth surface portion and raised portions disposed in spaced relation about said

board defining obstacles to the passage of a playing piece across the board, each of said obstacles including a partially enclosed, smooth surface which is generally coplanar with and accessible from said smooth center surface portion, a playing piece in the form of a spinning top including a spindle portion, means in said handle portion for receiving the spindle portion of said top and for causing said top to be rotated and ejected as desired, whereby said spinning top can be placed on said playing board and caused to move relative to said obstacles and into and out of said partially enclosed surface portions thereof by manipulation of the board, a goal device on said board in spaced relation to said handle portion and movable from a first position to a goal indicating position, spring means for biasing said goal device toward said goal indicating position, and a latch device for normally retaining said goal device in said first position, said latch device being responsive to engagement by said spinning top to release said goal device and cause said spring means to move said goal device generally vertically with respect to said board.

3,318,601
APPARATUS FOR PLAYING ELECTION GAME
Malcolm A. MacLeod, 552 Winchester St., Warrenton, Va. 22186
Filed June 2, 1964, Ser. No. 371,985
8 Claims. (Cl. 273—134)



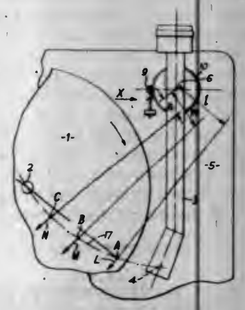
1. Game apparatus comprising a game board having an endless series of at least fifty-one outlined spaces with a United States jurisdiction having electoral college votes indicated in each of said spaces, a starting point being provided adjacent said series of spaces, the spaces proceeding in sequence in one direction from said starting point having indicated thereon jurisdictions having a greater number of average electoral votes than those indicated on the spaces proceeding in sequence in the other direction from said starting point, the first space following in both directions from said starting point containing indicia of the two jurisdictions having the highest number of electoral votes, the arrangement of spaces being such that a player returning to the spaces adjacent his starting point after traversing the series may move on to the aforesaid high-value space of his opponent, at least two distinctive playing pieces, each of said playing pieces indicating a major political party, a plurality of cards, each of said cards designating a jurisdiction having electoral college votes with the number of electoral college votes corresponding to said jurisdiction indicated thereon, chance means including random number producing means incapable of indicating a number less than two and operable to present integral numbers selectively at random to indicate movement of said playing pieces on said series of spaces, said random means comprising a pair of dice, and a plurality of markers to place on said spaces to indicate that the electoral votes thereon have been won by one or the other of the players.

3,318,602
GOLF CLUB HAVING A HANDLE WITH VIBRATION SENSING MEANS
Richard R. Kunihisa, 168 Dowsett Ave., Honolulu, Hawaii 96817
Filed Jan. 15, 1965, Ser. No. 425,878
12 Claims. (Cl. 273—162)



1. A golf club including a golf club head having a normally upright shank projecting therefrom and an elongated substantially hollow tubular shaft having an end thereof fixedly secured to said shank, a substantially hollow tubular handle having an end thereof fixedly secured to the other end of said shaft, and an elongated rod having an end thereof fixedly secured to said shank and its opposed end extending through said handle in spaced relationship relative thereto, said rod having a lateral extension extending through a side of said handle for engagement by a finger of the golfer grasping said handle.

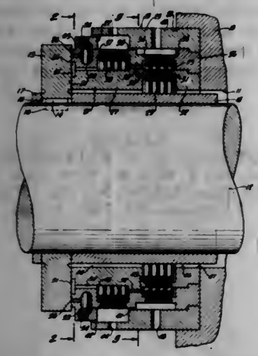
3,318,603
DISC GRAMOPHONES EMPLOYING A PIVOTED PICKUP ARM
Edmund Walter Mortimer, Swindon, England, assignor to Garrard Engineering Limited, Swindon, England, a British company
Filed Oct. 26, 1964, Ser. No. 406,613
Claims priority, application Great Britain, Oct. 31, 1963, 43,050/63
6 Claims. (Cl. 274—23)



1. In or for a disc gramophone having a pickup arm pivotally movable about a vertical axis and means for applying to the pickup arm a resilient force which tends to move the arm away from the centre of the record, the improved means for applying such force which comprises a bell-crank lever having two arms (8, 13), means (9) for pivoting said lever about a horizontal axis perpendicular to said arms, a poise weight (7) on one arm

(8) of said lever, and an abutment (12) at least fixable to an element (11) participating in the movement of the pickup arm (3) about said vertical axis to project from such element (11) for cam-type co-operation with the other arm (13) of said lever.

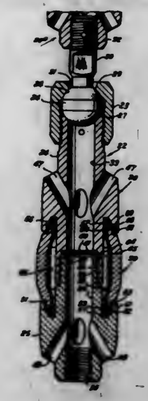
3,318,604
SELF-ADJUSTING MECHANICAL SEAL WITH BELLOWS CONTROL
Herbert E. Tracy, Alhambra, Calif., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois
Filed Dec. 31, 1964, Ser. No. 422,831
11 Claims. (Cl. 277—27)



1. A self-adjusting mechanical seal comprising:
(a) a rotary sealing element;
(b) a fixed sealing element complementary thereto;
(c) one of said elements having a plurality of concentric, axially movable, seal rings;
(d) each said seal ring having an annular sealing face, the sealing faces of the rings being radially spaced from each other and being disposed in rotatable, sealing relation to an opposed sealing face of the other of said elements;
(e) a plurality of axially extending bellows means disposed concentrically with said concentric rings, at least one of said bellows means being sealed to and between each adjacent pair of said concentric rings;
(f) a case;
(g) at least one of said bellows means being sealed between a portion of the radially innermost one of said concentric rings and said case; and
(h) means responsive to differential pressures across said bellows means for urging each of said concentric rings axially towards said other sealing member.

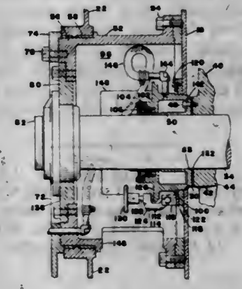
3,318,605
DEVICE MOVABLE THROUGH A FLOW CONDUCTOR AND SEALS FOR USE THEREON
Norman F. Brown, Dallas, Tex., assignor to Otis Engineering Corporation, Dallas, Tex., a corporation of Delaware
Filed Oct. 9, 1964, Ser. No. 402,707
34 Claims. (Cl. 277—34)

1. A well tool movable through the flow passage of a flow conductor including: a body having an annular external recess and an annular seal surface adjacent one end of said recess; and an annular seal in said recess, said seal comprising an annular resilient body disposed in said recess and having a plurality of longitudinally extending circumferentially aligned rigid segments secured to one another for pivotal movement relative to one another to permit radial contraction and expansion of said seal, said segments having boss means extendable outwardly of said recess to engage internal surfaces of a flow conductor in which said well tool is disposable to seal between said



body and the internal surface, said resilient body having an annular seal portion engageable with said seal surface of said body for sealing therebetween.

3,318,606
AGITATOR SHAFT SEAL FOR MIXERS
James A. Houck, York, Pa., assignor to Read Corporation, York, Pa., a corporation of Delaware
Filed Aug. 24, 1964, Ser. No. 391,621
3 Claims. (Cl. 277—72)



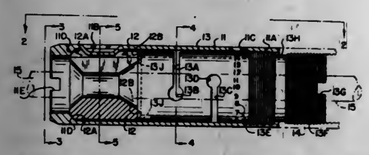
1. In a sealing structure for a horizontal mixer having a mixing bowl, a rotatable shaft extending through an oversize opening in an end wall thereof, and an agitator having a hub in said bowl secured on said shaft adjacent the said oversize opening, said structure comprising a cylindrical air seal casing in surrounding spaced relation with respect to said shaft outside said bowl, said cylindrical air seal casing having an axially outer end closure and being open at its axially inner end, the end face of said hub forming an inner end wall for said open end of said air seal casing, the inner end of the wall of said cylindrical casing defining the open end of said casing being in sealing engagement with the marginal edge of said bowl end wall defining the oversize opening therein and having a running clearance with the outer peripheral edge of said hub forming an annular restricted air sealing clearance in circumferential radially spaced relation with respect to said shaft between the interior of said bowl and the interior of said air seal casing, and means for supplying air under pressure to the interior of said air seal casing.

3,318,607
WELL TOOLS
James A. Wilson, 2039 Amelia St., Dallas, Tex. 75235
Filed Apr. 13, 1964, Ser. No. 359,181
3 Claims. (Cl. 277—203)
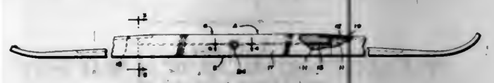


1. A seal assembly for a well swab including: a tubular support having a longitudinal passage and a resilient seal element disposed about and secured to said tubular support, said seal element having a plurality of outer longitudinally aligned annular portions extending outwardly and upwardly at an angle from the longitudinal axis of said tubular support, adjacent outer annular portions having abutting adjacent surfaces whereby longitudinal deflection of each outer annular portion is resisted by an adjacent lower outer portion, said outer portions being expandable radially outwardly when subjected to a downward force exerted thereon, each outer annular portion being expandable by a force smaller than that required to expand the next lower adjacent outer portion, said outer annular portions increasing progressively in longitudinal width in accordance with their longitudinal locations, each outer annular portion being of smaller longitudinal width than the next lower adjacent annular portion.

3,318,608
ADJUSTABLE PUSHER DEVICES
Larry F. Smrekar, 6604 Solon Blvd., Solon, Ohio 44139
Filed Apr. 21, 1964, Ser. No. 361,517
11 Claims. (Cl. 279—59)



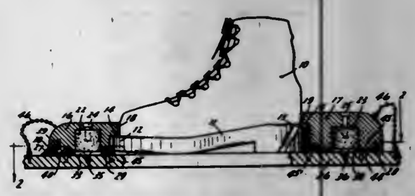
10. In a pusher for feeding stock, the combination of gripping pad means, said gripping pad means having inclined surfaces, outer tubular means for accommodating therein the gripping pad means, inner tubular means within the outer tubular means in alignment with the gripping pad means, camming means carried by the outer and inner tubular means engaging said inclined surfaces and operative upon relative movement between said inner and outer tubular means for cammingly moving said gripping pad means inwardly toward gripping engagement with stock therein, said inner tubular means being resilient in an axial direction for adding resiliently yieldable force upon compression thereof to operate said camming means by said inner and outer tubular means.

3,318,609
SKI CONSTRUCTION
Charles R. Ross, Box 54, Medina, Wash. 98039
Filed May 28, 1965, Ser. No. 459,591
10 Claims. (Cl. 280—11.13)



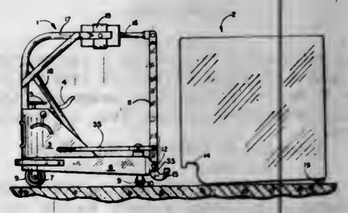
1. A laminated ski construction having a core, with a running plate below and a capping sheet above the same, the capping sheet being composed of a metal high in resiliency and being so attached to the core that there is provided above the core between said capping sheet and the core an interspace having substantial length and a width approximating the width of the ski and sealed along the two side edges and the two end edges, and means for charging said interspace with a fluid pressurized to a level capable of bowing the capping sheet upwardly from the core.

3,318,610
SKI BOOT MAGNETIC RELEASE BINDERS
George Kulick, 201 E. 66th St., New York, N.Y. 10021
Filed June 10, 1964, Ser. No. 374,007
7 Claims. (Cl. 280—11.35)



1. A release binder for releasably coupling to a ski boot having a sole with a projecting shoulder at its toe and heel, said binder comprising toe and heel retaining heads with projecting lip portions respectively overhanging the said shoulders at the toe and heel of the boot, and magnets releasably holding said heads to the ski.

3,318,611
MOVING VAN
George G. Branning, San Pedro, Calif., assignor of one-third to Richard A. Espinoza and one-third to L. Lee Humphries
Original application Jan. 23, 1961, Ser. No. 84,144, now Patent No. 3,207,253, dated Sept. 21, 1965. Divided and this application June 7, 1965, Ser. No. 494,995
4 Claims. (Cl. 280—34)
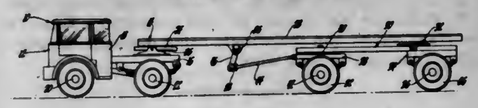


1. A moving van comprising a container portion having rearwardly disposed rolling means upon which said container portion is adapted to be moved, a cart having forwardly disposed, directable rolling means and rearwardly disposed rolling means, upon which said cart is adapted to move, a rearward frame disposed on said cart, means disposed on said cart for firmly holding said container portion, said frame extending upwardly, means for forcing the upper portion of said frame rearwardly relative to said cart, when said container portion is engaged, whereby the rearward portion of said cart and the forward portion of said container portion are lifted and carried clear of the ground.

3,318,612
MOLDED FOAM POLYSTYRENE CONSTRUCTION KIT
James O. Kuhn, Cincinnati, Ohio, assignor to Kenner Products Company, Cincinnati, Ohio, a corporation of Delaware
Filed Dec. 23, 1964, Ser. No. 420,609
4 Claims. (Cl. 280—79.2)



1. A kit by which a child may fabricate different types of playthings comprising a rectangular base unit of molded foamed polystyrene, said base unit being approximately two and one-half times as long as it is wide, a pair of wooden dowels embedded in said base unit paralleling the longitudinal center line thereof on opposite sides of said center line to strengthen said base unit, there being eight identical double holes through said base arranged in two identical sets of four double holes each, the individual holes of each double hole being identical and tapering inwardly from the opposite faces of said base unit such that the smallest diameter of each hole is midway between said faces, the centers of the holes of each double hole being spaced apart a distance in the direction longitudinally of said base unit approximately equal to three fourths of the diameter of an individual hole at a face of said base unit, the centers of corresponding individual holes of the four double holes of each of said sets defining a square at each end of said base with the opposite sides of each square paralleling the opposite side edges of said base unit, those four double holes including two from each of the different sets of four that are closer to the center of said base unit having the individual holes therein that are farther from said center of said base unit disposed with their centers defining a square equal in size to the previously mentioned squares, two seat units, each seat unit of molded foamed polystyrene comprising a bottom, a back and two sides, the bottom of each unit having two identical plugs projecting therefrom and two identical sockets therein of a size to receive a plug, the centers of said sockets and plugs being disposed to define a square equal in size to the previously mentioned squares with the plugs at diagonally opposite corners and the sockets being diagonally opposed at the other two corners of said square, and said plugs being of a size to fit individual holes of said double holes in said base unit, whereby said seat units may be disposed with their bottoms on said base unit with their backs at opposite sides thereof, at the same side thereof, facing one another, opposite one another and by utilizing different individual holes of said sets of double holes, the seat units may be together at the center of the base unit or separated at said center.

3,318,613
SEMI-TRAILER TANDEM AXLE ARRANGEMENT
George J. House, 28912 Greencastle, Farmington, Mich. 48024
Filed Dec. 24, 1964, Ser. No. 420,967
2 Claims. (Cl. 280—81)



1. In a tractor-trailer combination including a semi-trailer having a sub-frame provided under the rear end thereof, a fifth wheel connection between the semi-trailer and the sub-frame permissive of lateral pivoting and vertical rocking movement therebetween, a set of wheels supporting the after end of the sub-frame, a wheel carrying dolly provided under the front end of the sub-frame, and a steering connection provided on the dolly for engagement with the underside of the semi-trailer, the improvement, comprising;

said sub-frame being engaged to said semi-trailer via said fifth wheel connection near the after-end of said sub-frame and of said semi-trailer, inboard but relatively over the wheels supporting the after-end of said sub-frame, for minimum weight overhang of said semi-trailer and turning exposure of the after-end of said sub-frame,

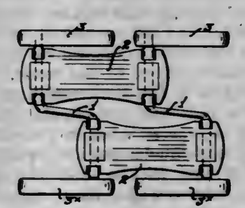
said fifth wheel connection including a vertical pin received in the frame of the semi-trailer and a trunnion mount secured to the pivot pin and engaged by horizontal pivot pins to the sub-frame,

said dolly having a relatively fixed vertical pivot connection to the forward end of said sub-frame spacing the wheels thereof centrally of said semi-trailer and a greater distance from the trailer to sub-frame connection than the wheels supporting the after-end of said sub-frame for greater turning ease of the dolly wheels,

a fore and aft fixed axis pivotal connecting link provided on the underside of the semi-trailer for engagement with the steering connection on the dolly,

and the steering connection on the dolly including an A-frame tongue pivotally connected to said dolly about a fixed horizonal axis and for universal freedom of movement to said semi-trailer connecting link.

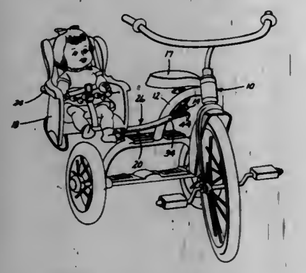
3,318,614
WHEEL PEDAL TOY
Norman C. Lee, Rocky Mount, N.C., assignor to Empire Plastic Corporation, New York, N.Y., a corporation of New York
Filed May 13, 1965, Ser. No. 455,570
1 Claim. (Cl. 280—221)



A wheel pedal toy comprising two spaced crank shafts, each with two crank areas extending in opposite directions, two pedals connecting the crank areas of one crank shaft with the opposite crank areas of the second crank shaft, a pair of wheels for each crank shaft, the ends of

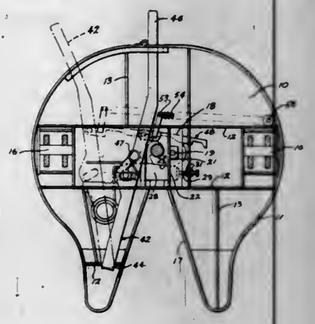
each crank shaft being formed out-of-round, two plates for each crank shaft and received by the latter at its ends, each plate having a shaft receiving aperture conforming with said out-of-round shape, each plate being embedded into a recess of an appropriate wheel, whereby the wheel is so connected to an end of the appropriate crank shaft as to follow its movements, the said connections between the crank shafts and the wheels being disposed eccentrically of the axis of each wheel.

3,318,615
SIDE MOUNTED ACCESSORY FOR TOY VEHICLE
Louis R. Chreist, Jr., South Bend, Ind., assignor to South Bend Toy Manufacturing Company, Inc., South Bend, Ind., a corporation of Indiana
Filed Aug. 4, 1965, Ser. No. 477,224
12 Claims. (Cl. 280—289)



1. In combination with a tricycle having a bar-like frame upon which a seat is mounted, said frame extending between the front and rear ends of said tricycle, the mounting for said seat including a post which passes through companion openings in said frame and a set screw threaded into said frame and locking said post against movement; a vehicular accessory comprising a bar-like support having first and second U-shaped sections, each section having two arms and a cross-bar, said sections being disposed in side-by-side relation and opening in the same direction, a curved section connecting the ends of adjacent arms of said first and second sections, said second section being disposed at a lower level than said first section when the latter is horizontally aligned, said curved section generally defining a substantially upright plane inclined downwardly and away from said first section when the latter is horizontally aligned, a mounting bracket attached to the free end of said second section, said bracket having a semicircular portion and a diametrically outwardly extending mounting lug on one end of the semi-circular portion, said lug being flat and pivotally connected to said free end, a locking screw projecting through companion openings in both said free end and said lug for securing said bracket in adjusted position, at least one of the last-mentioned openings having a clearance with said screw for permitting pivoting adjustment of said bracket relative to said second section, said bracket extending in a direction transverse to the arm carrying said free end, said semi-circular portion having two holes which are spaced apart in a direction parallel to said lug, said semi-circular portion partially surrounding the frame of said tricycle, and said post passing through said two holes as well as the companion openings, thereby mounting said bracket and said bar-like support on said frame, said lug depending from said frame and said bar-like support extending laterally therefrom in the form of a cantilever, said first section generally defining a plane which is horizontal and said second section generally defining an inclined plane wherein the cross-bar thereof is lowermost and rearward on the tricycle from said bracket, said first section being laterally spaced from said tricycle seat post a predetermined distance to accommodate without interference the leg of a rider on the tricycle.

3,318,616
WEDGE LOCKING DEVICE FOR FIFTH-WHEEL KING PIN
John P. K. Fontaine, 1232 37th Place N., Birmingham, Ala. 35234, and John C. Heslip, Birmingham, Ala.; said Heslip assignor to said Fontaine
Filed May 5, 1965, Ser. No. 453,408
5 Claims. (Cl. 280—434)



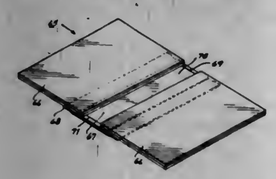
1. In a fifth wheel,
(a) a king pin locking member disposed for movement into and out of coupling position relative to a king pin,
(b) a wedge member movable into and out of engagement with one side of the locking member and when so engaged holding the locking member in coupled position,
(c) a wedge locking dog pivotally mounted on the wedge for movement into and out of wedge locking and wedge releasing positions and when in said locking position holding the wedge against the king pin locking member when the king pin locking member is in coupled position,
(d) a handle for moving the wedge to unlocked position, and
(e) means operable upon movement of the handle partially to unlocking position first operatively to connect a portion of the handle with the locking dog thereby to pivot the locking dog to wedge releasing position and upon continued movement to move the wedge to unlocked position.

3,318,617
COMBINED VEHICLE BUMPER AND TRAILER HITCH
Ira J. Burns, 1500 SW. 82nd, Oklahoma City, Okla. 73159
Filed June 7, 1965, Ser. No. 461,954
1 Claim. (Cl. 280—500)



A bumper and trailer hitch for a pick-up truck, or the like, comprising: a pair of channel-shaped end members having horizontally disposed leg portions projecting toward the truck and each having an upstanding flange integral with the upper leg portion; an L-shaped trailer hitch center section having its leg portion vertically disposed and connected with the upstanding flange and upper leg portion of each said leg member and having its foot portion disposed horizontally and connected to the lower leg of each said end member; a channel-shaper wrap-around member connected to the respective free end of said end members; a pair of Z-shaped connectors connected with said end members in parallel spaced relation and extending laterally of said end members for connection with the truck; a pair of inner braces connected respectively to said pair of said Z-shaped connectors and extending in converging relation, toward and connected with said end members at the juncture of the respective adjacent ends of said end members and the respective ends of said L-shaped center member, said inner braces forming, in combination with the upper leg portion of each said end member, a pair of opposing recesses open toward the center of the bumper; lamp means mounted on said center section within the respective recess; and a pair of outer braces extending between and connected with the respective said Z-shaped connector and said end members intermediate their ends.

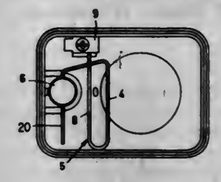
3,318,618
BOOK COVER BOARDS
Edward K. Mullen and Leewood C. Carter, Westfield, N.J., assignors to Book Covers Incorporated, Newark, N.J., a corporation of New Jersey
Original application Feb. 17, 1965. Ser. No. 433,346. Divided and this application Apr. 4, 1966, Ser. No. 547,685
5 Claims. (Cl. 281—29)



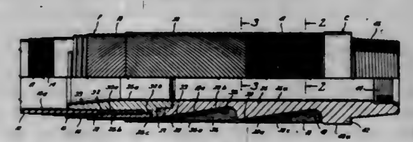
1. A cover board comprising a first pair of leaf boards, a second pair of leaf boards disposed in spaced relation to said first pair of leaf boards, and a pair of hinge material strips adhered to said first pair of leaf boards and said second pair of leaf boards, one of said hinge material strips being adhered to a surface of each of said first and second pairs of leaf boards and the other of said hinge material strips being wider than said one hinge material strip and overlying said one hinge material strip in spaced relation and being adhered only to said surface of each of said leaf boards.

3,318,619
LOCKING DEVICE FOR VACUUM CLEANER TUBE
Johannes Tiest, The Hague, Netherlands, assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
Filed Dec. 14, 1964, Ser. No. 417,878
Claims priority, application Netherlands, Dec. 16, 1963, 301,923
2 Claims. (Cl. 285—7)

1. Apparatus for locking a pair of tubular parts in telescoped relation, one of said tubular parts comprising a body member having a slot therein at an acute angle to the longitudinal axis of said body member, clamping means connected with said body member, said clamping means including a locking member in said slot extending into the interior of said body member, a second of said tubular parts being telescoped within said body member, said second tubular part having a groove receiving said locking member for locking said tubular parts together and means for withdrawing said locking member from the interior of said slot for unlocking said tubular parts, said clamping member comprising a continuous spring wire having a first upright generally U shaped portion and an inverted U shaped portion, each U shaped portion having a common limb, the limb end of said inverted U shaped portion being connected with said means for withdrawing said locking member, the other limb end of said upright U shaped portion being fixed on said body member, said common limb defining said locking member.

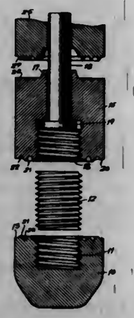


3,318,620
HOSE END COUPLING
Roy H. Cullen, Charles H. Elliott, Leslie D. Richards, Jimmie R. Aker, and William E. Burke, Houston, Tex., assignors to Roy H. Cullen, Houston, Tex.
Filed Oct. 22, 1965, Ser. No. 501,031
6 Claims. (Cl. 285—149)



1. An end coupling for a flexible pipe having a tubular fluid conductor with at least one layer of armor wire thereon, comprising:
(a) an end coupling body having an inner bore in communication with the bore of the tubular fluid conductor,
(b) means connecting said end coupling body to the fluid conductor,
(c) said end coupling body having an external annular surface which is tapered downwardly and outwardly with respect to the tubular fluid conductor and which is adapted to receive the ends of the layer of armor wires thereon,
(d) a plurality of helically wrapped armor wires for end pull strength whose maximum inside diameter is approximately equal to the maximum outside diameter of the tapered surface,
(e) the ends of the armor wires being disposed so as to conform generally to the taper of said external surface,
(f) holding wire wrapped substantially circularly about the ends of the armor wires which are disposed over the tapered section to hold the armor wires against the tapered surface, and
(g) bonding material within the spaces between the holding wire at the tapered section to unitize the holding wire into a solid ring having an inner inclined surface so that when the coefficient of friction between the unitized solid ring and the ends of the armor wire is greater than the tangent of the angle of the tapered surface with respect to axis of the coupling body self-tightening of the solid ring will occur if the armor wires start to move up the tapered surface.

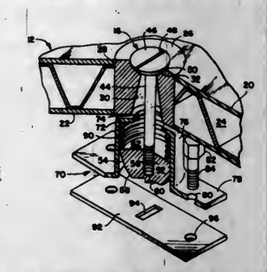
3,318,621
STOPPER ASSEMBLY WITH SECTIONS HAVING A SERIES OF CONCENTRIC UNDULATING INTERFITTING RIBS AND GROOVES
Luther W. Hawley, Brooklyn, N.Y., assignor to The Joseph Dixon Crucible Company, Jersey City, N.J., a corporation of New Jersey
Filed Oct. 11, 1963, Ser. No. 315,583
1 Claim. (Cl. 287—2)



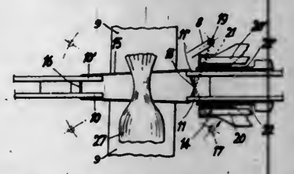
A stopper rod assembly comprising a stopper rod having a shaft portion and a flange portion; a two-section stopper, comprising an upper stopper section and a lower stopper section, said stopper sections being in a stacked one on top of the other relationship with only one mutual surface, said mutual surface being in the horizontal plane, said lower stopper section having a cylindrical recess therein extending downwardly from the upper surface thereof, said upper stopper section having a cylindrical recess therein rising upwardly from the lower surface thereof and culminating intermediate the ends of said stopper section, said upper stopper section further including a cylindrical bore rising upwardly from said recess, said recess having a diameter larger than said bore such that a shoulder is formed on the top surface of said recess, said upper and lower stopper sections having a series of concentric undulating interfitting ribs and grooves in the plane of their mutual juncture; a threaded plug connecting said upper and lower stopper sections, said plug being accepted in the recesses in said upper and lower stopper sections, said plug not completely filling the recess in said upper stopper section but leaving an area having a height at least equal to the height of the flange on said stopper rod, said stopper rod extending only into said upper stopper section, said flange portion positioned above the means connecting said upper and lower stopper sections and below the shoulders formed in said recess such that said flange portion of said stopper rod never comes in contact with said lower stopper section, said shaft rising upwardly from said flange portion and being accepted in said cylindrical bore.

3,318,622
ALL-DIRECTIONAL FASTENER
Weymouth B. Crumpler, Newport News, Va., assignor to the United States of America as represented by the Secretary of the Administrator of the National Aeronautics and Space Administration
Filed Mar. 24, 1965, Ser. No. 442,558
10 Claims. (Cl. 287—189.36)

1. In an all-directional fastener, the combination comprising: a bolt having a shank threaded at one end and a head at the other end; said bolt head having a hemispherically convex surface on the side thereof adjacent said shank; a casing of inverted cup shape having an outwardly projecting flange at the mouth and a central aperture in the bottom thereof; helical spring means disposed in said casing about said aperture; a nut having a threaded central bore for receiving said one end of said bolt disposed in said casing in juxtaposition to said spring means; arcuate edges on said nut to permit angular movement thereof within said casing and a protrusion on the side opposite that of said central bore for engaging a slot to prevent lateral rotation of said nut when said bolt is threaded thereinto; a plate for mating engagement with said flanges and having a central slot for receiving said protrusion; and means for rigidly attaching said casing to a fixed support member.



3,318,623
METHOD FOR THE MECHANICAL TYING OF SAUSAGES AND THE LIKE
Angel Lorenzo Barroso, Ronda Carlos 111 s.n., Mataro (Barcelona), Spain
Filed Jan. 13, 1965, Ser. No. 425,285
Claims priority, application Spain, Jan. 17, 1964, 295,446
6 Claims. (Cl. 289—1.5)

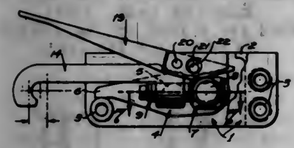


1. Process for the mechanical tying of sausages or the like, characterised in that, after initially forming, with the corresponding tying section supplied by the feed means, a loop which doubles the said tying section on itself, with superposition cross-wise of the ends of its parallel strands, the portion of the sausage to be constricted is surrounded by the said loop and the two ends thereof are caused to approach each other, in such a manner that the doubled end, passing through the outer vertex of the intersection of the strands, surrounds the centre of the latter and then passes through the centre of the inner vertex and through the lateral strands of the loop, so that when the said doubled end of the loop is drawn in the direction opposite to the knot being formed, the latter is tightened, gradually and gently constricting the portion of the sausage surrounded, the knot also remaining secured when the ends of the tying means are cut.

3,318,624
ADJUSTABLE HOOK LATCH
Lloyd Richard Poe, Los Angeles, and Bernard W. Henrichs, Northridge, Calif., assignors to The Hartwell Corporation, Los Angeles, Calif., a corporation of California
Filed May 10, 1965, Ser. No. 454,322
4 Claims. (Cl. 292—113)

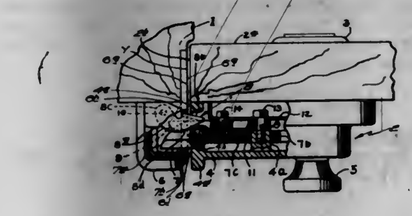
1. An adjustable hook latch, comprising:
(a) a pair of pivot plates having means for pivoting about a first axis of rotation;

(b) a mounting block journalled between said plates having means for pivoting about a second axis and movable about said first axis with said plates;
(c) an adjustment screw means mounting and securing said screw in said block against movement in the direction of the axis of said screw and journalling said screw for rotation about the axis of said screw, the axis of said screw traversing said second axis, and having a screwthreaded shank projecting beyond said mounting block, and terminating in a tool receiving tip;



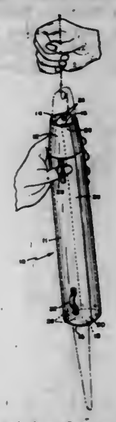
(d) and a hook member including a screw sleeve carried by said screw shank for axial movement, an arm extending in the direction of said screw shank beyond said sleeve, and a latch keeper engaging means at the extremity of said arm;
(e) said arm being offset from said screw shank to provide tool access to said tool tip from a direction longitudinal of said screw shank.

3,318,625
LATCH FOR CLOSURES
Richard P. Bogosian, Vero Beach, Fla., assignor to Arda Bogosian, Cambridge, Mass.
Filed Feb. 16, 1965, Ser. No. 433,080
10 Claims. (Cl. 292—346)



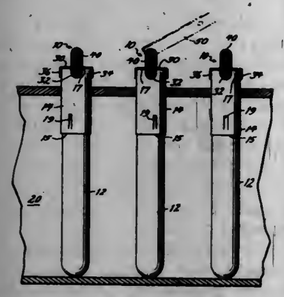
1. A lock for locking a closure member to a casing therefor, said lock comprising housing means comprising a latch bolt housing adapted to be mounted on one of said closure member and casing and a strike housing adapted to be mounted on the other, said lock also comprising a latch bolt slidably mounted in an opening in a surface of said bolt housing and having a cam surface at its end, said bolt being normally biased to a position in which its cam end protrudes from said opening, said strike housing also having an opening in a surface thereof for receiving said cam end of said bolt when said closure member is in close position with respect to said casing, said openings of said housings being moved into alignment when said closure member is moved to close position, said cam end being adapted to be moved laterally into engagement with said strike housing to force said bolt back into said bolt housing when said closure member is moved to said close position until said openings are brought into alignment whereupon said cam end of said bolt is urged into said strike housing opening to lock said closure member in close position, said bolt extending from said opening in said bolt housing into said opening in said strike housing when in lock position, the improvement comprising a shield member mounted in said housing means for shielding said cam surface of said bolt located between said openings from tampering from the outside when said bolt is in lock position, means for mounting said shield member in said housing means for movement from a normal position within one of said housings when said closure is in open position to a bolt shielding position, in which it extends between said openings and is located outwardly of said bolt to shield said bolt, when said closure member and bolt are in closed and lock positions respectively, said lock including means mounted in the other housing and responsive to movement of said closure member to close position to move said shield from said normal position to said bolt shield position and to hold it in said bolt shield position while said closure member remains in closed position, said shield member being pivotally mounted in said strike housing, said movement of said shield member being a pivotally movement, and said means for moving said shield member comprising a tongue secured to said bolt housing, said tongue being adapted to engage said shield member and force it from its normal position to bolt shielding position when said closure member is moved to close position.

3,318,626
DEVICE FOR HOLDING FISH AND THE LIKE
Trygve Hansen, 31 Blue Ridge Road, Wilton, Conn. 06897
Filed Jan. 25, 1965, Ser. No. 427,654
1 Claim. (Cl. 294—16)



A sleeve for restraining fish and the like against excess movement while removing a hook, comprising:
(A) a substantially cylindrical wall having,
(1) a pair of open ends;
(2) one of said ends tapered to a reduced opening;
(3) and having a parting line extending longitudinally of said wall between said open ends;
(4) the terminal ends of said wall formed by said parting line normally overlapping in a manner to slide freely relative to each other when pressure is manually exerted upon the wall for resilient movement thereof;
(B) inwardly projecting gripping members attached to said wall adjacent the open ends thereof for facilitating the restraint of a fish or the like therein;
(C) a plurality of finger loops attached to the outer surface of said wall for manipulating said sleeve.

3,318,627
HANDLING AND CODING CLIP FOR A CULTURE TUBE CLOSURE
Allen R. De Long, Vineland, N.J., assignor to Bellco Glass, Incorporated, Vineland, N.J., a corporation of New Jersey
Filed July 6, 1965, Ser. No. 469,518
8 Claims. (Cl. 294—16)



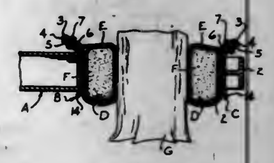
1. A clip for handling and coding a culture tube closure member, comprising: a base; three clamping lugs extending substantially perpendicular from said base in a first direction for tightly grasping a closure member therebetween; and a handle tab extending from said base in a second direction, said tab, lugs and base all being formed from a single sheet of material colored with a desired code marking.

3,318,628
COMBINED GOLF CLUB AND BALL RETRIEVER
Harry M. White, Elmwood, Conn., assignor, by direct and mesne assignments, to Retriever Industries Incorporated, Manchester, Conn., a corporation of Connecticut
Filed Jan. 17, 1964, Ser. No. 338,520
3 Claims. (Cl. 294—19)



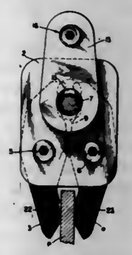
1. In a golf club having a tubular shaft, a generally cylindrical slide movable axially in the upper end portion of said shaft, at least three bowed spring fingers having their lower ends pivotally secured to the upper end of said slide in equally circumaxially spaced relationship so that the concave face of each finger is disposed inwardly, a cap secured in the upper end of said shaft and having circumaxially spaced radial slots which are spaced from its center to receive and permit sliding movement of the said fingers as the slide moves between an extended position wherein it and the fingers engage the center portion of the cap, the fingers also engaging the outer edges of the slots, and a retracted position wherein the free ends of the spring fingers are nested within the said slots adjacent the center portion of the cap, the radially inner and outer surfaces of said slots being shaped to guide said fingers substantially axially during initial movement of said slide from its retracted position and then to spread said fingers outwardly during final movement of the slide into its extended position and to retain them in spread position for releasable resilient engagement with a golf ball, and means for moving said slide selectively between its extended and retracted positions.

3,318,629
TREE-CLAMPING JAWS WITH DEFORMABLE PADS CONTAINING GRANULAR MATERIAL
Richard W. Brandt, Jr., P.O. Box 344, Yuba City, Calif. 95991
Filed Apr. 9, 1965, Ser. No. 446,847
5 Claims. (Cl. 294—103)



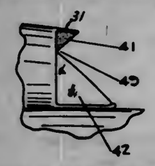
1. A clamping device for gripping a tree or other structure comprising:
(a) a pair of jaws movable towards and away from one another;
(b) a flexible and pliable closed container for each jaw;
(c) means for securing said containers to said jaws;
(d) said containers being substantially filled with a loose material of granular like configuration;
(e) said containers conforming to the contour of an object to be gripped as said jaws move towards one another, said containers continuing to conform to the contour of said object until the constrictive pressure of the container upon the granular material causes the granules of said material to engage one another and react as a solid upon said object contemporaneous with said material having assumed the contour of said object.

3,318,630
MATERIALS HANDLING EQUIPMENT
John G. Bryant, 15 Ridgewood Road, Radnor, Pa. 19087
Filed June 11, 1964, Ser. No. 374,329
13 Claims. (Cl. 294—104)



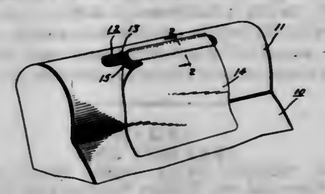
1. A clamp removably mountable on an article to be lifted, the clamp comprising:
a pair of jaws;
means interconnecting said jaws and providing relative rotation of the jaws;
means on the jaws respectively forming gripping surfaces which face one another, said jaw rotation providing for said gripping surfaces to relatively move towards and away from one another, the surfaces being relatively movable away from one another to form an opening to receive a part of the article to be lifted and the surfaces being relatively movable towards each other to engage and grip the part of the article therebetween, the gripping surface on each jaw being on one side of and spaced from the axis of rotation of the jaw;
means on the jaws respectively forming torque surfaces which face one another, the torque surface on each jaw being spaced from and on the side of the axis of rotation of the jaw opposite to the gripping surface;
torque applying mechanism disposed between said jaws for engagement with said torque surfaces;
means mounting said torque applying mechanism for reciprocating movements in a first direction generally parallel the relative rotation axis of said jaws and for reciprocating movements in a second direction generally normal to said first direction, the mounting means cooperating within the torque applying mechanism so that one of the reciprocating movements in said first direction causes one of the reciprocating movements in said second direction, and the other of said reciprocating movements in said first direction causes the other of said reciprocating movements in said second direction;
said one reciprocating movement in said first direction and said one reciprocating movement in said second direction effecting engagement between the torque applying mechanism and the torque surfaces to cause the same to move relatively away from one another and effect rotation of the jaws to cause said gripping surfaces to move relatively toward one another for engaging and gripping part of an article therebetween so as to lock the clamp on the article prior to the lifting operation; and
said other reciprocating movement in said first direction and said other reciprocating movement in said second direction permitting the torque surfaces to move relatively toward one another for rotation of the jaws to cause said gripping surfaces to move relatively away from one another and to release the grip on said part.

3,318,631
AUTOMOTIVE SIGNAL DEVICE
Carol L. Levy, New Castle, Del.
(111 Robert Lane, Greenville, Del. 19807)
Filed Aug. 9, 1965, Ser. No. 478,378
1 Claim. (Cl. 296—1)



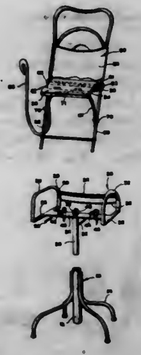
In a vehicle having a rear window, roof, and visual signalling device, an improvement to enhance signal visibility characterized in that the roof overhangs the rear window directly above said rear window, the rear window is disposed at an angle of less than 90° to the roof overhang, and a housing of the visual signalling device is integrally connected to the roof overhang and is located at least in part under the roof overhang, said housing extending to the sides of the vehicle and occupying at least in part a position normally occupied by the roof of the vehicle, said specific interconnected geometric relationship permitting a signal to be projected to the sides and upwards of the vehicle while simultaneously permitting a signal to be projected on to the rear window of the vehicle causing it to reflect from the rear window rearwards of the vehicle.

3,318,632
HEAD REST COVER
Albert Struble, 508 Irvington Road, Drexel Hill 19026, and Merritt L. Moffitt, Jr., 9 Weirwood Road, Radnor, Pa. 19087
Filed Sept. 28, 1965, Ser. No. 490,852
2 Claims. (Cl. 297—220)



1. A head rest cover for connection to a strip secured to the head rest portion of a seat back, said strip having upstanding hook pile elements with the hook orientation in a first direction; a removable head rest cover of strong, thin, flexible material; attachment means adjacent one edge of said head rest cover; said attachment means comprising a non-woven fabric including a plurality of ribs of raised resilient pile portions containing fibers extending in a second direction perpendicular to said first direction, said ribs spaced from one another and extending substantially perpendicular to said fibers; and said raised pile portion having a cross-sectional depth sufficient to ensnare said upstanding hook pile elements.

3,318,633
EXERCISING CHAIR
Carmine Guadagno, 118 Castle St., Geneva, N.Y. 14456
Substituted for abandoned application Ser. No. 403,246, Oct. 12, 1964. This application Nov. 29, 1965, Ser. No. 516,831
2 Claims. (Cl. 297—264)



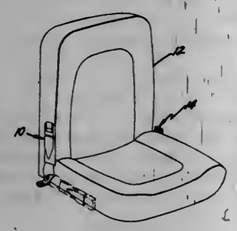
1. An exercising chair, comprising:
(A) a base portion including a vertically disposed hollow cylindrical member,
(B) a supporting mechanism including
(1) a vertical post resting substantially within said hollow cylindrical member of said base portion in rotating relationship therewith, said vertical post including a top portion containing slot means,
(2) a first bar attached to said vertical post near said slot means,
(3) second bars attached near their midportions to the ends of said first bar,
(4) curvilinear arm rests fixedly secured to said second bars,

(5) bracket assemblies attached to said first bar intermediate said second bars and said slot means of said vertical post,

(6) a horizontally positioned spring mechanism resiliently biased between said arms, and

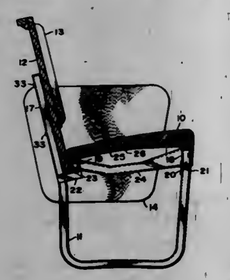
(C) an adjustable chair held in rocking relationship with respect to said supporting mechanism, said chair having a horizontally disposed axle attached thereto and held in rotating relationship within said slot means of said vertical post and said bracket assemblies of said supporting mechanism.

3,318,634
SEAT BELT UNIT
Arthur S. Nicholas, Grand Rapids, Mich., assignor to Leon Chemical and Plastics Incorporated, Grand Rapids, Mich., a corporation of Michigan
Filed Apr. 16, 1965, Ser. No. 448,612
17 Claims. (Cl. 297—388)



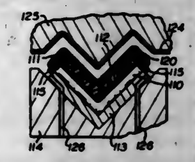
1. A restraining belt sheath comprising: an elongated, hollow, stiffening, belt-receiving sheath having means for locating said sheath on the belt; said sheath being pullingly extensible to length, and to thereby lengthen the belt, pushingly depressible to shorten, and to thereby shorten the belt, and constructed in a manner enabling belt folding with sheath shortening, for compact belt storage.

3,318,635
ROW SEATING
Chester J. Barecki and William S. Lindberg, Grand Rapids, Mich., assignors to American Seating Company, Grand Rapids, Mich., a corporation of New Jersey
Filed May 9, 1966, Ser. No. 548,686
4 Claims. (Cl. 297—446)



1. In a row seating structure, a pair of spaced longitudinally-extending front and rear tubular rails, cross channel members secured at their ends to said tubular rails to provide a seat frame, leg support means secured to said front tubular rail and extending upwardly above said seat frame at the rear and spaced outwardly from said rear rail, bracket support means secured to said rear leg means and extending forwardly and to a point below said tubular rear rail and providing between said rail and said rear leg extension a back-support socket, a seat back supported within said socket between said rear rail and rear leg extension, and means for securing said rear rail to said bracket means.

3,318,636
CUSHION
George H. Callum, South Bend, Ind., assignor to United States Rubber Company, New York, N.Y., a corporation of New Jersey
Continuation of application Ser. No. 188,505, Apr. 18, 1962. This application Oct. 6, 1965, Ser. No. 497,595
2 Claims. (Cl. 297—457)



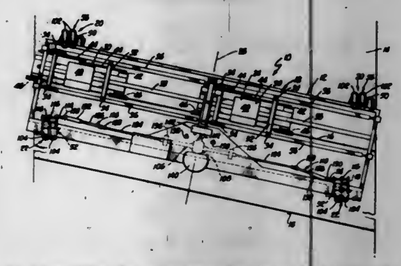
1. A contoured cushioned article having a seat portion and a back portion comprising:

(1) an angularly-shaped core of resilient padding material;

(2) an angular base member for supporting said core only around the lower external periphery thereof; and

(3) a flexible cover overlying said core and bonded directly to said base member for maintaining said core in a compressed condition in contact with said base member.

3,318,637
MACHINE FOR TRANSVERSELY SLOTTING A STRIP OF CONCRETE PAVEMENT AT DIFFERENT ANGLES
Gene Warner, Whittier, Calif., assignor to Concut, Inc., El Monte, Calif., a corporation of California
Filed Oct. 19, 1964, Ser. No. 404,884
2 Claims. (Cl. 299—39)



1. In a machine for transversely slotting a strip of pavement, the combination of:

(a) a wheeled vehicle movable longitudinally of the strip of pavement and including a main frame supported by longitudinally-spaced front and rear wheel assemblies;

(b) pavement slotting means, carried by said main frame between said front and rear wheel assemblies and movable laterally of said main frame along a transverse slotting path, for transversely slotting the strip of pvement;

(c) said wheel assemblies including wheel frames respectively having wheels rotatably mounted thereon;

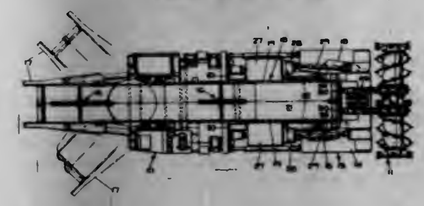
(d) hinge means respectively connecting said wheel frames to said main frame for pivotal movement relative thereto about upright axes to vary the angle of said transverse slotting path relative to the path of said vehicle;

(e) each of said hinge means including at least three interleaved, vertically aligned, hinge elements on said main frame and the corresponding one of said wheel frames, and including an upright hinge pin pivotally interconnecting said hinge elements thereof, alternate ones of said interleaved hinge elements of each of said hinge means being on said main frame and the corresponding wheel frame, respectively;

(f) locking means respectively connecting said wheel frames to said main frame for locking said wheel frames in predetermined angular positions relative to said main frame; and

(g) each of said locking means being remote from the corresponding hinge means and including interengaged locking elements on said main frame and the corresponding wheel frame.

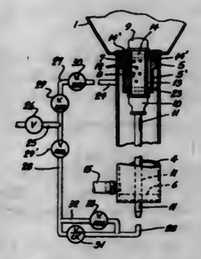
3,318,638
MINING MACHINE HAVING AUXILIARY CUTTERS DRIVEN FROM REAR OF DRUM SUPPORT
James Kilbourne, Bexley, Ohio, assignor to Jeffrey Galion Manufacturing Company, a corporation of Ohio
Filed Aug. 17, 1964, Ser. No. 390,040
12 Claims. (Cl. 299—76)



1. Mining apparatus including a main cutting and breaking means adapted to be advanced into the material of a mine face to remove said material therefrom, said main cutting and breaking means being disposed on a transverse axis relatively to the direction of advance thereof into said material, means supporting said main cutting and breaking means for movement about said transverse axis, means for driving said main cutting and breaking means, means connecting said driving means to said main cutting and breaking means, portions of said main cutting and breaking means being spaced from each other along said transverse axis, said connecting means being disposed between said spaced portions of said main cutting and breaking means, auxiliary cutting and breaking means disposed between said spaced portions of said main cutting and breaking means, driving connection of said driving means to said auxiliary cutting and breaking means, guiding and supporting means for said auxiliary cutting and breaking means and disposed between said spaced portions of said main cutting and breaking means, said driving connection including a driving element at the rear of said guiding and supporting means and in engagement with said auxiliary cutting and breaking means, and said auxiliary cutting and breaking means being driven by said driving element over said guiding and supporting means and about said transverse axis.

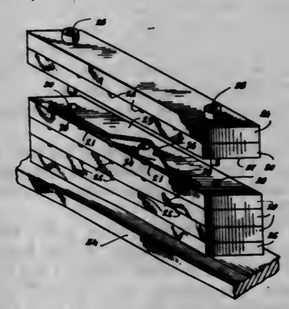
3,318,639
FEEDING MEANS FOR GRANULAR OR POWDERED MATERIAL
Vaga Devé, 3025 Sherbrooke St. W., Montreal, Quebec, Canada
Filed July 12, 1965, Ser. No. 471,235
7 Claims. (Cl. 302—17)

1. A system for filling a container with granular or powdered material to a predetermined level, comprising, in combination with a container, a pipe having an outlet end portion disposed within said container, means connected to the inlet of said pipe for feeding therethrough a granular or powdered material in fluidized state under action of a gas under pressure admixed with said material, said outlet end portion of said pipe having a free opening for the discharge of said fludized material into said container, said outlet end portion having an additional screened opening, disposed at a higher level than said free opening, for filtering said material from said gas to allow escape of said gas through said screened opening while preventing passage of said material through



said screened opening, whereby, upon said material in said container attaining the level of said free opening of said outlet end portion, said material will plug said free opening and cause cessation of the flow of said material while allowing continuation of the flow of said gas with its escape through said screened opening said outlet end portion of said pipe consisting of a T-shaped portion having a horizontally disposed main leg and vertically disposed and axially aligned side legs open at their free end, the lower one of said side legs defining said free opening and the upper one of said side legs defining said screened opening.

3,318,640
PNEUMATIC SHEET HANDLING APPARATUS AND METHOD OF MAKING SAME
William W. Coville, Stamford, Conn., assignor to Pitney-Bowes, Inc., Stamford, Conn., a corporation of Delaware
Filed Apr. 23, 1965, Ser. No. 450,436
7 Claims. (Cl. 302—31)



1. Pneumatic sheet handling apparatus comprising, in combination,

(A) a stack of a plurality of modular laminations each having a guide surface edge;

(B) an air manifold comprising a depression in at least one side of each of said laminations;

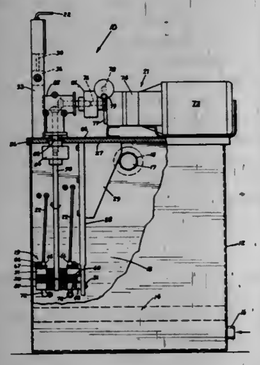
(1) said opposite side forming a seal on an adjacent lamination around said manifold;

(C) means forming a plurality of air outlet grooves in the side of each lamination having an air manifold;
(1) from said air manifold to and through said guide surface edge of the lamination;
(D) means forming a main air passage through each of said secured laminations and into each of said air manifolds therein;
(E) means for securing said lamination sections together with said air passages aligned and said guide surface edges in registration to form a surface having a straight line in lateral cross section over which sheet material is moved; and
(F) closure means for sealing off the last supplied lamination section air manifold;
whereby air may be moved under pressure through said air passages into said manifolds and then through said air outlet grooves to distribute air over the surface of a sheet.

3,318,641
METERING MEANS

Gordon V. Mommsen, Minneapolis, Minn., assignor to Possis Machine Corporation, Minneapolis, Minn., a corporation of Minnesota

Filed Feb. 26, 1965, Ser. No. 435,430
10 Claims. (Cl. 302—49)

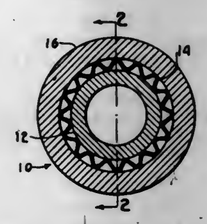


1. An apparatus for transporting metered amounts of fluid materials comprising in combination,
(a) tank means for storing a supply of fluid material,
(b) a top wall for closing the tank means,
(c) support means secured to the top wall and projected downwardly into the tank means,
(d) means in said tank means for suspending the material in a moving body of air,
(e) a metering unit positioned in the tank means below the top of the fluid material for conveying said fluid material from said tank means, said metering unit including
(1) a first member having a flat surface and at least one passage open to said surface,
(2) a second member having a flat surface and at least one passage open to said surface and in alignment with the passage in the first member,
(3) disc means positioned between the first member and the second member and engageable with the flat surfaces thereof, said disc means having a plurality of holes for collecting fluid material, said holes arranged in at least one circle that passes between the aligned passages in the first member and the second member,
(4) drive means for rotating said disc means relative to said first and second members,
(f) means securing one of the members of the metering unit to the lower portion of the support means,
(g) means supporting the drive means on the top wall,
(h) means for conducting a supply of air to the passage in said second member, and
(i) means for transporting the mixture of air and fluid material from the passages in the first member.

3,318,642
SELF-ALIGNING BEARING

Reino A. Peterson, Southfield, Mich., assignor to The Bunting Brass and Bronze Company, Toledo, Ohio, a corporation of Ohio

Filed Oct. 17, 1963, Ser. No. 316,973
7 Claims. (Cl. 308—26)

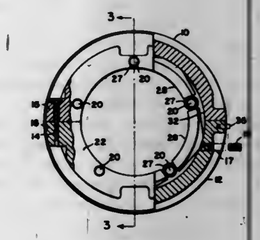


1. A self-aligning bearing comprising a bearing sleeve having a continuous wall of sintered metal capable of passing lubricant from the outer surface thereof to the inner surface, a convoluted annulus of resilient metal surrounding said sleeve with the inner ends of the convolutions in contact with said sleeve, said annulus being perforated to enable lubricant to pass from one side of it to the other, a supporting shell surrounding said annulus and contacting the outer ends of the convolutions, lubricant in the space between said sleeve and said shell on both sides of said annulus, and sealing means retaining said annulus and said lubricant in said shell.

3,318,643
TILTING SHOE JOURNAL BEARING

Karol Pilarczyk, Morrisville, and James R. Prairie, Fallsington, Pa., assignors to De Laval Turbine Inc., Trenton, N.J., a corporation of Delaware

Filed Oct. 28, 1964, Ser. No. 407,090
6 Claims. (Cl. 308—73)

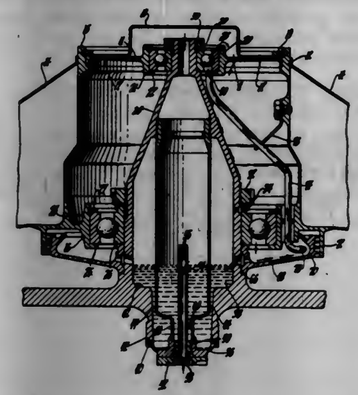


1. A bearing comprising a housing with a bore, a plurality of bearing shoes spaced within said housing in engagement with the wall of said bore, and a plurality of members spaced around and fixed to the interior of said housing, each of said members engaging the ends of a respective adjacent pair of said shoes to separate said pair of shoes, and said members maintaining said shoes in engagement with the wall of said bore.

3,318,644
CENTRIFUGAL BEARING LUBRICATION SYSTEM

Wylie L. Johnson III, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Feb. 24, 1965, Ser. No. 434,869
6 Claims. (Cl. 308—134.1)

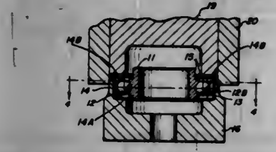


1. An automatic lubrication system comprising, in combination:
a shaft mounted for rotation about a vertical axis,
a reservoir concentric and rotatable with said shaft,
a cylinder mounted concentrically in said reservoir,
means establishing fluid communication between a point inside said cylinder adjacent said axis and said reservoir,
further means to establish a liquid level for lubricant in said reservoir and cylinder above said first named means, an outlet in said reservoir at said liquid level, and
delivery means extending from said outlet to a point outside said reservoir whereby rotation of said shaft causes lubricant to be delivered to said second point from said reservoir while an amount of lubricant is retained in said cylinder for delivery to said reservoir when said shaft stops.

3,318,645
BEARING UNIT AND METHOD OF ASSEMBLY

Walter S. Sutowski, 6976 Crestview Drive, Brecksville, Ohio 44141

Filed Feb. 11, 1965, Ser. No. 431,898
12 Claims. (Cl. 308—196)



1. A bearing device comprising in combination an inner race, a plurality of balls, and a split outer race resiliently contracted about the balls arranged in a circle between the concentrically arranged race members, the outer race member being expansible to open the gap at the split thereof, a metal cup member receiving the assembled race members and balls therebetween, said cup member snugly embracing the outer race member to prevent expansion thereof, a metal washer member engaging a first axial end of the outer race member and overlying the inner race member, said cup member having a bottom wall engaging the opposite axial end of the outer race member, having a portion folded upon itself adjacent said first axial end of the outer race member and protruding radially outwardly to provide a reinforcing annular flange, and having an upper end wall extending radially inward from said flange and formed over said washer member to confine the washer member and to hold the washer member in engagement with said outer end wall, said outer race member being tightly embraced by said cup member and washer member and said inner race member being held between the said bottom wall and washer to be rotatable relative thereto.

3,318,646
GANG LOCK FOR CABINETS

Charles J. Ibel, Brentwood, N.Y., assignor to Supreme Steel Equipment Corp.

Filed Sept. 10, 1965, Ser. No. 487,107
12 Claims. (Cl. 312—218)



1. In a cabinet having a plurality of drawers or doors in alinement, the improvement which comprises a locking bar adjacent to one side of said drawers, openings in said bar for each drawer, a keeper opening in said locking bar, an arm having a locking cam adapted to enter said keeper opening, means for sliding said arm back and forth to selectively lock and unlock said drawers, a latch holder adjacent to said locking bar, a locking lug for each drawer pivoted on said holder and having a nose and a tail extending in opposite directions from said said pivot, said locking bar being in operative relation to said tail, a slot in said drawer for the reception of said nose, said nose when in operative position entering said slot, and said nose and tail entering said keeper opening when in operative position.

3,318,647
UNIT ENCLOSURES

Robert H. Bishop, 808 W. Park St., Champaign, Ill. 61820

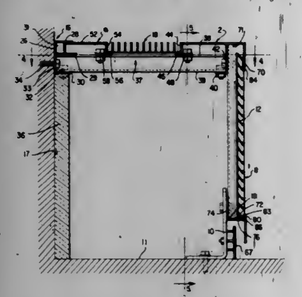
Filed Oct. 11, 1965, Ser. No. 494,553
6 Claims. (Cl. 312—257)

1. A unit enclosure adapted to receive equipment within the enclosure comprising:
at least one longitudinally extending generally vertical first wall means adapted to be positioned adjacent a second wall means defining an interior space therebetween,
joining means for spacing said first wall means from said second wall means,
at least one of said first and second wall means including longitudinally extending top member means, said top member means including a downwardly directed upper channel defined by spaced opposed downwardly directed central and outer webs,

a plurality of longitudinally spaced vertically extending mullions having their upper extremities received within said upper channel and depending from said top member means, each said mullion defined by opposed, vertically extending, side surfaces,

longitudinally projecting supporting flanges positioned along adjacent side surfaces of adjacent mullions, each said supporting flange extending vertically from the lower extremity of said mullion to a point below the upper extremity of said mullion,

longitudinally extending, horizontally disposed bottom member means positioned along the lower extremities of said mullions, said bottom member including a lower channel for receiving the lower extremities of said mullions defined by two spaced opposed upwardly directed inner and outer webs,

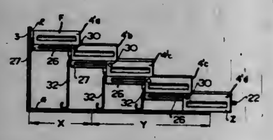


and a plurality of vertical panels removably positioned between said top and bottom member means, each said vertical panel extending longitudinally between adjacent mullions,

each said panel having its outer surface adjacent its upper and lower extremities abutting the inner surfaces of said outer webs of said top and bottom member means and having its inner surface adjacent its longitudinal extremities abutting said supporting flanges on adjacent said mullions,

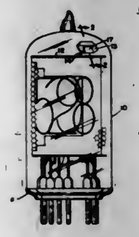
whereby each said panel may be removed by lifting it upwardly out of said lower channel and swinging it forwardly out of and down from said upper channel.

3,318,648
ARTICLE CARRYING AND DISPLAY CASE
Georg Schonenbach, Remscheid-Lennep, Germany, assignor to Schonenbach OHG, Remscheid-Lennep, Germany, a corporation of Germany
Filed Apr. 14, 1965, Ser. No. 448,056
Claims priority, application Germany, Apr. 15, 1964, Sch 34,981; Dec. 15, 1964, Sch 36,245
7 Claims. (Cl. 312—273)



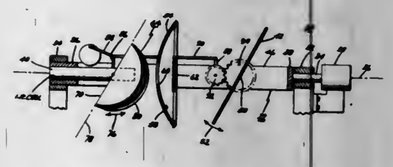
1. An article carrying case, which comprises an outer case having at least a rear side wall and a bottom, a plurality of stacked open trays for holding articles to be carried in said outer case, the uppermost tray being secured to said outer case in fixed relation to the rear side wall thereof, and means interconnecting said trays to one another to accommodate slidable movement of the lower trays relative to one another and relative to said rear wall along a predetermined path between a stacked position and a terraced position wherein the interiors of said lower trays are accessible, said interconnecting means including for each combination of two adjacent trays, a grooved member carried on one tray, a flange member carried on the other tray and slidably received in said grooved member, and a pin member extending into said flange and grooved members to constrain them for relative sliding movement along a direction parallel to said tray movement path.

3,318,649
CHARGING ELECTRONIC TUBES WITH MERCURY
Douglas V. Keller, Jr., La Fayette, and Frederick P. Scott, Garden City Park, N.Y., assignors to King Laboratories Inc., Syracuse, N.Y., a corporation of New York
Filed Oct. 11, 1963, Ser. No. 315,206
4 Claims. (Cl. 316—3)



1. The method of charging an electronic tube with mercury, the method consisting in preparing an alloy composed of mercury and a metal selected from Groups IA, IIA and III of the periodic table, inserting a quantity of said alloy in the tube, sealing the tube and heating the alloy to a temperature sufficient to liberate the mercury.

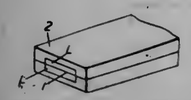
3,318,650
RADIATION DETECTION SYSTEM
George Papp, Fort Wayne, Ind., assignor to International Telephone and Telegraph Corporation
Filed Sept. 19, 1960, Ser. No. 56,847
11 Claims. (Cl. 350—6)



1. A radiation detection system comprising: radiation detection means disposed on a first axis for providing an output signal responsive to radiation incident thereon; a flat mirror on said first axis for receiving radiation from a distant source and for reflecting a radiant image of said source toward said detection means; means for rotating said mirror about said first axis whereby said mirror scans a segment of a spherical field of view about said first axis; a spherical shaped member disposed on said first axis in front of said detection means, the spherical surface thereof constituting a spherical focal surface, a reticle disposed on said spherical focal surface transversely across said first axis adjacent the intersection of said focal surface therewith and being formed of a plurality of opaque

and transparent elements; reflecting means for directing a radiant image reflected by said mirror onto said detection means and for focusing said image onto said reticle; means for rotating said reticle about said first axis in unison with said mirror whereby a radiant image of a radiant spot in said segment is scanned across said reticle lines at right angles thereto and is given a pulsating characteristic by said opaque elements to provide an alternating current output signal.

3,318,651
WAVEGUIDE FOR TRANSMISSION OF ELECTROMAGNETIC ENERGY IN THE SUB-MILLIMETER BAND
Antoni Emil Karbowiak, London, England, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed Mar. 26, 1965, Ser. No. 442,903
Claims priority, application Great Britain, Apr. 10, 1964, 14,882/64
6 Claims. (Cl. 350—96)



1. A transmission medium for electromagnetic energy in the visible and near visible frequency range of free-space wavelength not exceeding one millimetre, including a strip of solid dielectric material of maximum thickness less than one-half of the wavelength of the transmitted energy and of width greater than one thousand times the said wavelength, said strip guiding the said energy as a lowest order mode surface wave along the length of said strip, and means supporting said strip in the path of said energy.

3,318,652
OPTICAL DEVICES UTILIZING FARADAY ROTATION
Stuart B. Berger, Springfield, and Charles B. Rubinstein, Summit, N.J., assignors to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Apr. 23, 1963, Ser. No. 274,999
8 Claims. (Cl. 350—151)

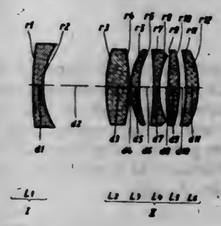


1. A light rotating device comprising in combination a light rotating medium consisting essentially of a glass having the composition represented by the formula:

$$xR_2O_3 \cdot (1-x)A$$

where x has a value of at least 0.1, R is a rare earth ion selected from the group consisting of praseodymium, terbium, dysprosium and mixtures thereof, and A is selected from the group consisting of P_2O_5, B_2O_3, GeO_2 and mixtures thereof, a source of polarized light for directing polarized light through said medium, means for analyzing the light transmitted from the said medium, magnetic means for impressing a magnetic field on said medium said field having a component in the direction of propagation of the light through said medium.

3,318,653
OPTICAL OBJECTIVE OF 6 AIR-SPACED LENSES WITH LARGE EFFECTIVE FIELD ANGLE
Karl H. Macher, Bad Kreuznach, Rhineland, Germany, assignor to Jos. Schneider & Co. Optische Werke, Bad Kreuznach, Rhineland, Germany, a corporation of Germany
Filed July 18, 1963, Ser. No. 296,036
Claims priority, application Germany, Sept. 12, 1962, Sch 32,015
1 Claim. (Cl. 350—215)



An optical objective system consisting of six air-spaced single lenses including a negative front lens and five additional lenses constituting a positive component separated from said front lens by an air space ranging between substantially 0.3 and 0.4 times the overall focal length of the system; said positive component consisting of a biconvex second lens, a meniscus-shaped positive third lens, a biconcave fourth lens, a biconvex fifth lens and a meniscus-shaped positive sixth lens, the numerical values of the radii $r1$ to $r12$ and of the thicknesses and separations $d1$ to $d11$ of said front lens L1 and said second, third, fourth, fifth and sixth lenses L2 to L6, based upon a numerical value of 100 for the overall focal length of the system, their refractive indices n_d and their Abbé numbers ν being substantially as given in the following table.

TABLE

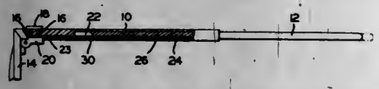
	Lens	Radii	Thicknesses and Separations	n_d	ν
		$r1 = +199.30$			
I	L1	$r2 = +47.20$	$d1 = 6.00$	1.46450	65.79
			$d2 = 37.68$	Air space	
	L2	$r3 = +78.38$	$d3 = 13.38$	1.70180	41.14
		$r4 = -183.65$	$d4 = 0.96$	Air space	
	L3	$r5 = +40.32$	$d5 = 5.02$	1.61720	54.04
		$r6 = +68.77$	$d6 = 8.19$	Air space	
II	L4	$r7 = -175.00$	$d7 = 3.25$	1.78470	26.10
		$r8 = +44.17$	$d8 = 5.46$	Air space	
	L5	$r9 = +308.04$	$d9 = 6.28$	1.58900	48.64
		$r10 = -98.80$	$d10 = 4.15$	Air space	
	L6	$r11 = -84.60$	$d11 = 7.45$	1.72000	50.31
		$r12 = -47.39$			
			$d_{total} = 97.82$		

3,318,654
ADJUSTABLE LENGTH TEMPLE FOR EYEWEAR
Paul J. Kreuzberger, Reading, Pa., and Howard Jones, Rockport, Maine, assignors, by mesne assignments, to Itek Corporation, a corporation of Delaware
Filed June 7, 1963, Ser. No. 286,310
1 Claim. (Cl. 351—118)

An adjustable temple for eyewear comprising, relatively slidable forward and rearward temple sections,

an open faced interior channel in said forward section for slidably receiving an end portion of said rearward section, said interior channel terminating at the forward end thereof in a shallow channel portion,

a spring strip within one side of said interior channel, the forward end of said spring strip lying in said shallow channel portion underlying the temple hinge plate and being secured thereto by rivet means,



the said end portion of said rearward section being received within said interior channel between said strip and the opposed sidewall of said interior channel,

the rearward end of said spring strip defining a free spring finger portion lying normally in the plane of said strip within said interior channel and adjacent said open face thereof,

said open face providing access to said spring finger,

a narrow transverse bridge section integral with said forward section and extending across said open face for maintaining said spring finger portion in said channel,

an outward extension at the free end of said spring finger portion terminating short of the exterior of said forward section, said extension providing means for manual movement of said spring finger outwardly to permit slidable movement of said end portion of said rearward section in said interior channel,

projection means carried by and extending inwardly of said spring finger portion within said interior channel,

a plurality of successive socket means carried by said end portion of said rearward section for selectively receiving said projection means for locking said temple sections in selected adjusted position, and

transverse shoulder means in said end portion of said rearward section for guiding the sliding movement of the end portion within the interior channel of the forward temple section.

CHEMICAL

3,318,655

POLYPROPYLENE-POLYCARBONATE MIXED RESIN FIBER, ITS PRODUCTION AND DYEING THEREOF

Morio Naka, Urawa, Choji Yuyama, Saitama, and Osamu Nakajima, Ehime, Japan, assignors to Fuji Spinning Co., Ltd., Tokyo, Japan

No Drawing. Filed Dec. 15, 1960, Ser. No. 75,942
Claims priority, application Japan, Dec. 18, 1959, 34/39,328
11 Claims. (Cl. 8—55)

1. Spun fiber consisting essentially of a homogeneous admixture of crystalline polypropylene and from 1 to 20% by weight of 4,4'-dihydroxy-diphenyl-2,2-propane polycarbonic acid ester resin having a softening point of 100 to 300° C.

3,318,656

BLEACHING OF TETRAFLUOROETHYLENE FILAMENTS

Norman C. Jeckel, Glens Falls, N.Y., assignor to United States Catheter & Instrument Corporation, Glens Falls, N.Y., a corporation of New York

No Drawing. Continuation of application Ser. No. 238,071, Oct. 31, 1962. This application Dec. 20, 1965, Ser. No. 515,211
12 Claims. (Cl. 8—101)

1. A process for bleaching polytetrafluoroethylene filaments comprising treating said filaments with a mixture of sulfuric, nitric and perchloric acids.

3,318,657

METHOD OF BLEACHING CELLULOSE FIBRES

Robert C. Wade, Ipswich, Mass., assignor to Metal Hydrides Incorporated, Beverly, Mass., a corporation of Massachusetts

No Drawing. Filed Sept. 23, 1963, Ser. No. 310,862
4 Claims. (Cl. 8—111)

1. The method for bleaching cellulose fibres which comprises subjecting the fibres to treatment with an aqueous solution of an alkali metal borohydride having a pH of at least 9, and thereafter treating the fibres with ozone in an aqueous medium having a pH between about 2 to 7.

3,318,658

POLYPYRROLIDONE FIBERS AND PROCESS

Sidney M. Leahy and Albert C. Tanquary, White Bear Lake, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

No Drawing. Filed Dec. 21, 1962, Ser. No. 246,326
12 Claims. (Cl. 8—115.5)

1. The process for beneficiating polypyrrolidone fibers which consists essentially in subjecting polypyrrolidone fibers to the action of formaldehyde in the presence of an acidic methylolation catalyst under non-solubilizing conditions, and removing water to effect crosslinking.

3,318,659

PROCESS OF TREATING CELLULOSE TEXTILES WITH POLYVINYL CHLORIDE POLYMERS, A POLYSILOXANE AND ZIRCONIUM ACETATE AND OPTIONALLY WITH FLAME RESISTANT AND ROT RESISTANT AGENTS

Joel B. Bullock and Clark M. Welch, New Orleans, La., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed Nov. 14, 1962, Ser. No. 237,766
4 Claims. (Cl. 8—115.6)

1. A process for rendering cellulose textiles water-repellent and weather resistant which process comprises wetting the cellulose textile with an aqueous emulsion containing from 1–20% by weight of a resin selected from the group consisting of polyvinyl chloride and copolymers of vinyl chloride predominating in vinyl chloride, from 1–20% by weight of methyl hydrogen polysiloxane, and from 0.5–8% of zirconium acetate, and subsequently dry curing the emulsion wetted cellulose textile at temperatures from 80–180° C. for from 1–10 minutes, the shorter time intervals being employed with the higher temperatures.

3. A process for treating cellulose textiles which have previously been rendered flame- and rot-resistant with a combination of tris(1-aziridinyl)phosphine oxide and tetrakis(hydroxymethyl)phosphonium chloride applied to said textile and dry cured thereon by heating, which process comprises wetting the flame-proofed and rot-proofed cellulose textile with an aqueous emulsion containing from 1–20% by weight of a resin selected from the group consisting of polyvinyl chloride and copolymers of vinyl chloride predominating in vinyl chloride, from 1–20% by weight of methyl hydrogen polysiloxane, and 0.5–8% of zirconium acetate, and subsequently dry curing the wetted cellulose textile at temperatures from 80–180° C. for from 1–10 minutes, the shorter time intervals being employed with the higher temperatures.

3,318,660

METHOD OF PRODUCING PHOSPHATES

Josef Cremer, Hermulheim, near Cologne, Fridolin Hartmann, Urfeld, near Bonn, Franz Rodis, Bad Hersfeld, and Arnulf Hinz, Knapsack, near Cologne, Germany, assignors to Knapsack-Griesheim Aktiengesellschaft, Knapsack, near Cologne, Germany, a corporation of Germany

No Drawing. Filed Mar. 16, 1962, Ser. No. 180,309
Claims priority, application Germany, Mar. 22, 1961, K 43,259
8 Claims. (Cl. 23—107)

1. A method for producing substantially purified soluble alkali, alkaline earth metal or the ammonium salt of an ortho phosphoric acid comprising reacting in finely divided form crude phosphate mineral with a mixture of

(1) a non-volatile inorganic acid selected from the group consisting of sulfuric and phosphoric acid and

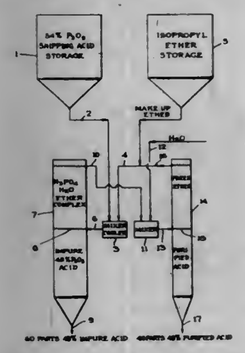
(2) at least one of an alkali metal salt, alkaline earth metal salt, and a mixture of at least one metal salt with an ammonium salt, the salt being of a volatile inorganic acid having as an anionic group a member selected from the group consisting of halo and nitro, the concentration of (1) and (2) respectively varying from stoichiometric amounts by no more than 15% by weight, heating the crude phosphates, maintaining the salts and acid reactants at a temperature of about 200–600° C., and extracting the resulting products, adjusting the concentration ratio and the pH stepwise during extraction.

3,318,661

PROCESS FOR PURIFYING PHOSPHORIC ACID

Paul O. Schallert, College Park, and Charles C. Fite, Jr., Atlanta, Ga., assignors to Tennessee Corporation, New York, N.Y., a corporation of New York

Filed Dec. 31, 1962, Ser. No. 248,765
6 Claims. (Cl. 23—165)



1. A process for the purification of phosphoric acid which comprises contacting aqueous impure phosphoric acid at a concentration of 68% to 85% by weight of H_3PO_4 with diisopropyl ether at a temperature in the range of 0° C. to 60° C., thereby forming a mixture of an aqueous impure acid phase and a purified acid-water-ether complex phase, separating said two phases, separately withdrawing said complex phase, and recovering said ether and a purified acid from said withdrawn complex phase.

3,318,662

SULFUR DIOXIDE SEPARATION

Egon Pauling, Essen, Germany, assignor to Metallgesellschaft Aktiengesellschaft, Frankfurt am Main, Germany

Filed June 16, 1965, Ser. No. 464,472
Claims priority, application Germany, Oct. 17, 1960, P 25,857
10 Claims. (Cl. 23—168)

1. In a low temperature catalytic process for separating sulfur dioxide from a gas containing a minor proportion of sulfur dioxide, the steps comprising in combination contacting said gas at a temperature of about 20 to 100° C. with an excess of oxygen and water in the presence of a catalyst composition comprising a carbonaceous adsorbent impregnated with a catalytically effective amount of a catalytic member selected from the group consisting of manganese, copper, titanium, iron, zinc, nickel, cobalt, chromium, vanadium, molybdenum, tin, and their oxides; maintaining the concentration of said catalytic member per ton of carbonaceous adsorbent at a catalytically effective level during the entire process, and recovering product sulfuric acid.

10. In a low temperature catalytic process for separating sulfur dioxide from a gas containing a minor proportion of sulfur dioxide, the steps comprising in combination contacting said gas at a temperature of about 20 to 100° C. with oxygen and water in the presence of a catalyst composition comprising a carbonaceous adsorbent impregnated with a catalytically effective amount of iodine which is about 0.1 to 5% by weight of the carbonaceous adsorbent, maintaining the concentration of said iodine at said catalytically effective amount and recovering product sulfuric acid.

3,318,663

MANUFACTURE OF HYDROGEN PEROXIDE

Gordon Randolph Hoey, Otterburn Park, Quebec, and David Hudson, St. Hilaire, Quebec, Canada, assignors to Canadian Industries Limited, Montreal, Quebec, Canada, a corporation of Canada

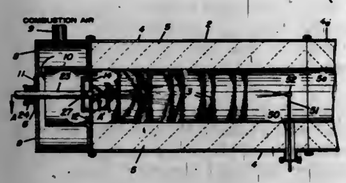
No Drawing. Filed Feb. 3, 1965, Ser. No. 430,176
Claims priority, application Canada, Feb. 26, 1964, 896,578
4 Claims. (Cl. 23—207)

1. In a process for the manufacture of hydrogen peroxide wherein an hydrogen sulphide-containing gas is reacted with an aqueous solution of an alkali salt of an anthraquinone disulphonic acid, thus producing elemental sulphur and the reduced anthraquinone disulphonic acid salt, the sulphur being separated and the reduced anthraquinone disulphonic acid salt oxidized to produce hydrogen peroxide, the improvement whereby the hydrogen peroxide thus formed is separated as coarse grained readily filterable calcium peroxide octahydrate which comprises adding the aqueous alkaline solution of the reduced anthraquinone disulphonic acid salt to a stirred aqueous solution of a water soluble calcium compound which is continuously aerated with an oxygen-containing gas, the solution being maintained at a temperature below 30° C., the rate of addition of the reduced anthraquinone disulphonic acid salt being such that the concentration of the calcium compound remains in stoichiometric excess of that required to precipitate the hydrogen peroxide formed by the oxidation of the reduced anthraquinone disulphonic acid salt, thus precipitating coarse grained calcium peroxide octahydrate, separating said calcium peroxide from said solution, washing residual solution from said calcium peroxide with water and recovering hydrogen peroxide from said calcium peroxide.

3,318,664
METHOD AND APPARATUS FOR MAKING CARBON BLACK

Burton F. Latham, Jr., and Robert G. James, Houston, Tex., assignors to Continental Carbon Company, Houston, Tex., a corporation of Delaware

Filed Dec. 4, 1964, Ser. No. 415,986
10 Claims. (Cl. 23—209.4)

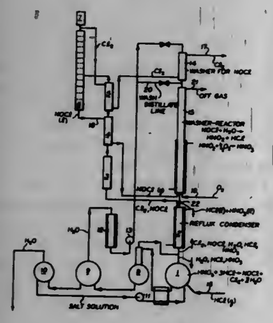


1. The method of making carbon black in an elongate cylindrical reactor which includes moving fuel gas into said elongate cylindrical reactor by sonic energy waves which emanate from a source which is spaced from the longitudinal axis thereof; injecting carbon black producing feedstock into and along the longitudinal axis of said elongate cylindrical reactor; introducing combustion air into said elongate cylindrical reactor in a path which is peripheral with respect to the path of the injected carbon black producing feedstock; igniting the mixture of fuel gas and combustion air; pyrolytically dissociating said carbon black producing feedstock to produce carbon black aerosol; and cooling the effluent and recovering the carbon black therefrom.

3,318,665
PROCESS FOR THE MANUFACTURE OF CHLORINE AND PROCESS FOR CONVERSION OF NITROSYL CHLORIDE

Wilhelm F. Schmidt, Ranzel, Karl W. Hass, Niederkassel, and Hans G. Epler, Ranzel, Germany, assignors to Dynamit Nobel Aktiengesellschaft, Cologne, Germany, a corporation of Germany

Filed June 15, 1964, Ser. No. 375,394
Claims priority, application Germany, June 21, 1963, D 41,808
7 Claims. (Cl. 23—219)



1. Process for production of chlorine which comprises contacting hydrochloric acid and nitric acid in an aqueous medium having dissolved therein a chloride salt of metal selected from the group consisting of Group I, II, III, and VIII, at a temperature and for a time sufficient for reaction I, below, to go substantially to completion, and with evolution of chlorine and nitrosyl chloride as a gas admixture:

$$(I) \qquad HNO_3+3HCl \rightarrow Cl_2+NOCl+2H_2O$$

separating the chlorine-nitrosyl chloride gas admixture into chlorine product and nitrosyl chloride, reacting the separated nitrosyl chloride with water and oxygen to produce nitric acid and hydrochloric acid, and returning the nitric acid and hydrochloric acid so produced to said aqueous medium for reaction according to reaction I, and removing a portion of the aqueous medium and distilling water from the withdrawn aqueous medium to remove water of reaction formed by reaction I and concentrate the metal salt contained in the withdrawn aqueous medium, and returning the concentrate to said aqueous medium in which the hydrochloric acid and nitric acid are contacted.

3,318,666
METHOD OF PREPARING DISPERSIBLE SULFUR

Richard L. Every and Ralph Leroy Grimsley, Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla., a corporation of Delaware

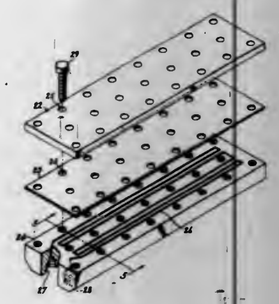
No Drawing. Filed Feb. 1, 1965, Ser. No. 429,644
5 Claims. (Cl. 23—226)

5. A method of producing finely-divided dispersible sulfur which comprises passing a gaseous sulfur containing fluid comprising SO_2 and a second sulfur containing gaseous compound selected from the group consisting of hydrogen sulfide and mercaptans into an aqueous solution of 0.5 to 5 weight percent of an aliphatic alcohol of 1 to 5 carbon atoms and recovering the resulting formed sulfur from the product.

3,318,667
MICRO COKER

Bela M. Fabuss, Brookline, and Sandor Borsanyi, Marblehead, Mass., assignors to Monsanto Research Corporation, St. Louis, Mo., a corporation of Delaware

Filed Sept. 6, 1963, Ser. No. 307,238
7 Claims. (Cl. 23—253)



7. Improved fuel coker equipment for measuring the coker characteristics of a fuel comprising in combination:

(a) a substantially pressure-tight body for pyrolyzing a fuel and which consists of top and bottom rectangular plates each having a flat interior face of substantially the same dimensions, one of said plates having a channel on said interior face defining an undulating serpentine course connecting inlet and outlet openings at the exterior face of said plate, said course comprising a plurality of connected segments extending in reciprocal fashion over at least the major portion of the length of said interior face with the central axis perpendicular to the length of said rectangular plate dividing each connected segment into equivalent lengths, a flat relatively thin panel positioned between said plates to thereby form a hollow, continuous passageway between the flat surface of said panel above said channel,

(b) means for joining said separable members together to form a substantially solid pressure-tight body constructed to remain pressure tight at elevated temperatures,

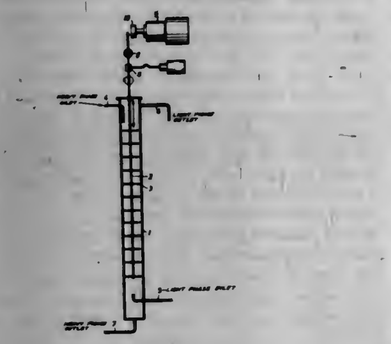
(c) means to introduce a fuel to said body, and

(d) means to heat said body to a temperature sufficient to pyrolyze said fuel.

3,318,668
COUNTERCURRENT EXTRACTION COLUMN HAVING MIXER BLADES ADAPTED FOR ROTATION AND VERTICAL OSCILLATION

Ludwig Ziehl, Buechenbronn, uber Pforzheim, Germany, assignor, by meme assignments, to Vickers-Zimmer Aktiengesellschaft, Frankfurt am Main, Germany, a corporation of Germany

Filed Aug. 13, 1963, Ser. No. 301,835
Claims priority, application Germany, Aug. 20, 1962, Z 9,606
4 Claims. (Cl. 23—270)



1. An extraction column containing no plates or baffles for countercurrent liquid-liquid extraction consisting of an elongated cylindrical extraction chamber, first supply means for supplying the heavy phase liquid at the upper part of the extraction chamber, second supply means for supplying the lighter phase liquid at the lower part of the extraction chamber, first means for discharging the lighter phase liquid from the upper part of the extraction chamber, said first discharging means being provided above the inlet of said first supply means, second means for discharging the heavier phase liquid from the lower part of the extraction chamber, said second discharging means being provided below the inlet of said second supply means for supplying the lighter phase liquid, a vertical drive shaft extending axially the length of the column and outwardly through the top of said column, a plurality of horizontal star-shaped mixing fittings having a plurality of pointed arms extending therefrom, said fittings being mounted on said shaft below the inlet of said first supply means and spaced from said first and second discharging means so as to provide a settling and separating space for the lighter and heavier phase liquids after mixing, first drive means connected to the top of said drive shaft for imparting vertical reciprocatory motion to the drive shaft, and second drive means connected to the top of said drive shaft for imparting rotary motion to the drive shaft while the drive shaft is reciprocating vertically, said mixing blades being spaced axially along said drive shaft one from the other by at least about the diameter of the extraction chamber, said first drive means being adapted to impart to the drive shaft a vertical reciprocatory motion of an amplitude of about one half time to one and one half times of the spacing of the mixing blades from one another with a frequency of about 50 strokes to about 500 strokes per minute, said second drive means being adapted to impart to the mixing blades a rotational movement of about 30 revolutions to about 200 revolutions per minute.

3,318,669
METHOD OF PRODUCING AND RE-MELTING COMPOUNDS AND ALLOYS

Otto Gert Folberth, Boblingen, near Stuttgart, Germany, assignor to Siemens-Schuckerwerke Aktiengesellschaft, Berlin-Siemensstadt, Germany, a corporation of Germany

Filed June 1, 1961, Ser. No. 114,212
Claims priority, application Germany, June 3, 1960, S 68,808
8 Claims. (Cl. 23—315)



1. A method for the production of a compound in crystalline form by melting the components together within a sealed melting vessel, with a vaporous phase of at least one elemental component being contained in the vessel and coacting in the formation of said compound, comprising the steps of initially heating the lower portion of said sealed melting vessel to the melting temperature of said compound, thereafter continuously and slowly bringing the remainder of the melting vessel up to the same temperature to produce a uniform melt, and thereafter permitting the melt to progressively freeze from bottom to top.

3,318,670
PRODUCTION OF ACTINIDE ALUMINIDE IN A FLUIDIZED BED

Earl S. Grimmett, Idaho Falls, Idaho, assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Aug. 12, 1966, Ser. No. 572,156
5 Claims. (Cl. 23—347)

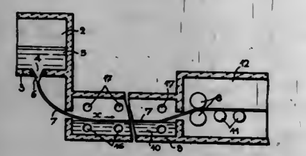
1. A method of making an actinide aluminide comprising establishing and maintaining a fluidized bed containing aluminum particles by passing an oxygen-containing gas upwardly therethrough, introducing a compound selected from the group consisting of an actinyl nitrate and an actinyl phosphate into said fluidized bed at about 350° C. whereby composite particles of aluminum coated with

an actinide oxide are formed, introducing a chlorinating agent into the fluidized bed to convert the oxide coating to a chloride coating, and heating the fluidized bed to about 600° C. to cause the aluminum to react with the actinide chloride coating.

3,318,671
PROCESS AND APPARATUS FOR FORMING GLASS SHEETS ON A MOLTEN METAL BATH

Edgard Brichard, 155 Chaussee de Gilly, Jumet, Belgium, and Emile Plumat, 273 Chaussee de Ransart, Gilly, Belgium

Filed Oct. 7, 1963, Ser. No. 314,224
7 Claims. (Cl. 65—65)



1. A process of continuously forming a glass strip comprising discharging molten glass downwards through a drawing slot in the bottom of a glass melting tank, the molten glass forming a bulb immediately beneath said slot, drawing the glass downward from said bulb under the action of gravity, a sufficient distance to permit cooling of the glass and the forming of a strip having smooth opposite surfaces, laterally curving the strip so formed and depositing the curved strip, without it having contacted any solid elements, onto a bath of molten substance denser than glass and chemically inert to the same, sliding said strip on said bath, progressively decreasing the temperature of the bath in the direction of movement of the strip until the glass strip has attained a temperature for which it is no longer damaged by engagement with solid elements, and advancing said strip by engagement therewith after the glass has attained this last temperature.

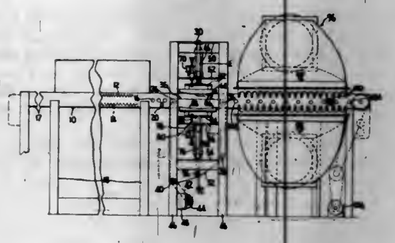
4. Apparatus for forming a glass strip comprising a glass melting tank, said tank having a bottom with a drawing slot therein through which molten glass is drawn downwards under the action of gravity, a vessel containing a molten bath disposed below the level of said slot and extending at least to one side thereof, said bath having a level a substantial distance below the bottom of the tank to enable the discharged glass to form a strip having smooth opposite surface, said bath being denser than glass and chemically inert to the glass, means for advancing on said bath, laterally of said drawing slot, the formed glass strip, without the strip contacting solid elements, means for cooling progressively the bath in the direction of movement of the strip, until the temperature of the strip is low enough for the glass to be engaged by solid elements without damage, said advancing means acting on the strip after the latter has left the bath.

3,318,672
METHOD AND APPARATUS FOR PRESS BENDING GLASS SHEETS

George R. Claassen, New Kensington, Pa., assignor to Pittsburgh Plate Glass Company, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Aug. 21, 1963, Ser. No. 303,570
11 Claims. (Cl. 65—106)

1. Apparatus for shaping glass sheets comprising a flexible belt having a horizontally disposed upper run for supporting a heat-softened glass sheet thereon, a plurality of rollers about which said flexible belt is entrained, an upper glass shaping member located above said upper run and a lower glass shaping member located below said upper run, said glass shaping members having complementary shaping surfaces facing one another, said complementary shaping surfaces conforming to the shape desired for the glass sheet after bending, shaping member moving means moving said glass shaping members between a retracted position spaced from said upper run and a closed position wherein said glass shaping members are in pressurized contact on opposite sides of a heat-softened glass sheet supported on said upper run, and means connected to one of said rollers and responsive to movement of said lower glass shaping member to move outward against the belt into a belt tensioning position when said lower glass shaping member is moved downward and to move away from the belt to relieve the tension on the belt and to permit the upper run to conform to said complementary shaping surfaces when engaged in



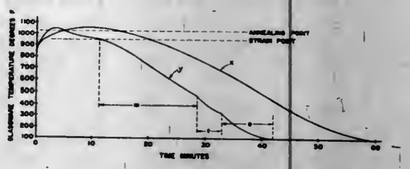
pressurized engagement between said shaping members.

10. A method of shaping a glass sheet comprising heating said glass sheet to a temperature sufficient for shaping, supporting said heat-softened glass sheet in a horizontal plane on a flexible support under tension, conveying the glass sheet while supported on said tensioned flexible support to a position between a pair of glass shaping members having complementary shaping surfaces, and relaxing the tension on said flexible support while applying pressurized contact between said glass shaping members for a time sufficient to shape the heat-softened glass sheet and said flexible support to conform to the shaping surface of said glass shaping members, disengaging said bent sheet from said pressurized contact while tensioning said flexible support, conveying said bent glass sheet from said position while supported on said tensioned flexible support, and removing said bent glass sheet from said flexible support.

3,318,673
GLASSWARE ANNEALING METHOD

Robert A. Fuller, West Hartford, Conn., Francis E. Dorsey, Millville, N.J., and Constantine W. Kulig, Wethersfield, Conn., assignors to Emhart Corporation, Bloomfield, Conn., a corporation of Connecticut

Original application Feb. 28, 1963, Ser. No. 261,643, now Patent No. 3,259,481. Divided and this application Dec. 20, 1965, Ser. No. 514,978
5 Claims. (Cl. 65—118)

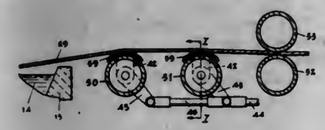


1. A method for annealing glassware comprising the steps of heating the ware to a temperature approximately at its annealing point, cooling the ware from said temperature initially at a rate of temperature reduction higher than that normally employed for the type of glassware being annealed and thereafter at a decreasing rate of temperature reduction to substantially the strain point of the ware, and further cooling the ware.

3,318,674
APPARATUS FOR PROTECTING THE WITHDRAWING ROLLERS OF A MOLTEN METAL BATH IN A GLASS SHEET MAKING OPERATION

Emmett L. Walters, Toledo, Ohio, assignor to Libbey-Owens-Ford Glass Company

Filed Apr. 29, 1964, Ser. No. 363,383
5 Claims. (Cl. 65—159)



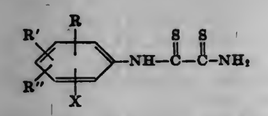
1. In apparatus for producing flat glass the combination, with a tank for containing a bath of molten metal upon which a layer of molten glass that is free to flow laterally can develop into a buoyant body of molten glass of stable thickness, and means for withdrawing said body of stable thickness in ribbon form from said molten metal bath and conveying the same in a generally horizontal path, of movable protecting and auxiliary supporting means, and means for positioning said movable means between said withdrawing and conveying means and said ribbon.

3,318,675
METHOD FOR INHIBITING PLANT GROWTH

John F. Olin, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed Feb. 3, 1964, Ser. No. 342,247
8 Claims. (Cl. 71—2.3)

1. A method for inhibiting the growth of existing plant systems comprising contacting said plant systems with a herbicidally effective amount of a compound of the formula



where R is selected from the group consisting of hydrogen, hydroxyl, and nitro, and aliphatic hydrocarbyl and aliphatic hydrocarbyloxy having up to 4 carbon atoms, R' and R'' are selected from the group consisting of hydrogen, hydroxyl, halogen, and nitro and aliphatic hydrocarbyl and aliphatic hydrocarbyloxy having up to 4 carbon atoms, and X is selected from the group consisting of hydrogen and halogen.

3,318,676
CONTROLLING VEGETATION WITH HALOALKYL THIOLCARBAMATES

Marion W. Harman, Nitro, and John J. D'Amico, Charleston, W. Va., assignors to Monsanto Company, a corporation of Delaware

No Drawing. Filed July 10, 1959, Ser. No. 826,130
2 Claims. (Cl. 71—2.7)

1. The method of destroying vegetation which comprises applying to germinating seedlings a phytotoxic amount of a composition containing as the essential active ingredient 3-chloropropyl diisopropylthiolcarbamate.

3,318,677
PLANT DWARFING COMPOSITION AND METHOD

Howard A. Hageman, Southbury, and Winchester L. Hubbard, Woodbridge, Conn., assignors to United States Rubber Company, New York, N.Y., a corporation of New Jersey

No Drawing. Original application Feb. 16, 1961, Ser. No. 89,655. Divided and this application Nov. 13, 1963, Ser. No. 323,267
14 Claims. (Cl. 71—2.5)

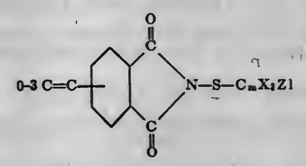
1. A plant growth regulant composition comprising a plant dwarfing effective amount of a compound selected from the group consisting of N-disubstitutedamino amic acids, in which the disubstituted amino radical is selected from the group consisting of dialkylamino radicals having 1 to 12 carbon atoms in each alkyl group, 1-pyrrolidyl, 1-piperidyl and 4-morpholinyl radicals, and the amic acid is selected from the group consisting of hexahydrophthalamic acid, 1,2,3,6-tetrahydrophthalamic acid, 3,6-endoxy-Δ^4-tetrahydrophthalamic acid and 3,6-endomethylene-Δ^4-tetrahydrophthalamic acid, and the alkali metal, ammonium or amine salts and imides of said N-disubstituted-amino amic acids, said composition containing a surface-active wetting agent.

3,318,678
INCREASING SACCHARIDE CONTENT IN SUGAR BEETS

Richard M. Thorup, Fresno, Calif., and Arvel H. Hunter, Portland, Oreg., assignors to Chevron Research Company, a corporation of Delaware

No Drawing. Filed Apr. 6, 1964, Ser. No. 357,734
7 Claims. (Cl. 71—2.5)

1. A method of increasing the saccharide content in sugar beets which comprises applying to the beets during the growing season a physiologically effective amount of a compound of the formula:



wherein m is an integer of from 1 to 2, $l=2(m-1)$, X is halogen of atomic number 17 to 35, and Z is selected from the group consisting of hydrogen and halogen of atomic number 17 to 35.

3,318,679
PROCESS OF CONTROLLING PLANT GROWTH

Herbert Q. Smith, Trenton, N.J., and Thomas E. Deger, Ambler, Pa., assignors to Pennsalt Chemicals Corporation, Philadelphia, Pa., a corporation of Pennsylvania

No Drawing. Original application Nov. 4, 1963, Ser. No. 321,279, now Patent No. 3,259,907, dated July 5, 1966. Divided and this application Dec. 3, 1965, Ser. No. 550,066
5 Claims. (Cl. 71—2.5)

1. The process of controlling plant growth comprising contacting plants at a rate of from about 3 pounds to about 100 pounds per acre with a mono(alkylthioalkyl) ester of 3,6-endoxohexahydrophthalic acid selected from the group consisting of free acid and salts thereof, wherein said alkyl groups contain from 1 to 5 carbon atoms.

3,318,680

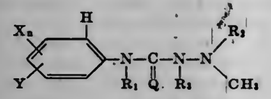
METHOD FOR THE CONTROL OF WEEDS

George Levitt, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed July 6, 1964, Ser. No. 380,610

6 Claims. (Cl. 71—2.6)

1. Method for the control of weeds comprising applying to a locus to be protected, in amount sufficient to exert herbicidal action, a compound of the formula:



wherein

R_1 is selected from the group consisting of hydrogen and alkyl of 1 through 4 carbon atoms;

R_2 is selected from the group consisting of hydrogen, unsubstituted alkyl of 1 through 4 carbon atoms, alkyl of 1 through 4 carbon atoms substituted with at least one substituent selected from the group consisting of hydroxyl, cyano, chlorine, bromine and methoxy, alkenyl of 2 through 4 carbon atoms and acyl of 1 through 4 carbon atoms;

R_3 is alkyl of 1 through 4 carbon atoms;

Q is selected from the group consisting of oxygen and sulfur;

X is selected from the group consisting of hydrogen, halogen and alkyl of 1 through 4 carbon atoms;

Y is selected from the group consisting of hydrogen, halogen, nitro and alkoxy of 1 through 4 carbon atoms;

n is a positive whole integer less than 3; with the limitation that when Y is selected from the group consisting of alkoxy and nitro, X is halogen.

3,318,681

HERBICIDAL COMPOSITIONS AND METHOD

John Yates, Whitstable, Kent, England, assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

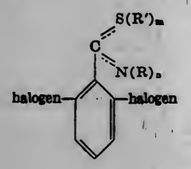
No Drawing. Filed Mar. 8, 1965, Ser. No. 438,036

Claims priority, application Great Britain, Jan. 5, 1961, 520/61

4 Claims. (Cl. 71—2.6)

1. A herbicidal composition comprising

(a) a herbicidally effective amount of the compound of the formula



wherein m=0 to 1, n=1 to 2, and $m+n$=2; R represents a member of the group consisting of hydrogen, alkyl of 1 to 4 carbon atoms and phenyl when n=1; and when n=2, R is alkyl of 1 to 4 carbon atoms; and R′ represents a member of the group consisting of hydrogen, alkyl of 1 to 4 carbon atoms, chloro-alkyl of 1 to 4 carbon atoms, bromo-alkyl of 1 to 4 carbon atoms, and acyl of 1 to 4 carbons, and

(b) an inert horticultural diluent therefor.

3,318,682

HERBICIDAL METHOD UTILIZING PHENYL 2,3,6-TRICHLOROPHENYLACETATE

Jack S. Newcomer, Wilson, Edward D. Weil, Lewiston, and Edwin Dorfman, Grand Island, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York

No Drawing. Filed May 20, 1965, Ser. No. 457,524

3 Claims. (Cl. 71—2.6)

1. A method for controlling the growth of plants which comprises applying to the locus to be treated a herbicidal amount of phenyl 2,3,6-trichlorophenylacetate.

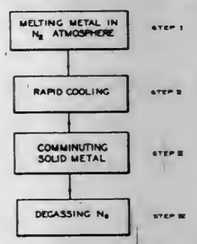
3,318,683

REFRACTORY METAL POWDERS

Ellis L. Foster, Jr., Powell, and Walter J. Hildebrand, Columbus, Ohio, assignors, by mesne assignments, to Battelle Development Corporation, Columbus, Ohio, a corporation of Delaware

Filed July 27, 1964, Ser. No. 385,301

12 Claims. (Cl. 75—0.5)



1. A process for preparing homogeneous powdered high-purity refractory metal alloys selected from the group of refractory alloys consisting of

Mo-W	Mo-Pd	W-Pd
Mo-Re	W-Re	Re-Os
Mo-Os	W-Os	Re-Rh
Mo-Rh	W-Rh	Re-Pt
Mo-Pt	W-Pt	Re-Ir
Mo-Ir	W-Ir	Re-Pd

and comprising the steps of:

(a) melting the said refractory metal alloy in a gaseous atmosphere selected from the group of gases consisting of nitrogen and ammonia,

(b) rapidly cooling the said refractory metal alloy in the said gaseous atmosphere,

(c) comminuting the said rapidly cooled refractory metal alloy, and

(d) removing the nitrogen-gas atmosphere contained therein.

3,318,684

METHOD FOR PRODUCING SPHEROIDAL ALUMINUM PARTICLES

Donald C. Gernes, Los Gatos, and William R. King, Jr., Los Altos, Calif., assignors to Kaiser Aluminum & Chemical Corporation, Oakland, Calif., a corporation of Delaware

No Drawing. Filed Nov. 2, 1964, Ser. No. 408,410

8 Claims. (Cl. 75—.5)

1. The method for making spheroidal aluminum particles comprising agitating a two-phase liquid system containing a first phase of molten aluminum and a second phase of a liquid compatible with molten aluminum under conditions to produce a dispersion of aluminum in said second liquid, maintaining said dispersion out of contact with oxygen, effecting agitation while said system is in contact with hydrogen and a stabilizing material selected from a group consisting of carbon and nitrogen, cooling the system to solidify aluminum and recovering the resultant spheroidal aluminum particles.

3,318,685

CALCIUM CHLORIDE TREATMENT OF OXYGEN-PROCESS STEEL FUME

Erwin C. Handwerk, Grosse Ile, Mich., assignor to Wyandotte Chemicals Corporation, Wyandotte, Mich., a corporation of Michigan

No Drawing. Filed Mar. 2, 1964, Ser. No. 348,794

9 Claims. (Cl. 75—3)

1. A method for producing hard agglomerates suitable for a furnace charge from particulate oxidized iron material, wherein said agglomerates are substantially free from zinc and lead impurities, comprising the steps of agglomerating a mixture comprising said particulate oxidized iron, carbon and calcium chloride and heating the resulting agglomerates at a temperature of from about 1100° to 1500° C.

7. An agglomerated particulate oxidized iron material product containing from about 2 to 25% calcium chloride, from about 1 to 10% carbon and sufficient water to impart an agglomerating consistency to the material wherein said particulate oxidized iron material contains zinc and lead impurities and is produced by oxygen steel processes.

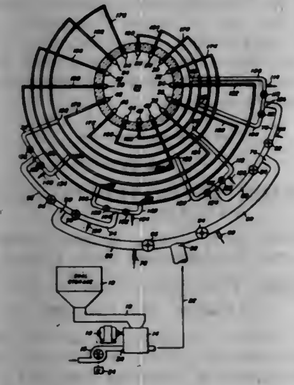
3,318,686

METHOD AND APPARATUS FOR TRANSPORTING PARTICULATE MATERIAL TO A METALLURGICAL FURNACE

Elwood V. Schulte, Pittsburgh, Pa., assignor to Koppers Company, Inc., a corporation of Delaware

Filed July 2, 1963, Ser. No. 292,239

7 Claims. (Cl. 75—42)



1. A method of injecting particulate coal particles into the tuyere zone of a blast furnace which comprises

(a) supplying particulate coal to a coal feeder,

(b) supplying a conveying air stream at superatmospheric pressure to said coal feeder,

(c) admixing said conveying air stream and said coal particles in said coal feeder to entrain coal particles in said conveying air stream as a fluidized mass of said coal particles suspended in said conveying air stream,

(d) introducing said fluidized mass into a primary conduit at a sufficient velocity to maintain said coal particles suspended in said conveying air stream,

(e) transporting said fluidized mass through said primary conduit to a first spliter device,

(f) maintaining said particulate coal entrained in said conveying air stream as a fluidized mass in said first splitter device,

(g) dividing said fluidized mass in said splitter device into two substantially equal and separate streams,

(h) transporting each of said separate streams as a fluidized mass through a separate secondary conduit to a second splitter device,

(i) maintaining said particulate coal entrained in said conveying air stream as a fluidized mass in said second splitter device,

(j) dividing each of said streams into two separate smaller substantially equal substreams,

(k) transporting each of said substreams through a tertiary conduit to the tuyere zone of said blast furnace, and

(l) introducing said separate substreams from said tertiary conduits into different quadrants of said blast furnace tuyere zone.

5. Apparatus for selectively injecting particulate material into preselected portions of a metallurgical furnace comprising

(a) a feeder device,

(b) means to supply a conveying air stream at superatmospheric pressure to said feeder device,

(c) said feeder device operable to admix preselected quantities of particulate material with conveying air supplied thereto to entrain said coal particles in said conveying air stream as a fluidized mass of said particulate material suspended in said conveying air,

(d) conduit means to convey said fluidized mass to said metallurgical furnace,

(e) said conduit means including a first splitter means to divide said fluidized mass into more than two substantially equal streams, second splitter means to divide said streams into substantially equal substreams while said particulate material remains suspended in said conveying air streams, and third splitter means to further divide said substreams into smaller substreams while said particulate material remains suspended in said conveying air stream,

(f) said conduit means having a plurality of separate outlets arranged around the periphery of said metallurgical furnace for injecting separate streams of said fluidized mass into different portions of said metallurgical furnace, and

(g) valve means in said conduit means to close preselected portions of said conduit means to thereby inject streams of said fluidized mass into preselected portions of said metallurgical furnace.

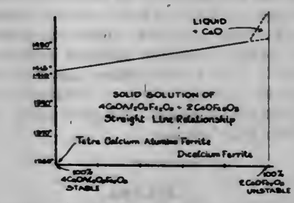
3,318,687

TREATMENT OF SLAG IN THE PROCESS OF MAKING STEEL

James J. Bowden, P.O. Box 127, Cortland, Ohio 44410

Filed Apr. 30, 1964, Ser. No. 363,781

2 Claims. (Cl. 75—53)



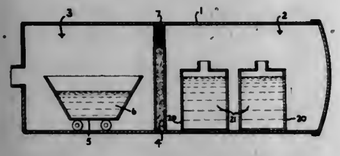
1. In the manufacture of low carbon steel which is accompanied by a basic steel making slag containing a high concentration of dicalcium ferrite, the improvement comprising the steps of checking the slag just prior to the time the furnace is ready for tapping to establish the ferrous oxide content thereof, thereafter adding sufficient alumina to the slag to chemically combine with said dicalcium ferrite and lower the concentration of the latter to substantially zero, and then tapping the furnace.

3,318,688

PROCESS OF PRODUCING ZIRCONIUM METAL

Irvin C. Klimaszewski, Pensacola, Fla., assignor, by mesne assignments, to Pittsburgh Plate Glass Company

Filed Feb. 13, 1962, Ser. No. 172,932
1 Claim. (Cl. 75—84.5)



In the method of producing zirconium metal by reduction of zirconium tetrachloride with an alkaline reducing metal wherein solid zirconium tetrachloride is sublimed in a vaporization zone and the vapors are forwarded to a reducing zone containing the alkaline reducing metal maintained at reducing temperature, the improvement which comprises forwarding the vaporized zirconium tetrachloride from the vaporization zone to the reduction zone through a passage filled with inert gas permeable material in a thermal barrier common to both zones to discharge the zirconium tetrachloride vapors after passage through the gas permeable material directly into the reduction zone whereby to reduce the amount of fine dust particles present in the vaporization zone.

3,318,689

TREATMENT OF LATERITES

Nicolas Zubryckyj and Vladimir Nicolaus Mackiw, Fort Saskatchewan, Alberta, Canada, assignors to Sherritt Gordon Mines Limited, Toronto, Ontario, Canada, a company of the Province of Ontario

No Drawing. Filed Dec. 24, 1963, Ser. No. 333,210
6 Claims. (Cl. 75—119)

1. A process for the recovery of nickel and cobalt values from oxidized lateritic and garnieritic nickel and cobalt bearing ores which comprises heating the ore at a temperature within the range of from about 800° F. to about 1500° F. in contact with a reducing agent for a time sufficient to selectively reduce nickel and cobalt oxides in the ore to the metallic state with a minimum accompanying reduction of iron oxide to metallic iron; dispersing the so-reduced ore in water to produce a slurry having a solids content of between about 10% and about 50% by weight; agitating said slurry and reacting it at atmospheric pressure and at a temperature below the boiling point of the slurry with sulphur dioxide and an oxygen bearing, oxidizing gas to convert metallic nickel and cobalt to water soluble sulphates; separating the undissolved residue from the solution and treating said solution directly with a sulphidizing agent to convert dissolved nickel and cobalt values to sulphides and precipitate them from said solution, and recovering precipitated sulphides from said solution.

3,318,690

AGE HARDENING MANGANESE-CONTAINING MARAGING STEEL

Stephen Floreen, Westfield, and Raymond Frank Decker, Fanwood, N.J., assignors to The International Nickel Company, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed June 9, 1964, Ser. No. 373,871
4 Claims. (Cl. 75—123)

3. A martensitic steel characterized in that it transforms substantially to martensite at room temperature or above and further characterized in the aged condition by a combination of relatively high yield strength together with a satisfactory level of toughness, said steel consisting essentially of about 10% to 20% nickel, from 1.2% to 3.9% manganese, up to 5% chromium, the sum of the nickel plus manganese plus chromium contents being about 14% to 23%, carbon in an amount up to 0.03%, up to 1% titanium, up to 1% aluminum, up to 1% silicon, up to 2% cobalt, up to 2% molybdenum, up to 2% vanadium, up to 2% tungsten, up to 0.4% beryllium, up to 2% columbium, up to 2% tantalum, up to 2% copper, with the proviso that the total summation of cobalt, molybdenum, vanadium, tungsten, beryllium, columbium, tantalum and copper is not greater than 2%, and the balance essentially iron.

3,318,691

PROCESS FOR PRODUCING CASTINGS FROM AN IRON ALLOY CONTAINING SILICON

Rudolf Jellinghaus, Schlachthofstrasse 33, Kamen, Westphalia, Germany

No Drawing. Filed July 6, 1965, Ser. No. 469,911
4 Claims. (Cl. 75—129)

1. A method for the preparation of free cutting, machinable ferro-silicon alloys comprising melting in a cupola furnace a steel yielding batch containing at least 30% by weight of steel scrap, and substantially devoid of alloying additives, maintaining said molten batch at a temperature of at least 1600° C., tapping off said molten batch into a ladle at substantially the same temperature into which ladle between 1 to 3% by weight referred to the final alloy of calcium silicon and 5 to 20% by weight of silicon referred to the final alloy are contained, dispersing said silicon and said calcium silicon throughout, casting said molten batch and cooling said batch until solidification is obtained, thereafter, re-melting in a crucible furnace and re-casting the resultant alloy at a temperature of about 1250° C. in the form of pigs.

3,318,692

METHOD FOR PREPARATION OF ALUMINUM-MERCURY ALLOYS

Bernard Raclot, Paris, France, assignor to Societe Generale du Magneslum, Paris, France

No Drawing. Filed Apr. 7, 1966, Ser. No. 540,826
17 Claims. (Cl. 75—138)

1. In the method of producing an aluminum alloy containing mercury as an alloying element, the steps of reducing the aluminum containing componet to a molten state, wrapping a product of the group consisting of mercury and mercury alloys in a sheet of metal to form a substantially enclosed package, submerging the package below the surface of the molten aluminum containing component whereby the product is heated while the wrapping of metal is melted away to release the heated product while submerged in the bath of molten component for alloying with said component without excessive loss of mercury vapors.

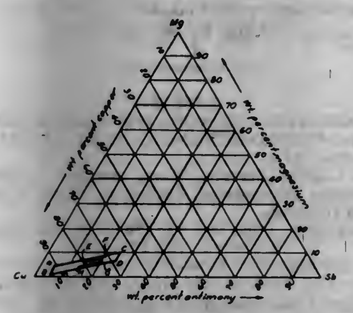
3,318,693

ALLOY COMPOSITION

George S. Foerster, Midland, Mich., and Edward L. Hill, Littleton, Colo., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

Filed Dec. 30, 1964, Ser. No. 422,363
2 Claims. (Cl. 75—153)

1. A copper base alloy comprising antimony and magnesium, the balance being essentially copper, said alloy having a composition by weight within the composition range represented by the area ABCD, bounded by lines



AB, BD, CD, and CA of the graph in the appended drawing.

3,318,694

NICKEL CHROME ALLOY

Arthur C. Heitmann, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation, a corporation of Delaware

No Drawing. Filed Oct. 30, 1963, Ser. No. 319,970
8 Claims. (Cl. 75—171)

1. An alloy consisting essentially of:

	Percent by weight
Nickel	45–55
Chromium	33–37
Iron	2–10
Tungsten	3–3.5
Molybdcnum	3–3.5
Carbon	0.1–0.35
Silicon, up to	5.0
Manganese, up to	5.0
A metal from the group consisting of tantalum and columbium	1–3

said alloy being characterized by resistance to attack by molten glass, low creep, and high load carrying ability at elevated temperatures.

3,318,695

METHOD OF PRODUCING NUCLEAR FUEL ELEMENTS OF STAINLESS STEEL COATED UO_2 PARTICLES

David E. Goslee, White Marsh, and Louis Frank, Baltimore, Md., assignors, by mesne assignments, to the United States of America as represented by the United States Atomic Energy Commission

Filed May 24, 1963, Ser. No. 283,126
3 Claims. (Cl. 75—206)

3. The process of producing a high density dispersion type nuclear fuel element, comprising extruding a water slurry of stainless steel coated spherical UO_2 particles with a volatile binder into a rubbery tubular configuration, drying said extruded tube, removing said binder from said extruded tube by volatilization at high temperature, swaging said tube to straighten and pre-densify said tube, assembling said extrusion in a cladding with dead-ends, drawing said assembly through a die, evacuating said assembly, welding the ends of said assembly to seal the evacuation thereof, isostatically pressing said sealed assembly at about 2150° F. and about 10,000 p.s.i. for about three hours finally to densify said UO_2 and to diffuse said cladding and said tube, and finishing said pressed assembly to size.

3,318,696

METHOD OF PRODUCING A POROUS TUNGSTEN STRUCTURE WITH AN IMPERVIOUS SKIN

Richard H. Krock, Peabody, and Edward J. Zdanuk, Lexington, Mass., assignors to P. R. Mallory & Co. Inc., Indianapolis, Ind., a corporation of Delaware

Filed Feb. 16, 1966, Ser. No. 527,902
10 Claims. (Cl. 75—208)

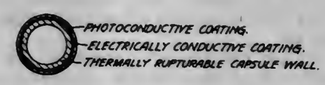
1. A method of making a tungsten specimen having an armored surface and a porous core comprising the steps of: treating tungsten powder with a chemical additive; drying said treated tungsten powder at about 150° centigrade for about 2 hours so as to condition said tungsten powder; forming said conditioned tungsten powder into a desired specimen shape; contacting said conditioned surfaces of said tungsten specimen with a metal having a melting point temperature lower than that of tungsten; placing said tungsten specimen and said infiltrant metal in a vacuum atmosphere; and heating said tungsten specimen and said infiltrant metal so as to simultaneously sinter said tungsten specimen and to infiltrate the surfaces of said tungsten specimen with said infiltrant metal thereby forming a sintered tungsten specimen having pore-free armored surfaces and a porous core.

3,318,697

COPY SHEET HAVING A LAYER OF THERMALLY RUPTURABLE HOLLOW MICROCAPSULES ON A CONDUCTIVE BACKING AND THE METHOD OF USE

Raymond W. Shrewsbury, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

Filed Apr. 28, 1964, Ser. No. 363,307
13 Claims. (Cl. 96—1)



7. A copysheet which comprises (1) an electrically conductive backing, and in electrical contact therewith and physically bonded thereto, (2) an electrically conductive layer of liquid containing microcapsules substantially coextensive with said backing, said microcapsules comprising thermally rupturable hollow capsules having a maximum diameter of about 200 microns, having an image forming component therein and having an electrically continuous conductive exterior surfaces, and (3) a photoconductive topcoating thereon.

8. A process which comprises: exposing to a light image a copysheet comprising (1) an electrically conductive backing and, in electrical contact therewith (2) an electrically conductive layer of microcapsules, said microcapsules comprising thermally rupturable hollow capsules having a maximum diameter of about 200 microns and having an electrically conductive coating thereon and (3) a photoconductive topcoating over said layer of microcapsules; and impressing an electrical potential between said electrically conductive backing and the surface of said photoconductive topcoating to effect selective electrical current flow transversally through the light exposed photoconductive topcoating and adjacent electrically conductive layer of microcapsules and produce localized ohmic heating and selective thermal rupture of said microcapsules.

3,318,698
XEROPRINTING REPRODUCTION
Frederick A. Schwertz, Pittsford, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed May 3, 1963, Ser. No. 277,879
4 Claims. (Cl. 96—1.1)

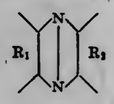
1. A method of copy reproduction comprising the steps of:
(a) applying electrostatic charge to an image-bearing surface of a dielectric layer while supported on an electrically conductive substrate, wherein the image comprises a frosted light diffusing pattern in the form of microscopically formed alternating ridges and valleys in the otherwise smooth dielectric surface;
(b) developing the electrostatic field on said charged surface by passing a quantity of electroscopic developer particles thereover to deposit thereon in accordance with electrostatic field gradients; and
(c) transferring the deposited powder from the dielectric surface to a secondary support surface.

3,318,699
PROCESS AND MATERIAL FOR THE DEVELOPMENT OF DIAZOTYPE COPIES
Erwin Lind, Auringen uber Wiesbaden, Germany, assignor, by mesne assignments, to Keuffel & Esser Company, Hoboken, N.J., a corporation of New Jersey
No Drawing. Filed Oct. 9, 1964, Ser. No. 402,946
Claims priority, application Germany, Oct. 12, 1963, K 51,075
4 Claims. (Cl. 96—49)

1. A method of developing exposed diazotype sheet material comprising:
(a) providing a developer sheet comprising a support, infrared radiation-absorbing, heat-generating material uniformly disposed at a surface of said support, and a thermally-activatable alkali-generator uniformly disposed in intimate physical contact with said radiation-absorbing material at said support surface;
(b) combining said support surface in intimate contact with the sensitized surface of said diazotype sheet material; and
(c) exposing said radiation-absorbing material to infrared radiation for a time sufficient to generate therein temperatures effective to activate said alkali generator.

3,318,700
APPLICATION OF DYESTUFF BLEACHING CATALYSTS IN THE SILVER DYESTUFF BLEACHING PROCESS
Walter Anderau, Aesch, Basel-Land, and Rudolf Mory, Dornach, Solothurn, Switzerland, assignors to Ciba Limited, Basel, Switzerland, a Swiss company
No Drawing. Filed Sept. 5, 1963, Ser. No. 306,690
Claims priority, application Switzerland, Sept. 14, 1962, 10,928/62
16 Claims. (Cl. 96—53)

1. A process for the production of a color photographic image by the silver dyestuff bleaching process, which comprises carrying out the bleaching operation in the presence of an azine catalyst that contains at least one acidic group imparting solubility in water and that corresponds to the formula



in which R_1 represents a naphthalene radical condensed with the azine ring in the manner indicated by the valence lines which naphthalene radical contains at least one substituent selected from the groups consisting of a hydroxyl group, an amino group and an azo group, said substituent being attached to the six-membered ring not directly bound to the azine ring, and R_2 represents a member selected from the group consisting of a benzene radical and a naphthalene radical condensed with the azine ring in the manner indicated by the valence lines.

3,318,701
PHOTOGRAPHIC MONOBATHS CONTAINING A DL 6-8 DITHIO-OCTANOIC ACID ANTISLUDGING AGENT
Leo D. Corben, Beverly, Mass., assignor to Technical Operations Incorporated, Burlington, Mass., a corporation of Delaware
No Drawing. Filed Oct. 21, 1964, Ser. No. 405,585
4 Claims. (Cl. 96—61)

1. A photographic monobath containing phenidone, hydroquinone, sodium thiosulfate and an antisludging agent selected from the group consisting of DL 6-8 dithio-octanoic acid, alkali metal salts of DL 6-8 dithio-octanoic acid, alkaline earth metal salts of DL 6-8 dithio-octanoic acid, and amine salts of DL 6-8 dithio-octanoic acid.

3,318,702
SILVER HALIDE EMULSIONS WITH INCREASED SENSITIVITY
Wolfgang Müller-Bardorff, Cologne, and Wilhelm Saleck, Schildgen, Bergisch-Gladbach, Germany, assignors to Agfa Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
No Drawing. Filed Mar. 31, 1964, Ser. No. 356,074
Claims priority, application Germany, Apr. 24, 1963, A 42,948
4 Claims. (Cl. 96—107)

1. A process for increasing the sensitivity of silver halide emulsions, characterized by performing the chemical ripening with a mixture of noble metal salts and nitrilotriacetic acid or a mixture or noble metal salts and salts of nitrilotriacetic acid.

3,318,703
METHOD OF PRODUCING SUBSTITUTE FOR TRUFFLES
Johannes Jacobus Geldof, 2701 Webster St., Mount Rainier, Md. 20822
No Drawing. Filed July 8, 1964, Ser. No. 381,219
3 Claims. (Cl. 99—1)

3. A process for making a food product used as a substitute for truffles consisting in mixing egg yolks in proportion of about 70 to 75% by weight, mixing separately cornstarch in proportion of about 10 to 15% by weight, water, in proportion of about 10 to 15% by weight and a coloring substance in proportion of about 1.5% by weight, adding the mixtures together and adding salt in proportion of about 1.5% by weight, cooking and stirring the resulting mixture until it thickens and assumes an even consistency, and further cooking it at about 180° for approximately 20 minutes to produce a product substantially identical in color, taste, consistency and resiliency with natural truffles.

3,318,704
COMPOSITIONS WITH FATTY OIL AND SAFFLOWER PHOSPHATIDE
Joseph Eichberg, Atlanta, Ga., assignor to American Lecithin Company, Atlanta, Ga., a corporation of Georgia
No Drawing. Filed Oct. 22, 1965, Ser. No. 502,524
13 Claims. (Cl. 99—15)

1. A fatty oil composition containing as an additive between about 0.1% and about 5.0% by weight of the fatty oil of safflower phosphatide.

3,318,705
BREAKFAST CEREAL PROCESS
Adolph S. Clausi, Cos Cob, Conn., Willard L. Vollink, Battle Creek, Mich., and Elmer W. Michael, Evansville, Ind., assignors to General Foods Corporation, White Plains, N.Y., a corporation of Delaware
No Drawing. Filed June 14, 1965, Ser. No. 463,930
14 Claims. (Cl. 99—80)

1. A process for preparing a breakfast cereal product, the breakfast cereal product being suitable for use as both hot and cold cereal which has retained substantially all of its pre-processing nutritive value, which comprises
gelatinizing hydrated, ungelatinized dough pieces, comprising a major proportion of at least one nutritious cereal flour and from 1.5% to 10% milk protein, the dough pieces having a moisture content of from 22% to 36% moisture at a temperature of from 215° F. to 265° F. at a pressure of from 1 to 23 p.s.i.g.,
cooling the gelatinized dough pieces to a temperature of from above 150° F. to 205° F.,
partially drying the gelatinized dough pieces to from 5% to 21% moisture,
pelletizing the dough pieces before partially drying,
mechanically modifying the dough pieces and drying the dough pieces to a moisture content of from 1% to 3.5% moisture under conditions such that the temperature of the dough pieces does not exceed 250° F.

3,318,706
PROCESS FOR PREPARING A COATED READY-TO-EAT CEREAL PRODUCT
Robert B. Fast, Glen Rock, N.J., assignor to National Biscuit Company, a corporation of New Jersey
Filed Feb. 11, 1964, Ser. No. 344,033
5 Claims. (Cl. 99—83)

2. A continuous process for the preparation of ready to eat candy coated cereal articles from a candy composition which comprises sugar, honey, invert syrup, an acid which is a member selected from the group consisting of acetic, tartaric, citric, adipic, fumaric, and malic acid, and a buffering agent for said acid, which comprises the steps of:
(1) heating a solution of said sugar, honey, invert syrup, acid, and the buffering agent for said acid to 240°–260° F. for a period of time between 15 seconds and 20 minutes,
(2) heating said solution from step 1 to 320°–325° F. to evaporate the water thereof to provide a candy syrup, in a cooking zone with a residence time between 20 and 50 seconds,
(3) continuously feeding said syrup and ready to eat cereal articles to a blending zone, at a predetermined rate whereby a uniformly coated product is obtained.
(4) continuously removing said coated cereal articles from said blending zone, at a predetermined rate.

3,318,707
METHOD FOR MAKING A FOOD PRODUCT FROM AN ALIMENTARY PASTE
Robert Ernst, Sulgen, Switzerland, assignor to Buhler Gebruder, Oberuzwil, Switzerland
Continuation of application Ser. No. 297,608, July 25, 1963. This application Dec. 3, 1965, Ser. No. 517,142
Claims priority, application Switzerland, July 27, 1962, 9,029/62
4 Claims. (Cl. 99—85)

3. A method of manufacturing a food product from an alimentary paste, comprising subjecting said paste to pressure in order to form it into a desired shape, cooking the shaped food product at a temperature of about 100° C., rinsing the food product with ordinary tap water, immediately after rinsing freezing the food product, and thereafter thawing the product and drying it.

3,318,708
PROCESS FOR PRODUCING QUICK-COOKING LEGUMES
Louis B. Rockland, Pasadena, Robert J. Hayes, Azusa, Eugene Metzler, Glendale, and Le Roy Binder, Pasadena, Calif., assignors to the United States of America as represented by the Secretary of Agriculture
No Drawing. Filed Mar. 26, 1964, Ser. No. 355,127
8 Claims. (Cl. 99—98)

1. A method for preparing quick-cooking legume seeds from edible dry legume seeds which comprises subjecting the seeds while they are in contact with an aqueous hydrating medium to a vacuum, then releasing the vacuum, repeating the cycle of vacuum application and release until the skins of the seeds are swollen by entry of the medium into the seeds, holding the seeds in contact with the said medium at ambient temperature and atmospheric pressure for a period long enough for the cotyledons to swell until they fill the swollen skins, and drying the resulting products to a moisture content of about from 9.5 to 10.5%, wherein the said aqueous hydrating medium contains sodium chloride in a concentration of about from 1 to 3%, a chelating agent in a concentration of about from 0.25 to 5%, and has a slightly alkaline pH.

3,318,709
PINEAPPLE PROCESSING
Frank J. Cygan, San Mateo, Calif., and John Farmer, Honolulu, Hawaii, assignors to Pennsalt Chemicals Corporation, a corporation of Pennsylvania
Filed July 1, 1963, Ser. No. 291,914
4 Claims. (Cl. 99—105)

1. A process for preparing pineapple juice comprising the steps of removing a central fruit cylinder from the pineapple, slitting the remaining pineapple longitudinally thereby opening the pineapple, and placing the opened pineapple skin down on a flat surface, removing a first flat layer of meat containing few if any blossom cups and insect carcasses, removing a second flat layer of meat closer to the skin of the pineapple than the first layer, the second layer containing at least one impurity taken from the group of impurities consisting of blossom cups and insect carcasses, screening the first layer material to produce a liquid discharge which passes through the screen, gently breaking the second layer material and heating it to release juice but at the same time avoiding breakage of the impurity, centrifugally screen the thus-treated second layer material and blending the second layer material which passes through the centrifugal screen and the liquid discharge from the first layer material to produce the product juice.

3,318,710
FLAVORING COMPOSITION CONTAINING SODIUM INOSINATE AND MONOSODIUM GLUTAMATE
Kinichiro Sakaguchi, Meguroku, Tokyo, and Masajiro Kibi and Akira Kuninaka, Choshishi, Chibaken, Japan, assignors to Yamasa Shoyu Kabushiki Kaisha (doing business as Yamasa Shoyu Co., Ltd.), Choshi, Japan, a Japanese corporation
No Drawing. Continuation of application Ser. No. 158,108, Dec. 8, 1961, now Patent No. 3,104,171, dated Sept. 17, 1963, which is a division of application Ser. No. 756,541, Aug. 22, 1958, now Patent No. 3,223,592. This application May 1, 1963, Ser. No. 277,126
The portion of the term of the patent subsequent to Sept. 17, 1980, has been disclaimed
1 Claim. (Cl. 99—140)

A flavoring composition including as the active flavoring agent a mixture of sodium inosinate and monosodium glutamate, said mixture consisting essentially of 100 parts by weight of said monosodium salt and about six to twenty parts by weight of said sodium inosinate.

3,318,711
IMMERSION PLATING PROCESS FOR THE DEPOSITION OF COPPER
Donald Gardner Foulke, Watchung, Plainfield, N.J., assignor to Sel-Rex Corporation, Nutley, N.J., a corporation of New Jersey
No Drawing. Filed Apr. 2, 1964, Ser. No. 356,956
1 Claim. (Cl. 106—1)

In a process for the deposition of copper on non-conductive surfaces wherein the non-conductive surface is activated by sensitizing with stannous chloride solution and catalyzing with a precious metal halide solution and then immersed into a bath containing copper ions and a reducing agent, the improvement comprising immersing the activated surface in a bath containing a limited number of copper ions in equlibrium with a dissolved compound of copper with at least one chelating agent selected from the group consisting of triethylenetetramine, tetraethylenepentamine, and pentaethylenehexamine, said bath containing about 2.85 to about 5.7 g./l. of copper, about 10 to 25 g./l. of said chelating agent with the provision that said chelating agent is in excess of the amount required to chelate all of the copper present, and a reducing agent corresponding to about 20 to 25 ml./l. of 37% formaldehyde, said bath being adjusted to a pH of about 10–13.

3,318,712
PROCESS FOR RECONSTITUTING MOLDING SAND FOR FOUNDING OPERATIONS
Lothar Robert Zifferer, R.D. 3, Glen Rock, Pa. 17327
No Drawing. Filed Aug. 27, 1964, Ser. No. 392,602
10 Claims. (Cl. 106—38.3)

1. A process for reconstituting high viscosity silicate bonded sand used for sand molds comprising the steps of feeding used, high viscosity silicate bonded sand aggregate into a muller, adding thereto a predetermined quantity of caustic soda reagent and water, and mixing the aggregate and the reagent material for sufficient time to lower the viscosity thereof sufficiently to reconstitute the bonding properties of the silicate coating to render the same suitable for reuse to form silicate bonded sand molds through the addition of CO_2 to increase the bonding characteristics of the sand.

3,318,713
MOLDED SEMI-VITREOUS ARTICLE AND METHOD OF MAKING SAME
Leslie F. Pither, Maumee, Ohio, assignor to Owens-Illinois, Inc., a corporation of Ohio
No Drawing. Filed Aug. 5, 1963, Ser. No. 300,067
15 Claims. (Cl. 106—54)

1. A shaped semi-vitreous article formed by compressing a finely pulverized mixture consisting of (a) a glass having a composition range of 70 to 82% SiO_2, 12 to 20% B_2O_3, 2 to 6% K_2O, 1 to 5% MgO, and less than 1% R_2O_3 plus (b) from 5 to 15% of a lithium aluminum silicate selected from the group consisting of beta-eucryptite, beta-spodumene, and petalite, and thereafter sintering the mixture into a non-porous semi-vitreous article characterized by having high electrical resistance, low thermal expansion, and high mechanical strength.

3,318,714
PIGMENT DISPERSIONS
Charles H. Coney and Willie E. Draper, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Filed Oct. 23, 1965, Ser. No. 504,082
12 Claims. (Cl. 106—193)

1. A process for preparation of coating compositions and coated substrates which comprises:
(1) milling into sucrose acetate isobutyrate up to about 75% by weight of a pigment selected from the group consisting of rutile titanium dioxide, anatase titanium dioxide, lead chromate-sulfate-phosphate, chromium oxide, basic lead chromate-oxide, cadmium sulfide-barium sulfate, cadmium-zinc sulfide-barium sulfate, lead chromate-iron blue, phthalocyanine green, phthalocyanine blue, toluidine, a BON monoazo coupling of a diazotized aromatic amine red, iron ferrocyanide, burnt umber, burnt sienna, carbon black, and yellow-green nickel-azo complex,
(2) incorporating the resulting dispersion in a synthetic resin or water-base coating with which it has good compatibility without interfering with the inherent properties of said coating, said coating being selected from the group consisting of cellulose esters, cellulose ethers, vinyl polymers and copolymers, alkyd resins, urea-formaldehyde resins, melamine formaldehyde resins, acrylic resins, natural resins,
(3) applying said coating to a substrate and
(4) curing same thereon.

3,318,715
STARCH AND N-CYANOETHYL-N-HYDROXYALKYL AMINE
Marvin T. Tetenbaum, Petersburg, Va., assignor to A. E. Staley Manufacturing Company, Decatur, Ill., a corporation of Delaware
No Drawing. Filed Nov. 14, 1963, Ser. No. 323,570
14 Claims. (Cl. 106—210)

1. A composition comprising an amylosic material containing at least 50% by weight amylose wherein the amylose portion of said amylosic material is present in the form of a material selected from the group consisting of the separated amylose fraction of whole starch, whole starch containing at least 50% by weight amylose and mixtures thereof, plasticized with a plasticizing concentration of a N-cyanoethyl-N-hydroxyalkyl amine having from 2 to 4 carbon atoms in said hydroxyalkyl group.

3,318,716
FOAM REDUCTION AND COATING
Ludwig K. Schuster, Dresher, and Alfonso L. Baldi, Jr., Drexel Hill, Pa., assignors to Pennsalt Chemicals Corporation, Philadelphia, Pa., a corporation of Pennsylvania
Filed Sept. 11, 1962, Ser. No. 222,864
22 Claims. (Cl. 106—287)

1. A composition consisting essentially of a leafing aluminum pigment, a liquid ethylene glycol, and a wetting agent having a long molecule one portion of which is strongly hydrophilic and another portion strongly hydrophobic, there being from about ¼ to 1½ parts of said metal pigment by weight for every part of said ethylene glycol by weight, and the wetting agent concentration being from about 5% to about 25% by weight of the composition.

13. A coating composition in the form of an aqueous dispersion of a water-soluble dichromate of a metal having a valence greater than one, a compatible reducing agent for the hexavalent chromium in the dichromate, pigment including leafing aluminum, and a wetting agent having a long molecule one portion of which is strongly hydrophilic and another portion strongly hydrophobic, the reducing agent being present in a proportion such that it reduces from 40% to 95% of the hexavalent chromium to trivalent condition when the coating composition is dried and heated to at least 250° F., at least about ⅓ of the reducing agent being an ethylene glycol, and the wetting agent and the leafing aluminum being present in proportions that disperse the aluminum but substantially confine it to the superficial stratum of a dried layer of the dispersion.

18. A mixture of (I) a polyethylene glycol having a molecular weight of about 9,000 and (II) a hexavalent chromium compound selected from the class CrO_3 and water-soluble dichromates of metals having a valence greater than one, the polyethylene glycol content being sufficient to cause about 40% to about 95% of the hexavalent chromium to be reduced to trivalent condition when the mixture is heated to at least about 280° F.

3,318,717
RAPID CURING ADHESIVE COMPOSITION FOR BONDING SILICONE RUBBER TO METALLIC SURFACES
Verne G. Simpson, Scotia, N.Y., assignor to General Electric Company, a corporation of New York
No Drawing. Filed Oct. 28, 1963, Ser. No. 319,513
9 Claims. (Cl. 106—287)

1. A composition comprising the product obtained by mixing (A) 100 parts by weight of an alkenyl tris(organoxy) silane having the formula:

$$RSi(OR')_3$$

(B) from 0.5 to 15 parts by weight of phosphorous acid, and (C) from 100 to 2,000 parts by weight of a polar solvent capable of dissolving said silane and said acid, where R is an alkenyl radical and R' is a member selected from the class consisting of monovalent hydrocarbon radicals and substituted monovalent hydrocarbon radicals.

3,318,718
ACID TREATMENT OF CALCINED KAOLIN
John W. Beamesderfer, Orono, Maine, and Horton H. Morris, Gordon, Ga., assignors to Freeport Sulphur Company, New York, N.Y., a corporation of Delaware
Filed Feb. 21, 1966, Ser. No. 536,511
6 Claims. (Cl. 106—288)

1. The method of producing a silica coating paper pigment which comprises treating calcined kaolin clay with hot dilute acid selected from a member of the group consisting of phosphoric acid and a mixture of phosphoric acid and sulfuric acid to extract a substantial amount of alumina from the calcined clay, the amount of phosphoric acid in the hot dilute acid being at least approximately equal to the alumina content of the clay and the total amount of hot dilute acid being in sufficient excess to keep the dissolved aluminum salts in solution, separating the resulting acid solution from the silica residue to produce a silica product containing alumina of the calcined clay and phosphoric acid in combined form and clay impurities insoluble in dilute acid but soluble in concentrated sulfuric acid, said silica products having an acid surface, a plate-like structure and a particle size distribution similar to that of the clay treated, and neutralizing the silica product with an alkaline to form a silica product having an alkaline surface.

3,318,719
MANUFACTURE OF AN INFRA-RED REFLECTIVE PIGMENT
Ludwig Wesch, Heidelberg, Germany, assignor, by mesne assignments, to Eltro Gesellschaft mit beschrankter Haftung & Co. Gesellschaft fur Strahlungstechnik, Heidelberg, Germany
No Drawing. Filed July 6, 1955, Ser. No. 520,350
Claims priority, application Germany, July 12, 1954, W 14,403
1 Claim. (Cl. 106—292)

A yellowish pigment produced by heating a mixture of 30 parts by weight of magnesium oxide, 10 parts by weight of a 20:80 ZnS/CdS mixed crystal, 60 parts by weight of aluminum oxide and 10% magnesium chloride at 1000° C., pulverizing the heated mixture, sintering the pulverized mixture at 1200° C. and finely comminuting the sintered body.

3,318,720
OXIDATION OF CARBON BLACK
Paul H. Johnson, Richard S. Logan, and Lewis G. Larson, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware
Filed Oct. 14, 1963, Ser. No. 315,952
7 Claims. (Cl. 106—307)

1. In the air oxidation of furnace carbon black pellets in a fluidized bed at a temperature in the range of about 550 to 950° F. so as to reduce the pH value of the carbon black, the improvement comprising impregnating the carbon black with about 25 to 1000 p.p.m. by weight of a compound selected from the group consisting of the water soluble oxides, hydroxides, carbonates, nitrates, vanadates, chromates, manganates, and halides of boron, copper, gold, silver, aluminum, tin, lead, vanadium, chromium, molybdenum, manganese, iron, cobalt and nickel prior to said air oxidation.

3,318,721
COATED POLYOLEFIN STRUCTURE, COMPOSITION AND METHOD FOR MAKING THE SAME
Glenn E. Lineburg, New London, Wis., assignor to Phillips Petroleum Company, a corporation of Delaware
No Drawing. Filed Jan. 17, 1964, Ser. No. 338,291
19 Claims. (Cl. 117—15)

14. A method for preparing a composite web, which method comprises, in combination, the steps of: extruding onto a paper product a polyolefin film; activating the surface of said film; substantially immediately thereafter coating said activated surface with an overcoating composition applied in an amount on a dry basis within the range of from 0.05 to 1.8 pounds per 1000 square feet of activated surface; and drying said overcoat; said overcoating composition consisting essentially of
(a) from 35 to 40 weight percent of an aqueous dispersion of a copolymer of about 83 percent ethyl acrylate, 15 percent methyl methacrylate and 2 percent methacrylic acid, and containing about 46 percent solids,
(b) from 0.5 to 1.2 weight percent of an internal antifoaming agent consisting essentially of a suspension of about 10 weight percent aluminum stearate in a solvent consisting essentially of about 3 parts of liquid polyoxyethylene and 1 part of a paraffin hydrocarbon selected from the group consisting of C_{11} to C_{13} paraffin hydrocarbons and mixtures thereof,
(c) from 0.2 to 0.75 weight percent of an external antifoaming agent consisting essentially of a 50 weight percent solution of 2,4,7,9-tetramethyl-5-decyne-4,7-diol in ethylene glycol,
(d) from 3 to 10 weight percent of an aqueous dispersion of polymethyl methacrylate containing about 38 percent solids,
(e) from 35 to 45 weight percent of an ammoniacal aqueous solution containing about 23 weight percent of the ammonium salt of an essentially 1:1 copolymer of maleic anhydride and diisobutylene,
(f) from 1 to 3 weight percent of an aqueous suspension consisting essentially of a microcrystalline wax having a melting point of 80 to 82° C. and a density of about 0.91 gram per cubic centimeter at 25° C., a small amount of a soluble polysaccharide, and containing about 48 weight percent solids,
(g) from 0.25 to 0.75 weight percent of a surfactant consisting essentially of 75 percent dioctyl sodium sulfosuccinate, 5 percent ethyl alcohol, and 20 percent water, and
(h) from 15 to 25 weight percent water.

15. A method according to claim 14 wherein said polyolefin is polyethylene.

17. A method according to claim 15 comprising in further combination the step of subjecting selected portions of said coated surface to printing.

3,318,722

PROCESS FOR DEODORIZING RESIN-CONTAINING TEXTILES BY TREATMENT WITH AMMONIA AND STEAM

James Ullman, New York, N.Y., assignor to Burlington Industries, Inc., Greensboro, N.C., a corporation of Delaware

No Drawing. Filed Aug. 6, 1963, Ser. No. 300,170
1 Claim. (Cl. 117—62)

A process for deodorizing textiles having a cured resin thereon whereby the textiles may be deodorized within a period of up to one year subsequent to the curing of the resin-containing textile, comprising introducing into a chamber which is 9 x 12 x 9 feet in size and containing the said textiles, a flow of steam from a source at 80 lbs./in.² pressure for a period of five minutes, thereafter introducing with the steam anhydrous ammonia in the following amounts in consecutive order:

(A) 25 cu. ft./hr. for 2 minutes
(B) 60 cu. ft./hr. for ½ minute
(C) 25 cu. ft./hr. for 13½ minutes
(D) 60 cu. ft./hr. for ½ minute
(E) 25 cu. ft./hr. for 14½ minutes
(F) 60 cu. ft./hr. for ½ minute
(G) 25 cu. ft./hr. for 14 minutes

and thereafter introduce steam from a source at 80 lbs./in.² for a period of five minutes.

3,318,723

METHOD OF FABRICATING A HEAT SHIELD STRUCTURE

Peter T. Troell, Pittsburgh, Thomas W. Smoot, Bethel Park, and Albert L. Renkey and Donald F. King, Pittsburgh, Pa., assignors to Harbison-Walker Refractories Company, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Mar. 5, 1964, Ser. No. 349,593
2 Claims. (Cl. 117—70)

1. That method of fabricating a heat shield structure comprising the steps of, fabricating a Portland cement concrete mixture and forming a body therefrom, allowing said Portland cement concrete body to set and then roughening a surface thereof, attaching a reinforcing network over said roughened surface, fabricating a thin slurry of calcium aluminate cement and an aqueous tempering agent and pneumatically emplacing said slurry over said roughened surface, fabricating a calcium aluminate cement concrete mixture and pneumatically emplacing it over said previously deposited calcium aluminate cement after said cement has stiffened, installing a liquid impervious film over all exposed surfaces of said calcium aluminate cement concrete, maintaining said film over said calcium aluminate cement concrete for a time sufficient to allow set of the calcium aluminate cement and calcium aluminate cement concrete layers beneath it.

3,318,724

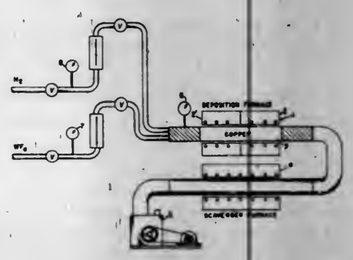
METHOD FOR MAKING TUNGSTEN METAL ARTICLES

Richard L. Heestand and Carl F. Leitten, Jr., Oak Ridge, Tenn., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Oct. 16, 1963, Ser. No. 316,782
2 Claims. (Cl. 117—97)

1. The method of making tungsten metal tube on a mandrel by hydrogen reduction of tungsten hexafluoride which comprises:

(a) evacuating said mandrel system to a system pressure between 5 mm. to 20 mm. Hg;
(b) heating said mandrel to a temperature between 500° and 1000° C.;
(c) contacting the surface of said mandrel with a reacting mixture of said tungsten hexafluoride and hydrogen injected along the longitudinal axis of said mandrel from one end, said mixture being in the volume ratio of between 1:50 to 1:150 tungsten hexafluoride to hydrogen; and



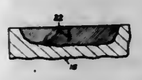
(d) reducing the temperature progressively from the said one end along the longitudinal axis of said mandrel to a temperature of about 400° C. while maintaining the remaining portion of said mandrel at said temperature within said range of 500° to 1000° C., said temperature being reduced along said mandrel at a rate such that a layer of tungsten metal of selected thickness is continuously deposited upon said remaining heated portion.

3,318,725

METHOD OF IMPREGNATION OF POROUS MATERIALS, APPARATUS THEREFOR, AND PRODUCT THEREOF

Eugene L. Bryan, Everett, Wash., assignor to The Black Clawson Company, Hamilton, Ohio, a corporation of Ohio

Filed Mar. 9, 1965, Ser. No. 438,353
17 Claims. (Cl. 117—104)



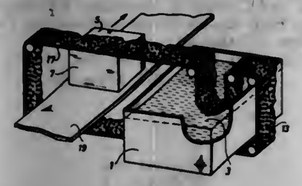
1. The method of impregnating wood and other porous material with a solution of a treating agent which comprises the steps of applying said solution to the surface of a workpiece of said material in the form of a jet of minute cross section at sufficiently high pressure to develop a hole of correspondingly minute width extending into said workpiece, continuing said applying step at substantially the same said pressure for a sufficient interval to extend said hole into said workpiece to at least a predetermined depth and to effect diffusion of said solution into said workpiece laterally from said hole, terminating said applying step after said interval, and carrying out all of said steps at such spaced locations along a predetermined area of the surface of said workpiece that said diffused solution impregnates the entire portion of said workpiece underlying said surface area to substantially said depth.

3,318,726

METHOD FOR FORMING A METALLIC COATING ON AN OBJECT

Klaus-Dieter Zimmermann, Vaals, Netherlands, assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware

Filed Oct. 15, 1963, Ser. No. 316,286
Claims priority, application Germany, Nov. 6, 1962, P 30,512
2 Claims. (Cl. 117—112)



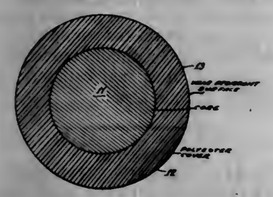
1. A method of metallizing a surface of a metal object comprising the steps of providing a receptacle containing a liquid metal bath, passing a thin metal porous mat into said liquid metal and allowing said liquid metal to be absorbed into the pores of said porous mat, sliding the object to be metallized relative to said porous mat and wetting the contacting surface of the object to be metallized with said liquid metal contained in the pores of said porous mat thereby metallizing said contacting surface and substantially preventing the metallization of the surface contiguous to the contacting surface.

3,318,727

SCRATCH AND WEAR RESISTANT CURED POLYESTER SURFACES

Herman V. Boenig, Lexington, Ky., and Robert S. Barnes and Franz P. Kuhner, Muskegon, Mich., assignors to Brunswick Corporation, a corporation of Delaware

Filed Sept. 27, 1965, Ser. No. 490,620
27 Claims. (Cl. 117—118)



1. An article of manufacture having a set solid polyester outer portion in which the polyester is characterized by active hydrogen atoms, and a wear resistant surface on the outer portion, said surface comprising polyester organic isocyanate formed by the reaction of a monomeric organic isocyanate having free isocyanate groups with the polyester of said outer portion.

11. A ball having a polyester outer structure, the polyester of said structure being characterized by active hydrogen atoms, said structure having a wear resistant surface comprising polyester organic isocyanate formed by the reaction of a monomeric organic isocyanate with the polyester of said outer portion.

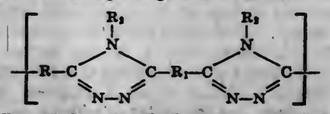
3,318,728

TRIAZOLE POLYMER COATED METAL ARTICLES

Marvin R. Lilyquist, Raleigh, N.C., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed July 12, 1963, Ser. No. 294,758
17 Claims. (Cl. 117—132)

1. A method for coating a metal surface which comprises applying to the surface a solution comprising a triazole polymer comprised predominantly of recurring structural units having the general formula



wherein R and R_1 are divalent aromatic hydrocarbon radicals selected from the group consisting of single, multiple and fused ring radicals, and R_2 is a phenyl radical and a solvent therefor, then drying the solvent from said applied solution to deposit a continuous coating layer of said triazole polymer on said metal surface.

3,318,729

TUBULAR WELDING ROD HAVING A CHLORINE OR FLUORINE SUBSTITUTED ETHYLENICALLY UNSATURATED ALIPHATIC HYDROCARBON POLYMER CORE

John C. Siegle and John Teti, Sr., Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Aug. 5, 1965, Ser. No. 477,401
8 Claims. (Cl. 117—202)

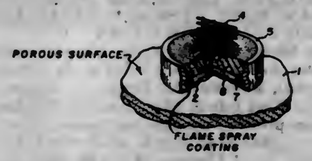
1. As a welding rod, a metal tube having a core comprising at least one solid polymer of ethylenically unsaturated aliphatic hydrocarbon monomers containing 2 to about 10 carbon atoms, each monomer being substituted by at least one atom selected from the group consisting of chlorine and fluorine.

3,318,730

METHOD OF DISPERSING A CATALYST IN FUEL CELL ELECTRODES

Kurt W. Kreiselmaier, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Filed Mar. 4, 1963, Ser. No. 262,648
7 Claims. (Cl. 117—212)



1. A method of treating a porous, electrically conductive electrode for an electrochemical power source comprising the steps of:

(a) infusing the porous electrode with a liquid metal organic compound, the metal element of said compound being selected from the group consisting of nickel, zinc, chromium, cobalt and barium, and
(b) thermally decomposing the metal organic compound to volatilize the organic component therefrom, leaving the metal component dispersed throughout the porous electrode.

3,318,731

METHOD OF MAKING ELECTRICALLY INSULATED FERROUS MAGNETIC SHEET MATERIAL

Heinz Blum, Frankfurt am Main, Germany, assignor to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York

No Drawing. Filed Jan. 31, 1963, Ser. No. 255,195
Claims priority, application Germany, Feb. 3, 1962, M 51,683
5 Claims. (Cl. 117—215)

4. A process for applying an electrically insulating coating of high resistivity on the surfaces of a ferrous magnetic sheet material which comprises the steps of

applying a first layer of an inorganic nonmetallic coating comprising finely particulated particles of a refractory material on the surface of said sheet and bonding said particles thereto, applying and bonding a second inorganic nonmetallic phosphate coating on the surface of said sheet and overlying said first coating said first and second coating forming a coating having a thickness of at least about six microns, and thereafter densifying said first and said second coating into a substantially uniform layer having a thickness of at least about 2 microns, without substantial deformation of said ferrous magnetic sheet, which densified layer is thinner than the coating before densification and is characterized by being substantially uniform, smooth, adherent, non-dusting and flaking during handling and having a higher disruptive voltage to effect breakdown of insulation than the coating before densification.

3,318,732

METHOD FOR THE FRACTIONATION OF STARCH

Dexter French, Ames, Iowa, and Raymond Bertram Evans, Catonsville, Md., assignors to National Starch and Chemical Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Aug. 8, 1963, Ser. No. 300,918
5 Claims. (Cl. 127—70)

1. The method for fractionating starch which consists in dispersing starch in water, adding to said dispersion at least 0.05%, based on the weight of said dispersion, of an amylose complexing agent selected from the class consisting of benzene, cyclohexane, cyclooctane, cycloheptane, cycloheptene, cycloheptadiene, cyclopentane, methyl cyclopentane and methyl cyclohexane, said complexing agent thereupon forming a complex with the amylose fraction of the starch, and separating the resulting precipitated amylose complex.

3,318,733

ELECTROLYTIC CELLS AND MORE ESPECIALLY IN GAS-TIGHT STORAGE CELLS OPERATING WITHOUT GAS-EVOLUTION

Douchan Stanimirovitch, Paris, France, assignor to Société des Accumulateurs Fixes et de Traction (Société Anonyme), Romainville, France, a company of France

Filed July 3, 1962, Ser. No. 207,180
Claims priority, application France, July 5, 1961, 867,026; June 5, 1962, 899,761
4 Claims. (Cl. 136—6)

2. A secondary alkaline cell comprising a sealed container, a positive electrode, a negative electrode, said electrodes being of the thin sintered type containing active material in which the negative electrode has an excess of negative active material as compared with the active material of the positive electrode, an immobilized alkaline electrolyte in said cell, a porous separator between the electrodes providing a spacing of 0.1 to 0.3 mm. therebetween, said electrolyte being immobilized by capillarity in the separator and electrodes, said container having therein at the moment of sealing an atmosphere of substantially pure oxygen at a pressure of at least one atmosphere.

3,318,734

THERMALLY REGENERATIVE GALVANIC CELL EMPLOYING THE FLUORIDES OF ARSENIC, CERIUM AND URANIUM

Charles R. McCully, Prospect Heights, Ill., assignor to IIT Research Institute, a corporation of Illinois

Filed Sept. 27, 1962, Ser. No. 226,531
4 Claims. (Cl. 136—6)

1. A thermally regenerative galvanic cell comprising as the anode arsenic trifluoride, as the cathode a material selected from the group consisting of cerium pentafluoride and uranium hexafluoride, and an electrolyte.

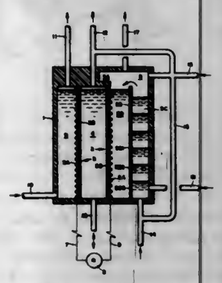
3. A thermally regenerative galvanic cell comprising as the cathode arsenic pentafluoride, as the anode a material selected from the group consisting of cerium trifluoride and uranium pentafluoride, and an electrolyte.

3,318,735

FUEL CELL EMPLOYING INTERNAL PRIMARY OXIDANT REGENERATION

Barry L. Tarmy, Berkeley Heights, Joseph A. Shropshire, Westfield, and Charles H. Worsham, Fanwood, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware

Filed Oct. 19, 1962, Ser. No. 231,738
3 Claims. (Cl. 136—86)



1. In a fuel cell wherein a primary oxidant is electrochemically reduced at the cathode and subsequently chemically regenerated, said fuel cell employing an aqueous liquid electrolyte, the improvement comprising an anolyte compartment, a catholyte compartment, a porous membrane separating said anolyte compartment and said catholyte compartment, said catholyte compartment divided by an electrolyte permeable barrier into a cathodic reaction zone and a catholyte recycle zone; an internal primary oxidant regeneration zone in the upper part of said catholyte compartment and communicating with said cathodic reaction zone and said catholyte recycle zone; means for admitting gaseous oxygen into said regeneration zone and means for admitting aqueous liquid electrolyte and the liquid cathodic reduction products of said primary oxidant from said cathodic reaction zone into said catholyte recycle zone.

3,318,736

FUEL CELL ELECTRODES COMPRISING CATALYST MIXTURE OF SILVER AND MERCURY

William Austin Barber, Stamford, Conn., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine

Filed Sept. 30, 1964, Ser. No. 416,948
4 Claims. (Cl. 136—86)

1. A fuel cell comprising in combination an oxygen electrode, said electrode consisting essentially of a grid support and a catalyst mixture of silver and mercury, the latter metals being present in a weight ratio from between about 1:0.2 and 1:1.5, respectively.

3,318,737

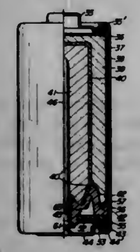
ALKALI DRY CELLS

Jun Watanabe, Kobe, Akira Nakashima, Hirakata-shi, and Naohiro Matsuda, Yao-shi, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan, a corporation of Japan

Filed Dec. 23, 1964, Ser. No. 420,705
Claims priority, application Japan, Dec. 25, 1963, 38/71,138
4 Claims. (Cl. 136—133)

1. An alkali dry cell comprising a cathode case having electricity-generating elements accommodated therein and an open end portion curved inwardly, a sealing member

of plastic material for sealing said cathode case, and a plastic film covering the side face of said cathode case, and having one end in intimate securing with the periphery of a cathode-terminal plate in contact with the closed end face of said cathode case, and the other end in intimate securing with the periphery of said sealing member, said sealing member consisting of an inner sleeve having a central through hole, with an anode collector passing therethrough and a peripheral stepped portion on which is mounted the inner peripheral portion of a sealing washer, an outer sleeve disposed outside said inner sleeve and coupled therewith by a connecting web with a space



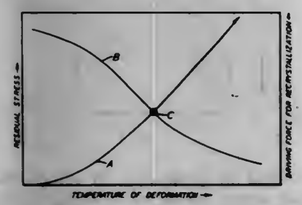
formed therebetween, a brim portion formed on the top face of said outer sleeve and on which is mounted the outer peripheral portion of said sealing washer, a rib formed on the lower peripheral portion of said brim portion to form a groove between the same and said outer sleeve, into which groove is inserted said curved open-end portion of said cathode case, an outer casing cylinder, and an anode terminal plate inserted into said outer casing cylinder to contact said anode collector, the end portions of said outer casing cylinder being bent onto the peripheries of said cathode-terminal plate and said anode-terminal plate, respectively, for securing them together.

3,318,738

METHOD OF FABRICATING NON-EARING ALUMINUM

Joseph Winter, New Haven, Conn., assignor to Olin Mathieson Chemical Corporation, a corporation of Virginia

Filed Dec. 18, 1963, Ser. No. 331,675
4 Claims. (Cl. 148—2)



1. A method of fabricating low or non-earing aluminum sheet metal comprising the steps of:
(A) providing a mass of an aluminum base alloy,
(B) heating said mass to the autogenous recrystallization temperature for said aluminum base alloy in which residual stress from deformation upon subsequent hot rolling and thermal driving force for recrystallization are at an energetic balance, said temperature being within the range of 650° F. to 850° F. to provide a fine grain size with high probability of grain structure orientation randomness in said alloy, and
(C) rolling said mass to sheet at a temperature within the range of 650° F. to 850° F.

3,318,739

PROCESS FOR MAKING HEAT-STABILIZED PENTAERYTHRITOL TETRANITRATE

H. William Voigt, Jr., Stanhope, N.J., assignor to the United States of America as represented by the Secretary of the Army

No Drawing. Filed Nov. 4, 1966, Ser. No. 592,681
8 Claims. (Cl. 149—11)

1. A method for producing pentaerythritol tetranitrate heat stable at 120° C. comprising dissolving dry, heat-unstable pentaerythritol tetranitrate in N-methyl-2-pyrrolidone maintained at elevated temperatures to form a solution,
pouring said solution into a liquid selected from the group consisting of water and alcohols to form a suspension,
filtering said suspension to collect a solid,
washing said solid and
drying said washed solid to obtain said heat-stable pentaerythritol tetranitrate.

3. The method of claim 1 wherein said dry, heat-unstable pentaerythritol tetranitrate is coated with about 0.2 weight percent of polyvinyl pyrrolidone having a molecular weight of about 90,000.

3,318,740

AQUEOUS SLURRY-TYPE BLASTING COMPOSITIONS CONTAINING A HEXAMETHYLENETETRAMINE NITRATE SENSITIZER

Harry R. Fee, Hopatcong, N.J., and Robert W. Lawrence, Wilmington, Del., assignors to Hercules Incorporated, Wilmington, Del., a corporation of Delaware

No Drawing. Filed July 12, 1966, Ser. No. 564,555
11 Claims. (Cl. 149—38)

1. In an inorganic oxidizer salt explosive of the aqueous slurry type, the improvement comprising a sensitizing amount of a sensitizer component selected from the group consisting of hexamethylenetetramine mononitrate, hexamethylenetetramine dinitrate, and a mixture of said nitrates.

3,318,741

THICKENED NITROPARAFFIN CONTAINING STABILIZER

Lawrence R. Jones, Terre Haute, Ind., assignor to Commercial Solvents Corporation, New York, N.Y., a corporation of Maryland

No Drawing. Filed Apr. 8, 1965, Ser. No. 446,736
8 Claims. (Cl. 149—89)

1. A composition of matter comprising a nitroparaffin selected from the group consisting of nitromethane and nitroethane and polyoxyethylene having a molecular weight of at least 100,000, said polyoxyethylene being present in amounts effective to thicken the nitroparaffin.

4. A gelled or thickened normally liquid composition comprising a nitroparaffin selected from the group consisting of nitromethane and nitroethane, polyoxyethylene having a molecular weight of at least 100,000, and poly-(methylvinylether/maleic anhydride), the said poly(methylvinylether/maleic anhydride) being present in amounts effective to stabilize the composition.

3,318,742

PROCESS FOR SLIP-PROOFING GLAZED CERAMIC SURFACES

Jack Holton Whiteside, Plaquemine, Iberville Parish, La., assignor to Slip Prof Service Corporation, Baton Rouge, La., a corporation of Louisiana

No Drawing. Filed June 22, 1964, Ser. No. 377,078
7 Claims. (Cl. 156—2)

1. A process for improving the safety of bath tubs that have a glazed ceramic surface, which process comprises

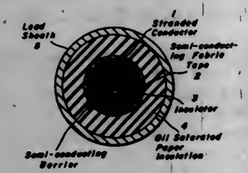
applying to that surface an aqueous acid fluoride in a concentration equivalent to from 0.01 to 10 weight percent hydrogen fluoride, to cause the acid fluoride to attack the surface and reduce its slipperiness, and terminating the attack before the visual appearance of the surface is significantly changed.

3,318,743

METHOD OF MAKING ELECTRIC CABLES

Frederick W. Wakefield, Northboro, Mass., assignor to United States Steel Corporation, a corporation of Delaware

Filed Mar. 23, 1965, Ser. No. 441,992
7 Claims. (Cl. 156—48)



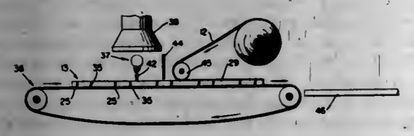
1. The method of making an electric cable which comprises providing a stranded electrical conductor, applying a resilient oil resistant barrier material in tape form around said conductor over the length thereof, said barrier being capable of being made oil impervious under heat and vacuum, applying a solid impregnable insulating material around said barrier over the length thereof, sealing the ends of the assembly of conductor, barrier and insulating material, subjecting said assembly to sufficient heat and vacuum to remove moisture therefrom and to make the barrier oil impervious, then exposing the assembly with its ends sealed to saturating oil until the insulating material is saturated with oil, and then applying an outer sheath around said insulating material.

3,318,744

METHOD OF LAMINATING POLYURETHANE FOAM

Roy T. Hurley, Santa Barbara, Calif., assignor to Reeves Brothers, Inc., New York, N.Y., a corporation of New York

Filed Mar. 27, 1963, Ser. No. 268,380
3 Claims. (Cl. 156—82)



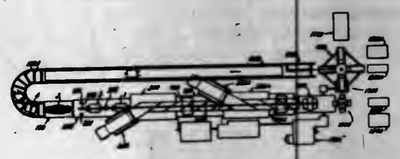
1. The method of laminating a first relatively inextensible layer of sheet-like material to a second layer of flexible heat-fusible polyurethane foam which comprises holding said polyurethane layer under sufficient tension in a plane of its broad extent to eliminate the tendency to wrinkle when subsequently heated, quickly heating a surface of said polyurethane layer to a limited depth to render said surface soft and tacky, and thereafter pressing the two layers together with the first layer in contact with said tacky surface of said polyurethane layer to effect a bond between such layers, said tension being lateral and longitudinal relative to the plane of the broad extent of said second layer.

3,318,745

METHOD OF MAKING A TIRE CARCASS

Sheppard A. Black, Wayne, John D. Heide, Ramsey, and Thomas J. Rhodes, Kinnelon, N.J., assignors to United States Rubber Company, New York, N.Y., a corporation of New Jersey

Filed Dec. 4, 1962, Ser. No. 242,197
19 Claims. (Cl. 156—111)



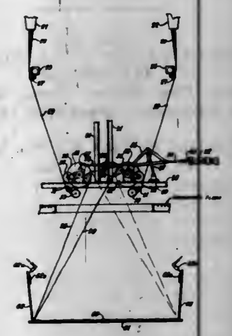
1. The method of making tire carcasses comprising maintaining the bodies of a plurality of coaxially aligned drums at a fixed distance apart during movement thereof along each of a plurality of portions of a fixed path; helically winding a strip of sheet material onto the drums during continuous rotation and axial movement thereof along each portion of said fixed path to form a tubular structure on said drum; severing the tubular structure in the region between adjacent drums during their said continuous rotation and axial movement along each portion of said fixed path.

3,318,746

METHOD FOR BONDING BODIES OF MULTI-FILAMENT STRANDS

Roland E. Langlois, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation, a corporation of Delaware

Filed Oct. 18, 1962, Ser. No. 231,431
11 Claims. (Cl. 156—167)



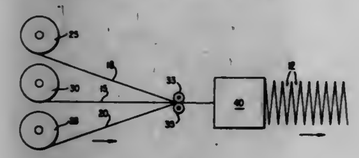
1. The method of producing an integrated body of fibrous strands which comprises forming continuous filaments, applying a liquid dispersed binder as a continuous, uniform coating on the filaments, gathering the filaments into strands, collecting the strands in a body of substantial thickness, applying heat down through the body in a gradually decreasing intensity to volatilize the liquid in a correspondingly gradually decreasing degree until the uppermost portion of the body is substantially dry, directing a quantity of dispersed particles of a dry binder down through the body, said particles having an affinity for retention by the liquid, whereby, as the number of particles decrease through lodging on and retention by the liquid of the strands, a greater proportion are retained by the ever increasing liquid content down through the body, and finally curing the liquid dispersed binder and the dry binder particles to integrate the body.

3,318,747

METHOD OF MAKING A FLUID SEPARATION UNIT OF A THREE PLY FOLDED SHEET

Thorpe Dresser, Markham, and Reading B. Smith, Flossmoor, Ill., assignors to Sinclair Research, Inc., Wilmington, Del., a corporation of Delaware

Original application Oct. 6, 1961, Ser. No. 143,323, now Patent No. 3,266,223, dated Aug. 16, 1966. Divided and this application Jan. 13, 1966, Ser. No. 535,634
3 Claims. (Cl. 156—204)



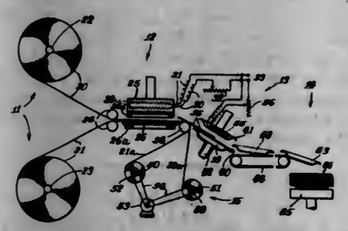
1. A method for making a fluid separation apparatus which comprises forming a three-ply sheet by placing on a first fluid pervious sheet material a film of material more permeable to one component of a fluid to be separated and less pervious to another component of the fluid, of the same width as said first pervious sheet, and centering on the film a second sheet of fluid pervious material having a smaller width than said film, to leave a film selvage, folding said three-ply sheet across its width into a multiplicity of simple folds, and compressing said folded sheets and adhering adjacent layers of film to each other.

3,318,748

METHOD OF FORMING A LAMINATE PAPER PLATE

Alan R. Hurst, Hinsdale, Ill., assignor, by mesne assignments, to Morton Salt Company, Chicago, Ill., a corporation of Delaware

Filed Apr. 24, 1963, Ser. No. 275,391
14 Claims. (Cl. 156—224)



1. A method of forming a heat sealed laminate of a desired shape which comprises providing separate supplies of a first web and a second web, said second web being heat sealable to said first web, feeding and directing said first and second webs from said supplies to a cutting station while disposing said webs in facing relation with each other, cutting through both said first and second webs at said station at a portion defining the perimeter of the desired shape while heat sealing said portions of said webs together, recovering the resulting cut-out laminate of the desired shape, and recovering from said station trimmings of said two webs exteriorly of said perimeter as separate products.

3,318,749

METHOD AND APPARATUS FOR LAMINATING THIN SHEET MATERIAL TO RELATIVELY RIGID BASE UNITS

Frank L. Califano, Hackensack, and Paul N. Shatak, Kearny, N.J., assignors to The Flintkote Company, New York, N.Y., a corporation of Massachusetts

Filed Sept. 5, 1963, Ser. No. 306,827
5 Claims. (Cl. 156—229)



1. A method of laminating continuously fed foil-like sheet material to substantially rigid base units, comprising the steps of:

(a) exerting a spreading action on one surface of said foil-like sheet material laterally toward the side edges thereof, to remove wrinkles and other distortions present in said surface;

(b) applying fluid adhesive to the opposite surface of said foil-like sheet material substantially immediately subsequent to the completion of said spreading action;

(c) exerting a second spreading action on said first-named surface of said foil-like sheet material laterally toward the side edges thereof, to remove wrinkles and other distortions present in said foil-like sheet material after said application of adhesive to said opposite surface thereof;

(d) bringing said adhesive-coated opposite surface of said foil-like sheet material into surface contact with a confronting surface of said base units substantially immediately subsequent to said second-spreading action; and

(e) applying surface pressure to the thus united foil-like sheet material and said base units to bond them into the form of a composite laminated structure.

3,318,750

METHOD OF REINFORCING RUBBER ARTICLES WITH AN ADHESIVE COMPOSITION COMPRISING THE REACTION PRODUCT OF AN ALDEHYDE WITH THE REACTION PRODUCT OF TRIALKYL CYANURATE WITH A POLYHYDRIC PHENOL

Roger Gordon Aitken, St. Hilaire, Quebec, Canada, assignor to Canadian Industries Limited, Montreal, Quebec, Canada, a corporation of Canada

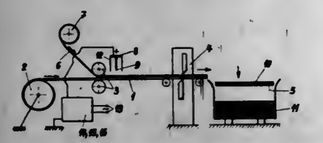
No Drawing. Filed Nov. 5, 1964, Ser. No. 409,288
Claims priority, application Great Britain, Nov. 25, 1963, 46,438/63
12 Claims. (Cl. 156—331)

1. A method of reinforcing articles of vulcanizable rubber with fibrous material which comprises applying to the fibrous material a composition comprising about 5 to about 50 parts by weight of an aqueous solution containing from about 60% to 5% by weight of the reaction product of formaldehyde or acetaldehyde with a material derived from the reaction of triallyl cyanurate and a greater than equivalent amount of resorcinol, pyrocatechol, hydroquinone or pyrogallol, wherein the molar ratio of the aldehyde compound to the polyhydric phenolic compound is from about 2:10 to about 6:10, and wherein the reaction of the aldehyde compound with said material is under refluxing conditions, and 50 to 95 parts by weight of a rubbery butadiene copolymer latex, heating the composition after application to the fibrous material, embedding the coated fibrous material in the vulcanizable rubber and vulcanizing the rubber.

3,318,751
APPARATUS FOR FORMING METAL-PAPER LAMINATE ELECTROSTATICALLY

Fritz Ungerer, Pforzheim, Germany; Irma Ungerer, heir of Fritz Ungerer, deceased, and Günther Bethe, Karlsruhe, Germany, assignors, by direct and mesne assignments, to Irma Ungerer, Pforzheim, Germany

Original application Mar. 14, 1961, Ser. No. 95,629. Divided and this application Feb. 2, 1965, Ser. No. 435,112
Claims priority, application Germany, Mar. 22, 1960, U 6,996
5 Claims. (Cl. 156—380)

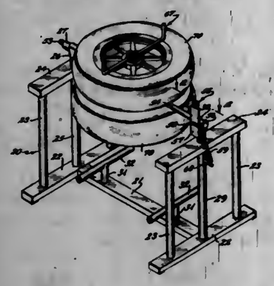


1. Apparatus for temporarily securing a pair of superimposed elongated strips at least one of which is electrostatically chargeable and the material of said strips exhibiting the tendency of temporarily adhering to each other when said one strip is electrostatically charged, comprising, in combination, feeding means for continuously feeding said pair of superimposed elongated strips along a predetermined path; electrostatic means adjacent said predetermined path for applying to said one strip an electrostatic charge whereby said strips adhere to each other; severing means located along said path close to and downstream of said electrostatic means for severing the adhering superimposed strips into individual laminated plates of corresponding adhering strip sections; and stacking means located close to and downstream of said severing means for stacking said plates fed from said severing means while the electrostatic charge persists and the strip sections constituting each of said plates continue to adhere to each other.

3,318,752
DECORATIVE TIRE TRIM VULCANIZING APPARATUS

Randolph R. Pollock, 1103 N. Locust Ave., Lawrenceburg, Tenn. 38464

Filed Dec. 13, 1965, Ser. No. 513,467
6 Claims. (Cl. 156—394)

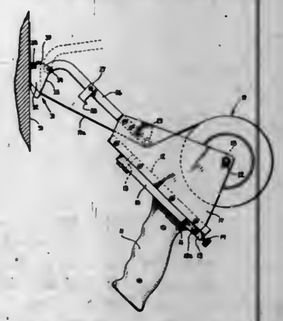


1. Apparatus for vulcanizing decorative trim to an automobile tire comprising a portable frame, a pair of spaced aligned bearings mounted on said frame, a generally flat circular mold having trim receiving grooves on opposite sides thereof, means for heating said mold to a vulcanizing temperature, shaft means fixed to said mold and projecting axially from both sides thereof, means engageable with said shaft means for mounting a tire to be decorated on at least one side of said mold, rod means mounted on said mold and extending generally diametrically outwardly therefrom, said rod means being rotatably received in said bearings, means carried by said rod means for limiting lengthwise movement within said bearings, and means on said rod means permitting rotation of said mold greater than 90° and providing a stop to limit the amount of rotation, whereby decorative trim can be applied to one or more tires and said mold can be rotated more than 90° in said bearings.

3,318,753
TAPE APPLICATOR

Richard F. Whitlow, Indianapolis, Ind., assignor of forty-nine percent to Ralph W. Eberhart

Filed Aug. 6, 1964, Ser. No. 387,965
11 Claims. (Cl. 156—461)



1. Tape applying apparatus comprising a plate having a circular sector configuration, a hand-grip element depending from one face of said plate, a member adapted to support a roll of tape with the roll being free to rotate as tape is withdrawn therefrom, said member being pivotally secured to said plate adjacent the apex thereof and on the face opposite said hand-grip element, means adjacent the circumferential arc of said plate for locking the pivotal position of said member with relation to said plate, and a tape-applying head pivotally supported by said member for pivotal movement in a plane normal to the plane of pivotal movement of said member with relation to said plate, said head being adapted to accommodate tape from the roll for application to a surface, the positional adjustability of said member with relation to said plate and the freedom for pivotal motion of said head permitting manipulation of said tape applying apparatus in obstructed areas and the application of tape to the apex area of intersecting plane surfaces.

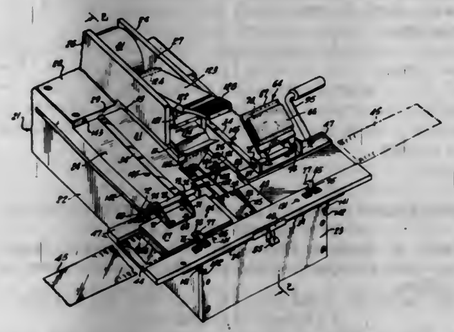
2. A tape applying apparatus as claimed in claim 1 in which the tape-applying head carries a removable felt wiper shaped to conform to the surface receiving the tape and adapted to overlie the tape at its point of application to the receiving surface.

3,318,754
SPLICER

George J. Philippi, Plainfield, N.J., assignor to Johnson & Johnson, a corporation of New Jersey

Filed Mar. 12, 1964, Ser. No. 351,405
7 Claims. (Cl. 156—505)

1. A film splicer comprising a jig for holding two ends of film to be spliced, means for applying a length of pressure-sensitive adhesive tape to the film ends transversely thereof and with the adhesive side of the tape facing the film, a wrapping and cutting anvil, said jig having a first position with respect to said anvil wherein the film ends are placed in the jig in splicing relation with one another, means for translating said jig and said anvil with respect to one another to cause said tape length to wrap around the longitudinal leading edge of the film ends and pass under said ends to form a sandwich therewith and said jig to assume a second position with respect to said anvil with the trailing edges of said film ends over said anvil, a wiper cooperatively associated with said anvil and having a transverse wiping surface urged into contact with said anvil to wipe the tape into close contact with said film ends and form a splice as the jig is translated with respect to said anvil to its second position, a cutting knife mounted for motion toward and away from said anvil in a path striking the anvil along a transverse cutting line just rearward of the trailing edges of said film ends in the second position of said jig for



trimming the tape along said cutting line, said wiper in the second position of said jig having a first location wherein said wiping surface is rearward of the trailing edge of the film ends and said wiper is located in the path of said knife and a second location wherein said wiping surface is between the edges of the film ends and said wiper is located outside the path of said knife, and means associated with said knife and said wiper for moving said wiper out of the path of said knife as the knife is moved toward the anvil.

3,318,755
GARLAND

Frank D. Gardner, 64–B Tong Mi Road, Kowloon, Hong Kong

Filed Aug. 24, 1964, Ser. No. 391,706
3 Claims. (Cl. 161—25)



1. An artificial garland formed from a plurality of flexible sprigs and adapted to be simply extended either by the addition of more sprigs without requiring tools or external fastening means comprising: a sprig including a main stem with plant structures extending therefrom, and a tongue extending from the end of the main stem, said tongue having a first connecting means integrally formed therein in an intermediate portion of the tongue spaced from the end thereof for attaching said sprig to another sprig, and a second connecting means integrally formed therein in the free end portion of the tongue for attaching the first sprig to another sprig, at least one of said connecting means comprising a portion of the tongue having an opening therein for receiving therethrough a portion of the tongue of another sprig for securing the sprigs together, to provide a garland with end portions of sprigs attached to intermediate portions of adjacent sprigs.

3,318,756
CUSHION MATERIAL

Harold Van B. Pollock, Minneapolis, Minn., assignor to Foster Grant Co., Inc., Leominster, Mass., a corporation of Delaware

Continuation of application Ser. No. 151,986, Nov. 13, 1961. This application Apr. 21, 1965, Ser. No. 453,542
The portion of the term of the patent subsequent to Oct. 23, 1979, has been disclaimed
4 Claims. (Cl. 161—69)



1. A resilient panel for use in unloading stored articles, comprising in combination at least one layer of foamed polymeric material placed between two panel facing sheets, said foamed material being configured from a plurality of cords of said polymeric material, each of said cords having a core comprising a gas phase entrained in a solid phase with a hard skin casing formed thereabout and integral within said core so as to comprise a continuous web of elastomeric polymeric material, each of said cords being disposed between said panel facing sheets in a side by side arrangement, each cord being separated from the next adjacent cord by means of a collapsible resilient wall extending from the face of one panel sheet to the face of the other panel sheet, both panel sheets being perforated with holes so that gas may readily pass through the panel.

3,318,757
POLYVINYL CHLORIDE RESIN GLASS BOND WITH SECONDARY AMINOALKYL SILANE PRIMER

Everett C. Atwell, Greensboro, N.C., assignor, by mesne assignments, to Burlington Industries, Greensboro, N.C., a corporation of Delaware

Filed Dec. 6, 1961, Ser. No. 157,400
9 Claims. (Cl. 161—193)

6. A glass product comprising a desized fibrous glass substrate and a layer of a vinyl chloride resin polymer selected from the group consisting of polyvinyl chloride and copolymers of vinyl chloride and vinyl acetate firmly adhered thereto through the intermediary of a partially polymerized hydrolyzed secondary aminoalkyl silane selected from the group consisting of (1) aminoalkyl silanes of the formula $R_1NH(CH_2)_mNH(CH_2)_nSi(OR)_3$, where m and n are integers from 2 to 3, R is an alkyl radical of 1 to 3 carbon atoms and R_1 is selected from the group consisting of hydrogen, methyl and ethyl, (2) a propyl amino silane of the formula $R_1NH(CH_2)_3Si(OR)_3$, where R is an alkyl radical of 1 to 3 carbon atoms and R_1 is an alkyl radical of 1 to 2 carbon atoms, and (3) mixtures thereof.

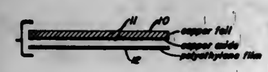
3,318,758
METHOD OF MAKING A PRINTED CIRCUIT BOARD WHICH INCLUDES LOW TEMPERATURE SATURATION AND THE PRODUCT

Philip Tell, Summit, N.J., assignor to Tellite Corporation, Orange, N.J., a corporation of Delaware

Filed Feb. 18, 1963, Ser. No. 259,790
10 Claims. (Cl. 161—216)

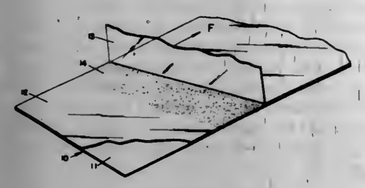
5. The method of making a printed circuit board, which method comprises forming a cupric oxide coating on the copper surface of each of two thin sheets which are copper, an alloy containing a major proportion of copper, or copper plated on another metal; bonding the sheets to opposite surfaces of a substrate which is a crystalline, high

density, high molecular weight, solid polymer or copolymer of one or more aliphatic olefins under the action of heat and pressure, the oxide coating of the sheets being in



contact with the substrate; and subjecting the resulting laminate to temperature saturation in the range of −70° F. to −320° F.

3,318,759
DUPLEX PACKAGING MATERIAL
William E. Anderson, Bloomsbury, N.J., assignor to Riegel Paper Corporation, New York, N.Y., a corporation of Delaware
Continuation of abandoned application Ser. No. 334,447, Dec. 30, 1963. This application Dec. 7, 1965, Ser. No. 517,150
7 Claims. (Cl. 161—235)



1. A pre-assembled, flexible duplex packaging material weakly bonded without any heat sealing for the subsequent formation of bags or the like having at least two separable walls, comprising
(a) a first ply of material intended for the exterior of the bag having a property of non-stretchability similar to that of paper;
(b) a second ply of material intended for the interior of the bag having a property of stretchability similar to that of a free thermoplastic film, whereby said second ply is substantially more stretchable than said first ply;
(c) said first and second plies being permanently heat sealable but not being heat sealed to each other;
(d) a releasable bonding agent substantially uniformly joining with minimum limited adhesion said two plies in substantially complete edge-to-edge contact by a temporary and weak bond of sufficient weakness to accommodate a complete and permanent separation of said first and second plies;
(e) said weak bond being of a predetermined minimum strength less than the web strength of the first and second plies in order that the bond will fail, accommodating separation of the plies, before either of the first and second plies fails or tears, and also being of less strength than any subsequently formed heat seal bond at a seam or joint of the bag or the like;
(f) said temporary and weak bond thereby maintaining said two plies in a substantially minimally adhered, temporarily integral relationship having sufficient stability for handling;
(g) said bonding agent alone being the sole source of said limited adhesion of said first and second plies and being applied as a unitary composition coating to at least one of the plies; and
(h) said bonding agent being non-tacky unless heated.

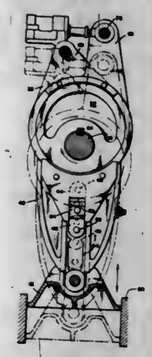
3,318,760
LAMINATE ASSEMBLY WITH A MELAMINE-FORMALDEHYDE IMPREGNATED OVERLAY SHEET
Hermann V. Boenig, Muskegon, Mich., and James A. Waters, Jr., Cleveland, Ohio, assignors to Brookpark, Inc., Cleveland, Ohio, a corporation of Ohio
No Drawing. Filed May 21, 1963, Ser. No. 282,102
18 Claims. (Cl. 161—263)

1. In a laminate assembly comprising a core material impregnated with a thermosetting resin and an overlay sheet, the improvement comprising a resin-impregnated overlay sheet having coated thereon an advanced melamine resin consisting essentially of a substantially water-insoluble melamine resin having a mole ratio of formaldehyde/melamine of 1.5:1 to 3:1, a melting point of 185–265° C., a percent extractable matter less than 30% by weight, said overlay sheet being particularly adapted to produce a cured product having a resistance to scratching and crazing.

3,318,761
DIGESTION WITH ALKALI METAL HYDROXIDE AND CARBONYL SULFIDE
Edward A. Swakon, Hammond, Ind., assignor to Standard Oil Company, Chicago, Ill., a corporation of Indiana
No Drawing. Filed Dec. 18, 1963, Ser. No. 331,374
5 Claims. (Cl. 162—82)

1. The method of preparing wood pulp which comprises digesting wood chips in an aqueous solution of alkali metal hydroxide which also contains carbonyl sulfide.

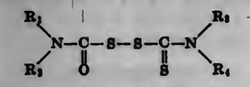
3,318,762
RETRACTABLE ECCENTRIC PRESS
Donald T. Daniele, East Longmeadow, Mass., assignor to Diamond International Corporation, a corporation of Delaware
Filed Sept. 25, 1964, Ser. No. 399,302
7 Claims. (Cl. 162—394)



1. A retractable press comprising: a pair of matching dies; means to reciprocate one said matching die in a first direction, said reciprocating means comprising a shaft, means to rotate said shaft, means carrying said reciprocating die to translate the rotary motion of said shaft to the reciprocatory motion of said reciprocating die, and means connecting said translating means to said reciprocating die; first and second retracting elements carried by said reciprocating means, said first and second retracting elements being integrally associated with said connecting means; and means to move said first and second retracting elements in relation to one another in a second direction to shorten the effective length of said connecting means to cause said reciprocating die to separate and retract from said other matching die generally in said first direction during continued reciprocation.

3,318,763
BACTERIAL AND FUNGAL METHODS
Lester A. Brooks and Robert T. O'Shaughnessy, East Norwalk, Conn., assignors to R. T. Vanderbilt Company, Inc., New York, N.Y., a corporation of New York
No Drawing. Filed Feb. 24, 1964, Ser. No. 347,066
20 Claims. (Cl. 167—22)

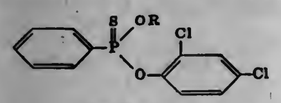
1. A method for the preservation of material normally subject to fungus and bacterial attack which comprises applying to such material at least one carbamoyl thiocarbamoyl disulfide having the structural formula



where R_1, R_2, R_3 and R_4 are alkyl from 1 to 10 carbons, cycloalkyl from 5 to 7 carbons or aralkyl from 7 to 10 carbons; where R_1 plus R_2 or R_3 plus R_4 are said alkyl taken together with the adjoining nitrogen atom to form a heterocyclic ring of 4 to 10 carbons; or where R_1 plus R_2 or R_3 plus R_4 are oxyethyl and ethyl taken together with the adjoining nitrogen atom to form a morpholyl ring.

3,318,764
METHOD FOR CONTROLLING NEMATODES WITH PHOSPHOROUS COMPOUNDS
Iwao Otsubo, Chuo-ku, Tokyo, Yasukazu Ura and Shiro Sato, Kita-ku, Tokyo, and Mitsuru Hayakawa and Kozo Sakata, Minami-Saitama-gun, Saitama-ken, Japan, assignors to Nissan Kagaku Kogyo Company Limited, Tokyo, Japan, a corporation of Japan
No Drawing. Filed June 24, 1963, Ser. No. 290,182
Claims priority, application Japan, June 30, 1962, 37/26,907
3 Claims. (Cl. 167—30)

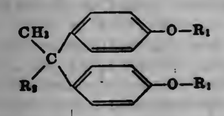
1. A method of controlling nematodes which comprises contacting the nematodes with a toxic amount of an organic phosphorous compound of the formula



wherein R is alkyl selected from the group consisting of methyl and ethyl.

3,318,765
FUNGICIDAL 2,2-BIS-(PARA-ALLYLOXY-PHENYL)PROPANE
Max J. Fielding and Bert L. Richards, Jr., Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Dec. 18, 1964, Ser. No. 419,574
6 Claims. (Cl. 167—30)

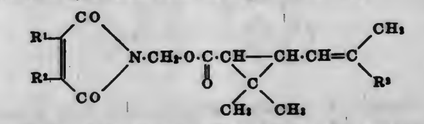
4. A method for protecting plants from soil fungi comprising applying to said fungi a plant protectant amount of a compound of the formula



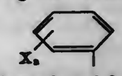
R_1 is selected from the group consisting of allyl, chloroallyl, methylallyl, propargyl and methylpropargyl; and
R_2 is selected from the group consisting of methyl and ethyl.

3,318,766
CHRYSANTHEMUM CARBOXYLIC ACID MALEIMIDOMETHYL ESTER INSECTICIDAL COMPOSITIONS
Takeaki Kato and Kenzo Ueda, Nishinomiya-shi, Sadao Horie, Saita-shi, Toshio Mizutani, Amagasaki-shi, Keimei Fujimoto, Minoo-shi, and Yoshiod Okuno, Nishinomiya-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan, a corporation of Japan
No Drawing. Filed Dec. 1, 1964, Ser. No. 415,209
Claims priority, application Japan, Dec. 3, 1963, 38/65,180; Dec. 5, 1963, 38/65,621; Dec. 17, 1963, 38/68,215; Apr. 14, 1964, 39/20,912
3 Claims. (Cl. 167—33)

1. A composition comprising a carrier and as the essential ingredient an insecticidal amount of a cyclopropane-carboxylic acid ester having the formula



wherein R^1 is a member selected from the group consisting of hydrogen, methyl, ethyl, propyl and isopropyl and the radicals having the formula



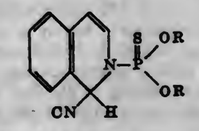
wherein X is a member selected from the group consisting of methyl and methoxy, and n is an integer of 0 to 2; R^2 is a member selected from the group consisting of hydrogen, methyl, ethyl, propyl and isopropyl; and R^3 is a member selected from the group consisting of methyl and methoxycarbonyl.

3,318,767
BIOCIDAL COMPOSITIONS CONTAINING 4,5-DICYANO-1,3-DITHIOLE-2-THIONE OXIDE
Erwin Klingsberg, Mountainside, N.J., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Original application June 26, 1963, Ser. No. 290,635, now Patent No. 3,214,442, dated Oct. 26, 1965. Divided and this application Aug. 26, 1965, Ser. No. 482,894
3 Claims. (Cl. 167—33)

1. A biocidal composition consisting essentially of an inert biocidal carrier and an effective amount of 4,5-dicyano-1,3-dithiole-2-thione oxide.

3,318,768
INSECTICIDAL [1-CYANO-2-(1H)-ISOQUINOLINYL]-O,O-DIALKYL AMIDE ESTERS OF PHOSPHOTHIOIC ACID
Richard William Young, Wellesley Hills, Mass., and Ernestine Gelblum Abraham, Cumberland, Md., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Original application Aug. 14, 1963, Ser. No. 301,946, now Patent No. 3,249,614, dated May 3, 1966. Divided and this application Nov. 4, 1965, Ser. No. 506,412
5 Claims. (Cl. 167—33)

1. An insecticidal composition comprising an inert solvent therefor and an effective amount of the compound represented by the formula:



wherein R is lower alkyl substituent.

3,318,769

RESIN COMPOSITIONS COMPRISING ORGANOPHOSPHORUS PESTICIDES

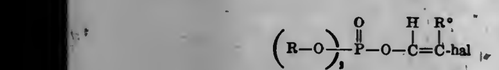
Frank B. Folckemer, Union, N.J., Robert E. Hanson, Modesto, Calif., and Alexander Miller, Short Hills, N.J., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed May 31, 1963, Ser. No. 284,346

6 Claims. (Cl. 167—42)

1. A composition of matter comprising:

(a) a normally liquid, water-sensitive phosphate relatively volatile at ordinary room temperatures, toxic to mammals and having the formula:



wherein R represents alkyl of from 1 to 4 carbon atoms, hal represents middle halogen, and R° represents a member of the group consisting of hydrogen and middle halogen, and

(b) a solid, organic, essentially water-insoluble, hydrophobic, thermoplastic resin having a molecular weight above 1000,

said phosphate being in solid solution in said resin, said composition being characterized by being essentially dry, stable, resistant to moisture, of reduced toxicity to mammals, with a part of the phosphate being present on the surface of said composition and when the composition is in contact with a gaseous or liquid environment, phosphate spontaneously passing from the said surface to said environment, additional phosphate moving from the body of said composition to the surface thereof, replacing phosphate passed from the said surface, said composition accordingly providing sustained, controlled, spontaneous, essentially continuous release of phosphate from the composition to the environment surrounding the composition.

3,318,770

INTRAVENOUSLY INJECTABLE ANESTHETIC COMPOSITION

Henning Asche, Basel, and Charles J. Morel, Basel-Land, Switzerland, assignors to Geigy Chemical Corporation, Greenburgh, N.Y., a corporation of Delaware

No Drawing. Filed Feb. 7, 1964, Ser. No. 343,417

Claims priority, application Switzerland, Jan. 16, 1964, 480/64; Aug. 29, 1963, 10,674/63, 10,675/63

4 Claims. (Cl. 167—52)

4. An intravenously injectable anesthetic composition consisting essentially of

(a) from about 2.5 to 3.5% (weight/volume) of 2-ethoxy-4-n-propyl-phenoxyacetic acid diethyl amide;

(b) from about 15 to 20% (weight/volume) of castor oil polyoxyethylated with from 50 to 70 moles of ethylene oxide per mole of ricinoleic acid triglyceride;

(c) from about 8 to 12% (weight/volume) of propylene glycol;

(d) from about 1.5 to 3% (weight/volume) of poly-(N-vinyl-2-pyrrolidone), having a mean molecular weight of about 20,000 to 25,000; and

(e) from 0 to 1.5% (weight/volume) of glucose;

(f) the balance consisting of distilled water;

all percentages being expressed as weight per total volume of the composition.

3,318,771

PROCESS FOR THE RECOVERY OF PLASMINOGEN FROM ANIMAL BLOOD SERUM OR ANIMAL BLOOD PLASMA, PREFERABLY FROM PIG'S BLOOD

Villy Johannes Jensen, Vanlose, Denmark, assignor to Novo Terapeutisk Laboratorium A/S, Copenhagen, Denmark

Filed Dec. 2, 1963, Ser. No. 327,339

Claims priority, application Denmark, Dec. 10, 1962, 5,339/62; Oct. 29, 1963, 5,095/63

7 Claims. (Cl. 167—65)

1. A process for the recovery of plasminogen from a substance selected from the group consisting of animal blood serum and animal blood plasma, which comprises diluting said substance 5 to 8 times with water, adjusting the pH-value of the diluted substance to 5 to 6, and separating the resulting precipitate.

3,318,772

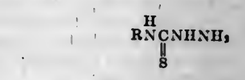
COMPOSITIONS AND METHODS OF TREATING CONVULSANT SEIZURES

Arthur Berger, Skokie, and Edeltraut E. Borgaes, Chicago, Ill., assignors to Baxter Laboratories, Inc., Morton Grove, Ill., a corporation of Delaware

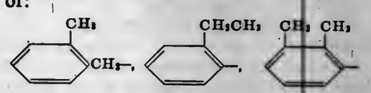
No Drawing. Filed Apr. 20, 1966, Ser. No. 543,809

11 Claims. (Cl. 167—65)

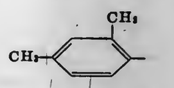
1. The method of preventing convulsant seizures in animals which comprises administering to such animals an effective amount of a compound having the formula:



in which R is a member selected from the group consisting of:



and



3,318,773

METHOD OF PRODUCING GLYCYRRHIZIN DERIVATIVE

Akira Fujimaki, 957–7 3-chome, Nukuikitamachi, Koganei-shi, Tokyo-to, Japan

Filed Sept. 23, 1963, Ser. No. 310,946

Claims priority, application Japan, Sept. 27, 1962, 37/42,300

8 Claims. (Cl. 167—67)

1. The method which comprises destroying the cell walls of a plant material selected from the group consisting of Chlorella, lotus seeds and bamboo shoots and extracting said plant material with water, thereby forming an aqueous extract thereof; acidifying the thus formed aqueous extract to a pH value of below about 4.5; and adding to the thus acidified aqueous extract a water-soluble salt of glycyrrhizinic acid so as to form a precipitate including glycyrrhizinic acid and a substance which gives a positive sedimentation reaction and a positive reaction to the dyeing effect of protein reagent, the ninhydrin dyed image of said substance on paper electrophoresis being closer to the cathode than is lysine, and the maximum absorption thereof under ultraviolet being at about 259 mμ.

3,318,774

TREATMENT OF OSSEOUS AND OTHER TISSUE

James Alexander Dingwall, New York, N.Y., and Wayne L. Westcott, Nixon, N.J., assignors, by mesne assignments, to E. R. Squibb & Sons, Inc., New York, N.Y., a corporation of Delaware

Filed June 22, 1965, Ser. No. 466,015

28 Claims. (Cl. 167—74)

1. A process for the treatment of bone for implantation which comprises the sequential steps of (1) extracting the bone with a dilute aqueous, non-ionic biologically acceptable surfactant solution which removes the serum proteins without leaving an antigenic residue upon further processing, (2) extracting with an organic fat solvent which removes the fats without leaving an antigenic residue upon further processing, (3) extracting at least twice with fresh surfactant solution, (4) washing with water for at least about 48 hours and drying the bone without applying heat.

3,318,775

PRODUCTION OF VIRAL ANTIGENS WITH N-ACETYL-ETHYLENEIMINE

Philip Alexander Melvin and Jean-Michel Gustave Pryce, Macclesfield, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Filed Jan. 29, 1963, Ser. No. 254,564

Claims priority, application Great Britain, Feb. 6, 1956, 3,596/56, 3,597/56

3 Claims. (Cl. 167—78)

1. Process for the preparation of a virus vaccine containing antigens, which comprises treating equine encephalomyelitis virus with N-acetylethyleneimine for a time sufficient to inactivate infectious properties of said equine encephalomyelitis virus while retaining the antigenicity thereof and then removing from the virus so treated any unused N-acetylethyleneimine.

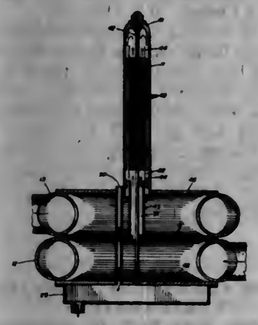
3,318,776

TWO PASS PRESSURE TUBE RESEARCH REACTOR

John MacPhee, Rowayton, Conn., assignor to American Machine & Foundry Company, a corporation of New Jersey

Filed Dec. 23, 1960, Ser. No. 78,104

6 Claims. (Cl. 176—61)



1. A nuclear reactor comprising an open container for shielding liquid, an active core positioned substantially near the bottom within said open container, said core comprising a fuel element contained in a housing, said housing isolating said fuel element from shielding liquid in said open container, a multi-passage closed cycle in said housing for circulating a coolant through the core in a path isolated from the shielding liquid contained in said open container, and heat exchange means to remove heat from said coolant.

3,318,777

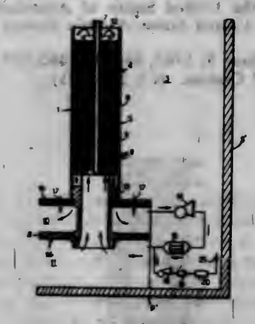
COOLING PROCESS FOR FUEL ELEMENTS OF A NUCLEAR REACTOR OF THE SWIMMING-POOL TYPE AND NUCLEAR REACTOR ACCORDING TO THIS PROCESS

Olivier de Kervenoaël and Alain Virnot, Paris, France, assignors, by mesne assignments, to American Machine & Foundry Co., a corporation of New Jersey

Filed Dec. 27, 1960, Ser. No. 78,492

Claims priority, application France, Jan. 7, 1960, 814,996

11 Claims. (Cl. 176—61)



1. A process for cooling an active core of a swimming pool nuclear reactor, said core being located close to the bottom of the pool and having a plurality of fuel units, including the steps of separating said fuel units from water in said pool by a plurality of casings each containing a fuel unit, circulating heat-carrying water in each of said casings in opposite directions successively for transferring heat from said fuel units to said heat-carrying water, collecting said water downstream of said casings, deactivating at least part of said collected water, removing said heat from said collected water, returning part of said collected and deactivated water to said pool and part to said casings, and admitting a quantity of water from said pool to said circuit equal to that of said part returned to the pool.

3,318,778

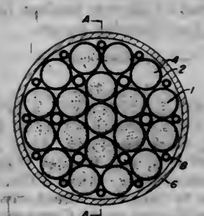
NUCLEAR FUEL ELEMENT

Takahiro Morita, Hitachi-shi, Japan, assignor to Hitachi, Ltd., Tokyo, Japan

Filed Feb. 25, 1965, Ser. No. 435,146

Claims priority, application Japan, Feb. 27, 1964, 39/10,423

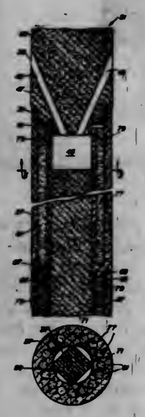
7 Claims. (Cl. 176—64)



1. A nuclear fuel element for use in a heavy water moderated reactor containing light water or an organic coolant, comprising a pressure tube into which said light water or organic coolant is introduced, a plurality of fuel rods contained within said pressure tube, each of said

rods comprising a clad tube and nuclear fuel material housed therein, and a plurality of hollow tubes closed at the ends thereof, said hollow tubes being constituted by a material having a small neutron absorptive cross-section and being positioned at random between said fuel rods within said pressure tube to decrease the quantity of said light water or organic coolant employed within said pressure tube.

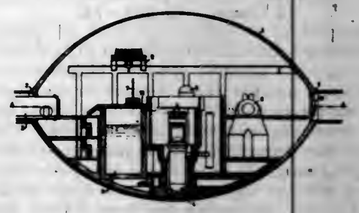
3,318,779
FUEL ELEMENT
Richard F. Turner and Dean A. Nehrig, San Diego, and Harry I. Leon, Del Mar, Calif., assignors, by mesne assignments, to the United States of America as represented by the United States Atomic Energy Commission
Filed June 9, 1965, Ser. No. 462,767
7 Claims. (Cl. 176—71)



1. A fuel element for a nuclear reactor utilizing a fluid coolant stream, which fuel element comprises a plurality of axially aligned interconnected elongated separate fuel element body sections in the form of sleeves having internal central bores which are axially aligned with one another, each of said elongated sleeves having formed therein longitudinally extending fuel chamber means, a spine of structurally strong refractory neutron moderating material comprising the primary longitudinal structural member of the fuel element axially disposed within said aligned central bores and slideable therein, said spine being proportioned to provide longitudinally extending passageway means for the fluid coolant in the space between the outer surface of said spine and the inner surface of said bores, and a bed of discrete nuclear fuel particles disposed within each fuel chamber means.

3,318,780
PRESSURE-PROOF COMPLETELY ENCLOSED REACTOR CONTAINMENT STRUCTURE
Werner Bohmann, Christian Held, Arno Martin, Rudolf Göpel, Walter Wirths, and Werner Hünlich, Erlangen, and Ulrich Finsterwalder, Munich-Obermenzing, Germany, assignors to Siemens-Schuckertwerke Aktiengesellschaft, Berlin-Siemensstadt, Germany, a corporation of Germany
Filed Mar. 19, 1964, Ser. No. 353,298
Claims priority, application Germany, Mar. 20, 1963, S 84,244
10 Claims. (Cl. 176—87)

1. Containment structure for nuclear energy plants having a nuclear reactor and auxiliary equipment, comprising a hollow elongated vessel for housing the nuclear reactor and auxiliary equipment, said vessel being symmetrical and having a surface generated by rotation of an arc about a substantially horizontal line coinciding with the longitudinal axis of said vessel, the ends of said arc



being spaced from said substantially horizontal longitudinal axis so as to provide end openings into said vessel; and shielded lock means located at said end openings, said lock means being pressure-tightly lockable against the escape of radiation products from said vessel.

3,318,781
MICROBIAL OXIDATION OF POLYNUCLEAR AROMATIC HYDROCARBONS
Ira D. Hill, Wilmington, Del., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey
No Drawing. Filed Sept. 1, 1964, Ser. No. 393,717
16 Claims. (Cl. 195—28)

1. In the process for the oxidative ring-splitting of polynuclear aromatic hydrocarbons by microbial fermentation utilizing Corynebacterium nov. sp. ATCC 15,570 to form the corresponding hydroxy acids, the improvement which comprises conducting such an oxidative fermentation in the presence of a carbohydrate co-substrate in amount of at least 0.05%.

3,318,782
PURIFICATION OF ENZYMES
John T. Garbutt, Muscatine, Iowa, assignor to Grain Processing Corporation, Muscatine, Iowa, a corporation of Iowa
No Drawing. Filed May 6, 1964, Ser. No. 365,520
6 Claims. (Cl. 195—66)

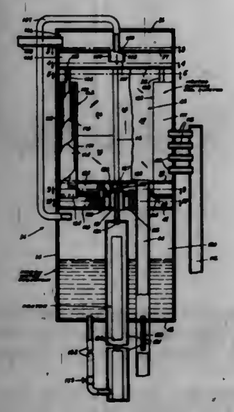
1. A process of treating a transglucosidase and glucoamylase-containing fungal enzyme preparation which comprises contacting said fungal enzyme preparation with a hydrophilic water-insoluble cross-linked dextran polymer gel having a water regain value substantially greater than 7.5, washing said gel with an eluant, recovering from said gel a fraction consisting of a mixture of glucoamylase and transglucosidase and then recovering from said gel a fraction containing glucoamylase substantially free of transglucosidase.

3,318,783
ANTITUMOR AGENT M–6672 AND METHOD OF PREPARATION
Alma W. Goldstein, Lake Bluff, Ill., assignor to Abbott Laboratories, North Chicago, Ill., a corporation of Illinois
No Drawing. Filed May 21, 1964, Ser. No. 369,321
6 Claims. (Cl. 195—80)

1. A process for the production of M–6672 which comprises cultivating the organism *Streptomyces terminospiralis* under submerged aerobic conditions in an aqueous culture medium containing assimilable sources of carbohydrates, organic nitrogen and inorganic salts until substantial antitumor activity is produced by said organism and fractionally precipitating with a water-miscible solvent M–6672 from said culture medium.

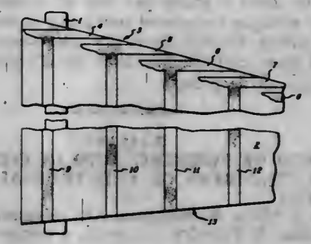
3. A process as claimed in claim 2 in which the culture medium is maintained at a temperature of from 24°–28° C. for a period of from 2 to 4 days.

3,318,784
SALT WATER CONVERSION SYSTEM
Richard G. Murphy, 5582 Waterman Ave., St. Louis, Mo. 63112
Filed Nov. 1, 1963, Ser. No. 320,702
9 Claims. (Cl. 202—160)



1. A salt water conversion system comprising a housing supported near a body of salt water, a salt water reservoir open to atmospheric pressure, means for pumping salt water from the body of salt water to the reservoir to maintain generally a predetermined level therein, an evaporator above the reservoir, means defining a plurality of compartments in the evaporator connected together in series adjacent their lower ends, means for continuously withdrawing water vapor from each compartment, a pipe connected from the reservoir to the bottom of the first one of the series of compartments, the first compartment being positioned at such a height above the level of water in the reservoir that the atmospheric pressure upon the water in the reservoir maintains a column of water through the connecting pipe and extending above the connection between the first and second compartments of the series, whereby the water surface in the first compartment defines the lower side of a closed compartment, the pressure within which is maintained sufficiently low to cause boiling of the water with continuous replenishment from the reservoir, the successive compartments and the connections between them being similarly elevated with respect to the level of water maintained within them as set forth for the first compartment, whereby the water surface in each compartment defines the lower side of a closed compartment, and the water in each compartment boils because of the low pressure therein, and means for withdrawing salt water from the last compartment of the series, the means for withdrawing vapor from each compartment comprising an ejector having an inlet adjacent the upper side of the compartment and an outlet below the compartment, each ejector comprising a spirally wound wall, the lower edge of which defines a downwardly and outwardly winding helix extending from the inlet to the outlet, and means for circulating high velocity fluid through each ejector to draw water vapor from the evaporator compartments, the resulting mixture of fluid and water vapor being gradually expanded to progressively reduced pressure by the progressively enlarged area provided by the helical lower edge of the spirally wound wall.

3,318,785
METHOD OF FORMING CONTACT ASSEMBLIES
Robert James Armstrong, Crowtherne, and Joseph Peppo Levy, Harrow, Middlesex, England, assignors to The Sperry Gyroscope Company Limited, Brentford, England, a company of Great Britain
Filed Oct. 23, 1963, Ser. No. 318,397
Claims priority, application Great Britain, Oct. 23, 1962, 40,879/62
4 Claims. (Cl. 204—25)



1. A method of forming an assembly of ring-shaped contacts comprising forming on a cylindrical core successive overlapping layers stepped back at at least one end thereof, the layers being of insulating material and bearing conductive regions defining the bases of contact rings on the steps and forming a conducting path providing an electrical connection to each separate contact ring base, and depositing metal on the contact ring bases to form the contact rings.

3,318,786
CHROMIUM PLATING
Charles L. Faust, Upper Arlington, and Glenn R. Schaer and John G. Beach, Columbus, Ohio, assignors to Diamond Alkali Company, Cleveland, Ohio, a corporation of Delaware
Continuation of application Ser. No. 404,250, Oct. 15, 1964. This application Nov. 5, 1965, Ser. No. 513,634
The portion of the term of the patent subsequent to July 3, 1979, has been disclaimed
4 Claims. (Cl. 204—51)

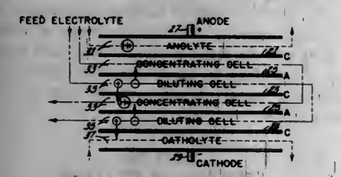
1. In the method of producing a chromium plate of low internal stress by electrodepositing chromium on a basis metal constituting the cathode in an electric circuit having an anode and a cathode immersed in an aqueous solution maintained at a temperature within the range of about 105° F., to about 150° F., and containing chromic acid together with anions and cations for promoting the electrodeposition of chromium, the improvement which includes:

1. applying to said anode and cathode a cyclically varying unidirectional voltage,
2. controlling said voltage in such a manner that there is within each cycle of the voltage variations,
   (a) a period (t_1) of current density of sufficient magnitude and duration to deposit CrH_x, but less than one half that required to deposit a monomolecular layer of CrH_x, at the cathode surface,
   (b) and a shorter succeeding finite period (t_2) in which the current comes to and remains at zero whereby depositing of CrH_x ceases,
   (c) the duration of the succeeding period (t_3) being greater than 0.5 millisecond and sufficient to allow decomposition of deposited CrH_x and coincident deposition of chromium metal, but insufficient to allow substantial diffusion of the bulk of said solution into the cathode film,
3. and simultaneously blocking the flow of current produced by the system including said anode and cathode in said solution during said succeeding period (t_2), whereby a substantial portion of the cathode film is retained.

3,318,787
ELECTRODEPOSITION OF ZINC
Gustav Rindt, St. Clair Shores, and Donald H. Becking, Birmingham, Mich., assignors to The Udylite Corporation, Warren, Mich., a corporation of Delaware
No Drawing. Filed Feb. 7, 1964, Ser. No. 343,220
30 Claims. (Cl. 204—55)

1. A bath for the electrodeposition of lustrous zinc comprising an aqueous alkaline cyanide zinc bath containing dissolved therein in a concentration of about 0.005 to about 5 grams per liter of a bath-soluble quaternary nitrogen compound containing at least one substituting group selected from the class consisting of carboxylic ester, carboxamide, substituted carboxamide, carboxy and nitrile groups.

3,318,788
METHOD OF FORMING ACID IN CONCENTRATING CHAMBERS OF ELECTRODIALYSIS APPARATUS
Milton S. Mintz, Birmingham, Ala., assignor to American Machine & Foundry Company, a corporation of New Jersey
Continuation of application Ser. No. 734,991, May 13, 1958. This application Oct. 24, 1962, Ser. No. 233,499
3 Claims. (Cl. 204—130)



1. A method of controlling acidity and related scale formation in an electrodialysis system having at least two separate concentrating compartments, which comprises generating acid in an anode chamber as the only source of acid in said system, passing hydrogen ions from said anode chamber through an ion permeable barrier into an adjacent first compartment and passing anions other than hydroxyl from a second adjacent compartment through an ion permeable barrier also into said first compartment to establish a concentration of acid therein and thereafter hydraulically transferring fluid containing said acid from said first compartment directly into a remote concentrating compartment at said concentration.

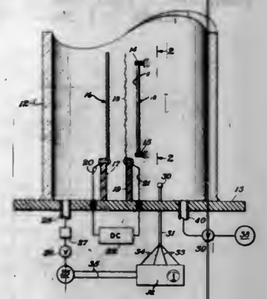
3,318,789
PROCESS FOR THE MANUFACTURE OF 19-NOR-STEROIDS
Oskar Jeger, Zollikerberg, Zurich, and Kurt Schaffner, Zurich, Switzerland, assignors to Ciba Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Dec. 16, 1963, Ser. No. 330,566
Claims priority, application Switzerland, Dec. 29, 1962, 15,286/62
16 Claims. (Cl. 204—158)

1. Process for the manufacture of 19-nor-steroids whose ring A is not aromatic, wherein a Δ^5-19-oxo-steroid in an organic solvent is irradiated with ultra-violet light.

3,318,790
PRODUCTION OF THIN ORGANIC POLYMER BY SCREENED GLOW DISCHARGE
Bernard G. Carbajal III and Buford G. Slay, Jr., Richardson, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Filed Apr. 29, 1964, Ser. No. 363,523
2 Claims. (Cl. 204—168)

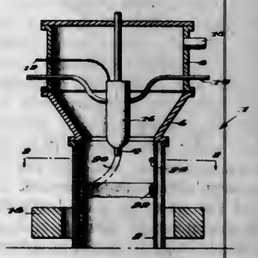
1. The method of applying a polymer coating to a body which comprises:

(a) supporting said body in an evacuated reaction zone,
(b) introducing an organic polymer precursor into said zone,
(c) positioning two confronting electrodes in said zone substantially in parallel spaced apart relationship, at least one of said electrodes being perforate and being interposed between said body and the other electrode so that the axis of at least one opening in said perforate electrode is being directed to said body, and



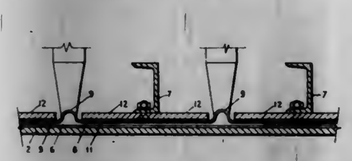
(d) establishing a glow discharge in said zone between two said electrodes whereby an organic polymer is formed by the glow discharge and passes through said perforate electrode for deposit on said body.

3,318,791
PROCESS FOR REMOVING HARD CARBON DEPOSITS FROM AN ACETYLENE-GENERATING ARC FURNACE
Alexander Thomas Harris, Pleasure Ridge Park, Ky., and Dudley Walter Cyril Spencer, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Nov. 26, 1963, Ser. No. 326,181
3 Claims. (Cl. 204—171)



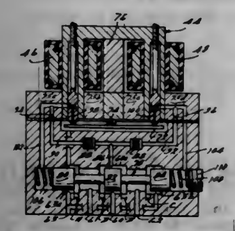
1. A process for removing the hard carbon deposit which forms, during the pyrolysis of hydrocarbons to form acetylene, on the electrode serving as the wall of the arc furnace and in the region in which the arc of said arc furnace strikes said electrode, said process comprising interrupting the feed of said hydrocarbons to said arc furnace while maintaining said arc and applying, during the interruption of said feed, sufficient water to said carbon deposit to dislodge it from said electrode.

3,318,792
MERCURY CATHODE CELL WITH NOBLE METAL-TITANIUM ANODE AS COVER MEANS
Joseph Bernard Cotton and Kevin William Joseph Bowen, Sutton Coldfield, and Arthur Wesley Ravenscroft, Frodsham, England, assignors to Imperial Chemical Industries Limited, Millbank, London, England, a corporation of Great Britain
Continuation of application Ser. No. 780,882, Dec. 16, 1958. This application May 4, 1966, Ser. No. 548,032
Claims priority, application Great Britain, Dec. 17, 1957, 39,272/57
1 Claim. (Cl. 204—219)



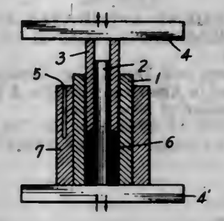
A cell for electrolyzing an aqueous solution of an alkali metal chloride, said cell comprising a substantially horizontal flowing mercury cathode and, positioned above and substantially parallel therewith, an anode which is a surface coating of a metal selected from the group consisting of platinum, rhodium, alloys which are largely platinum and alloys which are largely rhodium, carried on the underface of a sheet which consists essentially of titanium, said sheet constituting and functioning simultaneously as the cell cover, the anode support and the electrically conducting means which leads electrolyzing current to the anode, said cell also including a layer of metal more conductive than titanium in contact with the upper face of said sheet and extending thereover so as to be at least coterminous with said surface coating.

3,318,793
SERVO FEED APPARATUS FOR ELECTRICAL DISCHARGE MACHINING
Robert S. Webb, Bloomfield Hills, Mich.
(1830 Stephenson Highway, Troy, Mich. 48084)
Filed Nov. 2, 1962, Ser. No. 235,053
7 Claims. (Cl. 204—225)



1. A fluid actuator system comprising a fluid motor having a motive element differentially positionable in response to operating fluid flow, an electrically energized directional control valve for controlling the positioning of said element, a pressure port of said valve for providing an operating fluid flow to said element, a pressure return port of said valve, and a valve operating means operable in the unenergized condition of said valve to provide through its pressure port a balancing pressure to said motive element to maintain it in a stationary position, said valve operating means including a pair of underlapped, port varying lands, each juxtaposed to a different one of said ports and controlling fluid flow therethrough, each of said lands underlapped relative to its associated port by at least 10%.

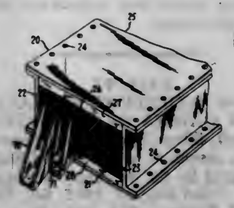
3,318,794
METHOD OF MANUFACTURING LEAD DIOXIDE ELECTRODE
Shinzo Kiyohara and Yasuichi Shibasaki, Kanagawa-ku, Yokohama, Japan, assignors to Isomura Sangyo Kaisha, Ltd., Tokyo, Japan, a corporation of Japan
Filed Jan. 28, 1963, Ser. No. 254,184
Claims priority, application Japan, Feb. 8, 1962, 37/3,898; Sept. 20, 1962, 37/40,541
10 Claims. (Cl. 204—290)



1. A method of manufacturing a unit electrode body of lead dioxide which comprises compressing a mixture consisting essentially of lead dioxide and a synthetic resin binder in a press mold at the softening temperature of said binder and substantially below the decomposition temperature of lead dioxide powder to produce a uniform non-porous electrode body made of said constituents.

7. A unit electrode body made of a mixture consisting essentially of lead dioxide powder and a thermo-plastic or thermo-setting resin as binder compactly and homogeneously compressed to a non-porous cylindrical body.

3,318,795
ELECTRODIALYSIS APPARATUS HAVING GASKETS AND MEMBRANES ALIGNED TO REDUCE LEAKAGE
Milton Sheldon Mintz, Stamford, Conn., and William Joseph Nellen, Little Neck, N.Y., assignors to American Machine & Foundry Company, a corporation of New Jersey
Filed June 6, 1962, Ser. No. 200,509
4 Claims. (Cl. 204—301)



1. A fluid treatment device comprising, in combination,
(a) a rectangular container having an inlet and an outlet end,
(b) substantially horizontal ion selective membranes disposed within said container defining fluid treatment cells between adjacent membranes, some of said fluid treatment cells producing a product stream,
(c) gaskets interspersed between and clamping the ends of said membranes at the outlet end of said container, said gaskets containing grooves forming passages conducting fluid from said fluid treatment cells past said gaskets, the passages conducting fluid from those fluid treatment cells producing a product stream vertically aligned in at least one set of passages laterally displaced from the other passages,

(d) screen spacers of substantially the thickness of said gaskets interspersed between said membranes within said container, said screen spacers butting against said gaskets, and,

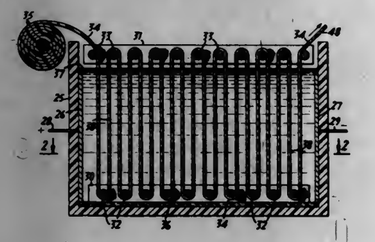
(e) means disposed outside and hydraulically connected with said container beyond said gaskets collecting the product stream emerging from said gaskets from at least one set of said vertically aligned passages.

3,318,796

FLUID TREATMENT APPARATUS HAVING AN ENDLESS MEMBRANE WOUND IN A SERPENTINE PATH

Jerry Hugh Brown and David Guy Conning, Stamford, Conn., assignors to American Machine & Foundry Company, a corporation of New Jersey

Filed Oct. 17, 1962, Ser. No. 231,614
14 Claims. (Cl. 204—301)



1. A fluid treatment apparatus comprising, in combination, a tank, an endless membrane, lower membrane support members disposed horizontally within said tank, upper membrane support members disposed horizontally above and parallel to said lower membrane support members, said endless membrane being wound to pass freely over said upper membrane support members and under said lower membrane support members in a serpentine path forming fluid treatment cells in said tank, manifold means leading from outside said tank and communicating with at least some of the fluid treatment cells formed by said endless membrane, guide means guiding said endless membrane beyond the serpentine path of said endless membrane, and drive means moving said endless membrane about said membrane support members and said guide means.

3,318,797

METHOD OF OXIDIZING ASPHALT FLUX WITH OXIDES OF NITROGEN

Paul G. Campbell, Silver Spring, and James R. Wright, Bethesda, Md., assignors to the United States of America as represented by the Secretary of Commerce

No Drawing. Filed July 21, 1965, Ser. No. 473,878
2 Claims. (Cl. 208—6)

1. The method of oxidizing asphalt flux which comprises,

(a) heating said flux to about 110° C.,

(b) blowing said heated flux simultaneously with a diluent gas and a gas selected from the group consisting of nitric oxide, nitrogen dioxide, and nitrogen dioxide sensitized with ultraviolet radiation, in a diluent to oxide volume ratio of about 20:1–5:1, at a blowing rate of about 5–30 cubic feet per ton-minute,

(c) maintaining said blowing while gradually increasing said flux temperature to about 175° C. over a period of about 4–18 hours, and

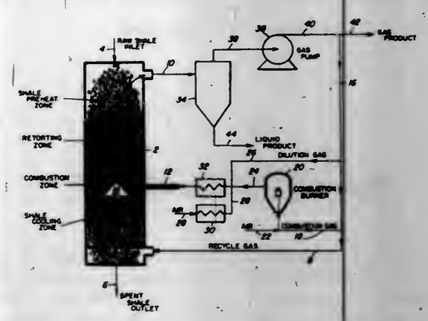
(d) discontinuing said heating and blowing of said flux.

3,318,798

RETORTING OF OIL SHALE

Edward F. Kondis, Westville, and Fritz A. Smith, Cherry Hill, N.J., and Paul W. Snyder, Jr., Rifle, Colo., assignors to Mobil Oil Company, a corporation of New York

Filed Aug. 21, 1964, Ser. No. 391,114
10 Claims. (Cl. 208—11)



1. A method for thermally distilling oil shale at a shale rate above about 300 lbs./hr.-ft.^{2} which comprises passing crushed oil shale material downwardly through a gas-combustion retort as a relatively dense moving mass of material through a shale preheat zone, a retorting zone, a combustion zone and a shale cooling zone, passing recycled shale gases upwardly through the retort in direct heat exchange relationship with the downwardly moving shale, introducing a combustion supporting gas to the retort combustion zone and controlling gas temperatures within the retort to not exceed above about 1800° F. by supplying a major portion of the heat of retorting through preheating of the introduced combustion supporting gas external to the retort by at least the amount determined from the relationship:

$$T=38.82-0.11A+1.87S-2.59\times10^{-4}AS+1.63\times10^{-5}A^2+2.09\times10^{-4}S^2$$

wherein:

T is the temperature in ° F.

S is the shale flow rate in lbs./hr.-ft.^{2}

and

A is the combustion supporting gas rate in s.c.f. of equivalent air/t.

3,318,799

PROCESS FOR OBTAINING MINERAL OILS WITH IMPROVED RESISTANCE TO OXIDATION

André Acker and Jean Taillardat, Mont-Saint-Aignan, France, assignors to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Filed Oct. 23, 1964, Ser. No. 406,162
Claims priority, application France, Oct. 31, 1963, 952,496
5 Claims. (Cl. 208—14)

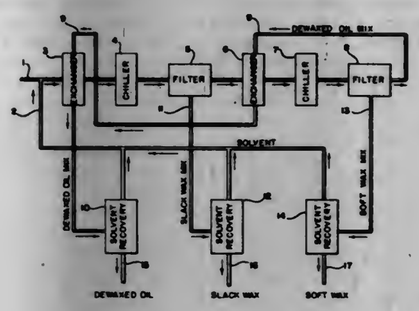
1. An insulating oil composition consisting essentially of a major amount of a mineral base oil of a type normally used in insulating oil compositions but deficient in oxidation resistance, and as an oxidation resistance improver about 1 to 5 wt. percent of a hydrogenated heavy cycle gas oil fraction obtained by catalytic cracking and having a density at 59° F. in the range of 0.990 to 1.100 g./cc., a viscosity at 210° F. in the range of 2 to 8 centistokes, an aniline point in the range of 25° to 80° C. and a distillation range under atmospheric pressure between about 180° C. and 660° C.

3,318,800

DOUBLE DEWAXING PROCESS

William H. Ringler, Cleveland, Ohio, assignor to The Standard Oil Company, Cleveland, Ohio, a corporation of Ohio

Filed Sept. 30, 1963, Ser. No. 312,672
5 Claims. (Cl. 208—33)



1. The process for preparing an oil having a natural pour point no higher than about −50° F. and usable wax from a wax bearing crude oil distillate comprising

(A) forming a solution of a wax bearing crude oil distillate with a dewaxing solvent consisting of a mixture of an aliphatic ketone and an aromatic liquid and

(B) precipitating wax from (A) by cooling to a temperature of from 0° to −20° F., recovering the precipitated wax and oil-solvent liquid therefrom and

(C) further prepicitating wax from the oil-solvent liquid from (B) by cooling to a temperature of from −60 to −90° F. and recovering the wax and low pour point oil therefrom.

3,318,801

PRODUCTION OF PETROLEUM BASE PITCH AND AROMATIC OILS

Stephen H. Alexander, St. Louis, Robert C. Butler, St. Charles, and William G. Juhl, St. Louis, Mo., assignors to Monsanto Company, a corporation of Delaware

Filed Oct. 1, 1963, Ser. No. 312,931
4 Claims. (Cl. 208—40)

1. A process for producing aromatic oils and a stabilized petroleum based pitch from the cracked oil residue resulting from the relatively severe thermal cracking of petroleum which comprises passing said cracked oil residue into a heating zone, said heating zone being maintained at 750 to 900° F. and a pressure of 50 to 250 p.s.i.g., said cracked oil residue remaining in said heating zone for 1 to 60 minutes, passing the heated cracked oil residue at elevated temperature into a flash distillation zone wherein the pressure is maintained at 5 to 60 p.s.i.g., thereby flashing overhead an aromatic oil, and recycling approximately 25 to 100 percent by weight of said aromatic oil into the hot cracked oil residue at a point between the heating zone and the flash distillation zone, the recycled aromatic oil having been heated to a temperature within the range of 100 to 150° F. prior to being admixed with said hot cracked oil residue and recovering as a bottoms from said flash distillation zone a stabilized residue pitch.

3,318,802

HYDROCRACKING PROCESS EMPLOYING A CRYSTALLINE ALUMINO-SILICATE ACTIVATED WITH A CHLORINE COMPOUND

Homer Z. Martin, Westfield, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Filed Jan. 21, 1965, Ser. No. 427,125
13 Claims. (Cl. 208—111)

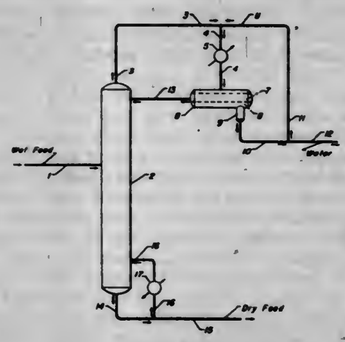
1. An improved process for hydrocracking a hydrocarbon feed which comprises subjecting said feed to hydrocracking conditions in the presence of added hydrogen, an added chlorine-containing compound selected from the group consisting of chlorine, hydrogen chloride, alky chloride, aryl chloride, and organic polychlorides whose concentration is maintained within the range of about 1,000 to 5,000 p.p.m. based on the feed and a hydrocracking catalyst comprising a crystalline alumino-silicate zeolite composited with a platinum group metal, said zeolite having a silica/alumina mole ratio in the range of from about 3 to about 6.5, uniform pore openings in the range from about 6 to about 15 A. and which zeolite further has been base exchanged so as to reduce its alkali metal oxide content to below 10 wt. percent.

3,318,803

DISTILLATION DRYING PROCESS

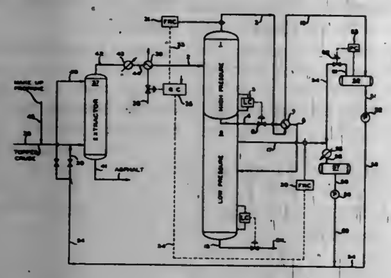
Donald B. Broughton, Evanston, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

Filed Mar. 8, 1965, Ser. No. 437,778
6 Claims. (Cl. 208—187)



1. In a process for the distillation drying of a wet liquid aromatic hydrocarbon feed at least partially immiscible with water in which said feed is charged to a fractionation column, a substantially dry feed stream is removed from the bottom of said column, a vapor stream comprising feed and water is removed overhead from said column, the vapor is at least partially condensed, the resulting condensate is separated into an aqueous phase and a non-aqueous phase conventionally containing microdroplets of liquid water suspended therein, at least a portion of said non-aqueous phase is returned to said column as reflux, and the aqueous phase is removed from the system, the improvement which comprises recycling a portion of said aqueous phase back into contact with said vapor stream before the latter is condensed, the quantity of said aqueous phase so recycled being at least sufficient, in relation to said non-aqueous phase, to substantially eliminate said water microdroplets from said non-aqueous phase.

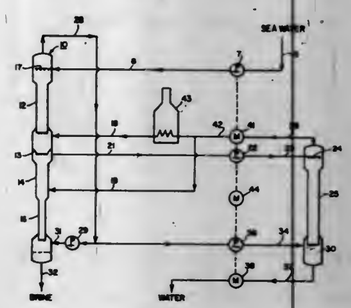
3,318,804
LIQUID RECOVERY
Joe Van Pool and George R. Hettick, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware
Filed Apr. 28, 1965, Ser. No. 451,418
6 Claims. (Cl. 208—365)



1. A method for removing a solvent employed in the removal of asphalt from a crude oil, from a hydrocarbon oil fraction comprising heating the mixture of solvent and hydrocarbon fraction, passing the heated mixture into a first evaporation zone maintained substantially at the same pressure as the solvent extraction operation wherein said mixture was formed to vaporize a substantial amount of said solvent to form a vaporous overhead for said first zone, passing the vaporous overhead from said first zone in heat exchange relationship with the kettle product of said first zone to substantially completely condense said vaporous overhead and to vaporize residual solvent from said kettle product, passing said kettle product after said heat exchange relationship contacting into a second zone maintained at a substantially lower pressure than said first zone to separate vaporous solvent from the hydrocarbon fraction present in said kettle product, regulating the heating of said mixture in response to the ratio of flow rates of the vaporous overhead from said first zone to the vaporous solvent overhead from said second zone in the volumetric range of from about 0.8/1 to about 1.2/1.

4. Apparatus for removing a solvent from a hydrocarbon and solvent mixture comprising a high-pressure evaporator, conduit means for introducing said mixture into said high-pressure evaporator, a heat exchanger, conduit means for removing overhead vapors from said high-pressure evaporator through said heat exchanger, conduit means for removing a kettle product from said high-pressure evaporator through said heat exchanger in heat exchange relationship with said conduit means for removing vapors overhead from said high-pressure evaporator, expansion valve means in said conduit means for removing the kettle product from said high-pressure evaporator, said expansion valve means being adapted to lower the pressure on said kettle product before entry of same into said heat exchanger, a low-pressure vapor separator, conduit means operatively connected to said heat exchanger to remove therefrom the kettle product from said high-pressure separator therein and passing same into said low-pressure vapor separator, conduit means for removing the kettle product of said low-pressure vapor separator therefrom, conduit means for removing overhead vapors from said low-pressure separator, a first flow controller operatively connected to said conduit means for removing overhead vapors from said high-pressure evaporator, a second flow controller operatively connected to said conduit means for removing overhead vapors from said low-pressure separator, a ratio controller, means operatively connecting each of said first and second flow-recorder-controllers to said ratio controller, a heat exchanger operatively connected with said conduit means for passing said liquid mixture into said high-pressure evaporator, conduit means for passing a heating fluid through said heat exchanger, valve means for controlling the amount of heating fluid passing into said heat exchanger and means operatively connecting said ratio controller and said valve means so that said valve means is controlled as to its opening for admitting heating fluid to said heat exchanger by said ratio controller.

3,318,805
RECOVERY OF FRESH WATER FROM BRINE
Howard V. Hess, Glenham, and Frank E. Guptill, Jr., Fishkill, N.Y., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware
Filed Nov. 16, 1964, Ser. No. 411,352
11 Claims. (Cl. 210—21)



1. A process for extracting water from brine which comprises contacting brine at an elevated temperature above about 500° F. and at a pressure sufficient to maintain resulting residual brine in liquid phase at said elevated temperature with an immiscible organic liquid characterized by the ability to extract salt-free water from brine at said elevated temperature and pressure and by the ability to liberate said extracted water at a higher pressure, removing resulting extract consisting essentially of relatively salt-free water in said organic liquid from contact with residual brine containing an increased salt concentration, subjecting said extract to a pressure above said first mentioned pressure effecting liberation of relatively salt-free water from said extract as a separate liquid phase, and withdrawing said water phase from the resulting organic liquid phase.

3,318,806
N-ACYL PIPERAZINES AND PIPERAZINO ALKYLAMIDES OF N-ACYL PIPERAZINES OF POLYBASIC ACIDS, METHODS OF PRODUCING THE SAME, AND METHODS OF EMPLOYING THE SAME AS CORROSION INHIBITORS
Robert Ernst, Los Angeles, Calif., assignor to Textilana Corporation, Hawthorne, Calif., a corporation of California
No Drawing. Original application Dec. 7, 1959, Ser. No. 857,500, now Patent No. 3,167,554, dated Jan. 26, 1965. Divided and this application Mar. 26, 1964, Ser. No. 357,858
15 Claims. (Cl. 252—8.55)

1. A method of inhibiting corrosion of ferrous metals exposed to corrosive agents normally present in a well producing petroleum hydrocarbons, which comprises introducing into said well a corrosion inhibiting composition of matter consisting essentially of a compound chosen from the group consisting of N acyl (polybasic acid) piperazine and water dispersible salts thereof, the piperazino alkylamide of a polybasic acid and water dispersible salts thereof, and the piperazino amide of a polybasic acid

and water dispersible salts thereof, the acyl radical of said polybasic acid corresponding to the formula

$$-(O{=}C{-}R)_n$$

where R contains from 17 to 21 carbon atoms and n is at least 2 and is not more than 4, and in which the R radical contains carbon-carbon chains that separate the C=O carbonyl groups, each carbonyl group of said polybasic acid being amidified.

3,318,807
LUBRICATING GREASES CONTAINING FINELY DIVIDED INORGANIC METAL SALTS AND METHOD OF PREPARATION THEREFOR
Joseph F. Lyons, Poughkeepsie, and Norman R. Odell, Wappingers Falls, N.Y., assignors to Texaco, Inc., New York, N.Y., a corporation of Delaware
No Drawing. Filed May 13, 1963, Ser. No. 280,159
2 Claims. (Cl. 252—18)

1. In a method of preparing a lithium soap thickened grease comprising the steps of saponifying a saponifiable material selected from the group consisting of fatty acids, hydroxy-substituted fatty acids, fatty acid glycerides and fatty acid esters, said fatty acid moiety containing about 10 to 32 carbon atoms therein with a saponifying agent comprising a mixture of lithium hydroxide and sodium hydroxide in the presence of at least a portion of the lubricating oil contained in the grease, heating at a higher temperature to dehydrate the resulting grease mixture and to condition the soap, cooling and adding any additional lubricating oil contained in the said grease, the improvement which comprises reacting at a maximum temperature of about 192° F. dilithium sodium phosphate in aqueous solution with calcium hydroxide to form calcium phosphate, lithium hydroxide and sodium hydroxide, and employing the reaction product thus obtaind to react with the said saponifiable material in the saponification step.

3,318,808
EXTREME PRESSURE LUBRICANTS
John J. Plemich, Whiting, and James W. Gaynor, Valparaiso, Ind., assignors to Standard Oil Company, Chicago, Ill., a corporation of Indiana
No Drawing. Filed Oct. 15, 1963, Ser. No. 316,440
5 Claims. (Cl. 252—32.7)

1. An extreme pressure lubricant composition comprising a major amount of a hydrocarbon lubricating oil having a viscosity in the range of about 45 to about 180 S.S.U. at 210° F., from about 0.5 to about 10 weight percent of a lead naphthenate, and from about 0.1 to about 2 weight percent of a zinc salt of a dialkyl diester of dithiophosphoric acid having from about 3 to about 18 carbon atoms in each dialkyl radical; wherein the weight ratio of lead naphthenate to zinc salt is about 5 to 1.

3,318,809
COUNTER CURRENT CARBONATION PROCESS
Ulric Bannister Bray, Pasadena, Calif., assignor to Bray Oil Company, Los Angeles, Calif., a limited partnership of California
Filed July 13, 1965, Ser. No. 471,666
6 Claims. (Cl. 252—33)

5. The process of preparing a transparent dispersion of calcium carbonate in oil which comprises the following steps:

(1) slurrying finely powdered calcium oxide in 5 to 15 parts by weight of anhydrous methanol;
(2) continuously contacting a stream of the oxide slurry counter-currently with carbon dioxide flowing upwardly in a vertically elongated carbonation zone at about 125 to 160° F.;
(3) rapidly agitating said carbonation zone and withdrawing a stream of the reaction products therefrom at the point of maximum CO_2 concentration and before gelling occurs;
(4) intimately and rapidly mixing said reaction products stream with a stream of oil containing oil soluble calcium sulfonate in a mixing zone;
(5) transferring the resulting mixture to a reaction zone and maintaining intimate contact between oil and methanol phases therein for a period of at least twenty minutes;
(6) separating a methanol phase from the oil phase and recycling it to step 1 of the process;
(7) stripping uncombined methanol remaining dissolved in the oil phase;
(8) treating the stripped oil with 2 to 10 percent of water in a water treating zone;
(9) dehydrating the water treated oil at a temperature of at least 250° F.;
(10) Filtering the dehydrated oil to remove dirt and unreacted lime.

3,318,810
PHOSPHOMOLYBDENUM DERIVATIVES AND THEIR LUBRICANT COMPOSITIONS
Joseph J. McGrath, Monroeville, and Harold O. Strange, Pittsburgh, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware
No Drawing. Filed Nov. 4, 1965, Ser. No. 506,397
24 Claims. (Cl. 252—46.4)

13. A lubricating composition comprising a major amount of an oil of lubricating viscosity and a minor amount, sufficient to improve the antiwear and extreme pressure characteristics of the oil, of the product obtained by reacting at a temperature of about 80° to about 140° C. 1 mole of phosphomolybdic acid with about 1 to about 10 moles of an organic phosphite represented by the general formula

$$(RX)_xP(XH)_y$$

where R is a hydrocarbyl radical selected from the group consisting of alkyl, aryl, alkaryl, aralkyl and cycloalkyl radicals; X is selected from the group consisting of oxygen and sulfur; x is an integer from 1 to 3; y is an integer from 0 to 2; the sum of x and y is 3; and the total number of carbon atoms in $(RX)_x$ is at least 6.

3,318,811
LUBRICATING OIL CONTAINING A DIACID DIPHOSPHATE ESTER
Joseph John Conradi, St. Louis, and Margaret A. Kelly, Jennings, Mo., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed Dec. 30, 1965, Ser. No. 518,967
6 Claims. (Cl. 252—49.9)

5. A mineral lubricating oil composition comprising a major amount of mineral lubricating oil and from 0.01% to 15% of a complex of 1,4-phenylene-bis(n-dodecyl hydrogen phosphate) and an amino-imide of mono(polyisobutylene)succinic anhydride and tetraethylene pentamine.

3,318,812
EMISSION CONTROL ADDITIVES
Thomas H. Coffield, Farmington, Mich., assignor to Ethyl Corporation, New York, N.Y., a corporation of Virginia
No Drawing. Filed Aug. 9, 1965, Ser. No. 478,461
21 Claims. (Cl. 252—52)

21. Engine lubricating oil containing an exhaust emission reducing amount of a trialkyl orthoformate.

3,318,813

POLY-ALKYLSTYRENE VISCOSITY INDEX IMPROVER

Herbert W. McCormick and William R. Nummy, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

Filed Aug. 16, 1965, Ser. No. 483,009
19 Claims. (Cl. 252—59)

1. A high viscosity index lubricating oil comprising a refined neutral lubricating oil and an effective amount of a narrow range molecular weight styrene polymer having an average molecular weight between 200,000 and 600,000 dissolved therein as a viscosity index improver, said polymer containing at least 60 weight percent of a nuclear substituted alkyl styrene wherein said alkyl group contains from about 3 to about 8 carbon atoms and no more than about 40 weight percent of a styrene compound selected from the group consisting of styrene, α-methyl styrene and vinyl toluene, said polymer being produced by polymerizing said styrene in the presence of an anionic polymerization catalyst.

3,318,814

DOPED SEMICONDUCTOR PROCESS AND PRODUCTS PRODUCED THEREBY

John E. Allegretti, East Brunswick, and Frederick O. Fisher, Middletown, N.J., assignors to Siemens-Schuckertwerke Aktiengesellschaft, Berlin, Germany, a corporation of Germany

Filed July 1, 1965, Ser. No. 468,803
2 Claims. (Cl. 252—62.3)

1. In the method of introducing conductivity type imparting impurity atoms as a dopant into the crystal lattice of a semiconductor material, wherein a first stream of a carrier gas containing a thermally decomposable source of semiconductor atoms is mixed with a second stream of the carrier gas containing a source of the dopant and the combined streams are introduced into a chamber where the mixture is heated to a temperature sufficient to effect thermal decomposition of said source of semiconductor atoms and the codeposition of said semiconductor atoms and said dopant onto a suitable surface in said chamber, the improvement in said method: providing a dopant compound which contains atoms of the desired conductivity type imparting impurity and is solid at a temperature within the temperature range of 25° C. to −120° C., said dopant compound being decaborane, maintaining said dopant compound at a temperature within said temperature range, and passing carrier gas over said compound to produce said second stream of carrier gas containing a source of dopant.

2. In the method of introducing conductivity type imparting impurity atoms as a dopant into the crystal lattice of a semiconductor material, wherein a first stream of a carrier gas containing a thermally decomposable source of semiconductor atoms is mixed with a second stream of the carrier gas containing a source of the dopant and the combined streams are introduced into a chamber where the mixture is heated to a temperature sufficient to effect thermal decomposition of said source of semiconductor atoms and the codeposition of said semiconductor atoms and said dopant onto a suitable surface in said chamber, the improvement in said method: providing a dopant compound which contains atoms of the desired conductivity type imparting impurity and is solid at a temperature within the temperature range of 25° C. to −120° C., said dopant compound being $(PNCl_2)_3$, maintaining said dopant compound at a temperature within said temperature range, and passing carrier gas over said compound to produce said second stream of carrier gas containing a source of dopant.

3,318,815

GERMICIDAL TOILET BOWL CLEANING COMPOSITION

Harry E. Remler and Charles J. Butke, Cincinnati, Ohio, assignors to The Drackett Company, Cincinnati, Ohio, a corporation of Delaware

No Drawing. Filed July 21, 1965, Ser. No. 473,813
5 Claims. (Cl. 252—106)

1. A solid particulate toilet bowl cleaning composition having germicidal properties and being capable on being dissolved in the water of the toilet bowl of removing stains due to metallic salts; said composition consisting essentially by weight of a substantially homogeneous admixture, at least 50% of sodium bisulfate granules, 0–20% of an alkali-metal carbonate releasing carbon dioxide in acid solution, 0–20% sodium chloride, 0.05–3% of a solid, pulverulent, water-soluble organic chloramine, and from 0.05–20% of a dry, inert, powdered protective medium having a particle size up to about 100 microns and selected from the group consisting of clays, zinc oxide, pulverized silica gel, ground silica, vermiculite, talc, alumina, diatomaceous earths and zinc soaps.

3,318,816

DETERGENT COMPOSITION IN SOLID FORM CONTAINING A SYNERGISTIC MIXTURE OF CMC AND PVP

James Rutherford Trowbridge, Westfield, N.J., assignor to Colgate-Palmolive Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Nov. 12, 1964, Ser. No. 410,721
5 Claims. (Cl. 252—137)

1. A detergent composition in solid form consisting essentially of a water-soluble alkali-metal alkyl benzene sulfonate detergent having 8 to 15 carbon atoms in said alkyl group and selected from the group consisting of sodium and potassium salts, and a mixture of soil-suspending agents of sodium carboxymethylcellulose and water-soluble polyvinylpyrrolidone having an average molecular weight within the range of about 15,000 to 40,000, the ratio of said detergent to said mixture of soil-suspending agents being from about 1:1 to 200:1 by weight and the ratio of said carboxymethylcellulose to said pyrrolidone polymer being from the range of about 60:40 to 10:90 by weight thereof, said detergent composition exhibiting synergistic and enhanced improvement in soil suspension as compared to the use of an equivalent proportion of either soil-suspending agent alone.

3,318,817

PROCESS FOR PREPARING DETERGENT TABLETS

George Cunningham Smith, Jr., Montgomery, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio

No Drawing. Filed July 16, 1965, Ser. No. 472,674
1 Claim. (Cl. 252—137)

The process of preparing a strong, abrasion resistant, quick-dissolving detergent tablet comprising the steps of:

(A) Preparing tablet from:

(1) from about 5% to about 50% by weight of said tablet of a water soluble detergent capable of being formed into particles prior to forming said tablet with a particle size of about 14 to about 100 mesh and a moisture content of less than about 10% by weight of said detergent, said detergent being selected from the group consisting of:

(a) alkali metal soaps containing from about 8 to about 18 carbon atoms;

(b) alkali metal alkyl sulfates containing from about 8 to about 22 carbon atoms;

(c) alkali metal alkyl sulfonates containing from about 8 to about 22 carbon atoms;

(d) alkali metal alkyl benzene sulfonates in which the alkyl groups contain from about 9 to about 15 carbon atoms;

(e) alkali metal alkyl glyceryl ether sulfonates in which the alkyl groups contain from about 8 to about 22 carbon atoms;

(f) alkali metal fatty acid monoglyceride sulfates wherein the fatty acid contains from about 8 to about 22 carbon atoms;

(g) alkali metal fatty acid monoglyceride sulfonates wherein the fatty acid contains from about 8 to about 22 carbon atoms;

(h) alkali metal salts of sulfuric acid esters of the reaction products between fatty alcohols containing from about 8 to about 22 carbon atoms and about 3 moles of ethylene oxide;

(i) alkali metal alkyl phenol ethylene oxide ether sulfates containing about 4 units of ethylene oxide per molecule and in which the alkyl radicals contain about 9 carbon atoms;

(j) alkali metal fatty acyl isethionates wherein the fatty acyl groups contain from about 8 to about 22 carbon atoms;

(k) alkali metal salts of fatty acid amides of methyl taurine in which the fatty acids contain from about 8 to about 22 carbon atoms;

(l) the condensation product formed by condensing ethylene oxide on a base prepared by condensing propylene oxide with propylene glycol, said base having a molecular weight of from about 1500 to 1800 and the amount of polyoxyethylene being at least about 50% by weight of the condensation product;

(m) alkyl phenol ethylene oxide condensates wherein said alkyl group contains from about 6 to about 12 carbon atoms and wherein there are about 10 to 25 moles of ethylene oxide per mole of alkyl phenol;

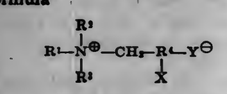
(n) condensation products of ethylene oxide with a base prepared by condensing propylene oxide with ethylene diamine, the base having a molecular weight of from about 2500 to 3000, the amount of ethylene oxide being from about 40% to about 80% by weight of the molecule;

(o) the condensation product of aliphatic alcohols containing from about 8 to 18 carbon atoms with from about 10 to 30 moles of ethylene oxide per mole of alcohol;

(p) trialkyl amine oxides wherein one alkyl group contains from about 10 to about 18 carbon atoms and each of the other two alkyl groups contains from 1 to about 3 carbon atoms, said alkyl groups containing from 0 to about 2 hydroxy substituents;

(q) trialkyl phosphine oxides wherein one alkyl group contains from about 10 to about 18 carbon atoms and each of the other two alkyl groups contains from about 1 to about 3 carbon atoms, said alkyl groups containing from 0 to about 2 hydroxy substituents;

(r) zwitterionic detergent compounds having the formula



wherein R^1 is an alkyl radical containing from about 8 to about 22 carbon atoms, R^2 and R^3 contain from 1 to about 3 carbon atoms, R^4 is an alkylene chain containing from 1 to about 3 carbon atoms, X is selected from the group consisting of hydrogen and a hydroxyl radical, Y is selected from the group consisting of carboxyl and sulfonyl radicals and wherein the sum of the R^1, R^2 and R^3 radicals is from about 14 to about 24 carbon atoms;

(s) alkyl-beta-alanine wherein the alkyl radical contains from about 8 to about 22 carbon atoms;

(t) N-alkyl taurines wherein the alkyl radical contains from about 8 to about 22 carbon atoms;

(u) N-alkyl aspartic acids wherein the alkyl groups contain from about 8 to about 22 carbon atoms; and

(v) mixtures thereof;

(2) from 0% to about 94% by weight of said tablet of a detergency builder selected from the group consisting of ethylenediaminetetraacetates, tripolyphosphates, acid pyrophosphates, alkaline pyrophosphates, orthophosphates, phytates, and mixtures thereof, wherein the cation portion of said detergency builder is selected from the group consisting of sodium, potassium and ammonium cations; said detergency builder having a particle size of from about 35 to about 200 mesh;

(3) from about 0% to about 94% by weight of said tablet of an inorganic salt which is inert to the formula and is selected from the group consisting of sodium sulfate, sodium chloride, potassium sulfate, potassium chloride, ammonium sulfate, ammonium chloride, and mixtures thereof, said inorganic salt having a particle size of from 35 to 200 mesh; and

(4) from about 0% to about 94% by weight of said tablet of a tablet disintegrating agent selected from the group consisting of:

(a) mixtures of a carbonate selected from the group consisting of sodium bicarbonate, potassium bicarbonate, ammonium bicarbonate, sodium sesquicarbonate, potassium sesquicarbonate, ammonium sesquicarbonate, and mixtures thereof, and an acidifying agent selected from the group consisting of citric acid, acid pyrophosphates containing a cation selected from the group consisting of sodium, potassium and ammonium, and mixtures thereof;

(b) starch;

(c) lactose; and

(d) mixtures thereof, said disintegrating agent having a particle size of from about 35 to about 200 mesh;

by forming the said ingredients into a tablet at a pressure of from about 20 to 600 pounds per square inch;

(B) Spraying from about 1% to 5% by weight of said tablet of a molten, substantially non-hygroscopic, normally waxy fatty amide having a melting point of from about 100° F. to about 300° F., and selected from the group consisting of:

(a) ammonia amides containing from about 7 to about 22 carbon atoms;

(b) N-methyl amides containing an acyl group containing from about 10 to about 22 carbon atoms;

(c) N-isopropyl amides containing an acyl group containing from about 10 to about 22 carbon atoms;

(d) N-isobutyl amides containing an acyl group containing from about 10 to about 18 carbon atoms;

(e) N-ethanol amides containing an acyl group containing from about 7 to about 22 carbon atoms;

(f) N-diethanol amides containing an acyl group containing from about 10 to about 22 carbon atoms; and

(g) mixtures thereof;

onto the surface of the tablet in such a way that at least a portion of the amide becomes interparticulately fused to more than one adjacent particle, and thereafter

(C) Cooling said tablet below the melting point of said amide.

3,318,818

COPPER ACTIVATED STRONTIUM METAPHOSPHATE PHOSPHORS

Richard C. Ropp, North Caldwell, N.J., and Harry D. Layman, Ulster, Pa., assignors to Sylvania Electric Products Inc., a corporation of Delaware

Filed Nov. 14, 1963, Ser. No. 323,822

6 Claims. (Cl. 252—301.4)

1. A red emitting strontium metaphosphate phosphor activated to luminescence by 0.001 to 0.1 mole of copper per two moles of metaphosphate.

3,318,819

COMPOSITION FOR PRESERVING FATTY MATERIALS

Talmadge B. Tribble and Eugene L. Rondenet, Glenview, Ill., assignors to Flavor Corporation of America, Chicago, Ill., a corporation of Delaware

No Drawing. Filed June 17, 1963, Ser. No. 288,468

4 Claims. (Cl. 252—403)

1. A composition for preserving fatty materials consisting essentially of butylated hydroxyanisole and member selected from the group consisting of anthranilic acid, methyl anthranilate and ethyl anthranilate combined in the ratio of substantially 2:1.

3,318,820

REGENERATION OF ALUMINUM HALIDE-ADSORBENT SOLID CATALYST

Herman L. Muller, Valparaiso, Ind., and Tao Ping Li, Park Forest, Ill., assignors to Standard Oil Company, Chicago, Ill., a corporation of Indiana

Filed June 30, 1964, Ser. No. 379,144

6 Claims. (Cl. 252—415)

1. A method of regenerating a used paraffin isomerization catalyst consisting essentially of the reaction product of aluminum chloride and hydroxyl groups of surface-hydroxyl-containing adsorbent solid to provide a regenerated catalyst having substantially greater catalytic activity for isomerization than said used catalyst, which method comprises the steps of (1) removing hydrocarbon boiling above butane from the catalyst by purging said catalyst with a gas inert thereto, (2) treating the catalyst from step (1) with hydrogen gas containing 0 to 5 mol percent of HCl at elevated temperature and pressure for a time of at least about one hour, (3) purging the catalyst from step (2) with gaseous HCl to remove volatile hydrocarbon therefrom, and (4) treating the catalyst from step (3) with HCl at elevated pressure and a temperature in the range of about 0 to about 200° F.

3,318,821

METHOD OF MANUFACTURING A FLUORINE-CONTAINING REFRACTORY INORGANIC OXIDE COMPOSITE

Ernest L. Pollitzer and Vladimir Haensel, Hinsdale, and Herman S. Bloch, Skokie, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

No Drawing. Filed Mar. 2, 1966, Ser. No. 531,028

7 Claims. (Cl. 252—442)

1. A method for manufacturing a hydrocarbon conversion catalyst which comprises treating at a temperature of between 450° C. to about 700° C. a composite consisting essentially of a fluorine-containing refractory inorganic oxide free of reducible components and having oxygen on the surface thereof and characterized as having a Hammett acidity function value of less than −8.0 with a substantially anhydrous oxygen-free gas which is inert to all components of said composite for a time sufficient to remove said oxygen from said composite.

4. The method of claim 1 further characterized in that said inorganic oxide is silica-alumina.

3,318,822

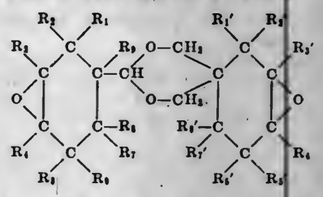
EPOXIDIZED HYDROAROMATIC ACETALS

Hans Batzer, Arlesheim, Erwin Nikles, Allschwil, Otto Ernst, Pfeffingen, and Daniel Porret, Basel, Switzerland, assignors to Ciba Limited, Basel, Switzerland, a Swiss firm

No Drawing. Original application July 21, 1959, Ser. No. 828,472. Divided and this application Mar. 11, 1964, Ser. No. 351,205

6 Claims. (Cl. 260—2)

1. A hardenable composition of matter consisting essentially of an epoxide of the general formula



in which R_1 and R_5 are selected from the group consisting of hydrogen and lower alkyl and together R_1 and R_5 form the methylene radical, R_2, R_2', R_3, R_3', R_4, R_4' R_6, R_6', R_7, R_7', R_8, R_8', and R_9, each represents a member selected from the class consisting of a hydrogen atom and a lower alkyl radical and as curing agent therefor, in an amount providing 0.3 to 0.9 gram equivalents of anhydride group per gram equivalent of epoxide group, an anhydride of a polycarboxylic acid.

3,318,823

POLYMERIC COMPOUNDS CONTAINING SILICON-NITROGEN BONDS

Bernard John Aylett, 12 Park Road, Radlett, Hertfordshire, England, and George Murray Burnett, 66 Queen's Road, Aberdeen, Scotland

No Drawing. Filed May 25, 1966, Ser. No. 552,721

Claims priority, application Great Britain, Jan. 19, 1961, 2,178/61

13 Claims. (Cl. 260—2)

1. Polymers having repeating units of structural formula

$$—SiH_2—NR—$$

wherein R represents a lower alkyl group containing up to six carbon atoms or an aryl group containing up to seven carbon atoms, said polymers being thermally stable up to about 400° C.

4. Process for preparing polymers having repeating units of the structural formula

$$—SiH_2—NR—$$

where R represents a lower alkyl group containing up to six carbon atoms or an aryl group containing up to seven carbon atoms, which comprises reacting one molar proportion of silylene iodide with 3 to 3.05 molar proportions of a primary amine of formula RNH_2, wherein R is as hereinbefore defined, at a temperature from about −60° to about 25° C. in an inert environment and in the presence of an inert non-complexing solvent medium.

8. Process for preparing polymers having repeating units of the structural formula

$$—SiH_2—NR—$$

wherein R represents a lower alkyl group containing up to six carbon atoms or an aryl group containing up to seven carbon atoms, which comprises reacting a bis-(diorganoamino)-silane of formula

$$SiH_2(NR'_2)_2$$

wherein R represents a lower alkyl group containing up to six carbon atoms or an aryl group containing up to seven carbon atoms, with a substantially equimolar proportion of a primary amine of formula RNH_2 wherein R is as hereinbefore defined, said reaction being carried out in an inert environment and at a temperature between ambient temperature and about 120° C.

11. Process for preparing polymers having repeating units of the structural formula

$$—SiH_2—NR—$$

wherein R represents a lower alkyl group containing up to six carbon atoms or an aryl group containing up to seven carbon atoms, which comprises heating an organodisilylamine having the structural formula

$$(SiH_3)_2NR$$

wherein R is as hereinbefore defined, at a temperature between about 300° and 600° C.

3,318,824

ISOCYANATE-CONTAINING VINYL ETHER FOAMS

Nell Bonnette Graham, St. Hilaire, Quebec, Canada, assignor to Canadian Industries Limited, Montreal, Quebec, Canada, a corporation of Canada

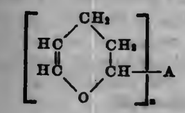
No Drawing. Filed Nov. 30, 1964, Ser. No. 414,835

Claims priority, application Great Britain, Dec. 30, 1963, 51,196/63

9 Claims. (Cl. 260—2.5)

4. A process for producing foamed cellular polymeric material comprising mixing together, under reacting conditions, a composition consisting essentially of:

(a) a polymerizable dihydropyranyl compound of the formula:



wherein *n* is an integer which is 2 or 3, and A is a linking radical which contains an ether, ester or carbamate group, and has a valency equal to *n*;

(b) a dihydropyranyl group-reactive compound selected from the group consisting of polyhydric phenols, polyhydric alcohols, epoxidized materials, polycarboxylic acids, polyamides, polycarbamates, and α,β-monoethylenically unsaturated compounds, wherein the number of dihydropyranyl groups in (a) is greater than the number of dihydropyranyl group-reactive groups in (b), and wherein the sum of the weights of (a) and (b) are from about 58% to 97% by weight of the composition;

(c) from about 2% to about 30% by weight of a volatile foaming agent;

(d) from about 0.005% to about 2.0% by weight of a catalyst; and

(e) from about 1% to about 10% by weight of an organic isocyanate.

3,318,825

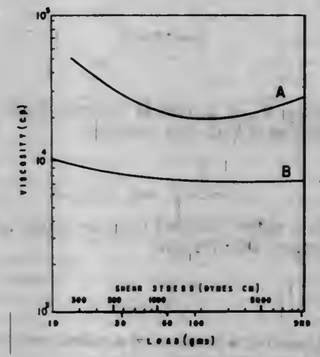
VINYL POLYMER MIXTURE ADAPTED FOR THE PREPARATION OF DISPERSIONS COMPOSED OF POLYVINYLCHLORIDE AND PLASTICIZERS

Eduard Enk and Herbert Reinecke, Burghausen, Upper Bavaria, Germany, assignors to Wacker-Chemie G.m.b.H., Munich, Germany, a firm of Germany

Filed Sept. 8, 1961, Ser. No. 136,809

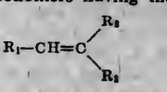
Claims priority, application Germany, Sept. 13, 1960, W 28,558

9 Claims. (Cl. 260—8)

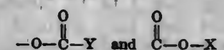


1. A vinyl polymer mixture adapted for the preparation of dispersions, said vinyl polymer mixture consisting of

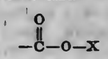
(a) 20 to 99% by weight, based on the amount of vinyl polymer of polymerizates of monomers selected from the group consisting of vinylchloride and mixtures containing at least 80% vinylchloride with polymerizable monomers having the formula



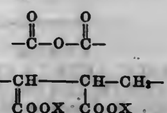
wherein R_1 is a radical selected from the group consisting of hydrogen, bromine,



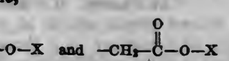
R_2 is a radical selected from the group consisting of hydrogen, chlorine and



and together with R_1 form a radical selected from the group consisting of



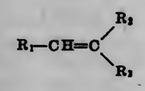
R_3 is a radical selected from the group consisting of hydrogen, chlorine,



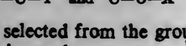
with the proviso that when R_3 is selected from the group consisting of hydrogen, chlorine and $—CH_3$,

only one of R_1 and R_2 can represent hydrogen; Y is a radical selected from the group consisting of hydrogen, lower alkyl and phenyl; and X is a radical selected from the group consisting of hydrogen and alkyl having from 1 to 17 carbon atoms, which polymerizates have been obtained by free-radical polymerization in aqueous dispersions in the presence of emulsifiers selected from the group consisting of ionic emulsifiers and mixtures of ionic and non-ionic emulsifiers, but in the substantial absence of protective colloids and

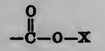
(b) 80 to 1% by weight, based on the amount of vinyl polymer of polymerizates of monomers selected from the group consisting of vinylchloride and mixtures containing at least 80% vinylchloride with polymerizable monomers having the formula



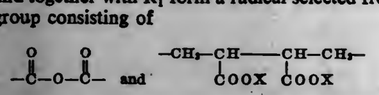
wherein R_1 is a radical selected from the group consisting of hydrogen, bromine,



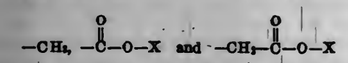
R_2 is a radical selected from the group consisting of hydrogen, chlorine and



and together with R_1 form a radical selected from the group consisting of



R_3 is a radical selected from the group consisting of hydrogen, chlorine,



with the proviso that when R_3 is selected from the group consisting of hydrogen, chlorine and $-CH_3$, only one of R_1 and R_2 can represent hydrogen; Y is a radical selected from the group consisting of hydrogen, lower alkyl and phenyl; and X is a radical selected from the group consisting of hydrogen and alkyl having from 1 to 17 carbon atoms, which polymerizates have been obtained by free-radical polymerization of a stable, aqueous monomer dispersion prepared prior to polymerization, in the presence of 0.3 to 2% by weight, based on the weight of the monomers of a protective colloid, and from 0.1 to 20% by weight, based on the weight of the protective colloid of an emulsifier selected from the group consisting of ionic emulsifiers, non-ionic emulsifiers and mixtures thereof.

3,318,826

MOLDED PLASTIC ARTICLE CONTAINING POLYMER GRAFTED FILLER OR REINFORCEMENT

Douglas J. Bridgeford, Danville, Ill., assignor to Tee-Pak, Inc., Chicago, Ill., a corporation of Illinois

No Drawing. Filed Feb. 27, 1963, Ser. No. 261,525
21 Claims. (Cl. 260—17.4)

1. A shaped plastic article of manufacture consisting essentially of a mixture of a thermally moldable plastic matrix and a filler or reinforcement material, said filler or reinforcement material having a polymer of an olefinically unsaturated monomer previously deposited in and at least partially graft polymerized in situ thereto.

3,318,827

STABILIZED POLYAMIDE COMPOSITIONS CONTAINING COPPER OR A COPPER COMPOUND AND ELEMENTARY IODINE

Kenneth Whittaker, Sutton Coldfield, England, assignor to British Nylon Spinners Limited, Pontypool, Monmouthshire, England

No Drawing. Filed Feb. 24, 1966, Ser. No. 529,661
Claims priority, application Great Britain, Feb. 9, 1961, 4,842/61
12 Claims. (Cl. 260—18)

1. Synthetic linear polyamides of improved resistance to deterioration by heat and oxygen, having incorporated therein from 0.001 to 0.025% by weight of said polyamide of copper in the form selected from a member of the group consisting of copper, copper compounds which are soluble in said polyamide and copper compounds which are insoluble in said polyamide but which are dispersible in said polyamide, together with 0.01 to 0.25% by weight of said polyamide of elementary iodine.

3,318,828

STORAGE STABLE ISOCYANATE-MODIFIED DRYING OIL AND DRYING OIL-ALKYD COMPOSITIONS AND PROCESS FOR PREPARATION THEREOF

Jerome A. Seiner, Pittsburgh, Pa., assignor to Pittsburgh Plate Glass Company, Pittsburgh, Pa., a corporation of Pennsylvania

No Drawing. Filed May 23, 1962, Ser. No. 196,924
15 Claims. (Cl. 260—22)

1. A method of producing ungelled, storage-stable, isocyanate-modified oil compositions essentially free of residual isocyanate groups which comprises reacting an oil selected from the group consisting of drying, semi-drying and non-drying vegetable and marine oils and oil acids thereof with a polyol and an organic isocyanate to produce a urethane oil, and after at least about 95 percent of said organic isocyanate has reacted mixing said urethane oil with water in an amount sufficient to react with essentially all of the free isocyanate groups in said urethane oil.

5. A method of producing ungelled, storage-stable, isocyanate-modified oil compositions essentially free of residual isocyanate groups which comprises reacting an hydroxyl-containing alkyd resin modified with an oil selected from the group consisting of drying, semi-drying and non-drying vegetable and marine oils and oil acids thereof, with an organic isocyanate to produce a urethane oil, and after at least about 95 percent of said organic isocyanate has reacted mixing said urethane oil with water in an amount sufficient to react with essentially all the free isocyanate groups in said urethane oil.

3,318,829

POLYVINYL ACETATE COMPOSITIONS CONTAINING AMMONIUM BORATE COMPOUNDS

Mitchell P. Ptasienski, Elk Grove Village, Ill., assignor to United States Gypsum Company, a corporation of Delaware

No Drawing. Filed Sept. 10, 1962, Ser. No. 222,661
15 Claims. (Cl. 260—29.6)

1. A composition comprising a water dispersion of polyvinyl acetate stable to borate ions and an amount of an ammonium borate compound sufficient to reduce the metal corrosion-inducing characteristics of the composition.

3,318,830

AQUEOUS EMULSIONS OF VINYLACETATE-2-ETHYL HEXYL ACRYLATE-VINYL SULFONIC ACID TERPOLYMERS, AND METHOD OF PREPARATION

John R. Condon, Lebanon, N.J., and Julius J. Breziński, St. Albans, and Howard M. Rife, Charleston, W. Va., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Continuation of application Ser. No. 64,255, Oct. 24, 1960. This application Dec. 21, 1964, Ser. No. 420,103
25 Claims. (Cl. 260—29.6)

1. A mixture suitable for use in the preparation of water-based paints consisting of:

(a) from 37.5 percent by weight to 53.4 percent by weight of vinyl acetate;

(b) from 4.0 percent by weight to 14.5 percent by weight of 2-ethylhexyl acrylate;

(c) from 0.15 percent by weight to 0.50 percent by weight of a compound selected from the group consisting of alkali metal and ammonium salts of vinyl sulfonic acid;

(d) from 0.20 percent by weight to 0.60 percent by weight of a compound selected from the group consisting of alkali metal and ammonium alkyl sulfate salts wherein the alkyl radicals each contain from 10 to 18 carbon atoms;

(e) from 0.80 percent by weight to 2.50 percent by weight of a polyalkylene glycol ether selected from the group consisting of: polyalkylene glycol ethers represented by the general formula

$$HO—(CH_2CH_2O)_m—(CH_2CH(CH_3)O)_n—(CH_2CH_2O)_o—H$$

wherein *m*, *n* and *o* are whole integers having a value sufficient to impart an average molecular weight of from 2,000 to 3,500 to the polyalkylene glycol ether, there being from 20 percent by weight to 80 percent by weight of $—CH_2CH_2O—$ radicals present in said polyalkylene glycol ether; polyalkylene glycol ethers represented by the general formula

$$RO—(CH_2CH(CH_3)O)_p—(CH_2CH_2O)_q—H$$

wherein R represents an alkyl radical having from 1 to 8 carbon atoms, and *p* and *q* are whole integers having a value sufficient to impart an average molecular weight of from 2,000 to 3,500 to the polyalkylene glycol ether, there being from 20 percent by weight to 80 percent by weight of $—CH_2CH_2O—$ radicals present in said polyalkylene glycol ether; and polyalkylene glycol ethers represented by the general formula

$$RO—Z—(CH_2CH_2O)_r—H$$

wherein R represents an alkyl radical having from 1 to 8 carbon atoms, Z represents a combination of $—CH_2CH_2O—$ and $—CH_2CH(CH_3)O—$ radicals containing from 2 percent by weight to 5 percent by weight of $—CH_2CH_2O—$ radicals, and *r* is a whole integer, there being a sufficient number of

$$—CH_2CH_2O—$$

and $—CH_2CH(CH_3)O—$ radicals present to impart an average molecular weight of from 2,000 to 3,500 to the polyalkylene glycol ether, and there being from 20 percent by weight to 80 percent by weight of $—CH_2CH_2O—$ radicals present in said polyalkylene glycol ether;

(f) from 0.05 percent by weight to 0.25 percent by weight of a water-soluble vinyl polymerization catalyst; and

(g) from 38.65 percent by weight to 48.95 percent by weight of water.

3,318,831

PROCESS FOR PREPARING HIGH SOLIDS CONCENTRATED LATEX

Kjetil Gaasland, Sarpsborg, Norway, assignor to Copolymer Rubber & Chemical Corporation, a corporation of Louisiana

No Drawing. Filed Dec. 16, 1963, Ser. No. 330,627
15 Claims. (Cl. 260—29.7)

1. In a process for preparing synthetic rubbery polymer latex by emulsion polymerization including the step of polymerizing ethylenically unsaturated monomeric material which produces latex of a synthetic rubbery polymer upon polymerization while dispersed in an aqueous medium in the presence of a micelle producing surfactant for the emulsion polymerization of the said monomeric material and a polymerization catalyst therefor, the said monomeric material being at least one substance selected from the group consisting of chloroprene, conjugated diolefins homopolymerizable to produce rubbery polymers and mixtures of conjugated diolefins and monoethylenically unsaturated monomers copolymerizable therewith to produce rubbery copolymers, said mixtures containing up to 50% by weight of the monoethylenically unsaturated monomer, the improvement which comprises:

(a) polymerizing a first increment of the said monomeric material in the presence of the surfactant and the polymerization catalyst until a portion of the said first increment of monomeric material has been converted to polymer and unreacted monomeric material has been absorbed by the polymer particles,

(b) subjecting the resulting latex to sufficiently vigorous agitation to cause agglomeration of polymer particles containing absorbed unreacted monomeric material to thereby produce a relatively large average polymer particle size and release free surfactant into the aqueous phase of the latex, the latex being agglomerated by agitation with a radial agitator operating at a peripheral speed of about 800–4000 feet per minute,

(c) adding at least one additional increment of the said monomeric material to the latex, the additional increment of the said monomeric material having about the same monomeric composition as the said first increment and being added in an amount whereby free monomeric material is present in the latex and new polymer particles are formed with continued polymerization in the presence of free surfactant and the polymerization catalyst, and

(d) subjecting the latex containing the said free added monomeric material to further polymerization in the presence of free surfactant and the polymerization catalyst under relatively mild agitation conditions to thereby produce additional small polymer particles in the latex.

3,318,832

PROCESS FOR PEPTISING SULPHUR MODIFIED CHLOROPRENE LATEX

Anthony Archibald Sparks, Epsom Downs, and Robert Charles Moore, Sutton, England, assignors to The Distillers Company Limited, Edinburgh, Scotland, a British company

No Drawing. Filed June 2, 1964, Ser. No. 372,118
14 Claims. (Cl. 260—29.7)

1. A process for the peptisation of sulphur modified polychloroprene latex which comprises peptising a sulphur modified polychloroprene latex in the presence of

an added water soluble inorganic compound selected from the group consisting of thiosulphate, sulphide, dithionite and mixtures thereof.

3,318,833

COMPOSITIONS OF VINYL CHLORIDE POLYMERS, SOLVENTS THEREFOR AND N,N - DIALKYL FATTY ACID AMIDES AND SHAPED ARTICLES THEREFROM

Paul R. Cox, Jr., Cary, N.C., and William E. Lanier, Hartselle, Ala., assignors to Monsanto Company, a corporation of Delaware

No Drawing. Filed Oct. 9, 1963, Ser. No. 314,851
3 Claims. (Cl. 260—30.4)

1. A new vinyl chloride resinous composition comprising a homogeneous mixture of from about 10 to 25 percent of a polymer selected from the group consisting of polyvinyl chloride and a copolymer containing 95 percent of vinyl chloride and 5 percent of vinyl acetate, from about 20 to 80 percent of a solvent for said polymer selected from the group consisting of N,N-dimethylformamide, N,N-dimethylacetamide, tetrahydrofuran, and cyclohexanone, and from about 10 to 50 percent of an additive selected from the group consisting of (1) N,N-di-n-butyllauramide, (2) an amide mixture containing 95 percent of N,N-dimethyllauramide, 3 percent of N,N-dimethylmyristamide, and 2 percent of N,N-dimethylcapramide, (3) an amide mixture containing 80 percent of N,N-dimethyloleamide, 5 percent of N,N-dimethylmyristamide, 5 percent of N,N-dimethylpalmitamide, 5 percent of N,N-dimethylstearamide, and 5 percent of N,N-dimethylinoleamide, (4) an amide mixture containing 50 percent of N,N-dimethylcaprylamide, 40 percent of N,N-dimethylcapramide, 5 percent of N,N-dimethylcaproamide, and 5 percent of N,N-dimethyllauramide, and (5) an amide mixture containing 50 percent of N,N-dimethylstearamide, 40 percent of N,N-dimethylpalmitamide, 5 percent of N,N-dimethylmyristamide, and 5 percent of N,N-dimethyloleamide.

3,318,834

COLLOIDALLY STABLE SOLVENT CEMENT COMPOSITIONS COMPRISING CHLOROPRENE POLYMERS, PHENDIC RESINS, AND POLYISOCYANATES

Richard M. Tabibian, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Jan. 30, 1964, Ser. No. 341,416
9 Claims. (Cl. 260—31.2)

1. A process for preparing a non-settling solvent cement composition comprising a volatile organic solvent, said solvent being inert with respect to the isocyanate, a chloroprene polymer, zinc oxide, magnesia, an organic polyisocyanate and the reaction product of magnesia with an oil-soluble heat-reactive phenolic resin, said resin having been prepared by reacting formaldehyde with a substituted phenol under alkaline conditions, in which process said chloroprene polymer, zinc oxide and magnesia are incorporated into a portion of said solvent so as to form component (*a*), and component (*b*), which is a solution in another portion of said solvent of the reaction product of magnesia and said phenolic resin, is added to component (*a*), the improvement comprising adding to component (*a*), before the addition thereto of component (*b*), at least 0.05 percent by weight, based on the total weight of the solvent cement composition, of an organic isocyanate containing at least 3 isocyanato groups per molecule, which isocyanate is a polyaryl polyisocyanate in which each isocyanato radical is a substituent on a different aryl nucleus.

3,318,835

COMPOSITIONS CONTAINING POLYPROPYLENE AND AN ESTER PLASTICIZER

Hugh J. Hagemeyer, Jr., Vernon K. Park, and Alfred G. Robinson III, Longview, Tex., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed Mar. 10, 1965, Ser. No. 438,783
17 Claims. (Cl. 260—31.6)

17. Solid polypropylene in admixture with a polyester of 2,2,4-trimethyl-1,3-pentanediol mono (alkanoate containing 2 to 8 carbon atoms) with a dicarboxylic acid selected from oxalic acid, malonic acid, succinic acid, glutaric acid, 2,2-dimethylglutaric acid, adipic acid, 2,2,4-trimethyl adipic acid, azelaic acid, sebacic acid, maleic acid, fumaric acid, glutaconic acid, itaconic acid, allylmalonic acid, o-phthalic acid, isophthalic acid, terephthalic acid, diglycolic acid or 1,4-cyclohexane dicarboxylic acid, said polyester comprising about 1 to 25% by weight of the admixture.

3,318,836

VINYL PLASTISOLS STABILIZED WITH ALIPHATIC ALCOHOLS

Samuel Francis Joyce III, Ballwin, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed Feb. 25, 1965, Ser. No. 435,334
19 Claims. (Cl. 260—31.8)

1. An improved plastisol which comprises a vinylidene polymer of particle size in the range of about 0.05 micron to about 200 microns selected from the group consisting of homopolymers of vinylidene chloride and copolymers of vinylidene chloride with ethylenically unsaturated monomers copolymerizable therewith containing at least 50% by weight of vinylidene chloride, homopolymers of vinyl chloride and copolymers of vinyl chloride with ethylenically unsaturated monomers copolymerizable therewith containing at least 50% by weight of vinyl chloride dispersed in from about 25 to about 150 parts per 100 parts by weight of polymer of a primary liquid plasticizer therefor and from about 0.5 to about 10 parts per 100 parts by weight of polymer of a monohydric aliphatic alcohol having from 1 to 18 carbon atoms.

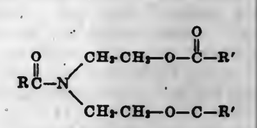
3,318,837

DIESTERAMIDE PLASTICIZERS FOR VINYL CHLORIDE AND NITRILE RUBBER COMPOSITIONS

Frank C. Magne, Robert R. Mod, and Evald L. Skau, New Orleans, La., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Original application Jan. 22, 1963, Ser. No. 263,370. Divided and this application Mar. 1, 1966, Ser. No. 549,079
1 Claim. (Cl. 260—32.6)

A nitrile rubber and softener composition containing about 20 parts by weight of softener per 100 parts by weight of nitrile rubber, said softener corresponding to the formula



wherein the



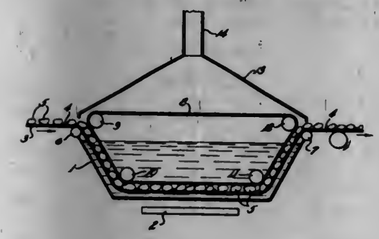
moiety represents the composite acyls of mixed cottonseed oil fatty acids selectively hydrogenated so that all polyunsaturation has been reduced to monounsaturation and R' is methyl, said nitrile rubber containing about 33% acrylonitrile.

3,318,838

METHOD OF RECLAIMING AND TREATING SYNTHETIC RUBBERS

James A. Beverly, 1394 Garman Road, Akron, Ohio 44313

Filed Mar. 5, 1964, Ser. No. 349,551
10 Claims. (Cl. 260—33.6)



1. A method of treatment of scrap synthetic polymeric materials containing large amounts of water therein to soften and render usable such polymer material comprising the steps of

immersing polymer particles in a rubber compounding oil,

heating the rubber compounding oil to about 350° to 420° F. to heat the polymer particles immersed therein to above 212° F.,

completely submerging the polymer particles in the rubber compounding oil while it is being heated to eliminate oxidation of the polymer particles as the heating of the polymer particles causes the water contained therein to be released and boiled off, the heating of the polymer particles also facilitating combination of at least some of the rubber compounding oil with the polymer particles, and

removing the polymer particles from the heated compounding oil to obtain a softened usable product.

3,318,839

BUILDING MATERIAL COMPOSITIONS FOR THE MANUFACTURE OF WATER-REPELLENT PRODUCTS

Helmut Weissbach, Opladen, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a German corporation

No Drawing. Filed Feb. 12, 1963, Ser. No. 257,845
Claims priority, application Germany, Feb. 19, 1962, F 36,068; May 15, 1962, F 36,807
2 Claims. (Cl. 260—37)

1. A building material composition comprising a binding material selected from the group consisting of plaster mortars, concrete, lime and asbestos cement, a pulverulent methyl polysiloxane insoluble in water having a grain size of below 1μ, the weight of said methyl polysiloxane being about 0.5% of the entire composition suitable for imparting water-repellency to masonry, and from 1 to 5 percent by weight of the resulting dry composition of finely powdered magnesium carbonate.

3,318,840

FOUNDRY COMPOSITION AND METHOD OF MAKING SAME

Bonheur M. Weston, deceased, late of St. Clair Shores, Mich., by George A. Cooney, executor, 17177 Parkside Ave., Detroit, Mich. 48221

No Drawing. Filed July 5, 1966, Ser. No. 564,502
5 Claims. (Cl. 260—41)

1. The method comprising: first dry mixing sand and 1%–5% by weight of a finely ground non-thermosetting hydrocarbon resin having at least 15% oily constituents, second mixing into the sand-resin composition just enough solvent to cause the resin particles to adhere to the sand particles while leaving the same practically dry and free flowing, third mulling into the sand-resin-solvent mixture 1%–5% by weight of a baked strength resin which is essentially free from alcohol, solvent or oily vehicle which would further plasticize or dissolve said hydrocarbon resin and fourth adding additional solvent in an amount sufficient to render the mixture cohesive.

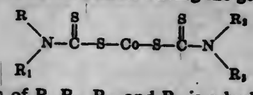
3,318,841

STABILIZED ISOTACTIC POLYPROPYLENE CONTAINING A COBALT DITHIOCARBAMATE

Arthur R. Tomlinson, Garden City, Chester, and Harry H. Hall and William F. Geigle, Springfield, Pa.; said Tomlinson and said Hall assignors, by mesne assignments, to Avisun Corporation, Philadelphia, Pa., a corporation of Delaware, and said Geigle assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

No Drawing. Filed June 7, 1960, Ser. No. 34,384
7 Claims. (Cl. 260—45.75)

1. A light-stable composition comprising solid, isotactic, substantially crystalline polypropylene and a stabilizing quantity of a dithiocarbamate having the general formula:



wherein each of R, R_1, R_2, and R_2 is a hydrocarbon radical containing 1 to about 18 carbon atoms and M is selected from the group consisting of nickel and cobalt.

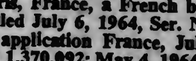
3,318,842

STABILIZED POLYOLEFINS CONTAINING DILAURYL THIODIPROPIONATE AND HYDROXYARYLOXAMIC ACID ESTERS

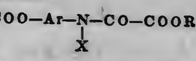
Albert Marie Ernest Blachere, Villeurbanne, and Claude Jean Maurice Breant, Lyon, France, assignors to Rhone-Poulenc S.A., Paris, France, a French body corporate

No Drawing. Filed July 6, 1964, Ser. No. 380,624
Claims priority, application France, July 9, 1963, 940,876, Patent 1,370,092; May 4, 1964, 973,233
3 Claims. (Cl. 260—45.85)

1. A polyolefin composition in which the olefin is a mono-olefin of from 2 to 10 carbon atoms, containing 0.01 to 3% of dilauryl thiodipropionate and 0.01 to 3% of an ester of oxamic acid of the formula:



in which Ar is a phenylene or naphthylene radical or such a radical substituted by a lower alkyl group, the radical YO— being in any position in the phenyl or naphthyl ring; R is alkyl of 2 to 18 carbon atoms; X is hydrogen or phenyl; and Y is hydrogen, ethoxalyloxy, ethoxymalonyloxy, or a group of formula:



in which X, R and Ar are as hereinbefore defined.

3,318,843

PROCESS FOR MAKING EQUILIBRATION OF ORGANOPOLYSILOXANES USING PHOSPHOROUS-CONTAINING CATALYSTS

Ben A. Bluestein, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York

No Drawing. Filed Dec. 24, 1962, Ser. No. 246,668
5 Claims. (Cl. 260—46.5)

1. A process for making carbalkoxyalkylpolysiloxane copolymers having a viscosity of greater than 100,000 centipoises at 25° C. of the formula:



by the equilibration of an organopolysiloxane composed of from 0 to 99.9% by weight of organosiloxane hydrolyzate having organosiloxy units included by the formula,

$$(R''')_4SiO_{\frac{(4-d)}{2}}$$

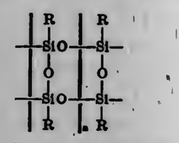
and from 0.1% to 100% by weight of carbalkoxyalkylsiloxane hydrolyzate having carbalkoxysiloxy units included by the formula,

$$ROOCR'Si(R'')_e O_{\frac{3-e}{2}}$$

which process comprises (1) forming a mixture composed of by weight (A) 100 parts of said organopolysiloxane and (B) 0.1 to 10 parts of an equilibration catalyst formed by reacting at a temperature in the range between −10° C. to 100° C. water, and 0.3 to 10 moles, per mole of water of a member selected from the class consisting of phosphorous pentachloride and a phosphorous oxygen chloride, and (2) heating said mixture of (1) to effect the equilibration of (A), where R is a member selected from the class consisting of monovalent hydrocarbon radicals, halogenated monovalent hydrocarbon radicals, and monovalent alkoxyalkyl radicals, R' is an alkylene radical, R'' is a member selected from the class consisting of monovalent hydrocarbon radicals and halogenated monovalent hydrocarbon radicals and R''' is a member selected from the class consisting of monovalent hydrocarbon radicals, halogenated monovalent hydrocarbon radicals and cyanoalkyl radicals, *a* is equal to from .001 to 1, inclusive, *b* is equal to from 0 to 2, inclusive, *c* is equal to from 0 to 2.5, inclusive, *d* is an integer equal to from 1 to 3, inclusive, and *e* is an integer equal to from 0 to 2, inclusive, and the sum of *a*, *b* and *c* is equal to from 1.5 to 3, inclusive.

3,318,844
ORGANOPOLYSILOXANES
Karl W. Krantz, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York
No Drawing. Filed Dec. 23, 1963, Ser. No. 332,948
3 Claims. (Cl. 260—46.5)

1. A benzene soluble organosiloxane polymer having an intrinsic viscosity in benzene at 25° of at least 0.05 dl./g. consisting essentially of polymer segments of the formula $(RSiO_{1.5})_n$, where said polymer segments have the configuration:



the terminals of said polymer have the formula:

$$OSiHR'_2$$

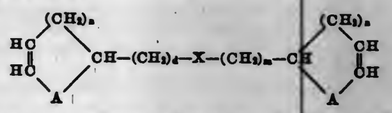
R is aryl, and R' is selected from the group consisting of alkyl, aryl and mixtures thereof and *n* has a value of from 25 to 500, inclusive.

3,318,845
POLYCARBONATE PREPARATION
Joseph J. Dietrich, Copley, and Henry C. Stevens, Akron, Ohio, assignors, by mesne assignments, to Pittsburgh Plate Glass Company
No Drawing. Filed June 12, 1958, Ser. No. 741,449
23 Claims. (Cl. 260—47)

3. The method of preparing high molecular weight aromatic polycarbonate which comprises phosgenating an aqueous liquid medium formed from an aromatic diol having two phenolic hydroxyl groups and alkali metal hydroxide, limiting throughout a substantial portion of the phosgenation period the amount of alkali metal hydroxide to less than 2 moles of alkali metal hydroxide per mole of aromatic diol and before completing the formation of high molecular weight polycarbonate adding further alkali metal hydroxide to the reaction medium until the total alkali metal hydroxide is between 2.5 and 4 moles per mole of aromatic diol.

3,318,846
RESINOUS PRODUCTS FROM UNSATURATED HETEROCYCLIC COMPOUNDS AND METHOD FOR PREPARING THE SAME
Curtis W. Smith, Berkeley, and Thomas F. Mika, Orinda, Calif., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed May 10, 1963, Ser. No. 279,619
12 Claims. (Cl. 260—47)

1. A resinous product comprising the product of reaction in the presence of an acid catalyst of (1) a compound of the formula



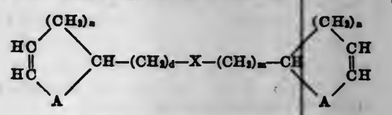
wherein A is a member of the group consisting of oxygen and sulfur, X is a member of the group consisting of hydrocarbon radicals, ether oxygen atoms,



and —S— radicals, wherein *n* is an integer of at least 1, *d* and *m* are integers of 0 to 6, and (2) an aliphatic or aromatic compound containing at least two —OH groups and no other reactive groups, the reaction being conducted at a temperature between 0° C. and 250° C., and compound (1) and compound (2) being combined in a chemical equivalent ratio of 5:1 to 1:5 with an equivalent amount referring to that amount needed to furnish one hydroxyl hydrogen atom for every double bond present in compound (1).

7. A resinous product of reaction in the presence of an acid catalyst of (1) 3,4-dihydro-1,2-pyran-2-methyl 3,4-dihydro-1,2-pyran-2-carboxylate and (2) glycerol, the reaction being conducted at a temperature between 0° C. and 250° C., and compound (1) and compound (2) being combined in a chemical equivalent ratio of 5:1 to 1:5 with an equivalent amount referring to that amount needed to furnish one hydroxyl hydrogen atom for every double bond present in compound (1).

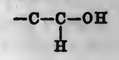
8. A process for preparing a resinous product comprising reacting in the presence of an acid catalyst (1) a heterocyclic compound of the formula



wherein A is a member of the group consisting of oxygen sulfur, X is a member of the group consisting of hydrocarbon radicals, ether oxygen atoms,



and —S— radicals, wherein *n* is an integer of at least 1, *d* and *m* are integers of 0 to 6, and (2) an organic compound containing at least two



groups and no other reactive group, at a temperature between 0° C. and 250° C., compound (1) and compound (2) being combined in a chemical equivalent ratio of 5:1 to 1:5 with an equivalent amount referring to that amount needed to furnish one hydroxyl hydrogen atom for every double bond present in the heterocyclic compound.

11. A process as in claim 8 wherein the heterocyclic compound is 3,4-dihydro-1,2-pyran-2-methyl 3,4-dihydro-1,2-pyran-2-carboxylate, and the hydroxyl compound is allyloxy-2,4,6-trimethylol benzene.

3,318,847
POLYACETAL STABILISATION PROCESS
Charles Kenneth Warren, Welwyn Garden City, England, assignor to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain
No Drawing. Filed Feb. 25, 1963, Ser. No. 260,884
Claims priority, application Great Britain, Mar. 2, 1962, 8,157/62
5 Claims. (Cl. 260—67)

1. In a process for preparing a thermally stable crystalline polyacetal by treating a crystalline polymer derived from the polymerization of an aldehyde which contains from two to ten carbon atoms and in which at least one hydrogen atom is attached to the carbon atom attached to the carbonyl group with the anhydride of a carboxylic acid in liquid form in the presence of a tertiary amine and in the substantial absence of a solvent, the improvement of thereafter isolating the polyaldehyde dicarboxylate so obtained and subjecting the same to a heat treatment at a temperature of at least 180° C. for at least one hour under acid removal conditions to convert substantially the ester chain terminal groups to α,β-monoethylenically unsaturated ether terminal groups.

5. A thermally stable crystalline polyacetal whenever prepared by a process according to claim 1.

3,318,848
MELT HYDROLYSIS OF OXYMETHYLENE COPOLYMERS
Charles M. Clarke, Springfield, N.J., assignor to Celanese Corporation of America, New York, N. Y., a corporation of Delaware
No Drawing. Filed June 20, 1963, Ser. No. 289,389
6 Claims. (Cl. 260—67)

1. In a process for the stabilization of a normally solid oxymethylene copolymer having a melting point above about 150° C., the molecules of said copolymer containing from 60 to 99.6 mol percent of comparatively unstable monomeric oxymethylene units interspersed with comparatively stable monomeric —OR— units wherein R is a divalent radical containing at least two carbon atoms directly linked to each other and positioned in the polymer chain between the two valences, with any substituents on said R radical being inert, at least part of the terminal portions of said molecules comprising said unstable monomeric units, the improvement which comprises

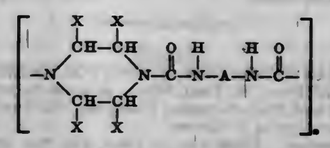
(a) introducing into a reaction zone said copolymer and from about 2 to about 25 weight percent, based on the copolymer, of a reactant selected from the class consisting of water, alcohols, and mixtures thereof,

(b) forming a melt consisting essentially of the copolymer and reactant in said zone by maintaining the reaction zone at a temperature in the range of from about 160 to 240° C., and at a pressure in the range of from about 150 to 10,000 p.s.i.a., and

(c) reacting the molten copolymer with the reactant under the above conditions of temperature and pressure for a period of time in the range of from about 0.1 to about 15 minutes to remove unstable monomeric oxymethylene units from the terminal portion of the copolymer molecules so that at least 90 percent of the resulting polymeric chains of the molecules are terminated by the stable monomeric units.

3,318,849
LINEAR SYNTHETIC POLYMERIC FIBER
Walter W. Moseley, Jr., and Robert G. Parrish, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Original application Mar. 28, 1961, Ser. No. 98,777. Divided and this application Mar. 10, 1965, Ser. No. 438,779
4 Claims. (Cl. 260—77.5)

1. A linear fully synthetic polymeric fiber structure having a molecular orientation of at least 60%, a tenacity of at least 9 g. per denier and an initial modulus of at least 180 g. per denier, and prepared by extruding a polymer having a repeating unit of the formula



wherein X is a radical selected from the group consisting of hydrogen, methyl and ethyl, A is a divalent organic ring-containing radical wherein the nitrogen is attached directly to an atom of a ring and *n* is an integer large enough to provide a polymer having an inherent viscosity of at least 0.5, through an orifice thereby forming a fiber structure and drawing said fiber structure while in a substantially amorphous plastic state at a temperature above the glass transition temperature and below the melting temperature of said polymeric material at a draw ratio between about 1.8× to about 4.5×.

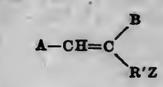
3,318,850
VINYLIDENE FLUORIDE INTERPOLYMERS
Frederic B. Stilmar, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed June 10, 1963, Ser. No. 286,470
12 Claims. (Cl. 260—78.5)

1. Copolymers comprising

(A) 50 to 97 weight percent of chain units derived from vinylidene fluoride,

(B) 2.5 to 49.5 weight percent of chain units derived from tetrafluoroethylene, and

(C) 0.1 to 10 weight percent of chain units derived from an olefinically unsaturated aliphatic compound of the formula



wherein A is a member selected from the group consisting of hydrogen, C_1 to C_{10} alkyl, and R'Z, B is a member selected from the group consisting of hydrogen, C_1 to C_2 alkyl, chlorine, and R'Z, R' is $—C_nH_{2n}$, wherein *n* is zero to ten, Z is a member selected from the group consisting of $—CO_2R''$ and $—P(O)(OR'')_2$, and R'' is a member selected from the group consisting of hydrogen, C_1 to C_8 alkyl, C_1 to C_8 monochloroalkyl, an alkali metal, and an ammonium group; with the proviso that when A is R'Z, B is selected from the group consisting of hydrogen, C_1 to C_2 alkyl and chlorine;

said copolymers having an inherent viscosity of 0.35 to 2 as 0.5% solutions by weight in dimethylformamide at 25° C.

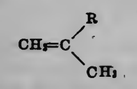
3,318,851

MALEIC ANHYDRIDE COPOLYMERS

Barry Nicholls, New Barnet, and John Brewster Rose, St. Albans, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

No Drawing. Filed June 19, 1963, Ser. No. 288,867
Claims priority, application Great Britain, June 25, 1962, 24,282/62
27 Claims. (Cl. 260—78.5)

1. A moldable copolymer consisting of substantially equimolar proportions of maleic anhydride and an alkene of the structure



where R is a straight chain alkyl group containing from 2 to 6 carbon atoms.

3,318,852

FLUORINE-CONTAINING POLYMERS

George M. Dixon, St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

No Drawing. Filed Apr. 5, 1965, Ser. No. 445,689
5 Claims. (Cl. 260—78.5)

1. A copolymer which has an inherent viscosity in iso-propanol in the range of 0.1 to 2.0, a "high-tack temperature" at least 60° C., solubility of at least 10 parts by weight in 90 parts by weight of a 50–50 mixture of iso-propanol and methyl ethyl ketone and is insoluble in xylene hexafluoride which contains (1) 10 to 80 percent by weight of its polymerized units derived from an ethylenically unsaturated monomer containing a functional group forming a conjugated system with the ethylenic linkage wherein at least 10 mole percent of these polymerized units of the copolymer contain a free carboxylic acid group as the functional group forming the conjugated system and any other of these polymerized units of the copolymer contain a functional group which is hydrolyzable to a free carboxylic acid group as the functional group forming the conjugated system, and (2) 20 to 90 percent by weight of monomeric units derived from an ethylenically unsaturated monomer containing a perfluoroalkyl group of at least six carbon atoms.

3,318,853

OXIDIZED SHAPED ARTICLES OF TRIMETHYLENE SULFIDE POLYMERS

James T. Edmonds, Jr., Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed Nov. 5, 1963, Ser. No. 321,412
10 Claims. (Cl. 260—79)

1. A process comprising contacting a shaped article of a trimethylene sulfide polymer with nascent oxygen, whereby at least a portion of the sulfur groups in said polymer is converted to sulfoxide groups and/or sulfone groups.

3,318,854

FLUORINATED ELASTOMERIC COPOLYMERS

Francis J. Honn, Boston, Mass., and Willard M. Sims, Hackensack, N.J., assignors, by mesne assignments, to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

No Drawing. Original application Apr. 3, 1953, Ser. No. 346,800, now Patent No. 2,965,619, dated Dec. 20, 1960. Divided and this application Feb. 5, 1960, Ser. No. 6,879
12 Claims. (Cl. 260—87.7)

1. An elastomeric copolymer consisting essentially of a fluorohalogenated propene in which the halogen substituents are normally gaseous halogens, not more than one of which is chlorine, and a fluorinated ethylene in which the substituents are selected from the group consisting of fluorine and hydrogen said compounds having at most two hydrogen atoms per molecule, which hydrogen atoms are in the form of $CH_2=$ groups, and only one of said compounds having a $CH_2=$ group, said copolymer having a linear carbon chain comprised of at least 10 percent $-CH_2-$ groups.

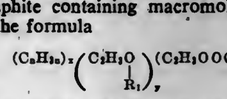
3,318,855

PHOSPHORUS CONTAINING COPOLYMERS

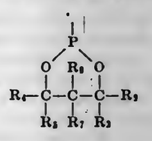
Lester Friedman, Beachwood Village, Ohio, assignor, by mesne assignments, to Union Carbide Corporation, a corporation of New York

No Drawing. Filed June 22, 1962, Ser. No. 204,606
20 Claims. (Cl. 260—88.1)

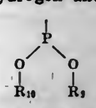
1. A phosphite containing macromolecular interpolymer having the formula



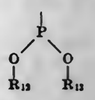
wherein n is an integer between 2 and 4, x and y are positive numbers, z is an integer of at least zero, the ratio of x to y is between 1:99 and 99:1 and the ratio between y and z is between a positive number: 0 and 1:10, R is selected from the group consisting of hydrogen, alkyl and aryl, R_1 is selected from the group consisting of (a) hydrogen, (b)



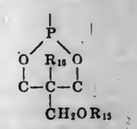
where R_2, R_3, R_4, R_5, R_6 and R_7 are selected from the group consisting of hydrogen and lower alkyl, (c)



where R_9 and R_{10} are selected from the group consisting of alkyl, aryl and haloaryl, (d)



where R_{12} is a member of the group consisting of a residue of an alkeneetherpolyol from which one hydroxyl group has been removed, said alkaneetherpolyol having 2 to 6 hydroxyl groups and being the ether of an alkanepolyol having 2 to 6 carbon atoms and 2 to 6 hydroxyl groups with a member of the group consisting of an alkylene glycol having 2 to 4 carbon atoms in the alkylene group and a polyalkylene glycol having 2 to 4 carbon atoms in the alkylene group, and an ether of sucrose with a member of the group consisting of an alkylene glycol having 2 to 4 carbon atoms in the alkylene group and a polyalkylene glycol having 2 to 4 carbon atoms in the alkylene group and R_{13} is selected from the group consisting of R_9, R_{10} and R_{12} and (e)



where R_{16} is alkyl and R_{15} is selected from the group consisting of allyl, methallyl, crotyl and 2-chloroallyl with the proviso that at least one R_1 is other than hydrogen.

3,318,856

PROCESS OF GELLING POLYVINYL ALCOHOL

Alden J. Deyrup, West Goshen Township, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Apr. 3, 1964, Ser. No. 357,274
7 Claims. (Cl. 260—91.3)

1. Process for preparing a gel structure which comprises admixing (I) an aqueous solution containing 1 to 20 weight percent polyvinyl alcohol, a dissolved titanium oxalate complex having the empirical formula

$$K_2Ti(OH)_2\cdot(C_2O_4)_2\cdot H_2O$$

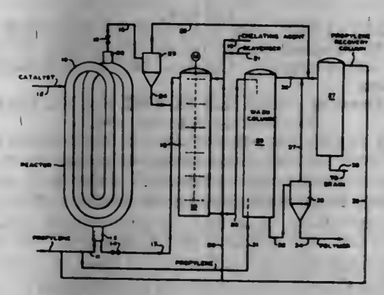
in amount providing 0.002 to 0.2 gram atom of titanium per 100 grams of polyvinyl alcohol, and acid having a dissociation constant of greater than about 10^{-6} in amount sufficient to impart a pH in the range of from about 3 to about 6 to said solution, and (II) an aqueous alkaline carbonic acid/bicarbonate solution in amount sufficient to bring the pH of the mixture of (I) and (II) to the range of from about 7 to about 9, the molar ratio of carbonic acid to bicarbonate in said solution (II) being in the range of from 5:1 to 1:5.

3,318,857

POLYMERIZATION ZONE EFFLUENT TREATMENT

Richard E. Dietz, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

Filed May 24, 1963, Ser. No. 283,009
4 Claims. (Cl. 260—93.7)



1. A mass polymerization process for the polymerization of olefinic hydrocarbon monomers in the presence of an initiator obtained by mixing an organometal compound with a transition metal compound, comprising introducing the monomer and the initiator into a tubular reaction zone, removing a slurry concentrated in solid polymer from the lower end portion of said tubular reaction zone, said solid polymer containing transition metal residue and low molecular weight polymer, removing liquid monomer containing organometal compound dissolved therein and unavoidably containing a small amount of solid polymer from the upper end portion of said tubular reaction zone, separating solids from liquid in said monomer stream in a separation zone, combining a solids stream from said separation zone with said slurry of solid polymer from said tubular reaction zone, contacting said polymer slurry with a chelating agent to remove transition metal residue therefrom, washing the solid polymer with an additional portion of the monomer to extract low molecular weight polymer therefrom, removing a liquid monomer stream containing said organometal compound dissolved therein from said separation zone and combining said liquid monomer stream with the monomer used to wash said solid polymer, the organometal compound dissolved in the monomer stream serving to neutralize any acid resulting from the reaction of said chelating agent with said transition metal residue, and passing said combined monomer stream to a recovery zone.

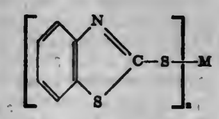
3,318,858

METHOD FOR POLYMERIZING OLEFINS IN THE PRESENCE OF A COORDINATION CATALYST MODIFIED BY THE PRESENCE OF A SULFUR CONTAINING COMPOUND

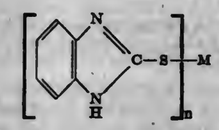
Kohei Nakaguchi, Masaaki Hirooka, and Toshimichi Fujita, Niihama-shi, Japan, assignors to Sumitomo Chemical Company, Ltd., Osaka, Japan, a corporation of Japan

No Drawing. Filed July 30, 1963, Ser. No. 298,553
Claims priority, application Japan, Aug. 6, 1962, 37/33,604; Aug. 7, 1962, 37/34,194; June 14, 1963, 38/31,702
11 Claims. (Cl. 260—93.7)

1. A method for producing a crystalline polyolefin which comprises contacting an α-monoolefin having 3 to 10 carbon atoms with a catalyst system comprising an organometallic compound of a metal belonging to Groups I to III of Mendelyeev's Periodic Table, a halide of a transition metal belonging to Groups IV to VI of the Periodic Table, in which the valence of the transition metal is below its maximum, and an organosulfur compound selected from the group consisting of (A) benzothiazole compounds having the general formula,



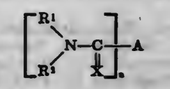
(B) benzimidazole compounds having the general formula,



(C) phenothiazine and its derivatives,
(D) compounds having the general formula,

$$Z[(CH_3)_mY]_2$$

and (E) compounds having the general formula,



where M represents a metal, ammonium radical, hydrogen atom, or an organic residue; n represents an integer from 1 to 4 and when X is O at least one of the X's in said A must be S; Z represents S, S_2, SO or SO_2; Y represents COOR, COR or OR, R being hydrogen or a hydrocarbon residue; m represents an integer of 1 to 10; X represents S or O; R^1 and R^2 each represent hydrogen or a hydrocarbon residue; and A represents X_nMe, XHR^3, X_nR^4 or X_p, Me being a metal or ammonium radical, R^3 is an amine or substituted amine, R^4 is a hydrocarbon residue, and p is an integer from 1 to 4, the molar ratio of said organometallic compound and said transition metal halide being within the range of 0.1:1 to 100:1, and the molar ratio of said organosulfur compound and said transition metal halide being within the range of 0.001:1 to 20:1.

3,318,859
PROCESS FOR THE PREPARATION OF POLYPROPYLENE

Eduard H. Adema, Beek, and Johannes B. M. Lauwen and Johannes C. Soeterbroek, Geleen, Netherlands, assignors to Stamicarbon N.V., Heerlen, Netherlands

No Drawing. Filed Oct. 17, 1963, Ser. No. 317,076
Claims priority, application Netherlands, Oct. 26, 1962, 284,799
15 Claims. (Cl. 260—93.7)

1. Process for the stereospecific polymerization of propylene characterized in that a catalyst is prepared from a monoalkylaluminumdihalide, violet titanium trichloride and an ether of the formula $R_1—O—R_2$, where R_1 represents alkyl or aralkyl and R_2 is an alkyl, aryl, aralkyl or alkaryl, the ether and the monoalkylaluminiumdihalide being employed in a molar ratio between 0.65:1 and 2.5:1.

3,318,860
OLEFIN POLYMERIZATION PROCESS AND CATALYST COMPRISING TRANSITION METAL HALIDE, AN ORGANOMETALLIC COMPOUND, HYDROGEN AND AN AMINE

Raymond Eichenbaum, Spotswood, N.J., assignor to Mobil Oil Corporation, a corporation of New York

No Drawing. Filed Dec. 9, 1963, Ser. No. 329,236
18 Claims. (Cl. 260—93.7)

1. A catalyst composition for use in producing crystalline linear homopolymers of α-monoolefins, comprising (A) a transition metal halide in which the transition metal is a metal of Groups IV-A, V-A, VI-A, and VIII of the Periodic Arrangement of the Elements and in which the metal is present in a valence state lower than its maximum, (B) an organometallic compound of a metal of Groups II and III of the Periodic Arrangement of the Elements and (C) an amino Lewis base compound, further characterized in that a combination including at least said (A) a transition metal halide and said (B) an organometallic compound is treated with hydrogen in an amount between about one mole and about 100 moles per mole of said (A) a transition metal halide; the molar ratio of (B) to (A) being between about 0.1 and about 20; and the molar ratio of (C) to (A) being between about 0.01 and about 1.

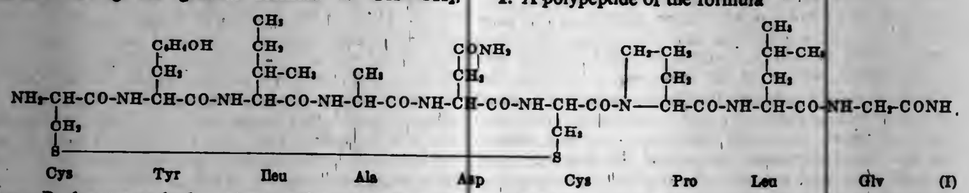
7. In the catalytic homopolymerization of α-monoolefinic hydrocarbons to crystalline linear polymers, the improvement that comprises carrying out said polymerization in the presence of the catalyst system defined in claim 1.

3,318,861
STEREOSPECIFIC POLYMERIZATION OF ALPHA-OLEFINS IN THE PRESENCE OF TITANIUM TRICHLORIDE, ALKYL ALUMINUM DIHALIDE AND AN ETHER

Eduard H. Adema, Beek, Johannes B. M. Lauwen and Johannes C. Soeterbroek, Geleen, Netherlands, assignors to Stamicarbon N.V., Heerlen, Netherlands

No Drawing. Filed Feb. 11, 1965, Ser. No. 431,968
Claims priority, application Netherlands, Feb. 14, 1964, 6,401,305
14 Claims. (Cl. 260—93.7)

1. A process for the stereospecific polymerization of α-olefins having the general formula $R—CH=CH_2$,



where R denotes a hydrocarbon radical containing at least two carbon atoms, said α-olefins being selected from the group consisting of butylene-1, pentene-1, 4-methyl pentene-1, hexene-1, styrene and mixtures thereof, said polymerization of said α-olefins including the copolymerization and hetero-block polymerization of said α-olefins with unsaturated compounds selected from the group consisting of ethylene, butadiene and isoprene and excluding propylene, the improvement wherein catalyst is prepared from (1) a monoalkylaluminium dihalide, (2) violet titanium trichloride, and (3) an ether having the formula $R_1—O—R_2$, where R_1 is selected from the group consisting of alkyl and aralkyl groups and R_2 is selected from the group consisting of alkyl, aryl and aralkyl groups, the ether and the monoalkylaluminium dihalide being employed in a molar ratio between 0.65:1 and 2.5:1.

3,318,862
PROCESS FOR REDUCING COLD FLOW IN 1,3-BUTADIENE POLYMERS

Robert A. Hinton, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed June 10, 1963, Ser. No. 286,486
6 Claims. (Cl. 260—94.2)

1. In the polymerization of 1,3-butadiene in the presence of an organolithium initiator, the method of reducing the tendency of the polymer to cold flow which comprises adding to the polymerization mixture from 1.5 to 4 moles of an aromatic compound containing at least two substituents selected from the group consisting of chlorine and bromine per mole of organolithium initiator.

3,318,863
CATALYST AND CATALYTIC PROCESS

Omar O. Juveland, South Holland, Ill., assignor to Standard Oil Company, Chicago, Ill., a corporation of Indiana

No Drawing. Filed June 28, 1962, Ser. No. 205,852
13 Claims. (Cl. 260—94.9)

5. A process for polymerizing an ethylenically unsaturated hydrocarbon which comprises contacting an ethylenically unsaturated hydrocarbon under polymerizing conditions of temperature and pressure with a catalyst consisting essentially of a first partially-reduced transition metal oxide on a difficultly reducible support and a second partially-reduced transition metal oxide on a difficultly reducible support, and a promoter selected from the group consisting of metals and metal hydrides of Groups 1 and 2 of the periodic classification, said first and said second partially-reduced transition metal oxides being different partially-reduced transition metal oxides which produce a relatively higher and a relatively lower molecular weight polymer when used for polymerization.

3,318,864
ALANINE⁴-OXYTOCIN

Roger Boissonnas, Bottmingen, and Stephan Guttmann, Basel, Switzerland, assignors to Sandoz Ltd., Basel, Switzerland

No Drawing. Filed Jan. 6, 1964, Ser. No. 336,046
Claims priority, application Switzerland, Jan. 11, 1963, 358/63
3 Claims. (Cl. 260—112.5)

1. A polypeptide of the formula

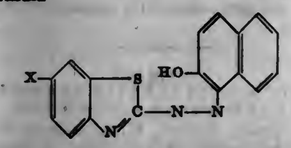
all of whose amino acids (except glycine) are of the L configuration.

3,318,865
1-(2-BENZOTHIAZOLYLAZO)-2-NAPHTHOL DYESTUFFS

Paul L. Stright, Erie, N.Y., assignor to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Mar. 18, 1966, Ser. No. 535,320
5 Claims. (Cl. 260—158)

1. A water-insoluble monoazo compound having the general formula



wherein X is selected from the group consisting of lower alkoxy, nitro, chloro, fluoro and bromo.

3,318,866
PROCESS FOR MAKING PARTIAL O-ACYLATES OF LINCOMYCIN

Herman Hoeksema, Cooper Township, Kalamazoo County, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Filed Apr. 13, 1964, Ser. No. 359,465
5 Claims. (Cl. 260—210)

1. The process for the production of partial O-acylates of lincomycin which comprises subjecting the next higher O-acylate to acid hydrolysis with a dilute acid and at a temperature of about 15 to 50° C. until substantial conversion thereof to the desired partial O-acylate is obtained and isolating the partial O-acylate thus produced from the hydrolysate.

3,318,867
PROCESS FOR SEPARATING NITROGEN-BASIC MATERIALS FROM AQUEOUS SOLUTION

Heinz K. Jahnke, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Filed Aug. 20, 1964, Ser. No. 391,040
9 Claims. (Cl. 260—210)

1. A process for separating a nitrogen-basic material from an aqueous solution thereof which comprises the steps, (1) contacting said aqueous solution with a water-immiscible liquid cation exchanger comprising at least one water-immiscible organic diluent with boiling point less than 150° C. and at least one oil-soluble salt of an aromatic sulfonic acid, said acid having one to 2 aromatic rings and at least one alkyl moiety, there being in total at least 15 alkyl carbon atoms when the acid contains one aromatic ring and at least 8 alkyl carbon atoms when the acid contains 2 aromatic rings, and (2) contacting the organic diluent phase resulting from step (1) with a mixture of water and at least one stripping agent selected from the group consisting of amines with pK_b less than 11, water-soluble acid addition salts thereof, and water-soluble quaternary ammonium salts, at a pH less than about 7.

3,318,868
PROCESS FOR THE CONTINUOUS ACYLATION OF AMYLOSE

Raymond B. Evans and Walter G. Kunze, Catonsville, Md., assignors to National Starch and Chemical Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed June 21, 1965, Ser. No. 465,760
6 Claims. (Cl. 260—233.5)

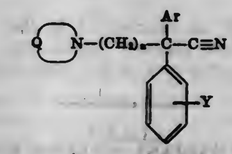
1. A process for the continuous acylation of amylose which comprises mixing an aqueous suspension of a retrograded amylose resulting from the fractionation of a starch having no retained granule structure with the vinyl ester of a monocarboxylic acid, adding an alkaline catalyst to said mixture, and thereupon continuously passing a stream of the resulting mixture into a reaction zone maintained at a temperature of from about 330° F. to about 360° F. and at a pressure of from about 100 p.s.i. to about 145 p.s.i., thereby effecting the uniform dispersion and acylation of said amylose, and continuously flowing the uniform dispersion of acylated amylose thus obtained out of the reaction zone.

3,318,869
COMPLEX NITRILES CONTAINING THE AZABICYCLOALKANE STRUCTURE

John W. Cusic, Skokie, and Peter Yonan, Chicago, Ill., assignors to G. D. Searle & Co., Chicago, Ill., a corporation of Delaware

No Drawing. Filed May 18, 1966, Ser. No. 550,958
8 Claims. (Cl. 260—239)

1. A compound of the formula



wherein $\overset{\frown}{QN}—$ is azabicycloalkyl containing from 7 to 9 carbon atoms and containing at least 5 atoms in each ring of the azabicycloalkane structure; *n* is a whole number greater than 1 and less than 4; Ar is selected from the group consisting of phenyl and pyridyl; and Y is selected from the group consisting of hydrogen and chlorine.

3,318,870
COPPER POLYETHYLENIMINE PRODUCTS

Fred N. Teumac, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Original application Nov. 5, 1962, Ser. No. 235,505, now Patent No. 3,234,127, dated Feb. 8, 1966. Divided and this application Jan. 15, 1965, Ser. No. 431,757
3 Claims. (Cl. 260—239)

1. An aqueous, polymer-stabilized copper ion solution comprising (1) from about 1 to 3 parts by weight of a water-soluble polymer selected from (a) polyethylenimine and (b) copolymers composed of a major proportion of ethylenimine and a minor proportion of a monethylenically unsaturated monomer of the group consisting of styrene and monoethylenically unsaturated monomers copolymerizable with styrene, and (2) from about 3 to 1 parts by weight of copper in the form of a water-soluble copper salt.

3,318,871
PRODUCTION OF ω-LAUROLACTAM

Horst Metzger and Hans Urbach, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Dec. 27, 1961, Ser. No. 162,580
Claims priority, application Germany, Jan. 7, 1961, B 60,753
7 Claims. (Cl. 260—239.3)

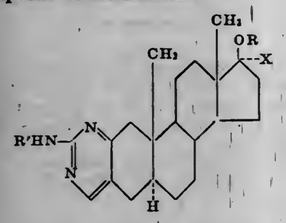
1. A process for the production of ω-laurolactam which comprises mixing a cyclic compound selected from the group consisting of cyclododecanecarboxylic acid, alkali metal salts and alkaline earth metal salts thereof and mixtures of these compounds with a nitrosating agent derived from nitrous acid in the ratio of 1:1 to 1:2 equivalents in the presence of a solvent selected from the group consisting of 75 to 100% sulfuric acid and oleum and with up to 65% of free sulfur trioxide at a temperature between 0° and 150° C.

3,318,872
(OPTIONALLY 17-ALKYLATED) - 17β - HYDROXY-5A - ANDROSTANO[2,3-d] - 2 - AMINOPYRIMIDINES AND ACYL DERIVATIVES THEREOF

Paul D. Klimstra, Northbrook, Ill., assignor to G. D. Searle & Co., Chicago, Ill., a corporation of Delaware

No Drawing. Filed Feb. 8, 1965, Ser. No. 431,170
9 Claims. (Cl. 260—239.5)

1. A compound of the formula



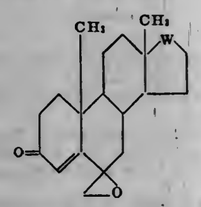
wherein R and R' are members of the class consisting of hydrogen and lower alkanoyl radicals, and X is selected from the group consisting of hydrogen and lower alkyl radicals.

3,318,873
6-SPIRO OXIRANE STEROIDS OF THE ANDROSTANE SERIES

James F. Kerwin, Broomall, Pa., assignor to Smith Kline & French Laboratories, Philadelphia, Pa., a corporation of Pennsylvania

No Drawing. Filed Jan. 11, 1965, Ser. No. 424,806
5 Claims. (Cl. 260—239.55)

1. A steroid of the formula:



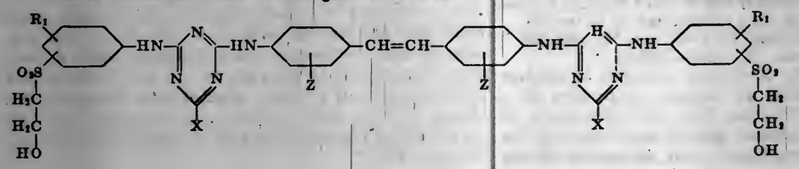
where W is selected from the group consisting of carbonyl, β-hydroxymethylene, β-lower alkanoyloxymethylene, β-(1-cycloalkenyloxy)methylene, β-hydroxy - α - lower alkylmethylene, β-lower alkanoyloxy-α-lower alkylmethylene, β-phenyl lower alkanoyloxymethylene, and β-cycloalkyl lower alkanoyloxy-methylene.

3,318,874
BIS-(β-HYDROXYETHYLSULFONE-PHENYLAMINO-TRIAZINE) STILBENES

Erich Schinzel, Frankfurt am Main, Rolf Austrup, Bad Soden, Taunus, and Karl Heinz Lebkücher, Hofheim, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Brüning, Frankfurt am Main, Germany, a corporation of Germany

No Drawing. Filed Jan. 29, 1963, Ser. No. 254,566
Claims priority, application Germany, Feb. 1, 1962, F 35,895
12 Claims. (Cl. 260—240)

1. Aminostilbene derivative of the general formula



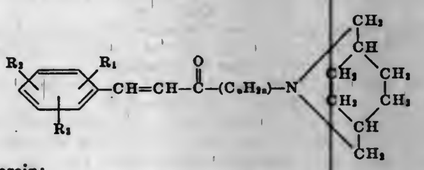
in which Z stands for a —SO_3Me group, Me being the equivalent of a cation capable of forming water-soluble salts, R_1 represents a member selected from the group of (a) hydrogen, (b) a low molecular alkyl radical having up to 4 carbon atoms, and (c) a low molecular alkoxy radical having up to 4 carbon atoms, and X represents a member selected from the group consisting of (d) NH_2, (e) a radical of a saturated aliphatic primary amine having up to 4 carbon atoms, and (f) a radical of a saturated aliphatic secondary amine having up to 4 carbon atoms.

3,318,875
CERTAIN 3-(ACYLALKYL)-3-AZABICYCLO-[3.2.2.]NONANE COMPOUNDS

William L. Nobles, Oxford, Miss., assignor to the University of Mississippi, Oxford, Miss., a corporation of Mississippi

No Drawing. Filed Mar. 25, 1963, Ser. No. 267,818
8 Claims. (Cl. 260—240)

1. A compound selected from the group consisting of a compound of the formula:



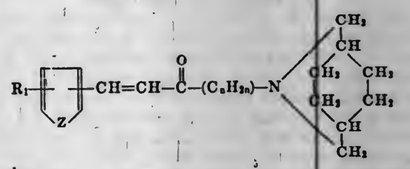
wherein:

each of R_1, R_2 and R_3 is a member selected from the group consisting of hydrogen, lower alkyl, lower alkoxy, hydroxy, nitro, amino, halogeno, trifluoromethyl and phenyl, and

n has a value of from 2 to 5 inclusively, there being a 2-carbon alkylene chain separating the keto group and the nitrogen atom,

and the nontoxic pharmaceutically acceptable acid addition salts thereof.

2. A compound selected from the group consisting of a compound of the formula:



wherein:

Z is a member selected from the group consisting of oxygen, and sulfur,

R_1 is a member selected from the group consisting of hydrogen, lower alkyl, lower alkoxy, hydroxy, nitro, amino, halogeno, trifluoromethyl and phenyl, and

n has a value of from 2 to 5 inclusively, there being a 2-carbon alkylene chain separating the keto group and the nitrogen atom,

and the nontoxic pharmaceutically acceptable acid addition salts thereof.

8. β-[3-(3-azabicyclo[3.2.2.]nonyl)]-ethyl 5 - nitro - 2-furyl ketone.

3,318,876
SUBSTITUTED PIPERAZINES AND PROCESS FOR PREPARING SAME

Giorgio Cignarella, Milan, Italy, and Emilio Testa, Tessin, Switzerland, assignors to Lepetit S.p.A., Milan, Italy

No Drawing. Filed Nov. 26, 1963, Ser. No. 326,214
Claims priority, application Great Britain, Dec. 11, 1962, 46,744/62; June 17, 1963, 24,045/63
8 Claims. (Cl. 260—240)

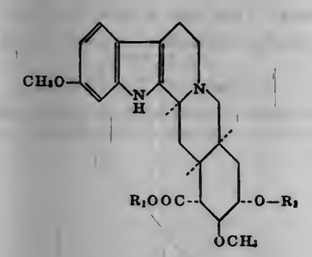
1. 2,2,6-trimethyl-4-benzylpiperazine.
8. 2,6-dimethyl-1-cinnamyl-4-propionylpiperazine.

3,318,877
16,17,18-TRIEPI-DESERPIDATES

Paul Reuben Ulshafer and William Irving Taylor, Summit, N.J., assignors to Ciba Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Feb. 2, 1965, Ser. No. 429,902
13 Claims. (Cl. 260—240)

13. A member selected from the group consisting of a compound having the formula



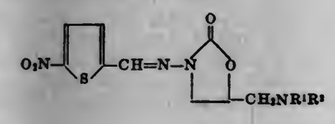
in which R_4 stands for lower alkyl and R_5 for a member selected from the group consisting of benzoyl and cinnamoyl both of which are substituted in the ring by a member selected from the group consisting of lower alkoxy and lower alkoxy-carbonyloxy, an acid addition salt thereof.

3,318,878
NITROTHIOPHENE COMPOUNDS

George L. Dunn, Wayne, Pa., assignor to Smith Kline & French Laboratories, Philadelphia, Pa., a corporation of Pennsylvania

No Drawing. Filed Apr. 14, 1966, Ser. No. 542,460
2 Claims. (Cl. 260—240)

1. A compound of the formula



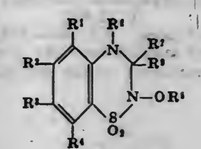
in which NR^1R^2 is morpholino, hexamethyleneimino, heptamethyleneimino, 4-methylpiperazino, or 3-azabicyclo[3.2.2]non-3-yl.

3,318,879
2-OXYGENATED-1,2,4-BENZOTHIADIAZINE 1,1-DIOXIDES

Peter H. L. Wei, Upper Darby, and Stanley C. Bell, Philadelphia, Pa., assignors to American Home Products Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Feb. 14, 1964, Ser. No. 344,843
9 Claims. (Cl. 260—243)

7. A compound of the formula:



wherein R^1, R^2, R^3 and R^4 are each selected from the group consisting of hydrogen, alkyl of less than six carbon atoms, chloro and sulfamyl; R^5 is selected from the group consisting of hydrogen, alkyl of less than five carbon atoms and acetyl; R^6 is selected from the group consisting of alkyl of less than five carbon atoms, phenyl and lower alkyl phenyl; R^7 is selected from the group consisting of hydrogen, alkyl of less than five carbon atoms, phenyl and lower alkyl phenyl, and together R^6 and R^7 is oxo (O=); and R^8 is selected from the group consisting of hydrogen, acetyl, alkyl of less than six carbon atoms and phenyl.

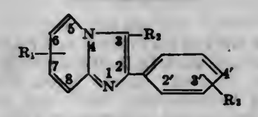
3,318,880
NOVEL [1,2-α]IMIDAZOPYRIDINES AND A PROCESS FOR THE MANUFACTURE THEREOF

Luigi Almirante, Milan, Walter Murmann, Arona, and Luigi Polo Friz, Milan, Italy, assignors to Laboratorio Bioterapico Milanese Selvi & C. S.a.s., Milan, Italy

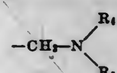
No Drawing. Filed Apr. 17, 1964, Ser. No. 360,737
Claims priority, application Italy, Apr. 30, 1963, 8,939/63
12 Claims. (Cl. 260—247.1)

6. 2(4' - methylsulfonylphenyl)-3-morpholinomethyl-[1,2-α]imidazopyridine and acid addition salts thereof.

9. An (1,2-α) imidazopyridine of the formula:



wherein R_1 is a radical attached to the imidazopyridine ring at one of positions 5 to 8 inclusive and is selected from the group consisting of hydrogen, lower alkyl and lower alkoxy; R_2 is a radical selected from the class consisting of hydrogen and disubstituted aminomethyl having the formula



wherein R_4 and R_5 are lower alkyl or together with the nitrogen form a heterocyclic ring selected from the class consiting of pyrrolidino, piperidino, morpholino, piperazino, methyl piperazino and (β-hydroxyethyl) piper-

azino; and R_3 is a radical attached to the benzene nucleus at one of positions 2' to 4' inclusive and is selected from the class consisting of lower alkylmercapto, lower alkylsulfoxy, and lower alkylsulfonyl.

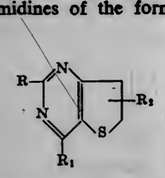
3,318,881

NOVEL DIHYDROTHIENO[3,2-d]PYRIMIDINES

Gerhard Ohnacker and Eberhard Woltun, Biberach an der Riss, Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhine, Germany, a corporation of Germany

No Drawing. Filed June 8, 1964, Ser. No. 373,564
Claims priority, application Germany, July 4, 1962, T 22,407
6 Claims. (Cl. 260—246)

1. A compound selected from the group consisting of dihydrothieno-pyrimidines of the formula



wherein

R is selected from the group consisting of phenyl, lower alkyl-mercapto, mono-lower alkyl-amino, di-lower alkyl-amino, pyrrolidino, piperidino, morpholino, 2-lower alkyl-morpholino and N'-lower alkyl-piperazino,

R_1 is selected from the group consisting of halogen, hydroxyl, lower alkoxy, lower alkoxy-lower alkoxy, lower alkenyloxy, amino, hydrazino, mono-lower alkyl-amino, mono-lower alkenyl-amino, di-lower alkyl-amino, anilino, cyclohexylamino, benzylamino, (di-lower alkylamino)-lower alkylamino, (lower alkoxy-lower alkyl)-amino, mono-(hydroxy-lower alkyl)-amino, di-(hydroxy-lower alkyl)-amino, (hydroxy-lower alkyl)-lower alkylamino, lower alkyl-benzylamino, pyrrolidino, piperidino, morpholino, 2-lower alkyl-morpholino and N'-lower alkyl-piperazino, and

R_2 is selected from the group consisting of hydrogen, lower alkyl and phenyl

and their non-toxic, pharmacologically acceptable acid addition salts.

2. A compound selected from the group consisting of 2,4-dimorpholino-dihydroethieno[3,2-d]-pyrimidine and its non-toxic, pharmacologically acceptable acid addition salts.

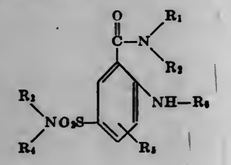
3,318,882

2-AMINO-5-DILOWERALKYL SULFAMOYL-N,N-DISUBSTITUTED BENZAMIDES

Paul Schmidt, Therwil, Alberto Rossi, Oberwil, Basel-Land, Kurt Eichenberger, Basel, and Max Wilhelm, Allschwil, Switzerland, assignors to Ciba Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed June 2, 1964, Ser. No. 372,086
Claims priority, application Switzerland, June 5, 1963, 7,027/63; Apr. 2, 1964, 4,196/64; May 6, 1964, 5,900/64
16 Claims. (Cl. 260—247.1)

1. A member selected from the group consisting of compounds of the formula



in which R_1 and R_2 each stands for a member selected from the group consisting of lower alkyl, lower alkenyl, lower alkoxyalkyl, lower alkylmercaptoalkyl, mono-lower alkylamino-lower alkyl, di-lower alkylamino-lower alkyl, lower hydroxyalkyl, lower aminoalkyl and, when taken together R_1 and R_2 stand for a member selected from the group consisting of lower alkylene, 3-oxapentylene-(1,5) and 3-thiapentylene-(1,5), R_3 and R_4 each stands for lower alkyl, R_5 stands for a member selected from the group consisting of hydrogen, halogen, trifluoromethyl, lower alkyl and lower alkoxy and R_6 stands for a member selected from the group consisting of hydrogen, carbo-lower alkoxy, lower alkanoyl, phenyl-lower alkanoyl, benzoyl, and phenyl-lower alkanoyl and benzoyl substituted in the phenyl nuclei by a member selected from the group consisting of lower alkyl, lower alkoxy, halogen and trifluoromethyl, and the acid addition salts of these compounds.

12. 5 - (dimethylsulphamyl) - anthranilic acid-morpholide.

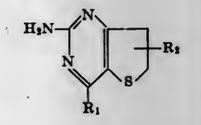
3,318,883

NOVEL DIHYDROTHIENO[3,2-d]PYRIMIDINES

Gerhard Ohnacker and Eberhard Woltun, Biberach an der Riss, Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim (Rhine), Germany, a corporation of Germany

No Drawing. Filed June 8, 1964, Ser. No. 373,565
Claims priority, application Germany, July 4, 1962, T 22,407
6 Claims. (Cl. 260—247.1)

1. A compound selected from the group consisting of dihydrothieno[3,2-d]pyrimidine substitution products of the formula



wherein

R_1 is selected from the group consisting of lower alkoxy-lower alkoxy, lower alkyl-mercapto and



where

R_3 is selected from the group consisting of hydrogen, amino, lower alkyl, hydroxy-lower alkyl, lower alkoxy-lower alkyl, di(lower alkyl) amino-lower alkyl, lower alkenyl, benzyl and cyclohexyl and

R_4 is selected from the group consisting of hydrogen, lower alkyl and hydroxy-lower alkyl, and

R_3 and R_4, together with each other and the adjacent nitrogen atom, form a basic heterocycle selected from the group consisting of morpholino, piperidino, pyrrolidino, 2-methyl-morpholino and N'-methyl-piperazino, and

R_2 is selected from the group consisting of hydrogen and methyl,

and their non-toxic, pharmacologically acceptable acid addition salts.

6. 2-amino-4-(2' - methyl - morpholino) - 7 - methyl-dihydrothieno[3,2-d]pyrimidine.

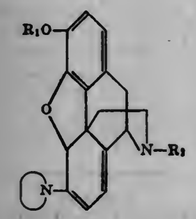
3,318,884

SUBSTITUTED 6 - AMINO-6-DEMETHOXYTHEBAINE AND 6 - AMINO-6-DEMETHOXYORIPAVINE DERIVATIVES

John J. Brown, Pearl River, N.Y., Robert Allis Hardy, Jr., Ridgewood, N.J., and Carol Therese Nora, Spring Valley, N.Y., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Dec. 3, 1965, Ser. No. 511,345
10 Claims. (Cl. 260—247.2)

1. A compound of the formula:



wherein R_1 is selected from the group consisting of hydrogen, lower alkyl and lower alkanoyl; R_2 is selected from the group consisting of hydrogen, cyano, propargyl, lower alkyl, phenyl lower alkyl, lower alkenyl and lower cycloalkylmethyl; and



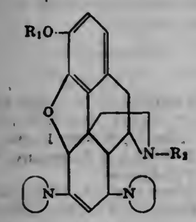
is selected from the group consisting of pyrrolidinyl, piperidino, morpholino and di(lower alkyl)amino.

8. A compound according to claim 1 in which R_1 is methyl, R_2 is methyl, and



is morpholino.

9. The method of preparing a compound according to claim 1 which comprises heating a compound of the formula:



wherein R_1, R_2 and



are as defined in claim 1, in an inert solvent at a temperature of from about 80° C. to about 150° C.

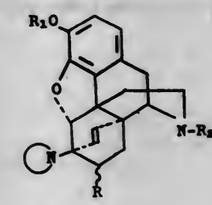
3,318,885

SUBSTITUTED 6-AMINO-6,14-ENDOETHENOCODIDES AND MORPHIDES

John J. Brown, Pearl River, N.Y., Robert Allis Hardy, Jr., Ridgewood, N.J., and Carol Therese Nora, Spring Valley, N.Y., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Dec. 3, 1965, Ser. No. 511,344
10 Claims. (Cl. 260—247.5)

1. A compound selected from the group consisting of those of the formula:



wherein R_1 is selected from the group consisting of hydrogen, lower alkyl and lower alkanoyl, R_2 is selected from the group consisting of hydrogen, cyano, propargyl, lower alkyl, phenyl lower alkyl, lower alkenyl and lower cycloalkylmethyl, R is selected from the group consisting of cyano, formyl, carbamyl, mono(lower alkyl) carbamyl, di(lower alkyl)carbamyl, lower alkanoyl, lower cycloalkanoyl, benzoyl, lower carboalkoxy and carbo-(phenyl lower alkyl)oxy, and is selected from the group consisting of pyrrolidinyl, piperidino, morpholino and di(lower alkyl)amino; the non-toxic pharmaceutically acceptable acid-addition salts thereof; and the alkali metal phenolates thereof when R_1 is hydrogen.

8. A compound according to claim 1 in which R_1 is methyl, R_2 is methyl, R is carbethoxy and is morpholino.

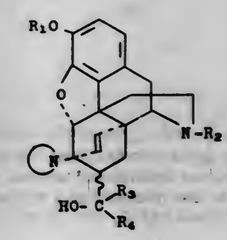
3,318,886

SUBSTITUTED 7 - HYDROXYMETHYL - 7,8 - DIHYDRO - 6 - AMINO - 6,14 - ENDOETHENOCODIDES AND MORPHIDES

John J. Brown, Pearl River, N.Y., Robert Allis Hardy, Jr., Ridgewood, N.J., and Carol Therese Nora, Spring Valley, N.Y., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Dec. 3, 1965, Ser. No. 511,365
10 Claims. (Cl. 260—247.5)

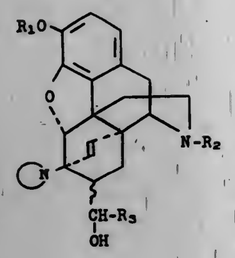
1. A compound selected from the group consisting of those of the formula:



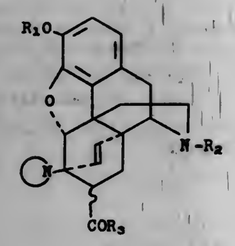
wherein R_1 is selected from the group consisting of hydrogen, lower alkyl and lower alkanoyl; R_2 is selected from the group consisting of hydrogen, cyano, propargyl, lower alkyl, phenyl lower alkyl, lower alkenyl and lower cycloalkylmethyl; ◯ is selected from the group consisting of pyrrolidinyl, piperidino, morpholino and di-(lower alkyl) amino; and R_3 and R_4 are the same or different and are each selected from the group consisting of hydrogen, lower alkyl, phenyl, lower cycloalkyl and phenyl lower alkyl; the non-toxic pharmaceutically acceptable acid-addition salts thereof; and the alkali metal phenolates thereof when R_1 is hydrogen.

8. A compound according to claim 1 in which R_1, R_2, R_3 and R_4 are methyl and ◯ is morpholino.

9. The process of preparing compounds of the formula:



wherein R_1 is selected from the group consisting of hydrogen, lower alkyl and lower alkanoyl, R_2 is selected from the group consisting of hydrogen, cyano, propargyl, lower alkyl, phenyl lower alkyl, lower alkenyl and lower cycloalkylmethyl, R_3 is selected from the group consisting of hydrogen, lower alkyl, lower cycloalkyl, phenyl and phenyl lower alkyl, and ◯ is selected from the group consisting of pyrrolidinyl, piperidino, morpholino, and di(lower alkyl)amino; which comprises contacting a compound of the formula:



wherein R_1, R_2, R_3 and ◯ are as hereinabove defined with a reducing agent selected from the group consisting of lithium aluminum hydride and sodium borohydride, in a solvent inert to the reactants at a temperature of from about 0° C. to about 65° C.

3,318,887

CYANURIC ACID PRODUCTION

William P. Moore, Chester, and Charles B. R. Fitz-William, Jr., Richmond, Va., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York

Filed July 17, 1964, Ser. No. 383,351
22 Claims. (Cl. 260—248)

1. The process for producing urea cyanurate which comprises heating to a temperature no higher than 160° C., a mixture of finely divided cyanuric acid and solid pellets of urea, repeatedly and substantially continuously bringing said pellets into contact with said finely divided cyanuric acid so as to coat said pellets and thereby produce porous hollow urea cyanurate pellets.

11. The process for producing cyanuric acid which comprises heating to a temperature no higher than 160° C., a mixture of finely divided cyanuric acid and solid pellets of urea, repeatedly and substantially continuously bringing said pellets into contact with said finely divided cyanuric acid so as to coat said pellets and thereby produce urea cyanurate in the form of porous, hollow pellets and heating said urea cyanurate at a temperature in the range from 190° to 310° C., to convert it to cyanuric acid.

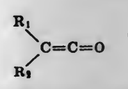
3,318,888

ACYLATING CYANURIC ACID

John H. Blumbergs, Highland Park, and Donald G. MacKellar, Trenton, N.J., assignors to FMC Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Apr. 9, 1965, Ser. No. 447,060
5 Claims. (Cl. 260—248)

1. Process for producing acyl derivatives of cyanuric acid which comprises reacting cyanuric acid with at least stoichiometric quantities of a ketene having the formula:



wherein R_1 and R_2 are radicals selected from the group consisting of hydrogen, alkyl and aromatic radicals, at a temperature of from about 10 to about 100° C. in an inert reaction medium and in the presence of catalytic amounts of a base catalyst selected from the group consisting of

(a) alkali metal and alkaline earth metal salts of weak acids, said salts having a pK_b not greater than about 10.5, and

(b) tertiary amines and quaternary ammonium compounds having a pK_b of not greater than about 8.5,

said base catalyst and said cyanuric acid being sufficiently soluble in said inert reaction medium to permit said reaction to proceed, and recovering said acyl derivative from said reaction medium.

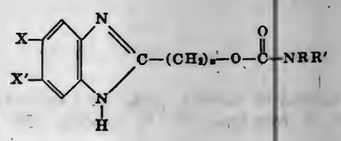
3,318,889

2-BENZIMIDAZOLE CARBAMATES

William G. Bywater, Upper Montclair, Bernard B. Brown, Westfield, and John M. Clegg, Upper Montclair, N.J., assignors to S. B. Penick & Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Oct. 14, 1963, Ser. No. 316,124
6 Claims. (Cl. 260—256.4)

1. A benzimidazole carbamate of the formula—



where X and X' are each selected from the group consisting of hydrogen, lower alkyl, nitro and halogen; *n* is an integer from 1 to 5; R and R' are each selected from the group consisting of hydrogen, lower alkyl, and monocyclic aryl; and their non-toxic quaternary and acid addition salts.

5. 3 - (4 - amino - 2' - n - propyl-5'-pyrimidyl)methyl-5,6 - dichloro-2-N,N - dimethylcarbamoxymethylbenzimidazolium bromide dihydrobromide.

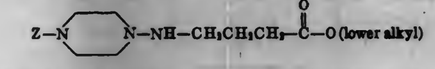
3,318,890

4-(1-PIPERAZINYLAMINO) BUTYRIC ACID ESTERS

Calvin H. Lovell, Morton Grove, Ill., assignor to G. D. Searle & Co., Chicago, Ill., a corporation of Delaware

No Drawing. Filed Jan. 21, 1965, Ser. No. 427,130
5 Claims. (Cl. 260—268)

1. A compound of the formula



wherein Z is selected from the group consisting of

X, X—CH_2—, and X_2CH—

wherein X is selected from the group consisting of phenyl, tolyl, halophenyl, and methoxyphenyl.

3,318,891

PALLADIUM DIACETATE AND METHOD FOR ITS PREPARATION

Eugene A. Hausman, Cranford, N.J., James R. Grasso, Brooklyn, N.Y., and George Pond, Newark, N.J., assignors to Engelhard Industries, Inc., Newark, N.J., a corporation of Delaware

No Drawing. Filed Aug. 30, 1963, Ser. No. 305,841
12 Claims. (Cl. 260—270)

1. Solid, crystalline palladium diacetate.

12. As a new composition of matter, the crystalline adduct of palladium diacetate and pyridine having the empirical formula $[Pd(OAc)_2](C_5H_5N—)_2$.

3,318,892

HYDROXY ALUMINUM NICOTINATE ACETYLSALICYLATE

James M. Holbert, Lookout Mountain, Tenn., and Horst W. Schmank, Ringgold, Ga., assignors to Chattem Drug & Chemical Company, a corporation of Tennessee

No Drawing. Filed Sept. 11, 1964, Ser. No. 395,898
1 Claim. (Cl. 260—270)

The compound hydroxy aluminum nicotinate acetylsalicylate.

3,318,893

HYDROXY ALUMINUM NICOTINATE SALICYLATE AND METHOD OF PREPARING THE SAME

James M. Holbert, Lookout Mountain, and Benjamin H. Gross, Chattanooga, Tenn., assignors to Chattem Drug & Chemical Company, a corporation of Tennessee

No Drawing. Filed Oct. 28, 1964, Ser. No. 407,237
5 Claims. (Cl. 260—270)

1. The compound hydroxy aluminum nicotinate salicylate.

2. The method of preparing the compound hydroxy aluminum nicotinate salicylate which comprises combining substantially equimolar portions of salicylic acid and nicotinic acid, dissolving the combination in water, and thereafter reacting the solution with an alcoholic solution of an aluminum alcoholate, the alcohol of the alcoholic solution and the alcoholate each having the same number of carbon atoms per molecule, and each having two to five carbon atoms each, precipitating the reaction product which results from the reaction, and separating the reaction product thus produced from the remaining liquid.

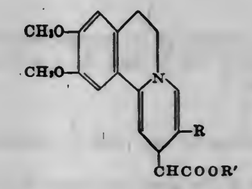
3,318,894

BENZO[a]QUINOLIZINE INTERMEDIATE FOR THE PREPARATION OF 2-DEHYDRO-EMETINES

Arnold Brossi, Verona, N.J., assignor to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey

No Drawing. Original application Mar. 19, 1963, Ser. No. 266,183. Divided and this application Sept. 27, 1963, Ser. No. 311,984
Claims priority, application Switzerland, Mar. 21, 1962, 3,386/62
7 Claims. (Cl. 260—286)

4. A compound of the formula



wherein R and R' are lower alkyl groups.

7. 2-carbomethoxymethyl-3-ethyl-9,10-dimethoxy - 6,7-dihydro-benzo[a]quinolizinium halide.

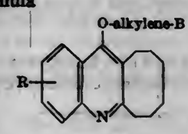
3,318,895

PRODUCTION OF 12-SUBSTITUTED-6,7,8,9,10,11-HEXAHYDROCYCLOOCTA[b]QUINOLINES

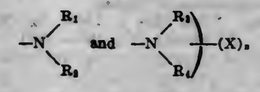
Edward Joseph Pribyl, Metuchen, and Chester Frank Turk, Elizabeth, N.J., assignors, by mesne assignments, to E. R. Squibb & Sons, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Dec. 5, 1963, Ser. No. 328,169
6 Claims. (Cl. 260—286)

1. A compound selected from the group consisting of bases of the formula



wherein R is a member of the group consisting of hydrogen, lower alkyl, lower alkoxy and halogen, B is a member of the group consisting of



R_1 and R_2 each is a member of the group consisting of hydrogen, lower alkyl, hydroxy-lower alkyl and phenyl-lower alkyl, R_3 and R_4 together are a member of the group consisting of tetramethylene, pentamethylene, hexamethylene, oxatetramethylene, oxapentamethylene, azatetramethylene, azapentamethylene, azahexamethylene, thiatetramethylene and thia-

pentamethylene, X is a member of the group consisting of hydrogen, halogen, lower alkyl, lower alkoxy, hydroxy-lower alkyl and lower alkanoyloxy-lower alkyl, and *n* is an integer from 1 to 2,

6. 2 - chloro - 12 - (3 - dimethylaminopropoxy) - 6,7,8,9,10,11-hexahydrocycloocta[b]quinoline oxalate.

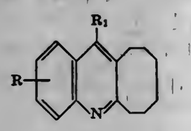
3,318,896

PRODUCTION OF 12-SUBSTITUTED-6,7,8,9,10,11-HEXAHYDROCYCLOOCTA[b]QUINOLINES

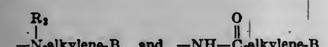
Edward Joseph Pribyl, Metuchen, and Chester Frank Turk, Elizabeth, N.J., assignors, by mesne assignments, to E. R. Squibb & Sons, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Dec. 5, 1963, Ser. No. 328,210
10 Claims. (Cl. 260—287)

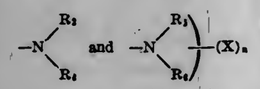
1. A compound selected from the group consisting of bases of the formula



wherein R is a member of the group consisting of lower alkyl, lower alkoxy and halogen, R_1 is a member of the group consisting of



R_2 is a member of the group consisting of hydrogen and lower alkyl, B is a member of the group consisting of



R_3 and R_4 is a member of the group consisting of hydrogen, lower alkyl, hydroxy-lower alkyl and phenyl-lower alkyl, R_5 and R_6 together are a member of the group consisting of tetramethylene, pentamethylene, hexamethylene, oxatetramethylene, oxapentamethylene, azatetramethylene, azapentamethylene, azahexamethylene, thiatetramethylene and thiapentamethylene, X is a member of the group consisting of hydrogen, hydroxy-lower alkyl and lower alkanoyloxy-lower alkyl, and *n* is an integer from 1 to 2, and physiologically acceptable acid addition salts of said bases.

10. 2-chloro-6,7,8,9,10,11 - hexahydro - 12 - [2-(hexahydro-1-azepinyl)ethylamino]cycloocta[b]quinoline.

3,318,897

NOVEL METHOD FOR PREPARING YOHIMBINONE

Jay Donald Albright and Leon Goldman, Nanuet, N.Y., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed May 1, 1964, Ser. No. 364,324
2 Claims. (Cl. 260—287)

1. The method of preparing yohimbinone which comprises treating a compound selected from the group consisting of yohimbine and β-yohimbine with at least one mole equivalent of dimethylsulfoxide and at least one mole equivalent of a carbodiimide in the presence of at least 0.1 mole equivalent of an acid catalyst selected from the group consisting of phosphoric acid, phosphorous acid, cyanoacetic acid, the pyridinium salts thereof and the tri(lower alkyl)ammonium salts thereof at a temperature of from about 0° C. to about 100° C.

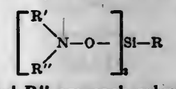
3,318,898

ORGANOSILICON COMPOUNDS AND THEIR USE

Jean Boissieras, Louis Frederic Ceyzeriat, and Marcel Joseph Celestin Lefort, all of Lyon, France, assignors to Rhone-Poulenc S.A., Paris, France, a French body corporate

No Drawing. Filed Feb. 27, 1964, Ser. No. 347,664
5 Claims. (Cl. 260—293)

1. An organoaminoxysilane of the formula:



in which R, R' and R'' are each selected from the class consisting of lower alkyl, lower alkenyl having a single double bond, cycloalkyl of 5 to 6 carbon atoms, cycloalkenyl of 5 to 6 carbon atoms, phenyl, (lower alkyl) phenyl, and phenyl (lower alkyl), R' and R'' being optionally joined together to form, with the adjacent nitrogen atom, a group selected from the class consisting of pyrrolidin-1-yl, piperidin-1-yl, (lower alkyl)piperidin-1-yl, and 4-lower alkyl)-1-piperazinyl, the said lower alkyl groups containing 1 to 4 carbon atoms.

5. Ethyl tri(piperidin-1-yloxy)silane.

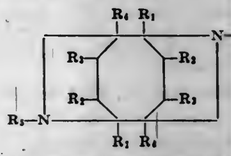
3,318,899

DIAZATRICYCLODODECANES AND THEIR PREPARATION

Leo A. Paquette, Kalamazoo County, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Original application July 16, 1962, Ser. No. 210,196. Divided and this application Feb. 25, 1966, Ser. No. 544,327
6 Claims. (Cl. 260—293)

1. A compound of the formula



(I)

wherein R_1 is selected from the group consisting of hydrogen, methyl, and ethyl; R_2 is selected from the group consisting of hydrogen, methyl, and ethyl; R_3 is selected from the group consisting of hydrogen, methyl, and ethyl; R_4 is selected from the group consisting of hydrogen, methyl, and ethyl; and R_5 contains from 1 to 12 carbon atoms, inclusive, and is selected from the group consisting of alkyl, cycloalkyl, aralkyl, hydroxyalkyl, alkoxyalkyl, and $(alkoxy)_n$-aralkyl wherein *n* is an integer from 1 to 3, inclusive, said cycloalkyl and aralkyl being hydrocarbon.

2. 3,7 - di - loweralkyl - 3,7 - diazatricyclo[4.2.2.2^{2,5}]dodecane, a species of claim 1 wherein R_5 is loweralkyl and R_1, R_2, R_3, and R_4 are hydrogen.

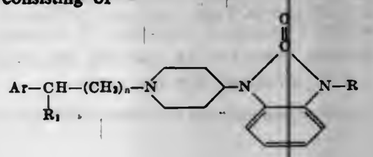
3,318,900

DERIVATIVES OF BENZIMIDAZOLINYL PIPERIDINE

Paul Adriaan Jan Janssen, Vosselaar, near Turnhout, Belgium, assignor to Janssen Pharmaceutica N.V., a corporation of Belgium

No Drawing. Filed May 6, 1964, Ser. No. 365,528
13 Claims. (Cl. 260—294)

1. A benzimidazolinyl piperidine selected from the group consisting of



and the therapeutically active non-toxic acid addition salts thereof wherein Ar is a member selected from the group consisting of phenyl and phenyl monosubstituted with a member selected from the group consisting of halo, lower alkyl and lower alkoxy; R is a member selected from the group consisting of hydrogen, lower alkyl, lower alkylcarbonyl, hydroxymethyl, halomethyl, lower alkoxymethyl, cyanomethyl, cyano-Z- and lower alkoxy-carbonyl-Z-, said -Z- being a —CH(R_2)CH(R_2)— radical wherein R_2 is a member selected from the group consisting of hydrogen and methyl; R_1 is a member selected from the group consisting of hydrogen, methyl, ethyl and propyl; and *n* is an integer from 0 to 4.

6. 1-[1-(4-chloro-phenyl)-ethyl] - 4 - [3 - (2 - cyanoethyl)-2-oxo-1-benzimidazolinyl] - piperidine hydrochloride.

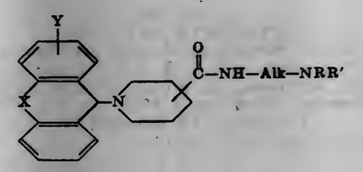
3,318,901

N - DIALKYLAMINOALKYL-1-XANTHENYLPIPERIDINECARBOXAMIDES AND RELATED COMPOUNDS

John W. Cusic, Skokie, and Peter Yonan, Chicago, Ill., assignors to G. D. Searle & Co., Chicago, Ill., a corporation of Delaware

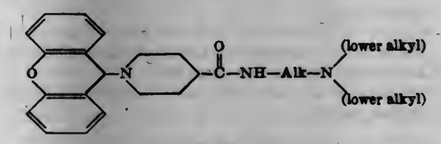
No Drawing. Filed Feb. 7, 1966, Ser. No. 525,353
6 Claims. (Cl. 260—294)

1. A compound of the formula



wherein X is selected from the group consisting of O and S; Y is selected from the group consisting of hydrogen and chlorine; Alk is lower alkylene separating the nitrogens attached thereto by at least 2 carbon atoms; —NRR' is selected from the group consisting of di(lower alkyl)amino, 1-pyrrolidinyl, piperidino, morpholino, 1-methyl-4-piperizinyl and azabicycloalkyl containing from 7 to 9 carbon atoms.

2. A compound according to claim 1 which has the formula



wherein Alk is lower alkylene separating the nitrogen attached thereto by at least 2 carbon atoms.

3,318,902

SUBSTITUTED PHENYLACETIC ACID ESTERS OF HYDROXYALKYL AZASPIRANES

Meier E. Freed, Philadelphia, Pa., and Leonard M. Rice, Minneapolis, Minn., assignors to American Home Products Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed July 10, 1963, Ser. No. 294,186
7 Claims. (Cl. 260—294.3)

1. 2-(3-azaspiro[5.5]undec-3-yl)ethyl benzilate.

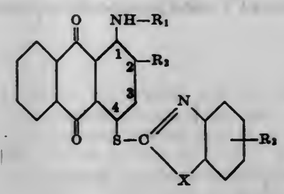
3,318,903

BENZAZOLYL MERCAPTOANTHRAQUINONES

Albin Peter, Binningen, Basel-Land, and Fred Mueller, Munchenstein, Basel-Land, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz A.G.), Basel, Switzerland

No Drawing. Filed Oct. 1, 1964, Ser. No. 400,903
Claims priority, application Switzerland, Oct. 4, 1963, 12,265/63; Nov. 26, 1963, 14,475/63; Nov. 28, 1963, 14,582/63; May 6, 1964, 5,959/64
6 Claims. (Cl. 260—303)

1. Benzazolyl mercaptoanthraquinones of the formula



(II)

wherein

R_1 represents a member selected from the group consisting of hydrogen, low molecular alkyl, cyclohexyl, phenyl, halogenophenyl, low molecular alkyl-phenyl and low molecular alkoxy-phenyl.

R_2 represents a member selected from the group consisting of hydrogen, halogen and low molecular alkyl,

R_3 represents a member selected from the group consisting of hydrogen, halogen, nitro, low molecular alkyl and alkoxy

and X represents a member selected from the group consisting of NH, O and S.

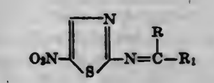
3,318,904

NITROTHIAZOLYL AMIDINES

Paul Schmidt, Therwil, Basel-Land, and Max Wilhelm and Kurt Eichenberger, Basel, Switzerland, assignors to Ciba Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Aug. 15, 1963, Ser. No. 302,453
Claims priority, application Switzerland, Aug. 17, 1962, 9,850/62; June 19, 1963, 7,630/63
5 Claims. (Cl. 260—306.8)

1. A compound of the formula



in which R stands for a member selected from the group consisting of methyl and phenyl and R_1 stands for a mem-

ber selected from the group consisting of amino, monolower alkylamino, di-lower-alkylamino, pyrrolidino, piperidino, piperazino, morpholino and thiamorpholino.

3,318,905

1 - SUBSTITUTED 3-DIALKYLAMINOALKOXY-INDAZOLES AND 1-SUBSTITUTED - 3 - HYDROXY-INDAZOLES

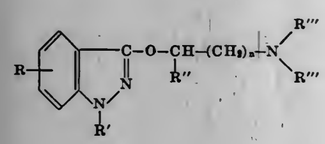
Giuseppe Palazzo, Rome, Italy, assignor to Aziende Chimiche Riunite Angelini Francesco, Rome, Italy, a corporation of Italy

No Drawing. Filed Jan. 2, 1964, Ser. No. 335,424

Claims priority, application Italy, Aug. 9, 1963, 16,898/63

48 Claims. (Cl. 260—310)

1. 1-substituted 3 - dialkylamino-alkoxy-indazole of the Formula I



(I)

wherein:

R is a member selected from the class consisting of hydrogen and chlorine;

R' is a member selected from the class consisting of lower alkyl groups, phenyl, phenethyl and benzyl which latter may be substituted or not in the phenyl nucleus by halogen atoms or lower alkyl or lower alkoxy groups;

R'' is a member selected from the class consisting of hydrogen and lower alkyl groups;

R''', which may be like or unlike, are lower alkyl groups; *n* is 1 or 2.

39. 1-benzyl-3-hydroxy-6-chloro-1H-indazole.

44. 1-butyl-3-hydroxy-5-chloro-indazole.

3,318,906

PROCESS FOR THE PRODUCTION OF ETHYLENYLATED LACTAMS

James E. McKeon and Paul S. Starcher, Charleston, W. Va., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Nov. 6, 1964, Ser. No. 409,578

15 Claims. (Cl. 260—326.5)

1. A process for the preparation of N-ethylenically unsaturated organic substituted lactams which comprises effecting contact between a lactam containing nitrogen bonded directly to hydrogen and an ethylenically unsaturated hydorcarbon free of acetylenic unsaturation in the presence of a reduceable metal compound as the catalyst therefor, said metal compound being capable of possessing the higher of two stable valence states while complexed with said unsaturated hydrocarbon, and the metal moiety of said metal compound being a precious metal of the transition series.

3,318,907

PROCESS AND INTERMEDIATES FOR MANUFACTURE OF 19-NORSTERDIDS

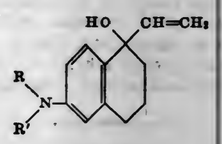
Raphael Pappo, Skokie, Ill., assignor to G. D. Searle & Co., Chicago, Ill., a corporation of Delaware

No Drawing. Filed Oct. 11, 1965, Ser. No. 494,930

Claims priority, application Germany, Sept. 28, 1965, S 99,711

6 Claims. (Cl. 260—326.5)

1. A compound of the formula



wherein R is selected from the group consisting of hydrogen, lower alkyl, lower alkanoyl and a hydrocarbonsulfonyl radical wherein the hydrocarbon radical is monocyclic aryl or lower alkyl, R' is a member of the class consisting of hydrogen and lower alkyl and R and R' together comprise the residue of a secondary heterocycloaliphatic amine selected from the group consisting of pyrrolidine, piperidine, morpholine, pipecoline, piperazine and hexamethylenimine.

3,318,908

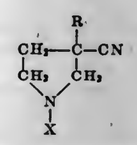
3-CYANOPYRROLIDINES

John Swidinsky, Newark, and Bernard Besu Brown, Westfield, N.J., assignors to A. H. Robins Company, Incorporated, Richmond, Va., a corporation of Virginia

No Drawing. Filed Oct. 7, 1965, Ser. No. 493,887

14 Claims. (Cl. 260—326.82)

14. A compound of the formula:



wherein R is selected from the group consisting of hydrogen, cyclopentyl, cyclohexyl, benzyl, phenethyl, dilower-alkylaminolower-alkyl, and 1'-lower-alkyl-3'-pyrrolidyl,

wherein X is selected from the group consisting of loweralkyl, cyclopentyl, cyclohexyl, phenyl, naphthyl, tolyl, xylyl, benzyl and phenethyl,

lower alkyl in all cases being of up to a maximum of six carbon atoms.

3,318,909

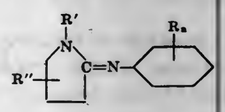
DERIVATIVES OF 2-CYCLOHEXYLIMINO-PYRROLIDINE

Theodore E. Majewski, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Apr. 21, 1965, Ser. No. 449,886

6 Claims. (Cl. 260—326.85)

1. A compound of the formula:



wherein

(a) *n* is an integer of from 0 to 3 representing the number of R groups bonded to the cyclohexyl ring;

(b) each R is independently alkyl of from 1 to 4 carbon atoms;

(c) R' is alkyl of up to 8 carbon atoms or phenyl, benzyl, phenethyl, o-, m-, or p-tolyl or xylyl;

(d) R'' is a group of the formula $-(C_kH_{2k})H$ wherein *k* is an integer of from 0 to 1; and,

(e) each unsubstituted carbon atom bond of the formula is satisfied by a hydrogen atom.

3,318,910

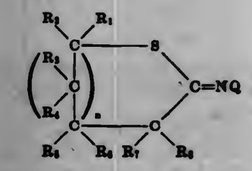
2-IMINOTHIOLANES AND RELATED COMPOUNDS

Roger Williams Addor, Pennington, N.J., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Dec. 5, 1963, Ser. No. 328,204

6 Claims. (Cl. 260—327)

1. The compound of the formula:



wherein R_1, R_2, R_3, R_4, R_5, R_6, R_7 and R_8 are each substituents selected from the class consisting of hydrogen and lower alkyl; *n* is an integer from 0 to 1; and Q is a substituent selected from the group consisting of H_2X and $-PZ(OR_{10})_2$, in which X is a halogen atom, Z is a substituent selected from the group consisting of oxygen and sulfur, and R_{10} stands for lower alkyl.

3,318,911

METHOD OF PREPARING GAMMA-CYANOBUTYRALDEHYDE ACETALS

Ryonosuke Yoshida, Masahiro Takehara, and Eiji Negoro, Kawasaki-shi, Kanagawa-ken, Japan, assignors to Ajinomoto Co., Inc., Tokyo, Japan

No Drawing. Filed Dec. 26, 1963, Ser. No. 333,612

Claims priority, application Japan, Dec. 28, 1962, 37/59,404

2 Claims. (Cl. 260—340.7)

1. A method of preparing a γ-cyanobutyraldehyde acetal, which comprises condensing acetonitrile with an approximately equimolecular amount of an acetal of β-chloropropionaldehyde having an alcohol moiety selected from the group consisting of lower alkanols and the divalent radicals of dioxolane and dioxane in an inert liquid reaction medium selected from the group consisting of liquid ammonia, dialkyl ether, and dioxane at a temperature between −75° C. and +30° C. in the presence of an approximately equimolecular amount of a condensing agent selected from the group consisting of the alkali metals sodium, potassium, and lithium, and the amides of said alkali metals.

3,318,912

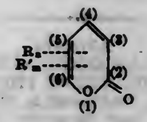
PROCESS FOR THE PREPARATION OF 2-PYRONES

Eric J. Y. Scott, Princeton, N.J., assignor to Mobil Oil Corporation, a corporation of New York

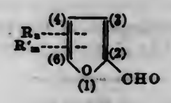
No Drawing. Filed May 28, 1965, Ser. No. 459,904

10 Claims. (Cl. 260—343.2)

1. A process for the preparation of a 2-pyrone having the structural formula:



in which R and R' are organic radicals that are stable structurally and against scission from the ring at the reaction conditions of said process; each R is a monovalent radical linked to ring position 4, 5 or 6; R is a radical selected from the group consisting of hydrogen, halogens, nitro, normal alkyls containing 1–6 carbon atoms, normal alkenyls containing 1–6 carbon atoms, and phenyl; R' is a divalent radical having a —CR=CR—CR=CR— structure linked to and forming a cyclic structure with adjacent carbon atoms in two of ring positions 4, 5 and 6, wherein R has the aforedescribed significance; *m* is zero or one; and *n* is zero or an integer of one to three when *m* is zero, and zero or one when *m* is one; which process comprises heating a 2-furaldehyde having the structural formula:



in which R, R', *m* and *n* have the aforedescribed significance; each R is linked to ring position 3, 4 or 5; and R' is linked to and forms a cyclic structure with adjacent carbon atoms in two of ring positions 3, 4 and 5; to between about 750° and about 1500° C. for a fraction of a second, and immediately thereafter cooling the resulting 2-pyrone to a temperature at which it is normally structurally stable.

3,318,913

PROCESS FOR PRODUCING ALPHA-METHYL-GAMMA-BUTYROLACTONE

Jurgen F. Falbe, Bonn, Germany, and Nicolaas Huppes, Amsterdam, Netherlands, assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Feb. 18, 1966, Ser. No. 528,384

Claims priority, application Germany, Sept. 22, 1965, S 99,580

6 Claims. (Cl. 260—343.6)

1. The process of producing α-methyl-γ-butyrolactone which comprises initially intimately contacting (a) lower alkyl ester of methacrylic acid, (b) carbon monoxide,

and (c) from about 0.25 mole to about 4 moles of hydrogen per mole of carbon monoxide, in liquid-phase solution in inert solvent in the presence of from about 0.0001 gram-atom to about 0.01 gram-atom of rhodium catalyst per mole of the methacrylate ester and up to about 10% by weight based on the methacrylate ester of a tertiary amine at a temperature from about 120° C. to about 180° C. and a pressure of from about 75 atmospheres to about 1000 atmospheres; and subsequently maintaining the resulting mixture at a temperature from about 180° C. to about 250° C., thereby hydrogenating and lactonizing the β-formylisobutyrate ester product resulting from said initial intimate contacting.

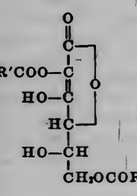
3,318,914

2,6-DIESTERS OF ASCORBIC ACID AND PROCESS FOR PRODUCING THE SAME

Kanjiro Kobayashi, Nishinomiya, Shigenori Iino, Setagaya-ku, Tokyo, and Haruyasu Ohta, Suginami-ku, Tokyo, Japan, assignors to Nihon Surfactant Industries Co., Ltd., Tokyo, Japan, a corporation of Japan

No Drawing. Filed Nov. 21, 1963, Ser. No. 325,460
Claims priority, application Japan, Nov. 26, 1962, 37/51,943
10 Claims. (Cl. 260—343.7)

9. 2,6-diester of ascorbic acid represented by the general formula



wherein R, R′ are members of the group consisting of alkyl having from 3 to 17 carbon atoms and phenyl.

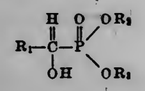
3,318,915

OIL-SOLUBLE ALPHA-HYDROXYMETHYL PHOSPHONATE DIESTERS

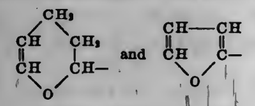
Ulrich Hasserodt, Holzlar, Siegburg, Kurt H. G. Pilgram, Bonn-Dransdorf, and Friedrich W. A. G. K. Korte, Hangelar, Germany, assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Oct. 21, 1965, Ser. No. 500,330
Claims priority, application Germany, Nov. 13, 1961, S 76,664
9 Claims. (Cl. 260—345.9)

1. An oil-soluble alpha-hydroxy phosphonic acid diester having the formula



wherein R_1 is an organic heterocyclic radical selected from the group consisting of



where R_2 and R_3 are hydrocarbyl radicals one of which contains at least 6 carbon atoms.

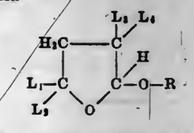
3,318,916

PROCESS FOR THE PREPARATION OF SUBSTITUTED TETRAHYDROFURANS

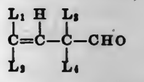
Edward C. Leonard, Jr., Plainfield, N.J., assignor to Union Carbide Corporation, a corporation of New York

No Drawing. Filed July 5, 1963, Ser. No. 293,175
9 Claims. (Cl. 260—346.1)

1. A process for the preparation of a tetrahydrofuran having the formula



wherein L_1 and L_2 are monovalent radicals selected from the group consisting of hydrogen and alkyl containing 1 to 4 carbon atoms, L_3 and L_4 are alkyl containing 1 to 4 carbon atoms, R is a monovalent radical selected from the group consisting of hydrogen, alkyl containing 1 to 8 carbon atoms, chlorine substituted alkyl containing 1 to 4 carbon atoms, bromine substituted alkyl containing 1 to 4 carbon atoms, iodine substituted alkyl containing 1 to 4 carbon atoms, alkoxyalkyl containing 2 to 8 carbon atoms, vinyl and acetyl, which comprises contacting an unsaturated aliphatic aldehyde having the structure



wherein L_1, L_2, L_3, and L_4 are as defined above, with an acid catalyst in the presence of a reactant selected from the group consisting of unsubstituted monobasic aliphatic acids containing 2 to 18 carbon atoms, unsubstituted aliphatic alcohols containing 1 to 8 carbon atoms, aliphatic alcohols containing 1 to 4 carbon atoms and a halogen substituent selected from tthe group consisting of chlorine, bromine and iodine, and furfuryl alcohol, at a temperature of about 20° C. to 100° C.

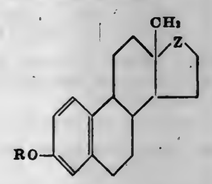
3,318,917

17α - (4 - ALKOXY - 3 - BUTEN - 1 - YNYL)ESTRA-1,3,5(10) - TRIENE - 3,17β - DIOLS AND DERIVATIVES THEREOF

Walter R. Benn, Deerfield, Ill., assignor to G. D. Searle & Co., Chicago, Ill., a corporation of Delaware

No Drawing. Filed Nov. 12, 1965, Ser. No. 507,555
8 Claims. (Cl. 260—397.1)

1. A compound of the formula



wherein R is a member of the class consisting of hydrogen and a lower alkyl radical, Z is selected from the group consisting of



radicals, X being a member of the class consisting of hydrogen and a hydroxy radical, R′ being a lower alkyl radical and the dotted line indicating an unsaturated linkage selected from the group consisting of a double bond and a triple bond.

5. As in claim 1, the compound which is 17-(3-carboxyallyliden)estra-1,3,5(10)-trien-3-ol 3-methyl ether.

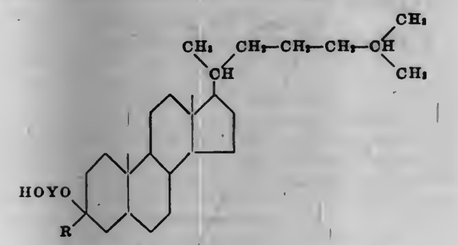
3,318,918

STEROIDAL TERTIARY ETHER GLYCOLS AND PREPARATION THEREOF

Irving Scheer, Somerville, N.J., assignor to Ortho Pharmaceutical Corporation, a corporation of New Jersey

No Drawing. Filed Aug. 17, 1964, Ser. No. 390,210
9 Claims. (Cl. 260—397.2)

8.



wherein R is selected from the group consisting of aryl, aralkyl, alkaryl and alicyclic, and Y is selected from the group consisting of alkylene radicals containing not more than 8 carbon atoms, the attaching oxygen to carbon bonds being separated by at least 2 and not more than 3 carbon atoms.

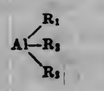
3,318,919

PROCESS FOR THE PARTIAL HYDROGENATION OF 24(28)-DEHYDROERGOSTEROL TO ERGOSTEROL

Manfred Kühne, Unna-Konigsborn, and Emanuel Kaspar, Kamen, Westphalia, Germany, assignors to Schering A.G.

No Drawing. Filed Oct. 19, 1965, Ser. No. 498,097
Claims priority, application Germany, Dec. 10, 1964, Sch 36,228
7 Claims. (Cl. 260—397.2)

1. A method of preparing ergosterol which comprises:
(a) reacting a substance selected from the group consisting of 24(28)-dehydroergosterol and the esters and ethers of said dehydroergosterol with an alkylaluminum compound of the formula:



wherein at least two of said R_1, R_2, R_3 are isobutyl and not more than one of said R_1, R_2, R_3 is hydrogen, in the presence of an inert organic solvent;
(b) hydrolyzing the primary reaction product formed; and
(c) recovering a compound selected from the group consisting of ergosterol and an ether of said ergosterol from the product of hydrolysis.

3,318,920

TETRACYCLIC AND PENTACYCLIC TRITERPENE-GUANYLHYDRAZONES AND THEIR PRODUCTION

Karlheinz Meyer, Hans Krätzer, and Siegismund Schütz, Wuppertal-Elberfeld, Hans-Günther Kroneberg, Haan, Rhineland, and Kurt Stoepel, Wuppertal-Vohwinkel, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a German corporation

No Drawing. Filed Feb. 10, 1965, Ser. No. 431,711
Claims priority, application Germany, Feb. 12, 1964, F 41,986
8 Claims. (Cl. 260—397.2)

7. $\Delta^{8,24}$-lanostadiene-3-guanyl hydrazone.

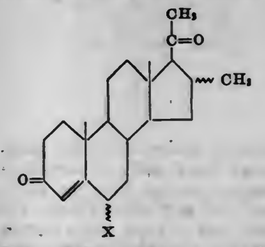
3,318,921

6-HALO-16-METHYL-3,20-DIKETO DERIVATIVES OF THE PREGNANE SERIES

John Edwards, Mexico City, Mexico, Carl Djerassi, Palo Alto, Calif., Howard J. Ringold, Shrewsbury, Mass., and George Rosenkranz, Mexico City, Mexico, assignors, by mesne assignments, to Syntex Corporation, a corporation of Panama

No Drawing. Filed Dec. 28, 1961, Ser. No. 162,915
Claims priority, application Mexico, Apr. 28, 1959, 54,401
16 Claims. (Cl. 260—397.3)

1. A compound of the following formula:



wherein X is selected from the group consisting of fluorine, chlorine and bromine.

3,318,922

13 - SUBSTITUTED ALKYL-17-HYDROXYGONA-4-EN - 3 - ONES AND THEIR 17α SUBSTITUTION PRODUCTS

Thomas B. Windholz, Westfield, Arthur A. Patchett, Metuchen, and John Fried, Plainfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed Oct. 1, 1962, Ser. No. 227,581
12 Claims. (Cl. 260—397.4)

1. A compound selected from the group consisting of 13-alkyl-17α-trifluorovinyl - 17 - hydroxygona-4-en-3-one and the 17β-alkanoyl esters thereof, wherein said 13-alkyl is a lower alkyl radical containing at least 2 carbon atoms.

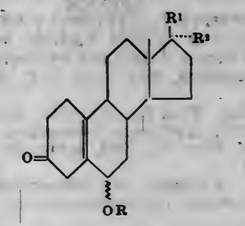
3,318,923

PROCESS FOR THE PREPARATION OF $\Delta^{1,3,5(10)}$-TRIENES AND 3 - KETO-6-OXYGENATED-$\Delta^{5(10)}$-DEHYDRO INTERMEDIATES THEREFOR

Francisco Alvarez, Mexico City, Mexico, assignor to Syntex Corporation, Panama, Panama, a corporation of Panama

No Drawing. Filed July 13, 1964, Ser. No. 382,361
Claims priority, application Mexico, Oct. 25, 1963, 74,437
28 Claims. (Cl. 260—397.4)

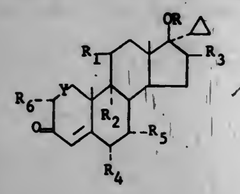
1. A compound represented by the general formula:



wherein R is selected from the group consisting of hydrogen and an acyl group containing less than 12 carbon atoms; R^1 is selected from the group consisting of hydroxyl and an acyloxy group containing less than 12 carbon atoms; R^2 is selected from the group consisting of hydrogen, a lower alkyl group, a lower alkenyl group and a lower alkylnyl group, and R^1 and R^2 taken together represent a keto group.

3,318,924
17α-CYCLOPROPYLTESTOSTERONES
Vlasios Georgian, Belmont, Mass., assignor to Trustees of Tufts College, Medford, Mass., a corporation of Massachusetts
No Drawing. Filed Jan. 6, 1965, Ser. No. 423,821
8 Claims. (Cl. 260—397.4)

1. A chemical compound of the formula:

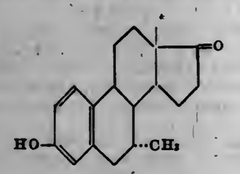


wherein:

Y is a member selected from the group consisting of a 1,2-single bond and a 1,2-double bond;
R is a member selected from the group consisting of hydrogen and acyl derived from a lower aliphatic carboxylic acid of from 2 to 4 carbon atoms;
R_1 is a member selected from the group consisting of hydrogen, hydroxy and keto;
R_2 is a member selected from the group consisting of hydrogen and fluoro; and
R_3, R_4, R_5 and R_6 are members selected from the group consisting of hydrogen and methyl.

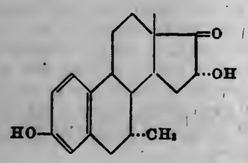
3,318,925
METHYLATED ESTRONES
Georg Anner and Jaroslav Kalvoda, Basel, and Peter Wieland, Oberwil, Basel-Land, Switzerland, assignors to Ciba Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Dec. 21, 1964, Ser. No. 420,146
Claims priority, application Switzerland, Dec. 24, 1963, 15,945/63; May 27, 1964, 6,914/64; Dec. 3, 1964, 15,654/64
2 Claims. (Cl. 260—397.4)

1. The 7α-methyl-estrone of the formula



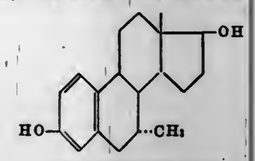
3,318,926
7α-METHYL-16α-HYDROXY-ESTRONES
Georg Anner and Jaroslav Kalvoda, Basel, and Peter Wieland, Oberwil, Basel-Land, Switzerland, assignors to Ciba Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Dec. 21, 1964, Ser. No. 420,164
Claims priority, application Switzerland, Dec. 24, 1963, 15,945/63; May 27, 1964, 6,914/64; Dec. 9, 1964, 15,896/64
2 Claims. (Cl. 260—397.4)

1. The 7α-methyl-16α-hydroxy-estrone of the formula



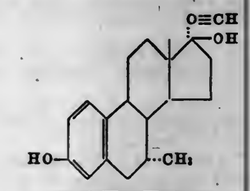
3,318,927
ALKYLATED ESTRADIOL
Georg Anner and Jaroslav Kalvoda, Basel, and Peter Wieland, Oberwil, Basel-Land, Switzerland, assignors to Ciba Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Dec. 21, 1964, Ser. No. 420,147
Claims priority, application Switzerland, Dec. 24, 1963, 15,945/63; May 27, 1964, 6,914/64; Dec. 3, 1964, 15,653/64
2 Claims. (Cl. 260—397.5)

1. 7α-methyl-oestradiol of the formula



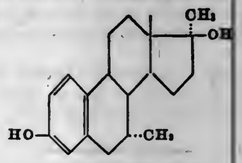
3,318,928
7α-ALKYL-17α-ALKINYL-ESTRADIOLS
Georg Anner and Jaroslav Kalvoda, Basel, and Peter Wieland, Oberwil, Basel-Land, Switzerland, assignors to Ciba Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Dec. 21, 1964, Ser. No. 420,185
Claims priority, application Switzerland, Dec. 24, 1963, 15,945/63; May 27, 1964, 6,914/64; Dec. 3, 1964, 15,655/64
2 Claims. (Cl. 260—397.5)

1. The 7α-methyl-17α-ethinyl-estradiol of the formula



3,318,929
7α,17α-ALKYL ESTRADIOLS
Georg Anner and Jaroslav Kalvoda, Basel, and Peter Wieland, Oberwil, Basel-Land, Switzerland, assignors to Ciba Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Dec. 21, 1964, Ser. No. 420,186
Claims priority, application Switzerland, Dec. 24, 1963, 15,945/63; May 27, 1964, 6,914/64; Dec. 3, 1964, 15,656/64
2 Claims. (Cl. 260—397.5)

1. The 7α,17α-dimethyl-estradiol of the formula



3,318,930
REACTION PRODUCTS OF POLYMERIZED POLYENE HIGHER FATTY ACIDS AND POLY-1,2-ALKYLENAMIDES
Paul Fram, Lincoln Township, Washington County, and George H. Smith, Maplewood, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware
No Drawing. Continuation of application Ser. No. 856,650, Dec. 2, 1959. This application May 13, 1963, Ser. No. 280,081
25 Claims. (Cl. 260—404.5)

1. A 100 percent solids-forming liquid comprising a mixture of a polymerized polyene higher fatty acid, said acid containing from about 14 to 22 carbon atoms, and a poly-1,2-alkylenamide.

3,318,931
METHOD OF PRODUCING ALKYLGALLIUMS
Richard Dötzer, Nuraberg, and Friedrich Engelbrecht, Schwabach, Germany, assignors to Siemens-Schukertwerke Aktiengesellschaft, Berlin-Siemensstadt, Germany, a corporation of Germany
No Drawing. Filed May 10, 1961, Ser. No. 108,996
Claims priority, application Germany, May 14, 1960, S 68,513
4 Claims. (Cl. 260—429)

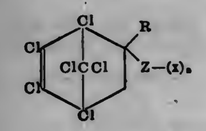
1. The method of producing triisobutylgallium, which comprises slowly adding, in a molar ratio of about 1:3, ethoxydiisobutylgallium, in a suitable organic solvent, to warmed triisobutylaluminum, distilling off said solvent, thereafter fractionally distilling the rest of the reaction mixture to recover triisobutylgallium.

3,318,932
AMIDOSULFINATES AND PROCESS FOR PREPARING SAME
Walter A. Koraicker, Zurich, Switzerland, assignor to Monsanto Company, a corporation of Delaware
No Drawing. Filed July 2, 1962, Ser. No. 207,010
Claims priority, application Switzerland, July 5, 1961, 7,956/61
11 Claims. (Cl. 260—429)

1. A process for preparing amidosulfinates of the formula $A(O_2SNRR')_a(NRR')_b(OR'')_c(X)_d$ wherein A is selected from the class consisting of alkali metals, alkaline earth metals, aluminum, tin, zinc, titanium, vanadium, silicon, phosphorus, arsenic, boron, TiO, ZrO, Zr_2O_3, VO, CrO, CrO_2 and PO, R, R' and R'' are alkyl radicals having not more than 8 carbon atoms, X is a halogen atom, *a* is an integer, *b*, *c* and *d* are selected from the class consisting of zero and integers, and $a+b+c+d$ equal the valence of A, comprising reacting a compound of the formula $A(NRR')_{a+b}(OR'')_c(X)_d$ wherein A, R, R', R'', X, *a*, *b*, *c* and *d* are as defined hereinabove, with sulfur dioxide.

3,318,933
HEXACHLOROBICYCLOHEPTENYL AROMATIC ACIDS AND DERIVATIVES THEREOF
Emil F. Jason and Ellis K. Fields, Chicago, Ill., assignors to Standard Oil Company, Chicago, Ill., a corporation of Indiana
No Drawing. Filed July 13, 1962, Ser. No. 209,747
15 Claims. (Cl. 260—434)

1. Hexachlorobicycloheptenyl aromatic carboxylic acids of the formula:



wherein R is selected from the class consisting of hydrogen and alkyl radicals of less than about 5 carbon atoms and Z denotes a divalent aryl radical containing less than 3 benzene rings and wherein *x* consists of a carboxyl group or the corresponding acid halides, amides, metal salts, and lower alkanol and olefinically unsaturated alkanol esters of said carboxylic acids and wherein *n* is an integer from 1 to 5 inclusive.

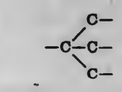
3,318,934
TERTIARY ALKOXY-ALUMINUM DIALKYLS AND THEIR MANUFACTURE
Ernst Georg Hoffmann and Walter Tornau, Mulheim an der Ruhr, Germany, assignors to Karl Ziegler, Mulheim an der Ruhr, Germany
No Drawing. Filed June 27, 1962, Ser. No. 205,568
Claims priority, application Germany, June 30, 1961, Z 8,837
19 Claims. (Cl. 260—448)

1. Monoalkoxy organo-aluminum compound having the formula R_2AlOR' wherein R is a hydrocarbon selected from the group consisting of alkyl and cycloalkyl of which the carbon atom thereof linked directly to the Al-atom is saturated and wherein R' is a tertiary alkyl hydrocarbon having up to 13 carbon atoms and containing the linkage



with the tertiary carbon atom thereof linked directly to the O-atom.

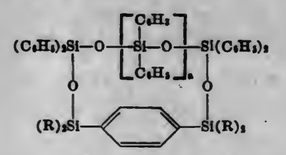
12. Process for producing monoalkoxy organo-aluminum compounds having the formula R_2AlOR' wherein R is a hydrocarbon selected from the group consisting of alkyl and cycloalkyl of which the carbon atom thereof linked directly to the Al-atom is saturated and wherein R' is a tertiary alkyl hydrocarbon having up to thirteen carbon atoms containing the linkage



with the tertiary carbon atom thereof linked directly to the O-atom, which comprises reacting in the presence of an inert gas a compound having the formula R_2AlX, wherein R is the same as defined hereinabove and X is selected from the group consisting of hydrogen, halogen and R as defined hereinabove, with a compound having the formula YOR', wherein R' is the same as defined above and Y is hydrogen when X is one of hydrogen and R as defined above, Y being alkali metal when X is one of halogen and R as defined above, and Y being alkali metal—$R_2Al(OR')$ with R and R' being the same as defined above when X is halogen, to form thereby the corresponding R_2AlOR' compound.

3,318,935
ORGANOSILICON MATERIAL
Christian R. Sporck, Burnt Hills, N.Y., assignor to General Electric Company, a corporation of New York
No Drawing. Filed Dec. 18, 1961, Ser. No. 160,262
3 Claims. (Cl. 260—448.2)

1. A cyclic organosilicon compound having the formula:



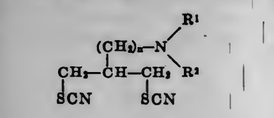
where *a* is a whole number equal to from 0 to 1, inclusive, and R is a monovalent hydrocarbon radical.

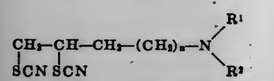
3,318,936
DITHIOCYANATO AMINO ALKANES

Michihiko Sakai and Masayuki Kato, Kyoto, Hikoichi Hagiwara, Osaka, and Kazuo Konishi, Kyoto, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

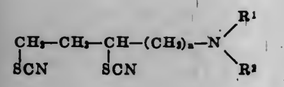
No Drawing. Filed June 25, 1962, Ser. No. 205,088
Claims priority, application Japan, June 27, 1961, 36/23,009
5 Claims. (Cl. 260—454)

1. A compound selected from the class consisting of compounds of the formula





and



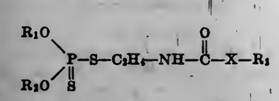
wherein n is an integer from 0 to 4, each of R^1 and R^2 independently is selected from the class consisting of lower alkyl of up to six carbon atoms, allyl, cyclohexyl, phenyl, benzyl, and R^1 and R^2 taken together are a member selected from the class consisting of $-(CH_2)_m-$ where m is an integer from 2 to 5, $-CH=CH-CH_2-CH_2-$, $-CH=CH-CH=CH-$, $-CH_2-CH_2-O-CH_2-CH_2-$ and $-CH_2-CH_2-S-CH_2-CH_2-$

3,318,937
CARBAMYL AND THIOCARBAMYL PHOSPHATES

Otto Rohr, Neu-Allschwil, Basel-Stadt, Switzerland, assignor to Ciba Limited, Basel, Switzerland, a Swiss company

No Drawing. Filed Nov. 18, 1963, Ser. No. 324,210
Claims priority, application Switzerland, Nov. 22, 1962, 13,768/62
3 Claims. (Cl. 260—455)

1. A compound of the formula



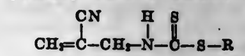
wherein R_1 and R_2 each represents an alkyl radical containing at most 4 carbon atoms, X represents a member selected from the group consisting of an oxygen atom and a sulfur atom and R_3 represents a member selected from the group consisting of (a) an alkyl radical containing at most 5 carbon atoms that is interrupted by a member selected from the group consisting of an oxygen atom, a sulfur atom and an SO_2 group, (b) an alkenyl radical containing at most 4 carbon atoms, (c) a cyanoethyl radical, (d) a benzyl radical, (e) a phenyl radical substituted by a member selected from the group consisting of a chlorine atom and an alkyl radical containing at most 4 carbon atoms, and (f) the radical of the formula $-CH_2-COOR_4$, in which R_4 represents an alkyl radical of at most 4 carbon atoms.

3,318,938
ARYL 2-CYANOALLYL-DITHIOCARBAMATES

George R. Haynes, Modesto, Calif., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Aug. 7, 1964, Ser. No. 388,285
7 Claims. (Cl. 260—455)

1. Aryl 2-cyanoallyl-dithiocarbamates of the formula:



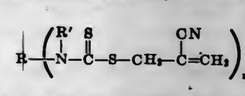
wherein R represents a member selected from unsubstituted aryl of 6–14 carbon atoms and aryl of 6–14 carbon atoms substituted by from one to a plurality of substituents of the group consisting of middle halogen, alkyl of 1–5 carbon atoms, alkoxy of 1–5 carbon atoms, hydroxy, nitro, amino ($-NH_2$), monoalkylamino of 1–4 carbon atoms, and dialkylamino of 2–8 carbon atoms.

3,318,939
N-ALIPHATIC S-(2-CYANOALLYL) DITHIOCARBAMATES

Harry G. Durham and George R. Haynes, Modesto, Calif., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Nov. 2, 1964, Ser. No. 408,396
10 Claims. (Cl. 260—455)

1. N-aliphatic S-(2-cyanoallyl) dithiocarbamates of the formula:



wherein n=1–2, with the proviso that when n=1, R is a member of the group consisting of alkyl of 1 to 5 carbon atoms, alkoxy of 1 to 5 carbon atoms, alkoxyalkyl of 1 to 5 carbon atoms, alkylthioalkyl of 1 to 5 carbon atoms, (middle halo)alkyl of 1 to 5 carbon atoms, hydroxyalkyl of 1 to 5 carbon atoms, aminoalkyl of 1 to 5 carbon atoms, monoalkylaminoalkyl of 1 to 5 carbon atoms and dialkylaminoalkyl of 2 to 10 carbon atoms and when n=2, R is a member of the groups consisting of alkylene of 2 to 5 carbon atoms and such alkylene interrupted by one of sulfur, oxygen, and nitrogen; R' is a member of the group consisting of hydrogen, alkyl of 1 to 5 carbon atoms, alkenyl of 2 to 5 carbon atoms, (middle halo)alkyl of 1 to 5 carbon atoms, (middle halo)alkenyl of 2 to 5 carbon atoms, and alkoxy of 1 to 5 carbon atoms.

3,318,940
3-(2-HYDROXYPHENYL)PROPYL THIOLACETATE

Elbert C. Ladd, New Haven, Conn., assignor to United States Rubber Company, New York, N.Y., a corporation of New Jersey

No Drawing. Original application May 31, 1962, Ser. No. 198,720, now Patent No. 3,193,583, dated July 6, 1965. Divided and this application Feb. 23, 1965, Ser. No. 434,676
1 Claim. (Cl. 260—455)

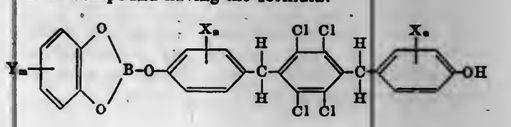
3-(2-hydroxyphenyl)propyl thiolacetate.

3,318,941
CHLORO-PHENYLENE-BORATE COMPOUNDS

Richard B. Lund, Whippany, and Arleen C. Pierce, Parsippany, N.J., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Mar. 6, 1964, Ser. No. 350,078
2 Claims. (Cl. 260—462)

1. A compound having the formula:



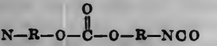
wherein each Y is a substituent independently selected from the group consisting of chlorine, lower alkyl and alkoxy; each X is a substituent independently selected from the group consisting of chlorine, bromine and lower alkyl; m and n are integers of from 0 to 4 and all unspecified valences are satisfied with hydrogen.

3,318,942
STABILIZED POLYMERIZABLE CARBONATE DIISOCYANATE COMPOUNDS AND PROCESS FOR EFFECTING STABILIZATION

Thomas K. Brotherton and John W. Lynn, Charleston, W. Va., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Nov. 14, 1963, Ser. No. 323,575
12 Claims. (Cl. 260—463)

1. A composition of matter consisting essentially of a polymerizable carbonate diisocyanate of the formula:



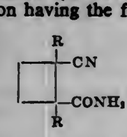
wherein R represents a divalent hydrocarbon radical of 2 to 12 carbon atoms and a stabilizing amount of an inhibitor selected from the group consisting of m-benzenedisulfonyl chloride and 1,5-naphthalenedisulfonyl chloride.

3,318,943
2-CYANOCYCLOBUTANE CARBOXAMIDES AND PROCESS FOR PREPARING SAME

Janice L. Greene, Warrensville Heights, Murrel Godfrey, Cleveland, and James D. Idol, Jr., Shaker Heights, Ohio, assignors to The Standard Oil Company, Cleveland, Ohio, a corporation of Ohio

No Drawing. Filed Aug. 4, 1964, Ser. No. 387,480
8 Claims. (Cl. 260—464)

1. The composition having the formula



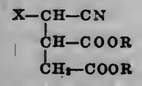
wherein R is hydrogen, a lower alkyl group or a halogen.

3,318,944
ISOCITROMONONITRILE ESTERS AND ACIDS

Richard H. Wiley, Louisville, Ky.
(30 Beeckman Place, New York, N.Y. 10022)

No Drawing. Filed Oct. 24, 1962, Ser. No. 232,871
9 Claims. (Cl. 260—465)

1. A compound having the formula



wherein R is hydrogen, an alkyl radical having from 1 to 22 carbon atoms, cycloalkyl having from 3 to 6 carbon atoms, phenyl, or phenalkyl where the alkyl group has from 1 to 2 carbon atoms; and X is hydroxyl or an alkanoyloxy radical having from 1 to 18 carbon atoms.

3,318,945
CYCLODODECADIENE CARBOXYLIC ACID ESTERS

William Francis Erman, Cincinnati, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio

No Drawing. Filed Sept. 27, 1963, Ser. No. 311,962
7 Claims. (Cl. 260—468)

1. Lower alkyl esters of 4,8-cyclododecadiene-1-carboxylic acid wherein the lower alkyl substituent contains from 1 to 4 carbon atoms.

3,318,946
PLASTICISER COMPOSITION

Ronald William Kay, Kirkella, England, assignor to The Distillers Company Limited, Edinburgh, Scotland, a British company

No Drawing. Filed Sept. 19, 1963, Ser. No. 310,126
Claims priority, application Great Britain, Sept. 29, 1962, 37,008/62
11 Claims. (Cl. 260—475)

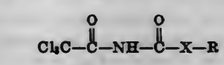
1. A process for the production of a plasticizer composition which comprises heating together at a temperature of from 100° C. to 160° C. at least one potassium or sodium salt of a mono ester of a dicarboxylic acid selected from the group consisting of aliphatic, cycloaliphatic, aromatic and heterocyclic moieties having from 1 to 20 carbon atoms, 1,4-dibromobutene-2 or 1,4-dichlorobutene-2, at least one dipotassium or disodium salt of a dicarboxylic acid in a molar ratio of from 1:1:0.5 to 1:0.5:0.5 in the presence of a tertiary amine or quaternary ammonium salt as an esterification catalyst and recovering the composition formed.

3,318,947
N-(α,α,α-TRICHLOROACETYL)CARBAMATES

Angelo John Speziale, Creve Coeur, and Lowell R. Smith, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Original application Sept. 4, 1962, Ser. No. 221,301, now Patent No. 3,213,135, dated Oct. 19, 1965. Divided and this application May 13, 1965, Ser. No. 455,586
4 Claims. (Cl. 260—482)

1. An N-(α,α,α-trichloroacetyl)carbamate of the formula



3,318,948
PROCESS FOR INCREASING POLYMERIZATION ACTIVITY OF VINYL ACETATE

James H. Burgess, Calvert City, Ky., assignor to Air Reduction Company, Incorporated, New York, N.Y., a corporation of New York

No Drawing. Filed Mar. 12, 1964, Ser. No. 351,554
3 Claims. (Cl. 260—499)

1. A process of treating vinyl acetate monomer produced by the vapor-phase synthesis of said monomer from acetylene and acetic acid, wherein the reaction mixture from said synthesis is distilled to separate the vinyl acetate monomer therefrom, to increase the polymerization activity of said monomer which comprises passing said monomer after it has been so separated by distillation through a bed of granular activated carbon.

3,318,949
PROCESS FOR CHLORINATING ORTHO-CRESOL

Robert Roberts and George Henry Francis Walker, Widnes, England, assignors to Imperial Chemicals Industries Limited, London, England, a corporation of Great Britain

No Drawing. Filed Jan. 29, 1962, Ser. No. 169,663
Claims priority, application Great Britain, Feb. 3, 1961, 4,125/61
9 Claims. (Cl. 260—521)

1. A process for the chlorination of ortho-cresol which comprises reacting ortho-cresol and sulphuryl chloride at a temperature within the range of approximately 20–75° C. in the presence of from 0.5% to 2% by weight of a metal

halide catalyst selected from the group consisting of the halides of aluminum, iron, tin, titanium and zinc, and from 0.5% to 1.5% by weight of fuller's earth to produce chlorinated ortho-cresol, the amounts of catalyst and fuller's earth being based on the weight of ortho-cresol.

3,318,950

PROCESS FOR PREPARING CARBOXYLIC ACID CHLORIDES

Frank J. Christoph, Jr., Elkton, Md., Stuart H. Parker, Wilmington, Del., and Robert L. Seagraves, Pennsville, N.J., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Dec. 10, 1963, Ser. No. 329,387

7 Claims. (Cl. 260—544)

1. A process for preparing carboxylic acid chlorides which comprises reacting an intermolecular anhydride of carboxylic acids with phosgene at a temperature from about 40° C. to about 150° C. in the presence of a carboxamide having a structure selected from the group consisting of

(A) R—CO—NR_1R_2, where R is selected from the group consisting of hydrogen and lower alkyl, and R_1 and R_2 are each individually selected from the group consisting of lower alkyl and phenyl, and

(B)



where R_3 is an alkylene radical of 2 to 5 carbon atoms and R_4 is an alkyl radical of 1 to 4 carbon atoms,

said intermolecular anhydride being free of substituents which react with phosgene; and recovering from the reaction mixture the corresponding acid chloride of said carboxylic acid.

3,318,951

PREPARATION OF UREA WITH A LOW BIURET CONTENT

Petrus J. C. Kaasenbrood, Sittard, Netherlands, assignor to Stamicarbon N.V., Heerlen, Netherlands

Filed Apr. 8, 1964, Ser. No. 358,170

Claims priority, application Netherlands, Apr. 11, 1963, 291,528

3 Claims. (Cl. 260—555)

1. In a process for the preparation of urea having a low biuret content by passing an aqueous urea solution containing biuret into a first crystallization zone whereby urea is crystallized by evaporation of water from said solution and separating said crystallized urea from the remaining mother liquor of said solution, the improvement which comprises evaporating water from said remaining mother liquor in a second crystallization zone to convert the liquor to a substantially dry crystalline mass of urea and biuret, providing a urea-biuret melt containing about 15–28% by weight of biuret, mixing said crystalline mass of urea and biuret with said melt at a temperature near the melting point of the resulting mixture whereby biuret in said crystalline mass of urea and biuret is dissolved in said melt, separating said crystalline mas of urea from said melt, contacting the separated urea-biuret melt with ammonia gas at a temperature of 120°–150° C. to convert part of the biuret present in said urea-biuret melt to urea whereby the biuret content in said melt is adjusted to about 15–28% by weight and recycling said converted urea-biuret melt for further mixing with crystalline mass of urea and biuret.

3,318,952

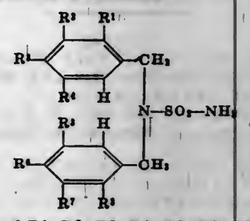
DIBENZYLSULFAMIDES

William J. Houlihan, Mountain Lakes, N.J., assignor to Sandoz Inc., Hanover, N.J.

No Drawing. Filed Dec. 8, 1964, Ser. No. 416,907

5 Claims. (Cl. 260—556)

1. A compound of the formula



wherein each of R^1, R^2, R^3, R^4, R^5, R^6, R^7, and R^8 is a member selected from the group consisting of a hydrogen atom, lower alkyl, lower alkoxy, di(lower) alkylamino, aziridyl, pyrrolidyl, piperidyl, homopiperidyl, a fluorine atom, a chlorine atom, a bromine atom, trifluoromethyl and, together with the member bonded to the adjacent carbon atom on the same ring methylenedioxy; a plurality of trifluoromethyl groups not being ortho to each other.

3,318,953

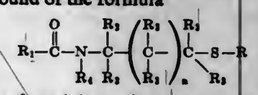
ORGANYL MERCAPTOALKYL AMIDE COMPOUNDS AND PROCESS

Herbert L. Wehrmeister, Terre Haute, Ind., assignor to Commercial Solvents Corporation, a corporation of Maryland

No Drawing. Filed May 2, 1963, Ser. No. 277,452

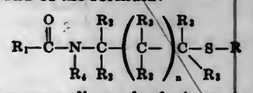
19 Claims. (Cl. 260—558)

1. A compound of the formula



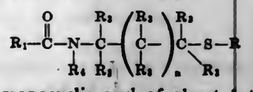
wherein R is selected from the group consisting of alkyl having from about 1 to 15 carbon atoms and mono-ring aryl; R_1 is selected from the group consisting of alkyl having from about 1 to 20 carbon atoms and mono ring aryl; R_2 is mono-ring arylmercaptoalkyl having up to 15 carbon atoms; R_3 is selected from the group consisting of hydrogen and lower alkyl; R_4 is selected from the group consisting of hydrogen and alkyl having from about 1 to 15 carbon atoms; and n is equal to 0 to 1.

2. A compound of the formula:



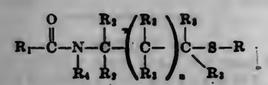
wherein R is monocyclic aryl of about 1 to 15 carbon atoms; R_1 is an alkyl of about 1 to 20 carbon atoms; R_2 is selected from the group consisting of hydrogen, alkyl of about 1 to 15 carbon atoms and monocyclic aryl of about 1 to 15 carbon atoms; R_3 is selected from the group consisting of hydrogen and lower alkyl; R_4 is hydrogen; and n is equal to 0 to 1.

10. A compound of the formula:

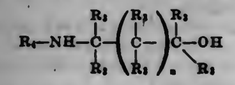


wherein R is monocyclic aryl of about 1 to 15 carbon atoms; R_1 is alkyl of about 1 to 20 carbon atoms; R_2 is selected from the group consisting of hydrogen, alkyl of about 1 to 15 carbon atoms and monocyclic aryl of about 1 to 15 carbon atoms; R_3 is selected from the group consisting of hydrogen and lower alkyl, R_4 is monocyclic-arylmercaptoalkyl having up to 15 carbon atoms; and n is equal to 0 to 1.

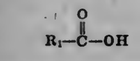
19. A method for preparing an organylmercaptoalkyl amide compounds of the formula



wherein R is selected from the group consisting of alkyl having from about 1 to 15 carbon atoms and mono-ring aryl; R_1 is selected from the group consisting of alkyl having from about 1 to 20 carbon atoms and mono-ring aryl; R_2 is selected from the group consisting of hydrogen, alkyl having from about 1 to 15 carbon atoms and mono-ring aryl; R_3 is selected from the group consisting of hyrogen and lower alkyl; R_4 is selected from the group consisting of hydrogen and alkyl having from about 1 to 15 carbon atoms; and n is equal to 0 to 1, the steps comprising reacting an amino alcohol having the formula



wherein R_5 is selected from the group consisting of hydrogen, alkyl having from about 1 to 15 carbon atoms and mono-ring aryl, and R_3, R_4 and n have the same meaning set forth above, with a mono-carboxylic acid having the formula



wherein R_1 has the same meaning set forth above and with a thiol compound having the formula

R—SH

wherein R has the same meaning set forth above, under organylmercaptoalkyl amide-producing reaction conditions including a temperature of about 80 to 220° C. to produce an organylmercaptoalkyl amide.

3,318,954

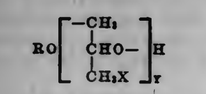
PROCESS FOR THE PRODUCTION OF QUATERNARY AMMONIUM COMPOUNDS

Michael Daniel Curtis, Jr., Colerain Township, Hamilton County, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio

No Drawing. Filed Apr. 24, 1964, Ser. No. 362,500

8 Claims. (Cl. 260—567.6)

1. A process for preparing quaternary compounds comprising reacting an agent having the formula



wherein R is selected from the group consisting of ethyl, propyl, hexyl, octyl, decyl, dodecyl, tetradecyl, hexadecyl, octadecyl, eicosyl, dodecyl phenyl, methyl phenyl, tetradecyl phenyl, decyl phenyl, hexyl phenyl, phenyl and benzyl groups and mixtures thereof, Y is an integer from 1 to about 2, and X is an anion selected from the group consisting of chloride, bromide, iodide and methyl sulfate anions, is reacted with a tertiary amine having the formula:



wherein R_2 and R_3 are each selected from the group consisting of methyl and ethyl groups and R_1 is selected from the group consisting of hexyl, octyl, dodecyl, hexadecyl, octadecyl, eicosyl, propyl, ethyl, decyl and tetradecyl groups; the catalyst for this reaction consisting of a homogeneous mixture of sodium bicarbonate and sodium hydroxide in anhydrous form, the ratio of sodium bicarbonate to sodium hydroxide being from about 19:1 to about 2:1; the reaction taking place at a temperature of from about 100° F. to about 315° F. and sufficiently high to provide an essentially homogeneous reaction mixture; said reaction occurring for from about one-half minute to about five minutes, and the reaction mixture containing not more than about ½% water, whereby quaternary ammonium compounds are produced in good yield and having good color.

3,318,955

PRODUCTION OF FORMALDEHYDE

Ulrich Gerloff and Juergen Jahn, Ludwigshafen (Rhine), and Otto Goehre, Heidelberg, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Feb. 24, 1965, Ser. No. 435,088

1 Claim. (Cl. 260—603)

In a process for producing formaldehyde by reacting methanol to formaldehyde in the vapor phase at an elevated temperature over silver metal catalyst, the improvement which comprises: using as the methanol reactant crude methanol from which a fraction boiling below 64.5° C. has been distilled off, said crude methanol having been obtained by reacting carbon monoxide and hydrogen in the presence of a zinc oxide-chromium oxide catalyst.

3,318,956

PROCESS FOR PRODUCING DIHYDROXY-DIPHENYL SULFONE

Marvin L. Mansner, Teaneck, N.J., assignor to Witco Chemical Company, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Feb. 24, 1964, Ser. No. 347,017

3 Claims. (Cl. 260—607)

1. A process for producing dihydroxydiphenyl sulfone which comprises initially reacting substantially stoichiometric proportions of phenol and sulfuric acid at a temperature in the range of 130 to 170 degrees C. under conditions of agitation, then adding benzene in small increments to the reaction mixture and at a rate to maintain the reaction mixture within the aforesaid temperature range, removing the water formed during the reaction by azeotropic distillation, and recovering the dihydroxydiphenyl sulfone from the reaction mixture.

3,318,957

METHOD FOR THE PRODUCTION OF SULFIDES

David W. Young, Homewood, Ill., assignor to Sinclair Research, Inc., New York, N.Y., a corporation of Delaware

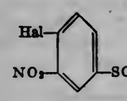
No Drawing. Filed Jan. 10, 1964, Ser. No. 336,883

5 Claims. (Cl. 260—609)

1. A method for the production of sulfides which comprises reacting in water as a reaction medium an alkali metal sulfide and a chloride selected from the group consisting of alkyl and alkenyl chlorides of about 3 to 16 carbon atoms in the presence of about 2 to 40% by weight, based on the water, of a water-soluble alkali metal salt of a resinous copolymer of styrene and maleic anhydride having about 0.5 to 3 moles of styrene per mole of maleic anhydride.

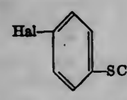
3,318,958
PROCESS FOR THE PRODUCTION OF NITRO-HALOTHIOPHENYL ETHERS
Jany Renz, Jean-Pierre Bourquin, and Hans Winkler, Basel, and Pierre Gagnaux, Allschwil, Switzerland, assignors to Sandoz Ltd., Basel, Switzerland
No Drawing. Filed Mar. 30, 1964, Ser. No. 355,946
Claims priority, application Switzerland, Apr. 3, 1963, 4,239/63
7 Claims. (Cl. 260—609)

1. A process for the production of a compound of Formula I



(I)

in which Hal is a member selected from the group consisting of chlorine, bromine and iodine atoms, by nitration of the dimethyl sulfate sulfonium compound of a thiophenyl ether of Formula II

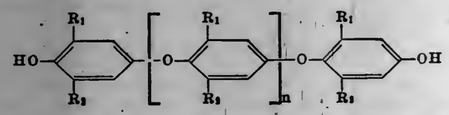


(II)

in which Hal has the above significance, which comprises recovering the compound I from the reaction mixture by converting the dimethyl sulfate sulfonium compound of a thiophenyl ether of Formula I to the corresponding sulfonium sulfonate with a member selected from the group consisting of an aromatic sulfonic acid and a water-soluble salt thereof and hydrolyzing said sulfonium sulfonate to form the compound I.

3,318,959
SYMMETRICALLY TERMINATED POLY-PHENYLENE ETHER
Willem F. H. Borman, Dalton, Mass., assignor to General Electric Company, a corporation of New York
No Drawing. Filed Dec. 3, 1963, Ser. No. 327,821
2 Claims. (Cl. 260—613)

1. Symmetrically terminated polyphenylene ether chains of the formula



wherein R_1 and R_2 are members selected from the group consisting of lower alkyl and aryl and wherein the carbon atom attached to the phenylene nucleus is other than a tertiary carbon atom and n is a whole integer equal to from 1 to 100.

3,318,960
CONDENSATION PRODUCTS OF HALOGEN SUBSTITUTED ALKYLENE OXIDES WITH POLYHYDRIC ALCOHOLS IN PRESENCE OF AN ALUMINUM ALCOHOLATE
Mason H. Earing, Grosse Ile, Mich., assignor to Wyandotte Chemicals Corporation, Wyandotte, Mich., a corporation of Michigan
No Drawing. Filed Aug. 14, 1963, Ser. No. 302,013
19 Claims. (Cl. 260—615)

1. A process for the production of halogenous hydroxy ethers which comprises reacting together at a temperature of about 25 to about 300 degrees C. (1) a polyhydric alcohol initiating compound having a maximum of 8 hydroxy groups and (2) a halogenous alkylene oxide in the presence of (3) a reaction catalyst comprising an aluminum alcoholate of an alcohol which is the same as said alcohol initiating compound (1), said catalyst (3) being present in an amount such that the weight of the aluminum therein is at least 1% of the weight of the alcohol initiating compound.

3,318,961
BIS[2-HYDROXY-3-(ALPHA-METHYLXYLYL)-5-METHYLPHENYL]METHANE
Byron A. Hunter, Woodbridge, and Francis X. O'Shea, Wolcott, Conn., assignors to United States Rubber Company, New York, N.Y., a corporation of New Jersey
No Drawing. Filed Oct. 10, 1963, Ser. No. 315,368
1 Claim. (Cl. 260—619)

Bis[2 - hydroxy - 3 - (alpha - methylxylyl) - 5 - methylphenyl]methane.

3,318,962
BIS[2-HYDROXY-3-(ALPHA,ALPHA-DIMETHYLBENZYL)-5-METHYLPHENYL]METHANE
Francis X. O'Shea, Wolcott, Conn., assignor to United States Rubber Company, New York, N.Y., a corporation of New Jersey
No Drawing. Filed Oct. 10, 1963, Ser. No. 315,404
1 Claim. (Cl. 260—619)

Bis[2 - hydroxy - 3-(alpha, alpha-dimethylbenzyl)-5-methylphenyl]methane.

3,318,963
PREPARATION OF FLUOROCARBONS
Geoffrey Pass, Northwich, England, assignor to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain
No Drawing. Filed June 1, 1964, Ser. No. 371,772
Claims priority, application Great Britain, June 24, 1963, 25,033/63
5 Claims. (Cl. 260—651)

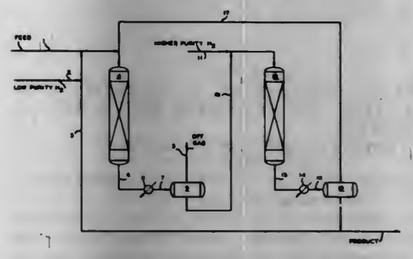
1. A process for making fluorocarbons comprising reacting at a temperature above 500° C. a chlorofluorocarbon chosen from the group consisting of aliphatic monochlorofluorocarbons containing 1 to 2 carbon atoms per molecule and pentafluorochlorobenzene with fluoroform.

3,318,964
PREPARATION OF NON-CONJUGATED DIOLEFINS
Allen K. Sparks, Des Plaines, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware
No Drawing. Filed June 21, 1965, Ser. No. 465,720
5 Claims. (Cl. 260—666)

1. A method for separating a conjugated diolefin from a mixture thereof with a non-conjugated diolefin which comprises treating the mixture with a dienophile selected from the group consisting of acrylic acid, maleic acid and maleic anhydride at a temperature of from about 25° C. to about 250° C. to react the dienophile with the conjugated diolefin, separating the resultant adduct from the unreacted non-conjugated diolefin and recovering the latter.

3,318,965
HYDROGENATION OF BENZENE TO CYCLOHEXANE
John F. Hutto and Rolland E. Dixon, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware
Filed Sept. 4, 1964, Ser. No. 394,484
4 Claims. (Cl. 260—667)

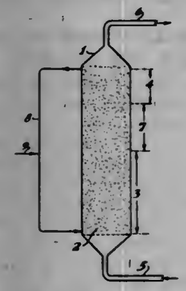
1. In a process for the hydrogenation of an unsaturated hydrocarbon with hydrogen wherein a gas stream containing hydrogen is admixed with said hydrocarbon, the mixture is passed to a first reaction zone wherein at least partial hydrogenation takes place, the effluent from said first reaction zone is admixed with a second hydrogen stream and passed to a second reaction zone wherein further hydrogenation takes place, the effluent from said second reaction zone is cooled and gaseous products containing hydrogen are separated from liquid products, the improvement which comprises: cooling the effluent from said first reaction zone and separating gaseous products from liquid products, recycling said gaseous products containing hydrogen separated from said liquid products from said second reaction zone effluent and providing an excess of said unsaturated hydrocarbons in said first reaction zone so that substantially all of said hydrogen is used by said process.



3,318,966
PRODUCTION OF ALKENYL BENZENES
Clifford William Capp, Ewell, and Roger Bryan Ward, Banstead, England, assignors to The Distillers Corporation Limited, Edinburgh, Scotland, a British company
No Drawing. Filed Feb. 19, 1964, Ser. No. 345,864
Claims priority, application Great Britain, Mar. 14, 1963, 10,088/63
18 Claims. (Cl. 260—669)

1. A process for the production of an alkenyl benzene which consists of reacting a mono or dialkyl benzene in which the alkyl moiety has separately at least two carbon atoms at an elevated temperature in the vapor phase with molecular oxygen in contact with an oxidation catalyst selected from the group consisting of an oxide of vanadium and an oxide of vanadium in combination or admixture with an oxide of tin, cobalt, chromium, manganese, uranium, tungsten, lead, bismuth or zinc while maintaining a molecular ratio of oxygen to alkyl benezene of less than 10:1.

3,318,967
DEHYDROGENATION OF HYDROCARBONS
Donald George Timms and Roger William Hedge, Hampshire, England, assignors to The International Synthetic Rubber Company Limited, Hampshire, England, a corporation of the United Kingdom
Filed Feb. 24, 1964, Ser. No. 346,673
Claims priority, application Great Britain, Feb. 28, 1963, 8,157/63
10 Claims. (Cl. 260—680)



1. A process for the dehydrogenation of a mono-olefin to form a diolefin comprising (1) passing a gaseous mixture containing the mono-olefin, molecular oxygen and steam through a moving plug bed of a basic halide selected from the group consisting of iron, cobalt and manganese basic halides, said gaseous mixture passing first through a first zone of said bed in which the temperature is from 350° C. to 700° C. and secondly through a second zone of said bed in which the temperature is above the dew point of the gas mixture and below the critical temperature of the reformation of said basic halide, (2) withdrawing gases from the bed and (3) recycling basic halide from the second zone to the first zone.

3,318,968
METHOD OF AND CATALYST FOR THE DE-HYDROGENATION OF ALIPHATIC HYDROCARBONS
Joseph Edouard Weisang and Jean Louis Weill, Le Havre, France; Luce Madeleine Thevenet, administratrix of the Estate of said Jean Louis Weill, deceased, assignors to Compagnie Francaise de Raffinage, Paris, France
No Drawing. Filed July 7, 1965, Ser. No. 470,254
Claims priority, application France, July 8, 1964, 981,138, Patent 1,413,913
18 Claims. (Cl. 260—683.3)

14. In a method for the catalytic de-hydrogenation of aliphatic hydrocarbons to less saturated hydrocarbons while avoiding the formation of cyclic hydrocarbons, the steps which comprise supplying in a reactor a catalyst having impregnated therein metallic silver in an amount up to about 40% by weight of said catalyst, metallic chromium in an amount within the range of about .5% to 15% by weight of said catalyst, and potassium in an amount within the range of about .2% to 5% by weight of said catalyst, passing said hydrocarbons to be treated through said reactor and over said catalyst at a temperature within the range of about 400° to 550° C. for from about .5 to 40 seconds for said de-hydrogenation thereof, and withdrawing said de-hydrogenated materials from said reactor.

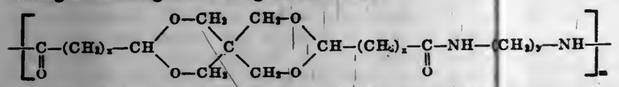
3,318,969
PROCESS FOR PURIFYING A NORMAL ALPHA OLEFIN
William H. Clement, Cincinnati, Ohio, Howard M. Peters, Palo Alto, Calif., and Charles M. Selwitz, Pitcairn, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware
No Drawing. Filed May 20, 1964, Ser. No. 368,985
8 Claims. (Cl. 260—683.15)

1. A process which comprises:
contacting a first mixture containing predominantly at least one normal alpha olefin and lesser amounts of at least one substituted olefin selected from the group consisting of trisubstituted monoolefins and vinylidenes,
with a second mixture containing about 0.1 to about 50 percent by weight of anhydrous $FeCl_3$ and about 0.1 to about 100 percent by weight of anhydrous HCl,
under conditions to selectively polymerize said substituted olefins.

3,318,970
FORMALDEHYDE POLYMER STABILIZED BY A POLY(ACETAL-AMIDE)
Richard Green, Livingston, N.J., assignor to Tenneco Chemicals, Inc., a corporation of Delaware
No Drawing. Filed Aug. 6, 1964, Ser. No. 388,006
12 Claims. (Cl. 260—823)

1. A thermally stable polyacetal composition comprising a high molecular weight polymer of formaldehyde having a molecular weight in the range from about 10,000 to about 200,000 and a melting point in excess of 170° C. and containing a stabilizer system comprising from about 0.1 to 30 percent, based on the weight of the formalde-

hyde polymer in the polyacetal composition, of a poly-(amide-acetal) having a melting point in the range from about 150° C. to about 200° C. and a molecular weight in the range from about 1,000 to about 10,000 and containing a recurring unit having the structure



in which each x represents an integer in the range from 4 to 16, y represents an integer in the range from 2 to 12, and m represents an integer in the range from 1 to 10.

3,318,971

SOLVENT-SOLUBLE, HEAT-HARDENING, NON-GELLED RESIN COMPRISING ACRYLAMIDE-CONTAINING INTERPOLYMERS CARRYING A REACTIVE HYDROXY GROUP CONDENSED WITH HYDROXY-TERMINATED POLYSILOXANE

Le Roy A. Chloupek, Prospect Heights, and Kazys Sekmakas, Chicago, Ill., assignors to De Soto Chemical Coatings, Inc., Chicago, Ill., a corporation of Delaware

No Drawing. Filed May 10, 1963, Ser. No. 279,609
13 Claims. (Cl. 260—826)

1. A solvent-soluble, heat-hardening, non-gelled resin comprising:

(1) an interpolymer of interpolymerized components comprising:

(A) an acrylamide in an amount of from 2–50% by weight based on the weight of the interpolymerized components; and

(B) ethylenically unsaturated material copolymerizable with said amide and carrying a reactive hydroxyl group and

(2) from 2 to 75% by weight based on the weight of the resin of hydrocarbon-substituted polysiloxane having a plurality of silicon-bonded OH groups, said polysiloxane being condensed with said interpolymerized components to form said resin by a reaction including the removal of water, and said interpolymer being reacted with from 0.2–5 equivalents of aldehyde per amide group in said interpolymer to generate amido alkylol groups therein.

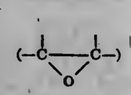
3,318,972

COMPOSITION CONTAINING A HYDROFORMYLATED-HYDROGENATED REACTION PRODUCT OF AN UNSATURATED HYDROCARBON POLYMER AND AN EPOXIDIZED POLYOLEFIN

Joseph Kern Mertzweiller, Baton Rouge, La., and Neville Leverne Cull, Atlantic Highlands, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Filed Apr. 14, 1964, Ser. No. 363,043
17 Claims. (Cl. 260—836)

1. A plastic composition prepared by the reaction of an epoxidized polyolefin containing at least one oxirane ring:



with a hydroxylated polymer, said polymer comprising the two-stage hydroformylation-hydrogenation reaction product of an unsaturated hydrocarbon polymer having a molecular weight of from about 300 to about 5000 wherein about 5 to 100% of said polymer's unsaturation has been replaced with —CH_2OH groups and wherein the epoxidized polyolefin is employed, in amounts of from 0.5 to 2 equivalents per hydroxyl group of said hydroxylated polymer.

3,318,973

COMPOSITION CONTAINING A POLYALKYLENE POLYSULFIDE, AN ACRYLATE RESIN, AND A POLYEPOXIDE

Edward D. Hill, 3140 W. 32nd St., Cleveland, Ohio 44109

No Drawing. Filed Apr. 20, 1964, Ser. No. 361,281
14 Claims. (Cl. 260—837)

1. As a composition of matter, a predominent amount of a polyalkylene polysulfide, a plasticizing amount of an acrylate resin selected from the group consisting of the lower alkyl esters of acrylic acid, methacrylic acid, hydroxyalkyl acrylates, and hydroxy-alkyl methacrylates, and a sufficient amount of an epoxy resin selected from the group consisting of polyglycidyl ethers of polyhydric phenols and polyglycidyl ethers of polyhydric alcohols to render the polysulfide and acrylate resin compatible, said sufficient amount being no greater than the amount of said acrylate resin.

3,318,974

UNSATURATED POLYESTER CURING SYSTEM CONSISTING OF CUMENE HYDROPEROXIDE, METHYLETHYL KETONE PEROXIDE AND THIOGLYCOLIC ACID

Lewis Montesano, Little Falls, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York

No Drawing. Filed Mar. 23, 1965, Ser. No. 442,199
3 Claims. (Cl. 260—865)

1. A method for curing a styrene polyester prepared by reacting an unsaturated dibasic acid with a glycol and a vinyl monomer, which comprises adding a mixture to said polyester consisting of (a) cumene hydroperoxide in an amount within the range of 0.05–1.0 part by weight, (b) methyethylketone peroxide in an amount within the range of 0.1–1.0 part by weight, and (c) thioglycolic acid in an amount within the range of 0.05–1.0 part by weight, the said parts by weight being based upon 100 parts by weight of said polyester.

3,318,975

MAR-RESISTANT POLYESTERS

William George Deichert, Flushing, N.Y., and Alexander Christian Bristol, Stamford, Conn., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed May 27, 1965, Ser. No. 459,464
15 Claims. (Cl. 260—872)

1. A composition of matter consisting essentially of a blend of (A) an unsaturated polyester resin consisting essentially of the esterification product of triethylene glycol and fumaric acid, (B) a glycol diacrylate which is the reaction product of a glycol selected from the group consisting of polyglycols having from 4–8 carbons atoms, inclusive, and monoglycols having from 2–4 carbon atoms, inclusive, and an acid selected from the group consisting of acrylic acid and methacrylic acid and (C) allyl methacrylate, wherein (B) is present in amounts ranging from about 7% to 37%, by weight, based on the total weight of components (A) and (B), and (C) is present in amounts ranging from about 3% to 33%, by weight, based on the total weight of (A), (B) and (C).

3,318,976

PRODUCTION OF MODIFIED POLYOLEFIN

Glen A. Short, Walnut Creek, Calif., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

Filed Dec. 3, 1965, Ser. No. 511,528
9 Claims. (Cl. 260—878)

1. A method of producing an ethylene-modified polypropylene product containing as an essential component thereof molecules in which a portion of irregular ethylene-propylene copolymer is attached to one end of an isotactic polypropylene polymer chain, the total amount of ethylene units in said product being in the range from 1 to 20% by weight and the proportion of ethylene units in said ethylene-propylene copolymer being between 20 and 90% by weight, which comprises first homopolymerizing propylene by contact with a highly stereospecific Ziegler type olefin polymerization catalyst consisting essentially of a two-component system comprising a compound selected from the group consisting of the left hand subgroups of Groups 4, 5, 6 and of Group 8 of the Mendeleev Periodic Table and a co-catalyst selected from organometallic compounds of metals from groups 1, 2 and 3 of the Periodic Table, until the concentration of solid polymer particles in the reaction slurry is at least about 80% of the desired final concentration, thereafter continuing polymerization in the presence of a mixture of propylene with ethylene wherein the concentration of propylene is in excess of ethylene, stopping the polymerization reaction when the amount of polymer has reached the desired final concentration, and recovering said ethylene-modified polypropylene product.

3,318,977

THERMOPLASTIC ADHESIVES CONTAINING POLYETHYLENE, ISOBUTYLENE RUBBER, TACKIFIER RESIN AND ETHYLENE-VINYL ACETATE COPOLYMER

William R. Battersby, Lexington, Mass., Clarence O. Karl, Hartford, Wis., and John S. Kelley, Wenham, Mass., assignors to United Shoe Machinery Corporation, Flemington, N.J., and Boston, Mass., a corporation of New Jersey

Filed Oct. 18, 1965, Ser. No. 496,932
5 Claims. (Cl. 260—889)

1. A solvent-free thermoplastic adhesive cement, dry, substantially tack-free and solid at room temperature but softenable by heat to fluid condition, said adhesive comprising an intimate mixture of from about 15% to about 60% by weight of resinous polyethlene having a molecular weight of from about 7,000 to about 21,000, from about 10% to about 35% by weight of high molecular weight isobutylene polymeric material from the group consisting of sulphur vulcanizable rubbery copolymers of isobutylene and a diolefin in approximately the proportions of 98:2 and rubbery polyisobutylene having a molecular weight of the order of 100,000 from about 20% to about 60% by weight of an essentially hydrocarbon resin having a softening point of at least about 85° C. possessing in heat softened condition substantial solvent power toward said polyethylene, said resin being selected from the group consisting of polybeta-pinene resin having a softening point of 85° C. to 125° C., polyalpha-pinene resin having a softening point of 85° C. to 125° C., the resin separated from Utah resin-bearing coal consisting essentially of carbon and hydrogen and having an average molecular weight of about 1000, a refractive index of 1.544, a specific gravity of 1.03 to 1.06 and a melting point of from 165° to 180° C. and the resinous polymerization product obtained by catalytic polymerization of a mixture of unsaturated monomers derived from deep cracking petroleum and having a softening point (B.R.) of approximately 100° C., a specific gravity at 25° C. of .970 to .975, a refractive index at 20° C. of 1.5116, an acid number less than one, an iodine value (Wijs) of 120, a bromide number of 7.3 and a molecular weight of approximately 1100, and from about 10% to about 40% by weight of a copolymer of ethylene and vinyl acetate in the range of from about 0.5 to about 10 mols of ethylene to 1 mol of vinyl acetate, said copolymer of ethylene and vinyl acetate having a melting point of from about 90° to 125° C.

3,318,978

HALOGENATED TELOMERS OF TRI-SUBSTITUTED PHOSPHATES

George Palethorpe, Carrboro, N.C., assignor to Monsanto Company, a corporation of Delaware

No Drawing. Filed Aug. 5, 1963, Ser. No. 300,052
5 Claims. (Cl. 260—928)

1. Bis(2,3 - dibromopropyl) - 2,4,4,4-tetrachlorobutyl-phosphate.

4. Di - 1,5-bis[di(2,3-dibromopropyl) phosphate]-2-chloro-4-(2,2,2-trichloroethyl) pentane.

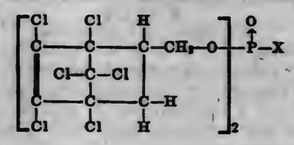
3,318,979

PHOSPHOROUS ACID DERIVATIVES OF HEXACHLOROCYCLOPENTADIENE

Joseph M. Sandri, Chicago Heights, Ill., assignor to Standard Oil Company, Chicago, Ill., a corporation of Indiana

No Drawing. Filed Dec. 27, 1963, Ser. No. 334,037
3 Claims. (Cl. 260—956)

1. A phosphorous acid derivative having the formula:



wherein X is a member of the group consisting of hydrogen and C_{1-8} chloroalkyl.

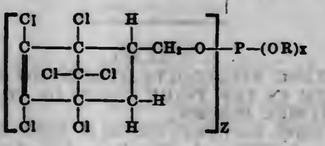
3,318,980

NOVEL TRI-VALENT PHOSPHORUS DERIVATIVES

Joseph M. Sandri, Chicago Heights, Ill., assignor to Standard Oil Company, Chicago, Ill., a corporation of Indiana

No Drawing. Filed Dec. 27, 1963, Ser. No. 334,039
4 Claims. (Cl. 260—956)

1. A trivalent phosphorus compound having the formula:



wherein R is C_{1-18} alkyl, x is 0–1, and z is 2–3.

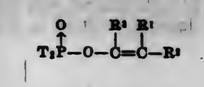
3,318,981

PREPARATION OF VINYL PHOSPHATES, PHOSPHINATES AND PHOSPHONATES FROM HALOMERCURI CARBONYL COMPOUNDS AND PHOSPHITE-TYPE COMPOUNDS

Philip S. Magee, San Rafael, Calif., assignor to Chevron Research Company, a corporation of Delaware

No Drawing. Filed Sept. 23, 1963, Ser. No. 310,852
7 Claims. (Cl. 260—971)

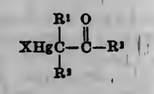
1. A method for preparing a compound having the formula



which comprises contacting a compound of the following formula:

$$ROPT_2$$

wherein R is an alkyl group of from 1 to 12 carbons and T is selected from the group consisting of R and RO with an α-halomercuri carbonyl compound of the following formula:



wherein R^1, R^2 and R^3 are selected from the group consisting of hydrogen and hydrocarbyl radicals of from 1 to 12 carbons and X is a halogen of atomic number 17 to 35.

3,318,982

PROCESS FOR THE MANUFACTURE OF MIXTURES OF ACID ORTHOPHOSPHORIC ACID ESTERS

Werner Klose, Knapsack, near Cologne, Heinz Harnisch, Lovenich, near Cologne, and Joseph Cremer, Hermulheim, near Cologne, Germany, assignors to Knapsack-Griesheim Aktiengesellschaft, Knapsack, near Cologne, Germany, a corporation of Germany

No Drawing. Filed Dec. 9, 1964, Ser. No. 417,239
Claims priority, application Germany, Dec. 27, 1963, K 51,730
8 Claims. (Cl. 260—980)

1. A process for producing acid orthophosphoric acid esters from phosphorus pentoxide and organic hydroxyl-containing compounds, comprising admixing phosphorus pentoxide with a feed mixture of orthophosphoric acid monoesters and orthophosphoric acid diesters of the general formulae

$$(RO)_2POOH \text{ and } ROPO(OH)_2$$

and contacting the resulting product with a reactive amount of an organic hydroxyl compound of the formula

$$ROH$$

wherein R is a member selected from the group consisting of a phenyl, straight and branched chain aliphatic of 1–18 carbon atoms, cycloalkyl, the corresponding hydroxy and also the ethoxy-substituted members; and recovering the resulting orthophosphoric acid ester products.

3,318,983

RECYCLING AMMONIUM HYDROXIDE-TREATED WATER IN THE PRODUCTION OF POLYACRYLONITRILE FIBERS

Louis S. Hovis, Cary, N.C., Charles H. Apperson, Decatur, Ala., and William A. Blackburn, Chapel Hill., N.C., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed Aug. 27, 1963, Ser. No. 304,949
8 Claims. (Cl. 264—38)

1. In a process for the preparation of fibers from vinyl polymers wherein a vinyl polymer is dissolved in a solvent therefor which may contain an acid contaminant, the resulting homogeneous solution is extruded into a coagulating medium which may contain an acid contaminant to produce fibers, and said fibers are subsequently washed with an aqueous solution, the improvement which comprises treating said aqueous solution used in the preparation of said fibers with ammonium hydroxide when said aqueous solution is contaminated with acid and then using the thus treated aqueous solution in washing additional fibers.

3,318,984

PROCESS OF MANUFACTURING ARTIFICIAL STONE ELEMENTS

Christian Germain Louis Dussel, Domaine de Ronceval, Toulouse-Montaudran, France

No Drawing. Filed July 17, 1963, Ser. No. 295,805
Claims priority, application France, July 19, 1962, 904,549, Patent 1,329,325
1 Claim. (Cl. 264—77)

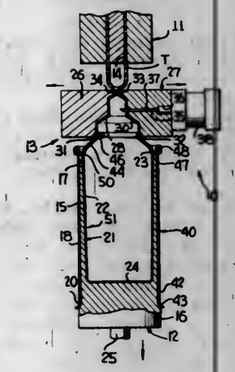
A process of manufacturing reconstituted marble elements which simulate the appearance of natural quarried marble, comprising the steps of separately mixing, in the cold state, finely divided marble powders of different colors with the same proportions of identical thermosetting resins to obtain a plurality of intimate mixtures having the different colors of the respective marble powders, individually casting said plurality of mixtures in a mould to produce the veining and patterning characteristics of the appearance of quarried marble, subjecting the mould to heat and pressure to effect polymerization of said resins in the mixtures, and thereafter stripping the mould.

3,318,985

APPARATUS AND METHOD FOR MAKING AEROSOL CANS WITH AN INTEGRAL PLASTIC COMPARTMENT

Howard M. Turner and Henry J. Snella, both of Oak Forest, Ill., assignors to Continental Can Company, Inc., New York, N.Y., a corporation of New York

Filed Apr. 1, 1964, Ser. No. 356,508
19 Claims. (Cl. 264—98)



1. A method of forming a compartmented article comprising the steps of inserting a mold into an article through an opening therein, forming a compartment having at least one closed end in a cavity of the mold removing the mold from the article without removing the formed compartment, and retaining the formed compartment in the article.

3,318,986

ROLL COMPACTING OF METAL POWDERS

Robert William Fraser and Vilnis Silins, Fort Saskatchewan, Alberta, and Bud William Kuchnir, Edmonton, Alberta, Canada, assignors to Gordon Sherritt Mines Limited, Toronto, Ontario, Canada, a company of Canada

No Drawing. Filed May 13, 1964, Ser. No. 367,220
4 Claims. (Cl. 264—111)

1. A method for forming finely divided metal and metal coated composite particles of a size within the range of about 1 micron to about 5 microns into self-sustaining green strip by feeding said particles into the roll gap

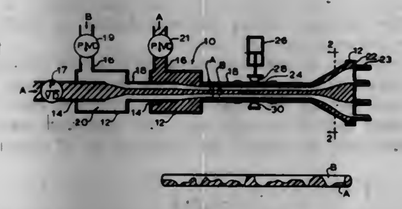
defined between a pair of oppositely positioned rolls of a roll compacting unit which comprises mixing said particles prior to compaction with a volatizable, non-residue forming liquid in amount within the range of about 1 to about 6 weight percent, said amount being sufficient to cause said particles to adhere together such that they are drawn into the roll gap of said roll compacting unit, and rolling the liquid containing particles to produce green strip.

3,318,987

METHOD OF MULTI-COMPONENT SPINNING

Warren E. Fitzgerald, Raleigh, N.C., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

Filed Sept. 9, 1963, Ser. No. 307,532
17 Claims. (Cl. 264—171)



1. An improved process for producing multi-component filamentary structures which exhibit a controlled variation in component distribution ratio along their respective lengths comprising the steps of successively merging in a laminar fashion two or more diverse spinnable components in alternating sequence to thereby generate a multi-component stream composed of at least three unblended components arranged in a pre-determined pattern and having sharp lines of demarcation between adjacent components, conveying said pattern stream to a remotely positioned spinneret having an orifice pattern of a predetermined degree of correspondence with the pattern of said stream, whereby each line of demarcation is caused to intersect a chosen group of said orifices, inducing a timed fluctuation in the position of at least one of said lines of demarcation relative to its associated group of orifices to thereby effect a timed variation in the ratio of component mediums issuing from a given orifice.

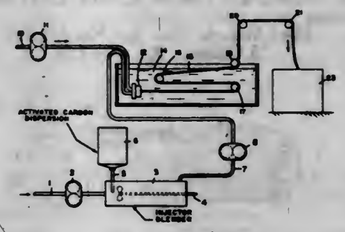
3,318,988

PROCESS FOR PREPARING CONJUGATED VISCOSE FILAMENTS CONTAINING CONTACT AGENTS

Robert L. McDowell, Springfield, Pa., assignor to FMC Corporation, Philadelphia, Pa., a corporation of Delaware

Original application Oct. 30, 1959, Ser. No. 851,932, now Patent No. 3,175,339, dated Mar. 30, 1965. Divided and this application Dec. 29, 1964, Ser. No. 422,086
6 Claims. (Cl. 264—171)

1. A method of forming a contact material which comprises delivering a plurality of independent streams of spinning liquids containing a filament-forming material to a spinneret orifice, at least one but less than all of the streams containing a substantial amount of a finely-divided contact agent uniformly dispersed therein and the other streams being substantially free of contact agent, bringing the streams into contact with each other and simultaneously extruding the same thorugh the spinneret orifice and into a coagulating medium with at least a portion of the stream containing the contact agent being exposed to the coagulating medium, passing the several contacting streams through the coagulating medium to convert the same into a plurality of components integrally joined together along their entire lengths to form a conjugated filament with the component containing the contact agent being exposed along the entire length of the conjugate filament with drawing the conjugate filament from the coagulating medium and collecting the conjugate filament, said substantial amount of contact agent being a quantity sufficient to maintain the activity thereof approximately equivalent to that of the free contact agent.



3,318,989

METHOD FOR MELT-SPINNING OF FILAMENTARY ARTICLES

Toru Sato, Shigeo Katsuyama, and Toshio Sasaki, Nobeoka-shi, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan, a corporation of Japan

No Drawing. Filed June 23, 1965, Ser. No. 466,429
Claims priority, application Japan, July 3, 1964, 39/37,554; July 4, 1964, 39/37,266
6 Claims. (Cl. 264—176)

1. A method for producing filamentary articles of a polymer capable of forming fibers by melt extrusion which comprises contacting molten or hot filamentary extrudate of said polymers from spinnerets with a hydrate of an inorganic salt selected from the group of $Na_2SO_4 \cdot 10H_2O$, $Na_2CO_3 \cdot 10H_2O$, $Na_2CO_3 \cdot 7H_2O$ and $Na_2S_2O_3 \cdot 5H_2O$, the filamentary extrudate being at a sufficiently elevated temperature to cause the salt to liberate at least a part of the water of crystallization to accentuate heat absorption whereby to obtain cooled and solidified filamentary articles.

3,318,990

METHOD OF MANUFACTURING FLAT VISCOSE FIBERS

Yoichi Kajitani, Saijo, Japan, assignor to Kurashiki Rayon Company Limited, Kurashiki, Japan, a corporation of Japan

No Drawing. Filed Aug. 12, 1963, Ser. No. 301,625
Claims priority, application Japan, Aug. 18, 1962, 37/35,829
3 Claims. (Cl. 264—187)

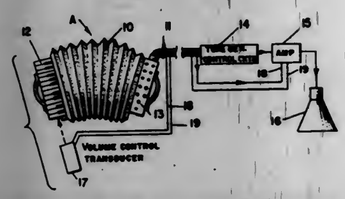
1. A method of manufacturing tubular flat viscose fibers, which comprises spinning viscose having an aging degree represented by an ammonium chloride value of more than 16 to a spinning solution containing sulphuric acid and sulphate, said viscose containing 2 to 50%, based on the weight of cellulose in viscose, of a water swelling substance selected from the group consisting of polyvinyl alcohol, polyvinyl alcohol derivatives, and alkali soluble celuose derivatives and containing 2 to 4%, based on the weight of viscose, of alkali carbonate, whereby tubular flat viscose fibers are obtained.

ELECTRICAL

3,318,991
PRESSURE RESPONSIVE VOLUME CONTROL FOR ELECTRICAL INSTRUMENTS

Jack C. Cookerly, 7566 Atoll Ave., North Hollywood, Calif. 91605, and George R. Hall, 13613 Huston St., Sherman Oaks, Calif. 91403

Filed Mar. 6, 1964, Ser. No. 349,927
3 Claims. (Cl. 84—1.1)

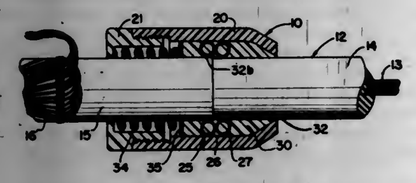


1. A pressure responsive volume control for an electrical instrument in which keys for playing notes normally generated by air flow are used to generate electrical signals of constant amplitude, comprising, in combination: transducer means connected to said instrument and responsive to pressure variations in said air flow to provide a control signal; and means connected to receive said electrical signals of constant amplitude and said control signal and responsive to said control signal to vary the amplitude of said electrical signals in accordance with variations in said control signal.

3,318,992
STRESS RELIEF APPARATUS

Ronald F. Huber, Evanston, Ill., assignor to Joslyn Mfg. and Supply Co., Chicago, Ill., a corporation of Illinois

Filed Nov. 3, 1965, Ser. No. 506,249
8 Claims. (Cl. 174—73)



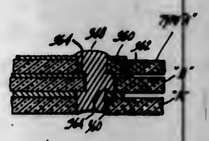
1. A preformed stress relief apparatus for terminating the shielding of a shielded high voltage electrical cable, said apparatus comprising an insulated preformed tubular elastomer filler having a longitudinal bore adapted to receive a cable; a stress relief member embedded in said filler and formed of a pair of electrically joined toroidal elements; one of said elements extending along the inner surface of said bore for engaging the conductive shielding of a cable; and an insulating housing; said filler extending into said housing.

3,318,993
INTERCONNECTION OF MULTI-LAYER CIRCUITS AND METHOD

Howard R. Beeltz, Franklin Park, N.J., assignor to Radio Corporation of America, a corporation of Delaware

Filed July 11, 1963, Ser. No. 294,288
6 Claims. (Cl. 174—68.5)

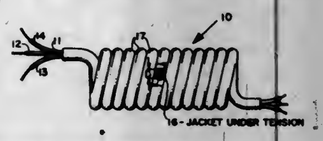
1. In combination,
a plurality of insulator cards, each formed with at least one aperture, said cards being stacked over one another with the apertures in adjacent cards staggered but in overlapping relation, whereby the apertures form a continuous opening which extends through the stacked cards;
a plurality of terminals, each located between a pair of adjacent cards, and each terminal comprising a conductive layer in intimate contact at one surface with a surface of one card and surrounding the aperture in said card, and in intimate contact at its other surface with an area surrounding the aperture on the next adjacent card; and
a conductor in said continuous opening in electrical contact with the surface of each terminal which extends beyond the edge of an aperture toward the center thereof of each card, said conductor serving electrically to connect the terminals on all cards.



3,318,994
RETRACTILE CORD AND METHOD OF MAKING

Rosario J. Perrone and Olav E. Jore, Marion, Ind., assignors to Anaconda Wire and Cable Company, a corporation of Delaware

Filed June 25, 1965, Ser. No. 466,891
8 Claims. (Cl. 174—69)



1. A retractile cord comprising:
(A) a flexible core and
(B) a tubular elastic jacket surrounding said core,
(a) said jacket having a diameter in the unstretched condition smaller than the diameter of said core, and
(b) said jacket being under circumferential tension and gripping said core,
(C) said cord being formed in the shape of a tight helix, having a plurality of adjacent turns, and
(D) said cord substantially returning to its original tight helical shape upon the release of any tensional force spreading apart said turns, due to the tension in said jacket.

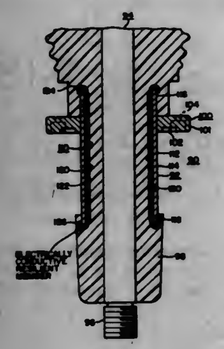
3,318,995
CAST ELECTRICAL BUSHING CONSTRUCTION HAVING CONTROLLED AND SHIELDED SHRINKAGE VOIDS

Richard D. Buckley, Sandy Lake Township, Stoneboro, and Anthony J. Palumbo, Hickory Township, Sharon, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Apr. 25, 1966, Ser. No. 544,754
2 Claims. (Cl. 174—142)

1. An electrical bushing assembly comprising
a substantially cylindrical body member having first and second ends,
said body member being formed of a castable electrical insulating material,

an axially extending electrical conductor disposed in said body member, a tubular metallic member having an inner axially continuous surface and end portions, at least the end portions of said tubular metallic member being disposed at least partially within said body member and being at least partially bonded thereto, the inner surface of said tubular metallic member being disposed in spaced coaxial relation with said axially extending electrical conductor,

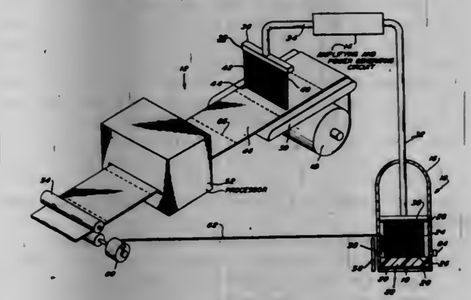


and electrical shielding means comprising a tubular resilient member having first and second ends, inner and outer surfaces, and a predetermined electrical conductivity, said shielding means being disposed with its outer surface immediately adjacent the inner surface of said tubular metallic member, the inner surface of said shielding means being bonded to the castable electrical insulating material of said body member, at least one of the ends of said shielding means being mechanically and electrically connected to said tubular metallic member.

3,318,996
DOCUMENT COPYING DEVICE HAVING PARALLEL SIGNAL TRANSMISSION PARTS

Eugene Garfield, Swarthmore, Pa., and Lawrence Lutzker, Palo Alto, Calif., assignors to Institute for Scientific Information, Philadelphia, Pa., a corporation of Pennsylvania

Filed Aug. 12, 1963, Ser. No. 301,293
8 Claims. (Cl. 178—6.6)

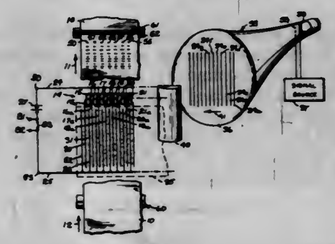


1. Copying and reproducing apparatus comprising a scanning head having an outer housing with an opening at the bottom thereof, a fiber-optic array comprising a group of light transmitting discrete fibers mounted within said housing, said array having one end thereof in an orderly arrangement adjacent the bottom of said housing, light sensitive pickup means adjacent the other end of said array for producing electrical signals in accordance with the light transmitted by said fibers, and recording means adapted to receive said light sensitive pickup means signals for recording a pattern determined by said orderly arrangement of said one end of said fibers, said recording means including a recording head and a web on which said pattern is recorded, drive means for producing relative movement between said recording head and said web, scanning head position sensing means for sensing the position of said scanning head, and synchronizing means adapted to control said drive means in accordance with signals received from said scanning head position sensing means to control the relative movement of said web with respect to said recording means in accordance with the position of said scanning head.

3,318,997
VIDEO RECORDING AND REPRODUCING SYSTEM WITH PHOTOCONDUCTIVE SWITCHING OF TRANSDUCING ELEMENTS

Marvin Camras, Glencoe, Ill., assignor to IIT Research Institute, Chicago, Ill., a corporation of Illinois

Filed Oct. 7, 1963, Ser. No. 314,327
42 Claims. (Cl. 178—6.6)



1. A recording system comprising:
a series of head units for coupling to a record medium to record a variable amplitude signal thereon,
a series of electric circuits each coupled to one of said head units for producing variable recording field intensities in the record medium in accordance with the amplitude of current flow in the respective electric circuits,
said electric circuits each having a radiant energy responsive material controlling the amplitude of current flow therein and varying in impedance in accordance with the intensity of the radiant energy impinging thereon,
means for generating radiant energy capable of controlling the impedance of said radiant energy responsive material and for supplying said radiant energy to the radiant energy responsive material of each of said electric circuits in sequence, and
means for modulating the intensity of the radiant energy in accordance with a variable amplitude signal to be recorded to control the recording field intensities produced in the record medium by the successive head units of said series.

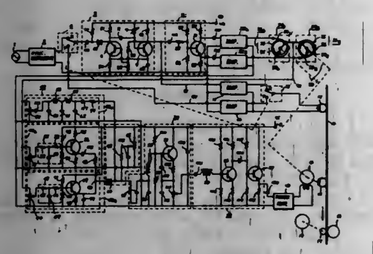
3,318,998
PHASE STABLE SERVO SYSTEM FOR MAGNETIC TAPE RECORDING AND REPRODUCING DEVICE

Nobutoshi Kihara, Tokyo, Japan, assignor to Sony Corporation, Shinagawa-ku, Tokyo, Japan, a corporation of Japan

Filed Mar. 6, 1964, Ser. No. 349,998
Claims priority, application Japan, Mar. 8, 1963, 38/12,101
5 Claims. (Cl. 178—6.6)

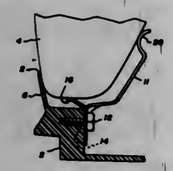
1. A servo system for a magnetic tape recording and reproducing device comprising a magnetic tape, a rotary

magnetic head for recording signals thereon or reproducing the signals therefrom, a motor for driving said magnetic head, a variable oscillator for energizing said motor, a control head in magnetic relation with said magnetic tape to record or reproduce control signals thereon, a phase splitter connected to receive such control signals, two switching means associated with the rotary shaft of said motor so as to be turned on and off in opposite phase



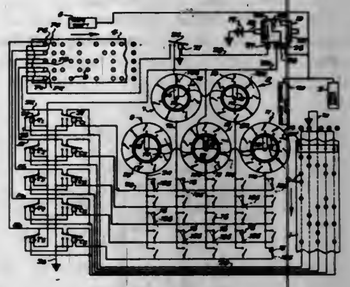
to each other, means for applying the output of said phase splitter to the input side of said two switching means, an output circuit common to said two switching means, integration circuit means connected to the output circuit and having at least three different time constants, and means for varying the oscillation frequency or the phase of said variable oscillator in accordance with the output of said integration circuit means.

3,318,999
CATHODE RAY TUBE MOUNTING DEVICE
Charles E. Taylor, Liverpool, N.Y., assignor to General Electric Company, a corporation of New York
Filed Apr. 29, 1964, Ser. No. 363,536
1 Claim. (Cl. 178—7.8)



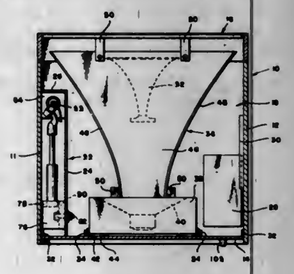
In combination a cabinet having means defining an opening therein, a cathode ray tube including a bulbous portion having a funnel shaped portion and a faceplate secured to the enlarged end thereof by means of a generally cylindrical member, said cathode ray tube positioned with said faceplate abutting said opening defining means and with the axis thereof generally perpendicular to the plane of said opening, a plurality of clips, each of said clips having a tongue portion at one end thereof and an elbow portion at the other end thereof, each of said plurality of clips having a portion intermediate the tongue portion and the elbow portion thereof secured to said opening defining means, each of said tongue portions engaging the generally cylindrical member of said tube to restrain movement of said bulbous portion in a direction perpendicular to the axis thereof, each of said elbow portions engaging the funnel shaped portion of said tube to restrain movement of the tube in conjunction with said opening defining means in a direction parallel to the axis of said tube.

3,319,000
CIPHERING DEVICE
Alfred M. Roberts, 36 East Parkway, Wanakah, Hamburg, N.Y. 14075
Filed Sept. 16, 1965, Ser. No. 487,766
11 Claims. (Cl. 178—22)



1. Ciphering apparatus comprising output means, multiple first energizing circuits for said output means, multiple input sensors arranged in controlling relation to said first energizing circuits, multiple second energizing circuits for said output means, multiple cipher switch means arranged in controlling relation to said first and second energizing circuits, multiple stepping switch devices arranged in controlling relation to said cipher switch means, and multiple input switch means arranged in controlling relation to said second energizing circuits, said first energizing circuits being independent of said input switch means, and said input sensors being arranged in controlling relation to said input switch means.

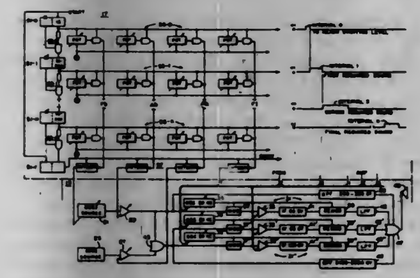
3,319,001
SOUND PROJECTING APPARATUS
G. Jerome Sieler, 10460 San Pablo Ave., El Cerrito, Calif. 94530
Filed Apr. 4, 1962, Ser. No. 185,014
7 Claims. (Cl. 179—1)



1. A self-contained sound projecting apparatus, comprising:
(a) a cabinet means having an open side therein;
(b) a speaker assembly means within said cabinet means for directing sound through and out of said open front side, said speaker assembly means including a sound projecting horn substantially isolated from contact with said cabinet means so as to provide air space between said horn and the inside surfaces of said cabinet means connected with the space without the open side of said cabinet, said air space forming an acoustical interruption and entrapment barrier substantially surrounding said horn to absorb a portion of the speaker output;

(c) microphone supporting means within said cabinet means located to one side of said speaker assembly means in an area generally bounded by the frontmost and rearmost lines of the speaker cone for said speaker assembly means to permit in phase operation of said microphone and speaker, said supporting means being mounted in a vibration proof means; and
(d) sound transmitting means within said cabinet means for connection with said speaker assembly means including a microphone, amplifier and power supply.

3,319,002
ELECTRONIC FORMANT SPEECH SYNTHESIZER
Joseph L. De Clerk, Red Bank, and Douglas L. Phyfe, Ridgewood, N.J., and Robert A. Fisch, Danbury, Conn., assignors to the United States of America as represented by the Secretary of the Army
Filed May 24, 1963, Ser. No. 283,118
3 Claims. (Cl. 179—1)



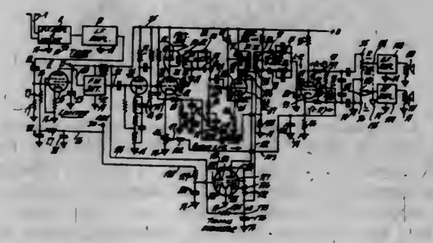
1. A speech synthesizer comprising a first source of voiced sound energy, producing various harmonics and controllable both in amplitude and fundamental frequency, and a second source of unvoiced sound energy producing a wide range of substantially random sound frequency components, applied to the base of a first emitter follower connected transistor, a second transistor having an emitter load and an amplitude control signal applied to its base, and a third common base connected transistor providing a collector output circuit, the collector of said second transistor being connected only to the emitters of both said other transistors as a substantially constant current emitter load for said first transistor, controllable to vary the emitter current of said third transistor and its gain, and a filter system comprising a small number of channels, some supplied from one and some from both said sources, each channel having a very limited audio frequency bandwidth, controllable both in amplitude and in the particular audio frequency range, having a fixed band filter in another frequency range, a modulator input to and demodulator output from said filter, and a common carrier oscillator for both said modulator and demodulator, controllable thru a range to convert the desired audio-pass-band to and from the fixed band of said filter, a multiple time domain function generator system having means to produce a series of variable length intervals, means to produce in each said interval variable parameters corresponding to the slopes of the desired multiple functions during said intervals, means to combine said parameters for corresponding functions in sequence to produce continuous functions of substantially rectangular steps, and integrating means to produce from each said rectangular stepped function a substantial approximation to said desired functions, said desired functions controlling said source and channel amplitudes and frequencies in a manner corresponding to the principal components of natural speech, and means to provide a common combined output of the several channels as synthesized speech corresponding to said variable length and other parameters.

3,319,003
AUTOMATIC ADAPTER UNIT FOR TELEPHONE INSTRUMENTS
Joseph H. Prager, North Hollywood, Calif, assignor of forty percent to Nichimen Co., Ltd., Tokyo, Japan, a corporation of Japan
Filed Nov. 8, 1963, Ser. No. 322,432
8 Claims. (Cl. 179—1)



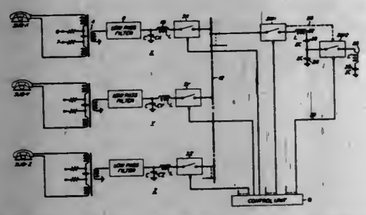
1. An adapter unit for a dial telephone having a handset and receiving cradle therefor, the cradle being arranged with an activating switch control pin, comprising: a housing of shell-like construction adapted to removably seat on the telephone cradle, said housing having a central platform portion arranged in the seated position to overlie the cradle switch pin and removably support the telephone handset thereon; housing end portions extending from said central portion adapted to occupy positions respectively adjacent earpiece and mouthpiece ends of the supported telephone handset; means operable under the weight of the handset on said platform for normally moving said pin to actuate said switch to a non-activating position; and means acting on said weight operable means and electrically energizable to independently actuate said switch to an activating position while the handset is on the platform.

3,319,004
TUNING INDICATOR SYSTEM FOR MULTIPLEX RADIO RECEIVERS
Jack Avins, New York, N.Y., assignor to Radio Corporation of America, a corporation of Delaware
Filed July 30, 1962, Ser. No. 213,494
12 Claims. (Cl. 179—15)



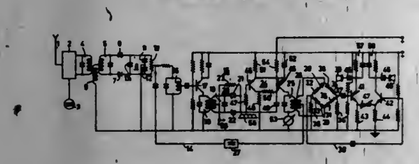
1. In a stereophonic multiplex radio receiver, the combination of:
visual tuning indicator means for providing indications in response to reception of either monophonic or stereophonic signals of proper tuning to obtain maximum received signal strength, and
means of modifying the operation of said indicator means in response to stereophonic signal information including a pilot signal on a received carrier wave to indicate the presence of said pilot signal and thereby indicate the presence of said stereophonic information.

3,319,005
CONFERENCE CIRCUIT FOR TIME DIVISION TELEPHONE SYSTEM UTILIZING MULTIPLE STORAGE CELLS
Wilmer B. Gaunt, Jr., Lincroft, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Dec. 30, 1963, Ser. No. 334,453
17 Claims. (Cl. 179—15)



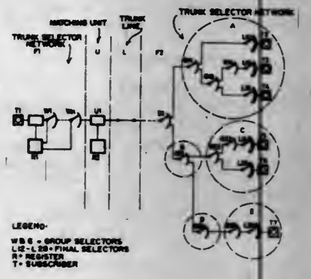
1. In a time division switching system having a plurality of line circuits selectively connectable in respective time slots to a talking bus, a conference circuit comprising a first storage cell, a first switch for connecting said first storage cell to said talking bus in all time slots assigned to parties in a conference for effecting resonant transfers of energy between said first storage cell and said line circuits, a second storage cell, and a second switch connected between said first and second storage cells and operative after the operation of said first switch for effecting a resonant transfer of a portion of the energy in said first storage cell and all of the energy in said second storage cell.

3,319,006
FM MULTIPLEX STEREO SIGNAL RECEIVER HAVING BISTABLE BLOCKING MEANS IN THE PILOT CHANNEL
Willem Pieter Neidig and Petrus Willem Zwollo, Emmasingel, Eindhoven, Netherlands, assignors to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
Filed Oct. 5, 1964, Ser. No. 401,377
Claims priority, application Netherlands, Oct. 29, 1963, 299,893
7 Claims. (Cl. 179—15)



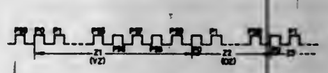
1. A frequency modulated stereo receiver for receiving two coherent stereo signals in which the carrier is frequency modulated by the sum signal of the two coherent stereo signals, the difference signal amplitude modulated on a suppressed subcarrier frequency and a pilot signal of one half the subcarrier frequency comprising, means for receiving the modulated carrier frequency and demodulating the signals therefrom, filter means for passing the demodulated pilot signal, frequency multiplying means for doubling the frequency of the pilot signal to recreate the subcarrier frequency, coupled bistable blocking means responsive to a threshold level of the recreated carrier for automatically switching from its first stable state which blocks the carrier to its second stable state which passes the carrier once the threshold is exceeded, and decoding means responsive to the sum and difference signals and the recreated carrier passed by the bistable blocking means for deriving the stereo signals.

3,319,007
ARRANGEMENT FOR OPERATIONALLY MATCHING DIFFERENT TELEPHONE SYSTEMS
Erik Hoffmann, Munich, Germany, assignor to Siemens & Halske Aktiengesellschaft Berlin and Munich, a corporation of Germany
Filed Jan. 29, 1963, Ser. No. 254,777
Claims priority, application Germany, Feb. 14, 1962, S 78,027
2 Claims. (Cl. 179—16)



1. A method of operationally matching a plurality of different kinds of telephone systems having subscriber lines which are respectively allocated to mutually interconnected exchanges, in which subscribers at one exchange operating with a uniform number of digits are connectible by a trunk and under the control of dialling by those subscribers to the subscribers of a plurality of other exchanges, which other exchanges operate with destination call codes and a non-uniform number of subscriber line digits such that fewer dialled digits are necessary to identify some subscribers than are necessary to identify others, comprising, in the selection of a subscriber of one of said other exchanges, the steps of supplementing the respective sum of the number of digits of the destination code and the number of digits of a subscriber line of said one of said other exchanges with fill-in digits, producing at said one of said other exchanges a selection termination signal indicating receipt of the required number of digits for the selection operation thereat, extending said selection termination signal rearwardly to a suppression point rearwardly disposed at least to the transition point from said one exchange to said one of said other exchanges, and suppressing at said suppression point transmission of said fill-in digits to said one of said other exchanges upon receipt of such selection termination signals at said suppression point.

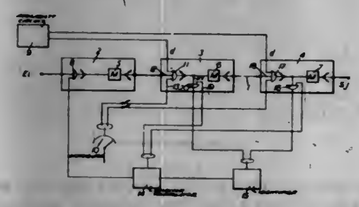
3,319,008
TIME-SLOT RESERVATION FOR TRUNK CALLS IN PBX TELEPHONE SYSTEMS
Otto Kneisel, Gauting, and Albert Fisch and Horst Honold, Munich, Germany, assignors to Siemens & Halske Aktiengesellschaft Berlin and Munich, a corporation of Germany
Filed Apr. 18, 1963, Ser. No. 274,062
Claims priority, application Germany, Apr. 19, 1962, S 79,089
10 Claims. (Cl. 179—18)



1. A circuit arrangement for a time multiplex communication system, especially private branch exchange telephone system, wherein the extension of calls is controlled by pulses which are displaced as to time and allocated to the respective calls, comprising a counting device, operative to ascertain idle exchange lines which can be seized in a given traffic direction and to count idle pulse phases,

and being further operative, depending upon the number of idle exchange lines and after counting a definite number of idle pulse phases, to supply a signal for the control of the allocation of a pulse phase to a connection which is to be established.

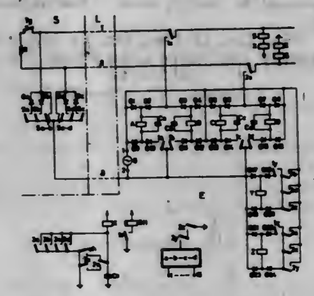
3,319,009
PATH SELECTOR
Albert Regnier, Issy-les-Moulineaux, and Jean Jacques René Paul De Buck, Paris, France, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed Nov. 20, 1963, Ser. No. 324,947
Claims priority, application France, Nov. 28, 1962, 916,895, Patent 1,382,913
9 Claims. (Cl. 179—18)



1. A telephone switching network comprising a plurality of groups of crosspoint matrices, said groups being cascaded to extend from input terminals on an input side to output terminals on an output side of said network, path selecting means operated responsive to marking signals applied to selected ones of said input and output terminals to select an available path through said network, said path selecting means comprising an analogous display network having nodes representing each of said matrices with upper nodes representing matrices connected to input terminals and lower nodes representing matrices not connected to input terminals, availability means common to all of said lower nodes in said path selecting means for marking all available ones of the nodes in the paths between said marked input and all available output terminals, pulse distributor means for periodically individually marking said nodes, means in said lower nodes operated responsive to the junction of said availability marking and signal or preceeding node marking for marking said succeeding one of said nodes and control means for sequentially selecting and identifying particular ones of said nodes commencing with the selected lower node connected to said marked output terminal and terminating with the upper node connected to said marked input terminal to select an analogous path through said crosspoint matrices.

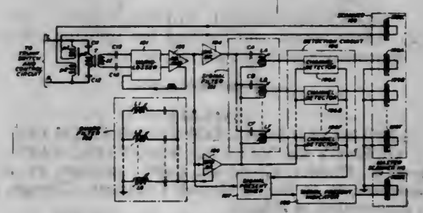
3,319,010
SWITCHING ARRANGEMENT FOR THE TRANSMISSION AND RE-TRANSMISSION OF SIGNALS OVER TELEPHONE LINES
Bruno Franchi and Wilhelm Fath, Munich, Germany, assignors to Siemens & Halske Aktiengesellschaft Berlin and Munich, a corporation of Germany
Filed Apr. 22, 1964, Ser. No. 361,911
Claims priority, application Germany, Apr. 23, 1963, S 84,825
3 Claims. (Cl. 179—84)

1. A switching arrangement for the transmission of signals over multi-wire communication lines between a transmitting station and a receiving station comprising means for generating an alternating current, operatively connectable between the individual line conductors and a common return conductor such as ground, means at the transmitting station for selectively switching half waves from said generator through rectifiers in different combinations, and means at the receiving station for evaluating such half waves, said evaluation means comprising receiving switching members which are directionally sensitive and allocated to the individual conductors in pairs, a control switching member allocated to the receiving switching members of one directional sensitivity, and a control switching member allocated to the receiving switching members of the other directional sensitivity, the respective control switching members having a direction



sensitivity which is opposite to that of the receiving switching members to which they are allocated, whereby operation of the respective control switching members, responsive to operation of one of the receiving switching members allocated thereto, takes place offset by the duration of one alternating current half-wave, and means responsive to operation of both control switching members for enabling retransmission of the received signal, whereby such retransmission takes place only after operation of both control switching members.

3,319,011
MULTIFREQUENCY SIGNAL RECEIVER CIRCUIT
Joseph Maurushat, Jr., Millburn, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed May 11, 1964, Ser. No. 366,463
12 Claims. (Cl. 179—84)



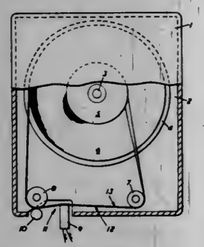
8. A multifrequency receiver comprising, in combination, an input point and a plurality of output points, means for applying a multifrequency signal to said input point, means responsive to preselected frequency components in said multifrequency signals for applying a D.-C. signal to corresponding ones of said output points, guard frequency generating means responsive to frequency components other than said preselected components in said multifrequency signal for disabling said applying means, control signal generating means jointly and operatively responsive to one of said multifrequency

signals persisting for at least a preselected duration and to the coincidence of at least two of said D.-C. signals occurring at said output points, said last named signals occurring before the termination of said duration, and means responsive to said control signal for utilizing said D.-C. signals applied to said output points.

3,319,012
METHOD AND APPARATUS FOR LUBRICATING MAGNETIC RECORDING TAPE

Gordon Howard Reed and John George Vickers, both of 52 Esplanade, St. Helier, Jersey, Channel Islands, Great Britain

Filed Dec. 29, 1961, Ser. No. 163,224
Claims priority, application Great Britain, Dec. 30, 1960, 44,704/60
2 Claims. (Cl. 179—100.2)



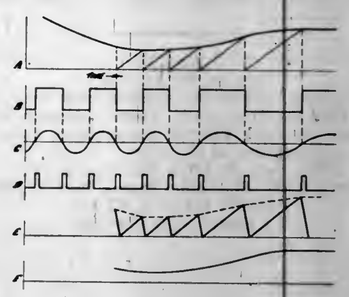
1. A magnetic record unit comprising:
(a) a housing having an opening,
(b) a magnetic head mounted so as to have a portion thereof enter from outside of said housing through said opening and project into the interior of said housing,
(c) means rotatably mounted within said housing for supporting a coil of an endless length of oxide-coated plastic base tape, said tape having a first and a second surface, said first surface having finely divided graphite applied therto,
(d) means for
(1) having a loop of said tape travel away from said coil,
(2) having said loop pass within said housing across said opening,
(3) having said first surface contact said portion, and
(4) having said loop return to said coil, and
(e) means within said housing for applying polytetrafluoroethylene to said second surface.

3,319,013
APPARATUS FOR RECORDING HIGH FREQUENCY SIGNALS ON MAGNETIC TAPE

Wayne K. Hodder, Glendora, Calif., assignor, by mesne assignments, to Bell & Howell Company, Chicago, Ill., a corporation of Illinois

Filed Oct. 22, 1962, Ser. No. 231,916
5 Claims. (Cl. 179—100.2)

1. A high frequency recording system for recording an input signal on magnetic tape comprising means for generating a carrier signal varying between two voltage levels, means for switching the generating means alternately from one voltage level to the other, means for actuating the switching means at intervals directly proportional to the amplitude of the input signal at the end of each interval, means reversing the magnetic flux of the tape in response to the change in level of said output signal, means for sensing the flux reversals on tape for generating pulses at time intervals corresponding to the time intervals between sensed flux reversals on the tape, means for converting the intervals between pulses to pulses having amplitudes proportional to said intervals,



and low-pass filter means coupled to the variable amplitude pulses for producing variable amplitude output signals from said variable amplitude pulses.

3,319,014
TAPE GUIDE ARRANGEMENT FOR USE IN MAGNETIC VIDEO TAPE RECORDING APPARATUS

Kaneyoshi Sugawa, Kawasaki-shi, Japan, assignor to Matsushita Electric Industrial Co., Ltd., Kadoma, Kadomacho, Kitakawachi-gun, Osaka, Japan, a corporation of Japan

Filed Nov. 27, 1962, Ser. No. 240,382
Claims priority, application Japan, Nov. 29, 1961, 36/58,536
2 Claims. (Cl. 179—100.2)

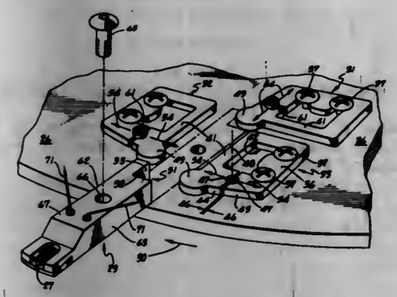


1. A wide band magnetic tape video recording unit comprising a tape supply reel; a tape take-up reel; a tape guide; and magnetic tape disposed about said tape supply reel, said tape guide and said tape take-up reel in such a way that said tape defines a portion of a cylinder about said tape guide and the longitudinal center of said tape is disposed on a single plane; a base plate, the cylindrical surface of said tape guide being inclined with respect to said base plate; a rotary disk having a plurality of magnetic heads mounted substantially at the periphery thereof; means for rotating said disk in a plane disposed at an angle to the central axis of said cylindrical portion of said tape guide; said tape guide defining a slot, a portion of which is contiguous to said tape and extending from one point contiguous to one transverse limit of said tape to another point contiguous to the other transverse limit of said tape; said disk being disposed at least partially within said slot for contiguously scanning said tape; means for longitudinally moving said tape from said supply reel to said take-up reel; a first idler arranged in parallel with said cylindrical surface of said tape guide for guiding said tape into contact with said tape guide, a second idler arranged with its shaft at right angles to said base plate, and a correcting post arranged midway between said first idler and said second idler, said correcting post being inclined with respect to said base plate in order to have the conversion of rectilinear movement and spiral movement of said tape performed.

3,319,015
ROTARY HEAD POSITION ADJUSTING APPARATUS

Norman Eccarius and John A. Lomax, Redwood City, and William J. Martin, Sunnyvale, Calif., assignors to Ampex Corporation, Redwood City, Calif., a corporation of California

Filed July 17, 1963, Ser. No. 295,788
9 Claims. (Cl. 179—100.2)

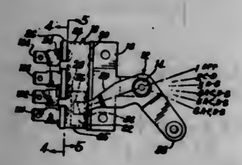


1. In a rotating head drum for a magnetic tape transport, means for mounting transducing heads on said drum, comprising:
a plurality of elements each being selectively variable in dimension in a predetermined direction;
a first of said elements being mounted on said drum and engaging one of said heads on the radially inward end thereof and on one side, with said predetermined direction of said first element being aligned with the radius of said drum at said one head;
a second of said elements being mounted on said drum and engaging said one head on the other side thereof, with said predetermined direction of said second element aligned transverse to said radius;
a third of said elements being mounted on said drum and engaging said one side of said head, between said second element and the periphery of said drum, with said predetermined direction of said third element transverse to said radius; and
means for holding said head against said drum.

3,319,016
MULTI-POSITION ELECTRICAL SWITCH WITH IMPROVED GUIDE RAIL AND MOVABLE CONTACT STRUCTURE

Leland C. Hoy, Skokie, and Borys Hazek, Mount Prospect, Ill., assignors to Indak Manufacturing Corp., Northbrook, Ill., a corporation of Illinois

Filed May 20, 1966, Ser. No. 551,648
10 Claims. (Cl. 200—16)

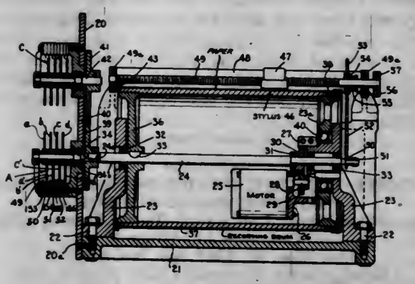


1. An electrical switch,
comprising the combination of a casing,
an insulating carriage movable longitudinally in said casing,
a movable operating member for moving said carriage,
a first contactor mounted on said carriage and comprising a single rounded contact point,
a double contactor mounted on said carriage and comprising two spaced contact members,
a contact supporting board closing the rear side of said casing and made of insulating material,
a plurality of fixed contact points mounted on said board in a longitudinal row and engageable in a predetermined sequence by said double contactor,
first and second generally parallel contact rails mounted on said board and engageable by said first contactor,
said second rail being connected to one of said fixed contact points,
a first spring biasing said first contactor rearwardly against said rails,
a second spring biasing said double contactor rearwardly against said fixed contact points,
said first contactor forming a movable bridge between said rails,
said first rail extending along a portion of the length of said second rail,
and a guide rail mounted on said board and extending along an additional portion of said second rail,
said guide rail constituting a mechanical extension of said first rail but being electrically isolated therefrom.

3,319,017
SWITCH CONTROL APPARATUS WITH IMPROVED BRUSH CONTACT MEANS

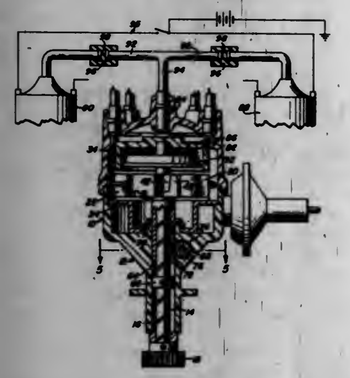
Cecil S. Adams, Deborrah Lane, Saluda Lake 29611, James B. Adams, 137 Twinbrook Drive 29607, Felton B. Bailey, 206 Sunshine Ave. 29609, and Edgar F. Walker, 14 Tranquil Ave. 29607, all of Greenville, S.C.

Application Jan. 8, 1965, Ser. No. 428,089, now Pat. No. 3,226,726, dated Dec. 28, 1965, which is a continuation of application Ser. No. 208,816, July 10, 1962. Divided and this application Sept. 30, 1965, Ser. No. 491,592
2 Claims. (Cl. 200—18)



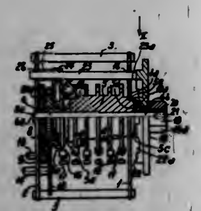
1. In a switch having a plurality of contacts and contact actuating means to which signals are fed for monitoring including, stacked groups of rotary switches each having contacts and a contact actuating means, said contact actuating means being ganged and mechanically and drivingly interconnected to one another and said contacts being stacked, means providing relative rotary movement between said contacts and said contact actuating means, said contact actuating means and said contacts of respective groups of each rotary switch being staggered with respect to each other, means for rotating said contact actuating means of each group in a predetermined timed sequence whereby when a contact actuating means of a group leaves a respective contact a corresponding contact actuating means of another group is fully operable to actuate a corresponding contact, and said contact actuating means of each rotary switch being carried on a common shaft so that said contact actuating means thereof can be driven at a constant uniform rate.

3,319,018
DUAL POINT IGNITION SYSTEM
Carlton Hubbard, Atmore, Ala., assignor of 40 percent to Ira H. Rich, Centerville, Tenn.
Filed Dec. 19, 1963, Ser. No. 331,839
11 Claims. (Cl. 200—19)



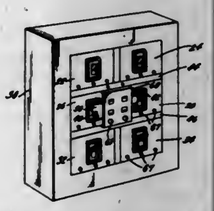
1. A dual point ignition distributor including a housing, a driving shaft journaled in said housing, a pair of cam means mounted on said shaft each including a set of lobes spaced circumferentially about said shaft, said sets of lobes each including the same number of lobes and being alternately and substantially equally circumferentially spaced about said shaft, a pair of circuit making and breaking means each including an actuating cam follower for engagement with said lobes, said cam followers being circumferentially spaced about said shaft an odd multiple of the degrees of circumferential spacing between adjacent lobes, one of said cam means being supported from said shaft for movement between an operative position for engagement by said cam followers and a retracted inoperative position, and means operatively connected to said one cam means for selectively shifting the latter between said operative and inoperative positions.

3,319,019
TIMED CONTROL DEVICE WITH VARIABLE PROGRAMMED SEQUENCES
Jean Jullien-Davin, Valence-sur-Rhone, France, assignor to Crouzet S.r.l., Milan, Italy
Filed Mar. 30, 1965, Ser. No. 443,895
Claims priority, application Italy, Nov. 6, 1964, 23,841/64; Nov. 28, 1964, 25,670/64
19 Claims. (Cl. 200—38)



1. In a timed control device, in combination:
(a) drive means;
(b) a plurality of cams;
(c) means drivingly connecting said drive means to said plurality of cams;
(d) a high speed drive input;
(e) a control cam having a face defining a program, said control cam being drivingly connected to said drive means;
(f) overriding clutch means connected to said plurality of cams and to said high speed drive input for transmitting high speed movement of said input to said plurality of cams; and
(g) a push rod member engaging said face of the control cam and said clutch means for operating said clutch means according to said program.

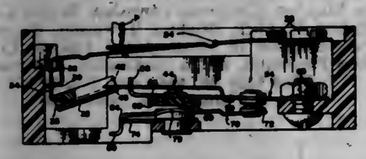
3,319,020
HANDLE INTERLOCK FOR ELECTRICAL SWITCHING DEVICES
Howard R. Shaffer, Glenside, Pa., assignor to I-T-E Circuit Breaker Company, Philadelphia, Pa., a corporation of Pennsylvania
Filed May 23, 1966, Ser. No. 552,030
10 Claims. (Cl. 200—50)



1. In combination with at least a first and second electrical switching device, each including a housing having a planar front surface and a manual operating handle outwardly extending therefrom;
said manual operating handle movable in a first direction between first and second operative positions;
a handle interlock extending between said housings and selectively positionable in the paths of movements of said operating handles;
said handle interlock consisting solely of a mounting means and a slide means;
said mounting means retaining said slide means for slidable movement along the planar housing front surfaces in a second direction generally perpendicular to said first direction;
said slide means including abutment means for preventing movement of the operating handle of one of said electrical switching devices from one of its operative positions to the other of its operative positions when the operating handle of the other of said electrical switching devices is in a predetermined operative position.

3,319,021
ELECTRIC SWITCH
Arthur L. Good, Elkhart, Ind., assignor to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware
Filed Apr. 4, 1966, Ser. No. 539,902
8 Claims. (Cl. 200—67)

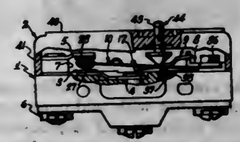
1. In an electric switch, the combination comprising a switch housing,
first contact carrying switch blade means having an operating portion and a mounting portion secured to said housing,
second contact carrying switch blade means movably mounted in said housing and cooperating with said first blade means to define switch open and closed positions,
flexible hinge means between said operating portion and said mounting portion biasing said operating portion toward said second blade means whereby said operating portion is normally biased to a switch closed position,
force transmitting means on said second blade means engaging the operating portion of said first blade means for moving the same to a switch open position, and



force applying means including a leaf member having spaced parts operatively connected to said second blade means one of said parts defining a lost motion connection with said second blade means causing said force transmitting means to move relative to the operating portion of said first blade means, and
actuating means acting on said leaf member to reverse the action of said second blade means whereby said first and second blade means are movable during a switching operation.

3,319,022
SNAP SWITCH HAVING AN INTEGRAL OVER-CENTER SNAP SPRING BLADE
Lawrence Wilbur Froyd and Jerry Willard Washburne, both of Princeton, Ind., assignors to American Machine & Foundry Company, a corporation of New Jersey
Filed May 4, 1966, Ser. No. 547,601
7 Claims. (Cl. 200—67)

1. In a snap switch of the type described, the combination of
a base of electrical insulating material;
a first fixed contact including a contact surface facing away from said base;
a second fixed contact including a contact surface opposed to the contact surface of said first fixed contact;
said first and second fixed contacts secured to said base and spaced from each other spacing the contact surfaces thereof one from the other;
an integral thin spring sheet metal over-center snap spring blade comprising two elongated longitudinally extending arms spaced transversely apart, and first and second transverse portions each interconnecting said arms at one end of said blade opposite from the other,
said second transverse portion having a tongue projecting therefrom toward said first transverse portion and being disposed between said arms;
said tongue having a bearing edge disposed transversely of the blade and exposed toward said first transverse portion;
said arms having transversely aligned portions bent out of the normal plane of the blade and capable of being resiliently distorted to increase the effective length of the blade;
movable contact means fixed to said second transverse portion and having first and second contact surfaces each facing away from a different side of said blade;
a rigid fulcrum member including a mounting leg and a fulcrum leg disposed at an angle to said mounting leg;
said fulcrum leg having a face directed toward said fixed contacts and disposed transversely of said blade, and at least one opening;
fastener means fixedly securing said first transverse portion and said mounting leg to said base;
a rigid operating lever being disposed generally between said arms of said blade and comprising an elongated body, a transverse flange projecting from one end of said body, and a fulcrum end portion at the other end of the body;
said transverse flange having a groove opening away from said body and being disposed transversely of said lever to engage and retain said bearing edge;
said fulcrum end portion having an end shoulder engaging said face and at least one longitudinal projection extending from said end shoulder and loosely within said opening when said fulcrum end engages said fulcrum leg and provides a pivotal connection for said lever;
the distance between said shoulder of and said groove of said lever being greater than the distance between said face and said bearing edge when said blade is undistorted so that said tongue is distorted and said fulcrum end is biased into pivotal engagement with said fulcrum leg by engagement of said bearing edge in said groove;

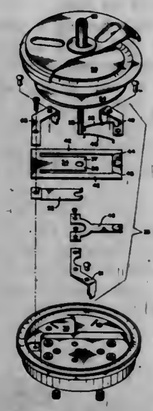


spring means operatively engaged between said lever and base to urge said lever to pivot at its fulcrum end and away from said base to a normal position wherein said groove is spaced from the side of blade opposite from said base and such distortion of said tongue causes said second transverse portion to slant from said tongue toward said base and cause the first contact surface of said movable contact means to engage the contact surface of said first contact;
actuating means engaging said lever and in response to an actuating force causing said lever to pivot at its fulcrum end and move progressively toward said base until cross-over of said over-center snap spring blade results wherein said tongue and second transverse portion are snapped to a position slanting away from said base causing the second contact surface of said movable contact means to engage the contact surface of said second contact;
such pivotal movement of said lever from its normal position causing said arms to effectively increase progressively and said second transverse portion to progressively change the slant thereof relative to said base by distortion of said transversely aligned bent portions and causing said first contact surface to wipe over and rotate relative to the contact surface of said first contact; and
said spring means causing said lever to return to its normal position when said lever is released by said actuating means.

3,319,023
PRESSURE SWITCH MEANS
Lelyn D. Luke, Carmel, and John C. Jones, Indianapolis, Ind., assignors to P. R. Mallory & Co. Inc., Indianapolis, Ind., a corporation of Delaware
Filed June 11, 1965, Ser. No. 463,195
20 Claims. (Cl. 200—81)

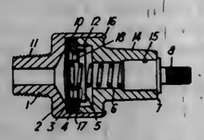
15. An adjustable control means engaging a switch so as to prevent actuation of said switch until a predetermined condition is exceeded, said control means comprising: a shaft carrying detent means having rise and fall contours and calibration means having contours; prede-

terminately-shaped means including follower means riding on said contours of said detent means, said follower means and said detent means cooperating to locate a predetermined position on said contours of said calibration means; a member of said predeterminately-shaped means



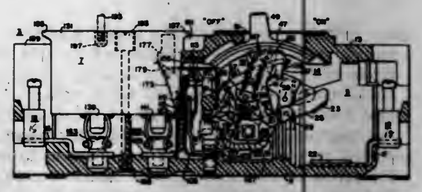
riding on the contours of said calibration means and displaced in accordance with said contours, and means connected to said member and displaceable therewith, said means biasing a movable contact of said switch to one of a plurality of positions thereby determining said predetermined condition to which said switch is responsive.

3,319,024
PRESSURE RESPONSIVE ELECTRIC SWITCHES
Claude Quatredeniers, Les Lilas, France, assignor to General Motors Corporation, a corporation of Delaware
Filed Mar. 15, 1965, Ser. No. 439,755
Claims priority, application Great Britain, Mar. 21, 1964, 12,037/64
3 Claims. (Cl. 200—83)



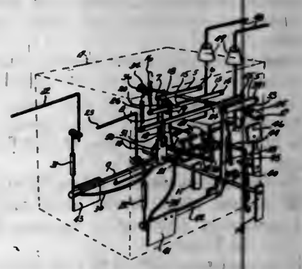
1. A pressure responsive electrical switch according to the invention, comprises a cup-shaped conductive body member with an integral tubular boss extending from its base, a tubular insulator member formed with an internal stepped bore and an external shoulder having an end face, an annular disc which directly abuts the base of the cup portion of the body member, an annular conductive disc which directly abuts said end face of said insulator member, a flexible diaphragm the peripheral portion of which is clamped between and in engagement with said annular discs, a movable contact member having a peripheral portion engageable with the conductive annular disc and a central portion which forms a seat for one end of a helical spring the other end of which is seated on a terminal secured in the narrower bore portion of said insulator member, said movable contact member normally being pressed by said spring into engagement with said annular disc member and with said diaphragm but being disengageable from said annular disc member upon deflection of the diaphragm under pressure applied to the other side thereof, and said cup-shaped body member having its rim portion crimped over into engagement with the external shoulder on said insulator member so as to secure between said insulator member and said body member said annular disc members with the diaphragm clamped therebetween.

3,319,025
CIRCUIT BREAKER WITH REMOVABLE FUSE UNIT HAVING SECURING SCREWS USED FOR REMOVAL OF THE FUSE UNIT
John Majcher, Chippewa Township, Beaver County, and Robert H. Flick, Brighton Township, Beaver County, Pa., assignors to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Filed May 28, 1962, Ser. No. 197,971
5 Claims. (Cl. 200—114)



1. A circuit interrupting device comprising, in combination, a circuit breaker comprising cooperable contacts and means operable to open and close said contacts, a fuse unit having opening means therein and being connected in electrical series with said circuit breaker, securing means passing through said opening means in said fuse unit and threadedly engaging a portion of said circuit breaker to secure said fuse unit to said circuit breaker, said securing means being removable from said threaded engagement and from said opening means, and said fuse unit, having a portion adapted to receive said removed securing means in threaded engagement to facilitate removal of said fuse unit from said circuit breaker.

3,319,026
MULTIPLE POLE FUSED DISCONNECT SWITCH
August R. Schrade, 2814 Reuter Ave., Waco, Tex. 76708
Filed Sept. 24, 1965, Ser. No. 489,939
4 Claims. (Cl. 200—114)



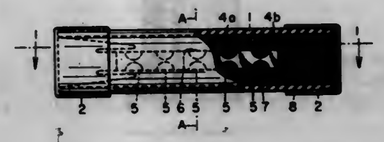
1. A fused multipole disconnecting switch, comprising a plurality of substantially parallel substantially horizontal flag supporting arms, one end of each flag supporting arm pivotally mounted on a support member, a flag secured to the other end of each flag supporting arm, a vertically disposed fuse link for each flag supporting arm,

a connection between the lower end of each fuse link and the other end of said flag supporting arm, a conductor connected to the upper end of each fuse link and connected to a fixed support for supporting said upper end of said fuse link, a first rectangular flapper block located above said flag supporting arms and secured to a fixed support, a second rectangular flapper block pivotally secured to the first flapper block, a set of mating contacts for each flag supporting arm, a contact of each set secured to each flapper block, spring means biasing said second flapper away from said first flapper block, a latch secured to the second flapper block and to a fixed support for latching the pivoted flapper block in contact closing position, a separate wire connecting to each contact of said first flapper block for connection to line wires, a separate wire connecting each contact of the second flapper block to the lower end of each fuse, means connected to each flag supporting arm and to the latch operated on dropping of either flag due to the corresponding fuse being blown for releasing the said latch, whereby on blowing of any fuse the corresponding end of a flag supporting arm and flag will drop down and will release the latch to permit the spring means to separate the contacts of each pair of mating contacts.

3,319,027
ENCAPSULATED FUSE STRUCTURE FOR POLYPHASE CIRCUITS
Paul C. Hitchcock, Plum Island, Mass., assignor to The Chase-Shawmut Company, Newburyport, Mass.
Filed Jan. 26, 1965, Ser. No. 428,258
5 Claims. (Cl. 200—120)

1. A polyphase fusible protective device comprising in combination:
- (a) a plurality of parallel pairs of parallel stab contacts having inner ends and having outer ends;
- (b) a plurality of fusible element means each conductively interconnecting said inner ends of one of said plurality of pairs of stab contacts;
- (c) a substantially prismatic housing receiving said plurality of fusible element means and said inner ends of said plurality of stab contacts, said housing including a bottom defining a plurality of apertures, each of said plurality of pairs of stab contacts projecting from the inside of said housing through one of said plurality of apertures to the outside of said housing;
- (d) a first casting member of synthetic resin integral with said housing and including a portion situated inside said housing engaging and being coextensive with the inner surface of said bottom thereof and a second portion situated outside said housing engaging and being coextensive with the outer surface of said bottom thereof, said first casting member positioning said plurality of pairs of stab contacts relative to said housing;
- (e) a pulverulent arc-quenching filler inside said housing for submersing said plurality of fusible elements;
- (f) phase barrier means inside said housing arranged at right angles to said bottom thereof subdividing said pulverulent arc-quenching filler into a plurality of separate bodies of pulverulent arc-quenching filler; and
- (g) a second casting member of synthetic resin closing the side of said housing opposite said bottom thereof.

3,319,028
SPRINGLESS TIME LAG FUSE FOR MOTOR CIRCUITS
Frederick J. Kozacka, South Hampton, N.H., assignor to The Chase-Shawmut Company, Newburyport, Mass.
Filed Aug. 5, 1965, Ser. No. 477,443
The portion of the term of the patent subsequent to July 19, 1983, has been disclaimed
5 Claims. (Cl. 200—120)

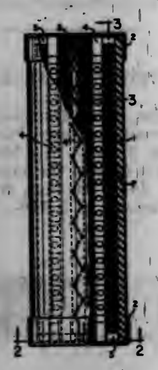


1. An electric fuse comprising in combination: a tubular casing of insulating material; electroconductive terminal elements arranged at the ends of said casing; a pulverulent arc-quenching filler inside of said casing; a ribbon fuse link of a current-limiting metal inside said casing, submersed in said filler, conductively interconnecting said terminal elements, said fuse link including a perforated center portion having a predetermined maximum cross-sectional area and a predetermined minimum cross-sectional area, said center portion being folded transversely to define a duct extending in a direction longitudinally of said casing; a link severing overlay of a metal having a fusing point lower than the fusing point of said current-limiting metal supported by said center portion of said fuse link; said fuse link further including a pair of connector tabs at each of the axially outer ends of said center portion, said pair of connector tabs having a substantially smaller cross-sectional area than said maximum cross-sectional area of said center portion and having a larger cross-sectional area than said minimum cross-sectional area of said center portion, each of said pair of connector tabs being folded twice in a direction substantially longitudinally of said casing to form a pair of loops both extending substantially in a direction longitudinally of said casing; and each of said pair of connector tabs including a portion extending from one of the axially outer ends of said center portion toward the median plane of said center portion and overlapping a portion of said center portion.

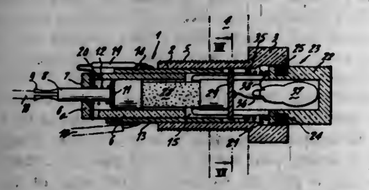
3,319,029
HIGH-VOLTAGE FUSES HAVING ZIG-ZAG-SHAPED FUSE LINK
Philip C. Jacobs, Jr., 53 Walden St., Newtonville, Mass. 02160
Filed Feb. 7, 1966, Ser. No. 525,587
3 Claims. (Cl. 200—120)

1. A high-voltage fuse comprising in combination:
- (a) a tubular casing of an electric insulating material;
- (b) terminal elements closing the ends of said casing;
- (c) a pulverulent arc-quenching filler inside said casing; and
- (d) substantially zig-zag shaped ribbon fuse link means inside said casing conductively interconnecting said pair of terminal elements and submersed in said

arc-quenching filler, said fuse link means including a plurality of serially related flat sections defining planes enclosing predetermined obtuse angles, any increment of the area of any of said plurality of sections enclosing said predetermined obtuse angle with any increment of the area of an adjacent of said plurality of sections, contiguous pairs of said sections being bounded by section-limiting edges at the loci of intersection of said planes, each of said plurality of sections having its largest cross-sectional area at the pair of said section-limiting edges thereof, and each of said plurality of sections having a point of minimum cross-sectional area situated between said section-limiting edges thereof.

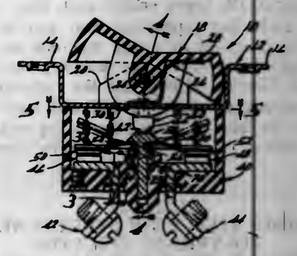


3,319,030
CIRCUIT PROTECTOR
Victor Russenberger, 40 Ave. de la Source, Nogent-sur-Marne, France
Filed Apr. 13, 1965, Ser. No. 447,630
Claims priority, application France, Apr. 17, 1964, 971,421; Mar. 3, 1965, 7,777
10 Claims. (Cl. 200—121)



1. In a circuit protector, a hollow tubular body having a pair of opposed ends, a movable electric contact situated in said body at one of said ends, a first conductor connected with said movable electric contact, a fuse in said body and having an end engaging said movable electric contact, said fuse having an opposed end distant from said contact, an elongated fuse holder engaging said opposed end of said fuse and a transverse cup defining panel member in said body mounted intermediate the length of said fuse holder contacting said opposed end of said fuse, said transverse cup defining panel member having in a diametral plane a pair of protrusions, and a pair of conductive blades housed in said tubular body and formed with notches, respectively, receiving said protrusions, respectively, and a second conductor connected with one of said blades, said tubular body having at said one end thereof, a portion formed with a central hole, and said movable electric contact including a spindle extending through said hole and a platen connected to said spindle and situated in said tubular body, and a spring situated in said body in engagement with said one end thereof and with said platen.

3,319,031
THERMAL SNAP CIRCUIT BREAKER WITH SLIDABLE SPRING BIASED COLLAR ENGAGING ON SIDE OF THE BIMETAL
Thomas W. Butler, Ann Arbor, and Bertram T. Vaughn, Michigan Center, Mich., assignors to Mechanical Products, Inc., Jackson, Mich., a corporation of Delaware
Filed Oct. 23, 1965, Ser. No. 503,293
1 Claim. (Cl. 200—138)



A quick break, trip free, rocker action circuit breaker comprising

an insulating housing,

a pair of electrical terminals on said housing,

a pair of fixed contacts on said terminals, respectively,

a snap acting bimetallic blade having a central aperture and a pair of movable contacts on opposite sides of the aperture, said movable contacts being engageable with said fixed contacts, respectively, to complete an electrical circuit through said circuit breaker,

a plunger having a conical portion with a spherical recess therein and a portion extending through the aperture in said bimetallic blade, a collar surrounding said plunger and engageable with said blade on the opposite side thereof from said collar,

a plunger spring engaged with said collar and normally biasing said collar against said blade and said blade against the conical portion of said plunger thereby to bias and said blade toward the contacts open position,

a rockable manual operator having a generally spherical portion engageable in the spherical recess in said plunger to hold said blade and contacts in the contacts closed condition against the bias of said spring, and

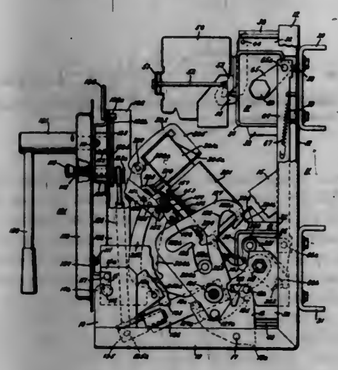
a manual operator spring normally biasing said manual operator towards the contacts open condition,

movement of said manual operator towards the contacts closed condition effecting engagement of the spherical portion thereon with the conical portion of said plunger to bias said plunger and bimetallic blade towards the contacts closed condition,

movement of said manual operator towards the contacts open condition effecting disengagement of the spherical portion thereon from the spherical recess in said plunger whereupon said plunger and bimetallic blade are free to move under the bias of said plunger spring to the contacts open condition,

said snap acting bimetallic blade being movable to the contacts open condition upon the occurrence of a predetermined electrical condition in a circuit containing said circuit breaker irrespective of the condition of said manual operator, movement of said snap acting bimetallic blade to the open condition due to said electrical condition effecting release of said manual operator to permit it to move to the contacts open condition under the bias of said manual operator spring.

3,319,032
IRREVERSIBLE ELECTRIC SWITCH
Leslie L. Baird, Swarthmore, Pa., assignor to General Electric Company, a corporation of New York
Filed Dec. 30, 1964, Ser. No. 422,162
8 Claims. (Cl. 200—153)



1. A switch comprising:

(a) a relatively stationary electric contact;

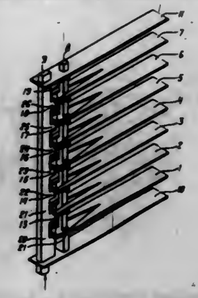
(b) a member adapted to support another electric contact, said member being disposed for movement between a predetermined first position in which said contacts are separated and a predetermined second position in which said contacts are in engagement with each other;

(c) operating means for moving said member; and

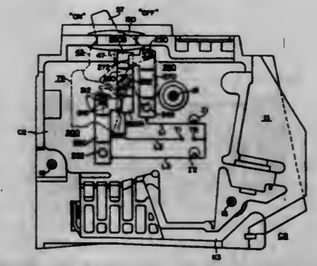
(d) mechanical means effective throughout movement of said member from said first position to said second position for preventing any appreciable reverse movement thereof before the member reaches its second position, said reverse-movement-preventing means being independent of said operating means.

3,319,033
CONTACT SPRING GROUP FOR ELECTRICAL SWITCHING APPARATUS
Per Harry Elias Claesson, Osterhagen, Drevviken, Sweden, and Karl Evert Jarnbrink, Grunsgatan 3, Farsta, Sweden
Original application Apr. 17, 1961, Ser. No. 103,529, now Patent No. 3,182,159, dated May 4, 1965. Divided and this application Apr. 26, 1965, Ser. No. 450,759
Claims priority, application Sweden, Apr. 19, 1960, 3,804/60; Apr. 13, 1961, 3,868/61
8 Claims. (Cl. 200—166)

1. In a contact spring group for relays, change-over switches and the like, a number of movable contact springs of the leaf spring type, and a number of fixed contact springs of the leaf spring type, each of said contact springs having a solid rear portion and a shanked front portion, the rear part of said rear portion being fastened in a supporting bracket, the front part of said rear portion being movable in a plane perpendicular to the plane of the spring, each shank of said shanked portion being tapered and having a width which is less than half the width of the solid portion and which decreases along the greatest part of the length of the shank from the solid portion to the free end of the shank, each shank having a contact surface at its free end, said contact surface being located opposite to a corresponding contact surface of a movable spring, and means for supporting each shank of said shanked portion of each fixed contact spring adjacent the contact surface of such shank.

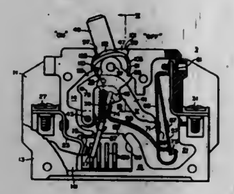


3,319,034
CIRCUIT BREAKER HAVING MEANS FOR READILY INDICATING THE POSITION THEREOF
Francis L. Gelzheiser, Fairfield, Conn., and Wesley L. Baum, Downey, Calif., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Mar. 3, 1966, Ser. No. 531,427
10 Claims. (Cl. 200—167)



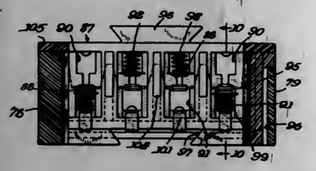
1. A circuit breaker comprising an insulating housing having at least two spaced, generally parallel side walls, a pair of separable contacts disposed within the housing, trip means including a pivotally supported trip member disposed within the housing and movable generally parallel to the side walls from a first to a second position to actuate the opening of the contacts upon the occurrence of predetermined overload conditions, an elongated member projecting through an opening in one of the side walls to engage the trip member in the first position and movable generally perpendicular to the side walls by the movement of the trip member, and an additional pair of separable contacts mounted on said one of the side walls, one of the additional pair of contacts movable by the elongated member about an axis which is generally parallel to the side walls to engage the other contact of the additional pair when the trip member moves from the first position to the second position.

3,319,035
CIRCUIT BREAKER WITH SEALING MEANS FOR HANDLE OPENING
Francis L. Gelzheiser, Fairfield, Conn., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Mar. 4, 1966, Ser. No. 531,966
9 Claims. (Cl. 200—168)



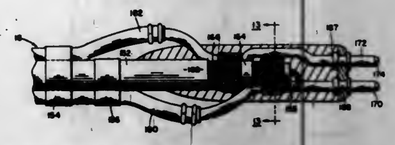
9. A circuit breaker comprising a housing formed from electrically insulating material having an opening therein for receiving a handle, a slide disposed adjacent to the opening inside the housing for at all times substantially closing the opening, an operating handle secured to the slide and extending through the opening for operating the slide, and a relatively thin, resilient fin formed integrally with the housing around the periphery of the opening to bear against the slide in all positions of the slide to thereby form a seal between the housing and the slide.

3,319,036
RELAY CONTACT BLOCK WITH INTERCHANGEABLE SPRING BIASED CONTACT STRUCTURE
Robert L. McGary, Batavia, Ill., assignor to Furnas Electric Company, Batavia, Ill., a corporation of Delaware
Original application Mar. 23, 1965, Ser. No. 441,964, now Patent No. 3,290,628, dated Dec. 6, 1966. Divided and this application Aug. 30, 1966, Ser. No. 576,084
5 Claims. (Cl. 200—168)



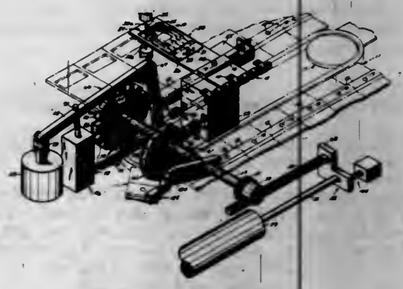
1. In a contact block of the character described, in combination, a housing of insulating material including spaced side and end walls, a plurality of stationary contacts fixed to the side walls, respectively, and each extending inwardly in aligned spaced relation with a contact from the opposite side wall to form pairs of spaced contacts, a carrier also of insulating material and located in the space between the pairs of stationary contacts, said carrier being mounted by the end walls of the housing in a manner permitting limited reciprocating movement, a plurality of bridging contacts carried by the carrier and adapted to engage the pairs of spaced contacts, respectively, to close the electrical circuits controlled thereby, said carrier having a plurality of openings therein corresponding in number to the number of bridging contacts and each opening including an upper half and a lower half, each of said openings retaining a bridging contact, and a coil spring within each opening for yieldingly holding the bridging contacts in position, said bridging contacts located in the upper half of the openings with the coil spring located above the same for normally open operation, and said bridging contacts located in the lower half of the openings with the coil spring located below the same for normally closed operation.

3,319,037
INDUCTION HEATING MEANS
John A. Stein, Torrance, and Therian E. Austin, Long Beach, Calif., assignors to North American Aviation, Inc.
Original application Oct. 27, 1961, Ser. No. 148,171, now Patent No. 3,156,807, dated Nov. 19, 1964. Divided and this application Apr. 20, 1964, Ser. No. 366,939
9 Claims. (Cl. 219—10.75)



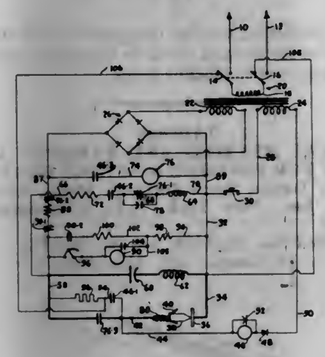
1. Power transmission means for permitting operation of an induction heating coil at locations remote from its power source, said transmission means including a plurality of coaxial cables each having an inner and an outer conductor separated by dielectric insulation therebetween, the cross-sectional area of said inner and outer conductors being substantially equal, said inner conductors having common connection with each other and with one end of said induction heating coil and said outer conductors having common connection with each other and with the end of said induction heating coil remote from said one end thereof, whereby said inner conductors are electrically in parallel and provide a power connection between said power source and said coil, and said outer conductors are electrically in parallel and complete the electrical circuit between said power source and said coil.

3,319,038
ARTICLE TRANSFER APPARATUS
Karl G. Meister, Newark, and Frank Wald, North Bergen, N.J., assignors to Western Electric Company Incorporated, New York, N.Y., a corporation of New York
Filed June 15, 1964, Ser. No. 375,076
10 Claims. (Cl. 219—79)



1. In a system for advancing a series of work holders to and then through a plurality of work stations,
a conveyor for supporting said work holders,
drive means for advancing said conveyor a first predetermined distance to successively move said work holders to said work stations, and
means rendered effective upon each advance of said conveyor by said drive means for incrementally advancing the conveyor in a series of steps which are less than said first predetermined distance to move said work holders through said work stations.

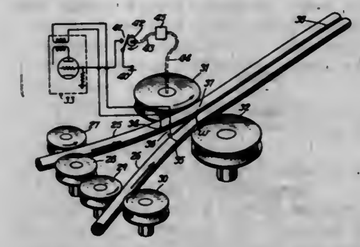
3,319,039
CONDENSER DISCHARGE STUD WELDING APPARATUS
Paul A. Glorioso, Amherst, Ohio, assignor to Gregory Industries, Inc., Lorain, Ohio, a corporation of Michigan
Filed Apr. 29, 1963, Ser. No. 276,483
4 Claims. (Cl. 219—98)



1. Apparatus for welding studs and the like by means of a capacitor discharge, said apparatus comprising means for holding and retracting a stud to sequentially position the stud against a workpiece and thereafter to retract the stud to a predetermined position from the workpiece to form a gap therebetween, means to return the stud to the workpiece, a capacitor, first energy discharge circuit means connecting said stud and said workpiece in circuit with said capacitor and including means restricting the energy discharge of said capacitor to establish a pilot arc between said stud and said workpiece when said stud is retracted from said workpiece, a first power source, second circuit means connecting said capacitor to said power source for charging said capacitor, third discharge circuit means connecting said capacitor with the stud and with the workpiece to establish an arc of welding intensity therebetween when the stud is spaced from the workpiece and to sustain the arc until the stud is returned to the workpiece, a power source of lower voltage than said first power source, fourth circuit means connecting said low voltage source across said stud and said workpiece, said fourth means including means for closing said first energy circuit means when connected with said low voltage source through said fourth circuit means, and manually-operable means for connecting said low voltage source with said closing means at a predetermined time with the stud and workpiece being in electrical contact.

3,319,040
HIGH FREQUENCY WELDING AND SHAPING OF METAL PARTS
Wallace C. Rudd, Larchmont, N.Y., assignor to American Machine & Foundry Company, New York, N.Y., a corporation of New Jersey
Filed Apr. 9, 1964, Ser. No. 358,447
14 Claims. (Cl. 219—102)

1. Method for forming a succession of welds of a predetermined short length and at predetermined spaced positions along between opposed surfaces of two metal portions, which method comprises: advancing said portions at a rate of many meters per minute with their said surfaces passing along the line of the desired welds and past a weld point, the advancing portions forming therebetween a V gap with its apex at said point; firmly retaining said portions with their surfaces in contact under pressure as they pass said point; causing short pulses of current which has a frequency of about 50,000 cycles per second or higher to flow, during each of a succession of predetermined intervals, along on said surfaces to and from said weld point from opposed points located at said surfaces at a substantial distance in advance of the weld point; and correlating



(i) said distance,
(ii) the rate of advance of the metal portions together with the duration and spacing of said intervals, and
(iii) the strength of said current,
to cause substantially the surfaces only of the metal being welded to be heated up to full welding temperature, while passing through said distance during the initial portion of each pulse, whereby in passing the weld point said surfaces then are subjected to forge welding during the remainder of such pulse.

3,319,041
ELECTRIC BUTT WELDING OF THIN FLAT WIRE
Magnus J. Olafson, Morrisville, Pa., assignor to CF&I Steel Corporation, a corporation of Colorado
Filed July 18, 1963, Ser. No. 295,988
3 Claims. (Cl. 219—105)

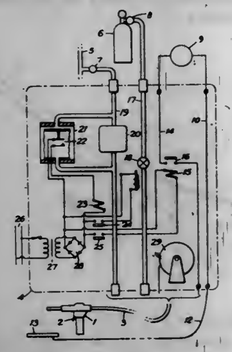


1. The method of butt welding together the end portions of thin flat wire strips having a thickness lying in the range of about .004" to .012", comprising the steps of forming a series of closely spaced, parallel, axially extending crimps in said end portions of said strips, said crimps having a depth lying in the range of about 20% to 100% of the strip thickness, abutting said end portions, and urging said end portions to move axially into each other while passing an electrical current through said abutting end portions to heat the same to a temperature at which said abutting end portions become softened and are welded together.

3,319,042
APPARATUS FOR GAS-SHIELDED METAL-ARC WELDING
Harry Thostrup and Jostein Fjaertoft, Laxa, Sweden, assignors to Elektriska Svetsningsaktiebolaget, Goteborg, Sweden, a corporation of Sweden
Filed Mar. 9, 1964, Ser. No. 350,320
Claims priority, application Sweden, Mar. 12, 1963, 2,682/63
4 Claims. (Cl. 219—130)

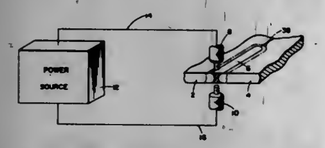
1. Apparatus for gas-shielded metal arc welding comprising a welding gun, a pressure fluid driven wire advancing motor in said gun, valve means in said gun for controlling the supply of pressure fluid to said motor, a manually operable actuating member connected to said valve means, a flexible welding cable connected to said gun,

flexible conduits for the supply of shielding gas and pressure fluid connected to said gun, and a control unit connected to said conduits comprising a shielding gas valve connected between said flexible shielding gas conduit and a supply of shielding gas, a pressure fluid path connected



between said flexible pressure fluid conduit and a supply of pressure fluid, pressure sensitive means connected to said path operated by a pressure gradient caused by a flow of pressure fluid in said path and means operated by said pressure sensitive means for opening said shielding gas valve.

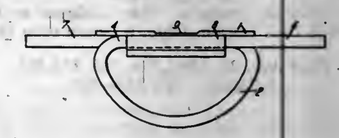
3,319,043
METHOD AND MEANS FOR WORKPIECE JOINDER
Roderick G. Rohrberg, Inglewood, Calif., assignor to North American Aviation, Inc.
Filed June 10, 1963, Ser. No. 286,785
17 Claims. (Cl. 219—137)



1. An electrical circuit for joining together the material in a plurality of workpiece components, said circuit comprising:
- a source of alternating current,
- a pair of electrodes in substantial alignment on either side of said components with a portion of said components therebetween, and spaced apart from said electrodes, and
- electrical connection means between said source and said electrodes for passing said current in an electrical arc from one of said electrodes to the other of said electrodes through said workpiece material in said components.

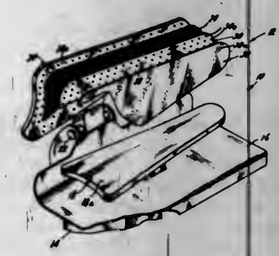
3,319,044
ELECTRO-SLAG WELDING BACKUP MEMBER
Norman T. Dick, London, England, assignor to Babcock & Wilcox Limited, London, England, a corporation of Great Britain
Filed June 24, 1964, Ser. No. 377,725
Claims priority, application Great Britain, June 25, 1963, 25,147/63
7 Claims. (Cl. 219—160)

1. A backing member for use in bridging a gap between two curved workpieces whilst welding the workpieces together by an electro-slag welding process, the member including a longitudinally flexible backing strap and a flexible conduit through which cooling fluid may



be passed, the flexible conduit being helical and connected to one face of the strap at locations distributed lengthwise of the strap by heat conducting joints.

3,319,045
ELECTRICAL HEATING AND PADDING ASSEMBLY FOR PRESSING MACHINE HEAD
Vincent W. Tucker, South Portland, Maine, assignor to Ametek, Inc., New York, N.Y., a corporation of Delaware
Filed Jan. 15, 1965, Ser. No. 425,862
14 Claims. (Cl. 219—243)

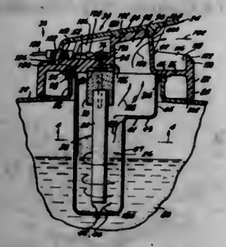


1. In a pressing machine, a stationary buck, a movable pressing head having a perforated pressing face and a steam chamber in communication therewith, a perforated cushion in confronting and abutting relation to said pressing face and constructed to distribute steam emanating from said pressing face, an electric heating assembly in confronting relation to said pressing face for electrically heating work interposed between said buck and pressing head during selective application of steam, and a perforated metallic platen disposed against said heating assembly and providing a work-contacting face, said perforated cushion being fabricated to urge said heating assembly and platen into heat exchange relation with said work.

3,319,046
ELECTRODE AND HEATING CHAMBER FOR VAPORIZERS
Lawrence Katzman, New York, and Edward Briggin, Brooklyn, N.Y., assignors to Kaz Manufacturing Co., Inc., New York, N.Y., a corporation of New York
Filed June 3, 1964, Ser. No. 372,349
6 Claims. (Cl. 219—275)

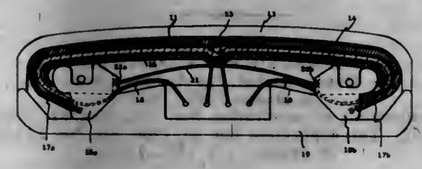
1. A vaporizer comprising a container having a neck, a cap positioned on said container and including a body having a peripheral side wall surrounding said neck of said container said cap being provided with steam outlet means, said body further including an upper wall provided with a downwardly extending cylindrical rim on the under surface thereof, a heating chamber secured to said upper wall centrally of said rim, said heating chamber extending into said container, said heating chamber including an upper substantially cylindrical portion and a lower restricted portion of considerably lesser diameter than cylindrical portion, said restricted portion being offset from cylindrical portion and having portions thereof extending flush with said cylindrical portion, said

steam outlet means being offset from said restricted portion, said cylindrical portion having a closure wall defining the lowermost portion thereof, a bottom at the lowermost end of said restricted portion, said bottom having a liquid intake opening therein, said closure wall



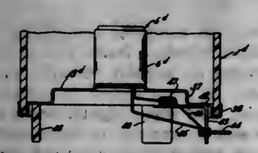
having at least one droplet outlet aperture therein, an electrode assembly suspended from said cap and extending into said heating chamber and downwardly substantially the entire length of said restricted portion, and means for connecting said electrode assembly to a source of electrical power.

3,319,047
LOW THERMAL LOSS ELECTRIC HEATER FOR SYNTHETIC YARNS
Hal Jones, Jr., and William H. Wood, Roanoke, Va., assignors to General Electric Company, a corporation of New York
Filed June 5, 1964, Ser. No. 372,777
2 Claims. (Cl. 219—388)



1. A device for supplying heat to endless filaments passing thereover comprising an elongated, arcuate strip of conductive metal, said filaments passing over the convex side of said strip, a heating element attached to the concave side of said strip, a non-conducting housing, a pair of non-conducting blocks within and attached to the extremities of said housing, and a springlike member extending between said blocks and arranged to mount said strip in said housing in yieldable relationship therewith.

3,319,048
ELECTRICALLY HEATED CONTAINER
Robert M. Wells, Akron, Ohio, assignor to Thermal Engineering and Design Company, Akron, Ohio, a corporation of Ohio
Filed Aug. 28, 1964, Ser. No. 392,862
2 Claims. (Cl. 219—441)



1. In combination, a container having an opening in a lower portion thereof, and
- an electric heater means comprising
- a wire coil electrical resistance means,
- a metal case in which said resistance means is received, said case having a closed upper end,
- means securing said resistance means within said metal case,
- said metal case having a generally horizontal, radially outwardly extending flange operatively secured thereto,
- said flange having upwardly open continuous means formed at a peripheral portion thereof engaging said container to close said opening and to position said heater means within said container, and
- a plate-like mounting bracket secured to the lower surface of said flange and protruding axially beyond said flange,
- a thermostat carried by said bracket in good heat exchange relation to said flange,
- terminal means carried by said bracket,
- wire means connecting said terminal means in series with said heater means and said thermostat, and
- support means for said container operatively secured to the lower portion thereof and protruding axially beyond said bracket.

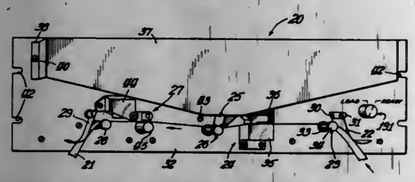
3,319,049
THERMOSTATICALLY CONTROLLED ELECTRIC IMMERSION HEATERS
Herman Ulanet, 473 Richmond Ave., Maplewood, N.J. 07040
Filed Sept. 10, 1964, Ser. No. 395,470
2 Claims. (Cl. 219—523)



1. A thermostatically controlled electric immersion heater having a header, the header having a base and an upward extension including a portion spaced from and parallel to the base, the header being adapted for removable insertion in a closed container, a switch subassembly disposed on the top of the header, a pair of spring contact members included in the switch subassembly, means fixing one end of the spring contact members in spaced and stacked pile arrangement by a common fastener and insulated from each other and the header, and the free ends of the contact members having normally closed spring contact points; a metal heater tube disposed on the base of the header and extending downwardly therefrom and within the diameter thereof, a resistance wire disposed in the tube and insulated therefrom by ceramic powder, the heater tube being bent in a double hairpin loop, one end of a high expansion thermal sensing tube disposed on the base of the header with the opposite end thereof extending downwardly therefrom between the loops of the heater tube and in close proximity thereto, the heater tube substantially surrounding the sensing tube on at least four sides; a rod of low coefficient of expansion relative to the coefficient of expansion of the sensing tube and coextensive with the length of the tube disposed in the tube, the lower end of the tube being fastened to the lower end of the rod,

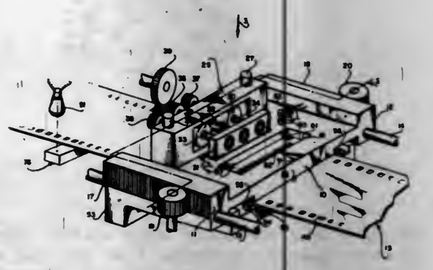
the lower ends of the tube and rod further being sealed against leakage, the upper end of the low expansion rod being slidably disposed through an aligned aperture in the header with the upper end extremity of the rod being internally threaded, the lower spring contact member being provided with a clearance opening aligned with the upper end extremity of the rod, an insulator bushing seated in the clearance opening, the insulator bushing including a shoulder portion overlying and in contact with the upper surface of the lower spring contact member and a reduced diameter shank portion seated loosely in said clearance opening, a threaded spring contact member tensioning screw passing through the insulator bushing and having a head at the upper end thereof seated in said bushing and having a lower threaded portion engaging the internally threaded end of the rod; an adjustment screw threadedly engaged at a right angle in the upward extension of the header and engaging the upper spring contact member, one terminal of the resistance wire connected in series with one terminal of the switch, and another terminal of the resistance wire and another terminal of the switch both connected to a power source through two wires of a three wire cord set passing through a handle attached to a cover fastened over the header, the third wire of the cord set being connected to a ground prong on the attachment plug of the cord set, and the other end of the third wire connected to a non-current carrying point of the assembly.

3,319,050
INFORMATION TRANSFER SYSTEM
Otto J. Albrecht, Trenton, N.J., and George A. Harris, Malvern, Pa., assignors, by mesne assignments, to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois
Filed July 16, 1963, Ser. No. 295,320
13 Claims. (Cl. 235—61.11)



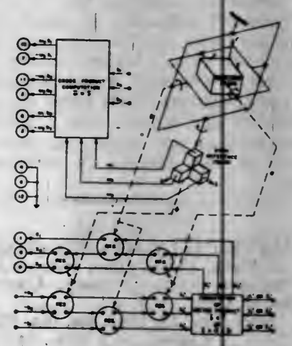
2. In a photoelectric tape reader having a read head for sensing information on a tape moved past the head, a first tape control assembly disposed at one side of said read head, a second tape control assembly disposed at the other side of said read head, at least one of said tape control assemblies comprising a support unit, a first segment of a magnetic circuit disposed within said support unit, energizing means disposed adjacent said first segment for providing magnetic flux responsive to energization thereof, a movable unit disposed adjacent said support unit, resilient means affixed to said movable unit to provide a flexure pivot as said movable unit is displaced toward and away from said support unit, said resilient means having an initial set to bias said movable unit toward said support unit and effect positive engagement of the tape by said tape control assembly, a second segment of said magnetic circuit, complementary to said first segment, disposed within said movable unit in a position to afford movement of said movable unit toward said support unit responsive to energization of said energizing means, and means for applying energizing signals to said energizing means to govern the operation of said tape control assembly.

3,319,051
DATA STRIP POSITIONING DEVICE
Walter Renold, North Hollywood, Calif., assignor to The Marquardt Corporation, Van Nuys, Calif., a corporation of California
Filed Aug. 7, 1963, Ser. No. 300,588
14 Claims. (Cl. 235—61.11)



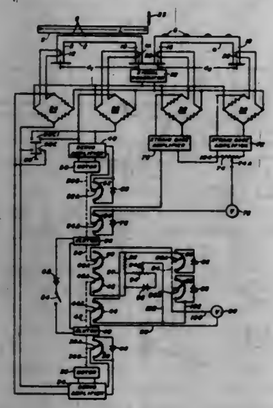
1. In a film positioning device,
a filmgate;
a film strip extending through said filmgate and having sprocket holes therein;
means for driving said film strip;
means responsive to the movement of said sprocket holes for braking said drive means;
feeler pin means carried by said filmgate and engaging said film strip adjacent a selected sprocket hole after stoppage of said film; and
means for moving said filmgate while said film is stationary to place said feeler pin in said selected hole.

3,319,052
DIRECTIONAL COMPUTER
George Arshal, 714 Ardmore Ave., Redlands, Calif. 92373
Continuation of application Ser. No. 206,801, July 2, 1962. This application Jan. 20, 1966, Ser. No. 533,106
25 Claims. (Cl. 235—150.26)



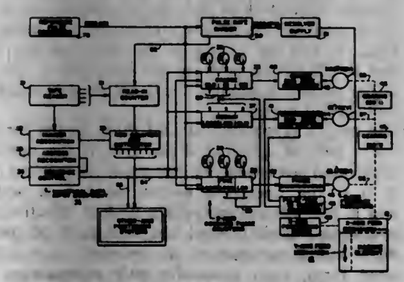
2. A directional computer comprising a physically defined, stabilized reference frame having means of sensing and suppressing its angular velocity, means of obtaining a plurality of input signals in representation of any desired values, said input signals being referred to said reference frame to express an input vector, and means to receive the said input signals and generate a plurality of output signals expressing an output vector in relation to said reference frame as the integral of the cross product vector between the said output vector and the said input vector, whereby the said output vector rotates around the said input vector.

3,319,053
METHOD AND APPARATUS FOR CUTTING MATERIAL
William L. Roberts, Murrysville, Pa., assignor to United States Steel Corporation, a corporation of Delaware
Filed Sept. 14, 1962, Ser. No. 224,599
9 Claims. (Cl. 235—151.1)



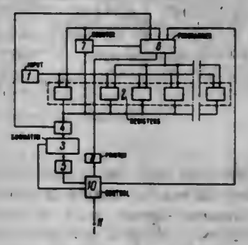
1. Apparatus for cutting a portion of predetermined weight from a workpiece comprising a table for supporting said workpiece, first means spaced apart a known distance longitudinally of the table for measuring the force due to gravity exerted by said workpiece, a second table for supporting said workpiece in close proximity to said first named table, second means spaced apart a known distance longitudinally of said second table for measuring the force due to gravity exerted by said workpieces, means for cutting the workpiece located approximately at the adjacent ends of said tables, and means responsive to the said measurements to determine the length of a predetermined desired weight of said workpiece extending beyond said cutting means upon said second table.

3,319,054
DATA CONVERSION SYSTEMS
Leroy U. C. Kelling, Waynesboro, Va., assignor to General Electric Company, a corporation of New York
Filed Nov. 21, 1962, Ser. No. 239,145
9 Claims. (Cl. 235—154)



1. A system for converting data into a plurality of ranges having successively finer resolution, comprising means for generating signals representing said data in a first binary coded decimal representation, first and second storage means each containing a plurality of bistable stages wherein said bistable stages are arranged to exhibit given weights, said first storage means responsive to a first set of said signals to establish a permutation of states of its bistable stages to provide a first range of said data, said second storage means responsive to a second set of said signals to establish a permutation of states of its bistable stages to provide a second range of said data, and third storage means containing a plurality of bistable stages arranged to exhibit weights different than said given weights, said third storage means responsive to the states of selected stages of said first and second storage means to establish a permutation of states of said bistable stages of said third storage means to provide a third range of said data in a second binary coded decimal representation.

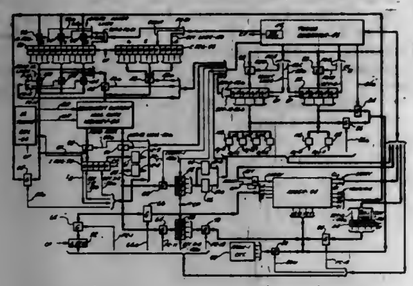
3,319,055
SPECIAL PURPOSE COMPUTER FOR DETERMINING CUT LENGTH OF ELONGATED MATERIAL
Jury Stepanovich Pavlenko, Izjaslav Vasiljevich Vasiljev, Victor Grigorjevich Pribysh, Iosif Vladimirovich Sigalov, Petr Timofeevich Starostin, Nicolai Andreanikovich Tantsjura, Inna Abramiovna Fridman, and Victor Evgenjzens Khodosko, all of Kiev, U.S.S.R., assignors to Kievsky Gosudarstvenny Universitet J.G. Shevchenko
Filed Dec. 30, 1963, Ser. No. 338,553
3 Claims. (Cl. 235—157)



1. An electronic computing machine for determining the optimum variant of cutting fabric into strips of a given length, comprising, in combination,
(a) a plurality of memory registers;
(b) means for inputting into said registers data relating to the total length of the fabric to be laid out, and data on the lengths of each of the strips required, with only one kind of data being introduced into each of the registers;
(c) summator means;
(d) means for connecting the outputs of said registers in parallel to the summator means;
(e) programmer means operatively connected to said registers and comprising:
(1) a first plurality of counters for the consecutive selection of combinations from the said registers and the transmission of the data from said registers to said summator means;
(2) a second plurality of counters connected to the input of the first plurality, for setting the factors that characterize the number of times the data of each register is to be introduced into said summator means, whereby the summator sums all the data received from the registers and is capable of producing one of a signal of zero, when the capacity of the summator means coincides with the total sum of the data introduced into it, and a signal of overfilling, when there is no coincidence;
(f) controllers connected to receive said signals of the summator means for terminating the calculations when a zero signal is sent, and for resetting said counters of the programmer means in order to set the next combination of registers to be used in the calculations and the values of the factors applied to the data introduced by the registers;

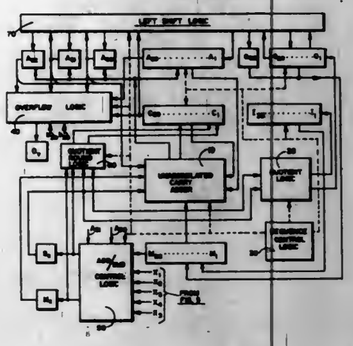
(g) registering devices connected to both groups of counters of the programmer means for indicating the registers to be used in each cycle of calculations, the data contained in said registers and the factors to be used.

3,319,056
MULTIPLICATION UNIT OPERATING SERIALLY BY DIGIT AND PARALLEL BY BIT
James R. Bennett, Glendora, Calif., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan
Continuation of application Ser. No. 192,885, May 7, 1962. This application Nov. 19, 1965, Ser. No. 513,644
14 Claims. (Cl. 235—159)



1. A multiplication unit for a digital computer comprising: memory means for storing operands arranged in digits, and command signals, each command including end digit addresses of both a multiplier operand and a multiplicand operand, and the end digit address of a product field; means for repeatedly reading out of the memory means the end multiplier and multiplicand operand addresses of a command; means responsive to a readout end multiplier operand address for forming a corrected address for each of the digits of the multiplier operand in sequence; means responsive to a read out end multiplicand operand address for forming a corrected address of each of the digits of a multiplicand operand at least once for each different address of the multiplier operand; means for reading out of the memory means each of the digits of the operands in sequence as specified by the corrected end operand addresses; means for storing at least one digit of both the multiplier and multiplicand operands read out of the memory means; arithmetic means for combining the stored operand digits and for forming a partial product digit and an indication of any resulting carry; means for storing the carry indication; means for repeatedly reading out of the memory means the end partial product address of the same command; means responsive to the read out end partial product address for sequentially forming corrected product addresses corresponding to that for storage of each partial product digit; means responsive to the corrected product addresses for writing each of said partial product digits in the corresponding memory means storage location; means responsive to the corrected product addresses for selectively reading out of the corresponding storage location of the memory means a corresponding partial product digit stored therein, said combining means additionally being arranged for selectively combining a stored carry indication and a partial product digit read out of the memory means with the multiplier and multiplicand digits being combined to thereby cause a complete partial product digit to be formed until a complete product composed of partial product digits is written in the memory means.

3,319,057
PARALLEL DIVISION WITH SEPARATE CARRY STORAGE
Samuel E. Githens, Jr., and Robert K. Booher, Downey, Calif., assignors to North American Aviation, Inc.
Filed June 14, 1965, Ser. No. 463,808
15 Claims. (Cl. 235—164)



2. In apparatus for performing division by a non-restoring process of alternate steps, the first being an arithmetic operation and the second being a shift of the remainder relative to the divisor to effectively divide it by two, the combination comprising,

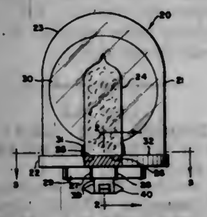
first means for performing each operation with unassimilated carries of each partial remainder stored separately for addition to the psuedo-sum digits of the partial remainder during the subsequent arithmetic operation,

second means for determining the sign of each partial remainder by examination of only a most significant part of the psuedo-sum digits and corresponding unassimilated carries if possible without examining a greater part of the psuedo-sum digits and corresponding unassimilated carries, said part being sufficiently large to be able to determine the sign if the partial remainder is greater than half the divisor after it has been shifted relative to the divisor to effectively divide it by two,

third means responsive to said second means for performing the next operation as a function of the sign of the divisor and the sign of the last partial remainder according to the rule to subtract the divisor if the signs of the divisor and partial remainder are alike, to add the divisor if the signs are not alike, and to effectively perform no operation if the sign of the partial remainder could not be determined by said second means,

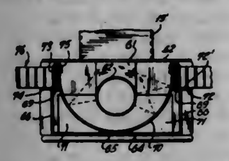
fourth means responsive to said third means for storing a pair of quotient digits 1, 1 if the operation performed last is subtraction, a pair of quotient digits 0, 0 if the operation performed last is addition and a pair of quotient digits 0, 1 if effectively no operation was performed last, said pairs of quotient digits stored comprising the quotient in unassimilated form, each successive pair representing successively lower orders of the quotient such that, upon the group including the first digit of all pairs being added directly to the group including all the second digits of all pairs, an assimilated quotient is produced, and fifth means for automatically producing an assimilated quotient by adding the group of quotient digits including the first digit of all pairs to the group of quotient digits including the second digits of all pairs.

3,319,058
PHOTOGRAPHIC FLASH LAMP UNIT
John B. Toomey, Jr., and William F. Frizzell, both of Alexandria, Va., assignors to Value Engineering Company, Alexandria, Va., a corporation of Virginia
Filed Aug. 17, 1966, Ser. No. 573,070
9 Claims. (Cl. 240—1.3)



1. A photo flash lamp unit comprising an envelope having a base portion and composed at least partially of a light transmitting material, a plurality of means within said envelope for radiating an actinic light when ignited electrically and burned, a corresponding plurality of pairs of electrical contacts on the outer surface of said base portion and connected to said light radiating means, and an electrochemical source of energy within said envelope capable of supplying a quantity of electrical energy for igniting said light radiating means and connected between said pairs of contacts so that closing a circuit across a pair of contacts will enable said electrochemical source to ignite the light radiating means connected thereto.

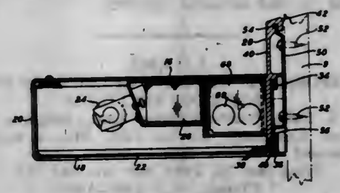
3,319,059
SECTIONAL LIGHTING FIXTURE
Frederick W. Ogden, Cheshire, Conn., assignor to The Miller Company, Meriden, Conn., a corporation of Connecticut
Filed Dec. 30, 1964, Ser. No. 422,218
2 Claims. (Cl. 240—9)



1. A lighting fixture having a rectangular configuration comprising a relatively small rectangular box disposed at each corner of said fixture and having supporting means for securing each box to a supporting surface, light controlling means releasably carried by and between said boxes and elongated light sources disposed within said light controlling means, said light controlling means comprising an elongated upwardly facing channel, a generally cylindrical concave reflector disposed within said channel and elongated means engaging the elongated edges of said channel and reflector to secure them one to the other.

3,319,060
ILLUMINATING SIGN
Keith D. Bartley, Indianapolis, Ind., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y. a corporation of New York
Filed Sept. 9, 1964, Ser. No. 395,153
7 Claims. (Cl. 240—73)

1. An illuminating structure, comprising a housing having illuminating means adapted to be connected to an electrical utility line, a bracket on said housing having an inverted upper channel and an upright lower channel, and a backplate having upper and lower flanges extending up and down in engagement with the respective upper and lower channels, said upper channel and flange and said lower channel and flange forming upper and lower paths over which engagement continues as said housing is moved up and down, said lower path being longer than said upper path so as to permit disengagement of said lower channel with the lower flange only after disengagement of the upper channel with the upper flange, whereby upon engagement of said upper flange and channel the lower channel partially disengages the lower flange, said lower flange and the inner surface of said lower channel forming a vertical space for receiving stop means that



can pass through the lower channel below the flange, said housing having a plurality of rigid wall means enclosing said illuminating means, one of said wall means being translucent, said backplate being adapted for mounting on an upstanding face, said bracket extending along another of said wall means and when engaged with said backplate holding all of said wall means so that said housing projects outwardly from the face, whereby said illuminating means can light an area through said translucent wall means.

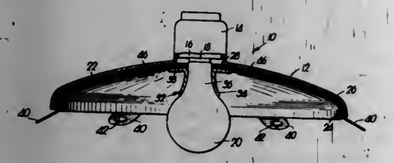
3,319,061
ADJUSTABLE ELECTRIC LAMP
Milton S. Pohl, Brookville, and Harvey A. Schwartz, Merrick, N.Y., assignors to Soss Manufacturing Company, Detroit, Mich., a corporation of Nevada
Filed Jan. 24, 1966, Ser. No. 522,754
17 Claims. (Cl. 240—31)



1. An extensible electric lamp device of the class having a hollow telescopic stem operatively extendable from a predetermined initial contracted position to a fully extended final position, and a socket and shade assembly mounted adjacent the top of said stem, comprising a spring-loaded reel adjacent the bottom of said stem and operatively rotatable between predetermined initial and final positions, a flexible conductor member longitudinally disposed within said stem and having a lower portion thereof wound upon said reel, the upper portion of said conductor member having a part thereof anchored to the stem and electrically connected to said socket, said lower portion of the conductor having a part extending from said reel and containing a convoluted section of fixed length

attached to said reel and to a point on said device spaced from the reel, said stem and reel being so proportioned and positioned that upon an operative extension of said stem from its said initial to its said final position said reel will be operatively rotated by the pull of said conductor from its said initial to its said final position, whereby said convoluted section will be caused to progressively twist in a predetermined direction during the operative rotation of said reel toward its said final position, and a terminal member adapted for electrical connection to a source of current supply, said convoluted section being electrically connected to said terminal member.

3,319,062
DISPOSABLE NESTED REFLECTORS FOR LIGHTING FIXTURES
Charles T. Falk, Prairie Village, Kans., assignor to Hesse Carriage Company, Kansas City, Mo., a corporation of Missouri
Filed Jan. 25, 1965, Ser. No. 427,752
7 Claims. (Cl. 240—103)

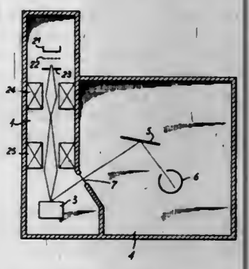


1. In a lighting fixture having a light source and a reflector member in light-reflecting relationship to said source, the improvement of which comprises:
a plurality of reflector elements disposed in nested relationship to each other;
means for positioning said elements in light-reflecting relationship to said source and disposed to permit the elements to be removed one-by-one therefrom; means on each element respectively for removing the same from the elements remaining on said member, said removing means including a tab secured to and extending outwardly from the periphery of the corresponding element; and
aligment means on said elements for nesting the latter in respective positions to stagger the tabs thereof, whereby to facilitate the removal of each element from the means including a recess in one face of each element and a projection on the opposite face thereof, the projection of one element being received within the recess of an adjacent element when the elements are in said nested relationship.

3,319,063
PROCESS FOR PURIFYING COLLOIDAL PARTICLES FOR SUBSEQUENT STRUCTURAL ANALYSIS WITH AN ELECTRON MICROSCOPE
Gerson L. Ram, Cedar Grove, and Robert G. Salamon, Bloomfield, N.J., assignors to The Board of Trustees of Schools for Industrial Education of Newark, New Jersey, Administering Newark College of Engineering, Newark, N.J., a public corporation of New Jersey
No Drawing. Filed July 15, 1964, Ser. No. 382,933
11 Claims. (Cl. 250—49.5)

1. The method of obtaining the fundamental basic structure of colloidal particles including the steps of:
(a) purifying a colloidal suspension to obtain separated ion free particles
(b) spreading the particles out in a cell chamber refrigerated by a suitable refrigerant to approximately 0° C. and grading as to mass and surface charge by electrophoresis apparatus
(c) maintaining said particles in a vibration free condition
(d) maintaining a closely controlled constant adjustable electrostatic field strength to said chamber
(e) applying an extremely low vacuum to said chamber
(f) distilling said water from said particles by sublimation from the solid state so as to form a layer of adjacent purified crystal particles aligned according to their electrophoretic mobility, and
(g) photographing under vacuum by electron microscopy the lined up particles.

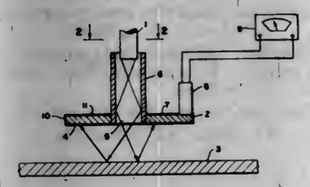
3,319,064
SLIDABLE WINDOW FOR X-RAY MICROANALYZERS SELECTIVELY PERMEABLE TO HARD OR SOFT X-RAYS
Jacques Guernet and Jean-Michel Rouberol, Paris, France, assignors to Compagnie d'Applications Mecaniques à l'Electronique, an Cinema et à l'Atomistique
Filed Aug. 24, 1964, Ser. No. 391,630
Claims priority, application France, Aug. 27, 1963, 945,748, Patent 1,375,173
2 Claims. (Cl. 250—49.5)



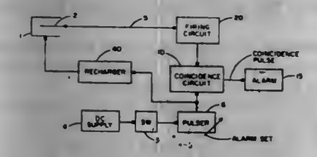
1. An X-ray microanalyzer for analyzing samples, comprising: a first enclosure; a sample to be analyzed and an electron optics system for providing an electron beam striking said sample, said sample and said electron optics system being located in said first enclosure; a second enclosure, an X-ray analysis system located in said second enclosure for analyzing the X-rays emitted by said sample; a partition wall between said enclosures, said wall having at least one opening; a first movable window permeable to soft X-rays; a second movable window permeable to hard X-rays and capable of withstanding pressure difference on its faces; and means external of said enclosures for selectively bringing in register with said opening either one of said windows.

3,319,065
SCINTILLATION DETECTOR COMPRISING A FLAT ANNULAR SCINTILLATING CRYSTAL
Richard R. Webster, Bethel Park, and Walter A. Wilson, Scott Township, Allegheny County, Pa., assignors to Jones & Laughlin Steel Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Nov. 29, 1963, Ser. No. 327,148
5 Claims. (Cl. 250—71.5)

1. Apparatus for irradiating material comprising a source of radiation spaced from the material and adapted to direct a beam of radiation thereon, means for converting radiation to light positioned between the material and the source of radiation and having a face opposed to the material adapted to receive radiation reflected therefrom, radiation shield means extending from said source of radiation to said face and terminating at said face, said shield means surrounding the beam of radiation so as to prevent any radiation therefrom from falling on said converting means, photoelectric means adjacent the means for converting radiation to light adapted to receive light therefrom and convert it to electrical current, and a light-reflecting coating on the exterior of the means for converting radiation to light adapted to cause substantially all the light generated therein by radiation from the material to be reflected internally and fall on the photoelectric means.



3,319,066
ADJUSTABLE WIDE RANGE RADIATION LEVEL ALARM
William Gernert, Pittsburgh, Pa., assignor, by mesne assignments, to the United States of America as represented by the United States Atomic Energy Commission
Filed Oct. 29, 1964, Ser. No. 407,602
2 Claims. (Cl. 250—83.6)



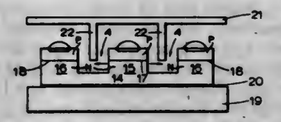
1. Apparatus for measuring radiation levels over wide ranges comprising an ion chamber of the dosimeter type in which the receipt of radiation causes a flow of current proportional to the intensity of radiation and a discharge of the chamber, an electrometer tube for measuring the charge on said ion chamber and for producing an output pulse when the chamber has discharged to a predetermined level, a resistance-capacitance relaxation type pulse generator having means for varying the frequency of the generator over a wide range, alarm means, a pair of normally non-conducting control rectifiers connected in series with said alarm across a source of voltage, means for connecting the output from said pulse generator for both charging said ion chamber and firing one of said rectifiers upon the occurrence of each pulse from the generator, means for firing the other one of said control rectifiers upon the occurrence of the output pulse from the electrometer whereby the alarm is operated only when the radiation level occuring during the time between pulses from the generator exceeds a preset level determined by the frequency of the generator.

3,319,067
PORTABLE BETA RADIATION MEASURING HEAD FOR COATING THICKNESS MEASUREMENT
Boris B. Joffe, Buffalo, and Frederick A. Lundgren, Grand Island, N.Y., assignors to Twin City Testing Corp., Tonawanda, N.Y.
Filed July 2, 1962, Ser. No. 206,820
13 Claims. (Cl. 250—105)

10. A portable measuring head comprising a beta radiation counter tube having across one end thereof a window normal to the longitudinal axis of said tube, an adapter collar carrying a beta radiation source holder centered relative to said collar and directed axially outwardly from one end thereof, the opposite end of said collar fitting over said one end of said tube with said source holder in alinement with said tube axis, said tube and said collar having abutting shoulder spacing said source holder from said window, and a cap having an exposure aperture therein, said cap fitting over said one end of said collar with said aperture in alinement with said source holder, said cap and said collar having abutting shoulders spacing said aperture from said source holder.



3,319,068
OPTO-ELECTRONIC SEMICONDUCTOR JUNCTION DEVICE
Julian Robert Anthony Beale, Reigate, Surrey, and Andrew Francis Beer and Peter Colin Newman, Crawley, Sussex, England, assignors to North American Philips Co., Inc., New York, N.Y., a corporation of Delaware
Filed Aug. 14, 1964, Ser. No. 389,618
Claims priority, application Great Britain, Aug. 15, 1963, 32,316/63
6 Claims. (Cl. 250—217)



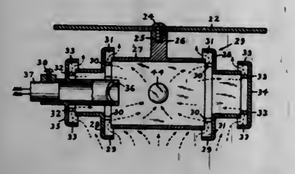
1. An opto-electronic semiconductor device comprising first semiconductive regions forming a photoemissive p-n junction capable when suitably biased in the forward direction of generating photons along a path generally in the plane of the junction, second semiconductive regions forming a photosensitive p-n junction for detecting photons and converting them into electrical energy, said photoemissive and photosensitive p-n junctions being substantially planar, support means for said first and second semiconductive regions, said first and second semiconductive regions being arranged on said support means such that the said photoemissive and photosensitive p-n junctions extend substantially in a common plane but are spaced from one another so as to define an open space inbetween to which the junctions extend, and

mechanical shutter means mounted for movement in the open space in the common plane between the photoemissive and photosensitive junctions so as to controllably attenuate or block the photon path between the said junctions in accordance with its movement.

3,319,069
SMOKE DETECTING RADIATION SENSITIVE FIRE ALARM SYSTEM

Theo N. Vassil, Flushing, N.Y., assignor to American District Telegraph Company, Jersey City, N.J., a corporation of New Jersey

Filed Aug. 27, 1964, Ser. No. 392,449
14 Claims. (Cl. 250—218)

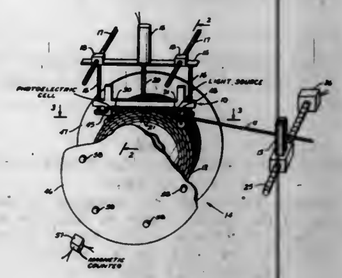


1. A fire detecting device, comprising:
(1) a smoke detection chamber, comprising:
(a) a hollow generally rectangular box having closed opposing top and bottom walls and closed opposing end walls and having substantially open opposing side walls;
(b) a first pair of cover elements mounted on said box and each spaced from and covering a respective one of said side walls, each of said cover elements having inwardly extending flanges spaced from and overlying said top, end and bottom walls, respectively, to provide a first set of ports for the entry and exit of smoke from the interior of said box, the edges of said flanges of said first cover elements extending inwardly of the edges of said top and bottom walls to prevent the entry of ambient light into the interior of said box through the ports of said first set, said cover elements of said first pair having a second pair of spaced outwardly extending flanges forming sideward open-ended extensions of said box; and
(c) a second pair of cover elements mounted, respectively, on the cover elements of said first pair and each covering a respective one of said open-ended extensions and having inwardly extending flanges spaced from and overlying the respective flanges of said second pair of flanges of said first cover elements to provide a second set of ports for the entry and exit of smoke from the interior of said box, the edges of said flanges of said second cover elements extending inwardly of the edges of said respective flanges of said second pair of flanges of said first cover elements to prevent the entry of ambient light into the interior of said box through the ports of said second set;
(2) means to direct a narrow substantially rectangular cross-sectioned beam of light across the interior of said box;
(3) a photocell;
(4) means to mount said photocell in optical communication with the interior of said box but shielded from direct exposure to said light beam; and
(5) circuit means coupled to said photocell and arranged to produce an alarm signal indication when light from said beam is reflected from smoke particles in said box and onto said photocell.

3,319,070
PHOTOELECTRIC DEVICE FOR DISTRIBUTING STRANDS ON A REEL

Luther K. Schneider, Timonium, Md., assignor to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York

Filed Apr. 2, 1964, Ser. No. 356,759
4 Claims. (Cl. 250—222)

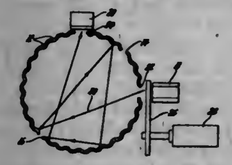


4. A device for distributing a strand on a reel, comprising:
a reel mounted for rotation about its longitudinal axis and having a plurality of magnetized portions spaced at equal intervals about one flange,
a strand distributor mounted for reciprocal movement transverse to the reel,
means for displacing the strand distributor,
a carriage mounted for free displacement transverse to the reel with a strand when the strand is distributed on the reel,
a light source mounted on the carriage and carried by the carriage on one side of the reel,
a photoelectric sensing element mounted on the carriage directly opposite the light source and on the side of the reel opposite to the light source so that light from the light source passes between the strand and its adjacent convolution to the photoelectric sensing element, the amount of light reaching the photoelectric sensing element from the light source being a function of the distance between the strand and its adjacent convolution,
means responsive to the amount of light reaching the photoelectric sensing device for controlling the rate at which the strand distributor traverses the reel,
means actuated upon the carriage reaching either flange of the reel for lifting the carriage,
means actuated upon the strand reaching either flange of the reel for stopping the displacement of the distributor,
means actuated upon the strand reaching either flange of the reel for detecting and counting each magnetized portion of the reel flange as the magnetized portions are rotated past a predetermined point,
means responsive to the detecting and counting means being actuated after a predetermined number of magnetized portions have passed the predetermined point for actuating the displacing means to displace the distributor across the reel, and
means responsive to the detecting and counting means and actuated after a predetermined number of magnetized portions have passed the predetermined point for lowering the photoelectric sensing means.

3,319,071
INFRARED GAS ANALYSIS ABSORPTION CHAMBER HAVING A HIGHLY REFLECTIVE SPECULAR INTERNAL SURFACE

John J. Werth, Santa Barbara, Calif., and Orvil E. A. Bolduan, Frankfurt am Main, Germany, assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Nov. 27, 1964, Ser. No. 420,242
10 Claims. (Cl. 250—43.5)

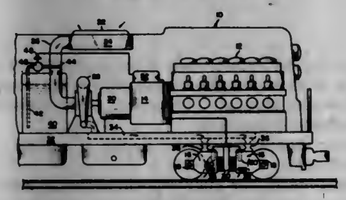


9. A portable gas detector comprising a spherical absorption chamber having first, second, third and fourth openings therein, two of said openings being provided for introducing and exhausting a gas containing atmosphere, a source of infrared radiation adapted to radiate energy through said third opening, detector means sensitive to said radiation and positioned to receive radiation passing through said fourth opening, means positioned between said source and said third opening for modulating the infrared radiation, said chamber having a highly reflective internal surface, a plurality of dimples formed in the surface of said chamber providing a plurality of specular reflectors whereby the energy radiated from said source is reflected within said chamber in a random fashion.

3,319,072
CRYOGENIC COOLING SYSTEM

Ralph T. Maynard, North Whitehall Township, Lehigh County, and Clarence J. Schilling, Allentown, Pa., assignors to Air Products and Chemicals, Inc., a corporation of Delaware

Filed Apr. 20, 1964, Ser. No. 360,920
9 Claims. (Cl. 290—1)



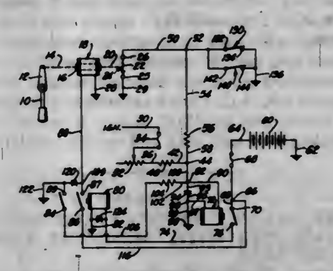
1. The method of operating a vehicle including traction motors and an air cooling system comprising the steps of:
(a) detecting at least one operating parameter indicative of the load conditions of said motors;
(b) conducting cooling air through said cooling system to said motors so long as the detected load conditions do not exceed predetermined values; and
(c) conducting a cryogenic refrigerant at a temperature below minus 100° F. into heat exchange relationship with said motors when the detected load conditions exceed said predetermined values.

3,319,073
TURN SIGNAL TIMING DEVICE

John W. Wria, Palmdale, Calif., assignor of one-half to Duard E. Goble, Fillmore, Calif.

Filed July 12, 1963, Ser. No. 294,768
22 Claims. (Cl. 307—10)

1. A device for timing the duration of operation of a vehicular turn indicator which comprises:
(a) a lever arm for manually controlling a vehicular turn indicator, the lever arm being movable from a dormant position of a position for indicating a right or a left vehicular turn;
(b) a normally closed electrical switch;
(c) actuator means interconnecting the switch and the lever arm for opening the switch upon movement of the lever arm from dormant position, and for returning the lever arm to dormant position upon closing of the switch;
(d) a source of electrical energy;

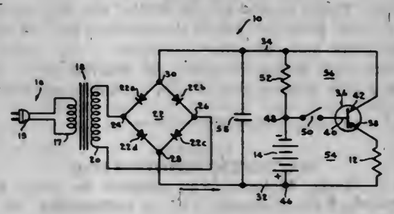


(e) a suitably grounded, high resistance relay electrically connected to the source of electrical energy and having contacts;
(f) a capacitor electrically connected across said relay and having one end connected to the switch and another end connected to ground;
(g) resistor means interposed in the charging path of the capacitor between said source of electrical energy and ground, the resistor means being electrically connected to the vehicle's ignition switch so as to be energized when the ignition switch is closed; and
(h) means connecting said source of electrical energy through said contacts to said actuator means.

3,319,074
POWER SUPPLY CIRCUIT

Milton E. Koch, Milwaukee, Wis., assignor to La Belle Industries, Inc., Oconomowoc, Wis., a corporation of Wisconsin

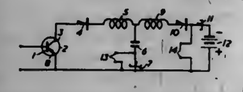
Filed Dec. 23, 1963, Ser. No. 332,428
9 Claims. (Cl. 307—66)



1. An A.C.-D.C. power supply for energizing a load comprising, in combination,
a load,
means for connecting said load to and for energization from an A.C. source,
means for rectifying current flow from said A.C. source,
normally nonconducting circuit control means in series circuit relationship with and controlling current flow to said load from said A.C. source, said nonconducting circuit control means characterized by having a switch-over voltage at which the operational state thereof is changed from nonconducting to conducting to energize said load,
a rechargeable D.C. source,

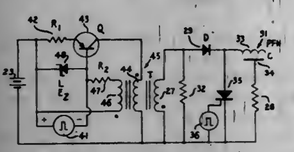
circuit means connecting said D.C. source across said rectified D.C., said load and nonconducting circuit control means for receipt of charging current from said rectified D.C. independently of said load and said circuit control means,
and circuit means including selectively operable switch means for connecting said D.C. source to said normally nonconducting circuit control means to apply said switch-over voltage thereto to render said nonconducting circuit control means conductive for energization of said load from said A.C. source and said D.C. source so that said load is connectable for operation from said D.C. source and from said A.C. source with said D.C. source remaining in circuit when said load is operated from said A.C. source to maintain a relatively constant voltage on said load should said A.C. source experience a temporary drop in power and said D.C. source is rechargeable independently of said load and circuit control means.

3,319,075
PULSE DELAY CIRCUITS USING RESONANT CHARGING WITH MINIMUM CURRENT DETECTORS
Peter Bennett Helsdon, Chelmsford, England, assignor to Marconi's Wireless Telegraph Company Limited, London, England, a British company
Filed May 28, 1962, Ser. No. 198,005
Claims priority, application Great Britain, June 2, 1961, 19,985/61
4 Claims. (Cl. 307—88.5)



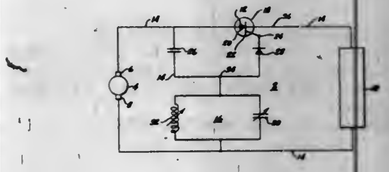
1. A pulse delay circuit arrangement comprising a condenser which is common to two circuit loops, the first loop including said condenser, a first inductor, a first rectifier and a pulse operable switch device all in series, and the second loop including said condenser, a second inductor, a second rectifier and a potential source all in series, one of said rectifiers being sensed to pass current in a direction to charge said condenser and the other of said rectifiers being sensed to pass current in a direction to discharge said condenser; means for applying input pulses to said switch device; two approximately zero current detectors, one in the common part of the two circuit loops and the other elsewhere in the second circuit loop; and means for taking off delayed output pulses set up across at least one of said current detectors.

3,319,076
MAGNETIC MODULATOR
John S. Gerig, McLean, Va., assignor to Scope Incorporated, Falls Church, Va., a corporation of New Hampshire
Filed May 28, 1963, Ser. No. 283,857
2 Claims. (Cl. 307—88.5)



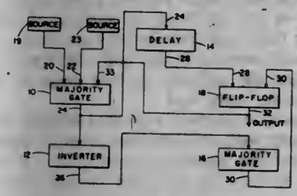
1. In a circuit for alternately transferring energy from a D.C. voltage source to the magnetic field of an inductive device and from the magnetic field of the inductive device to the electric field of a capacitive device, so that the capacitive device may be selectively discharged to pulse a load without disturbing the energy transfer characteristics of the circuit from the D.C. voltage source to the inductive device, the improvement comprising means for transferring said energy from said source to said magnetic field of said inductive device, wherein said inductive device is a transformer having a primary winding and a pair of secondary windings, one of said secondary windings coupled to said capacitive device, said means including a switch coupling said source to said primary winding, said switch comprising a transistor having emitter, base, and collector electrodes, said emitter and collector electrodes connected in series circuit with said source and said primary winding, a trigger circuit for selectively energizing said switch to a conductive condition for transferring current from said source to said primary winding, and means coupled to the other of said secondary windings for rendering said switch non-conductive when the amount of energy stored in said magnetic field reaches a predetermined level, the last-named means including a zener diode connecting said base electrode of said transistor to said source, a current limiting resistor connecting said other secondary winding in parallel circuit with said zener diode.

3,319,077
SWITCHING DEVICE
James A. Morris, Jr., Seattle, Wash., assignor to The Boeing Company, Seattle, Wash., a corporation of Delaware
Filed Feb. 24, 1964, Ser. No. 346,761
3 Claims. (Cl. 307—88.5)



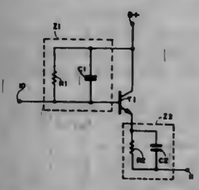
1. In an "on-off" power switch for controlling the flow of current from a supply source through a load, said current returning through a ground to said supply source, the combination comprising,
(1) gating means, having an anode, a cathode and a control gate,
(2) circuit means for interconnecting the anode of said gating means with the supply source and the cathode of said gating means with the load in order that said gating means gates the flow of current from the supply source through the load and thence through the ground back to the source, and
(3) variable impedance means, comprising a dual-purpose coupling-and-current-limiting capacitor connecting said anode and said control gate and a high "Q," resonant circuit interconnected between said control gate and said ground to said supply source whereby the tuning of said high "Q" resonant circuit controls the gating of current by said gating means through the load, said dual-purpose capacitor providing leading control gate current for immediate full-cycle conduction when said "on-off" power switch is "on" and providing current-limiting impedance when said "on-off" power switch is "off" in which "off" condition said high "Q" resonant circuit simultaneously shorts to ground both said anode through said dual-purpose capacitor and also said connection from said dual-purpose capacitor to said control gate.

3,319,078
PULSE BURST GENERATOR EMPLOYING PLURAL LOCKED PAIR TUNNEL DIODE NETWORKS AND DELAY MEANS
Wallace J. Dunnet, Southboro, and Raynor W. Taylor, Newton Highlands, Mass., assignors to Sylvania Electric Products Inc., a corporation of Delaware
Filed Mar. 30, 1964, Ser. No. 355,734
4 Claims. (Cl. 307—88.5)



1. A circuit for generating N consecutive pulses in response to a control pulse in a pulse train, where N may be any number greater than zero, comprising, in combination, a majority gate operative to produce a pulse having the same polarity as the majority of input pulses, a pair of pulse sources connected to said majority gate wherein one of said sources is operative to produce said pulse train including said control pulse having a selected polarity and pulses of opposite polarity when not producing said control pulse and the other of said sources is operative to produce a train of pulses of opposite polarity to said control pulse, pulse storage means for producing said N consecutive pulses operative to store a pulse of the same polarity as its input pulses when all are of the same polarity and to continue storing the same polarity pulse when said input pulses have different polarities, pulse transfer means connected between said storage means and said majority gate for transferring the pulse content of said storage means to said majority gate, an inverter circuit connected between said majority gate and said storage means operative to invert the pulses produced by said majority gate and apply said inverted pulses to said storage means, delay means connected between said majority gate and said storage means operative to store pulses produced by said majority gate for the time required to produce N pulses before applying said pulses to said storage means, and output circuit means connected to said storage means for transferring said N consecutive pulses therefrom.

3,319,079
ACTIVE PHASE SHIFT COMPENSATION NETWORK
Raymond T. Matsumoto, Cypress, Calif., assignor to North American Aviation, Inc.
Filed Apr. 2, 1964, Ser. No. 356,863
1 Claim. (Cl. 307—88.5)

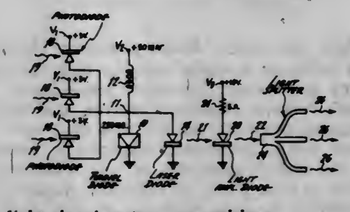


An active, two-port compensation network having a transfer function $T(s)$, comprising:
a transistor having a base, emitter and collector, and having a low frequency current gain B_o,
a shunt impedance Z_1 connected to the base of said transistor consisting of a resistor R_1 in parallel with a capacitor C_1,
a series impedance Z_2 connected to the emitter of said transistor consisting of a resistor R_2 in parallel with a capacitor C_2, in which

$$T(s)=\frac{1}{\frac{1}{B_o}+\frac{S}{\omega_t}+\frac{k(R_1C_1S+1)}{(R_2C_2S+1)}}$$

where S is a complex frequency variable and ω_t is the gain bandwidth product of said transistor in radians said R_1C_1 combination is selected for decreasing the impedance between said base and ground as the frequency of an input signal increases, and said R_2C_2 combination is selected for decreasing the impedance between said emitter and ground as the frequency of an input signal increases, said R_2C_2 combination having an impedance which is relatively higher than the R_1C_1 combination at the relatively higher frequencies.

3,319,080
ELECTRO-OPTICAL DIGITAL SYSTEM
Roy H. Cornely, Monmouth Junction, and Joseph R. Burns, Trenton, N.J., assignors to Radio Corporation of America, a corporation of Delaware
Filed Apr. 8, 1964, Ser. No. 358,164
14 Claims. (Cl. 307—88.5)

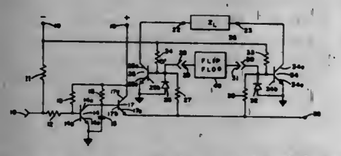


4. A light signal system, comprising:
a tunnel diode circuit including a tunnel diode having a low voltage state and a high voltage state,
a laser diode connected in said tunnel diode circuit to receive an amount of current determined by the state of said tunnel diode,
an input circuit including a bias source, and at least one p-n junction photodiode detector connected in back-biased polarity between said bias source and said tunnel diode,
whereby input light impinging on said photodiode detector causes it to conduct and causes said tunnel diode to switch from one of its voltage states to the other,
a p-n junction light amplifier positioned to receive and amplify coherent light from said laser diode, and
a light splitter positioned to direct light from said light amplifier to inputs of a plurality of other light signal systems.

3,319,081
CURRENT SWITCHING CIRCUIT
Albert H. Ashley, Holliston, Mass., assignor to Sylvania Electric Products, Inc., a corporation of Delaware
Filed Apr. 13, 1964, Ser. No. 359,523
6 Claims. (Cl. 307—88.5)

1. A current switching circuit for use with a bistable flip-flop circuit including at least two transistors, each having at least an emitter electrode, and wherein the emitter electrode of the first flip-flop transistor is connected to a first flip-flop output terminal and the emitter electrode of the second flip-flop transistor is connected to a second flip-flop output terminal, said current switching circuit comprising: a first and second transistors each having base, emitter and collector electrodes; an input terminal; first and second sources of energizing potential; a first resistor connected between said input terminal and said first source of energizing potential;

a second resistor connected between said input terminal and the base electrode of said first transistor; a third resistor connected between the base electrode of said first transistor and said second source of energizing potential; means connecting the emitter electrode of said first transistor to a point of reference potential; means directly connecting the collector electrode of said first transistor to the base electrode of said second transistor; a fourth resistor connected between the base electrode of said second transistor and said second source of energizing potential; a capacitor connected between the base electrode of said second transistor and said point of reference potential; means connecting the collector electrode of said second transistor to said second source of energizing potential; third and fourth transistors each having base, emitter and collector electrodes; fifth and sixth resistors connected between the emitter electrode of said second transistor and the base electrodes of said third and fourth transistors, respec-



tively; first and second diodes connected between said point of reference potential and the base electrodes of said third and fourth transistors, respectively; seventh and eighth resistors connected between said first source of energizing potential and the base electrodes of said third and fourth transistors, respectively; means connecting the emitter electrodes of said third and fourth transistors to said point of reference potential; means for connecting the base electrode of said third transistor to said first flip-flop circuit output terminal; means for connecting the base electrode of said fourth transistor to said second flip-flop circuit output terminal; an output terminal; means directly connecting the emitter electrode of said second transistor to said output terminal; a load having first and second input terminals; means connecting the collector electrode of said third transistor to said first load input terminal; and means for connecting the collector electrode of said fourth transistor to said second load input terminal.

3,319,082
PRESSURE-SENSITIVE SEMICONDUCTOR DEVICE OF THE TRANSISTOR TYPE
Wolfgang Touchy, Munich, Germany, assignor to Siemens & Halske Aktiengesellschaft, Berlin, Germany, a corporation of Germany
Filed July 20, 1964, Ser. No. 383,669
Claims priority, application Germany, July 23, 1963, S 86,346
10 Claims. (Cl. 307—88.5)



7. A pressure-responsive semiconductor device, comprising:

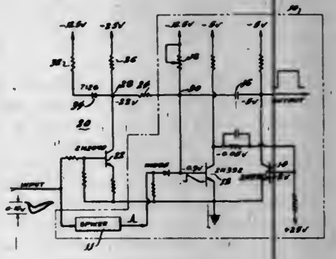
a semiconductor body having three regions forming two p-n junctions and functioning as emitter, base and collector, respectively, and providing a collector current at its collector in operation;

an emitter electrode of substantially tear-drop configuration coming to a substantial point in contact with the semiconductor body in the emitter region thereof;

a base electrode of substantially tear-drop configuration coming to a substantial point in contact with the semiconductor body in the base region thereof, said base electrode and said emitter electrode being spaced from each other with the point of each facing the point of the other on the surface of said semiconductor body and forming between them a surface area of said semiconductor body of higher current density than the adjacent surface areas of the said semiconductor body; and

pressure means in contact with said emitter electrode in proximity with said surface area of higher current density for applying pressure to said emitter electrode to vary the collector current provided in operation.

3,319,083
UNIVIBRATOR CIRCUIT FOR DETECTING THE TIME OCCURRENCE OF INPUT PULSES THERETO
Michael G. Strauss, Park Forest, Ill., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed July 21, 1964, Ser. No. 384,270
4 Claims. (Cl. 307—88.5)

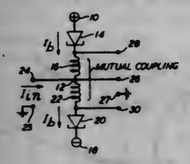


1. In an electronic device comprising a transistor univibrator circuit having a timing capacitor therein and which is used to detect the time occurrence of input pulses applied thereto, means for generating a voltage proportional in amplitude to the amplitude of said applied pulses, and means for applying said generated voltage to cause said timing capacitor of said univibrator circuit to discharge in a time duration proportional to the amplitude of said input pulses whereby an accurate time measurement of the occurrence of said input pulses is provided.

3,319,084
LIMIT DETECTOR WITH INDUCTORS CONNECTED IN SERIES AIDING AND MUTUAL COUPLING TO REDUCE PARASITIC INDUCTANCE
Otto Arnold, Keyport, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Aug. 24, 1964, Ser. No. 391,684
1 Claim. (Cl. 307—88.5)

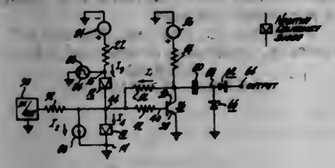
A limit detector comprising a source of unidirectional bias current, a pair of relaxation oscillators connected in series with said source, each of said relaxation oscillators being composed of a respective serially connected tunnel diode and inductor and operating whenever the current through it exceeds a predetermined level which is in excess of the bias current supplied from said source, and an input terminal connected to the junction between

said relaxation oscillators so that current applied thereto aids the bias current in one of said relaxation oscillators and opposes the bias current in the other, said inductors



being magnetically coupled in series aiding relation so that current applied to said input terminal causes substantially no flux linkage between said inductors.

3,319,085
TUNNEL DIODE SWITCHING CIRCUIT TRIGGERABLE BY SINGLE POLARITY INPUT
Michael Cooperman, Cherry Hill, N.J., assignor to Radio Corporation of America, a corporation of Delaware
Filed Nov. 25, 1964, Ser. No. 413,766
9 Claims. (Cl. 307—88.5)



1. The combination comprising:

a pair of negative resistance diodes connected in series and being poled in the same direction;

each of said diodes having a forward volt-ampere characteristic defined by a first region of positive resistance at relatively low voltage, a second region of positive resistance at relatively high voltage, and a region of negative resistance joining the two regions of positive resistance;

means for applying a forward voltage across said diodes to bistably bias said diodes, said voltage having such a value that only one of the diodes can be biased in the second region of positive resistance for any quiescent operating condition;

a transistor having an emitter-base junction connected in a path across one of the diodes, and having a collector;

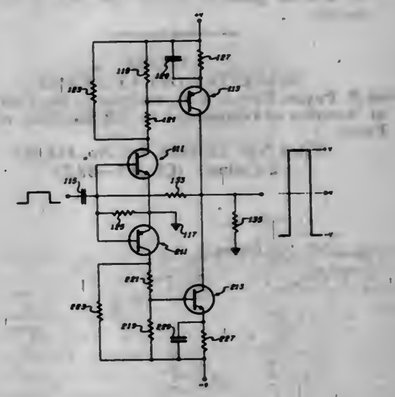
means connecting said collector to a point on the series connection between said diodes, said transistor being of such conductivity type that a current I_1 flows in the connecting means in a first direction relative to said point when said one of said diodes is biased in a first of its two stable states;

substantially constant current means connected at said point and supplying a current $I_2 < I_1$ in a second, opposite direction relative to said point; and

signal input means connected across said diodes.

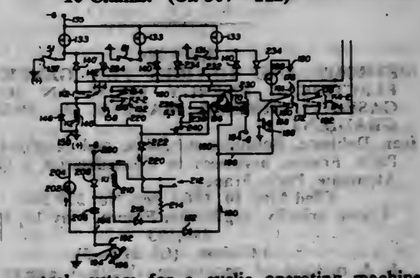
3,319,086
HIGH SPEED PULSE CIRCUITS
Seeming Yee, Whitestone, N.Y., assignor to Sperry Rand Corporation, Great Neck, N.Y., a corporation of Delaware
Filed Feb. 11, 1965, Ser. No. 431,885
2 Claims. (Cl. 307—88.5)

1. A pulse amplifier comprising an n-p-n input transistor connected in a grounded emitter circuit; a p-n-p input transistor connected in a ground emitter circuit; a base, a collector, and an emitter in each of said input transistors; means to apply an input pulse to the bases of both input transistors so as to drive these transistors to cut off and saturation; a source of collector voltage; a first voltage divider interconnecting the collector of the n-p-n transistor and the plus side of said collector source; a second voltage divider interconnecting the collector of the p-n-p transistor and the minus side of said source; a junction point on each of said voltage dividers; a p-n-p output transistor; an n-p-n output transistor; a base, a collector, and an emitter in each of said output transistors; said p-n-p output transistor having its base connected to the junction point on said first voltage divider; said n-p-n output transistor having its base connected to the junction point on



said second voltage divider; said junction points being positioned so that the voltage supplied to the output transistor switches this transistor to the same level of conductivity as that of the corresponding input transistor; individual R-C networks connecting the emitters of the p-n-p and the n-p-n output transistors to the respective plus and minus terminals of said collector supply; an output terminal connected to the collectors of both output transistors; feedback means to conduct a portion of the voltage at said output terminal back to the bases of said input transistors; and individual shunt resistors connected across each voltage divider, said shunt resistors having a resistance low enough to permit substantially maximum permissible collector current to flow in each input transistor.

3,319,087
CONTROL SYSTEM FOR AUTOMATIC MACHINE
George Wintriss, Carversville, Pa., assignor to Industrionics Controls, Inc., New York, N.Y., a corporation of New York
Filed Apr. 22, 1964, Ser. No. 361,817
10 Claims. (Cl. 307—112)

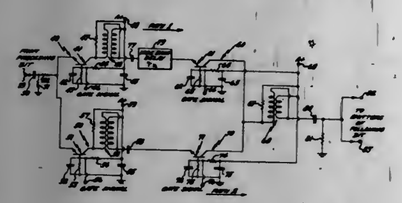


1. A control system for a cyclic operating machine including

(a) a control relay operable to stop the machine,

(b) a first and a second circuit for maintaining the control relay in operative position that causes continued operation of the machine,
(c) each of said circuits including a switch movable into a control position that keeps the control relay in operative position,
(d) actuating means that move the switch in the first circuit into its control position for a control pulse period constituting a given portion of each cycle, and that moves the switch in the second circuit out of its control position early in said control pulse period,
(e) and means responsive to a normal movement of a work piece during the control pulse period for causing the switch in the second circuit to return to its control position before the end of the control period.

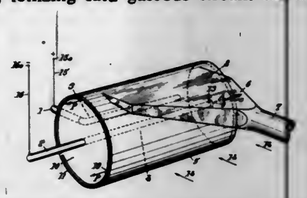
3,319,088
SELECTIVE DELAY DEVICE
John B. Payne, Rome, N.Y., assignor to the United States of America as represented by the Secretary of the Air Force
Filed Nov. 25, 1964, Ser. No. 414,032
2 Claims. (Cl. 307—88.5)



1. A wideband delay device for utilization in a system for steering electronically the beam of a radar antenna array comprising two signal paths, the first of said signal paths consisting of a series arrangement of a first wideband input transistor amplifier, a first capacitor, preselected delay means, and a first wideband output transistor amplifier, the second of said signal paths consisting of a series arrangement of a second wideband input transistor amplifier, a second capacitor, and a second wideband output transistor amplifier, said amplifiers operating in the multi-hundred megacycle range and having a bandwidth in the two hundred megacycle region, said first and second input amplifiers having a common input circuit receiving the signal to be selectively delayed, said first and second output amplifiers having a common output circuit, said amplifiers being normally conductive, means to simultaneously gate off said first input amplifier and said first output amplifier to provide said second signal path for said received signal, and alternate means to gate off simultaneously said second input amplifier and said second output amplifier to provide said first signal path for said received signal.

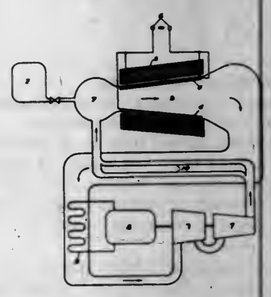
3,319,089
METHODS AND DEVICES FOR GENERATING ELECTRICAL ENERGY FROM AN IONIZED GASEOUS STREAM HAVING A PRESSURE GRADIENT
Jean Deblesse, Boulogne-sur-Seine, and Siegfried Klein, Paris, France, assignors to Commissariat à l'Energie Atomique, Paris, France
Filed May 10, 1963, Ser. No. 279,544
Claims priority, application France, May 19, 1962, 898,103
10 Claims. (Cl. 310—3)

1. A method of generating electrical energy which comprises creating a gaseous stream having a substantial pressure gradient, placing in said gaseous stream two electrodes located respectively in a first zone and in a second zone of said gaseous stream where the corresponding pressures are different, due to this pressure gradient, ionizing said gaseous stream substantially uni-



formly at least in the portion thereof comprising said two zones, and collecting, between said electrodes, a potential difference which is an increasing function both of the pressure difference between said two zones and of the level of ionization of said gaseous stream portion.

3,319,090
MAGNETOGASDYNAMIC GENERATOR
Lang Shuen Dzung, Wettingen, Switzerland, assignor to Aktiengesellschaft Brown Boveri & Cie, Baden, Switzerland, a joint-stock company
Filed Mar. 11, 1963, Ser. No. 264,237
Claims priority, application Switzerland, Mar. 13, 1962, 3,000/62
1 Claim. (Cl. 310—11)

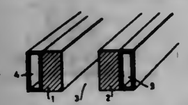


In a magnetogasdynamic generator which includes a duct through which a hot ionized carrier gas seeded with a substance to increase its conductivity is caused to flow in a closed cycle, means establishing a magnetic field perpendicularly to the path of gas flow in said duct, and at least one pair of spaced electrodes arranged in said duct perpendicularly to said magnetic field and also perpendicularly to the path of gas flow in said duct, the improvement wherein said carrier gas is constituted by a mixture of gases including hydrogen and has a K-value which exceeds by at least 10% the corresponding K-value for helium, said K-value being defined as

$$K=\frac{1}{m\sqrt{Q}}\cdot\frac{4\lambda}{2a-\lambda}\left[\frac{2a-\lambda}{2(a+1)-\lambda}\right]^{(a+1)-\frac{\gamma}{2}}$$

where:
m represents the molecular weight of the gas, Q the collision profile, λ the ratio of the specific heat to the gas constant, both in like units, *a* the exponent which expresses the conductivity of the gas mixed with the seed material in relation to the temperature.
and determined by the molecular weight of the carrier gas, its collision profile, the ratio of the specific heat to the gas constant, and the temperature coefficient.

3,319,091
APPARATUS AND METHOD OF OPERATING A MAGNETOHYDRODYNAMIC GENERATOR
Friedrich Burhorn, Hermann Wittel, and Werner Rummel, Erlangen, Germany, assignors to Siemens-Schuckertwerke Aktiengesellschaft, Berlin-Siemensstadt, Germany, a corporation of Germany
Filed Oct. 9, 1963, Ser. No. 314,955
Claims priority, application Germany, Oct. 10, 1962, S 81,971
8 Claims. (Cl. 310—11)



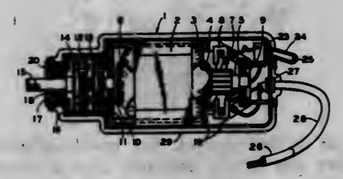
1. For operating a magnetohydrodynamic generator wherein a plasma current flows between a pair of electrodes, a method which comprises cooling the electrodes to a temperature level slightly below the melting point of the material constituting the electrodes and maintaining the electrodes at said temperature during the operation of the generator, marginal zones of the plasma bordering the electrodes being simultaneously maintained at a temperature at which a thin emitting layer, having a resistivity that is small compared to that of the plasma, is formed from the plasma constituents on the electrode surfaces, vaporization of said layer and further deposition of said constituents on the electrodes being in a state of equilibrium whereby the thickness of said layer remains constant.

3,319,092
MAGNETOHYDRODYNAMIC GENERATOR
Stephen J. Keating, Jr., West Hartford, and Donald H. Wood, Glastonbury, Conn., assignors to the United States of America as represented by the Secretary of the Air Force
Filed Oct. 27, 1964, Ser. No. 406,952
4 Claims. (Cl. 310—11)



1. A sidewall module for the generator channel of a magnetohydrodynamic generator for joinder with similar modules comprising a general square shaped center tile of a ceramic material having the capability of withstanding high temperatures, a pair of side tiles, said side tiles being adapted to be joined to form a generally square shape, mating tongue and groove portions on said center tile and one of said pair of side tiles for joining said side tiles with said center tile, a retaining pin, a ceramic tile secured to the top of said pin, said last mentioned tile having a beveled portion on the lower surface thereof for engagement with a mating bevel on said one of said pair of tiles, a heat conductive cooling pan having a hole therethrough for reception of said retaining pin, said pan having a spring seat therein surrounding said hole, a spring adapted to engage said seat, a spring retainer arranged to engage said spring and said pin such that variation in engagement of said pin and said spring retainer varies the force exerted by said spring on said pin, and a stepped cooling manifold having passageways therein for receipt of said cooling pan and for providing coolant to cool said cooling pan.

3,319,093
SUBMERSIBLE APPLIANCE DRIVER WITH INSULATED HOUSING
Elsie G. Abdul, New York, N.Y., assignor of fifteen percent to Leonard M. Todd, New York, N.Y.
Filed Nov. 15, 1965, Ser. No. 516,210
4 Claims. (Cl. 310—50)

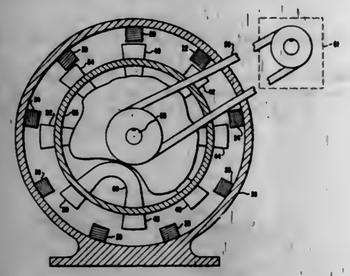


1. A submersible appliance driver comprising a universal electric motor, a rotating shaft for said motor, double planetary reduction gears having a low speed output shaft and a high speed input portion, said rotating shaft of said electric motor coupled to said high speed input portion, a housing substantially completely enclosing said electric motor and said reduction gears, the outer surface of said housing comprising an electrically insulating material, said housing being impermeable to water, preventing the intrusion of water to within said housing when said housing is submerged in water, said low speed shaft extending exteriorly of said housing through rotary shaft sealing means comprising an elastic membrane fastened to said housing, a circular opening in said membrane normally smaller in diameter than the diameter of said low speed shaft and through which circular opening said low speed shaft extends, said opening being distended by said low speed shaft and compressed against said low speed shaft in sealing relation to said low speed shaft and said housing and a line cord for applying electric power to said electric motor passing into said housing through sealing means in sealing relation to said line cord and said housing and thence passing through a strain relief bushing mounted on said housing, said line cord connected to said electric motor within said housing.

3,319,094
LOW-TORQUE ELECTRIC GENERATOR
James M. Snodgrass, La Jolla, Calif., assignor to The Regents of the University of California
Filed Feb. 17, 1964, Ser. No. 345,313
5 Claims. (Cl. 310—68)

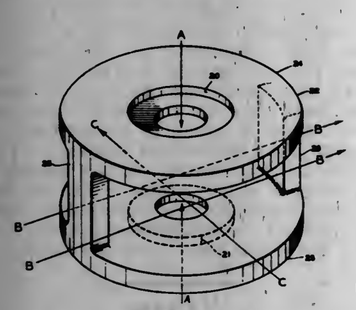
1. A generator unit comprising:
(A) a rotary support assembly including a stator unit and a rotor unit which has an annular space therebetween;
(B) a plurality of equally spaced flux producing members mounted on one of said units and projecting into said annular space, the adjacent members being of opposite polarity; and
(C) a plurality of equally spaced electromagnetic elements having a core surrounded by a coil, which are disposed on the other of said units, projecting into said annular space in close non-interfering proximity to the said flux producing members, said electromagnetic elements being connected to electrical output terminals;

(D) said flux producing members and said electromagnetic elements having different center to center distances and disposed with respect to each other so that only one of the magnetic flux producing members is disposed at any given time in direct alignment with an electromagnetic element; and



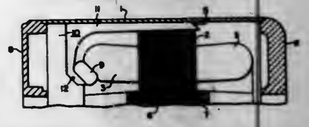
(E) all of the magnetic flux producing members on either side of the said one aligned magnetic flux producing member are symmetrically arranged with respect thereto and are displaced out of direct alignment with their corresponding electromagnetic elements an equal distance to thereby balance the attractive and repulsive forces coincident with these displaced electromagnetic elements.

3,319,095
ELECTRIC MOTOR
Bernard Spieker, New Milford, N.J., assignor to The Bendix Corporation, Teterboro, N.J., a corporation of Delaware
Filed Mar. 17, 1964, Ser. No. 352,479
5 Claims. (Cl. 310—68)



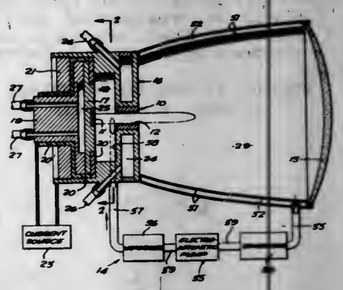
1. An electric motor for providing precise movement of rotating elements, comprising a stator, a rotor positioned within the stator, a unitary housing formed from a single piece of material and having a pair of end bells axially spaced from one another by supporting posts and providing openings between the posts for insertion of the stator and rotor therethrough to a position in which the stator and rotor are aligned axially of the housing, clamping elements attached to said housing and securing said stator within said housing, said end bells having axially aligned bearing bores therein, bearings mounted in said bores, and a shaft adapted to be axially inserted through one of the bearings, through the rotor, and through the other bearing and mounting the rotor for rotation within the stator, means for securing the bearings and rotor to the shaft, and means within the bores for spacing the bearings to correspond with the spacing of the end bells to avoid end play of the rotor relative to the stator.

3,319,096
THERMALLY PROTECTED DYNAMOELECTRIC MACHINE
Noah E. Eberhart, Bath Township, Lima, and Thomas Charlton, Lima, Ohio, assignors to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Filed Nov. 16, 1964, Ser. No. 411,262
4 Claims. (Cl. 310—68)



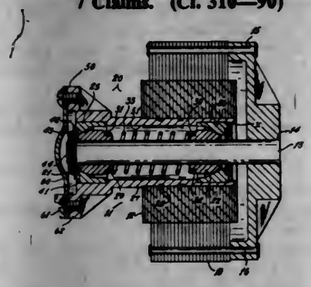
1. In a dynamoelectric machine having a frame, a stator core member supported in the frame, a winding on the stator core member, a thermally responsive protective device disposed on said winding, and a rigid clamp member of insulating material supported on said core, said clamp member engaging the protective device and holding it tightly in place on the winding in good thermal relation therewith.

3,319,097
HIGH INTENSITY-GAS LAMP WITH RECIRCULATION MEANS
Gabriel M. Giannini, Indio, Adriano C. Ducati, Santa Ana, and Hubert C. Sullivan, Riverside, Calif., assignors to Giannini Scientific Corporation, Amityville, N.Y., a corporation of Delaware
Continuation of application Ser. No. 200,584, June 6, 1962. This application Mar. 25, 1965, Ser. No. 445,843
3 Claims. (Cl. 313—12)



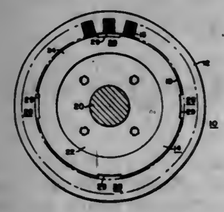
1. An electric plasma lamp, which comprises:
means to define a first gas chamber having an outlet opening therefrom,
first and second electrode means having arcing portions disposed in said first chamber,
means to define a second gas chamber communicating with said opening on the opposite side thereof from said first chamber,
means to maintain a continuous electric arc between said arcing portions in said first chamber,
means independent of said arc to effect forced recirculation of mercury vapor into said first chamber and thence through said opening into said second chamber and thence back into said first chamber,
said recirculation means including means to effect condensation of said mercury vapor to form liquid mercury, means to effect flow of electric current through said liquid mercury in a predetermined direction, means to create a magnetic field extending through said liquid mercury in a direction at right angles to said predetermined direction, thereby creating a force effecting pumping of said liquid mercury, and means to vaporize said pumped liquid mercury and introduce the resulting mercury vapor into said first chamber,
said recirculation means and said means to define said first chamber being so related to each other and to said electrodes that the gas flow in said first chamber is vortical about said arc, and
light-transmissive wall means to permit light generated as the result of said arc to be transmitted away from the lamp.

3,319,098
BEARING AND ROTOR ASSEMBLY
Herbert L. Hartman, Elyria, Ohio, assignor, by mesne assignments, to the G.I. Company, Elyria, Ohio, a corporation of Ohio
Filed Aug. 22, 1963, Ser. No. 303,809
7 Claims. (Cl. 310—90)



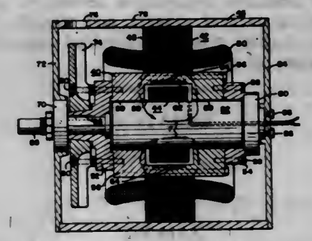
3. An electric motor comprising a stator, a rotor, said stator in concentric surrounding relationship to said rotor, a stationary shaft secured to the stator, a tubular bearing housing member secured to said rotor and rotatable therewith, said stationary shaft disposed longitudinally within said housing member, said bearing housing member having a pair of bearing retainer members rotatable therewith and mounted therein at opposite ends thereof, each said bearing retainer member having bearings seats, a pair of apertured bearings, each said bearing seated within said bearing seats, spring means seated on and interposed between the ends of said bearings forcing said bearings into alignment and into seating engagement with the bearing seats wherefor the bearings rotate with said retainer members within which said bearings are seated, said spring means telescoped over and in spaced relation to said shaft.

3,319,099
HYSTERESIS MOTOR HAVING MODIFIED TORQUE CHARACTERISTICS
Francis J. Johns, Buffalo, and Donald S. Scott, Snyder, N.Y., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed July 1, 1964, Ser. No. 380,989
4 Claims. (Cl. 310—163)



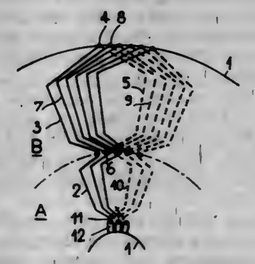
1. A hysteresis motor comprising a rotor and a stator suitably energizable to produce a rotating magnetic flux wave in a rotor-stator air gap, said rotor having a continuous generally cylindrical hysteresis member of substantial radial thickness mounted non-magnetically on a shaft, said hysteresis member having relatively shallow slot means extending axially on the surface thereof and spaced about the generally circular hysteresis member periphery so as to increase the motor pull-out torque and characterize said motor with a sharp drop in speed at pull-out torque.

3,319,100
DYNAMOELECTRIC MACHINES
John W. Erickson, Long Beach, Calif., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Dec. 18, 1963, Ser. No. 331,607
2 Claims. (Cl. 310—168)



1. A dynamoelectric machine comprising a rotor cooperatively disposed in relation to a stator and having respective interdigitated sets of axially extending and circumferentially spaced magnetic poles, confronting edges of said interdigitated rotor pole sets intersecured by means of a non-magnetic spacing member, means at opposite ends of said rotor for rotatably supporting the same, and fixed excitation means mounted internally of said rotor for oppositely polarizing said interdigitated rotor pole sets and establishing flux linkages with said stator, said excitation means comprising an excitation coil mounted upon a fixed magnetic core, said core being step shaped in axial section, and said rotor having a mating step shape defining with said core a space within said rotor for receiving said excitation coil.

3,319,101
FLAT WINDING CONSTRUCTION FOR ELECTRIC MACHINES
Rene Bidard, Paris, France, assignor to Cie Electro-Mecanique, Paris, France, a corporation of France
Filed Apr. 20, 1964, Ser. No. 361,089
Claims priority, application France, Apr. 23, 1963, 932,426, Patent 1,371,795
16 Claims. (Cl. 310—268)



1. In a rotary electric machine of the type having a flat air gap and a flat support of insulating material on which bare lamellar conductors are applied to both sides

thereof, the improvement wherein both sides of said support are divided into concentric annular zones, said zones on both sides of said support are provided with substantially radially extending lamellar conductors all of which have the same average width, an outer zone being provided with more conductors than are provided on an inner zone, the outer ends of conductors on opposite sides of said support adjacent the outer periphery of the outermost zone being connected together, the inner ends of conductors on opposite sides of said support adjacent the inner periphery of the innermost zone being connected together, the inner and outer ends respectively of certain of said conductors on adjacent zones on the same side of said support being connected together, and the inner ends of certain of said conductors of the same zones on opposite faces of said support being connected together, all of said conductor connections serving to establish a single winding on said support, and wherein the same number of magnet poles are provided respectively for the conductors of all zones.

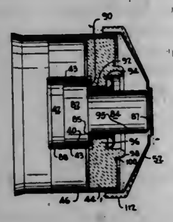
ERRATUM

For Class 313—12 see:
Patent No. 3,319,097

3,319,102
ELECTRON GUN ASSEMBLY WITH INCREASED COOLING SURFACES

Jay H. Johnson, Owensboro, Ky., assignor to Kentucky Electronics Inc., Owensboro, Ky., a corporation of Kentucky

Original application Aug. 20, 1962, Ser. No. 217,790, now Patent No. 3,204,141, dated Aug. 31, 1965. Divided and this application Nov. 2, 1964, Ser. No. 408,308
8 Claims. (Cl. 313—45)

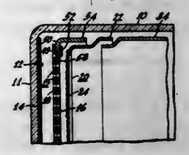


1. In an electron gun assembly, the combination comprising an annular support ring, an annular ceramic ring supported by said supporting ring or the inner surface thereof, said ceramic ring having an inner flange of reduced thickness including a pair of substantially parallel sides, a cathode base sleeve within said ceramic ring and having an out-turned lip which engages one of the substantially parallel sides of said inner flange, said cathode base sleeve having a shoulder which engages the other of said parallel sides whereby the conductive heat transfer between said cathode base sleeve and said ceramic ring takes place only at said out-turned lip and said shoulder of said base sleeve, and a first control grid having a cylindrical portion, a frustroconical portion connected to said cylindrical portion and a planar portion connected to said frustoconical portion, said planar portion having an aperture in the center thereof and being spaced from and substantially parallel to said emitting surface, wherein said cylindrical portion of said grid is corrugated, the inner surface of said corrugated grid portion being connected to said support member whereby heat outlets are provided at said corrugated portion.

3,319,103
STORAGE TUBE TARGET STRUCTURE HAVING ATTACHED SHIELD RING

Gerald D. Cartwright, Lititz, and Edgar M. Smith, Millersville, Pa., assignors to Radio Corporation of America, a corporation of Delaware

Filed Nov. 12, 1964, Ser. No. 410,438
2 Claims. (Cl. 313—68)

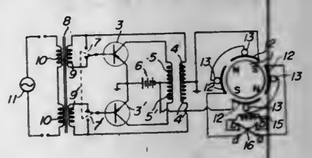


1. A display storage tube comprising:
(a) a charge storage target structure, said structure including a target support ring having an inturned annular support flange with an inner edge, and an apertured storage member having one face fixed to one face of said flange,
(b) means for producing a writing beam of electrons directed towards said one face of said storage member,
(c) means for scanning said writing beam across said one face for charging the same,
(d) a phosphor screen closely spaced from the opposite face of said storage member,
(e) means for directing a viewing beam towards said one face of said storage member, whereby electrons of said viewing beam selectively pass through the apertures in said storage member and impinge upon said screen for producing a visible display thereon, and
(f) a conducting ring fixed to the other face of said flange and having a lip extending over said edge, said ring extending over an annular portion of said apertured storage member adjacent to said edge, whereby said edge and said annular portion are shielded from the viewing beam and failure to coat said annular portion with insulating charge-holding material and failure to leave said edge uncoated are free from harmful effects upon the operation of said tube.

3,319,104
STARTER DEVICE FOR A D.C. ELECTRIC MOTOR

Shine Yasuoka, Toyonaka-shi, Yutaka Tanaka, Kobe, and Kaoru Sasabe, Ikeda-shi, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan, a corporation of Japan

Filed Oct. 3, 1963, Ser. No. 313,616
Claims priority, application Japan, Oct. 25, 1962, 37/47,723; Mar. 13, 1963, 38/14,404; June 18, 1963, 38/32,172
7 Claims. (Cl. 313—138)

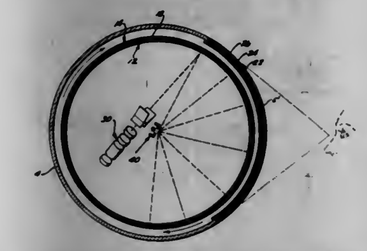


1. A starter device for a D.C. motor having interpoles disposed between adjacent main field poles, said interpoles having a starting coil wound therearound, comprising means for detecting rotor position of a permanent magnet rotor in respect to said interpoles, means for converting the direction of current flowing through said starting coil in accordance with the detected rotor position to apply torque in a desired direction to said rotor, means for terminating operations of said means for detecting rotor position of said rotor and said means for converting the direction of current through said starting coil after said rotor has attained a predetermined rotational speed.

3,319,105
TRAVELING IMAGE DIRECT VIEWING TUBE WITH ROTATABLE STORAGE CYLINDER

Nobuo J. Koda, Vista, and Leon S. Yaggy, North Carlsbad, Calif., assignors to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware

Filed Apr. 10, 1964, Ser. No. 358,913
10 Claims. (Cl. 313—149)



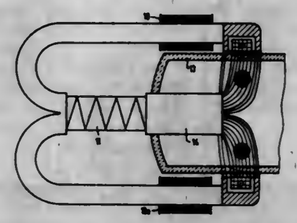
1. A direct-viewing cathode ray storage tube device comprising:
(1) an evacuated container having therein:
(A) a movable storage target member;
(B) a viewing target member adjacent said storage target member and adapted to be viewed through said evacuated container at a predetermined portion thereof;
(C) a first electron gun means for scanning said storage target member with an electron beam so as to establish thereon an electrostatic charge pattern corresponding to information to be displayed;
(D) a second electron gun means for flooding and penetrating said storage target member with viewing electrons in accordance with said charge pattern thereon whereby a visual display corresponding to said charge pattern is established on said viewing target member by said viewing electrons;
(E) a collector target member for receiving secondary electrons produced by said storage target member;
(2) and means for moving said storage target member in a predetermined direction past said predetermined portion of said container.

3,319,106
PLASMOID GENERATOR AND ACCELERATOR UTILIZING AN ANNULAR MAGNETIC CORE

Walter Hertz, Erlangen, Germany, assignor to Siemens-Schuckertwerke Aktiengesellschaft, Berlin-Siemensstadt and Erlangen, Germany, a corporation of Germany

Filed Dec. 18, 1964, Ser. No. 419,426
Claims priority, application Germany, Dec. 21, 1963, S 88,842
10 Claims. (Cl. 313—161)

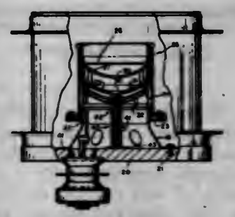
1. Apparatus for generating and accelerating plasmoids comprising a tubular vessel of electrically insulating material having a closed end, means for supplying a gas, a cup-shaped magnetic circuit structure surrounding the closed end of said tubular vessel, said structure being provided with a magnetic inner central core and having a rim portion forming an annular pole shoe, said core extending into said tubular vessel through said closed end thereof to approximately the plane of said pole shoe, a low-induction winding carried by said pole shoe and coaxially surrounding said tubular vessel, periodic electric energizing means connected to said low-induction winding for periodically producing an electrical field extending in the axial direction of said tubular vessel, and a magnetic field coil carried by the core of said structure and electrically energizable for producing a magnetic field intersecting said electrical field so as to generate plasma from a gas received in said tubular vessel and accelerate the plasma in the axial direction of said tubular vessel.



3,319,107
PLURAL ROD GETTER BETWEEN THE HEAT SOURCE AND HEAT SINK OF A VACUUM TUBE

Paul D. Williams, Portola Valley, Calif., assignor, by mesne assignments, to Varian Associates, a corporation of California

Filed Oct. 12, 1964, Ser. No. 403,011
10 Claims. (Cl. 313—176)



9. An electron tube comprising an envelope including a metallic base plate at one end of said envelope, an electron gun assembly within said envelope, an electron gun assembly within said envelope and supported on said base plate, said electron gun including an indirectly-heated cathode, and a getter structure having one of its ends thermally coupled to said base plate and its other end adjacent said cathode whereby application of operating potential to said indirectly-heated cathode produces a temperature gradient along the length of said getter structure, said getter structure including a bundle of parallel refractory metal rods with one end of said rods being adjacent said cathode and the other end of said rods being thermally coupled to said base plate.

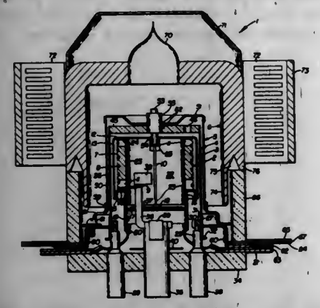
3,319,108
TERMINAL PIN MOUNTING ARRANGEMENT FOR CYLINDRICAL GRIDS IN ELECTRON TUBES

William D. Smith, Santa Clara, Calif., assignor, by mesne assignments, to Varian Associates, a corporation of California

Original application Dec. 24, 1962, Ser. No. 246,719, now Patent No. 3,287,597, dated Nov. 22, 1966. Divided and this application July 22, 1966, Ser. No. 578,903
2 Claims. (Cl. 313—331)

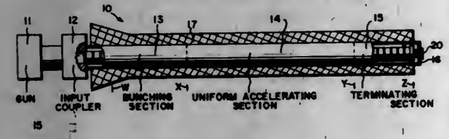
1. An electron tube comprising electrodes including a cylindrical control grid, terminals for said electrodes including pins projecting through the end of said tube and

spaced around a circle, a metal ring attached to the inner ends of said pins, said grid comprising lengths of wire



arranged in a cylindrical pattern, a metal band surrounding and attached to one end of said wires, and spot welds connecting said band to the outside of said metal ring.

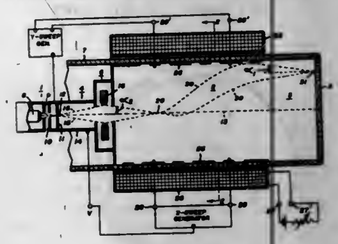
3,319,109
LINEAR PARTICLE ACCELERATOR WITH COLLINEAR TERMINATION
Jacob Haimson, Palo Alto, Calif., assignor to Varian Associates, Palo Alto, Calif., a corporation of California
Original application June 29, 1961, Ser. No. 120,597, now Patent No. 3,264,515, dated Aug. 2, 1966. Divided and this application Apr. 18, 1966, Ser. No. 543,328
1 Claim. (Cl. 315—5.41)



A particle acelerator comprising, in combination,
(a) a waveguiding structure adapted for passing charge particles therethrough and for propagating an electromagnetic wave therein for interaction with and acceleration of said charged particles;
(b) means other than said charged particles for supplying an electromagnetic wave to said waveguiding structure;
(c) said waveguiding structure having means at the downstream end thereof for attenuating any residual power of the electromagnetic wave not given up to said particles; and
(d) a vacuum tight envelope surrounding said waveguiding structure, said waveguiding structure being fixedly secured to said envelope only at the upstream end of the waveguiding structure, and means supporting said downstream end of the waveguiding structure in said envelope for axial movement relative to the envelope, whereby said waveguiding structure is free to expand within said envelope as said waveguiding structure becomes hot, said vacuum tight envelope being surrounding by solenoidal focusing coil assemblies.

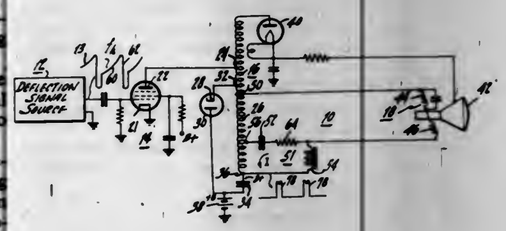
3,319,110
ELECTRON FOCUS PROJECTION AND SCANNING SYSTEM
Kurt Schlesinger, Fayetteville, N.Y., assignor to General Electric Company, a corporation of New York
Filed May 12, 1966, Ser. No. 554,276
35 Claims. (Cl. 315—17)

1. An electron optical system for focusing and deflecting an electron beam comprising:
(a) an envelope structure;
(b) magnetic field means for generating a substantially uniform magnetic field within and along an axis of said envelope;
(c) electric field means for generating a variable, substantially uniform electric field within said envelope which can cause deflection of the beam along two coordinates of said system, said electric field being generated orthogonal to said magnetic field;
(d) an electron beam source positioned in said envelope, said source comprising means for directing a beam of electrons through said field, and means for forming the object of said electron optical system;



(e) a target positioned in said envelope opposite said electron beam source; and
(f) said magnetic field means and said electric field means causing said magnetic and electric fields to cross within said envelope to form a focus projection and scanning cavity which simultaneously projects a focused image of said system object upon said target and scans it across the surface of said target.

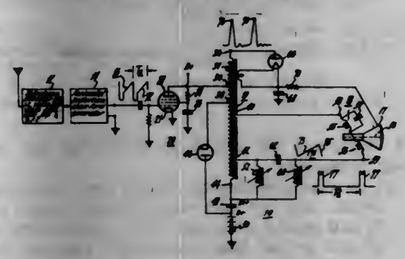
3,319,111
LINEARITY CORRECTION CIRCUIT
Bethel Edward Denton, Robards, Ky., assignor to Radio Corporation of America, a corporation of Delaware
Filed Feb. 10, 1964, Ser. No. 343,514
8 Claims. (Cl. 315—27)



1. An electromagnetic deflection circuit arrangement comprising:
a deflection output transformer having a winding formed of a plurality of turns;
a linearity correction network having a capacitance and inductance coupled to said transformer winding and forming a circuit loop with a segment of the winding;
said capacitance and inductance adapted to provide series resonance of said circuit loop at a frequency f_r;
said capacitance, inductance and winding segment providing a characteristic circuit Q for the loop;
said network including circuit means comprising an impedance for decreasing the Q of the circuit loop from the value Q_1 to a lower value Q_2;
an electron beam deflection winding coupled between said transformer winding and linearity correction network;

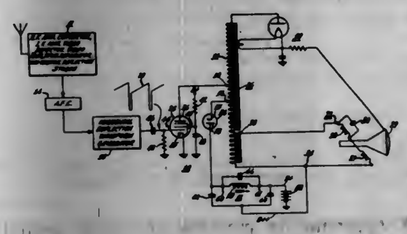
circuit means coupled to said transformer winding and adapted for causing a periodic sawtooth current of frequency f_h to flow in said deflection winding and a periodic current to flow in said resonant circuit loop;
said resonant frequency f_r having a value substantially equal to the frequency f_h.

3,319,112
LINEARITY CORRECTION CIRCUIT
Leonhard Ervin Annus and Leslie Neil Thibodeau, Indianapolis, Ind., assignors to Radio Corporation of America, a corporation of Delaware
Filed Feb. 10, 1964, Ser. No. 343,539
5 Claims. (Cl. 315—27)



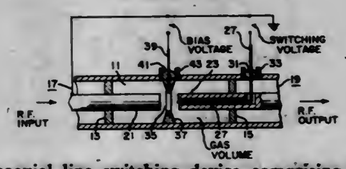
1. An electromagnetic deflection circuit arrangement comprising:
a deflection output transformer having a winding formed of a plurality of turns;
linearity correction means having a capacitive and an inductive element series coupled to and forming a circuit loop with a segment of said winding for providing;
series resonance of said loop at a frequency f_r;
an electron beam deflection winding coupled between said transformer winding and said correction network; and
circuit means coupled to said transformer winding and adapted for causing a periodic sawtooth current of frequency f_h to flow in said deflection winding and a periodic current to flow in said resonant circuit loop;
said resonant frequency f_r having a value substantially equal to the frequency f_h.

3,319,113
EFFICIENCY CIRCUIT
Bethel E. Denton, Henderson County, Ky., assignor to Radio Corporation of America, a corporation of Delaware
Filed Mar. 23, 1964, Ser. No. 353,966
3 Claims. (Cl. 315—29)



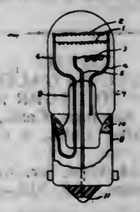
1. In a television receiver, a deflection circuit comprising
a deflection output amplifying device,
a deflection winding,
a transformer coupling said deflection winding to said amplifying device,
a source of operating potential,
a unilaterally conductive damping device coupled to said transformer,
an efficiency network, said network comprising the series combination of an inductance and a first capacitance coupling said damping device and at least a portion of said transformer in series relation, a second capacitance coupled across said series combination and a third capacitance coupled across said inductance.

3,319,114
ELECTROMAGNETIC SWITCHING DEVICE HAVING A DISCHARGE GAP FORMED BY TWO SPACED COAXIAL LINES EXTENDING INTO A GAS-FILLED WAVEGUIDE
Rodger G. Larson, Brooklyn, N.Y., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Jan. 9, 1964, Ser. No. 336,707
15 Claims. (Cl. 315—39)



4. A coaxial line switching device comprising a hollow waveguide that is adapted to form a cut-off attenuator for electromagnetic energy to be switched, a first coaxial transmission line having an inner conductor that extends into said attenuator, a second coaxial transmission line having an inner conductor that extends into said attenuator and is spaced from the inner conductor of said first coaxial transmission line, and means for sealing a gas under a relatively high pressure within said hollow waveguide to form an ionizable discharge gap in the space between said inner conductors.

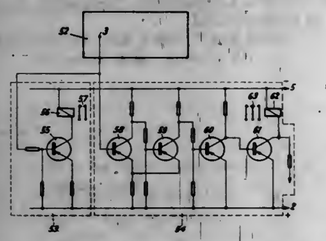
3,319,115
STANDBY CIRCUIT USING A TWO FILAMENT INCANDESCENT LAMP TO MAINTAIN APPROXIMATELY THE SAME LIGHT OUTPUT
William T. Smith, 419 Stratford Court, San Antonio, Tex. 78223
Filed Nov. 4, 1964, Ser. No. 409,030
3 Claims. (Cl. 315—66)



1. The improvement in an incandescent electric lamp, heated to incandescence by a flow of electric current, having a light transmitting enclosure with exterior supporting and electrical contacting means affixed on the exterior of said lamp, the said improvement comprising: two similar filaments for radiating light and heat energy; support means for supporting said filaments in substantially parallel physical relationship within said enclosure; means electrically connecting said filaments in electrical parallel relationship; electrical resistive means responsive to the said heat energy having a resistive characteristic approximately

proportionate to its temperature for increasing the current flowing in one of the said two filaments after failure of the other; means for positioning the said resistive means within the said enclosure in adjacent, parallel, equally spaced apart, heat receiving relationship to the said filaments; means connecting the said electrical resistive means and the parallel connected filaments in series; and electrical connecting means connecting the said series connected parallel filaments and resistive means to the said electrical contacting means.

3,319,116
APPARATUS FOR THE AUTOMATIC CONTROL OF THE HEADLIGHTS OF A VEHICLE
Georges Schick, Sous Mont 5, Prilly, Switzerland
Filed June 22, 1964, Ser. No. 376,897
Claims priority, application Switzerland, June 26, 1963, 7,888/63
2 Claims. (Cl. 315—83)



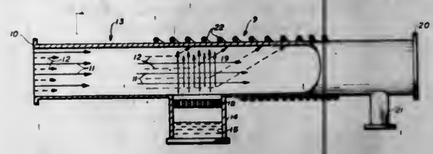
1. Apparatus for the automatic control of the headligths of a vehicle having main headlights and secondary headlights comprising a photosensitive resistor and a bias resistor connected in series between the poles of a direct-current source, a number of transistors whose bases are connected to the point of contact between the said resistors so that their voltage varies in accordance with the intensity of the lighting to which the photosensitive resistor is exposed, the said transistors being so adjusted that they are each triggered at a different value of the said voltage, a number of relays each controlled by means of one of the said transistors, one of the said relays rendering the sideligths of the vehicle operative when the intensity of the light on the photosensitive resistor falls below a first threshold, the second relay rendering the secondary headlights operative when the intensity of the light on the photosensitive resistor decreases below a second threshold lower than the first, and the third relay rendering the main driving headlights of the vehicle operative when the intensity of the light on the photosensitive resistor falls below a third threshold lower than the second.

3,319,117
IONIZATION VACUUM GAUGE FOR USE IN THE 10^{-6} TO 1 TORR RANGE
William R. Wheeler, Saratoga, Calif., assignor to Varian Associates, Palo Alto, Calif., a corporation of California
Filed Mar. 24, 1964, Ser. No. 354,386
10 Claims. (Cl. 315—111)



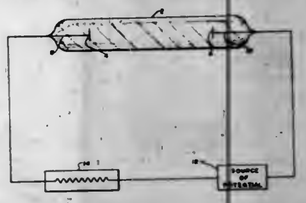
8. An ionization gauge for measuring gas pressure including: a first electrode for collecting ions; a second electrode for collecting electrons; a third electrode for emitting electrons; and means adjacent said third electrode for diverting ions from said third electrode, said ion diverting means and said first electrode being disposed on opposite sides of said third electrode.

3,319,118
PROCESS AND APPARATUS FOR PRODUCING PURIFIED FAST PARTICLE BEAMS
Charles C. Damm, Alamo, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed July 16, 1964, Ser. No. 383,264
11 Claims. (Cl. 315—111)



2. Apparatus for producing a purified fast particle beam, comprising:
(a) an evacuated chamber having first and second inlet means, said first inlet means being disposed relative to said second inlet, such that a coextending project of said second inlet transversely intersects the coextending projection of said first inlet within said chamber;
(b) means hermetically communicating with said first inlet for generating and directing a first particle beam including fast and slow particles into said chamber along said coextending projection of said first inlet;
(c) means hermetically communicating with said second inlet for generating and directing a second particle beam into said chamber along said coextending projection of said second inlet to traverse said first particle beam in the area of said intersecting projections, to interact therewith to form collision products, principally with slow particles therein, leaving fast particles in the beam emerging from said area; and
(d) means for removing said collision products from said area of intersecting projections.

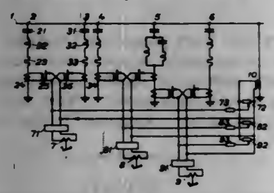
3,319,119
METAL VAPOR SPECTRAL LAMP WITH MERCURY AND A METAL HALIDE AT SUBATMOSPHERIC PRESSURE
John F. Rendina, Wilmington, Del., assignor to Hewlett-Packard Company, Palo Alto, Calif., a corporation of California
Filed Oct. 22, 1965, Ser. No. 506,441
14 Claims. (Cl. 315—248)



3. Apparatus for providing an atomic spectral light source comprising:
a sealed transparent envelope;
a pair of electrodes disposed within said envelope;
lead wires supporting said electrodes and embedded in and extending through said envelope;

an atmosphere within the envelope having a total vapor pressure at the operating temperature of the light source of less than 760 torr, said atmosphere including metallic iodide vapor for emitting spectral lines characteristic of the metal, mercury vapor, and argon gas;
means adapted to connect a source of potential across said electrodes for establishing an arc therebetween;
and means including a ballast resistor connected in series with one of said electrodes for limiting the arc current to a sufficiently low value to prevent appreciable spectral line broadening and shifting.

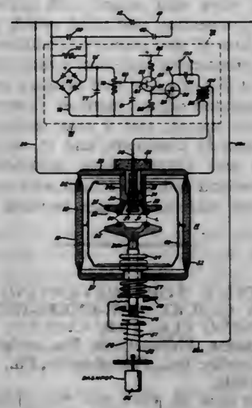
3,319,120
PROTECTION MEANS FOR SINGLE-PHASE CAPACITOR BANK
Nils Fahlén, Vasteras, Sweden, assignor to Allmanna Svenska Elektriska Aktiebolaget, Vasteras, Sweden, a corporation of Sweden
Filed May 5, 1964, Ser. No. 364,957
Claims priority, application Sweden, June 6, 1963, 6,239/63
6 Claims. (Cl. 317—12)



1. Relay protection means for a one phase capacitor bank comprising at least two parallel branches connected to a phase of an A.C. network; comprising a measuring transformer in each branch having adjusting means on its secondary side; means counter-connecting said secondary sides; relay means connected to said counter-connection of said sides; compensating means connected to said A.C. phase for deriving a compensating magnitude for compensating the output signal from said counter-connection, and means to feed said compensating magnitude to said relay means.

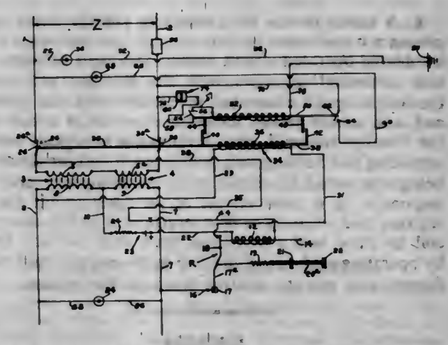
3,319,121
MEANS COMPRISING A TRIGGERED VACUUM CIRCUIT INTERRUPTER FOR PROTECTION AGAINST OVERVOLTAGES
Thoms H. Lee, Media, Pa., assignor to General Electric Company, a corporation of New York
Filed Mar. 8, 1965, Ser. No. 438,005
10 Claims. (Cl. 317—12)

1. Means for protecting a capacitor that is connected in series with a power line from overvoltages resulting from excessive line current therethrough, comprising:
(a) a pair of main electrodes that are adapted to be connected to said power line across said series capacitor,
(b) a highly evacuated envelope enclosing said main electrodes and evacuated to a pressure of 10^{-5} mm. of mercury or less,
(c) means for normally maintaining said electrodes in a spaced-apart position so as to define a main gap therebetween across which an electric field exists when said electrodes are connected across said series capacitor,
(d) means including a trigger gap within said evacuated envelope for injecting a concentration of charged conduction carriers into said main gap in response to a predetermined voltage developing across said series capacitor to cause an arc to be established between said main electrodes,
(e) electroresponsive means operable while said arc is present for forcing said main electrodes into engagement after a predetermined arcing period to extinguish said arc and permit current to continue flowing through the engaged electrodes,



(f) means for separating said electrodes immediately after the current therethrough has subsided to a predetermined level.

3,319,122
ELECTRICAL CIRCUIT CONTROL APPARATUS
Joseph P. Marino, Lincoln, R.I., assignor to Electronic Instruments Corp., Lincoln, R.I., a corporation of Rhode Island
Filed June 1, 1964, Ser. No. 371,629
6 Claims. (Cl. 317—18)



1. Electrical circuit control apparatus comprising two primary conductors and disconnecting apparatus connected in a main power circuit, two switches connected respectively to said primary conductors and normally closed and each having a movable contact arm, electrically operated actuating means adapted to actuate said disconnecting apparatus, conductor means connecting said actuating means to said main circuit, said disconnecting apparatus embodying a first coil, first lever means, a first plunger attached to said movable contact arms and to said first lever means and adapted to be actuated when said first coil is energized to thereby actuate said switch arms to open position, a second coil, conductor means connecting the latter to ground, second lever means so positioned with relation to said first lever means that

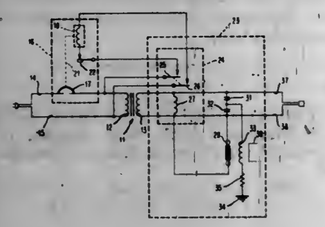
actuation thereof actuates the latter, a second plunger attached to said second lever means and adapted to be actuated by said first plunger when said first coil is energized, a third switch normally open and having a stationary contact member and a movable contact arm attached to said second plunger and movable therewith to open position when said second coil is energized, conductor means connecting said third switch movable contact arm to a first of said primary conductors, other conductor means connecting said third switch stationary contact member to the other of said primary conductors, an electrically operated signal member connected to said latter conductor means, and a reset member connected to said first primary conductor and to said third switch movable arm and adapted upon actuation thereof to energize said second coil and actuate said second plunger to thereby move said third switch movable arm to open position.

3,319,123

SAFETY DEVICE FOR PREVENTING ELECTRIC SHOCK BY QUICKLY DE-ENERGIZING A MALFUNCTIONING ELECTRIC CIRCUIT

Warren F. Scanlan, Philadelphia, Pa., assignor to Shock-Proof Electronics, Inc., Philadelphia, Pa., a corporation of Pennsylvania

Filed June 15, 1964, Ser. No. 375,087
3 Claims. (Cl. 317—18)



1. A safety device for preventing electric shock comprising a transformer having primary and secondary coils, a solenoid-operated circuit breaker having a breaker contact connected in series with the primary coil and a breaker solenoid connected in parallel with the primary coil, and sensor means, including a switch in circuit with the breaker solenoid, and a normally energized switch-operating coil holding said switch open, said sensor means being connected in circuit with the secondary coil and responsive to a short circuit or an open circuit for energizing said solenoid to de-energize said switch-operating coil to close said switch and open said contact, thereby operating said circuit breaker to de-energize said transformer and prevent electric shock to the person.

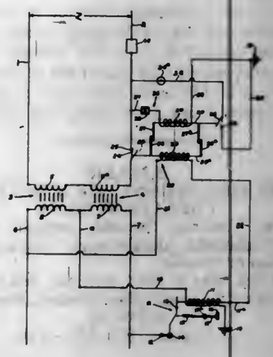
3,319,124

ELECTRICAL CIRCUIT PROTECTIVE APPARATUS

Joseph P. Marino, Lincoln, R.I., assignor to Electronic Instruments Corp., Lincoln, R.I., a corporation of Rhode Island

Filed Jan. 27, 1964, Ser. No. 340,367
4 Claims. (Cl. 317—18)

1. Electrical circuit control apparatus comprising disconnecting apparatus connected in a main power circuit embodying a transformer having a first primary winding and a secondary winding, a saturable transformer having a primary winding connected to said first primary winding and a secondary winding, electrically operated actuating means connected to said transformer and adapted to actuate said disconnecting apparatus and to connect with said main circuit, said disconnecting apparatus embodying a first coil, a first plunger adapted to be actuated when said first coil is energized, means operably connected to said first plunger and adapted to hold it in predetermined position, lever means and a first switch having a movable contact arm and both fixedly attached to said first plunger and movable therewith to thereby open said switch contact arm, a second switch having a movable switch arm



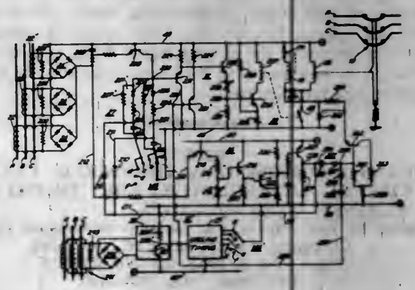
attached to said lever means and adapted to be moved thereby to closed position upon said movement of said lever means, conductor means connecting said second switch arm to said main power circuit and an electrically operated signal member connected to the latter conductor means.

3,319,125

REPEATING CIRCUIT INTERRUPTERS HAVING SEQUENCE COORDINATION

Clyde Gilker, South Milwaukee, Wis., assignor to McGraw-Edison Company, Milwaukee, Wis., a corporation of Delaware

Filed Sept. 9, 1964, Ser. No. 395,241
9 Claims. (Cl. 317—22)



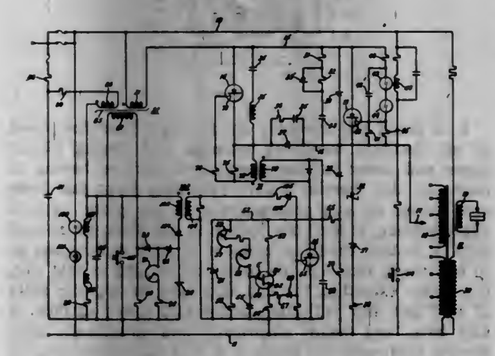
1. A repeating circuit interrupter including main switch means in circuit with an electrical system, abnormal condition sensing means coupled to said system and operable to produce a first electrical signal upon the occurrence of an abnormal circuit condition and to terminate said first electrical signal upon the disappearance of said abnormal condition, electroresponsive switch opening means, time delay circuit means coupled to said abnormal condition sensing means and responsive to said first signal to energize said switch opening means, switch closing means, electroresponsive sequencing means in circuit with said switch opening means and having a plurality of stages coupled to said time delay circuit means and being operable to successive ones of said stages each time said switch opening means is energized to modify the opening time delay of said switch opening operations, gating means having an anode-cathode circuit connected to said sequencing means and a gate electrode, first circuit means coupled to said abnormal condition sensing means for producing a second electrical signal upon the disappearance of said first electrical signal, second circuit means coupled to said first circuit means and to said gate electrode for rendering said gating means conductive upon the occurrence of said second electrical signal, and means associated with said sequencing means for rendering said gating means nonconductive after said sequencing means has operated to a succeeding one of its stages.

3,319,126

POWER SUPPLY

Frank W. Green, Cleveland Heights, Ohio, and Donald L. Watrous, Scotia, N.Y., assignors to General Electric Company, a corporation of New York

Filed Apr. 8, 1963, Ser. No. 271,400
11 Claims. (Cl. 317—33)



3. A control circuit for producing a control signal comprising, a pair of input terminals, a timing circuit connected to said terminals for producing an output quantity a predetermined time after energization of said terminals, a capacitor connected to said terminals to be charged in response to energization of the terminals, a controlled rectifier connected in the discharge path for said capacitor, said rectifier having a gate electrode connected to said timing circuit for energization by said output quantity, said rectifier being operable when its gate electrode is energized to transfer from a nonconducting condition to a conducting condition for effecting discharge of said capacitor, and means responsive to discharge of said capacitor to produce a control signal, said rectifier when conducting inhibiting operation of said timing circuit.

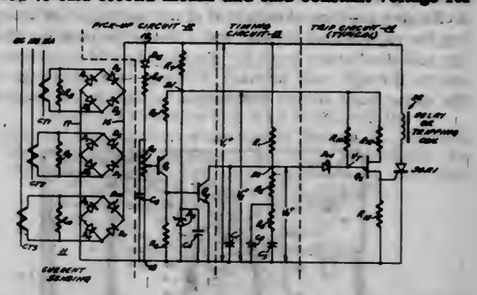
3,319,127

STATIC OVERCURRENT RELAY

Stanley E. Zocholl, Philadelphia, Pa., and James W. Lipnitz, Cherry Hill, N.J., assignors to I-T-E Circuit Breaker Company, Philadelphia, Pa., a corporation of Pennsylvania

Filed Oct. 12, 1964, Ser. No. 403,208
9 Claims. (Cl. 317—36)

1. For use in protecting current distribution networks static overcurrent relay means responsive to overcurrent conditions for operating circuit protective devices after a predetermined time period and before the network is damaged comprising first means for generating a D.C. voltage representative of the current being monitored in said network; second means coupled to said first means for generating a predetermined voltage level after a predetermined time delay; third means coupled to said first means and normally inhibiting the operation of said second means until the output voltage level of said first means achieves a predetermined magnitude; constant voltage reference means coupled to the output of said first means for establishing a second predetermined threshold level; fourth voltage-sensitive switch means coupled to said second means and said constant voltage reference means for energizing a circuit protective device when the output voltage of said second means achieves said second predetermined threshold level.

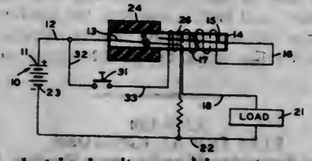


3,319,128

ELECTRIC CIRCUIT UTILIZING AN ADJUSTABLE AND RESETTABLE FUSE

Ole K. Nilssen, Livonia, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware

Filed Nov. 19, 1964, Ser. No. 412,367
8 Claims. (Cl. 317—54)



1. An electric circuit comprising, a source of electrical energy, a load, a magnetic reed switch having a pair of reeds and a winding surrounding said reeds, circuit means coupling said source of electrical energy, said pair of reeds, said winding and said load in series, and a cylindrical permanent magnet surrounding said reeds and polarized in an axial direction, said cylindrical permanent magnet having sufficient magnetomotive force to close said reeds, said winding being wound to produce a magnetomotive force in the opposite direction from said permanent magnet when current flows therethrough whereby said reeds will open interrupting current to said load when said current produces a predetermined magnetomotive force.

3,319,129

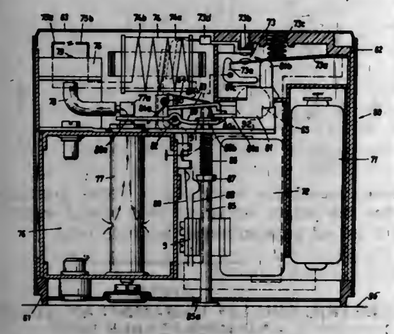
ELECTRICALLY IGNITED LIGHTER

Hermann Remy, Dietzenbach-Steinberg, and Hans-Jürgen Berghaus and Otto Adler, Heusenstamm near Offenbach am Main, and Martin Grünbacher, Offenbach am Main, Germany, assignors to Rowenta Metallwarenfabrik G.m.b.H., Offenbach am Main, Germany

Filed Aug. 23, 1966, Ser. No. 574,464
5 Claims. (Cl. 317—86)

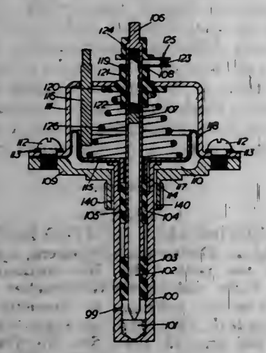
1. An electrically ignited gas-fueled lighter comprising, in combination: a fuel tank; a normally closed fuel valve for discharging a flow of fuel from said tank upon opening of the valve; a valve-actuating means coacting with said valve for opening the same; an ignition system comprising a charging circuit including a source of D.C. voltage and a capacitance means connected in parallel, a discharge circuit including the primary winding of a step-up transformer having a primary winding and a secondary winding, said primary winding being connected across the terminals of said capacitance means and said secondary winding having terminals defining a spark gap therebetween, said spark gap being disposed in a flow of fuel discharged by said

valve in its open position, and a switch means common to said charging circuit and said discharging circuit, said switching means having a switch arm movable between a charging position closing said charging circuit for charging the capacitance means, and a discharge position closing said discharge circuit for discharging said capacitance means through said primary winding, said discharge of the capacitance means inducing a voltage in the second-



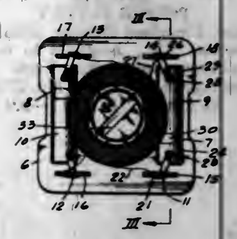
ary winding causing a spark discharge across said spark gap; and operating means coacting with said valve-actuating means to operate the same for opening said fuel valve to release a flow of fuel therefrom and with said switch means to move said switch arm into the position closing said discharge circuit, thereby causing ignition of the flow of fuel by the spark discharged across said spark gap.

3,319,130
ELECTRICAL IGNITORS
Cecil George Betteridge, Woodley, near Reading, England, assignor, by mesne assignments, to Fuel Ignition Limited, Reading, England, a company of Great Britain
Filed July 22, 1964, Ser. No. 384,487
6 Claims. (Cl. 317—87)



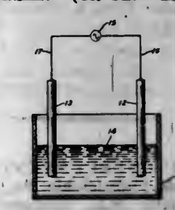
1. An electrical ignitor for lighting fuel burners, comprising a tubular metal casing having front and rear ends, a plurality of insulating blocks disposed within said casing and having bores coaxial with said casing, conducting means of substantially the length of said casing extending into said bores to mount said conducting means coaxially in said casing, said conducting means having a bore extending through at least a portion of its length, a carbon rod electrode disposed within said conducting means bore, resilient means in said conducting means bore urging said electrode towards the front end of said casing, a carbon plug in said casing at said front end thereof in electrical connection with said casing and contacted by said electrode, means closing said front end of said casing, said casing having aperture means adjacent the plug-contacting end of said electrode for entry of fuel to be ignited, and means to supply electric current to said conducting means and said casing.

3,319,131
TUNED COIL ASSEMBLY
Raymond E. Wood, Palatine, and Charles H. Wolf, Woodstock, Ill., assignors to TRW Inc., a corporation of Ohio
Filed Apr. 14, 1965, Ser. No. 448,111
4 Claims. (Cl. 317—101)



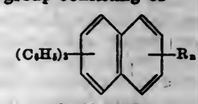
1. A tuned coil assembly comprising a base composed of an electrical insulating material and having planar upper and lower surfaces, said upper surface having at least one slot therein, a core extending from said base and having its axis perpendicular to the plane of said upper surface, at least one induction coil disposed on said core, a tubular capacitor element of such dimensions as to be loosely received and partly submerged in said slot, lug means extending through said base on opposite sides of said slot and projecting below said lower surface of said base, and means electrically and structurally connecting said capacitor element to said lug means holding said capacitor element at least partly submerged within said slot.

3,319,132
ELECTROLUMINESCENT DEVICE CONTAINING LUMINESCENT ELECTROLYTE
Edwin A. Chandross, Murray Hill, and Robert E. Visco, New Providence, N.J., assignors to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Aug. 18, 1964, Ser. No. 390,458
6 Claims. (Cl. 317—230)



1. An electroluminescent device including a container having disposed therein a pair of electrodes and a solution of a polynuclear condensed aromatic hydrocarbon in an aprotic solvent, the said aromatic hydrocarbon being selected from the group consisting of

(a)

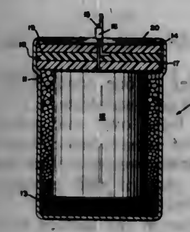


(b) $[C_xH_{(y-a)}]R_a$

wherein x is within the range of 14–20, y is within the range of 10–20 and wherein R represents at least one member selected from the group consisting of hydrogen, lower alkyl radicals having from 1–4 carbon atoms, tertiary amine radicals having up to 4 carbons, amine

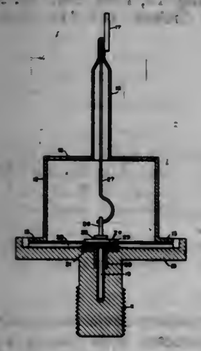
groups, aryl radicals, aryloxy groups and substituted aryl radicals wherein such substituent is selected from the group consisting of hydrogen, lower alkyl radicals having from 1–4 carbon atoms, tertiary amine radicals having up to 4 carbon atoms and amine groups, the said electrodes and container being chemically inert with respect to said solution.

3,319,133
FOAM POTTING OF ALUMINUM ELECTROLYTIC CAPACITORS
Lawrence R. Sparrow and Jerry Braiman, Indianapolis, Ind., assignors to P. R. Mallory & Co. Inc., Indianapolis, Ind., a corporation of Delaware
Filed Jan. 11, 1965, Ser. No. 424,570
8 Claims. (Cl. 317—230)



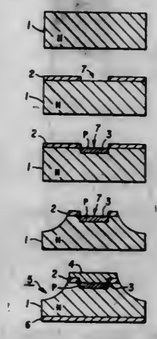
1. In a capacitor assembly comprising: a capacitor unit having electrical terminal connections extending therefrom; a container enclosing said capacitor unit, said container having walls and an open end, said container having greater length and cross sectional area than said capacitor unit providing a space between said capacitor unit and both said walls of the container; a cap sealing the open end of said container with said terminals insulatively extending therethrough; a foam material filling the space between said capacitor unit and said walls of the container, said foam material being the in situ expanded foam product of an expandable foam material disposed in the space between said capacitor unit and said walls of the container, said foam material providing a mechanical insulative support for said capacitor unit and preventing mechanical vibration of the unit within said container.

3,319,134
SINTERED ELECTRICAL CONTACT MEMBERS
Tibor Csakvary, Greensburg, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Apr. 7, 1964, Ser. No. 360,164
3 Claims. (Cl. 317—234)



1. A sintered end contact for use in silicon semiconductor devices, said end contact having a coefficient of thermal expansion of from 4.8×10^{-6} to 5.2×10^{-6} in./° C., closely matching that of single crystal silicon, and composed of an alloy solid solution consisting essentially, by weight, of from 0.1% to 0.5% silver, from 0.1% to 0.4% silicon and the balance essentially molybdenum.

3,319,135
LOW CAPACITANCE PLANAR DIODE
James A. Cunningham, Dallas, and Robert H. Johnson, Richardson, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Filed Sept. 3, 1964, Ser. No. 394,159
2 Claims. (Cl. 317—234)



1. A semiconductor diode comprising:
(a) a semiconductor wafer defining a mesa of one conductivity type;
(b) an oxide layer selectively masking a portion of one surface of said mesa;
(c) a diffused semiconductor layer of an opposite conductivity type beneath the unmasked portion of said one surface of said mesa with a P-N junction intermediate said layer and said wafer extending to said one surface beneath said oxide layer;
(d) metallized contact material overlying said oxide layer on said one surface of said mesa in ohmic contact with said diffused semiconductor layer and other metallized contact material on the surface of said wafer opposite to said one surface of said mesa;
(e) a conductive wire whisker, one end of said whisker being attached to said metallized contact material on said one surface of said mesa;
(f) a conductive lead wire, one end of said wire being attached to the other end of said whisker;
(g) a metal plug, one end of which is the mounting surface for the bottom side of said mesa;
(h) another conductive lead wire, one end of which is attached to another end of said metal plug; and
(i) a non-conductive envelope at least partially surrounding said diode.

3,319,136
RECTIFIER
John T. Perry, Melrose Park, and Robert M. Cooney Chicago, Ill., assignors to Dunlee Corporation, Bellwood, Ill., a corporation of Illinois
Filed Sept. 8, 1964, Ser. No. 394,739
5 Claims. (Cl. 317—234)

1. A rectifier comprising:
an elongate tubular housing of insulating material,
electrical terminal means on each of the opposite ends of said housing,
a plurality of disc-like silicon diodes disposed inside said tubular metal housing, said diodes each having a diameter greater than their axial dimension and having opposite parallel plane faces,

a plurality of flat disc-like metal spacer elements also disposed inside said tubular housing, and having opposite parallel plane faces,
said spacer elements having a diameter at least five times greater than that of said diodes,
said diodes and spacer elements being arranged substantially coaxially of each other and urged toward one another in a stack between said terminal means,
said diodes being arranged in pairs with one of said spacer elements between each said pair wherein said

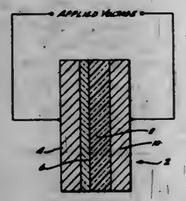


diodes and said spacer elements mutually support one another, said spacer elements defining substantially uniform closely spaced gaps between said spacer elements outside the diameter of said diodes for providing substantial capacitance and establishing voltage divider action between successive spacer elements and the diodes to which they connect from one terminal means to the other terminal means, and a liquid dielectric filling said housing and forming the dielectric between said spacer elements.

3,319,137
THIN FILM NEGATIVE RESISTANCE DEVICE

Arthur L. Braunstein and Morris Braunstein, Los Angeles, Calif., assignors to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware

Filed Oct. 30, 1964, Ser. No. 407,672
5 Claims. (Cl. 317—234)



1. A thin film negative resistance electrical device comprising a pair of metallic electrode members, a thin film of an oxide of one of said electrode members having a thickness of less than 90 Angstroms disposed between said pair of electrode members, and a thin semi-insulator film having a thickness of at least 500 Angstroms disposed between and in contact with said oxide film and one of said electrode members, and means for applying a voltage between said electrode members whereby one of said electrode members is biased with respect to the other for producing a negative resistance.

3,319,138
FAST SWITCHING HIGH CURRENT AVALANCHE TRANSISTOR

Henry P. Bergman, Dallas, and John C. Brixey, Jr., Richardson, Tex., and Dennis E. Tschudi, Northridge, Calif., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Filed Nov. 27, 1962, Ser. No. 240,328
6 Claims. (Cl. 317—235)

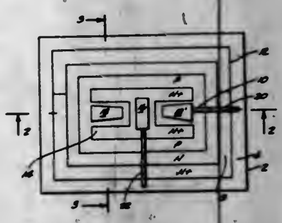


1. An avalanche semiconductor device which comprises:
(a) a first layer of one conductivity type forming a low resistivity solid substrate,
(b) a second layer over said substrate said second layer being of same conductivity type as said substrate and having resistivity an order of magnitude higher than that of said substrate with a graded boundary therebetween,
(c) a base layer in the surface of said second layer opposite said substrate and of conductivity type opposite the conductivity type of said second layer with a junction at the intersection of said base layer and said second layer, and
(d) an emitter layer in said base layer of the same conductivity type as said second layer with a junction at the intersection of said emitter layer and said base layer,
(e) the said junction between the base layer and the second layer and the said junction between the emitter layer and the base layer being graded with the base layer of width about one-tenth the width of the second layer, the surface concentration of the dopant for the base layer being an order of magnitude less than the surface concentration of dopant for said emitter layer.

3,319,139
PLANAR TRANSISTOR DEVICE HAVING A REENTRANT SHAPED EMITTER REGION WITH BASE CONNECTION IN THE REENTRANT PORTION

Harold F. Rueffer, Costa Mesa, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware

Filed Aug. 18, 1964, Ser. No. 390,378
7 Claims. (Cl. 317—235)



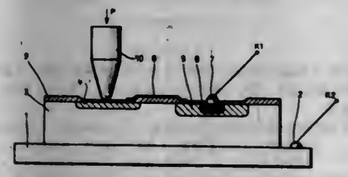
1. A planar transistor device comprising:
(a) a semiconductor body having a first surface;
(b) a collector region of a first type of conductivity disposed in said body and having a surface portion forming a part of said first surface of said body;

(c) a base region of a different type of conductivity to said first type disposed in said collector region having a surface portion forming a part of said first surface of said body;
(d) an emitter region having said first type of conductivity disposed in said base region and having at least in part a planar reentrant surface portion forming a part of said first surface of said body whereby a portion of said surface portion of said base region is exposed through said reentrant portion of said emitter region;
(e) a base contact disposed on said surface portion of said base region and within said reentrant portion;
(f) and separate electrical contacts disposed on said emitter and collector regions on said first surface.

3,319,140
PRESSURE SENSITIVE SEMICONDUCTOR DEVICE

Hans-Norbert Toussaint, Munich, and Friedrich Krieger, Gilching, Germany, assignors to Siemens & Halske Aktiengesellschaft, Berlin and Munich, Germany, a corporation of Germany

Filed Dec. 9, 1964, Ser. No. 417,157
Claims priority, application Germany, Dec. 9, 1963, S 88,651
13 Claims. (Cl. 317—235)



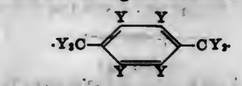
1. A semiconductor device, comprising
a semiconductor block of determined conductivity type having a surface, a first zone of opposite conductivity type formed in said semiconductor block at said surface thereof and a second zone of opposite conductivity type formed in said semiconductor block at said surface thereof and spaced from said first zone, said semiconductor block and said first zone forming a rectifier;
a third zone of the same conductivity type as said semiconductor block formed in said second zone, said semiconductor block, said second zone and said third zone forming a transistor;
a pressure point abutting the surface of said semiconductor block at said first zone for applying pressure to said first zone; and
connecting means for electrically connecting said first zone and said second zone.

3,319,141
THIN FILM CAPACITORS

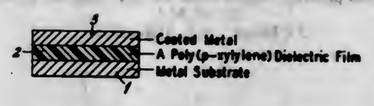
Frank E. Carlou, Cleveland, Ohio, William E. Loeb, Martinsville, N.J., and David J. Valley, Cleveland, Ohio, assignors to Union Carbide Corporation, a corporation of New York

Original application Dec. 27, 1962, Ser. No. 247,557. Divided and this application June 7, 1965, Ser. No. 487,943
13 Claims. (Cl. 317—258)

1. A capacitor adapted to retain and store an electrical charge comprising an alternate laminate of at least two electrically conductive metal layers separated and electrically isolated from each other by a vapor deposited void free, linear poly(p-xylylene) film applied to the metal layer by the condensation thereon of vaporous reactive p-xylylene diradicals having the structure



wherein Y is an inert monovalent substituent, at temperatures below the condensation temperature of the di-

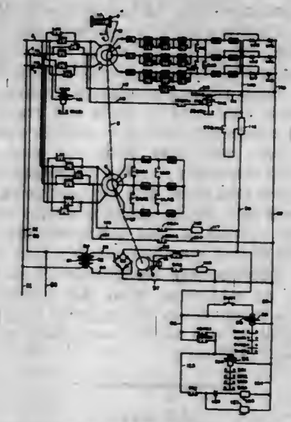


radical, said film at least 100 A. units thick and being integrally bonded to at least one of said conductive metal layers.

3,319,142
DRIVE CONTROL INCLUDING PLURAL A.C. MOTORS COUPLED TO SAME SHAFT WITH D.C. BRAKING

Frederick Yorke Grepe, Scarborough, Ontario, Canada, assignor, by mesne assignments, to A. O. Smith Corporation, Milwaukee, Wis., a corporation of New York.

Filed May 7, 1965, Ser. No. 469,014
25 Claims. (Cl. 318—48)

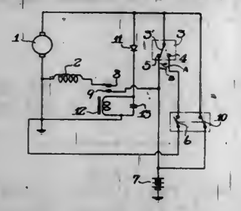


1. A hoist system for positioning a load, comprising power supply mains, a pair of motors having rotors mechanically coupled together for coupling to the load and having stators, each of said motors having a stator circuit and a rotor circuit, energizing of the stator circuit with alternating current producing a drive torque and with direct current producing a brake torque, a source of direct current including a first means connected to the power supply mains and a second means connected to the rotor circuit of the first motor, and control means including contacts and circuits for connecting the stator circuits to the power supply mains and to the source energizing said motors in a plurality of modes including a first mode wherein both stators are connected to the power supply mains to provide a positive drive torque, a second mode wherein only one stator is connected to the power supply mains to alone drive the load, a third mode wherein one motor is connected to drive the load and the other motor is connected to brake the load, and a fourth mode wherein one motor is connected to brake the load and the other motor is inactive.

ERRATUM

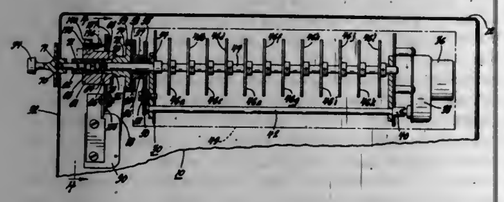
For Class 318—138 see:
Patent No. 3,319,104

3,319,143
CONTROL UNIT FOR WINDSHIELD WIPER
Keitaro Kanada, Toyohashi-shi, Japan, assignor to Nippon Denso Kabushiki Kaisha, Aichi-ken, Japan
Filed Dec. 14, 1964, Ser. No. 417,912
Claims priority, application Japan, Aug. 21, 1964, 39/47,614
3 Claims. (Cl. 318—275)



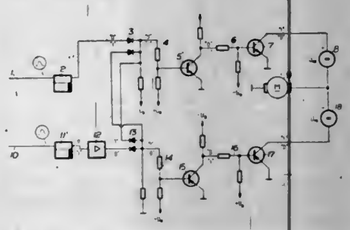
1. In an electric windshield wiper adapted to be stopped at a predetermined position, a combination of an electric motor having an armature and a field winding, said armature having an armature winding, a shunt field circuit for said armature winding, a battery, means for connecting said battery to the armature winding of said motor, said armature being adapted to be dynamically braked by short-circuiting the two terminals of the winding of said armature when it is not energized, a relay having a winding inserted in said shunt field circuit of said armature and connected to be energized and deenergized at the same times with said armature winding, said relay having contacts connected to make and break said field circuit, and a condenser inserted in parallel with the winding of said relay, said relay being energized during the time when said condenser is being discharged and to flow a current across said shunt field for continuing the action of the magnetic field, by energizing said relay winding with the discharge current of said condenser just after said two terminals of said armature winding have been short-circuited by disconnecting energization of said armature winding and of said relay from said battery, whereby said armature is effectively dynamically braked so as to ensure stopping of said electric windshield wiper at said predetermined position.

3,319,144
TIMER CONTROL MECHANISM WITH INDEXING MEANS
Norman R. Clark, Clawson, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed May 4, 1964, Ser. No. 364,703
2 Claims. (Cl. 318—284)



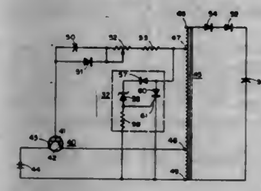
1. In a cleaning device the combination of, a reversible electric motor, circuit means including a plurality of cam operated switch means for conditioning said motor for opposite rotation, means including drive means operatively associated with said reversible electric motor for effecting a plurality of operative cleaning cycles, timer motor means, a rotatable shaft, a plurality of cam means on said rotatable shaft operatively associated with said cam switch means for effecting a sequential conditioning of said circuit means, means for drivingly connecting said motor means to said rotatable shaft including clutch means, a push-pull knob operatively associated with said clutch means for engaging and disengaging said clutch means, said push-pull knob being manually rotatable when in a pulled-out position to rotate said shaft for presetting said cam switch means, means for de-energizing said cam switch means when said knob is in its pulled-out position, and indexing means for limiting movement of said push-pull knob into its pushed-in position following rotational movement of said shaft to prevent energization of said cam switch means in all but a predetermined limited number of controlling positions, said indexing means including a locator plate surrounding said push-pull knob, means forming a predetermined number of guide openings in said locator plate, spring means on said push-pull knob freely movable with respect to said locator plate upon movement of said knob into its pulled-out position and including means engageable with said locator plate upon movement of said knob into its pushed-in position except at said guide openings, said spring means and said guide openings cooperating to prevent a predetermined manual conditioning of said plural cycles of operation.

3,319,145
DEVICE FOR THE CONTACTLESS REVERSAL OF CURRENTS IN ELECTRICAL MOTOR DRIVE COILS
Kurt Wiederwohl and Reimar Germann, Graz, Austria, assignors to Hans List, Graz, Austria
Filed Feb. 4, 1965, Ser. No. 430,349
Claims priority, application Austria, Feb. 5, 1964, A 938/64
1 Claim. (Cl. 318—287)



A device for the contactless reversal of currents in the drive coils of direct-current electrical motors, comprising two separate control circuits for opposite directions of the current, one of said control circuits comprising a pulse shaper stage receiving input signals for the said first control circuit, a negative and-gate following the said pulse shaper stage, a voltage divider connected to the said negative and-gate, a control stage subsequent to the said voltage divider and formed by an n-p-n transistor, an output stage connected to the said second voltage divider and formed by a n-p-n transistor, the output of this output stage being connected to the positive pole of a direct-current supply, the negative pole of same being connected to the said motor drive coils the direction of the current of which is to be reversed, the second of the said control circuits comprising a pulse shaper stage receiving input signals for the said second control circuit, a reversing stage following the last-mentioned pulse shaper stage, a positive and-gate after the said reversing stage, a voltage divider connected to the said positive and-gate, a subsequent control stage formed by a p-n-p transistor, an additional voltage divider connected to the last-mentioned control stage, an output stage after the last-mentioned voltage divider, comprising a p-n-p transistor, the output of the said output stage of the second control circuit being connected to the negative pole of another direct-current supply, the positive pole of the same being connected to the said motor drive coils the direction of the current of which is to be reversed, and further comprising two transfer circuits connecting the said negative and-gate of the first control circuit with the said positive and-gate of the second control circuit.

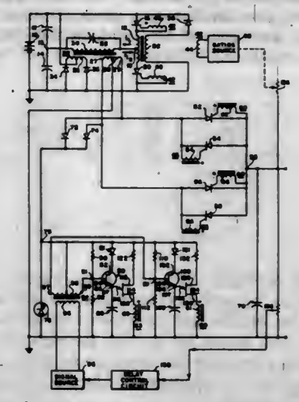
3,319,146
HIGH EFFICIENCY CONVERTER CIRCUIT
Wayne A. Kearsley, Chelmsford, Mass., assignor to EG&G, Inc., a corporation of Massachusetts
Continuation of application Ser. No. 262,068, Mar. 1, 1963. This application June 10, 1966, Ser. No. 556,767
13 Claims. (Cl. 320—1)



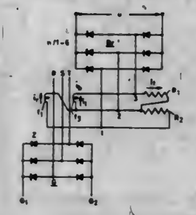
10. In a flyback converter circuit having a flyback transformer with an input winding, a control winding and an output winding and adapted to provide a charging voltage from said output winding through a diode to a capacitor during the flyback interval, the improvement of means for preventing further charging of said capacitor by reducing said charging voltage and for lengthening said flyback interval by increasing the L/R time constant of said control winding after said capacitor becomes charged to a predetermined voltage without substantial discharge of said capacitor, said means being connected directly to the terminals of said control winding and adapted to become operative when the voltage reflected in said control winding from said output winding exceeds the product of said predetermined voltage and the ratio of the turns in the control winding to the turns in the output winding thereupon shunting said control winding with a low resistance.

3,319,147
VARIABLE FREQUENCY, VARIABLE WAVE FORM INVERTER
Neville W. Mapham, Jordan, N.Y., assignor to General Electric Company, a corporation of New York
Continuation of application Ser. No. 248,706, Dec. 31, 1962. This application Apr. 20, 1966, Ser. No. 549,749
20 Claims. (Cl. 321—5)

1. An arrangement for producing an alternating wave having a desired frequency comprising a source of unidirectional potential, a self-commutating, gate controlled rectifier means, a first source of recurrent gating signals, a first output circuit, said rectifier means responsive to said potential and said first signals to become conductive and produce a first alternating wave in said first output circuit having a frequency substantially higher than said desired frequency, said first siganls gating said rectifier means recurrently into conduction after said rectifier means becomes nonconducting due to its self-commutating action, the recurrence rate of said first signals thereby controlling the nonconducing to conducting time of said rectifier means, means for full wave rectifying said first wave a second source of recurrent gating signals, a second output circuit, a frequency converting, gate controlled rectifier means, said frequency converting means responsive to said first alternating wave, said full wave rectified first wave and said second signals to become conductive and produce a second alternating wave in said second output circuit having said desired frequency.



3,319,148
DEVICE FOR GENERATING A MEASURING VOLTAGE PROPORTIONAL TO THE OUTPUT CURRENT OF A POWER RECTIFIER
Heinz Kraicar, Munich, Germany, assignor to Siemens-Schuckertwerke Aktiengesellschaft, Berlin-Siemensstadt, Germany, a corporation of Germany
Filed Aug. 19, 1964, Ser. No. 390,530
2 Claims. (Cl. 321—8)

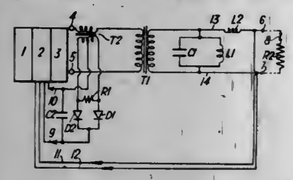


1. In combination with a power rectifier and n-phase alternating current feeder means connected to said rectifier, circuit arrangement for producing a direct voltage proportional to the output current of said power rectifier, said circuit arrangement comprising $n-1$ current transformers linked respectively with $n-1$ phases of said feeder means, $n-1$ resistors connected across said respective current transformers, an n-phase rectifier bridge network having n input terminals, said resistors being connected in series relation to each other between the input terminals of said rectifier bridge network and having respective voltage drops whose vector sum is equal to zero.

3,319,149
PROTECTIVE CIRCUIT ARRANGEMENT FOR SEMICONDUCTOR SWITCHES IN STATIC INVERTERS
James D. M. Start, Southend-on-Sea, England, assignor to E. K. Cole Limited, Southend-on-Sea, England
Filed July 28, 1964, Ser. No. 385,601
Claims priority, application Great Britain, Aug. 9, 1963, 31,450/63
5 Claims. (Cl. 321—14)

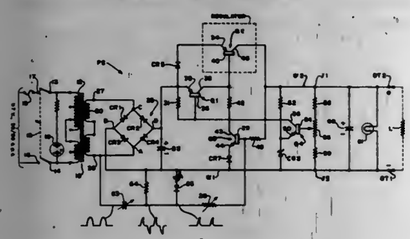
5. In a static inverter, a load circuit comprising a parallel combination of inductance and capacitance resonant at the fundamental frequency of the inverter, output termi-

nals for the inverter, an inverter load and an overload cut-out serially connected between said output terminals, an additional inductor between said combination and one of said output terminals to resonate with the effective capacity of the said combination at a predetermined harmonic frequency or overtone of the fundamental frequency of the inverter, means for increasing the ratio of the selected



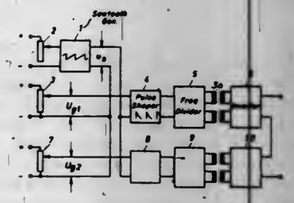
harmonic or overtone content in the inverter, a device operating when the current in said load exceeds a predetermined limit to initiate said increase in harmonic or overtone content and means for passing through the said load the circulating current in the resonant network of the said combination and the additional inductor, to operate the said overload cut-out.

3,319,150
SOLID STATE REGULATED POWER SUPPLY
John Elich, Staten Island, and John J. McManus, Valley Stream, N.Y., assignors to The Western Union Telegraph Company, New York, N.Y., a corporation of New York
Filed Dec. 26, 1963, Ser. No. 333,547
1 Claim. (Cl. 321—18)



A power supply circuit comprising:
a source of alternating current;
a full-wave rectifier connected to said source to rectify said current;
a first transistor connected to said rectifier to derive direct current therefrom;
a second transistor connected to the first transistor to serve as a regulator device and driven by direct current from the first transistor;
an output line connected to the second transistor for passing direct current therefrom to a current receiving load;
a resistor assembly connected across said output line;
a third transistor connected to said resistor assembly for sampling output current in said output line providing a base current to the first transistor to keep the same in conductive condition;
a fourth transistor connected to the second transistor to bias the same to conductive condition when the fourth transistor is cut off, the four transistors being normally in a conducting condition when said rectifier is passing direct current, the voltage across said line at which output current passes to said load being the same as the voltage between opposite ends of said resistor assembly, whereby the current passing through the first and second transistors automatically changes to conform with output current drawn by said load from said line, and whereby reduction of voltage across said resistor assembly by a short-circuit condition at said load drives all four transistors to a cut-off condition, and
circuit means connected directly between the fourth transistor and a point of connection of said rectifier and said alternating current source to apply continuously thereto cyclically recurring unidirectional pulses to the fourth transistor for restarting the fourth transistor after it is cut off, whereby current conduction of the fourth transistor is automatically restarted when said short-circuit condition is terminated so that current conduction in the second, third and first transistors is automatically resumed in the sequence stated to supply current to the output line, said circuit means comprising a variable resistor and a differentiating circuit for selectively adjusting the amplitude and time duration of each of said pulses applied to the fourth transistor during a period of prolonged short circuit at said load.

3,319,151
CONTROL ARRANGEMENT FOR SELF-GUIDED INVERTERS
Karl-Werner Kannglesser, Viernheim, Hesse, Germany, assignor to Aktiengesellschaft Brown, Boveri & Cie., Baden, Switzerland, a joint-stock company
Filed Sept. 25, 1964, Ser. No. 399,273
Claims priority, application Germany, Oct. 5, 1963, B 73,774
3 Claims. (Cl. 321—27)

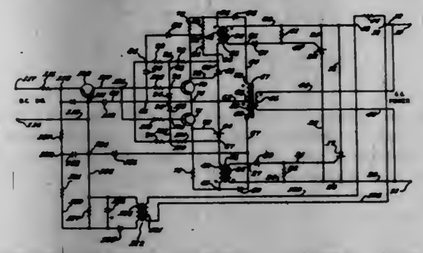


1. In a control device for self-guided inverters with a pulse number p for the production of m number of A.C. voltages having a frequency f from a source of direct current and wherein $p/m=1, 2 \ldots$, the combination comprising a voltage generator producing a sawtooth voltage wave at a frequency $p \cdot f$, circuit means combining said sawtooth voltage wave in series opposition with a D.C. voltage to produce a second sawtooth voltage wave at the same frequency $p \cdot f$ and having a zero passage point, a pulse shaper fed by said second sawtooth voltage wave and producing at its output a shaped pulse at each zero passage point in said second sawtooth voltage wave, a frequency divider fed from the pulse output of said pulse shaper, said frequency divider having a p number of outputs and a division ratio of $1:p$ and producing at said outputs p number of symmetrically dephased impulse series of a frequency f, means transforming the outputs from said frequency divider into potential separated control impulses and means applying said control impulses to the valves of the inverter.

3,319,152
SCR SWITCHING CIRCUIT
Balthasar H. Pinckaers, Edina, Minn., assignor to Honeywell Inc., a corporation of Delaware
Filed Dec. 19, 1963, Ser. No. 331,747
5 Claims. (Cl. 323—22)

4. Controlled rectifier switching apparatus for causing turn-on signals for the controlled rectifiers to be applied at the beginning of the half cycles of the alternating current

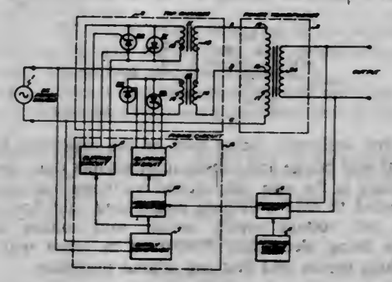
supply so that the controlled rectifiers, when conductive, are conductive for the entire half cycle, comprising:
(a) first and second controlled rectifiers, each having an anode and a cathode comprising current carrying electrodes and a control electrode, said controlled rectifiers having the anode of the first and the cathode of the second directly connected to said first power input terminal;
(b) connection means comprising load means connecting the cathode of the first and the anode of the second to said second alternating current potential power input terminal, said first controlled rectifier being poled so that it may be rendered conductive during the first half cycles of said alternating current potential, said second controlled rectifier being poled so that it may be rendered conductive during the second half cycles of said alternating current potential to provide full wave energization of said load means;



(c) first current control means connected to be energized from said source of alternating current potential on said first half cycles, respectively, said means including current carrying electrodes and a control electrode;
(d) second current control means connected to be energized from said source of alternating current potential on said second half cycles, respectively, said means including current carrying electrodes and a control electrode;
(e) circuit means connecting the control electrodes of said first and second current control means to a signal source;
(f) and signal delay means coupling said first current control means current carrying electrodes to said control electrodes of said second controlled rectifier means in such a manner that when said first current control means is conductive during said first half cycle said delay means is effective to supply a turn-on signal to said second controlled rectifier sufficiently delayed to occur at the leading edge of said second half cycle.

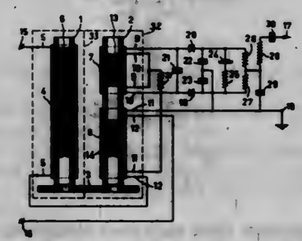
3,319,153
AUTOMATIC VOLTAGE CONTROL CIRCUIT EMPLOYING ELECTRONIC TAP CHARGER
Orrin W. Livingston, Waynesboro, Va., assignor to General Electric Company, a corporation of New York
Filed Mar. 16, 1964, Ser. No. 351,990
6 Claims. (Cl. 323—43.5)

1. Apparatus for providing a regulated potential supply from an A.C. power source comprising, a first transformer comprising a first secondary winding and a first primary winding having an end connected to a terminal of said source, a second transformer comprising a second secondary winding and a second primary winding connected between a second terminal of said source and an end point of said first primary winding, a third transformer comprising a third secondary winding and a third primary winding connected between said second terminal and an intermediate point on said first primary winding, means in circuit with said second and third secondary windings and responsive to the application thereto of a voltage representing a deviation of the output voltage appearing across said first secondary winding from a selected



value for effectively connecting said second terminal to one of said first primary winding points at the beginning of each half cycle of output voltage and switching said connection to the other of said primary winding points at a point in said half cycle in accordance with said deviation.

3,319,154
BALANCED PHASE SHIFT TRANSFORMER
Peter Thompson Rudge, Hawthorndene, South Australia, Australia, assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
Filed June 12, 1963, Ser. No. 287,363
Claims priority, application Australia, June 13, 1962, 18,810/62
15 Claims. (Cl. 323—48)

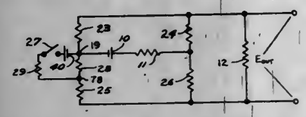


1. A transformer comprising first and second spaced apart support members, an input circuit comprising first and second serially connected winding portions wound on said first and second support members, respectively, an output winding having a center tap wound on said second support member so as to be magnetically decoupled from said first winding portion, a tertiary winding wound on said second support member so as to form a bifilar winding with said second winding portion, and means connecting one end of said tertiary winding to the center tap of said output winding.

3,319,155
ELECTRICAL CALIBRATION DEVICE FOR STRAIN GAGE BRIDGES
Robert R. Koolmaan, Eden Prairie, and Earl A. Grindheim, Minneapolis, Minn., assignors to Rosemount Engineering Company, Minneapolis, Minn., a corporation of Minnesota
Filed Nov. 30, 1964, Ser. No. 414,524
9 Claims. (Cl. 323—75)

1. An electrical calibration device comprising a resistance bridge having four resistance arms wherein the resistance of at least a first of said arms changes in response

to a change in a physical parameter which is to be measured, means to provide a bridge excitation voltage supply, means to indicate unbalance of the bridge, switching means movable to open or close an electric circuit connected therethrough, a first resistance and a second resistance separate from the resistance arms, said first and second resistances having a known ratio of resistance,



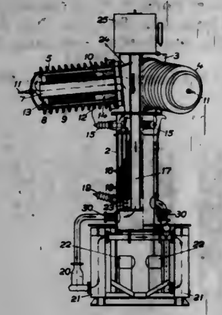
said first resistance being part of the resistance in one arm of said bridge and substantially smaller than the total resistance of the arm, said second resistance being serially connected to said switching means and said first resistance, and voltage supply means, said voltage supply means being electrically connected in series with said switching means and first and second resistance.

3,319,156

COOLING ELECTRICAL EQUIPMENT

Roger Myklebust, Svante Forsberg, and Bertil Lomar, all of Ludvika, Sweden, assignors to Allmänna Svenska Elektriska Aktiebolaget, Vasteras, Sweden, a corporation of Sweden

Filed Oct. 19, 1964, Ser. No. 404,597
Claims priority, application Sweden, Oct. 24, 1963, 11,679/63
6 Claims. (Cl. 323—78)



1. In combination, three parts each comprising a series connection of a reactance coil and a resistor, a column having a distributing chamber therein near the top, three insulating cylinders connected to the column at substantially the level of the distributing chamber and communicating therewith, said cylinders extending substantially radially with respect to and being angularly spaced around the vertical axis of the column, said reactor coils being enclosed one in each of said insulating cylinders and said resistors being enclosed in said column below said distribution chamber.

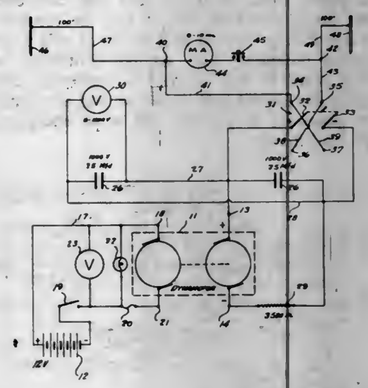
3,319,157

METHOD FOR DETECTING UNDERGROUND WATER BY DISCHARGING CAPACITOR MEANS THROUGH THE EARTH AND MEASURING THE RETAINED CHARGE

Archie W. York, Oklaunion, Tex., assignor of fifty-five percent to Les V. Wilson and five percent to Mary Caton, Wichita Falls, Tex., and forty percent to J. A. Storey, Vernon, Tex.

Filed Apr. 2, 1965, Ser. No. 445,069
1 Claim. (Cl. 324—1)

A method of locating an underground body of water in an area comprising charging a capacitor having a capacitance of at least 25 microfarads by applying thereto a D.C. voltage of the order of 1000 volts for a time period sufficient to charge the capacitor substantially to its full capacity, connecting the charger capacitor for a definite period of time of the order of 3 seconds to a pair of electrodes embedded in the ground and spaced apart by a distance greater than the maximum depth of a suspected subjacent body of water in the ground, whereby to discharge the capacitor and whereby the charge from the capacitor will be retained in the ground to an extent depending upon the moisture conditions existing therein between the electrodes, measuring the voltage drop



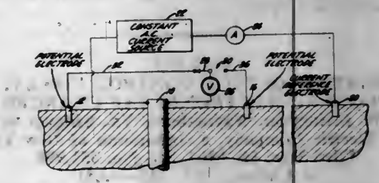
across the capacitor continuously during its discharge to determine to what extent said voltage drop changes, whereby to indicate the depth of a suspected localized body of water in the ground between the electrodes, thereafter disconnecting the capacitor from the electrodes, and connecting a milliammeter between said electrodes to discharge the ground capacitance through said milliammeter and to indicate the static voltage across the electrodes immediately after the capacitor discharge, whereby to measure any retained charge between the electrodes, to thereby generally indicate the volume of a suspected localized subjacent body of water between the electrodes.

3,319,158

METHOD OF TRACING GROUT IN EARTH FORMATIONS BY MEASURING POTENTIAL DIFFERENCES IN THE EARTH BEFORE AND AFTER INTRODUCTION OF THE GROUT

Claude D. McDoulett and Marvin C. Tucker, Duncan, Okla., assignors to Halliburton Company, Duncan, Okla., a corporation of Delaware

Filed July 9, 1964, Ser. No. 381,473
3 Claims. (Cl. 324—9)



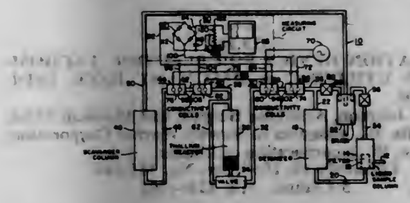
1. A method of determining the distribution of a substance introduced into an earth formation having a resistivity different from that of said substance, comprising: passing a constant current through said earth formation between the point of substance introduction and a point remote from said introduction point, measuring the potential difference between said introduction point and a point much closer to said introduction point than to said remote point, introducing said substance into the earth formation, and again measuring the potential difference between said introduction point and said closer point.

3,319,159

METHOD AND APPARATUS FOR DETERMINING THE AMOUNTS OF GASES DISSOLVED IN LIQUIDS

Richard H. Robinson, Kansas City, Mo., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Nov. 16, 1962, Ser. No. 238,175
5 Claims. (Cl. 324—30)



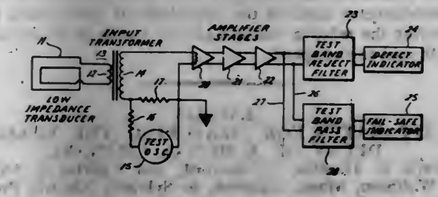
1. In an apparatus for measuring the amount of oxygen dissolved in a liquid sample, a measuring network having first, second, third and fourth legs connected in series, a pair of conjugate terminals between said first and second legs and between said third and fourth legs, respectively, another pair of conjugate terminals between said second and third legs and between said fourth and first legs, respectively, an electrical conductivity cell electrically connected in each of said first, second, third, and fourth legs of said network, means supplying alternating current power to one of said terminal pairs, indicating means connected to the other of said terminal pairs, a liquid sample, conduit means for passing said liquid sample through the ones of said conductivity cells connected in said first and said third legs of said network, respectively, means for ionizing the oxygen dissolved in said liquid sample including a column of thallium metal, means for transporting said sample from the last mentioned conductivity cells to said ionizing means and from said ionizing means to the ones of said conductivity cells connected in the remaining legs of said network.

3,319,160

FAIL INDICATION CIRCUIT FOR MAGNETIC INSPECTION SYSTEM

Fenton M. Wood, Sugarland, and Alfred E. Crouch, Houston, Tex., assignors to American Machine & Foundry Company, New York, N.Y., a corporation of New Jersey

Filed Dec. 5, 1963, Ser. No. 328,280
13 Claims. (Cl. 324—37)



1. An apparatus for inspecting a metallic member for defects and having automatic means for signaling the non-operability of the apparatus comprising:

means for passing a magnetic field through a portion of said metallic member,

magnetic-responsive means mounted for relative movement adjacent to said portion and producing electrical defect signals in response to variations in said magnetic field,

a transformer having the primary winding thereof connected with said magnetic-responsive means,

means for impressing an electrical test signal on an amplifier circuit,

said amplifier circuit being connected to the secondary winding of said transformer and amplifying said defect signals and said test signals,

a first indicator means connected to said amplifier circuit and responsive to said amplified defect signals, and

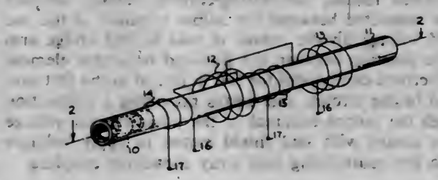
a second indicator means connected to said amplifier circuit and responsive to a reduction in voltage of said amplified test signal for indicating the non-operability of said apparatus.

3,319,161

FLUX GATE MAGNETOMETER UTILIZING A THIN HELICAL STRIP OF MAGNETIC MATERIAL AS ITS CORE

John C. Beynon, North Hollywood, Calif., assignor to The Bunker-Ramo Corporation, Stamford, Conn., a corporation of Delaware

Continuation of application Ser. No. 172,291, Feb. 9, 1962. This application Jan. 19, 1966, Ser. No. 523,841
9 Claims. (Cl. 324—47)



1. A flux gate magnetometer sensing element comprising:

a hollow cylinder having an axial bore of predetermined diameter;

a thin strip of magnetically saturable material helically wound and coaxially disposed within said bore resiliently bearing against the inner surface of the cylinder;

a pair of oppositely-wound input windings positioned about the exterior of said cylinder for applying an alternating-current input signal to said strip; and

a pair of like-wound output windings positioned about the exterior of said cylinder for indicating the flux condition of said strip.

3,319,162

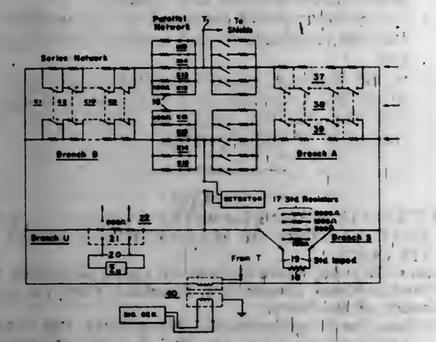
COMPUTER CONTROLLED ALTERNATING-CURRENT BRIDGE-TYPE IMPEDANCE MEASUREMENT SYSTEM FOR ELECTRICAL CIRCUIT COMPONENTS

Irvin J. Sattinger, Ann Arbor, William H. Lawrence, Saline, and Jerome S. Rogaczewski, Dearborn, Mich., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Army

Filed June 19, 1964, Ser. No. 376,602
4 Claims. (Cl. 324—57)

1. In a system for measuring the impedance of electrical circuit components having unknown inductive and capacitive reactance characteristics, the combination of, means for selectively connecting each one of a plurality of standard resistance elements in series with one of said components as the series branches of a first arm of an

electrical bridge circuit, means for connecting an energizing alternating-current signal source with said bridge circuit in parallel relation with said first arm thereof, means providing two resistive and substantially non-reactive voltage-divider arms connected in parallel relation with the first arm to receive alternating-current signals therewith from the same source, each of said voltage-divider arms having an output terminal connected thereon between the ends thereof, means providing conductive wiring and component shields for said system, one of said



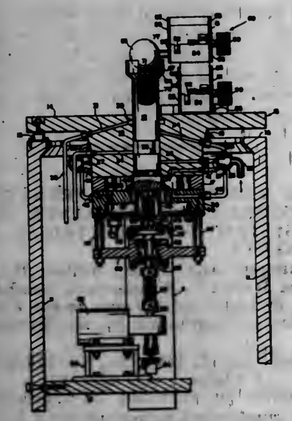
voltage-divider arms constituting the second arm of said bridge circuit and having stray capacitive coupling with said shield means, alternating-current voltage detector means connected between the output terminal of the one of said voltage divider means in said second bridge arm and the junction between the standard resistance element and electrical component for test in circuit in the first arm of said bridge circuit, and means providing a connection through the output terminal of the other of said voltage divider means with said shield means to apply voltages thereto for neutralizing said stray capacitive coupling.

3,319,163

SPHERICITY MEASURING APPARATUS HAVING A CAPACITOR PROBE AND A STABLE ROTATING MEANS

Howard J. Thompson, Stillwater, Minn., assignor to Honeywell Inc., a corporation of Delaware

Filed July 9, 1963, Ser. No. 293,819
6 Claims. (Cl. 324—61)



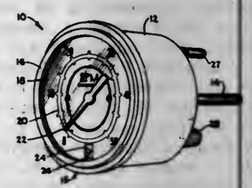
1. In combination: a spindle; hydrostatic means supporting said spindle axially and radially for substantially frictionless rotation about a vertical axis; means for supporting an electrically conductive body, having a spherical surface of known nominal radius, on the top end of said spindle with the center of the spherical surface lying at a predtermined point on said vertical axis, including contact means for making electrical connection to the body; drive means for causing said rotation of said spindle; vibration damping means connecting said spindle in driven relation to said drive means; a capacitive probe including an electrically insulated plane electrode; vibration damping means mounting said electrode close to said spindle for adjustment along an axis, substantially perpendicular to the plane of said electrode at the center thereof, which intersects said vertical axis at said predetermined point; and means connected to said contact means and said electrode for giving a signal determined by the instantaneous distance between the surface and said electrode.

3,319,164

CALIBRATION DEVICE FOR ELECTRIC TACHOMETERS UTILIZING A RESONANT REED INDICATOR

Myron J. Johnson, Arlington Heights, and Marshall Miles, Wilmette, Ill., assignors to Stewart-Warner Corporation, Chicago, Ill., a corporation of Illinois

Filed July 10, 1964, Ser. No. 381,804
5 Claims. (Cl. 324—70)



1. An electric tachometer comprising a meter movement controlled by signals applied thereto from an alternator driven by an engine, a needle adapted to be moved over a dial in accordance with the rate at which signals are applied to said meter movement by said alternator, a support, a potentiometer for controlling the amplitude of the signals from said alternator for altering the relative position of said needle with respect to said dial, a V-shaped reed of magnetic material whose legs are carried by said support with the juncture of said legs being free to resonate at a predetermined frequency dependent on the distance between said support and the juncture of the legs of said reed, means enabling adjustment of the angle between the legs of said reed for controlling the distance between said juncture and said support to adjust said reed to resonate at said predetermined frequency, a coil located adjacent said juncture and energized at a rate corresponding to the speed of said engine for driving said reed at a rate having a known ratio to the speed of said engine, whereby said reed is adapted to resonate at said predetermined frequency when said engine speed corresponds to said predetermined frequency whereafter operation of said potentiometer controls the amplitude of said signals for altering the relative position of said needle in accordance with said engine speed.

3,319,165

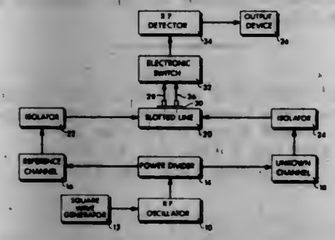
APPARATUS FOR MEASURING THE PHASE DELAY OF A SIGNAL CHANNEL

Norris B. Hamlin, Chelmsford, and Charles J. Mula, Waltham, Mass., assignors to Sylvania Electric Products Inc., a corporation of Delaware

Filed Aug. 18, 1964, Ser. No. 390,412
1 Claim. (Cl. 324—34)

Apparatus for measuring the phase delay of a signal channel comprising, a signal channel whose phase delay is to be determined, a reference channel of known phase

delay, a slotted line having first and second input terminals and a carriage slidably mounted thereon, said carriage having first and second probes mounted thereon and extending into said slotted line to couple energy therefrom, said probes being spaced in the length direction of said line to sense respective opposite slopes of a voltage maximum of a standing wave pattern established in said slotted line, a source of modulated RF signals, means for applying said RF signals through said signal channel to the first input terminal of said slotted line, means for applying said RF signals through said reference channel to the second input terminal of said slotted line



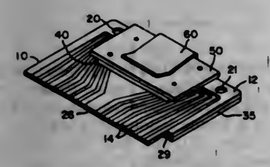
to produce a standing wave pattern in said slotted line, an RF detector having an input terminal and an output terminal, an electronic switch operative to alternately connect said first and second probes to the input terminal of said RF detector, the switching frequency of said switch being chosen relative to the frequency of said RF signals to produce a difference frequency output signal at the output terminal of said RF detector, and an output meter having a movable needle and operative in response to said difference frequency output signal to cause said needle to flutter when the signals from said probes are of unequal amplitude and to become stationary when said signals are of equal amplitude.

3,319,166

FIXTURE FOR SECURING AND ELECTRICALLY TESTING AN ELECTRONIC COMPONENT IN FLAT PACKAGE WITH COPLANAR LEADS

Louis J. Coleman, Baltimore, Md., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania

Filed July 21, 1964, Ser. No. 384,081
7 Claims. (Cl. 324—158)



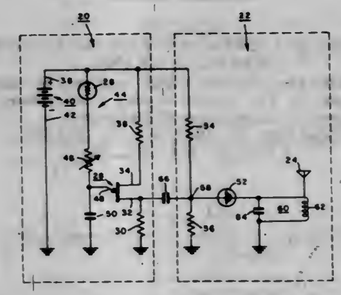
1. A text fixture for an electronic component in a package of the type having a flat enclosure with electrical leads extending from the shortest sides of the flat enclosure, said test fixture comprising: a circuit board of electrically insulating material having opposite major surfaces with first and second patterns of electrical conductors respectively on said major surfaces, each conductor extending from a point at an edge of one of said major surfaces to a termination at an internal point of said surface, the conductors on one of said surfaces extending through said circuit board to a position proximate the internal termination of the pattern of conductors on the other of said surfaces, said two patterns of conductors being distinct and not connected with each other; means for positioning a component to be tested including grooves for the reception of electrical leads, said means for positioning disposed on the surface of said circuit board that has the terminations of the conductors from the other side thereon so that each of said grooves lines up with an internal point of termination of a conductor of each pattern of conductors; means for confining a component to be tested within said means for positioning with the leads thereof in contact with both of said patterns of conductors.

3,319,167

TUNNEL DIODE MODULATOR AND TRANSMITTER

John R. Bray and Ronald Horne, Pensacola, and Robert D. Taylor, Milton, Fla., assignors to Monsanto Company, a corporation of Delaware

Filed Sept. 25, 1963, Ser. No. 311,390
5 Claims. (Cl. 325—104)



1. A telemetering transmitter consisting of, in combination:

(a) positive and negative power supply terminals,

(b) a resistive voltage divider connected to said positive and negative terminals and having an intermediate junction,

(c) a series circuit including a forwardly biased tunnel diode and a resonant tuned circuit connected in series between said intermediate junction and said negative supply terminal,

(d) an antenna coupled to said tuned circuit,

(e) and means applying a pulse signal to said intermediate junction.

3,319,168

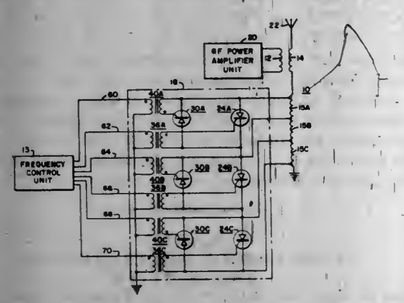
ANTENNA TUNING APPARATUS WHICH SHORTS SELECTED PORTIONS OF LOADING COIL OVER COMPLETE OUTPUT CYCLE

Wayne R. Olson, Baltimore, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed June 28, 1963, Ser. No. 291,561
8 Claims. (Cl. 325—172)

1. A system for tuning an antenna for a solid state radio transmitter providing an output signal of changeable frequency comprising in combination: an antenna loading coil operably coupled to said antenna and comprising a plurality of inductors; means for coupling said output signal from said transmitter to said antenna, said means including an inductor of said plurality of inductors; a plurality of semiconductor switching means connected in pairs across selected inductors of said loading coil, with respective semiconductor switching means of said pairs being connected in parallel oppositely poled from one

another; and control means coupling said plurality of pairs of semiconductor switching means for selectively rendering said pairs conductive such that a selected num-

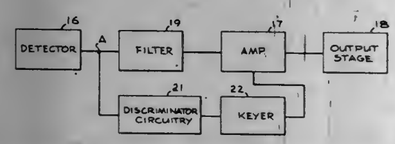


ber of inductors are shunted over an entire cycle of said output signal for rendering said loading coil and said antenna substantially resonant at said output frequency.

3,319,169
RADIO RECEIVING SYSTEM INCLUDING SQUELCH MEANS

Joel H. Axe, Los Angeles, Calif., assignor, by mesne assignments, to The Bunker-Ramo Corporation, Stamford, Conn., a corporation of Delaware

Filed Nov. 27, 1963, Ser. No. 326,562
3 Claims. (Cl. 325—392)



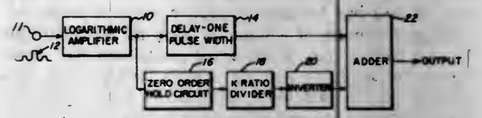
1. A radio receiving system comprising:
detector means for receiving signal energy within a predetermined radio frequency band;
gating means;
filter means coupling said detector means to said gating means, said filter means having a band pass characteristic excluding a portion of said radio frequency band;
discriminator means responsive to signals of first and second frequencies within said radio frequency band for respectively providing output signals of predetermined amplitude and opposite polarity;
means coupling said detector means to said discriminator means; and
means responsive to a signal of said predetermined amplitude and one polarity provided by said discriminator means for enabling said gating means and responsive to a signal of said predetermined amplitude and another polarity provided by said discriminator means for disabling said gating means.

3,319,170
TRIGGER PULSE THRESHOLD LEVEL ADJUSTMENT CIRCUIT

John D. Harmer, Arlington, Mass., assignor to Raytheon Company, Lexington, Mass., a corporation of Delaware

Filed Mar. 28, 1963, Ser. No. 268,739
9 Claims. (Cl. 328—55)

1. In combination:
means for delaying a signal;
means for sampling a signal prior to its entry into said delaying means;
means for prolonging the time interval of said sampled signal;
means for inverting said prolonged signal;

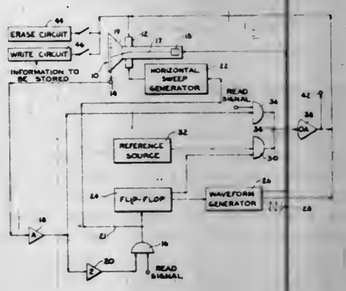


and means for subtracting said inverted prolonged signal from said delayed signal according to a predetermined fraction of the amplitude of said sampled signal.

3,319,171
ANALOG STORAGE AND READOUT SYSTEM

Meyer Bar, Palos Verdes Peninsula, Calif., assignor to North American Aviation, Inc.

Filed Oct. 5, 1964, Ser. No. 401,463
12 Claims. (Cl. 328—124)



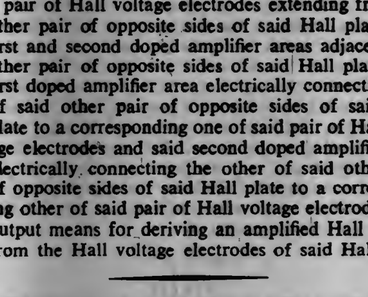
1. In a storage and readout system wherein the storage comprises a potential gradient having a given voltage-level line, and the readout comprises an electron beam, the combination comprising:
a reference voltage;
means for obtaining the potential at the point of electron beam impingement on said potential gradient;
means for comparing said potential and said reference voltage, and producing an error voltage;
an operational amplifier;
means for applying said error voltage to said operational amplifier; and
means for causing the output of said operational amplifier to deflect said electron beam.

3,319,172
SYNCHRONOUS DETECTION CIRCUITS

Mathias Tong Yuan Tong, Paris, France, assignor to Compagnie d'Applications Mecaniques à l'Electronique, au Cinema et à l'Atomistique (CAMECA)

Filed Apr. 14, 1964, Ser. No. 359,610
Claims priority, application France, Apr. 17, 1963, 359,610
2 Claims. (Cl. 328—133)

1. A synchronous detector circuit for detecting a periodical signal comprising a first double triode having a first and a third grid and a first cathode output; a second double triode having a second and a fourth grid and a second cathode output; means for coupling said triodes in parallel to a high voltage source; means for applying said signal respectively to said first and second grids; means for applying to said third and fourth grids the same signal with a reversed phase; means for applying a square wave with the same period as said signal to said first and fourth grids; means for applying said square wave with a reversed phase to said third and second



grids; and means for collectng an output voltage between said first and second cathode outputs.

3,319,173
HALL-VOLTAGE GENERATOR UNIT WITH AMPLIFYING ACTION, AND METHOD OF PRODUCING SUCH UNIT

Walter Engel, Nurnberg, Germany, assignor to Siemens-Schuckertwerke Aktiengesellschaft, Berlin-Siemensstadt, Germany

Filed Apr. 5, 1962, Ser. No. 185,377
Claims priority, application Germany, Apr. 8, 1961, S 73,382
[illegible] Claims. (Cl. 330—6)

1. An amplifying Hall generator unit, comprising a base plate of electrically insulating material;
an integral plate of semiconductor material on said base plate, said integral semiconductor plate comprising a Hall plate having two pairs of opposite sides, a pair of current supply electrodes extending from a pair of opposite sides of said Hall plate and a pair of Hall voltage electrodes extending from the other pair of opposite sides of said Hall plate, and first and second doped amplifier areas adjacent said other pair of opposite sides of said Hall plate, said first doped amplifier area electrically connecting one of said other pair of opposite sides of said Hall plate to a corresponding one of said pair of Hall voltage electrodes and said second doped amplifier area electrically connecting the other of said other pair of opposite sides of said Hall plate to a corresponding other of said pair of Hall voltage electrodes; and output means for deriving an amplified Hall voltage from the Hall voltage electrodes of said Hall plate.

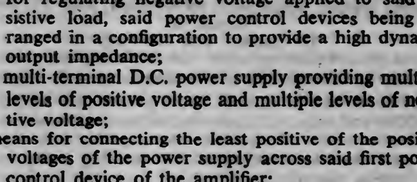
3,319,174
COMPLEMENTARY BRIDGE INTEGRATED SEMICONDUCTOR AMPLIFIER

Melbourne J. Hellstrom, Severna Park, Md., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Oct. 7, 1964, Ser. No. 402,196
5 Claims. (Cl. 330—17)

1. A semiconductor amplifier comprising:
first and second transistors of a first polarity having their emitters connected together with a first supply lead connected thereto;

third and fourth transistors of a second polarity having their emitters connected together with a second supply lead connected thereto;
said first and third transistors having their collectors connected together with a first output lead connected thereto;
said second and fourth transistors having their collectors connected together with a second output lead connected thereto;

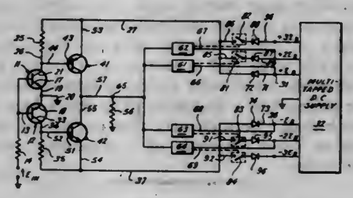


fifth and sixth transistors of said second polarity having their emitters both connected to the emitters of said third and fourth transistors;
said fifth transistor having its collector connected to the base of said first transistor;
said sixth transistor having its collector connected to the base of said second transistor;
said third and sixth transistors having their bases connected together with a first input signal lead connected thereto;
said fourth and fifth transistors having their bases connected together with a second input signal lead connected thereto.

3,319,175
ELECTRONIC AMPLIFIER WITH POWER SUPPLY SWITCHING

Hugh L. Dryden, Deputy Administrator of the National Aeronautics and Space Administration, with respect to an invention of Manuel Kramer, South Lincoln, Mass.

Filed July 27, 1964, Ser. No. 385,530
8 Claims. (Cl. 330—22)



4. A power amplifying system comprising:
an electronic amplifier having a first power control device for regulating the positive voltage applied to a resistive load and a second power control device for regulating negative voltage applied to said resistive load, said power control devices being arranged in a configuration to provide a high dynamic output impedance;
a multi-terminal D.C. power supply providing multiple levels of positive voltage and multiple levels of negative voltage;
means for connecting the least positive of the positive voltages of the power supply across said first power control device of the amplifier;
means for connecting the least negative of the negative voltages of the power supply across said second power control device of the amplifier;
means for applying the output voltage of the amplifier across said resistive load;

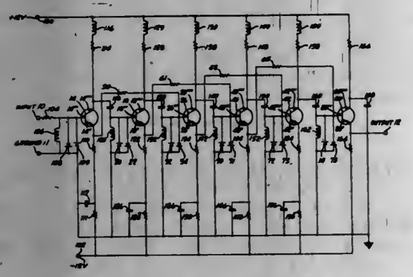
means for comparing the amplitude of a positive load voltage to said least positive voltage of the power supply;

means for switching the connection of the positive voltage supply to said first power control device to the next higher level of positive voltage supply as the load voltage nears the value of said first positive voltage;

means for comparing the amplitude of a negative load voltage to said least negative voltages of the power supply; and

means for switching the connection of the negative voltage supply to the second power control device to the next more negative level of voltage supply as the amplitude of the negative load voltage nears the value of said least negative voltage whereby the negative voltage supplied to said second power control device is increased.

3,319,176
HIGH LINEARITY LIMITER CIRCUIT USING NON-SELECTED COMPONENTS
Barrett E. Guisinger, Santa Clara, Calif., assignor to Ampex Corporation, Redwood, Calif., a corporation of California
Filed July 17, 1964, Ser. No. 383,352
9 Claims. (Cl. 330—28)



1. A limiter circuit comprising: plural amplifier stages, each amplifier stage having input and output electrodes, means including parallel unidirectional conductive devices of opposite polarities coupled between the output electrode of each stage and a source of reference potential for limiting the amplitudes of the output signals of said amplifier stages, and a degenerative feedback loop coupled from the output electrode of a first one of the amplifier stages to an input electrode of a preceding one of the amplifier stages.

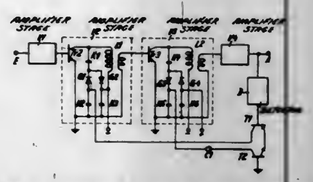
3,319,177
GAIN REGULATING TRANSISTOR CIRCUIT FOR A PLURALITY OF AMPLIFIER STAGES
Peter Aemmer, Zurich, Switzerland, assignor to Albiswerk Zurich A.G., Zurich, Switzerland, a Swiss corporation
Filed Aug. 21, 1964, Ser. No. 391,108
Claims priority, application Switzerland, Aug. 23, 1963, 10,426/63
13 Claims. (Cl. 330—29)

1. A gain regulating circuit for regulating the gain of a plurality of substantially similar transistor A.C. amplifier stages connected in cascade arrangement and having an amplifier end stage, said gain regulating circuit comprising

detector means connected to the amplifier end stage of said cascade arrangement for deriving a regulating voltage therefrom;

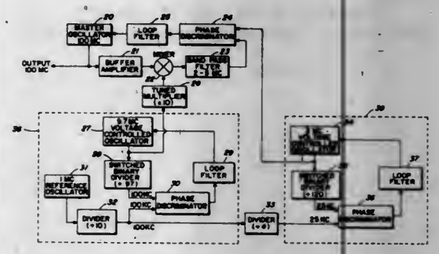
a first transistor having an emitter collector path, a base electrode connected to said detector means, a collector electrode connected to an amplifier stage of said cascade arrangement for supplying a regulating current thereto and an emitter electrode; and

a second transistor complementary to said first transistor in common base connection having a base-emitter path connected to the emitter-collector path of said first transistor whereby an emitter current of



said first transistor controls said second transistor, and a collector electrode connected to another amplifier stage of said cascade arrangement for supplying a regulating current thereto.

3,319,178
PLURAL LOOP AUTOMATIC PHASE CONTROL
Samuel L. Broadhead, Jr., Cedar Rapids, Iowa, assignor to Collins Radio Company, Cedar Rapids, Iowa, a corporation of Iowa
Filed Sept. 27, 1965, Ser. No. 490,552
6 Claims. (Cl. 331—2)



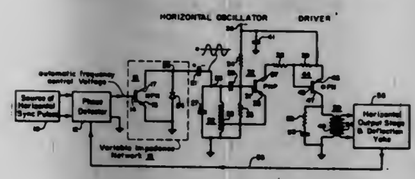
1. A system for providing a stabilized frequency comprising: a master oscillator and a reference oscillator, first dividing means for dividing the output of said reference oscillator by a first integer to provide a first divided signal, second dividing means for dividing the output of said reference oscillator by a second integer to provide a second divided signal, first means for receiving said first divided signal to produce a first reference signal of the same order as the frequency of said master oscillator, second means for receiving said first reference frequency and the output of said master oscillator to produce a first error signal proportional to the difference between said first reference signal and said master oscillator output, third divider means for dividing said first error signal, detector means for receiving said second divided signal and said divided error signal to produce a second error signal, and means for applying said second error signal to said master oscillator to control the output of said master oscillator.

3,319,179
AUTOMATIC FREQUENCY CONTROLLED SIGNAL GENERATOR
Charles F. Hepner, Chicago, Ill., assignor to Zenith Radio Corporation, Chicago, Ill., a corporation of Delaware
Filed Mar. 11, 1966, Ser. No. 533,626
11 Claims. (Cl. 331—8)

1. An automatic frequency controlled signal generator comprising:

a free-running oscillator including a resonant circuit for primarily determining the free-running operating frequency of said oscillator;

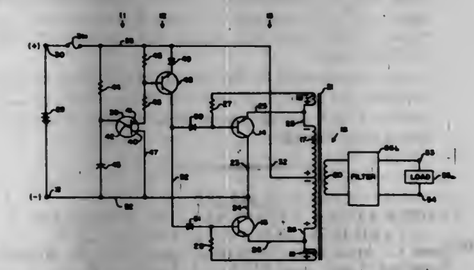
a variable impedance network including a semiconductor device having input, output and common terminals with an input conductive path between its input and common terminals in a predetermined direction and an output conductive path between its output and common terminals in a predetermined direction, and a unidirectional device coupled at least partially in shunt with one of said conductive paths and poled to conduct in a direction opposite to that of the shunted path, the impedance presented by said network varying over a relatively wide range in response to amplitude variations of a control signal applied between said input and common terminals;



a series arrangement, including said variable impedance network and a capacitor, coupled in shunt with at least a portion of said resonant circuit, the effectiveness of said capacitor in determining the operating frequency of said oscillator being inversely proportional to the impedance presented by said network;

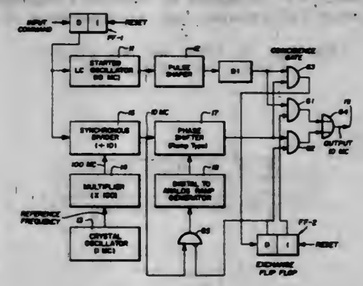
and means for applying an automatic frequency control signal between said input and common terminals to control the impedance of said impedance network thereby to control the operating frequency of said oscillator.

3,319,180
TRANSISTOR INVERTER WITH SEPARATE RELAXATION OSCILLATOR TIMING CIRCUIT
Lee O. Messenbimer, Lakewood, Ohio, assignor to Lorain Products Corporation, a corporation of Ohio
Filed Aug. 9, 1965, Ser. No. 478,365
2 Claims. (Cl. 331—47)



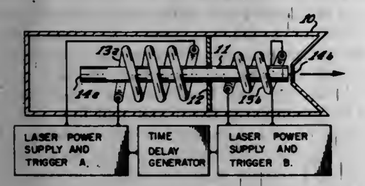
1. In a D.-C. to A.-C. inverter having D.-C. input terminals and an A.-C. output, in combination, a transformer having a center tapped primary winding, a secondary output winding and feedback windings, an oscillator including a pair of transistors each having collector, base and emitter electrodes, means for connecting the collectors of said transistors, means for connecting respective feedback windings between the respective base and emitter electrodes of respective oscillator transistors, means for connecting the respective emitter electrodes of said oscillator transistors to opposite ends of said primary winding, pulse amplifying means including a transistor having collector, base and emitter electrodes, means for connecting the emitter electrode of said amplifying transistor to the center tap of said primary winding, first and second diodes, means for connecting said first diode between the collector electrode of said amplifying transistor and the base of one of said oscillator transistors, means for connecting said second diode between the collector of said amplifying transistor and the base of the other of said oscillator transistors, said oscillator transistors and said amplifying transistor being similarly poled and said first and second diodes being poled to conduct to the collector of said amplifying transistor, first resistor means, means for connecting said first resistor means between the base and the emitter of said amplifying transistor, unijunction transistor means having an emitter electrode and a pair of base electrodes, means for connecting one of said base electrodes to the base of said amplifying transistor, means for connecting the other of said base electrodes to the collector electrodes of said oscillator transistors, a timing network including a capacitor and a second resistor, means for connecting said capacitor and said second resistor in series network relationship, means for connecting the emitter of said unijunction transistor between said capacitor and said second resistor, means for connecting the outer end of said second resistor to said first resistor, means for connecting the outer end of said capacitor to the collectors of said oscillator transistors, a pair of D.-C. power leads, means for connecting one of said leads to the center tap of said primary winding and means for connecting the other power lead to the collectors of the oscillator transistors.

3,319,181
HIGH STABILITY PHASE LOCKED OSCILLATOR
Zoltan Tarczy-Hornoch, Berkeley, and Patrick Young, Oakland, Calif., assignors to W. K. Rosenberry, Concord, Calif.
Filed June 25, 1964, Ser. No. 377,825
14 Claims. (Cl. 331—49)



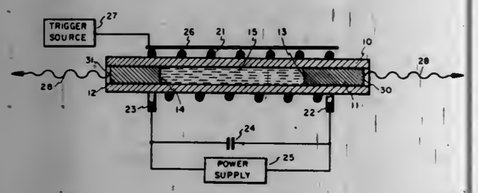
4. In a high stability phase locked oscillator, a started oscillator, means for supplying an input command to the started oscillator to cause it to start in fixed phase relationship with the input command, a source of reference frequency, phase shifting means, means for supplying the output of the source of reference frequency to the phase shifting means coincidence means connected to the output of the phase shifting means and to the output of the started oscillator, means operated by the coincidence means when it achieves coincidence for preventing said phase shifting means from shifting phase after coincidence is achieved and means for exchanging the output from the started oscillator for the output from the phase shifter to thereby provide an output which has the phase of the started oscillator and the frequency stability of the stable frequency source.

3,319,182
DOUBLE PUMPED LASER
Roger L. Aagard, Richfield, Minn., assignor to Honeywell Inc., a corporation of Delaware
Filed Mar. 27, 1963, Ser. No. 268,372
3 Claims. (Cl. 331—94.5)



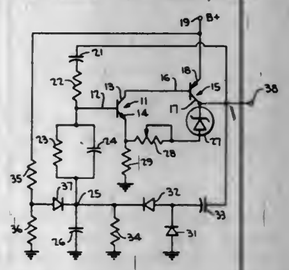
1. A laser comprising in combination:
a resonant cavity including a cylindrical ruby rod;
light shielding means arranged concentrically around said rod and adjacent an intermediate portion thereof, said shielding means separating said rod into first and second longitudinal portions;
a first flashlamp for applying pumping radiation only to said first portion, said first flashlamp having a predetermined output for a duration less than about 800 microseconds;
a second flashlamp for applying pumping radiation only to said second portion, said second flashlamp having a predetermined high rising output for a duration less than about 60 microseconds;
means for activating said first and second flashlamps; and
time delay means for delaying the activation of said second flashlamp for a predetermined interval following activation of said first flashlamp.

3,319,183
OPTICAL MASER CELL FOR USE WITH LIQUID MEDIA
Alexander Lempicki, New Hyde Park, and Karl H. Weise, Hicksville, N.Y., assignors to General Telephone and Electronics Laboratories, Inc., a corporation of Delaware
Filed Apr. 30, 1963, Ser. No. 276,890
2 Claims. (Cl. 331—94.5)



1. An optical maser cell comprising
(a) a hollow elongated enclosure having a longitudinal axis and first and second open ends, said enclosure further comprising an inner surface and an outer surface, a portion of said enclosure located between said first and second open ends being transparent,
(b) first and second spaced apart end elements positioned within said elongated enclosure, each of said elements having an inner face located opposite the inner face of the other end element, at least one of said elements being slidable with respect to and within said enclosure along said longitudinal axis and in fluid tight relationship therewith, at least one of said end elements being transparent, and
(c) first and second reflective layers affixed to the inner faces of said first and second end elements respectively, the layer affixed to at least one of said transparent end element being only partially reflective, the reflective layers of said end elements and the inner surface of the transparent portion of said enclosure forming a resonant cavity.

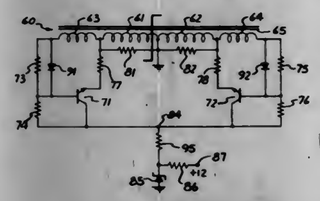
3,319,184
OSCILLATOR WITH D.-C. BACK-BIASED ZENER DIODE TO STABILIZE AMPLITUDE
Thomas D. McCall, Rockville, Md., assignor to the United States of America as represented by the Secretary of the Army
Filed Jan. 19, 1965, Ser. No. 426,699
6 Claims. (Cl. 331—109)



1. In a resistance-capacitance tuned transistor oscillator having:
(a) a transistor amplifier, and
(b) a regenerative feedback network connected between the output and an input of said amplifier, said regenerative feedback network including a plurality of resistors and capacitors the values of which determine the frequency of oscillation of said oscillator, improved means for stabilizing the amplitude of oscillation of said oscillator, comprising:
(c) a resistive degenerative feedback path between the output and an input of said amplifier,
(d) a low voltage Zener diode connected in series with said resistive degenerative feedback path, said Zener diode being connected to the output of said amplifier in such a manner that said Zener diode is backbiased to have an operating point within the Zener region whereby the dynamic impedance of said Zener diode will vary inversely with the current through it thereby allowing the gain of said amplifier to vary inversely with variations in the A.C. output of said oscillator, and
(e) means connected to the output and an input of said amplifier for rectifying a portion of the output of said oscillator and applying a rectified voltage to said input of said amplifier.

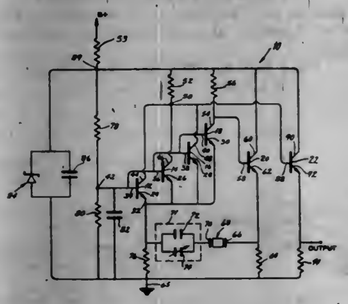
3,319,185
TEMPERATURE COMPENSATED, FREQUENCY STABILIZED MAGNETIC OSCILLATOR
Wilmer C. Anderson, Greenwich, and Frank P. Rennie, Stamford, Conn., and Michael J. Ingenito, Bronx, N.Y., assignors to General Time Corporation, New York, N.Y., a corporation of Delaware
Original application July 17, 1962, Ser. No. 210,410, now Patent No. 3,215,951, dated Nov. 2, 1965. Divided and this application Aug. 4, 1965, Ser. No. 508,176
2 Claims. (Cl. 331—113)

1. In a saturable core magnetic oscillator comprising a saturable transformer having a saturable core formed of material characterized by a generally rectangular hysteresis characteristic as well as by a reduction in permeability upon increase in ambient temperature, said transformer having a pair of saturating windings and a pair of triggering windings, a source of voltage, first and second switches interposed between the voltage source and the transformer windings, each of said switches having an input circuit and an output circuit connected to the triggering and saturating windings respectively so that the core is driven alternatively between its positive and negative conditions of saturation at a regular oscillatory rate, means for stabilizing the frequency of said oscillator



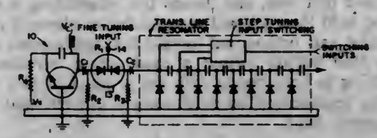
under varying temperature conditions, said means comprising first and second diodes interposed in the input circuits of the respective switches and of the type having a forward voltage drop which decreases substantially linearly with increase in ambient temperature thereby to increase the load upon the respective triggering windings progressively at elevated temperatures for maintaining a substantially constant frequency of oscillation over a temperature range.

3,319,186
ADJUSTABLE CRYSTAL OSCILLATOR WITH SEPARATE FEEDBACK AMPLIFIER
Tat C. Lam, Brentwood, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Filed Oct. 14, 1965, Ser. No. 495,817
8 Claims. (Cl. 331—116)



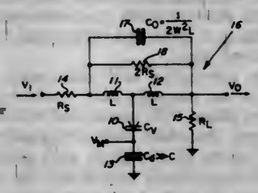
6. A crystal oscillator, comprising
first and second amplifying transistors each having emitter, collector, and base electrodes, said emitter electrodes being connected together and serving as input terminals for signals to be amplified by said transistors,
means to supply operating potentials to said base and collector electrodes of said transistors,
an oscillation feed-back loop including
a frequency-determining piezoelectric crystal connected to receive a driving signal from the collector of said first transistor, said frequency-determining crystal further being connected to apply its generated signal to said emitter electrode of said second transistor,
said collector electrode of said second transistor being electrically remote and substantially electrically isolated from said oscillation feed-back loop, thereby to provide the output signal from said oscillator,
whereby such output signal is substantially isolated from said oscillation feed-back loop.

3,319,187
VOLTAGE CONTROLLED OSCILLATOR UTILIZING TRANSMISSION-LINE SWITCHING ELEMENTS
Milton A. Crandall, Flushing, N.Y., assignor to Simmonds Precision Products, Inc., Tarrytown, N.Y., a corporation of New York
Filed Apr. 6, 1966, Ser. No. 547,693
2 Claims. (Cl. 331—117)



1. A voltage controlled oscillator for synthesizing oscillations throughout a wide range of high frequencies comprising a strip line printed circuit quarter-wave length resonator, tapped connections extending from intermediate points of said resonator, a switching diode connected to each of said tapped connections, means connecting a forward biasing signal to selected one of said switching diodes to effect an electrical shunt from the tapped connections connected to said selected diode to ground, a grounded base transistor producing oscillations applied to one end of said resonator, an output load of low impedance connected to the other end of said resonator, said output load being coupled to said resonator by an impedance means common to said resonator and said output load, and at least one varactor connected to said grounded base transistor to thereby provide fine tuning capabilities for said resonator.

3,319,188
PHASE MODULATOR USING A VARACTOR PASSIVE T-NETWORK
René E. T. Brutsch, Schaffhausen, Switzerland, assignor to Raytheon Company, Lexington, Mass., a corporation of Delaware
Filed May 26, 1964, Ser. No. 370,167
6 Claims. (Cl. 332—30)



1. A phase modulation system comprising in combination: a carrier frequency source; a modulating voltage signal source; a passive T-network connected to said carrier frequency source and including a pair of series-connected inductors and a shunt capacitor coupled to the junction between the inductors; a varactor diode coupled to said modulating voltage signal source and connected between the shunt capacitor and the junction between the inductors, the capacitance of said diode varying nonlinearly as the modulating signal is applied to said diode; and an impedance means connected across said inductors for suppressing any amplitude modulation from being superimposed upon the phase modulated output signal and for increasing phase sensitivity.

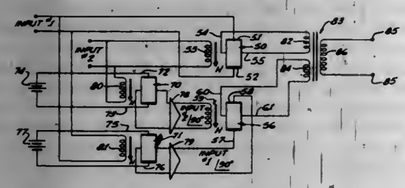
3,319,189
SINGLE SIDE BAND MODULATOR SYSTEM
David Silverman, Anaheim, Calif., assignor to Beckman Instruments, Inc., a corporation of California
Filed June 29, 1964, Ser. No. 378,638
5 Claims. (Cl. 332—45)

1. A single sideband modulator system including

first and second Hall multiplier devices each comprising a Hall device having a thin film semiconductor element which exhibits the Hall phenomena, input terminations attached to said semiconductor element for passing a control current along a first axis of said element, output terminations attached to said semiconductor element on a second axis orthogonal to said first axis, and means for establishing a magnetic field through said semiconductor element along a third axis orthogonal to said first and second axes, the Hall voltage output at said output terminations varying in accordance with the product of two variables represented by said control current and said magnetic field;

means for connecting first system input terminals to input terminations and second system input terminals to magnetic field means of said first multiplier device;

first and second means for phase shifting approximately 90° system input signals applied to said first and second system input terminals, each phase shift means comprising



first and second Hall devices each comprising a thin film semiconductor element which exhibits the Hall phenomena, input terminations attached to said semiconductor element for passing a control current along a first axis of said element, output terminations attached to said semiconductor element on a second axis orthogonal to said first axis, and means for establishing a magnetic field through said semiconductor element along a third axis orthogonal to said first and second axes,

means for connecting said first system input terminals to the magnetic field producing means of said first phase shift means and said second system input terminals to the magnetic field producing means of said phase shift means, and

means for respectively connecting the output terminations of said phase shift means to the input terminations and magnetic field means of said second multiplier device; and

means coupled to the respective output terminations of said first and second Hall multiplier devices for algebraically adding their respective Hall output voltages.

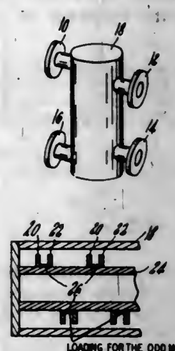
3,319,190
ELECTROMAGNETIC WAVE COUPLING DEVICES

Edward H. Shively, Raymond, Maine, and Clarence W. Jones, Hudson, N.H.; said Shively assignor to Dielectric Products Engineering Company, Inc., Raymond, Maine, a corporation of Michigan, and said Jones assignor to Massachusetts Institute of Technology, Cambridge, Mass., a corporation of Massachusetts

Filed July 2, 1962, Ser. No. 212,500
6 Claims. (Cl. 333—10)
(Filed under Rule 47(a) and 35 U.S.C. 116)

1. A distributed parameter coupler comprising two electrical transmission lines of helical configuration, each line being positioned with its helical axis coincident with the helical axis of the other line so that the two lines are in electromagnetically close coupled relation over a continuous length, the spacing between adjacent helical turns of each said line being such that there is no substantial electromagnetic coupling between said adjacent turns,

a cylindrical ground plane adjacent said two transmission lines,



LOADING FOR THE ODD MODE (FIG. 5)

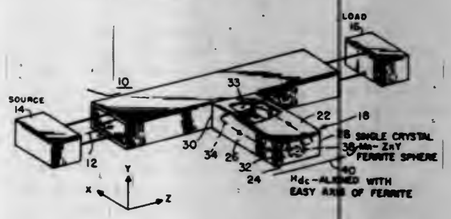
said coupler being arranged for operation at a frequency to provide odd and even transverse electromagnetic modes of propagation along said two transmission lines,

and means for loading one of said modes of propagation to make the electrical path lengths of the two modes of propagation along said conductors equal.

3,319,191
MICROWAVE POWER LIMITER UTILIZING A PLANAR FERRITE SPHERE

Samuel Dixon, Jr., Neptune, N.J., assignor to the United States of America as represented by the Secretary of the Army

Filed July 8, 1965, Ser. No. 470,646
4 Claims. (Cl. 333—24.2)



1. A power limiter comprising

a first and second rectangular waveguide joined together in a T-configuration, said first waveguide having input and output ports through which a microwave signal propagates,

coupling means between said ports for coupling said microwave signal energy from said first waveguide to said second waveguide,

said second waveguide having an end wall electrically spaced from said coupling means by $\lambda_g/2$ where λ_g is the wavelength of said signal,

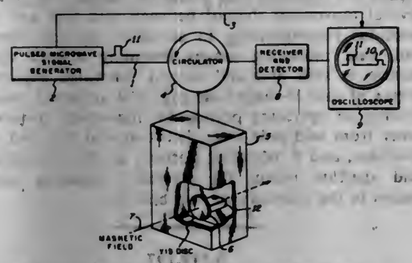
a planar ferrite sphere located at said end wall and oriented such that the easy plane of magnetization of said sphere is parallel to the direction of the magnetic field produced by the coupled microwave energy,

and an external unidirectional magnetic field applied parallel to said easy plane of magnetization of said ferrite sphere.

3,319,192
FERROMAGNETIC DISPERSIVE DELAY DEVICE HAVING MAGNETIC FIELD BIASING MEANS TO SATISFY THE EXPRESSION $\omega/\gamma<\sqrt{B_1H_1}$

Richard W. Damon, West Concord, Mass., assignor to Sperry Rand Corporation, Great Neck, N.Y., a corporation of Delaware

Filed Mar. 24, 1964, Ser. No. 354,346
8 Claims. (Cl. 333—31)



1. A dispersive delay device for microwave energy comprising

a member of ferromagnetic material,

means for coupling microwave energy to and from said member, and

magnetic field means for biasing said member to satisfy the expression

$$\frac{\omega}{\gamma}<\sqrt{B_1H_1}$$

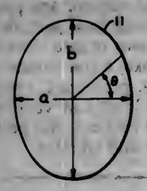
wherein ω is the radian frequency of said microwave energy, γ is the gyromagnetic ratio of said member, B_1 represents the internal magnetic flux density, and H_1 represents the internal magnetic field strength, said microwave energy propagating as spinwaves whose wavelength is comparable to the dimension of said material perpendicular to the direction of propagation of said spinwaves,

said microwave energy experiencing a propagating time delay which varies relatively rapidly as a function of frequency and magnetic field strength.

3,319,193
PIEZOELECTRIC WIDE BANDPASS FILTER WITH ELLIPTICAL SHAPE

Charles W. H. Barnett, Alexandria, Va., assignor to the United States of America as represented by the Secretary of the Army

Filed Oct. 22, 1964, Ser. No. 405,878
5 Claims. (Cl. 333—72)

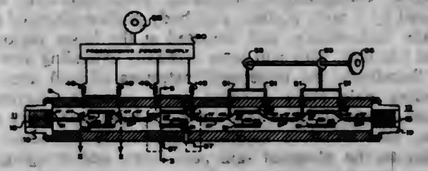


1. A wide bandpass electrical filter comprising an elliptically-shaped ferroelectric ceramic material of substantially uniform thickness and polarized to exhibit piezoelectric properties, the major axis of said elliptically-shaped material being chosen to determine the lowest resonant frequency of the filter and the minor axis of said elliptically-shaped material being chosen to determine the highest resonant frequency of the filter.

3,319,194
VARIABLE ATTENUATOR EMPLOYING INTERNAL SWITCHING

Stephen F. Adam, Los Altos, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif., a corporation of California

Filed Oct. 8, 1965, Ser. No. 493,985
3 Claims. (Cl. 333—81)



1. Signal apparatus comprising:

a transmission line including a ground plane conductor;

a first signal transmission path of said transmission line within said ground plane conductor including a resistance layer on a dielectric;

means connecting the ground plane conductor and said resistive film along the longitudinal edges thereof;

contacts at each end of said resistive film within a restricted area intermediate the longitudinal edges of the resistive film;

a second signal transmission path within the ground plane conductor in spaced plane-parallel relation to the resistance layer on a dielectric in the first signal transmission path;

another signal conductor at each end of the first and second signal transmission paths disposed intermediate the spacing thereof and within the ground plane conductor;

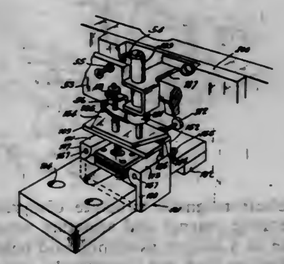
a switching element at each of the signal conductor adjacent the first and second signal transmission paths forming a portion of the length of said signal conductor; and

actuator means for simultaneously deflecting said switching elements to the same one of said first and second signal transmission paths.

3,319,195
CIRCUIT BREAKER TRIP UNIT ASSEMBLY

Albert Strobel, Cherry Hill, N.J., and John C. Brumfield, Philadelphia, Pa., assignors to I-T-E Circuit Breaker Company, Philadelphia, Pa., a corporation of Pennsylvania

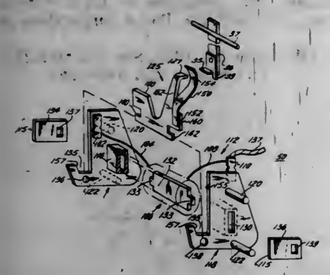
Filed June 21, 1965, Ser. No. 465,313
15 Claims. (Cl. 335—36)



2. A circuit breaker comprising at least one pair of cooperating contacts, contact operating means for moving said contacts between an engaged and disengaged position; latch means cooperating with said operating means for maintaining said contacts in their engaged position

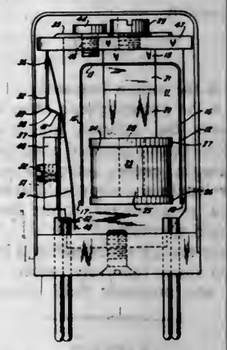
under normal load conditions, a trip unit including current sensing means operatively responsive to the current flow through the circuit, and including means for releasing said latch means responsive to predetermined overload conditions, said current sensing means including a magnetic trip assembly having cooperating magnet and armature members, said magnet member of a generally U-shaped configuration, including space-separated arms joined by a body portion, said body portion disposed generally horizontally, and mounted at the lower region of said trip unit, with said arms vertically extending upwardly therefrom, the uppermost extremes of said arms including pole faces disposed in a generally horizontal plane, vertically displaced upwards from said body portion, said armature member horizontally extending parallel to the plane of said pole faces, and bridging the space separation between the arms thereof, said armature member having a first position above said pole faces, and separated therefrom by a predetermined gap with said first position corresponding to the disengaged condition of the magnetic trip assembly, said armature having a second position, in contact with said pole faces, with said second position corresponding to the engaged condition of the magnetic trip assembly, magnet energizing means for moving said armature downwardly between said first and second positions corresponding to a predetermined overload condition, an actuating rod, means rigidly connecting said actuating rod to said armature, said actuating rod including a first portion upwardly extending therefrom in a generally vertical direction, a trip unit actuating extension mounted to said rod for movement therewith responsive to downward movement of said armature towards its engaged condition, means operatively connecting said actuating extension to said contact operating latch means, for release of said latch means responsive to downward movement of said actuating rod, including means for adjusting said predetermined gap separation including a gap adjustment extension mounted to said actuating rod, and vertically displaceable by an externally accessible member such that said armature is vertically adjustable relative to said pole faces.

3,319,196
ELECTROMAGNETIC STRUCTURE
Felix E. Myers, Haddon Heights, N.J., assignor to I-T-E Circuit Breaker Company, Philadelphia, Pa., a corporation of Pennsylvania
Filed Oct. 13, 1965, Ser. No. 495,526
12 Claims. (Cl. 335—38)



3. An electromagnetic structure comprising a bobbin and cooperating magnet and armature means carried by said bobbin as a unitary assembly, said bobbin having an axially extending core and transversely extending first and second sidewalls at the opposed axial ends thereof, an energizing coil wound about said core and axially located intermediate said sidewalls, said magnet means including a body section axially extending through said core, and first and second arm means at the opposed ends thereof, said first and second arm means transversely extending along said first and second sidewalls respectively, to define a generally U-shaped magnetic structure about said bobbin, the free ends of said first and second arm means lying within a common plane to define a pair of axially spaced pole faces, said armature means axially spanning said pole faces and having a first position, separated from said pole faces in a manner forming a V-shaped air-gap therebetween, and a second position, in flux coupled engagement with said pole faces, said bobbin including mounting means for retaining said armature means and permitting pivotal movement thereof between said first and second positions corresponding to actuation of said energizing coil, said mounting means including aligned aperture means, in said first and second sidewalls, adjacent the vertex of said V-shaped air gap, said armature means including an operating portion for movement towards and away from said pole faces, between said first and second positions, and a mounting portion, axially extending into said aperture means for pivotally mounting armature means to the sidewalls of said bobbin.

3,319,197
STABILIZED MINIATURIZED HOUSED REED VIBRATOR
Kazuo Yakuwa and Shinya Okuda, Kawasaki-shi, Japan, assignors to Fujitsu Limited, Kawasaki, Japan, a corporation of Japan
Filed Nov. 18, 1964, Ser. No. 412,087
10 Claims. (Cl. 335—95)

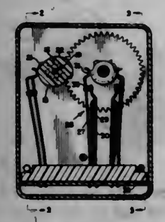


1. A reed vibrator, comprising
a vibrator of substantially U-shaped configuration having a base part, a first arm part extending from one end of said base part and a second arm part extending from the other end of said base part;
support means supporting said vibrator; and
drive means for vibrating said vibrator affixed to the base part of said vibrator and positioned in the space formed by the said base part, the first arm part and the second arm part of said vibrator, said drive means comprising a yoke, a coil wound on said yoke, a permanent magnet positioned between the base part of said vibrator and said yoke and a non-magnetic plate positioned between said permanent magnet and the base part of said vibrator.

3,319,198
MINIATURE TELEPHONE INTERRUPTER SWITCH
Allan T. Thomas, Downsview, Ontario, Canada, assignor to Johnson Matthey and Mallory, Ltd., Toronto, Ontario, Canada, a corporation of Canada
Filed June 21, 1965, Ser. No. 465,377
12 Claims. (Cl. 335—114)

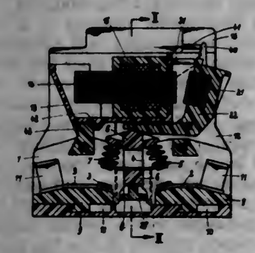
1. A miniature telephone interrupter switch means comprising: a cam means driven at a constant rate of speed, said cam means including arcuate circumferential

tracks having substantially the same radius, said tracks including coded indicia contours; and a follower switch riding on adjacent tracks of said cam means, said follower switch including a first contact carrying follower arm having a U-shaped extremity riding on one of said tracks having lead coded indicia contours and a second contact carrying follower arm transversely spaced from said first follower arm having a U-shaped extremity riding on an adjacent track, said adjacent track including lag coded indicia contours offset a predetermined circum-



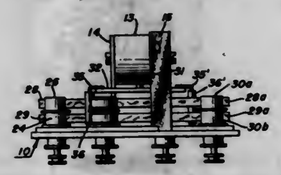
ferential distance from said lead coded indicia contours, said contact of said second contact carrying follower arm underlying said contact of said first contact carrying follower arm, said contacts in a normally engaged position, said first follower arm riding on said cooperatively associated lead coded indicia contour causing disengagement of said contacts, thereafter said second follower arm riding on said cooperatively associated lag coded indicia contour to engage said contacts, said U-shaped extremities being arcuately displaceable relative to said cam tracks for adjusting the cyclic operation of said switch.

3,319,199
ELECTROMAGNETICALLY OPERATED SWITCHES HAVING IMPROVED CONTACT ACTUATING MEANS
Franz Bauer, Vienna, Austria, assignor to Hubert Laurenz Nalmer, Vienna, Austria
Filed Feb. 18, 1965, Ser. No. 433,602
Claims priority, application Austria, Mar. 13, 1964, A 2,222/64
8 Claims. (Cl. 335—128)



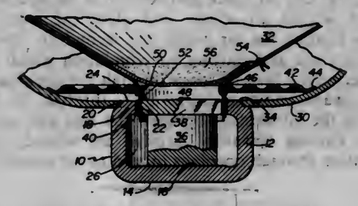
1. In an electromagnetically operated switch assembly, lower housing means having a bottom wall and a pair of side walls extending upwardly from said bottom wall, upper housing means seated on said side walls of said lower housing means and connected therewith, electromagnetic means carried in its entirety by said upper housing means and including an armature, a lever turnably mounted on said upper housing means and carrying said armature so that said lever turns between a rest position when said electromagnetic means is unenergized and an operating position when said electromagnetic means is energized, frame means guided for movement by said lower housing means and operatively coupled with said lever to be displaced between a pair of end positions when said lever is respectively in its rest and operating positions, a plurality of stationary switch components carried by said lower housing means, and a plurality of movable switch components carried by said frame means for movement therewith and respectively engaging said stationary switch components in one of said end positions of said frame means for closing circuits connected with the switch components and said movable switch components being displaced from said stationary switch components when said frame means is in the other of its end positions to open the circuits.

3,319,200
ELECTRICAL RELAY HAVING COAXIAL TERMINALS
James A. Witzler, Boonton, N.J., assignor to Branson Corporation, Denville, N.J., a corporation of Delaware
Filed June 22, 1965, Ser. No. 465,843
9 Claims. (Cl. 335—196)



1. A relay comprising,
(a) first and second coaxial terminals extending through a base,
(b) a pair of stationary contacts carried by the first coaxial terminals and electrically isolated from each other, said contacts being spaced axially of the terminals,
(c) a pair of movable contact members carried by the second coaxial terminals and electrically isolated from each other,
(d) an operating coil carried by the base, and
(e) switching means for effecting engagement of the movable contact members with the stationary contacts when the operating coil is energized.

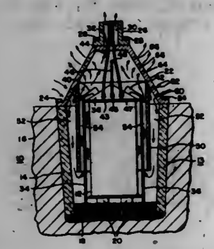
3,319,201
UNITARY FIELD STRUCTURE FOR MAGNETIC LOUDSPEAKER
Aldo L. Coen, 1640 E. 50th St., Chicago, Ill. 60615
Original application Mar. 30, 1961, Ser. No. 99,414, now Patent No. 3,191,421, dated June 29, 1965. Divided and this application June 10, 1965, Ser. No. 474,197
2 Claims. (Cl. 335—231)



1. An integral, one-piece speaker pot for use with the field structure in the magnetic circuit of a loudspeaker, said speaker pot comprising a one-piece homogeneous cup-like structure of substantially uniform wall thickness having a closed bottom and a cylindrical side wall, an inwardly extending annular flange-like formation on the upper end of said cup-like structure which is a unitary part thereof, said inwardly extending portion having an opening therein which defines a cylindrical surface, the

diameter of which is substantially less than inner diameter of the cylindrical side wall, said cylindrical surface being adapted, upon the mounting of a magnet in said cup-like structure, to cooperate therewith to define an annular air gap for the said magnetic circuit, and a seat in the interior of said cup-like structure for supporting said magnet.

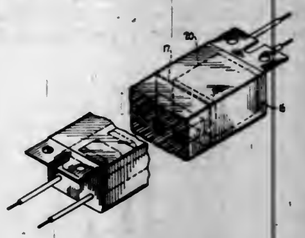
3,319,202
COOLING MEANS FOR ELECTRICAL INDUCTIVE APPARATUS
Arthur M. Lockie, Hickory Township, Sharpsville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed July 30, 1965, Ser. No. 476,032
4 Claims. (Cl. 336—61)



1. A heat transfer system for electrical inductive apparatus comprising an enclosure disposed at least partially below ground level having a sidewall portion, a bottom portion, and cover means, electrical inductive apparatus disposed within said enclosure, barrier means having inner and outer sides disposed in spaced relation between said electrical inductive apparatus and the sidewall portion of said enclosure, said barrier means completely surrounding said electrical inductive apparatus, forming first and second concentric air spaces between said electrical inductive apparatus and the sidewall portion of said enclosure, with said first air space being between said barrier means and the sidewall portion of said enclosure and the second air space being between said barrier means and said electrical inductive apparatus, said barrier means extending from said cover means to a predetermined distance from the bottom portion of said enclosure to allow said first and second air spaces to join within said enclosure, said barrier means having at least one heat reflective surface, which reflects radiant heat energy from said electrical inductive apparatus back towards said electrical inductive apparatus, said cover means having a plurality of openings therein with certain of the openings joining the first air space and certain of the openings joining the second air space, said electrical inductive apparatus heating the air within the second air space when it is energized and starting air circulation which includes air entering the first air space through the openings in said cover means, moving downwardly through the first air space to the connection between the first and second air spaces, moving upwardly through the second air space, and exiting through openings in said cover means.

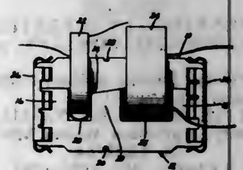
3,319,203
FILLER FOR FLUORESCENT BALLAST
Joseph P. Haughney, Chicago, Ill., assignor to The Sherwin Williams Company, Cleveland, Ohio, a corporation of Ohio
Filed Apr. 7, 1961, Ser. No. 101,330
7 Claims. (Cl. 336—96)

1. In combination in an alternating current transformer having reduced transformer hum characteristics, a filler comprising a co-polymer of a vinyl substituted aromatic hydrocarbon and an unsaturated polyester formed from (I) a mixed organic acid consisting of (a) from 10% to 40% by equivalent weight of a dibasic unsaturated aliphatic acid selected from the group consisting of maleic acid, maleic anhydride and fumaric acid, and (b) from 90% to 60% by equivalent weight of a saturated organic acid selected from the group consisting of phthalic acid, phthalic anhydride, iso-phthalic acid, and mixtures there-



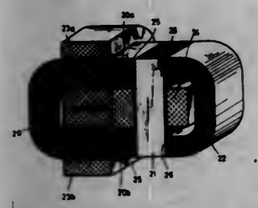
of with an ethylenically unsaturated C_{16}–C_{18} aliphatic monocarboxylic acid not in excess of 50% by equivalent weight of the saturated organic acid, and (II) a C_2 to C_8 alkylene glycol, the amount of component (II) being from 140% to 180% of the amount in terms of equivalents theoretically required to react with all the acid of component (I), said polyester having an acid value of from 5 to 20.

3,319,204
ADJUSTABLE SHUNT CORE
Homer F. Wearley, Payne, Ohio, assignor to General Electric Company, a corporation of New York
Filed Sept. 1, 1965, Ser. No. 484,201
1 Claim. (Cl. 336—134)



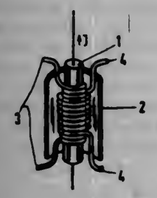
A transformer structure comprising: an E-shaped portion having a longitudinal member of a predetermined length, first and second outer legs extending from said longitudinal member, and an inner leg extending from said longitudinal member, the free end of said inner leg having a surface that slopes at an angle relative to said longitudinal member; an I-shaped portion having a longitudinal member of a length slightly less than said predetermined length and a saw tooth portion extending from said longitudinal member, said saw tooth portion on said I-shaped portion having a surface that slopes at substantially said angle relative to said longitudinal member of said I-shaped portion; means for clamping said I-shaped portion to said E-shaped portion so that said longitudinal member of said I-shaped portion engages the ends of said outer legs of said E-shaped portion and forms substantially coplanar butt joints therewith and so that said saw tooth portion on said I-shaped portion and said inner leg on said E-shaped portion have facing surfaces that are substantially parallel to each other and that are spaced a distance determined by the relative longitudinal position of said I-shaped portion and said E-shaped portion; said clamping means engaging the ends of the I-shaped portion and E-shaped portion, said clamping means thereby continuously exerting a clamping force on both said I-shaped portion and said E-shaped portion while one of said portions is moved relative to the other, and a notch in one of said portions for engaging a tool for moving said one portion relative to said other portion.

3,319,205
DEVICE FOR STABILIZING AN ELECTRIC CONSUMER VOLTAGE WITH A LEAKAGE RESISTANCE TRANSFORMER
Alfred H. Walz, Emmendingen, Baden, and Robert Ostreicher, Teningen, Baden, Germany, assignors to Frako Kondensatoren- und Apparatebau G.m.b.H., Teningen, Baden, Germany, a corporation of Germany
Filed May 28, 1965, Ser. No. 459,798
Claims priority, application Germany, June 5, 1964, F 43,104
3 Claims. (Cl. 336—165)



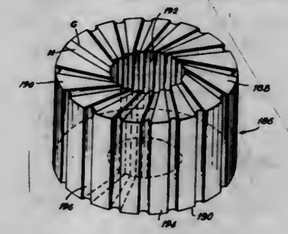
1. A stray field transformer for stabilizing a load circuit and for use in a resonant circuit including an inductance and a condenser, said transformer comprising, in combination, a relatively elongated rectilinear laminated main core whose laminations have the same magnetic flow preferential direction; a first U-shaped laminated magnetic core, whose laminations have the same magnetic flow preferential direction, having the end faces of its legs firmly abutting a lateral face of said main core at opposite ends of the latter to form therewith a substantially uninterrupted magnetic circuit having a relatively low magnetic resistance; a second U-shaped laminated magnetic core, whose laminations have the same magnetic flow preferential direction, having the end faces of its legs adjacent but spaced from the opposite lateral surface of said main core, at opposite ends of the latter, to form a pair of air gaps with said main core and forming, with said main core, a stray flux path having a relatively higher magnetic resistance; a primary winding wound on said main core and partially embraced by said first U-shaped core; and a secondary winding wound on at least one leg of said first U-shaped core, and adapted to constitute the inductance of the resonant circuit; said second U-shaped core partially embracing said primary winding, whereby said primary winding and said secondary winding are traversed by magnetic fluxes of different values.

3,319,206
TRANSFORMER FOR LOW TEMPERATURES
Hans-Joachim Harloff, Munich, Germany, assignor to Siemens & Halske Aktiengesellschaft, Berlin and Munich, Germany, a corporation of Germany
Filed Mar. 22, 1965, Ser. No. 441,756
Claims priority, application Germany, Apr. 3, 1964, S 90,364
9 Claims. (Cl. 336—218)



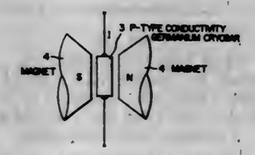
1. A transformer, especially an impulse transformer, for use at temperatures near the absolute zero point, comprising at least one core and two windings, one of which forms a primary winding and the other a secondary winding, the core having at least one thin magnetic layer with monoaxial preferential direction of magnetization, which is magnetized by a contant magnetic field in the difficultly magnetizable direction whereby the magnetization changes can be utilized in the manner of the coherent rotation.

3,319,207
GROOVED TOROIDAL BODY WITH METAL FILLING
Jesse Davis, 196 S. Kilburn Road, Garden City, N.Y. 11530
Filed July 18, 1963, Ser. No. 296,121
4 Claims. (Cl. 336—229)



1. An article of manufacture comprising a toroidal body with substantially flat radial faces and inner and outer walls extending between said faces, there being provided grooves extending substantially axially in said walls and further grooves connecting the grooves in the inner wall with respective grooves in the outer wall, said further and first said grooves constituting a spiral path around said body, and a metal filling in the grooves.

3,319,208
VARIABLE NEGATIVE-RESISTANCE DEVICE
Kiichi Komatsubara and Hirokazu Kurono, both of Tokyo-to, Japan, assignors to Kabushiki Kaisha Hitachi Seisakusho, Tokyo-to, Japan, a joint-stock company of Japan
Filed May 24, 1966, Ser. No. 552,475
9 Claims. (Cl. 338—32)



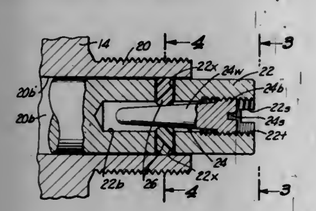
1. A variable negative resistance device comprising: a semiconductor element of a single conductivity type containing 10^{14}–10^{16} atoms/cc. of p-type and n-type impurities, in which one impurity is 50–90% of the other impurity; electrodes for supplying current to said element provided at opposite positions of said element; means to maintain said element at an extremely low temperature of 77° K. and below; and means to impart a magnetic field to said element maintained at said extremely low temperature.

3,319,209
TORQUE ADJUSTING DEVICE
Tjerk Reyenga, Westminster, Calif., assignor to Bourns, Inc., a corporation of California
Filed Jan. 9, 1964, Ser. No. 336,655
10 Claims. (Cl. 338—162)

1. A rotary variable resistor comprising:
first means, including means providing a housing with means for rotatively supporting an adjusting shaft and said first means including a member having an opening thereinto having a cylindrical inner wall and adapted to receive an adjusting shaft therethrough;

second means, including an adjusting shaft having an inner end portion, an intermediate portion disposed in said opening and an accessible outer end portion having a bore therein and a screw thread on the wall of the bore and said bore extending into said intermediate portion, said shaft having in said intermediate portion a transverse opening extending through from said bore to the exterior of said shaft;

third means, including screw-threaded means and cam means connected thereto and disposed at least principally in said bore and the thread of which is complementary to and engaged with the internal thread of said shaft, said cam means being movable in said bore incident to rotation of said screw-threaded means relative to said shaft;

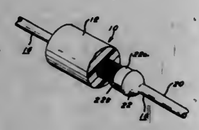


fourth means, including means disposed at least in part in said transverse opening of said shaft and having an outer frictional surface arranged to frictionally engage said inner wall of said first means and having an inner portion engaged by said cam means for operation thereby incident to movement of said cam means in said bore by rotation of said screw-threaded means;

and fifth means, including resistance element means and wiper means supported in part by said first means and in part by said shaft and adjusted by rotation of said shaft relative to said housing;

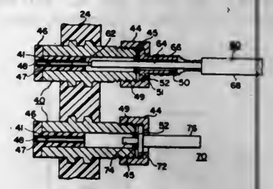
whereby adjustment of said cam means effects adjustment of the frictional engagement of said fourth means with said wall to adjust the resistance to rotation of said shaft relative to said housing.

3,319,210
ELECTRICAL RESISTOR
Frank P. Sandone, Jr., Secane, and William V. Stanfield, Huntingdon Valley, Pa., assignors to IRC, Inc.
Filed Apr. 10, 1964, Ser. No. 358,849
5 Claims. (Cl. 338—322)



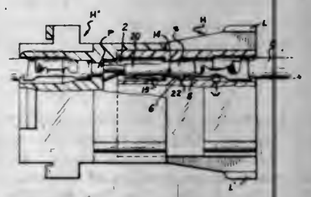
1. An electrical resistor comprising a core of electrical insulating material, a resistance wire helically wound around the core along the full length of the core, and a separate metal terminal extending around each end of the core and some of the turns of the resistance wire, each of said terminals being crimped around the core and the encompassed turns of the resistance wire by the application of heat and pressure with the metal of the terminal extending into the spaces between the encompassed turns of the resistance wire along the entire length of said spaces, and directly and intimately engaging the surface of the encompassed turn of the resistance wire.

3,319,211
ELECTRICAL CONNECTOR
William T. Smith, Linthicum, and Howard I. Bull, Jr., Pikesville, Md., assignors to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Filed July 14, 1964, Ser. No. 382,470
7 Claims. (Cl. 339—31)



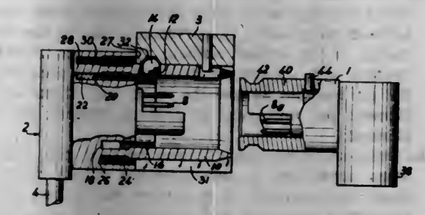
1. An environmentally sealed connector for a coaxial cable having a first conductor, a second conductor disposed about said first conductor and a layer of insulating material disposed therebetween; said connector including a terminal element having an opening therethrough, a grounding member disposed about said layer of insulating material and connected to said second conductor, an annular shaped resilient member disposed about said layer of insulating material, said grounding member having a flange for abutting against said resilient member, an insulating sleeve disposed within said opening of said terminal element, a contact element adapted to receive said first conductor disposed within said insulating sleeve, and means for urging said flange of said grounding member against said resilient member to compress said resilient member against said terminal element and against said layer of insulating material thereby forming an environmental seal therebetween.

3,319,212
ELECTRICAL CONNECTOR WITH DIELECTRIC HOUSING
Willard Allen Smith, Elizabethtown, and Robert La Rue Williamson, Harrisburg, Pa., assignors to AMP Incorporated, Harrisburg, Pa.
Filed Jan. 23, 1964, Ser. No. 339,722
3 Claims. (Cl. 339—64)



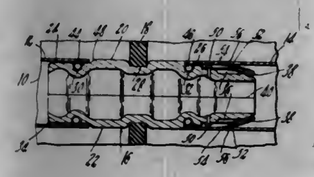
1. In an electrical connector; a dielectric housing having an opening extending therethrough, said opening provided with a tapered section, a resilient annular lip at one end of said tapered section and an abutment at the other end of said tapered section, said annular lip being spaced from a surface of said opening; an electrical contact having a body section provided with projection means engageable with said abutment to limit movement of said electrical contact in one direction in said opening and a spring latch means having a free end disposed between said annular lip and said surface of said opening to limit movement of said electrical contact in another direction in said opening, said annular lip engaging said body section of said electrical contact to permit freedom of movement of said electrical contact so as to become aligned with a complementary electrical contact during interengagement therebetween.

3,319,213
ELECTRIC CONNECTION DEVICE
Roland Mas, Aix-en-Provence, France, assignor to Commissariat à l'Energie Atomique, Paris, France
Filed Dec. 1, 1964, Ser. No. 415,088
Claims priority, application France, Dec. 6, 1963, 956,308
9 Claims. (Cl. 339—91)



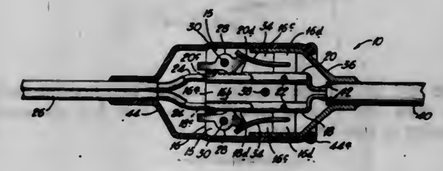
1. Electric connection device comprising a support, a chamber in said support, a first connector normally mounted in said chamber, locking means carried by said first connector, first actuating means carried by said first connector moving said locking means for locking said first connector in said chamber, a second connector movable in a first direction into mechanical and electrical engagement with said first connector, means on said second connector moving said first actuating means when said connectors are in engagement for unlocking said first connector and said support, said second actuating means carried by said first connector engaged by said support moving said locking means for locking said connectors together, said second connector passing through said chamber and moving said first connector from said support, said first and said second connectors being movable in a direction opposite to said first direction, said second connector passing through said slot and moving said first connector into said chamber, said support engaging and moving said second actuating means, said lock means then unlocking said connectors and locking said first connector and said support.

3,319,214
CONNECTORS
Donald N. Sewell, Acton, Mass., assignor to Dielectric Products Engineering Company, Inc., Raymond, Maine, a corporation of Michigan
Filed July 12, 1965, Ser. No. 471,192
5 Claims. (Cl. 339—91)



1. A coaxial line connector assembly comprising a plurality of longitudinally identical forged segments of electrically conductive metal, each said segment having substantially uniform cross-sectional thickness throughout its length and having a recessed surface at each end of substantial length so that said connector segments when assembled together form a tubular element with a circumferential recess at either end adapted to receive in overlying relation the inner surface of a tubular conductor element, a circumferential groove in each said recess, an annular resilient electrically conductive member disposed in each groove for providing an electrical connection between the tubular conductor element and the connector assembly, and a further recess in each segment located between said recessed surfaces for receiving an insulator support for positioning said connector assembly coaxially within a second tubular conductor element.

3,319,215
DIRECT WIRE CONNECTOR FOR THERMOCOUPLES
Manuel S. Moore, Northridge, Calif., assignor to Consolidated Controls Corporation, Bethel, Conn., a corporation of N. Mex.
Filed Apr. 12, 1965, Ser. No. 447,289
4 Claims. (Cl. 339—150)

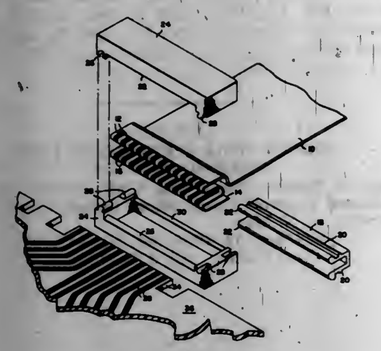


1. A connector assembly for direct connection to a pair of thermocouple lead wires of dissimilar materials, said assembly comprising a body of insulating material formed in two parts, each part including a pair of side-by-side recesses formed in a face thereof, said parts being assembled together in facing relation wherein the recesses on one part cooperate with the recesses on said other part to form a pair of conducting member receiving bores extending through said body, a pair of conducting members carried in said bores, each member including a tubular wall portion forming a socket with an open end for receiving one of said wires, said members being formed of the same materials as the thermocouple lead wires, a pair of locking dogs pivotally mounted on said body outwardly of said conducting members, each of said dogs including a wire-engaging portion movable within an opening formed in the tubular wall of the socket of one conducting member between a released position and a wire-engaging position for holding the end of a wire in said socket, and biasing means spaced from said members for biasing said dogs into wire-engaging position.

3,319,216
CONNECTOR FOR FLAT CABLES
Robert W. McCullough, Willow Grove, Pa., assignor to Fischer & Porter Company, Warminster, Pa., a corporation of Pennsylvania
Filed Mar. 25, 1965, Ser. No. 442,713
4 Claims. (Cl. 339—176)

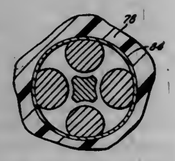
1. For use in making electrical connections between tape-type multiconductor insulated cables and printed circuit boards, the combination comprising a flexible elastic element having substantially a U-shaped transverse cross-section and having a rib spaced from the edges of the oppositely facing sides of said element and extending lengthwise on the outside of each of said oppositely facing sides and having a trough about which a cable with its conductors exposed on one side may be located to present the exposed portions of said conductors facing inwardly within the trough of said element, a hollow housing having a first elongated opening for receiving a protruding portion of a circuit board in electrical connection with said inwardly facing portions of said conductors, and a second elongated opening for receiving said cable,

said element being receivable within said hollow housing so that the cable is clamped about said element between



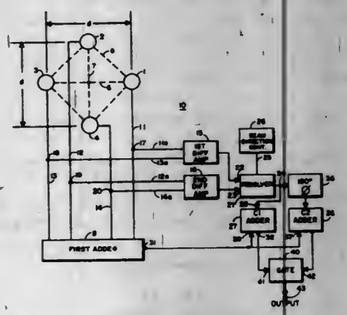
each said rib and the adjacent wall of said housing, with the open side of said trough facing said first elongated opening in said housing.

3,319,217
SPIRALLY WOUND PIN CONNECTOR
Delbert L. Phillips, Malibu, Calif., assignor to New Twist Connector Corporation, Santa Monica, Calif., a corporation of California
Filed Feb. 25, 1966, Ser. No. 530,142
8 Claims. (Cl. 339—176)



1. Electrical connector means for interconnecting two conductors in a circuit, comprising:
a pin element for connection to one of the two conductors; and
a socket element for connection to the other of the two conductors,
said pin element comprising at least one wire defining a core and a cluster of resiliently flexible wires surrounding the core with one end of each wire of the cluster fixedly connected to the corresponding end of the core and with the other end of the wires of the cluster fused with the other end of the core and forming therewith a smooth rounded nose for a leading end of the pin element,
the intermediate portions of the wires of the cluster being bowed resiliently outward from the core to give the intermediate portion of the pin element a given maximum outside diameter when the pin element is unrestrained,
the intermediate portion of the pin element being contractible by constrictive force to a given minimum cross section at which the wires of the cluster are flexed inwardly into abutment with the core whereby the intermediate portion of the pin element exerts progressively increasing radially outward pressure in response to progressive contraction from said maximum outside diameter to said minimum cross section,
said socket element being of cylindrical configuration with a predetermined inside diameter intermediate said maximum and minimum diameters to cause the pin element to frictionally engage the socket element with radial pressure within a predetermined acceptable range of radial pressures to require a separation force for withdrawal of the pin element within a predetermined acceptable range of separation forces,
the intermediate portions of the wires of the cluster being noncircular in cross section with outer curved surfaces of a radius of curvature equal to the inside radius of the socket element for surface-to-surface contact with consequent reduced radial pressure by the pin element against the inner wall of the socket element per unit area of contact between the two elements,
the cross-sectional configuration of said pin element when constricted to the minimum outside diameter being characterized by numerous indentation means permitting said core and said cluster of wires to be nested together with a wire in each of said indentation means for increased range of contraction of the pin element.

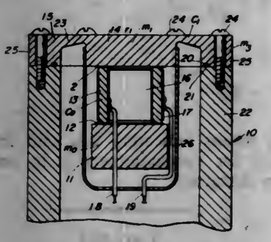
3,319,218
ACOUSTIC BEAM FORMING SYSTEM
Arthur H. Zefting, Rochester, N.Y., assignor to General Dynamics Corporation, a corporation of Delaware
Filed June 28, 1965, Ser. No. 467,478
4 Claims. (Cl. 340—6)



1. An acoustic system for forming an acoustic beam comprising:
(a) a hydrophone array including four hydrophones each supported at different corners of an imaginary square having diagonals the lengths of which are a fractional part of a given wavelength at a given operating frequency,
(b) cardioid means connected to said hydrophone array for generating two output signals which respectively correspond to two cardioid patterns 180° out of phase with each other, and
(c) a threshold gating means connected to said cardioid means for deriving an output signal only when one of asid two output signals is at a greater voltage level than the other thereof.

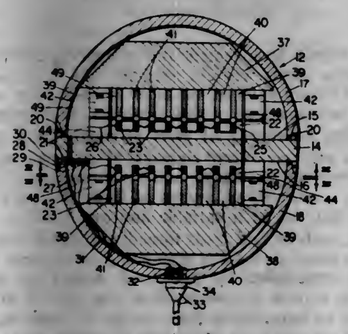
3,319,219
ELECTROACOUSTIC TRANSDUCER
Frank Massa, Jr., Cohasset, Mass., assignor to Massa Division, Dynamics Corporation of America, Hingham, Mass.
Filed Mar. 29, 1965, Ser. No. 443,496
13 Claims. (Cl. 340—8)

1. An improved electroacoustic transducer assembly for converting electrical energy into vibrational energy and capable of operating under water comprising the combination of a sealed waterproof housing means, a transducer element having opposed extended surfaces, a diaphragm structure having a peripheral portion and a vibratile portion, a compliant member connecting said peripheral portion to said vibratile portion, said vibratile portion being vibratile along an axis independently from said peripheral portion, an inertial mass member, means



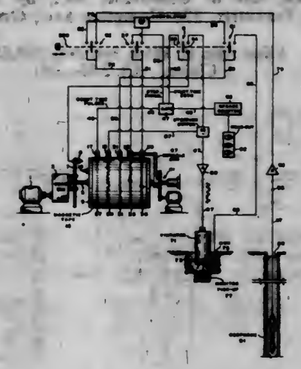
for attaching one surface of said transducer element to said mass member, means for attaching the other of said opposed surfaces of said transducer element to said vibratile portion of said diaphragm structure, said inertial mass member and said transducer element being effectively supported for free movement with respect to said housing means, and electrical conductor means connected to said transducer element.

3,319,220
ELECTROMAGNETIC TRANSDUCER FOR USE IN DEEP WATER
Frank Massa, Jr., Cohasset, Mass., assignor to Massa Division, Dynamics Corporation of America, Hingham, Mass.
Filed Oct. 29, 1965, Ser. No. 506,904
22 Claims. (Cl. 340—12)



1. In combination in an electroacoustic transducer, a rigid plate member having two opposite parallel plane surfaces, a first pair of magnetically-conducting elements, each element rigidly attached to one of said opposite parallel plane surfaces, a second pair of magnetically-conducting means each mounted in operable relationship and separated by spring members from each of said first pair of magnetically-conducting elements, electrical conducting coil means mounted in operable relationship with said first and said second magnetically-conducting means, electrical terminal means connected to said coil means, and housing means comprising a hollow shell-like structure mechanically attached to the peripheral portion of said rigid plate member and totally enclosing said magnetically-conducting elements and associated electrical conducting coil means.

3,319,221
APPARATUS FOR MEASURING TRAVEL TIME OF SEISMIC WAVES FROM THE EARTH'S SURFACE TO A GIVEN DEPTH IN THE EARTH
John D. Ball, deceased, late of Harris County, Tex., by Verna D. Ball, Executrix, Harris County, Tex., and John B. Pearson, Harris County, Tex., assignors to Esso Production Research Company, a corporation of Delaware
Filed July 21, 1965, Ser. No. 474,220
5 Claims. (Cl. 340—15.5)



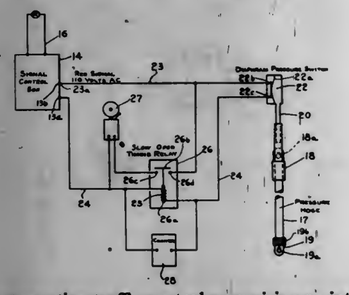
1. Apparatus for measuring travel time of seismic waves between an electro-seismic wave transducer means at the earth's surface for producing continuous wave seismic signals variable in amplitude in accordance with variations in the amplitude of actuating electrical signals connected thereto, and a geophone in a borehole in the earth, comprising:
terminal means for connection to said geophone;
seismic wave detector means for positioning in the immediate vicinity of said transducer means to produce electrical signals indicative of seismic waves injected into the earth by said transducer means;
recording and reproducing means for
producing a timing pulse train in a first signal channel thereof,
producing a pseudo-random electrical signal in a second signal channel thereof for driving said transducer means,
recording and reproducing electrical signals in third, fourth, and fifth signal channels thereof,
producing a time reference pulse at the beginning of an electrical signal reproducing cycle;
correlating means having first and second input circuits and an output circuit, for producing a signal in said output circuit having an amplitude that is variable in accordance with the degree of correlation between electrical signals fed to said first and second input circuits thereof;
means selectively connecting said third signal channel to said detector means and to said first input circuit of said correlating means, selectively connecting said fourth signal channel to said terminal means for recording said geophone signals, and to said second input circuit of said correlating means for feeding previously recorded reproduced signals to said correlating means, and selectively connecting said fifth signal channel to said correlating means output circuit for recording the output signals of said correlating means;
said recording and reproducing means being adapted to produce an output pulse in said fifth signal channel thereof on a reproducing cycle thereof at a correlation extreme of the signal recorded therein; and

means connected to said recording and reproducing means for counting the number of pulses in said timing pulse train on a reproducing cycle thereof between production of said time reference pulse and production of a signal in said fifth signal channel indicative of maximum degree of correlation.

3,319,222
TRAFFIC CONTROL DEVICE

James H. Grant, Greenville, S.C., and John V. Jester, deceased, late of Greenville, S.C., by Allie Gentry Jester, Executrix, 320 Hampton Ave., Greenville, S.C. 29601

Filed Apr. 9, 1964, Ser. No. 359,550
1 Claim. (Cl. 340—38)



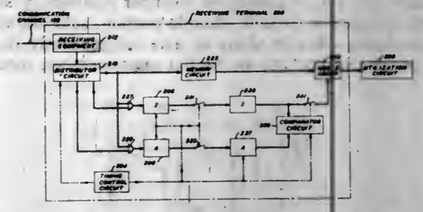
An intersection traffic control comprising an intersection of two streets, said intersection having an edge, traffic signal means for said intersection, a source of electrical power, traffic signal control means, said control means energizing said signal means from said source of power, including a red stop signal for one direction of traffic entering said intersection, said control means having terminals which are energized while said red signal is energized, compressible pressure hose means, said hose means being positioned on one street extending across one direction of traffic adjacent said edge, a normally open pressure actuated switch means, said pressure switch means being coupled to said hose means for actuation thereby, said pressure switch having two contacts which are connected upon actuation of said pressure switch by said pressure hose, normally open timing relay means, said relay means having an actuating coil, a pair of fixed contacts, and means for making a circuit connection between said pair of fixed contacts, said last mentioned means being actuated by said coil to make said circuit, and to open said circuit a predetermined time after deenergization of said coil, a counter connected across said coil, first circuit means connecting said pressure actuated switch and said actuating coil in series across said terminal, signalling means, and second circuit means connecting said signalling means and said fixed contacts in series across said terminals whereby actuation of said pressure actuated switch means causes operation of said counter and said signalling means.

3,319,223
ERROR CORRECTING SYSTEM

Harry A. Helm, Morristown, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York

Filed Mar. 31, 1964, Ser. No. 356,090
14 Claims. (Cl. 340—146.1)

1. Error correcting apparatus comprising a source of digital information characters, first means for iteratively combining said information characters to form two checking characters, second means for transmitting said information and check characters via a noisy medium, third means for iteratively combining said transmitted information and check characters to form two error characters, fourth means for iteratively operating on only one of said error characters until said one character is identical to the other error character, and means responsive to

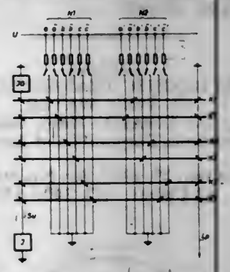


said fourth means indicating that said error characters are identical for correcting errors in said transmitted information characters.

3,319,224
CIRCUIT ARRANGEMENT TO COMPARE TWO INFORMATION ITEMS

Friedrich Ulrich, Stuttgart-Weilimdorf, Germany, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

Filed June 7, 1965, Ser. No. 461,814
Claims priority, application Germany, June 20, 1964, St 22,285, 22,287
7 Claims. (Cl. 340—146.2)



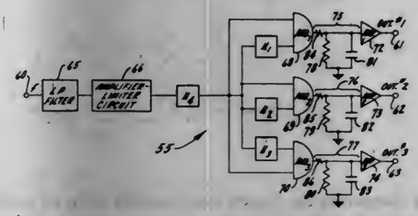
1. A circuit arrangement for comparing contradictory information items wherein each of said items are composed of binary pairs of variables including the variables and the not functions of said variables, said arrangement comprising a plurality of pairs of square loop mangetic elements with one of said elements of each pair associated respectively with a variable and a not function of the said variable, a plurality of groups of leads, each group having one lead for each variable and not function of each variable, each of said leads threading through one of the magnetic elements thereby associating the element with the variable represented by said lead, means for applying signals to certain of said leads of one of said groups to represent an information item, means for applying signals to certain of said leads of another of said groups to represent a contradictory information item, and supervisory means including a supervisory lead threading all of said elements for determining whether or not there is a coincidence between said information item and said contradictory information item.

3,319,225
REMOTE CONTROL SYSTEM INCLUDING A FREQUENCY DISCRIMINATING DELAY CIRCUIT

Wilmer C. Anderson, Greenwich, and Frank P. Rennie, Stamford, Conn., assignors to General Time Corporation, New York, N.Y., a corporation of Delaware

Filed Jan. 22, 1963, Ser. No. 253,193
16 Claims. (Cl. 340—147)

1. In a frequency discriminating circuit having an input and an output for producing an output signal upon receipt at the input of an input signal having a frequency that falls within the acceptance range of a desired frequency, the combination comprising, an asymmetrical monostable multivibrator for producing a reference pulse having a predetermined length a predetermined delay time interval after being triggered, a control pulse producing device for producing a control pulse having a predetermined length upon being triggered, input means responsive to an input

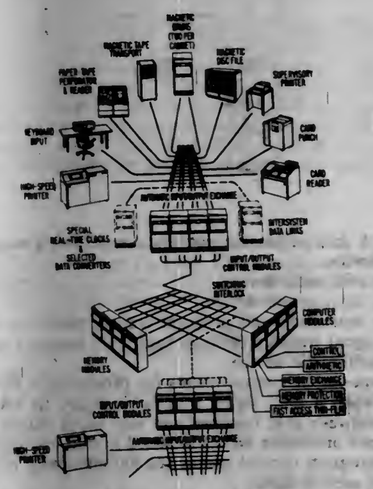


signal for triggering the pulse producing devices, the delay time interval of the reference producing device being substantially equal to a multiple of the time period of an input signal having the desired frequency so that when an input signal is received which has a frequency that falls within the acceptance range, the control pulse and the reference pulse timingly overlap, and means for producing an output signal in response to such overlap.

3,319,226
DATA PROCESSOR MODULE FOR A MODULAR DATA PROCESSING SYSTEM FOR OPERATION WITH A TIME-SHARED MEMORY IN THE SIMULTANEOUS EXECUTION OF MULTI-TASKS AND MULTI-PROGRAMS

Lucile E. Mott, Ardmore, Ronald B. Lounsbury, Broomall, Blair C. Thompson, King of Prussia, S. Peter Beauregard, Malvern, James L. Murtaugh, Jr., West Chester, and August A. Sardinas, Berwyn, Pa., assignors to Burroughs Corporation, Detroit, Mich., a corporation of Michigan

Filed Nov. 30, 1962, Ser. No. 241,273
126 Claims. (Cl. 340—172.5)

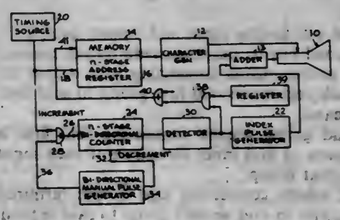


31. A computer adapted to provide up to three-address programming capability and variable length instructions, said computer comprising:
an arithmetic unit,
a subcommand matrix and controls portion,
a fast-access, thin-film memory portion, and
a memory exchange portion,
said subcommand matrix and controls portion including a phase distributor to provide up to three-address capability,
said phase distributor providing means to provide a plurality of operating phases,
means responsive to jump subcommands to move from phase to phase,
said jump subcommands means being subcommand martix means responsive to an instruction being executed,
means responsive to a jump subcommand to effect a reset-phase signal to provide an input to said phase distributor comprising,
a plurality of phase flip-flops including a phase just executed flip-flop and an entry phase flip-flop for the phase next to be executed.

3,319,227
BI-DIRECTIONAL MANUAL PULSE GENERATOR

William E. Evans, Jr., Los Altos Hills, Calif., assignor to A. B. Dick Company, Chicago, Ill., a corporation of Illinois

Filed Aug. 8, 1963, Ser. No. 300,830
7 Claims. (Cl. 340—172.5)

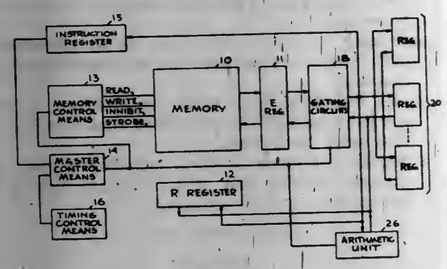


6. In a display system including a digital memory having a plurality of locations wherein each location stores a character code and a memory address register for storing address information identifying one of said plurality of locations; a source of timing pulses; means responsive to each of said timing pulses for incrementing said address information in said memory address register to cause said memory address register to successively define each of a plurality of different states equal in number to said plurality of memory locations; means coupled to said memory address register for successively accessing the character codes from said memory locations successively identified by said memory address register; character generator means responsive to said successively accessed character codes for successively generating video signals; display means responsive to said successively generated video signals for successively displaying characters represented by said video signals; a bi-directional counter capable of successively defining a plurality of different states equal in number to said number of memory locations; an index pulse generator; detector means responsive to a unique state defined by said counter for actuating said index pulse generator; said display means responsive to said actuation of said index pulse generator for displaying a marker; means connecting said source of timing pulses to said counter for incrementing said counter in synchronism with said memory address register; and manually operable bi-directional pulse generator means connected to said counter for enabling said cycle defined by said counter to be shifted in time with respect to said cycle defined by said memory address register.

3,319,228
DIGITAL STORAGE REGISTER TRANSFER APPARATUS

Joseph S. Applé, Canoga Park, Los Angeles, Calif., assignor to The Bunker-Ramo Corporation, Canoga Park, Calif., a corporation of Maryland

Filed Apr. 20, 1964, Ser. No. 360,829
7 Claims. (Cl. 340—172.5)



1. In a digital system including first and second groups of digital storage registers, each register comprised of a plurality of stages, each stage having at least one input terminal and one output terminal, apparatus for transferring information between registers, said apparatus comprising:

a first bus having input and output means;

a second bus having input and output means;

first gating means connecting said output terminals of each register in said first group to said first bus input means;

second gating means connecting said first bus output means to said input terminals of each register in said second group;

third means connecting said output terminals of each register in said second group to said second bus input means;

fourth means connecting said second bus output means to said input terminals of each register in said first group;

a source of control signals;

means applying said control signals to said first and third gating means for coupling signals representing information stored in selected registers to said first and second bus input means; and

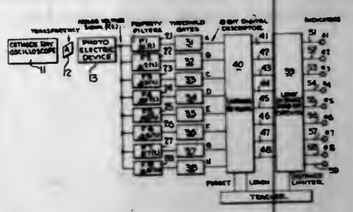
first and second circuit means respectively incorporated in said first and second busses connected between the input and output means thereof and responsive to said control signals and to said signals representing said information for selectively providing signals representing either said information or the logical complement thereof at the bus output means.

3,319,229
SIGNAL RECOGNITION DEVICE

William H. Fuhr, Springfield, and David F. Guinn, Fairfax, Va., and Peter H. Halpern, Sarasota, Fla., assignors to Melpar, Inc., Falls Church, Va., a corporation of Delaware

Filed May 4, 1964, Ser. No. 364,665
15 Claims. (Cl. 340—172.5)

1. A system for classifying signals in accordance with a common arbitrarily selected property, comprising memory means for storing a plurality of binary words; means responsive to incoming signal for selectively extracting therefrom information regarding said property from which to generate a binary word descriptive of said incoming signal during a predetermined time interval, said selective extracting means including means for rendering the generation and valve of each bit of said descriptive binary word independent of that of each of the other bits thereof; means for selectively introducing into said memory means binary words derived by said selective extracting means descriptive of known signals; and means

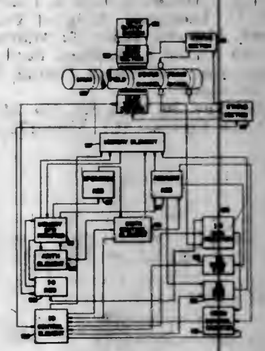


for comparing the binary word derived from an unknown signal with each of the stored binary words to determine which known signal, if any, the unknown signal most closely resembles.

3,319,230
DATA PROCESSING MACHINE INCLUDING PROGRAM INTERRUPT FEATURE

Morton M. Astrahan and Bennett Housman, Santa Clara County, Calif., Hrand L. Kurkjian, Montgomery County, Md., and Bernard L. Sarahan, Harris County, Tex., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York

Original application Sept. 26, 1956, Ser. No. 612,265, now Patent No. 3,170,142, dated Feb. 16, 1965. Divided and this application Jan. 5, 1965, Ser. No. 423,524
16 Claims. (Cl. 340—172.5)



1. A data processing machine comprising a main memory device,

an arithmetic device,

an input-output device,

an instruction and program control means to effect a signal transfer between said main memory and said arithmetic device,

input-output control means for producing a first signal when a data signal transfer is ready to take place between said memory and said input-output device,

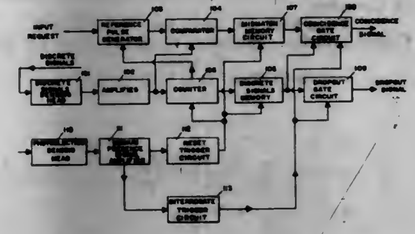
signal producing means included in said instruction and program control means for automatically producing a second signal,

and means conditioned by the presence of said first signal and rendered effective by said second signal to effect an automatic interruption in the operation being performed by said instruction and program means.

3,319,231
DATA PROCESSING APPARATUS FOR RETRIEVING INFORMATION-BEARING MEDIA

Donald Sears Oliver, West Acton, Mass., assignor to Itek Corporation, Lexington, Mass., a corporation of Delaware

Continuation of application Ser. No. 132,141, Aug. 17, 1961. This application Nov. 4, 1965, Ser. No. 513,630
7 Claims. (Cl. 340—172.5)



1. A data processing system comprising:

(a) a plurality of data bearing media each having a block of N bits of identification data wherein each bit has at least two possible values and where N is a predetermined integer;

(b) a source of address data for producing a block of N bits of address data;

(c) reading means for reading said block of N bits of identification data off of said data bearing media;

(d) counting means coupled to said reading means for producing a full count indication if a particular block of identification data read by said reading means contains N bits of adequately manifested identification data;

(e) a comparator for comparing a particular block of address data produced by said address data source with a particular block of identification data produced by said reading means and for producing a match indication if equality exists between said particular block of address data and said particular block of identification data;

(f) control means coupled to said counting means and said comparator including selection indicating means for producing a selection command output signal if said counting means produces said full count indication and said comparator produces said match indication, together with rejection indicating means for producing a media rejection control signal if said counting means does not produce said full count indication.

3,319,232
MEMORY SYSTEMS AND DEVICES

Joseph W. Crownover, La Jolla, Calif., assignor, by mesne assignments, to Control Data Corporation, Minneapolis, Minn., a corporation of Minnesota

Filed Jan. 5, 1962, Ser. No. 164,525
9 Claims. (Cl. 340—174)

1. A device for magnetically representing digital information comprising:

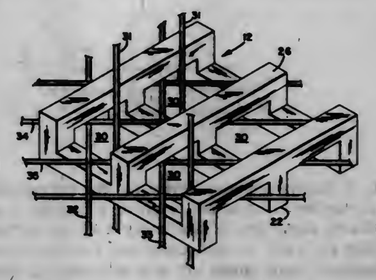
a slab of magnetic material having substantially parallel first and second planar surfaces and having the characteristic of being substantially magnetically saturated at remanence,

said slab having a first set of substantially parallel grooves in said first surface of said slab in a first direction,

said slab having a second set of substantially parallel grooves in said second surface in a second direction that is substantially perpendicular to said first direction,

the sum of the depths of said first and second grooves, as measured perpendicularly to said parallel surfaces, being greater than the thickness of said slab, whereby apertures exist at each of the intersections of said grooves,

each of said grooves having a width that is greater than the spacing between adjacent ones of said grooves in the same surface, whereby there exist effective tunnels in the interior portion of said slab in a plane parallel to said surfaces and diagonally disposed with respect to said grooves,



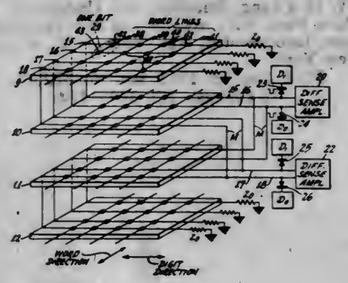
and conductive means threaded through one of said tunnels to thread at least one of said apertures,

and means to energize said conducting means thereby to establish a magnetic flux in the magnetic material surrounding said linked aperture.

3,319,233
MIDPOINT CONDUCTOR DRIVE AND SENSE IN A MAGNETIC MEMORY

Hiroshi Amemiya and Thomas R. Mayhew, Levittown, and Richard L. Pryor, Haddonfield, N.J., assignors to Radio Corporation of America, a corporation of Delaware

Filed June 5, 1963, Ser. No. 285,782
5 Claims. (Cl. 340—174)



1. The combination of

a plurality of pairs of memory elements,

an equal plurality of word conductors each linking one of said pairs of memory elements,

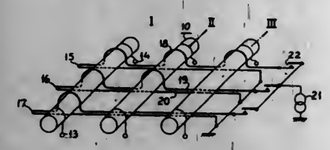
a digit conductor pair including one digit conductor linking one memory element of each of said pairs of memory elements and another digit conductor linking the other memory element of each of said pairs of memory elements,

means terminating both ends of each of said digit conductors,

a differential sense amplifier having one input coupled to the midpoint of one of said digit conductors and having another input coupled to the midpoint of the other of said digit conductors, and

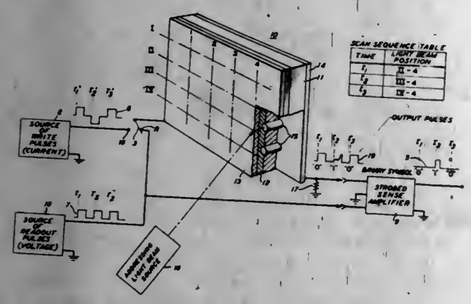
a digit driver also coupled to said midpoint of one of the digit conductors.

3,319,234
MATRIX MEMORY DEVICE
Yves-Jean François Brette, Sevres, France, assignor to Compagnie des Machines Bull (Société Anonyme), Paris, France
Filed June 12, 1963, Ser. No. 287,442
Claims priority, application France, June 22, 1962, 901,591
6 Claims. (Cl. 340—174)



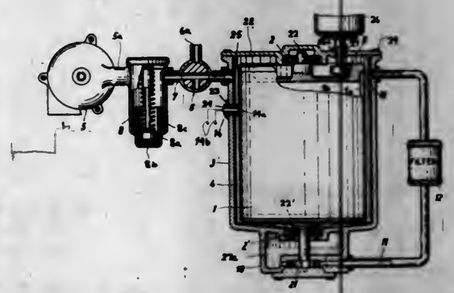
1. A matrix memory device for the permanent storage of a number N of words, each of a number *n* of binary positions, composed of a number *n* of bit columns, comprising for each of said columns, a transformer with a cylindrical core made of non-remanent magnetic material and a multi-turn output secondary winding wound substantially on all the length of said core, said cores being parallel one to another and arranged in a plane, this device further comprising a number N of word windings substantially transverse to the length of said cores, each word winding including a return part of wire located on one side of said transformer cores and an active part of wire arranged to provide magnetic coupling turns on the other side of said cores only with the cores of the columns where a determined binary value is stored, and means for selectively applying a change of current intensity to one of said word windings whereby an output pulse appears across some of said secondary windings in the bit columns where the selected word winding has coupling turns.

3,319,235
OPTICALLY SCANNED FERROMAGNETIC MEMORY APPARATUS
James T. H. Chang, Dunellen, and Umberto F. Gianola, Florham Park, N.J., assignors to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Aug. 15, 1963, Ser. No. 302,403
15 Claims. (Cl. 340—174)



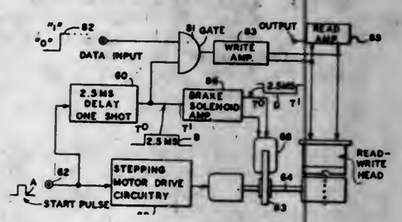
1. An information storage device comprising a body of magnetic material having substantial magnetic remanence, a layer of photoconductive material disposed upon one surface of said body, said photoconductive layer having a plurality of portions each having an illumination-dependent resistance different from the resistances of the others of said portions whenever illuminated differently from the others of said portions, a plurality of conductors extending through said body and each contacting said layer at one of said portions, and input-output circuit means including said layer for causing a current to flow through one portion of said photoconductive layer having the lowest of said resistances and thereafter to flow through one of said conductors contacting said one lowest-resistance portion.

3,319,236
FLUID BEARING MAGNETIC RECORDING DRUM
Berthold Hajen, Sande, Germany, assignor to Olympia Werke A.G., Wilhelmshaven, Germany, a corporation of Germany
Filed May 14, 1963, Ser. No. 280,305
Claims priority, application Germany, May 19, 1962, O 8,762
8 Claims. (Cl. 340—174.1)



1. In combination, a magnetic recording drum, a housing surrounding said drum with limited peripheral clearance, drive means for relatively rotating said drum and said housing about an axis, at least one transducer head received in fluid-tight manner in the wall of said housing adjacent the drum periphery for sliding displacement toward and away from said axis, and blower means provided with a conduit communicating with a space on one side of said wall for creating across said wall an air-pressure differential urging said transducer head toward said drum periphery, said blower means being connected by said conduit to the interior of said housing as a suction generator.

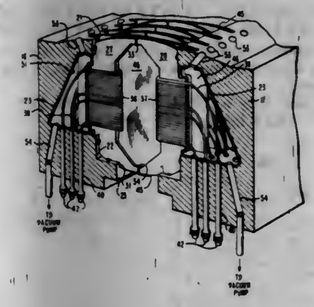
3,319,237
INCREMENTAL MAGNETIC TAPE RECORDING SYSTEM
John Paul Jones, Jr., Wynnewood, Pa., assignor to Navigation Computer Corporation, Norristown, Pa., a corporation of Pennsylvania
Filed July 3, 1963, Ser. No. 292,595
9 Claims. (Cl. 340—174.1)



1. An incremental magnetic tape recording system comprising in combination, means for advancing magnetic tape step by step in increments including a multiple step-

ping motor and sprocket drive member, wherein the stepping motor drives the tape at an accelerating velocity during a drive actuation interval and wherein the means for advancing provides driving energy pulses to the motor such that the motor drives the tape at a peak velocity substantially at the expiration of the energy pulse and thereafter decelerating to a rest position at the next stepping pole position, a dynamic magnetic pole piece fashioned to store magnetic impulse signals upon the tape at each incremental step position and to read back the stored signals, and means effectuating the pole piece with a dynamic signal for magnetizing the tape substantially concurrent in time with the peak velocity of the tape, whereby dynamic recording techniques are used in a step-by-step incremental magnetic recorder.

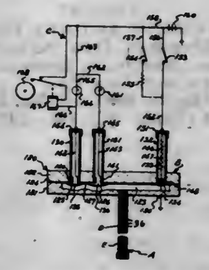
3,319,238
MAGNETIC HEAD ASSEMBLY WITH MEANS FOR HEAT DISSIPATION
Abraham S. Jacoby, Los Angeles, Calif., assignor to Ampex Corporation, Redwood City, Calif., a corporation of California
Filed July 16, 1963, Ser. No. 295,365
6 Claims. (Cl. 340—174.1)



1. In a multichannel transducer head assembly for use with a magnetic recording medium, said head assembly including magnetic core parts disposed upon a mounting member of rigid insulating material, each core part being substantially U-shaped and having extremities terminating in end faces, said core parts being so located by said mounting members that all of the end faces of said extremities are aligned and in opposition with corresponding end faces of the other core part whereby a cooperating pair of core parts form a single transducer unit for one tape channel, the improvement comprising at least one of said mounting members having shoulder surfaces fixedly atttached to the shoulders of said core parts and having a recessed cavity between said shoulder surfaces, a thin layer of insulating material formed on the surfaces of said cavity and the core parts adjacent the cavity to form an enclosed chamber, and means providing air passages through said mounting members into said chamber to allow a flow of cooling fluid within said enclosed chamber.

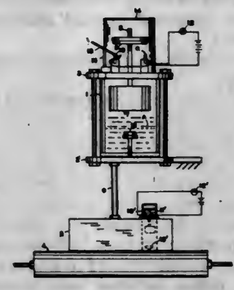
3,319,239
SENSOR FOR HEAT OR TEMPERATURE DETECTION AND FIRE DETECTION
John E. Lindberg, Jr., 1024 Adrienne Drive, Alamo, Calif. 94507
Original application Apr. 1, 1963, Ser. No. 271,043, now Patent No. 3,277,860, dated Oct. 11, 1966. Divided and this application Sept. 9, 1965, Ser. No. 516,801
5 Claims. (Cl. 340—229)

1. A fire and overheat detection system comprising
a tube containing metallic hydride of the type that releases large quantities of gas when heated,
a diaphragm,
a housing divided by said diaphragm into three chambers, namely, a sensor chamber in communication with said metallic hydride and the gas emitted therefrom and first and second anti-sensor chambers isolated from each other and said sensor chamber,



a switch in each said anti-sensor chamber and actuated by said diaphragm at a different pressure level for each said anti-sensor chamber, and
an electrical circuit for each said switch and actuated thereby, each said circuit including an indicator actuated by said circuit.

3,319,240
HYDRAULIC BRAKE FLUID LEVEL INDICATOR
Giacinto Mirarchi, 3091 Nassau Road, Oceanside, N.Y. 11572, and Felix Tirone, 62 Cambridge Drive, Hicksville, N.Y. 11801
Filed June 3, 1964, Ser. No. 372,310
1 Claim. (Cl. 340—244)



Hydraulic safety means for hydraulic brakes of the type having a master cylinder with a reserve tank comprising:
a transparent reserve container mounted above said master cylinder, pipe means connecting the bottom of said container to the top of said master cylinder reserve tank,
a float of magnetically conductive material in said container,
switch means connected to be operated by said float comprising:
a shaft mounted on said float,
a first conductive member mounted on said shaft,
said shaft extending through the top of said container,
a pair of needle type contact points mounted on the top of said container,
said conductive member on said shaft being adapted to complete a circuit between said points when said float falls to a predetermined level,
a permanent magnet on the bottom of said container, said magnet being adapted to attract said float to make a positive contact between said contact points and said conductive member,

externally operable lever means adapted to disengage said conductive member from said magnet, the grip of said magnet being strong enough to maintain said contact until said lever is operated, and

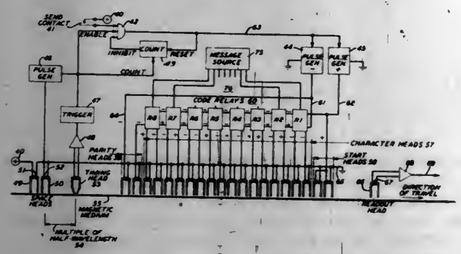
warning means connected to said contact points.

3,319,241

ELECTROMECHANICAL DATA TRANSMISSION

Frederick G. Buhrendorf, Colts Neck, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York

Filed May 29, 1963, Ser. No. 284,067
8 Claims. (Cl. 340—347)



7. A frequency-shift data transmitter comprising a binary data source generating multibit characters,

a continuously moving ferromagnetic surface,

a pair of single-gap magnetic recording heads for each character bit spaced along said surface,

an additional pair of recording heads spaced to impress a timing pattern on said surface,

a pick-up head for deriving a trigger signal from the timing pattern produced by said additional pair of recording heads,

a pair of direct-current sources having outputs of opposite polarity,

encoding means under the joint control of the individual data bits and said trigger signal for connecting each output of said direct-current sources to respective heads of a character-bit pair to encode a spacing bit as a full cycle of a first frequency and for connecting one only of the outputs of said direct-current sources to both heads of a character-bit pair to encode a marking bit as a half-cycle of a second frequency harmonically related to said first frequency,

interconnecting means between said encoding means for insuring that said character-bit heads are energized in a direction to effect smooth transitions between said first and second frequencies,

a final pair of recording heads for generating an even parity-bit magnetic pattern, and

a final pick-up head for translating the magnetic pattern on said surface into a frequency-shift electric wave.

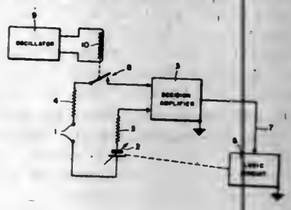
3,319,242

ELECTRICAL APPARATUS

Baden L. Cosby, Norristown, Pa., assignor to Honeywell Inc., a corporation of Delaware

Original application Dec. 6, 1962, Ser. No. 242,729. Divided and this application Jan. 17, 1964, Ser. No. 343,436
7 Claims. (Cl. 340—347)

1. In combination, variable voltage source means, comparator means connected between said variable voltage source means and a source of unknown voltage, said comparator means producing different signals to indicate the relative values of the voltage produced by each of said sources, logic circuit means for operating on said signals produced by said comparator means to control said variable voltage source means, said logic circuit means including a plurality of switching means comprising a transistor and an associated tunnel diode, said tunnel diode exhibiting one voltage state in response to one signal from said comparator means, said tunnel diode exhibiting



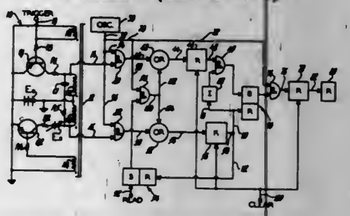
a different voltage state in response to a further signal from said comparator means, said transistor being rendered conductive or not in accordance with the voltage state of said associated tunnel diode, and indicator means associated with each transistor to indicate the conduction state of the transistor.

3,319,243

ANALOG-DIGITAL CONVERTER EMPLOYING AN ASYMMETRICAL MULTIVIBRATOR

Wilmer C. Anderson, Greenwich, Conn., assignor to General Time Corporation, New York, N.Y., a corporation of Delaware

Filed July 6, 1964, Ser. No. 380,207
13 Claims. (Cl. 340—347)



1. An analog-digital converter comprising:

an output counter;

means providing at least one stream of pulses;

means connected for gating pulses into said output counter;

bistable means settable for enabling, and resettable for disabling, said gating means;

and means for setting and thereafter resetting said bistable means to enable and gating means for a measured time to determine the number of pulses gated into said output counter, including:

first and second time-measuring counters each producing an output when the count thereof reaches a selected modulus;

said first time-measuring counter being connected for said output thereof to set said bistable means to start said measured time;

said second time-measuring counter being connected for said output thereof to reset said bistable means to end said measured time;

means connected for gating pulses having a selected repetition rate into said first time-measuring counter during a predetermined time interval;

means connected for gating pulses having said selected repetition rate into said second time-measuring counter during a time interval shorter than said predetermined time interval by an amount proportional to a given value of a variable quantity so that the difference between the respective counts entered into said first and second time-measuring counters is also proportional to said given value;

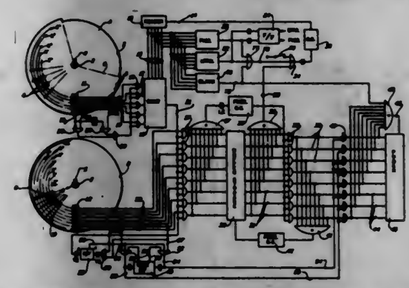
and means connected for thereafter gating a stream of pulses into both of said time-measuring counters until both attain said selected modulus, whereby said measured time is proportional to the difference between the respective counts previously entered into said time-measuring counters.

3,319,244

CODE CONVERTER WITH PROVISION FOR AUTOMATICALLY GENERATING PRECEDENCE CODES

Leon Gryk, New Britain, Conn., assignor to Royal Typewriter Company, Inc., New York, N.Y., a corporation of Delaware

Continuation of application Ser. No. 349,253, Mar. 4, 1964. This application Nov. 16, 1966, Ser. No. 596,717
4 Claims. (Cl. 340—347)



1. Apparatus for converting code patterns of a first system into corresponding code patterns of a second system wherein code patterns in each system may be employed twice to represent upper and lower case information, said dual means code patterns being distinguishable by lower and upper case precedence code patterns designating that code patterns following a precedence code pattern represent lower or upper case information, and wherein information assigned to upper and lower case is likely to differ from system to system comprising:

a first disc having serially recorded therein on radial lines first system code patterns,

a second disc having serially recorded therein on radial lines all of corresponding ones of second system code patterns and designators of the case of the information represented thereby, the radial line next following each radial line bearing a second system code pattern having recorded therein the designator of the case of the information represented by the preceding code pattern, the code patterns in said first and second discs representing the same information being orientated at the same angular positions with respect to a reference on each of said discs,

a continuously driven shaft,

means mounting said discs with said references in alignment on said shaft,

first and second transducer means associated with said first and second discs respectively, said transducer means being positioned to simultaneously read corresponding code patterns and case designators thereby generating code signal patterns and case designator signals as said discs are driven,

a source operative to issue first system code signal patterns,

means to compare for coincidence first system code signal patterns generated by said first transducer means and a first system code signal pattern issuing from said source and to generate an output signal over the interval of coincidence of said first system code signal patterns,

first gate means conditioned by said output signal for passing the second system code signal pattern generated by said second transducer means during the interval of coincidence of first system code signal patterns,

a buffer unit for storing code signal patterns passed by said first gate means,

means for recording second system code signal patterns,

second gate means normally conditioned to pass stored second system code signal patterns to said recording means,

first delay means being responsive to code signal patterns passed through said first gate means for blocking said second gate means over an interval necessary to generate and record a second system precedence code signal pattern,

second delay means responsive to code signal patterns gated by said second gate means for resetting said buffer unit after an interval sufficient to record the code signal patterns passed by said second gate means,

means operative on said source in response to the resetting of said buffer to cause another first system code signal pattern to issue therefrom,

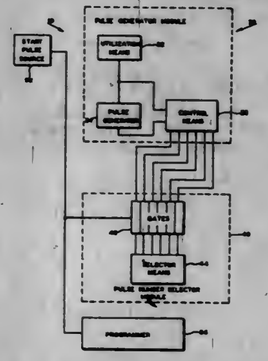
and means responsive to said output signal and to a designator signal generated by said second transducer means following the coincidence interval which differs from the designator signal generated by said second transducer means following the previous coincidence interval for generating a precedence code signal pattern for recording during said first delay interval.

3,319,245

PULSE GENERATING SYSTEM

David Glaser, Greenbrook, N.J., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan

Filed Feb. 6, 1964, Ser. No. 342,889
9 Claims. (Cl. 340—359)



1. A system for generating variable groups of pulses including:

an oscillator which is adapted to be either in an inactive state or in a free-running state with its state being controlled by the application thereto of an enabling potential or a disabling potential,

a counter-register adapted to be in an inactive state or in an active state and having a plurality of count-registering positions connected in series and including a first position, a plurality of intermediate positions and a last position, said counter-register including means for initiating operation thereof at any of its positions,

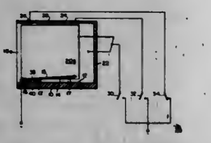
said oscillator and said counter-register being coupled together so that their active and inactive states occur at the same time,

a current flow path at each position of said counter-register with current flow occurring only during the performance of a counting operation and only at a position which is registering a count,

a first connection from each current flow path to said oscillator whereby said enabling potential or said disabling potential is coupled from each current flow path in said counter-register to said oscillator, and

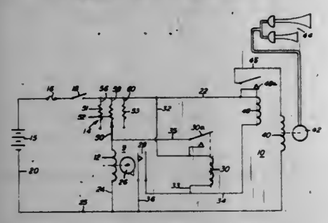
a second connection from said oscillator to each position in said counter-register for causing the counting operation to proceed from a starting position to said last position, at which time both said oscillator and said counter-register are rendered inactive.

3,319,246
SIGNALLING DEVICE
William R. Aiken, Los Altos Hills, Calif., assignor to Electronix Ten, Inc., San Francisco, Calif., a corporation of California
Filed June 1, 1964, Ser. No. 371,638
5 Claims. (Cl. 340—373)



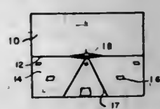
1. A signalling device comprising a vane hingedly supported for swinging movement from a substantially horizontal position to a substantially vertical position, a first electrode arranged adjacent the free end of said vane in said substantially vertical position thereof, a second electrode substantially in juxtaposition with but separated from said first electrode, means operable to apply to said first electrode a vane-attracting potential and separate means operable to apply to said second electrode a vane-attracting potential.

3,319,247
SOUND PRODUCING MECHANISM FOR STARTLING BIRDS
Adolph Zajanc, Dixon, Calif., assignor to the United States of America as represented by the Secretary of the Interior
Filed Mar. 10, 1965, Ser. No. 438,795
2 Claims. (Cl. 340—404)



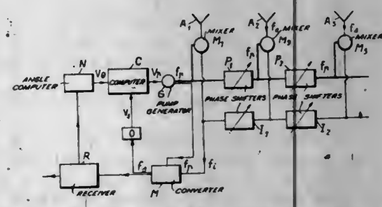
1. Apparatus for intermittently producing startling sounds comprising means operating a sound generator, means controlling said operating means comprising a pair of relays having the respective contacts thereof in separate circuits, and the respective operating coils thereof connected in individual parallel circuits, a continuously operated timing motor, a cam element rotatably driven by said motor, a power source, a normally open switch having contacts intermittently operated by said cam element, both of said individual parallel circuits to said relay operating coils including said normally open switch and said power source, an adjustable resistance connecting said power source with said timing motor wherein said motor is operated by energy from said power source passing through said adjustable resistance which is operable to control said timing motor at a selected predetermined speed during a first interval of time in accordance with the setting of said resistance, each closure of said normally open switch by said cam element completing said parallel circuits to activate said pair of relays whereby relay contacts closure caused by completion of one of said parallel circuits completes one of said separate circuits for connecting said power source to said sound generator operating means to produce said startling sounds, and relay contacts closure caused by completion of the other of said parallel circuits completes a second of said separate circuits for connecting said power source to said timing motor such that said adjustable resistance is by-passed and said timing motor runs at a further predetermined speed during a second interval of time.

3,319,248
ELECTRONIC VISUAL CUE GENERATOR FOR PROVIDING AN INTEGRATED DISPLAY
George H. Balding, Los Altos, Calif., assignor to Kaiser Aerospace & Electronics Corporation, Oakland, Calif., a corporation of Nevada
Filed July 16, 1965, Ser. No. 472,496
30 Claims. (Cl. 343—11)



1. In a visual cue generator circuit for generating signals for reproduction as visual cues on the raster of a display device, a first plurality of triangle generator circuits controlled to operate in succession at the horizontal line rate of said raster, a second plurality of triangle generator circuits controlled to operate successively at the vertical trace rate of said raster, means for providing a readout pulse at the vertical rate of said raster, and means responsive to said readout pulse and the signal output of said first and second plurality of triangle generators to provide a plurality of spaced quadrilateral symbols on said raster which have their vertical sides slanted toward the top of the display to provide a symbol in perspective.

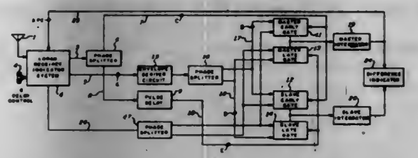
3,319,249
ANTENNA ARRAY HAVING AN ELECTRICALLY CONTROLLABLE DIRECTIVITY PATTERN
Bruno Blachier and Claude Vergnolle, Paris, France, assignors to CSF—Compagnie Generale de Telegraphie Sans Fil, a corporation of France
Filed Oct. 1, 1963, Ser. No. 313,036
Claims priority, application France, Oct. 2, 1962, 911,020
6 Claims. (Cl. 343—100)



1. An antenna for ultra-high frequency energy signals comprising in combination: an array of elementary radiators equally spaced along at least one straight line; a plurality of parametric amplifiers having respective first

inputs connected to said radiators, second inputs and outputs; a source of a pumping energy; a first plurality of phase shifters having the same predetermined electrical length, connecting in cascade said second inputs to said pumping source; a receiver tuned to an idler frequency of said parametric amplifier; and a second plurality of phase shifters having a second predetermined electrical length connecting in cascade said outputs to said receiver.

3,319,250
DOUBLE GATE PULSE ENVELOPE MATCHING SYSTEM FOR A LORAN RECEIVER
Harold W. Deaner and Charles M. Weant, Charlottesville, Va., assignors to Sperry Rand Corporation, Great Neck, N.Y., a corporation of Delaware
Filed June 22, 1965, Ser. No. 465,860
6 Claims. (Cl. 343—103)



1. In a loran receiver responsive to first and second recurrent loran pulses having the same recurrence rate but different time phase, a pulse envelope matching system comprising

means connected to receive said first and second pulses for producing first and second waveforms derived from said first and second pulses, respectively,

each of said waveforms having the characteristics of a peak of predetermined polarity and a zero crossing point,

means for generating first and second recurrent pairs of sampling pulses having the same recurrence rate but said second pair of pulses having a controllable time phase relative to said first pair of pulses,

first sampling gate means coupled to receive said first waveform and said first recurrent pair of pulses to provide a first output signal representing the deviation of each of said first pair of pulses relative to one of said characteristics of said first waveform,

second sampling gate means coupled to receive said second waveform and said second recurrent pair of pulses to provide a second output signal representing the deviation of each of said second pair of pulses relative to said one of said characteristics of said second waveform,

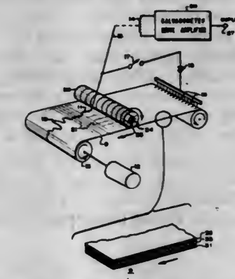
and indicator means coupled to receive said first and second output signals for indicating the difference therebetween.

3,319,251
PHOTO- AND ELECTRO-SENSITIVE RECORDING APPARATUS AND METHOD
Charles S. Reis, Mountain View, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif., a corporation of California
Filed Nov. 6, 1964, Ser. No. 409,487
4 Claims. (Cl. 346—1)

1. A recording method comprising:

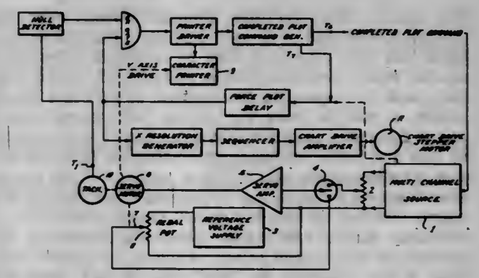
exposing to a light image an electrically conductive matrix including a light-sensitive material which changes color in response to light and a heat-sensitive material which changes color at elevated temperatures to produce an image of contrasting color in the matrix; and

passing an electrical signal through said conductive matrix to electrically heat selected regions thereof to a temperature above said elevated temperature to



produce a color change in said heat-sensitive material for providing a contrasting record in such selected regions.

3,319,252
GRAPHIC RECORDER FOR SEQUENTIAL PLOTTING OF ANALOG VALUES
Edward V. Hardway, Jr., Houston, Tex., assignor to Houston Instrument Corporation, Houston, Tex.
Filed Feb. 15, 1966, Ser. No. 527,589
8 Claims. (Cl. 346—32)

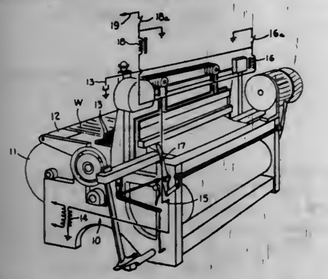


1. In a graphic recorder for high speed and sequential plotting of analog values from a multichannel source on a chart, the combination of: marking means mounted for movement along the Y axis of the chart and adapted to plot a record of said analog values on the chart; a servomechanism operable responsive to an input analog signal from said multichannel source to move the marking means along the Y axis of said chart to a null position proportional to the amplitude of said input signal; means generating a null signal when said marking means has been moved by the servomechanism to at least approximately said null position; means responsive to said null signal to cause the multichannel source to advance the servomechanism input to the next channel; and means operable responsive to said null signal, and independently of any analog signal generated by said multichannel source, to step one of said chart and said marking means relative to the other a predetermined distance along the X axis.

3,319,253
TEXTILE PRODUCTION CONTROL APPARATUS
Noel V. Long, Greenville, S.C., assignor to Adams Incorporated, Greenville, S.C., a corporation of South Carolina
Filed Oct. 20, 1965, Ser. No. 498,689
8 Claims. (Cl. 346—34)

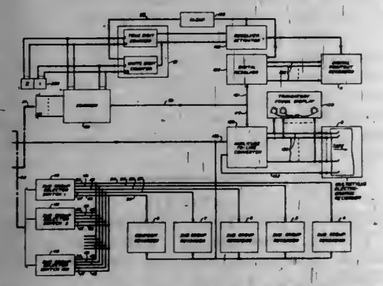
1. A production control apparatus for a large group of machines including, switch means producing a signal responsive to a given operating condition upon each machine, a rotatably mounted shaft, power operated means

driving said shaft uniformly, a first rotary switch having an output terminal and a plurality of spaced contacts each connected to a switch means, a positive drive for driving said first rotary switch from said shaft for scanning each of said switch means in predetermined timed cycles, a first graphic recorder means, a positive drive for moving said first graphic recorder means from said shaft, a second graphic recorder means driven progressively across said first graphic recorder means in a predetermined timed sequence, coupling means coupled to the output terminal of said first rotary switch for connecting a first voltage source to one of said graphic recorder means responsive to a signal on said output terminal of said first rotary switch for graphically recording such operating condition on each scanning cycle during which such operating condi-



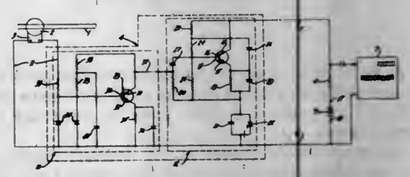
tion obtains, thus recording duration of such operating condition with respect to each individual identifiable machine and with respect to time of occurrence thereof, a second rotary switch having a plurality of spaced contacts each corresponding to a contact of said first rotary switch, a positive drive for driving said second rotary switch from said shaft for scanning each of said contacts of said first rotary switch in predetermined timed cycles, said coupling means connecting a second voltage source to said second rotary switch responsive to a signal on said output terminal of said first rotary switch, a plurality of totalizing means, and means selectively connecting the contacts of said second rotary switch to a selected totalizing means, whereby the total time of such operating condition of selected machine groupings may be recorded.

3,319,254
AUDIENCE REACTION DEVICES
Joseph Charles Rice, Tarzana, and Ralph R. Wells, Van Nuys, Calif., assignors, by mesne assignments, to Screen Gems, Inc., New York, N.Y., a corporation of Delaware
Continuation of application Ser. No. 181,080, Mar. 20, 1962. This application Apr. 20, 1965, Ser. No. 451,682
51 Claims. (Cl. 346—37)



1. A system for measuring the response of an audience to a performance comprising a plurality of selector means individually distributable to separate members of said audience, a separate output circuit associated with each of said selector means, means included in said selector means for deriving an electrical signal associated with each of said selector means representative of the reactions of a separate member of said audience, means for coupling said electrical signals to respective ones of said output circuits, first recording devices, means for selectively coupling said electrical signals to said first recording devices, second recording devices, means for coupling said electrical signals in a plurality of preselected groups to said second recording devices, a third recording device, means for applying representations of different ones of said electrical signals in sequence to said third recording device, resolving means for segregating said electrical signals into categories according to the reactions of said members of said audience, said resolving means including both an input circuit for coupling said electrical signals to said resolving means and output means distinctive to each of said categories, fourth recording devices, and means for connecting said output means to said fourth recording devices.

3,319,255
SIGNAL TRANSMITTING CIRCUIT FOR REMOTE SENSING OF PETROLEUM FLOW
Tim H. Houle, Wauwatosa, Wis., assignor to A. O. Smith Corporation, Milwaukee, Wis., a corporation of New York
Filed Dec. 28, 1964, Ser. No. 421,257
7 Claims. (Cl. 346—43)

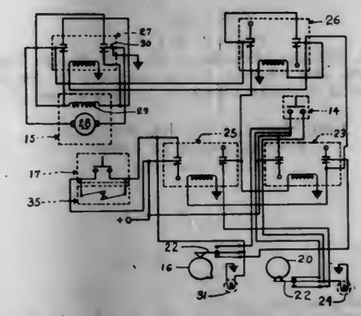


1. In a petroleum product measuring system having a turbine meter for recording the volumetric flow and an alternating current signal generator coupled to and driven by the meter, the improvement of a remote recording and transmission system comprising,
- a remote pulse recording means at a remote location with respect to the meter,
- a two stage amplifying module for mounting at the meter and having an input stage with an input means connected to the generator and an output stage having an input means and an output means with an energy storage means in the output means connected to supply bias power to the input stage when the output stage is cut off,
- a single pair of signal and power transmission lines connected to the input means of the output stage and to the output means of the module and to the recording means to supply bias power to the output stage, and
- power means at the remote location connected across said lines to transmit operating power to the amplifying module.

3,319,256
FLUID DELIVERY RECORDER ACTUATOR
Fernando da Silva Valerio, Kearny, N.J., assignor of seventy-five percent to Aaron D. Franzblau, Millburn, N.J.
Filed Oct. 21, 1965, Ser. No. 499,920
7 Claims. (Cl. 346—43)

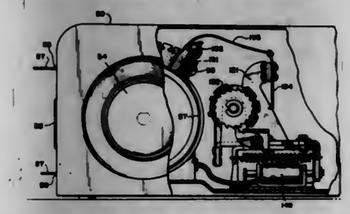
1. An actuated recorder for a fluid dispensing motor vehicle comprising:
- (a) a recorder mounted on a motor vehicle, the recorder having an imprint mechanism responsive to fluid material dispensed and, also, continuously seizing a record card after a first imprint thereon, and releasing the record card only after a second imprint thereon;

- (b) a reversible motor driving the recorder to make imprints on the record card corresponding to amount of fluid dispensed;
- (c) means to start the motor to make a first imprint;
- (d) means to stop the motor after a first imprint;



- (e) first means to start the motor in reverse to make a second imprint;
- (f) means to stop the motor after the second imprint;
- (g) second means to start the motor in reverse to make a second imprint; the second means to start the motor operably connected to the transmission of the motor vehicle whereby driving the vehicle will cause the second imprint.

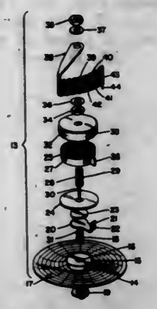
3,319,257
HEAT PIERCING RECORDER
Erwin M. Roschke, Des Plaines, Ill., assignor to Zenith Radio Corporation, Chicago, Ill., a corporation of Delaware
Filed June 30, 1965, Ser. No. 468,492
5 Claims. (Cl. 346—76)



1. Recording apparatus for registering information, comprising:
- a recording device having a restricted-area heating element;
- a recording medium including a thin sheet of prestressed, heat-shrinkable material a predetermined localized area of which is placed in juxtaposition with said heating element;
- means for maintaining portions of said recording medium outside said predetermined area in fixed space relation with said heating element;
- and means for energizing said heating element to produce an aperture in said heat-shrinkable material within said predetermined area.

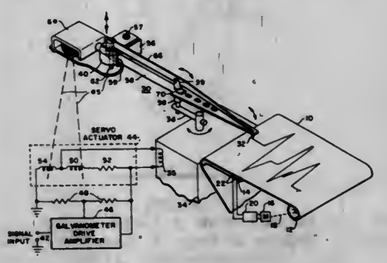
3,319,258
HEAT POWERED THERMOGRAPH
George A. Argabrite, 42000 Pacific Coast Highway, Malibu, Calif. 90265
Filed Aug. 2, 1965, Ser. No. 476,408
7 Claims. (Cl. 346—111)

2. A heat powered thermograph comprising, in combination: a recording medium in the form of a circular plate having a temperature scale thereon; a movable means; a slow acting thermally responsive means connected between said movable means and said recording surface and responsive to an increasing temperature to move said movable means in a first direction defining a circumferential path on said plate; a recording means cooperating with said recording medium in a manner to provide an indication on said recording medium of the



physical position of said recording means; and a fast acting thermally responsive means connected between said recording means and said movable means and responsive to changes in temperature to move said recording means in a second direction defining a radial path on said plate whereby a history of temperature changes during the time said movable means is moving in said first direction is provided on said recording medium.

3,319,259
RECORDER WITH STYLUS PRESSURE CONTROL MEANS
Antal Hartai, Littleton, Mass., assignor to Hewlett-Packard Company, Palo Alto, Calif., a corporation of California
Filed Oct. 20, 1965, Ser. No. 498,826
11 Claims. (Cl. 346—112)

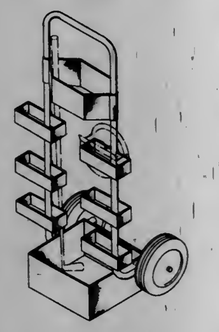


1. In a recording system of the type having record chart, a platen assembly adapted to provide a rigid support for said record chart, and a stylus associated therewith and disposed to engage a surface of said chart in the region supported by said platen assembly, thereby to make a visible trace on said chart, the combination of:
- input terminals for receiving an input signal to be recorded,
- driving means connected to said input terminals and to said stylus for moving said stylus along the surface of said record chart at a velocity related to the rate of change of amplitude of the signal appearing on said input terminals, and
- electrical actuator means connected to said input terminals for varying the contact pressure between said stylus and said platen as a function of the velocity of said stylus.

DESIGNS

MAY 9, 1967

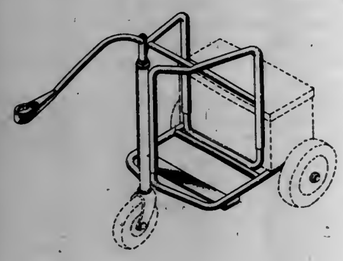
207,577
GOLF-PUTTING-EQUIPMENT CART
Harry Ganger, 186 S. Maryland Ave., Apt. 4, Atlantic City, N.J. 08401
Filed Jan. 17, 1966, Ser. No. 655
Term of patent 14 years
(Cl. D14—3)



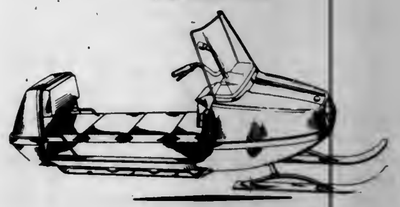
207,578
HAND CART
Charles T. Zeilstra and Carol R. Zeilstra, both of 9950 Chaucer Ave., Westchester, Ill. 60153
Filed May 9, 1966, Ser. No. 2,228
Term of patent 7 years
(Cl. D14—3)



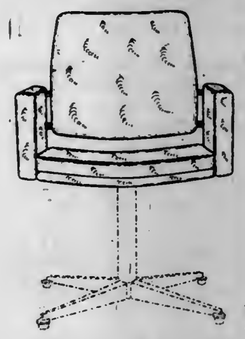
207,579
FRAME FOR A GOLF CART
William D. Jones, E. Club Drive, Thomasville, Ga. 31792
Filed Sept. 23, 1965, Ser. No. 87,132
Term of patent 3½ years
(Cl. D14—3)



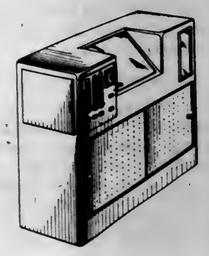
207,580
POWER SLED
Joseph R. Mango, Midlothian, Ill., and Joseph Eugene Scanland, Des Moines, Iowa, assignors to American Machine & Foundry Company, a corporation of New Jersey
Filed Mar. 7, 1966, Ser. No. 1,326
Term of patent 14 years
(Cl. D14—24)



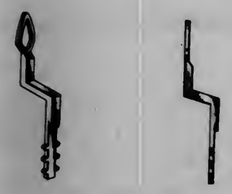
207,581
CHAIR
Kay Korbing, Copenhagen, Denmark, assignor to JG Furniture Co., Inc., New York, N.Y., a corporation of New York
Filed Mar. 28, 1966, Ser. No. 1,663
Term of patent 14 years
(Cl. D15—1)



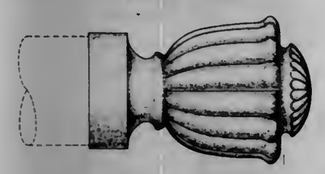
207,582
CHEMICAL REACTION CONTROL CABINET
William F. Perrine, 1114 Bluebird Ave., Santa Clara, Calif. 95051
Filed May 5, 1966, Ser. No. 2,176
Term of patent 14 years
(Cl. D16—2)



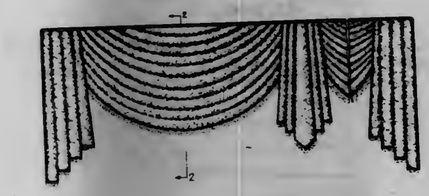
207,583
DEODORANT BLOCK HOLDER
Arnold A. Koistinen, Rte. 1, Box 184, Madison, S. Dak. 57042
Filed June 13, 1966, Ser. No. 2,652
Term of patent 14 years
(Cl. D16—2)



207,584
DRAPERY ROD FINIAL
Kenneth M. Johnson, Kensington, and Kieran D. Doyle, Wallingford, Conn., assignors to The Stanley Works, New Britain, Conn., a corporation of Connecticut
Filed Nov. 22, 1966, Ser. No. 4,770
Term of patent 14 years
(Cl. D21—1)



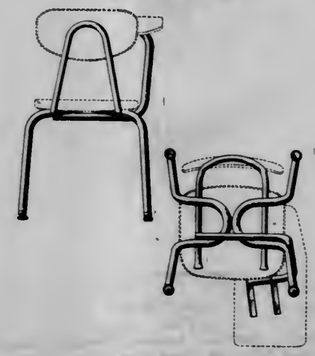
207,585
VALANCE
Albert Packer, 5934 Wrightcrest Drive, Culver City, Calif. 90230
Filed Apr. 15, 1966, Ser. No. 1,906
Term of patent 14 years
(Cl. D21—6)



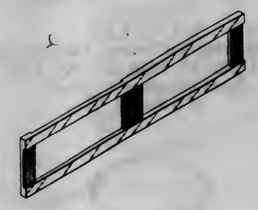
207,586
BATTERY OPERATED POWER PACK
William J. Rakocy, Clifton, N.J., assignor to Ronson Corporation, Woodbridge, N.J., a corporation of New Jersey
Filed Apr. 30, 1965, Ser. No. 85,038
Term of patent 14 years
(Cl. D26—15)



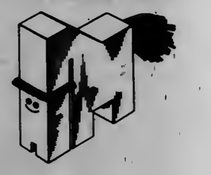
207,587
CHAIR WITH ATTACHED WRITING SURFACE PANEL
Sidney A. Durfee, Bennie L. Culwell, and Raymond C. Barnes, Temple, Tex., assignors to American Desk Manufacturing Company, Temple, Tex., a corporation of Texas
Filed Apr. 22, 1965, Ser. No. 84,905
Term of patent 14 years
(Cl. D33—11)



207,588
TRIM PANEL FOR A CARD HOLDER AND RECESSED DRAWER PULL
John E. Foster, Angola, and Donald J. Rendall, Lakewood, N.Y., assignors to Weber-Knapp Company, Jamestown, N.Y., a corporation of New York
Filed July 29, 1965, Ser. No. 86,349
Term of patent 14 years
(Cl. D33—19)



207,589
TOY SOUVENIR BLOCK
Carl H. Dalsgaard, R.F.D. 5, Driftwood Point, Danbury, Conn. 06810
Filed Aug. 18, 1965, Ser. No. 86,622
Term of patent 14 years
(Cl. D34—15)



207,590
TOOTH FOR AN EARTHWORKING TOOL
Maxwell C. Orendorff, Fresno, Calif., assignor to Max C. Orendorff Co., a corporation of California
Filed Mar. 21, 1966, Ser. No. 1,557
Term of patent 14 years
(Cl. D39—1)



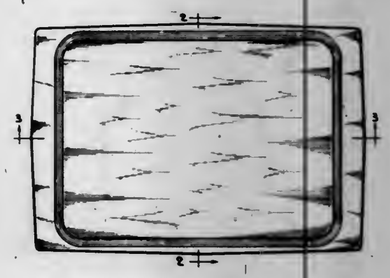
207,591
POT
Jacques Aubecq, Auxi-le-Chateau, Pas-de-Calais, France
Filed Mar. 15, 1966, Ser. No. 1,470
Term of patent 14 years
(Cl. D44—1)



207,592
SAUCE PAN
Jacques Aubecq, Auxi-le-Chateau, Pas-de-Calais, France
Filed Mar. 15, 1966, Ser. No. 1,471
Term of patent 14 years
(Cl. D44—1)



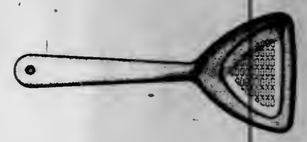
207,593
TRAY
David Douglas, Manitowoc, Wis., assignor to East Wisconsin Trustee Company of Manitowoc, Manitowoc, Wis., a corporation of Wisconsin
Filed Oct. 19, 1965, Ser. No. 87,599
Term of patent 14 years
(Cl. D44—10)



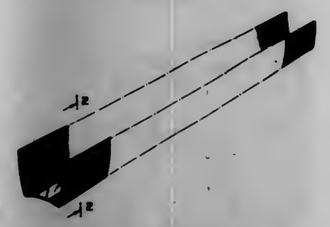
207,594
SOUP TUREEN
Jacques Aubecq, Auxi-le-Chateau, Pas-de-Calais, France, assignor to Aubecq-Auxi, Societe Anonyme, Auxi-le-Chateau, Pas-de-Calais, France, a corporation of France
Filed Mar. 15, 1966, Ser. No. 1,474
Term of patent 14 years
(Cl. D44—15)



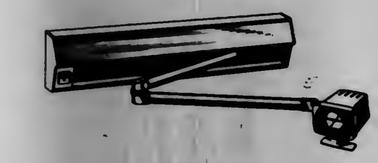
207,595
STRAINER LADLE
Francis E. Gruber, St. Paul, Minn., assignor to Northwest Plastics, Inc., St. Paul, Minn., a corporation of Minnesota
Filed Dec. 8, 1965, Ser. No. 116
Term of patent 14 years
(Cl. D44—29)



207,596
LUMINAIRE REFRACTOR
Vearl S. Wince, Newark, Ohio, assignor to Holophane Company, Inc., New York, N.Y., a corporation of Delaware
Filed May 7, 1965, Ser. No. 85,182
Term of patent 14 years
(Cl. D48—16)



207,597
COMBINED EXTENSIBLE EXAMINATION LAMP AND CABINET THEREFOR
Marcus Bodiam, Los Angeles, Calif., assignor to Sunbeam Lighting Co., Inc., Los Angeles, Calif., a corporation of California
Filed Sept. 12, 1966, Ser. No. 3,887
Term of patent 14 years
(Cl. D48—20)



207,598
COMBINED HOSPITAL BED LAMP AND SERVICE CONSOLE UNIT AND EXTENSIBLE READING LAMP
Marcus Bodiam, Los Angeles, Calif., assignor to Sunbeam Lighting Co. Inc., a corporation of California
Filed Sept. 12, 1966, Ser. No. 3,886
Term of patent 14 years
(Cl. D48—20)



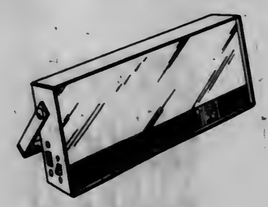
207,599
ELECTRIC BATTERY LANTERN
Herbert J. Ashe, Stamford, Conn. (% H. J. Ashe Co., Inc., P.O. Box 471, South Norwalk, Conn. 06852)
Filed Mar. 4, 1966, Ser. No. 1,291
Term of patent 14 years
(Cl. D48—24)



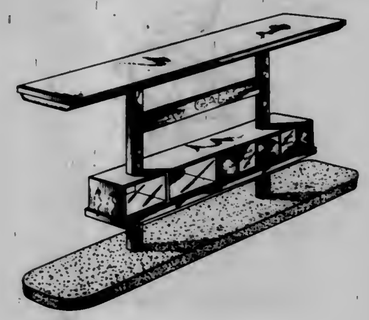
207,600
ELECTRIC BATTERY LANTERN
Ian A. Tesar, Eastchester, N.Y., assignor to Herbert J. Ashe, % H. J. Ashe Co., Inc., South Norwalk, Conn.
Filed Mar. 7, 1966, Ser. No. 1,302
Term of patent 14 years
(Cl. D48—24)



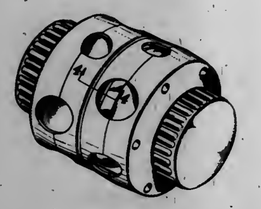
207,601
PORTABLE FLUORESCENT LAMP OR SIMILAR ARTICLE
Howard W. Phillips, Nashville, Tenn., assignor to Aladdin Industries, Incorporated, Chicago, Ill., a corporation of Illinois
Filed May 18, 1965, Ser. No. 85,343
Term of patent 14 years
(Cl. D48—24)



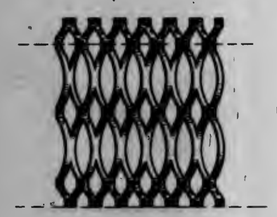
207,602
CONSOLE GASOLENE DISPENSING UNIT
Leonard N. Freed, Saddle Brook, N.J., assignor to Cities Service Oil Company, Bartlesville, Okla., a corporation of Delaware
Original design application June 29, 1964, Ser. No. 80,621, now Patent No. 205,086, dated June 21, 1966. Divided and this application June 13, 1966, Ser. No. 3,332
Term of patent 14 years
(Cl. D52—2)



207,603
MULTIPLE SWIVEL CLAMP FOR TUBES
John Ward Blakely, 4031 Mary Ellen, Studio City, Calif. 91604
Original design application Aug. 23, 1965, Ser. No. 86,678, now Patent No. 206,288, dated Nov. 22, 1966. Divided and this application May 9, 1966, Ser. No. 3,901
Term of patent 14 years
(Cl. D54—1)



207,604
EXPANDED METAL SHEET
Bruce Hehn, St. Clairsville, Ohio, assignor to Wheeling Steel Corporation, Wheeling, W. Va., a corporation of Delaware
Filed Jan. 20, 1966, Ser. No. 705
Term of patent 14 years
(Cl. D54—2)



207,605
MUSICAL RHYTHM INSTRUMENT
Agnes Van, 27 Harlem St., Rochester, N.Y. 14607
Filed Feb. 10, 1966, Ser. No. 1,002
Term of patent 14 years
(Cl. D56—1)



207,606
JUG
Richard L. Platte, Ann Arbor, Mich., assignor to Hoover Ball and Bearing Company, Saline, Mich., a corporation of Michigan
Filed Mar. 16, 1966, Ser. No. 1,483
Term of patent 14 years
(Cl. D58—5)



207,607
PLASTIC JUG
Norman A. Kelly, Wayne Township, Kosciusko County, Ind., assignor to Crystal Preforming and Packaging, Inc., Warsaw, Ind., a corporation of Indiana
Filed June 30, 1966, Ser. No. 2,876
Term of patent 14 years
(Cl. D58—5)



207,608
TUBE CAP
Donald M. Rudolph, 3266 S. Steel St., Denver, Colo. 80210
Filed Jan. 3, 1966, Ser. No. 431
Term of patent 7 years
(Cl. D58—26)



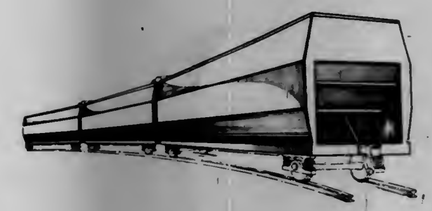
207,609
FONT OF NUMERALS
Samuel S. Fair, 3105 Kawkawlin, Bay City, Mich. 48706
Filed June 4, 1964, Ser. No. 80,280
Term of patent 14 years
(Cl. D64—12)

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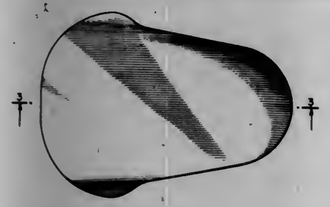
207,610
PITLESS WELL UNIT HOUSING FOR USE WITH SUBMERSIBLE PUMPS
Homer L. Andrew, Superior, Wis., assignor to Duplex Manufacturing Company, Superior, Wis., a corporation of Wisconsin
Filed July 1, 1965, Ser. No. 85,990
Term of patent 14 years
(Cl. D65—1)



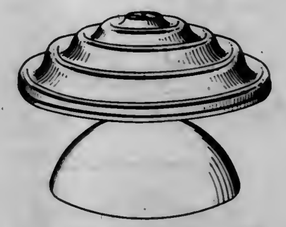
207,611
FREIGHT CAR UNIT
Alan R. Cripe, 4511 Menkin Road, Richmond, Va. 23225
Filed Dec. 21, 1965, Ser. No. 262
Term of patent 14 years
(Cl. D66—1)



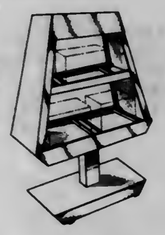
207,612
BELLY BOARD FOR WATER OR SNOW SKIMMING AND THE LIKE
Robert S. Crabb, 332 6th St., Manhattan Beach, Calif. 90266
Filed Sept. 2, 1966, Ser. No. 3,702
Term of patent 14 years
(Cl. D71—1)



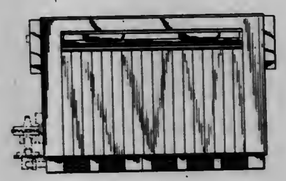
207,613
DISPLAY STAND
Clayton E. Ratcliff, Cincinnati, Ohio, assignor to The Kroger Co., Cincinnati, Ohio, a corporation of Ohio
Filed Aug. 18, 1966, Ser. No. 3,527
Term of patent 14 years
(Cl. D80—9)



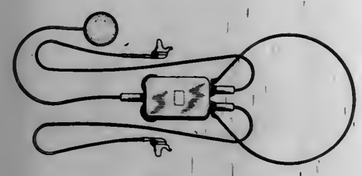
207,614
DISPLAY STAND FOR BATTERIES OR THE LIKE
Joseph Clement, Atlanta, Ga., assignor to Modern Metal Products Company, Greensboro, N.C., a corporation of North Carolina
Filed Oct. 21, 1966, Ser. No. 4,370
Term of patent 14 years
(Cl. D80—9)



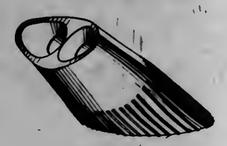
207,615
BOILER
John C. Clever, River Hills, Walter J. Baron, Hubertus, and Fred G. Wiegratz, Berlin, Wis., assignors to Cleaver-Brooks Company, a corporation of Wisconsin
Filed June 30, 1966, Ser. No. 2,889
Term of patent 14 years
(Cl. D81—2)



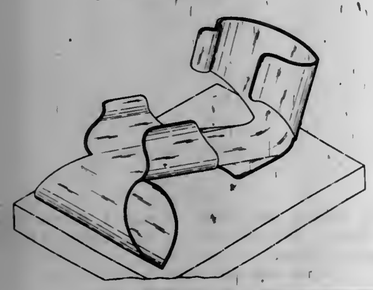
207,616
ELECTRONIC STETHOSCOPE
Bernard B. King, Venice, Calif., assignor, by mesne assignments, to Douglas Aircraft Company, Inc., Santa Monica, Calif., a corporation of Delaware
Filed May 2, 1966, Ser. No. 2,126
Term of patent 14 years
(Cl. D83—12)



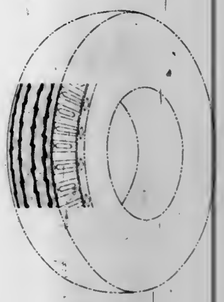
207,617
CIGARETTE SNUFFER
Warren R. Damis, Bricktown, and Irvin J. Gershen, Springfield, N.J., assignors to Maggie Magnetic, Inc., Paterson, N.J., a corporation of New York
Filed June 17, 1966, Ser. No. 2,712
Term of patent 14 years
(Cl. D85—2)



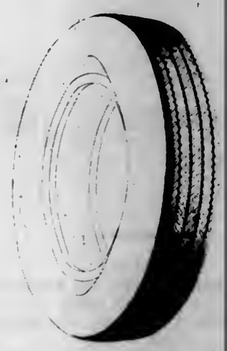
207,618
PIPE HOLDER OR SIMILAR ARTICLE
Orland Perry, 309 Birmingham Ave., Pittsburgh, Pa. 15202
Filed June 21, 1966, Ser. No. 2,763
Term of patent 7 years
(Cl. D85—8)



207,619
TIRE
Jerry J. Hunter, Akron, Ohio, assignor to The Goodyear Tire & Rubber Company, Akron, Ohio, a corporation of Ohio
Filed Aug. 19, 1966, Ser. No. 3,533
Term of patent 14 years
(Cl. D90—20)



207,620
TIRE
Glen L. Wittenmyer, Akron, Ohio, assignor to The B. F. Goodrich Company, New York, N.Y., a corporation of New York
Filed Sept. 6, 1966, Ser. No. 3,749
Term of patent 14 years
(Cl. D90—20)



LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 9TH DAY OF MAY, 1967

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Benken, Henry V. D.: *See*—
Kamborian, Jacob S., Dunlap, and Benken. Re. 26,200.

Dunlap, Robert B.: *See*—
Kamborian, Jacob S., Dunlap, and Benken. Re. 26,200.

Hazeltine Research, Inc.: *See*—
Loughlin, Bernard D. Re. 26,202.

Kamborian, Jacob S., R. B. Dunlap, and H. V. D. Benken; said Dunlap and said Benken assors. to Kamborian. Apparatus for lasting footwear. Re. 26,200, 5–9–67, Cl. 12—10.5.

Leo, Albert J., and H. W. McGhee, to National Pectin Products Co. Agar preparation and process of producing the same. Re. 26,199, 5–9–67, Cl. 99—131.

Loughlin, Bernard D., to Hazeltine Research, Inc. Color-signal detection system. Re. 26,202, 5–9–67, Cl. 178—5.4.

McGhee, Harold W.: *See*—
Leo, Albert J., and McGhee. Re. 26,199.

National Pectin Products Co.: *See*—
Leo, Albert J., and McGhee. Re. 26,199.

Rowse, James A. Production of sauces and purees from fruits and vegetables. Re. 26,201, 5–9–67, Cl. 99—100.

LIST OF PLANT PATENTEES

Bird, James D.: *See*—
Montgomery, Johnson C., and Bird. 2,738.

Montgomery, Johnson C., and J. D. Bird. Artichoke plant. 2,738, 5–9–67, Cl. 89.

LIST OF DESIGN PATENTEES

Aladdin Industries, Inc.: *See*—
Phillips, Howard W. 207,601.

American Desk Mfg. Co.: *See*—
Durfee, Sidney A., Culwell, and Barnes. 207,587.

American Machine & Foundry Co.: *See*—
Mango, Joseph R., and Scanland. 207,580.

Andrew, Homer L., to Duplex Mfg. Co. Pitless well unit housing for use with submersible pumps. 207,610, 5–9–67, Cl. D65—1.

Ashe, Herbert J.: *See*—
Tesar, Ian A. 207,600.

Ashe, Herbert J. Electric battery lantern. 207,599, 5–9–67, Cl. D48—24.

Aubecq, Jacques. Pot. 207,591, 5–9–67, Cl. D44—1.

Aubecq, Jacques. Sauce pan. 207,592, 5–9–67, Cl. D44—1.

Aubecq, Jacques, to Societe Anonyme Aubecq-Auxi. Soup tureen. 207,594, 5–9–67, Cl. D44—15.

Barnes, Raymond C.: *See*—
Durfee, Sidney A., Culwell, and Barnes. 207,587.

Baron, Walter J.: *See*—
Clever, John C., Baron, and Wiegratz. 207,615.

Blakely, John W. Multiple swivel clamp for tubes. 207,603, 5–9–67, Cl. D54—1.

Bodian, Marcus, to Sunbeam Lighting Co., Inc. Combined extensible examination lamp and cabinet therefor. 207,597, 5–9–67, Cl. D48—20.

Bodian, Marcus, to Sunbeam Lighting Co., Inc. Combined hospital bed lamp and service console unit and extensible reading lamp. 207,598, 5–9–67, Cl. D48—20.

Cities Service Oil Co.: *See*—
Freed, Leonard N. 207,602.

Cleaver-Brooks Co.: *See*—
Clever, John C., Baron, and Wiegratz. 207,615.

Clement, Joseph, to Modern Metal Products Co. Display stand for batteries or the like. 207,614, 5–9–67, Cl. D80—9.

Clever, John C., W. J. Baron, and F. G. Wiegratz, to Cleaver-Brooks Co. Boiler. 207,615, 5–9–67, Cl. D81—2.

Crabb, Robert S. Belly board for water or snow skimming and the like. 207,612, 5–9–67, Cl. D71—1.

Cripe, Alan R. Freight car unit. 207,611, 5–9–67, Cl. D66—1.

Crystal Preforming and Packaging, Inc.: *See*—
Kelly, Norman A. 207,607.

Culwell, Bennie L.: *See*—
Durfee, Sidney A., Culwell, and Barnes. 207,587.

Dalsgaard, Carl H. Toy souvenir block. 207,589, 5–9–67, Cl. D34—15.

Damis, Warren R., and I. J. Gershen, to Maggie Magnetic, Inc. Cigarette snuffer. 207,617, 5–9–67, Cl. D85—2.

Douglas Aircraft Co., Inc.: *See*—
King, Bernard B. 207,616.

Douglas, David, to East Wisconsin Trustee Co. of Manitowoc. Tray. 207,593, 5–9–67, Cl. D44—10.

Doyle, Kieran D.: *See*—
Johnson, Kenneth M., and Doyle. 207,584.

Duplex Mfg. Co.: *See*—
Andrew, Homer L. 207,610.

Durfee, Sidney A., B. L. Culwell, and R. C. Barnes, to American Desk Mfg. Co. Chair with attached writing surface panel. 207,587, 5–9–67, Cl. D33—11.

East Wisconsin Trustee Co. of Manitowoc: *See*—
Douglas, David. 207,593.

Fair, Samuel S. Font of numerals. 207,609, 5–9–67, Cl. D64—12.

Foster, John E., and D. J. Rendall, to Weber-Knapp Co. Trim panel for a card holder and recessed drawer pull. 207,588, 5–9–67, Cl. D33—19.

Freed, Leonard N., to Cities Service Oil Co. Console gasolene dispensing unit. 207,602, 5–9–67, Cl. D52—2.

Ganger, Harry. Golf-putting-equipment cart. 207,577, 5–9–67, Cl. D14—3.

Gershen, Irvin J.: *See*—
Damis, Warren R., and Gershen. 207,617.

Goodrich, B. F., Co., The: *See*—
Wittenmyer, Glen L. 207,620.

Goodyear Tire & Rubber Co., The: *See*—
Hunter, Jerry J. 207,619.

Gruber, Francis E., to Northwest Plastics, Inc. Strainer ladle. 207,595, 5–9–67, Cl. D44—29.

Hehn, Bruce, to Wheeling Steel Corp. Expanded metal sheet. 207,604, 5–9–67, Cl. D54—2.

Holophane Co., Inc.: *See*—
Wince, Vearl S. 207,596.

Hoover Ball and Bearing Co.: *See*—
Platte, Richard L. 207,606.

Hunter, Jerry J., to The Goodyear Tire & Rubber Co. Tire. 207,619, 5–9–67, Cl. D90—20.

J G Furniture Co., Inc.: *See*—
Korbing, Kay. 207,581.

Johnson, Kenneth M., and K. D. Doyle, to The Stanley Works. Drapery rod finial. 207,584, 5–9–67, Cl. D21—1.

Jones, William D. Frame for a golf cart. 207,579, 5–9–67, Cl. D14—3.

Kelly, Norman A., to Crystal Preforming and Packaging, Inc. Plastic jug. 207,607, 5–9–67, Cl. D58—5.

King, Bernard B., to Douglas Aircraft Co., Inc. Electronic stethoscope. 207,616, 5–9–67, Cl. D83—12.

Koistinen, Arnold A. Deodorant block holder. 207,583, 5–9–67, Cl. D16—2.

Korbing, Kay, to J G Furniture Co., Inc. Chair. 207,581, 5–9–67, Cl. D15—1.

Kroger Co., The: *See*—
Ratcliff, Clayton E. 207,613.

Maggie Magnetic, Inc.: *See*—
Damis, Warren R., and Gershen. 207,617.

Mango, Joseph R., and J. E. Scanland, to American Machine & Foundry Co. Power sled. 207,580, 5–9–67, Cl. D14—24.

Modern Metal Products Co.: *See*—
Clement, Joseph. 207,614.

Northwest Plastics, Inc.: *See*—
Gruber, Francis E. 207,595.

Orendorff, Max C., Co.: *See*—
Orendorff, Maxwell C. 207,590.

Orendorff, Maxwell C., to Max C. Orendorff Co. Tooth for an earthworking tool. 207,590, 5–9–67, Cl. 39—1.

Packer, Albert. Valance. 207,585, 5–9–67, Cl. D21—6.

Perrine, William F. Chemical reaction control cabinet. 207,582, 5–9–67, Cl. D16—2.

Perry, Orland. Pipe holder, or similar article. 207,618, 5–9–67, Cl. D85—8.

Phillips, Howard W., to Aladdin Industries, Inc. Portable fluorescent lamp or similar article. 207,601, 5–9–67, Cl. D48—24.

Platte, Richard L., to Hoover Ball and Bearing Co. Jug. 207,606, 5–9–67, Cl. D58—5.

Rakocy, William J., to Ronson Corp. Battery operated power pack. 207,586, 5–9–67, Cl. D26—15.
Ratcliff, Clayton E., to The Kroger Co. Display stand. 207,613, 5–9–67, Cl. D80—9.
Rendall, Donald J.: *See*—
Foster, John E., and Rendall. 207,588.
Ronson Corp.: *See*—
Rakocy, William J. 207,586.
Rudolph, Donald M. Tube cap. 207,608, 5–9–67, Cl. D58—26.
Scanland, Joseph E.: *See*—
Mango, Joseph R., and Scanland. 207,580.
Societe Anonyme Aubecq-Auxi: *See*—
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Stanley Works, The: *See*—
Johnson, Kenneth M., and Doyle. 207,584.
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Bodian, Marcus. 207,598.
Tesar, Ian A., to H. J. Ashe. Electric battery lantern. 207,600, 5–9–67, Cl. D48—24.
Yan, Agnes. Musical rhythm instrument. 207,605, 5–9–67, Cl. D56—1.
Weber-Knapp Co.: *See*—
Foster, John E., and Rendall. 207,588.
Wheeling Steel Corp.: *See*—
Hehn, Bruce. 207,604.
Wiegratz, Fred G.: *See*—
Clever, John C., Baron, and Wiegratz. 207,615.
Wince, Vearl S., to Holophane Co., Inc. Luminaire refractor. 207,596, 5–9–67, Cl. D48—16.
Wittenmyer, Glen L., to The B. F. Goodrich Co. Tire. 207,620, 5–9–67, Cl. D90—20.
Zelistra, Carol R.: *See*—
Zelistra, Charles T. and C. R. 207,578.
Zelistra, Charles T. and C. R. Hand cart. 207,578, 5–9–67, Cl. D14—3.

LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 9TH DAY OF MAY, 1967

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

AAI Corp.: *See*—
Barr, Irwin R. 3,318,033.
AMP Inc.: *See*—
Smith, Willard A., and Williamson. 3,319,212.
A.O. Corp.: *See*—
Grepe, Frederick Y. 3,319,142.
Aagard, Roger L., to Honeywell Inc. Double pumped laser. 3,319,182, 5–9–67, Cl. 331—94.5.
Abbott, Charles E. Magnetically animated doll. 3,318,043, 5–9–67, Cl. 46—238.
Abbott Laboratories: *See*—
Goldstein, Alma W. 3,318,783.
Winters, Edward P., and Pearson. 3,318,265.
Abdul, Elsie G., 15% to L. M. Todd. Submersible appliance driver with insulated housing. 3,319,093, 5–9–67, Cl. 310—50.
Abraham, Ernestine G.: *See*—
Young, Richard W., and Abraham. 3,318,768.
Acker, Andre, and J. Taillardat, to Esso Research and Engineering Co. Process for obtaining mineral oils with improved resistance to oxidation. 3,318,799, 5–9–67, Cl. 208—14.
Acme Engineering and Mfg. Corp.: *See*—
Bohanon, Hoy R. 3,318,224.
Adam, Stephen F., to Hewlett-Packard Co. Variable attenuator employing internal switching 3,319,194, 5–9–67, Cl. 333—81.
Adams, Cecil S. and J. B., F. B. Bailey, and E. F. Walker. Switch control apparatus with improved brush contact means. 3,319,017, 5–9–67, Cl. 200—18.
Adams Inc.: *See*—
Long, Noel V. 3,319,253.
Adams, James B.: *See*—
Adams, Cecil S. and J. B., Bailey, and Walker. 3,319,017.
Adams, Renard P. Backwash means for an open ended multiple tube filter assembly. 3,318,452, 5–9–67, Cl. 210—333.
Adams, Richard A., to Dunlop Rubber Co., Ltd. Spot type disc brakes. 3,318,420, 5–9–67, Cl. 188—73.
Adams, Thomas, to United States of America, Army. Apparatus for the measurement of physiologic evaporative water loss. 3,318,302, 5–9–67, Cl. 128—2.
Addor, Roger W., to American Cyanamid Co. 2-iminothiolanes and related compounds. 3,318,910, 5–9–67, Cl. 260—327.
Adema, Eduard H., J. B. M. Laauwen, and J. C. Soeterbroek, to Stamicarbon N.V. Process for the preparation of polypropylene. 3,318,859, 5–9–67, Cl. 260—93.7.
Adema, Eduard H., J. B. M. Laauwen, and J. C. Soeterbroek, to Stamicarbon N.V. Stereospecific polymerization of alpha-olefins in the presence of titanium trichloride, alkyl aluminum dihalide and an ether. 3,318,861, 5–9–67, Cl. 260—93.7.
Adkins, Ashley P., to North American Aviation, Inc. Gravity insensitive degasifying reservoir. 3,318,073, 5–9–67, Cl. 55—202.
Adler, Otto: *See*—
Remy, Hermann, Berghaus, Adler, and Grunbacher. 3,319,129.
Aemmer, Peter, to Albiswerk Zurich A.G. Gain regulating transistor circuit for a plurality of amplifier stages. 3,319,177, 5–9–67, Cl. 330—29.
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Muller-Bardorff, Wolfgang, and Saleck. 3,318,702.
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Aiken, William R., to Electronix Ten, Inc. Signalling device. 3,319,246, 5–9–67, Cl. 340—373.
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Aircraft Tools Inc.: *See*—
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Air-Shields, Inc.: *See*—
Grosholz, James R. 3,318,308.
Air-Tech Industries, Inc.: *See*—
Meyer, Hans P. and K. H. 3,317,933.
Aitken, Rodger G., to Canadian Industries Ltd. Method of reinforcing rubber articles with an adhesive composition comprising the reaction product of an aldehyde with the reaction product of trialkyl cyanurate with a polyhydric phenol. 3,318,750, 5–9–67, Cl. 156—331.
Ajinomoto Co., Inc.: *See*—
Yoshida, Ryonosuke, Takehara, and Negoro. 3,318,911.
Aker, Jimmie R.: *See*—
Cullen, Roy H., Elliott, Richards, Burke, and Aker. 3,318,620.
Aktiebolaget Gotaverken: *See*—
Krabberöd, Halvard. 3,318,297.
Albiswerk Zurich A.G.: *See*—
Aemmer, Peter. 3,319,177.
Albrecht, Otto J., and G. A. Harris, to Borg-Warner Corp. Information transfer system. 3,319,050, 5–9–67, Cl. 235—61.11.
Albright, Jay D., and L. Goldman, to American Cyanamid Co. Novel method for preparing yohimbinone. 3,318,897, 5–9–67, Cl. 260—287.
Alexander, Stephen H., R. C. Butler, and W. G. Juhl, to Monsanto Co. Production of petroleum base pitch and aromatic oils. 3,318,801, 5–9–67, Cl. 208—40.
Alich, John A., to Turner Machinery Co., Inc. Method and apparatus for multiple resawing. 3,318,347, 5–9–67, Cl. 143—22.
Allegheny Ludlum Steel Corp.: *See*—
Werthman, John H. 3,318,126.
Allegretti, John E., and F. O. Fisher, to Siemens-Schuckertwerke Aktiengesellschaft. Doped semiconductor process and products produced thereby. 3,318,814, 5–9–67, Cl. 252—62.3.
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Frank, John. 3,318,072.
Lund, Richard B., and Pierce. 3,318,941.
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Allied Plastics Co.: *See*—
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Curtis, Donald R. 3,318,233.
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Myklebust, Roger, Forsberg, and Lomar. 3,319,156.
Almirante, Luigi, W. Murmann, and L. Friz, to Laboratorio Bioterapico Milanese Selvi & C.S.a.s. Novel 1,2-a-imidazopyridines and a process for the manufacture thereof. 3,318,880, 5–9–67, Cl. 260—247.7.
Alsco, Inc.: *See*—
Collins, Marvin R. 3,318,060.
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Alvarez, Francisco, to Syntex Corp. Process for the preparation of $\Delta^{1,3,5(10)}$-trienes and 3-keto-6-oxygenated-$\Delta^{5(10)}$-dehydro intermediates thereof. 3,318,923, 5–9–67, Cl. 260—397.4.
Amemiya, Hiroshi, T. R. Mayhew, and R. L. Pryor, to Radio Corp. of America. Midpoint conductor drive and sense in a magnetic memory. 3,319,233, 5–9–67, Cl. 340—174.
American Cyanamid Co.: *See*—
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Brown, John J., Hardy, and Nora. 3,318,885.
Brown, John J., Hardy, and Nora. 3,318,886.
Deichert, William G., and Bristol. 3,318,976.
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Young, Richard W., and Abraham. 3,318,768.
American District Telegraph Co.: *See*—
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Anderson, Wilmer C., to General Time Corp. Analog-digital converter employing an asymmetrical multivibrator. 3,319,243, 5–9–67, Cl. 340—347.

Anderson, Wilmer C., F. P. Rennie, and M. J. Ingenito, to General Time Corp. Temperature compensated, frequency stabilized magnetic oscillator. 3,319,185, 5–9–67, Cl. 331—113.

Anderson, Wilmer C., and F. P. Rennie, to General Time Corp. Remote control system including a frequency discriminating delay circuit. 3,319,225, 5–9–67, Cl. 340—147.

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Ball, John D., deceased by V. D. Ball, executrix, and J. B. Pearson, to Esso Production Research Co. Apparatus for measuring travel time of seismic waves from the earth's surface to a given depth in the earth. 3,319,221, 5–9–67, Cl. 340—15.5.

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Barks, Robert W., to Satellite Developing Corp. Diaper washer and storage receptacle. 3,318,119, 5–9–67, Cl. 68—132.

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Bejach, Benton, to Minnesota Mining and Mfg. Co. Tape transport system. 3,318,547, 5–9–67, Cl. 242—55.12.

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Ohnacker, Gerhard, and Woitun. 3,318,883.

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Bohanon, Hoy R., to Acme Engineering and Mfg. Corp. Ventilating and circulating air system tube hanger. 3,318,224, 5–9–67, Cl. 98—33.

Bohmann, Werner, C. Held, A. Martin, R. Göpel, W. Wirths, and W. Hünlich, to Siemens-Schuckertwerke Aktiengesellschaft. Pressure-proof completely enclosed reactor containment structure. 3,318,780, 5–9–67, Cl. 176—87.

Boissieras, Jean, L. F. Ceyzeriat, and M. J. C. Lefort, to Rhone-Poulenc S.A. Organosilicon compounds and their use. 3,318,898, 5–9–67, Cl. 260—293.

Boissonnas, Roger, and S. Guttmann, to Sandoz Ltd. Alanine 4-oxytocin. 3,318,864, 5–9–67, Cl. 260—112.5.

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Bond, Donald C., and G. G. Bernard, to Union Oil Co. of California. Forming foam under reservoir conditions in petroleum recovery process. 3,318,379, 5–9–67, Cl. 166—9.

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Bord, Max. Slidable blade type safety razor having an adjustable razor head and blade exposure means. 3,317,995, 5–9–67, Cl. 30—87.

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Bowen, Max E. Pressurized medicinal foam applicator. 3,318,309, 5–9–67, Cl. 128—225.

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Branson, Norman G., to Branson Instruments, Inc. Cleaning apparatus. 3,318,578, 5–9–67, Cl. 259—1.

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Brossi, Arnold, to Hoffmann-La Roche Inc. Benzo[a]quinolizine intermediates for the preparation of 2-dehydroemetines. 3,318,894, 5–9–67, Cl. 260—286.

Brotherton, Thomas K., and J. W. Lynn, to Union Carbide Corp. Stabilized polymerizable carbonate diisocyanate compounds and process for effecting stabilization. 3,318,942, 5–9–67, Cl. 260—463.

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Brown, Jerry H., and D. G. Conning, to American Machine & Foundry Co. Fluid treatment apparatus having an endless membrane wound in a serpentine path. 3,318,796, 5–9–67, Cl. 204—301.

Brown, John J., R. A. Hardy, Jr., and C. T. Nora, to American Cyanamid Co. Substituted 6-amino-6-demethoxythebaine and 6-amino-6-demethoxyoripavine derivatives. 3,318,884, 5–9–67, Cl. 260—247.2.

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Brown, Timothy D., to Halliburton Co. Formation treatment. 3,318,393, 5–9–67, Cl. 175—4.52.

Browning, Iben S., and E. R. Strand, to E. R. Strand. Acceleration deceleration indicator. 3,318,157, 5–9–67, Cl. 73—492.

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Burroughs, James E., and J. K. Nelson, to Borg-Warner Corp. Method and apparatus for producing clear ice under quiescent conditions. 3,318,105, 5–9–67, Cl. 62—71.

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Butler, Thomas W., and B. T. Vaughn, to Mechanical Products, Inc. Thermal snap circuit breaker with slidable spring biased collar engaging on side of the bimetal. 3,319,031, 5–9–67, Cl. 200—138.

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Callum, George H., to United States Rubber Co. Cushion. 3,318,636, 5–9–67, Cl. 297—457.

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Campolong, Joseph F., to Pall Corp. Pumps with heat exchanger for pumping slurries. 3,318,253, 5–9–67, Cl. 103—87.

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Holbert, James M., and Schmank. 3,318,892.

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Chloupek, LeRoy A., and K. Sekmakas, to DeSoto Chemical Coatings, Inc. Solvent-soluble, heat-hardening, non-gelled resin comprising acrylamide-containing interpolymers carrying a reactive hydroxy group condensed with hydroxy-terminated polysiloxane. 3,318,971, 5–9–67, Cl. 260—826.

Chreist, Louis R., Jr., to South Bend Toy Mfg. Co., Inc. Side mounted accessory for toy vehicle. 3,318,615, 5–9–67, Cl. 280—289.

Christie, Aldis J., Sr. Platform for ladders. 3,318,415, 5–9–67, Cl. 182—116.

Christoph, Frank J., Jr., S. H. Parker, and R. L. Seagraves, to E. I. du Pont de Nemours and Co. Process for preparing carboxylic acid chlorides. 3,318,950, 5–9–67, Cl. 260—544.

Church, Merton W., Jr., to Wyandotte Chemicals Corp. Freeze-proof horizontal heat exchanger. 3,318,373, 5–9–67, Cl. 165—110.

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Cielaszyk, Edward, to General Time Corp. Timed actuating device for aerosol dispenser. 3,318,159, 5–9–67, Cl. 74—3.52.

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Circle Steel Corp.: *See*—
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Clapp, Samuel A., and K. E. Snyder, to General Motors Corp, Transmission. 3,318,174, 5–9–67, Cl. 74—753.

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Clark Equipment Co.: *See*—
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Clark, Gladys J.: *See*—
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Clark, Hadley T. and G. J. Clark, deceased by H. T. Clark, executor. Trailer. 3,318,472, 5–9–67, Cl. 214—506.

Clark, Norman R., to General Motors Corp. Timer control mechanism with indexing means. 3,319,144, 5–9–67, Cl. 318—284.

Clarke, Charles M., to Celanese Corp. of America. Melt hydrolysis of oxymethylene copolymers. 3,318,848, 5–9–67, Cl. 260—67.

Clause, Adolph S., W. L. Vollink, and E. W. Michael, to General Foods Corp. Breakfast cereal process. 3,318,705, 5–9–67, Cl. 99—80.

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Coen, Aldo L. Unitary field structure for magnetic loudspeaker. 3,319,201, 5–9–67, Cl. 335—231.

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Comeld, Thomas H., to Ethyl Corp. Emission control additives. 3,318,812, 5–9–67, Cl. 252—52.

Cogsdill, Stuart A., to Cogsdill Tool Products, Inc. Cutting tool. 3,318,175, 5–9–67, Cl. 77—73.5.

Cogsdill Tool Products, Inc.: *See*—
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Cohen, Leon S.: *See*—
Banderas, Luis P., Cohen, L. S. and J. S., and Cazares. 3,318,316.

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Collins, Marvin R., to Alsco, Inc. Dielectric coated aluminum panel siding. 3,318,060, 5–9–67, Cl. 52—173.

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Colonial Broach & Machine Co.: *See*—
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Combes, John D., to Cheron Research Co. Apparatus for use in well drilling. 3,318,397, 5–9–67, Cl. 175—73.

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Commissariat a l'Energie Atomique: *See*—
Debiesse, Jean, and Klein. 3,319,089.
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Compagnie d'Applications Mecaniques a l'Electronique, au Cinema et a l'Atomistique: *See*—
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Schurman, Peter T., and Confer. 3,317,955.

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Coshow, Chester L. Method of sealing vuggy regions in well bores. 3,318,378, 5–9–67, Cl. 166—4.

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Crandall, Milton A., to Simmonds Precision Products, Inc. Voltage controlled oscillator utilizing transmission-line switching elements. 3,319,187, 5–9–67, Cl. 331—117.

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Cremer, Josef, F. Hartmann, F. Rodis, and A. Hinz, to Knapsack-Griesheim Aktiengesellschaft. Method of producing phosphates. 3,318,660, 5–9–67, Cl. 23—107.

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Crump, Woodford J., to Aircraft Tools Inc. Telephone handset cap tool having a pair of handles and a cup-shaped insert therein. 3,318,177, 5–9–67, Cl. 81—300.

Crumpler, Weymouth B., to United States of America, National Aeronautics and Space Administration. All-directional fastener. 3,318,622, 5–9–67, Cl. 287—189.36.

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Cullen, Roy H., C. H. Elliott, L. D. Richards, W. E. Burke, and J. R. Aker, to Roy H. Cullen. Hose end coupling. 3,318,620, 5–9–67, Cl. 285—149.

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Cunard, Lillian R.: *See*—
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Curtin, Michael D., Jr., to The Proctor & Gamble Co. Process for the production of quaternary ammonium compounds. 3,318,954, 5–9–67, Cl. 260—567.6.

Curtis, Donald R., to Allis-Chalmers Mfg., Co. Sleeve and roll assembly. 3,318,233, 5–9–67, Cl. 100—121.

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Cygan, Frank J., and J. Farmer, to Pennsalt Chemicals Corp. Pineapple processing. 3,318,709, 5–9–67, Cl. 99—105.

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Debiesse, Jean, and S. Klein, to Commissariat a l'Energie Atomique. Methods and devices for generating electrical energy from an ionized gaseous stream having a pressure gradient. 3,319,089, 5–9–67, Cl. 310—3.

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Regnier, Albert, and De Buck. 3,319,009.

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De Laval Turbine Inc.: *See*—
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De Leo, Richard V., and F. W. Hagen, to Rosemount Engineering Co. Pressure sensing instrument for aircraft. 3,318,-146, 5–9–67, Cl. 73—180.

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Delsol, Jacques M. P., to Societe Depson. Fishing apparatus. 3,318,038, 5–9–67, Cl. 43—43.18.

Denlinger, John L., and T. E. Smith, to Armstrong Corp Co. Rotary inspection apparatus. 3,318,137, 5–9–67, Cl. 73—45.3.

Denman, Arthur G. Cord operated humming reel. 3,318,-041, 5–9–67, Cl. 46—60.

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De Robertis, Nicola and C. Button-hole sewing machines. 3,318,271, 5–9–67, Cl. 112—65.

De Shazor, James C., Jr. Connector clip and method and apparatus for assembling units with said clip. 3,318,065, 5–9–67, Cl. 53—48.

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Deve, Vagn. Feeding means for granular or powdered material. 3,318,639, 5–9–67, Cl. 302—17.

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Dick, A. B., Co.: *See*—
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Donlin, Gerald M. Shelf with adjustable bookends. 3,318,454, 5-9-67, Cl. 211—43.

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Drevalas, Constantine N., T. W. Kalbow, and J. H. Tomlin, to Western Electric Co.. Apparatus for forming parts. 3,317,961, 5-9-67, Cl. 18—30.

Dryden, Hugh L., Deputy Administrator of The National Aeronautics and Space Administration with respect to an invention of A. J. Charnosky. Tool attachment for spreading loose elements away from work. 3,318,343, 5-9-67, Cl. 140—124.

Dryden, Hugh L., Deputy Administrator of the National Aeronautics and Space Administration with respect to an invention of M. Kramer. Electronic amplifier with power supply switching. 3,319,175, 5-9-67, Cl. 330—22.

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Dunnet, Wallace J., and R. W. Taylor, to Sylvania Electric Products Inc. Pulse burst generator employing plural locked pair tunnel diode networks and delay means. 3,319,078, 5-9-67, Cl. 307—88.5.

Du Pont de Nemours, E. I., and Co.: *See*—
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Anderson, Vern A., and Durney. 3,318,166.

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Durat, Robert G. E. Apparatus for forming a rolled edge on containers made of sheet material. 3,318,203, 5-9-67, Cl. 93—36.5.

Durham, Harry G., and G. R. Haynes, to Shell Oil Co. N-aliphatic S-(2-cyanoallyl)dithiocarbomates. 3,318,939, 5-9-67, Cl. 260—455.

Dussel, Christian G. L. Process of manufacturing artificial stone elements. 3,318,984, 5-9-67, Cl. 264—77.

Dwyer, Francis D. Positive lock fastener. 3,318,355, 5-9-67, Cl. 151—28.

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Earing, Mason H., to Wyandotte Chemicals Corp. Condensation products of halogen substituted alkylene oxides with polyhydric alcohols in presence of an aluminum alcoholate. 3,318,960, 5-9-67, Cl. 260—615.

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Edmonds, James T., Jr., to Phillips Petroleum Co. Oxidized shaped articles of trimethylene sulfide polymers. 3,318,853, 5-9-67, Cl. 260—79.

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Edwards, John, C. Djerass, H. J. Ringold, and G. Rosenkranz, to Syntex Corp. 6-halo-16-methyl-3,20-diketo derivatives of the pregnane series. 3,318,921, 5-9-67, Cl. 260—397.3.

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Eichenbaum, Raymond, to Mobil Oil Corp. Olefin polymerization process and catalyst comprising transition metal halide, an organometallic compound, hydrogen and an amine. 3,318,860. 5-9-67, Cl. 260—93.7.

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Garberi, Sergio, and G. Ricciardi, to Ing. C. Olivetti & C. S.p.A. Program control device for an adding or accounting machine. 3,318,520, 5–9–67, Cl. 235—60.47.

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Garrison, Charles E., D. G. Kneller, and C. A. Speas, to Hedwin Corp. Plastic container with integral dispensing tube. 3,318,505, 5–9–67, Cl. 229—7.

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Hengel, Mathew C., A. T. Biehl, and R. Mainhardt, to MB Associates. Hand weapon. 3,318,188, 5–9–67, Cl. 89—1.806.

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Hersh, Ralph. Music stand. 3,318,562, 5–9–67, Cl. 248—460.

Hertz, Walter, to Siemens-Schuckertwerke Aktiengesellschaft. Plasmoid generator and accelerator utilizing an annular magnetic core. 3,319,106, 5–9–67, Cl. 313—161.

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Himes, William A., and A. E. Graham, to Newport News Shipbuilding and Dry Dock Co. Automatic dump valve. 3,318,327, 5–9–67, Cl. 137—527.8.

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Holbert, James M., and B. H. Gross, to Chattem Drug & Chemical Co. Hydroxy aluminum nicotinate salicylate and method of preparing the same. 3,318,893, 5–9–67, Cl. 260—270.

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Houle, Tim H., to A. O. Smith Corp. Signal transmitting circuit for remote sensing of petroleum flow. 3,319,255, 5–9–67, Cl. 346—43.

Houlihan, William J., to Sandoz Inc. Dibenzylsulfamides. 3,318,952, 5–9–67, Cl. 260—556.

House, George J. Semi-trailer tandem axle arrangement. 3,318,613, 5–9–67, Cl. 280—81.

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Hoy, Leland C., and B. Hazek, to Indak Mfg. Corp. Multiposition electrical switch with improved guide rail and movable contact structure. 3,319,016, 5–9–67, Cl. 200—16.

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Jacobson, Eric W., to Colonial Broach & Machine Co. Broach. 3,317,984, 5–9–67, Cl. 29—95.1.

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Jakob, Fritz, to Gesellschaft fur Linde's Eismaschinen Aktiengesellschaft. Process for liquefaction of C and heavier hydrocarbons from natural gas with removal of CO_2 and H_2O impurities. 3,318,103, 5–9–67, Cl. 62—11.

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Janssen, Paul A. J., to Janssen Pharmaceutica N.V. Derivatives of benzimidazolinyl piperidine. 3,318,900, 5–9–67, Cl. 260—294.

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Jeffery, Maurice S., to Baker Perkins Ltd. Manufacture of confectionery. 3,318,263, 5–9–67, Cl. 107—8.

Jeffrey, William B., to Westinghouse Air Brake Co. Fabricated valve bushing. 3,318,571, 5–9–67, Cl. 251—367.

Jeger, Oskar, and K. Schaffner, to Ciba Corp. Process for the manufacture of 19-nor-steroids. 3,318,789, 5–9–67, Cl. 204—158.

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Johnson, Harold W., J. Knowles, and T. R. Stockton, to Ford Motor Co. Flexible drive shaft. 3,318,410, 5–9–67, Cl. 180—70.

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Johnson, Myron J., and M. Miles, to Stewart-Warner Corp. Calibration device for electric tachometers utilizing a resonant reed indicator. 3,319,164, 5–9–67, Cl. 324—70.

Johnson, Paul H., R. S. Logan, and L. G. Larson, to Phillips Petroleum Co. Oxidation of carbon black. 3,318,720, 5–9–67, Cl. 106—307.

Johnson, Paul W., to The Johnson Gage Co. Dimensional gage with tandem pedestals. 3,318,011, 5–9–67, Cl. 33—199.

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Jones, Benjamin D., and R. E. Wheeler. Portable dispensing bin. 3,318,473, 5–9–67, Cl. 214—621.

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Jones, Hal, Jr., and W. H. Wood, to General Electric Co. Low thermal loss electric heater for synthetic yarns. 3,319,047, 5–9–67, Cl. 219—388.

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Jones, John P., Jr., to Navigation Computer Corp. Incremental magnetic tape recording system. 3,319,237, 5–9–67, Cl. 340—174.1.

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Jore, Olav E.: *See*—
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Joyce, Samuel F., III, to Monsanto Co. Vinyl plastols stabilized with aliphatic alcohols. 3,318,836, 5–9–67, Cl. 260—31.8.

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Jullien-Davin, Jean, to Crouzet S.r.l. Timed control device with variable programmed sequences. 3,319,019, 5–9–67, Cl. 200—38.

Juveland, Omar O., to Standard Oil Co. Catalyst and catalytic process. 3,318,863, 5–9–67, Cl. 260—94.9.

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Kaasenbrood, Petrus J. C., to Stamicarbon N.V. Preparation of urea with a low biuret content. 3,318,951, 5–9–67, Cl. 260—555.

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Kanngiesser, Karl-Werner, to Brown, Boveri & Cie, Aktiengesellschaft. Control arrangement for self-guided inverters. 3,319,151, 5–9–67, Cl. 321—27.

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Klein, Stefan G., to Identymatic Trust Vaduz. Method for automatically preparing recording and delivering identification tickets. 3,318,428, 5–9–67, Cl. 194—2.
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Adema, Eduard H., Laauwen, and Soeterbroek. 3,318,861.
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Levi, Daisy O. Reversible garment with interlocking seams and method for making the same. 3,317,923, 5–9–67, Cl. 2—227.
Levitt, George, to E. I. du Pont de Nemours and Co. Method for the control of weeds. 3,318,680, 5–9–67, Cl. 71—2.6.
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Lindberg, John E., Jr. Sensor for heat or temperature detection and fire detection. 3,319,289, 5–9–67, Cl. 340—229.
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List, Heinz. Method of extruding moldable material and screw type extruder. 3,317,959, 5–9–67, Cl. 18—12.
Litman, Alan L. Bellows type liquid solidifying apparatus. 3,318,106, 5–9–67, Cl. 62—189.
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Piana, Renato, to S.a.s. Skermat di Ing. Renato & C. Roof covering for buildings and the like. 3,318,055, 5-9-67, Cl. 52—90.
Piazza, Anthony F. Lock latch holder. 3,318,123, 5-9-67, Cl. 70—447.
Pierce, Arleen C.: *See*—
Lund, Richard B., and Pierce. 3,318,941.
Pierce, Donald R.: *See*—
Brouse, William H. D., Cadwallader, and Pierce. 3,317,-993.
Pike, Gus, and W. M. Cromer. Solenoid valve. 3,318,566, 5-9-67, Cl. 251—48.
Pikler, Harold: *See*—
Finke, Arthur A., Kline, Pikler, and Robertson. 3,318,-561.
Pilarczyk, Karol, and J. R. Prairie, to De Laval Turbine Inc. Tilting shoe journal bearing. 3,318,643, 5-9-67, Cl. 308—73.
Pilgram, Kurt H. G.: *See*—
Hasserodt, Ulrich, Pilgram, and Korte. 3,318,915.
Pinckaers, Balthasar H., to Honeywell Inc. SCR switching circuit. 3,319,152, 5-9-67, Cl. 323—22.
Pirogow, Igor A. Perspective drawing device and combination of perspective and parallel drawing device. 3,318,003, 5-9-67, Cl. 33—77.
Pither, Leslie F., to Owens-Illinois, Inc. Molded semi-vitreous article and method of making same. 3,318,713, 5-9-67, Cl. 106—54.
Pitney-Bowes, Inc.: *See*—
Coville, William W. 3,318,640.
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Carson, Laurence F. 3,318,047.
Claassen, George R. 3,318,672.
Dietrich, Joseph J., and Stevens. 3,318,845.
Klimaszewski, Irvin C. 3,318,688.
Selner, Jerome A. 3,318,828.
Plaisted, Richard G., to Westinghouse Electric Corp. Workpiece shape control. 3,318,124, 5-9-67, Cl. 72—8.
Plastock, Irving M. Clamping means for ornamental trim. 3,317,968, 5-9-67, Cl. 24—73.
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Plegat, Alain E., to Societe Anonyme des Usines Chausson Asnieres. Equipment for soldering heat exchangers' nests, more particularly for cooling radiators and radiators obtained. 3,318,503, 5-9-67, Cl. 228—18.
Plemich, John J., and J. W. Gaynor, to Standard Oil Co. Extreme pressure lubricants. 3,318,808, 5-9-67, Cl. 252—32.7.
Plieninger, Hermann, to Siemens & Halske Aktiengesellschaft Berlin and Munich. Arrangement for stage-wise advancement of recording carriers. 3,318,501, 5-9-67, Cl. 226—139.
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Brichard, Edgard, and Plumat. 3,319,671.
Poe, Lloyd R., and B. W. Henrichs, to The Hartwell Corp. Adjustable hook latch. 3,318,624, 5-9-67, Cl. 292—113.
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Pollock, Harold V. B., to Foster Grant Co., Inc. Cushion material. 3,318,756, 5-9-67, Cl. 161—69.
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Gilbert, George T. 3,318,540.
Porret, Daniel: *See*—
Batzer, Hans, Nikles, Ernst, and Porret. 3,318,822.
Porter, Alvin J., and D. W. Mathison, to Product Design & Engineering, Inc. Dispensing closure cap for container having frangible sealing means. 3,318,494, 5-9-67, Cl. 222—534.
Possis Machine Corp.: *See*—
Mommsen, Gordon V. 3,318,641.
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Preiss, Lester L.: *See*—
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Pribyl, Edward J., and C. F. Turk, to E. R. Squibb & Sons, Inc. Production of 12-substituted-6,7,8,9,10,11-hexahydrocycloocta[b]quinolines. 3,318,896, 5-9-67, Cl. 260—287.

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Primm, George M. Sewer rod attachment for drill. 3,317,-943, 5-9-67, Cl. 15—104.3.
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Erman, William F. 3,318,945.
Smith, George C., Jr. 3,318,817.
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Product Design & Engineering, Inc.: *See*—
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Whitaker, Joe M., and Protzmann. 3,318,086.
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Melvin, Philip A., and Pryce. 3,318,775.
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Kott, Hermann. 3,318,185.
Puidokas, Stanley V., to American Motors Corp. Differential gear assembly. 3,318,173, 5-9-67, Cl. 74—713.
Pullen, Charles C., to Bethlehem Steel Corp. Looper control system and method of operating for rolling mills. 3,318,-125, 5-9-67, Cl. 72—14.
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Quenot, Andre, to Quenot & Cie. Tape measure reel. 3,318,-550, 5-9-67, Cl. 242—107.3.
Quenot & Cie: *See*—
Quenot, Andre. 3,318,550.
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Annus, Leonhard E., and Thibodeau. 3,319,112.
Avins, Jack. 3,319,004.
Beelitz, Howard R. 3,318,993.
Cartwright, Gerald D., and Smith. 3,319,103.
Cooperman, Michael. 3,319,085.
Cornely, Roy H., and Burns. 3,319,080.
Denton, Bethel E. 3,319,111.
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Ram, Gerson L., and R. G. Salamon, to Board of Trustees of Schools for Industrial Education of Newark, New Jersey, Administering Newark College of Engineering. Process for purifying colloidal particles for subsequent structural analysis with an electron microscope. 3,319,063, 5-9-67, Cl. 250—49.5.
Rampe, John F. Finishing apparatus. 3,318,051, 5-9-67, Cl. 51—163.
Ramsey, Stancil I. Silk screen printing machine. 3,318,237, 5-9-67, Cl. 101—124.
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Isaer, Ivan S., Vedenov, Karabchevsky, Kulikov, Rats, Shutkevich, and Jafet. 3,318,365.
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Ray, Joe R. Bulk material feeder. 3,318,436, 5-9-67, Cl. 198—60.
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Houck, James A. 3,318,606.
Redford, Lloyd H.: *See*—
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Garcia, Anthony M., and Redford. 3,318,261.
Reed, Frederick P., to United States of America, Army. Machine gun with a mount for reducing the recoil forces applied to the trunnions. 3,318,191, 5-9-67, Cl. 89—42.
Reed, Gordon H., and J. G. Vickers. Method and apparatus for lubricating magnetic recording tape. 3,319,012, 5-9-67, Cl. 179—100.2.
Reed Roller Bit Co.: *See*—
Hosa, Martin D., Meyer, and Smith. 3,318,390.
Reeves Bros., Inc.: *See*—
Hurley, Roy T. 3,318,744.
Regie Nationale des Usines Renault: *See*—
De Coye de Castelet, Gaëtan. 3,318,168.
Regnier, Albert, and J. J. R. P. De Buck, to International Standard Electric Corp. Path selector. 3,319,009, 5-9-67, Cl. 179—18.
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Enk, Eduard, and Reinecke. 3,318,825.
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Reinhoudt, Jacobus P., and H. Fokker, to North American Philips Co., Inc. Hot-gas reciprocating apparatus. 3,318,-100, 5-9-67, Cl. 62—6.
Reis, Charles S., to Hewlett-Packard Co. Photo- and electrosensitive recording apparatus and method. 3,319,251, 5-9-67, Cl. 346—1.
Rembold, Ulysses P., ½ to H. M. Roberts. Disintegrating type sewage disposal system. 3,318,248, 5-9-67, Cl. 103—26.
Remier, Harry E., and C. J. Butke, to The Drackett Co. Germicidal toilet bowl cleaning composition. 3,318,815, 5-9-67, Cl. 252—106.
Remy, Hermann, H.-J. Berghaus, O. Adler, and M. Grunbacher, to Rowenta Metallwarenfabrik G.m.b.H. Electrically ignited lighter. 3,319,129, 5-9-67, Cl. 317—86.
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Rendina, John F., to Hewlett-Packard Co. Metal vapor spectral lamp with mercury and a metal halide at subatmospheric pressure. 3,319,119, 5-9-67, Cl. 315—248.
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Troell, Peter T., Smoot, Renkey, and King. 3,318,723.
Rennie, Frank P.: *See*—
Anderson, Wilmer C., Rennie, and Ingenito. 3,319,185.
Anderson, Wilmer C., and Rennie. 3,319,225.
Renold, Walter, to The Marquardt Corp. Data strip positioning device. 3,319,051, 5-9-67, Cl. 235—61.11.
Renz, Jany, J.-P. Bourquin, H. Winkler, and P. Gagnaux, to Sandoz Ltd. Process for the production of nitro-halothiophenyl ethers. 3,318,958, 5-9-67, Cl. 260—609.
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Retriever Industries Inc.: *See*—
White, Harry M. 3,318,628.
Reyenga, Tjerk, to Bourns, Inc. Torque adjusting device. 3,319,209, 5-9-67, Cl. 338—162.
Reynolds, Frederick N., to The F. A. Nelder Co. Universal furniture glide. 3,317,948, 5-9-67, Cl. 16—42.
Rhodes, Eugene E., to Ford Motor Co. Plating. 3,318,128, 5-9-67, Cl. 72—187.
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Rhodes, Thomas J.: *See*—
Black, Sheppard A., Helde, and Rhodes. 3,318,745.
Rhone-Poulenc S.A.: *See*—
Blachere, Albert M. E., and Breant. 3,318,842.
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Garberi, Sergio, and Ricciardi. 3,318,520.
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Freed, Meier E., and Rice. 3,318,902.
Rich, Harold M., M. V. Artiaga, A. Wolf, H. Van Eikeren, J. L. DeKeizer, and A. Storrie, to Kitchens of Sara Lee, Inc. High speed cutter. 3,318,266, 5-9-67, Cl. 107—69.
Rich, Ira H.: *See*—
Hubbard, Carlton. 3,319,018.
Richard, Jean M., to Service d'Exploitation Industriell des Tabac et des Allumetter. Device for ejecting tobacco leaf-trimmings. 3,318,178, 5-9-67, Cl. 83—98.
Richards, Bert L., Jr.: *See*—
Fielding, Max J., and Richards. 3,318,765.
Richards, Leslie D.: *See*—
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Anderson, William E. 3,318,759.
Riegel Textile Corp.: *See*—
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Rietdijk, Johan A., to North American Philips Co., Inc. Device including at least two seals in the form of rolling diaphragms. 3,318,200, 5-9-67, Cl. 92—61.
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Condon, John R., Brezinski, and Rife. 3,318,830.
Riggs, Peter P., to Macwhyte Co. Plastics impregnated rope. 3,318,082, 5-9-67, Cl. 57—149.
Riley, John E., and R. W. Smith, to Melpar, Inc. Dew collecting method and apparatus. 3,318,107, 5-9-67, Cl. 62—272.
Rindt, Gustav, and D. H. Becking, to The Udylite Corp. Electrodeposition of zinc. 3,318,787, 5-9-67, Cl. 204—55.
Ringler, William H., to The Standard Oil Co. Double dewaxing process. 3,318,800, 5-9-67, Cl. 208—33.
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Ristau, Arnold E. and A. G. Device for accumulating and dispensing coins. 3,318,427, 5-9-67, Cl. 194—2.
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Rembold, Ulysses P. 3,318,248.
Roberts, Robert, and G. H. F. Walker, to Imperial Chemicals Industries Ltd. Process for chlorinating ortho-cresol. 3,318,949, 5-9-67, Cl. 260—521.
Roberts, William L., to United States Steel Corp. Method and apparatus for cutting material. 3,319,053, 5-9-67, Cl. 235—151.1.
Roberts, William L., to United States Steel Corp. Can having a tear strip closure. 3,318,495, 5-9-67, Cl. 222—541.
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Houser, Roy W., and Jaksha. 3,318,116.

Robertson, Archibald, Jr.: *See*—
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Robins, Harold J.: *See*—
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Robinson, Alfred G.: *See*—
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Robinson, Billie. Stepladder accessory. 3,318,416, 5–9–67, Cl. 182—214.

Robinson, Richard H., to Westinghouse Electric Corp. Method and apparatus for determining the amounts of gases dissolved in liquids. 3,319,159, 5–9–67, Cl. 324—30.

Robison, Edward C., and D. A. Schonleber. Illuminated display frame. 3,318,032, 5–9–67, Cl. 40—152.2.

Rockland, Louis B., R. J. Hayes, E. Metzler, and L. Binder, to United States of America, Agriculture. Process for producing quick-cooking legumes. 3,318,708, 5–9–67, Cl. 99—98.

Rockwell Mfg. Co.: *See*—
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Manor, Paul A. 3,318,569.

Rodenacker, Wolf, to Farbenfabriken Bayer Aktiengesellschaft. Mixing and kneading apparatus. 3,317,952, 5–9–67, Cl. 18—2.

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Cremer, Josef, Hartmann, Rodis, and Hinz. 3,318,660.

Roemer, Erich. Method and device for rolling thinwall bearings. 3,317,987, 5–9–67, Cl. 29—149.5.

Rogaczewski, Jerome S.: *See*—
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Rogg, Otto, to Carl Hurth Maschinen- und Zehnradfabrik. Gear shaping machine. 3,318,193, 5–9–67, Cl. 90—4.

Rohr, Otto, to Ciba Ltd. Carbamyl and thiocarbamyl phosphates. 3,318,937, 5–9–67, Cl. 260—455.

Rohrberg, Roderick G., to North American Aviation, Inc. Method and means for workpiece joinder. 3,319,043, 5–9–67, Cl. 219—137.

Rojas, Mario S.: *See*—
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Roland, Wesley J.: *See*—
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Jubb, Albert, and Hatchett. 3,318,090.
Ward, Peter A., Mullins, and Bryan-Brown. 3,318,554.

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Root, Anton. Lowering and raising seat for tubs and the like. 3,317,928, 5–9–67, Cl. 4—185.

Ropp, Richard C., and H. D. Layman, to Sylvania Electric Products Inc. Copper activated strontium metaphosphate phosphors. 3,318,818, 5–9–67, Cl. 252—301.4.

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Vasiloff, Angelos, and Roquemore. 3,318,556.

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De Leo, Richard V., and Hagen. 3,318,146.
Lode, Tenny. 3,318,153.

Rosenberry, W. K.: *See*—
Tarczy-Hornock, Zoltan, and Young. 3,319,181.

Rosenkranz, George: *See*—
Edwards, John, Djerass, Ringold, and Rosenkranz. 3,318,921.

Ross, Charles R. Ski construction. 3,318,609, 5–9–67, Cl. 280—11.13.

Ross, Robert S., to Goodyear Aerospace Corp. Angle of attack compensating bridle system for lighter-than-air balloon. 3,318,553, 5–9–67, Cl. 244—33.

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Rostocil, Charles E. Cartridge. 3,318,244, 5–9–67, Cl. 102—38.

Roszkowski, Theodore R. Method and apparatus for storing low-boiling liquids. 3,318,104, 5–9–67, Cl. 62—45.

Rotary Machine Co.: *See*—
Stacey, Ernest F. 3,317,939.

Rothberg, Sidney. Adjustable slide staining holder. 3,318,458, 5–9–67, Cl. 211—113.

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Guernet, Jacques, and Rouberol. 3,319,064.

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Rounds, Samuel J. and J. G. Adjustable toggle-lever-type strap tightener. 3,317,967, 5–9–67, Cl. 24—70.

Rowe, George E., to Emhart Corp. Apparatus for moving glass containers onto a moving conveyor. 3,318,433, 5–9–67, Cl. 198—24.

Rowenta Metallwarenfabrik GmbH: *See*—
Remy, Hermann, Berghaus, Adler, and Grunbacher. 3,319,129.

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Lapointe, Lloyd J., and Parker. 3,318,431.

Royalmetal Corp.: *See*—
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Royce, Robert E. Apparatus for elevating vehicles. 3,318,417, 5–9–67, Cl. 187—8.41.

Royer, Kenneth W., and D. C. Kolpack, to Purity Cheese Co. Cheese molding press. 3,317,999, 5–9–67, Cl. 31—44.

Rubin, Daniel, to Xerox Corp. Duplex xerographic reproduction. 3,318,212, 5–9–67, Cl. 95—1.7.

Rubin, Robert. Dental device for use in the making of a crown or inlay. 3,318,001, 5–9–67, Cl. 32—40.

Rubinstein, Charles B.: *See*—
Berger, Stuart B., and Rubinstein. 3,318,652.

Rudd, Wallace C., to American Machine & Foundry Co. High frequency welding and shaping of metal parts. 3,319,940, 5–9–67, Cl. 219—102.

Rudge, Peter T., to North American Philips Co., Inc. Balanced phase shift transformer. 3,319,154, 5–9–67, Cl. 323—48.

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Ellingboe, John L., Jr., and Runnels. 3,318,447.

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Ruskin, Henry, to Ruskin Development & Mfg. Corp. Bowling ball having means for indicating a correct hooked delivery. 3,318,598, 5–9–67, Cl. 273—63.

Russell, Richard R., and F. L. Bridges, to Union Carbide Corp. High performance falling-film cooler-absorber. 3,318,588, 5–9–67, Cl. 261—153.

Russenberger, Victor. Circuit protector. 3,319,030, 5–9–67, Cl. 200—121.

Ruth, Arthur P. Air replenishing device for air pressure operated water supply system. 3,318,324, 5–9–67, Cl. 137—209.

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Ryan, Harry M.: *See*—
Garrette, Charles H., Jr., and Ryan. 3,318,560.

Rynhart, John S.: *See*—
Southwick, Charles A., Jr., and Rynhart. 3,318,477.

S.a.s. Skermat di Ing. Renato & C.: *See*—
Piana, Renato. 3,318,055.

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Sakaguchi, Kinichiro, M. Kibi, and A. Kuninaka, to Yamasa Shoyu Kabushiki Kaisha (d.b.a. Yamasa Shoyu Co., Ltd.). Flavoring composition containing sodium inosinate and monosodium glutamate. 3,318,710, 5–9–67, Cl. 99—140.

Sakai, Michihiko, M. Kato, H. Hagiwara, and K. Konishi, to Tukeda Chemical Industries, Ltd. Dithiocyanato amino alkanes. 3,318,936, 5–9–67, Cl. 260—454.

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Sandri, Joseph M., to Standard Oil Co. Novel tri-valent phosphorus derivatives. 3,318,980, 5–9–67, Cl. 260—956.

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Schwall, Chester F., Jr., to The General Tire & Rubber Co. Pneumatic tire. 3,318,357, 5–9–67, Cl. 152—363.

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Sparks, Anthony A., and R. C. Moore, to The Distillers Co. Ltd. Process for peptising sulphur modified chloroprene latex. 3,318,832, 5–9–67, Cl. 260—29.7.
Sparrow, Lawrence R., and J. Braiman, to P. R. Mallory & Co. Inc. Foam potting of aluminum electrolytic capacitors. 3,319,133, 5–9–67, Cl. 317—230.
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Spiegl, Andrew, and S. H. Bacon. Knockdown modular rack. 3,318,462, 5–9–67, Cl. 211—177.
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Adema, Eduard H., Laauwen, and Soeterbroek. 3,318,861.
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Swidinsky, John, and B. B. Brown, to A. H. Robins Co., Inc. 3-cyanopyrrolidines. 3,318,908, 5–9–67, Cl. 260—326.62.

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Thompson, John H., D. D. Skinner, R. H. Whittaker, and F. G. Geil, to Westinghouse Electric Corp. Temperature sensor. 3,318,152, 5–9–67, Cl. 73—362.8.

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Thomson, Charles, to Thomson Solar Engineering Co., Ltd. Solids handling equipment. 3,318,440, 5–9–67, Cl. 198—140.

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Thomson, Charles. 3,318,440.

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Thostrup, Harry, and J. Fjaertoft, to Elektriska Svetsningsaktiebolaget. Apparatus for gas-shielded metal-arc welding. 3,319,042, 5–9–67, Cl. 219—130.

Tiest, Johannes, to North American Philips Co., Inc. Locking device for vacuum cleaner tube. 3,318,619, 5–9–67, Cl. 285—7.

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Toussaint, Hans-Norbert, and F. Krieger, to Siemens & Halske Aktiengesellschaft. Pressure sensitive semiconductor device. 3,319,140, 5–9–67, Cl. 317—235.

Town, Frank, to F. and W. E. Dobson Ltd. Control valve for high pressure hydraulic cylinders and the like. 3,318,331, 5–9–67, Cl. 137—625.63.

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Turner, Richard F., D. A. Nehrig, and H. I. Leon, to United States of America, Atomic Energy Commission. Fuel element. 3,318,779, 5–9–67, Cl. 176—71.

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Ulich, Michael D., to Westinghouse Electric Corp. Mounting assembly for room air conditioners. 3,318,226, 5–9–67, Cl. 98—94.

Ullman, James, to Burlington Industries, Inc. Process for deodorising resin-containing textiles by treatment with ammonia and steam. 3,318,722, 5–9–67, Cl. 117—62.

Ulrich, Friedrich, to International Standard Electric Corp. Circuit arrangement to compare two information items. 3,319,224, 5–9–67, Cl. 340—146.2.

Ulshafer, Paul R., and W. I. Taylor, to Ciba Corp. 16,17,18-triepi-deserpidates. 3,318,877, 5–9–67, Cl. 260—240.

Ungerer, Fritz, deceased (I. Ungerer, heir), and G. Bethe, to I. Ungerer. Apparatus for forming metal-paper laminate electrostatically. 3,318,751, 5–9–67, Cl. 156—380.

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Bohmann, Werner, Held, Martin, Göpel, Wirths, Hunlich, and Finsterwalder. 3,318,780.

Wislson, Walter A.: *See*—
Webster, Richard R., and Wislson. 3,319,065.

Wiss, J., and Sons Co.: *See*—
Hedstrom, Lars, and Wertepny. 3,317,997.

Witco Chemical Co., Inc.: *See*—
Mausner, Marvin L. 3,318,956.

Witte, James H.: *See*—
Wilhelm, Harley A., and Witte. 3,318,246.

Wittel, Hermann: *See*—
Burhorn, Friedrich, Wittel, and Rummel. 3,319,091.

Witty, William M. Extinguishing apparatus and method. 3,318,300, 5–9–67, Cl. 126—25.

Witzler, James A., to Branson Corp. Electrical relay having coaxial terminals. 3,319,200, 5–9–67, Cl. 335—196.

Woitun, Eberhard: *See*—
Ohnacker, Gerhard, and Woitun. 3,318,881.
Ohnacker, Gerhard, and Woitun. 3,318,883.

Wolf, Andrew: *See*—
Rich, Harold M., Artiaga, Wolf, Van Eikeren, De Keizer, and Storrie. 3,318,266.

Wolf, Andrew: *See*—
Artiaga, Mariano V., Tranter, Storrie, Van Eikeren, and Wolf. 3,318,267.

Wolf, Charles H.: *See*—
Wood, Raymond E., and Wolf. 3,319,131.

Wolf, Tobin. Tethered bomber plane and mechanism for releasing bombs. 3,318,042, 5–9–67, Cl. 46—77.

Wollard Aircraft Service Equipment, Inc.: *See*—
Wollard, Joseph C., Slaney, and Preiss. 3,317,942.

Wollard, Joseph C., J. S. Slaney, and L. L. Preiss, to Wollard Aircraft Service Equipment, Inc. Extensible conveyance gangway. 3,317,942, 5–9–67, Cl. 14—71.

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Wood, William H.: *See*—
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Woodfin, Merrill J., to Sport-Wear Hosiery Mills, Inc. Stocking stretching test device. 3,318,141, 5–9–67, Cl. 73—95.

Woodling, George V. Shell box for bottle carriers. 3,318,506, 5–9–67, Cl. 229—27.

Woods, Harris L.: *See*—
Swogger, Emery C., and Woods. 3,318,555.

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Tarmy, Barry L., Shropshire, and Worsham. 3,318,735.

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Handwerk, Erwin C. 3,318,685.

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Schwertz, Frederick A. 3,318,698.

Yaggy, Leon S.: *See*—
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Yax, William G. Multiple-image device. 3,318,218, 5–9–67, Cl. 95—36.

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Young, Richard W., and E. G. Abraham, to American Cyanamid Co. Insecticidal [1-cyano-2-(1H)-isoquinolinyl]-O, O-dialkyl amide esters of phosphothioic acid. 3,318,768, 5–9–67, Cl. 167—33.

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Roschke, Erwin M. 3,319,257.

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CLASSIFICATION OF PATENTS

ISSUED MAY 9, 1967

NOTE.—First number, class; second number, subclass; third number, patent number

2– 9	3,317,921	30– 87	3,317,995	58– 43	3,318,085	74– 87	3,318,163	99– 85	3,318,707	123– 8	3,318,291
111	3,317,922	164	3,317,996	53	3,318,086	199	3,318,164	98	3,318,708	32	3,318,292
227	3,317,923	248	3,317,997	131	3,318,087	230.17	3,318,166	100	Re.26,201		3,318,293
3– 1	3,317,924	338	3,317,998	139	3,318,088	230.7	3,318,165	105	3,318,709	61	3,318,294
4–172	3,317,925	31– 44	3,317,999	60– 24	3,318,089	331	3,318,167	131	Re.26,199	148	3,318,295
	3,317,926	52– 15	3,318,000	39.28	3,318,090	359	3,318,168	140	3,318,710		3,318,296
	3,317,927	40	3,318,001	39.82	3,318,091	432	3,318,169	235	3,318,228	195	3,318,297
185	3,317,928	59	3,318,002	53	3,318,092	493	3,318,170		3,318,229	124– 24	3,318,298
5– 30	3,317,929	33– 77	3,318,003	54.5	3,318,093	625	3,318,171	100– 4	3,318,230	126– 19	3,318,299
42	3,317,930	85	3,318,004	202	3,318,094	682	3,318,172	52	3,318,231	25	3,318,300
68	3,317,931	134	3,318,005	226	3,318,095	713	3,318,173	98	3,318,232	37	3,318,301
319	3,317,932	168	3,318,006	258	3,318,096	753	3,318,174	121	3,318,233	127– 70	3,318,732
335	3,317,933	172	3,318,007	262	3,318,097	75– .5	3,318,683	232	3,318,234	128– 2	3,318,302
349	3,317,934	174	3,318,008	61– 1	3,318,098		3,318,684	257	3,318,235	2.05	3,318,303
360	3,317,935		3,318,009	45	3,318,099	3	3,318,685	101–118	3,318,236	25	3,318,304
8– 55	3,318,655	191	3,318,010	62– 6	3,318,100	42	3,318,686	124	3,318,237	80	3,318,305
101	3,318,656	199	3,318,011		3,318,101	53	3,318,687	363	3,318,238	142	3,318,306
111	3,318,657	34– 5	3,318,012	9	3,318,102	84.5	3,318,688	364	3,318,239	142.2	3,318,307
115.5	3,318,658	12	3,318,013	13	3,318,103	119	3,318,689	401.2	3,318,240	191	3,318,308
115.6	3,318,659	13.8	3,318,014	45	3,318,104	123	3,318,690	102– 7.2	3,318,241	225	3,318,309
9– 14	3,317,936	45	3,318,015	71	3,318,105	129	3,318,691	24	3,318,242	284	3,318,310
310	3,317,937		3,318,016	189	3,318,106	138	3,318,692	28	3,318,243	129– 18	3,318,311
10– 10	3,317,938	62	3,318,018	272	3,318,107	153	3,318,693	38	3,318,244	131– 10.5	3,318,312
12– 10.5	Re.26,200	111	3,318,019	64– 8	3,318,108	171	3,318,694	86.5	3,318,245	84	3,318,313
55	3,317,939	114	3,318,017	23	3,318,109	206	3,318,695	92.5	3,318,246		3,318,314
135	3,317,940	35– 8	3,318,020	65– 65	3,318,671	208	3,318,696	103– 25	3,318,247	171	3,318,315
146	3,317,941	17	3,318,021	106	3,318,672	77– 73.5	3,318,175		3,318,249	187	3,318,316
14– 71	3,317,942	31	3,318,022	118	3,318,673	81–175	3,318,176	26	3,318,248	265	3,318,317
15–104.3	3,317,943	35	3,318,023	159	3,318,674	300	3,318,177	44	3,318,250	132– 76.4	3,318,318
244	3,317,944	36– 2.5	3,318,024	66– 70	3,318,110	83– 98	3,318,178	49	3,318,251	135– 43	3,318,319
250.36	3,317,945	30	3,318,025	89	3,318,111	201	3,318,179	87	3,318,252	136– 6	3,318,733
250.42	3,317,946	42	3,318,026	108	3,318,112	287	3,318,180		3,318,253		3,318,734
312	3,317,947	37– 43	3,318,027		3,318,113	84– 1.1	3,318,991	114	3,318,254	86	3,318,735
16– 42	3,317,948		3,318,028	68– 5	3,318,114	173	3,318,181	135	3,318,255		3,318,736
17– 24	3,317,949	38– 97	3,318,029		3,318,115	85– 41	3,318,182	178	3,318,256	133	3,318,737
45	3,317,950	40– 21	3,318,030	12	3,318,116	84	3,318,183	208	3,318,257	137– 82	3,318,320
18– 1	3,317,951	129	3,318,031	21	3,318,117	88– 24	3,318,184	232	3,318,258	117	3,318,321
2	3,317,952	152.2	3,318,032	24	3,318,118		3,318,185	104– 2	3,318,259	155	3,318,322
	3,317,953	42– 1	3,318,033	132	3,318,119		3,318,186	88	3,318,260	195	3,318,323
2.6	3,317,954		3,318,034	135	3,318,120		3,318,187	91	3,318,261	209	3,318,324
5	3,317,955	43– 12	3,318,035	189	3,318,121	89– 1.806	3,318,188	155	3,318,262	234.5	3,318,325
12	3,317,956	42.72	3,318,037	210	3,318,122	33	3,318,189	106– 1	3,318,711	491	3,318,326
	3,317,957	43.12	3,318,036	70–447	3,318,123	41	3,318,190	38.3	3,318,712	527.8	3,318,327
	3,317,958	43.13	3,318,038	71– 2.3	3,318,675	42	3,318,191	54	3,318,713	557	3,318,328
	3,317,959	100	3,318,039	2.5	3,318,677	142	3,318,192	193	3,318,714	599	3,318,329
19	3,317,960	46– 37	3,318,040		3,318,678	50– 4	3,318,193	210	3,318,715	614.2	3,318,330
30	3,317,961	60	3,318,041		3,318,679	7	3,318,194	287	3,318,716	625.63	3,318,331
	3,317,962	77	3,318,042	2.6	3,318,680	13	3,318,195		3,318,717	625.64	3,318,332
19– .56	3,317,963	238	3,318,043		3,318,681	91–168	3,318,196	288	3,318,718	625.69	3,318,333
34	3,317,964	47– 55	3,318,044		3,318,682	380	3,318,197	292	3,318,719	138–109	3,318,334
65	3,317,965	49– 42	3,318,045	2.7	3,318,676	401	3,318,198	307	3,318,720	121	3,318,335
23–107	3,318,660		3,318,046	72– 8	3,318,124	462	3,318,199	107– 8	3,318,263		3,318,336
165	3,318,661	149	3,318,047	14	3,318,125	92– 61	3,318,200		3,318,264	130	3,318,337
168	3,318,662	223	3,318,048	39	3,318,126	121	3,318,201	17	3,318,265	131	3,318,338
207	3,318,663	280	3,318,049	56	3,318,127	245	3,318,202	69	3,318,266	138	3,318,339
209.4	3,318,664	51– 96	3,318,050	187	3,318,128	93– 36.5	3,318,203		3,318,267	140	3,318,340
219	3,318,665	163	3,318,051	199	3,318,129	37	3,318,204	108– 25	3,318,268	139– 1	3,318,341
226	3,318,666	165	3,318,052	226	3,318,130	51	3,318,205	112	3,318,269	140–102	3,318,342
253	3,318,667	209	3,318,053	243	3,318,131	58.1	3,318,206	110– 7	3,318,270	124	3,318,343
270	3,318,668	52– 39	3,318,054	250	3,318,132	94– 22	3,318,207	112– 65	3,318,271		3,318,344
315	3,318,669	90	3,318,055	73– 1	3,318,133	44	3,318,208	158	3,318,272	141– 59	3,318,345
347	3,318,670	105	3,318,056		3,318,134	50	3,318,209	235	3,318,273	293	3,318,346
24– 27	3,317,966	126	3,318,057	10	3,318,135		3,318,210	248	3,318,274	143– 22	3,318,347
70	3,317,967	157	3,318,058	23.1	3,318,149		3,318,211	114– .5	3,318,275	144–238	3,318,348
73	3,317,968	169	3,318,059	35	3,318,136	95– 1.7	3,318,212	43.5	3,318,276	146– 27	3,318,349
	3,317,969	173	3,318,060	45.3	3,318,137		3,318,213	102	3,318,277	86	3,318,350
75	3,317,970	288	3,318,061	64.3	3,318,138	10	3,318,214	125	3,318,278	94	3,318,351
134	3,317,971	309	3,318,062	71.6	3,318,139	11.5	3,318,215	116– 63	3,318,279	150	3,318,352
241	3,317,972	404	3,318,063	73	3,318,140		3,318,216	124	3,318,280	192	3,318,353
252	3,317,973	613	3,318,064	95	3,318,141		3,318,217	117– 15	3,318,721	148– 2	3,318,738
279	3,317,974	53– 48	3,318,065		3,318,142	36	3,318,218	62	3,318,722	149– 11	3,318,739
26– 20	3,317,976	53	3,318,066	96	3,318,143	73	3,318,219	70	3,318,723	38	3,318,740
28– 1	3,317,977	112	3,318,067	147	3,318,144	75	3,318,220	97	3,318,724	89	3,318,741
	3,317,978	164	3,318,068	152	3,318,145	89	3,318,221	104	3,318,725	150– 40	3,318,354
32	3,317,979	54– 6	3,318,069	180	3,318,146	94	3,318,222	112	3,318,726	151– 28	3,318,355
71.3	3,317,980	55– 1	3,318,070	231	3,318,147	96– 1	3,318,697	118	3,318,727	152–216	3,318,356
29– 25.13	3,317,981	32	3,318,071		3,318,148	1.1	3,318,698	132	3,318,728	363	3,318,357
25.42	3,317,982	67	3,318,072	233	3,318,150	49	3,318,699	202	3,318,729	156– 2	3,318,742
	3,317,983	202	3,318,073	346	3,318,151	53	3,318,700	212	3,318,730	48	3,318,743
95.1	3,317,984	204	3,318,074	362.8	3,318,152	61	3,318,701	215	3,318,731	82	3,318,744
96	3,317,985	228	3,318,075	398	3,318,153	107	3,318,702	118– 2	3,318,281	111	3,318,745
148.4	3,317,986	350	3,318,076	422	3,318,154	98– 1	3,318,223	9	3,318,282	167	3,318,746
149.5	3,317,987	447	3,318,077	425.4	3,318,155	33	3,318,224	500	3,318,283	204	3,318,747
156.8	3,317,988	57– 53	3,318,078	432	3,318,156	38	3,318,225	637	3,318,284	224	3,318,748
203	3,317,989	117	3,318,079	492	3,318,157	94	3,318,226	119– 1	3,318,285	229	3,318,749
407	3,317,990	120	3,318,080	517	3,318,158	115	3,318,227	20	3,318,286	331	3,318,750
420.5	3,317,991	125	3,318,081	74– 3.52	3,318,159	99– 1	3,318,703	56	3,318,287	380	3,318,751
450	3,317,992	149	3,318,082	5.34	3,318,161	15	3,318,704	109	3,318,288	394	3,318,752
527	3,317,993	157	3,318,083	5.4	3,318,160	80	3,318,705	120– 42.03	3,318,289	461	3,318,753
528	3,317,994	58– 38	3,318,084	6	3,318,162	83	3,318,706	122–510	3,318,290	505	3,318,754

158– 28	3,318,358	180– 33	3,318,408	212– 48	3,318,463	241– 183	3,318,537	260– 77.5	3,318,849	260– 544	3,318,950
125	3,318,359	68	3,318,409	134	3,318,464	186	3,318,539	78.5	3,318,850	555	3,318,951
160– 107	3,318,360	70	3,318,410	214– 1	3,318,465	217	3,318,540		3,318,851	556	3,318,952
193	3,318,361	181– .5	3,318,411		3,318,466	284	3,317,975		3,318,852	558	3,318,953
229	3,318,362	65	3,318,412		3,318,467	242– 18	3,318,541	79	3,318,853	567.6	3,318,954
161– 25	3,318,755	182– 46	3,318,413	95	3,318,469	35.6	3,318,542	87.7	3,318,854	603	3,318,955
69	3,318,756	115	3,318,414	301	3,318,470	55.12:	3,318,544	88.1	3,318,855	607	3,318,956
193	3,318,757	116	3,318,415	450	3,318,471		3,318,545	91.3	3,318,856	609	3,318,957
216	3,318,758	214	3,318,416	506	3,318,472		3,318,546	93.7	3,318,857		3,318,958
235	3,318,759	187– 8.41:	3,318,417	621	3,318,473		3,318,547		3,318,858	613	3,318,959
263	3,318,760	17	3,318,418	650	3,318,468	55.13:	3,318,548		3,318,859	615	3,318,960
162– 82	3,318,761	188– 32	3,318,419	217– 12	3,318,474	55.2	3,318,543		3,318,860	619	3,318,961
394	3,318,762	73	3,318,420	219– 10.75:	3,319,037	74	3,318,549		3,318,861		3,318,962
164– 82	3,318,363	106	3,318,421	79	3,319,038	107.3	3,318,550	94.2	3,318,862	651	3,318,963
153	3,318,364	112	3,318,422	98	3,319,039	154	3,318,551	94.9	3,318,863	666	3,318,964
194	3,318,365	251	3,318,423	102	3,319,040	243– 32	3,318,552	112.5	3,318,864	667	3,318,965
274	3,318,366	264	3,318,424	105	3,319,041	244– 33	3,318,553	158	3,318,865	669	3,318,966
276	3,318,367	192– 4	3,318,425	130	3,319,042	54	3,318,554	210	3,318,866	680	3,318,967
282	3,318,368	8	3,318,426	137	3,319,043	90	3,318,555		3,318,867	683.15:	3,318,969
283	3,318,369	194– 2	3,318,427	160	3,319,044	114	3,318,556	233.5	3,318,868	683.3	3,318,968
306	3,318,370		3,318,428	243	3,319,045	248– 20	3,318,557	239	3,318,869	823	3,318,970
165– 2	3,318,371	195– 28	3,318,781	275	3,319,046	27	3,318,558		3,318,870	826	3,318,971
29	3,318,372	66	3,318,782	388	3,319,047	43	3,318,559	239.3	3,318,871	836	3,318,972
110	3,318,373	80	3,318,783	441	3,319,048	44	3,318,560	239.5	3,318,872	837	3,318,973
134	3,318,374	197– 1	3,318,429	523	3,319,049	229	3,318,561	239.55:	3,318,873	865	3,318,974
164	3,318,375	18	3,318,430	220– 3.4	3,318,476	460	3,318,562	240	3,318,874	872	3,318,975
169	3,318,376	90	3,318,431	3.94:	3,318,475	249– 140	3,318,563		3,318,875	878	3,318,976
166– .6	3,318,377	198– 16	3,318,432	47	3,318,477	197	3,318,564		3,318,876	889	3,318,977
4	3,318,378	24	3,318,433	221– 227	3,318,478	250– 43.5	3,319,071		3,318,877	928	3,318,978
9	3,318,379	33	3,318,434	222– 23	3,318,479	49.5	3,319,063		3,318,878	956	3,318,979
	3,318,380	38	3,318,435	30	3,318,480		3,319,064	243	3,318,879		3,318,980
35	3,318,381	60	3,318,436	56	3,318,481	71.5	3,319,065	246	3,318,881	971	3,318,981
46	3,318,382	62	3,318,437	79	3,318,482	83.6	3,319,066	247.1	3,318,880	980	3,318,982
68	3,318,383	64	3,318,438	136	3,318,483	105	3,319,067		3,318,882	261– 30	3,318,586
120	3,318,384	75	3,318,439		3,318,484	217	3,319,068		3,318,883	64	3,318,587
212	3,318,385	140	3,318,440		3,318,485	218	3,319,069	247.2	3,318,884	153	3,318,588
224	3,318,386	175	3,318,441	143	3,318,486	222	3,319,070	247.5	3,318,885	160	3,318,589
	3,318,387	181	3,318,442	173	3,318,487	251– 45	3,318,565		3,318,886	263– 28	3,318,590
167– 22	3,318,763	200– 16	3,319,016	180	3,318,489	48	3,318,566	248	3,318,887	34	3,318,591
30	3,318,764	18	3,319,017	182	3,318,488	259	3,318,568		3,318,888	264– 38	3,318,983
	3,318,765	19	3,319,018	340	3,318,490	306	3,318,567	256.4	3,318,889	77	3,318,984
33	3,318,766	38	3,319,019	363	3,318,491	315	3,318,569	268	3,318,890	98	3,318,985
	3,318,767	50	3,319,020	402.11:	3,318,492	321	3,318,570	270	3,318,891	111	3,318,986
	3,318,768	67	3,319,021	402.15:	3,318,493	332	3,318,577		3,318,892	171	3,318,987
42	3,318,769		3,319,022	534	3,318,494	367	3,318,571		3,318,893		3,318,988
52	3,318,770	81	3,319,023	541	3,318,495	252– 8.55:	3,318,806	286	3,318,894	176	3,318,989
65	3,318,771	83	3,319,024	546	3,318,496	18	3,318,807		3,318,895	187	3,318,990
	3,318,772	114	3,319,025	223– 46	3,318,497	32.7	3,318,808	287	3,318,896	269– 45	3,318,592
67	3,318,773		3,319,026	83	3,318,498	33	3,318,809		3,318,897	60	3,318,593
74	3,318,774	120	3,319,027	224– 2	3,318,499	46.4	3,318,810	293	3,318,898	265	3,318,594
78	3,318,775		3,319,028	225– 2	3,318,500	49.9	3,318,811		3,318,899	289	3,318,595
170–160.5	3,318,388		3,319,029	226–139	3,318,501	52	3,318,812	294	3,318,900	324	3,318,596
172–445	3,318,389	121	3,319,030	180	3,318,502	59	3,318,813		3,318,901	328	3,318,597
173– 12	3,318,390	138	3,319,031	228– 18	3,318,503	62.3	3,318,814	294.3	3,318,902	273– 63	3,318,598
19	3,318,391	153	3,319,032	229– 2.5	3,318,504	106	3,318,815	303	3,318,903	101.2	3,318,599
132	3,318,392	166	3,319,033	7	3,318,505	137	3,318,816	306.8	3,318,904	115	3,318,600
174– 68.5	3,318,993	167	3,319,034	27	3,318,506		3,318,817	310	3,318,905	134	3,318,601
69	3,318,994	168	3,319,035		3,318,507	301.4	3,318,818	326.5	3,318,906	162	3,318,602
73	3,318,992		3,319,036	51	3,318,508	403	3,318,819		3,318,907	274– 23	3,318,603
142	3,318,995	202–160	3,318,784	62.5	3,318,511	415	3,318,820	326.62:	3,318,908	277– 27	3,318,604
175– 4.52:	3,318,393	204– 25	3,318,785	78	3,318,509	442	3,318,821	326.85:	3,318,909	34	3,318,605
5	3,318,394	51	3,318,786	85	3,318,510	253– 39	3,318,572	327	3,318,910	72	3,318,606
14	3,318,395	55	3,318,787	230– 69	3,318,512	39.15:	3,318,573	340.7	3,318,911	203	3,318,607
72	3,318,396	130	3,318,788	114	3,318,513	59	3,318,574	343.2	3,318,912	279– 59	3,318,608
73	3,318,397	158	3,318,789	206	3,318,514	254–167	3,318,575	343.6	3,318,913	280– 11.13:	3,318,609
323	3,318,398	168	3,318,790	238	3,318,515	175.5	3,318,576	343.7	3,318,914	11.35:	3,318,610
329	3,318,399	171	3,318,791	232– 35	3,318,516	259– 1	3,318,578	345.9	3,318,915	34	3,318,611
	3,318,400	219	3,318,792	235– 52	3,318,517	6	3,318,579	346.1	3,318,916	79.2	3,318,612
413	3,318,401	225	3,318,793	55	3,318,518	8	3,318,580	397.1	3,318,917	81	3,318,613
176– 61	3,318,776	290	3,318,794	60	3,318,519	72	3,318,581	397.2	3,318,918	221	3,318,614
	3,318,777	301	3,318,795	60.47:	3,318,520	97	3,318,582		3,318,919	289	3,318,615
64	3,318,778		3,318,796	61.11:	3,319,050	108	3,318,583		3,318,920	434	3,318,616
71	3,318,779	206– 52	3,318,443		3,319,051	162	3,318,584	397.3	3,318,921	500	3,318,617
87	3,318,780	57	3,318,444	98	3,318,521	180	3,318,585	397.4	3,318,922	289– 29	3,318,618
177– 46	3,318,402	78	3,318,445	146	3,318,522	260– 2	3,318,822		3,318,923	285– 7	3,318,619
178– 5.4	Re.26,202	208– 6	3,318,797	150.26:	3,319,052		3,318,823		3,318,924	149	3,318,620
6.6	3,318,996	11	3,318,798	151.1	3,319,053	2.5	3,318,824		3,318,925	287– 2	3,318,621
	3,318,997	14	3,318,799	154	3,319,054	8	3,318,825		3,318,926	189.36:	3,318,622
	3,318,998	33	3,318,800	157	3,319,055	17.4	3,318,826	397.5	3,318,927	289– 1.5	3,318,623
7.8	3,318,999	40	3,318,801	159	3,319,056	18	3,318,827		3,318,928	290– 1	3,319,072
22	3,319,000	111	3,318,802	164	3,319,057	22	3,318,828		3,318,929	292–113	3,318,624
179– 1	3,319,001	187	3,318,803	201	3,318,523	29.6	3,318,829	404.5	3,318,930	346	3,318,625
	3,319,002	365	3,318,804	236– 10	3,318,524		3,318,830	429	3,318,931	298– 16	3,318,626
	3,319,003	209– 3	3,318,446	12	3,318,525	29.7	3,318,831		3,318,932		3,318,627
15	3,319,004	213	3,318,447	35	3,318,526		3,318,832	434	3,318,933	19	3,318,628
	3,319,005	210– 21	3,318,805	59	3,318,527	30.4	3,318,833	448	3,318,934	103	3,318,629
	3,319,006	71	3,318,448	239– 17	3,318,528	31.2	3,318,834	448.2	3,318,935	104	3,318,630
16	3,319,007	104	3,318,449	69	3,318,529	31.6	3,318,835	454	3,318,936	296– 1	3,318,631
18	3,319,008	134	3,318,450	117	3,318,530	31.8	3,318,836	455	3,318,937	297–220	3,318,632
	3,319,009	198	3,318,451	212	3,318,531	32.6	3,318,837		3,318,938	264	3,318,633
84	3,319,010	333	3,318,452	265.23:	3,318,532	33.6	3,318,838		3,318,939	388	3,318,634
	3,319,011	211– 11	3,318,453	288.5	3,318,533	37	3,318,839		3,318,940	446	3,318,635
100.2	3,319,012	43	3,318,454	291	3,318,534	41	3,318,840	462	3,318,941	457	3,318,636
	3,319,013	49	3,318,455	310	3,318,535	45.75:	3,318,841	463	3,318,942	299– 39	3,318,637
	3,319,014	72	3,318,456	240– 1.3	3,319,058	45.85:	3,318,842	464	3,318,943	76	3,318,638
	3,319,015	74	3,318,457	9	3,319,059	46.5	3,318,843	465	3,318,944	302– 17	3,318,639
180– 5	3,318,403	113	3,318,458	73	3,319,060		3,318,844	468	3,318,945	31	3,318,640
7	3,318,404	122	3,318,459	81	3,319,061	47	3,318,845	475	3,318,946	49	3,318,641
	3,318,405	123	3,318,460	103	3,319,062		3,318,846	482	3,318,947	307– 10	3,319,073
	3,318,406	133	3,318,461	241– 6	3,318,536	67	3,318,847	499	3,318,948	66	3,319,074
9.24:	3,318,407	177	3,318,462	178	3,318,538		3,318,848	521	3,318,949	88.5	3,319,075

307– 88.5	3,319,076	313– 45	3,319,102	317–234	3,319,135	325–104	3,319,167	335–196	3,319,200	340–174	3,319,233
	3,319,077	68	3,319,103		3,319,136	172	3,319,168	231	3,319,201		3,319,234
	3,319,078	149	3,319,105		3,319,137	392	3,319,169	336– 61	3,319,202		3,319,235
	3,319,079	161	3,319,106	235	3,319,138	328– 55	3,319,170	96	3,319,203	174.1	3,319,236
	3,319,080	176	3,319,107		3,319,139	124	3,319,171	134	3,319,204		3,319,237
	3,319,081	331	3,319,108		3,319,140	133	3,319,172	165	3,319,205		3,319,238
	3,319,082	315– 5.41:	3,319,109	258	3,319,141	330– 6	3,319,173	218	3,319,206	229	3,319,239
	3,319,083	17	3,319,110	318– 48	3,319,142	17	3,319,174	229	3,319,207	244	3,319,240
	3,319,084	27	3,319,111	138	3,319,104	22	3,319,175	338– 32	3,319,208	347	3,319,241
	3,319,085		3,319,112	275	3,319,143	28	3,319,176	162	3,319,209		3,319,242
	3,319,086	29	3,319,113	284	3,319,144	29	3,319,177	322	3,319,210		3,319,243
	3,319,088	39	3,319,114	287	3,319,145	331– 2	3,319,178	339– 31	3,319,211		3,319,244
112	3,319,087	66	3,319,115	320– 1	3,319,146	8	3,319,179	64	3,319,212	359	3,319,245
308– 26	3,318,642	83	3,319,116	321– 6	3,319,147	47	3,319,180	91	3,319,213	373	3,319,246
73	3,318,643	111	3,319,117	8	3,319,148	49	3,319,181		3,319,214	404	3,319,247
134.1	3,318,644		3,319,118	14	3,319,149	94.5	3,319,182	150	3,319,215	343– 11	3,319,248
196	3,318,645	248	3,319,119	18	3,319,150		3,319,183	176	3,319,216	100	3,319,249
310– 3	3,319,089	316– 3	3,318,649	27	3,319,151	109	3,319,184		3,319,217	103	3,319,250
11	3,319,090	317– 12	3,319,120	323– 22	3,319,152	113	3,319,185	340– 6	3,319,218	346– 1	3,319,251
	3,319,091		3,319,121	43.5	3,319,153	116	3,319,186	8	3,319,219	32	3,319,252
	3,319,092	18	3,319,122	48	3,319,154	117	3,319,187	12	3,319,220	34	3,319,253
50	3,319,093		3,319,123	75	3,319,155	332– 30	3,319,188	15.5	3,319,221	37	3,319,254
68	3,319,094		3,319,124	78	3,319,156	45	3,319,189	38	3,319,222	43	3,319,255
	3,319,095	22	3,319,125	324– 1	3,319,157	333– 10	3,319,190	146.1	3,319,223		3,319,256
	3,319,096	33	3,319,126	9	3,319,158	24.2	3,319,191	146.2	3,319,224	76	3,319,257
90	3,319,098	36	3,319,127	30	3,319,159	31	3,319,192	147	3,319,225	111	3,319,258
163	3,319,099	54	3,319,128	37	3,319,160	72	3,319,193	172.5	3,319,226	112	3,319,259
168	3,319,100	86	3,319,129	47	3,319,161	81	3,319,194		3,319,227	350– 6	3,318,650
268	3,319,101	87	3,319,130	57	3,319,162	335– 36	3,319,195		3,319,228	96	3,318,651
312–218	3,318,646	101	3,319,131	61	3,319,163	38	3,319,196		3,319,229	151	3,318,652
257	3,318,647	230	3,319,132	70	3,319,164	95	3,319,197		3,319,230	215	3,318,653
273	3,318,648		3,319,133	84	3,319,165	114	3,319,198		3,319,231	351–118	3,318,654
313– 12	3,319,097	234	3,319,134	158	3,319,166	128	3,319,199	174	3,319,232		

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	207,578	D26– 15	207,586	15	207,594		207,601	26	207,608	D81– 2	207,615
	207,579	D33– 11	207,587	29	207,595	D52– 2	207,602	D64– 12	207,609	D83– 12	207,616
24	207,580	19	207,588	D48– 16	207,596	D54– 1	207,603	D65– 1	207,610	D85– 2	207,617
D15– 1	207,581	D34– 15	207,589	20	207,597	2	207,604	D66– 1	207,611	8	207,618
D16– 2	207,582	D39– 1	207,590		207,598	D56– 1	207,605	D71– 1	207,612	D90– 20	207,619
	207,583	D44– 1	207,591	24	207,599	D58– 5	207,606	D80– 9	207,613		207,620
D21– 1	207,584		207,592								

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DESIGN PATENTS

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PLANT PATENTS

6 : 2,738

U.S. DEPARTMENT OF COMMERCE

OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

May 9, 1967 Volume 838 Number 2

TRADEMARKS

NOTICES

Trademark Suits

Notices under 15 U.S.C. 1116; Trademark Act of July 5, 1946

Reg. No. 317,704 (METAMUCIL), G. D. Searle & Co., Preparation in powder form for treatment of gastro enterological conditions, **filed** Feb. 1, 1967, D.C., C.D. Calif. (Los Angeles), Doc. 67-154-EC, *G. D. Searle & Co.* v. *Riders Limited, The Marin Co. and Andre L. Marin and Claud Young.*

Reg. No. 378,913 (THE BATMAN AND DESIGN), Detective Comics, Inc., Cartoon published in a series, **filed** June 22, 1966, D.C., E.D.N.Y. (Brooklyn), Doc. 66C-587, *National Periodical Publishing Co.* v. *Masters, Inc.* Order dismissing action Feb. 9, 1967.

Reg. No. 382,770 (BATMAN AND DESIGN), Detective Comics, Inc., Magazine, **filed** June 22, 1966, D.C., E.D.N.Y. (Brooklyn), Doc. 66C-588, *National Periodicals Publications, Inc.* v. *Abraham & Straus Corp.* Order dismissing action without prejudice Jan. 4, 1967.

Reg. No. 500,599 (FORRELL), Levinsohn Textile Co., Ticking and pillow ticks, **filed** Feb. 15, 1967, D.C., S.D.N.Y., Doc. 67-C-640, *Levinsohn Textile Co. Inc.* v. *Celanese Corporation of America et ano.*

Reg. No. 512,683 (SOUNDCRAFT), Reeves Soundcraft Corporation, Sound recording discs, **filed** Apr. 15, 1963, D.C., C.D. Calif. (Los Angeles), Doc. 63-443-WB, *Reeves Soundcraft Corp.* v. *Soundcraftsmen.* Dismissed without prejudice Nov. 10, 1966.

Reg. No. 556,038 (IMAGE O'YOUTH), Corona Corset Corp., Ladies' and misses' brassieres, corsets, corselettes and garter belts, **filed** Aug. 7, 1962, D.C., S.D.N.Y., Doc. 62-2748, *Corona Corset Corp.* v. *Jacqueline Cochran Inc. et ano.* Stipulation and order of dismissal Jan. 16, 1967.

Reg. No. 734,560 (ISI), Institute for Scientific Information, Magazine devoted to abstracts of chemical literature, **filed** Dec. 3, 1965, D.C., S.D.N.Y., Doc. 65-C-3688, *Institute for Scientific Information, Inc.* v. *Information Science, Inc.* Stipulation and order of dismissal Feb. 27, 1967.

Reg. No. 736,165 (SUPERX), The Kroger Co., Retail drug store service; **Reg. No. 749,689** (SUPERX DRUGS AND DESIGN), same, Medical preparation for internal and external use, **filed** Sept. 28, 1965, D.C., S.D.N.Y., Doc. 65-C-2910, *The Kroger Co.* v. *Superx Drugs, Inc.* Stipulation and order of dismissal with prejudice Apr. 21, 1966.

Reg. No. 736,463 (CONJOINED LETTERS A AND E), Aigner Shoe Co., Inc., Ladies', Children's, and Men's Shoes, **filed** Aug. 27, 1966, D.C., S.D.N.Y., Doc. 65-C-2608, *Etienne Aigner Shoe Co., also designated as Aigner Shoe Co., Inc.* v. *Belgrade Shoe Co.* Stipulation and order of dismissal Dec. 8, 1966.

Reg. No. 736,643 (RHODIAMIDE), Societe des Usines Chimiques Rhone-Poulenc, Insecticides, **filed** Dec. 9, 1966, D.C., S.D.N.Y., Doc. 66-C-4236, *Etienne Shoe Company, Inc.* v. *Burlington Belt Corporation.* Stipulation and order of dismissal with prejudice Feb. 21, 1967.

Reg. No. 745,937 (7 SEVEN ELEVEN 11), Best Brewing Corporation, Beer, **filed** June 14, 1966, D.C.N.J. (Newark), C597-66, *Metropolis Brewery of N.J. Inc.* v. *Eastern Brew-*

CONDITION OF TRADEMARK APPLICATIONS AS OF MARCH 31, 1967

Total number of applications awaiting action [excluding renewals and Sec. 12 (c)]	17,856
Date of oldest new application	Jan. 24, 1966
Date of oldest amended application (filing date)	April 10, 1964

C. M. WENDT, Director, Trademark Examining Operation

TRADEMARK EXAMINING DIVISIONS, EXAMINERS AND TRADEMARK CLASSES UNDER EXAMINATION	Oldest Application: New	Oldest Application: Amended
(I) L. J. BETTENDORF, Classes 2, 4, 5, 8, 11, 12, 13, 14, 15, 16, 17, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 39, 41, 42, 43, 44	1-24-66	7-30-64
(II) F. H. WETHERBEE, Classes 1, 3, 6, 7, 9, 10, 18, 22, 38, 40, 45, 46, 47, 48, 49, 50, 51, 52; Service Marks, Classes 100, 101, 102, 103, 104, 105, 106, 107; Collective Membership Marks, Class 200; Certification Marks, Classes A and B	4-14-66	4-10-64
Renewals (All Classes)	2-23-67	----------
Sec. 12 (c) Publications (All Classes)	3-1-67	----------

Applications filed during the month of March 1967—2,606

Registration Issued ---------- 312—No. 828,396 to No. 828,707
Renewals Issued ---------- 90

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ing Corporation and Thomas J. Fatato. Stipulation and judgment of perpetual restraint Feb. 15, 1967.

Reg. No. 749,669. (See Reg. No. 736,165.)

Reg. No. 752,957 (LINDSAY), Union Tank Car Company, Ion exchange type water softeners, water filters, and water acid neutralizers; **Reg. No. 753,314** (LINDSAY AND DESIGN), same; **Reg. No. 769,155** (LINDSAY AND DESIGN), same, Water conditioners, filed Nov. 16, 1966, D.C., C.A. Eighth Circuit, Appeal No. 18620. *Heaton Distributing Company, Inc.* v. *Union Tank Car Company.*

Reg. No. 753,314. (See Reg. No. 752,957.)

Reg. No. 758,137 (ELLE), France Editions & Publications, Magazine, filed Feb. 10, 1967, D.C., S.D.N.Y., Doc. 67-C-569. *France Editions & Publications* v. *Elle 5th Ave., Inc. et al.*

Reg. No. 769,155. (See Reg. No. 752,957.)

Reg. No. 774,288 (THRIFTY RENT-A-CAR SYSTEM AND DESIGN), Stemmons, Inc., Automobile rental; **Reg. No. 816,350** (THRIFTY), same, filed Feb. 10, 1967, D.C. Nebr. (Omaha), Doc. O2698, *Stemmons, Inc.* v. *Thrifty Car Rental, Inc., Lend Lease Transportation Co. of Nebr., Inc., National Car Rental System Inc., Kenneth C. Glaser, doing business as Thrifty Car Rental, and North Western Bell Telephone Co.*

Reg. No. 816,350. (See Reg. No. 774,288.)

MARKS PUBLISHED FOR OPPOSITION

SECTION 1

The following marks are published in compliance with section 12(a) of the Trademark Act of 1946. Application for the registration of these marks in more than one class has been filed as provided in section 30 of said act as amended by Public Law 772, 87th Congress, approved Oct. 9, 1962, 76 Stat. 769. Opposition under section 13 may be filed within thirty days of this publication. See Rules 2.101 to 2.105.

A separate fee of twenty-five dollars for each class opposed must accompany the opposition.

[NOTE: For publication of marks presented in applications for registration in one class, see section 2.]

SN 215,452. Smilie-Rice Corporation, San Francisco, Calif. Filed Mar. 31, 1965.



Applicant disclaims all wording in the mark, except for the word "Smilie."

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

For Miscellaneous Cooking Utensils, and Metal Dinnerware.

Class 34—Heating, Lighting, and Ventilating Apparatus

For Camp Stoves, and Ovens.

First use Jan. 15, 1951.

SN 226,700. Lear Siegler, Inc., Santa Monica, Calif. Filed Aug. 30, 1965.



Class 21—Electrical Apparatus, Machines, and Supplies

For Transducers; Scanners; Motors; Generators; Regulators; Amplifiers; Radio Communication Systems and Components; Intercom Systems and Components; Telephones and Telephone Components; Closed Circuit Ground and Airborne Video Systems; Paging, Alarm, and Public Address Systems and Equipment; Radio Telescopes and Antennas; Electrical and Electro-Mechanical Actuators for Use in Marine, Land, and Aerospace Vehicles; Electral Converters; Micro-Circuit Modules; Television Sets and Apparatus.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Manual and Mechanical Actuators for Use in Marine and Aerospace Vehicles; and Material Handling Equipment—Namely, Hydraulic Hoist, Tilt, and Turn Equipment.

Class 26—Measuring and Scientific Appliances

For Tracking Systems; Computers; Data Acquisition, Reduction, and Processing Systems for Use in Marine, Land, and Aerospace Vehicles; Stabilization, Guidance, Rate and Dynamic Controls for Marine and Airborne Vehicles; Lasers; Masers; Sonar; Radar; Cameras; Telemetering Apparatus; Electronic and Instrumentation Test Equipment—Namely, Telephone Test Equipment and Test Equipment for Gyroscopic Equipment; Electrical and Optical Analysers; Optical Lenses; and Reference Instruments for Aircraft, Missiles, Fire Control and Surveying—Namely, Gyroscopes, Turn and Bank Indicators, Automatic Pilots, Aircraft Instruments, Attitude and Heading Reference Systems; and Artificial Horizon Indicating Apparatus for Use in Marine, Land, and Aerospace Vehicles.

Class 34—Heating, Lighting, and Ventilating Apparatus

For Heating and Air Conditioning Equipment—Namely, Room Heaters, Wall Furnaces, Baseboard Heaters, Infra-Red Heaters, Space Heaters, Central Heaters, Central Air Conditioning Units, and Heat Pumps.

First use at least as early as 1962.

SN 227,444. Regent Controls, Inc., Stamford, Conn. Filed Sept. 8, 1965.

REGENT

Class 21—Electrical Apparatus, Machines, and Supplies

For Electrical Control Panels, Solid-State Relays, Solid-State Photoelectric Amplifiers, Solid-State Machine Tool Relays and Contactors.

Class 26—Measuring and Scientific Appliances

For Electronic Control Centers, Tie Pad Molding Controls, Graphic Instrument Panels and Control Centers, Liquid Level Controls, Solid-State Timing Controls, Solid-State Interval Timers, Solid-State Machine Tool Timers, Electronic Double-Sheet Detectors, and Control Transformers.

First use Aug. 18, 1948.

SN 232,974. Morrie Chaitlen, d.b.a. C. & E. Marshall Co., Chicago, Ill. Filed Nov. 19, 1965.

WATCH-CRAFT

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Assembly Trays, Pliers, Cutters, Screw Drivers, Tweezers, Protective Covers for Tools, Flexible Shaft Machines, Burrs and Arbors for Flexible Shaft Machines, Watch Balance Screw Cutters, Watch Case Openers, Main Spring Winders, Watchmakers' Poising Tools, Friction Jeweling Tools, Friction Jeweling Chucks, Crystal Grinders and Polishers, Staking Tools, Combined Staking, Drilling, and Friction Jeweling Tools.

Class 26—Measuring and Scientific Appliances

For Truing Calipers, Eye Loupes, and Micrometer Gauges.

Class 27—Horological Instruments

For Watch Repair Parts and Accessories—Namely, Friction Jewels, Mainsprings, and Watch Crystals.

First use on or about Feb. 1, 1936.

SN 235,855. Riekes Crisa Corporation, Laredo, Tex. Filed Jan. 5, 1966.

RIEKES CRISA

Class 33—Glassware

For Stemware—Namely, Brandy Snifters, Cordial, Champagne, Wine, Whiskey, Cocktail, Beer, and Parfait Glasses; Drinking Glasses, Vases, Mugs, Bottles, Bowls, Candy Jars, Pitchers, Jugs and Food Trays, All of Crystal.
First use Apr. 20, 1962.

Class 34—Heating, Lighting, and Ventilating Apparatus

For Lamps, Lamp Chimneys, Lamp Bases, and Candle Holders.
First use Aug. 20, 1962.

SN 236,213. W. S. Rockwell Company, Fairfield, Conn. Filed Jan. 12, 1966.

W.S. ROCKWELL CO.

Class 21—Electrical Apparatus, Machines, and Supplies

For Electric Furnaces and Ovens for Processing Strip Metal.
First use 1945.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Strip Mill Equipment—Namely, Cleaning Machine Pay-Out and Take-Up reels, Winding and Coiling Machines, Strip Stitchers, pickling and Neutralizing Tanks, and Vacuum Lifting Machines for Metal Sheets and Plates; Sugar Mill Equipment—Namely, Machinery for Cutting and Shredding Sugar Cane Into Fine Slivers Prior to Processing, and Diaphragm Pumps.
First use 1954 on pumps.

Class 34—Heating, Lighting, and Ventilating Apparatus

For Fuel Furnaces, Fuel Ovens, and Oil Burners for Processing Strip Metal.
First use 1908 on fuel furnaces.

SN 244,497. International Foam Corporation, Chicago, Ill. Filed Apr. 28, 1966.

ELAST-O-FOAM

Class 12—Construction Materials

For Rigid Building Insulation and Roofing Panel.

Class 32—Furniture and Upholstery

For Mattresses.

Class 39—Clothing

For Shoe Innersoles.

Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

For Carpet Padding, Mattress Covers, and Carpet Underlay.
First use January 1966.

SN 245,399. Goettl Bros. Metal Products Inc., Phoenix, Ariz. Filed May 11, 1966.

GOETTL PRODUCTS

Applicant disclaims the word "Products" apart from the mark as shown.

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

For Restaurant and Kitchen Metal Sinks.
First use on or before Nov. 1, 1946.

Class 21—Electrical Apparatus, Machines, and Supplies

For Forced Air Electric Furnace, and Combination Evaporative Cooler and Electric Heater.
First use on or before Mar. 15, 1961.

Class 31—Filters and Refrigerators

For Dust-Trap Air Filters, and Composite Evaporative Cooler Pad.
First use on or before May 20, 1953.

Class 34—Heating, Lighting, and Ventilating Apparatus

For Indoor Duct Furnace, Indoor Suspended Furnace, Attic Furnace, Outdoor Duct Furnace, Roof-Mounted Outdoor Furnace, Indoor Forced Air Furnace, Outdoor Gas-Fired Unit Heater and Evaporative Cooler, Indoor-Outdoor Electric Furnace, Combination Evaporative Cooler and Electric Heater, Bath and Kitchen Exhaust Ventilator Fans, Refrigerated Air Conditioner, Gas-Fired Forced Air Furnace, Single-Package Air-Conditioning System Air-Cooled, Split System Air-Cooled Condensing Unit, Split System Heat Pump Air-Cooled Condensing Unit, Single Package Heat Pump System, Water Chiller Air Conditioning System, and Heat Pump Water Chiller Heating and Air Conditioning System (Heat Pumps, Refrigerated Air Conditioners, Water Chillers, Evaporative Coolers, Gas-Fired Heating, Ventilating Equipment, Electrical Heating Equipment, and Related Fabricated Metal Products).
First use on or before Nov. 1, 1946.

SN 245,538. Ameco, Inc., Phoenix Ariz. Filed May 13, 1966.

AMECO

Owner of Reg. No. 711,148.

Class 100—Miscellaneous

For Engineering and Designing Community Antenna Television Equipment.

Class 103—Construction and Repair

For Constructing, Maintaining, and Operating Community Antenna Television Equipment.
First use Jan. 13, 1964.

SN 247,049. Onitsuka Co., Ltd., Suma-ku, Kobe, Japan. Filed June 1, 1966.

ONITSUKA TIGER

Class 22—Games, Toys, and Sporting Goods

For Alpine Shoes, Soccer Shoes, Softball and Wrestling Shoes, Track, Running and Spike Shoes, Ski and Bowling Shoes.

Class 39—Clothing

For Marathon Shoes, Basketball Shoes, Volleyball Shoes, Golf Shoes, Gymnastic Shoes, Table Tennis, Badminton, and Indoor Shoes, Tennis Shoes, and Dress Shoes.
First use Jan. 27, 1965; in commerce Mar. 1, 1965.

SN 247,439. Clairol Incorporated, New York, N.Y. Filed June 7, 1966.

NICE 'N SHINY

Class 51—Cosmetics and Toilet Preparations

For Hair Tinting, Dyeing and Coloring Preparation.
First use Oct. 25, 1965.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Apr. 5, 1966.

SN 247,446. Clairol Incorporated, New York, N.Y. Filed June 7, 1966.

NICE 'N GENTLE

Class 51—Cosmetics and Toilet Preparations

For Hair Tinting, Dyeing and Coloring Preparation.
First use Oct. 25, 1965.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Apr. 5, 1966.

SN 247,460. Clairol Incorporated, New York, N.Y. Filed June 7, 1966.

NICE 'N YOUNG

Class 51—Cosmetics and Toilet Preparations

For Hair Tinting, Dyeing and Coloring Preparation.
First use Oct. 25, 1965.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Apr. 5, 1966.

SN 248,568. Clairol Incorporated, New York, N.Y. Filed June 21, 1966.

CALIFORNIA BOY

Class 51—Cosmetics and Toilet Preparations

For Haircoloring Preparation and Men's Colegne.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Mar. 25, 1966.

SN 248,569. Clairol Incorporated, New York, N.Y. Filed June 21, 1966.

APE

Class 51—Cosmetics and Toilet Preparations

For Hair Lightener.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Apr. 20, 1966.

SN 248,570. Clairol Incorporated, New York, N.Y. Filed June 21, 1966.

GO APE

Class 51—Cosmetics and Toilet Preparations

For Hair Lightener.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Apr. 21, 1966.

SN 248,571. Clairol Incorporated, New York, N.Y. Filed June 21, 1966.

CALIFORNIA SURF

Class 51—Cosmetics and Toilet Preparations

For Haircoloring Preparation and Men's Cologne.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Apr. 18, 1966.

SN 248,572. Clairol Incorporated, New York, N.Y. Filed June 21, 1966.

ZAP

Class 51—Cosmetics and Toilet Preparations

For Hair Setting Lotion.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Feb. 3, 1966.

SN 252,511. American Cyanamid Company, Wayne, N.J. Filed Aug. 17, 1966.

WHITE WAVE

Owner of Reg. Nos. 615,003, and 675,083.

Class 6—Chemicals and Chemical Compositions

For Fabric Softener, Fabric Finish, and Laundry Bleach.
First use July 17, 1966.

Class 52—Detergents and Soaps

For Laundry Detergent and Spot Remover.
First use Aug. 4, 1966.

SN 254,008. Estee Lauder, Inc., New York, N.Y. Filed Sept. 8, 1966.

aramis

Owner of Reg. Nos. 779,623 and 782,183.

Class 51—Cosmetics and Toilet Preparations

For Men's Cosmetics and Toiletries—Namely, Cologne, Cosmetic Skin Creams and Lotions, Astringent, Hair Cream and Hair Spray, Personal Deodorants, Talcum Powder and Preparations for Use Before and After Shaving, Namely, After-Shave Lotion, After Shave Cream, After-Shave Emulsion, and Shaving Cream.

Class 52—Detergents and Soaps

For Toilet Soap, and Solid Shampoo Principally for the Hair.

First use Nov. 1, 1965.

SN 254,084. Clairol Incorporated, New York, N.Y. Filed Sept. 9, 1966.

SURF AND SAIL

Class 51—Cosmetics and Toilet Preparations

For Hair Lightener, Creme Hairdressing, Cream Rinse, Cologne, Deodorant, Hair Spray, and Shaving Creme.

Class 52—Detergents and Soaps

For Hair Shampoo.

First use July 8, 1966.

SN 254,962. International Franchise Association, Inc., Chicago, Ill. Filed Sept. 23, 1966.

INTERNATIONAL FRANCHISE ASSOCIATION IFA

Applicant disclaims any rights in the representation of the globe apart from the mark as shown.

SN 256,695. Timberjack Machines Limited, Woodstock, Ontario, Canada. Filed Oct. 19, 1966.



Class 13—Hardware and Plumbing and Steam-Fitting Supplies

For Hooks for Cables; and Rigging Accessories—Namely, Chokers, Mainlines, and Taglines.

Class 19—Vehicles

For Self-Loading Off the Road Vehicles; and Self-Propelled Off the Road Vehicles.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Skidders and Parts Therefor; and Utility Frames for Skidders.

First use early December 1951; in commerce early 1959.

SECTION 2

The following marks are published in compliance with section 12(a) of the Trademark Act of 1946. Opposition under section 13 may be filed within thirty days of publication. See Rules 2.101 to 2.105.

A fee of twenty-five dollars must accompany the opposition.

[NOTE: For publication of marks presented in a combined application for registration in more than one class, see section 1.]

Class 1—Raw or Partly Prepared Materials

SN 236,883. Doittau Produits Metallurgie, Corbeil-Essonnes, Seine-et-Oise, France. Filed Jan. 20, 1966.

PROMISOLEX

Owner of French Reg. No. 2,342, dated July 27, 1965.

For Prefabricated Exothermic Molded Slabs for the Lining of the Hot Tops and Upper Parts of the Ingot Molds.

SN 236,884. Doittau Produits Metallurgie, Corbeil-Essonnes, Seine-et-Oise, France. Filed Jan. 20, 1966.

PROMISOL

Priority claimed under Sec. 44(d) on French Reg. No. 2,341, dated July 27, 1965 (Corbeil).; Natl. Inst. No. 268,637.

For Prefabricated Exothermic Molded Slabs for the Lining of the Hot Tops and Upper Parts of the Ingot Molds.

SN 244,512. National Patent Development Corporation, New York, N.Y. Filed Apr. 28, 1966.

HYDRON

For Hydrophilic Gel Synthetic Resins—Namely, Hydrophilic Gels of Modified Acrylic Polymeric Plastics for Preparing Shaped Articles.

First use Mar. 17, 1966.

SN 250,754. Wm. Flemer's Sons, Inc., d.b.a. Princeton Nurseries, Princeton, N.J. Filed July 21, 1966.

PRINCETON PRODUCTS STANDARD OF EXCELLENCE P N

The word "Products" and the representation of the trees are disclaimed apart from the mark, but applicant expressly reserves all lawful rights at common law therein.

For Nursery Products—Namely, Shade, Berry-Bearing, Fruit Bearing, and Flowering Trees, Plants, Shrubs, and Vines; Hedges; and Evergreens.

First use in or about 1930; 1915, as to "Princeton."

SN 251,411. Rexall Drug and Chemical Company, Los Angeles, Calif., assignee of Fiberfil, Inc., Evansville, Ind. Filed Aug. 1, 1966.

PHENYLENEFIL

For Plastics, Specifically Synthetic Injection Molding Materials in Pellet or Granular Form.

First use June 16, 1966.

SN 252,018. Thomas J. Little Co., Inc., Gloucester, Mass. Filed Aug. 9, 1966.

VYNALOY

For Rigid, Unplasticized Vinyl Plastic Sheet and Film.

First use Apr. 1, 1966.

SN 255,417. Castall Research Laboratory, Inc., Brockton, Mass. Filed Sept. 29, 1966.

CASTALL

For Epoxy Resins for Casting Lamination, Bonding, Potting, Impregnation, Coating, Repairing and Encapsulation and Similar Applications.

First use at least as early as Mar. 15, 1966.

SN 263,370. Fromm Bros., Inc., Hamburg, Wis. Filed Jan. 26, 1967.

MAUVE AMBER

Owner of Reg. No. 699,606.

For Fox Pelts and Furs Used in Ladies' Garments—Namely, Coats, Jackets, Capes, and Scarves.

First use Jan. 15, 1966.

SN 265,675. Betsy Brooks, d.b.a. Brook Haven Farm, and Brook Haven Farms, Seymour, Tenn. Filed Mar. 1, 1967.

BHF

For Registered Polled Hereford Cattle.

First use Sept. 14, 1961.

Class 2—Receptacles

SN 224,326. The Noxzema Chemical Company, Baltimore, Md. Filed July 27, 1965.



For Compacts for Face Powder and Makeup.

First use Jan. 2, 1961.

SN 232,432. United States Box Crafts, Inc., Brooklyn, N.Y. Filed Nov. 9, 1965.

Folda-King

Owner of Reg. No. 783,043.

For Folding Type, Corrugated Mailing Box.

First use Oct. 27, 1965.

SN 242,726. Hedwin Corporation, New York, N.Y. Filed Apr. 5, 1966.

CUBITAINER

Owner of Reg. No. 648,733.

For Containers—Namely, Plastic Containers, Composite Containers With Plastic Inserts and Outer Cartons, and Outer Cartons, the Outer Cartons Being of Cardboard and Pasteboard.

First use Feb. 1, 1962.

SN 242,727. Hedwin Corporation, New York, N.Y. Filed Apr. 5, 1966.

HEDLINER

Owner of Reg. Nos. 670,440, 712,330, and 767,332.

For Plastic Inserts for Lining Drums and the Like.

First use on or about Apr. 1, 1962.

SN 259,063. James Alfred Martin, d.b.a. Silko New Improved Products Co., Birmingham, Ala. Filed Nov. 21, 1966.

SILKO

For Metal Cans and Plastic Jars With Metal Caps—Namely, Metal Cans With a Central Hole in the Lid for Use as a Dispenser for Tissue on Rolls, and for Clear Plastic Jars With an Arcuately Slotted, Metal Screw Cap for Use as a Dispensing Jar for Soap Powder and Detergent.

First use Nov. 3, 1966.

Class 3—Baggage, Animal Equipments, Portfolios, and Pocketbooks

SN 224,549. Lester J. Neuman, d.b.a. LJN Co., Evanston, Ill. Filed July 29, 1965.

SEE BAG

No registration rights are claimed in the word "Bag," used apart from the mark as soon.

For Carrying Case.

First use Feb. 4, 1965.

SN 233,635. John Romain, Inc., Long Island City, N.Y. Filed Nov. 30, 1965.



For Handbags.
First use July 15, 1961.

SN 261,010. Lark Luggage Corp., New York, N.Y. Filed Dec. 19, 1966.

DRESSERETTE

For Ladies' Garment Carriers—Namely, Bags Made of Leather, Plastic and Cotton and Synthetic Fibers.
First use Dec. 15, 1966.

Class 4—Abrasives and Polishing Materials

SN 237,720. Sam A. Marcell, Lemon Grove, Calif. Filed Feb. 1, 1966.

SAM

For Razor Straps.
First use Apr. 6, 1965.

Class 5—Adhesives

SN 229,355. Inter-Montana Sport A. Muller & Co., Hergiswil a. See., Switzerland. Filed Oct. 5, 1965.

COLLTANA

For Glue for Skis.
First use Jan. 18, 1963; in commerce May 2, 1963.

SN 243,527. Armstrong Cork Company, Lancaster, Pa. Filed Apr. 15, 1966.

PERIMIFLOR

For Adhesive Cement for Use With Vinyl Floor Coverings.
First use Aug. 17, 1965.

SN 243,530. Armstrong Cork Company, Lancaster, Pa. Filed Apr. 15, 1966.

SECURABOND

For Adhesive Cement for Use With Vinyl Floor Coverings.
First use Dec. 29, 1965.

SN 252,207. Reichhold Chemicals, Inc., White Plains, N.Y. Filed Aug. 11, 1966.

FOUNDREZ

Owner of Reg. Nos. 566,126 and 568,070.
For Core Binders or Mold Binders.
First use Feb. 7, 1952.

Class 6—Chemicals and Chemical Compositions

SN 232,039. Union Carbide Corporation, New York, N.Y. Filed Nov. 2, 1965.

UNION CARBIDE

Owner of Reg. Nos. 677,183 and 788,903.
For Chemical Compositions for Use in the Manufacture of Fertilizers.
First use on or about Jan. 11, 1965.

SN 237,281. Michigan Chemical Corporation, St. Louis, Mich. Filed Jan. 26, 1966.

MC

Owner of Reg. Nos. 607,800 and 642,177.
For Organic and Inorganic Chemical Compounds and Compositions—Namely, Compounds and Compositions Containing Halogens, Magnesia, Rare Earths, and Alkali Metal and Alkaline Earth Salts.
First use Dec. 21, 1962.

SN 252,866. Miles Chemical and Filter Company, Inc., Troy, Mich. Filed Aug. 22, 1966.

CHEMFOS

For Iron and Zinc Phosphate Solutions for Iron, Steel, and Zinc Ferrous Surfaces.
First use Aug. 1, 1966.

SN 253,221. Heatbath Corporation, Springfield, Mass. Filed Aug. 26, 1966.

PEN-ZINC

For Prepared Chemicals for Making Bath for Passivating and Blackening Metal Parts of Zinc and Zinc Alloys.
First use June 26, 1952.

SN 257,851. Beatrice Foods Co., Chicago, Ill., assignee of General Water Conditioning, Inc., Chicago, Ill. Filed Nov. 3, 1966.

FIRST-IN

For Laundry Fabric Softener Compound.
First use on or about Oct. 14, 1966.

SN 264,920. Electrochemicals, Inc., Cleveland, Ohio. Filed Feb. 17, 1967.

LEVEL-BEST

For Electroplating Chemicals.
First use Jan. 27, 1967.

Class 8—Smokers' Artides, Not Including Tobacco Products

SN 245,623. Societe Job Anciens Etablissements Bardou-Job & Paulihac, Perpignan, France. Filed May 13, 1966.

SUP-AIR

Owner of French Reg. No. 2,359, dated Mar. 22, 1962 (Perpignan); Natl. Inst. No. 182,719.
For Cigarette Papers.
First use at least as early as November 1963; in commerce at least as early as November 1963.

Class 10—Fertilizers

SN 254,597. Federal Chemical Company, Louisville, Ky. Filed Sept. 16, 1966.

PRINCETON PARK

For Lawn Fertilizers.
First use Mar. 19, 1960.

SN 256,621. Wood Conversion Company, St. Paul, Minn. Filed Oct. 17, 1966.

CONWED

For Mulch-Like Product, Particularly Such a Material Used for Mixing With Water and Seed To Be Sprayed Upon the Ground To Seed the Soil.
First use on or about Mar. 7, 1966.

SN 257,243. American Cyanamid Company, Wayne, N.J. Filed Oct. 26, 1966.

MICRO-CHARGER

For Fertilizer.
First use Oct. 10, 1966.

Class 11—Inks and Inking Materials

SN 256,101. K.C. Coatings, Inc., Kansas City, Mo. Filed Oct. 10, 1966.

KC

For Screen Process Ink.
First use during July 1962.

Class 12—Construction Materials

SN 167,275. Keykold, Inc., Belmont, Calif. Filed Apr. 22, 1963.

KEYED KOLD JOINT

Owner of Reg. No. 771,315.
For Combination Form, Screed, and Construction Joint Used for Forming Concrete Slabs in Roadways, Pavements, Airfield Runways, Building Floors, and the Like.
First use April 1957.

SN 215,320. The Bailey Company, Inc., Amesbury, Mass. Filed Mar. 30, 1965.

Bailey TWIN-FIN *the Double Seal*

Applicant disclaims any right under this registration to the exclusive use of the words "Twin-Fin" or of the words "The Double Seal" apart from the mark as shown. Owner of Reg. Nos. 555,567, 555,568, and 825,496.
For Fabric Weather Seals.
First use Jan. 26, 1965.

SN 215,322. The Bailey Company, Inc., Amesbury, Mass. Filed Mar. 30, 1965.

Bailey TWIN FIN *the Double Seal*

Applicant disclaims any right under this registration to the exclusive use of the words "Twin Fin" or of the words "The Double Seal" apart from the mark as shown. Owner of Reg. Nos. 555,567, 555,568, and 875,496.
For Fabric Weather Seals.
First use Dec. 4, 1964.

SN 236,499. The Master Mechanics Company, Cleveland, Ohio. Filed Jan. 14, 1966.

VULKEM

For Sealants for Wood, Metal, Masonry, etc.
First use Jan. 17, 1964.

SN 237,095. Durable Putty Products Co., St. Louis, Mo. Filed Jan. 24, 1966.

deVan

For Clear Sealers, Extruded Sealers, Pumpable Sealers, Aluminum Sealers, Elastic Insulation Tape, Cork Insulation Tape, Sealer-Thumbing Compounds, Insulation Mastic, Butyl Rubber Seal, Butyl Ribbon and Beads, and Butyl Tape.
First use January 1965.

SN 239,757. Economy Tooling Products, Inc., Medford, Mass. Filed Feb. 28, 1966.

RESARM

For Compressed and Laminated Wood.
First use Oct. 1, 1963.

SN 240,107. Monsanto Company, St. Louis, Mo. Filed Mar. 3, 1966.

SILENT-COR

Owner of Reg. Nos. 694,117 and 720,686.
For Sound Deadening Board.
First use at least as early as Oct. 5, 1964.

SN 240,343. Refractory & Insulation Corporation, Port Kennedy, Pa. Filed Mar. 7, 1966.

GRIPTEX

For Block Insulation Composed of Felted Mineral Fibers and High Temperature Bonding Materials and Used as Heat Insulation.
First use March 1956.

SN 242,930. Powerlock Floors, Inc., Philadelphia, Pa. Filed Apr. 7, 1966.

MAPLE-MASTER

For Wood Flooring and Parts Thereof for Assembly.
First use Jan. 27, 1966.

SN 249,153. Franklin Fibre-Lamitex Corp., Wilmington, Del. Filed June 28, 1966.

FRANPLAS

For Plastic Insulating Sheets, Rods, and Tubes for Use as Construction Materials.
First use Oct. 4, 1965.

SN 249,187. William F. Spinnegan, d.b.a. Chappell Door Co., Jeffersonville, Ind. Filed June 28, 1966.

WOODSURF

For Wood Products—Namely, Doors and Paneling Having Special Sealing, Polishing, and Finishing Coats Applied Thereto.
First use May 11, 1966.

SN 250,643. Crane Plastics, Inc., Columbus, Ohio. Filed July 20, 1966.

RIGI FLEX

For Plastic Extrusions of Various Cross Sections Used in Fabricating Window Frames and Sills, Glazing Strips, Molding Strips, Edging Strips and Channels, Panel-Holding Frames, and the Like.
First use July 13, 1966.

SN 253,194. New Castle Products, Inc., New Castle, Ind. Filed Aug. 26, 1966.

coil-wal

Owner of Reg. No. 636,336.
For Sliding Flexible Partitions.
First use May 13, 1955.

SN 255,269. Acorn Chemical Company, Cleveland, Ohio. Filed Sept. 28, 1966.

MASTICOTE

For Asphalt and Asphalt Asbestos Based Protective Coatings.
First use 1923.

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

SN 238,459. Superior Concrete Accessories, Inc., Franklin Park, Ill. Filed Feb. 9, 1966.

TWIST LOCK

For Assemblies for Use in Concrete Construction and of the Type That Comprises an Anchor Insert for Embedment in a Tilt-Up Type Concrete Slab, and a Cooperating Cable Pick-Up Unit Adapted Releasably to Connect the Insert to a Crane for Slab Hoisting and Tilting Purposes.
First use Dec. 15, 1965.

SN 239,144. The Gilbert & Bennett Manufacturing Company, Georgetown, Conn. Filed Feb. 18, 1966.

GALV-A-CARD

For Woven and Welded Wire Products, Such as Hardware Cloth, Wire Screening, Wire Netting, Welded and Woven Fencing, and Welded Fabric.
First use Oct. 31, 1961.

SN 239,841. Victron Electrics Pty. Limited, Melbourne, Victoria, Australia. Filed Feb. 28, 1966.

RAIN-WHIP

For Lawn and Garden Sprinklers.
First use July 13, 1964; in commerce Dec. 4, 1964.

SN 240,489. Atlas Clutch and Sewing Machine Supplies Co., Inc., d.b.a. Atlas Rapid-Racks Inc., Newark, N.J. Filed Mar. 9, 1966.

ATLAS

For Metal Racks and Flanges, Couplings, Brackets, Braces, Plugs, Trolleys, and Switches Therefor.
First use at least as early as Dec. 31, 1945.

SN 240,814. United Shoe Machinery Corporation, Boston, Mass. Filed Mar. 11, 1966.

ROSETTE

For Blind Rivets.
First use Aug. 30, 1965.

SN 241,795. Northland Aluminum Products, Inc., Minneapolis, Minn. Filed Mar. 24, 1966.

NORDIC WARE

The word "Ware" is disclaimed apart from the mark as shown.
For Aluminum Bake and Cook Ware—Namely, Hot Food Platters, Griddles, Casseroles, Skillets, Dutch Ovens, Baking and Salad Molds, Cake Pans, Non-Electric Baking Irons, Cookie Presses, Cookie Sheets, and Revolving Cake Stands.
First use 1948.

SN 258,964. United States Steel Corporation, Pittsburgh, Pa. Filed Nov. 18, 1966.

MODULINE

For Wire Fencing, Fence Posts, Fence Gates, and Fence Fixtures.
First use Oct. 11, 1966.

SN 263,239. North Point, Inc., Baltimore, Md. Filed Jan. 25, 1967.

NORTH POINT

For Plastic Pipes.
First use July 22, 1966.

SN 263,731. The Weatherhead Company, Cleveland, Ohio. Filed Feb. 1, 1967.

Owner of Reg. No. 592,363.
For Bowden Wire Controls, Valves, Tubing and Pipes and Fittings, and Couplings Therefor.
First use on or about Jan. 17, 1967.

Class 14—Metals and Metal Castings and Forgings

SN 243,127. Goliath Tap & Die Limited, Aston, Birmingham, England. Filed Apr. 11, 1966.

GOLIATHITE

Owner of British Reg. No. 884,807, dated Sept. 28, 1965; and U.S. Reg. No. 813,406.
For Tool Steel.

SN 247,043. Merriman, Inc., Hingham, Mass. Filed June 1, 1966.

MERRILOY

For Machined Metal Castings.
First use Feb. 4, 1966.

Class 15—Oils and Greases

SN 235,758. The Warren Refining and Chemical Company, Cleveland, Ohio. Filed Nov. 30, 1965.

WONDERLUBE

For Complex Sodium Greases for Industrial Use.
First use May 1, 1965.

SN 236,333. Albert B. Selleck, d.b.a. Selleck Enterprises, North Hollywood, Calif. Filed Jan. 11, 1966.

ZIP AEROSOL

No claim is made to the exclusive right to use "Aerosol," but applicant waives none of his common law rights in the mark as shown or any feature thereof.
For Spray-Type Silicone Lubricants for General Use on Metal and Plastic Substances.
First use May 25, 1959.

SN 237,964. Hess Oil & Chemical Corporation, Perth Amboy, N.J. Filed Feb. 3, 1966.

HESS

Owner of Reg. Nos. 753,201, 823,852, and others.
For Petroleum Products.
First use Dec. 31, 1933.

SN 238,740. International Chemical Company, Philadelphia, Pa. Filed Feb. 14, 1966.

IPRO

For Coolant Oils, Cutting Oils, Soluble Oils, Straight Oils, and Rust Prevention Oils, Both Synthetic and Natural, and Industrial Lubricants.
First use at least as early as Mar. 4, 1964.

SN 251,363. Permatex Company, Inc., Brooklyn, N.Y. Filed Aug. 1, 1966.

Owner of Reg. Nos. 93,418 and 528,613.
For Penetrating Oil, Hydraulic Jack Oil, Knee Action Shock Absorber Oil, Transmission Fluid, Prussian Blue and Water Pump Lube and Radiator Anti-Rust.
First use March 1960 on water pump lube.

SN 265,024. Halo Sales Corporation, d.b.a. The Party People, San Francisco, Calif. Filed Feb. 20, 1967.

FUR-N-FURY

For Canned Indoor-Outdoor Candles.
First use Dec. 21, 1966.

Class 16—Protective and Decorative Coatings

SN 231,460. Morton International, Inc., Chicago, Ill. Filed Oct. 23, 1965.

For Coatings—Namely, Primers, Lacquer and Prints, Underprint Coatings, Overprint Coatings, Heat Seal Coatings, Gloss Coatings, Slip Coatings, Organosol and Plastisol Coatings and Water, Grease and Chemical Resistant Coating Materials for Paper, Paperboard and Other Flexible or Rigid Surfaces; Preparations for Providing a Protective and Preservative Coating or Film on Automobile Bodies and Accessories, and on Painted, Lacquered, Enameled, Varnished or Porcelain Surfaces, and on Metals, Floors, Furniture Cabinets, Woodwork, and the Like.
First use on or about Sept. 30, 1965.

SN 237,721. Plasti-Kote Division of The New England Industries, Incorporated, Medina, Ohio, assignee of Marcoa International, Inc., Houston, Tex. Filed Feb. 1, 1966.

SERENE LITE

For Colored Transparent Coating Composition for Tinting Glass.
First use on or before Nov. 30, 1964.

SN 249,528. Goldblatt Bros. Inc., Chicago, Ill. Filed July 5, 1966.

CAPRI

For Semi-Gloss Enamel, Enamel, House Paint, Latex Interior Flat Wall Paint, Screen Enamel, and Gutter Paint.
First use Apr. 19, 1960.
Subj. to Intf. with SN 256,067.

SN 255,760. Acorn Chemical Company, Cleveland, Ohio. Filed Oct. 5, 1966.

ALUMA-TUNG

For Protective Coatings in the Nature of an Aluminum Paint for Exterior and Interior Surfaces.
First use at least as early as Apr. 19, 1961.

SN 256,804. Acorn Chemical Company, Cleveland, Ohio. Filed Oct. 20, 1966.

SANI-GLAZE

For Coatings in the Nature of Fillers, Undercoats, Thinners, Finishes, and the Like.
First use Feb. 8, 1965.

Class 17—Tobacco Products

SN 225,535. The American Tobacco Company, New York, N.Y. Filed Aug. 12, 1965.

Spearmint Blend

No claim is made to the exclusive right in the words "Spearmint Blend" apart from the mark as shown. Owner of Reg. No. 382,258.
For Pipe Tobacco.
First use July 16, 1965.

SN 247,579. Carreras Limited, Basildon, Essex, England. Filed June 8, 1966.

Carreras
LINCOLN

Owner of British Reg. No. 839,073, dated Sept. 10, 1962; and U.S. Reg. Nos. 739,263, 757,188, and 807,157.
For Cigarettes.

SN 251,799. John Cotton Limited, Edinburgh, Scotland. Filed Aug. 5, 1966.

VIA

Priority claimed under Sec. 44(d) on British Reg. No. 894,255, dated May 6, 1966.
For Cigarettes, Cigars, and Smoking Tobacco.

SN 251,933. Larus & Brother Company, Richmond, Va. Filed Aug. 8, 1966.

DOMINO

Owner of Reg. Nos. 305,237, 586,112, and others.
For Cigarettes.
First use 1885.

SN 264,480. Liggett & Myers Tobacco Company, New York, N.Y. Filed Feb. 13, 1967.

TRUE BLUE

For Chewing and Smoking Tobacco.
First use since at least 1907.

Class 18—Medicines and Pharmaceutical Preparations

SN 222,295. Richardson-Merrell Inc., Cincinnati, Ohio. Filed June 29, 1965.

TALPHENO

For Pharmaceutical Preparations—Namely, Phenobarbital.
First use May 19, 1965.

SN 233,960. Syntex Laboratories, Inc., Palo Alto, Calif. Filed Dec. 3, 1965.

SYNALAR BI-OTIC

Applicant disclaims the term "Bi-Otic" apart from the mark as shown. Owner of Reg. No. 714,627.
For Topical Steroid Hormone Preparation Containing Also Antibiotics.
First use Nov. 15, 1965.

SN 240,834. Arco Pharmaceuticals, Inc., Plainview, N.Y. Filed Mar. 14, 1966.

ARCO-LASE

For Medicinal Tablet Containing an Enzyme Combination for Digestive Disorders.
First use Oct. 7, 1963.

SN 244,104. Haver-Lockhart Laboratories, Incorporated, Shawnee, Kans. Filed Apr. 22, 1966.

ENTROTOX-CD

For Clostridium Perfringens Toxoid Vaccine for Animals.
First use Mar. 4, 1964.

SN 244,106. Haver-Lockhart Laboratories, Incorporated, Shawnee, Kans. Filed Apr. 22, 1966.

VITALYTE

For Vitamin Preparation for Veterinary Use in the Treatment of Debilitated, Convalescent, and Dehydrated Animals.
First use Mar. 30, 1966.

SN 244,111. Haver-Lockhart Laboratories, Incorporated, Shawnee, Kans. Filed Apr. 22, 1966.

SUPER-TET

For Tetanus Toxoid Vaccine for Animals.
First use Dec. 5, 1962.

SN 247,398. Obrig Chemical Corp., Sarasota, Fla. Filed June 6, 1966.

O-2

Owner of Reg. Nos. 824,783 and 824,784.
For Physiological Solution for Use With Contact Lenses.
First use April 1947.

SN 248,832. New Era Laboratories Limited, London, England. Filed June 23, 1966.

ZIEF

For Medicinal Preparations for the Relief of Pain in Rheumatism, Fibrositis, Lumbago, and Allied Conditions.
First use approximately 1959; in commerce approximately 1959.

SN 248,833. New Era Laboratories Limited, London, England. Filed June 23, 1966.

NERVONE

For Medicinal Preparations for the Treatment of Minor Nerve Disorders and for Relief of Nerve Pain.
First use approximately 1935; in commerce approximately 1935.

SN 248,834. New Era Laboratories Limted, London, England. Filed June 23, 1966.

ELASTO

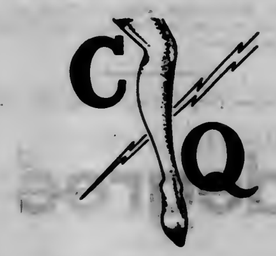
For Medicinal Preparations for the Treatment of Lassitude, Fatigue, and Muscular Debility.
First use approximately 1935; in commerce approximately 1935.

SN 249,934. Arnar-Stone Laboratories, Inc., Mount Prospect, Ill. Filed July 11, 1966.

LINI-BALM

For Aerosolized Preparation for Relieving Muscular Aches and Pains.
First use on or before June 16, 1966.

SN 249,971. Russell Fogg, d.b.a. Chex Co., Idaho Falls, Idaho. Filed July 11, 1966.



For Oral Medicament for the Relief of Cramped Muscles of the Legs.
First use on or about July 1, 1965.

SN 253,156. Menley & James Laboratories, Ltd., Philadelphia, Pa. Filed Aug. 25, 1966.

MENJETS

For Antacid.
First use June 24, 1966.

SN 265,372. Parke, Davis & Company, Detroit, Mich. Filed Feb. 24, 1967.

ORLEST

For Contraceptive Preparation.
First use on or before Feb. 7, 1967.

Class 19—Vehicles

SN 227,712. Seilon, Inc., Toledo, Ohio. Filed Sept. 13, 1965.

JEWELITE

For Vinyl Car Mats.
First use Mar. 10, 1965.

SN 229,291. Rockwell-Standard Corporation, Pittsburgh, Pa. Filed Oct. 4, 1965.



The words "Positive Bearing Adjustment" are disclaimed apart from the mark as shown.
For Non-Drive Automotive Axles.
First use about Sept. 22, 1965.

SN 236,228. Beistegui Hermanos, S.A., Vitoria, Spain. Filed Jan. 12, 1966.

IBERIA

Owner of Spanish Reg. No. 117,463, dated Jan. 26, 1943.
For Bicycles, Motorcycles, Motor-Bicycles, and Parts of These Goods; and Accessories for the Above-Named Goods—Namely, Luggage Carriers.

SN 242,966. Degree Corporation, Kansas City, Kans. Filed Apr. 8, 1966.

degree°

For Automotive Brake Shoes and Shock Absorbers.
First use June 1961.

Class 21—Electrical Apparatus, Machines, and Supplies

SN 210,605. The Sealtron Corporation, Cincinnati, Ohio. Filed Jan. 25, 1965.



The drawing is lined for the color blue, the color blue is disclaimed as an integral feature of the mark. The representation of the terminal or connectors is disclaimed apart from the mark as a whole.
For Electrical Terminals, Connectors and Junctions, and Electronic Terminals, Connectors, and Junctions.
First use Aug. 7, 1951.

SN 232,084. Noma Lites Corp., St. Joseph, Mo. Filed Nov. 3, 1965.

CRYSTAL JEWEL

For Electrically Illuminated Christmas Tree Ornaments, Decorative Lighting Sets and Wiring, Electric Lamps, and Light Reflectors.
First use June 14, 1965.

SN 232,569. Lightolier Incorporated, New York, N.Y. Filed Nov. 12, 1965.

BATON

For Lighting Fixtures.
First use Aug. 20, 1965.

SN 232,851. Prescolite Manufacturing Corporation, San Leandro, Calif. Filed Nov. 17, 1965.

TOWNSCAPE

For Electric Lighting Fixtures.
First use Oct. 29, 1965.

SN 235,124. Sears, Roebuck and Co., Chicago, Ill. Filed Dec. 22, 1965.



For Electronic Component, Known in the Trade as a Color Tone or Color Fidelity Control, Sold Only as a Part of a Color Television Receiver.
First use on or about Sept. 28, 1964.

SN 235,215. National Semiconductor Corporation, Danbury, Conn. Filed Dec. 23, 1965.

CHIC

For Integrated Circuit Devices—Namely, Miniature Amplifier and Signal-Generating Circuit Arrangements and Devices Formed on Ceramic Substrates.
First use October 1963.

SN 241,811. Sprague Electric Company, North Adams, Mass. Filed Mar. 24, 1966.

METFILM

For Electrical Capacitors.
First use Jan. 18, 1965.

SN 241,949. United States Steel Corporation, Pittsburgh, Pa. Filed Mar. 25, 1966.

TIGERWELD

Owner of Reg. No. 280,127.
For Rail Bonds.
First use Aug. 7, 1930.

SN 243,188. Sterling Electric Motors, Inc., Los Angeles, Calif. Filed Apr. 11, 1966.

SPEED-TRON

For Electric Motors and Electric Motor Controllers.
First use Jan. 6, 1966.

SN 243,210. AMP Incorporated, Harrisburg, Pa. Filed Apr. 12, 1966.

AMP-CRIMPAC

Owner of Reg. Nos. 405,714, 747,195, and others.
For Electrical Connectors.
First use Apr. 4, 1966.

SN 243,459. The Kroydon Revocable Income Trust, Boston, Mass. Filed Apr. 14, 1966.

KROYDON

For Electric Can Openers, Electric Toasters, and Electric Steam Irons.
First use Sept. 16, 1963.

SN 243,765. Automatic Metal Products Corporation, Brooklyn, N.Y. Filed Apr. 19, 1966.

X-CRIMP

For Electrical Coxial Cable Connectors.
First use August 1964.

SN 243,766. Automatic Metal Products Corporation, Brooklyn, N.Y. Filed Apr. 19, 1966.

ECONO-CRIMP

For Electrical Coaxial Cable Connectors.
First use August 1964.

SN 243,983. General Electric Company, East Cleveland, Ohio. Filed Apr. 21, 1966.

LUCALOX

Owner of Reg. No. 742,789.
For Electric Lamps.
First use Jan. 24, 1966.

SN 243,992. Jefferson Electric Company, Bellwood, Ill. Filed Apr. 21, 1966.

SAF-T-TRAIL

For Converters for Converting Alternating Current to Direct Current.
First use Mar. 1, 1966.

SN 244,370. Universal Circuits, Inc., Minneapolis, Minn. Filed Apr. 26, 1966.



For Electronic Circuits Used in Various Electronic Devices.
First use Aug. 15, 1963.

SN 244,563. Blonder-Tongue Laboratories, Inc., Newark, N.J. Filed Apr. 29, 1966.

VERSALOCK

For Tamper-Proof Electrical Outlet Boxes.
First use on or about Jan. 14, 1965.

SN 244,759. Sprague Electric Company, North Adams, Mass. Filed May 2, 1966.

UNIVAR

For Electrical Capacitors.
First use Apr. 30, 1964.

SN 244,882. Caterpillar Tractor Co., East Peoria, Ill. Filed May 4, 1966.

CATERPILLAR

Owner of Reg. Nos. 79,056, 770,267, and others.
For Electric Storage Batteries, Electric Generators and Diesel Electric Generator Sets, and Parts for These Products.
First use in or about December 1934.

SN 244,988. Hipwell Manufacturing Co., Pittsburgh, Pa. Filed May 5, 1966.

HIPCO

For Flashlights and Parts Thereof.
First use January 1915.

SN 245,123. Waste King Corporation, Los Angeles, Calif. Filed May 6, 1966.

CUSTOM HUSH

Owner of Reg. Nos. 747,169, 748,699, and 781,994.
For Garbage Disposers.
First use at least as early as May 1963.

SN 245,266. Dallas Richard Wilder, d.b.a. Wilder Engineering Products, Chicago, Ill. Filed May 9, 1966.

PANAVOX

For Loud Speakers.
First use on or about June 20, 1958.

SN 245,989. The Superior Electric Company, Bristol, Conn. Filed May 18, 1966.

POWERKOTE

For Treated Transformer Coils.
First use Mar. 22, 1965.

Class 22—Games, Toys, and Sporting Goods

SN 198,179. C. L. Parris, Savannah, Tenn., assignee of Kadets of America, Savannah, Tenn. Filed July 20, 1964.

Kadet Kentucky RIFLE

The words "Kentucky" and "Rifle" are disclaimed apart from the mark as shown, without waiver of any common law rights thereto. Owner of Reg. Nos. 655,101, 709,593, and others.
For Toy Rifles.
First use May 19, 1964.

SN 201,817. Cober Fabbrica Articoli Sportivi, Milan, Italy. Filed Sept. 14, 1964.

COBER

For Skis, Ski Bindings, and Ski Poles.
First use January 1954; in commerce July 1961.

SN 235,020. Totsy Manufacturing Co., Inc., Holyoke, Mass. Filed Dec. 21, 1965.

"MY BUDDY"

For Dolls and Doll Clothing.
First use Oct. 15, 1965.

SN 236,056. The Coleman Company, Inc., Wichita, Kans. Filed Jan. 10, 1966.

TRAILMASTER

For Sleeping Bags for Outdoor or Campers' or Similar Recreational Use.
First use November 1965.

SN 239,971. Colt's Inc., Hartford, Conn. Filed Mar. 2, 1966.

TROPHY

For Archery Bows.
First use Feb. 5, 1966.

SN 243,329. Manufacturer's Specialty Co., Inc., St. Louis, Mo. Filed Apr. 13, 1966.

WRIST-O-MITT

For Wristlet for Use by Participants in Sports Activities.
First use Apr. 5, 1966.

SN 243,467. Michelle Marguerite Marie Joseph de le Court, Uccle, Brussels, Belgium. Filed Apr. 14, 1966.

MAGELLAN

Priority claimed under Sec. 44(d) on Belgium Reg. No. 106,454, dated Oct. 18, 1965.
For Equipment and/or Apparatus Comprising Chips, Educational Material, Geographic Maps, Pamphlets With Geographic, Historic or Economic Information, and Toy Vehicles for Playing an Education-Type Board or Parlor Game.

SN 243,657. Donald E. Foster, d.b.a. The Gee Bee Line, Springfield, Mass. Filed Apr. 18, 1966.

the GEE BEE line

No claim is made to the word feature "Line" and/or the pictorial representation of the airplane except in the manner in which it is employed in the mark itself.
For Kits, and Components of Kits, for Amateur or Professional Construction of Toy Models or Prototypes, Such as Floats for Model Seaplanes, etc.
First use Apr. 1, 1963.

SN 243,915. Charles G. Smith, d.b.a. Smith Boys Toys, Webster, N.Y. Filed Apr. 20, 1966.

SAN BAL

For Educational Toys Comprising Small Objects in a Partitioned Enclosure, and Means for Raising Said Objects Over the Partition.
First use Apr. 12, 1966.

SN 244,504. Kohner Bros., Inc., East Paterson, N.J. Filed Apr. 28, 1966.

SWITCH

For Equipment Sold as a Unit for Playing a Pegboard-Type Puzzle Game.
First use Feb. 18, 1966.

SN 244,897. Fisher-Price Toys, Inc., East Aurora, N.Y. Filed May 4, 1966.

FISHER-PRICE

Owner of Reg. Nos. 611,383, 792,874, and others.
For Toys.
First use at least as early as Mar. 1, 1931.

SN 245,482. Honda Giken Kogyo Kabushiki Kaisha, Chuo-ku, Tokyo, Japan. Filed May 12, 1966.

Honda

Owner of Japanese Reg. No. 685,486, dated Sept. 9, 1965.
For Metallic and Plastic Toys.

SN 245,610. Petersen-Boyle Co., Fanwood, N.J. Filed May 13, 1966.

STEP-A-WAY

For Equipment for Playing a Puzzle-Type Word Game.
First use on or about Mar. 25, 1966.

SN 246,642. Louis A. Barnas, Jr., d.b.a. Barnant Company, Palatine, Ill. Filed May 26, 1966.

SPEEDESIGN

For Wheels and Parts for Slot-Car Racing Vehicles.
First use Mar. 5, 1966.

SN 246,918. Masco Corporation, Detroit, Mich. Filed May 31, 1966.

SCOOTEM

For Wheeled Toys.
First use May 2, 1966.

SN 248,166. Sears, Roebuck and Co., Chicago, Ill. Filed June 15, 1966.

astra lite

For Synthetic Filament Sold Only as a Filler for Sleeping Bags for Outdoor or Campers' Use or for Similar Recreational Use.
First use on or about Dec. 20, 1963.

SN 261,775. Wham-O Manufacturing Company, Inc., San Gabriel, Calif. Filed Jan. 3, 1967.

SUPER STUFF

For Toy Material Comprising a Powdered Polymeric Preparation for Making Balloons, Faces, Animal and Like Figures, and for Similar Play Activity.
First use Dec. 9, 1966.

SN 263,728. Minnesota Mining and Manufacturing Company, St. Paul, Minn. Filed Feb. 1, 1967.

THINKING MAN'S GOLF

Applicant claims no registration rights in the word "Golf" as the name of a game.
For Apparatus Sold as a Unit for Playing a Board Game.
First use Sept. 20, 1966.

SN 263,870. Mattel, Inc., Hawthorne, Calif. Filed Feb. 3, 1967.

ROLLY TWIDDLE

For Dolls, Doll Clothing, and Doll Accessories.
First use Dec. 13, 1966.

SNSN 264,134. Eldon Industries, Inc., Hawthorne, Calif. Filed Feb. 7, 1967.

POWER PACK 8

For Toy Road Race Set With Parts Such as Cars, Track, etc.
First use May 29, 1966.

SN 265,767. Mattel, Inc., Hawthorne, Calif. Filed Mar. 2, 1967.

ANABELLE

For Dolls, Doll Clothing, and Doll Accessories.
First use Jan. 20, 1967.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

SN 160,444. Seitz-Werke G.m.b.H., Bad Kreusnach, Germany. Filed Jan. 9, 1963.

CCC SYSTEM SW K

Priority claimed under Sec. 44(d) on German application filed Oct. 4, 1962; Reg. No. 828,652, dated Jan. 17, 1967. Owner of U.S. Reg. No. 667,676.
For Counter-Pressure Filling Machines for Liquids.

SN 223,186. United-Greenfield Corporation, Northbrook, Ill. July 12, 1965.



Owner of Reg. No. 383,189.
For Solid Carbide or Carbide Tipped Drills, Masonry Drills, Milling Cutters, Reamers, Counterbores, Countersinks, Router Bits, Burs, End Mills, Shell Mills, Side Mills, Centers, Single Point Tools, Tool Holders and Parts Thereof, Boring Bars, and Hard Metal Tips, Blanks and Inserts for All of the Same; Diamond Files; Hones; Scribes for the Marking of Hard Materials, Such as Steel, Ceramic, Glass, and the Like; and Grinding Apparatus.
First use Oct. 15, 1964; June 24, 1940, as to the letters "WS."

SN 229,810. Impacto Tool Corporation, Stratford, Conn. Filed Oct. 11, 1965.

IMPACT-O-CUTTER

For Powered Sheet and Panel Cutting Tool Heads Incorporating a Reciprocating Cutter for Application to Pneumatic Hammers Useful Especially in the Field of Automobile Body Work.
First use July 1, 1963.

SN 231,398. Crucible Steel Company of America, Pittsburgh, Pa. Filed Oct. 23, 1965.



For Agricultural Discs.
First use Jan. 21, 1938.

SN 232,238. Rex Chainbelt Inc., Milwaukee, Wis. Filed Nov. 5, 1965.

POWRMATE

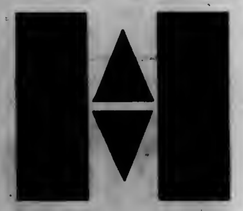
For Hydraulic and Pneumatic Cylinders.
First use Oct. 21, 1965.

SN 234,951. Superior Implement and Supply Company, Greenville, Ohio. Filed Dec. 20, 1965.

LANTZ SNO-VEE

Owner of Reg. No. 702,880.
For Plows.
First use November 1964.

SN 236,428. Toledo Scale Corporation, Toledo, Ohio. Filed Jan. 13, 1966.



The mark is a fanciful letter "H." Owner of Reg. No. 671,637.
For Freight and Passenger Elevators, Moving Stairways, and Parts Therefor.
First use Mar. 16, 1965.

SN 236,619. Missimers, Incorporated, Glendale, Calif. Filed Jan. 17, 1966.

SPIN-SPRAY

For Liquid Spray Dispensers for Use in Agricultural Spraying and the Like.
First use July 15, 1965.

SN 236,669. Tradewinds, Inc., Tacoma, Wash. Filed Jan. 17, 1966.

HOEBOY

For Manually Powered Garden Rotary Cultivators.
First use Feb. 16, 1964.

SN 245,063. Carocelle, Inc., New York, N.Y. Filed May 6, 1966.



CAROCELLE

For Dish Washing Machine.
First use Jan. 5, 1966.

SN 246,661. Clarkson (Engineers) Limited, Nuneaton, England. Filed May 26, 1966.



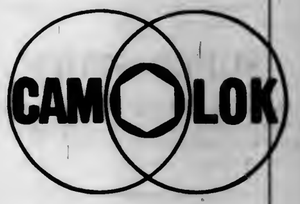
Owner of British Reg. No. 830,339, dated Feb. 2, 1962.
For Machine Tools and Parts and Fittings Therefor, and Chucks, Tools, and Tool Holders, All for Use in Machine Tools.

SN 249,361. Timberjack Machines Limited, Woodstock, Ontario, Canada. Filed June 30, 1966.

TIMBERJACK

For Skidders Useful in the Logging Industry, and Parts Therefor.
First use March 1961; in commerce April 1961.

SN 255,581. Adolph Bauer, Inc., Quincy, Mass. Filed Oct. 3, 1966.



Applicant disclaims "Cam" and "Lok" apart from the mark as shown.
For Adjustable Locking Devices for Die Lockup to Platen Presses.
First use at least as early as Sept. 21, 1966.

SN 260,129. Triumph Machinery Company, Hackettstown, N.J. Filed Dec. 6, 1966.

EXPRESSWAY ROTO-FLEX

Owner of Reg. No. 756,375.
For Mowing Apparatus.
First use July 21, 1966.

SN 263,234. Saab Aktiebolag, d.b.a. Saab Motors, Inc., Linkoping, Sweden. Filed Jan. 25, 1967.

Shrike

For Automotive Engines.
First use Oct. 13, 1966; in commerce Oct. 31, 1966.

SN 263,589. Mack Trucks, Inc., Allentown, Pa. Filed Jan. 30, 1967.

MAXITORQUE

For Transmissions for Use in Automotive Trucks.
First use Dec. 16, 1966.

SN 265,251. Spotnails, Inc., Long Island City, N.Y. Filed Feb. 23, 1967.

SPOTNAILS

Owner of Reg. No. 413,423.
For Fastening Machines, Including Stapling Machines, Nailing Machines, Tacking Machines, Pinning Machines, and the Like.
First use Aug. 29, 1941.

SN 265,879. Garvey Products Corporation, Hammonton, N.J. Filed Mar. 3, 1967.

GARVEY

For Endless Belt-Type Conveyors; Molten Glass Processing Apparatus; and Equipment and Machinery for Use in the Manufacture of Glass Containers—Namely, Cutters, Dead Plates, and Take-Out Tongs.
First use in 1926 on molten glass processing apparatus.

Class 24—Laundry Appliances and Machines

SN 241,728. Ametek, Inc., East Moline, Ill. Filed Mar. 24, 1966.

STERIWALL

For Laundry Washing Machines.
First use Feb. 28, 1966.

Class 26—Measuring and Scientific Appliances

SN 235,256. Bala Corporation, Jackson, Mich. Filed Dec. 27, 1965.

INSTASPLICE

For Film Splice Tapes and Splice Tape Cartridges and Dispensers.
First use Dec. 6, 1965.

SN 235,365. Varian Associates, Palo Alto, Calif. Filed Dec. 27, 1965.

FIELDIAL

For Magnetic Field Regulators.
First use May 25, 1963.

SN 235,390. Honeywell Inc., Wellesley Hills, Mass., assignee of Computer Control Company, Inc., Framingham, Mass. Filed Dec. 28, 1965.

3C μ-PAC

Owner of Reg. No. 648,907.
For Electronic Computer Subassemblies.
First use on or about Dec. 6, 1965.

SN 235,451. Jay International Corp., Chicago, Ill. Filed Dec. 27, 1965.

AUTOMARK

Owner of Reg. No. 809,207.
For Pressure Gauges, Particularly for Use With Tires.
First use Sept. 25, 1965.

SN 235,461. Jagenberg-Werke Aktiengesellschaft, Dusseldorf, Germany. Filed Dec. 21, 1965.

COLLDETEKTOR

Owner of German Reg. No. 808,356, dated Feb. 16, 1963.
For Electronic and Electro-Optical Inspection and Sorting Control for Random Sampling and Splice (or Other Flaw) Detection of Paper in Sheet or Web Form.

SN 236,165. Veeder Industries Inc., Hartford, Conn., by change of name from Veeder-Root Incorporated, Hartford, Conn. Filed Jan. 10, 1966.

VEEDERLOCK

Owner of Reg. No. 288,745.
For Selective Key Actuated Multiple Counter and Control Apparatus for Controlling and Recording the Use of Equipment by Customers and Consumers.
First use in or about August 1963.

SN 237,841. Honeywell Inc., Minneapolis, Minn. Filed Feb. 2, 1966.

RONDELLE 100

Owner of Reg. No. 688,284.
For Photographic Slide Projector.
First use at least as early as September 1965.

SN 242,724. General Precision, Inc., Tarrytown, N.Y. Filed Apr. 5, 1966.

HELIPATH

For Doppler Velocity-Altitude Sensors.
First use Feb. 10, 1966.

SN 243,111. Fabri-Tek Incorporated, Minneapolis, Minn. Filed Apr. 11, 1966.



For Computers Used in Teaching Computer Techniques.
First use Sept. 14, 1965.

SN 243,696. Miles Laboratories, Inc., Elkhart, Ind. Filed Apr. 18, 1966.

STERLSTAR

For Clinical Laboratory Apparatus—Namely, Petri Dishes.
First use on or before Mar. 30, 1966.

SN 243,697. Miles Laboratories, Inc., Elkhart, Ind. Filed Apr. 18, 1966.

ASTRO-PLATE

For Clinical Laboratory Apparatus—Namely, Petri Dishes.
First use on or before Mar. 30, 1966.

SN 244,473. Elco Optisonics Corporation, d.b.a. Elco Optisonics Corp., and Elco Optisonics, Willow Grove, Pa. Filed Apr. 28, 1966.

MASTERMATIC

For Audio Visual Projector.
First use on or about Feb. 24, 1966.

SN 244,519. George A. Philbrick Researches, Inc., Dedham, Mass. Filed Apr. 28, 1966.

PHILBRICK

For Measuring and Analyzing Apparatus—Namely, Analog Computers, and Measuring and Analyzing Parts and Components Sold Separately for Use in Analog Computers, Namely, Oscilloscopes, Meters, and Computing Circuits, Including Adders, Combiners, Averagers, Integrators, Differentiators, Squarers, Logarithm and Root Computing Circuits, Exponential Circuits, Dividers, Multipliers, and Logic Circuits.
First use 1945.

SN 244,628. Surveyors Field Equipment Corp., Falls Church, Va. Filed Apr. 29, 1966.

PLANE-VU

For Level Rods.
First use Apr. 22, 1966.

SN 244,837. The McBee Laboratory, Bozeman, Mont. Filed May 3, 1966.

ANOXY

For Microbiological Laboratory Piece of Equipment Known as a Tube Roller Used To Spin a Tube of Bacterial Culture Medium While Cooling It in Such a Way as To Form a Thin Continuous Layer of the Solidified Medium on the Inner Surface of the Tube.
First use Apr. 20, 1965.

SN 244,914. Minuteman Nylon Products, Inc., Augusta, Kans. Filed May 4, 1966.

YANK

For Eyeglass Frames and Component Parts Thereof, Sold Separately.
First use Nov. 26, 1963.

SN 244,915. Minuteman Nylon Products, Inc., Augusta, Kans. Filed May 4, 1966.

DIXIE

For Eyeglass Frames and Component Parts Thereof, Sold Separately.
First use Nov. 26, 1963.

SN 246,349. Newmark Products, Inc., Norwalk, Calif. Filed May 23, 1966.

NEWMARK

For Electric Power Supplies.
First use Jan. 8, 1965.

SN 247,177. Sanders Associates, Inc., Nashua, N.H. Filed June 3, 1966.

720

For Electronic Display Systems for Handling Data and Communicating With a Data System or Systems, by Entering, Retrieving, Changing, Modifying, Shifting, Adding, and Deleting Data, and for Visually Displaying the Data.
First use Oct. 28, 1965.

SN 247,178. Sanders Associates, Inc., Nashua, N.H. Filed June 3, 1966.

720 COMMUNICATOR

For Electronic Display Systems for Handling Data and Communicating With a Data System or Systems, by Entering, Retrieving, Changing, Modifying, Shifting, Adding, and Deleting Data, and for Visually Displaying the Data.
First use Apr. 27, 1966.

SN 248,432. Crown Cork & Seal Company, Inc., Philadelphia, Pa. Filed June 20, 1966.

SURE-BLEND

For Machine for Proportional Mixing of Fluids, Such as Water and Flavoring Material for a Beverage.
First use Nov. 30, 1965.

SN 259,992. The Tru-D Company, Los Angeles, Calif. Filed Dec. 5, 1966.

SPACE-VUERS

For Plastic Optical Glasses Used for the Viewing of Three-Dimensional Motion Pictures.
First use Oct. 20, 1966.

SN 260,909. Xerox Corporation, Rochester, N.Y. Filed Dec. 16, 1966.

ASTROSTAR

For Light Sensitive Photographic Paper.
First use Nov. 25, 1966.

Class 27 — Horological Instruments

SN 239,790. Palmer Sales Corp., New York, N.Y. Filed Feb. 28, 1966.

LATHIN

For Watches and Watch Movements.
First use Mar. 1, 1943.

SN 241,268. Movado Watch Agency, Inc., New York, N.Y. Filed Mar. 17, 1966.

MOVASTRONIC

For Watches.
First use Feb. 23, 1966.

SN 243,184. Sheffield Watch, Inc., New York, N.Y. Filed Apr. 11, 1966.

CARNABY

For Watches and Clocks.
First use Mar. 10, 1966.

Class 28 — Jewelry and Precious-Metal Ware

SN 243,129. Hamilton Watch Company, Lancaster, Pa. Filed Apr. 11, 1966.

SHENANDOAH

For Sterling Silver Flatware.
First use Feb. 4, 1966.

SN 243,310. De Lizza and Elster, Inc., Brooklyn, N.Y. Filed Apr. 13, 1966.

JULIANA

For Costume Jewelry.
First use Apr. 11, 1966.

Class 30 — Crockery, Earthenware, and Porcelain

SN 211,805. Fairbanks Ward Industries, Inc., Chicago, Ill., assignee of Alldec Corporation, Chicago, Ill. Filed Feb. 11, 1965.

EVERSTONE

For China Dinnerware.
First use Jan. 7, 1965.

Class 31 — Filters and Refrigerators

SN 232,449. Commercial Filters Corporation, Labanon, Ind. Filed Nov. 10, 1965.

Hy Pur

Owner of Reg. No. 663,133.
For Filtration System for Filtering Fluids Used in a Dry Cleaning Installation, and Parts Thereof.
First use Oct. 14, 1965.

SN 232,789. Pharmacia Fine Chemicals, Inc., Piscataway, New Market, N.J. Filed Nov. 16, 1965.

SEPHAROSE

For High Molecular Weight Substance for the Separation by Gel Filtration of Macromolecules (Such as Viruses, Proteins and Blood Serums) That Range in Weight From About 100,000 to Several Million.
First use Nov. 2, 1965.

SN 236,015. Schumacher'sche Fabrik, Bietigheim, Wurttemberg, Germany. Filed Jan. 7, 1966.

FILTROPLAST

Owner of German Reg. No. 771,928, dated June 8, 1960.
For Filtering Apparatus and Media for the Filtration of Technical Liquids and/or Gases; Aerators for Distributing Air and Gases.

SN 239,139. Frigoscandia AB, Halsingborg, Sweden. Filed Feb. 18, 1966.

FRIGOSCANDIA

Applicant advises that the word "Frigoscandia" is an abridgement of the words "refrigerator" and "Scandinavia."
For Refrigerating and Freezing Apparatus, Particularly Those Used for Industrial Freezing and Storing of Foodstuffs, and for Controlled Defrosting and for Thawing of Foodstuffs.
First use Apr. 4, 1962; in commerce July 1962.

SN 248,599. Dean Products, Inc., Brooklyn, N.Y. Filed June 21, 1966.

COUPLDEAN

Owner of Reg. No. 553,674.
For Cooling Plates, Emersion Coolers, Cooling Cabinets, Cooling Shrouds, Cooling Drums, Refrigerated Filter Presses, Refrigerated Dip Pans, Utensils for Cooling and Refrigerating Food, Chemicals, Gases and Liquids, Cooling Platens, Refrigerated Counter Tops, and Coolers for Sterilizing Laboratory Equipment.
First use May 23, 1966.

SN 248,722. Marathon Oil Company, Findlay, Ohio. Filed June 22, 1966.

M MARATHON

Owner of Reg. Nos. 743,273 and 745,637.
For Air, Gasoline, and Oil Filters for Use in Motor Vehicles.
First use May 25, 1966.

Class 32 — Furniture and Upholstery

SN 237,176. Toccoa Metal Products & Implement Company, Inc., Toccoa, Ga. Filed Jan. 24, 1966.

VERSA BOX

Applicant disclaims "Box" apart from the mark as shown.
Owner of Reg. No. 705,757.
For Filing Boxes and Filing Cabinets.
First use Dec. 8, 1965.

SN 243,670. K.C. Industries, Inc., Kansas City, Kans. Filed Apr. 18, 1966.

VERTI-FOLD

For Folding Area Dividers, and Screens.
First use Jan. 21, 1966.

SN 249,071. Room-A-Rama, Portland, Oreg. Filed June 27, 1966.

MELODY LOUNGE

The word "Lounge" is disclaimed apart from the mark as shown.
For Furniture, Specifically Sofas.
First use Mar. 1, 1963.

SN 249,426. Burlington Industries, Inc., Greensboro, N.C., assignee of Globe Furniture Company, High Point, N.C. Filed July 1, 1966.

TUDOR MANOR

Applicant disclaims exclusive right to the use of the word "Tudor" apart from the mark as shown. Applicant, however, expressly reserves any and all common law rights it has in the mark.

For Upholstered Chairs and Sofas, Tables, Cupboards, Storage Cases, Benches, and Desks.

First use June 28, 1966.

SN 251,833. Par-Kut Engineering and Fabricating, Inc., Mount Clemens, Mich. Filed Aug. 5, 1966.

PAR-KUT

For Prefabricated, Movable, Complete and Ready To Use Booths and Offices, for Parking Lot Attendants, Garage Attendants, Factory Entrance Guards, and the Like.

First use Aug. 21, 1958.

SN 256,753. MSL Industries, Inc., Chicago, Ill. Filed Oct. 19, 1966.

MSL

For Furniture—Namely, Television Stands, Magazine Racks, Record Racks, Towel Racks, Room Dividers and Panels, Wall and Corner Shelves, Picture Frames, and Bird Cage Stands.

First use on or about Sept. 9, 1966, on room dividers and panels.

SN 257,120. Zipper Tree Inc., Red Bank, N.J. Filed Oct. 24, 1966.

"ZIP-R-TREE"

For Display Stand Having Double Layer Revolving Rack Arms for Displaying Slide Fasteners.

First use July 7, 1966.

SN 258,596. E. H. Sheldon Equipment Company, Muskegon, Mich. Filed Nov. 14, 1966.

PORT-A-PLANT

For Plant Support Stand.

First use on or before Aug. 5, 1966.

Class 34 — Heating, Lighting, and Ventilating Apparatus

SN 221,014. Cherry-Burrell Corporation, Cedar Rapids, Iowa. Filed June 14, 1965.

NO-BAC

For Processing Systems and Equipment for Sterile Processing of Fluid, Liquid and Semi-Liquid Comestible Products—Namely, Sterilization Units for Processing of Said Products and Heat Exchangers for Heating and Cooling Said Products During the Processing Thereof.

First use Mar. 1, 1965.

SN 229,207. Envirco, Inc., Albuquerque, N. Mex., by change of name from Comfort Air Service, Inc., Albuquerque, N. Mex. Filed Oct. 4, 1965.

ENVIRAMEDIC

For Controlled Atmosphere Medical Clean Rooms.

First use Sept. 10, 1965.

SN 243,216. Blackstone Corporation, Jamestown, N.Y. Filed Apr. 12, 1966.

Blackstone

Owner of Reg. Nos. 546,600, 707,635, and 707,638.

For Soldering and Tinning Flux.

First use June 1, 1958.

SN 247,782. Daimler-Benz Aktiengesellschaft, Stuttgart-Unterurkheim, Germany. Filed June 10, 1966.

MERCEDES-BENZ

Owner of German Reg. No. 375,067, dated Apr. 25, 1925.

For Air Conditioners and Structural Parts Thereof.

SN 248,258. Stoody Company, Whittier, Calif. Filed June 16, 1966.

IMPACTORMATIC

For Electric Welding Machines.

First use Mar. 22, 1966.

SN 248,600. Dean Products, Inc., Brooklyn, N.Y. Filed June 21, 1966.

COUPLDEAN

Owner of Reg. No. 553,674.

For Heating Platens and Plates, Emersion Heaters, Heating Ovens, Heat Exchangers, Melting Tanks, Drum Warmers, Heat Treating Furnaces, Heating Tanks, Heated Filter Presses, Heated Dip Pans, Utensils for Heating Food, Chemicals, Gases and Liquids, Heated Counter Tops, and Heaters for Sterilizing Laboratory Equipment.

First use May 23, 1966.

SN 248,707. ILG Industries Inc., Chicago, Ill. Filed June 22, 1966.

DURA-FAN

Owner of Reg. No. 743,800.

For All Types of Centrifugal and Propeller Fans and Equipment, and Parts Therefor, for Industrial and Commercial Purposes Requiring the Movement of Air, Gases, or Material.

First use Oct. 2, 1961.

Class 35 — Belting, Hose, Machinery Packing, and Nonmetallic Tires

SN 236,163. Tyler Manufacturing Co., Inc., Hawthorne, Calif. Filed Jan. 10, 1966.

BEST-WAY

For Tire Repair Patches.

First use Dec. 29, 1965.

SN 239,516. The Goodyear Tire & Rubber Company, Akron, Ohio. Filed Feb. 24, 1966.

PLIOFLO

Owner of Reg. Nos. 632,457, 793,647, and others.

For Conveyor Belting.

First use Mar. 12, 1964.

SN 240,625. The Kelly-Springfield Tire Company, Cumberland, Md. Filed Mar. 10, 1966.

V-110 VENTURA

For Tires.

First use Oct. 28, 1965.

SN 240,626. The Kelly-Springfield Tire Company, Cumberland, Md. Filed Mar. 10, 1966.

V-100 VINDICATOR

For Tires.

First use Oct. 28, 1965.

SN 256,209. Goetzewerke, Friedrich Goetze Aktiengesellschaft, Burscheid, Bezirk Dusseldorf, Germany. Filed Oct. 11, 1966.

GOETZE

For Piston Rings, Oil Seals, and Sealing Parts for Rotary Combustion Engines.

First use 1887 on some of said goods; in commerce at least as early as 1955.

Class 36 — Musical Instruments and Supplies

SN 224,598. EMC Corporation, St. Paul, Minn. Filed July 30, 1965.

LANGUAGE TEACHER'S *Library*

For Phonograph Records and Prerecorded Magnetic Tapes With Accompanying Texts for Educational Use.

First use Dec. 23, 1958.

SN 225,881. Munts Stereo-Pak, Inc., Van Nuys, Calif. Filed Aug. 17, 1965.

STEREO-PAK

For Magnetic Tape Recording and Reproducing Apparatus and Tape Cartridges Therefor, and Phonograph Record Players.

First use Dec. 9, 1963.

SN 229,181. B. N. Sanders, Dallas, Tex. Filed Oct. 4, 1965.

SOS

For Phonograph Records.

First use Oct. 1, 1965.

SN 237,521. National Sales Incentives Ltd., Don Mills, Ontario, Canada. Filed Nov. 9, 1965.

Park Lane

Priority claimed under Sec. 44(d) on Canadian application filed Sept. 22, 1965; Reg. No. 145,607, dated June 3, 1966.

For Phonograph Records.

SN 237,679. Dorset Record Corporation, Philadelphia, Pa. Filed Feb. 1, 1966.

GLADWYNNE

For Grooved Phonograph Records.

First use Dec. 1, 1965.

SN 238,993. Apon Record Company, Inc., New York, N.Y. Filed Feb. 17, 1966.

DISCAPON

Applicant disclaims the representation of a phonograph record, or disc, apart from the mark as shown.

For Phonograph Records.

First use July 1, 1965.

SN 238,994. Apon Record Company, Inc., New York, N.Y. Filed Feb. 17, 1966.

amadeo

Applicant disclaims the representation of the phonograph record.

For Phonograph Records.

First use Dec. 1, 1964.

SN 243,041. Topco Associates, Inc., Skokie, Ill. Filed Apr. 8, 1966.

TOPCO

For Phonograph Records.

First use Mar. 8, 1966.

Class 37 — Paper and Stationery

SN 201,736. Professional Printing Company, Inc., Melville, N.Y. Filed Sept. 11, 1964.

KEY-MASTER

For Record Keeping Forms.
First use on or about Aug. 19, 1964.

SN 225,889. Norcross, Inc., New York, N.Y. Filed Aug. 17, 1965.

ROSE ELEGANCE

For Gift Wrapping Paper.
First use May 12, 1965.

SN 236,518. Sanford Ink Company, Bellwood, Ill. Filed Jan. 14, 1966.

FLOCO-TIP

For Marking Pen Tips.
First use Oct. 8, 1965.

SN 245,972. Scripto, Inc., Atlanta, Ga. Filed May 18, 1966.

NOTATOR

For Fiber Tip Pens.
First use May 9, 1966.

SN 246,908. Imperial Wallpaper Mill, Inc., Cleveland, Ohio. Filed May 31, 1966.

GLENGARY

Owner of Reg. Nos. 526,110, 706,018, and others.
For Wallpapers.
First use on or about Apr. 15, 1963.

SN 252,006. Imperial Wallpaper Mill, Inc., Cleveland, Ohio. Filed Aug. 9, 1966.

LYNDHURST

For Wallpapers.
First use on or about May 13, 1966.

SN 254,433. Binney & Smith Inc., New York, N.Y. Filed Sept. 14, 1966.

BINNEY & SMITH Superior

Applicant makes no claim to the right to the word "Superior" apart from the mark as shown.
For Chalkboard Erasers.
First use Aug. 26, 1966.

SN 255,839. Wallace Business Forms, Inc., Chicago, Ill. Filed Oct. 5, 1966.

VISI-READ

For Continuous Computer Forms.
First use Aug. 8, 1966.

SN 260,556. Magic Marker Corporation, Brooklyn, N.Y. Filed Dec. 12, 1966.

MAGIC LINER

Owner of Reg. Nos. 641,610 and 712,865.
For Felt Tip Marking Devices.
First use Nov. 18, 1966.

SN 265,015. Nugget Distributors' Cooperative of America, Inc., d.b.a. Nugget Distributors, Inc., Stockton, Calif. Filed Feb. 20, 1967.

Nugget

For Aluminum Foil for Wrapping Purposes; Plastic Film for Wrapping Purposes, Paper Place Mats; Paper Coasters; Paper Napkins; and Paper Straws.
First use in or about March 1963.

Class 38 — Prints and Publications

SN 242,084. Science Service, Inc., Washington, D.C. Filed Mar. 10, 1966.

SCIENCE NEWS

For Magazine.
First use Mar. 7, 1966.

SN 242,356. Galen Gavel, Providence, R.I. Filed Mar. 31, 1966.

KLICK

For Magazine Containing Music, Musical Compositions, Poetry, and Literature.
First use Dec. 18, 1964.

SN 243,944. Applied Data Research, Inc., Princeton, N.J. Filed Apr. 21, 1966.

AUTOFLOW

For Computer Programs Composed of Punch Cards and Tape Recordings, and Guidebooks and Operating-Instruction Manuals, for Use in Computer Documentation.
First use Jan. 18, 1965, on guidebooks and manuals.

SN 244,395. The Chemical Rubber Company, Cleveland, Ohio. Filed Apr. 27, 1966.

CRC **LAB APPARATUS**

Without waiving its common law rights, applicant disclaims "Lab Apparatus" apart from the mark as shown.
For Catalog Concerned With Current Developments in Laboratory Equipment.
First use at least as early as December 1965; at least as early as Sept. 1, 1962, as to "CRC" and "Lab Apparatus" used separately.

SN 247,781. John A. Curtiss, Lincoln, Nebr. Filed June 10, 1966.

HiWAY HOWDies

For Booklets Containing Groups of Printed Signs, Such Booklets Being Published From Time to Time and Containing Different Signs.
First use on or about Mar. 29, 1966.

SN 248,236. William E. Kirkpatrick, Hattiesburg, Miss. Filed June 16, 1966.

COLLEGIATE SCENE MAGAZINE

Applicant disclaims the word "Magazine" apart from the mark as shown.
For Magazine Published Monthly.
First use Mar. 1, 1966.

SN 260,128. McGraw-Hill, Inc., New York, N.Y. Filed Dec. 6, 1966.



TIME, SPACE, AND MATTER

No registration rights are claimed in the words "Time," "Space," and "Matter," apart from the mark as shown.
For Educational Picture Books and Packaged Material for Use Therewith—Namely, Samples of Physical Matter.
First use June 27, 1966.

SN 262,662. Xerox Corporation, Rochester, N.Y. Filed Jan. 17, 1967.



For Books.
First use Oct. 28, 1966.

Class 39 — Clothing

SN 216,741. Colorado Ski Country U.S.A. Inc., Denver, Colo., by change of name from Colorado Ski Country USA, Inc., Denver, Colo. Filed Apr. 16, 1965.



The representation of the map of the United States, apart from the mark as shown, is disclaimed.
For After Ski Suits.
First use in or about September 1963.

SN 226,345. De Weese, Inc., Los Angeles, Calif. Filed Aug. 24, 1965.

De Weese Design

Solely for the purpose of this registration, applicant hereby disclaims the term "Design" apart from the mark as shown, without disclaimer of any common law right or any other right of use or registration of said term alone or in combination with another term. Owner of Reg. No. 588,476.
For Women's Sportswear—Namely, Swimwear, Beach Jackets, and Dresses.
First use Dec. 21, 1951.

SN 237,513. Classic Bekleidungswerke Kemper K.G., Gelsenkirchen, Germany. Filed Jan. 5, 1966.

classikem

Owner of German Reg. No. 784,643, dated Jan. 28, 1964.
For Men's and Women's Knitted and Woven Outer and Underwear—Namely, Women's Coats, Suits, Dresses, Jackets, Skirts, Trousers, Beach Suits, Bathrobes, Raincoats, Dressing Gowns, Hats, Head Scarves, Underwear, Corsets and Brassieres; Men's Suits, Trousers, Jackets, Coats, Raincoats, Bathrobes, Dressing Gowns, and Underwear.

SN 237,554. McGregor-Doniger Inc., New York, N.Y. Filed Jan. 28, 1966.

SCOTLANA

Owner of Reg. No. 394,309.
For Sweaters and Shirts.
First use Jan. 13, 1966.

SN 238,441. McGregor-Doniger Inc., New York, N.Y. Filed Feb. 9, 1966.

LOGGERS

For Men's Slacks.
First use Jan. 28, 1966.

SN 238,463. Topaz Hosiery Mills, Inc., New York, N.Y. Filed Feb. 9, 1966.

Showcase ACTION-TOP ACTION-TOP ACTION-TOP

Applicant disclaims the phrase "Action Top" apart from the mark as shown.
For Stockings.
First use Oct. 19, 1965.

SN 241,724. Abercrombie & Fitch Company, New York, N.Y. Filed Mar. 24, 1966.

SIMBA

For Men's Slacks, Shorts, and Golf Hats.
First use Feb. 9, 1966.

SN 244,212. Get A Head Fashions, Inc., New York, N.Y., assignee of Fur Flyers, Inc., New York, N.Y. Filed Apr. 25, 1966.

FUR FLYERS

The word "Fur" is disclaimed apart from the mark as a whole. Owner of Reg. No. 723,628.
For Hats (Made Wholly of Fur, With the Exception of the Hat Lining).
First use Apr. 8, 1960.

SN 244,300. Chappel Allen & Co., Limited, Redfield, Bristol, England. Filed Apr. 26, 1966.

GENTLE PERSUASION

Owner of British Reg. No. B880,204, dated May 31, 1965, and U.S. Reg. No. 755,138.
For Brassieres, Corsets, Corselets, Girdles (Corsets), and Suspender Belts.

SN 244,919. William R. Moore, Inc., Memphis, Tenn. Filed May 4, 1966.



For Rainwear, Water Repellent Jackets, Sweaters, and Sweatshirts.
First use Feb. 21, 1966.

SN 245,530. Avalon Classics, Inc., New York, N.Y. Filed May 12, 1966.



For Shirts, Sport Shirts, Blouses, Slacks, and Dresses.
First use Mar. 18, 1966.

SN 247,578. Camp and McInnes, Inc., Reading, Pa. Filed June 8, 1966.



Applicant disclaims the exclusive right to the use of the word "Sock," apart from the mark as shown.
For Men's Hosiery.
First use May 20, 1966.

SN 248,235. Kabushiki Kaisha Jun, Daito-ku, Tokyo, Japan. Filed June 16, 1966.

JUN

Owner of Japanese Reg. No. 650,048, dated Aug. 13, 1964.
For Men's Suits, Shirts, Jackets, and Ties; and Sweaters and Cardigans.

SN 248,809. I.M. Company, St. Louis Park, Minn. Filed June 23, 1966.

TAMYA

For Protective Caps for Hairdos.
First use Jan. 14, 1966.

SN 250,323. Wilmar Undergarment Corp., New York, N.Y. Filed July 14, 1966.

CORDISSÉ

The word "Cordissé" is fanciful.
For Women's, Misses', and Children's Panties, Combined Petticoat and Panty, Brassieres, and Slips.
First use Feb. 8, 1966.

SN 250,844. Helen of Memphis, Inc., Memphis, Tenn. Filed July 22, 1966.

MISS MEMPHIS

For Women's Coats, Dresses, Suits, and Shoes.
First use Feb. 17, 1966.

SN 250,945. Eagle Shoe Mfg. Company, Inc., Everett, Mass. Filed July 25, 1966.

PARIS HILL

For Men's and Boys' Shoes.
First use October 1965.

SN 251,297. Glamorise Foundations, Inc., New York, N.Y. Filed July 29, 1966.

TRIC-O-MAGIC

For Foundation Garments.
First use May 26, 1966.

SN 251,424. Stanley Gropper, Franklin Square, N.Y. Filed Aug. 1, 1966.

Chic's 'n Teens

For Children's and Misses' Skirts, Suits, Jumpers, Pants, Shorts, Shirts, and Slacks.
First use July 10, 1961.

SN 251,506. R. G. Barry Corporation, Columbus, Ohio. Filed Aug. 2, 1966.



Owner of Reg. No. 635,230.
For Slippers and Scuffs.
First use July 18, 1966.

SN 251,846. J. P. Stevens & Co., Inc., New York, N.Y. Filed Aug. 5, 1966.

ASSIST

For Hosiery.
First use June 27, 1966.

SN 251,945. Oxford Manufacturing Company, Atlanta, Ga. Filed Aug. 8, 1966.

COS COB

Owner of Reg. No. 719,368.
For Women's and Girls' Pants, Shorts, Sweaters, Jackets, and Knitted Cotton Outer Shirts.
First use August 1965.

SN 251,955. Jacques Roy, Paris (Seine), France. Filed Aug. 8, 1966.

JACQUES ROY

Owner of French Reg. No. 13,439, dated June 13, 1966.
For Clothing for Men, Young Men, and Boys, and Particularly Jackets, Coats, Business Suits, Overcoats, Trenchcoats, Raincoats, Trousers, and Waistcoats.

SN 252,152. A.B.C. Television Limited, London, England. Filed Aug. 11, 1966.

THE AVENGERS

Owner of British Reg. No. 881,242, dated June 25, 1965.
For All Articles of Clothing—Namely, Blouses, Boots and Shoes, Coats, Dresses, Gloves, Hats, Jackets, Negligees, Nightdresses, Raincoats, Stockings, Suits and Trousers, Being Articles for Women.

SN 252,169. Future Fashions, Inc., New York, N.Y. Filed Aug. 11, 1966.

SANDY LANE

The name "Sandy Lane" is fanciful.
For Dresses, Jackets and Skirts, and Combinations Thereof, All for Women and Young Women.
First use June 27, 1966.

SN 252,270. Murphy, Brill and Sahner, Inc., New York, N.Y. Filed Aug. 12, 1966.

ABSORBO

Owner of Reg. No. 588,304.
For Baby Pants and Training Pants for Babies.
First use May 10, 1966.

SN 252,401. Mercantile Stores Company, Inc., New York, N.Y. Filed Aug. 15, 1966.

Jean Sutton

The name "Jean Sutton" is fanciful. Owner of Reg. Nos. 562,716, 762,035, and 764,755.
For Shoes of Leather, Rubber, and Fabric and Combinations Thereof; Slips, Pajamas, Negligees, Lounging Robes, Bathrobes, Nightgowns, Panties, Girdles, Brassieres, Handkerchiefs, Coats, Suits, Mufflers, Scarves, Sweaters, Hats; Gloves of Leather and Fabric and Combinations Thereof; Bathing Suits, Beach Robes, Evening Wraps, Outer and Under Skirts, and Hosiery.
First use May 13, 1937.

SN 253,219. Hayes Half-Size Fashions, Inc., Indianapolis, Ind. Filed Aug. 26, 1966.

PROPORTION-IZED

Owner of Reg. No. 423,397.
For Women's Dresses.
First use Apr. 9, 1945.

SN 253,768. M.K.M. Knitting Mills, Inc., Manchester, N.H. Filed Sept. 2, 1966.

DARINO

For Women's Sweaters.
First use Aug. 5, 1966.

SN 255,494. Hart Schaffner & Marx, Chicago, Ill. Filed Sept. 30, 1966.

SEAFORD

For Men's Suits and Trousers.
First use June 9, 1945.

Class 40—Fancy Goods, Furnishings, and Notions

SN 222,281. Samuel B. Levin, d.b.a. Wig World, Pittsburgh, Pa. Filed June 29, 1965.



No registration rights are claimed for the word "Wig" apart from the mark shown, but applicant waives none of his common law rights in the mark shown or any feature thereof.
For Hair Goods—Namely, Wigs, Toupees, and Hair Pieces.
First use May 3, 1962.

SN 233,501. Gustav Herzig, Schwetzingen, Germany. Filed Nov. 29, 1965.



Owner of German Reg. No. 753,752, dated July 23, 1960.
For Wigs and Toupees.

SN 233,750. Silbro Products Corporation, Long Island City, N.Y. Filed Dec. 1, 1965.

MINIGRIP

For Garter Grips.
First use Oct. 28, 1965.

SN 234,310. Stanley Comb Products Corp., New York, N.Y. Filed Dec. 9, 1965.

TEMPO

For Combs.
First use May 1, 1964.

SN 235,800. Save Way Barber & Beauty Supplies, Inc., North Miami Beach, Fla. Filed Jan. 4, 1966.



LA BELLE WIG

The word "Wig" is disclaimed apart from the mark as shown.
For Wigs.
First use on or about Oct. 15, 1965.

SN 236,909. Mitchellace, Inc., Portsmouth, Ohio. Filed Jan. 20, 1966.

MITCHELLACE

For Shoe Laces.
First use Oct. 7, 1933.

SN 236,912. Mitchellace, Inc., Portsmouth, Ohio. Filed Jan. 20, 1966.

TRIM-TIE

For Shoe Laces.
First use Jan. 10, 1950.

SN 255,919. Pompton Comb Inc., Pompton Lakes, N.J. Filed Oct. 6, 1966.

APOLLO COMB

The word "Comb" is disclaimed apart from the mark as shown.
For Combs.
First use Apr. 11, 1966.

SN 256,010. Jahiel Schachner, d.b.a. Yofi Crafts, Jericho, N.Y. Filed Oct. 7, 1966.

JIFFYPOINT

For Art Needlework Kit.
First use Apr. 29, 1966.

SN 256,247. U.S. Hat Band Mills, Inc., New York, N.Y. Filed Oct. 11, 1966.



For Hat Bands Made of Woven, Knitted, and Netted Material and Artificial Fibers.
First use 1932.

SN 256,534. Fashion Tress, Inc., Miami Beach, Fla. Filed Oct. 17, 1966.

COIF-LIFT

For Ladies' Wigs and Hair Pieces.
First use on or about Sept. 1, 1966.

SN 256,691. Wig Importing Incorporated, New York, N.Y. Filed Oct. 18, 1966.

STYLISTS DELIGHT

For Wigs.
First use Aug. 3, 1966.

Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

SN 253,902. OBI Grass Co., Inc., Ridgefield, N.J. Filed Sept. 6, 1966.

Perma-Grass by OBI

The drawing is lined for green.
For Evergreen Synthetic (Plastic) Grass Carpet.
First use June 7, 1966.

SN 256,217. Inwood Knitting Mills, Inc., New York, N.Y. Filed Oct. 11, 1966.

BARCETTE

Owner of Reg. No. 710,331.
For Knit Acetate Fabrics for Use in Making Shirts, Blouses, Dresses, Skirts, Shorts, and Pants for Men, Women, and Children.
First use on or about Apr. 30, 1966.

SN 256,222. M. Lowenstein & Sons, Inc., New York, N.Y. Filed Oct. 11, 1966.

AUTOGRAPH

For Textile Piece Goods of Cotton and Synthetic Fibres and Mixtures Thereof for Making Articles of Wearing Apparel, Including Blouses, Dresses, Shirts, Skirts, and the Like.
First use Aug. 20, 1959.

Class 43—Thread and Yarn

SN 254,144. T. Forsell & Son Limited, South Wigston, England. Filed Sept. 9, 1966.

RYAGARN

Owner of British Reg. No. 881,097, dated June 23, 1965.
For Yarns of Natural or Synthetic Textile Materials, or of Mixtures of Natural or Synthetic Textile Materials.

Class 44—Dental, Medical, and Surgical Appliances

SN 232,748. Williams Gold Refining Company, Inc., Buffalo, N.Y. Filed Nov. 15, 1965.

PYROPAQUER

For Dental Acrylic Synthetic Resin Powders, Pastes, and Liquids Used as the Resin Material for Tooth Restoration and for Denture Restoration.
First use Sept. 14, 1965.

SN 235,175. Extracorporeal and Medical Specialties Company, Inc., Medford, N.J. Filed Dec. 23, 1965.

EXTRACORPOREAL MSC

Applicant disclaims the word "Extracorporeal" separate and apart from the mark as shown.
For Dialysis Equipment, Surgical Tubing, and Tourniquets.
First use at least as early as Apr. 15, 1965.

SN 240,368. Unitek Corporation, Monrovia, Calif. Filed Mar. 7, 1966.

ORTHOSTUDY

For Dental Apparatus—Namely, Articulators, Pre-Molded Wax Models of Dental Arches, and Simulated Teeth.
First use July 15, 1965.

SN 251,528. Eisle & Company, Inc., Nashville, Tenn. Filed Aug. 2, 1966.



Owner of Reg. No. 782,150.
For Hypodermic Needles and Glass Syringes, Clinical Thermometers, Disposable Hypodermic Needles and Syringes, Elastic Bandages, Rubber Syringes, and Rubber Gloves.
First use Aug. 18, 1965, on elastic bandages.

SN 251,652. Ramer Chemical Company Limited, Camberley, Surrey, England. Filed Aug. 3, 1966.

PROSTHEX

Owner of British Reg. No. 747,844, dated Nov. 9, 1955.
For Material for Scaffolding or Supporting Cavities in the Human Body Arising Out of Surgical Operations for Replacing Arteries, Aortas and Other Tubular Organs.
First use Feb. 1, 1956; in commerce June 28, 1966.

SN 252,176. Kadus-Werk Ludwig Kegel K.G., Lenzkirch, Black Forest, Germany. Filed Aug. 11, 1966.

KADUS

Owner of German Reg. No. 614,199, dated June 6, 1950.
For Appliances and Utensils for Hygienic and Cosmetic Purposes, i.e., Electric Hair Dryers, Apparatus for Permanent Waving, Curlers, and the Like.

SN 252,441. Yardney Chemical Inc., New York, N.Y. Filed Aug. 15, 1966.

YARDNEY COMO

For Orthopedic Devices in the Form of Contour Molded Braces and Supports, and Belts for Contour Molded Braces and Supports.
First use June 25, 1966.

SN 252,714. AMP Incorporated, Harrisburg, Pa. Filed Aug. 19, 1966.

AMPLIGATOR

For Surgical Devices—Namely, Ligating and/or Hemostatic Devices.
First use Aug. 9, 1966.

Class 45—Soft Drinks and Carbonated Waters

SN 242,440. Double Cola Company, d.b.a. The Double Cola Company, Chattanooga, Tenn. Filed Apr. 1, 1966.

TANZI

For Soft Drinks and Concentrates for Making the Same.
First use Jan. 21, 1966.

SN 250,462. Raul Diaz, Miami, Fla. Filed July 18, 1966.



For Soft Drink.
First use Apr. 1, 1966.

SN 253,841. Bowey's, Inc., Chicago, Ill. Filed Sept. 6, 1966.

CHUG·A·LUG

For Soft Drinks and a Syrup Concentrate for Making Carbonated Soft Drinks.
First use on or before June 5, 1966.

Class 46—Foods and Ingredients of Foods

SN 202,903. B. A. Bernard & Co., Inc., Camden, N.J. Filed Sept. 29, 1964.



For Food for Cats.
First use 1960.

SN 211,181. Diane F. Miller, d.b.a. Designs by Diane, Villa Park, Ill. Filed Feb. 2, 1965.

CREAM PUP

No claim is made to the word "Pup" apart from the mark as shown.
For Ice Cream Novelty in the Nature of Ice Cream in the Shape of a Frankfurter.
First use Jan. 14, 1965.

SN 217,732. Hain Pure Food Company, Inc., d.b.a. Hollywood Health Foods, Los Angeles, Calif. Filed Apr. 30, 1965.

Hollywood health foods

Applicant disclaims the wording "Health Foods" except in the association shown.
For Vegetable Oil Capsules, Vegetable Oils, Canned Vegetable Juices, Canned Soy Beans, Mayonnaise, Garlic and Oil Mixtures, and Nut Butters.
First use at least as early as May 1954.

SN 221,957. A. L. Schutsman Company, Inc., Milwaukee, Wis. Filed June 24, 1965.

GOLDEN KERNEL

For Raw, Roasted, and Coated Nuts.
First use at least as early as 1926.
Subj. to Intf. with SN 231,567.

SN 225,685. Tambellini Food Products Company, Inc., Pittsburgh, Pa. Filed Aug. 13, 1965.

TAMBELLINI'S

For Frozen Foods and Food Products—Namely, Frozen Pizza Pies; Sandwich Filling the Major Ingredient of Which Is Meat; and Tomato Sauces for Either Meats or Fish.
First use Aug. 13, 1960.

SN 232,092. Red Barn Chemicals, Inc., Shreveport, La. Filed Nov. 3, 1965.

RED BARN BULL SHIPPER

The word "Bull" is disclaimed apart from the mark as shown.
For Livestock Feed.
First use Sept. 3, 1964.

SN 236,626. National Biscuit Company, New York, N.Y. Filed Jan. 17, 1966.



For Dry Breakfast Cereals.
First use on or about Apr. 1, 1965.

SN 240,739. J. Wilson Hughes, Monroeville, N.J. Filed Mar. 11, 1966.

BROAD ACRES

For Fresh Apples and Fresh Peaches.
First use Sept. 25, 1963.

SN 242,648. Philadelphia Chewing Gum Corporation, Havertown, Pa. Filed Apr. 4, 1966.

FUN WITH GUM

No claim is made to the word "Gum" apart from the mark as shown.
For Chewing Gum.
First use Mar. 27, 1963.

SN 243,568. Mother's Cake & Cookie Co., Oakland, Calif. Filed Apr. 15, 1966.

RENDEZVOUS

For Cookies.
First use Mar. 17, 1966.

SN 243,597. Sunshine Biscuits, Inc., Long Island City, N.Y. Filed Apr. 15, 1966.

Sunshine

Owner of Reg. No. 709,731.
For Crackers, Cookies, Wafers, Fig Bars, Cakes, Pies, Potato Chips, Pretzels, Candy, Shredded Wheat, Breakfast Cereal, and Cracker Meal.
First use August 1908.

SN 243,622. Archer-Daniels-Midland Company, Minneapolis, Minn. Filed Apr. 18, 1966.

NOKOMIS

For Cereal Grain Flours.
First use at least as early as 1930.

SN 243,640. Connell Rice & Sugar Co., Inc., Westfield, N.J. Filed Apr. 18, 1966.



For Rice.
First use Mar. 7, 1966.

SN 244,407. A. Giuliani & Bro., San Francisco, Calif. Filed Apr. 27, 1966.

el Padre



For Olive Oil.
First use May 8, 1939.

SN 247,667. Associated Grocers' Company of St. Louis, Missouri, St. Louis, Mo. Filed June 9, 1966.



Owner of Reg. Nos. 256,111, 724,613, and others.
For Candy.
First use May 2, 1957.

SN 250,312. Sunshine Biscuits, Inc., Long Island City, N.Y. Filed July 14, 1966.

SWINGERS

For Snack Crackers.
First use Apr. 26, 1966.

SN 250,668. Kadison Laboratories, Inc., Chicago, Ill. Filed July 20, 1966.

FLAVOPOP

For Popcorn Flavoring.
First use Mar. 16, 1966.

SN 250,856. Morton International, Inc., Chicago, Ill. Filed July 22, 1966.

COFFEE RITE

For Non-Dairy Substitute for Cream.
First use on or about Jan. 7, 1965.

SN 257,236. Western Family Foods, Inc., San Francisco, Calif. Filed Oct. 26, 1966.



Owner of Reg. Nos. 776,292 and 816,231.
For Canned Fruits, Canned Vegetables, Canned Fruit Juices, Canned Vegetable Juices, Canned Tomato Sauce, Canned Frozen Concentrated Fruit Juices; Frozen Fruits, Frozen Berries, Frozen Vegetables, Frozen French Fried Potatoes, Salad Dressings, Peanut Butter, Spices, Bread, Rolls, Cookies, Fruit Pies, and Cakes.
First use May 1, 1965.

SN 265,379. General Mills, Inc., Minneapolis, Minn. Filed Feb. 24, 1967.

COGGLES

For Ready To Eat Breakfast Cereal.
First use Feb. 10, 1967.

SN 265,462. David Freedman & Co., Inc., Thermal, Calif. Filed Feb. 27, 1967.

VITA-SLIM

Owner of Reg. No. 825,404.
For Fresh Citrus Fruits.
First use Jan. 11, 1967.

Class 47—Wines

SN 232,279. Augusto E. Fratelli Borghini fu Canzio, Certaldo, Toscana, Italy. Filed Nov. 8, 1965.

Borghini

For Chianti Wine.
First use approximately July 19, 1951; in commerce approximately July 19, 1951.

SN 264,282. James B. Beam Import Corporation, New York, N.Y. Filed Feb. 9, 1967.

MUNDUS

For Wine.
First use Feb. 1, 1967.

Class 49—Distilled Alcoholic Liquors

SN 226,802. Thallon Wines & Spirits Imports, Inc., New York, N.Y. Filed Aug. 30, 1965.

PORTINI

For Prepared Alcoholic Cocktail Containing Port Wine and Gin.
First use on or about Aug. 20, 1965.

SN 226,803. Thallon Wines & Spirits Imports, Inc., New York, N.Y. Filed Aug. 30, 1965.

PORTSIDE

For Prepared Alcoholic Cocktail Containing Port Wine, Triple Sec, and Lemon Juice.
First use on or about Aug. 20, 1965.

SN 239,201. The American Distilling Co., d.b.a. The American Distilling Co. (Inc.), New York, N.Y. Filed Feb. 21, 1966.



Owner of Reg. Nos. 328,955, 328,958, and 434,161.
For Whiskey.
First use Dec. 9, 1965.

SN 249,680. Schenley Distillers, Inc., New York, N.Y. Filed July 6, 1966.

PLAYERS

For Blended Whiskey.
First use May 13, 1966.

SN 263,240. Mohr International, Ltd., New York, N.Y. Filed Jan. 25, 1967.

MASQUERS

For Vodka.
First use Jan. 13, 1967.

Class 50—Merchandise Not Otherwise Classified

SN 240,849. W. H. Brady Co., Milwaukee, Wis. Filed Mar. 14, 1966.

ARMOR-PLATE

For Pressure-Sensitive Adhesive Nameplates.
First use Dec. 3, 1965.

Class 51—Cosmetics and Toilet Preparations

SN 219,096. Yardley of London, Inc., Totowa, N.J. Filed May 17, 1965.

Oh! de Spain

Applicant disclaims any exclusive right in the word "Spain" apart from the mark as shown.
For Perfume, Cologne, Powder, Bath Oil, and Sachet.
First use Apr. 23, 1965.

SN 236,141. Rexall Drug and Chemical Company, d.b.a. Vanda Cosmetics, Los Angeles, Calif. Filed Jan. 10, 1966.

CAPTIVA

For Fragrances Marketed Directly to Consumers Through a Field Sales Organization.
First use Dec. 28, 1965.

SN 242,106. Bristol-Myers Company, New York, N.Y. Filed Mar. 29, 1966.

DIPHEXATE

For Cosmetics and Toilet Preparations—Namely, an Oily Ingredient for Use in Removing Dirt and Oil From the Hair, and as an Aid in Hairdressing.
First use Oct. 18, 1965.

SN 242,504. Sarong, Inc., Dover, Del. Filed Apr. 1, 1966.

BODY MAGIC

For Body Powder, Talcum Powder, Personal Deodorant, Body Moisturizer, and Body Refresher.
First use Mar. 9, 1966.

SN 245,389. Clairol Incorporated, New York, N.Y. Filed May 11, 1966.

MILDNESS

For Hair Tinting, Dyeing, and Coloring Preparation.
First use Feb. 9, 1966.

SN 247,412. Sarong, Inc., Dover, Del. Filed June 6, 1966.



For Body Powder, Talcum Powder, Personal Deodorant, Body Moisturizer, and Body Refresher.
First use May 4, 1966.

SN 247,723. Shulton, Inc., Clifton, N.J. Filed June 9, 1966.
For After Shave Lotion.

V.S.O.R. VERY SPECIAL OLD RESERVE

First use May 31, 1966.

SN 254,242. Clairol Incorporated, New York, N.Y. Filed Sept. 12, 1966.

MOON BABIES

For Hair Tinting, Dyeing, and Coloring Preparation.
First use July 8, 1966.

SN 254,243. Clairol Incorporated, New York, N.Y. Filed Sept. 12, 1966.

LOVERLY

For Hair Conditioner.
First use July 8, 1966.

SN 254,246. Clairol Incorporated, New York, N.Y. Filed Sept. 12, 1966.

CLAIRVOYANT

For Hair Waving Preparation.
First use July 8, 1966.

SN 254,252. Clairol Incorporated, New York, N.Y. Filed Sept. 12, 1966.

SPINNAKER

For Cologne.
First use July 8, 1966.

SN 258,053. Clairol Incorporated, New York, N.Y. Filed Nov. 7, 1966.

LOVERLY

For Nail Color, Lipstick, Compact Make-Up, and Face Powder.
First use Aug. 11, 1966.

SN 258,063. Clairol Incorporated, New York, N.Y. Filed Nov. 7, 1966.

MOONBABIES

For Lipstick and Nail Enamel.
First use Aug. 11, 1966.

Class 52—Detergents and Soaps

SN 236,334. Albert B. Selleck, d.b.a. Selleck Enterprises, North Hollywood, Calif. Filed Jan. 11, 1966.



No claim is made to the exclusive right to use "Aerosol," but applicant waives none of his common law rights in the mark as shown, or any feature thereof.
For Spray-Type Cleaning Solvent Containing a Blend of Fluorinated and Chlorinated Hydrocarbon Solvents for Degreasing of Metals, Dissolving Grease, Oils, Waxes, Inks, and Tars, and Cleaning of Electrical Contacts, Motors, and Components, and Fabrics, Painted Surfaces, and Plastic or Varnished Parts.
First use May 25, 1959.

SN 238,741. International Chemical Company, Philadelphia, Pa. Filed Feb. 14, 1966.

IPRO

For Liquid and Powder Cleaners for Industrial Uses.
First use at least as early as Mar. 4, 1964.

SN 248,958. Avon Products, Inc., New York, N.Y. Filed June 27, 1966.

WILD COUNTRY

For Hair Shampoo and Toilet Soap.
First use June 7, 1966.

SN 250,274. Household Research Institute, San Francisco, Calif. Filed July 14, 1966.

HR$_2$

For Upholstery and Rug Cleaning Compositions.
First use Sept. 1, 1962.

SN 251,850. U.S. Diversified, Incorporated, Cincinnati, Ohio. Filed Aug. 5, 1966.

INSTAWIPE

For Liquid General Purpose Household Cleaning Agent.
First use Aug. 2, 1965.

SN 253,909. Ray Drug Company, Inc., Oakland, Calif. Filed Sept. 6, 1966.

MEDI-FOAM

For Skin Cleanser.
First use July 29, 1966.

SN 264,710. Simoniz Company, Chicago, Ill. Filed Feb. 15, 1967.

ONE SHOT

Owner of Reg. No. 759,812.
For Toilet Bowl and Urinal Cleaner.
First use Feb. 21, 1964.

SERVICE MARKS

Class 100 — Miscellaneous

SN 227,315. Minol Araki, d.b.a. Nol Design Studio, Chuo-ku, Tokyo, Japan. Filed Sept. 7, 1965.

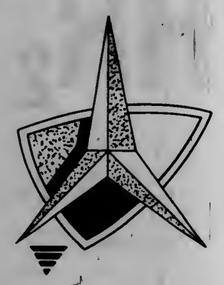


The words "Design Studio" are disclaimed apart from the mark as shown.

For Industrial Designing Services—Namely, Product Designing, Engineering and Technical Consultation, and Development of Industrial Merchandise for Others.

First use Sept. 11, 1963; in commerce Sept. 11, 1963.

SN 231,916. Inland Power and Light Company, Spokane, Wash. Filed Nov. 1, 1965.



For Distributing Electrical Power.
First use Mar. 27, 1965.

SN 232,218. Macatawa Inn, Inc., Macatawa, Mich. Filed Nov. 5, 1965.



For Restaurant Services.
First use Mar. 12, 1965.

SN 232,219. Macatawa Inn, Inc., Macatawa, Mich. Filed Nov. 5, 1965.

POINT WEST

For Restaurant Services.
First use Mar. 12, 1965.

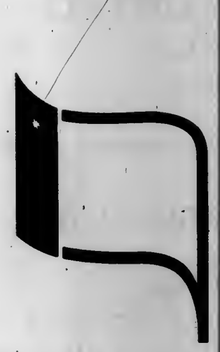
SN 235,784. Let Freedom Ring, Inc., Sarasota, Fla. Filed Jan. 4, 1966.



For Dissemination of Anti-Communistic Messages by Telephone Recording in Response to Telephone Calls by Members of the Public.

First use June 1963.

SN 237,557. Hilton Hotels Corporation, Chicago, Ill. Filed Jan. 28, 1966.



For Hotel, Motel, and Restaurant Services.
First use Nov. 15, 1965.

SN 239,452. Sirloin Room, Inc., Washington, D.C. Filed Feb. 23, 1966.



Owner of Reg. Nos. 767,720 and 775,123.
For Restaurant Services.
First use Jan. 9, 1966.

SN 243,480. Pizza Chef of America, Inc., Norfolk, Va. Filed Apr. 14, 1966.



For Restaurant Services.
First use Aug. 30, 1965.

SN 245,002. Minuteman Motels, Inc., Salt Lake City, Utah. Filed May 5, 1966.

MINUTEMAN

For Providing Public Accommodations in Motor Lodges, Hotels, and Motels.

First use at least as early as Oct. 4, 1965.

SN 245,474. Great Plains Natural Gas Co., Fergus Falls, Minn. Filed May 12, 1966.



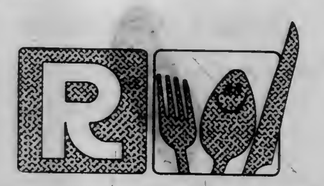
For Public Utility Gas Services.
First use Mar. 18, 1966.

SN 245,475. Great Plains Natural Gas Co., Fergus Falls, Minn. Filed May 12, 1966.



For Public Utility Gas Services.
First use Jan. 4, 1963.

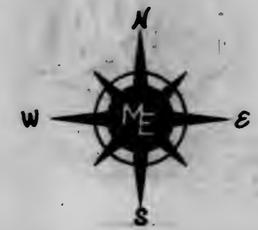
SN 254,091. Royal Castle System, Inc., Miami, Fla. Filed Sept. 9, 1966.



The drawing is lined for the color orange. Owner of Reg. Nos. 760,398 and 817,080.

For Drive-In, Walk-In, and Carry-Out Restaurant Services.
First use Aug. 1, 1965.

SN 257,238. Meridian Engineering, Inc., Philadelphia, Pa. Filed Oct. 26, 1966.



For Engineering Design Services—Namely, Preliminary Construction Studies and Economic Evaluations, Drawings, Specifications, Estimates, and Field Inspection; Critical Path Planning and PERT applications; Engineering Studies; and Engineering Support Services—Namely, Systems Studies, Drafting, Model Building, Technical Writing, and Surveying.

First use Mar. 1, 1966.

Class 101 — Advertising and Business

SN 194,175. Charles R. Gordon, d.b.a. Gordon's Fifth Avenue, New York, N.Y. Filed May 25, 1964.

GRAPHIC CIRCLE

For Acquisition, Reproduction, and Distribution of Works of Young Artists for Patrons.

First use Feb. 19, 1963.

SN 226,769. Peacock Insurance, Inc., Laguna Beach, Calif. Filed Aug. 30, 1965.



A portion of the drawing is lined for the color grey, but no claim is made to this color. No registration rights are claimed herein for the words "Insurance, Inc.," apart from the mark as shown in the drawing; but applicant waives none of its common law rights in said mark or any feature thereof.

For Insurance Brokerage Services.
First use before Jan. 1, 1959.

SN 232,492. B. B. Nethery, d.b.a. Business and Professional Credit Control, Salt Lake City, Utah. Filed Nov. 10, 1965.



For Preparing Forms Specifically for Each Subscriber for Use in Collecting Debts.
First use July 1, 1963.

SN 233,298. Advertising Distributors of America, Inc., New York, N.Y. Filed Nov. 26, 1965.



Owner of Reg. No. 661,762.
For Advertising the Goods and Services of Others by Mailing Advertising Matter and Samples to the Home.
First use Feb. 15, 1953.

SN 233,325. Cole & Weber, Inc., Portland, Oreg. Filed Nov. 26, 1965.



The mark consists of a fanciful representation of the letters "CW."
For Advertising Agency Services.
First use July 1965.

SN 237,565. International Motor Hotel Corporation, Anchorage, Alaska. Filed Jan. 28, 1966.



For Aiding the Establishment and Operation of Motels by Preparing Revenue and Feasibility Studies, Designing Motels, and Providing Advice Concerning Motel Operations.
First use Feb. 2, 1965.

SN 240,685. Welcome Wagon International, Inc., Memphis, Tenn. Filed Mar. 10, 1966.



The numerical notation "1928" and the word "International" are disclaimed apart from the mark as shown. Owner of Reg. No. 735,805.
For Community Services in Bringing Civic, Religious, Social, and Commercial Information to the Public, Through Individual Home Visits Made in Person by Its Representatives, as a Public Service and in Behalf of Interested Sponsors.
First use June 1964; July 1928 as to the word "Welcome Wagon."

SN 241,180. Premium Service Corporation, Minneapolis, Minn. Filed Mar. 16, 1966.



The designation "Minneapolis" and "Cash Value 1 Mill," and the pictorial representation of a trading stamp apart from the mark as shown is disclaimed. Owner of Reg. Nos. 507,080, 684,556, and 701,994.
For Promoting the Sale of Goods or Services of Others Through the Issuance and Redemption of Trading Stamps.
First use prior to 1946.

SN 243,345. Patent Perfect Corporation, Washington, D.C. Filed Apr. 13, 1966.

REFERENDEX

For Services Comprising the Gathering of Statistics, Inventory Reference Tabulations, Conducting Information Surveys and Public Opinion Surveys, and Publishing Information Gathered From Such Statistics, Inventory Reference Tabulations and Surveys.
First use July 15, 1961.

SN 243,877. The Isaly Dairy Company, d.b.a. Isaly's, Youngstown, Ohio. Filed Apr. 20, 1966.



For Retail Food Store Services.
First use Mar. 13, 1966.

SN 245,345. Arthur Rubloff & Co., Chicago, Ill. Filed May 10, 1966.



Without waiving its common law rights, applicant disclaims the exclusive right to the words "Complete Real Estate Service" apart from the mark as a whole.
For Real Estate Management and Agency Services.
First use May 1, 1938.

SN 246,092. The Michie Company, Charlottesville, Va. Filed May 19, 1966.

COMSEARCH

For Providing Legal Information for Others, Said Information Being Obtained by Use of Computers.
First use May 11, 1966.

SN 247,056. Periodical Publishers' Service Bureau, Inc., Sandusky, Ohio. Filed June 1, 1966.



Applicant disclaims any exclusive rights in the words "International Magazine Service" apart from the mark as shown.
For Securing and Servicing of Magazine Subscriptions.
First use on or about Jan. 14, 1966.

SN 247,666. Associated Grocers' Company of St. Louis, Missouri, St. Louis, Mo. Filed June 9, 1966. COLLECTIVE MARK.



Owner of Reg. Nos. 256,111, 724,613, and others.
For Retail Grocery Services.
First use June 1, 1963.

SN 248,589. Chauffeurs Unlimited, Inc., New York, N.Y. Filed June 21, 1966.

CHAUFFEURPOWER

Owner of Reg. No. 787,655.
For Chauffeur Employment Agency Services.
First use Apr. 9, 1966.

SN 260,623. Spencer Gifts, Inc., Atlantic City, N.J. Filed Dec. 13, 1966.

SPENCER GIFTS

Applicant disclaims the word "Gifts" apart from the mark as shown. Owner of Reg. No. 724,830.
For Mail Order Sales Services.
First use at least as early as October 1947.

Class 102 — Insurance and Financial

SN 235,226. Professional Men's Assurance Company, Inc., Milwaukee, Wis. Filed Dec. 23, 1965.



For Underwriting Life and Health Insurance.
First use Apr. 17, 1963.

SN 238,691. Aldens, Inc., Chicago, Ill. Filed Feb. 14, 1966.

CREDIT GUARD

For Insurance Brokerage and Servicing Insurance Contracts.
First use Jan. 3, 1966.

SN 238,692. Aldens, Inc., Chicago, Ill. Filed Feb. 14, 1966.



The word "Insurance" is disclaimed apart from the mark as shown.
For Insurance Brokerage and Servicing Insurance Contracts.
First use Jan. 3, 1966.

SN 239,558. United States Trust Company of New York, New York, N.Y. Filed Feb. 24, 1966.

UNITED STATES TRUST COMPANY

For Banking, Fiduciary, and Investment Management Services.
First use on or about Apr. 12, 1853.

SN 242,232. The First Virginia Corporation, Arlington, Va. Filed Mar. 30, 1966.



For Banking and Trust Services.
First use May 1965.

SN 242,233. The First Virginia Corporation, Arlington, Va. Filed Mar. 30, 1966.

FIRST VIRGINIA

Applicant disclaims the term "Virginia" separate and apart from the mark as shown.
For Banking and Trust Services.
First use October 1959.

SN 242,378. National Association of Residents and Interns, Inc., New York, N.Y. Filed Mar. 31, 1966.



The words "Permanent Security" are disclaimed apart from the mark as shown. Owner of Reg. No. 806,114.
For Sponsorship of a Life Insurance and Disability Program for Its Members.
First use Dec. 7, 1965.

SN 242,379. National Association of Residents and Interns, Inc., New York, N.Y. Filed Mar. 31, 1966.



The words "Term," "Life," and "Foundation for Security" are disclaimed apart from the mark as shown. Owner of Reg. No. 806,114.
For Sponsorship of a Life Insurance and Disability Program for Its Members.
First use Dec. 7, 1965.

SN 245,730. Memorial Plans, Inc., Portland, Oreg. Filed May 16, 1966.



For Insurance Agency Services.
First use Sept. 13, 1965.

SN 246,011. Northbay Federal Savings and Loan Association, Petaluma, Calif. Filed May 13, 1966.



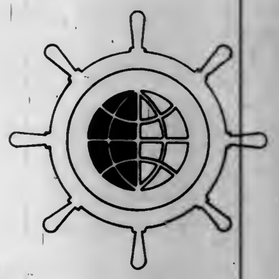
For Savings and Loan Association Services.
First use May 10, 1965.

SN 248,309. The Cleveland Trust Company, Cleveland, Ohio. Filed June 17, 1966.

A GREAT CITY . . . A GREAT BANK!

Owner of Reg. No. 708,563.
For General Banking Services—Namely, Savings, Checking, Loan, Trust, Safe Deposit, Branch Banking, and Foreign Exchange Services.
First use on or about Jan. 2, 1937.

SN 248,595. Commonwealth National Bank, Boston, Mass. Filed June 21, 1966.



For Operating a Commercial Bank.
First use Oct. 9, 1964.

Class 103 — Construction and Repair

SN 229,344. Giles & Ransome, Inc., Philadelphia, Pa. Filed Oct. 5, 1965.



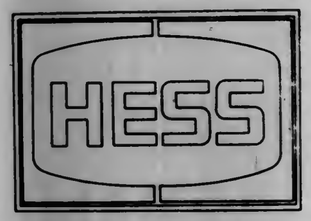
The drawing is lined for the color red.
For Maintenance and Repair Service on Construction Equipment.
First use Jan. 1, 1965.

SN 232,295. Dictaphone Corporation, Bridgeport, Conn. Filed Nov. 8, 1965.

DICTAFAX

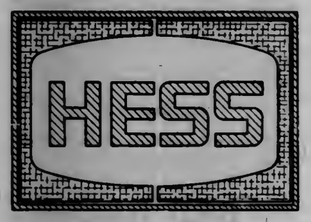
Owner of Reg. Nos. 66,997 and 735,678.
For Installing, Repairing, and Maintaining Communications Equipment—Namely, Facsimile Transmission Equipment.
First use February 1965.

SN 237,967. Hess Oil & Chemical Corporation, Perth Amboy, N.J. Filed Feb. 3, 1966.



Owner of Reg. Nos. 753,201, 823,852, and others.
For Servicing and Repairs of Automobiles, Trucks, and Other Means of Conveyance.
First use Sept. 30, 1960.

SN 237,968. Hess Oil & Chemical Corporation, Perth Amboy, N.J. Filed Feb. 3, 1966.



The drawing is lined for the colors green and yellow or gold. Owner of Reg. Nos. 753,201, 823,852, and others.
For Servicing and Repair of Automobiles, Trucks, and Other Means of Conveyance.
First use Sept. 30, 1960.

SN 241,843. Aktiebolaget Gotaverken, Gothenburg, Sweden. Filed Mar. 25, 1966.



Owner of Swedish Reg. No. 108,220, dated Dec. 13, 1963.
For Construction and Repair of Ships.

SN 244,588. Jones-Blair Company, Dallas, Tex. Filed Apr. 29, 1966.

ELASTO-GARD

Owner of Reg. No. 814,305.
For Installing Architectural Fluid Applied Glass Fiber Reinforced Membranes Which Form Weather Resistant, Waterproof, Durable, Rupture Resistant Flexible Coverings for Roofs and Decks.
First use on or about June 1, 1962.

SN 244,590. Jones-Blair Company, Dallas, Tex. Filed Apr. 29, 1966.

AUTO-GARD

Owner of Reg. No. 798,456.
For Installing Fluid Applied Elastomeric Membranes Providing Waterproofing, Traction and Protective Coverings for Garage Floors, Parking Station Floors, Driveways, and Other Heavy Traffic Bearing Areas.
First use on or about June 1, 1962.

SN 246,080. Holiday One Hour Cleaners and Holiday Management Company (partnership), Richmond, Ky. Filed May 19, 1966.

KLEEN-GLO

For Laundry and Dry Cleaning Services.
First use on or about Oct. 1, 1965.

Class 104 — Communication

SN 230,682. D. H. Overmyer Communications Co., New York, N.Y. Filed Oct. 20, 1965.



For Radio and Television Broadcasting Services.
First use Dec. 4, 1964.

SN 242,315. American Telephone and Telegraph Company, New York, N.Y. Filed Mar. 31, 1966.

DATA-PHONE

For Data Telecommunication Services.
First use at least as early as August 1959; at least as early as January 1957 in a different form.

Class 105—Transportation and Storage

SN 217,767. The New York Central Railroad Company, New York, N.Y. Filed Apr. 30, 1965.

SLEEPERCOACH

For Providing Private, Reserved, Sleeping, Seating, and Toilet Accommodations on Railway Cars.
First use Oct. 26, 1959.

SN 228,919. Liberty Travel Service Inc., New York, N.Y. Filed Sept. 29, 1965.

LIBERTY

For Travel Service—Namely, Preparing Itineraries and Tours, Arranging for Transportation, Cruises, Car Rentals and Purchases, Arranging for Accommodations for Rooms, Meals, Sightseeing, Reservations for Special Events and Features, Care of Luggage and Advising Generally on Travel Problems and Requirements.
First use 1955.

SN 238,732. General Transport Equipment Co. Inc., Chicago, Ill. Filed Feb. 14, 1966.

GFT

For Leasing and Rental of Trucks, Trailers, and Tractors.
First use in or about November 1947.

SN 242,175. Airways Rent-A-Car System, Inc., Los Angeles, Calif. Filed Mar. 30, 1966.

AIRWAYS

Owner of Reg. Nos. 713,970, 757,918, and 795,363.
For Car and Truck Rental Services.
First use Feb. 4, 1960.

SN 242,687. Val-U-Tours, Inc., New York, N.Y. Filed Apr. 4, 1966.

VAL-U-CRUISE

Owner of Reg. No. 762,110.
For Arranging and Conducting Travel Tours.
First use Dec. 1, 1965.

SN 245,708. Ingram Corporation, New Orleans, La. Filed May 16, 1966.

INGRAM

The drawing is lined for red. Owner of Reg. Nos. 692,570, 732,270, and others.
For Services as a Contract Carrier by Barge in Transportation of Petroleum Products, and Storage of Petroleum Products Related to the Transportation Thereof.
First use 1955.

SN 245,712. Ingram Corporation, New Orleans, La. Filed May 16, 1966.

INGRAM

The drawing is lined for red. Owner of Reg. Nos. 692,570, 732,270, and others.
For Services as a Contract Carrier by Barge in Transportation of Sand and Gravel, and Storage of Sand and Gravel Related to Transportation Thereof.
First use July 1, 1962.

SN 262,457. American Red Ball Transit Company, Inc., Indianapolis, Ind. Filed Jan. 13, 1967.

RED BALL

Owner of Reg. No. 588,852.
For Moving and Shipping Household Goods and General Commodities by Motor Truck.
First use Mar. 20, 1920.

Class 106—Material Treatment

SN 247,215. Fox-Stanley Photo Products, Inc., San Antonio, Tex. Filed June 3, 1966.

FOX PRO COLOR

Applicant disclaims the term "Color" apart from the mark as shown. Owner of Reg. Nos. 163,773, 222,662, and 536,960.
For Development and Process Printing of Both Movie and Still Film.
First use on or about June 3, 1964.

Class 107—Education and Entertainment

SN 231,699. Premier Entertainment, Inc., Milwaukee, Wis. Filed Oct. 27, 1965.

PREMIERETTES

For Entertainment Services—Namely, Dancing Rendered by a Cowgirl Chorus Line.
First use in or about June 1965.

SN 237,184. United States Amateur Ballroom Dancers Association, Inc., Brooklyn, N.Y. Filed Jan. 24, 1966.

UNITED STATES AMATEUR USABDA BALLROOM DANCERS ASSOCIATION

For Association Services—Namely, Promoting Ballroom Dancing.
First use June 4, 1965.

SN 246,197. Dorothy F. Raedler, New York, N.Y. Filed May 20, 1966.

THE AMERICAN SAVOYARDS

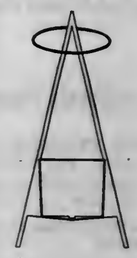
The term "Savoyards" is disclaimed apart from the mark as shown.
For Producing and Presenting Musical Theatrical Productions.
First use 1952.

SN 248,910. Herbert S. Gart Management, Inc., New York, N.Y. Filed June 24, 1966.

THE YOUNGBLOODS

For Entertainment Services in the Form of Musical Performances Involving Singing and Instrumental Music.
First use November 1965.

SN 249,221. City of Anaheim, Anaheim, Calif. Filed June 29, 1966.



The mark consists of a stylized letter "A."
For Providing Stadium, Convention Hall, and Exhibition Hall Facilities, and Promoting the Use Thereof by Participants and Viewers.
First use Apr. 9, 1966.

SN 253,285. The Chances R, Munster, Ind. Filed Aug. 29, 1966.

THE CHANCES R

For Entertainment Services—Namely, Vocal and Instrumental, Rendered by a Quintet or Sextet.
First use Jan. 18, 1966.

SN 254,576. Stephen R. Hayes, New Britain, Conn. Filed Sept. 16, 1966.



For Educational Services—Namely, the Furnishing of Safety Information, Advice and Literature Particularly Directed to the Construction Trades.
First use August 1964.

SN 262,467. George Carlson, d.b.a. George Carlson and Associates, Seattle, Wash. Filed Jan. 13, 1967.

NORTHWEST TRAVELER

For Entertainment Services—Namely, Presentation of Documentary Television Program Concerning Landmarks of Historical Significance.
First use July 31, 1961.

TRADEMARK REGISTRATIONS ISSUED
PRINCIPAL REGISTER

Class 1—Raw or Partly Prepared Materials

828,396. MORI-FRESH PROCESSED. Bonded Fibers, Incorporated. SN 238,604. Pub. 2–21–67. Filed 2–11–66.

828,397. MOCCO. Pfister and Vogel Tanning Company, Inc. SN 238,660. Pub. 2–21–67. Filed 2–11–66.

828,398. HI-CHAR. Ferro Corporation. SN 246,669. Pub. 2–21–67. Filed 5–26–66.

828,399. URAGLAS. Rexall Drug and Chemical Company, assignee of Fiberfil, Inc. SN 247,907. Pub. 2–21–67. Filed 6–13–66.

828,400. POLYCARBAGLAS. Rexall Drug and Chemical Company, assignee of Fiberfil, Inc. SN 247,909. Pub. 2–21–67. Filed 6–13–66.

828,401. FRANPLAS. Franklin Fibre-Lamitex Corp. SN 249,152. Pub. 2–21–67. Filed 6–28–66.

828,402. TEMSHEET. Armstrong Cork Company. SN 249,399. Pub. 2–21–67. Filed 7–1–66.

828,403. PINK THUMB. Buena Park Greenhouses, Inc. SN 250,556. Pub. 2–21–67. Filed 7–19–66.

828,404. BABY PIN. Surpass Leather Company. SN 256,409. Pub. 2–21–67. Filed 10–14–66.

Class 2—Receptacles

828,405. KEEPERS. Union Camp Corporation, by change of name from Union Bag-Camp Paper Corporation. SN 226,959. Pub. 2–21–67. Filed 9–1–65.

828,406. KEEPERS AND DESIGN. Union Camp Corporation, by change of name from Union Bag-Camp Paper Corporation. SN 226,960. Pub. 2–21–67. Filed 9–1–65.

828,407. BULKTAINER. Atlantic Richfield Company, by change of name from The Atlantic Refining Company. SN 229,402. Pub. 2–21–67. Filed 10–6–65.

828,408. RESISTO. Brown Company, assignee of KVP Sutherland Paper Company. SN 232,318. Pub. 2–21–67. Filed 11–8–65.

828,409. CYLINDER SOCK. Lone Star Cement Corporation. SN 233,362. Pub. 2–21–67. Filed 11–26–65.

828,410. COLONIAL. Gessner Products Company, Inc. SN 252,845. Pub. 2–21–67. Filed 8–22–66.

828,411. DAISY. Gessner Products Company, Inc. SN 255,150. Pub. 2–21–67. Filed 9–22–66.

828,412. BATMAN. National Periodical Publications, Inc. SN 256,367. Pub. 2–21–67. Filed 10–13–66.

Class 4—Abrasives and Polishing Materials

828,413. VALOR. Puritan Chemical Company. SN 230,427. Pub. 2–21–67. Filed 10–18–65.

828,414. MOONSUN MANOR. Alberto-Culver Company. SN 257,436. Pub. 2–21–67. Filed 10–27–66.

828,415. SCOTCH-MESH. Minnesota Mining and Manufacturing Company. SN 257,877. Pub. 2–21–67. Filed 11–3–66.

Class 6—Chemicals and Chemical Compositions

828,416. VERNITEST. Fuller Pharmaceutical Company. SN 247,912. Pub. 2–21–67. Filed 6–13–66.

828,417. POP. Wilco Company. SN 250,612. Pub. 2–21–67. Filed 7–19–66.

Class 11—Inks and Inking Materials

828,418. IB (DESIGN). Illinois Bronze Powder & Paint Co. SN 236,262. Pub. 2–21–67. Filed 1–12–66.

Class 12—Construction Materials

828,419. TORQUE TITE AND DESIGN. Gem Aluminum Products, Incorporated. SN 183,976. Pub. 10–26–65. Filed 1–3–64.

828,420. NEW ENGLANDER. North American Manufacturing Inc., by change of name from North American Jalousies, Inc. SN 224,874. Pub. 11–29–66. Filed 8–3–65.

828,421. R AND DESIGN. Roncari Industries, Inc. SN 234,468. Pub. 12–6–66. Filed 12–13–65.

828,422. HI-SIL. General Refractories Company. SN 239,899. Pub. 12–6–66. Filed 3–1–66.

828,423. FLEXTRA. Benjamin Foster Company. SN 243,437. Pub. 2–21–67. Filed 4–14–66.

828,424. MOWALCO. Movable Walls Corporation. SN 245,739. Pub. 2–21–67. Filed 5–16–66.

828,425. TRACKLITE. Nathan Wiseblood, d.b.a. Wiseblood Company. SN 246,415. Pub. 2–21–67. Filed 5–23–66.

828,426. BAMFLEX. Henry Fuchs & Son, Inc. SN 246,551. Pub. 2–21–67. Filed 5–25–66.

828,427. HONEY OAK. Century Manufacturing Company, Inc. SN 246,749. Pub. 2–21–67. Filed 5–27–66.

828,428. LARGE SOLID H WITH 3 TRIANGLES (DESIGN). The E. F. Hauserman Company. SN 246,786. Pub. 2–21–67. Filed 5–27–66.

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

828,429. CCI. Chemical Cleaning, Inc. SN 201,994. Pub. 5–24–66. Filed 9–16–64.

828,430. CONOSEAL. Aeroquip Corporation. SN 224,495. Pub. 9–27–66. Filed 7–29–65.

828,431. HYDRO SURE. Indiana Brass Company, Incorporated. SN 226,240. Pub. 2–21–67. Filed 8–23–65.

828,432. SUPREX. The Plastex Company. SN 226,942. Pub. 7–12–66. Filed 9–1–65.

828,433. PERMA-THREAD. Republic Industrial Corporation. SN 232,720. Pub. 2–21–67. Filed 11–15–65.

828,434. FIL-VAL. General Fittings Company. SN 239,988. Pub. 2–21–67. Filed 3–2–66.

828,435. BEST AND DESIGN. Sevell Tool Company Incorporated. SN 244,361. Pub. 2–21–67. Filed 4–26–66.

828,436. NESTORMOLD. Nestor Moseres. SN 245,737. Pub. 2–21–67. Filed 5–16–66.

828,437. LETTER P IN DESIGN. The Bishop and Babcock Corporation. SN 248,109. Pub. 2–21–67. Filed 6–15–66.

828,438. HYDROMARK. Clayton Mark & Company. SN 253,259. Pub. 2–21–67. Filed 8–29–66.

Class 14—Metals and Metal Castings and Forgings

828,439. SMI. Societa Metallurgica Italiana. SN 230,914. Pub. 2–21–67. Filed 10–21–65.

Class 15—Oils and Greases

828,440. POWER-BLEND. Signal Oil and Gas Company. SN 229,687. Pub. 6–28–66. Filed 10–8–65.

828,441. RELEASE. W. Wesley Anderson, d.b.a. Anderson Enterprises. SN 236,550. Pub. 2–21–67. Filed 1–17–66.

828,442. PERMATEX. Permatex Company, Inc. SN 240,950. Pub. 2–21–67. Filed 3–14–66.

Class 16—Protective and Decorative Coatings

828,443. XPERT. The Glidden Company. SN 181,442. Pub. 11–3–64. Filed 11–18–63.

828,444. IB (DESIGN). Illinois Bronze Powder & Paint Co. SN 236,263. Pub. 2–21–67. Filed 1–12–66.

828,445. RANETITE. Ranetite Manufacturing Co., Inc. SN 242,048. Pub. 2–21–67. Filed 3–28–66.

828,446. COLOR-PLUS. Royaltone, Inc., d.b.a. Royal Paint & Varnish Co. SN 244,141. Pub. 2–21–67. Filed 4–22–66.

828,447. TOURAINE PAINTS AND DESIGN. West Paint & Varnish Company. SN 245,641. Pub. 2–21–67. Filed 5–13–66.

828,448. "CALIBRITE." Claremont Polychemical Corporation. SN 245,913. Pub. 2–21–67. Filed 5–18–66.

828,449. DURA-GLIDE. DBA Products Co., Inc. SN 247,900. Pub. 2–21–67. Filed 6–13–66.

Class 18—Medicines and Pharmaceutical Preparations

828,450. K. Big Kernel Pet Foods, Inc. SN 209,660. Pub. 1–25–66. Filed 1–11–65.

828,451. CORONOL. Medics Pharmaceutical Corporation. SN 216,180. Pub. 7–19–66. Filed 4–9–65.

828,452. ORBISULFAS-AD. Orbit Pharmaceutical, Inc. SN 235,705. Pub. 2–21–67. Filed 1–3–66.

828,453. DECAGEL. Merck & Co., Inc. SN 236,396. Pub. 2–21–67. Filed 1–13–66.

828,454. SYRIDYL. Betan Company, Inc. SN 248,293. Pub. 2–21–67. Filed 6–17–66.

828,455. EQUIPLEX. Burns Pharmaceuticals, Inc., d.b.a. H. C. Burns Pharmaceuticals. SN 249,128. Pub. 12–13–66. Filed 6–28–66.

828,456. TNT. Chas. Pfizer & Co., Inc. SN 249,353. Pub. 2–21–67. Filed 6–30–66.

Class 19—Vehicles

828,457. VIKING. Viking Cycles Limited. SN 214,589. Pub. 2–21–67. Filed 3–19–65.

828,458. HUTCH LINE AND DESIGN. Hutchens & Son Metal Products, Inc. SN 229,476. Pub. 11–8–66. Filed 10–7–65.

828,459. HELIOPORT-ER. Helio Aircraft Corporation. SN 241,389. Pub. 2–21–67. Filed 3–18–66.

828,460. NATIONAL AUTO GLASS COMPANY. National Auto Glass Co., Inc. SN 241,494. Pub. 2–21–67. Filed 3–21–66.

828,461. SLEDMASTER. International Harvester Company, assignee of Western Bye-Hoe, Incorporated. SN 241,562. Pub. 2–21–67. Filed 3–21–66.

828,462. LANCER. Eaton Yale & Towne Inc. SN 241,650. Pub. 12–6–66. Filed 3–23–66.

828,463. IVANHOE. Rubbermaid Incorporated. SN 241,689. Pub. 2–21–67. Filed 3–23–66.

828,464. HAMMOCK. Persons-Majestic Mfg. Company. SN 242,480. Pub. 2–21–67. Filed 4–1–66.

828,465. B AND DESIGN. Boanza Mobile Homes, Inc. SN 242,555. Pub. 2–21–67. Filed 4–4–66.

828,466. SAND E-Z AND DESIGN. Gasprey, Inc. SN 242,583. Pub. 2–21–67. Filed 4–4–66.

828,467. M AND DESIGN. McNair Boat Works Inc. SN 242,743. Pub. 2–21–67. Filed 4–5–66.

828,468. PLAYMATE. Outboard Marine Corporation. SN 243,162. Pub. 2–21–67. Filed 4–11–66.

828,469. THE TREND. White Motor Corporation. SN 243,207. Pub. 2–21–67. Filed 4–11–66.

828,470. AMFAB. American Fabricators, Inc. SN 243,213. Pub. 2–21–67. Filed 4–12–66.

Class 21—Electrical Apparatus, Machines, and Supplies

828,471. WATTS AND DESIGN. Republic Industrial Corporation. SN 218,241. Pub. 2–21–67. Filed 3–22–65.

828,472. TSC. Skil Corporation. SN 220,258. Pub. 6–7–66. Filed 6–3–65.

828,473. DREYCO AND DESIGN. Dreyco Motor Products, Inc. SN 220,284. Pub. 2–21–67. Filed 6–3–65.

828,474. MARK 100. Burch Electronics, Inc. SN 221,252. Pub. 11–22–66. Filed 6–16–65.

828,475. MAGNEMODULE. Indiana General Corporation. SN 228,461. Pub. 2–21–67. Filed 9–23–65.

828,476. RAYSCAN. Bausch & Lomb Incorporated, assignee, by mesne assignment, of Diecraft, Inc. SN 231,744. Pub. 2–21–67. Filed 10–28–65.

828,477. OCTOPULSE AND DESIGN. Handebols, Inc. SN 232,127. Pub. 2–21–67. Filed 11–4–65.

828,478. BIG RAM AND DESIGN. General Battery and Ceramic Corp. SN 232,458. Pub. 2–21–67. Filed 11–10–65.

828,479. OB AND DESIGN. The Ohio Brass Company. SN 233,190. Pub. 2–21–67. Filed 11–23–65.

828,480. AUDIOVOX. Custom Imports, Inc. SN 233,884. Pub. 2–21–67. Filed 12–3–65.

828,481. MOBIL-FLEX. Magnatran Incorporated. SN 234,354. Pub. 11–29–66. Filed 12–10–65.

828,482. DIGITOR. International Telephone and Telegraph Corporation. SN 234,568. Pub. 2–21–67. Filed 12–14–65.

828,483. STENOCLASS. Stenocord Corporation. SN 237,163. Pub. 2–21–67. Filed 1–24–66.

828,484. MODUTONE. Thomas Industries Inc. SN 237,262. Pub. 2–21–67. Filed 1–25–66.

828,485. VAC-U-TORQ. P. G. Foret, Inc. SN 253,104. Pub. 12–27–66. Filed 8–25–66.

828,486. KELAIRE. Keller Industries, Inc. SN 256,034. Pub. 2–21–67. Filed 10–10–66.

828,487. MEACTRON AND DESIGN. Marathon Electric Manufacturing Corporation. SN 258,863. Pub. 2–21–67. Filed 11–17–66.

Class 23 — Cutlery, Machinery, and Tools, and Parts Thereof

828,488. GEE-WHIZ. Gee-Whiz Tool Corporation. SN 188,975. Pub. 12–14–65. Filed 3–18–64.

828,489. KESCO. Kesco Products Corp. SN 223,681. Pub. 11–29–66. Filed 7–19–65.

828,490. PUMPING WITCHES' BREW. George S. Wuchinich. SN 225,523. Pub. 2–21–67. Filed 8–11–65.

828,491. PLASTICMASTER. Laminators, Inc. SN 225,782. Pub. 2–21–67. Filed 8–16–65.

828,492. ELSA. Johann Hochreuter, d.b.a. Hochreuter & Baum. SN 225,911. Pub. 2–21–67. Filed 3–3–66.

828,493. SPEED PAK. Walker Manufacturing Company. SN 228,420. Pub. 2–21–67. Filed 9–22–65.

828,494. WIG JIG. Oakland Metal Fabricators Inc. SN 230,067. Pub. 2–21–67. Filed 10–13–65.

828,495. MAYPRESS. May Pressenbau GmbH. SN 230,272. Pub. 2–21–67. Filed 10–15–65.

828,496. CASALE. Ernest R. Casale, d.b.a. Casale Engineering. SN 231,537. Pub. 2–21–67. Filed 10–24–65.

828,497. SANCOR AND DESIGN. Sancor Corporation. SN 232,240. Pub. 2–21–67. Filed 11–5–65.

828,498. TORQ-SLIP. Yardney Electric Corporation. SN 232,632. Pub. 2–21–67. Filed 11–12–65.

828,499. FP. Gay-Nor Products Corporation. SN 232,913. Pub. 2–21–67. Filed 11–18–65.

828,500. N·C. N·C Carpet Binding & Equipment Corporation. SN 234,224. Pub. 2–21–67. Filed 12–8–65.

828,501. VEGA-CUTTER. Vega-Cutter. SN 239,353. Pub. 11–29–66. Filed 2–21–66.

828,502. DYNASTAR. Thiokol Chemical Corporation. SN 241,097. Pub. 2–21–67. Filed 3–15–66.

828,503. DYNA STAR AND DESIGN. Thiokol Chemical Corporation. SN 241,098. Pub. 2–21–67. Filed 3–15–66.

828,504. EXTENDA-BAN. B & G Equipment Company. SN 241,418. Pub. 2–21–67. Filed 3–21–66.

828,505. FLOW-GUIDE. Wilkerson Corporation. SN 241,564. Pub. 2–21–67. Filed 3–21–66.

828,506. AERO MARINE AND DESIGN. The Salmon Stiles Corporation. SN 243,716. Pub. 2–21–67. Filed 4–18–66.

828,507. DESIGN OF A MERMAID. Whitaker Construction Company. SN 244,786. Pub. 2–21–67. Filed 5–2–66.

828,508. TOPOS AND DESIGN. Chepos, Zavody Chemickeho a Potravinarskeho Strojirenstvi, Oborovy Podnik, Brno. SN 245,064. Pub. 2–21–67. Filed 5–6–66.

828,509. PLI-GRIP. Birma Products Corporation. SN 247,887. Pub. 2–21–67. Filed 6–13–66.

828,510. SINGER. The Singer Company. MULTIPLE CLASS (Classes 23 and 34). SN 248,400. Pub. 2–21–67. Filed 6–20–66.

828,511. APEX. United Engineering and Foundry Company. SN 252,322. Pub. 2–21–67. Filed 8–15–66.

828,512. SCOTTS AUTOMATIC. The O. M. Scott & Sons Company. SN 255,749. Pub. 2–21–67. Filed 10–5–66.

828,513. DEVRO. Johnson & Johnson, d.b.a. Devro. SN 258,867. Pub. 2–21–67. Filed 11–17–66.

Class 26 — Measuring and Scientific Appliances

828,514. TELEPHONE DIAL (DESIGN). Business Machines, Inc. SN 177,489. Pub. 6–21–66. Filed 9–23–63.

828,515. JNTRASCOPE. Contina Bureaux- und Rechenmaschinenfabrik. MULTIPLE CLASS (Classes 26 and 44). SN 182,246. Pub. 11–8–66. Filed 12–3–63.

828,516. BERYCER. Compagnie Generale d'Electro-Ceramique. SN 187,913. Pub. 7–20–65. Filed 3–4–64.

828,517. RENAULD. Sea & Ski Corporation, assignee of Botany Industries, Inc., d.b.a. Renauld Co. SN 203,067. Pub. 2–21–67. Filed 10–1–64.

828,518. SWINGER. Polaroid Corporation. SN 210,043. Pub. 7–20–65. Filed 1–15–65.

828,519. RALEIGH. Kaysons International, Ltd. MULTIPLE CLASS (Classes 26 and 36). SN 223,613. Pub. 2–21–67. Filed 7–19–65.

828,520. KRISTALLOFLEX. Siemens & Halske Aktiengesellschaft. SN 226,586. Pub. 2–21–67. Filed 8–26–65.

828,521. CENTURY. Fischer & Porter Co. SN 231,820. Pub. 12–27–66. Filed 10–29–65.

828,522. EVRMARK. Propper Manufacturing Company, Inc. SN 236,779. Pub. 2–21–67. Filed 1–18–66.

828,523. MACROTAR. Spiratone, Inc. SN 237,046. Pub. 2–21–67. Filed 1–21–66.

828,524. MACROTEL. Spiratone, Inc. SN 237,047. Pub. 2–21–67. Filed 1–21–66.

828,525. TESSINA AND DESIGN. Karl Heitz, d.b.a. K. Heitz Import Company. SN 238,220. Pub. 2–21–67. Filed 2–7–66.

828,526. MISCELLANEOUS DESIGN. Hanover Instrument Co. (Ohio corporation), assignee of Hanover Instrument Co. (Pennsylvania corporation). SN 239,994. Pub. 2–21–67. Filed 3–2–66.

828,527. MISCELLANEOUS DESIGN. Reevesound Company, Inc. SN 241,373. Pub. 2–21–67. Filed 3–18–66.

Class 27 — Horological Instruments

828,528. RELAX-ALARM. General Time Corporation. SN 220,654. Pub. 8–23–66. Filed 6–8–65.

Class 28 — Jewelry and Precious-Metal Ware

828,529. CORONATION. Merchandiser's Association, Incorporated. SN 231,451. Pub. 7–12–66. Filed 10–23–65.

828,530. CHARLES HOPKINS OF CHAPEL HILL. Charles Hopkins of Chapel Hill, Inc. SN 238,224. Pub. 2–21–67. Filed 2–7–66.

828,531. OMO. Morris Kaplan & Sons. SN 238,235. Pub. 2–21–67. Filed 2–7–66.

828,532. WEIGHT WATCHERS. Weight Watchers International, Inc. SN 255,255. Pub. 2–21–67. Filed 9–28–66.

828,533. WW AND DESIGN. Weight Watchers International, Inc. SN 255,256. Pub. 2–21–67. Filed 9–28–66.

Class 29 — Brooms, Brushes, and Dusters

828,534. BRUSH-N-CURL. I. Sekine Company, Inc. SN 236,259. Pub. 2–21–67. Filed 1–12–66.

828,535. NIP 'N TUCK. I. Sekine Company, Inc. SN 237,750. Pub. 2–21–67. Filed 2–1–66.

828,536 EASY-OFF. American Home Products Corporation. SN 254,850. Pub. 2–21–67. Filed 9–21–66.

Class 30 — Crockery, Earthenware, and Porcelain

828,537. LEMONT. Shenango Ceramics, Inc. SN 212,600. Pub. 1–31–67. Filed 2–23–65.

828,538. ELSA. Shenango Ceramics, Inc. SN 212,601. Pub. 1–31–67. Filed 2–23–65.

828,539. CRESTVIEW. Shenango Ceramics, Inc. SN 212,602. Pub. 2–7–67. Filed 2–23–65.

828,540. FANFARE. Noritake Co., Inc. SN 236,130. Pub. 2–21–67. Filed 1–10–66.

828,541. CROWN STAFFORDSHIRE ETC. AND DESIGN. Crown Staffordshire China Company, Ltd. SN 237,317. Pub. 2–21–67. Filed 1–26–66.

Class 31 — Filters and Refrigerators

828,542 MER-MAID. Mermaid, Inc., assignee of Ralph Walsh, d.b.a. Arlington Soft Water Company. SN 144,907. Pub. 6–23–64. Filed 5–17–62.

828,543. MERMAID AND DESIGN. Mermaid, Inc. SN 155,171. Pub. 6–23–64. Filed 10–15–62.

828,544. IMPERIUM. M & S Food Service Equipment Co., d.b.a. Imperium Refrigerator Co. SN 229,100. Pub. 2–21–67. Filed 10–1–65.

828,545. BACTERIA GUARD. Pall Corporation. SN 236,634. Pub. 2–21–67. Filed 1–17–66.

828,546. IRON GUARD. Pall Corporation. SN 236,635. Pub. 2–21–67. Filed 1–17–66.

828,547. DIRT GUARD. Pall Corporation. SN 236,636. Pub. 2–21–67. Filed 1–17–66.

828,548. TASTE & ODOR GUARD. Pall Corporation. SN 236,637. Pub. 2–21–67. Filed 1–17–66.

828,549. STAIN GUARD. Pall Corporation. SN 236,638. Pub. 2–21–67. Filed 1–17–66.

828,550. HARD GUARD. Pall Corporation. SN 236,639, Pub. 2–21–67. Filed 1–17–66.

828,551. PALL GUARD. Pall Corporation. SN 236,640. Pub. 2–21–67. Filed 1–17–66.

828,552. MINERAL GUARD. Pall Corporation. SN 236,641. Pub. 2–21–67. Filed 1–17–66.

828,553. MONOCLUSTER. Union Tank Car Company. SN 251,023. Pub. 2–21–67. Filed 7–25–66.

Class 32 — Furniture and Upholstery

828,554. SANI-GARD. Eclipse Sleep Products, Inc. SN 166,985. Pub. 8–27–63. Filed 4–18–63.

828,555. VISI STRIP. VISIrecord, Inc. SN 239,477. Pub. 1–3–67. Filed 2–23–66.

828,556. ROTO-MATIC AND DESIGN. Acme Visible Records, Inc. SN 245,140. Pub. 12–13–66. Filed 5–9–66.

828,557. ORTHO-SLUMBER. Elm Industries Inc. SN 254,141. Pub. 12–6–66. Filed 9–9–66.

Class 34 — Heating, Lighting, and Ventilating Apparatus

828,510. (See Class 23 for this trademark.)

828,558. REDDY HEATER. Master Consolidated, Inc. SN 187,025. Pub. 2–2–65. Filed 2–19–64.

828,559. STAFLO. Handy & Harman. SN 227,289. Pub. 5–17–66. Filed 9–7–65.

828,560. MISCELLANEOUS DESIGN. Max Weishaupt G.m.b.H. SN 232,630. Pub. 2–21–67. Filed 11–12–65.

828,561. TORCO. Anglo American Corporation of South Africa Limited, assignee of Dorr-Oliver Incorporated. SN 243,228. Pub. 2–21–67. Filed 4–12–66.

828,562. SUITE HEATER. Weil-McLain Company, Inc. SN 243,821. Pub. 2–21–67. Filed 4–20–66.

Class 35 — Belting, Hose, Machinery Packing, and Nonmetallic Tires

828,563. JETSTREAM. Model Tire Company. SN 212,896. Pub. 10–5–65. Filed 2–26–65.

828,564. MISCELLANEOUS DESIGN. "Automatic" Sprinkler Corporation, assignee of Approved Equipment Mfg. Co., Inc., d.b.a. Blaze Guard Manufacturing Company. SN 234,105. Pub. 1–3–67. Filed 12–7–65.

828,565. MATCHLESS S/S. United States Rubber Company. SN 237,766. Pub. 2–21–67. Filed 2–1–66.

828,566. DUALOAD. The Dayton Tire & Rubber Company. SN 238,179. Pub. 2–21–67. Filed 2–7–66.

Class 36 — Musical Instruments and Supplies

828,519. (See Class 26 for this trademark.)

828,567. BODY-GUARD. Glen H. Parker. SN 221,085. Pub. 2–21–67. Filed 6–14–65.

828,568. CMI. Chicago Musical Instrument Co. SN 230,509. Pub. 2–21–67. Filed 10–19–65.

828,569. O OLDS AND DESIGN. Chicago Musical Instrument Co. SN 230,511. Pub. 2–21–67. Filed 10–19–65.

828,570. SCHOLASTIC RECORDS. Scholastic Magazines, Inc. SN 231,244. Pub. 2–21–67. Filed 10–22–65.

828,571. MISCELLANEOUS DESIGN. Pacific Electro Magnetics Co., Inc. SN 232,474. Pub. 2–21–67. Filed 11–10–65.

828,572. BELL IN CIRCLE (DESIGN). G. Leblanc Corporation. SN 232,566. Pub. 2–21–67. Filed 11–12–65.

828,573. TATRA RECORDS AND DESIGN. Frank Miklsits. SN 233,515. Pub. 2–21–67. Filed 11–29–65.

828,574. TTP. Triangle Theatrical Productions, Inc. SN 233,759. Pub. 2–21–67. Filed 12–1–65.

828,575. TIFTON. Synthetic Plastics Company, d.b.a. Tifton Record Co. SN 234,153. Pub. 2–21–67. Filed 12–7–65.

828,576. AUDIO SPECTRUM AND DESIGN. Budget Sound, Inc. SN 235,271. Pub. 2–21–67. Filed 12–27–65.

828,577. ROTO-COIL. Sony Corporation of America. SN 236,524. Pub. 2–21–67. Filed 1–14–66.

828,578. NEWSIC. National Business Music Company of the Southeast, Inc. SN 246,026. Pub. 2–21–67. Filed 5–19–66.

828,579. MISCELLANEOUS DESIGN. Screen Gems, Inc. SN 255,567. Pub. 12–13–66. Filed 10–3–66.

828,580. EXPLORER. Allen Organ Company. SN 257,004. Pub. 2–21–67. Filed 10–24–66.

Class 37 — Paper and Stationery

828,581. THERMOLITH. A. B. Dick Company. SN 150,029. Pub. 4–9–63. Filed 7–30–62.

828,582. CLEARWATER. Clearwater Tissue Mills, Inc., assignee of Swanee Paper Corporation. SN 155,755. Pub. 2–2–65. Filed 10–23–62.

828,583. COMPAC. Lakeside Central Company. SN 235,003. Pub. 2–21–67. Filed 12–21–65.

828,584. SPEE-D-MARK. Blaisdell Pencil Company. SN 235,263. Pub. 2–21–67. Filed 12–27–65.

828,585. THILMANY. Thilmany Pulp & Paper Company. SN 235,730. Pub. 2–21–67. Filed 1–3–66.

828,586. SPECTRA-KOTE. Spectra-Kote Corporation. SN 249,280. Pub. 2–21–67. Filed 6–30–66.

828,587. KINETO. The Waterbury Pen Co., Inc. SN 251,975. Pub. 2–21–67. Filed 8–8–66.

828,588. STOCK-WATCH. James E. Klosterman, d.b.a. Chatham Company. SN 252,013. Pub. 2-21-67. Filed 8-9-66.

828,589. MINUTEMAN. Boise Cascade Corporation. SN 253,492. Pub. 2-21-67. Filed 8-31-66.

828,590. LINE-LIGHTER. Paper Mate Manufacturing Company. SN 256,630. Pub. 2-21-67. Filed 10-18-66.

828,591. LETTER-LIMINATOR. Regent Standard Forms, Inc. SN 259,062. Pub. 2-21-67. Filed 11-21-66.

Class 38 — Prints and Publications

828,592. WHO'S NEWS. Dow Jones & Company, Inc. SN 222,556. Pub. 2-21-67. Filed 7-2-65.

828,593. DINERS CLUB MAGAZINE. The Diners' Club, Inc. SN 231,672. Pub. 2-21-67. Filed 10-27-65.

828,594. FORMS-PAK. Scanco, Incorporated. SN 233,404. Pub. 2-21-67. Filed 11-26-65.

Class 39 — Clothing

828,595. MAGIC STRETCH. Elaine Brodsky. SN 203,069. Pub. 9-28-65. Filed 10-1-64.

828,596. TIGER PAW. Penron Associated Hosiery Mills, Inc. SN 208,958. Pub. 6-29-65. Filed 12-28-64.

828,597. SO-FREEE. Sarong, Inc. SN 214,698. Pub. 5-24-66. Filed 3-22-65.

828,598. K KENRICH. Kenrich Shoe Corporation. SN 219,582. Pub. 2-21-67. Filed 5-24-65.

828,599. OOPS CALIFORNIA AND DESIGN. OOPS. SN 227,104. Pub. 2-21-67. Filed 9-1-65.

828,600. FORE 'N' AFT. Sarong, Inc. SN 227,449. Pub. 7-5-66. Filed 9-8-65.

828,601. FORE 'N AFT. Stedman Manufacturing Company. SN 227,778. Pub. 7-5-66. Filed 9-14-65.

828,602. ARMORTRED. Quabaug Rubber Company. SN 230,194. Pub. 2-21-67. Filed 10-14-65.

828,603. LARAMIE. Blue Bell, Inc., assignee of Globe Superior, Inc. SN 232,549. Pub. 2-21-67. Filed 11-12-65.

828,604. CAMEO ROOM FASHIONS BY BECK AND DESIGN. A. S. Beck Shoe Corporation. SN 232,657. Pub. 2-21-67. Filed 11-15-65.

828,605. PROUVOST 888 ETC. AND DESIGN. Filatures Prouvost & Cie, La Lainiere de Roubaix, Société en Commandite par Actions. MULTIPLE CLASS (Classes 39, 42, and 43). SN 232,802. Pub. 8-9-66. Filed 11-17-65.

828,606. NORTHERNER BIRD BOOT AND DESIGN. The Servus Rubber Company. SN 234,081. Pub. 2-21-67. Filed 12-6-65.

828,607. COSTA DEL SOL. Costa del Sol of Miami, Inc. SN 234,117. Pub. 2-21-67. Filed 12-7-65.

828,608. SWEET THING. Maidenform, Inc. SN 235,842. Pub. 2-21-67. Filed 1-5-66.

828,609. GI JOE AND DESIGN. Hassenfeld Bros., Inc. SN 236,863. Pub. 2-21-67. Filed 1-20-66.

828,610. SARSINI. Bernard Industries, Inc. SN 241,024. Pub. 2-21-67. Filed 3-15-66.

828,611. BARDINI. Bernard Industries, Inc. SN 241,025. Pub. 2-21-67. Filed 3-15-66.

828,612. MONSIEUR BERNARD. Bernard Industries, Inc. SN 241,026. Pub. 2-21-67. Filed 3-15-66.

828,613. REVERS-O-LOK AND DESIGN. Daisy's Originals, Inc. SN 241,039. Pub. 2-21-67. Filed 3-15-66.

828,614. CONTADINA. Marx & Newman Company, Inc. SN 242,736. Pub. 2-21-67. Filed 4-5-66.

828,615. MASTER CLASSIC. The H. D. Lee Company, Incorporated. SN 243,682. Pub. 2-21-67. Filed 4-18-66.

828,616. DUCKS. United States Rubber Company. SN 243,736. Pub. 2-21-67. Filed 4-18-66.

828,617. MICKEY FINN. Jack Finn, Inc. SN 243,975. Pub. 2-21-67. Filed 4-21-66.

828,618. MIRACLE "88." The Strong-Wear Co. SN 244,150. Pub. 2-21-67. Filed 4-22-66.

828,619. SPLASHDOWNS AND DESIGN. Joseph B. Nadler. SN 244,722. Pub. 2-21-67. Filed 5-2-66.

828,620. SPIRALON AND DESIGN. Wembley, Inc. SN 244,781. Pub. 2-21-67. Filed 5-2-66.

828,621. DANITA. Indian Head Mills, Inc. SN 244,989. Pub. 2-21-67. Filed 5-5-66.

828,622. ST. AUMONT. Russ Togs, Inc. SN 245,106. Pub. 2-21-67. Filed 5-6-66.

828,623. ARCHWAY. Curlee Clothing Company. SN 246,281. Pub. 2-21-67. Filed 5-23-66.

828,624. M & W. Superba Cravats, Inc. SN 247,539. Pub. 2-21-67. Filed 6-7-66.

828,625. MIGHTY HERO. CBS Films Inc., assignee of Ben Cooper Inc. SN 250,214. Pub. 12-27-66. Filed 7-14-66.

828,626. FIRMAMENT. Maidenform, Inc. SN 258,443. Pub. 2-21-67. Filed 11-14-66.

828,627. SEAMAIDEN. Maidenform, Inc. SN 258,444. Pub. 2-21-67. Filed 11-14-66.

828,628. SHAPE-MATE. Maidenform, Inc. SN 258,445. Pub. 2-21-67. Filed 11-14-66.

828,629. COUNTERPOISE. Maidenform, Inc. SN 258,446. Pub. 2-21-67. Filed 11-14-66.

828,630. VIRACLE-LITE. Hart Schaffner & Marx. SN 258,457. Pub. 2-21-67. Filed 11-14-66.

Class 40 — Fancy Goods, Furnishings, and Notions

828,631. BANS-ROL. Quick Service Textiles Inc. SN 247,965. Pub. 2-21-67. Filed 6-13-66.

828,632. BAN-A-ROL. Quick Service Textiles Inc. SN 247,966. Pub. 2-21-67. Filed 6-13-66.

Class 42 — Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

828,605. (See Class 39 for this trademark.)

828,633. SPANTASTIC. Deering Milliken, Inc. SN 165,034. Pub. 9-24-63. Filed 3-20-63.

828,634. CHEVRON SPREADS. The John P. King Mfg. Co. SN 239,281. Pub. 12-13-66. Filed 2-21-66.

828,635. AIRSPUN. Deering Milliken, Inc. SN 250,744. Pub. 2-21-67. Filed 7-21-66.

828,636. ANGELEEN. J. P. Stevens & Co., Inc. SN 250,778. Pub. 2-21-67. Filed 7-21-66.

Class 43 — Thread and Yarn

828,605. (See Class 39 for this trademark.)

828,637. KOOL-KNIT. Lily Mills Company. SN 242,995. Pub. 11-8-66. Filed 4-8-66.

Class 44 — Dental, Medical, and Surgical Appliances

828,515. (See Class 26 for this trademark.)

828,638. SENTINEL LINE. Brunswick Corporation. SN 216,791. Pub. 11-15-66. Filed 4-19-65.

828,639. SPRAY-AWAY. The Electric Storage Battery Company. SN 240,720. Pub. 12-20-66. Filed 3-11-66.

Class 46 — Foods and Ingredients of Foods

828,640. MORNING GLORY. Central Soya Company, Inc. SN 182,582. Pub. 7-13-65. Filed 12-9-63.

828,641. K. Big Kernel Pet Foods, Inc. SN 209,835. Pub. 6-29-65. Filed 1-13-65.

828,642. HAM-STRAMI. Columbia Packing Company. SN 218,083. Pub. 7-19-66. Filed 5-5-65.

828,643. CARIBOU AND DESIGN. John Penny & Sons, Limited. SN 220,318. Pub. 2-21-67. Filed 6-3-65.

828,644. MELLINI ETC. AND DESIGN. VAN MELLE N.V. SN 231,512. Pub. 2-21-67. Filed 10-23-65.

828,645. MARDI GRAS. Peavey Company. SN 232,228. Pub. 2-21-67. Filed 11-5-65.

828,646. GALAXY. Peavey Company. SN 233,231. Pub. 2-21-67. Filed 11-22-65.

828,647. KADOOS. Ralston Purina Company. SN 236,009. Pub. 2-21-67. Filed 1-7-66.

828,648. THRIFTY. Plantation Foods, Inc. SN 236,646. Pub. 2-21-67. Filed 1-17-66.

828,649. WHITE APRON. Colgate-Palmolive Company. SN 238,614. Pub. 2-21-67. Filed 2-11-66.

828,650. DAIRYFIELD. Colgate-Palmolive Company. SN 239,020. Pub. 2-21-67. Filed 2-17-66.

828,651. SHIELD INCLUDING SHIELD WITH JOAN OF ARC (DESIGN). The Illinois Canning Co. SN 239,272. Pub. 2-21-67. Filed 2-21-66.

828,652. SHIELD AND JOAN OF ARC (DESIGN). The Illinois Canning Co. SN 239,273. Pub. 2-21-67. Filed 2-21-66.

828,653. CLARKETTES. Philip Morris Incorporated, d.b.a. Clark Gum Co. SN 241,509. Pub. 2-21-67. Filed 3-21-66.

828,654. VENTURA CREST. Blue Goose Growers, Inc. SN 241,631. Pub. 2-21-67. Filed 3-23-66.

828,655. LANCER. Blue Goose Growers, Inc. SN 241,632. Pub. 2-21-67. Filed 3-23-66.

828,656. WELL FED AND DESIGN. Daily Diet Pet Food Co., d.b.a. Well Fed Pet Food Co. SN 242,718. Pub. 2-21-67. Filed 4-5-66.

828,657. HONEYJEL. British Chemotheutic Products Limited. SN 245,902. Pub. 2-21-67. Filed 5-18-66.

828,658. IM (DESIGN). International Milling Company Inc. SN 249,914. Pub. 2-21-67. Filed 7-11-66.

828,659. MR. RED AND DESIGN. Central Sands Produce, Inc. SN 251,380. Pub. 2-21-67. Filed 8-1-66.

Class 49 — Distilled Alcoholic Liquors

828,660. ST. ANDREWS. Barton Distilling Company. SN 206,406. Pub. 7-27-65. Filed 11-18-64.

828,661. LAPHROAIG. D. Johnston & Company (Laphroaig) Limited. SN 240,623. Pub. 2-21-67. Filed 3-10-66.

828,662. BOND STREET. E. Martinoni Co., d.b.a. The Richards Company. SN 259,371. Pub. 2-21-67. Filed 11-25-66.

828,663. EL COQUI. Puerto Rico Distillers, Inc., d.b.a. Compania de Bebidas del Tanama. SN 259,377. Pub. 2-21-67. Filed 11-25-66.

Class 50 — Merchandise Not Otherwise Classified

828,664. SIMPLE SPACE-RITE LETTERING SYSTEM AND DESIGN. Sun Valley Silk Screen Sign Co. SN 247,537. Pub. 2-21-67. Filed 6-7-66.

828,665. DIRECTO. Onie N. Cass, d.b.a. Danell Plastics. SN 252,816. Pub. 2-21-67. Filed 8-22-66.

828,666. PANTI-DRI. Jonathan C. Gibbs, Jr., d.b.a. Doctor's Panti-Dri. SN 254,384. Pub. 2-21-67. Filed 9-13-66.

Class 51 — Cosmetics and Toilet Preparations

828,667. CRAVACHE. Les Parfums Robert Piguet Societe Anonyme. SN 190,626. Pub. 6-29-65. Filed 4-8-64.

828,668. IS IT TRUE BLONDES HAVE MORE FUN? Clairol Incorporated. SN 200,070. Pub. 2-21-67. Filed 8-18-64.

828,669. EGLANTIOL. Stade di Angelo Callegari & C. Soc. Acc. Semplice. SN 217,284. Pub. 2-21-67. Filed 4-26-65.

828,670. SUN CONTROL. Elizabeth Arden Sales Corporation. SN 231,368. Pub. 2-21-67. Filed 10-23-65.

828,671. ARABESQUE. Daggett and Ramsdell International Corporation. SN 243,648. Pub. 2-21-67. Filed 4-18-66.

828,672. TRUBRITE. The Dentists' Supply Company of New York. SN 249,309. Pub. 2-21-67. Filed 6-30-66.

828,673. CONSORT. Alberto-Culver Company. SN 254,905. Pub. 2-21-67. Filed 9-22-66.

Class 52 — Detergents and Soaps

828,674. VALET-DUO. Mitchell S. Fain, d.b.a. New-Tex Industries. SN 205,681. Pub. 2-21-67. Filed 11-6-64.

828,675. IRON MAGIC. Iron Magic, Inc. SN 242,823. Pub. 2-21-67. Filed 4-6-66.

828,676. TADO. West Chemical Products, Inc. SN 245,361. Pub. 2-21-67. Filed 5-10-66.

Service Marks

Class 100 — Miscellaneous

828,677. LAMP LIGHTER MOTEL AND DESIGN. John Rostek. SN 173,131. Pub. 9-14-65. Filed 7-16-63.

828,678. CCI. Chemical Cleaning, Inc. MULTIPLE CLASS (Classes 100 and 103). SN 201,995. Pub. 5-24-66. Filed 9-16-64.

Class 101 — Advertising and Business

828,679. GALESKI AND DESIGN. Galeski Photo Center, Incorporated. SN 228,456. Pub. 2-21-67. Filed 9-23-65.

Class 103 — Construction and Repair

828,678. (See Class 100 for this trademark.)

828,680. ROLL-CALL. International Roll-Call Corporation. SN 204,474. Pub. 2-21-67. Filed 10-21-64.

828,681. SPARKLE PRINT. Sentinel Printing, Inc. SN 228,946. Pub. 2–21–67. Filed 9–29–65.

Class 107 — Education and Entertainment

828,682. MISS ALASKA. Greater Anchorage, Incorporated. SN 174,768. Pub. 10–27–64. Filed 8–9–63.

SUPPLEMENTAL REGISTER

These registrations are not subject to opposition.

SECTION 1

(Combined Certificates)

828,692. Moore Dry Kiln Company, Jacksonville, Fla. SN 222,400. Filed P.R. 6–30–65; Am. S.R. 9–16–66.

MOORE

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Lumber Stackers, Unstackers, Hoists, Sorters, and Transfer Cars; Lumber Inspection, Grading and Tallying Stations; Belt, Chain and Roller Conveyors.

First use June 1962; not later than 1919 as to "Moore" on transfer cars; not later than 1929 in a different form on transfer cars and others of the goods.

Class 26—Measuring and Scientific Appliances

For Moisture Detectors and Meters; Temperature and Pressure Measuring, Recording and Controlling Instruments, and Parts Thereof.

First use June 1962; not later than 1939 in a different form.

Class 34—Heating, Lighting, and Ventilating Apparatus

For Lumber Drying Kilns; Low Temperature Lumber Driers; Veneer Driers; and Crop Driers.

First use June 1962; 1879 as to "Moore" on lumber drying kilns; not later than 1929 in a different form.

SECTION 2

Class 2 — Receptades

828,684. E. R. Squibb & Sons, Inc., New York, N.Y., assignee of Olin Mathieson Chemical Corporation, New York, N.Y. SN 208,605. Filed P.R. 12–21–64; Am. S.R. 3–6–67.

PRES-A-DROP

For Dispenser for Aqueous Pharmaceutical Drops.
First use Apr. 6, 1964.

828,685. Taylor Fiberglass Products, Inc., Diagonal, Iowa. SN 239,825. Filed P.R. 2–28–66; Am. S.R. 3–10–67.

TAYLOR

For Burial Vaults.
First use July 1, 1965.

Class 12 — Construction Materials

828,686. Robbins Flooring Company, Memphis, Tenn. SN 224,465. Filed P.R. 7–28–65; Am. S.R. 3–8–67.

LOCK-TITE

For Wood Floor Systems Comprising a Vapor Barrier, Channels, Clips, Underlay of Cushioning and Insulating Material, and Wood Flooring.
First use Mar. 1, 1965.

Class 15 — Oils and Greases

828,687. United Refining Company, Warren, Pa. SN 233,202. Filed P.R. 11–23–65; Am. S.R. 3–15–67.

DRY LINE

For Gasoline Additive.
First use Oct. 29, 1965.

Class 17 — Tobacco Products

828,688. P. Lorillard Company, New York, N.Y. SN 187,592. Filed P.R. 2–27–64; Am. S.R. 3–15–67.

BRANDY & BURLEY

For Smoking Tobacco.
First use Oct. 29, 1963.

Class 19 — Vehicles

828,689. Clark Gudmundson, Bountiful, Utah. SN 236,815. Filed P.R. 1–19–66; Am. S.R. 3–15–67.

GUDMUNDSON

For Boat Trailer.
First use July 20, 1964.

Certification Mark

Class A — Goods

828,683. WORLD A WORLD OF POWER AND DESIGN. Independent Battery Manufacturers Association, Inc., by change of name from The Independent Battery Manufacturers of America, Inc. SN 237,222. Pub. 2–21–67. Filed 1–25–66.

828,690. Automobilove Zavody Letnany, Narodni Podnik, Letnany, Czechoslovakia. SN 247,670. Filed 6–9–66.

PRAGA

The term "Praga" is the Latin of "Prague." Owner of Czechoslovakia Reg. No. 94,793, dated Dec. 30, 1932; and U.S. Reg. Nos. 677,495 and 683,167.
For Motor Cars and Parts Thereof.

Class 21 — Electrical Apparatus, Machines, and Supplies

828,691. Raylite Electric Corp., New York, N.Y. SN 221,954. Filed P.R. 6–24–65; Am. S.R. 3–16–67.

JEWEL LITES

For Decorative Lighting Outfits for Christmas Trees and the Like.
First use April 1962.

Class 23 — Cutlery, Machinery, and Tools, and Parts Thereof

828,692. See Section 1 (Combined Certificate).

828,693. Sylvanus R. Hunt, d.b.a. Snively Wedge Co., Roseburg, Oreg. SN 225,418. Filed P.R. 8–10–65; Am. S.R. 9–21–66.

SNIVELY

For Tree-Splitting Wedges.
First use Apr. 13, 1964.

828,694. Bankers & Merchants, Inc., Chicago, Ill. SN 235,257. Filed P.R. 12–27–65; Am. S.R. 3–8–67.

PRE-INKED

For Porous Rubber Printing Stamp Which Stores Ink Therein and Releases Ink Therefrom upon Applying Pressure To Stamp.
First use May 15, 1963.

828,695. Suzanne Mouzon-Jungers, Paris, France. SN 239,293. Filed P.R. 2–21–66; Am. S.R. 2–17–67.

G. MOUZON

Priority claimed under Sec. 44(d) on French Reg. No. 4,329, dated Nov. 26, 1965.
For Machines Comprising Fans, Blowers, Nozzles, and Tubing for the Filtering and Pneumatic Evacuation and Transportation of Waste Materials and Particles in Industrial Operations.

828,696. Societe Francaise d'Etiquetage Virey & Garnier, Nogent sur Marne, France. SN 242,673. Filed P.R. 4–4–66; Am. S.R. 3–13–67.

FRANCAISE D'ETIQUETAGE

Priority claimed under Sec. 44(d) on French Reg. No. 2,016, dated Oct. 6, 1965. The English translation of the mark is "for French labelling."
For Labelling Machines and Parts Thereof.

Class 25 — Locks and Safes

828,697. The H. B. Ives Company, New Haven, Conn. SN 238,087. Filed P.R. 2–4–66; Am. S.R. 3–3–67.

CAM-TITE

Owner of Reg. Nos. 705,216 and 727,879.
For Sash Locks.
First use July 31, 1957.

Class 26 — Measuring and Scientific Appliances

828,692. See Section 1 (Combined Certificate).

828,698. Propper Manufacturing Company, Inc., Long Island City, N.Y. SN 205,342. Filed P.R. 11–2–64; Am. S.R. 2–24–67.

BEV-L-EDGE

For Micro Slides.
First use February 1964.

Class 27 — Horological Instruments

828,699. Gerimex, Inc., New York, N.Y. SN 238,519. Filed P.R. 2–10–66; Am. S.R. 3–20–67.

LAURENT

For Watches, Clocks, Watch Movements, and Clock Movements.
First use Mar. 22, 1965.

Class 32 — Furniture and Upholstery

828,700. Whitehall Cabinets, Inc., East Rockaway, N.Y. SN 246,506. Filed 5–24–66.

whitehall

For Kitchen Cabinets, Stools, Chairs, Tables, and Snack Bars.
First use Nov. 1, 1945.

Class 34 — Heating, Lighting, and Ventilating Apparatus

828,692. See Section 1 (Combined Certificate).

Class 36 — Musical Instruments and Supplies

828,701. Superscope, Inc., Sun Valley, Calif. SN 191,964. Filed P.R. 4–24–64; Am. S.R. 3–16–67.

ELECTRO BI-LATERAL HEAD

For Magnetic Heads Sold as a Component Part of Tape Recorders.
First use May 14, 1962.

Class 39 — Clothing

828,702. Russ Togs, Inc., New York, N.Y. SN 236,922. Filed P.R. 1–20–66; Am. S.R. 3–3–67.

JUNIOR-TEENS

For Children's, Teens', and Ladies' Wearing Apparel—Namely, Slacks, Pants, Shorts, Skirts, Blouses and Sweaters or Any Combination Thereof.
First use Dec. 20, 1965.

828,703. Kanner Dress Co., Inc., New York, N.Y. SN 237,136. Filed P.R. 1–24–66; Am. S.R. 3–6–67.

DRESSY DUSTER

For Ladies' Dresses and Dusters.
First use Dec. 29, 1965.

828,704. Donald S. Lavigne, Inc., Miami, Fla. SN 244,123. Filed P.R. 4–22–66; Am. S.R. 3–9–67.

3 BY 3

For Trousers.
First use Feb. 1, 1966.

828,705. Glen Modes, Inc., New York, N.Y. SN 253,143. Filed 8–25–66.

GLEN MODES

The word "Modes" is disclaimed apart from the mark as shown.
For Ladies', Misses', and Girls' Shell Blouses, Blouses, Scarfs, Head Coverings, Jackets, Sweaters, Stoles, Turtle Neck Fill-Ins, and Kerchiefs.
First use May 4, 1953.

Class 44 — Dental, Medical, and Surgical Appliances

828,706. Sphygmostat Corporation, Waltham, Mass. SN 242,064. Filed P.R. 3–28–66; Am. S.R. 3–9–67.

SPHYGMOSTAT

For Sphygmomanometers.
First use Feb. 8, 1966.

Class 50 — Merchandise Not Otherwise Classified

828,707. Clopay Corporation, Cincinnati, Ohio. SN 246,270. Filed P.R. 5–23–66; Am. S.R. 12–30–66.

ADHERE

For Adhesive Backed Decorative Sheet Material.
First use 1960.

TRADEMARK REGISTRATIONS RENEWED

60,715. C. C. PARSONS. Cl. 6. 2–19–07.
60,830. CASHMERE. Cl. 51. 2–19–07.
61,158. G.W.G. AND DESIGN. Cl. 18. 3–5–07.
61,237. COLUMBIA. Cl. 36. 3–12–07.
62,389. ACME. Cl. 15. 5–7–07.
62,971. MEXICAN. Cl. 16. 6–4–07.
63,040. LABEL FOR GUINNESS'S EXTRA STOUT. Cl. 48. 6–4–07.
63,089. ALAGA. Cl. 46. 6–4–07.
63,352. U.S.G. CO'S. Cl. 16. 6–18–07.
63,353. THE UNITED STATES GRAPHITE CO. Cl. 16. 6–18–07.
63,542. THE UNITED STATES GRAPHITE CO. Cl. 15. 6–25–07.
63,626. COPCO. Cl. 52. 7–2–07.
63,725. COLUMBIA. Cl. 37. 7–2–07.
64,900. NATIONAL CASH REGISTER CO. Cl. 26. 8–27–07.
64,950. SINGER. Cl. 23. 8–27–07.
212,494. TRETON. Cl. 39. 5–4–26.
216,856. BUCKEYE DUCK AND DESIGN. Cl. 42. 8–24–26.
219,062. SOLARIZED. Cl. 43. 10–12–26.
224,628. DESERT SWEETS. Cl. 46. 3–1–27.
224,796. EMUSOL. Cl. 46. 3–8–27.
225,012. NOXZEMA. Cl. 51. 3–8–27.
225,240. DRAPEWELL. Cl. 13. 3–15–27.
225,285. CELANESE-LOCKNIT. Cl. 42. 3–15–27.
225,622. STOCKADE. Cl. 42. 3–22–27.
225,655. FOUR SEASONS. Cl. 7. 3–22–27.
225,980. VEGLIA. Cl. 27. 3–29–27.
226,073. RAT NIP. Cl. 6. 3–29–27.
226,319. U & I SUGAR AND DESIGN. Cl. 46. 4–5–27.
226,399. REXCO. Cl. 1. 4–5–27.
227,017. MIRROFROST. Cl. 42. 4–26–27.
227,274. ESSKAY QUALITY. Cl. 46. 5–3–27.
227,393. MT. VERNON. Cl. 42. 5–3–27.
227,927. VITAL. Cl. 15. 5–17–27.
228,050. OUR SHIELD AND DESIGN. Cl. 38. 5–24–27.
228,068. MAR-V-LUS. Cl. 39. 5–24–27.
228,314. SUMMER-TEX AND DESIGN. Cl. 39. 5–31–27.
228,444. FRENCHIES. Cl. 46. 5–31–27.
228,603. METEX. Cl. 13. 6–7–27.

229,183. HY-TEN. Cl. 14. 6–21–27.
229,769. PRINCESS ROYAL. Cl. 39. 7–5–27.
229,848. "KITCHEN-TESTED." Cl. 46. 7–5–27.
230,023. RED BAND AND DESIGN. Cl. 46. 7–12–27.
230,311. MASTER. Cl. 25. 7–19–27.
230,314. PYRAX DESIGN. Cl. 1. 7–19–27.
230,350. TRAIL. Cl. 46. 7–19–27.
230,543. ROSE. Cl. 46. 7–26–27.
231,036. ANCHOR BRAND. Cl. 40. 8–9–27.
231,037. REPRESENTATION OF ANCHOR. Cl. 40. 8–9–27.
231,631. GLOVE KID. Cl. 46. 8–23–27.
232,114. DUTCH MASTERS AND DESIGN. Cl. 17. 8–30–27.
232,350. OLD TRUSTY. Cl. 46. 9–6–27.
424,888. DAYCO. Cl. 35. 10–29–46.
425,572. SOLU CONES. Cl. 18. 11–26–46.
426,121. LONG BOY. Cl. 32. 12–17–46.
427,153. PUNCH BOWLE. Cl. 17. 1–28–47.
427,555. MY REPUTATION. Cl. 51. 2–11–47.
427,581. D.I.P. Cl. 13. 2–11–47.
427,650. DIVI-DIVI. Cl. 39. 2–18–47.
427,704. FLEXALUM. Cl. 14. 2–18–47.
427,723. PAYDIRT AND DESIGN. Cl. 46. 2–18–47.
428,048. OPTIMIST INTERNATIONAL AND DESIGN. Cl. 28. 3–11–47.
428,122. MISCELLANEOUS DESIGN. Cl. 49. 3–11–47.
428,131. SOTRADECOL. Cl. 18. 3–11–47.
428,187. GRANTLY. Cl. 26. 3–11–47.
428,188. TOWN AND COUNTRY. Cl. 26. 3–11–47.
428,189. MICROTEST. Cl. 26. 3–11–47.
428,271. COVIS. Cl. 43. 3–18–47.
428,272. WOOLSASE. Cl. 43. 3–18–47.
428,403. FORMULETTE. Cl. 50. 3–25–47.
428,645. MAJA. Cl. 51. 4–1–47.
428,684. NU-PLAST. Cl. 37. 4–1–47.
429,058. RHYTHM STEP ROADWAYS THE 123 SHOE AND DESIGN. Cl. 39. 4–15–47.
429,331. CENTURY FRE-FLEX. Cl. 39. 4–29–47.
429,373. RWC. Cl. 34. 4–29–47.
429,413. PENSALCO. Cl. 6. 4–29–47.
429,537. SULTANA. Cl. 38. 5–6–47.
429,595. CLAW AND DESIGN. Cl. 23. 5–6–47.
429,698. INTIMATES. Cl. 39. 5–13–47.
429,882. HURD & LOCKWELL AND DESIGN. Cl. 39. 5–20–47.
430,099. LOX-IN AND DESIGN. Cl. 37. 6–10–47.
430,580. BEMIS. Cl. 50. 6–17–47.
430,723. ATOMIC. Cl. 22. 6–24–47.
430,726. TIME SAVERS AND DESIGN. Cl. 24. 6–24–47.
430,763. CARFA AND DESIGN. Cl. 11. 6–24–47.
431,283. FLORALSHEEN. Cl. 43. 7–15–47.
431,928. FOOD FAIR FREDDIE. Cl. 38. 8–12–47.
432,355. REUTER'S AND DESIGN. Cl. 51. 9–2–47.
432,371. WORLD REPORT. Cl. 38. 9–2–47.
432,422. ADIPOL. Cl. 6. 9–2–47.
432,454. MISCELLANEOUS DESIGN. Cl. 47. 9–2–47.

TRADEMARK REGISTRATIONS CANCELED

Section 8

The following registrations issued Mar. 21, 1961

712,658. HI-GOAL. Cl. 1.
712,660. PALMER NURSERIES AND DESIGN. Cl. 1.
712,666. ELIOLENE. Cl. 1.
712,667. LAWN HOUSE. Cl. 1.
712,675. KENOLITE. Cl. 1.
712,678. FROSTY CALF. Cl. 1.
712,682. TUFFY TOP. Cl. 1.
712,683. GENIE. Cl. 2.
712,689. ASTROLITE. Cl. 5.
712,690. RISOL. Cl. 6.
712,692. REP. Cl. 6.
712,693. CHEMICLAVE. Cl. 6.
712,698. WHITEFROST. Cl. 6.
712,702. PAX ACTION. Cl. 6.
712,703. PAX PUNCH. Cl. 6.
712,706. ROLTITE. Cl. 6.
712,712. PAX SNAP BAK. Cl. 10.
712,717. LITHE. Cl. 12.
712,718. S-T-R-E-T-C-H-E-D W-O-O-D TILE AND DESIGN. Cl. 12.
712,719. HANCO AND DESIGN. Cl. 12.
712,720. GRANITE BOARD. Cl. 12.
712,724. REPRESENTATION OF HEAD OF BULLDOG AND DESIGN. Cl. 12.
712,728. PRIMEROC. Cl. 12.
712,732. ORELITE. Cl. 12.
712,735. SCOTCHRAP. Cl. 12.
712,736. TEN POINT TRIM. Cl. 12.
712,739. SURFASTAL. Cl. 12.
712,743. ALIGN E-Z. Cl. 13.
712,750. MIRACOIL. Cl. 14.
712,754. HYDROSTAL AND DESIGN. Cl. 14.
712,763. MY-T-FORT. Cl. 18.
712,768. KREST. Cl. 18.
712,775. DECALEXIN. Cl. 18.
712,788. TRI-FILL. Cl. 21.
712,792. VULCAN. Cl. 21.
712,793. SIDE A LITE. Cl. 21.
712,794. HOBBY PAL. Cl. 21.
712,795. LITE-FRY. Cl. 21.
712,799. SLEEP-DRI. Cl. 21.
712,802. FALCON. Cl. 22.
712,803. BRANDEX ETC. AND DESIGN. Cl. 22.
712,804. D-STIX. Cl. 22.
712,805. ELECTRA-MATIC 50. Cl. 22.
712,809. AUTO-BLOW. Cl. 23.
712,811. CONTIMAC. Cl. 23.
712,812. GOES A LONG WAY AND DESIGN. Cl. 23.
712,818. BOSCH GERMANY AND DESIGN. Cl. 24.
712,834. SWIMCON. Cl. 26.
712,840. COLTURA. Cl. 28.
712,843. REPRESENTATION OF A CREST. Cl. 30.
712,844. BOSCH GERMANY AND DESIGN. Cl. 31.
712,846. TOPIC. Cl. 32.
712,847. ADVENT. Cl. 32.
712,848. FOOT LOOSE AND FANCY FREE. Cl. 32.
712,850. HANDEE CASE-SAVER AND DESIGN. Cl. 32.
712,852. SPACESETTER. Cl. 32.
712,856. ZEPHYR. Cl. 34.
712,857. PARTIO CART. Cl. 34.
712,858. CROMWELL AND DESIGN. Cl. 35.
712,860. ELECTRACHORD. Cl. 36.
712,862. BUCKEYE. Cl. 36.
712,867. AMBI-DEX. Cl. 37.
712,872. CONTIMAC. Cl. 37.
712,873. INK-AWAY. Cl. 37.
712,881. DRI-APPLI. Cl. 38.
712,882. ENGINEER ETC. AND DESIGN. Cl. 38.
712,886. THE M REPORT. Cl. 38.
712,891. DIVA. Cl. 39.
712,893. DESIGN OF GROTESQUE FIGURE PUSHING SHOPPING CART. Cl. 39.
712,898. BURGI AND DESIGN. Cl. 39.
712,901. RICH LASE. Cl. 39.
712,906. AQUA SEAL. Cl. 39.
712,908. HOSPITALITY. Cl. 39.
712,909. PAMELA YOUNG. Cl. 39.
712,910. CHAMONIX. Cl. 39.
712,911. CUSTOMITE. Cl. 39.
712,913. WAVE-LENGTH. Cl. 39.
712,915. HOPS/FORD. Cl. 39.
712,920. BIG RED. Cl. 39.
712,922. TIME/TESTED AND DESIGN. Cl. 39.
712,924. SOX-GALORE. Cl. 39.
712,926. BRASCUSHON. Cl. 42.
712,928. CRIMPLAN. Cl. 42.
712,930. FRAGONARD. Cl. 42.
712,931. SLUMBERWARM. Cl. 42.
712,934. PRESTINIZED. Cl. 42.
712,942. REGGIE BRAND. Cl. 46.
712,951. ELK FORK. Cl. 46.
712,954. AMSTEL AND TWIN GLOBE DESIGN. Cl. 48.
712,955. KLOSTERHAGER. Cl. 49.
712,956. KLOSTERJAGER. Cl. 49.

712,959. BARTOLINI. Cl. 50.
712,961. ALL-AMERICAN. Cl. 50.
712,964. CHICKEN LADDER. Cl. 50.
712,965. ARMOR TOUGH AND DESIGN. Cl. 50.
712,967. GESTE FOR MEN. Cl. 51.
712,969. SNUG. Cl. 51.
712,978. QUALITY BUILT ETC. AND DESIGN. Cl. 100.
712,983. WORLD'S FAIR OF FASHION. Cl. 28.

TRADEMARK REGISTRATIONS AMENDED, DISCLAIMED, CORRECTED, ETC.

105,426. STERNO. Cl. 6. 7–20–15. S. Sternau & Co. Sterno, Inc., New York, N.Y. Amended to appear:

STERNO

218,052. JAYSON. Cl. 39. 9–21–26. Levinsohn Bros. & Co., Inc., New York, N.Y. Amended to appear:

JAYSON

220,944. KNAPP-FELT AND DESIGN. Cl. 39. 11–16–26. The Crofut & Knapp Co. Hat Corporation of America, New York, N.Y. Amended: In the statement, column 1, line 10, "words" is deleted and *word* is inserted and in line 11 "and New York" is deleted, and the drawing is amended to appear:



224,211. HENKEL'S BEST FAMILY FLOUR AND DESIGN. Cl. 46. 2–22–27. Commercial Milling Co. International Milling Company Inc., Minneapolis, Minn. Amended: In the statement, column 1, line 15 through column 2, line 2, "no claim being made to the words 'Best' and 'Family Flour' apart from the mark as shown on the drawing. However, the applicant reserves all common-law rights thereto." is deleted and the drawing is amended to appear:

HENKEL'S

379,913. SILVER BOW AND DESIGN. Cl. 46. 7–30–40. Pacific American Fisheries, Inc. Pacific Alaska Fisheries, Inc., Seattle, Wash. Amended to appear:

SILVER BOW

432,431. STABELAN. Cl. 6. 9–2–47. Stabelan Chemical Company. Nopco Chemical Company, Newark, N.J. Amended to appear:

STABELAN

720,760. LANOLIN PLUS. Cl. 52. 8–29–61. Lanolin Plus, Inc. Hazel Bishop Inc., Newark, N.J. Amended: In the statement, column 2, line 1, after "shampoo", *excluding hard water shampoo* is inserted.

811,091. MICROMETIC. Cl. 44. 7–12–66. Burron Medical Products, Inc., Bethlehem, Pa. Corrected:

MICROMETIC

817,906. CRAB POT. Cl. 46. 11–1–66. The Crab Pot, Inc., Rehoboth Beach, Del. Corrected: In the statement, column 1, line 1, "Delaware" should be deleted and *Maryland* should be inserted.

821,639. BOY WONDER. Cl. 39. 1–3–67. B. Altman & Co., New York, N.Y. Corrected: In the statement, column 2, line 3, after "jackets," *snow suits*, should be inserted.

824,556. ROSANNAY. Cl. 47. 2–21–67. John Harvey & Sons Ltd., Bristol, England. Corrected: In the heading, *Ser. No. 238,351, filed Feb. 8, 1966* should be inserted.

INDEX OF REGISTRANTS

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Hutchens & Son Metal Products, Inc., Springfield, Mo. 828,458, pub. 2–21–67. Cl. 19.
Illinois Bronze Powder & Paint Co., Lake Zurich, Ill. 828,418, pub. 2–21–67. Cl. 11.
Illinois Bronze Powder & Paint Co., Lake Zurich, Ill. 828,444, pub. 2–21–67. Cl. 16.
Illinois Canning Co., The, Hoopeston, Ill. 828,651–2, pub. 2–21–67. Cl. 46.
Imperial Chemical Industries, Ltd., Millbank, London, England. 712,928, canc. Cl. 42.
Imperial Drug Exchange Inc., d.b.a. New Drug Concern, New York, N.Y. 712,763, canc. Cl. 18.
Imperium Refrigerator Co.: *See*—
M & S Food Service Equipment Co.
Independent Battery Manufacturers Association, Inc., from The Independent Battery Manufacturers of America, Inc., Largo, Fla. 828,683, pub. 2–21–67. Cl. A.
Independent Battery Manufacturers of America, Inc., The: *See*—
Independent Battery Manufacturers Association, Inc.
Indian Head Inc.: *See*—
Sultana Products, Inc.
Ulmann, Bernhard, Co., Inc.
Indian Head Mills, Inc., New York, N.Y. 828,621, pub. 2–21–67. Cl. 39.
Indiana Brass Co., Inc., Frankfort, Ind. 828,431, pub. 2–21–67. Cl. 13.
Indiana General Corp., Valparaiso, Ind. 828,475, pub. 2–21–67. Cl. 21.
Industrial Plastics & Chemicals: *See*—
Rae, James F.
Ink-Away, Woodbridge, N.J. 712,873, canc. Cl. 37.
International Harvester Co., Chicago, Ill., from Western Bye-Hoe, Inc., San Martin, Calif. 828,461, pub. 2–21–67. Cl. 19.
International Milling Co., Inc., Mineapolis, Minn. 828,058, pub. 2–21–67. Cl. 46.
International Roll-Call Corp., Richmond, Va. 828,680, pub. 2–21–67. Cl. 103.
International Telephone and Telegraph Corp., New York, N.Y. 828,482, pub. 2–21–67. Cl. 21.
Iron Magic, Inc., Fort Wayne, Ind. 828,675, pub. 2–21–67. Cl. 52.
Irwin, Neisler & Co., Decatur, Ill. 712,775, canc. Cl. 18.
Isenberg, Alexander H., d.b.a. Durant Insulated Pipe Co., Palo Alto, Calif., to Niles Mfg. Co., Niles, Mich. 427,581, ren. 5–9–67. Cl. 13.
Italian Swiss Colony, to United Vintners, Inc., San Francisco, Calif. 432,454, ren. 5–9–67. Cl. 47.
Ives, H. B., Co., The, New Haven, Conn. 828,697. Cl. 25.
Johnson & Johnson, d.b.a. Devro, New Brunswick, N.J. 828,513, pub. 2–21–67. Cl. 23.
Johnson, Stephens and Shinkle Shoe Co., St. Louis, Mo. 429,058, ren. 5–9–67. Cl. 39.
Johnston, D., & Co., Ltd., Isle of Islay, Scotland. 828,661, pub. 2–21–67. Cl. 49.
KVP Sutherland Paper Co.: *See*—
Brown Co.
Kanner Dress Co., Inc., New York, N.Y. 828,703. Cl. 39.
Kaplan, Morris & Sons, New York, N.Y. 828,581, pub. 2–21–67. Cl. 28.
Kaysons International Ltd., Los Angeles, Calif. 828,519, pub. 2–21–67. Multiple Class (Classes 26 and 36).
Keferstein, Charles G., d.b.a. Hi-Goal Products Corp., Rue Delille, Nice, France. 712,658, canc. Cl. 1.
Keller Industries, Inc., Miami, Fla. 828,486, pub. 2–21–67. Cl. 21.
Kenney Mfg. Co., Warwick, R.I. 225,240, ren. 5–9–67. Cl. 13.
Keno Plastic Processing Corp., Milwaukee, Wis. 712,675, canc. Cl. 1.
Kenrich Shoe Corp., Maysville, Ky. 828,598, pub. 2–21–67. Cl. 39.
Kesco Products Corp., Jamaica, N.Y. 828,489, pub. 2–21–67. Cl. 23.
King, John P., Mfg. Co., The, Augusta, Ga. 828,634, pub. 12–13–66. Cl. 42.
Klosterman, James E., d.b.a. Chatham Co., Dayton, Ohio. 828,588, pub. 2–21–67. Cl. 37.
Koninklijke Nederlandsche Hoogovens en Staalfabrieken N.V., Ijmuiden (Velsen), Netherlands. 712,754, canc. Cl. 14.
Kops Bros., Inc., New York, N.Y. 712,913, canc. Cl. 39.
Kresge-Newark, Inc., Newark, N.J. 712,768, canc. Cl. 18.
Lakeside Central Co., Chicago, Ill. 828,583, pub. 2–21–67. Cl. 37.
Laminators, Inc., Cleveland, Ohio. 828,491, pub. 2–21–67. Cl. 23.
Lanman & Kemp-Barclay & Co., Inc., Palisades Park, N.J. 432,355, ren. 5–9–67. Cl. 51.
Lavigne, Donald S., Inc., Miami, Fla. 828,704. Cl. 39.
Leblanc, G., Corp., Kenosha, Wis. 828,572, pub. 2–21–67. Cl. 36.
Lee, H. D., Co., Inc., The, Kansas City, Mo. 828,615, pub. 2–21–67. Cl. 39.
Les Parfums Robert Piguet Societe Anonyme, Paris, France. 828,667, pub. 6–29–65. Cl. 51.
Lever Brothers Co.: *See*—
Fairbank, N. K., Co., The.
Lily Mills Co., Shelby, N.C. 828,637, pub. 11–8–66. Cl. 43.
Lone Star Cement Corp., New York, N.Y. 828,409, pub. 2–21–67. Cl. 2.
Long Boy Sleeping Equipment Co., to Irvin A. Brock, d.b.a. Long Boy Co., Los Angeles, Calif. 426,121, ren. 5–9–67. Cl. 32.
Long Boy Co.: *See*—
Long Boy Sleeping Equipment Co.
Lorillard, P., Co., New York, N.Y. 828,688. Cl. 17.
Los Angeles Saratoga Chip Co.: *See*—
Ginsberg, Max I.
Lustig, Florence, d.b.a. Florence, Miami Beach, Fla. 427,650, ren. 5–9–67. Cl. 39.
M & S Food Service Equipment Co., d.b.a. Imperium Refrigerator Co., Chicago, Ill. 828,544, pub. 2–21–67. Cl. 31.
Magnatran Inc., Kearny, N.J. 828,481, pub. 2–21–67. Cl. 21.
Maidenform, Inc., New York, N.Y. 828,608, pub. 2–21–67. Cl. 39.
Maidenform, Inc., New York, N.Y. 828,626–9, pub. 2–21–67. Cl. 39.
Malizia, Elio, Milani, Italy. 712,666, canc. Cl. 1.
Marathon Electric Mfg. Corp., Wausau, Wis. 828,487, pub. 2–21–67. Cl. 21.
Mark, Clayton & Co., Evanston, Ill. 828,438, pub. 2–21–67. Cl. 13.
Martinoni, E., Co., d.b.a. The Richards Co., San Francisco, Calif. 828,662, pub. 2–21–67. Cl. 49.
Marx & Newman Co., Inc., New York, N.Y. 828,614, pub. 2–21–67. Cl. 39.
Master Consolidated, Inc., Dayton, Ohio. 828,558, pub. 2–2–65. Cl. 34.
Master Lock Co., Milwaukee, Wis. 230,311, ren. 5–9–67. Cl. 25.
May Pressenbau G.m.b.H., Schwaebisch-Gmuend, Germany. 828,495, pub. 2–21–67. Cl. 23.

McNair Boat Works Inc., Port Washington, N.Y. 828,467, pub. 2–21–67. Cl. 19.
Medics Pharmaceutical Corp., Decatur, Ga. 828,451, pub. 2–21–67. Cl. 18.
Mercantile Stores Co., Inc., Wilmington, Del. 712,858, canc. Cl. 35.
Merchandiser's Association, Inc., Chicago, Ill. 828,529, pub. 2–21–67. Cl. 28.
Merck & Co., Inc., Rahway, N.J. 828,453, pub. 2–21–67. Cl. 18.
Mermaid, Inc., Wauwatosa, Wis., from Ralph Walsh, d.b.a. Arlington Soft Water Co., Arlington Heights, Ill. 828,542, pub. 2–21–67. Cl. 31.
Mermaid, Inc., Butler, Wis. 828,543, pub. 2–21–67. Cl. 31.
Mesa Citrus Growers: *See*—
Sierra Madre-Lamanda Citrus Association.
Metal Textile Corp., West Orange, N.J., to General Cable Corp., New York, N.Y. 228,603, ren. 5–9–67. Cl. 13.
Midland Pharmacal Corp., New York, N.Y. 712,969, canc. Cl. 51.
Mikisits, Frank, Bethlehem, Pa. 828,573, pub. 2–21–67. Cl. 36.
Minnesota Mining and Mfg. Co., St. Paul, Minn. 712,706, canc. Cl. 6.
Minnesota Mining and Mfg. Co., St. Paul, Minn. 712,735, canc. Cl. 12.
Minnesota Mining and Mfg. Co., St. Paul, Minn. 828,415, pub. 2–21–67. Cl. 4.
Missouri Farmers Association, Inc., Columbia, Mo. 712,667, canc. Cl. 1.
Model Mill Co., Johnson City, Tenn., to General Mills, Inc., Minneapolis, Minn. 229,848, ren. 5–9–67. Cl. 46.
Model Mill Co., Johnson City, Tenn., to General Mills, Inc., Minneapolis, Minn. 230,023, ren. 5–9–67. Cl. 46.
Model Tire Co., Sacramento, Calif. 828,563, pub. 10–5–65. Cl. 35.
Moore Dry Kiln Co., Jacksonville, Fla. 828,692. Cl. 23.
Morris, Philip, Inc., New York, N.Y. 828,053, pub. 2–21–67. Cl. 46.
Mount Vernon Mills, Inc.: *See*—
Mt. Vernon-Woodberry Mills, Inc.
Mt. Vernon-Woodberry Mills, Inc., to Mount Vernon Mills, Inc., Baltimore, Md. 227,393, ren. 5–9–67. Cl. 42.
Mouzon-Jungers, Suzanne, Paris, France. 828,695. Cl. 23.
Movable Walls Corp., Covina, Calif. 828,424, pub. 2–21–67. Cl. 12.
Myrurgia, S.A., Barcelona, Spain, to Selected Creations, Inc., New York, N.Y. 428,645, ren. 5–9–67. Cl. 51.
N.C. Carpet Binding & Equipment Corp., Newark, N.J. 828,500, pub. 2–21–67. Cl. 23.
Nadler, Joseph B., New York, N.Y. 828,619, pub. 2–21–67. Cl. 39.
National Auto Glass Co., Inc., Los Angeles, Calif. 828,460, pub. 2–21–67. Cl. 19.
National Bureau for Lathing and Plastering, Inc., Washington, D.C. 712,978, canc. Cl. 100.
National Business Music Co. of the Southeast, Inc., Charlotte, N.C. 828,578, pub. 2–21–67. Cl. 36.
National Cash Register Co., The, to The National Cash Register Co., Dayton, Ohio. 64,900, ren. 5–9–67. Cl. 26.
National Life and Accident Insurance Co., The, Nashville, Tenn. 228,050, ren. 5–9–67. Cl. 38.
National Periodical Publications, Inc., New York, N.Y. 828,412, pub. 2–21–67. Cl. 2.
National Starch and Chemical Corp., Goffstown, N.H. 712,720, canc. Cl. 12.
National Steel Corp., Pittsburgh, Pa. 712,750, canc. Cl. 14.
Nestor Moseres, Barranquilla, Colombia. 828,436, pub. 2–21–67. Cl. 13.
New York Drug Concern: *See*—
Imperial Drug Exchange Inc.
Niles Mfg. Co.: *See*—
Isenberg, Alexander H.
Nip-Co Mfg., Inc.: *See*—
Buffalo Specialty Co.
Noe Equl Textile Mills Inc., to Princess Royal Knitting Mills, Reading, Pa. 229,769, ren. 5–9–67. Cl. 39.
Noritake Co., Inc., New York, N.Y. 828,540, pub. 2–21–67. Cl. 30.
North American Mfg. Co., Holliston, from North American Jalousies, Inc., Newton Lower Falls, Mass. 828,420, pub. 2–21–67. Cl. 12.
North and Judd Mfg. Co., New Britain, Conn. 231,036–7, ren. 5–9–67. Cl. 40.
Noxell Corp.: *See*—
Noxzema Chemical Co.
Noxzema Chemical Co., to Noxell Corp., Baltimore, Md. 225,012, ren. 5–9–67. Cl. 51.
Oakland Metal Fabricators Inc., Warren, Mich. 828,494, pub. 2–21–67. Cl. 23.
Ohio-Apex, Inc., Nitro, W. Va., to FMC Corp., New York, N.Y. 432,422, ren. 5–9–67. Cl. 6.
Ohio Brass Co., The, Mansfield, Ohio. 828,479, pub. 2–21–67. Cl. 21.
Old Trusty Dog Food Co., Needham Heights, Mass., to Standard Brands Inc., New York, N.Y. 232,350, ren. 5–9–67. Cl. 46.
Olin Mathieson Chemical Corp.: *See*—
Squibb, E. R., & Sons, Inc.
Oops, Los Angeles, Calif. 328,599, pub. 2–21–67. Cl. 39.
Optimist International, St. Louis, Mo. 428,048, ren. 5–9–67. Cl. 28.
Orbit Pharmaceutical, Inc., Kansas City, Kans. 828,452, pub. 2–21–67. Cl. 18.
Outboard Marine Corp., Waukegan, Ill. 828,468, pub. 2–21–67. Cl. 19.
Pacific Electro Magnetics Co., Inc., Palo Alto, Calif. 828,571, pub. 2–21–67. Cl. 36.
Pall Corp., Glen Cove, N.Y. 828,545–52, pub. 2–21–67. Cl. 31.
Palm Beach Casual Corp., Boston, Mass., to Edison Bros. Stores, Inc., St. Louis, Mo. 429,098, ren. 5–9–67. Cl. 39.
Palmer, Gordon, d.b.a. Palmer Nurseries, Osprey, Fla. 712,660, canc. Cl. 1.
Palmer Nurseries: *See*—
Palmer, Gordon.
Palmetto Cotton Mills, Inc., Palmetto, to West Point-Pepperell, Inc., West Point, Ga. 216,856, ren. 5–9–67. Cl. 42.
Papa-Guy-Yo, Inc., Baltimore, Md. 712,802, canc. Cl. 22.
Paper Mate Mfg. Co., Santa Monica, Calif. 828,590, pub. 2–21–67. Cl. 37.
Parker, Glen H., Portland, Oreg. 828,567, pub. 2–21–67. Cl. 36.
Pax Co.: *See*—
Utah Cooperative Association.
Pearring, Jerry M., d.b.a. Side A Lite, Alhambra, Calif. 712,793, canc. Cl. 21.
Peavey Co., Minneapolis, Minn. 828,645–6, pub. 2–21–67. Cl. 46.
Penney, J. C., Co., New York, N.Y. 225,022, ren. 5–9–67. Cl. 42.
Pennsalt Chemicals Corp.: *See*—
Pennsylvania Salt Mfg. Co., The.
Pennsylvania Salt Mfg. Co., The, to Pennsalt Chemicals Corp., Philadelphia, Pa. 429,413, ren. 5–9–67. Cl. 6.
Penny, John, & Sons, Ltd., Ramea, Newfoundland, Canada. 828,643, pub. 2–21–67. Cl. 46.
Penron Associated Hosiery Mills, Inc., High Point, N.C. 828,596, pub. 6–29–65. Cl. 39.
Permatex Co., Inc., Brooklyn, N.Y. 828,442, pub. 2–21–67. Cl. 15.
Persons-Majestic Mfg. Co., Worcester, Mass. 828,464, pub. 2–21–67. Cl. 19.
Pfister and Vogel Tanning Co., Inc., Milwaukee, Wis. 828,397, pub. 2–21–67. Cl. 1.
Pfizer, Chas., & Co., Inc., New York, N.Y. 828,456, pub. 2–21–67. Cl. 18.
Picaso-Anstalt, Vaduz, Liechtenstein. 712,967, canc. Cl. 51.
Plantation Foods, Inc., Waco, Tex. 828,648, pub. 2–21–67. Cl. 46.
Plastex Co., The, Columbus, Ohio. 828,432, pub. 2–21–67. Cl. 13.
Polaroid Corp., Cambridge, Mass. 828,518, pub. 2–21–67. Cl. 26.
Prescott, Dale B., d.b.a. Prescott Sales Co., Ferndale, Mich. 712,964, canc. Cl. 50.
Prescott Sales Co.: *See*—
Prescott, Dale B.
Princess Royal Knitting Mills: *See*—
Noe Equl Textile Mills, Inc.
Propper Mfg. Co., Inc., Long Island City, N.Y. 828,522, pub. 2–21–67. Cl. 26.
Propper Mfg. Co., Inc., Long Island City, N.Y. 828,698. Cl. 26.
Puerto Rico Distillers, Inc., d.b.a. Compania de Bebidas del Tanama, Arecibo, Puerto Rico. 828,603, pub. 2–21–67. Cl. 49.
Puritan Chemical Co., Atlanta, Ga. 828,413, pub. 2–21–67. Cl. 4.
Quabaug Rubber Co., North Brookfield, Mass. 828,602, pub. 2–21–67. Cl. 39.
Quick Service Textiles, Inc., Chicago, Ill. 828,631–2, pub. 2–21–67. Cl. 40.
Rae, James F., d.b.a. Industrial Plastics & Chemicals, Oakland, Calif. 712,689, canc. Cl. 5.
Ralston Purina Co., St. Louis, Mo. 828,647, pub. 2–21–67. Cl. 46.
Ranetite Mfg. Co., Inc., St. Louis, Mo. 828,443, pub. 2–21–67. Cl. 16.
Ra-Rich Mfg. Corp., Holtsville, N.Y. 712,743, canc. Cl. 13.
Raylite Electric Corp., New York, N.Y. 828,691. Cl. 21.
Redlands Orange Growers Association to Redlands Orange Growers Association, Redlands, Calif. 230,543, ren. 5–9–67. Cl. 46.
Reevesound Co., Inc., Long Island City, N.Y. 828,527, pub. 2–21–67. Cl. 26.
Regent Standard Forms, Inc., Philadelphia, Pa. 828,591, pub. 2–21–67. Cl. 37.
Republic Industrial Corp., New York, N.Y. 828,433, pub. 2–21–67. Cl. 13.
Republic Industrial Corp., New York, N.Y. 828,471, pub. 2–21–67. Cl. 21.
Resistance Welder Corp., Bay City, Mich. 429,373, ren. 5–9–67. Cl. 34.
Rex Clay Products Co., Walled Lake, Mich. 226,399, ren. 5–9–67. Cl. 1.
Rexall Drug and Chemical Co., Los Angeles, Calif., from Fiberfil, Inc., Evansville, Ind. 828,399–400, pub. 2–21–67. Cl. 1.
Rich's, Inc., Atlanta, Ga. 712,901, canc. Cl. 39.
Robbins Flooring Co., Memphis, Tenn. 828,686. Cl. 12.
Roberts Co., The, City of Industry, Calif. 712,856, canc. Cl. 34.
Robinson, H. A., Co., Inc., Lynchburg, Va. 231,631, ren. 5–9–67. Cl. 46.
Roncari Industries, Inc., East Granby, Conn. 828,421, pub. 2–21–67. Cl. 12.
Rostek, John, Fort Collins, Colo. 828,677, pub. 9–14–65. Cl. 100.
Royal Paint & Varnish Co.: *See*—
Royaltone, Inc.
Royaltone, Inc., d.b.a. Royal Paint & Varnish Co., San Francisco, Calif. 828,446, pub. 2–21–67. Cl. 16.
Rubbermaid Inc., Wooster, Ohio. 828,463, pub. 2–21–67. Cl. 19.
Ruberoid Co., The, New York, N.Y. 712,728, canc. Cl. 12.

Rusley, Theodore, d.b.a. Specialty Supply Co., San Leandro, Calif. 712,717, canc. Cl. 12.
Russ Togs, Inc., New York, N.Y. 828,622, pub. 2–21–67. Cl. 39.
Russ Togs, Inc., New York, N.Y. 828,702. Cl. 39.
S & K Thread Mfg. Co.: *See*—
Solars, Sampson.
Salmon Stiles Corp., The, El Monte, Calif. 828,506, pub. 2–21–67. Cl. 23.
Sancor Corp., Hawthorne, Calif. 828,497, pub. 2–21–67. Cl. 23.
Sarong, Inc., Dover, Del. 828,597, pub. 5–24–66. Cl. 39.
Sarong, Inc., Dover, Del. 828,600, pub. 7–5–66. Cl. 39.
Scanco, Inc., Chicago, Ill. 828,594, pub. 2–21–67. Cl. 38.
Schluderberg-Kurdle Co., Inc.: *See*—
Schluderberg, Wm., T. J. Kurdle Co., The.
Schluderberg, Wm., T. J. Jurdle Co., The, to Schluderberg-Kurdle Co., Inc., Baltimore, Md. 227,274, ren. 5–9–67. Cl. 46.
Scholastic Magazines, Inc., New York, N.Y. 828,570, pub. 2–21–67. Cl. 36.
Scott, O. M., & Sons Co., The, Marysville, Ohio. 828,512, pub. 2–21–67. Cl. 23.
Screen Gems, Inc., New York, N.Y. 828,579, pub. 12–13–66. Cl. 36.
Sea & Ski Corp., San Francisco, Calif., from Botany Industries, Inc., Reno, Nev. 828,517, pub. 2–21–67. Cl. 26.
Sekine, I., Co., Inc., New York, N.Y. 828,534–5, pub. 2–21–67. Cl. 29.
Selected Creations, Inc.: *See*—
Myrurgia, S.A.
Sentinel Printing, Inc., Indianapolis, Ind. 828,681, pub. 2–21–67. Cl. 103.
Sero of New Haven, Inc., New Haven, Conn. 712,915, canc. Cl. 39.
Servus Rubber Co., The, Rock Island, Ill. 828,606, pub. 2–21–67. Cl. 39.
Sevell Tool Co., Inc., New York, N.Y. 828,435, pub. 2–21–67. Cl. 13.
Shenango Ceramics, Inc., New Castle, Pa. 828,537–9, pub. 2–21–67. Cl. 30.
Shields, Inc., Attleboro, Mass. 712,983, canc. Cl. 28.
Siade Di Angelo Callegari & C. Soc. Acc. Semplice, Milan, Italy. 828,669, pub. 2–21–67. Cl. 51.
Side A Lite: *See*—
Pearring, Jerry M.
Siemens & Halske Aktiengesellschaft, Wittelsbacherplatz, Munich, Germany. 828,520, pub. 2–21–67. Cl. 26.
Sierra Madre-Lamanda Citrus Association, Lamanda Park, Calif., to Mesa Citrus Growers, Mesa, Arizona. 230,350, ren. 5–9–67. Cl. 46.
Signal Oil and Gas Co., Los Angeles, Calif. 828,440, pub. 2–21–67. Cl. 15.
Sinclair, John, Ltd., Newcastle-On-Tyne, England. 427,153, ren. 5–9–67. Cl. 17.
Singer Co., The, New York, N.Y. 828,510, pub. 2–21–67. Multiple Class (Classes 23 and 34).
Singer Co., The: *See*—
Singer Mfg. Co.
Singer Mfg. Co., to The Singer Co., New York, N.Y. 64,950, ren. 5–9–67. Cl. 23.
Skil Corp., Chicago, Ill. 828,472, pub. 2–21–67. Cl. 21.
Slumberest Co., Georgetown, Ky. 712,931, canc. Cl. 42.
Snyder, W. H., and Sons Inc., Windsor, Pa. 753,205, canc. Cl. 17.
Societa Metallurgica Italiana, Florence, Italy. 828,439, pub. 2–21–67. Cl. 14.
Societe Francaise D'Etiquetage Virey & Garnier, Nogent Sur Marne, France. 828,696. Cl. 23.
Solars, Sampson, d.b.a. S & K Thread Mfg. Co., to Solars Thread and Yarn Co., Baltimore, Md. 219,062, ren. 5–9–67. Cl. 43.
Solars Thread and Yarn Co.: *See*—
Solars, Sampson.
Somerset, Thomas, & Co., Ltd., Belfast, Northern Ireland. 712,930, canc. Cl. 42.
Sondon Systems Corp., Rutherford, N.J. 712,867, canc. Cl. 37.
Sony Corp. of America, New York, N.Y. 828,577, pub. 2–21–67. Cl. 36.
Specialty Supply Co.: *See*—
Rusley, Theodore.
Spectra-Kote Corp., Gettysburg, Pa. 828,586, pub. 2–21–67. Cl. 37.
Speedy-Shopper Sales Corp., Greensboro, N.C. 712,893, canc. Cl. 39.
Sphygmostat Corp., Waltham, Mass. 828,706. Cl. 44.
Spiratone, Inc., Flushing, N.Y. 828,523–4, pub. 2–21–67. Cl. 26.
Squibb, E. R., & Sons, Inc., from Olin Mathieson Chemical Corp., New York, N.Y. 828,684. Cl. 2.
Standard Brands Inc.: *See*—
Old Trusty Dog Food Co.
Stedman Mfg. Co., Asheboro, N.C. 828,601, pub. 7–5–66. Cl. 39.
Steelmasters, Inc., New York, N.Y. 712,843, canc. Cl. 30.
Stenocord Corp., Los Angeles, Calif. 828,483, pub. 2–21–67. Cl. 21.
Stevens, Helen, New York, N.Y. 712,848, canc. Cl. 32.
Stevens, J. P., & Co., New York, N.Y. 828,636, pub. 2–21–67. Cl. 42.
Strong-Wear Co., The, Baltimore, Md. 828,618, pub. 2–21–67. Cl. 39.
Stuglow, Inc., Hamden, Conn. 712,906, canc. Cl. 39.
Style Trends, Inc., New York, N.Y. 712,910–11, canc. Cl. 39.
Sultana Products, Inc., to Indian Head Inc., New York, N.Y. 429,537, ren. 5–9–67. Cl. 38.
Sun Valley Silk Screen Sign Co., Phoenix, Ariz. 828,664, pub. 2–21–67. Cl. 50.
Sunbeam Corp., Chicago, Ill. 712,795, canc. Cl. 21.
Superba Cravats, Inc., Rochester, N.Y. 828,624, pub. 2–21–67. Cl. 39.
Superscope, Inc., Sun Valley, Calif. 828,701. Cl. 36.
Surfastal Ltd., Birmingham, England. 712,739, canc. Cl. 12.
Surpass Leather Co., Camden, N.J. 828,404, pub. 2–21–67. Cl. 1.
Swanee Paper Corp.: *See*—
Clearwater Tissue Mills, Inc.
Synthetic Plastics Co., d.b.a. Tifton Record Co., Newark, N.J. 828,575, pub. 2–21–67. Cl. 36.
Taylor Fiberglass Products, Inc., Diagonal, Iowa. 828,685. Cl. 2.
Ten Point Trim Corp., Indianapolis, Ind. 712,736, canc. Cl. 12.
Thilmany Pulp & Paper Co., Kaukauna, Wis. 828,585, pub. 2–21–67. Cl. 37.
Thiokol Chemical Corp., Bristol, Pa. 828,582–3, pub. 2–21–67. Cl. 23.
Thomas Industries Inc., Louisville, Ky. 828,484, pub. 2–21–67. Cl. 21.
Thompson Tool and Mfg. Co., Franklin Park, Ill. 712,794, canc. Cl. 21.
Time Savers, Inc.: *See*—
Calder, Caesar A.
Triangle Theatrical Productions, Inc., Chicago, Ill. 828,574, pub. 2–21–67. Cl. 36.
Ulmann, Bernhard, Co., Inc., to Indian Head, Inc., New York, N.Y. 431,283, ren. 5–9–67. Cl. 43.
Union Bag-Camp Paper Corp.: *See*—
Union Camp Corp.
Union Camp Corp., from Union Bag-Camp Paper Corp., New York, N.Y. 828,405–6, pub. 2–21–67. Cl. 2.
Union Tank Car Co., Chicago, Ill. 828,553, pub. 2–21–67. Cl. 31.
United Engineering and Foundry Co., Pittsburgh, Pa. 828,511, pub. 2–21–67. Cl. 23.
United Farms Co., Guadalupe, Calif., to J. A. Wood Co., Grower, Packers & Shippers, Tolleson, Ariz. 427,723, ren. 5–9–67. Cl. 46.
United Refining Co., Warren, Pa. 828,687. Cl. 15.
United States Graphite Co., The, to The Wickes Corp., Saginaw, Mich. 62,971, ren. 5–9–67. Cl. 16.
United States Graphite Co., The, to The Wickes Corp., Saginaw, Mich. 63,352–3, ren. 5–9–67. Cl. 16.
United States Graphite Co., The, to The Wickes Corp., Saginaw, Mich. 63,542, ren. 5–9–67. Cl. 15.
United States News Publishing Corp., to United States News & World Report, Inc., Washington, D.C. 432,371, ren. 5–9–67. Cl. 38.
United States News & World Report, Inc.: *See*—
United States News Publishing Corp.
United States Rubber Co., New York, N.Y. 828,565, pub. 2–21–67. Cl. 35.
United States Rubber Co., New York, N.Y. 828,616, pub. 2–21–67. Cl. 39.
United Vintners, Inc.: *See*—
Italian Swiss Colony.
Utah Cooperative Association, d.b.a. Pax Co., Salt Lake City, Utah. 712,702–3, canc. Cl. 6.
Utah Cooperative Association, d.b.a. Pax Co., Salt Lake City, Utah. 712,712, canc. Cl. 10.
Utah-Idaho Sugar Co., Salt Lake City, Utah. 226,319, ren. 5–9–67. Cl. 46.
Van Melle N.V., Rotterdam, Netherlands. 828,644, pub. 2–21–67. Cl. 46.
Vanderbilt, R. T., Co., Inc., New York, N.Y. 230,314, ren. 5–9–67. Cl. 1.
Vega-Cutter, Northridge, Calif. 828,501. pub. 2–21–67. Cl. 23.
Victor Comptometer Corp.: *See*—
Worthington Ball Co., The.
Viking Cycles Ltd., Wolverhampton, England. 828,457, pub. 2–21–67. Cl. 19.
Visirecord, Inc., Copiague, N.Y. 828,555, pub. 2–21–67. Cl. 31.
Von Gunten, Lee L., New York, N.Y. 712,860, canc. Cl. 36.
Walker Mfg. Co., Racine, Wis. 828,493, pub. 2–21–67. Cl. 23.
Wallace & Tiernan, Inc.: *See*—
Wallace & Tiernan Products, Inc.
Wallace and Tiernan Products, Inc., Belleville, to Wallace and Tiernan, Inc., East Orange, N.J. 428,131, ren. 5–9–67. Cl. 18.
Walsh, Ralph: *See*—
Mermaid, Inc.
Waterbury Pen Co., Inc., The, Stratford, Conn. 828,587, pub. 2–21–67. Cl. 37.
Weight Watchers International, Inc., Forest Hills, N.Y. 828,532–3, pub. 2–21–67. Cl. 28.
Well-McLain Co., Inc., Michigan City, Ind. 828,562, pub. 2–21–67. Cl. 34.
Weishaupt, Max, G.m.b.H., Schwendi/Wurttemberg, Germany. 828,560, pub. 2–21–67. Cl. 34.
Wembley, Inc., New Orleans, La. 828,620, pub. 2–21–67. Cl. 39.
Wenzel, H., Tent & Duck Co., St. Louis, Mo. 712,965, canc. Cl. 50.
West Chemical Products, Inc., Long Island City, N.Y. 828,676, pub. 2–21–67. Cl. 52.
West Paint & Varnish Co., Everett, Mass. 828,447, pub. 2–21–67. Cl. 16.
West Point-Pepperell, Inc.: *See*—
Palmetto Cotton Mills Inc.
Western Bye-Hoe, Inc.: *See*—
International Harvester Co.

Wheelock, Lovejoy & Co., Inc., Cambridge, Mass. 229,183, ren. 5–9–67. Cl. 14.
Whitaker Construction Co., Tucson, Ariz. 828,507, pub. 2–21–67. Cl. 23.
White Motor Corp., Cleveland, Ohio. 828,469, pub. 2–21–67. Cl. 19.
Whitehall Cabinets, Inc., East Rockaway, N.Y. 828,700. Cl. 32.
Wickes Corp., The: *See*—
United States Graphite Co., The.
Wilco Co., Los Angeles, Calif. 828,417, pub. 2–21–67. Cl. 6.
Wilkerson Corp., Englewood, Colo. 828,505, pub. 2–21–67. Cl. 23.
Wiseblood Co.: *See*—
Wiseblood, Nathan.
Wiseblood, Nathan, d.b.a. Wiseblood Co., Malden, Mass. 828,425, pub. 2–21–67. Cl. 12.
Wood, J. A., Co., Growers Packers & Shippers: *See*—
United Farms Co.
Worthington Ball Co., The, Elyria, Ohio, to Victor Comptometer Corp., Chicago, Ill. 430,723, ren. 5–9–67. Cl. 22.
Wuchinich, George S., Mount Kisco, N.Y. 828,490, pub. 2–21–67. Cl. 23.
Yardney Electric Corp., New York, N.Y. 828,498, pub. 2–21–67. Cl. 23.

U.S. GOVERNMENT PRINTING OFFICE: 0—1967

U.S. DEPARTMENT OF COMMERCE
OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE
May 16, 1967 Volume 838 Number 3

PATENTS

NOTICES

Board of Appeals Decisions Rendered in the Month of March 1967

Examiner affirmed	269
Examiner affirmed in part	35
Examiner reversed	71
Total	375

Decisions of the Commissioner of Patents

The 1966 edition of the Decisions of the Commissioner of Patents has been released from the printer and is available from the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402.

Price: $1.50.

Dedications

Des. No. 206,036.—*Phillip Dowe Meeker*, Cincinnati, Ohio. BAR OF SOAP. Patent dated Oct. 18, 1966. Dedication filed Feb. 9, 1967, by the assignee, *The Procter & Gamble Company*.

Hereby dedicates to the Public the entire remaining term of said patent.

Des. No. 206,140.—*Phillip Dowe Meeker*, Cincinnati, Ohio. BAR OF SOAP. Patent dated Nov. 1, 1966. Dedication filed Feb. 9, 1967, by the assignee, *The Procter & Gamble Company*.

Hereby dedicates to the Public the entire remaining term of said patent.

Disclaimers

2,940,081.—*Albert G. Juilfs*, Newton, Ohio. COHERED, FULL HEADED NAIL. Patent dated June 14, 1960. Disclaimer filed Jan. 11, 1967, by the assignee, *Senco Products, Inc.*

Hereby enters this disclaimer to claims 1, 2, 4, 5, and 6 of said patent.

3,053,179.—*Raymond F. Reithel*, Rochester, N.Y. PHOTOCONDUCTOLITHOGRAPHY EMPLOYING MAGNESIUM SALTS. Patent dated Sept. 11, 1962. Disclaimer filed Feb. 10, 1967, by the assignee, *Eastman Kodak Company*.

Hereby enters this disclaimer to claims 1, 2 and 3 of said patent.

3,082,741.—*Mervin C. Huffman*, Denver, Colo. DRILLING DEVICE. Patent dated Mar. 26, 1963. Disclaimer filed Jan. 20, 1967, by the inventor; the assignee, *Gardner-Denver Company*, assenting.

Hereby enter this disclaimer to claim 2 of said patent.

3,085,927.—*Anthony W. Pesch*, Daphne, Ala. PROCESS FOR PREPARATION OF FIBERS HAVING DIFFERING CHARACTERISTICS. Patent dated April 16, 1963. Disclaimer filed Feb. 14, 1967, by the assignee, *International Paper Company*.

Hereby enters this disclaimer to claim 4 of said patent.

3,112,360.—*David Paul Gregg*, Los Angeles, Calif. SCANNING WITH LIGHT-CONDUCTING ROD. Patent dated Nov. 26, 1963. Disclaimer filed Mar. 21, 1967, by the assignee, *Winston Research Corporation*.

Hereby enters this disclaimer to claims 1 and 3 of said patent.

3,165,941.—*John F. Morse*, Hudson, Ohio. SINGLE LEVER CONTROL FOR A THROTTLE AND AN ELECTRICALLY OPERATED CLUTCH. Patent dated Jan. 19, 1965. Disclaimer filed Feb. 13, 1967, by the inventor.

Hereby enters this disclaimer to claims 1, 3, 5, 14, 15, 16 and 17 of said patent.

3,168,417.—*Robert E. Smith, Jr.*, Burlington, and *John M. Gardner*, South Hero, Vt. POLYIMIDE COATED FLUOROCARBON INSULATED WIRE. Patent dated Feb. 2, 1965. Disclaimer filed Feb. 14, 1967, by the assignee, *Haveg Industries, Inc.*

Hereby enters this disclaimer to claims 1, 2, 3, 4, 5, 6, 11, 12, 13, 14, 15 and 19 of said patent.

3,179,634.—*Walter Murray Edwards*, Wilmington, Del. AROMATIC POLYIMIDES AND THE PROCESS FOR PREPARING THEM. Patent dated Apr. 20, 1965. Disclaimer filed Feb. 20, 1967, by the assignee, *E. I. du Pont de Nemours and Company*.

Hereby enters this disclaimer to claim 16 of said patent.

3,190,629.—*John D. Draper*, Milwaukee, Wis. BLAST FURNACE TAPPING RIG. Patent dated June 22, 1965.

New Applications Received During March 1967

Patents	8024
Designs	478
Plant Patents	9
Reissues	25
Total	8536

Issue—May 16, 1967

Patents	1359	No. 3,319,260 to No.	3,320,618, incl.
Designs	76	No. 207,621 to No.	207,696, incl.
Plant Patents	5	No. 2,739 to No.	2,743, incl.
Reissues	3	No. 26,203 to No.	26,205, incl.
Total	1443		

Disclaimer filed Apr. 11, 1967, by the assignee, *Westinghouse Air Brake Company*.

Hereby enters this disclaimer to claims 1, 2, 4 and 6 of said patent.

3,310,486.—*Donald B. Broughton*, Evanston, and *Charles S. Brearley*, Lake Forest, Ill. SEPARATION PROCESS FOR THE RECOVERY OF HIGH PURITY COMPONENTS OF HYDROCARBON MIXTURES. Patent dated Mar. 21, 1967. Disclaimer filed Apr. 3, 1967, by the assignee, *Universal Oil Products Company*.

Hereby enters this disclaimer to claims 19 and 20 of said patent.

Patents Available for Licensing or Sale

2,668,957. SANITARY TROUSER SUPPORT. George H. Schmidt, 3702 W. Vienna Ave., Milwaukee, Wis., 53216.

2,866,981. CLOSET BEND. A. H. McMinn, 916 11th St., Beav Falls, Pa., 15010.

3,097,406. ARTICLE HOLDER. Mrs. Le Roy W. Yarborough, Mechanicsville, Bucks County, Pa., 18934.

2,910,135. LADDER SCAFFOLD WITH GUARD RAIL. Bert A. and Leta Bowman, 500 Calvados Ave., Sacramento, Calif., 95815.

3,116,750. INTERMITTENTLY REVERSING CONTROL VALVE. Howard A. Tidd, 4251 NW. 38th Terrace, Fort Lauderdale, Fla., 33309.

Mine Safety Appliances Company is prepared to grant licenses under the following 4 patents upon reasonable terms. Applications for license may be directed to: Frank E. Foote, Corporate Patent Counsel, Mine Safety Appliances Company, Pittsburgh, Pa., 15208.

3,016,106. APPARATUS FOR CONTINUOUS SEPARATION OF VOLATILE COMPONENTS OF A GASEOUS MIXTURE.

3,016,107. METHOD AND APPARATUS FOR CONTINUOUS SEPARATION OF COMPONENTS OF A GASEOUS MIXTURE.

3,065,185. METHOD OF MAKING A CHROMATOGRAPHIC PACKING.

3,154,682. REMOVAL OF CONTAMINANTS FROM GASES.

General Electric Company is prepared to grant non-exclusive licenses under the following 34 patents upon reasonable terms to domestic manufacturers.

Applications for license under the following patent may be addressed to: Patent Counsel, Heavy Military Electronics Department, General Electric Company, Legal Section, Bldg. 1, Room 36, Court Street Plant, Syracuse, N.Y., 13201.

3,289,187. HIGH STABILITY MAGNETIC CORE SHIFT REGISTER.

Applications for license under the following 4 patents may be addressed to: Patent Counsel, Construction Industries Division, General Electric Company, 1285 Boston Ave., Bridgeport, Conn., 06602.

3,290,484. COFFEE MAKER-SERVER.

3,291,968. CONTROL MECHANISM FOR AN ELECTRIC COOKING APPLIANCE.

3,294,992. END LOADING BATTERY HOLDER FOR APPLIANCE.

3,303,325. ELECTRIC HAIR DRYER HAVING COMBINED MOTOR SWITCH AND THERMOSTATIC HEATER SWITCH CONTROL MEANS.

Applications for license under the following 5 patents may be addressed to: General Electric Company, Industrial Drives Systems Division, 3001 E. Lake Road, Erie, Pa., 16501, Attn: Patent Counsel.

3,191,079. HEAVY DYNAMOELECTRIC MACHINE HAVING NYLON BEARINGS.

3,234,419. CAST ROTOR FOR A DYNAMOELECTRIC MACHINE.

3,246,188. AMORTISSEUR WINDING FOR SYNCHRONOUS MACHINES.

3,264,695. METHOD OF CASTING ROTORS.

3,274,413. COMMUTATOR RISER CONSTRUCTION.

Applications for license under the following 6 patents may be addressed to: Patent Counsel, Power Generation Division, General Electric Company, 1 River Road, Bldg. #53, Schenectady, N.Y., 10005.

3,213,689. METHOD AND APPARATUS FOR BALANCING ROTORS.

3,286,982. REVERSIBLE AXIAL FLOW GAS TURBINE.

3,286,983. REVERSIBLE AXIAL FLOW GAS TURBINE.

3,292,025. DYNAMOELECTRIC MACHINE ROTOR END WINDING.

3,307,252. METHOD FOR PROVIDING A NARROW FLANGE ON A LARGE ROTOR FORGING.

3,310,069. PLURAL SEQUENTIALLY OPENING AND CLOSING VALVE MECHANISM.

Applications for license under the following 18 patents may be addressed to: Patent Counsel, Aerospace Electronics Department, General Electric Company, Utica, N.Y., 13503.

Re25,574. SOLID STATE POWER STAGE AMPLIFIER EMPLOYING SILICON RECTIFIERS AND HALF-CYCLE RESPONSE MAGNETIC AMPLIFIERS.

3,116,467. DIRECTIONAL COUPLER BETWEEN ADJACENT WAVEGUIDE VIA A CENTRALLY DISPLACED NON-RECIPROCAL GYROMAGNETIC COUPLING ROD.

3,123,794. VARIABLE ELECTRIC RESISTANCE MECHANISM.

3,124,442. METHOD AND APPARATUS FOR MANUFACTURING AN AEROSOL.

3,124,797. SPIRAL SCAN RADAR UTILIZING A.G.C. MODULATION VOLTAGE FOR DERIVING TARGET POSITION.

3,127,608. OBJECT CAMOUFLAGE METHOD AND APPARATUS.

3,129,381. MAGNETIC AMPLIFIER WITH SHUNT-LOAD AND AMPLITUDE CONTROLLED OUTPUT VOLTAGE.

3,139,583. NEGATIVE RESISTANCE SEMICONDUCTOR MIXER WITH ONLY TWO RESONANT BRANCHES.

3,151,323. SYSTEM FOR REMOTE RADAR OPERATION.

3,159,906. ELECTRIC CIRCUIT ASSEMBLY METHOD.

3,170,117. THERMOELECTRIC CALORIMETER DEVICE FOR MEASURING ENERGY IN A LOAD AND USING A HEAT PUMP.

3,174,149. METHOD AND APPARATUS FOR PROPAGATION OF POSITIONAL ELECTROMAGNETIC WAVES.

3,183,449. WIDE BAND FREQUENCY DISCRIMINATOR.

3,197,776. RECEIVER-INDICATOR SYSTEM FOR RADAR APPARATUS.

3,227,397. ROLL RATE STABILIZATION SYSTEM FOR OUTER SPACE VEHICLE.

3,270,188. CORRELATION SYSTEM.

3,300,851. METHOD OF MAKING BONDED WIRE CIRCUITS.

3,303,405. FREQUENCY MODULATED SELF-STABILIZING INVERTER.

Errata

In the OFFICIAL GAZETTE of April 4, 1967, at page TM 40, under Trademark Registrations Issued, Principal Register, "826,748. ALVCOTE. Lawter Chemicals, Inc. SN 245,208. Pub. 1–17–67. Filed 5–9–66." should be deleted; and at page TM 49, under Registrations Published Under Sec. 12(c), "373,278. Sept. 15, 1936. etc." should be deleted and *338,768. Sept. 15, 1936.* should be inserted.

In the OFFICIAL GAZETTE of April 11, 1967, at page TM 87, under "Marks Published for Opposition, Section 2, Class 103—Construction and Repair," all reference to SN 232,676 should be deleted.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF APRIL 10, 1967

PATENT EXAMINING OPERATIONS AND GROUPS	Actual Filing Date of Oldest Case Awaiting Action: New	Amended
CHEMICAL EXAMINING OPERATION—I. MARCUS, Director.		
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—R. L. CAMPBELL, Manager. Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	10-21-63	4-27-62
GENERAL ORGANIC CHEMISTRY, GROUP 120—G. D. MITCHELL, Manager. Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	8-21-63	9-12-61
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING; GROUP 140—M. STERMAN, Manager. Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping and Treating Processes.	1-24-64	1-16-62
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—J. R. LIBERMAN, Manager. Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	12-23-63	3-28-62
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Manager. Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	9-6-63	12-12-61
ELECTRICAL EXAMINING OPERATION—N. H. EVANS, Director.		
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—M. L. LEVY, Manager. Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	2-24-64	9-21-62
SECURITY, GROUP 220—S. BOYD, Manager. Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedos, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	3-17-65	9-9-63
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—E. J. SAX, Manager. Communications; Multiplexing Techniques; Facsimile; Date Processing, Computation and Conversion; Storage Devices and Related Arts.	9-3-63	5-25-61
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—F. M. STRADER, Manager. Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	10-11-63	11-3-61
PHYSICS, GROUP 280—R. L. EVANS, Manager. Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	3-18-64	6-24-63
DESIGNS, GROUP 290—S. BOYD, Manager. Industrial Arts; Household, Personal and Fine Arts.	10-22-65	8-3-65

Total number of pending applications (excluding Designs)	189,043
Total number of Design applications pending	4,127
Total number of applications awaiting action (excluding Designs)	138,888
Total number of Design applications awaiting action	2,319
Date of oldest new application awaiting action	August 21,1963
Date of oldest amended application awaiting action	May 25, 1961

EXPIRATION OF PATENTS

The patents within the range of numbers indicated below expire during May 1967, except those which may have been extended under the provisions of the Veterans Patent Extension Act (64 Stat. 316 as amended by 66 Stat. 321) and those which may have expired earlier due to shortened terms under the provisions of Public Law 600. A list of Veterans' patents which have been extended appears in the *Annual Index of Patents—1963*.

Patents	Numbers 2,505,748 to 2,510,050, inclusive
Plant Patents	Numbers 938 to 945, inclusive

PATENT EXAMINING OPERATIONS AND GROUPS (Continued)	Actual Filing Date of Oldest Case Awaiting Action	
	New	Amended
MECHANICAL EXAMINING OPERATION—F. H. BRONAUGH, Director.		
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Manager Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid, Flexible and Special Receptacles and Packages.	4-28-65	12-26-63
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—N. BERGER, Manager Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders; Woodworking; Tools; Cutlery; Jacks; Fasteners.	1-15-65	10-25-62
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Manager Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, Etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	1-11-65	7-17-62
HEAT AND POWER ENGINEERING, GROUP 340—C. F. GAREAU, Manager Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission.	9-2-65	7-31-64
FIXED CONSTRUCTIONS, SUPPORTS, AND HARDWARE, GROUP 350—T. J. HICKEY, Manager Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures.	5-24-65	4-29-63
TEXTILES, CLEANING AND FLUID HANDLING, GROUP 360—W. S. COLE, Manager Fluid Handling, including Valves; Conduits; Filling Receptacles; Lubrication; Joint Packing; Bathroom Fixtures; Centrifugal Separators; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes and their Manufacture; Sewing Machines; Winding and Reeling.	2-16-65	7-25-62

DECISIONS IN PATENT AND TRADEMARK CASES

U.S. Court of Customs and Patent Appeals

AMERICAN CYANAMID COMPANY *v.* HUMBLE OIL & REFINING CO.

No. 7641. Decided November 17, 1966

[54 CCPA —; 370 F.2d 598; 151 USPQ 568]

1. TRADEMARK—CONFUSING SIMILARITY—"VARSOL" FOR HYDROCARBON SOLVENTS AND "VATSOL" FOR AN AGRICULTURE WETTING AGENT.

On the issue of confusing similarity between "VARSOL" for hydrocarbon solvents and "VATSOL" for an agricultural wetting agent, *Held* that "We must * * * agree with the Board that: 'There seems to be no doubt that "VATSOL" and "VARSOL," to the extent that both are used on products for agricultural purposes, so resemble each other as to be likely to cause confusion, mistake or deception.'"

2. SAME—REGISTRABILITY—PRIOR USER.

"We think it is well settled that the prior user and owner of a registered trademark is entitled to prevent subsequent registration by another of his mark, or one confusingly similar thereto, for any product which might reasonably be expected to be produced by the registrant in the normal expansion of his trade. See, e.g., *American Drill Bushing Co.* v. *Rockwell Mfg. Co.*, 52 CCPA 1173, 342 F.2d 1019, 145 USPQ 144."

APPEAL from the Patent Office. Opposition No. 40,818.

AFFIRMED.

Theodore C. Virgil (*William P. Spielman*, of counsel) for appellant.

Browne, Schuyler & Beveridge (*Frances C. Browne*, of counsel) for appellee.

Before WORLEY, *Chief Judge*, and RICH, MARTIN, SMITH, and ALMOND, JR., *Associate Judges*

ALMOND, *J.*, delivered the opinion of the court.

This is an appeal from the decision of the Trademark Trial and Appeal Board sustaining the opposition by Humble Oil & Refining Company to the grant of a registration on trademark application Serial No. 95,544, filed April 22, 1960, for a "wetting agent for agricultural purposes" by appellant, American Cyanamid Company. The mark sought to be registered by appellant is "VATSOL." Use by appellant and a predecessor in title since August 20, 1932 and ownership of Registration No. 319,138[1] are asserted.

Appellee-opposer is the registrant of "VARSOL" for refined, semi-refined, and unrefined oils made from petroleum, both with and without admixture of animal, vegetable, or mineral oils, for illuminating, burning, power, fuel, and lubricating purposes;[2] for hydrocarbon solvents in the nature of turpentine substitutes;[3] for hydrocarbon solvents for cleaning and detergent purposes;[4] and for hydrocarbon solvents for chemical, medicinal, and pharmaceutical purposes.[5]

The record discloses that appellee sells a petroleum product known generally as Stoddard solvent under the mark VARSOL, which product is widely used in the paint trade as a solvent as well as in industry generally for cleaning and other purposes. VARSOL is sold to the farm trade and to the general public for use as a solvent. VARSOL

[1] Issued Nov. 20, 1934 for the mark "VATSOL" for a wetting agent for accelerating removal of lead and arsenic residues from apples; renewed.
[2] Reg. No. 244,001, issued July 3, 1928 to a predecessor; renewed.
[3] Reg. No. 250,562, issued Dec. 11, 1928 to a predecessor; renewed.
[4] Reg. No. 250,866, issued Dec. 18, 1928 to a predecessor; renewed.
[5] Reg. No. 251,799, issued Jan. 15, 1929 to a predecessor; renewed.

was used as a mark in 1928 by appellee's predecessor to identify this product. The record supports the finding of the Board that the VARSOL solvent has been sold by appellee and its predecessor since 1946 for use as a weed killer in fields planted to produce agricultural crops. These sales have been extensive and substantial, and VARSOL solvent has been promoted by means of demonstrations as well as referred to in magazines circulated to farmers. It is used extensively as a component of chemical sprays and chemical pesticides for the farm trade. There is no doubt that the VARSOL solvent has many and varied uses and, as stated by the Board, "the nature of the product has never changed and the specifications for 'VARSOL' solvent today are substantially the same and almost identical to the specifications of that product in 1928." The long, widespread use and acceptance of the product is attested by the fact that in 1939 sales approximated 20,000,000 gallons with a value of $2,500,000; in 1950 sales approximated 53,000,000 gallons with a value of $6,500,000 and, when testimony was taken in 1962, it was revealed that for the two preceding years sales approximated 55,000,000 gallons having a value of about $8,000,000 per year.

Evidence adduced by appellant discloses that it has, since at least as early as 1933, used VATSOL as a trademark for wetting agents. At the time of its advent upon the market the VATSOL product was sold as a wetting agent to accelerate removal of lead and arsenic residue from apples and promoted for such use by personal demonstrations and literature circulated to growers. It appears that almost all of the sales of VATSOL wetting agents have been to formulators of insecticides, fungicides, and herbicides, with most of such sales being made to the same customers, totaling less than twenty-five formulators. There is testimony of record that VATSOL was sold for use in pesticidal compositions as early as 1932 and promoted as wetting agents for use in agricultural sprays and dust during 1939 and 1941.

Sales of VATSOL as a wetting agent in no respect compare in scope of area served, breadth of use and volume with the dispensation and widespread utilization of the VARSOL solvent. The high in sales for the VATSOL wetting agents was $51,641 in 1946, with a low of $4,312 in 1947. In 1962 these sales were computed at $24,788. Appellant's identical product is sold for industrial uses under the trademark AEROSOL.

Comparison of the competing marks VARSOL and VATSOL leaves little or no room for argument as to their confusingly similar appearance. The only alphabetical distinction resides in the third letter of each mark. The products promoted and sold under each mark are used as, or constitute ingredients in, herbicides (weed killers). In appellant's pending application, the goods involved are broadly described as "wetting agents for agricultural purposes," while appellant's prior registration (319,138) is limited to a "wetting agent for accelerating the removal of lead and arsenic residues from apples," thus indicating a circumscribed scope with reference to channels of trade, classes of purchasers and ultimate uses for the goods covered. Further, the record indicates that appellant recommended that appellee's goods under the mark VARSOL be used with its goods, which are sometimes sold as AEROSOL and sometimes sold as VATSOL, the goods being used indiscriminately. More than half of appellant's goods sold under VATSOL are in liquid form. Appellee's goods

under VARSOL are also sold in liquid form. The goods of both parties under their respective marks are sold in drums or other small containers. The record supports the conclusion that some ultimate users of the products sold under the mark VATSOL are the same class of users, namely, farmers, to whom the VARSOL solvent is sold. Both products are sold in the industrial as well as in the agricultural field.

[1] We must therefore agree with the Board that:

> There seems to be no doubt that "VATSOL" and "VARSOL," to the extent that both are used on products for agricultural purposes, so resembled each other as to be likely to cause confusion, mistake or deception. The question, then is which of the parties has superior rights in its mark.

We think it pertinent to here point out that appellee's registration of VARSOL which issued on January 15, 1929, covered hydrocarbon solvents for "chemical" purposes. In this connection the Board stated that:

> The term "chemical purposes" is inclusive of "agricultural chemical purposes." Within the contemplation of the description of goods for which applicant seeks registration, namely, "wetting agents for agricultural purposes," opposer's product being inclusive of "agricultural chemical purposes" would constitute a solvent for agricultural purposes. * * *

The record is clear that appellee's goods are used as solvents for a variety of purposes, including use as a herbicide or for other agricultural purposes. Such use would seem clearly to be embraced by the expression "hydrocarbon solvents for chemical * * * purposes."

[2] We think it is well settled that the prior user and owner of a registered trademark is entitled to prevent subsequent registration by another of his mark, or one confusingly similar thereto, for any product which might reasonably be expected to be produced by the registrant in the normal expansion of his trade. See, e.g., *American Drill Bushing Co.* v. *Rockwell Mfg. Co.*, 52 CCPA 1173, 342 F.2d 1019, 145 USPQ 144.

In our view the Board properly applied this principle to the factual situation here presented. The Board reasoned as follows:

> Opposer's VARSOL solvent is a product of great versatility—it is an industrial product but also a product useful in the home, it can be used on the farm and it can be used in an office, in and of itself it is a final product and it is also an ingredient useful in the manufacture of other goods. Opposer's product is a solvent, a dry cleaning agent, a thinner, a herbicide, and a weedicide. The class of purchasers for opposer's product is almost universal. As a solvent for cleaning and detergent purposes, opposer's product constitutes a product useful on the farm for the cleaning of farm buildings, machinery and the like. So when opposer introduced "VARSOL" solvent on the market in 1928, the farmer was a prospective purchaser for said product. Opposer's product has not changed since 1928—only additional uses have been found therefor. The farmer who purchased "VARSOL" as a solvent in 1928 is the same purchaser who bought "VARSOL" for use as a weedicide in 1946 and thereafter. Opposer is merely doing that which it has been doing since 1928, namely selling "VARSOL" solvent for "agricultural purposes" (in the sense of the term used by applicant in its description of goods). There is here a natural expansion of trade under the mark "VARSOL" and opposer is entitled to a holding of priority.

For the foregoing reasons, we find no reversible error in the decision of the Board sustaining the opposition. The decision of the Board is affirmed.

AFFIRMED.

Judge Martin participated in the hearing of this case but died before a decision was reached.

U.S. Court of Customs and Patent Appeals

MELVIN D. HURWITZ *v.* GEORGE SHIU YIM POON

No. 7537. Decided August 11, 1966

[53 CCPA —; 364 F.2d 878; 150 USPQ 676]

1. INTERFERENCE—BURDEN OF PROOF.

"The present interference involves pending applications on both sides and thus Poon's burden [as the junior party] is to prove reduction to practice by a fair preponderance of the evidence. The party Poon took extensive testimony. The party Hurwitz took no testimony but filed a notice under Rule 282 introducing various publications. Poon took testimony in rebuttal to Hurwitz' notice. Thus the critical date prior to which Poon must prove reduction to practice is June 21, 1955, the filing date of the Hurwitz parent application."

2. CLAIM—CONSTRUCTION OF CLAIMS—COMPOUNDS—WORDS AND PHRASES—"A WATER-SOLUBLE UREA-FORMALDEHYDE CONDENSATE."

We do not agree with appellant that an interpretation different than that placed by the Board on the phrase "a water-soluble urea-formaldehyde condensate" is proper under the circumstances of this case. We have reviewed the 800 page record but are convinced that the Board was correct in interpreting the phrase as inclusive of acrolein modified urea-formaldehyde condensates.

3. INTERFERENCE—CONSTRUCTION OF COUNT—GENERIC COUNT TO COVER DIFFERENT MARKUSH TERMINOLOGY.

The term involved is in fact "a * * * urea-formaldehyde condensate" not urea-formaldehyde, in the sense of *only* urea-formaldehyde, as appellant contends. Our review of the applications convinces us that the inventions of the two parties are indeed the same, and that the Examiner, in proposing a count that was representative of the common subject matter, chose what was to be taken as a reasonably generic term to cover the various resins. It is not inconsistent that a generic term may form the basis of a common count while the parties each resort to somewhat different Markush terminology. It is well settled that an interference count should be given the broadest construction it will reasonably support. *Mahan* v. *Doumani*, 51 CCPA 1516, 333 F.2d 896, 142 USPQ 19. None of the applications involved herein use the precise term "a * * * urea-formaldehyde condensate," and the nature of the invention disclosed in them does not warrant such a narrow construction. The term reasonably covers the gist of the invention. See *Hall* v. *Taylor*, 51 CCPA 1420, 332 F.2d 844, 141 USPQ 821.

4. SAME—SAME—REDUCTION TO PRACTICE—WORDS AND PHRASES—"ABOUT 1:1 TO ABOUT 3:1."

In connection with a contention that evidence of an actual reduction to practice did show the proportions defined in the count and the finding "* * * the applications disclosures and the experimental evidence in the record do not justify setting sharply precise limits to the proportions," *Held* that "We find it significant * * * to advert to the count which sets only approximate proportion limits of '*about* 1:1 to *about* 3:1' (emphasis added)"; and that "Thus we find no reversible error in the Board's further statement: '* * * If therefore the proportions used by the Dan River people should have in fact been somewhat over the 3:1 mole ratio, even as high as 3.5 to 1, and the results of the invention distinctly attained, the invention defined by the count was reduced to practice.'"

5. SAME—EVIDENCE—HEARSAY RULE—ROUTINE ACTIVITIES.

"It is clear to us that such an attempt to apply the hearsay rule is an extreme that is contrary to the rule of reason normally followed by this court. *Patterson* v. *Hauck*, 52 CCPA 987, 341 F.2d 131, 144 USPQ 481; *Mann* v. *Werner*, 52 CCPA 1578, 347 F.2d 636, 146 USPQ 199. The degree of corroboration that appellant urges would be to require the impossible. It plainly does not comport with the reality of technical operations involving numerous people necessarily separated from each other in time and distance and each involved in their own highly specialized part of a large operation. There is not one hint in the testimony that the reports, labels, transportation and other procedures were not routine and accepted as fully reliable by research and production personnel."

6. SAME—REDUCTION TO PRACTICE.

"Appellant also urges that the tests of A–18 in place of A–15 in a mixture of the latter with Y–39 in the No. 5 mill is not a reduction to practice since whatever results were obtained can be attributed to the Y–39. We do not agree, since the testimony shows that the A–18 was substituted pound for pound for the A–15 with improved results. In our view one of ordinary skill would ascribe those results to the A–18 resin. *In re Widmer*, 53 CCPA —, 353 F.2d 752, 147 USPQ 518, 525."

APPEAL from the Patent Office. Interference No. 91,821.

AFFIRMED.

John A. Sarjeant, Carl A. Castellan, John T. Bergin, T. Wallace Quinn for appellant.

Eugene Sabol for appellee.

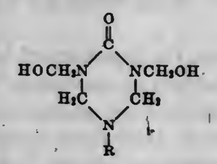
Before RICH, *Acting Chief Judge*, and MARTIN, SMITH, and ALMOND, Jr., *Associate Judges*, and Judge WILLIAM H. KIRKPATRICK, *United States Senior District Judge for the Eastern District of Pennsylvania*

MARTIN, *J.*, delivered the opinion of the court.

This is an appeal by the senior party Hurwitz from a decision of the Board of Interferences, awarding priority of the sole count in interference No. 91,821 to the junior party Poon upon an actual reduction to practice in 1955 prior to the filing date of the earliest application upon which Hurwitz relies.[1]

The invention of the count relates to a resin treatment of cellulosic textiles, for the purpose of crease-proofing the textile, that is, imparting wrinkle or crush resistance thereto while minimizing disadvantages of prior art processes. This is accomplished by using a mixture of two resins, each of which had been used separately in the prior art for the same purpose. The count reads:

1. A process for treating cellulose textiles comprising applying thereto an aqueous solution of a curable mixture of (*a*) a water-soluble urea-formaldehyde condensate and (*b*) a compound of the formula:



wherein R is an alkyl group having 1–4 carbon atoms, the mole ratio of (*b*) to (*a*) being from about 1:1 to about 3:1, based on the amount of combined urea in said condensate (*a*) and thereafter heating to dry and cure the resin.[2]

When the urea-formaldehyde condensate alone was applied to such fabrics, the fabrics picked up chlorine in subsequent laundering. The retained chlorine then was converted to hydrochloric acid when the fabric was ironed, and the acid yellowed the fabric, reducing its strength. If a triazone alone was applied, the treated fabrics frequently discolored upon heating or ironing. Thus, the invention of the count is stated to be based on the discovery that triazones when

[1] The senior party Hurwitz is involved in this interference upon the basis of an application Serial No. 35,449, filed June 13, 1960, which has been accorded the benefit of application Serial No. 517,062, filed June 21, 1955, on which Patent No. 2,901,463 was granted August 25, 1959, and which is assigned to Rohm and Haas Company.
The junior party Poon is involved in this interference upon the basis of an application Serial No. 667,824, filed June 25, 1957, a continuation-in-part of an application Serial No. 584,443, filed May 14, 1956, now abandoned, and assigned to Dan River Mills, Inc. (hereinafter Dan River).

[2] The "compound of the formula" in the count is chemically identified as either dimethylol-5-alkyl-tetrahydro-s-triazone-2 or 1,3-dimethylol-5-alkyl-tetrahydro-2 (1)-s-triazone. Since the evidence submitted in this interference is directed to the species in which the 5-alkyl radical is ethyl, we refer for brevity to the species as "triazone" or "ethyl triazone" and to the generic class as "triazones."

mixed with urea-formaldehyde condensates before application to fabrics reduce the chlorine retention damage characteristic of such condensates and reduce or eliminate the yellowing problem normally characteristic of triazones.

[1] The present interference involves pending applications on both sides and thus Poon's burden is to prove reduction to practice by a fair preponderance of the evidence. The party Poon took extensive testimony. The party Hurwitz took no testimony but filed a notice under Rule 282 introducing various publications. Poon took testimony in rebuttal to Hurwitz' notice. Thus the critical date prior to which Poon must prove reduction to practice is June 21, 1955, the filing date of the Hurwitz parent application.

By way of background but without assuming the accuracy of each detail which we shall consider below, Poon's story is generally the following. The party Poon took testimony establishing what the Board concluded was actual reduction to practice before the end of May 1955. Poon principally relied on laboratory experiments conducted by Joanne Spangler, two runs in the Dan River pilot plant, and two runs in the Number 5 mill of Dan River's finishing plant. Dr. Wayland, leader of a resin group with Poon and Underwood that was formed in 1954, testified to the preparation of A–15, said to be the triazone, and UX, a modified urea-formaldehyde condensate composed of urea, formaldehyde and acrolein.[3] Poon mixed A–15 with UX to get a solution designated A–18. Canter, the pilot plant director, applied A–18 to fabrics in mid to late April 1955 and also on May 17, 1955. Another combination consisting of A–15 and a melamine-dimethylol-ethylene urea resin designated Y–39 was applied by Canter and Brooks to fabric in finishing mill No. 5 in early May. Miss Spangler applied A–15 plus Rhonite 610, said to be a 60% paste of dimethylol urea, to textiles on May 12, 1955. The cured fabrics were tested by technicians in Dan River's testing laboratories under the direction of Mathewson. Stam witnessed Poon's disclosure on May 12, 1955.

Appellant contends that the Board erred in accepting UX resin as meeting the "urea-formaldehyde condensate" of the count, since the testimony and documents of Poon shows that UX consists of urea, formaldehyde and acrolein. Documents submitted by Hurwitz under Rule 282, including a patent to Kohler, U.S. 2,600,780, and a Shell Chemical Corporation bulletin entitled "Acrolein, Its Chemistry and Its Applications" indicates that acrolein under certain conditions would react with the urea, and the resulting product would further condense with formaldehyde.

Further, on cross-examination of Dr. Wayland, the following exchange took place:

Q312. Does this acrolein react with the urea? A. We presume that it does.

Appellant also adverts to the prosecution of the involved Poon application in which claims were drawn to "urea formaldehyde," which the Examiner criticized since it "even reads on the triazone-formaldehyde condensates of the instant case * * *." Appellant notes that Poon then replaced the criticized phrase with a Markush group "consisting of urea formaldehyde, acrolein modified urea formaldehyde, dimethylol ethylene urea and tetramethylol acetylene diurea." In

[3] Although Dr. Wayland was on a tour of duty with the Army between September 1954 to September 1956, there is testimony that he was retained as a consultant by Dan River and continued to receive copies of Poon's and Underwood's weekly progress reports.

Poon's amendment submitting the new claims, appellant notes that Poon urged:

> **First, it is believed that Examiner's definition of the term "urea formaldehyde" is inconsistent with both the definition found in the specification and the definitions known in the art. In applicant's specification at page 3, second full paragraph, it is stated:**
>
> **"Urea formaldehyde is most commonly used in the form of dimethylol urea, but there are many other closely related urea formaldehydes falling within the scope of this invention. Also within the scope of this invention are the following specific compounds: tetramethylol acetylene diurea, acrolein modified urea formaldehyde, thiourea formaldehyde, dimethylol ethylene urea, dicyandiamide formaldehyde."**
>
> **Thus Examiner will see that by applicant's own language the "also" in the second quoted sentence clearly separates dimethylol ethylene urea and acrolein modified urea formaldehyde and tetramethylol acetylene urea from the term "urea formaldehyde." * * ***

Appellant concludes that during the prosecution Poon repeatedly distinguished urea-formaldehyde condensates from acrolein modified urea-formaldehyde, the latter thus being placed outside the scope of the count expression "urea-formaldehyde." In this regard appellant states that in the count in issue, suggested to both parties by the Examiner, that phrase had its origin in the claims of the involved Poon application, Hurwitz's application using the terminology "water-soluble condensates of formaldehyde with * * * urea * * *." Appellant also notes that the Markush terminology in Poon's application would be inconsistent, allowing terms to overlap, if "urea-formaldehyde" were to include an "acrolein modified urea-formaldehyde."

[2] We do not agree with appellant that an interpretation different than that placed by the Board on the phrase "a water-soluble urea-formaldehyde condensate" is proper under the circumstances of this case. We have reviewed the 800 page record but are convinced that the Board was correct in interpreting the phrase as inclusive of acrolein modified urea-formaldehyde condensates.

[3] The term involved is in fact "a * * * urea-formaldehyde condensate" not urea-formaldehyde, in the sense of *only* urea-formaldehyde, as appellant contends. Our review of the applications convinces us that the inventions of the two parties are indeed the same, and that the Examiner, in proposing a count that was representative of the common subject matter, chose what was to be taken as a reasonably generic term to cover the various resins. It is not inconsistent that a generic term may form the basis of a common count while the parties each resort to somewhat different Markush teminology. It is well settled that an interference count should be given the broadest construction it will reasonably support. *Mahan* v. *Doumani*, 51 CCPA 1516, 333 F.2d 896, 142 USPQ 19. None of the applications involved herein use the precise term "a * * * urea-formaldehyde condensate," and the nature of the invention disclosed in them does not warrant such a narrow construction. The term reasonably covers the gist of the invention. See *Hall* v. *Taylor*, 51 CCPA 1420, 332 F.2d 844, 141 USPQ 821.

Further, the record indicates that the term "urea-formaldehyde" relates not to a single compound, but to a number of forms, including mono-, di- and trimethylol urea and so-called "polymeric" forms many of which are of undetermined composition. The patent to Kohler is one which Poon cites in his application to show how to make the acrolein modified urea-formaldehyde resin. Kohler indicates that the acrolein is used for the purpose of stabilizing the condensate. Simi-

larly, appellant, himself, used methanol to modify and stabilize urea-formaldehyde condensates. The comments of the Examiner must be interpreted within their entire context from which it is clear that the objection was that urea-formaldehyde covers the triazone B component,[4] which objection was, from the record, not repeated. It is not Poon's position that the acrolein modified form is *the same as* a condensate of only urea and formaldehyde, but that each is "a water-soluble urea-formaldehyde condensate."

Finally on this point we note that appellant's arguments here for a narrow construction are not entirely consistent with those made below for a broader construction. Poon noted before the Board:

> * * * that all of the Hurwitz applications here involved fail to set forth any specific mixtures of a triazone and a product made by condensing urea and formaldehyde *only*. The Hurwitz applications also fail to set forth any specific application of such mixtures to cellulosic textiles. These omissions were duly brought to the attention of the Primary Examiner on a Motion to Dissolve (October 2, 1961) this interference against the party Hurwitz. The party Hurwitz, by brief dated January 10, 1962, vigorously opposed to Motion to Dissolve on the grounds that the term "water soluble urea-condensate" does not have a narrow construction and that Examples 2 and 4, directed to dimethoxymethylurea and diethoxymethylurea, of his applications disclose specific embodiments under the invention of the count. The Primary Examiner held for the party Hurwitz and denied the Motion to Dissolve. In the event that a narrow construction is asserted for the term, the party Poon brings the Motion to Dissolve for review by this Board and urges dissolution of the interference against the party Hurwitz for failure to provide adequate support for the count in any of the Hurwitz applications. * * * [Emphasis added.]

Appellant, although stating that "the Examiner's decision on the motion was not based on a broad construction of the aforesaid term [water-soluble urea-formaldehyde condensate]," did urge that:

> Thus, when the count is properly construed to cover all water-soluble condensation products of urea and formaldehyde, it is clear that Hurwitz has adequate support, since dimethylol urea is admittedly one of those (Wayland, p. 245).

Thus, we view the Poon acrolein modified form to be within the scope of the count and Poon's evidence relating thereto is relevant on the issue of reduction to practice.

[4] Appellant's second major point is that Poon's proofs do not show that A–18 was a mixture of a water-soluble urea-formaldehyde condensate (UX) and a triazone (A–15) in the proportions defined in the count. The count requires a "mole ratio" of specified values "based on the amount of combined urea in said condensate." Appellant contests the following conclusion of the Board as to the mole ratio of reactants as specified in the count:

> * * * the applications disclosures and the experimental evidence in the record do not justify setting sharply precise limits to the proportions. * * *

We have reviewed the record and find we must agree with the Board in the above conclusion. We find it significant, as did the Board in the missing portion of that quote, to advert to the count which sets only approximately proportion limits of "*about* 1:1 to *about* 3:1." (Emphasis added.) Thus we find no reversible error in the Board's further statement:

> * * * If therefore the proportions used by the Dan River people should have in fact been somewhat over the 3:1 mole ratio, even as high as 3.5 to 1, and the results of the invention distinctly attained, the invention defined by the count was reduced to practice.

[4] The triazone itself is made from urea, formaldehyde and, for example, ethylamine.

More serious, however, is the argument concerning the phrase "based on the amount of combined urea in said condensate." It is appellant's view that the Board thought the term meant merely that reacted urea rather than unreacted urea should be the basis of the ratio. Thus, if two moles of urea are used as a reactant to make the count component (*a*) resin, UX, but only one mole reacts to form part of the condensate, regardless of the amount of total urea in the condensate and remaining solution, 1 mole would be the basis against which 1 to 3 moles triazone component (*b*) is to be added. Appellant contests the following passage of the Board as showing it misunderstood the significance of the limitation and overlooked the fact that it had been inserted in Poon's claims to meet the Examiner's rejection. The Board's contested passage states:

> * * * If the proportion of "combined urea" as distinguished from combinable urea present was a mark of differentiation between the invention practiced by Poon and an improvement invention disclosed by Hurwitz we would put the party Poon to stricter proof on the matter, but we find no suggestion in the case that this is true. * * *

In appellant's view the Board was changing in the count the term "combined urea" to combinable urea, the amount put into the reaction vessel rather than the amount in the UX resin product.

This issue requires a review of both the count (*a*) resin component (UX) and the (*b*) triazone component (A–15). It is not feasible here to reproduce in its entirety appellant's analysis of this highly technical point. Representative of appellant's argument as to the (*a*) resin component, appellant states:

> * * * Wayland gave contradictory evidence as to the amount of urea-formaldehyde condensate present in the [UX resin] solution. In March 1963, he testified that UX contained 0.337 mol urea-formaldehyde condensate per 100 grams. By August 1963, he had revised his estimate and in rebuttal (as discussed in more detail hereinafter) he testified that 60.0 percent of the urea used to make UX was available for reaction with formaldehyde after an initial reaction with acrolein "resulting in 0.204 mol of the condensate of urea and formaldehyde per 100 grams of UX" (R 482). He based this new estimate, which was approximately 60% of his original estimate, on tests which were conducted in 1963, approximately 8 years after Hurwitz's filing date (R 470).
>
> There is no testimony as to either the molecular weight, or the number of molecules of urea combined in a single molecule, of the urea-formaldehyde condensate. Hence, there is nothing in the record from which the mole ratio of triazone to urea-formaldehyde condensate, "based on the amount of combined urea in the condensate," as required by the count, can be determined.

That new estimate by Wayland of the moles of urea-formaldehyde in UX was based on rebuttal testimony of Dr. Watson who described an experiment he carried out in 1963, in which urea and acrolein were reacted. The reaction products were subsequently analyzed by Hoffman, who also testified in rebuttal, to determine the amount of unreacted urea. Apparently no attempt was made to analyze UX directly then or earlier, Wayland having originally testified on cross-examination:

> Q314. From this, Doctor, do—is it correct to assume that the exact nature of the product identified as UX has never been specifically identified? A. The exact and detailed composition of all components of the product have not been quantitatively identified.

Appellant urges that the Watson experiment was non-analogous, i.e., the conditions did not correspond to those in the original preparation of UX, since acetic acid was present but formaldehyde was not.

Regarding the count triazone component (*b*), appellant argues:

On direct examination Wayland stated that A–15 is an aqueous solution of triazone, containing 41.8% solids and 0.216 mol of triazone per 100 grams (R 239). He later admitted that his calculation of the mols of triazone in A–15 "was based upon a theoretical calculation based on the reactants added" (R. 293). It is an indisputable fact that the record is devoid of any chemical analysis of A–15 and the witness recognized that the A–15 "reaction like most chemical reactions probably does not result in a 100 percent of the theoretical yield of the desired product, triazone" (R 288).

• • • On May 9, 1955 the inventor Poon prepared a document entitled "Disclosure No. 382." In this contemporary document, Poon stated that in his opinion the formation of triazone in A–15 "was at a much smaller extent than the theoretical amount" (Ex. P–78).

Our attention is also directed to the fact that Wayland testified that all the formaldehyde was in the reaction vessel prior to adding urea and ethylamine in the production of A–15 triazone while a Wayland report dated September 23, 1954, Exhibit P–7, indicates that in early 1954 formaldehyde was added in two stages to make A–15, therein termed "dimethylol triazone." Appellant concludes that all of Wayland's testimony on the mole figure for triazone must be discredited:

In view of (1) the disagreement between Poon (Exh. P–78) and Wayland (R 293) as to content of triazone in A–15, (2) the lack of correspondence between known prior methods of making the triazone and the method used in making A–15, and (3) the fact that Wayland's testimony based on theoretical considerations has been admitted by Wayland himself to be unreliable as to UX resin by virtue of his changing his original figure of 0.337 mole per 100 grams of UX to 0.204 mole per 100 grams, it is respectfully submitted that Wayland's figure of 0.216 mole triazone per 100 grams A–15 must be *discredited*, whether the A–15 is a standard chemical or not.

In spite of the first blush strength of the above arguments, a closer examination of them in the light of the entire record convinces us that no error has been shown in the Board's holding that the evidence adduced by Poon meets the count limitation based on the combined urea within the required mole ratios. Our starting point is *Young* v. *Bullitt*, 43 CCPA 932, 233 F.2d 347, 110 USPQ 55, wherein this court stated that:

• • • a complete chemical analysis is not always necessary to identify a product, but that various other factors, including the materials used, the procedures followed, and the skill and experience of the experimenters, are to be considered.

The question generally is whether, when all the circumstances are considered together, there is a reasonable certainty as to the identity of the product. Proof beyond a reasonable doubt is not necessary where, as here, the applications of the parties were copending.

Recall that here both parties admit that the component resins have been used separately in the prior art. All the materials used to make both A–15 and UX were standard materials purchased from reputable manufacturers in the ordinary course of trade. Regarding the triazone, appellant has cited under Rule 282 a patent to Martone that itself is probative to show a procedure was well known to result in the triazone of the count. There is also no evidence that the triazone was not produced as expected or that it was anything else, in spite of appellant's opportunity to adduce evidence to the contrary.

We think significant here is the "solid practicality," as referred to by the Board, of the process, and the component resins. There is convincing testimony that the Dan River chemical plant between February 1954 and the end of 1955 produced three million pounds of A–15 for use in the regular production finishing as well as some going to "outside sales." Dr. Wayland's identification of A–15 is substantiated by Miss Spangler (as a solution containing 42% triazone), and by Underwood, both research chemists, and by the Poon report, Exhibit P–7 (as a solution containing 44% triazone). Similarly, the UX resin is adequately substantiated to have been produced in the Dan River chemical plant in the amount of 860,000 lbs., between March 1953 and March 1955. Regarding the A–18 mixture of A–15 and UX, the Board stated:

• • • We note that Allen had made, prior to the end of May 1955, A–18 in three batches, totaling 13,717 pounds, not a trifling quantity, of which fifteen drums were "sent out to outside sales." • • •

Turning, then, to the challenge of the ratio "based on the amount of combined urea" as distinct from the identification of the compounds, we find appellant's arguments in part speculative and in total unconvincing. As stated in *Chandler* v. *Mock*, 40 CCPA 846, 849, 202 F.2d 755, 97 USPQ 135:

When an issue between contending parties as to the priority of invention is decided in the Patent Office, the decision there made must be accepted as controlling upon that question of fact in any subsequent litigation between the same parties, unless the challenged decision is manifestly wrong and the contrary is established by testimony which in character and amount is altogether convincing.

Regarding the mole figure of .216 for the triazone, Dr. Wayland, although indicating that the .216 figure was based on a theoretical yield which may not have been achieved, did find the yield sufficiently high to base the calculation thereon. On redirect examination he stated:

A. The moles of triazone per 100 parts of A–15 was stated to be 0.216. This figure was based upon a theoretical calculation based on the reactants added. If the yield of triazone from urea was less than theoretical, the moles of triazone per 100 parts of resin would be reduced by a like amount. However, there is no question in my mind that the yield of triazone was very high.

Underwood's testimony was to the same effect. The objection that Wayland's conditions for preparation of A–15 triazone appeared nonstandard in view of Martone is not well taken in view of the range of conditions taught in the prior art referred to in the record and briefs. Similarly, more apparent than real is the alleged conflict between the Wayland report and his testimony as to the manner of making A–15. The Wayland testimony appears related to the sequence of addition whereas the report relates to the probable sequence of reaction, which is substantially identical to that related in the Martone patent. Thus we find no sound basis to discredit Wayland's testimony nor to reverse the Board's evaluation thereof.

Regarding the allegedly conflicting testimony of Wayland as to the moles of UX in 100 grams of solution, appellee's rebuttal appears to be a substantially correct reading of the record:

Dr. Wayland did not change his mind. The 0.204 figure refers to the amount of the condensate of urea and formaldehyde which forms from that part of the urea that has not reacted with acrolein. The 0.337 figure is based on the total urea used in manufacturing UX. Moreover, since A–18 contains 3 weight parts A–15 (0.216 mol ethyl triazone per 100 grams) and 1 weight part UX (containing at least 0.204 mol of the urea-formaldehyde condensate per 100 grams which is formed after the first reaction step), the ratio of ethyl triazone to urea-formaldehyde condensate in A–18 based on the 0.204 figure is not greater than 3.1:1 which is "about 3:1," the approximate upper level set forth in the count (R 239, 301–303, 482).

Appellee also notes that:

• • • The molar ratio of ethyl triazone to the acrolein stabilized urea-formaldehyde condensate in A–18 amounted to 1.92 based on the combined urea. • • •

We find representative of substantial evidence in the record the following testimony of Wayland as to the UX resin, on cross-examination:

Q306. Would you refresh your recollection and then tell us what the molar relationship would be between the urea and formaldehyde at the time the acrolein is added?

* * * * * * *

A. According to my pretty rapid calculations of the moment, the ratio is 5.8 moles of urea to one mole of formaldehyde. That is, this amount of formaldehyde is added with the acrolein. I can turn that around if you would rather have it the other way.

Q307. In other words, for every molecule of urea present, there is considerably less than one molecule of formaldehyde at this stage of the process, is that correct? A. Correct.

Q308. The relationship is 5.8 molecules of urea to one molecule of formaldehyde? A. At this stage of the reaction.

Q309. At this stage of the reaction. A. Yes, sir.

Q310. Can you tell us what the molar ratio is of urea to acrolein at that stage of the process? A. Yes, I can. The mole ratio is .378 mole of acrolein per mole of urea.

Thus the allegation that there is no testimony as to the number of molecules and moles appears quite unfounded.

More fundamentally on this point, it is our view that appellant has not shown where the Board erred since it considered both figures, .337 and .204. As appellee notes, even assuming the minimum of .204 moles resin in the UX solution, the count ratio range is met. Although both values appear on the record to relate to the entire resin component of the UX solution as distinct from only the resin's urea component, appellant has not shown the figures to be incorrect or not properly related to the count, nor has there been any tracing of the reactant amounts through the products to the ultimate mole ratio of triazone to the urea-formaldehyde condensate as "based on the combined urea of said condensate." Appellant took testimony, and it appears consistent with the data shown in the applications that in part gave rise to such mole ratio ranges. That evidence has been evaluated and accepted by the Board, and we are without convincing challenge as to the ultimate values. Our views are predicated necessarily on this state of the record and the reliance we must place on the Board in such matters of technical detail, *Chandler* v. *Mock*, supra.

We think the Board's observations on this point are apt:

* * * Further refinement of discussion leads to irresolvables due to the deficiencies in chemical and physical science. We have discussed the matter to this extent only to show what a tenuous ground it is as against the solid practicality of the process as used by Dan River Mills, which we are quite convinced is the invention of the count. * * * Finally, we note Hurwitz Example 2 in which the triazone and the "condensate" are combined in the proportions 3:1 by weight as the party Poon did, and the statement is made that the condensate is made of "methanol, formaldehyde, and urea, comprising *largely* dimethoxymethyl-urea." [Emphasis ours.] Hurwitz practical instructions therefore avoid commitment to our discussion of proportions based upon "combined" urea. What is sauce for the goose is sauce for the gander would seem to apply.

A final challenge appellant makes is that there is no showing of utility for the resins. The tests under Mathewson's direction of the pilot plant and mill runs by Canter and Brooks of the mix made from components produced in the chemical plant by Allen and Spencer as an outgrowth of Poon's work is said to be hearsay, apparently on the ground that each person next back in the chain was not present at each moment of the subsequent step. Thus appellant urges in regard to the reports on the testing of fabrics treated with the composition of the count:

However, these reports are all objectionable hearsay evidence because neither Mathewson nor any other witness testified that they actually performed or even observed a single specific test. * * *

During Poon's testimony, Hurwitz' attorney repeatedly objected to all testimony and exhibits reflecting the reports from the testing laboratory since they were clearly *hearsay* in the absence of testimony by one who did the actual tests or at least observed them. In spite of this, Poon's attorney made no attempt to correct this fatal deficiency.

In a similar vein appellant challenges the source of materials as an uncorroborated chain of events:

Canter was asked where he got the material which he used as A–18 resin in the two pilot plant runs which preceded the mill runs. He replied that it came from George Poon, the inventor (R 314 and 320). There was no attempt by anyone except the inventor to establish the composition of this material and thus it stands on the uncorroborated testimony of the inventor.

On cross-examination, Canter was questioned as follows:

Q359. Mr. Canter, in connection with various exhibits, you reported that you received A–18 at various times from George Poon or J. W. Allen. Do you recall this testimony, sir? A. Yes.

Q360. Did you at any time attempt to make a chemical analysis of that product? A. I did not.

Q361. Did you rely on the identification of the product from information which you received from Mr. Poon and Mr. Allen? A. I relied upon the label on the cans and upon Mr. Poon. When he gave me his first can it was not labeled.

The following exchange took place on cross-examination of Allen, who was in charge of the chemical plant:

Q70. You stated, sir, that when the first batch of A–18 was made it was sent out the next day to Number 5 stores or mill. Am I correct? A. Yes.

Q71. Do you know who took it out to the store? A. Our mill transportation took it out.

Q72. You did not accompany it when it went out? A. No, I did not.

* * * * * * *

Redirect examination by Mr. Sobal:

* * * * * * *

Q85. How reliable is mill transportation? To be more specific, was there ever an instance where mill transportation lost a label from a drum?

Mr. Sarjeant: I'm going to object. I don't believe the witness is qualified to answer.

Q86. Within your experience? A. Within my experience there has been no evidence that that has happened. These drums are stenciled rather than tagged, therefore it is rather difficult to lose their identity.

Mr. Sabol: Your witness.

Mr. Sarjeant: That's it.

[5] It is clear to us that such an attempt to apply the hearsay rule is an extreme that is contrary to the rule of reason normally followed by this court. *Patterson* v. *Hauck*, 52 CCPA 987, 341 F.2d 131, 144 USPQ 481; *Mann* v. *Werner*, 52 CCPA 1578, 347 F.2d 636, 146 USPQ 199. The degree of corroboration that appellant urges would be to require the impossible. It plainly does not comport with the reality of technical operations involving numerous people necessarily separated from each other in time and distance and each involved in their own highly specialized part of a large operation. There is not one hint in the testimony that the reports, labels, transportation and other procedures were not routine and accepted as fully reliable by research and production personnel.

In a similar vein, appellant objects to the characterization of the A–15 as being a standard chemical on the ground that "there is no

proof that A–15 was a 'standard chemical' to anyone except Dan River," that it may have been standard only "in the sense that whatever it was it produced a desired result," but the count is not phrased in terms of a desired result. However, we find no reason to think that a standard chemical may not be so defined as standard *within* a single operation such as here, at least to the extent that the compositions were properly relied on by the research and processing personnel for what they were labeled to be.

[6] Appellant also urges that the tests of A–18 in place of A–15 in a mixture of the latter with Y–39 in the No. 5 mill is not a reduction to practice since whatever results were obtained can be attributed to the Y–39. We do not agree, since the testimony shows that the A–18 was substituted pound for pound for the A–15 with improved results. In our view one of ordinary skill would ascribe those results to the A–18 resin. *In re Widmer*, 53 CCPA —, 353 F.2d 752, 147 USPQ 518, 525.

Regarding the utility, since we are satisfied that the chain of corroboration is adequate, we think the reports and testimony adduced are sufficient to show that the A–18 in fact did operate in the *process* to achieve the desired utility of crease proofing fabric. See *Breen* v. *Miller*, 52 CCPA 1539, 347, F.2d 623, 146 USPQ 127 and *Miller* v. *House*, 53 CCPA —, — F.2d —, 147 USPQ 488. Indeed, we note there is testimony that some of the A–18 and fabrics so treated were sent to outside sales.

We have not touched on the testimony of the inventor Poon since it was not attacked except as being uncorroborated. There are, of course, ample corroborating documents, and the witnessed corroborating disclosure prior to the critical date. Further, the work of Spangler in our view is also corroboration. *Patterson* v. *Hauck*, supra. We thus need not pass on the issue of joint inventorship with Underwood.

For the above reasons the decision of the Board awarding priority of invention of the count to the party Poon is affirmed.
AFFIRMED.

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REISSUES

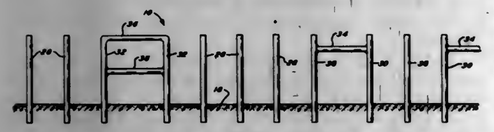
MAY 16, 1967

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

26,203
BARRIER

Albert B. Greenfield, 1311 Huntingdon Pike, Huntingdon Valley, Pa. 19006

Original No. 3,208,730, dated Sept. 28, 1965, Ser. No. 372,257, June 3, 1964. Application for reissue Apr. 21, 1966, Ser. No. 572,868
9 Claims. (Cl. 256—1)

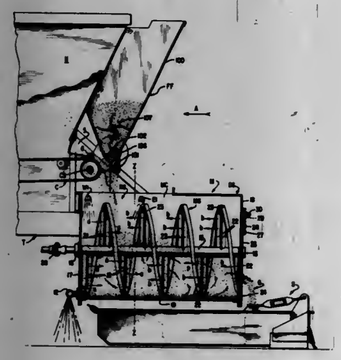


1. a barrier comprising a series of posts including first pairs of posts spaced apart by a distance slightly greater than the width of a person so that a person may pass therebetween, second pairs of posts being spaced apart wider than the first pair of posts and having a stationary connecting bar therebetween acting as a barrier to passage of adults therebetween, a third pair of posts more widely spaced apart than the first pairs of posts and having a removable crossbar therebetween permitting passage of persons and objects.

26,204
METHODS OF FORMING AND APPLYING MIXTURES

Bernard W. Young, Waco, Tex., assignor to Raymond T. Young, Waco, Tex.

Original No. 3,206,174, dated Sept. 14, 1965, Ser. No. 254,837, Jan. 29, 1963. Application for reissue Feb. 14, 1966, Ser. No. 532,514
22 Claims. (Cl. 259—149)

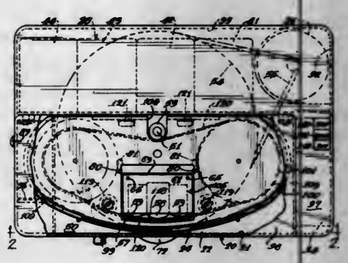


1. In a method of forming a slurry mixture, introducing relatively coarse particulate solid aggregate material into a mixing container; simultaneously introducing relatively fine particulate material [having a particle size substantially in the fineness moduli range 2.15–3.25] into said container substantially at the zone of introduction of said aggregate material; feeding said aggregate material along a path extending through the container while agitating and mixing said materials; introducing moisture into said container and said materials therein as the materials progress along a first portion of the path through the container; introducing emulsified asphalt into said materials in the remaining portion of said path at a zone adjacent said first portion of said path; agitating and mixing said materials, said moisture and said asphalt throughout the remaining portion of said path; maintaining said materials, said moisture and said emulsified asphalt in said container throughout their feeding along said path; and discharging the slurry mixture containing all of the introduced materials, moisture and emulsified asphalt at the end of said path.

26,205
MULTI-TRACK MAGAZINE TAPE RECORDER WITH MOVABLE HEAD AND ELASTIC BAND DRIVE FOR TAPE AND REELS

Willard J. Faulkner, Glen Ellyn, Ill., assignor to V-M Corporation, Benton Harbor, Mich., a corporation of Michigan

Original No. 3,154,308, dated Oct. 27, 1964, Ser. No. 25,396, Apr. 28, 1960. Application for reissue Feb. 11, 1966, Ser. No. 532,511
15 Claims. (Cl. 274—4)



13. In a recording and reproducing machine utilizing tape which is to be driven from one reel across an information translating head onto a second reel, the combination therewith of drive means for moving said tape comprising at least one idler roller, a driven roller in spaced relation thereto and an endless belt arranged about said rollers so as to be driven by rotation of the driven roller, said belt being adapted to support a portion of the tape as it is fed off the one reel lengthwise of the belt about the idler roller and past the information translating head to the second reel, said tape being located thereby on the side of the belt exposed to the information translating head, said idler and driven rollers being located on opposite sides of the information translating head defining a path of travel for the belt and supported portion of the tape which traverses the information translating head, said rollers being positioned relative to each other so as to effect frictional engagement between the tape and said side of the belt such that the tape moves with the belt at the speed thereof, said positioning of the idler and driven rollers relative to each other and to the head also maintaining the belt and thereby the portion of tape supported thereon under resilient pressure against the information translating head as the tape is moved thereacross.

PLANT PATENTS

GRANTED MAY 16, 1967

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

2,739
CHRYSANTHEMUM PLANT

Eugene S. Boerner, Newark, N.Y., assignor to Jackson & Perkins Company, Newark, N.Y., a corporation of New York

Filed May 9, 1966, Ser. No. 548,815
1 Claim. (Cl. Plt.—79)

A new and distinct variety of chrysanthemum plant of the incurved flower class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a habit of bearing flowers of incurved type, a thick flower form, a large flower size, a distinctive and attractive general color tonality of the flowers corresponding to Scarlet, very lightly overcast with Peach Red in the center of the flower petals, and good hardiness and frost resistance.

2,740
CHRYSANTHEMUM PLANT

Eugene S. Boerner, Newark, N.Y., assignor to Jackson & Perkins Company, Newark, N.Y., a corporation of New York

Filed May 11, 1966, Ser. No. 549,375
1 Claim. (Cl. Plt.—81)

A new and distinct variety of chrystanthemum plant of the decorative class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a strong habit of growth, a large flower size, a wide flower petal form, and a distinctive and attractive general color tonality of the flowers corresponding to Thulite Pink, lightly overcast with Cameo Pink.

2,741
CHRYSANTHEMUM PLANT

Eugene S. Boerner, Newark, N.Y., assignor to Jackson & Perkins Company, Newark, N.Y., a corporation of New York

Filed May 17, 1966, Ser. No. 550,874
1 Claim. (Cl. Plt.—81)

A new and distinct variety of Chrysanthemum plant of the thick decorative class, substantially as herein shown and described, characterized particularly as to novelty by the unique combination of a strong and upright habit of growth, a free blooming habit, a large flower size, thick flower form, and distinctive and attractive general color tonality of the flowers corresponding to Spinel Red, lightly overcast with Tyrian Rose.

2,742
APRICOT OR *PRUNUS ARMENIACA*

Herbert W. Steindorf, Rte. 2, Box 280, Gilroy, Calif. 95020

Filed Oct. 14, 1965, Ser. No. 496,194
1 Claim. (Cl. Plt.—39)

A new and distinct variety of Blenheim apricot, substantially as herein shown and described, characterized particularly by the flowering and maturing of the fruit being approximately thirty (30) days later than the flowering and maturing of the fruit of the parent Blenheim apricot.

2,743
DOGWOOD TREE

Armond Marzilli, Canton, Ohio, and John Frank Schmidt, Jr., Troutdale, Oreg.; said Marzilli assignor of one-half to John C. Marzilli, Canton, Ohio

Filed June 14, 1965, Ser. No. 463,976
1 Claim. (Cl. Plt.—51)

A new and distinct variety of dogwood tree substantially as herein shown and described, characterized particularly as to novelty by having leaves similar in shape, size and form to those of the *Cornus florida* but of multi-color form and at certain stages having three or four colors, and particularly characterized by a darker, sharply defined color area basically centrally oriented in the leaf and surrounded by lighter, multi-colored matrix.

PATENTS

GRANTED MAY 16, 1967

GENERAL AND MECHANICAL

3,319,260
SURVIVAL GARMENT

Phil F. Cummins, Fort Worth, Tex., assignor to General Dynamics Corporation, Fort Worth, Tex., a corporation of Delaware

Filed June 10, 1964, Ser. No. 374,024
4 Claims. (Cl. 2—2)



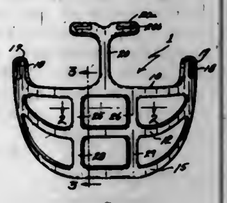
1. A survival garment comprising:
(A) a support means comprising a coverall-like inner garment substantially conforming in configuration to the object to be protected;
(B) insulation means comprising a plurality of separate substantially annular bladder elements expandable in at least two directions attached to said coverall-like inner garment and substantially conforming in configuration thereto,
(1) each said element in the expanded condition closely and conformingly abutting the adjacent operatively associated bladder element to provide an unbroken layer of insulating material about said inner garment,
(2) each said bladder element operatively associated with an insulative material generating and activating means; and
(C) means operative to activate and channel an insulating medium to said bladder elements.

3,319,261
FACE MASKS

Fred R. Dunning, Brecksville, Ohio, assignor to Dungard, Inc., Brecksville, Ohio, a corporation of Ohio

Filed Jan. 29, 1965, Ser. No. 429,039
6 Claims. (Cl. 2—9)

1. A face mask for a helmet, the mask being of an integral one-piece construction of a light metal core and a plastic coating therefor, the mask consisting of a one-piece stamping and comprising an upper arcuately curved bar, a middle arcuately curved bar, a lower arcuately curved bar, said upper, middle and lower bars adapted to extend across the face opening of the helmet and converging on each other at each end thereof to form integral ears for operable attachment to the helmet, an integral T-shaped member projecting upwardly from the central portion of the upper bar and having a pair of projections at the top thereof adapted for operative connection to the top forehead portion of said helmet, and there being a plurality of integral short reinforcing bars connected between said middle and upper bars and said middle and

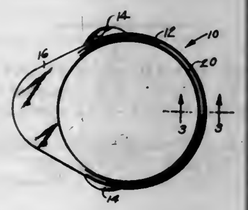


lower bars, the reinforcing bars being located generally in a position perpendicular to said upper, middle and lower bars.

3,319,262
BEAUTICIAN'S AID

Robert Edward Lee, Rte. 1, Box 240, Joaquin, Tex. 75954

Filed Nov. 25, 1964, Ser. No. 413,932
2 Claims. (Cl. 2—174)

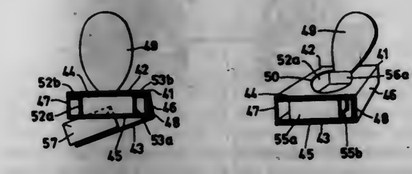


1. A beautician's aid comprising:
(a) a substantially circular flexible member adapted to extend about the head of a person;
(b) a trough means formed in the upper surface of said member;
(c) said trough means extending about the front and sides and extending to the rear of the flexible member for gravity flow of liquids placed on the head toward the rear of the flexible member;
(d) a pair of cup-shaped ear shield means joined to said flexible member at opposing positions located for encompassing the ears on the head;
(e) said cup-shaped ear shield means being positioned adjacent to said trough means to permit liquid flow past the ears of the head, said means further including a closed upper surface for shielding the ears of the user and wherein said closed surface cups the ears; and
(f) a bill formed integrally with said flexible member and extending outwardly about the rear portion of the flexible member, said trough means merging into said bill wherein liquid flowing in said trough means is directed onto said bill.

3,319,263
BED PAN AND INSERT THEREFOR

Per Edward Carl Uddén, Kalarne, and Bengt Axel Wennerblom, Sundsvall, Sweden, assignors to Svenska Cellulosa Aktiebolaget, Sundsvall, Sweden, a Swedish joint-stock company

Filed May 24, 1965, Ser. No. 458,185
Claims priority, application Sweden, May 29, 1964, 6,589/64; Sept. 15, 1964, 11,078/64; Sept. 15, 1964, 11,077/64
25 Claims. (Cl. 4—112)



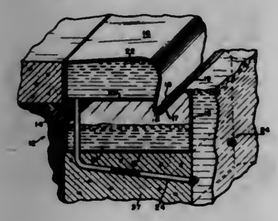


1. A bed pan comprising a bearing portion adapted to resist the load exerted by the patient and having an inner space for receiving a loose throw-away insert arranged to receive excrements, said bed pan being designed such that after the use of the pan and while holding the pan in a substantially horizontal position the insert with its content can be removed in a direction substantially downwards from said inner space of the bearing portion.

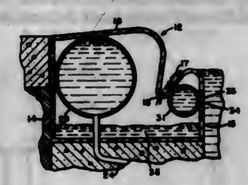
3,319,264
COPING ASSEMBLY FOR SWIMMING POOLS

Robert J. Scarano, 12 Jeffrey Lane, Loudonville, N.Y. 12211

Filed Apr. 2, 1965, Ser. No. 445,017
21 Claims. (Cl. 4—172)



1. A coping assembly to be mounted around the perimeter of a swimming pool and to form a continuous conduit system for cycling water to and from a filter unit comprising: a conduit extending longitudinally through said assembly, partitioning means for separating said conduit into a plurality of passages extending longitudinally through said assembly, at least one of said passages having openings therein for receiving skimmed water from the swimming pool and at least one of the passages

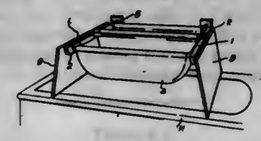


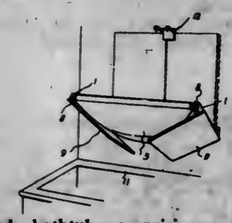
having discharge means for returning treated water from the filter unit to the swimming pool.

3,319,265
BABIES' BATHTUBS

Victor Manuel Oscar Gomez Lozada, Buenos Aires, Argentina, assignor to Carlos Alberto Quiroz, Buenos Aires, Argentina

Filed Dec. 11, 1963, Ser. No. 329,718
4 Claims. (Cl. 4—177)





1. A baby's bathtub comprising a waterproof cloth container, a frame supporting said container and means swingably supporting said frame over a conventional bathtub, in order that it may be folded against a lateral wall; a pair of supporting elements which may rest upon a conventional bathtub, said supporting elements being operatively connected with said frame for supporting the latter over the conventional bathtub when said frame is turned away from said lateral wall, and said supporting elements also being foldable to form a lid against a bottom of the waterproof cloth container, when the frame is folded against the lateral wall.

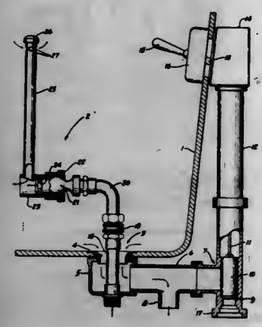
3,319,266
THERAPEUTIC BATH FLUID CIRCULATING DEVICE

Richard C. Schneider, 804 NE. 15th Ave., Fort Lauderdale, Fla. 33304, and Douglas C. Steitz, 13385 Kenmar Court, Brookfield, Wis. 53005

Continuation of application Ser. No. 307,594, Sept. 9, 1963. This application June 29, 1965, Ser. No. 468,048
6 Claims. (Cl. 4—180)

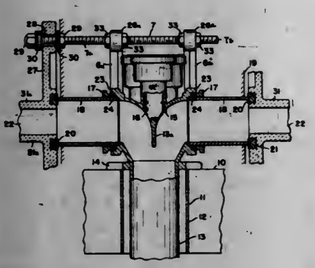
1. In a hydrotherapeutic apparatus, a tank to contain water and having a drain opening in the bottom thereof, first conduit means extending within the drain opening and communicating with the inlet of a pumping means for conducting water from the tank, second conduit means

extending within the drain opening and communicating with the outlet of the pumping means for supplying water to said tank, a nozzle assembly located within the tank and connected to said second conduit means for discharg-



ing water in the form of a high pressure stream within the tank, drain conduit means communicating with said first conduit means and connected to a disposal site, and valve means in said drain conduit means for selectively opening and closing said drain conduit means.

3,319,267
DOUBLE WATER CLOSET FITTING FOR WALL DISCHARGE
Courtney C. Pope, Haines City, Fla., assignor to Sim-plici-ty Products Corporation, Haines City, Fla., a corporation of Florida
Filed June 22, 1964, Ser. No. 376,640
1 Claim. (Cl. 4—252)



A mounting means for a pair of water closets comprising, a pair of water closets with each of the same respectively positioned on the opposite sides of a wall, a drain pipe connected to the water closets, said pipe terminating at one end in a pair of divergent branches, each of the branches terminating in a hub, each hub having a pair of radially-extending arms, the pairs of arms being located in spaced-apart relation within the wall, tie rods extending through the wall and between the arms and attached thereto, said tie rods passing through said arms and having end portions projecting from the opposite faces of the walls which end portions are attached to the closets at said opposite faces of the walls wherein the tie rods at one side of the fitting extend entirely through bosses carried by one pair of arms while the tie rods upon the opposite side of the fitting are formed in sections and with each section connected to a boss and to extend outwardly through the walls for connection to each one of said pair of associated water closets.

3,319,268
WATER CLOSET COUPLING
James J. Blumenkranz, Hollywood, Calif., assignor to Atlantic Research Corporation, Fairfax County, Va., a corporation of Virginia
Filed Mar. 18, 1965, Ser. No. 440,965
15 Claims. (Cl. 4—252)

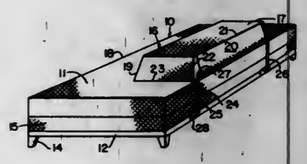


1. A water closet coupling for physically and operatively connecting a water closet having a drainage outlet to a floor and to an installed drain waste conduit, said coupling comprising, in combination

(a) a plastic annular connector having an outlet end adapted to receive one end of said drain waste conduit, an inlet end adapted for flow communication with said drainage outlet and in flow communication with said outlet end, said inlet end including a substantially radially outwardly extending flange to provide an annular groove between said flange and said floor when said connector is connected to said drain waste conduit system, and

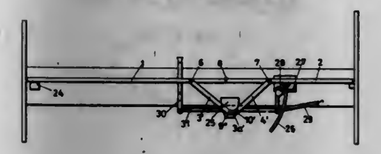
(b) an annular ring having an annular lip extending radially inwardly, said ring being rotatably mounted on said connector contiguous to said inlet end such that said lip is received within said groove when said connector is connected to said drain waste conduit, said lip having an inside diameter less than the outside diameter of said outwardly extending flange, said inside diameter being large enough to permit rotation of said ring relative to said connector, said ring having a plurality of angularly spaced slots therethrough adapted to receive fastening members for mounting said water closet to said ring.

3,319,269
BOLSTER FOR A BED
Robert B. Maddox, 130 Wellington Place, Cincinnati, Ohio 45219
Filed Mar. 30, 1965, Ser. No. 443,961
10 Claims. (Cl. 5—12)



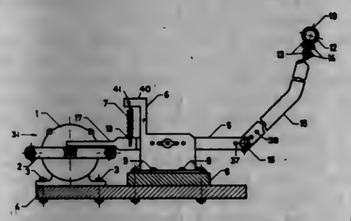
1. In combination, a bed, a resilient bolster, a flexible tape encompassing at least a portion of said bolster, said flexible tape being longer than the encompassed portion of said bolster whereby said flexible tape is loose with respect to the encompassed portion of said bolster, and fixed support means disposed within said flexible tape and cooperating therewith to permit movement of said bolster from a position on said bed to a storage position and vice versa, said bolster having sufficient size when resting on said bed to form a back for one sitting on said bed whereby said fed functions as a sofa or the like.

3,319,270
BEDS
Otto Greiner, Brunnenstrasse 9, Neustadt, near Coburg, Germany
Filed Sept. 3, 1965, Ser. No. 484,883
1 Claim. (Cl. 5—66)



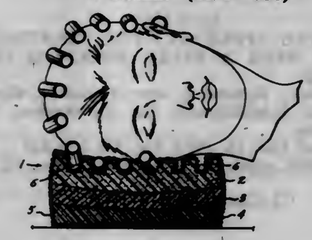
A bed, particularly of the positional bedstead type, comprising a frame having a seat section and a back; hinges connecting one end of said seat section with one end of said back, means supporting the other end of said seat section, downwardly extending V-shaped supports located on opposite sides of the bed, each of said supports having a supporting arm, means pivotally connecting the upper end of said supporting arm with said seat section adjacent said hinges, another supporting arm, means pivotally connecting the upper end of said other supporting arm with said back adjacent said hinges, the seat-connected supporting arm having a longer support portion and a shorter lower portion, said upper and lower portions constituting an angular two-armed lever the fulcrum of which is a transverse axle firmly connected with the bed frame and the shorter portion of which extends towards the back-connected supporting arm, means pivotally interconnecting the lower ends of said two-armed levers and the lower ends of the two supports, the lower portion of the seat-connected supporting arm and said back-connected supporting arm forming an angle which diminishes when the back is swung upwardly and which increases when the back is swung downwardly, a curved arm swingably suspended from said back, a plate having a recess receiving said arm, means resiliently pressing said arm into said recess, and manually operable means for actuating the last-mentioned means.

3,319,271
CARRIAGE ROCKER
Anderson Austin, 204 Storer Ave., New Rochelle, N.Y. 10801
Filed Dec. 10, 1964, Ser. No. 417,450
9 Claims. (Cl. 5—108)



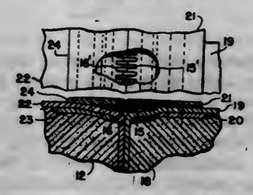
1. A baby carriage rocking device comprising a motor having a rotatable shaft, a lifter secured to said rotatable shaft, a pivotally mounted lever, the first end portion of said lever pivoted upward upon actuation by said lifter, said lever returned to normal position upon passage of said lifter, the second end portion of said lever adapted to be affixed to a rocker arm, and said rocker arm adapted to be affixed to the upper frame of a carriage, whereby said upper frame is moved in a substantially upward and downward motion as the lifter pivots and releases said lever.

3,319,272
CURLER PILLOW
Edwin F. Eller, 2304 92nd NE., Bellevue, Wash. 98004
Filed Feb. 5, 1965, Ser. No. 432,074
8 Claims. (Cl. 5—338)



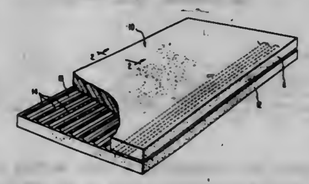
1. A curler pillow comprising a generally flat body of stratified compressible material, varying in its resistance to compression as between its top and its bottom strata and body, at least at its upper surface, being traversed by a series of grooves, each generally of a size to receive a curler roll.

3,319,273
GYMNASIUM MATS
Lawrence Solin, 16 Dell Drive, Eastchester, N.Y. 10709
Filed July 20, 1964, Ser. No. 383,732
3 Claims. (Cl. 5—344)



1. A gymnasium mat comprising at least two substantially rectangular mat units, said units having transverse ends, each of said units comprising a flexible resilient filler, a casing for said filler, first reinforcing means underneath said casing along each of said ends, second reinforcing means at the top of said casing and above said first reinforcing means, said casing, said first and said second reinforcing means being secured to each other, and complementary slide fastener means permanently fixed to the underside of said second reinforcing means, said slide fastener means being covered by said second reinforcing means.

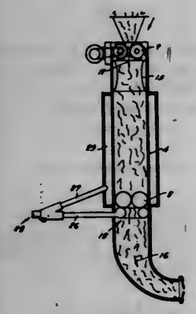
3,319,274
MATTRESS WITH SAG-RESISTANT INSERT
Raymond R. Upton, Rte. 1, Toccoa, Ga. 30577
Filed Jan. 25, 1965, Ser. No. 427,645
7 Claims. (Cl. 5—345)



1. A mattress comprising upper and lower slabs of foamed elastomer, said slabs being of approximately the same size, and an intervening corrugated stiffening insert between said slabs having corrugations which extend

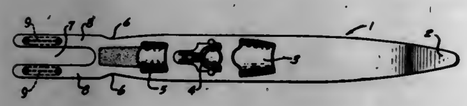
lengthwise of the slabs so as to stiffen the mattress structure against longitudinal sagging while enabling it to be readily rolled up transversely into a compact generally cylindrical roll.

3,319,275
PROCESS AND APPARATUS FOR TREATING MATERIALS WITH A FLUID WHICH IS UNDER PRESSURE
Heinz Fleissner, Egelsbach, near Frankfurt, Germany, assignor to Establishment for Automation, Vaduz, Liechtenstein
Filed Dec. 16, 1963, Ser. No. 330,827
Claims priority, application Switzerland, Dec. 15, 1962, 14,756/62
12 Claims. (Cl. 8—149.3)



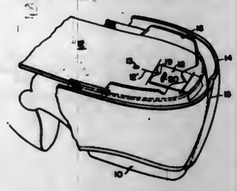
1. A continuous process for treating material such as textile material with a fluid which is under pressure comprising the steps of continuously moving the material between a first pair of rollers rotating in opposite directions at a predetermined speed; moving the material through a first compacting zone adjacent said rollers and compacting the material to a predetermined degree between the inner surface of said zone; moving the material through a treating zone adjacent said compacting zone; introducing a treating fluid under pressure into said treating zone to treat said material; moving the material between a second pair of rollers rotating at a predetermined speed; moving the material through a second compacting zone and compacting the material to a predetermined degree between the inner surface of said second compacting zone, the compacted material in the first compacting zone jointly with the first pair of rollers and the compacted material in the second compacting zone jointly with the second pair of rollers sealing off the treating fluid in the treating zone.

3,319,276
WATER SKI CONSTRUCTION
Richard C. Penney, White Bear Lake, Minn., assignor of one-half to Caryl Weinhagen, White Bear Lake, Minn.
Filed May 7, 1965, Ser. No. 454,131
13 Claims. (Cl. 9—310)



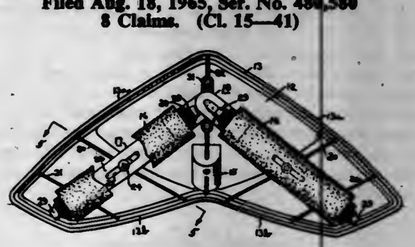
1. A water ski, comprising a body having at least one elongated axially extending recess in the trailing end portion to divide the trailing end portion into a series of spaced tail portions, and a stability member secured to the underside of at least two of said tail portions and extending longitudinally of the body.

3,319,277
METHOD FOR ASSEMBLING SHOE UPPERS
Charles F. Batchelder, Milton, and Jerome A. Rubico, Boston, Mass., assignors to Batchelder Rubico, Inc., Boston, Mass., a corporation of Massachusetts
Filed May 28, 1964, Ser. No. 371,023
13 Claims. (Cl. 12—145)



1. The method of assembling on a last and insole a shoe upper comprising an outer ply and a lining ply having a centrally disposed tab with an index mark therein at a fixed peripheral distance from the top seam of the upper; the method comprising the steps of forming a heel-seat gauge mark at the same peripheral distance from the desired location of the top seam on the back of the last, as the distance indicated by the index mark on the tab, bringing the index mark of the tab into fixed relation to the heel-seat gauge mark, and attaching the tab as thus located to the insole.

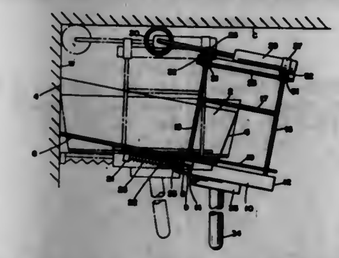
3,319,278
RUG CLEANING APPARATUS
James K. Frazer, Santa Ana, Calif., assignor to Glamorene, Inc., Clifton, N.J., a corporation of New York
Filed Aug. 18, 1965, Ser. No. 480,580
8 Claims. (Cl. 15—41)



2. In apparatus for working cleaning agents into and through the nap of carpeting, comprising in combination,
(a) a pair of generally cylindrical brushes each having a multiplicity of radially extending bristles with each brush being rotatable about an axis of symmetry passing longitudinally therethrough,
(b) support means including bracket means carrying said brushes for free rotation about their axes of symmetry with said axes intersecting at a point outside of and substantially equispaced from one end of each of said brushes to thereby position said brushes in a V-formation,
(c) adjusting means carried by said support means and coupled to said brush carrying bracket means operative to selectively shift the latter to change the vertex angle of the brushes V-formation as desired within predetermined limits.

3,319,279
PAINT ROLLER AND DRIP PAN ATTACHMENT THEREFOR
James A. Forte, 2169 E. 69th St., Cleveland, Ohio 44103
Filed Nov. 10, 1964, Ser. No. 410,076
5 Claims. (Cl. 15—104.8)

1. In combination, a paint roller, a drip pan disposed beneath said roller, with the roller extending transversely of the drip pan, means permitting said drip pan to be moved bodily rectilinearly relatively to said roller, whereby to permit the roller to move into close proximity to



the vertical wall of a room, and means for resiliently returning said drip pan to its original position in relation to said paint roller.

3,319,280
PAINTBRUSH HOLDER
Fred A. Trachsler, 617 10th Ave., San Francisco, Calif. 94103
Filed Apr. 28, 1966, Ser. No. 546,086
2 Claims. (Cl. 15—146)



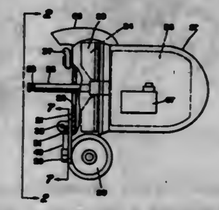
1. A paintbrush holder, adapted for universal adjustment, comprising: first and second tubular elongated members, said members being bifurcated at each end to form respective pairs of spaced-apart oppositely-facing flanges; means mounted on a first end of said first member for fixably securing a paintbrush handle in co-axial alignment with said first member between the oppositely-facing flanges and for compressing said flanges against the handle; a first end of said second member having the oppositely-facing flanges adapted to receive a handle means therebetween in progressively tightly nested engagement as said handle means is inserted between said spaced-apart flanges; an interconnecting structure having a pair of spaced perpendicular oriented holes therethrough for pivotally mounting the second bifurcated ends of said first and second tubular members thereon in end-to-end relationship to each other, said structure having the sides adjacent each of said holes disposed normal to the axis of the respective hole; each of the second bifurcated ends of said members being provided with openings in said pairs of spaced-apart flanges aligned to correspond with one of said spaced holes; the flanges of said second bifurcated ends flanking said interconnecting structure; a first pivoting and locking means for releasably coupling said structure through the openings in the spaced-apart flanges in the second end of said first elongated member to one of said pair of perpendicular holes; and a second pivoting and locking means for releasably coupling said structure through the openings in the spaced-apart flanges in the second end of said second member to the other of said perpendicular holes, the bifurcations on the second ends of each of said members being of sufficient length to allow substantially complete pivotal movement of said members around said structure so that said first elongated member is permitted to independently pivot about a first axis through said first fastening device relative to the second elongated member and capable of being held in adjusted position, and said second elongated member is permitted to independently pivot relative to said first member about a second axis through said second fastening device perpendicular to said first axis and also capable of being held in adjusted position.

3,319,281
TOILET BOWL CLEANING TOOL
James M. Montgomery, 4288 Fulton Drive NW., Canton, Ohio 44718
Filed Mar. 31, 1966, Ser. No. 539,087
2 Claims. (Cl. 15—244)



1. Toilet bowl cleaning tool construction including a mop head formed of sponge rubber having firmness sufficient to resist substantial distortion when pressed against a surface to be cleaned, the outer surface of the mop head being formed as a surface of revolution configured to provide four axially adjacent sections; each head section having a spherical outer surface portion, the first and fourth sections providing spherically shaped end surfaces for the mop head, the second and third sections being reversely oriented with respect to each other to form a central annular groove; and a handle joined to the mop head, a reduced shank upon the handle, an enlarged rounded tip upon the terminal end of said shank, the mop head being formed with an internal recess generally matching the contour of but smaller than the contour of the shank and tip, the handle shank and tip being inserted in and held in said recess by coupled engagement of the enlarged tip in the matching recess portion.

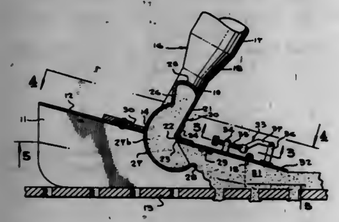
3,319,282
SAFETY SWITCH MEANS
Charles H. MacFarland, Rocky River, Ohio, assignor to The Scott & Fetzer Company, Cleveland, Ohio, a corporation of Ohio
Filed June 1, 1965, Ser. No. 460,198
4 Claims. (Cl. 15—319)



1. In a suction cleaner having a motor, a body portion, and interchangeable attachments for cleaning operations requiring different motor speeds, the improvement comprising a safety switch having first and second switch

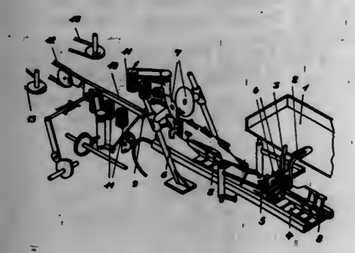
means, said first switch means being responsive to a first linkage means which, in turn, is responsive to the connection of one of the attachments to the body portion of the cleaner to run the motor at a relatively low speed, said second switch means being responsive to a second linkage means which, in turn, is responsive to the connection of another attachment to the body portion of the cleaner to run the motor at a relatively high speed, and means for preventing the simultaneous operation of said first and second linkage means and, therefore, said first and second switch means.

3,319,283
APPLICATOR
Raymond A. Delligatti, 815 Ogden Ave., Fairmont, W. Va. 26554
Filed Sept. 24, 1964, Ser. No. 398,958
15 Claims. (Cl. 15—588)



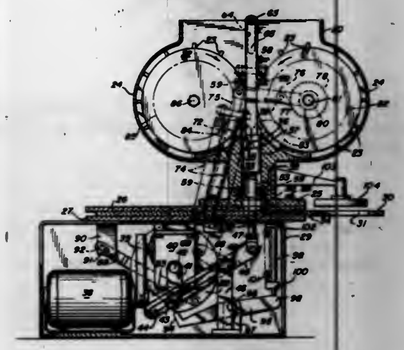
1. A device for applying a fluid cementitious material or the like on a working surface comprising housing means engageable with and adapted to be guided along said working surface, said housing means having a rearwardly disposed opening, fluid material supply means communicable with the interior of said housing means hingedly connected to said housing means and said material supply means having baffle means depending from the forward portion thereof and extending into said housing means for directing material from said material supply means rearwardly directly toward said opening in said housing means.

3,319,284
APPARATUS FOR DECAPITATING AND FEEDING FISHES INTO DRESSING MACHINES
Karl Schlichting, Lubeck, Germany, assignor to Nordischer Maschinenbau Rud. Baader, Lubeck, Germany, a firm
Filed Mar. 18, 1965, Ser. No. 440,735
Claims priority, application Germany, Mar. 19, 1964, N 24,653
2 Claims. (Cl. 17—4)



2. In an apparatus for decapitating and feeding fish into dressing machines, a conveyor, a head clamp carried by said conveyor, a plurality of V-shaped entrainment elements carried by said conveyor for holding the body of the fish in a belly-back position, two circular angularly extending vertically movable decapitating knives for removing the head of the fish, and conveying means located behind said decapitating knives for receiving the body of the decapitated fish and conveying it to a dressing machine.

3,319,285
MOLDING DEVICE
Harry H. Holly, Olympia Fields, Ill., assignor to Hollymatic Corporation, a corporation of Illinois
Filed July 6, 1965, Ser. No. 469,381
8 Claims. (Cl. 17—32)

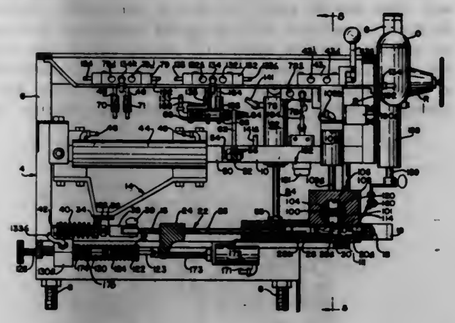


1. A device for molding articles of plastic material, comprising: a hopper for a mass of plastic material having an exit opening; shaping means adapted to communicate with said exit opening to receive plastic material therefrom; means in said hopper movably urging said material toward said exit opening comprising a pair of rotatable wheels having adjacent but spaced peripheries provided with outwardly extending pins, the pins on one wheel cooperating with those of the other to provide said urging, said adjacent peripheries being spaced from said exit opening; isolating means comprising a shell reciprocable in a path away from said exit opening toward said adjacent peripheries for entrapping a portion of said urged material in the shell and then toward said exit opening for forcing said portion through the exit opening into the shaping means; means for thusly rotating said wheels; and means for thusly reciprocating said shell.

3,319,286
METHOD OF MOLDING SKINLESS SAUSAGE
Joseph L. Ammons, 1617 Lawson Lane, and Floyd H. Morrow, 113 N. Beverly, both of Amarillo, Tex. 79106
Filed Mar. 17, 1965, Ser. No. 440,571
19 Claims. (Cl. 17—45)

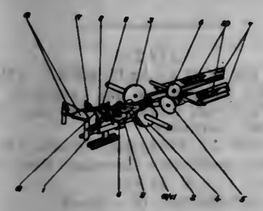
1. A method of molding skinless sausage, comprising the steps of:
(a) providing a mold cylinder having an elongated cavity therein,
(b) bringing two cylinder closure members into abutting relation at atmospheric pressure,
(c) moving the abutting closure members in the cylinder cavity for a spaced distance, in sealed relation therewithin,
(d) moving one of the closure members relative to the other of the closure members to form an elongated vacuumized cavity wholly within the cylinder,
(e) introducing sausage material, under pressure, into the vacuumized cavity in the mold cylinder, intermediate the length thereof,
(1) creating a positive pressure by continued introduction of sausage material under pressure into the cavity to cause a further elongation of the cavity,

(2) resiliently retarding the further elongation of the cavity to control the terminal pressure of the sausage in the mold cylinder, thereby con-



trolling the density of the molded sausage, irrespective of the length thereof,
(f) terminating the introduction of sausage material into the cavity of the mold cylinder, upon filling thereof with sausage material, and
(g) discharging the molded sausage from the cavity of the mold cylinder.

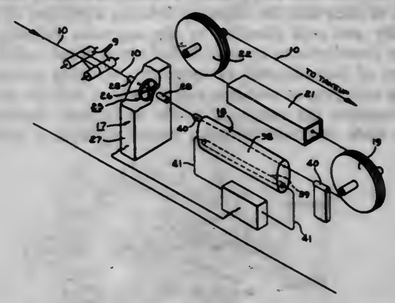
3,319,287
METHOD OF PRODUCING FISH FILLETS FREE FROM PIN BONES
Johannes Michael, Harmsdorf uber Ratzeburg, Germany, assignor to Nordischer Maschinenbau Rud. Baader, Lubeck, Germany, a firm
Filed Apr. 21, 1965, Ser. No. 449,842
4 Claims. (Cl. 17—45)



1. Method of producing fish fillets free from pinbones, in which the filleting of the fish is carried out in known manner, consisting in cutting free the pinbones on each side of the fish by two incisions extending up to the parapophyses in the region of the belly cavity, before the filleting operation.

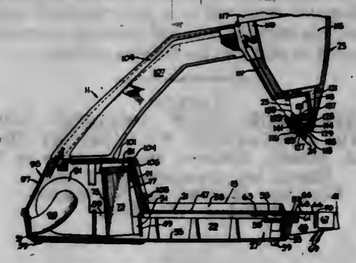
3,319,288
APPARATUS FOR REPAIRING MATERIAL
Arnold R. Johnson, Omaha, Nebr., assignor to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York
Filed Oct. 24, 1963, Ser. No. 318,605
8 Claims. (Cl. 18—1)

1. Apparatus for repairing electrically nonconducting material, which comprises:
means for subjecting the material to a sufficiently high electrical stress as to produce an electrical discharge at a fault in the material;
means responsive to the electrical discharge for detecting the fault; and
heat producing means for applying localized heat to the exterior of the material adjacent the fault to



cause the material in the vicinity of the fault to flow such that upon resolidification of the material the fault is substantially eliminated.

3,319,289
APPARATUS FOR MOUNTING A SPECIMEN
James B. McCormick, La Grange, Ill., assignor, by mesne assignments, to Miles Laboratories, Inc., Elkhart, Ind., a corporation of Indiana
Filed May 20, 1963, Ser. No. 281,649
5 Claims. (Cl. 18—5)

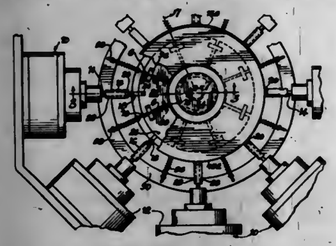


1. An apparatus for use in a system for preparing a specimen for sectioning on a microtome or the like, in which system the specimen is submerged in a liquid thermoplastic material contained in a hollow mold and the liquid thermoplastic material is subsequently caused to become solidified so as to embed the specimen therein, which apparatus comprises a base defining a pair of side-by-side temperature-regulated surfaces on which a mold may be placed, means for maintaining one of said surfaces at a temperature sufficiently above ambient to maintain a thermoplastic material contained in a mold supported on the said one surface in a liquid state so that orientation of a specimen submerged in the thermoplastic material may be accomplished, and means for maintaining the other of said surfaces at a temperature sufficiently below ambient so as to rapidly initiate the solidification of a thermoplastic material contained in the mold supported thereon while the desired orientation of the specimen is maintained.

3,319,290
RADIAL COMPRESSION DIE MOLDING APPARATUS
Robert A. Clark, La Grange, Ill., assignor to Chicago Gasket Company, Chicago, Ill., a corporation of Illinois
Filed Oct. 28, 1964, Ser. No. 407,191
10 Claims. (Cl. 18—5)

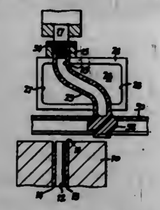
1. In a radial compression die for forming an article by compressing a mold material from a first volume to a final volume defining the article in an integrated state, the

combination comprising a plurality of complementary die segments movable concurrently in a common plane radially toward and away from a common center, one radial end of each said die segment defining a portion of the die cavity and said plurality of die segments defining radial gaps therebetween to provide for unrestricted radial movement of interadjacent die segments, bridging means spanning said gaps at said one radial ends of said die segments throughout the range of radial movement thereof, said one ends and said bridging means defining a peripheral



surface of the die cavity, and drive means operable conjointly with said plurality of said die segments to forcedly move said die segments concurrently between an article defining radial position and an open position defining a greater cavity, whereby a mold material introduced to the cavity defined by said open position of said die segments is forcedly compressed by the said one radial ends thereof to an integrated state and to a predetermined configuration as said die segments and said bridging means are mutually moved to said articles defining position.

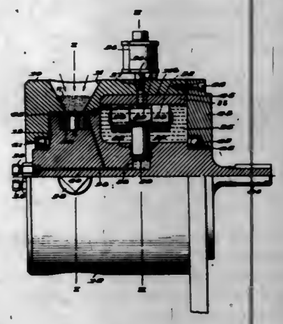
3,319,291
APPARATUS FOR BLOW MOLDING HOLLOW PLASTIC CONTAINERS WITH OFFSET FINISH
Wilbur A. Schaich, Maumee, Ohio, assignor to Owens-Illinois, Inc., a corporation of Ohio
Filed Dec. 16, 1964, Ser. No. 418,601
7 Claims. (Cl. 18—5)



2. An apparatus for producing a bottle and the like having a body and an axially offset neck, an orifice through which a thermoplastic tube may be extruded, a neck mold positionable in registry with the orifice and movable axially away therefrom with a length of tube anchored to both the orifice and the neck mold, means for thereafter effecting lateral movement of the end of the tube at the orifice with respect to both the neck mold and the orifice to sever and displace the latter end into a position extending diagonally across a closable blow mold cavity.

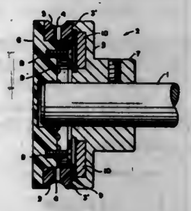
3,319,292
ISOSTATIC MOULDING PRESS
Donald E. Witkin, Warren, Pa., assignor to National Forge Company, Irvine, Pa., a corporation of Delaware
Filed Dec. 22, 1965, Ser. No. 515,607
10 Claims. (Cl. 18—5)

1. In an isostatic moulding press, the combination comprising a casing, a rotor body mounted for rotation within said casing, at least one mould cavity extending inwardly from the periphery of said rotor body, an elastomeric moulding member disposed within said mould cavity, an inlet extending through the wall of said casing for filling the interior of said elastomeric moulding member with moulding material when said mould cavity and inlet are in radial alignment, an outlet extending through the wall of said casing for permitting discharge of moulded articles when said mould cavity and outlet are in radial alignment, a hydrostatic pump comprising a liquid filled cylinder within said rotor body and a piston, a liquid feed channel extending through said



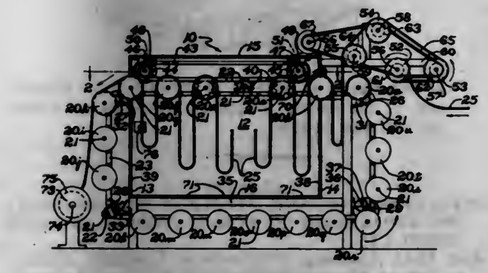
rotor body from said cylinder to the exterior surface of said elastomeric member, a stationary cam track and a cam follower cooperative with said cam track and which is connected to said pump piston for actuating it to build a hydrostatic pressure within said pump cylinder as said rotor body is rotated from the mould filling position, said hydrostatic pressure being transmitted from said pump cylinder through said feed channel to the exterior surface of said elastomeric member thereby to product an isostatic moulding pressure directed inwardly against the mould material within said elastomeric member.

3,319,293
LEAD ROLLER FOR ELASTOMERIC THREADS
Wolfgang Gollos, Klingenberg am Leitbaum, Germany, assignor to Vereinigte Glanzstoff-Fabriken AG., Wuppertal-Elberfeld, Germany
Filed Feb. 12, 1965, Ser. No. 432,330
Claims priority, application Germany, Feb. 15, 1964, V 15,981
10 Claims. (Cl. 18—8)



1. A lead roller for conveying a freshly spun elastomeric thread which comprises a hollow cylindrical roller having an annular groove in its outer circumferential surface, said groove being transversely smoothly rounded at least on the radially inwardly recessed peripheral portion thereof which is in running contact with said thread, and containing a plurality of openings distributed at substantially uniformely spaced intervals over the entire circumference of said recessed peripheral portion, said openings extending inwardly from said groove to the hollow space in said roller.

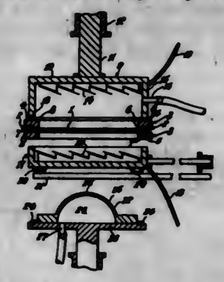
3,319,294
APPARATUS FOR EXPANDING AND CURING STRIP MATERIALS
Herbert H. Borsvold, Orange, and Paul H. Hauck, Seymour, Conn., assignors to The B. F. Goodrich Company, New York, N.Y., a corporation of New York
Filed Dec. 6, 1965, Ser. No. 511,906
2 Claims. (Cl. 18—6)



1. Apparatus for heating flexible continuous lengths of strip material in an essentially unsupported condition which apparatus comprises
(a) a heating chamber through which said flexible continuous lengths of strip material are advanced,
(b) a series of rotatably-mounted wheels having depressed peripheral surfaces for carrying a flexible continuous length of strip material,
(c) carrier means for advancing said series of rotatably mounted wheels in spaced-apart relationship through the upper portion of said heating chamber with said flexible continuous lengths of strip material looped between adjacent wheels of said series of rotatably mounted wheels,
(d) means for driving said carrier means,
(e) means for rotating said series of rotatably mounted wheels, alternately first in one direction and then in the other direction as said wheels are carried through the upper portion of said heating chamber on said carrier means,
(f) means for depositing said flexible continuous lengths of strip material on and looping it between adjacent wheels of said series of rotatably mounted wheels before said adjacent wheels enter said heating chamber,
(g) means for pulling said looped flexible continuous lengths of strip material from between adjacent wheels of said series of rotatably mounted wheels as said adjacent wheels emerge from said heating chamber, and
(h) means for heating the interior of said heating chamber.

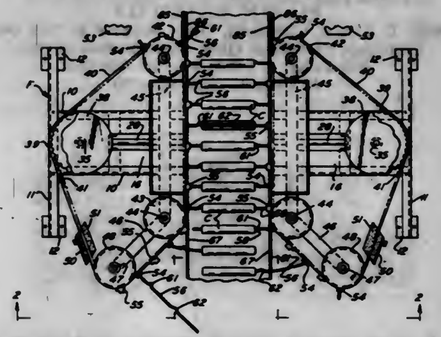
3,319,295
SHAPED ARTICLES
James Jones-Hinton, Solihull, and Thomas E. H. Gray, Sutton Coldfield, England, assignors to Dunlop Rubber Company Limited, London, England, a British company
Original application Oct. 2, 1961, Ser. No. 142,111, now Patent No. 3,207,821. Divided and this application Apr. 29, 1965, Ser. No. 451,770
Claims priority, application Great Britain, Oct. 21, 1960, 36,090/60; Jan. 19, 1961, 2,150/61
4 Claims. (Cl. 18—19)

1. Apparatus for vacuum forming a sheet of thermoplastic material comprising a peripheral clamp to hold the sheet in a molding position, an open sided box-like member positioned above said clamp for movement to and from said clamp, means for moving said box-like member to and from a position whereby said box-like member sealingly engages said clamp to form an evacuable enclosure, electrical heating means disposed within said box-like member for heating said sheet during said engagement, means for lowering the pressure within said



box-like member during said engagement, a shaping former positioned adjacent said clamp for movement to and from said sheet, and means for moving said shaping former to and from forming contact with said sheet.

3,319,296
APPARATUS FOR INSERTING CORES INTO SOAP
Harry E. Nylund and Helena T. Nylund, both of 1528 Sunny Hill Lane, Havertown, Pa. 19083
Filed Oct. 19, 1966, Ser. No. 587,719
10 Claims. (Cl. 18—26)

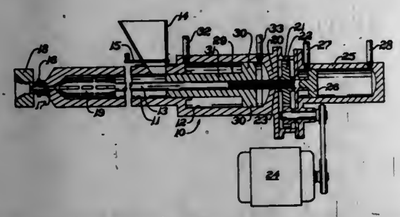


1. Apparatus for inserting cores into soap comprising
an elongated soap supporting receptacle,
an elongated carrier member for extending through a core in supporting relation thereto and having ends disposed beyond the core,
advancing members for said core carrier member for advancing said core carrier member along said receptacle,
said advancing members including horizontally spaced endless conveyor bands one of which has a rigid support at one end for said core supporting member and the other of which has a separable support for the other end of said core supporting member.

3,319,297
INJECTION MOLDING MACHINE
Graydon S. Garvin, La Canada, Calif., and Donald G. Kuharik, Cleveland, Ohio, assignors to The B. F. Goodrich Company, New York, N.Y., a corporation of New York
Filed July 17, 1964, Ser. No. 383,302
9 Claims. (Cl. 18—30)

1. In an injection molding machine comprising a barrel having a downstream portion and an upstream portion, means for feeding a thermoplastic resin into said

upstream portion, said downstream portion having a discharge opening, a spreader mounted in said barrel for reciprocable movement therein, means operatively connected to said spreader for selectively rotating said spreader at predetermined speeds, power operated means connected to said spreader for reciprocating said spreader in said barrel to condition such thermoplastic resin, the



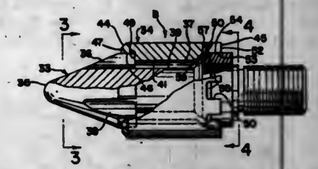
forward portion of said spreader being grooved and thereby cooperative with said discharge opening to maintain open communication therebetween, a ram axially aligned in said barrel and operative therein for advancing said resin from said upstream portion to said downstream portion past said spreader and through said opening, and means for actuating said ram.

3,319,298
INJECTION MOLDING APPARATUS FOR PLASTIC MATERIALS
Philip Z. Kiraly, Cleveland, Ohio, assignor to Van Dorn Company, Cleveland, Ohio, a corporation of Ohio
Filed Apr. 1, 1965, Ser. No. 444,584
12 Claims. (Cl. 18—30)

1. In an injection molding apparatus including an injection chamber, an injection screw, means for rotating said screw to fill said chamber with a plastic, injectable material, and means for forcing said screw axially after said chamber is filled to inject said material into a mold adjacent said chamber, said screw rotating means including a motor and a drive train driven by said motor for rotating said screw, the improvement comprising: a clutch within said drive train, said clutch including means responsive to the torque applied by said drive train on said screw for releasing said screw from positive driving relationship with said motor when said torque exceeds a preset maximum.

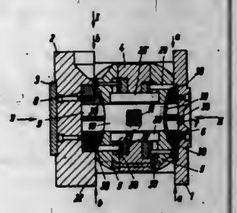
3,319,299
INJECTION MOLDING NOZZLE
Philip Z. Kiraly, Seven Hills, Ohio, assignor to Van Dorn Company, Cleveland, Ohio, a corporation of Ohio
Filed Apr. 19, 1965, Ser. No. 449,080
6 Claims. (Cl. 18—30)

1. An injection molding nozzle for injecting a plug of heated plastic into a mold cavity comprising
a feeding passage opening at opposite ends of the nozzle through which plastic is fed and deposited to form said plug,
a valve seat within said passage, and
a movable element guided strictly for rectilinear movement relative to the valve seat to open and close said passage, the passage being automatically closed



in response to an increase in pressure at the forward end of the nozzle to prevent backflow of plastic through said passage.

3,319,300
INJECTION MOLDING MACHINE FOR PRODUCING TWO-COLOR OR TWO-MATERIAL MOLDED PRODUCTS
Karl Hehl, Lossburg, Wurttemberg, Germany, assignor to Arburg Maschinenfabrik Hehl & Söhne, Lossburg, Wurttemberg, Germany
Filed May 4, 1964, Ser. No. 364,667
Claims priority, application Germany, Nov. 2, 1963, A 44,452
3 Claims. (Cl. 18—36)



1. A casting mold for an injection molding machine for producing two-color or two-material injection molded products and having two mold portions which are movable with respect to each other in the opening direction of the casting mold, said mold comprising, in combination:
(a) a first mold portion;
(b) a second mold portion movable relatively toward and away from said first mold portion: and
(c) a mold assembly disposed between said portions and which is displaceable within limits in the opening direction of the casting mold and mounted for rotation about an axis disposed transversely of the opening direction, said assembly having at least two mold profiles spaced from each other and disposed to meet with oppositely positioned mold profiles when the casting mold is closed to form mold cavities, one of which corresponds to the shape of one color component of the two-color injection molded product and the other one of which corresponds to the shape of the entire two-color injection molded product, said assembly including a mold piece mounted for limited displacement in the opening direction of the mold and which at least in part defines the mold profiles.

3,319,301
INJECTION MOLDING SHOE BOTTOMS
Herbert P. Ludwig, Desmastrasse 112, Usen, near Bremen, Germany
Filed Oct. 20, 1964, Ser. No. 405,147
5 Claims. (Cl. 18—42)

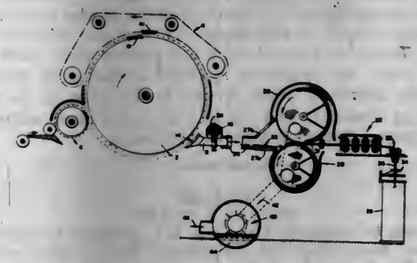
1. Apparatus for injection molding of a bottom to a lasted upper comprising a sole plate, a ring surrounding the sole plate, a lip peripherally of the ring extending inwardly therefrom relative to the sole plate, passages in

the sole plate and ring at different levels, means for moving said sole plate in the ring relative to the lip to a first position in which the sole plate has contact with the bottom of the lasted upper, in which position there is a cavity surrounding the bottom, and said passages are in com-



munication with each other and with said cavity surrounding the bottom, and to a second position in which the sole plate is spaced from the bottom, in which position there is a cavity beneath the bottom, and said passages are in communication with each other and with the space beneath the bottom.

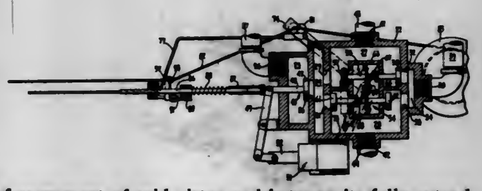
3,319,302
APPARATUS FOR SLIVER FORMATION IN CARDING MACHINES
Karl Schmauder, Rudolstadt, Germany, assignor to Institut fur Textiltechnologie der Chemiefasern, Rudolstadt, Germany
Filed Apr. 16, 1964, Ser. No. 361,610
5 Claims. (Cl. 19—106)



1. A pneumatic doffing device for carding machines having cylinder means to which fiber stock is supplied by licker-in means, comprising, in combination, means for producing subatmospheric air pressure for fiber removal, at least one suction nozzle means in closely adjacent relationship with cylinder means, conduit means between said air-pressure means and said nozzle means, separator means connected to said conduit means for producing a fibrous web from the fibers pneumatically removed by said nozzle means from said cylinder means, and electrostatic means connected between said nozzle means and said separator means for parallelizing said fibers.

3,319,303
HYDRAULIC ACTUATING MECHANISM FOR GARAGE DOORS
Raymond C. Salvo, 715 Adams St., Albany, Calif. 94706
Filed Apr. 2, 1964, Ser. No. 356,739
15 Claims. (Cl. 49—199)

15. Door actuating apparatus comprising a hydraulic cylinder including a piston rod extending from an end thereof, said rod extendable from said cylinder in response to admission of pressurized fluid to one end and exhaust of fluid from the second end of said cylinder, said rod retractable into said cylinder in response to admission of pressurized fluid to the second end and exhaust of fluid from the first end of said cylinder, said piston rod adapted for connection to a pivoted door to open or close same in response to movement of the piston rod, valve means including a pair of control ports respectively communicably connected to the first and second ends of said cylinder and supply and exhaust ports, said valve means having a first position communicating said supply port with one of said control ports and said exhaust port with the second control port, said valve means having a second position communicating said supply port with the second control port and said exhaust port with the first control port, reset means for operating said valve means between said first and second positions in response to completion



of movement of said piston rod between its fully extended and retracted positions, said valve means having actuated and unactuated positions wherein flow between said supply port and control ports is respectively established and disrupted, actuator means for moving said valve from said unactuated position to said actuated position in response to energization of said actuating means, actuating linkage means operatively associated with said valve and said piston rod for moving said valve from said actuated position to said unactuated position in response to completion of extension of said rod and in response to completion of retraction of said rod, and means for connecting said supply port to a supply of pressurized fluid.

3,319,304
CONCEALED COLLAR AND TIE TACK
Erby E. Adams, 2528 NW. 24th St., Oklahoma City, Okla. 73107
Filed May 12, 1965, Ser. No. 455,208
5 Claims. (Cl. 24—49)



1. A tie and collar tack for securing a tie or collar in place with the tack obscured from view, said tack comprising:
a tab having a substantially flat side for abutting flatly against the back, unseen side of a double-layered collar or tie;
an elongated, piercing member secured at one of its ends to said tab on the flat side thereof and pointed at its other end, said piercing member being bent intermediate its ends so that a space is defined between said flat side of said tab and a first part of the piercing member between its ends, said piercing member further having a second part extending through the plane of said flat side of said tab and projecting beyond the other side of said tab, said second part extending between said first part and the sharpened end of said piercing member; and

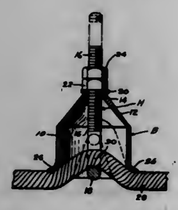
a friction gripping element detachably pressed over said sharpened end and engaging said second part of said piercing member for retaining said tack in position on a shirt.

3,319,305
CRAVAT HOLDER
Olof Verner Anderson, North Kingston, R.I., assignor to Anson, Incorporated, Providence, R.I., a corporation of Rhode Island
Filed Feb. 15, 1965, Ser. No. 432,542
5 Claims. (Cl. 24—49)



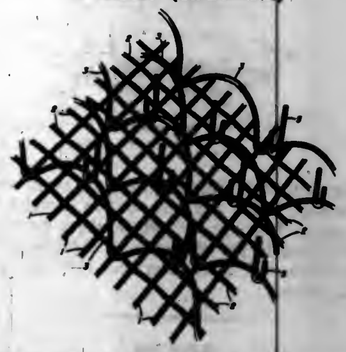
1. A cravat holder comprising an attaching clasp provided with a ring, a first leg, a second leg, means pivotally connecting one end of said first leg and one end of said second leg to said ring, a first arm, a second arm, means slidably mounting said first arm to said second arm, means pivotally connecting said first leg to said first arm, and a second means pivotally connecting said second leg to said second arm, said first arm having a first spacing bar and an ornamental bracket, and said second arm having a second spacing bar and an ornamental bracket, said first spacing bar and said second spacing bar having relative movement toward and away from each other.

3,319,306
CABLE SHORTENING DEVICE
Alfred L. Von Tersch, Clarinda, Iowa, assignor to Lisle Corporation, Clarinda, Iowa, a corporation of Iowa
Filed Aug. 16, 1965, Ser. No. 479,915
3 Claims. (Cl. 24—71.1)



1. In a cable shortening device, a sheet metal cylindrical body having one end open, its opposite end being truncated cone-shaped and having a relatively small opening at said opposite end, a hook bolt having its hook located in said cyindrical body and its shank extending outwardly through said relatively small opening, a take-up nut on the outer end thereof, the peripheral edge of said first mentioned end of said cylindrical body having a pair of diametrically opposite notches to form seats for a cable coacting therewith and which cable has a portion thereof intermediate said seats extending over said hook.

3,319,307
FABRIC FASTENING ASSEMBLY
Italo Marforio, Via Umberto I, 49, Seregno, Italy
Filed Oct. 12, 1964, Ser. No. 403,056
Claims priority, application Italy, Oct. 16, 1963, 21,302/63, Patent 706,990
3 Claims. (Cl. 24—204)



1. An assembly for fastening a first fabric over a second fabric, at least the second fabric having a plurality of interwoven warp and weft yarns; said assembly comprising a plurality of hooks extending downward from said first fabric, a portion of the warp threads of said second fabric being of a longer length than the remaining threads thereof, a portion of said longer warp threads being substantially arch shaped to form a plurality of loops extending upward from the plane defined by the remaining threads of said second fabric with a plurality of weft threads of said second fabric passing under each of said loops, the uppermost portions of said arch shaped threads defining a plane parallel to the plane of the remaining threads in said second fabric, said hooks adapted to engage said loops to effect said fastening.

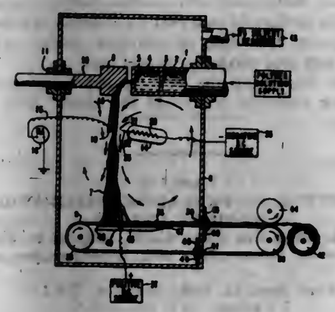
3,319,308
JEWELRY CLASP
Howard F. Williams, Cranston, R.I., assignor to Kestenman Bros. Mfg. Co., Providence, R.I., a corporation of Rhode Island
Filed July 15, 1965, Ser. No. 472,176
1 Claim. (Cl. 24—206)



As an article of jewelry, a clasp for wristwatch straps, bands and bracelets comprising a main member having a bottom wall and upstanding side flanges, a pin connected to said side flanges, an attaching member connected to said pin and provided with relatively flat lips for engaging across the opposite sides of a length of the strap, band or bracelet at one end thereof, means for preventing rotative displacement of said attaching member relative to said main member, a relatively flat clamping element held between the side flanges of said main member overlying the opposite length of the band or bracelet inserted through said main member above its bottom wall, said clamping member having a width less than the height of said side flanges and having leading and trailing transverse edges, said clamping member having a pair of aligned projections on opposing ends thereof and adjacent said leading edge, said side flanges having aligned holes receiving said projections so that said clamping

member is supported on an axis displaced from its center of gravity, an operating lever pivoted on said pin between the side flanges of said main member, and camming means on said operating lever adapted to engage against the top of the clamping element at a locus spaced from said projections and toward said trailing edge to cause it to cooperate with said bottom wall of said main member for gripping the band or bracelet to connect it with said clasp in adjusted relation on the wrist of the wearer.

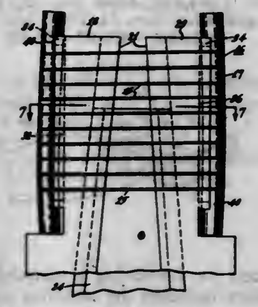
3,319,309
CHARGED WEB COLLECTING APPARATUS
John Edward Owens, Hockessin Hills, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed June 4, 1964, Ser. No. 372,629
4 Claims. (Cl. 28—1)



1. Apparatus for attracting, collecting and discharging a sheet of electrostatically charged fibrous elements comprising in combination a continuous surface adapted to move continuously in a given direction, a charged plate on one side of and conforming to the shape of the said continuous surface and adapted to generate an electrostatic field of opposite polarity in the path of the said continuous surface, the said plate extending transversely of and having an upper side and a lower side, the lower side converges upwardly and terminates at the upper side to form a sharp edge along the trailing end of the plate to provide a corona discharge between the said sheet and the said plate whereby fluffing up of said sheet is prevented, means for forwarding to and depositing electrostatically charged fibrous elements upon the side of the said surface opposite to that on which the said plate is disposed, at a point upstream from the said trailing edge.

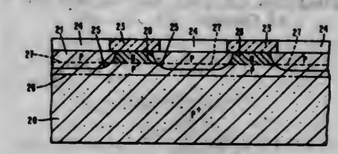
3,319,310
MANUFACTURE OF GRID ELECTRODES
John G. Woehling, Verona, N.J., assignor to Radio Corporation of America, a corporation of Delaware
Filed May 20, 1964, Ser. No. 368,866
1 Claim. (Cl. 29—25.18)

A method of sizing a grid electrode having a pair of spaced-apart side rods and a lateral wire wound around and secured to said side rods, said method comprising:
positioning a pair of forming jaws within said grid electrode, said jaws having longitudinal grooves matching said side rods at short length end portions and oversize in width at the intermediate portion,
moving said jaws away from each other for engaging inner portions of the side rods along the lengths of the side rods and engaging side portions of the side rods only along said short length portions, and
continuing the movement of said jaws away from each other until appropriate stretching and shaping of said lateral wire result and simultaneously the matching



groove portions act on the short length portions only of the side rods to dispose them in preselected positions.

3,319,311
SEMICONDUCTOR DEVICES AND THEIR FABRICATION
Walter E. Mutter, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed May 24, 1963, Ser. No. 283,028
12 Claims. (Cl. 29—25.3)

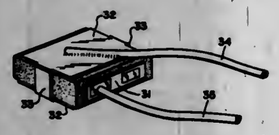


6. In the fabrication of a multiple-unit semiconductor diode the method of inhibiting the formation of undesired surface inversion regions comprising:
forming a low-resistivity body of semiconductor material of one conductivity type which is to be electrically common to said units;
vapor depositing a high-resistivity layer of semiconductor material of the opposite conductivity type on a surface of said body;
thermally decomposing a siloxane compound to deposit on said body a silicon oxide coating to serve as a diffusion mask;
forming apertures in selected portions of said mask;
diffusing a conductivity-directing impurity of said one type through said apertures and selected portions of said layer in said body for converting said portions to said one conductivity type and for producing on a surface region of each of said portions a concentration of said impurity sufficient to inhibit the inversion of said surface regions to said other conductivity type;
applying electrical connections to said portions of said high-resistivity layer; and
applying an electrical connection to one of said converted portions of said one conductivity type.

3,319,312
PROCESS FOR FABRICATING MINIATURE CAPACITORS

Edwin J. Brajer, Arlington Heights, Ill., assignor to Zenith Radio Corporation, Chicago, Ill., a corporation of Delaware

Original application Nov. 2, 1961, Ser. No. 149,577, now Patent No. 3,280,448, dated Oct. 25, 1966. Divided and this application Nov. 12, 1964, Ser. No. 410,575
4 Claims. (Cl. 29—25.42)



1. A process for fabricating a miniature temperature stable capacitor including the following steps:

providing a two-layer dielectric structure formed from layers having different temperature coefficients of capacity and having opposed major surfaces, and from spacer elements adapted to intervene between the major inner surfaces;

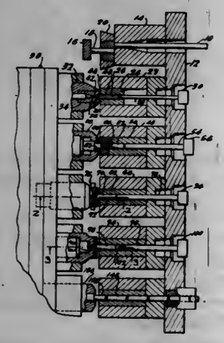
merging said layers and spacer elements into a unitary composite dielectric structure having an inner cavity;

and thereafter providing electrodes on the major outer surfaces of said structure and the walls of said inner cavity.

3,319,313
APPARATUS FOR MANUFACTURING STUDS

Joseph J. Kurtz, Lorain, Ohio, assignor to Gregory Industries, Inc., Lorain, Ohio, a corporation of Michigan

Filed Sept. 15, 1965, Ser. No. 487,522
15 Claims. (Cl. 29—34)



1. Apparatus for manufacturing a slug-loaded stud to be welded to a surface, said apparatus comprising means for severing a piece of bar stock of predetermined length, means for forming a truncated conical end on one end of said piece, means for piercing a flux recess in the conical end of said piece, means for crimping said flux recess, means for feeding a body of flux partly into said recess and for shaping a projecting part of said body to a predetermined shape, sensing means, means for moving said sensing means toward the piece after the piece is subjected to said feeding and shaping means, and means responsive to said sensing means for stopping operation of the apparatus if the flux recess is empty.

3,319,314
SURFACE TREATMENT FOR JOINTLY IMPROVING FRICTION AND FLUIDTIGHTNESS

Jean Jacques Caubet, Saint-Etienne, France, assignor to Automobiles M. Berliet, Lyon, Rhone, France, and Hydromecanique et Frottement, Saint-Etienne, France, both French corporations

No Drawing. Filed June 7, 1965, Ser. No. 462,093
Claims priority, application France, July 22, 1964, 982,640, Patent 1,409,876
2 Claims. (Cl. 29—149.5)

1. Surface treatment of a cold hardenable metal part intended for use in rubbing contact with another member, said surface treatment imparting high wear resistance to the treated metal part, said surface treatment comprising:

(1) machining said metal part to produce a rough surface having machining marks substantially perpendicular to the intended direction of displacement relative to said other member,

(2) heat-treating the machined part in a salt bath or gaseous atmosphere and simultaneously introducing into the surface of said part a substance selected from the group consisting of nitrogen, sulfur, selenium, tellurium, and mixtures thereof, and

(3) cold hardening the heat-treated metal part with a force sufficient to exceed the elastic limit of the metal.

3,319,315
METHOD OF PREPARING MAGNETIC MEMORY DEVICE

Melville A. Dike, Los Altos, Calif., assignor to Tech-Met Corporation, Sunnyvale, Calif., a corporation of California

Filed Nov. 21, 1962, Ser. No. 239,173
7 Claims. (Cl. 29—155.5)



1. A method of making a surface structure having an ultra-smooth surface for cementing to a substrate to form a magnetic memory device which comprises the steps of:

chemically depositing a layer of silver upon an optically smooth working surface of a glass master, precision ground to be the exact negative of the record surface of the magnetic memory device;

depositing a magnetic coating on said silver layer;

depositing a metallic non-magnetic coating upon said magnetic coating; and

breaking the bond between said silver layer and said working surface to remove the surface structure from said glass master for affixing to said substrate.

3,319,316
METHODS OF SEPARATING, ORIENTING AND ASSEMBLING A PLURALITY OF ENTANGLED ARTICLES

James B. Geyer, Baltimore, Md., assignor to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York

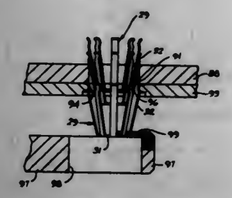
Filed July 6, 1964, Ser. No. 380,413
7 Claims. (Cl. 29—155.5)

1. A method of separating a plurality of entangled articles having flat bases with resilient fingers extending angularly therefrom and orienting the articles, comprising the steps of:

depositing the entangled articles on a first plate having a plurality of equidistantly spaced apertures,

imparting vibrations to said first plate to separate the articles one from another and to stack them one on top of the other in the apertures with the bases in a downward position and the fingers resting on the edges of the apertures,

interrupting the vibrations,



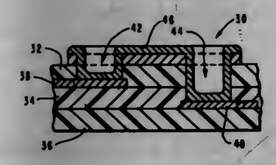
positioning a second plate having a plurality of apertures under said first plate with the apertures of both plates in alignment, and

pulling the bottom article from the stack of articles into the apertures of the second plate, whereby the articles are separated one from another and oriented in the apertures of the second plate.

3,319,317
METHOD OF MAKING A MULTILAYERED LAMINATED CIRCUIT BOARD

Kevin J. Roche, Poughkeepsie, and Paul H. Palmateer, Wappingers Falls, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York

Filed Dec. 23, 1963, Ser. No. 332,709
1 Claim. (Cl. 29—155.5)



A method for providing selective electrical connections between a plurality of layers of a multilayer laminated circuit board, said circuit board including a plurality of insulating sheets with conductive lands laminated therebetween, at least one surface of said circuit board having a mask applied thereon, the method comprising the steps of:

removing portions of said mask over the most deeply laminated conductive lands within said circuit board to which connections are to be made;

applying an insulating sheet etchant through said removed portions of said mask to the exposed board areas to produce etched holes in said sheets, said etchant being chosen to have little or no effect on said conductive lands;

terminating the action of said etchant before it begins to undercut the sides of said etched holes;

removing additional portions of said conductive mask which are positioned over board areas wherein connections are to be made to conductors less deeply laminated within the circuit board;

reapplying said insulating sheet etchant through said conductive mask to all exposed board areas to both continue the etching action in holes already started and to commence the etching action into the newly exposed areas;

terminating the action of said etchant before undercutting commences;

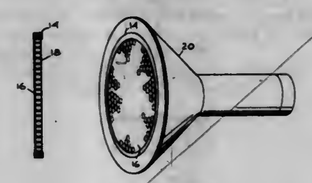
repeating said mask removal, etchant application and etchant action terminating steps until all interior conductive lands to which connections are desired are exposed each conductive land which is exposed, acting to inhibit the further penetration of said insulating sheet etchant into said circuit board; and

coating the thereby produced holes and exposed conductive lands with another conductor.

3,319,318
THIN GAS TIGHT WINDOW ASSEMBLY

Samuel I. Taimuty, Palo Alto, Calif., assignor to Stanford Research Institute, Palo Alto, Calif., a corporation of California

Filed Feb. 24, 1964, Ser. No. 346,768
4 Claims. (Cl. 29—155.5)

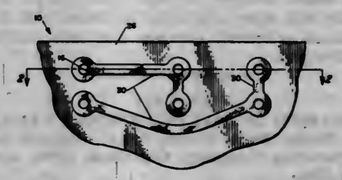


1. A method of making a thin film electron pervious window comprising coating wires made of a first metal soluble in a solvent with a thin film of a second metal not soluble in said solvent, compacting a bundle of said wires, polishing an end surface of said bundle, to establish a smooth surface with the ends of wires in said bundle, dissolving out said first metal with said solvent leaving a cellular like grid of said second metal, filling the holes of said cellular like grid with a material which is soluble in a second solvent in which said first and second metals are not soluble, depositing on said polished surface a film of said first metal to a desired thickness, and dissolving said material out of said cellular grid with said second solvent.

3,319,319
METHOD OF MAKING A PRINTED CIRCUIT BOARD

Anton Oswald, Farmington, Conn., assignor to General Precision, Inc., Little Falls, N.J., a corporation of Delaware

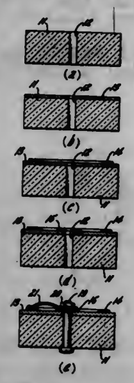
Filed Feb. 11, 1965, Ser. No. 431,965
2 Claims. (Cl. 29—155.5)



1. The method of manufacturing a printed circuit board, which includes the steps of, molding a board of insulating material about a plurality of pins having surfaces of irregular configuration, exposing a portion of each of said pins on one face of said board, bonding a layer of conductive material on said one face and the portions of said pins exposed thereon with an electrically conductive adhesive material applied in the configuration of the desired printed circuit pattern, and removing

portions of said conducting material to form a printed circuit pattern interconnecting said pins.

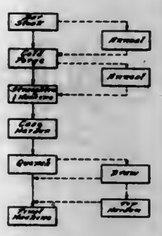
3,319,320
METHOD OF MAKING A POTENTIOMETER ON A THIN FILM CIRCUITRY PANEL
Ronald F. Cruthers, Indianapolis, Ind., assignor to the United States of America as represented by the Secretary of the Navy
Filed Aug. 26, 1964, Ser. No. 392,357
1 Claim. (Cl. 29—155.7)



A method of making a potentiometer integral with the substrate of a thin-film circuitry panel comprising:
first providing a hole in said substrate,
then depositing a protective coating on said substrate, said protective coating being selected from the group consisting of silicon monoxide, neodymium oxide, titanium oxide, tantalum, and barium titanate,
then depositing on said coating concentrically about said hole an arcuated resistance element,
then depositing a plurality of conductive terminal pads and a circular conductive pad on said coating, said pads being selected from the group consisting of chromium-copper, chromium-gold, beryllium-copper, copper, aluminum, platinum-gold, and aluminum-bronze, said circular conductive pad being positioned between said hole and said arcuated resistance element and said conductive terminal pads being in contact one each with the ends of said arcuated resistance element and one conductive terminal pad being in contact with said circular conductive pad, and
then attaching a wiper arm to said substrate by fastening means secured through said hole in said substrate, said wiper arm being in contact with both said arcuated resistance element and said circular conductive pad.

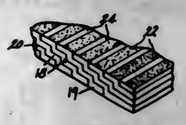
3,319,321
METHOD OF MAKING ENGINE VALVE
Louis J. Danis, Battle Creek, Mich., assignor to Eaton Manufacturing Company, Cleveland, Ohio, a corporation of Ohio
Filed Jan. 10, 1964, Ser. No. 337,064
7 Claims. (Cl. 29—156.7)

1. A process for making a poppet-type engine valve which comprises the steps of providing a blank of a metal selected from the group consisting of carbon steel and low-alloy steel containing from about 0.03% to about 0.60% carbon and up to about 5% of intentional alloying constituents, said steel further characterized as being susceptible to case hardening and having a degree of ductility enabling cold forming thereof, cold forming said blanks into a valve blank comprising a head portion and a stem portion, machining said valve blank to a configuration and size slightly greater than the final finish dimension, case hardening said valve blank to a depth to provide a finish valve surface hardness of at least



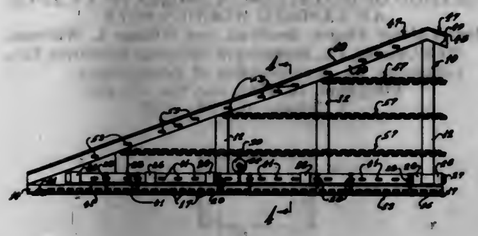
about 20 Rc on the surfaces of the finished valve and a hardness of at least about 50 Rc on the tip of said stem, and thereafter finish machining said valve blank to the final dimension.

3,319,322
METHOD OF MAKING A FINNED HEAT EXCHANGE PANEL
George A. Anderson, Northford, Conn., assignor to Olin Mathieson Chemical Corporation, a corporation of Virginia
Filed June 3, 1964, Ser. No. 372,246
5 Claims. (Cl. 29—157.3)



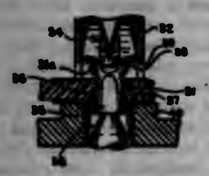
1. The method of making a finned heat exchange panel comprising the steps of
(A) forming a composite of a pair of sheets of metal, one of said sheets having on a confronting surface thereof a pattern of weld preventing material,
(B) forming from metal sheet fin stock a substantially flat stack of a plurality of overlapped and stepped layers with oppositely facing end portions of each layer extending beyond the ends of adjacent layers, said layers being coated with weld preventing material on both sides thereof except for a relatively narrow uncoated strip adjacent at least one longitudinal edge of said layers on the outer surface thereof, said uncoated strip being disposed on at least one of said oppositely facing end portion,
(C) forming a blank by superposing said stack on said composite with said uncoated strips of said layers in contact with said composite,
(D) forming an integrated unitary structure by pressure welding said sheets of said composite together except in the area of said pattern of weld preventing material and simultaneously pressure welding said stack to said composite in the areas of said uncoated strips,
(E) inflating the unjoined portions of said composite by injecting thereinto a fluid under pressure thereby forming interior hollow passageways, and
(F) raising the unjoined portions of said layers thereby providing integral erect fins overlying said hollow passageways.

3,319,323
JIG FOR MAKING AND ASSEMBLING SEPARATE GABLE SECTIONS
Marshall O. Groat, Fort Payne, Ala., assignor to Kingsberry Homes Corporation, a corporation of Delaware
Filed June 3, 1965, Ser. No. 461,068
11 Claims. (Cl. 29—200)



1. In a jig for making separate sections of a gable and then bringing the sections together for assembly:
(a) a supporting frame,
(b) a gable plate support and positioning member carried by said frame and of a length greater than the length of two gable plates whereby the gable plates of the separate sections may be positioned thereon in spaced relation to each other,
(c) a pair of gable rafter support and positioning members carried by said frame and extending at an angle relative to each other and relative to said gable plate support and positioning member with each rafter support and positioning member being of a length greater than the length of a rafter whereby the rafters of the separate sections supported on said rafter support and positioning members may be positioned in spaced relation to each other,
(d) releasable clamping means carried by said frame to clamp the gable plates of the separate sections to said gable plate support and positioning member in spaced relation to each other,
(e) stud positioning members operatively connected to said frame in position to engage and align the studs to be connected to the gable plates and rafters of the separate sections, and
(f) a plurality of rollers carried by said gable plate support and positioning member in position to support at least one of said gable plates for movement toward the other gable plate upon release of said releasable clamping means.

3,319,324
TOOLING ARRANGEMENT FOR INSTALLING CHANNEL FLANGED EYELETS IN PRINTED CIRCUIT BOARDS
Joseph D. Keller, Winter Park, Fla., assignor to Martin-Marietta Corporation, a corporation of Maryland
Original application June 15, 1961, Ser. No. 117,435, now Patent No. 3,190,953, dated Nov. 5, 1963. Divided and this application Jan. 29, 1965, Ser. No. 440,655
20 Claims. (Cl. 29—203)



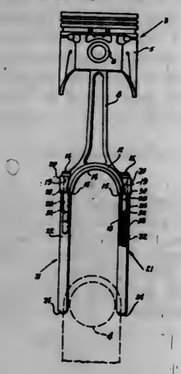
1. A tooling arrangement for establishing a hollow eyelet in proper electrical position in a hole in a circuit board or the like comprising opposed locating and setting means disposed in substantial alignment and relatively movable to act against an eyelet to set it in a hole in a circuit board, said locating means being adapted to extend through the hole in which the eyelet is to be placed, one of said opposed means having relatively movable inner and outer portions, with said outer portion being movable along said inner portion to force the eyelet into contact with the other of said opposed means, at least one of said opposed means being equipped with a plurality of blades thereon for cutting channels in one end of said eyelet so as to form a plurality of petals therein during the setting operation, and means for spreading said eyelet so as to mechanicailly lock it in position in said circuit board.

3,319,325
GASKET SEATING ADAPTER AND METHOD OF INSTALLING O-RING GASKETS
Alvin A. Nessamar, 399 Barrello Lane, Cocoa Beach, Fla. 32931, and George F. Palumbo, 2001 S. Washington Ave., Titusville, Fla. 32780
Filed Oct. 16, 1964, Ser. No. 404,289
6 Claims. (Cl. 29—235)



1. A gasket-seating adapter for use in combination with a resilient O-ring type gasket and a standard-threaded stem having an annular gasket seat at the base of the threads of said stem, said adapter comprising an elongated one-piece thimble having a substantially continuous smooth outer surface symmetrical about the longitudinal axis of said thimble, the outer surface of said thimble, from end-to-end, having a circular, transverse cross-section and being of a reduced diameter at one end for receiving a resilient O-ring gasket thereon, the other end of said thimble outer surface being of a diameter slightly exceeding the major diameter of a standard thread, said thimble outer surface including a longitudinal, intermediate taper diverging uniformly from said reduced diameter for progressively stretching the resilient O-ring gasket as it is urged axially thereover, said thimble having an axial bore opening immediately into said other end and defining a thin-walled, continuous annulus, symmetrical about said longitudinal axis, said thimble including abutment means in said axial bore and spaced inwardly from said other end for automatically orienting the terminal edge of said thimble in close proximity to the annular seat of the standard-threaded stem when said abutment means engages the therminal end of the stem and all of the threads of the stem are completely jacketed within said thin-walled annulus whereby a resilient O-ring type gasket can be urged axially along said thimble outer surface from one end to the other and is progressively, uniformly circumferentially stretched over the threads of a stem and is deposited in a stretched condition into said annular seat of said stem, said thimble including a relieved outer circumferential edge portion at the terminal end of said other end of said thimble for relaxing said gasket into said annular seat.

3,319,326
PREASSEMBLED PISTON AND PISTON ROD BEARING COMBINATION
Elmer Isaac Unglesby, 6701 Stockton Blvd., Sacramento, Calif. 95823
Filed Feb. 8, 1965, Ser. No. 430,969
2 Claims. (Cl. 29—271)

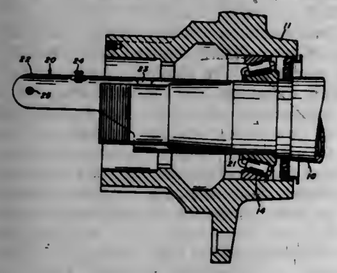


1. In a preassembled piston rod and piston combination of the type having a piston secured at one end of a piston rod, the other end of the piston rod being bifurcated and having formed therein a concave bearing member receiving portion, and a removable bearing member received in said concave portion, said piston rod including means defining apertures adjacent the ends of the concave portion, the improvement comprising:

a pair of threaded bolt means extending through said apertures; and

a pair of elongated tool means having a threaded opening in at least one end received on said bolts and extending toward each other to engage only the ends of said bearing member to secure said bearing member in said concave portion while said bearing member is being fitted on a crankshaft.

3,319,327
TOOL FOR POSITIONING A WHEEL ON AN AXLE
Walter J. Dombeck, 525 1st Ave., Ellwood City, Pa. 16117
Filed Oct. 23, 1965, Ser. No. 503,102
7 Claims. (Cl. 29—273)

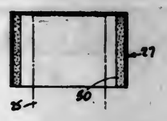


1. A tool for use on the threaded outer end portion of a vehicle axle when a wheel assembly is to be positioned on the axle toward or away from the end portion, comprising,

(a) a sleeve member slidable over the threaded end of the axle, the sleeve having an inner portion extending inwardly beyond the threaded portion and an outer portion extending outwardly beyond the outermost end of the axle, and
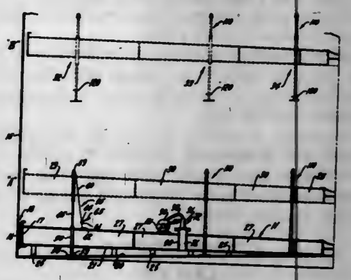
(b) means disposed intermediate the sleeve and the axle and abutting the sleeve and axle to support the sleeve in spaced relation to the axle.

3,319,328
METHOD OF INSTALLING A PROTECTIVE CAP ON AN EXPOSED WOODEN POLE
James Henry Finger, Scottdale, and William L. Williams, West Chester, Pa., assignors to Millmont Industries, Inc., Leisenring, Pa., a corporation of Pennsylvania
Filed Sept. 24, 1962, Ser. No. 225,663
9 Claims. (Cl. 29—423)



1. The method of preserving wooden elements exposed to temperature and weather which comprises the steps of expanding an elastomeric cap, mounting said expanded cap on a support, covering the upper extremity of said wooden pole with said expanded cap, removing said support from said expanded cap and permitting the expanded cap to contract to form a protective enclosure for the top and upper peripheral portions of the pole.

3,319,329
METHOD OF CONSTRUCTING STORAGE TANKS
Herbert K. Knutsen, Chicago, Ill., and Mark D. Kinghorn, Schererville, Ind., assignors to Union Tank Car Co., Chicago, Ill., a corporation of New Jersey
Filed Dec. 31, 1963, Ser. No. 334,784
10 Claims. (Cl. 29—428)



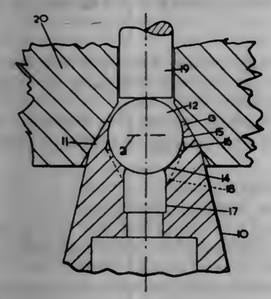
10. A method of constructing a roof in a storage tank having a bottom, an annular wall extending upwardly from said bottom, and a roof, comprising the steps of: constructing said roof upon said bottom and within said wall, maintaining a clearance between said wall and the circumference of said roof whereby said roof is vertically movable within said wall, providing sealing means in said clearance to farm a movable fluid seal between said roof and said wall, providing structure secured to the bottom of said tank and extending above said roof, providing cable means relatively movably connected to said roof and extending upwardly therefrom into fixed connection with said structure, introducing fluid under pressure between the underside of said roof and said bottom to raise said roof to a predetermined elevation, maintaining said roof in horizontally level relationship with said cable means as said roof is raised, and securing said roof to said structure at a prescribed elevated position whereby said roof is prevented from descending below a desired position when fluid is removed from the tank.

3,319,330
METHOD OF MANUFACTURING AN EXPANSION JOINT COVER
Harvey L. Patry, Francis J. Patry, and Ernest Patry, Lewiston, and Harold Blair Lamont, Lincolnville, Maine, assignors to Lamont & Riley, Inc., Worcester, Mass., a corporation of Massachusetts
Filed Feb. 5, 1964, Ser. No. 342,766
4 Claims. (Cl. 29—430)



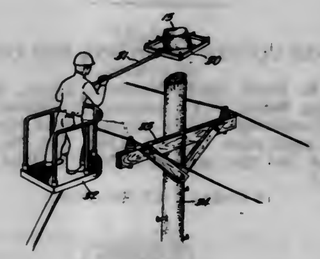
1. The method of making an elastic joint member comprising forming two strips each strip having a first integral portion with a superimposed second integral middle portion bent back over a part of the first portion and each strip having a third integral portion extending transverse to the second portion in a direction away from the first portion, positioning said strips with said third portions facing each other and with the two second portions forming a platform between the third portions, positioning a strip of elastic material on said platform, and bending the third portion onto the elastic material to clamp the elastic material between the second and third portions.

3,319,331
METHOD FOR PRODUCING BALL POINT WRITING INSTRUMENTS
Hans Reinhard Fehling, Zug, Switzerland, and Alfred Dennis Street, Pinner, England, assignors to I.R.C. Limited, London, England, a company of Great Britain
Filed Mar. 15, 1965, Ser. No. 439,659
Claims priority, application Great Britain, Mar. 17, 1964, 11,280/64
6 Claims. (Cl. 29—441)



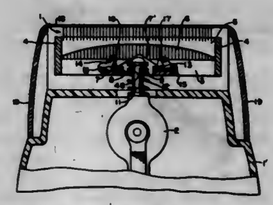
1. A method for making a ball point writing instrument comprising inserting a writing ball into a housing having a ball-receiving socket with a central internal ink feed duct leading to the rear of the socket to supply ink to the ball, a base seat having a plurality of integral base seat elements disposed about the terminus of the ink feed duct and formed with part spherical base seat surfaces to provide support for a writing ball during writing, the base seat being intersected by a plurality of ink channels leading laterally outwards from the feed duct and a lip projecting forwardly about the socket at the forward end of the housing, deforming the lip laterally inwardly in the region surrounding the ball to cause the inner surface of the lip to conform to the shape of the ball and thereby provide a part-spherical lateral ball seat surrounding the ball both forwardly and rearwardly of the equator thereof, deforming the socket by an axially applied force to provide a slight clearance between the ball and the part-spherical lateral seat, and forcing the writing ball axially in the direction out of the socket a distance no greater than about one-tenth the diameter of the writing ball without removing the ball from the socket to produce a diverging clearance between the ball and the lateral ball seat which increases toward the forward end of the lip.

3,319,332
METHOD OF APPLYING A PROTECTIVE CAP ON A WOODEN POLE
James Henry Finger, Scottdale, and William L. Williams, West Chester, Pa., assignors to Millmont Industries, Inc., West Leisenring, Pa., a corporation of Pennsylvania
Filed Nov. 22, 1965, Ser. No. 508,912
1 Claim. (Cl. 29—450)



The method of applying a protective cap to a wooden pole or the like which comprises the steps of stretching an elastic cap, engaging external loops on the expanded cap with axially extending pins on a frame to maintain the expanded cap in the stretched condition, elevating the frame and the expanded cap to a point accessible to the top of the pole, lowering the frame and expanded cap over the top of the pole to position the expanded cap on the pole, further lowering the frame to disengage the expanded cap from the pins on the frame to allow the stretched cap to contract onto the pole, and removing the frame from the pole by raising the frame over the pole and the released cap.

3,319,333
CUTTING HEAD FOR A DRY SHAVER
Bodo Futterer, Sarnen, Obwalden, Switzerland, and Werner Messinger, Frankfurt am Main, Germany, assignors to Ronson Corporation, Woodbridge, N.J., a corporation of New Jersey
Original application Oct. 14, 1963, Ser. No. 316,095. Divided and this application May 9, 1966, Ser. No. 548,575
Claims priority, application Germany, Jan. 30, 1960, B 56,466
5 Claims. (Cl. 30—43.92)



1. In a dry shaver, in combination: a housing; a cutting head mounted on said housing and including a movable cutter and a stationary cutting foil overlying said movable cutter; oscillating means in said housing and including an oscillating lever for reciprocating said movable

cutter along the inner surface of said cutting foil; coupling means including a bushing slidably mounted on said lever for reciprocation in axial direction of the latter; a plate formed with a central opening therethrough through which said bushing extends and being pivotally connected to said bushing tiltable about a fixed axis transverse to the axis of said lever; and connecting means for releasably connecting said movable cutter to said plate; and spring means engaging at one end thereof against said lever and at the other end against said bushing of said coupling means and tending to move the latter and said movable cutter connected thereto in direction of the axis of said lever toward said cutting foil whereby said spring means is stressed only due to reciprocation of said bushing in axial direction of said lever and is not stressed due to relative tilting movement of lever and plate about said transversely extending axis.

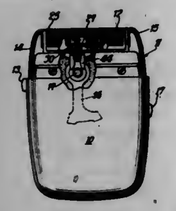
3,319,334

INNER CUTTER MOUNTING FOR POWER SHAVERS

Beverly B. Bond, South Norwalk, Conn., and James Schnapp, Bronx, N.Y., assignors to Ronson Corporation, Woodbridge, N.J., a corporation of New Jersey

Original application Oct. 14, 1963, Ser. No. 316,095. Divided and this application May 9, 1966, Ser. No. 554,263

6 Claims. (Cl. 30—43.92)



1. In a power shaver, an oscillating rocker arm, a movable cutter disposed adjacent said arm, a stationary cutter overlying said movable cutter, and means for reciprocating said movable cutter in close engagement with the stationary cutter, said means comprising a trunnion member and a bearing member interposed in series between said arm and said movable cutter, said bearing member having a socket therein in which a trunnion carried by said trunnion member is pivotally engaged.

3,319,335

AUTOMATIC STEREOTEMPLET SCALE ADJUSTER

James W. Halbrook, 1314 Bunker Hill Road, Alexandria, Va. 22308

Filed Apr. 15, 1964, Ser. No. 360,151

4 Claims. (Cl. 33—1)



1. A stereotemplet scale adjuster comprising:
(a) a block member having a hole adapted to receive a stud of a slotted stereotemplet;
(b) a two way linearly biased spring assembly attached to said block member;
(c) a shaft connected to said spring assembly and capable of reciprocal movement to opposite sides of a zero point of said spring assembly; and
(d) a block assembly slidable along said shaft and adapted to be clamped to said shaft at any position along said shaft, said block assembly having a hole adapted to receive a stud of a slotted stereotemplet.

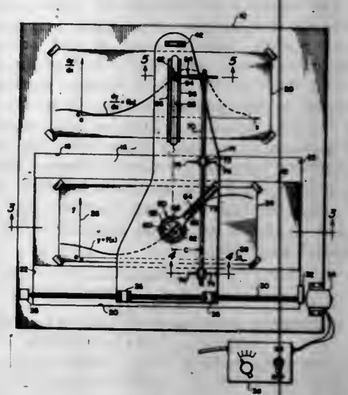
3,319,336

MECHANICAL DIFFERENTIATOR

Charles H. Chervenka, Sunnyvale, Calif., assignor to Beckman Instruments, Inc., a corporation of California

Filed Apr. 18, 1966, Ser. No. 543,376

8 Claims. (Cl. 33—27)



1. An apparatus for obtaining a continuous plot of the differential of a function $y=f(x)$ plotted on a rectangular coordinate system having a y axis and an x axis, comprising
a base;
a first carriage mounted on said base for supporting a plot of said function and being movable in a direction parallel to said y axis;
a second carriage mounted on said base and movable over said first carriage in a direction parallel to said x axis;
a slope finder, pivotally mounted on said second carriage and angularly positionable to be brought into alignment with lines tangent to said plotted function;
a follower connected to said slope finder and slidably mounted on said second carriage for movement in a direction parallel to said y axis and positioned a fixed distance from the pivot point of said slope finder as measured along a line parallel to said x axis; and
means operatively associated with said follower for providing a record of said derivative.

3,319,337

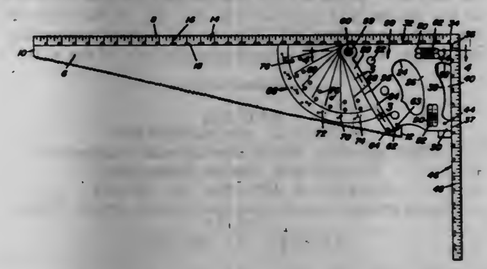
CARPENTER'S SAW WITH ADDED MULTI-PURPOSE FACILITIES

Manuel Cortez, 411 Laurel St., Santa Cruz, Calif. 95060

Filed Oct. 23, 1965, Ser. No. 502,854

6 Claims. (Cl. 33—75)

1. In combination, a carpenter's saw embodying a flat-faced flexible blade having opposed longitudinal marginal edges joined at their respective forward and rearward ends by transverse leading and trailing edges, one longitudinal edge, the one constituting the back of the blade, being linearly straight from end to end and providing a straight edge for scribing and similar purposes, at least one lengthwise face of said blade proximal and parallel to said straight edge having measured graduation coacting with each other and said straight edge and defining and providing a linear measuring scale, handle means cooperating with and mounted on the transverse trailing end portion of said blade and terminating in a handgrip, a rearward marginal edge portion of said handgrip having upper and lower outstanding companion lugs, both of said lugs and a portion of the edge of the handgrip between said lugs having aligned open-ended coordinating grooves conjointly constituting a keyway which is adapted to accommodate an optionally attachable try-square leg, the side face portions of said handle means having recesses, spirit levels fitted and confined for flush operation in their respective recesses, at least one horizontal spirit level having its lengthwise dimension parallel with the aforementioned straight edge, a second spirit level whose



lengthwise axis is at right angles to said straight edge, the forward leading edge portions of the component parts of said handle means being planar and inclined rearwardly and downwardly and providing oblique angled shoulders cooperating with adjacent blade surfaces, and, in combination, a readily attachable and detachable straight edged try-square leg of requisite length having graduated measuring scales on exposed surfaces, said leg being of a predetermined length and, when in use, being disposed at right angles to said straight edge measuring scale, having flat surface portions abutting coacting terminal straight ended surfaces of the aforementioned lugs, bridging the space between said lugs and having one terminal end mated at right angles, with the adjacent terminal end of said straight edged measuring scale, whereby the measuring scale in conjunction with said leg combine in providing a try-square.

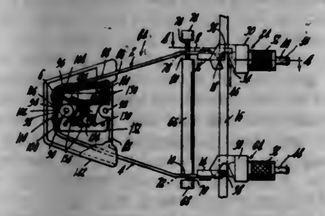
3,319,338

EXTENSOMETER

Joseph P. De Nicola, Quincy, Mass., assignor to Instron Corporation, Canton, Mass., a corporation of Massachusetts

Filed May 10, 1965, Ser. No. 454,499

9 Claims. (Cl. 33—148)



1. An extensometer for measuring strain in a specimen comprising:
an element with a pair of legs joined by a connector portion, each of said legs terminating away from said connector portion in a specimen-engaging surface,
a strain sensing unit mounted on said connector portion,
a clamp rotatably mounted on each of said legs about an axis defined by the said specimen-engaging surface of the respective leg for holding said specimen thereagainst,
said axis and the centerlines of said specimen-engaging surfaces being colinear.

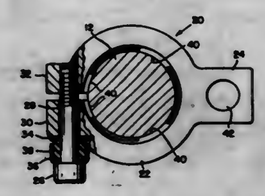
3,319,339

MULTI-HEIGHT COMPARATOR AND GAUGE

Joseph Marconi, Endicott, N.Y., assignor to Endicott Machine and Tool Company, Inc., Endicott, N.Y., a corporation of New York

Filed Apr. 5, 1965, Ser. No. 445,522

4 Claims. (Cl. 33—169)



1. A multi-height comparator comprising
(a) a base,
(b) a cylindrical post extending upwardly from said base, and
(c) an indicating member removably mounted on said post for vertical adjustment thereon and for angular adjustment about the axis of said post,
(d) said indicating member comprising a split clamp surrounding said post and having confronting lugs,
(e) a headed screw slidable through one of said lugs and threading into the other to tighten said clamp on said post, and
(f) a resilient member surrounding said screw and interposed between the head of said screw and said one lug to exert pressure on said one lug to hold said clamp resiliently in any adjusted position on said post while permitting the adjustment of said clamp on the post prior to tightening of the screw, said resilient member being disposed in a cup-shaped washer which is disposed between the head of said screw and said resilient member and normally held away from said one lug by said resilient member, and said resilient member being compressible, upon tightening said screw, to close the gap between said cup-shaped washer and said one lug to tighten said clamp on said post.

3,319,340

PROFILE INDICATOR AND RECORDER

Erwin W. Graham, Willoughby, Ohio, assignor to The Pipe Machinery Company, Wickliffe, Ohio, a corporation of Ohio

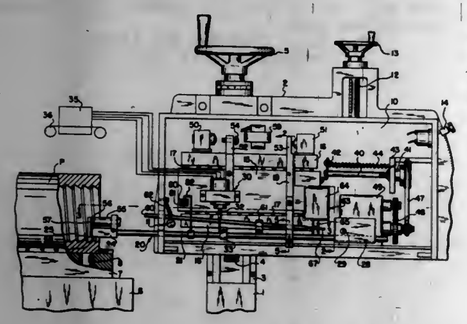
Filed Nov. 27, 1964, Ser. No. 414,104

5 Claims. (Cl. 33—174)

1. A profile indicator comprising an article supporting member having an article supporting surface,
a carrier member,
supporting means supporting the members for movement relatively toward and away from each other along a predetermined path,
an elongated rigid rod,
leaf spring pivot means pivotally connecting the rod, at a fixed location between the ends of the rod, to the carrier member and supporting the rod on the

carrier member for rocking relatively to the carrier member in a plane extending endwise of said path and intersecting said surface, about a fixed axis extending transversely of said path at a right angle to said plane, toward and away from said article supporting surface,

a follower mounted on one end of the rod for movement therewith and adapted to ride on the surface of an article supported on the article supporting member during relative movement of the members along said predetermined path,



signal producing means operatively connected to the follower and operated thereby in response to the positions to which the follower is moved in said plane,

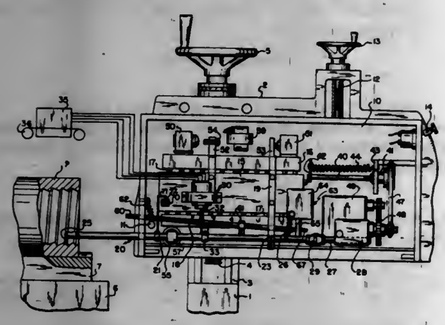
means operative in response to signals from said signal producing means to indicate the profile of an article being traversed by said follower,

a counter-balance on the rod at the opposite side of the pivot means from the follower,

yieldable resistance vibration damping means operatively connected to the follower for limiting the amplitude of vibration thereof, and

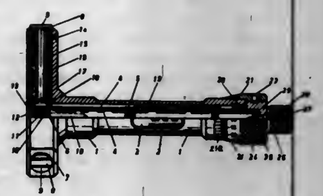
means for moving the members relative to each other along said path.

3,319,341
PROFILE INDICATOR AND RECORDER
Erwin W. Graham, Willoughby, Ohio, assignor to The Pipe Machinery Company, Wickliffe, Ohio
Filed Jan. 19, 1966, Ser. No. 521,742
5 Claims. (Cl. 33—174)



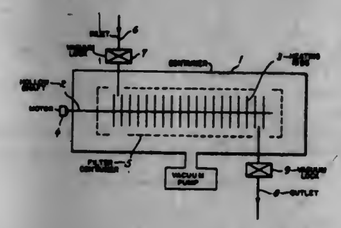
1. A profile indicator comprising an article supporting member, a carrier member, supporting means supporting the members for movement along a predetermined path relatively toward and away from each other, a rocking arm mounted on the carrier member for relative movement along said path during said relative movement of the members and for concurrent rocking movement relative to the carrier member about an axis extending transversely of the path, a follower on the arm in spaced relation to said axis and having a portion adapted to ride on a surface of an article on the article supporting member during said relative movement of the members along said predetermined path, signal producing means operatively connected to the follower and operated thereby to produce signals reflecting rocked positions of the follower about said axis, means operative in response to signals from the signal producing means to indicate the profile being traversed by said portion of the follower, a counterweight for said arm, a resilient shock absorbing means connected to the weight and connected to the arm at the opposite side of the axis from the follower and thereby connecting the weight to the arm at said opposite side of the axis.

3,319,342
INTERNAL MICROMETER
Chi Liang Cho, Zurich, Switzerland, assignor to Walter Pfister, Zurich, Switzerland
Filed July 6, 1964, Ser. No. 380,441
Claims priority, application Switzerland, July 8, 1963, 8,497/63
4 Claims. (Cl. 33—178)



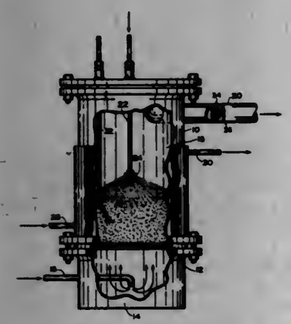
1. In an internal micrometer the combination with a tubular housing having a through bore, a probe head at one end of said housing for insertion into a bored workpiece opening, said probe head being integral with said housing and extending at right angles thereto and having three through bores in 120° angular relation transverse of said through bore, a probe unit in each of said probe-head bores, each such unit comprising a non-rotatable but axially displaceable and internally threaded sleeve and a threaded pin rotatably but axially immovably engaged in said probe head in threaded engagement with said sleeve, a micrometer spindle rotatably but axially immovably mounted in said housing bore, said spindle having a threaded central portion, first gear means fixed to the inner end of each threaded pin, second gear means fixed to the head end of said spindle and adapted to mesh with all of said first gear means, a cap detachably mounted on the other end of said spindle, an external scale drum adjustably mounted on said cap and rotatable about said other spindle end, and a threaded internal scale drum threadedly engaged to said central spindle portion, said external scale drum bearing a circumferential vernier scale and said internal scale drum bearing a longitudinal linear scale; the result of such arrangement being that when turning said external scale drum and said cap relatively to said housing, said spindle is rotated and in turn rotates said threaded pins in said threaded sleeves via said first and second gear means to move said sleeves into contact with the wall of the bored workpiece opening to measure the diameter of said opening, the measurement being read on said scales.

3,319,343
APPARATUS AND METHOD FOR FREEZE-DRYING PULVERULENT MATERIALS
Allan Thale, Kokkedal, Denmark, assignor to A/S Niro Atomizer, Soborg, Denmark
Filed Aug. 4, 1965, Ser. No. 477,183
Claims priority, application Denmark, Aug. 6, 1964, 3,891/64; July 29, 1965, 3,913/65
16 Claims. (Cl. 34—5)



13. In a method for the drying of pulverulent material by freezing the material and subsequently heating the frozen material to remove the water by sublimation of the formed ice; an improvement comprising feeding the frozen material into an enclosed space bounded by a filter, maintaining said space at a pressure below atmospheric, and heating the material within the space while agitating said material.

3,319,344
FREEZE DRYING LIQUID FOODS
George F. Sacheel, Worthington, and William H. Mink, Columbus, Ohio, assignors, by mesne assignments, to The Battelle Development Corporation, Columbus, Ohio, a corporation of Delaware
Filed Oct. 22, 1965, Ser. No. 501,718
9 Claims. (Cl. 34—5)



2. A method for freeze-drying liquid foods comprising:

(a) spraying said liquid foods into a vessel;

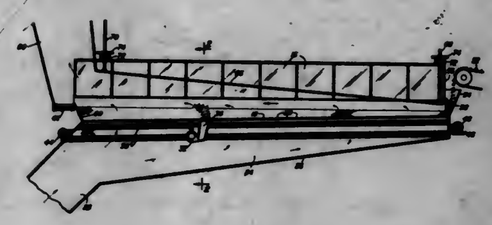
(b) maintaining a partial pressure of water vapor within said vessel of not more than about 4 mm. of mercury so as to freeze the spray droplets;

(c) maintaining a gaseous current within said vessel substantially opposing said spray so as to fluidize said frozen spray droplets;

(d) maintaining a temperature within said vessel disposed to effect sublimation of said frozen spray droplets without burning the organic content of said liquid; and

(e) removing the dried organic material from said vessel.

3,319,345
PERFORATED BED DRYER APPARATUS AND METHOD
Frank G. Lamb and Herbert W. Kruger, both of Portland, Oreg., assignors to Lamb Weston, Inc., Portland, Oreg., a corporation of Oregon
Continuation of application Ser. No. 278,037, May 6, 1963. This application Apr. 26, 1966, Ser. No. 545,508
5 Claims. (Cl. 34—10)



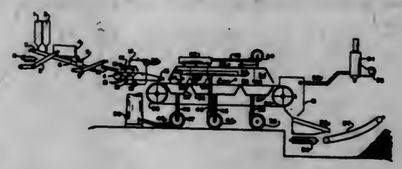
1. The method of drying a particulate product comprising continuously feeding a wet particulate product onto one end of a perforated support,

forcing a drying gas upwardly through said support and the product thereon, at a predetermined velocity less than that which will fluidize said product from said support,

periodically forcing agitating gas through the product at a velocity substantially higher than said predetermined velocity and sufficiently high to elevate said product from said support and fluidize said product to separate and mix the particles of the product,

and guiding said gases as they emerge from said support toward the opposite end of said support at a velocity sufficient to impart movement of said elevated particles toward said opposite end whereby said fluidized product will be carried by said gases toward said opposite end and simultaneously will undergo classification so that the product discharged from said opposite end of said support will be of substantially uniform moisture content.

3,319,346
METHOD AND APPARATUS FOR HEAT TREATING MOISTURE BEARING PARTICLES
John E. Schuster, 2809 Greenleaf, Allentown, Pa. 18104
Filed Sept. 29, 1964, Ser. No. 399,963
11 Claims. (Cl. 34—28)

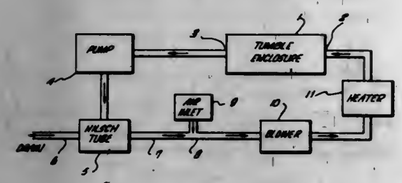


1. The method of heat treating moisture bearing particles which comprises heating the particles in a first zone to a mild temperature below the boiling point of water, in the first zone surrounding the particles, generally maintaining a vapor pressure at least as great as the vapor pressure of heating gas when saturated and at the temperature of the heated particles in the first zone, and then further heating said particles in a second zone to a temperature substantially above the boiling point of water, said method being characterized by heating of particles in the first zone without substantial evaporation of moisture from said particles.

3,319,347
METHOD AND APPARATUS FOR INCREASING THE SPEED OF CLOTHES DRYERS

John D. Bentley, 69 Columbia St., Pasadena, Calif. 91105

Filed June 29, 1964, Ser. No. 378,621
4 Claims. (Cl. 34—32)



1. An improved dryer for drying damp articles, comprising:

heating means having an inlet to receive air and having an outlet for delivering warmed air;

enclosure means defining a tumble enclosure for receiving and agitating the damp articles, and having an inlet coupled to the heating-means outlet to receive the warmed air, and an outlet for exhausting humid air;

a pump coupled to the enclosure-means outlet to receive and pressurize the humid air, the pump having an outlet;

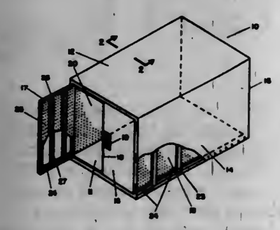
a Hilsch tube having an inlet coupled to the pump outlet to receive the pressurized humid air, and having a vortex chamber with opposed first and second end walls, the first wall having an axial outlet, and the second wall having an outlet including throttling means for controlling flow, the Hilsch tube being operative to separate the incoming pressurized humid air into a stream of low-humidity air directed to the axial outlet and a stream of high-humidity air directed to the second-wall outlet and throttling means; and

conduit means coupled to the Hilsch-tube axial outlet and to the heating-means inlet for directing the stream of low-humidity air from the Hilsch tube to the heating means.

3,319,348
APPARATUS AND METHOD FOR TRANSPORTING WARM, MOISTURE LADEN GOODS

Wilburt H. Reich, Franklin Park, N.J., assignor to W. R. Grace & Co., New York, N.Y., a corporation of Connecticut

Filed Feb. 1, 1965, Ser. No. 429,434
9 Claims. (Cl. 34—42)



1. Method for protecting warm, moist freight from condensation damage while in transit to cooler destinations comprising:

placing said freight in a cargo space peripherally bounded by walls which are highly perforated and highly air-pervious throughout substantially their entire area; and covered by moisture impervious upwardly converging opposed ceiling panels;

surrounding said walls and ceiling panels with an outer closed shell spaced therefrom permitting flow of warm, moist air in said cargo space into the space between said outer shell and said walls and ceiling panels whereby any moisture condensation which takes place will occur on the surfaces of said shell which condensation will in turn cause further quantities of warm, moist air to flow from the cargo space into the space between the shell and the said walls and ceiling panel;

continuing said air flow and condensation until equilibrium is established; and

draining condensed moisture out of the space between the shell and the said walls and ceiling panels.

3,319,349
HEAT EXCHANGE APPARATUS FOR CARRYING OUT CHEMICAL AND PHYSICAL REACTIONS

Otto Heinemann, Neubeckum, Germany, assignor to Polysius G.m.b.H., Neubeckum, Germany

Filed Feb. 10, 1965, Ser. No. 431,598
Claims priority, application Germany, July 4, 1964, P 34,634
9 Claims. (Cl. 34—57)

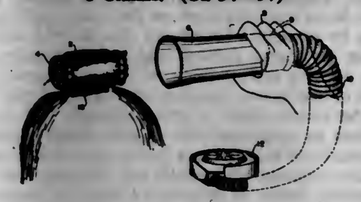


1. An apparatus for carrying out chemical and physical reactions between two media, especially for heating and cooling fine granular and pulverous materials moving in a counter current flow with regard to a gas flow, which includes: a plurality of serially arranged substantially cylindrical reaction chambers each having a tangential gas inlet and an axial gas outlet, for the passage of gas therethrough along an inwardly spiraling path, the gas outlet of one reaction chamber being connected to the gas inlet of the reaction chamber next following in the direction of gas flow, each of said reaction chambers also having an eccentricaly located material inlet and an outer peripheral material outlet for the passage of material therethrough along an outwardly spiralling path, the material inlet of the said next following reaction chamber being connected to the material outlet of said one reaction chamber, the radial location of the material outlet of each of said chambers and the location of the material inlet of the respective next succeeding one of said chambers when looking in the direction of flow of the material from one chamber to the next chamber being so selected that the gas pressure at the said material inlet of said one reaction chamber at maximum equals the gas pressure at the said material outlet of the said next following reaction chamber.

3,319,350
HAIR CURL DRYING APPARATUS

Simon Hlubik, Ridgefield, Conn., assignor to General Electric Company, a corporation of New York

Filed June 21, 1963, Ser. No. 289,638
3 Claims. (Cl. 34—97)



1. Hair curl drying apparatus for drying a single curl of hair wound on a tubular shaped hair curler with the longitudinal axis of the curler disposed substantially parallel to the adjacent surface of the scalp and with the unwound ends of the hair between the curler and the scalp extending from said curler along a line disposed longitudinally of said curler and having a length substantially the same as the longitudinal length of said curl, said apparatus comprising a source of forced heated air, a lightweight flexible air delivery hose having one end connected to the source, a tubular member adapted to be conveniently grasped in one hand, means formed on one end of said member and on said hose for connecting the member to said hose, said member having a cross-section sufficiently large to fully enclose said hair curler and the hair wound thereon, said member having its opposite end open and outwardly flared to facilitate insertion of a curler therein, and means defining a slot in communication with and longitudinally extending from said opposite end a substantial distance towards said one end, said slot means having longitudinally disposed edge surfaces spaced sufficiently to receive therebetween the unwound ends of hair extending from said curler with said edge surfaces in contact with said hair and with said unwound hair ends being solely disposed in said slot means.

3,319,351
TUBULAR EXTRUSION DRYER

Bernard Sprissler, Joppa, and Emerson P. Pease, Baltimore, Md., assignors, by mesne assignments, to the United States of America as represented by the United States Atomic Energy Commission

Filed Mar. 8, 1965, Ser. No. 438,138
4 Claims. (Cl. 34—109)

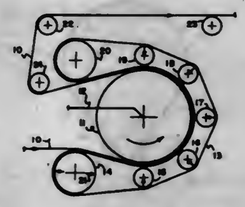


1. Drying apparatus for tubular core extrusions for nuclear reactors, comprising means consisting of a system of interfitting tubes disposed around said extrusions having means for rotating the tubes in a circular orbit around a horizontal axis for rotating the extrusion therein around said axis for rolling said extrusions within said tubes, means for blowing air around over and through said tubes and said extrusions for removing moisture from said extrusions, and means for uniformly heating said extrusions uniformly to form circular, straight, cores having smooth surfaces.

3,319,352
APPARATUS AND METHOD FOR DRYING A FIBROUS WEB

John M. Haigh, Richmond, Va., assignor to Albemarle Paper Manufacturing Company, Richmond, Va., a corporation of Virginia

Filed Apr. 29, 1964, Ser. No. 363,407
2 Claims. (Cl. 34—123)



1. An apparatus for drying a fibrous web comprising, in combination,

(a) at least one rotatable heated drum means having an axis and providing a substantially rigid heated cylindrical surface,

(b) an endless belt means having an outer face and an inner face, a portion of said outer face being in contact with a substantial portion of said substantially rigid heated cylindrical surface,

(c) at least four roller support means in contact with substantially opposing portions of said inner face,

(d) at least three of said at least four roller support means being movably mounted for changing their location in reference to said drum means,

(e) at least two of said at least three roller support means being movable radially toward said axis to press said outer face against said cylindrical surface, and

(f) at least one of said at least three roller support means being a tension means for pressing said outer face against said cylindrical surface and causing said inner face to force said at least two roller support means radially toward said axis.

3,319,353
PRESSING AND DRYING DEVICES FOR CORRUGATED BOARD MANUFACTURING EQUIPMENT

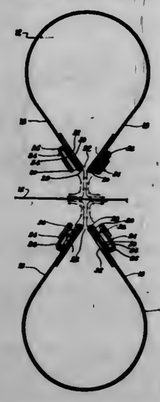
Hiroshi Matsunami and Yoshikazu Yagi, Osaka, Japan, assignors to Niwa Machinery Company, Ltd., Osaka, Japan

Filed Mar. 30, 1964, Ser. No. 355,987
5 Claims. (Cl. 34—155)



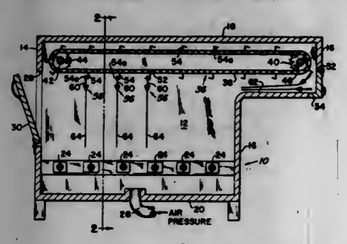
1. In a double faced corrugated board manufacturing equipment comprising a plurality of hot plates and an endless conveyer belt, in which a double faced corrugated board is fed through the space defined by said hot plates and said conveyer belt so as to heat and dry the board, the arrangement of devices adapted to press and heat the corrugated board, said devices comprising a plurality of fluid chambers having open bottoms and disposed on the conveyer belt in the direction of feed, a blower, and a fluid forced by said blower into said chambers, whereby a constant pressure is exerted uniformly onto the entire upper surface of the corrugated board through the thickness of the conveyer belt.

3,319,354
AIR BLOWING NOZZLE
Henry H. Hering, Jr., Homewood, and Victor T. Capizzi, Chicago, Ill., assignors to B. Offen & Co. Inc., Chicago, Ill., a corporation of Illinois
Filed Nov. 13, 1964, Ser. No. 410,996
13 Claims. (Cl. 34—155)



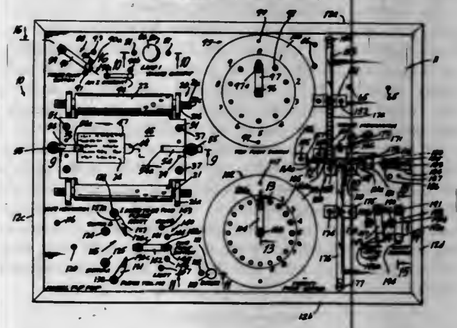
1. In an apparatus for the drying of a continuous web comprising air duct means, nozzles formed in said duct means, outlet openings defined by said nozzles, and means for passing air through said duct means for discharge out of said openings into contact with at least one surface of said web, the improvement comprising baffle means associated with said nozzles and disposed on opposite sides of said openings, additional openings defined by said nozzles adapted to pass air into contact with said baffles, said baffles being shaped to direct air from said additional openings towards said web surface with the air from said outlet openings being confined between the air passing from said additional openings.

3,319,355
PRINTED PROOF DRYER
Michael F. Lagnese, 200 Chatham Park Drive, Pittsburgh, Pa. 15220
Filed Feb. 12, 1965, Ser. No. 432,266
2 Claims. (Cl. 34—162)



1. A printed proof dryer comprising:
(a) a box-like heated chamber having side walls, end walls, a top and a bottom, an entrance port formed in an end wall and an exit port formed in an end wall;
(b) conveyor means including a pair of parallel, laterally spaced conveyor chains driven by conveyor sprockets, a plurality of flights rigidly connecting said chains to each other and extending generally perpendicular to said chains, said flights each having hooks rigidly formed thereon to receive paper clamps having mating eyes adapted to receive said hooks, a motor means to drive said conveyor sprockets, said conveyor means extending adjacent the top wall of said heated chamber;
(c) a plurality of paper clamps removably attachable to said printed proofs and having eyes formed thereon to fit over said conveyor flight hooks, said clamp eyes fitting over said hooks so that said printed proofs may be suspended below said clamps from said conveyor for transit through said heated chamber; and
(d) a docking surface lying in a plane generally parallel to said heated chamber top wall and in proximity to the bottom flight of said conveyor, said docking surface so positioned that as said proofs come into contact with said docking surface and said conveyor chains progress, said proofs are removed from said conveyor hooks as said hooks begin to move in a vertical direction and are deposited upon said docking surface by motion of said conveyor means.

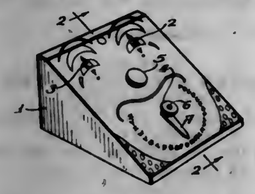
3,319,356
TEACHING OR PROGRAMMED LEARNING MACHINES AND AUTOMATIC TEACHING COMPUTERS
Edmund C. Berkeley, % Berkeley Enterprises, Inc., 815 Washington St., Newtonville, Mass. 02160
Filed Nov. 25, 1964, Ser. No. 413,831
22 Claims. (Cl. 35—9)



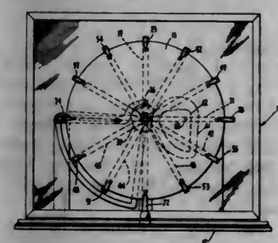
1. In combination, a panel board having a front face and a rear face, a plurality of conductive wipers attached to the rear of the board and passing through the board to the front thereof, a sheet formed with one or more openings, means to support said sheet parallel to and at the front of the board, with said opening or openings aligned with one or more of said wipers, and a flat conductor overlying said sheet so that wipers aligned with said openings will pass through said openings and contact the underside of said conductor, a first rigid flat member underlying said sheet and having an opening exposing the portion of the sheet which overlies said wipers, and a second rigid flat member overlying said conductor and sheet, and having an opening overlying another portion of the sheet, said flat members and board having registering cut-outs covered by said sheet, and a translucent film covering said sheet at said registering cut-outs, and a lamp attached to said board at the rear thereof and in registry with said cut-outs.

3,319,357
EDUCATIONAL DEVICE
Peter K. Shreck, 744 W. Dempster, Mount Prospect, Ill. 60056, and Patricia Barnett, Albuquerque, N. Mex.; said Barnett assignor to said Shreck
Filed Feb. 23, 1965, Ser. No. 434,602
6 Claims. (Cl. 35—35)

1. An educational device comprising means providing a plurality of indicia, adjustable means for selectively indicating portions of said indicia, sound reproduction means, means operated by adjustment of the adjustable means to adjust the sound reproduction means to produce sounds corresponding to the selected indicia, second adjustable means bearing indicia adapted for selective viewing, means to adjust the second adjustable means independently of the first named adjustable means, and means operated when the two adjustable means are in corresponding positions to energize the sound reproduction means and to prevent operation of the second reproduction means otherwise.

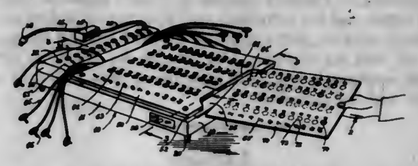


3,319,358
ROTATING ZODIAC APPARATUS
John E. Lange, 460 28th St., Oakland, Calif. 94609
Filed June 3, 1964, Ser. No. 372,189
7 Claims. (Cl. 35—43)



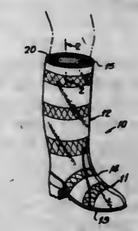
1. A rotary zodiac apparatus comprising a disc having displayed thereon a circular zodiac chart, means mounting said disc for rotation, means driving said disc to rotate same 361° in a twenty-four hour period, a pair of main indicator arms mounted for free rotation diametrically of and adjacent said disc, means cooperating with said disc and said main indicator arms for oscillating the latter respectively about vertical and horizontal center positions in response to disc rotation, a plurality of secondary indicator arms mounted for free rotation diametrically and adjacent said disc, and means coupled between said main indicator arms and said secondary indicator arms for oscillating the latter through angular distances in a predetermined ratio in response to movement of the former, said main indicator arm having a horizontal center position being adjustable in the extent of its movement to compensate for latitude difference in different geographical areas, said means cooperating with said disc and said main indicator arms for oscillating the latter in response to disc rotation includes for each of said arms, a cam secured to said disc for rotation therewith and a lever arrangement for transmitting the motion of said cam to the respective one of said arms, and said means coupled between said main indicator arms and said secondary indicator arms for oscillating the latter in response to movement of the former includes a drive cam for each of said secondary indicator arms mounted on one of said main indicator arms and in engagement with its associated secondary arm and gear means correlating the orientation of said drive cams on said one of said main arms with the movement of the other of said main arms.

3,319,359
ELECTRIC SCORING MACHINE
Arthur M. Rosenfield, 833 Cliffside Ave., North Woodmere, N.Y. 11581
Filed Feb. 2, 1966, Ser. No. 524,388
1 Claim. (Cl. 35—48)



A scoring device, comprising a generally rectangular frame, a plurality of lamps carried by said frame, power supply means having two terminals, a flat electrically conductive plate disposed on said frame and connected in series circuit with one of said terminals, a plurality of patch cords, said cords being connected to the respective lamps in a plurality of series circuits connected to the other terminal of said power supply, a panel disposed over said conductive plate parallel thereto, first, spring means normally spacing said panel from said conductive plate, said panel having a plurality of apertures with eyelets therein for selectively receiving free ends of the patch cords, electrically conductive spring contact members secured to said eyelets respectively, said spring contact members extending outwardly of the panel toward said conductive plate normally spaced therefrom whereby each lamp will light whose associated patch cord has its free end engaged in an aperture in direct electric circuit with the spring contact member thereat when the panel is moved toward the conductive means to compress said first spring means and to press the spring contact members into contact with the conductive plate, said panel being made of electrical insulation material, said panel having corner openings, bolts seated in corners of the frame and extending through said corner openings so that the panel is manually movable toward said conductive plate when the panel is released while remaining parallel to said plate, said first spring means comprising coil springs mounted on the bolts between the frame and panel for normally holding the panel and spring contact members spaced away from the conductive plate, so that a paper sheet having selectively located apertures therein can be freely inserted on to said plate under the panel and spring contact members and can be freely removed therefrom when the panel is elevated automatically solely by said coil springs.

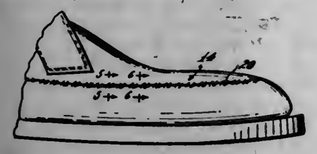
3,319,360
WATERPROOF TRANSPARENT DECORATIVE BOOT
Joseph B. Nadler, Rte. 1, Box 150, Ocala, Fla. 32670
Filed Oct. 23, 1965, Ser. No. 502,966
1 Claim. (Cl. 36—4)



An article of footwear comprising a foot covering including a sole, an upper, and a leg covering extending upwardly from said upper, at least said upper and leg

covering being fabricated of waterproof transparent plastic material, and a fabric liner in said upper and leg covering and extending adherently to substantially the entire inner surfaces of said upper and leg covering, whereby said liner is visually exposed through said upper and leg covering for a unique decorative effect, said liner comprising a stocking having a design exposed through said upper and leg covering, said stocking including an additional tubular part extending upward beyond the upper end of said leg covering and free of the latter for fitting about a wearer's leg, said liner being heat-sealed to said upper and leg covering.

3,319,361
SEAM FOR SHOE MAKING
Louis E. Bernier, Rockland, and James P. Giblin, Milton, Mass., assignors to E. T. Wright & Co., Inc., Rockland, Mass., a corporation of Massachusetts
Filed Dec. 22, 1964, Ser. No. 420,360
7 Claims. (Cl. 36—45)



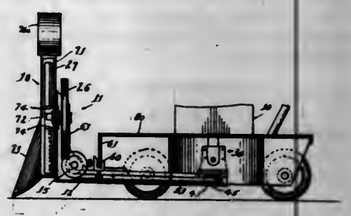
1. A simulated seam at the outer surface of a shoe upper comprising a continuous depression in the natural contour of the outer surface and having a continuous rib on the inner surface of said upper, regularly recurrent depressions of varying depths comprising said continuous depression, longitudinally spaced thread segments along each side of said rib and transverse thread segments joining the adjacent ends of said longitudinal spaced segments, said transverse thread segments extending through said rib and transversely of said continuous depression below the natural surface contour of the outer surface of said upper to form the depressions of lesser depth.

3,319,362
PLASTIC SHOE COVER
Frank J. Gomolka, 934 Clinton St., Linden, N.J. 07037
Filed Sept. 6, 1966, Ser. No. 577,241
2 Claims. (Cl. 36—72)



1. In a shoe cover, the combination of a canopy, said canopy being contoured to fit over the top of the forward part of a shoe upper, said canopy having a lower peripheral edge for alignment with the edge of a shoe sole, the rear portion of said canopy being formed into a pair of tabs, said tabs extending rearwardly, the ends of said tabs being secured to the ends of an elastic strap to form a loop for extending around the rear of a shoe upper heel, and said canopy having self contained means for securely gripping said shoe sole and also having means for controlling the drain therefrom of liquids spilled thereupon, wherein said means for gripping said sole comprises a plurality of inwardly extending teeth on said lower peripheral edge for biting into the side edges of said sole, wherein said peripheral edge has a trough on its outer side for receiving liquid that drips from the top of said canopy, said trough having a drain spout at each end and said drain spout being located in the vicinity of the shoe arch between said sole and the heel of said shoe.

3,319,363
SNOW REMOVER ATTACHMENT FOR POWER LAWN MOWERS
Samuel F. Kennedy, 917–19 S. Webster St., Taylorville, Ill. 62568
Filed Oct. 19, 1964, Ser. No. 404,700
10 Claims. (Cl. 37—43)

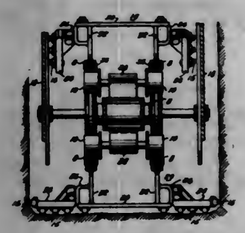


1. The combination of
(a) a conventional gasoline engine powered lawn mower having a generally inverted pan shaped housing and a drive shaft driven by said engine and from which the usual rotary cutting element has been removed, said drive shaft depending generally centrally of said housing, said housing having a depending transverse skirt forming the forward wall of said housing, and
(b) a snow removing attachment, said attachment comprising a supporting frame, a snow removing unit carried by said frame, power transmitting means carried by said frame for operating said snow removing unit, and including means adjacent one end thereof for operatively connecting said power transmitting means to said drive shaft in lieu of said cutting element and for supporting said frame on said drive shaft, adjustable means carrier by said frame in association with said skirt for supplementally supporting said frame on said housing,
the parts of said attachment being so conformed and arranged in relation to one another and to said housing and drive shaft, and adapted to operate, whereby said attachment may be connected to said lawn mower for operation and removed therefrom readily and as a unit.

3,319,364
TRENCHING MACHINE SIDE CUTTING ATTACHMENT
Clifford J. Evans, Dallas, Tex., assignor to Jetco, Inc., Alhambra, Calif., a corporation of California
Filed Nov. 7, 1963, Ser. No. 322,204
4 Claims. (Cl. 37—86)

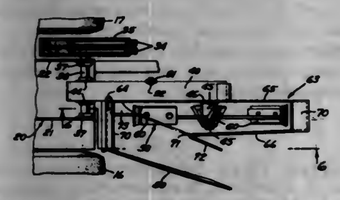
1. A side cutter for being attached to the bucket chain of a trenching machine and driven generally downward into the trench on the top side of said bucket chain and generally upward out of said trench on the bottom side of said bucket chain and adapted to widen said trench by cutting into the sides thereof when driven upward, comprising:
(a) a main support for being attached to said bucket chain generally laterally thereacross, and

(b) first and second cutting arms for cutting into the sides of said trench laterally beyond said bucket chain pivotally attached to opposite sides, respectively, of said main support adjacent the lateral edges of said bucket chain,
(c) said first and said second cutting arms being attached to said main support for pivotal movement about axes making angles to the plane of said bucket



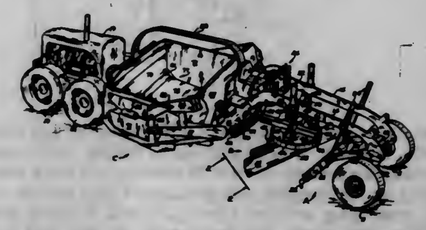
chain so as to establish vertical components of the weights of said first and said second arms perpendicular to said axes when said side cutter is driven both downward into and upward out of said trench to cause said first and said second arms to assume folded positions adjacent said bucket chain when driven downward into said trench and to assume open positions extending beyond said bucket chain when driven upward out of said trench.

3,319,365
TRENCH DIGGING MACHINE
Walter B. Perry, 403 W. Elmwood, and Donald L. Livesay, 27008 Cornell, both of Hemet, Calif. 92343
Filed Nov. 23, 1964, Ser. No. 412,968
4 Claims. (Cl. 37—94)



4. A trench-digging machine comprising:
a frame supported at one end on a pair of laterally spaced wheels, and at the other end on a single wheel, said single wheel being offset to one side of the fore-and-aft centerline of the machine;
an internal combustion engine mounted on said frame with the drive shaft thereof extending transversely with respect to the direction of forward travel;
a rotatable shaft mounted transversely on said frame between said pair of wheels and said single wheel;
speed-reduction power transmitting means connecting said drive shaft of said engine with said rotatable shaft;
an elongated housing mounted at one end on said rotatable shaft for vertical swinging movement and extending alongside said single wheel;
a shaft journaled on the other end of said housing and projecting laterally therefrom on the side opposite said single wheel;
a driving connection between said rotatable shaft and said last-named shaft;
a cutting wheel mounted on the projecting end of said last-named shaft;
a plurality of generally radially extending blades mounted on said cutting wheel;
a protective shroud mounted on said housing and enclosing the upper half of said cutting wheel, said shroud having an exit opening in one side wall thereof; and
deflector means on said shroud positioned to be impacted by particles of soil thrown by said blades, said deflector means acting to guide said soil particles out through said exit opening and to drop them onto the ground in a narrow strip alongside the trench dug by said cutting wheel.

3,319,366
EARTH HANDLING MACHINE
William R. Thompson, San Jose, Calif., assignor to Atlas Motor Graders, Inc., Las Vegas, Nev., a corporation of Nevada
Filed Aug. 26, 1963, Ser. No. 304,453
5 Claims. (Cl. 37—117.5)

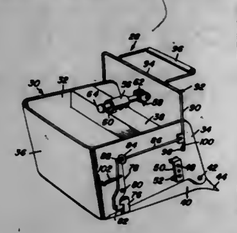


1. An earth handling machine comprising: a transportable frame adapted to support a plurality of earth handling assemblies; a grader assembly; means for supporting said grader assembly on said frame; a scoop bucket assembly; means for supporting said scoop bucket assembly on said frame behind said grader assembly; and power means supported on said frame for operating said grader assembly and driving said transportable frame; said means fo supporting said grader asembly on said frame including, a socket member connected to said frame in front of said scoop bucket assembly, a push bar, means for mounting said grader assembly on said push bar, a ball on one end of said bar and constructed and arranged to fit in said socket member, a pair of fluid operated jacks pivotally mounted on said frame forward of said socket member and having piston rods projecting therefrom pivotally connected to said push bar whereby said grader assembly is movably supported from said push bar on said frame in front of said scoop bucket assembly and pushed by said push bar.

3,319,367
SCOOP ATTACHMENT FOR TRACTOR THREE POINT HITCH
Albert B. Lewis, Rte. 5, McAlester, Okla. 74501
Filed Sept. 22, 1964, Ser. No. 398,262
1 Claim. (Cl. 37—118)

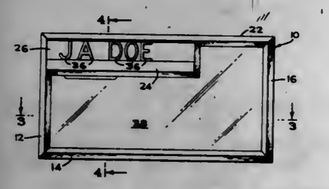
In combination with a tractor having a three point lifting hitch assembly including a rearwardly projecting center upper lift arm and a pair of opposite side and rearwardly projecting lower lift arms, a scoop attachment comprising a generally horizontally disposed drag bucket including longitudinally extending and upstanding opposite side walls interconnected at their rear ends by means of a rear wall, said drag bucket being open at its forward end and including an upper forward brace member extending between the forward upper corner portions of said side walls and also including a bottom whose forward end edge portion is pivotally secured between said side walls for rotation about an axis extending between

the lower forward corner portions of said side walls, said bottom and at least one of said walls including coacting releasable latch means for retaining said bottom in a closed position, the rear end portions of said lower arms being pivotally secured to the forward lower corner portions of the corresponding side walls for rotation about axes generally paralleling the first mentioned axis and disposed forward of the center of gravity of said bucket, a connecting member mounted on said brace member for limited front to rear reciprocation relative to said bucket between front and rear positions, the rear end portion of said upper arm being pivotally secured to said connecting member for rotation about a transverse horizontal axis, said bottom of said bucket, when closed and when said connecting member is in said front and rear position being



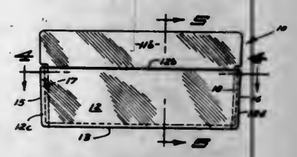
generally horizontally disposed and rearwardly and downwardly inclined, respectively, said coacting latch means including upstanding rearwardly opening first hook means carried by the opposite side portions of said bottom wall and upstanding latching levers pivotally secured, intermediate their upper and lower ends, to said side walls for rotation about a horizontal transverse axis and including second hook means releasably engaged with said first hook means, means connected between said levers and said bucket yieldingly urging rotation of said levers in directions moving the upper ends thereof rearwardly, movable latch actuator means supported from said bucket and including a lost motion connection with said levers and a portion disposed forward and above the open front end of said bucket for manual manipulation from said tractor to swing the upper ends of said levers forwardly.

3,319,368
IDENTIFICATION HOLDER
Augustine A. Souza, 431 Casa Blanca Drive, San Jose, Calif. 95129
Filed Mar. 29, 1965, Ser. No. 443,255
4 Claims. (Cl. 40—10)



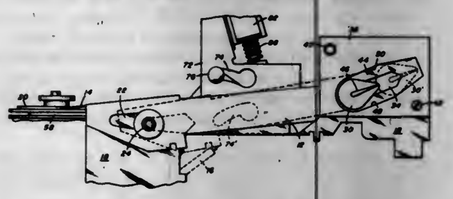
1. An identification holder which comprises
a generally rectangular frame having flanges depending from three sides thereof,
said frame being inwardly enlarged on part of its fourth side to form a depressed name-plate with an encompassing slot,
a transparent rectangular window adjacent the rear of said frame behind said name plate and encompassed by said dependent flanges,
a perimetral spacer adjacent said flanges at the rear of said window, and
a backing plate behind said window and spaced therefrom by said perimetral spacer
whereby identification photographs or the like can be inserted removably between said window and said backing plate.

3,319,369
HOLDER
Kermit H. Severson, 1400 E. Wayzata Blvd., Wayzata, Minn. 55391
Filed May 24, 1965, Ser. No. 457,950
1 Claim. (Cl. 40—10)



A card holder or the like including:
(a) a first panel having a general T-shape construction;
(b) a second panel substantially equal in length to the width of the upstanding leg of said T-shaped member and of a width to provide a relatively broad protective surface for a card inserted therein;
(c) means connecting one longitudinal side of said second panel to the lowermost end of said leg normally holding said panels in substantially parallel relation;
(d) said connecting means providing a bottom to the area defined between said panels and permitting said panels to be spread into angularly open position;
(e) a pair of end members on the respective ends of said second panel and extending toward said first panel; and
(f) the extending ends of said end members being free standing from said first panel and arranged to move within the open area adjacent the leg of said T-shaped first panel and below the cross-bar portion thereof when said panels are spread into open position; said extending ends terminating in generally planar relation with said first panel when the holder is in normal position.

3,319,370
SLIDE TRAY INDEXING MECHANISM
Herbert T. Robinson, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Application June 1, 1965, Ser. No. 460,017, now Patent No. 3,276,314, dated Oct. 4, 1966, which is a division of application Ser. No. 175,216, Feb. 23, 1962, now Patent No. 3,276,156, dated Oct. 4, 1966. Divided and this application Aug. 4, 1966, Ser. No. 570,205
6 Claims. (Cl. 40—79)



1. In an indexing mechanism for a slide projector for indexing a slide tray one step at a time in forward and reverse directions, the combination comprising:
a pawl;
means for reciprocally moving said pawl into and out of engagement with said slide tray;

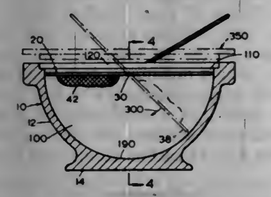
said pawl further being pivotally movable between a normal forward position, in which said pawl indexes said slide tray in a forward direction when it is moved into engagement therewith, and a reverse position, in which said pawl indexes said slide tray in a reverse direction when moved into engagement therewith;
control means for selectively moving said pawl into one of said forward and reverse positions;
said control means comprising a spring element connected to said pawl, and
means directly connected to said spring element for moving said spring element.

3,319,371
FISH LURE
Calvin R. Sills, 3969 N. River Road, Port Huron, Mich. 48060; Arthur T. Kinnee, administrator of said Calvin R. Sills, deceased
Filed Sept. 28, 1964, Ser. No. 402,685
4 Claims. (Cl. 43—42.09)



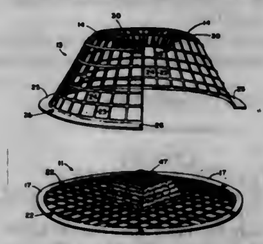
1. In a fish lure, a Y-shaped non-buoyant base element having a bill portion, an arched body supporting portion and a pair of diverging leg-like appendages, the bill and appendages sloping downwardly from said body supporting portion, a one-piece buoyant body secured to the top of said body supporting portion between said appendages and bill, the bottom of the buoyant body being recessed to receive the arched body supporting portion, hook means on the ends of said appendages, and eye means on the bill to which a fish line is attachable.

3,319,372
MINNOW BUCKET
George R. Wright, 1619 Circle Drive, Lincoln, Nebr. 68506
Filed Dec. 21, 1964, Ser. No. 419,788
1 Claim. (Cl. 43—56)



A minnow container comprising a housing having an undersurface constructed for holding the container upright when rested on a horizontal surface, a perforate minnow scoop in said housing, axle means and cooperative axle receiving means mounting said scoop on said housing in a manner whereby said scoop is adapted to swing about a horizontal axis, scoop control means disposed on the opposite side of said axis from said scoop, said control means being elongated in a direction extending away from said scoop so as to serve as a scoop control lever, means for attaching said control means to said scoop whereby when said control means is raised from a position on one side of said axis across the top of said axis toward a position on the other side of said axis said scoop will simultaneously swing through said container, said container having an upper opening and in which said scoop and said control means are of a horizontal area sufficient to substantially fill said opening so as to prevent minnows from escaping through said opening at times when said scoop and said control means are in approximately horizontal positions.

3,319,373
STABLE LOBSTER TRAP
Reginald L. Gale and James Ian MacDonald, Amherst, Nova Scotia, Canada, assignors to The Markland Works Limited, Amherst, Nova Scotia, Canada
Filed Aug. 26, 1964, Ser. No. 392,177
5 Claims. (Cl. 43—100)

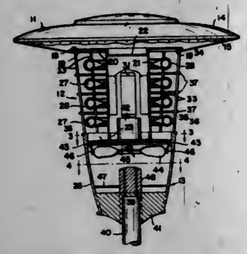


1. A separable lobster trap having component parts adapted for close nesting, comprising a reticulate planar disc base having a weighted and stiffened annular margin, and a unitary lattice-work shell body portion formed as a frustum, said shell body having its upper end closed by an integrally joined upwardly domed portion carrying a centered depending tubular entry, and having a thickened integral radial flange extending from the larger end thereof adapted to be secured detachably in contiguous overlying relation upon said margin, said margin carrying spaced upright fastening members and said flange having spaced apertures to receive said fastening members passed therethrough, and means on said fastening members adapted to engage the upper side of said flange for preventing axial removal of said shell body from said base.

3,319,374
COMBINATION UTILITY LIGHT AND INSECT ATTRACTING AND DESTROYING DEVICE
Donald R. Gawne, Fort Lauderdale, Fla., assignor to QP Corporation, West Palm Beach, Fla., a corporation of Florida
Filed Oct. 6, 1966, Ser. No. 584,851
17 Claims. (Cl. 43—112)

6. A combination utility light and insect attracting and destroying device comprising
(a) a hollow cover member having air circulating openings in a surface thereof,
(b) a substantially cylindrical member disposed in a vertical position below said cover member with the top thereof in open communication with the inside of said hollow cover member,
(c) at least one lamp near the top of said vertical member,
(d) a second substantially cylindrical member below and in vertical alignment with said first substantially cylindrical member,
(e) said substantially cylindrical members being in open communication with each other,
(f) a suction fan in said second substantially cylindrical member which is disposed in a position to discharge downwardly in a vertical direction,

(g) a throat forming member located inside said second substantially cylindrical member and having a cylindrical bottom portion in substantially the same horizontal plane with said fan blades and spaced a

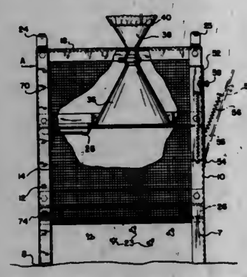


relatively small distance from the ends of said blades so as to form a restricted opening through which air is drawn by said fan,

(h) insect destroying means located in said second substantially cylindrical member below said suction fan, and

(i) support means for said device.

3,319,375
YELLOW JACKET TRAP
Frank B. Harvath, 6028 St. Clair Ave., Cleveland, Ohio 44103
Filed July 26, 1965, Ser. No. 474,584
19 Claims. (Cl. 43—118)



1. A yellow jacket trap for trapping and killing yellow jackets comprising, a screened enclosure having a lower disposed opening for admitting yellow jackets, at least one tray of liquid insecticide disposed interiorly of the enclosure for receiving the yellow jackets therein, and upstanding deflector means interiorly of the enclosure and disposed in preselected spaced relation to the opening and adjacent to at least one of the trays of insecticide for deflecting the yellow jackets in flight from the opening and thence into one of said plurality of trays of insecticide.

3,319,376
MOLDED FLOPPY-LIMBED DOLL WITH CELLULAR TORSO AND LIMBS AND SUBSTANTIALLY CELL-FREE THIN JOINTS
Lawrence Doppelt, Great Neck, N.Y., Melvin Rosenblum, Hilledale, N.J., and Alberto Ungaro, New York, N.Y., assignors to Golderger Doll Mfg. Co., Inc., Brooklyn, N.Y., a corporation of New York
Filed Nov. 9, 1966, Ser. No. 593,135
5 Claims. (Cl. 46—156)

1. A molded floppy-limbed doll having a head and a skeleton-free resilient body, the body including, in one-piece, a torso, limbs and resilient tough hinge means, each hinge means constituting a section joining a different limb to the torso for independent rotative movement with respect to the torso in all directions and for free-swinging movement with respect to the torso about a preferred axis of rotation perpendicular to the length of the limb at the hinge means, each said hinge means having a thickness substantially less than the thickness of the limbs and a dimension perpendicular to and substantially longer than its thickness, said dimension being parallel to said preferred axis of rotation, the body being constituted of



a synthetic organic resilient resin material, the material of the limbs and the torso of the body being completely filled with cells internally thereof, the body including a tough water impervious skin completely ensheathing the same and in one-piece therewith, said body being buoyant in water, the material of each hinge means being substantially cell-free and each hinge means having a density substantially greater than the density of any limb.

3,319,377
COMPOSITION AND METHOD FOR THE TREATMENT OF SOIL
John C. Tapas, Glenview, and John M. Menke, Morton Grove, Ill., assignors to Velsicol Chemical Corporation, Chicago, Ill., a corporation of Illinois
No Drawing. Filed Aug. 27, 1964, Ser. No. 392,587
21 Claims. (Cl. 47—9)

1. A method for the treatment of soil to reduce soil erosion which comprises applying to the soil surface a soil stabilizing amount of an aqueous composition comprising a mixture of

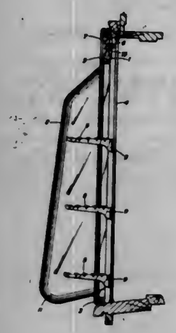
(1) from about 20% to about 85%, by weight of the mixture of a thermoplastic petroleum-derived hydrocarbon resin-in-water emulsion, said resin having a softening point of from about 50° to about 200° F., a mixed aniline point of from about 20° to about 80° C., and an iodine number of from about 70 to to about 300; and

(2) from about 15% to about 80%, by weight of the mixture, of a linear polymer-in-water emulsion, said polymer selected from the group consisting of homopolymers of vinyl alcohol, vinyl acetal, vinyl chloride, vinyl acetate, acrylates and methacrylates, copolymers of two or more of said monomers, copolymers of said monomers with vinyl esters of long chain fatty acids, copolymers of said monomers with di(alkyl esters) of α,β-ethylenically unsaturated dicarboxylic acids wherein the alkyl ester group contains from 4 to 18 carbon atoms, and mixtures thereof.

3,319,378
GARDEN WINDOW
Arthur Learmont Andrews, Sanford, and Joseph Richard Anghinetti, Kennebunkport, Maine, assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine
Filed Mar. 3, 1966, Ser. No. 531,456
3 Claims. (Cl. 47—40)

1. A garden window comprising a substantially rectangular frame, a transparent, contour-distorted plastic

bubble mounted on one side of said frame which seals the frame substantially completely on the side on which it is mounted, said distorted bubble extending downwardly and outwardly from the top of said frame at a slight angle for a short distance from the top, then extending downwardly at a sharp angle and outwardly at a very slight angle to a point opposite a point near the base of said frame, then curving bulbously back to the



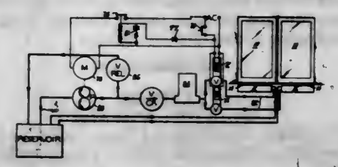
mounting at the base of the frame so as to form a wall, capable of holding a quantity of water, said frame with mounted bubble being capable of being attached to the framework of a window of a building means for supporting shelving in said garden window independent of the latter comprising vertically extending rods supporting said shelving and provided with means at the rod ends for securement to said framework.

3,319,379
FERTILIZER FEEDING TUBES
William C. Groeber and Donald F. Stearns, both of 4729 Rambo Lane, Toledo, Ohio 43623
Filed Mar. 18, 1965, Ser. No. 440,854
1 Claim. (Cl. 47—48.5)



A fertilizer tube assembly for insertion into a soil body to feed plant roots beneath a soil body surface, comprising a hollow outer tube open at both ends and of circular cross section and having nested therein a tube open at both ends having a longitudinally fluted surface defining multiple spaced ribs to form a cavity between the outer and inner tube walls, the bottom end of the inner tube having circumferentially speed axial projections forming lateral end openings, the said outer tube being enclosed at the upper open end with a detachable cap assembly having a liquid permeable surface.

3,319,380
AUTOMATIC DOOR OPERATOR
Robert M. Loftus, Farmington, Conn., assignor to The Stanley Works, New Britain, Conn., a corporation of Connecticut
Filed Feb. 17, 1966, Ser. No. 528,145
1 Claim. (Cl. 49—30)



An automatic door operator system including a hydraulic cylinder having a piston therein and source of pressurized hydraulic fluid for powering the piston to its open position in response to pedestrian traffic through the associated doorway, said source comprising a pump of limited output delivery rate relative to the requirements of the system and an auxiliary accumulator, power means for returning the door to its closed position, conduit means for connecting said source to said cylinder including a one-way valve for preventing reverse flow of hydraulic fluid from said cylinder to said source bypass valve means in the cylinder through which trapped hydraulic fluid in the power cylinder is discharged to damp the operator during the return stroke of the piston, and a hydraulically operated bypass control valve responsive to the pressure of the hydraulic fluid at the inlet of the power cylinder for preventing the discharge of hydraulic fluid through the bypass valve means during the power stroke, and a pressure relief port in the wall of said hydraulic cylinder to reduce the pressure of the hydraulic fluid at the inlet of said power cylinder, said piston being movable past said pressure relief port as the piston reaches the end of the power stroke to place said port in communication with the pressurized fluid within the cylinder only when said piston reaches the end of the power stroke.

ERRATUM

For Class 49—199 see:
Patent No. 3,319,303

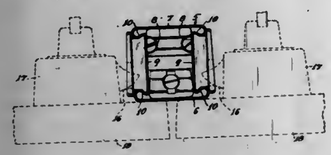
3,319,381
WINDOW STRUCTURE
Dan C. Muessel, Niles, Mich., assignor to American Metal Climax, Inc., New York, N.Y., a corporation of New York
Filed Sept. 1, 1965, Ser. No. 484,197
8 Claims. (Cl. 49—430)



3. An operating window assembly comprising a frame defining a sash opening including a lower sill member,

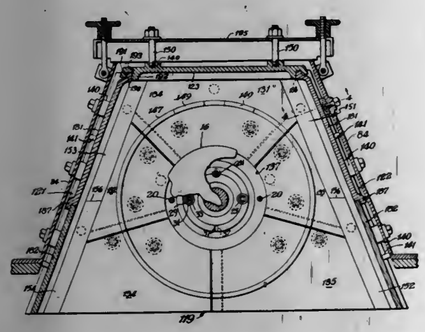
inner sealing gasket means secured to said sill member, a sash portion in said opening operatively associated with said frame and including a lower horizontal sash member having an inner element adapted to seat against said sealing means, an outwardly spaced outer vertical flange element terminating above said sill member to define a pressure equalizing slot therebetween, and an inwardly and downwardly extending web element extending from the inner surface of said outer vertical flange element and terminating above said sill member.

3,319,382
MULLION ASSEMBLY
Albert E. Hand, Southington, Conn., assignor to Emhart Corporation, Bloomfield, Conn., a corporation of Connecticut
Filed Aug. 24, 1964, Ser. No. 391,678
18 Claims. (Cl. 49—504)



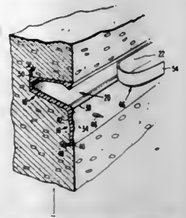
1. In a mullion assembly for adapting a door opening to receive a pair of doors, an elongated mullion post adapted to be mounted vertically in said door opening and having longitudinally extending channels formed in opposite sides thereof, a mounting plate adapted to be attached to the structure defining said door opening for securing one end of said mullion post thereto, said mounting plate having spaced pairs of abutments disposed, respectively, adjacent said opposite sides of said mullion post, and locking members inserted into said channels and having portions fitting between said abutments whereby to lock said end of the mullion post to said mounting plate.

3,319,383
PARTICLE-THROWING APPARATUS
Joseph E. Bowling, Jr., Waynesboro, Pa., and Ralph W. Moore, Hagerstown, Md., assignors, by mesne assignments, to the Pangborn Corporation, Hagerstown, Md., a corporation of Delaware
Original application Nov. 29, 1962, Ser. No. 240,801, now Patent No. 3,160,990, dated Dec. 15, 1964. Divided and this application May 6, 1964, Ser. No. 365,466
17 Claims. (Cl. 51—9)



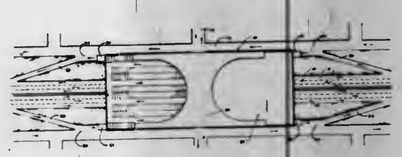
1. A housing for a throwing wheel that projects a stream of blastant particles primarily in one general direction, said housing surrounding the front and rear of the wheel as well as its top and ends, a set of wear liner segments completely covering the internal surface of the housing, the segments including front liner segments, rear liner segments, tie bar end liner segments, a top liner segment, and elongated strip segments, said strip segments joining the end segments with the front and rear segments respectively, and extending up to the junctures with the top segment, the strip segments covering all joints at said junctures and the segments overlapping each other so that no joint between segments provides a pathway that leads directly to the housing.

3,319,384
CONSTRUCTION FOR EXTRUDED REGLETS
Edward T. Berg, 187 Fremont St., San Francisco, Calif. 94105
Filed Sept. 8, 1964, Ser. No. 394,857
2 Claims. (Cl. 52—100)



1. An extruded reglet comprising a bracket portion for attachment to a form wall, and unitary therewith a longitudinally extending channel portion for the reception of a flashing, said channel portion having relatively spaced flanges, a bight portion connecting said flanges on the side thereof opposite to the side whereat the flashing is to be received, and continuous with said flanges on the last mentioned side a strip arranged to close said last mentioned side during construction of the wall whereby said strip excludes fluid material from the interior of the channel portion during the pouring of the concrete, said strip having spaced longitudinally extending grooves approximately adjacent the flanges whereby said strip is readily separable after pouring of the concrete, by tearing along said grooves.

3,319,385
PARKING GARAGE FOR DEPRESSED ROADWAYS
Jack J. Szpytman, Detroit, Mich. (910 N. Brys Drive, Grosse Pointe Woods, Mich. 48236)
Filed Apr. 14, 1965, Ser. No. 448,187
1 Claim. (Cl. 52—169)



A parking garage for depressed roadways, comprising a parking deck transversely bridging a depressed roadway at approximately street level; a street transversely bridging said roadway between the opposite ends of said deck; a pair of entrance ramps and a pair of exit ramps each extending downwardly of said deck to the depressed roadway and opening into the direction of travel of the oppositely directed lanes of said roadway for receiving and discharging vehicles from and to said roadway; an open space between the lower surface of said deck and the roadway and street level for passage of natural light

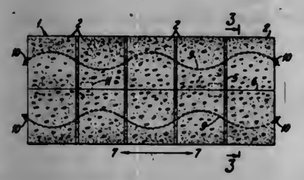
to the roadway beneath said deck; entrance and exit ramp connecting said deck to said street for entrance and exit of vehicles to and from the street from said deck; at least one additional parking deck located and spaced above said first mentioned parking deck and connected thereto by means of ramps.

3,319,386
PRESTRESSED CONCRETE
Gerald C. Francis, P.O. Box 512, Lansing, Mich. 48903
Original application May 29, 1961, Ser. No. 113,457, now Patent No. 3,222,835. Divided and this application Apr. 23, 1965, Ser. No. 459,972
9 Claims. (Cl. 52—224)



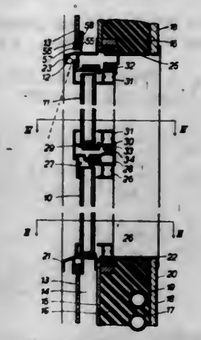
7. In a prestressed concrete slab structure,
(a) an inner frame member,
(b) a peripheral frame member outwardly spaced from said inner frame member and substantially coplanar therewith,
(c) a plurality of stressing cables secured between spaced points on said inner frame member and spaced points on said peripheral frame member,
(d) means fixing one of said members to prevent rotation thereof and the other of said members being connected with said fixed member only by said cables whereby said last mentioned member can be rotated about said fixed member to the extent permitted by said cables and such rotation produces tension forces in said stressing cables,
(e) a flat concrete slab disposed between said frame members and encompassing said cables, and
(f) said cables extending through said concrete slab and diverging angularly from their initial radial lines such that inwardly projected lines from said cables circumscribe a circle concentric with the common center point of said frame members.

3,319,387
ROOF STRUCTURE OF CONCRETE BLOCKS HAVING WAVE-SHAPED PASSAGES CONTAINING STRESSED REINFORCING
Albert Stewing, Dorsten, and Stefan Polonyi, Cologne, Germany, assignors to Edeltraud Polonyi (nee Fremersdorf), Cologne, Germany, Gertrud Stewing (nee Haseke), Dorsten, Germany, and Paul Stewing, Dorsten, Germany
Filed Aug. 14, 1964, Ser. No. 389,629
Claims priority, application Germany, Oct. 3, 1963, E 25,623
6 Claims. (Cl. 52—227)



1. A roof structure comprising a plurality of reinforced concrete elements each of said elements having a passage of wave-shaped configuration extending therethrough from one side to the other, said element being adapted to be arranged in side-by-side relationship, a reinforcing element extending through the passages of each of said reinforced concrete elements, said reinforcing element conforming to the wave-shaped configuration of said passages with substantially one half of a wave length being arranged in each of said elements and means for clamping the outer ends of said reinforcing element adjacent the outer ends of the outermost ones of said reinforcing elements.

3,319,388
WALL CONSTRUCTIONS
Torgny Kjelstrup Olsen, Salgskontor, Bergen, Norway
Continuation of application Ser. No. 117,158, June 14, 1961. This application May 13, 1964, Ser. No. 370,754
1 Claim. (Cl. 52—235)



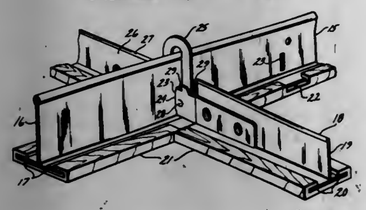
In a wall construction, in combination, a plurality of vertical bar means, a plurality of horizontal bar means, each of said vertical and horizontal bar means comprising an inner bar member and an outer bar member separated by insulating glands, connection means for said inner and outer bar members, means for connecting said vertical and horizontal bar means together to form a framework having rectangular openings, means for attaching said framework to a substructure, glass windows received within certain ones of said rectangular openings and panels received within certain other ones of said rectangular openings, upper and lower supporting means associated with vertically adjacent horizonal bars between which each panel is suspended and defining air openings with the upper and lower ends of the panels, respectively, said lower supporting means each comprising an upstanding flange portion on each horizontal bar and auxiliary supporting members which are adapted to engage both the upstanding flange and the bottom end of an associated panel so that the rear face of the panel is horizontally spaced from the upstanding flange portion, said auxiliary supporting members being spaced apart whereby said lower air openings are defined by the rear face of the panel and the upstanding flange intermediate the spaced auxiliary supporting members, said auxiliary supporting members each being substantially S-shaped in cross-section with the upper hook portion thereof engaging the upper edge of the upstanding flange and the lower hook portion thereof engaging the bottom end of the panel, the air openings between the panel and the upstanding flange corresponding in size to the thickness of the auxiliary supporting member intermediate the upper and lower hook portions, said upper and lower supporting means being adapted to permit slidable displacement of a panel out of engagement therewith, screening plate means positioned inwardly of each said panel substantially at the location of the connecting means for said inner and outer bar members, each panel and screening means defining a wind pressure-relieving space therebetween communicating with said air openings permitting the passage of air

directly from outside the framework to the wind pressure-relieving space behind each panel, inner plate means being supported by said inner bar members in said other ones of said rectangular openings inwardly of said screening plate means and forming together with the inside of said glass windows inner faces of said wall construction, said inner plate means and said screening plate means defining together a second hollow space within which insulating material is received, said air openings being located at positions shielded against direct exposure to the weather and having small dimensions in relation to the horizontal cross-sectional dimensions of said pressure relieving space.

3,319,389
SUSPENDED CEILING ASSEMBLY INCLUDING INTERLOCKING GRID MEMBERS AND COVER MOLDINGS

Benson Levine, West Hartford, Conn., assignor to B & L Lighting Company, Hartford, Conn., a corporation of Connecticut

Filed Aug. 4, 1964, Ser. No. 387,368
3 Claims. (Cl. 52—309)



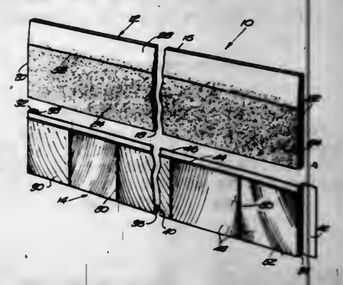
1. A suspended ceiling assembly comprising a grid of parallel supporting members and cross members extending normally thereto, said grid members being of generally T-shaped cross-sectional configuration providing a vertically extending web portion and flange portions at the lower end of said web portions extending normally thereto, the ends of the flange portions of said cross members abutting against the sides of the flange portions of said parallel supporting members and said flange portions of both grid members lying in a common plane; interlocking means engaging the ends of the web portions of said cross members with the web portions of said parallel supporting members and locking said grid members at right angles to each other with the flange portions thereof in abutment, said interlocking means resting substantially upon the upper surface of the flange portions of said parallel supporting members; and cover moldings each having an inverted T-shaped slot therein slidably receiving the flange portions of said grid members, the cover moldings of said parallel supporting members having notches in the upper portions thereof receiving the ends of the abutting flange portions of said interlocked cross members, said notches being of lesser length than the width of said cover moldings whereby the cover moldings of said cross members conceal the notches in said moldings of said parallel supporting members from observation from below said assembly, the lower surfaces of said cover moldings lying in substantially a common plane.

3,319,390
ARCHITECTURAL SIDING

Hugo E. Pasnullo, Johnston, Hugh C. Neville, Barrington, and Hugh Neville, Jr., Tiverton, R.I., assignors, by direct and mesne assignments, to Supradur Plastics Corporation, Fall River, Mass., a corporation of Delaware

Filed Aug. 19, 1964, Ser. No. 390,531
8 Claims. (Cl. 52—309)

1. Architectural siding strip comprising a backer board and plastic sheet secured to said board and covering the front face thereof, both said backer board and said plastic sheet having top, bottom, and side edges, said sheet being heat-sealed at least to one side edge and said bottom edge of the board and extending around said edges into contact with said rear surface, said sheet having further a flap



extending outwardly from said other side edge and positioned substantially in the plane of said rear surface, the sheet portion in contact with the front face of the board being sealed thereto essentially by pressure.

3,319,391
ELEVATION MARKERS

Anthony Lutch, 284 Glass Run Road, Pittsburgh, Pa. 15207

Filed Oct. 15, 1964, Ser. No. 404,056
7 Claims. (Cl. 52—371)

3. An elevation marker for a foundation anchor bolt comprising:

(a) A split resilient collar having projections at the split extending from the collar, the projections having a top cam surface extending above the top planar surface of the collar and having aligned transverse slots open ended at the top of the cam surface, the collar under tension urging the split to close; and

(b) A screed member having an open ended transverse slot engaging the slots in the extended projections forming a blind halved lap joint which urges the projections together under compression.

3,319,392
FLEXIBLE CERAMIC FILE UNIT

John V. Fitzgerald, Metuchen, N.J., assignor to Tile Council of America, Inc., New York, N.Y., a corporation of New York

Filed June 18, 1964, Ser. No. 376,175
10 Claims. (Cl. 52—389)

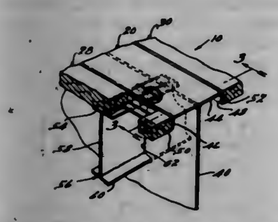


10. A new and useful building unit comprising a substratum, having bonded thereto by means of a setting adhesive a flexible, prefabricated multiple unit ceramic tile mosaic, said mosaic consisting of a plurality of individual ceramic pieces, each of said pieces having front and back major faces and edge surfaces, each of said major faces being substantially planar and said major faces being substantially parallel to and spaced from each other, said edge surfaces extending between and generally normal to said front and back major faces, said pieces being arranged with all of their corresponding major faces lying in at least substantially the same plane and with their edge surfaces in selected laterally spaced relationship, and grouting and spacing means for said tile pieces consisting of a thin web of set-up bonding material, said web being contiguous with the front major faces of the tile pieces but slightly depressed below the front major faces so as to leave said faces substantially completely exposed, said web extending into the spacing between the tile pieces from the front major faces towards the back major faces a distance which is less than the distance between said faces so as to provide an interconnecting network of open channels between the web and the front and back major faces of the tile pieces, said channels extending between the vertical edge surfaces of adjacent tile pieces from the back major faces of the tile pieces to the web, the web having a cross-section which is thinnest at a point spaced between adjacent edge surfaces of two tile pieces, compared to the cross-section of the web at an edge surface of at least one of said adjacent tile pieces, the cross-section of the web at the aforesaid point ranging in width up to approximately ½ of the thickness of the tile pieces, the back major faces of the tile pieces being completely exposed and free of the web, said web bridging the lateral spacing between the tile pieces and being tenaciously bonded to adjacent edge surfaces of the tile pieces, thereby connecting the tile pieces together solely at their edges, said setting adhesive contacting the substratum and the back surface of said mosaic and extending into said network of interlocking channels.

3,319,393
FLAT BED TRAILER CONSTRUCTION

Keith W. Tantlinger, Grosse Pointe Shores, Mich., Davis D. Wilson, Fort Worth, Tex., and George Chleger, Birmingham, Mich., assignors to Fruehauf Corporation, Detroit, Mich., a corporation of Michigan

Filed Jan. 6, 1964, Ser. No. 335,922
1 Claim. (Cl. 52—496)



A floor construction for heavy duty over-the-road vehicles comprising:

a longitudinal frame member of generally I-shaped transverse cross section defined by a pair of vertically spaced flanges having a vertical web portion therebetween, the top flange of said frame member being of hat-shaped transverse cross section defined by a horizontal center portion having downwardly extending portions on opposite sides thereof with oppositely directed horizontal edge portions, respectively, the vertical web portion of said longitudinal frame member having an I-shaped aperture therein,

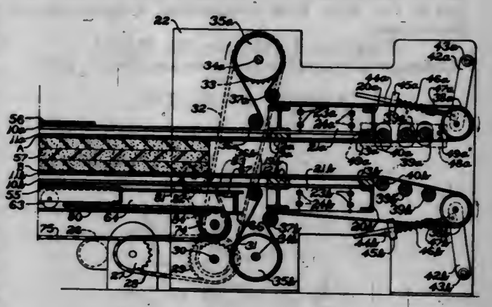
a cross member of generally I-shaped cross section defined by a vertical web portion and horizontal flanges extending through the I-shaped aperture in the web portion of said longitudinal frame member and immediately underlying the horizontal edge portions thereof, said cross member being welded to said I-shaped aperture whereby the web portions of said frame and cross members mutually support one another, and

a pair of floor boards seated on said cross member and on the edge portions of said longitudinal member, said floor boards having relieved portions at the lower edges thereof for the acceptance of the edge portions of said longitudinal member, respectively.

3,319,394
APPARATUS FOR PACKAGING RESILIENT CELLULAR MATERIAL

Leon Talalay, New Haven, and George A. Scott, Shelton, Conn., assignors to The B. F. Goodrich Company, New York, N.Y., a corporation of New York

Filed July 25, 1963, Ser. No. 297,645
6 Claims. (Cl. 53—24)

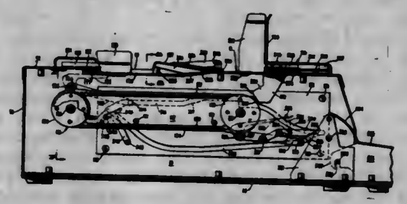


5. A process for packaging resilient cellular material which comprises compressing said cellular material in a vertical direction, advancing said vertically compressed cellular material along a horizontal path and into an open container having smaller dimensions than those of the said cellular material in uncompressed form, moving said container along the path of advance of said cellular material and in the same direction as the said cellular material and at a slower rate of speed than the rate of advance of said cellular material whereby said cellular material will be compressed longitudinally as it is being inserted into said container, and closing said container.

3,319,395
MAIL HANDLING DEVICE

Ingemar H. Lundquist, Belmont, and Charles W. Wiedeman, Castro Valley, Calif., assignors to Frideu, Inc., a corporation of Delaware

Filed June 17, 1964, Ser. No. 375,809
15 Claims. (Cl. 53—189)



1. In an envelope stuffing machine, the combination with a material supply station, an envelope supply hopper spaced from said material supply station in alignment therewith and having envelopes supported therein, an actuating means, material engaging members carried by said actuating means movable in a path below said material supply station and said envelope supply hopper and operative upon operation of said actuating means to pick up material at said supply station, to open the

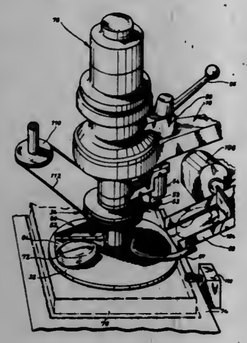
lowermost envelope in said supply hopper and insert the material thereinto and to remove the stuffed envelope from said supply hopper, a stacking means for gripping the stuffed envelope upon removal thereof from said supply hopper by said material engaging members and thereafter removing the stuffed envelope from the said engaging members, and an intermittently operable drive means for effecting operation of said actuating means and controlling operation of said stacking means.

3,319,396

APPARATUS FOR DEPOSITING ARTICLES INTO CONTAINERS

Peter Hofer, Weil am Rhine, and Wilhelm Daniels, Haltingen, Kreis Lorrach, Germany, and Walter Oetliker, Allschwil, Basel-Land, Switzerland, assignors, by mesne assignments, to Maschinenfabrik Winkler, Fallert & Co. A.G., Bern, Switzerland, a corporation of Switzerland

Filed Dec. 5, 1963, Ser. No. 328,314
Claims priority, application Germany, Dec. 5, 1962, A 41,798
5 Claims. (Cl. 53—240)



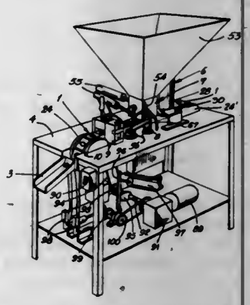
1. In an apparatus for depositing articles into containers, in combination, a substantially horizontal supporting plate having an upper face part of which forms a receiving area for receiving, one by one, articles which are to be deposited, said plate having spaced from said receiving area a depositing area formed with an opening through which an article can move to a container located beneath said plate; rotary shifting means located adjacent to said upper face of said plate for turning relative thereto for engaging an article at said receiving area and shifting the latter to said depositing area in alignment with said opening, said rotary shifting means including a projecting member adjustably connected to the remainder of the rotary shifting means; drive means operatively connected to said rotary shifting means for rotating the latter; releasable stop means operatively connected to said rotary shifting means for stopping the movement thereof by said drive means at a position where said rotary shifting means locates the article in alignment with said opening, said releasable stop means comprising a stop member and an electro-magnet operatively connected thereto for moving said stop member between a stopping position arresting said rotary shifting means in said position where the article is aligned with said opening and a release position releasing said rotary shifting means for rotary movement to engage an article and shift the latter to said depositing area where said stop means arrests the movement of said shifting means, said stop member when in stopping position being located in the path of turning movement of said projecting member for engaging the latter and arresting the movement of said rotary shifting means until the electro-magnet moves said stop member to said release position in which it is located out of the path of said projecting member; conveyor means located beneath said plate for conveying beneath the latter a container for receiving an article which moves through said opening; and blocking means operatively connected to said plate for movement relative thereto between a blocking position blocking said opening to prevent an article from moving therethrough and an unblocking position freeing said opening so that an article in alignment therewith will move therethrough into a container, said blocking means moving from said blocking to said unblocking position thereof when a container beneath said plate is in a predetermined position relative to said opening so that an article will then move through said opening into said container to be deposited therein at a predetermined location in said container.

3,319,397

CONVEYOR TYPE CONTAINER FILLING AND SEALING MACHINE

David Lupovici, 7482 Spring Road, Cote St. Luc, Quebec, Canada

Filed Sept. 14, 1964, Ser. No. 396,326
8 Claims. (Cl. 53—282)



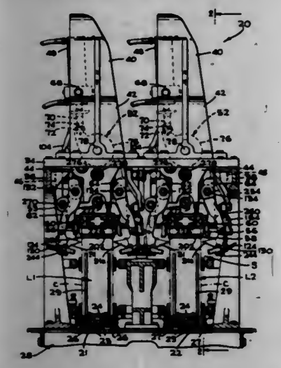
1. In a container filling and capping machine having a rotatable endless conveyor chain having container receiving sockets therein, a container dispenser, means for dispensing from said dispenser one container at the time and depositing the same in the sockets of said conveyor chain, a material hopper, means for intermittently operating a dispensing valve positioned beneath said material hopper to cause predetermined quantities of the material from said hopper to be deposited in the containers carried by said conveyor chain, means for intermittently rotating the conveyor chain to consecutively carry the filled containers into a cap-receiving position, a cap feed mechanism, means for intermittently operating the same to cause a cap to be delivered onto a filled container carried by the conveyor chain, means for heat sealing the cap onto the filled container and means for discharging the filled and capped containers from the chain, wherein said container dispenser includes a magazine disposed over said conveyor chain and adapted to house a vertical stack of nested containers, and said container dispensing means include mechanism at the bottom of said magazine operable to separate the lowermost container from the stack and allow the same to drop into a socket of said conveyor chain in register with said stack, a spring-pressed plunger connected to said mechanism for operating the same, said plunger mounted for engaging the side of said conveyor chain, the latter having spaced notches in the side thereof each associated with one socket thereof and in the path of said plunger to be engaged thereby and to operate the same upon a socket of said conveyor chain coming into register with said container stack.

3,319,398

APPARATUS FOR SEALING CARTONS

Leslie Vadas, Los Gatos, and Robert W. Drake, San Jose, Calif., assignors to FMC Corporation, a corporation of Delaware

Filed June 17, 1964, Ser. No. 375,895
12 Claims. (Cl. 53—375)



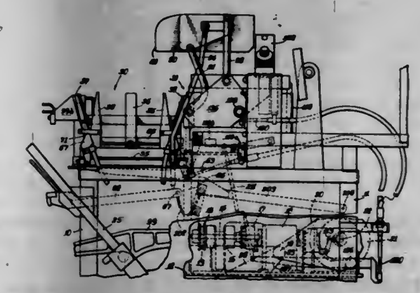
3. A sealing apparatus for sealing the top closure of a thermoplastic carton having heated sealing surfaces, comprising means for folding the flaps of the top closure together with certain portions of the sealing surfaces projecting outwardly from the upper edges of certain of said flaps; pressure resisting means insertable below said projecting portions; means for applying a predetermined sealing force upon said projecting portions against the resistance of said pressure resisting means; common power means for actuating said folding means, said pressure resisting means, and said sealing means in timed relation; and means included in said common power means for positively locking said resisting means from movement during application of sealing pressure.

3,319,399

PACKAGE WRAPPING MACHINE

Ralph F. Barber, Elmhurst, Ill., assignor to Miller Wrapping & Sealing Machine Company, a corporation of Illinois

Filed Apr. 24, 1964, Ser. No. 362,292
9 Claims. (Cl. 53—379)



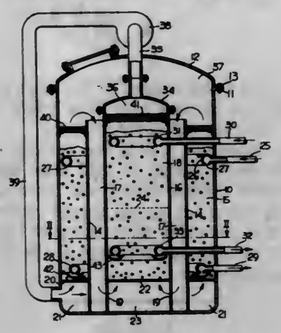
1. A package wrapping machine for utilizing heat sealable limp film having first and second operating stations, the first of said stations including means for folding the wrapping material at the ends of a package including movable folding fingers, means at said second station for heat sealing the wrapping material at the bottom and the ends of the package, said movable folding fingers including heated surfaces for making tacks in the wrapping material at the ends of the package to stiffen the wrapping material for advance to said second station, said movable folding fingers being mounted for pivoting toward each other to fold the ends of the wrapping material, and means providing an additional pivot axis for each finger whereby the fingers pivot toward the package end to apply the heat against the package ends.

3,319,400

APPARATUS FOR LIQUID-TO-LIQUID HEAT EXCHANGE

John F. Wilson, New Berlin, and Howard W. Yant, Milwaukee, Wis., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Filed May 24, 1965, Ser. No. 457,987
3 Claims. (Cl. 55—255)



1. A liquid-to-liquid heat exchanger comprising in combination; a closed vessel, a first wall member disposed within said vessel, secured at the bottom thereof, forming an outer liquid chamber between said well member and the wall of said vessel, a second wall member disposed within the first wall member, forming an inner liquid chamber therein, and forming an air space between said wall members, a first perforated grid plate horizontally disposed in said outer liquid chamber, dividing said outer liquid chamber into an upper portion and a lower portion, a second perforated grid plate horizontally disposed within said inner liquid chamber dividing said inner liquid chamber into an upper portion and a lower portion, a passage provided from said air space into said lower portion of the inner liquid chamber, a passage provided from said outer liquid chamber to said air space over the top of said first wall member, means for admitting a hot liquid into the upper portion of said outer liquid chamber, means for extracting said liquid from said upper portion of said outer liquid chamber, means for admitting a liquid to be heated into the upper portion of said inner liquid chamber, means for extracting the liquid from the upper portion of said inner liquid chamber, and a blower for extracting air from the upper portion of the inner liquid chamber and blowing it into the lower portion of the outer liquid chamber.

3,319,401

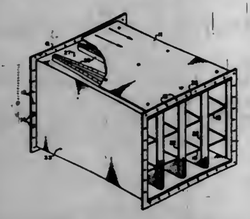
REFILLABLE, LEAKPROOF GAS ADSORPTION UNIT

Harold F. Bogardus, Alexandria, Va., assignor to the United States of America as represented by the Secretary of the Navy

Filed Oct. 27, 1965, Ser. No. 505,437
1 Claim. (Cl. 55—387)

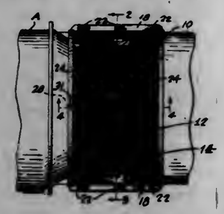
A filter which comprises:
a housing,
a filter bed positioned within said housing,
said filter bed extending over the width, length, and height of said housing thereby preventing passage of any contaminated air therethrough,

said filter bed including a plurality of spaced compartments joined at their ends for receiving a filter material in each compartment,
said spaced compartments extending the length of said housing with a portion of each compartment extending beyond one wall of said housing and positioned between opposite walls of said housing at an angle relative to the axis through the length thereof,



said filter bed being secured to the inner surface of the sides of said housing over their height for free flow of air between said compartments,
a sealing compound sealing the spacing between each of said compartments of said filter bed at the top and bottom thereof within said housing,
an opening into each of said spaced compartments for filling and removing filter material therefrom, and
a cover for sealing said openings at the top of each of said compartments.

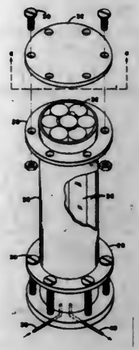
3,319,402
AIR INLET SCREEN
Wallace James Ritchie, Greenfield Park, Quebec, Canada, assignor to United Aircraft of Canada Limited, Longueuil, Quebec, Canada
Filed Dec. 14, 1964, Ser. No. 418,158
8 Claims. (Cl. 55—306)



1. A self-supporting air inlet screen adapted for attachment about a gas turbine engine air inlet plenum of circular outline, said inlet screen comprising, at least one rectangular section of perforated metal sheet corrugated longitudinally and shaped to conform to circular outline as defined by said engine plenum, interconnecting means on the opposed marginal edges of each of said formed sections in substantial parallel alignment with said sheet corrugations, and flexible sealing means at each end of said formed section disposed transversely of said sheet corrugations, and locating means on each of said corrugated formed sections whereby each section may be positively located longitudinally relative to said engine air inlet plenum.

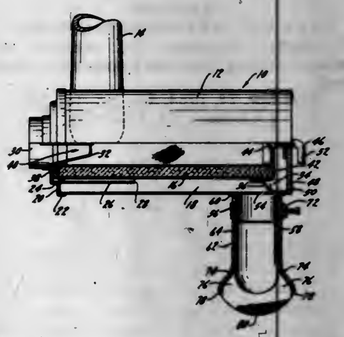
3,319,403
CHROMATOGRAPHIC DEVICE
Arthur Rose, State College, Pa. 16801, and Robert E. Kemper, R.D.1, Port Matilda, Pa. 16870
Filed Aug. 10, 1965, Ser. No. 482,997
6 Claims. (Cl. 55—386)

1. A column for the separation of mixtures of gases by fixed phase-moving phase chromatography comprising:
at least three straight rods disposed in parallel relationship and in tangentical contact with one another forming a plurality of parallel channels therebetween containing chromatographic separating material;
clamping means adapted to secure said plurality of rods in fixed position;
means to connect the end portions of each of said channels formed by said at least three straight rods, with



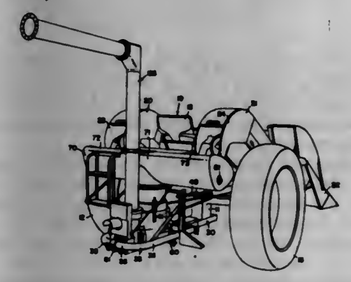
another of said channels, so as to form a continuous passage therethrough;
an entrance means for introducing gas into one end of said continuous passage;
an exit means for retrieving gas from another end portion of said continuous passage;
whereby said gas travels the entire length of said continuous passage formed by said channels.

3,319,404
DUST UNLOADER
Wilfred W. Lowther, Chicago, Ill., assignor to Novo Industrial Corporation, New York, N.Y., a corporation of New York
Filed Apr. 21, 1965, Ser. No. 453,867
5 Claims. (Cl. 55—432)



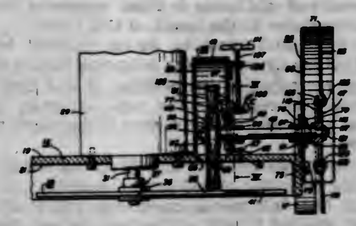
1. In an air cleaner assembly for use with an internal combustion engine, a housing having an inlet for dirty air, a clean air outlet on the housing adapted to be connected to the intake of an internal combustion engine, a dust port on the housing for discharging dust therefrom separated from the air, and a dust unloader on the dust port adapted to discharge the dust from the housing, including at least two generally parallel closely spaced flexible lips, the lips being slightly separated when the dust unloader is at rest, but sufficiently flexible such that they will come together and close under an air pressure differential caused by vacuum in the housing of the cleaner assembly and atmospheric pressure on the outside thereby preventing the entrance of air into the housing through the dust port, the lips being spaced a predetermined distance below the dust port thereby providing an unobstructed vertical height above the lips such that a column of dust will collect therein, creating a sufficient head pressure to open the lips and discharge dust against the action of the air pressure differential thereon, the unobstructed vertical height being related to engine operating conditions such that at the maximum air pressure differential, as represented by full load on the engine, which causes the lips to come together under maximum pressure, the height of the dust column which will accumulate in the unobstructed vertical height will be sufficient to overcome the maximum air pressure differential thereby causing the lips to separate and the dust unloader to unload, and a wall structure above the lips at least in part defining the vertical height and constructed to retain its relative dimensional stability under the various pressure differentials of all loads and speeds of the engine.

3,319,405
AGRICULTURAL IMPLEMENT
Martin A. Berk, Horicon, Wis., assignor to Deere & Company, Moline, Ill., a corporation of Delaware
Filed June 5, 1964, Ser. No. 372,752
8 Claims. (Cl. 56—15)



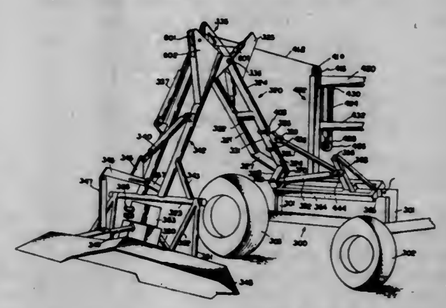
1. A multi-row crop harvester adapted for mounting on a tractor having a longitudinal body, a pair of traction wheels outwardly of the body, and a power source, the harvester comprising: row crop harvesting means supported on the tractor body adapted to harvest rows of crop on opposite sides of the tractor body and having forward material intake ends forwardly of the traction wheels and a pair of transversely spaced crop discharge ends rearwardly of the wheels for discharging downwardly the harvested corps; a mill longitudinally aligned rearwardly with the tractor body having a material receiving opening beneath and offset inwardly from the discharge ends; a material transferring device including a transverse auger housing supported on the mill with a pair of transversely spaced inlets beneath and for receiving material from the respective discharge ends, the housing further having a central discharge means opening into the mill, and a pair of transversely aligned auger flightings within the auger housing for moving material from the inlets to the discharge means; a U-shaped horizontally disposed suspension frame adapted to be suspended rearwardly of the tractor body and having fore-and-aft extending leg portions on opposite sides of the mill and a rear bight portion behind the mill; and implement hitch on the bight portion for connecting a trailing implement; means on the frame for supporting the mill; and a power train on the mill for operating the mill and adapted to be operatively connected to the power source, the power train including a power take-off shaft extending rearwardly of the mill and adapted for connection to a drive means on a trailing implement.

3,319,406
LAWN EDGING MECHANISM IN A LAWN MOWER
Willie F. Miles, 412 Malbro Road, Memphis, Tenn. 38117
Filed July 30, 1964, Ser. No. 386,155
2 Claims. (Cl. 56—25.4)



1. In a lawn mower having an elongated blade rotatably driven in a circular path about a substantially vertical axis, a mechanism for edging the lawn comprising shaft means, grass cutting means secured to said shaft means, wheel means coupled to said shaft means, said wheel means including yieldable wire means for fractionally and intermittently contacting said blade to rotatably drive said shaft means and said grass cutting means.

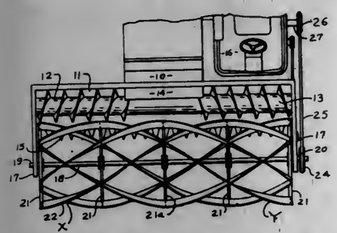
3,319,407
CUTTING DEVICE
Bertram L. Jordan, Lewiston, and John D. Mitchell, Woodville, N.C., assignors to Harrington Manufacturing Co., Lewiston, N.C., a corporation of North Carolina
Filed Oct. 22, 1965, Ser. No. 507,606
13 Claims. (Cl. 56—25.4)



1. A fluid operated cutting device on a mobile base comprising:
(a) a laterally extending boom attached to said base by pivotal means connected to said base which will allow movement of said boom with respect to said mobile base about an axis which is parallel to the direction of travel of said mobile base and about a vertical axis, said boom consisting of an inner section and an outermost section;
(b) a first fluid operating means attached between said boom and said base for adjusting said boom about said axis parallel to the direction of travel of said mobile base;
(c) a releasable lateral positioning means attached between said boom and said mobile base to position said boom in a lateral direction with respect to said mobile base;
(d) a pivotal means connected between the adjacent ends of the inner and outermost sections, said boom allowing relative movement of said inner section of the boom and the outermost section of said boom about an axis transverse to the length of said boom;

(e) a second fluid operating means mounted on said laterally extending boom for adjusting the position of the outermost section of said boom about said pivotal means and with respect to the innermost section of said boom;
(f) a cutting assembly pivotally mounted at the outer extremity of said boom to allow movement about an axis transverse to the length of said boom;
(g) a third fluid operating means mounted between said cutting device and the outermost section of said boom for adjusting the position of said cutting assembly with respect to the outer extremity of said boom about said axis transverse to the length of said boom;
(h) motor means mounted on said cutting assembly for driving the cutter of said cutting assembly; and
(i) said first fluid means comprising a hydraulic cylinder attached to said mobile base, an arm pivotally attached to said mobile base about an axis parallel to the direction of travel of said base, said arm being movable by said hydraulic cylinder, a cable attached to said arm, said cable being attached to said outermost portion of said boom, and guide means on said boom for positioning said cable along the length of said boom.

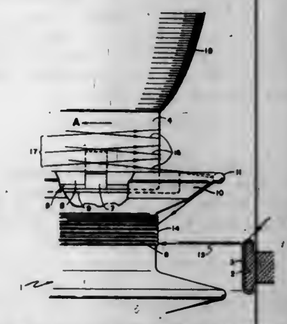
3,319,408
REELS FOR FARM MACHINERY
Martin J. Landwehr, 428 S. McComas, Wichita, Kans. 67213
Filed Aug. 12, 1964, Ser. No. 389,012
1 Claim. (Cl. 56—220)



In a combine, a trough mounted on the front end thereof and having centrally delivering auger means therein; a throat on said combine disposed to receive material by said auger means; crop cutting means mounted on and extending forwardly of said trough; a crop gathering means adjustably mounted on said combine and disposed above and forwardly of said cutting and auger means; said gathering means extending parallel to said auger and comprising a reel having an axle, slat supporting radial arms thereon, said slats being spirally arranged to converge along a longitudinal line coextensive with said throat, to provide a V-shaped slat configuration, whereby the crop gathered by the reel is fed toward the center, severed by the cutter, delivered to the auger means and discharged to the combine throat.

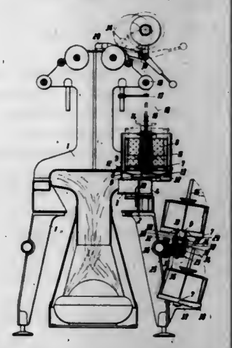
3,319,409
METHOD AND DEVICE FOR SECURING YARN PACKAGES
Willem Bakker, Velp, Netherlands, assignor to American Enka Corporation, Enka, N.C., a corporation of Delaware
Filed Aug. 11, 1964, Ser. No. 388,872
Claims priority, application Netherlands, Aug. 28, 1963, 297,243
8 Claims. (Cl. 57—34)

1. A method of securing the lead and tail ends of a yarn package whereby the yarn package may be more effectively handled during processing, comprising the steps of:
(1) supplying a thread to a waste collecting spool located on a spindle adapted for rotation,
(2) passing said thread from the waste collecting spool through a thread securing section comprising a portion of said spindle, and which is adapted for rotation,
(3) collecting said thread into a yarn bundle, on a bobbin supported by said spindle,
(4) then, passing said thread from the bundle again through the securing section of said spindle to the waste collecting spool thereof, and



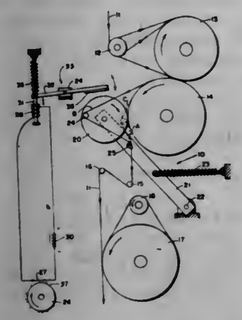
(5) thereafter stopping the spindle's rotation, and removing a yarn package therefrom and consisting of a yarn bundle on a bobbin having thread ends which are secured to said yarn package when severed from the waste spool.
4. A thread fixation device for use with a yarn collection bobbin to secure the initial thread end and transfer tail of the yarn, said device comprising a substantially J-shaped, flexible element in which the longer leg is tapered for insertion at the base of the bobbin and the shorter leg of the element has an inner gripping surface cooperating with the outer face of the bobbin to provide a thread receiving and securing means.

3,319,410
DOUBLE TWIST FRAME
Gustav Franzen, Neersen, Germany, assignor, by mesne assignments, to Palitex Project-Company, G.m.b.H., Krefeld, Germany, a German company
Filed July 8, 1964, Ser. No. 381,013
Claims priority, application Germany, July 13, 1963, N 23,461
7 Claims. (Cl. 57—34)



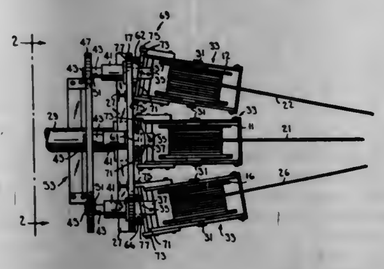
1. A double twist frame having spindles which comprise a carrier for a winding-off package and co-operating rotary yarn-ballooning means, each carrier being detachable from the said yarn-ballooning means for removal thereof from a spinning position, and pneumatic threading means separated from the spinning position for temporarily receiving each carrier with an unthreaded package preparatory to placement of the respective carrier at the spinning position.

3,319,411
APPARATUS FOR TREATING YARN
Charles M. Rice, Candler, N.C., assignor to The American Enka Corporation, Enka, N.C., a corporation of Delaware
Filed Mar. 31, 1965, Ser. No. 444,283
14 Claims. (Cl. 57—38.3)



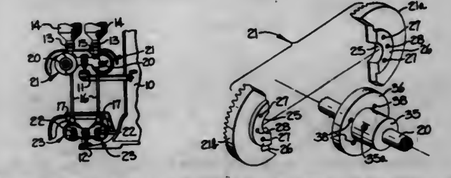
1. Apparatus for producing variable denier yarn comcomprising a nub wheel having a pin extending outwardly therefrom for engaging yarn and for lengthening the path of travel to elongate the yarn, and means for alternately driving and braking said nub wheel.

3,319,412
CONDUCTOR TRANSPOSING APPARATUS
David F. Winter, Kirkwood, and Thomas E. Gill, St. Louis, Mo., assignors, by mesne assignments, to Central Transformer Corporation, Pine Bluff, Ark., a corporation of Arkansas
Filed June 14, 1965, Ser. No. 463,506
5 Claims. (Cl. 57—59)



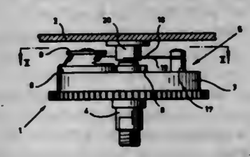
1. Apparatus for transposing conductors being drawn from respective reels to form a cable without twisting individual conductors comprising:
a wheel mounted for rotation around an axis which passes substantially through the point towards which said conductors are drawn; and
means for pivotally mounting a plurality of reels on said wheel at spaced circumferential positions, said mounting means including means for maintaining the axes of reels so mounted always substantially parallel to a preselected plane as said wheel rotates, said preselected plane being parallel to the axis of said wheel, said mounting means further including a pivotal connection permitting each reel to be swung around an axis which is maintained substantially perpendicular to said preselected plane, and a cam and cam follower for controlling the swinging of said reel around said pivotal connection as a predetermined function of the angular position of said wheel in response to rotation of said wheel for oscillating each reel to maintain the reel axis substantially perpendicular to the direction of payoff of conductor from each respective reel whereby chafing of said conductor on the sides of said reel is avoided.

3,319,413
ROVING FRAME DRIVE
Jackson Costner, Bessemer City, N.C., assignor to Ideal Industries, Inc., Bessemer City, N.C., a corporation of North Carolina
Filed Oct. 21, 1965, Ser. No. 499,653
9 Claims. (Cl. 57—102)



1. In a roving frame having a plurality of bobbins, a bolster supporting each bobbin, a metal bolster drive pinion carried by each bolster, and a bolster drive shaft supported adjacent said bolster drive pinions, the combination therewith of improved means for drivingly connecting said bolster drive shaft to said bolster drive pinions, said improved drive means comprising
(a) a plastic gear positioned in driving engagement with each of said bolster drive pinions, each of said gears being transversely split into two juxtaposed side-by-side parts so that the same may be placed around and removed from said drive shaft,
(b) a hub including a flange positioned adjacent each of said bolster drive pinions and fixed on said bolster drive shaft, and
(c) means penetrating said flanges and said plastic split gears for removably securing the split gears to said hubs with the two parts of the split gears being held in said juxtaposed side-by-side relationship whereby worn or broken split gears may be replaced without disturbing the relationship of the remaining split gears with their pinion.

3,319,414
CONTROL DEVICE FOR ELECTRIC MOTORS FOR REWINDING WATCH MOVEMENT
Samuel Schwab, Moutier, Switzerland, assignor to Louis Schwab S.A., Moutier, Switzerland
Filed Oct. 28, 1965, Ser. No. 505,525
1 Claim. (Cl. 58—41)



A device for electrically controlling the winding up by an electric motor of a spring actuated clockwork comprising a barrel having a cover and a barrel shaft, a stop

work rotatably mounted on said cover and having in its periphery a plurality of slots and a finger on said barrel shaft engaging said slots to actuate said stop work, said device comprising:

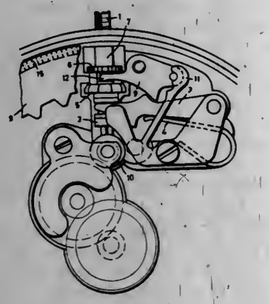
a conductive sleeve coaxially secured on said stop work and having a shoulder;

an insulating ring coaxially mounted between said shoulder and said stop work, said sleeve and ring forming a double annular truncated contact surface along the major part of the circumference and an inclined notch for a minor portion of said circumference;

a groove in said ring parallel to said stop work and communicating with said notch;

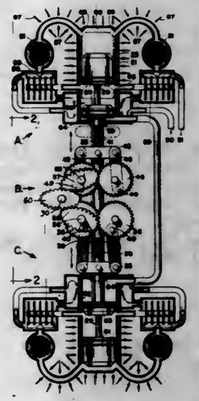
an insulated stud on said cover and a two-pronged resilient conductor secured by said stud, one said prong of said conductor being in contact with a terminal of said motor and the other said prong of said conductor being engaged with said shoulder and contact surface of said conductive sleeve to close the motor circuit, rotation of said stop work sleeve and ring causing said other prong to slide on said contact surface and enter said groove of said insulating part to open said circuit.

3,319,415
CHRONOMETER MECHANISM
Otto Von Aesch and Roger Bieri, both of Fontainemelon, Switzerland, assignors to Fabrique d'Horlogerie de Fontainemelon S.A.
Filed Oct. 5, 1965, Ser. No. 493,106
Claims priority, application Switzerland, Nov. 3, 1964, 14,215/64
3 Claims. (Cl. 58—63)



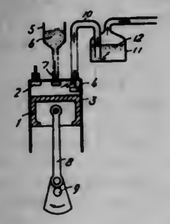
1. In a chronometer comprising a driving mechanism, a hand setting mechanism, a date setting mechanism, a winding stem having a square part, a winding pinion, said winding pinion being counted on said part, a mechanism alternatively adjustable to a winding position, a hand setting position and a date setting position, said adjustable mechanism comprising a first lever having a free end, first lever engaging means defined on said stem for engagement with the free end of said first lever, said lever engaging means comprising a circular groove defined in the periphery of said stem, said first lever being juxtaposed to said first lever engaging means with its free end abutting said first lever engaging means, a second lever having a free end, second lever engaging means defined on said stem for engagement with said second lever, said second lever being juxtaposed to said second lever engaging means, with its free end abutting said second lever engaging means, clutch means mounted on said stem for engagement with the hand setting mechanism, said second lever engaging means being operatively connected to said clutch means, and a date setting pinion mounted on the stem for engagement with the date setting mechanism, said levers defining means for mutual engagement, whereby the adjustable mechanism may be adjusted to its winding position by longitudinally positioning the stem so that the winding pinion is engaged with the drive mechanism, the clutch means is unengaged with the hand setting mechanism and the date setting pinion is unengaged with the date setting mechanism, the adjustable mechanism may be adjusted to its hand setting position by longitudinally positioning the stem so that the first and second levers mutually engage and said second lever is urged by said first lever to abut against said clutch means and said clutch means thereby is urged into engagement with said hand setting mechanism, the winding pinion is disengaged from the drive mechanism and the date setting pinion remains unengaged with the date setting mechanism, and the adjustable mechanism may be adjusted to its date setting position by longitudinally positioning the stem so that the abutting relation of the first and second levers is changed to disengage the hand setting pinion from the hand setting mechanism, the date setting pinion is engaged with the date setting mechanism and the winding pinion remains unengaged with the winding mechanism.

3,319,416
ENGINE FUNCTION TIMING CONTROL
John P. Renshaw, 340 Pine St., San Francisco, Calif. 94104
Filed Sept. 24, 1965, Ser. No. 489,938
12 Claims. (Cl. 60—24)



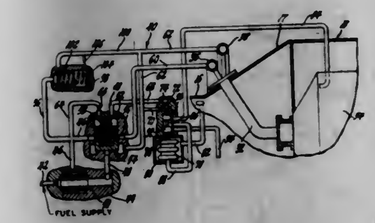
1. In an external heat engine of the type having power and displacement pistons reciprocally mounted within cylinders, shaft means connected independently to each of said pistons to translate reciprocal motion of said pistons externally of said cylinder, conversion means connected to each of said shafts to translate the reciprocal motion of said shafts to rotary motion, a varying-radius gear train having, a first varying-radius gear connected to rotate with said conversion means for said power piston, a second varying-radius gear connected to rotate with said conversion means for said displacement piston, and a third varying-radius gear means connected to rotate in driving relationship with said first and second varying-radius gear means, said first and second gears being positioned each to have the elongated radius section of the gear engaged with the short radius section of the third gear when the respective piston is adjacent the top and bottom dead centers of their respective strokes.

3,319,417
INTERNAL COMBUSTION ENGINE TYPE MOTOR POWER GENERATING APPARATUS
Otoharu Ishizaka, 39 1-chome, Harigaya-cho, Urawa, Japan
Filed Aug. 24, 1965, Ser. No. 482,102
Claims priority, application Japan, Mar. 22, 1965, 40/16,285
15 Claims. (Cl. 60—37)



1. Power generating apparatus comprising means responsive to expanding gas to generate power, and means to supply and cause the thermal decomposition and expansion of ammonium carbonate, said means being operatively associated to generate said power.

3,319,418
FUEL DISTRIBUTION SYSTEM FOR MULTIPLE BURNERS IN A GAS TURBINE ENGINE
Leland W. Bryant, Indianapolis, Cecil H. Sharpe, Brownsburg, and Frank A. Swingle, Indianapolis, Ind., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Oct. 20, 1965, Ser. No. 498,524
10 Claims. (Cl. 60—39.28)



6. In a variable flow rate fuel system for an internal combustion engine having a compressor and a combustor in which primary and secondary subsystems are provided for lower and higher flows, respectively, means for distributing the fuel supply between the subsystems in relation to the demands of the engine comprising, in combination:

an inlet conduit,

a high flow conduit,

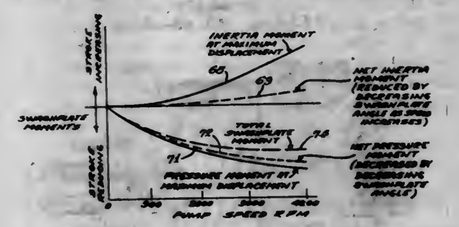
a low flow conduit,

Y-branch means connecting said conduits,

spool valve means in said high and low flow conduits movable between a first position where said low flow conduit is open and said high flow conduit is closed and a second position where said low conduit is closed and said high flow conduit is open, and

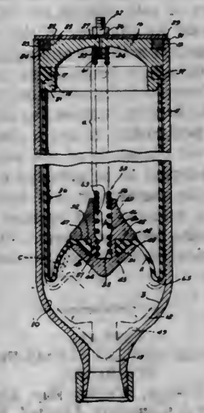
motor means to move said spool valve means between said first and second positions, said motor means being responsive to the compressor discharge-combustor pressure differential which is indicative of air pressure available for atomization whereby said spool valve means opens either said high or said low flow conduits to flow fuel in response to air pressure available.

3,319,419
CONSTANT SPEED DRIVE
Melvin M. Hann, Rockford, Ill., assignor to Sundstrand Corporation, a corporation of Illinois
Filed Aug. 3, 1965, Ser. No. 476,829
9 Claims. (Cl. 60—53)



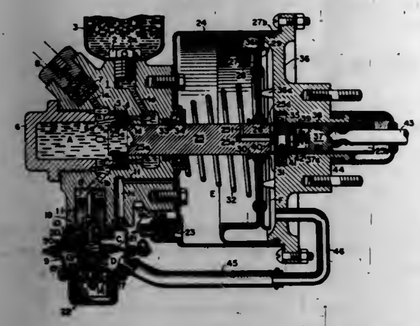
1. A constant flow control system for a variable displacement hydraulic unit, comprising, an input shaft adapted to be rotated at varying speeds by a prime mover, a hydraulic unit adapted to deliver fluid, means for varying the displacement of the hydraulic unit, the fluid in said hydraulic unit exerting moments on said displacement varying means, and control means responsive to said moments for controlling the displacement varying means to maintain a substantially constant volume flow of fluid from said hydraulic unit regardless of input shaft speed variations.

3,319,420
PRESSURE VESSEL
Bernard Mercier, New York, N.Y., assignor, by mesne assignments, to Oiner Patent Company, a corporation of Luxembourg
Filed July 20, 1965, Ser. No. 473,434
14 Claims. (Cl. 60—54.6)



1. A pressure vessel comprising a rigid container having a fluid port at one end, a deformable bladder of substantially non-stretchable material positioned in said container, said bladder being of volume and shape substantially the same as the container and being closed at one end, said closed end carrying a valve member adapted to seat against said port to close the latter, resilient means normally retaining said valve member spaced from said port, said resilient means having two portions, one of said portions having normally prestressed coil spring convolutions and the other having normally unstressed spaced coil spring convolutions, said first portion being of greater length than said second portion.

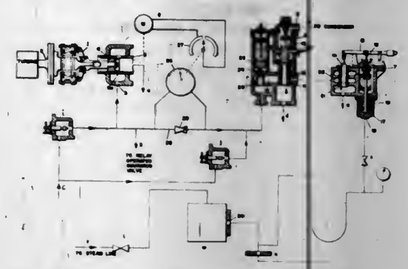
3,319,421
VEHICLE BRAKE APPARATUS EQUIPPED WITH A BOOSTER
Tsuneo Kawabe, Kariya, Japan, assignor to Aishin Seiki Kabushiki Kaisha, Kariya, Japan
Filed July 26, 1965, Ser. No. 474,917
Claims priority, application Japan, Aug. 3, 1964, 39/44,279
2 Claims. (Cl. 60—54.6)



1. A vehicle brake apparatus comprising a master cylinder, a piston in said master cylinder, a booster drum arranged concentrically with respect to said master cylinder and divided into two air chambers by a spring pressed diaphragm connected to said piston of the master cylinder, a control air valve unit adapted to be actuated by the oil pressure in the master cylinder and having two air chambers, one of the air chambers of said booster drum being connected to a source of negative pressure and to one of the air chambers of said control valve unit and the other air chamber of the booster drum being connected to the other air chamber of said control valve unit, means influenced by an increase of oil pressure in the master cylinder for shutting off the communication between the two air chambers of said control air valve unit and for bringing the second air chamber of the control air valve unit in communication with the atmosphere so as to produce a pressure difference between the two air chambers of said booster drum, thereby actuating the piston of the master cylinder to further increase the oil pressure in the master cylinder, said piston having a direct passage connecting the two air chambers of the booster drum, and a second piston adapted to be actuated by a brake pedal and carrying a valve shutting off said direct passage when the brake pedal is actuated, and opening said direct passage when the brake pedal is released, thereby causing a quick return motion of the spring pressed diaphragm in the booster drum.

3,319,422
SPEED GOVERNING SYSTEMS FOR STEAM TURBINES
William George Watson, Whitley Bay, England, assignor to C. A. Parsons & Company, Limited, Newcastle-upon-Tyne, England, a corporation of Great Britain
Filed June 4, 1965, Ser. No. 461,304
Claims priority, application Great Britain, June 5, 1964, 23,494/64
9 Claims. (Cl. 60—105)

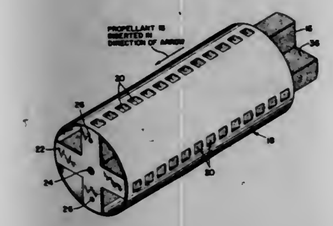
1. A speed governing system for a steam turbine, comprising a governor valve for controlling the flow of steam to a turbine; a hydraulic control system for variably controlling said governor valve in accordance with the pressure in said hydraulic system; a governor for varying the pressure of said hydraulic control system in response to changes in turbine speed so as in turn to control said governor valve; turbine unloading means operable in response to changes in at least one predetermined operating condition of the turbine other than speed to vary the pressure in said hydraulic system in the sense to at least partially close said governor valve, said unloading means including means for automatically adjusting the governor setting to correspond to reduction in turbine load produced by operation of said unloading means and for leaving the governor setting at its adjusted value upon removal of said predetermined operating condition so as not to restore the load on the turbine when the unloading means ceases to operate.



3,319,423
WATER-COOLED, SELF-REGULATING, EXHAUST NOZZLE FOR A SUBMARINE THERMAL POWER PLANT
James M. Caraher, Glendale, Calif., assignor to the United States of America as represented by the Secretary of the Navy
Filed May 24, 1966, Ser. No. 552,643
7 Claims. (Cl. 60—242)

1. For use in connection with a combustion gas system of a thermal power plant, a water cooled, pressure regulating exhaust valve, comprising:
(a) an elongated valve body adapted to be fitted in an exhaust port opening of a wall for containing the hot gases, said valve body having a front combustion face and having a central axial cavity extending inwardly from the combustion face,
(b) the wall of the central cavity at its front end forming a De Lavel-type nozzle having a convergent gas entry end adjoining the combustion chamber and a divergent gas exit end adjoining and extending rearwardly from the entry end,
(c) the wall of the central cavity at its rear end forming an enlarged cylindrical piston chamber,
(d) a piston and pintle element disposed in said central cavity having a two-faced piston element in slidingly engaged relationship to the wall of the piston chamber, and a central shank extending forwardly from the front face of the piston element and in sealing and sliding engagement with the wall of the central cavity intermediate to the De Laval-type nozzle and the piston chamber, said piston element dividing the piston chamber into front and rear piston compartments,
(e) a lateral exhaust outlet adjoining the rear end of the De Laval-type nozzle for communicating the gases from gas exit end of the De Laval-type nozzle of the lateral exterior surface of the valve body,
(f) the front end of the pintle and piston member forming a pintle nose to partially obstruct the gas exit end of the De Laval-type nozzle, under axial movement in the forward direction, said pintle nose decreasing the exhaust passage area through the lateral outlet passage,
(g) said pintle and piston member having a coolant water and combustion chamber pressure transmission passage communicating between the tip of the front end of the pintle nose and the front compartment of the piston chamber.
(h) means for applying a reference pressure to the rear compartment, and
(i) means for providing a constant flow rate of coolant water to the front compartment of the piston chamber for flow through the pressure transmission passage to cool the zone of the pintle nose and De Laval-type nozzle.

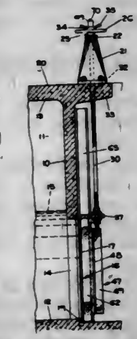
3,319,424
METHOD AND MEANS FOR SUPPORTING A RAM-JET PROPELLANT
Frederick L. Haake, Oxnard, Calif., assignor to the United States of America as represented by the Secretary of the Navy
Filed Sept. 30, 1965, Ser. No. 492,361
3 Claims. (Cl. 60—255)



1. In an elongated projectile of the ram-jet type powered by a solid propellant all or a portion of which has a tendency to be longitudinally displaced in position with respect to the projectile shell as a result of forces developed during, and subsequent to, the launching operation, which displacement, when allowed to occur, resulting in an irregularity in the burning cycle of said propellant and a possible destruction of the projectile before it has reached its objective, the improvement which comprises:
means for retaining said propellant in position throughout its burning cycle, said means including:
a liner of generally tubular configuration composed of spring metal and disposed intermediate said solid propellant and the shell of said projectile, said liner being secured to the projectile body and enclosing at least a major portion of said solid propellant therewithin;
said liner having a plurality of integrally-formed inwardly-extending projections exerting by spring action an inward force on the outer surface of said solid propellant;

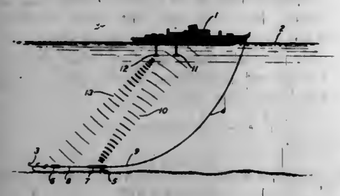
said inwardly-extending projections being in the form of a plurality of sets of circumferentially-spaced tabs, each set of tabs being longitudinally separated from each other throughout the length of said liner;
each tab of each of said sets extending both inwardly of said liner and toward the front of said projectile, so as to create a wedging action between such tab and the outer surface of said solid propellant thereby precluding any appreciable displacement of the latter when the said forces are developed during and subsequent to the launching operation.

3,319,425
SLUICE GATE AND OPERATING MECHANISM THEREFOR
Karl H. Andrae, Columbus, Ohio, assignor to Jeffrey Galion Manufacturing Company, a corporation of Ohio
Filed Aug. 9, 1963, Ser. No. 300,970
6 Claims. (Cl. 61—28)



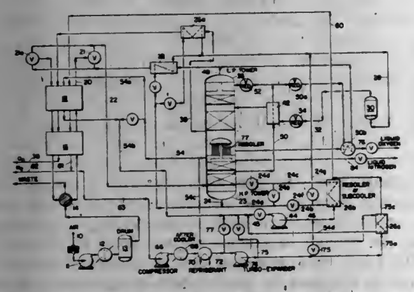
1. Sluice gate mechanism in which there is a seated position for the sluice gate to close an opening and to block flow through said opening, comprising a sluice gate, sluice gate actuating means for moving the sluice gate to its seated position and for removing the sluice gate from its seated position, said sluice gate actuating means including a gate operator that is disposed oppositely and in parallel, upright adjacent disposition to said sluice gate, said sluice gate actuating means further including a plurality of cranks to connect said gate operator to said sluice gate and to maintain the parallel disposition of the gate operator with respect to the sluice gate in all operative positions of said gate operator, an elongated screw disposed in upright alignment with said gate operator and the upright disposition thereof, a threaded connection between said screw and said gate operator for moving the gate operator up and down by rotation of the screw in said connection, a flange portion of said sluice gate being disposed across said screw, a connection above said operator and between said screw and said sluice gate flange portion which is fixed in the axial direction to raise and lower the sluice gate when the screw is raised and lowered, (i) a first pivot connection between each of said cranks and said gate operator, (ii) a second pivot connection between each of said cranks and said sluice gate, and (iii) each of said cranks having a third pivot means to provide a center about which each crank is rotated when said gate operator is moved down or up relative to the gate by the rotation of the screw thereby to move said sluice gate inwardly to its seated position or away from its seated position on said second pivot connections.

3,319,426
EQUIPMENT FOR AND METHOD OF RETRIEVING UNDERWATER CABLE
Thaddeus Slonczewski, Summit, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Sept. 11, 1962, Ser. No. 222,915
9 Claims. (Cl. 61—72.3)



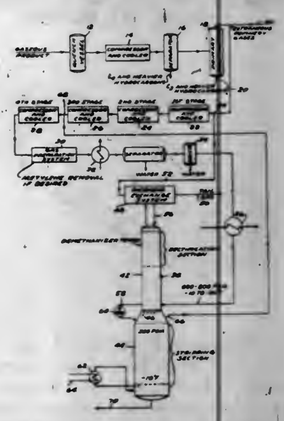
2. Equipment for retrieving a cable lying at the bottom of a body of water,
said equipment comprising a ship on the surface of said body of water,
a grapnel at the bottom of said body of water,
means extending from the ship to the grapnel for applying a forward-acting force to the grapnel for dragging the grapnel along the bottom of the body of water,
said grapnel having at least one hook adapted to engage the cable,
said cable being adapted to apply tension in the form of a rearward-acting force to the grapnel after said hook engages the cable,
said equipment being characterized by having tension signaling means comprising in combination:
means attached to said grapnel for combining said oppositely directed forces for producing a resultant force that is indicative of said tension applied by the cable to the grapnel,
detecting means carried by said grapnel for detecting the magnitude of said tension resultant force,
and signal transmitting means carried by said grapnel and adapted to be operated by the detection of said tension resultant force by said detecting means for transmitting acoustic signals indicative of said tension resultant force through the body of water to the ship.

3,319,427
AIR SEPARATION WITH A NITROGEN REFRIGERATION CIRCUIT
Emil Cimler, Port Washington, Raymond Hippelt, Brooklyn, and Edward H. Van Baush, Pearl River, N.Y., assignors to Hydrocarbon Research, Inc., New York, N.Y., a corporation of New Jersey
Filed May 6, 1964, Ser. No. 365,240
4 Claims. (Cl. 62—13)



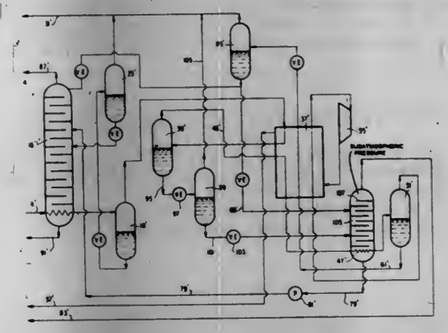
1. The method of separating compressed air into its principal constituents which comprises passing said compressed air through a series of reversing exchangers in heat exchange with a relatively cold waste gas to reduce the temperature of the air to substantially its temperature of liquefaction, passing said cold air into a high pressure fractionation zone in the presence of reflux to separate a crude oxygen stream from a nitrogen vapor overhead, cooling said crude oxygen stream and passing said crude oxygen stream to a low pressure fractionation zone in the presence of reflux to produce a high purity oxygen stream and an impure nitrogen vapor overhead, expanding said nitrogen vapor overhead from the high pressure zone in a turbo-expander and passing it through the reversing exchangers counter-current to the incoming air to cool the incoming air, thereby supplying refrigeration for heat exchange with the incoming air, producing a liquid product by recovering some of the nitrogen vapor from the reversing exchanger, recompressing said nitrogen vapor, reexpanding said recompressed nitrogen vapor in a turbo expander doing work, passing said expanded nitrogen vapor in indirect heat exchange with some of the crude oxygen from the high pressure fractionation zone to reduce the temperature in the low pressure fractionation zone, and then passing said expanded nitrogen vapor through the reversing exchangers countercurrent to the compressed air stream, the said nitrogen vapor overhead once removed and subsequently expanded is never returned to the high pressure or low pressure fractionation zones.

3,319,428
DEMETHANIZATION OF REFINERY GASES
Franklyn Isaacson, Springfield, N.J., assignor to Foster Wheeler Corporation, New York, N.Y., a corporation of New York
Filed Jan. 16, 1964, Ser. No. 338,055
4 Claims. (Cl. 62—28)



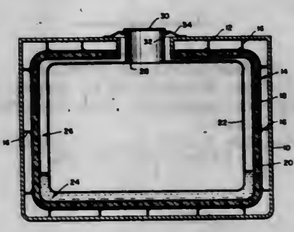
1. A method for the separation of components of a gaseous feed mixture containing a methane and lighter fraction and an ethylene and heavier fraction, comprising the steps of
compressing the mixture to a superatmospheric pressure in the range of 600 to 800 p.s.i.a. and cooling the mixture to a temperature in the range of −10° to −80° F., respectively, above but near the boiling point of the mixture under this pressure;
introducing the feed mixture at this pressure and temperature into a separation zone near the bottom of said zone; and maintaining the bottom of the separation zone at approximately the pressure and temperature of the feed mixture;
removing from the separation zone an overhead product of lower boiling components including methane and hydrogen;
cooling and condensing a portion of the overhead product and refluxing the condensate to the separation zone for countercurrent contact with vapor in the separation zone;
withdrawing liquid bottoms from the base of the separation zone at approximately the temperature and pressure of the feed mixture and expanding the liquid bottoms through pressure reducing means to a pressure of about 250 p.s.i.a. and into a stripping zone;
reboiling a major portion of the condensate in said stripping zone maintaining in the bottom of the stripping zone a temperature well below stripping zone bottoms critical temperature;
removing the remainder of the condensate as a bottoms product from said stripping zone;
and withdrawing a vapor product from the top of the stripping zone and reintroducing it into the system during an initial compression stage for the feed mixture.

3,319,429
METHODS FOR SEPARATING MIXTURES OF NORMALLY GASEOUS MATERIALS
John A. Pryor, Emmaus, Pa., assignor to Air Products and Chemicals, Inc., Allentown, Pa., a corporation of Delaware
Filed Nov. 22, 1965, Ser. No. 513,648
8 Claims. (Cl. 62—28)



1. A low temperature process for separating components of a gaseous mixture including a relatively lower boiling, normally gaseous first component, a relatively intermediate boiling, normally gaseous second component and a relatively higher boiling, normally gaseous third component, comprising
(a) cooling and partially condensing compressed gaseous mixture to form a first vapor portion rich in first component and containing second and third components and a first liquid portion rich in second component and containing third component,
(b) separating the first vapor portion from the first liquid portion to provide a first vapor and a first liquid condensate,
(c) passing separated first vapor in heat exchange relationship with liquid in an evaporation zone to further cool and partially condense separated first vapor to form a second vapor portion rich in first component and a second liquid portion rich in second component and containing first and third components,
(d) separating the second vapor portion from the second liquid portion to provide a second vapor and a second liquid condensate,
(e) withdrawing separated second vapor as product,
(f) partially vaporizing separated second liquid condensate to obtain a third vapor portion rich in first component and a remaining liquid portion rich in second component and containing third component,
(g) separating under superatmospheric pressure the third vapor portion from the remaining liquid portion to obtain a third vapor and a remaining liquid,
(h) passing remaining liquid into the evaporation zone,
(i) maintaining liquid in the evaporation zone under subatmospheric pressure, liquid in the evaporation zone being partially vaporized by heat exchange with separated first vapor to provide a fourth vapor rich in second component, and
(j) withdrawing fourth vapor rich in second component as product from the evaporation zone to leave a liquid residue containing third component.

3,319,430
LIQUID SUPPORTED CRYOGENIC CONTAINER
Augustus B. Small, Westfield, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware
Filed Jan. 25, 1965, Ser. No. 427,712
9 Claims. (Cl. 62—45)

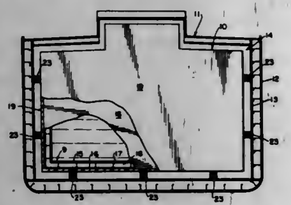


1. In combination, a tanker having a cargo hold of predetermined shape and an insulated container for liquefied gas at atmospheric pressure and cryogenic temperature mounted within said hold; said container comprising, an uninsulated primary tank, a secondary tank surrounding said primary tank and spaced therefrom, liquid means at atmospheric pressure between said primary and secondary tanks for supporting said primary tank, said liquid means constituting substantially the sole means for supporting said primary tank and having a lower freezing point than the temperature of the liquefied gas to be transported within said container, said primary tank being formed of low temperature resistant metal of sufficient thickness and rigidity to be self-supporting when empty and being sufficiently flexible to expand in width when loaded into direct contact with interior portions of said secondary tank, and insulation means for maintaining the container at cryogenic temperatures.

3,319,431
DOUBLE WALLED CRYOGENIC TANK
James S. Clarke, Cranford, and Christopher E. Loeser, Scotch Plains, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware
Filed May 25, 1966, Ser. No. 560,034
13 Claims. (Cl. 62—45)

1. In combination, a tanker having a cargo hold of predetermined shape and an insulated container for liquefied gases maintained at atmosphereic pressure and cryogenic temperature mounted within said hold, said container including
(a) a primary tank substantially similar in shape to said hold,
(b) a larger secondary tank substantially similar in shape to said hold and surrounding said primary tank,

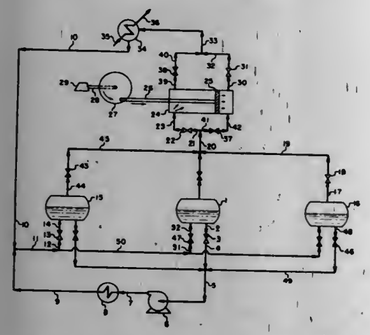
(c) thermally conductive rigid structural means for maintaining said primary tank in fixed, spaced relation within said secondary tank and for reducing the thermal gradient between said primary and secondary tanks when said liquefied gases are initially loaded into said container and during transportation of said gases in said tanker,



(d) said tanks providing primary and secondary liquid-tight barriers for retaining cryogenic liquefied gas cargo at atmospheric pressure, and

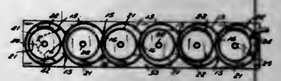
(e) foam insulation means applied externally and secured about said secondary tank in an enveloping relation therewith, said insulation means constituting substantially the sole insulation means of said container.

3,319,432
REFRIGERATION SYSTEM
William H. Nebgen, Woodside, N.Y., assignor to Chemical Construction Corporation, New York, N.Y., a corporation of Delaware
Filed Apr. 5, 1966, Ser. No. 540,227
10 Claims. (Cl. 62—45)



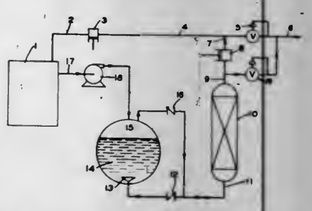
1. A method for cooling a liquid refrigerant in a refrigeration system employing sub-cooled liquid refrigerant which comprises vaporizing a plurality of portions of refrigerant at successively decreasing pressure levels from a body of warm liquid refrigerant initially at elevated pressure, whereby residual cold liquid refrigerant is produced at reduced pressure, pressurizing said residual cold liquid refrigerant to form sub-cooled liquid refrigerant at elevated pressure, warming said sub-cooled pressurized liquid refrigerant in a heat exchange zone, to produce a refrigeration effect without vaporization of refrigerant and a first portion of recycle warm liquid refrigerant at elevated pressure, compressing said plurality of portions of refrigerant vapor to elevated pressure in mechanical compression means, wherein the work required for compression of a refrigerant vapor portion is partially derived from vaporization of the next succeeding refrigerant vapor portion into said mechanical compression means, and cooling the resulting compressed refrigerant vapor portions to condense said compressed vapor portions and thereby form a second portion of recycle warm liquid refrigerant at elevated pressure, said first and second portions of recycle warm liquid refrigerant at elevated pressure being subsequently cooled to produce further residual cold liquid refrigerant by the steps employed to cool said body of warm liquid refrigerant.

3,319,433
RECTANGULAR DEWAR
Richard S. Paulukonis and George Matlow, Cleveland, Ohio, assignors to Ryan Industries, Inc., Cleveland, Ohio, a corporation of Ohio
Filed May 24, 1966, Ser. No. 552,576
9 Claims. (Cl. 62—45)



1. A Dewar including outer shell means comprising top and bottom closure means and a serial array of two or more outer generally parallel intersecting cylinders extending between said top and bottom closure means, each adjacent pair of outer cylinders in the array being joined along two longitudinal seams with the wall of one member of the pair being annularly interrupted between the seams and the wall of the other member of the pair continuing annularly between the seams to provide an interior cross-bracing wall portion neither of whose faces is exposed to the exterior of the outer shell means, inner shell means comprising an array of non-intersecting inner closed-end cylinders within the outer cylinders, and fluid line means communicating between the exterior of the Dewar and the interiors of the inner cylinders.

3,319,434
LOW TEMPERATURE REFRIGERATION AND GAS STORAGE
Angel C. Matesanz, Jersey City, N.J., assignor to Air Reduction Company, Incorporated, New York, N.Y., a corporation of New York
Filed Mar. 14, 1966, Ser. No. 534,025
14 Claims. (Cl. 62—45)



1. A low temperature gas storage process comprising storing a portion of a gas supplied at a steady state by a supply facility during periods of low customer demand in a storage device, passing said portion before storage through a low temperature regenerator, during periods of high customer demand directing vapor out of the storage device, circulating said directed vapor through said regenerator, and supplying the vapor directed from the storage device through the regenerator to the customer.

3,319,435
LIQUEFIED PETROLEUM GAS VAPORIZATION SYSTEM
John A. Boyd, 1310 Holloman Road, Fairfax, Va. 22030, and Donald E. Boyd, 13316 Compton Road, Clifton, Va. 22024
Filed Mar. 28, 1966, Ser. No. 538,035
10 Claims. (Cl. 62—52)

1. In a system for increasing the vaporization of LP gas supplied from an LP storage tank having a liquid supply at the bottom thereof and a vapor supply at the top thereof, the improvement which comprises:

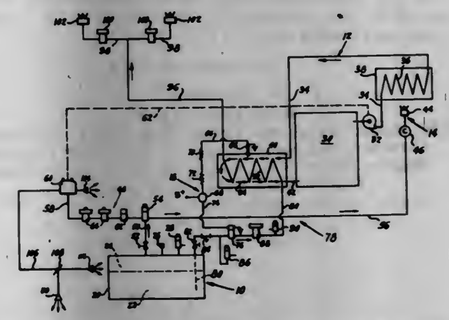
a closed loop having a fluid therein;

a vapor operated heating means juxtaposed to a portion of said closed loop;

first means for supplying vapor from said storage tank to said heating means for operation thereof to cause heating of the fluid in said closed loop;

vapor operated main burner means;

second means communicating between said liquid in said storage tank and said main burner means;

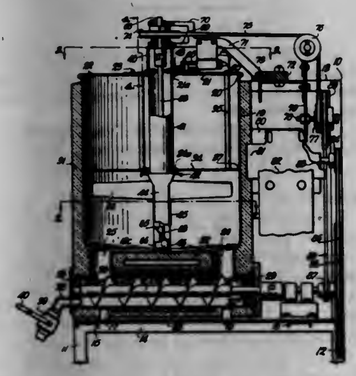


said sceond means including a portion thereof passing through said closed loop; and

control means operative, when said heating means raises the temperature of the fluid in said closed loop to a predetermined temperature, to transfer said liquid from said storage tank through said second means to said main burner means;

said liquid being transferred through said second means becoming vaporized as it passes through said portion thereof, due to the heat of vaporization supplied by said heated fluid, with such vapor then being supplied to said main burner means for operation thereof.

3,319,436
ICE SLUSH DISPENSER
Clarence N. Wilch, Topeka, Kans., assignor to Phillips Petroleum Company, a corporation of Delaware
Continuation of abandoned application Ser. No. 401,496, Oct. 5, 1964. This application Nov. 29, 1965, Ser. No. 530,240
20 Claims. (Cl. 62—68)



19. A process for producing a slush of liquid containing frozen particles comprising

agitating a liquid in an agitating zone;

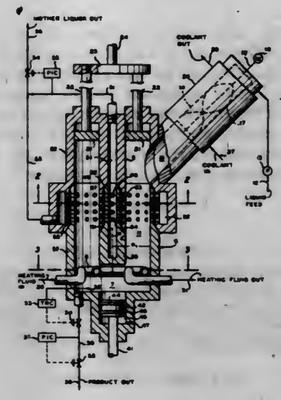
flowing liquid from said agitating zone into the inlet of a chilling zone;

passing said liquid through said chilling zone by means of a screw pump positioned therein so as to form frozen particles therein;

passing the liquid containing frozen particles from the outlet of the chilling zone into the agitating zone;

continuously circulating liquid and frozen particles through the agitating zone and the chilling zone until the entire body of circulating liquid is converted into a slush of liquid containing frozen particles; and removing a slush of frozen particles in liquid from the outlet of said chilling zone as the product of the process.

3,319,437
ANNULAR CRYSTAL PURIFICATION COLUMNS
Robert R. Goins, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed July 6, 1964, Ser. No. 380,395
7 Claims. (Cl. 62—123)



1. A crystal purification column having crystal freezing means disposed to discharge crystals into an annular crystal chamber having a crystal melting means and melted product outlet means at its other end, and a filter means for the removal of mother liquor comprising openings around the peripheries of both the inner and outer walls of said annular chamber, the combined peripheries being at least 25 percent greater than the inner periphery of the outer wall.

3,319,438
AUGER ICE MAKER
Thomas L. Kuebler and Charles E. Freese, Erie, Pa., assignors to Uniflow Manufacturing Company, Erie, Pa., a corporation of Pennsylvania
Filed May 15, 1964, Ser. No. 367,666
1 Claim. (Cl. 62—354)

An ice making machine comprising

a hollow, vertically disposed cylinder,

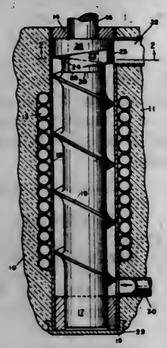
an inlet into said cylinder for liquid adjacent the lower end and an outlet adjacent the upper end for ice particles,

refrigeration means on said cylinder for freezing said liquid therein,

an auger having a helical fin on the outer periphery thereof rotatably supported in said cylinder with the fin of said auger in closely spaced relation to the inside of said cylinder,

said helical fin terminating adjacent said outlet,

and a fixed member having a cylindrical portion being of a diameter substantially equal to the minor diameter of said auger and having a downwardly facing, axially extending helical ramp above said cylindrical portion,

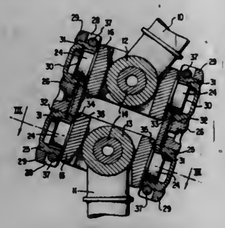


said helical ramp extending upwardly and around said cylindrical portion in a direction opposite to the direction of said helical fin and having a surface generally tangent to said cylindrical portion joining the starting end and the finish end of said helical ramp whereby the ice moved up rotatably by said auger is deflected generally tangentially out from the axis of said cylindrical portion and through said outlet.

3,319,439
UNIVERSAL JOINT

Wilhelm Hopf, Stuttgart, and Albert Kärcher, Stuttgart-Munster, Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany

Filed May 12, 1965, Ser. No. 455,131
Claims priority, application Germany, May 14, 1964, D 44,432
10 Claims. (Cl. 64—17)

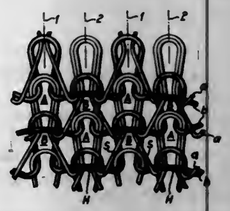


1. A double universal joint, especially for motor vehicles, comprising: two drive shafts, each having a bearing end portion; two cross members; first means for mounting each of said shaft end bearing portions to a corresponding one of said cross members for relative pivoting about a first axis generally at right angles to the respective shaft axis; a carrier ring; second means for mounting each of said cross members to said carrier ring for relative pivoting about a second axis generally at right angles to the respective shaft axis and said first axis; said second means comprising for each of said cross members oppositely disposed bearing pins on each of said cross members, a pair of bores extending completely through said ring aligned with and symmetrical with respect to said second axis, each of said bores having a slot in the plane that generally includes said drive shafts and opening outside of said ring in the direction perpendicular to said second axis, said slots being generally channel shaped and each formed by side walls and an end wall, the dimension between said side walls being slightly larger than the diameter of said bearing pins, means radially installable including a bushing for each of said bores having an outer diameter substantially equal to the diameter of the corresponding bore and an inner diameter substantially equal to the diameter of said bearing pins for pivotally mounting bearing pins in said bores, said ring having a continuous wall around each of said bores with a web portion on the outside and adjacent to and spanning said slot to form said end wall, bolt means extending across each of said slots from one side wall to the opposite side wall for preventing rotation of the corresponding bushing about and movement of the corresponding bushing along said second axis.

3,319,440
KNITTED FABRIC

Max Bruno Nebel and Erhard Max Nebel, Wiesbaden, Germany, assignors to Hanes Hosiery Mills Company, Winston-Salem, N.C., a corporation of North Carolina

Filed Feb. 27, 1964, Ser. No. 347,735
Claims priority, application Germany, Mar. 4, 1963, N 22,840
14 Claims. (Cl. 66—169)



1. A run-resistant knitted fabric composed of at least two yarns, wherein

(a) yarn is formed at spaced intervals course-wise of the fabric into plain stitches in selected wales and into floats in wales intervening between said plain stitches and

(b) yarn is disposed course-wise of the fabric and successive to said intervals of the first mentioned yarn and is formed into plain stitches in the intervening wales and into elongated loops in the selected wales,

(c) the said elongated loops being doubled with the next succeeding plain stitches in the selected wales throughout the fabric.

3,319,441
MATERIAL TREATING APPARATUS

Heinz Fleissner and Gerold Fleissner, both of Egelsbach, Germany, assignors to Establishment for Automation, Vaduz, Liechtenstein

Filed Nov. 12, 1963, Ser. No. 322,789
Claims priority, application Switzerland, Nov. 12, 1962, 13,193/62; Jan. 4, 1963, 93/63
17 Claims. (Cl. 68—5)

1. Material treating apparatus comprising, in combination, a container having an inlet and an outlet; reciprocally mounted compacting means located at least in part in said container between said inlet and outlet thereof and communicating in a substantially fluid-tight manner with the interior of said container for compacting material therein and advancing the material toward said outlet to pass therethrough to the exterior of said container; feeding means at said inlet of said container for feeding into the container and toward said compacting means a loose material which is capable of being compacted by said compacting means; means at said inlet for substantially preventing communication between the interior and

exterior of the container at said inlet thereof; retarding means at said outlet of said container for retarding the flow of material out of said container, whereby the material is in relatively loose condition in said container between said inlet thereof and said compacting means and is in a dense condition between said compacting means and said outlet of said container; and conduit means communi-

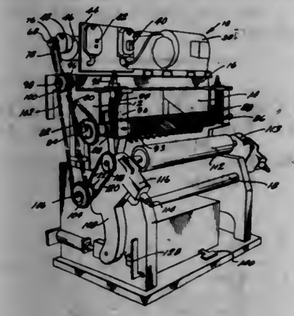


cating with the interior of said container for introducing a treating fluid into said container to treat the material therein, whereby the material in loose condition between said compacting means and inlet is thoroughly treated by the treating fluid while shut off from the outer atmosphere and the treated material is discharged by the compacting means through said outlet of said container in a dense condition.

3,319,442
FLESHING MACHINE

Paul F. Burch, Rockford, Mich., assignor to Wolverine Shoe & Tanning Corporation, Rockford, Mich., a corporation of Michigan

Filed Feb. 1, 1965, Ser. No. 429,354
7 Claims. (Cl. 69—42)

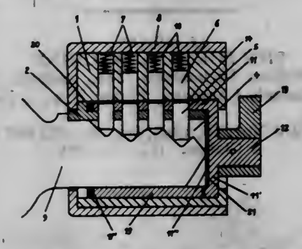


1. A fleshing machine comprising: a framework including a pair of end supports; a bladed fleshing roll rotatably mounted to said framework between said supports; a grooved, skin advancing pinch roll rotatably mounted to said framework adjacent and parallel to said fleshing roll; a pair of arms shiftably mounted to the respective end supports; a bed roll rotatably mounted between said arms, and shiftable toward and away from said fleshing roll and pinch roll with shifting of said arms; first drive motor means and drive connection means therefrom to said fleshing roll; second drive motor means including motor braking means; drive connection means from said second motor means to said bed roll; and electrical control means in controlling electrical relation to said second motor means and braking means, and positioned to be actuated with shifting of said arms and bed roll to control said second motor means and braking means and cause immediate stoppage and starting of said bed roll with movement thereof out of and into operative engagement with said fleshing roll and pinch roll.

3,319,443
LOCK CYLINDER

Reinhold Perlick, Velbert, Rhineland, Germany, assignor to Yale & Towne G.m.b.H., Velbert, Rhineland, Germany, a corporation of Germany

Filed Mar. 22, 1965, Ser. No. 441,638
6 Claims. (Cl. 70—421)

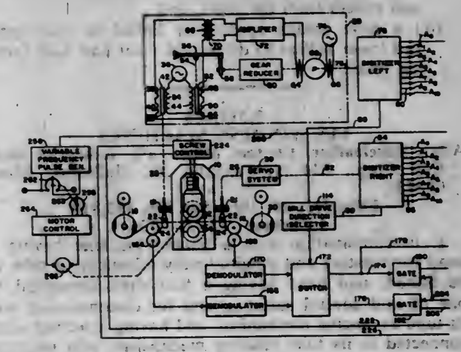


1. In a combination of the class described, a lock cylinder, a sleeve rotatable in a bore of said cylinder, means on said sleeve for operating a lock when said sleeve is rotated, a key plug rotatable in said sleeve and having a longitudinal keyway terminating in a longitudinal slot on the outer surface of the key plug, a series of tumblers controlling the rotation of said key plug relatively to a locking position in said sleeve and the rotation of said sleeve relatively to a locking position in the bore of said cylinder, there being a possibility of picking said tumblers through an application of picking torque to the key plug, and means interposed between the longitudinal keyway slot and said cylinder when the sleeve and key plug are in locking position, said interposed means being loosely held in position by said sleeve for preventing application of tumbler picking torque to the sleeve by a tool inserted and manipulated through the keyway when said tool acts on said interposed means.

3,319,444
AUTOMATIC CONTROL SYSTEM FOR ROLLING MILLS AND ADJUSTABLE DIES

James P. Masterson, Jr., Wallingford, Conn., assignor to Allegheny Ludlum Steel Corporation, Brackenridge, Pa., a corporation of Pennsylvania

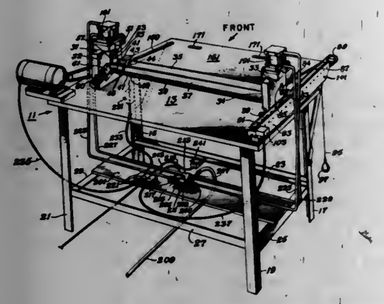
Filed Nov. 9, 1964, Ser. No. 409,766
13 Claims. (Cl. 72—8)



1. In a rolling mill control system, a screwdown mechanism for varying the spacing between opposed rolling mill rolls between which travelling strip material passes,

time delay means for delaying electrical signals representing entry gage measurements taken at a point ahead of the bite of the mill as the strip moves from the point of measurement to the bite of the rolls, circuit apparatus connected to the output of said time delay means for controlling said screwdown mechanism, and means for varying the delay time of said time delay means as a nonlinear function of the speed of said strip to insure that for any strip speed the entry gage measurements will reach the output end of the time delay means before the corresponding increments of the strip on which the gage measurements were taken reach the bite of the rolls.

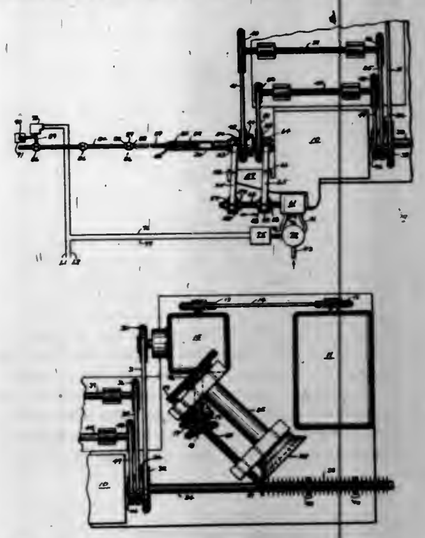
3,319,445
PIPE FORMING MACHINE
James E. Stalker, Richardson, Tex., assignor to Home Metal Products Company, Plano, Tex., a corporation of Texas
Filed Nov. 15, 1963, Ser. No. 323,965
6 Claims. (Cl. 72—30)



1. In a system for rolling a pipe section from a sheet having lead and trailing edges performed to interlock one with the other, the combination which comprises:
(a) an upper and a lower roller, said upper roller and said lower roller having an annular rib and groove portion adjacent to one end for working a rib into said sheet,
(b) a forming roller on the back side of the upper and lower rollers for determining the curvature of said said sheet, said forming roller being spaced a different distance from the ends of said rollers adjacent to said annular rib and groove portion than from the other end of said rollers,
(c) means for elevating and lowering one of said rollers to permit said sheet to be inserted between said rollers from the front, and
(d) a drive means operatively linked to said upper and lower rollers to drive said sheet past said forming roller.

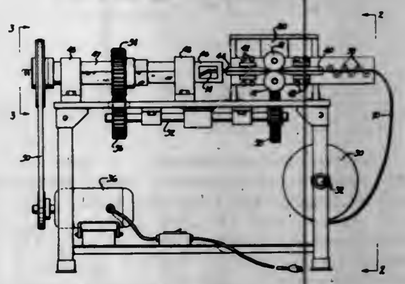
3,319,446
FIN WINDING MACHINES
Allan Stikeleather, Canton, Mass. (% Industrial Blast Coil Corp., 324 N. Franklin St., Holbrook, Mass. 02343)
Filed July 20, 1964, Ser. No. 383,818
3 Claims. (Cl. 72—136)

1. In combination with a finning machine having a head for rotating and longitudinally advancing a tube to be finned, said head having a first shaft connected to one of said control surfaces, and for disconnecting said its tube advancing mechanism, and having a second shaft connected to its tube rotating mechanism, said machine having rolls for deforming an edge portion of a ribbon to be wound as a fin on said tube, and having means for rotating said first and second shafts and said rolls, index means movable longitudinally with said tube, said index means having aligned, spaced apart, control surfaces, a control member which said surfaces pass in succession as said index means is moved longitudinally with said tube, said means for rotating said first shaft including a first means normally connected to said first shaft for rotating said first shaft at a normal speed, and in-



cluding a second means for rotating said first shaft at said control member for disconnecting said first means from said first shaft and connecting said second means to said first shaft when said control member is opposite one of said control surfaces, and for disconnecting said second means from said first shaft and connecting said first means to said first shaft when said control member is between said surfaces.

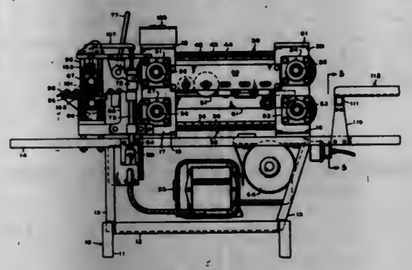
3,319,447
METHOD AND APPARATUS FOR COILING WIRE
Ralph H. Wise, P.O. Box 356, Grand Haven, Mich. 49417
Filed Jan. 30, 1963, Ser. No. 255,735
6 Claims. (Cl. 72—140)



1. Apparatus for forming a helical coil of wire comprising in combination forming means having an inside helical groove having a pitch corresponding to one hand of rotation, said forming means being mounted for rotation about the axis of said groove, means for continuously feeding wire in the direction of its length along said helical groove, means for preventing rotation about its axis of the wire being fed up to a fixed point ahead of said helical groove, means for rotating the forming

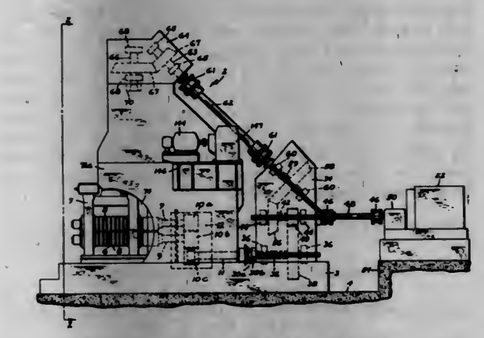
means in the opposite hand of rotation at a rate providing one rotation during the time one convolution of the helix is being formed and means for changing the rate of wire flow to form different diameters of helices.

3,319,448
STRIP-FORMING MACHINE
Theodore J. Bottom, Kirkwood, Mo. (% Aluma-Kraft Mfg. Co., 1030 Manchester Road, Manchester, Mo. 63011)
Filed Nov. 26, 1962, Ser. No. 239,933
20 Claims. (Cl. 72—176)



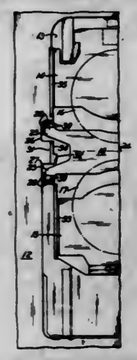
1. In a strip-forming machine:
(a) means shaping opposed edges of a strip in a shaping zone, and
(b) means feeding the strip through said shaping means, the feeding means automatically engaging and holding the web portion of such strip between the edges rigid and unyielding, although moving, during the shaping in the shaping zone so as to preclude stress from flowing into such web portion, yet automatically releasing the web portion after movement through the shaping zone.

3,319,449
ROLLING MILL
William J. Hill, Holden, Mass., assignor to Morgan Construction Company, Worcester, Mass., a corporation of Massachusetts
Filed Mar. 12, 1965, Ser. No. 439,270
14 Claims. (Cl. 72—237)



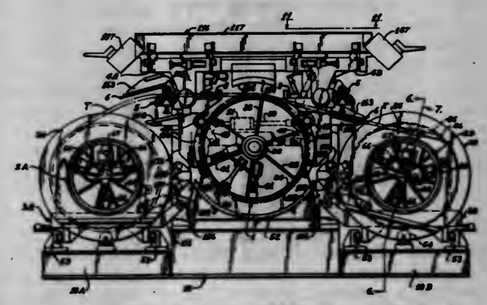
1. In a rolling mill, a mill frame comprising: a stationary support structure positioned adjacent the mill pass line; a cradle mounted on said support structure for swinging movement about the pass line; a removable roll stand and pinion means carried by said cradle, said roll stand containing rotatable work rolls connected to said pinion means; means for swinging the combination of said cradle, roll stand and pinion means between horizontal and vertical operative positions; and drive means fixed relative to said support structure for driving said work rolls through said pinion means when said cradle is in said horizontal and vertical operative positions.

3,319,450
ROLLING MILLS
Harry Laurence Fred Bond, Hathersage, near Sheffield, England, assignor to Davy and United Engineering Company Limited, Sheffield, England
Filed Feb. 25, 1964, Ser. No. 347,291
Claims priority, application Great Britain, Mar. 1, 1963, 8,308/63
8 Claims. (Cl. 72—238)



1. A rolling mill stand comprising a pair of housings having windows adapted to receive and support alternatively the chocks for two vertical and two horizontal rolls in a first arrangement or in a second arrangement the chocks for horizontal rolls only, in which each vertical side of each window includes at least one slot adjacent the pass line, and in the first arrangement the horizontal work roll chocks are supported over their entire height by the sides of the windows and the vertical chocks are supported by the surfaces of the slots and in the second arrangement at least one of the horizontal roll chocks is part supported adjacent the pass line by filler beams located in the slots and having their inner surfaces aligned with the sides of the windows.

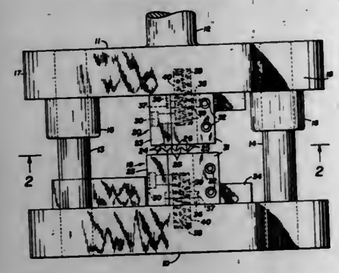
3,319,451
DRAWING APPARATUS FOR TUBES OR THE LIKE
Albert E. Tommarello, Pittsburgh, Pa., assignor to Blaw-Knox Company, Pittsburgh, Pa., a corporation of Delaware
Filed July 22, 1964, Ser. No. 384,502
19 Claims. (Cl. 72—274)



1. Apparatus for drawing a strand comprising a rotatable capstan; two rotatable mandrels, each adapted to support a reel, located at angular positions adjacent the

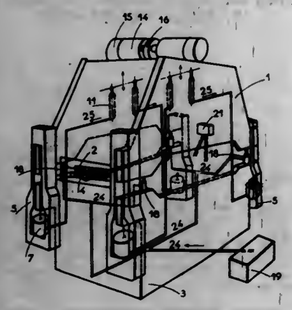
capstan for rotation each about its own axis; means for reciprocating each of said mandrels along its axis of rotation; means for positively rotating each of said mandrels; means for positively rotating said capstan; and drawing die means between each of said mandrels and said capstan, each of which die means is alternately used to draw a strand passing from one of the reels to the capstan through said die means.

3,319,452
CORRUGATION PUNCH PRESS
William F. Rethwish, National City, and Dale S. Harding, Chula Vista, Calif., assignors to Rohr Corporation, Chula Vista, Calif., a corporation of California
Filed Oct. 7, 1963, Ser. No. 314,191
14 Claims. (Cl. 72—397)



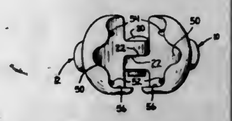
1. In a punch press for precision forming of corrugations successively one at a time in metallic ribbon, the combination of opposing die means respectively comprising yieldably extended die portions for braking and forming a first unformed portion of the ribbon therebetween thereby to form only a first portion of a corrugation in the ribbon as one of the die portions moves yieldably to bottom on its die means and for braking and forming a second unformed portion of the ribbon thereby to form only the remaining portion of said corrugation as the other die portion moves yieldably to bottom on its die means.

3,319,453
CLAMPING SYSTEM FOR ROLL-TYPE PLANISHING MACHINE
Lucien Diolot, Neuilly-sur-Seine, France, assignor to Societe Nouvelle Spidem, Paris, France
Filed Nov. 22, 1963, Ser. No. 325,715
Claims priority, application France, Nov. 23, 1962, 916,423
14 Claims. (Cl. 72—406)



1. A roll-type planishing machine comprising an upper frame, supporting an upper layer of rolls, said upper frame having four substantially horizontal arm members defining four corners, a lower frame, supporting a lower layer of rolls, said lower frame having four substantially horizontal arm members defining four corners and respectively located below said arm members of said upper frame, thus forming four pairs of arm members, stirrup members surrounding said pairs of arm members at each of said four corners, first jack means disposed between the arm members of each pair for displacing said arm members away from one another, second jack means disposed between one of the said arm members of each of said pairs and said stirrup members for displacing said arm members of each of said pairs toward one another, each of said second jack means thus working in opposition to a corresponding one of said first jack means, a source of pressure connected respectively to each of said first jack means and each of said second jack means, and control means for selectively regulating the pressure supplied to each of said first jack means and each of said second jack means.

3,319,454
HOG RINGER
Oral G. Neier, R.R. 2, Cloverdale, Ind. 46120
Filed July 10, 1964, Ser. No. 381,724
3 Claims. (Cl. 72—410)

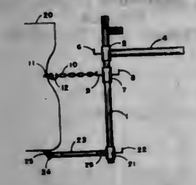


1. A hog ringer comprising a pair of elongated and allochiral handle members, each of said handle members having opposite ends, a gripping portion adjacent one of said ends and a ring-clasping portion adjacent the other of said ends, said ring-clasping portion being generally cup-shaped and having a concave surface, a pair of generally parallel ring-holding grooves communicating with said surface and forming groove edges, and a ring-retaining ledge adjacent one of said grooves and substantially parallel to said grooves, said ledge being coincident with a portion of said edge of said one of said grooves and having an extent sufficient to retain a ring in said one groove while said other ends are separated sufficiently to admit a similar ring to the other of said grooves, said grooves being shaped to accommodate a portion of a hog nose-ring, means swivelly securing said handle members to each other adjacent said ring-clasping portion and intermediate said two portions, said concave surfaces being in facing relation and said grooves and said ledges being in registry, respectively, a coil spring having opposite end portions, said end portions engaging said handle members, respectively, resiliently urging said ring-clasping portions and said gripping portions together, and stop means for selectively limiting the resiliently-urged movement of said handle members.

3,319,455
APPARATUS FOR STRAIGHTENING METAL PANELS
Dale Armstrong, Sr., 3524 1st Ave. N. Texas City, Tex. 77590
Filed July 14, 1964, Ser. No. 382,590
6 Claims. (Cl. 72—458)

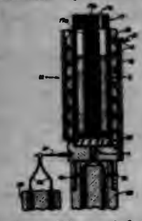
1. A metal panel straightening apparatus comprising an elongated shank having on an extreme end thereof a section covered with non-abrading material for use as a comfortable and non-slipping hand hold and as a non-scratchable area when in contact with a finished metal surface; at least two sleeves slidably connected to said elongated shank both of said sleeves being adjustable along the entire length of said elongated shank, one of said

sleeves having a flexible and collapsible member and a means for attaching said flexible and collapsible member to said metal panel to be straightened, said means including a claw-hook and sheet metal screw; pivot means



around which said elongated shank is rotated; and means for applying manual leverage to said elongated shank to move it around said pivot point and thereby straighten said metal panel.

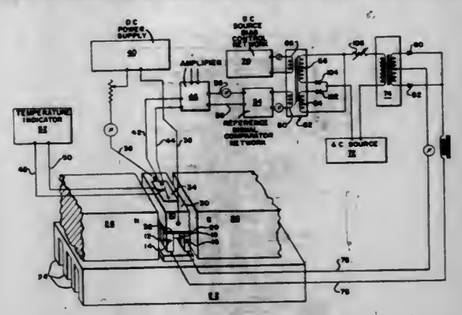
3,319,456
QUANTITATIVE DIFFERENTIAL THERMAL ANALYSIS APPARATUS
Dimitrios M. Speros, Painesville, and Robert L. Woodhouse, Cleveland Heights, Ohio, assignors to General Electric Company, a corporation of New York
Filed Feb. 7, 1964, Ser. No. 343,389
7 Claims. (Cl. 73—15)



1. An apparatus of a differential-thermal-analysis type comprising:
reference means;
means for holding a sample material;
an auxiliary heater acting on said sample material;
means for maintaining a constant temperature relation between said reference means and said sample material, said means including means responsive to the temperature of said sample material;
means for maintaining a constant relation between heat loss from said auxiliary heater and heat gain to said sample material, said means including means resistant to the flow of heat disposed within said auxiliary heater and between said sample material and said means responsive to the temperature of said sample material, the heat transfer characteristics of said means resistant to the flow of heat having been adjusted in accordance with calibration of the apparatus so that said characteristics will permit the correct determination of ΔH for a sample material; and
means for recording the energy input to said auxiliary heater.

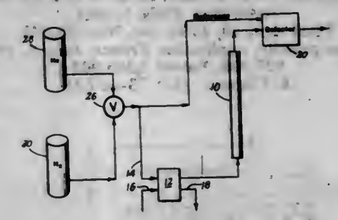
3,319,457
DEW POINT INDICATOR WITH ETTINGSHAUSEN AND PELTIER COOLERS
Otto J. Leone, P.O. Box 24, West Newton, Pa. 15089
Filed July 7, 1964, Ser. No. 380,744
12 Claims. (Cl. 73—17)

1. An apparatus for detecting the dew point of a stream of gas comprising:
(a) a block of electrically conductive material in contact with the gas;
(b) means supplying D.C. current through the block;
(c) means supplying magnetic lines of force normal to the current flow through the block causing a temperature differential between a cold surface of the block in parallel relationship with a hot surface of the block on opposite sides of the block;
(d) a thermoelectric pack of dissimilar thermoelectric materials having a cold junction adjacent to the



hot surface of the block to control the temperature of the block and maintain a standard dew spot on the cold surface of the block; and
(e) means indicating the varying temperature of the cold surface of the block whereby the dew point of the gas is detected.

3,319,458
CHROMATOGRAPHIC APPARATUS FOR MEASURING HYDROGEN COMPONENTS
William J. Carren, North Attleboro, Mass., assignor to The Foxboro Company, Foxboro, Mass.
Filed Feb. 14, 1964, Ser. No. 344,994
3 Claims. (Cl. 73—23.1)

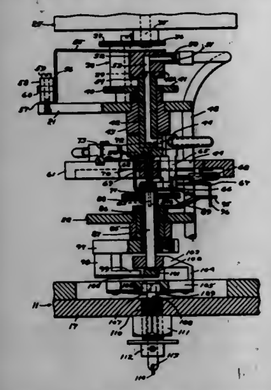


1. Chromatographic apparatus especially adapted for measuring the amount of hydrogen in a gas sample and comprising a separation column arranged to receive the gas sample, a thermal conductivity detector connected to the output of said column to develop signals corresponding to the amounts of the separated components of the gas sample, and carrier gas supply means connected to the input of said column, said supply means including means to apply to said input a mixed carrier gas composed of approximately 40% hydrogen in helium.

3,319,459
VISCOMETERS
Donald W. Brookfield, 168 Massapoag Ave., Sharon, Mass. 02067
Filed Feb. 11, 1965, Ser. No. 431,791
3 Claims. (Cl. 73—59)

1. In a viscometer of the type in which the viscosity of a fluid is measured in terms of a pneumatic signal, a flywheel, a drive for said flywheel including a hollow shaft coaxial therewith and having an exposed end, a coaxial driven shaft, a coil spring coaxial with respect to said shafts with one end connected to said driven shaft, a valve including a member having a port and attached to

said flywheel and a part closing member including an arm pivoted coaxially with respect to said flywheel and said shafts and connected to the other end of said spring to open said valve when said spring is wound by the turning of said shafts relative to each other as said driven shaft is subjected to the drag of said fluid, and means to supply



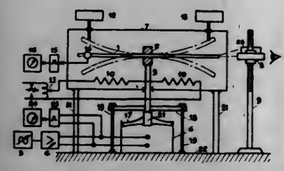
air under pressure to said shaft including a cap seated on said hollow shaft end and provided with a conduit in communication with its interior, and a fixed spring resiliently seating said cap on said shaft end, said hollow shaft end and the face of said cap seated thereon being mating concave-convex surfaces.

3,319,460

DEVICE FOR DETERMINING THE MODULUS OF YOUNG OF VISCO-ELASTIC MATERIALS

Pierre Barigant, Paris, France, assignor to L'Electronique Appliquee, Paris, France

Filed Apr. 10, 1964, Ser. No. 358,875
Claims priority, application France, June 5, 1963, 937,095, Patent 1,366,902
6 Claims. (Cl. 73—67.2)



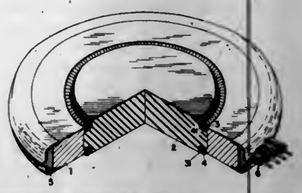
1. A device for the determination of the modulus of Young of a visco-elastic material comprising the combination of a thermostatic enclosure housing a supporting arrangement for a test-piece, said enclosure having at least one translucent lateral wall and one translucent end wall, a support within said enclosure for supporting a test-piece parallel to said translucent lateral and end walls at its mid-section and for vibrating said test-piece, a rod affixed to said support by one end and affixed by its other end to a spider of a vibrating tank where said vibrating tank is provided with an energizing coil arrangement, electric oscillation generating means for driving said tank, means for adjusting the frequency and the amplitude of such oscillation, frequency measuring means operatively associated with said device for measuring the frequency of vibrations of said test-piece, and means for sighting and measuring the amplitude of the displacements of the test-piece through said translucent walls, said latter means comprising at least one sighting glass supported adjustably on a carrier provided with a vernier rule and a light source for said sighting glass.

3,319,461

DEVICE FOR SENSING COMPRESSIVE FORCES

André Caplau, Hellemmes, France, assignor to Societe Fives Lille-Cail, Paris, France

Filed June 16, 1964, Ser. No. 375,483
Claims priority, application France, June 18, 1963, 938,424
4 Claims. (Cl. 73—88.5)



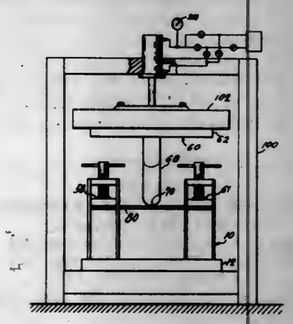
1. A compression sensing device comprising, in combination:
(a) an annular member of elastic material defining an opening passing therethrough in a predetermined direction and having opposed end faces;
(b) a deformable member received in said opening and conformingly engaging said annular member,
(1) said deformable member having, in a relaxed condition, two parallel opposite faces transverse of said direction and situated only slightly beyond respective ones of said end faces of said annular member,
(2) whereby a compressive force of a magnitude sufficient to deform said deformable member and applied to said faces causes a circumferential stress in said annular member;
(c) signal generating means for generating a signal responsive to the magnitude of said circumferential stress; and
(d) restraining means for limiting expansion of said deformable member in the region of said parallel end faces thereof transversely of said direction under said applied force, said restraining means being surrounded by and engaging said annular member and surrounding said deformable member in the region of said parallel end faces thereof.

3,319,462

TEAR TESTER

Henry J. Ostrowski, Fort Credit, Ontario, Canada, assignor to Domtar Limited, Montreal, Quebec, Canada, a company of Canada

Filed July 10, 1964, Ser. No. 381,816
5 Claims. (Cl. 73—96)



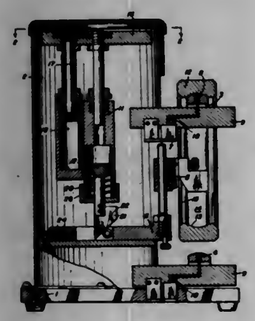
1. An apparatus for testing sheet material comprising; a pair of spaced clamping means to grip and hold a sample with one surface of said sample extending in a plane between said pair of spaced clamping means, one edge of said sample defining a line between said spaced clamping means, a blade substantially perpendicular to said plane, a blunt leading edge on said blade facing said plane and adapted to tear said sample, said blunt edge extending across said line and away from said sample at an acute angle to said plane, means for relatively moving said blade and said pair of clamping means in a direction substantially perpendicular to said plane, whereby said blunt edge first engages said sample at said one edge, initiates a tear and propagates said tear in said sample, and means to record the force required to initiate and propagate said tear.

3,319,463

DEVICE FOR MEASURING MICRO-ROUGH CURVILINEAR SURFACES

Anatoly Nicolaevich Salmanov and Vasily Feodorovich Sovkin, both of Kuibyshev, U.S.S.R., assignors to Kuibyshevsky Politekhnicheshy Institute "Kuibyshev"

Filed Feb. 12, 1964, Ser. No. 344,327
2 Claims. (Cl. 73—105)



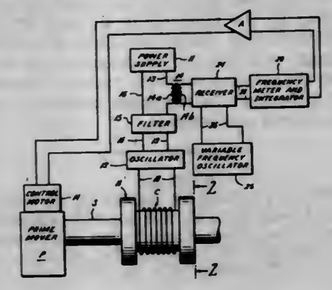
1. An instrument for measuring micro-rough curvilinear surfaces and more particularly the surface of a groove provided in a ball bearing ring, comprising a body, an adjusting knife segment rigidly mounted on the body and having a radius of curvature corresponding to the radius of curvature of the groove in the ring to be measured, said segment serving as the axis around which a ring is freely suspended therefrom with the ring being immediately self-aligning so that its center of gravity and geometric axis lie on the plane of the segment, an inductive pick-up supported by the body, a probe for the pick-up, said segment having a slot through which the probe is adapted to extend to be in constant contact with the surfaces of the groove and oscillate transversely in dependence on the micro-roughness of the surfaces, a horizontally movable support ruler mounted on the body adapted to contact an end face of the ring and position the end face on a plane normal to the plane of said knife segment, a slide mounted for horizontal movement in the body, means securing the support ruler to the slide, and means operably connected to the ruler within the body to move the ruler horizontally comprising a vertically disposed amplifier cylinder, a piston within the cylinder, a wedge operably connected to the piston, a roller for the slide with which the wedge coacts, a hydraulic cylinder braking means, a weight located above the amplifier cylinder and cylinder braking means, movement transmitting means between the weight and piston, and means operably related between the cylinder means and the weight so that when the weight moves downwardly in the body the braking means effects a uniform and downward movement of the piston and wedge whereby the wedge bears against the roller and displaces the slide and ruler horizontally.

3,319,464

TORQUE METER

John C. Bender, Houston, Tex., assignor to Mecca Cable & Service, Inc., a corporation of Texas

Continuation of application Ser. No. 318,721, Oct. 24, 1963. This application July 11, 1966, Ser. No. 565,356
5 Claims. (Cl. 73—136)



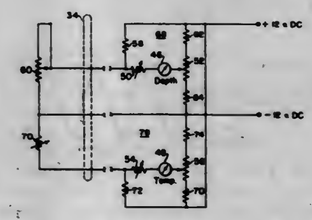
1. A torque meter for measuring the torque in a revolving shaft, comprising:
(a) first oscillator means including an inductance coil for generating a first signal related to the impedance of said coil; said impedance varying with the permeability of the shaft and said permeability varying with the torque in the shaft;
(b) said inductance coil being fixed in spaced relation about the shaft;
(c) detecting means physically unconnected with the shaft for detecting said first signal;
(d) second oscillator means removed from the shaft and unconnected with the shaft for generating a second constant reference signal;
(e) comparator circuit means for comparing said first signal and said second reference signal;
(f) communicating means for communicating said first and second signals to said comparator circuit means; and
(g) indicator means associated with said comparator circuit means for indicating the difference in said first and second signals to indicate variations of torque in the shaft.

3,319,465

APPARATUS FOR THERMAL CURRENT NAVIGATION

Edward C. Brainard II, Marion, Mass., assignor to Braincon Corporation, Marion, Mass., a corporation of Massachusetts

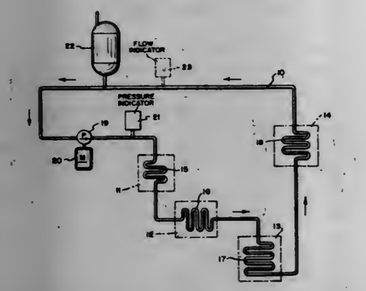
Filed Dec. 31, 1964, Ser. No. 422,655
5 Claims. (Cl. 73—178)



1. Apparatus for navigating a vessel in a body of water having a thermal current flowing therein to continuously position the vesesl above a selected isotherm of the thermal current, comprising in combination, a temperature transducer for measuring the temperature of the fluid surrounding the transducer, said transducer providing an electrical signal proportional to the temperature of said surrounding

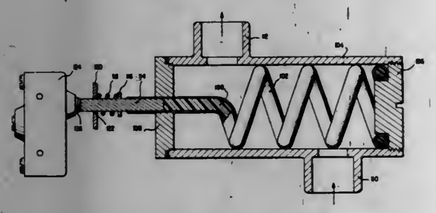
fluid, depressor means towed by said vessel, said transducer being mounted in said depressor, indicating means mounted in said vessel, said indicating means being responsive to the electrical signals from the transducer and having calibrating means associated therewith to set the indicating means to provide a zero indication when the signal from the transducer has a predetermined value corresponding to the temperature of said selected isotherm, said indicating means providing an indication of the magnitude and direction of departures of the transducer from the selected isotherm, thereby indicating the correction to be made in the vessel heading to return it to a position above said isotherm.

3,319,466
TEMPERATURE DROP DETECTION MEANS
John D. Lewis, Berkeley Heights, N.J., assignor to Vehoc Corporation, a corporation of Delaware
Filed Oct. 12, 1964, Ser. No. 403,113
17 Claims. (Cl. 73—357)



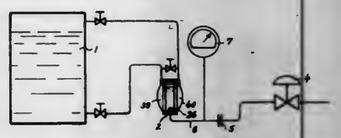
1. Apparatus for the detection of a temperature drop below a certain temperature comprising a tube extending through at least one area within which a temperature drop is to be detected, a liquid in the tube having a freezing point approximately equal to said certain temperature, means for circulating the liquid through the tube, and means for detecting an obstruction to the flow of liquid in the tube caused by the freezing of the liquid.

3,319,467
THERMOSTATIC DEVICE
Maurice Feinberg, 2 Jackson St., Waltham, Mass. 02154
Filed Oct. 4, 1963, Ser. No. 313,885
3 Claims. (Cl. 73—362.3)



1. In a fluid conducting device including a fluid housing having a fluid inlet port and a fluid outlet port communicating with the interior of said fluid housing, a thermosensitive control device mounted within the interior of said fluid housing so as to be responsive to the temperature of fluid in said fluid housing, said thermosensitive control device comprising a substantially rigid casing closed at one end and open at the other end, said casing being mounted within said housing to directly contact fluid flowing inwardly through said inlet port, a thermally sensitive, inelastic plastic member expandable at elevated temperatures received within said casing and abutting said closed end, said plastic member and casing being in the form of a helix, with said casing including a straight section extending from the convolutions of said helix to the open end of said casing, and drive means received within the open end of said casing and extending into said straight section thereof, said drive means movable outwardly of the open end of said casing in response to expansion of said plastic member at elevated temperatures.

3,319,468
DIFFERENTIAL PRESSURE TRANSMITTER
Hans D. Baumann, Decatur, Ill.
(Rte. des Isle, 14 Conde-sur-Noireau, France)
Filed Feb. 24, 1965, Ser. No. 434,794
4 Claims. (Cl. 73—407)

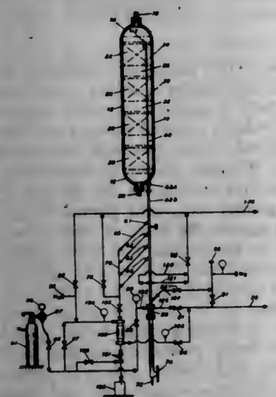


1. A differential pressure transmitter to measure—and transmit a signal proportional to—fluid pressure therein comprising:
(a) a housing having a flat upper and lower surface and having an opening centrally of said surfaces, said housing also being provided with a side opening substantially perpendicular therefrom,
(b) one or more diaphragms disposed between the flat surfaces of the housing and flanges, the latter containing suitable fluid ports, said diaphragms being cooperatively connected and supported by a yoke extending through said central opening of the housing,
(c) a shaft extending through the perpendicular side opening of the housing and at the same time through a perpendicular opening of said yoke,
(d) a stem having a flexible portion located in an axially located bore of said shaft and suitably fastened to one terminating end of said shaft,
(e) a cone secured to the flexible portion of said stem and cooperatively engaged with a semi-circle of said perpendicular opening in said yoke,
(f) a flexible member mounted on said cone to engage suitable measuring means,
(g) means to move shaft, stem, and cone in axial direction of said shaft,
(h) means to rotate shaft, stem, and cone around their polar axis.

3,319,469
MULTIBED SAMPLER FOR PARTICULATE SOLIDS
Roderick L. Hartung, Pinole, Calif., assignor to Chevron Research Company, a corporation of Delaware
Filed Nov. 27, 1964, Ser. No. 414,264
6 Claims. (Cl. 73—421)

1. Apparatus for selectively sampling a plurality of catalyst beds spaced apart in an elongated reaction vessel comprising an elongated tube extending upwardly through said reaction vessel and passing through said plurality of catalyst beds,
said tube having at least one port in the side wall of said tube at each of said spaced beds,
means securing said tube to an end wall of said reaction vessel and forming a pressure-tight connection between the external and internal walls of said vessel through said ports in said tube,

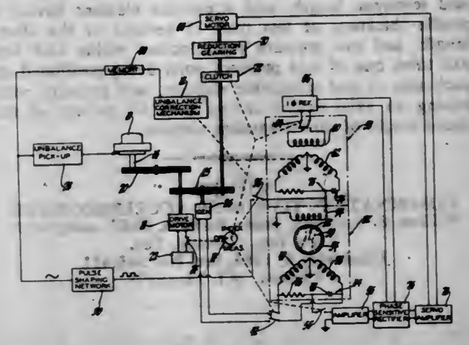
an elongated probe member extending longitudinally through substantially the length of said elongated tube and extending beyond the walls of said vessel,
said probe having a plurality of port members within said vessel, and each movable selectively into engagement with one of said plurality of tube ports,
at least one other port member in said probe member extending beyond the end wall of said vessel,
said probe member being movable longitudinally relative to said elongated tube selectively to bring one port in said probe member into communication with a port in said tube to admit a sample of catalyst from one of said separated beds into said probe member,
a housing member surrounding said extension of said probe member beyond said walls of said vessel and in pressure-sealed engagement therewith,



a plurality of unloading ports formed in the side wall of said housing member adapted to be brought into communication with said other port in said probe by longitudinal movement of said probe,
each of said unloading ports being adapted to be successively engageable with said other port in said probe by movement thereof,
each of said unloading ports being closed when catalyst is being admitted by engagement between the ports in said tube and said probe in said vessel to prevent disturbance of the pressure in the bed under sampling, but being open to communication with said probe when said ports in said tube and said probe are out of engagement in said vessel,
whereby samples of said catalyst from each of said plurality of beds may be withdrawn under the temperature and pressure conditions existing in said beds.

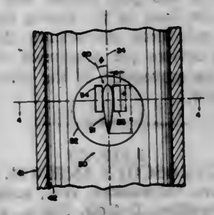
3,319,470
BALANCING SYSTEM
Joseph F. Lash, Ferndale, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed June 19, 1964, Ser. No. 376,368
13 Claims. (Cl. 73—462)

1. In a balancing system, the combination of an unbalance correction mechanism, means maneuvering a workpiece and the unbalance correction mechanism relative to each other in response to an error signal, means developing an unbalance signal having a phase corresponding to the angular position of the unbalance in a rotating body and a frequency corresponding to the rotational speed of the body, and phase comparing means including winding means developing a magnetic field that rotates in synchronism with the body, a movable member formed of magnetic material, stationary winding means responsive to the unbalance signal for magnetizing the movable member so that the movable member will align itself with the rotating magnetic field and remain so aligned and in a position corresponding to the angular position of the unbalance in the body when the magnetization of the movable member and the rotating magnetic field are removed, and means removing the magnetization of the movable member and the rotating mag-



netic field and developing a position signal corresponding to the relative positions of the workpiece and the unbalance correction mechanism for supply to one of the winding means so as to develop in the other winding means for supply to the maneuvering means an output error signal reflecting the coupling established between the winding means by the positioning of the movable member and accordingly corresponding to the actual position of the unbalanced portion of the workpiece relative to the unbalance correction mechanism.

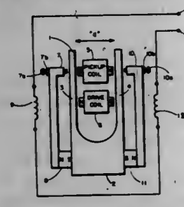
3,319,471
PICKOFF MEANS FOR FLUID VORTEX RATE SENSOR
Rudolf Hermann, St. Paul, Minn., assignor to Honeywell Inc., a corporation of Delaware
Filed Dec. 5, 1961, Ser. No. 157,142
3 Claims. (Cl. 73—505)



1. In a vortex rate sensor: a first element having a plane surface thereon, said first element having an opening therethrough; a second element having a plane surface thereon, said second element having an opening therethrough; a right circular cylindrical porous coupling means positioned between said plane surface of said first element and said plane surface of said second element thereby maintaining said plane surface of said first element and said plane surface of said first element substantially parallel, said coupling means having a central axis; a first exit tube positioned within said opening in said first element coaxial with said axis of said coupling means; a second exit tube positioned within said opening in said second element coaxial with said axis of said coupling means, the rate sensor being adapted to be connected to a fluid source whereby a fluid flows from said

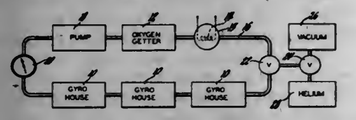
source through said coupling means, between said first element and said second element, and exhausts through said first and said second exit tubes; a streamline element having a symmetrical airfoil cross section positioned within the passage of said first exit tube with the chord of said streamline element substantially parallel to said axis, said streamline element having a semispan length which is less than the radius of said passage, said streamline element having a chord length substantially double said semispan length, said streamline element having a profile thickness of less than 15 percent of the chord length; and two pressure ports located within said first exit tube, one of said pressure ports being positioned on each side of said streamline element, said pressure ports having an axial extent of less than 60 percent of the chord length of said streamline element.

3,319,472
COMBINATION TIME BASE ACCELEROMETER
William E. Reefman, Santa Barbara, Calif., assignor to Varo, Inc., Garland, Tex.
Filed May 6, 1964, Ser. No. 365,411
4 Claims. (Cl. 73—517)



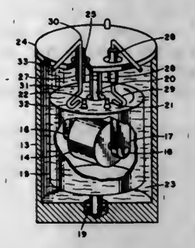
1. A time base accelerometer as described comprising a tuning fork assembly including a tuning fork, a drive coil, and a pick-up coil, and supplementary voltage pick-up devices located adjacent each tine of the fork for sensing deflections of the tines in a plane containing the longitudinal axes of the tines for producing a differential output voltage that is proportional to the acceleration of the tuning fork assembly along a line normal to the outside surface of the tuning fork tines in which each supplementary voltage pick-up device includes a pole piece juxtaposed one tine of the tuning fork, a pick-up coil juxtaposed one of said pole pieces, and a magnet interposed between the base of the tuning fork and the base of the adjacent pole piece and wherein the supplementary voltage pick-up devices are positioned to produce equal voltages from the movement of the tines in the absence of an acceleration.

3,319,473
GYROSCOPE ASSEMBLY
Thomas E. Elbert, Milwaukee, Wis., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed May 20, 1963, Ser. No. 281,403
17 Claims. (Cl. 74—5)



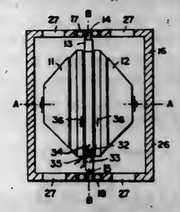
11. A device for operating a gyroscope comprising an enclosure, an atmosphere containing hydrogen in said enclosure, means in said enclosure for supporting a gyroscope on its bearings, means in said enclosure for reacting the hydrogen of said atmosphere with oxygen to form water, and means in said enclosure for absorbing said water.

3,319,474
RATE SENSITIVE LIMIT SWITCH
Myron B. Levitt and John J. Cirillo, Plainview, N.Y., assignors to Fairchild Camera and Instrument Corporation, a corporation of Delaware
Filed May 27, 1963, Ser. No. 283,241
9 Claims. (Cl. 74—5.6)



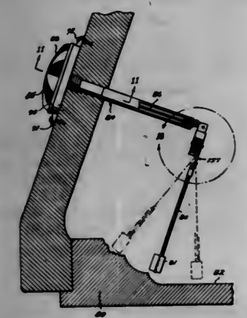
1. A limit switch component including in combination a rate gyroscope having a driven wheel, means for driving said wheel, a gimbal rotatably supporting and enclosing said wheel, a sealed housing enclosing said wheel and said gimbal, means rotatably supporting said gimbal within said housing, linear spring means within said housing yieldably restraining the rotation of said gimbal about the gimbal axis, said gimbal rotating about the gimbal axis against the force of said linear spring means in response to an angular rate input applied thereto, at least one contact pin fixed to said gimbal, at least one contact arm extending through a surface of said housing and positioned to be normally out of contact with said contact pin, a damping fluid within said housing, said contact arm being positioned so that rotation of said gimbal about said gimbal axis will move said contact pin toward and into contact with said contact arm, and means for adjusting the degree of rotation required of said gimbal to move said contact pin into contact with said contact arm after said housing is sealed.

3,319,475
COMPENSATOR FOR GYROSCOPIC INSTRUMENT
Robert G. Ballard, Saugus, Mass., assignor to General Electric Company, a corporation of New York
Filed June 29, 1964, Ser. No. 378,771
4 Claims. (Cl. 74—5.43)



1. A gyroscopic device comprising a gyroscope having a rotor mounted on a bearing frame for rotation in an ambient gas about a spin axis,
a gimbal member,
means mounting said bearing frame on said gimbal member so that it is free to rotate about a minor axis perpendicular to said rotor spin axis,
means mounting said gimbal member on a support so that it is free to rotate about a major axis perpendicular to said minor axis,
said gyroscope being subject to error torque about said minor axis due to temperature-variable effects tending to cause precession and drift of said gyroscope about said major axis,
and compensator means for reducing the rate of said drift to acceptable limits comprising,
a wind vane mounted on said bearing frame displaced from said minor axis and disposed in the path of a stream of said ambient gas ejected tangentially from said rotor due to drag pumping action.
and means for adjusting the angle of said wind vane relative to said gas stream in a direction to produce a reactive torque about said minor axis opposing and counteracting said error torque,
said reactive torque being variable as a function of said incidence angle and the temperature of said ambient gas.

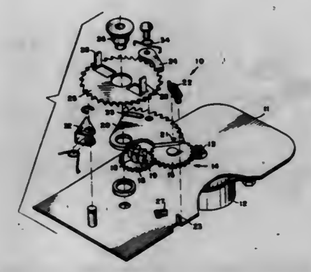
3,319,476
MECHANISM FOR TRANSMITTING MOTION THROUGH A SEALED WALL
Elbert Kennedy Mackenzie, Wales, Pa., assignor to Yarway Corporation, Philadelphia, Pa., a corporation of Pennsylvania
Filed July 8, 1965, Ser. No. 470,542
3 Claims. (Cl. 74—18)



1. In a mechanism for use in connection with a sealed wall, a torsion shaft extending through an opening in the wall, bearing means surrounding and journalling the torsion shaft and forming part of the sealed wall, a polyfluoroethylene plastic tube surrounding the bearing means at one end and then surrounding the torsion shaft toward the other end, the bearing means having a tapered end inside the tube with which tapered end the tube is in contact, said tapered end reducing the stress concentration on the tube, said tube under pressure being in contact with the portion of the bearing means which it surrounds and with the portion of the torsion shaft which it surrounds beyond the bearing means, means for securing the tube at one end to the bearing means and means for securing the tube at the other end to the torsion shaft, an arm attached substantially perpendicularly to the axis of rotation of the torsion shaft, said arm comprising a helical spring wound with an initial tension between turns, a sensing element located on the arm remote from the shaft, said element upon activation creating angular movement of the arm and axial rotation of the shaft and indicator means operatively connected to the torsion shaft outside the sealed wall.

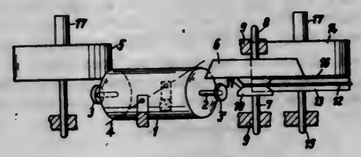
3,319,477
TIMER ESCAPEMENT
Richard E. McVicker, Indianapolis, Ind., assignor to P. R. Mallory & Co. Inc., Indianapolis, Ind., a corporation of Delaware
Filed Sept. 23, 1965, Ser. No. 489,720
10 Claims. (Cl. 74—112)

1. An escapement means for providing an intermittent rotary motion output of predetermined arcuate increments comprising: a partially toothed means coupled to and driven by a drive means, said drive means providing a substantially constant rotary motion; a gear means coupled to and driven by said partially toothed means; means cooperatively associated with said gear means for storing energy as said gear means is displaced by said partially toothed means; a clutch means crried by said gear means; and means having a saw-toothed circumference cooperatively associated with said clutch means so that said clutch



means is free-wheeling of said means having a saw-toothed circumference as said gear means is displaced by said partially toothed means, said partially toothed means disengaging said gear means causing said means to release said stored energy thereby displacing said gear to its initial position, said clutch means engaging with said means having a saw-toothed circumference thereby displacing said means having a saw-toothed circumference a predetermined arcuate increment.

3,319,478
DRIVE MECHANISM FOR SOUND RECORDING AND PLAYBACK DEVICES
Heinz Gruber, Kronach, Oberfranken, Germany, assignor to Loewe Opta G.m.b.H., Berlin, Germany, a company of Germany
Filed Sept. 17, 1964, Ser. No. 397,339
1 Claim. (Cl. 74—202)

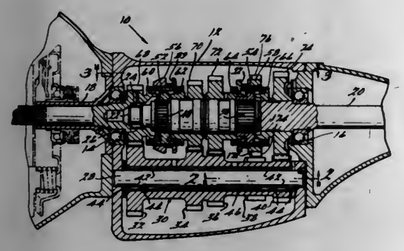


Drive mechanism for tape recorders comprising in combination a base plate, a first and a second spindle, a turntable fastened on each of said spindles, a third spindle provided with a flywheel, a clutch disc, a friction layer fastened on the clutch disc, an endless belt, a drive motor, and two friction wheels attached to the ends of the shaft of said motor; said spindles being rotatably mounted on the base plate, said clutch disc being pivotally mounted on said second spindle, the turntable of said second spindle being coupled with said clutch disc by said friction layer, said belt coupling said flywheel with said clutch disc, said motor together with said friction wheels being tiltably arranged around a gravity axis which lies transversally to the motor shaft, said friction wheels being adapted to be coupled either with said first turntable or with said second turntable or not to be coupled with one of said turntables.

3,319,479
MULTIPLE SPEED POWER TRANSMISSION MECHANISM

Teno Iavelli and Ervin R. Miller, Detroit, Mich., assignors to Chrysler Corporation, Highland Park, Mich., a corporation of Delaware

Filed Aug 25, 1964, Ser. No. 392,005
8 Claims. (Cl. 74—333)



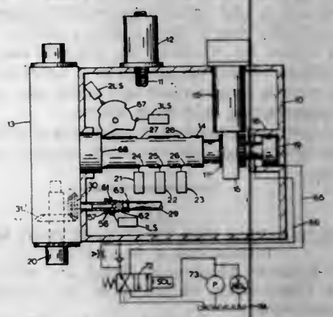
1. A multiple speed transmission mechanism comprising rotatable input and output shafts; a cluster gear assembly including gear portions journaled on an axis parallel to the axes of said input and output shafts; a plurality of separate gears freely journaled on said output shaft and in continuous meshed engagement with said gear portions, respectively; first manually actuated means for causing selective engagement of said separate gears to said output shaft in order to cause rotation of said output shaft in one direction; second manually actuated means for causing a separately journaled reverse idler gear to become in meshed engagement with a selected one of said gear portions and a selected one of said separate gears for causing rotation of said output shaft in a direction opposite to said one direction; and abutment means carried by both said first and second manually actuated means for preventing the simultaneous engagement among said selected one of said gear portions, said reverse idler gear, said selected one of said separate gears and another of said separate gears; said abutment means comprising a first arcuate member carried by said first manually actuated means and a second arcuate member carried by said second manually actuated means; said first and second arcuate members having formed thereon first and second contoured abutment surfaces, respectively, which are complementary to each other; said contoured abutment surfaces being effective upon being brought into juxtaposition to each other to prevent actuation of said first manually actuated means.

3,319,480
GEAR PROTECTION MECHANISM FOR TRANSMISSION

Stanley A. Pfister, Wilmington, Ohio, assignor to The Cincinnati Milling Machine Co., Cincinnati, Ohio, a corporation of Ohio

Filed Jan. 26, 1965, Ser. No. 428,087
6 Claims. (Cl. 74—339)

1. A transmission comprising in combination:
(a) a first toothed gear,
(b) a second gear having teeth adapted to mesh with said first gear,
(c) a third gear having teeth in the same number and similar profile as said second gear,
(d) means for supporting said second and third gears in axial alignment as a unit with the teeth thereof in axial alignment for simultaneous meshing engagement with said first gear,
(e) means for yieldably holding said third gear axially spaced from said second gear and toward said first gear,
(f) means for relatively axially shifting said first gear and said second and third gears in a selected direction to move said gears into and out of mesh, and



(g) means for detecting an axial movement of said third gear toward said second gear and for producing a warning signal in response to said axial movement to indicate misalignment of the teeth of said first and second gears when said first gear and said second and third gears are relatively shifted together.

3,319,481
ADJUSTABLE DEVICE FOR TRANSLATING ROTARY MOTION INTO LINEAR MOTION

Robert Goodman, 5325 Westminster Ave., Philadelphia, Pa. 19131

Filed May 24, 1965, Ser. No. 458,041
5 Claims. (Cl. 74—424.8)



1. A mechanical movement device comprising a first shaft and a second shaft, said shafts being operatively connected for axial movement relative to each other, the first shaft being screw-threaded and the second shaft being held against rotation and having a clutch nut threadedly engaged with said first shaft, said nut being axially fixed relative to said second shaft, restraining means normally holding said nut rotationally fixed relative to said second shaft whereby relative rotation between said first shaft and said nut provides relative axial movement between said first and second shafts, restraint-overcoming means on said first shaft for overcoming said restraining means upon predetermined axial movement of said shafts relative to each other, the overcoming of said restraining means causing said nut to rotate with said first shaft relative to said second shaft to discontinue relative axial movements of said shafts, adjustment means for adjusting said restraint-overcoming means longitudinally of said first shaft, and releasable lock means for locking said adjustment means in adjusted positions longitudinally of said first shaft.

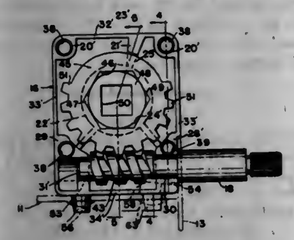
3,319,482
WORM AND WHEEL GEARING AND HOUSING THEREFOR

Andrew J. Campbell, Southfield, and Robert L. Fischer, Detroit, Mich., assignors to Al-Craft Manufacturing Company, Troy, Mich., a corporation of Michigan

Filed June 15, 1965, Ser. No. 463,994
9 Claims. (Cl. 74—425)

2. A window operator comprising a housing including a pair of closely similar, hollow die-cast housing parts

fixedly secured in face-to-face engagement with one another and provided with worm gear bearing means and worm bearing means at 90° to one another, a worm gear journaled in said gear bearing means and a worm journaled in said worm bearing means in mesh with said worm

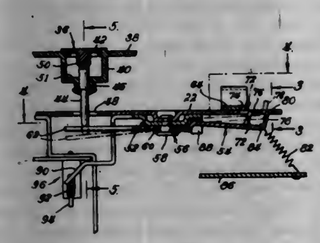


gear, said worm having means to operate the same from the exterior of said housing, said housing parts each having a laterally extending bottom flange provided with an integral dowel projecting downwardly thereof for locating engagement with a window frame member.

3,319,483
PLAY-RECORD CONTROL MECHANISM FOR TAPE RECORDERS

Alfred C. Ratter and Marion R. Karecki, St. Joseph, Mich., assignors to V-M Corporation, Benton Harbor, Mich., a corporation of Michigan

Filed Oct. 29, 1964, Ser. No. 407,398
10 Claims. (Cl. 74—483)



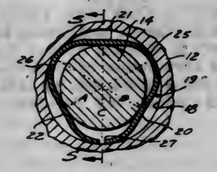
1. In a tape recorder, manually operable control mechanism for conditioning the tape recorder for recording, said control mechanism comprising, in combination manually operable play-record actuating means movable between a normally inoperative position and an actuated play-record position, a switch having a normal play position and an actuated record position, switch-actuating means for moving said switch to said actuated record position, and manually operable interlock means movable between an inoperative position and an operative position for interlocking said switch-actuating means with said play-record actuating means whereby when said interlock means is first manually actuated to its operative position and said play-record means is thereafter manually actuated, said switch will be moved to said actuated record position thereby conditioning said tape recorder for recording.

3,319,484
MEANS FOR COUPLING SHAFT AND BUSHING

Elmer W. J. Prest, Alton, N.H., assignor to Clarostat Mfg. Co., Inc., Dover, N.H., a corporation of New York

Filed July 21, 1965, Ser. No. 473,603
1 Claim. (Cl. 74—531)

In a device of the type containing a bushing, a bushing bore, and a cylindrical shaft rotatable within said bushing bore, means for coupling said shaft and said bushing, said means including a coupling member in the form of an equilateral triangle within said bushing bore having rounded corners engaging said bushing on the outer surface of said member defining a line at the center of each of said rounded corners which is parallel with the central

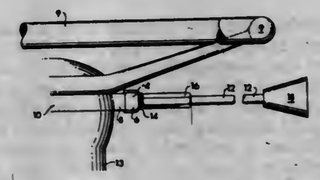


axis of said shaft and said means for coupling having flat sides intermediate said corners engaging said shaft on the inner surface of said member at three lines parallel with the central axis of said shaft, each of said flat sides being tangent to said shaft.

3,319,485
HANDLES FOR SIGNAL SWITCHES

Theodore C. Tremblay, 56 Great Road, Bedford, Mass. 01730

Filed July 28, 1966, Ser. No. 568,467
12 Claims. (Cl. 74—543)

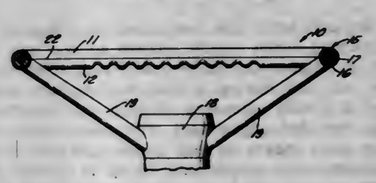


4. A replacement handle for engagement with the hollow dovetail portion of the directional signal switch in a Volkswagen automobile comprising, in combination with said dovetail portion, a shaft, a nut secured near one of its ends and nested firmly against the inner surface of said dovetail portion, pressure means disposed about said shaft exerting pressure against said dovetail portion, and a coupling nut riding on said shaft exerting a force against said pressure means to secure said engagement.

3,319,486
STEERING WHEEL COVER ACCESSORY

Richard C. Spencer, South Pasadena, Calif. (20253 E. San Gabriel Valley Drive, Walnut, Calif. 91789)

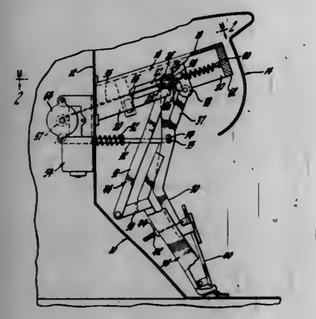
Filed Oct. 23, 1965, Ser. No. 503,424
4 Claims. (Cl. 74—558)



1. A decorative dress cover accessory for assembly to a vehicle steering wheel to enhance its appearance and adapted to be easily applied by the novice, said cover accessory comprising a pre-molded one piece thin-walled shell-like ring of arcuate configuration in cross-section and sized to fit directly against the upwardly facing side of a used vehicle steering wheel, said ring being formed of a high durometer plastic having a high-sheen smooth glossy outer surface free of protrusions and irregularities,

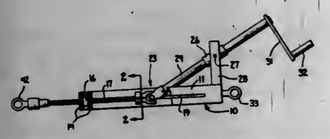
and the interior surface being non-glossy and adapted to be adhesively bonded to the upwardly facing side of a used steering wheel.

3,319,487
VEHICLE CONTROL PEDALS
Leonard A. Lystad, Warren, and Simon Roberts, Detroit, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Jan. 9, 1964, Ser. No. 336,817
5 Claims. (Cl. 74—560)



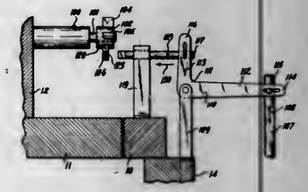
1. In combination with a vehicle body, a control pedal arrangement comprising, a control pedal, pedal mounting means, first means swingably mounting said control pedal adjacent one end thereof on said pedal mounting means for movement relative thereto, and second means mounting said pedal mounting means on said body for swingable adjustment of said pedal mounting means and said control pedal as a unit relative to said body about an axis intermediate the ends of said control pedal.

3,319,488
ADJUSTABLE LINK
Thomas A. Bentley, North Little Rock, Ark., and Carl D. Jackson, Fortville, Ind., assignors to C. D. Jackson Manufacturing, Inc., Fortville, Ind., a corporation of Indiana
Filed Apr. 29, 1965, Ser. No. 451,833
3 Claims. (Cl. 74—586)



1. An adjustable link comprising an elongated frame, an attaching eyelet rigidly secured to one end of said frame, a member carried by said frame adjacent its opposite end and having a threaded aperture therein, a threaded spindle extending through said aperture and having threaded engagement with said member, cooperating guide means on said spindle and said frame for maintaining said spindle and frame in axially parallel relation as said spindle is moved through said threaded aperture, a crankshaft adapted for manual rotation joined to said spindle by a U-joint transmitting rotation of said shaft to said spindle, said crankshaft being supported by said frame so as to extend angularly therefrom, and means for non-rotatably securing an attaching eyelet to the end of said spindle protruding beyond said threaded aperture, said means including an enlarged cylindrical head on said spindle, a bearing sleeve encircling an unthreaded portion of said spindle immediately adjacent said head, a collar freely encircling said head and rigidly attached to said bearing sleeve, said collar having an inwardly flanged portion overlying the free end of said head, and an attaching eyelet rigidly secured to said collar, whereby upon extension or retraction of said spindle with relation to said frame said head axially shifts said collar with its attaching eyelet, the clearance between said head and said sleeve preventing transmission of rotation of said spindle to said collar.

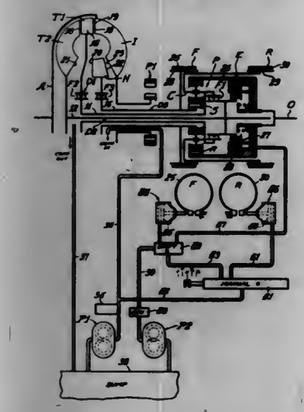
3,319,489
STAR WHEEL AND MEANS FOR SETTING SAME
Morris Philip, 2519 Grand Ave., Bronx, N.Y. 10468
Original application Apr. 20, 1962, Ser. No. 189,125, now Patent No. 3,147,605, dated Sept. 8, 1964. Divided and this application June 12, 1964, Ser. No. 374,564
9 Claims. (Cl. 74—660)



1. In combination, a star wheel mounted for rotation about its axis, a plurality of circumferentially spaced-apart lugs on said star wheel, one of said lugs having a first dimension and all of the other of said lugs having a second dimension, there being a plurality of lugs having said second dimension, tripper means for selectively partially rotating said wheel, and means for causing relative movement between said star wheel and said tripper means, so that said star wheel repeatedly passes said tripper means with one of its lugs traversing the tripper means, said tripper means partially rotating said star wheel when said tripper means contacts a traversing lug during said movement, said tripper means having at least two positions, in the first of said positions said tripper means contacting a traversing lug having said first or second dimension and in the second of said positions contacting only an interposed lug having said second dimension.

3,319,490
AUTOMATIC CHANGE SPEED TRANSMISSION
Miczyslaw J. Waclawek, Olympia Fields, Ill., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois
Filed Jan. 21, 1964, Ser. No. 339,145
6 Claims. (Cl. 74—677)

6. A variable speed transmission for transmitting rotative power from a drive shaft to a driven shaft, comprising: a mechanical torque multiplying means, said mechanical means including a planetary gear unit having a sun gear, a ring gear, and a plurality of planetary gears intermeshed therewith and mounted upon a carrier, said hydraulic means comprising an impeller, a stator, and a first and second turbine interposed in a toroidal fluid path between said impeller and stator for imparting kinetic energy from said impeller to said hydraulic means with said mechanical means including an intermediate shaft and a quill shaft, interposed concentrically within said intermediate shaft, said first turbine being drivingly connected with said intermediate shaft by a first one-way friction means, said second turbine being drivingly connected with said quill shaft and having a second one-way friction device interposed therebetween effective to transmit rotative power to said intermediate shaft in the same rotative direction as that permitted by said first one-way friction means, said stator being connected to said sleeve shaft by a third one-way friction means effective to transmit power in the same rotative direction as said first one-way friction means, said sleeve shaft being drivingly connected with said sun gear, and said intermediate shaft being drivingly connected to said carrier, brake means for selectively braking said carrier, brake means for selectively braking said sleeve shaft, said ring gear being drivingly connected with said driven shaft and said transmission, and a clutch effective to be selectively engaged for coupling said quill shaft with said driven shaft, said



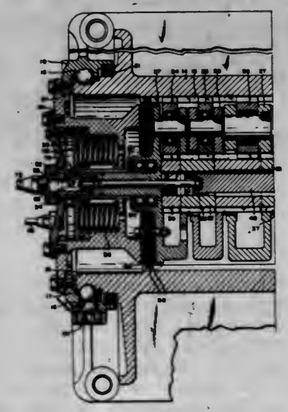
transmission being particularly characterized in that, when said second brake is applied with disapplication of said clutch, said turbines each are effective to transmit rotative power simultaneously to the planetary gears of said mechanical means when the circulating fluid within said hydraulic means is below a predetermined value and only one of said turbines is effective to transmit rotative power when the circulating fluid is above said predetermined value, and, when said clutch is engaged, part of said rotative power of said second turbine is directly transmitted to said driven shaft while still retaining said driving relationship of said first turbine with said planetary gears of said mechanical means.

3,319,491
HEAVY DUTY PLANETARY TRANSMISSION
Howard W. Simpson, 730 Crescent Drive, Dearborn, Mich. 48124
Filed Dec. 24, 1963, Ser. No. 333,094
13 Claims. (Cl. 74—740)



1. A variable speed transmission for a self-propelled vehicle comprising first and second planetary gear sets, means including gear proportions and selectively engagable clutch and brake connections for establishing progressive forward speed drive ratios through said gear sets including a relatively large ratio step between the lowest and second speed ratios, a third planetary gear set, means including gear proportions and selectively engagable clutch and brake connections for said third planetary gear set for alternatively providing a low speed range wherein a forward speed reduction ratio may be combined with the speed ratios obtained in the first two planetary sets or a high range drive wherein the ratios established in the first two planetary sets are not modified by the third planetary set, the highest combined speed ratio of said three planetary sets in low speed range exceeding said lowest speed ratio of said first and second planetary sets and being less than another speed ratio of said first and second planetary sets by a relatively small ratio step, and means for producing a progressive sequence of ratio steps through said low and high speed ranges utilizing said lowest speed ratio of said first two sets only in said low speed range thereby eliminating said relatively large ratio step in said high speed range.

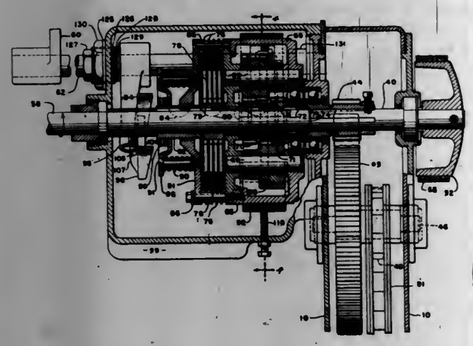
3,319,492
MULTI-STAGE REDUCTION GEARED WINCH
Roland A. Magnuson, Renton, Wash., assignor to Pacific Car and Foundry Company, a corporation of Washington
Filed Aug. 20, 1964, Ser. No. 390,977
16 Claims. (Cl. 74—750)



1. In a winch, a winding drum having a through-opening in its center provided about the periphery with teeth producing an internal gear, front and aft stationary bitts each providing a journal mounting for a related end of the drum; a respective member one occupying one end portion and the other occupying the other end portion of the drum's open center and each presenting an outwardly directed flange removably bolted to the outer face of the related bitt so as to hold the member stationary, a co-axial series of at least three stages of reduction gear systems housed in said open center of the drum between the stationary members, with each stage comprising a respective set of pinions carried by a respective carrier and in mesh with the internal gear and a respective central gear, the third-stage system having its carrier anchored to one of said stationary members to localize the axes of the concerned pinions, the first-stage and the second-stage carriers being each mounted for rotation so that the concerned pinions have planetary motion, a motor, a member driven by said motor occupying the axial center of the drum and movable into driving engagement with either the first-stage central gear or the second-stage central gear, selectively, means passing rotary motion from the first-stage carrier to the second-stage central gear and from the second-stage carrier to the third-stage central gear, and a means housed in the drum

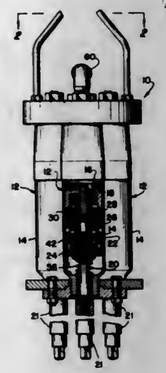
at the end thereof opposite the anchoring stationary member and operable at will for arresting the rotation of the first-stage carrier relative to the drum so as to brake the drum, said drum-breaking means, the three stages of reduction gearing, and said removably bolted stationary members being so formed that upon a removal of said removable stationary members; said breaking means and the three stages of reduction gearing can be disassembled and reassembled through the open ends of the drum without detaching the drum from the ring sections of the bitts.

3,319,493
POWER TRANSMISSION CONTROL MEANS
Lawrence M. Halls, New Holland, Earl E. Koch, Mohnton, and Horace G. McCarty, New Holland, Pa., assignors to Sperry Rand Corporation, New Holland, Pa., a corporation of Delaware
Filed Aug. 31, 1964, Ser. No. 393,210
3 Claims. (Cl. 74—792)



1. In combination with a planetary power transmission unit having a power input shaft, a power output shaft, an engageable and disengageable clutch operable when engaged to effect driving of said output shaft in one direction from said input shaft through said planetary transmission unit, a clutch actuator member movable along said input shaft to effect engagement and disengagement of said clutch, an expandable and contractable band encircling said planetary transmission unit and operable upon contraction to effect driving of said output shaft from said input shaft through said planetary transmission unit in the direction opposite said one direction, means for controlling the direction of power transmission from said input shaft to said output shaft comprising a control shaft extending generally parallel to said input shaft and journalled for oscillation about its own axis, an arm fixed to said control shaft and extending radially therefrom, interengageable cam and cam engageable means on said arm and said clutch actuator member operable to move said actuator member along said input shaft to effect engagement of said clutch in response to oscillation of said control shaft in one direction from a predetermined neutral position, a link having one end connected eccentrically to said control shaft and the other end connected to said expandable and contractable band and operable to contract said band upon oscillation of said control shaft from said predetermined neutral position in the direction opposite said one direction, said expandable and contractable band having first and second ends spaced apart circumferentially along said planetary transmission unit, a first lug carried by said band at said first end thereof, a second lug carried by said band at said second end thereof, means holding one of said lugs in a fixed position, said link being connected to the other of said lugs and moving said other lug toward said one lug upon oscillation of said control shaft from said predetermined neutral position in the direction opposite said one direction, and a compression spring disposed between said lugs and biasing said band to expanded condition and thereby biasing said control shaft to said predetermined neutral position.

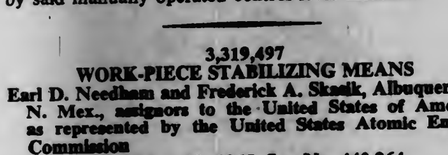
3,319,494
DUAL-SPEED FASTENER DRIVING TOOL
Otmar M. Ulbing, Lisle, N.Y., assignor to Ingersoll-Rand Company, New York, N.Y., a corporation of New Jersey
Filed Oct. 22, 1964, Ser. No. 405,782
4 Claims. (Cl. 74—812)



1. A power tool comprising:
a housing;
a reversible motor having a drive shaft mounted for rotation within said housing;
a driven shaft supported in said housing and projecting therefrom in coaxial relationship with said shaft and connected to a fastener driving spindle;
a friction clutch disposed between said drive shaft and said driven shaft for transmitting the rotation of said drive shaft to said driven shaft when said drive shaft is rotated in a first direction and a torque below a predetermined minimum is applied to said driving spindle;
a planetary gear train rotatively interconnecting said drive and driven shafts;
an overrunning brake cooperating with said planetary gear train and operative upon rotation of said drive shaft in a second direction;
said planetary gear train adapted to transmit the rotation of said drive shaft to said driven shaft and cause said driven shaft to rotate in said first direction at a speed less than the speed of said drive shaft.

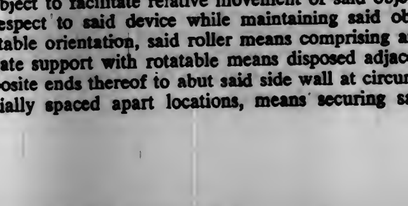
3,319,495
METHOD FOR FABRICATING A STERLING SILVER UTENSIL
Warren Edward Lawrence, Jr., Greene, R.I., assignor to Gorham Corporation, Providence, R.I.
Filed June 8, 1964, Ser. No. 373,458
5 Claims. (Cl. 76—105)

1. A method comprising prefabricating a base member of sterling silver for a sterling silver utensil, forming a socket in and cleaning the base member, prefabricating a sterling silver decorative member, one of said members being provided with a socket and the other of said members including a sterling silver lug, inserting said lug into said socket with a solder adapted to maintain a sterling silver ratio in said utensil and to flow at a temperature less than about 650° F., heat treating the base member, decorative member and solder at a temperature of from about 350–650° F., and removing the light tarnish which



is formed; said socket and lug being given corresponding shapes such as to permit a single predetermined alignment of said decorative member relative to said base member.

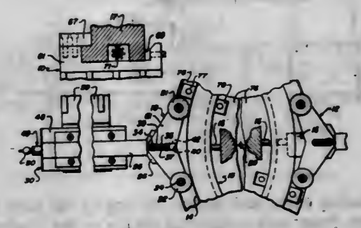
3,319,496
LATHE TAILSTOCK
Kenzo Aihara and Shigeru Tani, Tokyo, and Hideo Hirokawa, Kawasaki, Japan, assignors to Ikegai Tekko Kabushiki Kaisha, Tokyo, Japan
Filed Feb. 11, 1966, Ser. No. 526,883
4 Claims. (Cl. 82—31)



1. In a tail stock device of a lathe comprising a tail stock spindle, the combination of means disposed on the rear portion of the tail stock device for effecting rapid axial movement of said tail stock spindle, means disposed on the rear portion of the tail stock device driven by a handle wheel to effect reduction in speed of said tail stock spindle, an interlocking pin member disposed between said rapid axial movement means and said speed reduction means to maintain one of both said means operated while maintaining the other of both said means stationary, a single manually operated control lever member for selectively engaging said rapid axial movement means and said speed reduction means to operate only one of both said means at a time, and unidirectional clutch means through which said rapid axial movement means are operated by said manually operated control lever member.

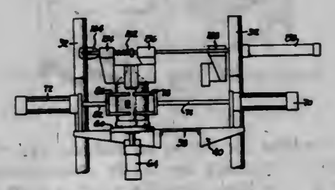
3,319,497
WORK-PIECE STABILIZING MEANS
Earl D. Needham and Frederick A. Skaalk, Albuquerque, N. Mex., assignors to the United States of America as represented by the United States Atomic Energy Commission
Filed Mar. 18, 1965, Ser. No. 440,964
5 Claims. (Cl. 82—38)

1. A work-piece steadying device for facilitating the machining of hollow thin-walled objects having a surface of revolution, said device comprising a base member secured to a rigid support structure and selectively positionable thereon, adjustable means secured to said member comprising a plurality of portions at least one of which is selectively movable with respect to another of said portions for varying the effective length of said adjustable means, and roller means carried by said adjustable means for abutting against an outer side wall of a rotatable object to facilitate relative movement of said object with respect to said device while maintaining said object in stable orientation, said roller means comprising an elongate support with rotatable means disposed adjacent opposite ends thereof to abut said side wall at circumferentially spaced apart locations, means securing said one portion to said elongate support intermediate the spaced apart rotatable means, said securing means providing an axis of rotation for said support, and selective adjustable yieldable means associated with said securing means, said



securing means and said yieldable means providing and facilitating desired relative movement of said roller means with respect to said one portion such that means for removing metal from said object engage the latter at locations intermediate said spaced apart locations.

3,319,498
PLASTIC BOTTLE TRIMMING METHOD
Wallace W. Wolford, Toledo, Ohio, assignor to Owens-Illinois, Inc., a corporation of Ohio
Original application Aug. 13, 1963, Ser. No. 301,757. Divided and this application Oct. 8, 1965, Ser. No. 494,115
9 Claims. (Cl. 83—35)

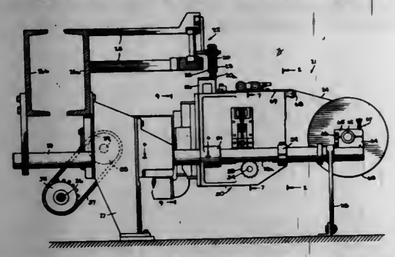


1. In a method of removing flash from a molded article by means of a die-knife combination having mating edges conformed to the line of juncture of the flash with the article surface; positioning the article in operative relationship with the die by the steps of engaging the flash on the article with the die with the line of juncture on the article spaced outwardly from the die edge, and subsequently shifting the article while maintaining the flash in engagement with the die in a direction moving the line of juncture on the article toward congruence with the die edge until the die edge engages the article surface in adjacent congruent relationship to the line of juncture.

3,319,499
MACHINE AND METHOD FOR APPLYING CRASH TO THE BINDING EDGES OF BOOKS
Thomas B. Hawkes, Manhasset, N.Y., and Richard B. Hawkes, Easton, Pa., assignors, by mesne assignments, to T. W. & C. B. Sheridan Company, a corporation of New York, a subsidiary of Harris-Intertype Corp., New York, N.Y., a corporation of Delaware
Filed Dec. 26, 1962, Ser. No. 246,936
22 Claims. (Cl. 83—99)

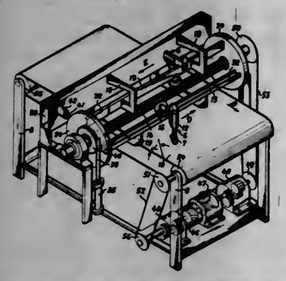
1. A machine for applying a strip of material to the binding edge of a book adjacent thereto comprising means for supporting the strip in a substantially flat form, means for providing the strip on said supporting means, means

for moving said supporting means with respect to said providing means through an orbit extending to adjacent



the binding edge, and means for urging the strip by fluid pressure from said supporting means to the binding edge.

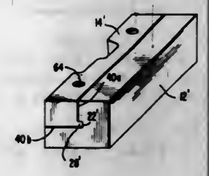
3,319,500
APPARATUS FOR CUTTING AN ELONGATE WEB OF MATERIAL INTO STRIPS
Hans Wild, Muttenz, and Karl Siegenthaler, Pratteln, Switzerland, assignors to Fabrik fur Firestone Produkte AG., Pratteln, Switzerland, a Swiss company
Filed Mar. 25, 1965, Ser. No. 442,611
Claims priority, application Switzerland, Mar. 26, 1964, 3,990/64
12 Claims. (Cl. 83—353)



1. A machine for cutting an elongate web of material into strips comprising means for continuously moving the web in a first linear direction which is along the length of the web, said means including an endless belt on which the web rides; a plurality of cutting devices; means for continuously and simultaneously moving said cutting devices across the width of the web in a second linear direction which is transverse to said first linear direction to thereby cut the web into a plurality of strips each of which defines an obtuse angle with the length of the web; means for varying the obtuse angle between the cut strips and the length of the web, said means including a common drive for the two moving means and a variable ratio gear arrangement for adjusting the ratio of the speed of movement of said cutting device moving means to the speed of movement of said web moving means; and means for varying the width of said strips, said means including means for adjusting the spacing between said cutting elements.

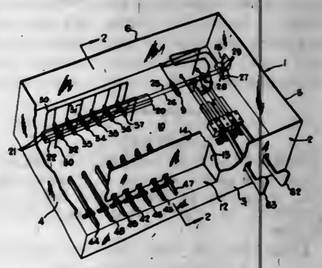
3,319,501
STAMPING OR BLANKING DIE
John D. Risher, 127 Bonnett St. SW., North Canton, Ohio 44720
Filed June 24, 1965, Ser. No. 466,674
3 Claims. (Cl. 83—698)

1. A die assembly comprising, in combination, a length of mild steel stock forming the base portion of the die, said base portion having flat, parallel upper and lower surfaces, the latter of which is adapted to rest upon a die shoe, and opposite side surfaces, said base portion also having an upwardly facing flat supporting surface extending inwardly from and completely along the length of one of said side surfaces and terminating short of the other side surface, said base portion also having a flat attaching surface forming an edge with said upper surface which is parallel with said side surfaces, and said attaching surface extending downwardly from such edge towards said supporting surface, a length of tool steel stock forming the working portion of the die, said working portion having a flat bottom surface and a flat side surface which are complemental to the supporting and attaching surfaces of said base portion



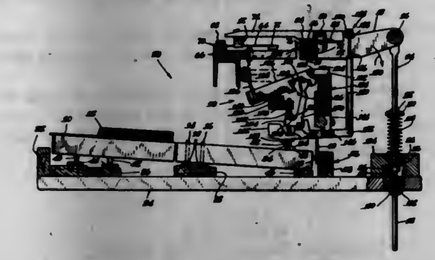
respectively, said working portion also having an opposite side surface and a top surface which intersect to form the cutting edge of the die, a pair of upright dowel pins pinning said working portion to said base portion and establishing a predetermined parallel spacing between said flat side surface of the working portion and said attaching surface of the base portion, and bonding means filling the gap between said flat side surface of the working portion and said attaching surface of the base portion, and interposed between and joining said flat bottom surface of the working portion and said supporting surface of the base portion.

3,319,502
MUSICAL INSTRUMENT
Seth L. Hackney, 403 E. North St., California, Mo. 65018
Filed July 29, 1965, Ser. No. 475,669
12 Claims. (Cl. 84—173)



1. A foot-operable musical instrument comprising a plurality of tuned strings; stop means for varying the effective lengths of said strings simultaneously in predetermined relation; foot pedal means operatively connected to said stop means for selective operation thereof when said foot pedal means is manipulated; a plurality of separate plectrum assemblies for said strings movable relative to separate of said strings including a plectrum for plucking each of said strings, each of said plectrum assemblies including by-pass means adapted to move said plectrum past its respective said string out of engagement therewith in one direction of movement thereof and plectrum assembly foot pedal means operatively connected to said plectrum assemblies for selective operation thereof upon manipulation of said foot pedal means.

3,319,503
PIANO ACTION ASSEMBLY
Charles S. Corey, De Kalb, Ill., assignor to The Wurlitzer Company, Chicago, Ill., a corporation of Ohio
Filed June 19, 1963, Ser. No. 288,993
22 Claims. (Cl. 84—240)



1. In a piano arrangement, the combination comprising: a stationary rail adapted to act as a rest for a hammer; a vibratile member spaced from said hammer rail; a hammer mounted on a first pivot to swing in an arc between said rail and a position percussively engaging said vibratile member; a whip mounted to swing about a second pivot spaced from said first pivot; a fly mounted on said whip to swing about a third pivot spaced from said first and second pivots; a planar backcheck surface carried by said hammer in a position facing toward said first pivot, said surface being tilted with respect to a plane drawn perpendicular to the longitudinal axis of said hammer to dispose a lower toe portion of said surface horizontally closer to a vertical line drawn through said first pivot than an upper heel portion of said surface when said hammer is in backchecking position; and a planar backcheck surface carried by said fly in generally confronting relationship with the hammer backcheck surface, said fly backcheck surface being inclined with respect to the longitudinal axis of said fly to lodge an upper nose portion of said fly backcheck surface against the hammer backcheck surface at a position overlying the toe portion thereof when said hammer and said fly are in backchecking position whereby to lock said hammer against movement toward said vibratile member.

3,319,504
SLANTED FINGER BOARD FOR STRINGED INSTRUMENTS
Orbra W. Appleton, 614 S. 12th St., Burlington, Iowa 52601
Filed Oct. 6, 1966, Ser. No. 584,778
3 Claims. (Cl. 84—314)



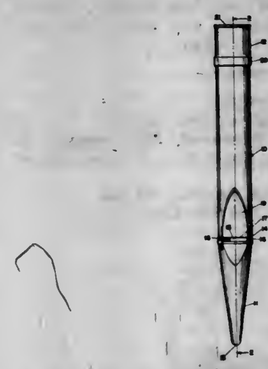
1. A stringed musical instrument comprised of a body and a neck, strings ranging from treble to bass supported between the body and the neck, a finger board with frets on its playing surface, the finger board located on the neck under the strings, the playing surface of the finger board being slanted in combination with the neck so that it is thicker under the treble strings than under the bass strings, the strings being supported so as to be approximately the same distance above a given fret on the finger board.

3,319,505
PICKS FOR MUSICAL INSTRUMENTS WITH IMPROVED GRIP INCLUDING WITH IMPROVED TONE
Hyman Galetzky, 3435 Ollaville Ave., Apt. 2-C, % B. Hollowitz, Bronx, N.Y. 10467
Filed July 7, 1965, Ser. No. 470,103
4 Claims. (Cl. 84—322)



1. A plectrum for stringed musical instruments comprises a generally flat body including a plucking tip, a tip-supporting portion integral with the tip, and a finger-contacting portion integrally connected to the tip-supporting portion, said body having a series of spaced apertures defining the line of connection between the portions, said apertures effecting a reduction in the amount of the material of the body that connects the portions so as to permit greater flexibility of the tip-supporting portion as compared to the finger-contacting portion when the plectrum is grasped by a user, said series being annularly arranged on the body.

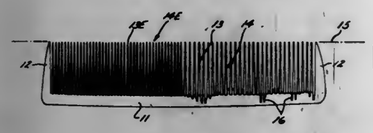
3,319,506
ORGAN PIPES
Gerhard J. Belsecker, 4670 Station Road, Erie, Pa. 16510
Filed Oct. 22, 1965, Ser. No. 501,300
5 Claims. (Cl. 84—349)



1. An organ pipe comprising
a cylindrical body and a foot,
said cylindrical body comprising a flat sheet of aluminum rolled into the form of a cylinder,
said foot being generally conical in shape, closed at its apex end and having an open end,
means whereby said open end of said foot is fixed to one end of said cylindrical body,
a band of aluminum material inside said aluminum cylindrical body extending around it,
said band having an edge disposed flush with the end of said body adjacent said foot,

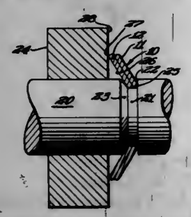
the end surface of said foot adjacent said body being substantially thicker than said aluminum sheet,
a languet in said body fixed to said strip,
and an opening,
said opening being disposed in the end of said body adjacent said foot.

3,319,507
MUSICAL MELODY-PRODUCING COMB
Franklin E. Wolcott, 2870 W. Broadway, Los Angeles, Calif. 90041
Filed Oct. 8, 1964, Ser. No. 402,577
10 Claims. (Cl. 84—375)



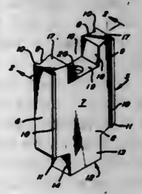
1. A musical melody-producing comb having a plurality of teeth adapted to produce the successive notes of a melody when sequentially vibrated, comprising: a comb base member provided therealong with a plurality of cantilever-connected spaced comb tooth members together comprising and defining a row of said comb tooth members, said comb tooth members having outer free ends spaced along an imaginary line and together comprising comb tooth abutment end means, said successive spaced comb tooth members having natural resonant frequencies corresponding to the sequential musical notes and tones of a desired specific musical melody so that successive sequential vibrating of the free outer ends of said row of teeth along said comb tooth abutment end means will audibly and successively produce in the proper sequence the musical notes and tones of said desired specific musical melody, said successive spaced comb tooth members being spaced from each other in a direction parallel to said imaginary line by average distances less than two times the average thickness in the same direction of each of said adjacent comb tooth members on each side thereof whereby, together with said comb base member, to define and comprise a fully functional and usable hair comb adapted for use in combing one's hair.

3,319,508
RESILIENT RETAINING RING
Harold E. McCormick, Brentwood, Mo., assignor to Ramsey Corporation, St. Louis, Mo., a corporation of Ohio
Filed May 8, 1964, Ser. No. 365,906
3 Claims. (Cl. 85—8.8)



1. In combination,
a shaft having an annular groove provided with a beveled wall and a right angle wall,
a retained part mounted on said shaft with limited freedom of sliding movement therealong, and a one-piece resilient retaining ring removably positioned in said groove against said right angle wall to abut the same through approximately 360°,
said retaining ring comprising a plurality of coils of flat ribbon-like material having a gap between the ends thereof and an integral connecting portion lying within said gap,
said coils having flat contacting surfaces except at said gap for free slippage at the coils relative to each other,
said gap being at least equal in length to 0.51 times the inner diameter of said coils to minimize flexing of the coil ends,
said ring being permanently dished at an angle of about 18° and inclined in the same direction as said beveled wall to provide substantially 360° contact with said retained part.

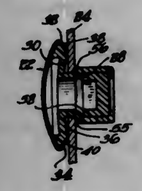
3,319,509
WING NUT
Costantino Romeo, 2227 S. 10th St., Philadelphia, Pa. 19148
Filed Apr. 26, 1965, Ser. No. 450,686
1 Claim. (Cl. 85—32)



A nut comprising
an integral elongated body of substantially rectangular cross section and of a width greater than about three times its thickness,
said body being bounded by spaced opposite parallel outer edge faces,
spaced opposite outer side faces, and opposite parallel outer end portions,
said body having extending between said end portions an internally threaded opening,
said body having extending inwardly from one end an actuating slot bounded by flat parallel inner side faces terminating at an inner face of the same width as the space between said inner side faces,
said inner side faces being spaced inwardly from said parallel side faces and the width of the slot being not less than one-third of the distance between said opposite edge faces,
said outer side faces spaced inwardly from each of the outer edge faces each having flat central portions and converging grooves disposed inwardly of said outer edge faces,
said body portion having an integral extension at the end thereof opposite said slot of a width substantially the same as that of the slot,
said grooves providing longitudinal ledges along their outer margins.

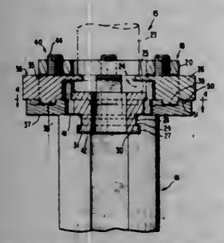
3,319,510
FASTENER STUD
George M. Rapata, Park Ridge, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill., a corporation of Delaware
Original application May 5, 1961, Ser. No. 108,110, now Patent No. 3,162,085, dated Dec. 22, 1964. Divided and this application Sept. 8, 1964, Ser. No. 394,748
7 Claims. (Cl. 85—72)

1. A fastening device comprising a resiliently transversely expandable plastic shank portion insertable through an aperture in a work structure, a head portion integrally joined to a trailing end of shank portion and projecting laterally from the shank portion for overlying one side of the work structure, said shank and head portions having an axially extending opening therein, said shank and head portions having internal cross sectional configurations of substantially the same size and shape, said internal cross sectional configuration having a first predetermined transverse dimension and a second transverse dimension greater than said first dimension, said shank and head portions joining each other at a circumferentially continuous junction, said shank portion having circumferentially continuous walls extending axially from said junction, said shank portion having an exterior transverse cross section having its maximum dimensions adjacent said junction and similar to and not substantially greater than corresponding dimensions of the aperture in the work structure for facilitating easy insertion of the



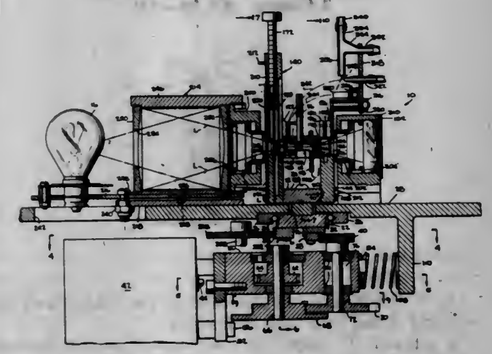
shank portion through the aperture, and substantially filling the aperture, and a rotatable expansion element pivotally locatable in said opening and having transverse dimensions generally corresponding to said internal transverse dimensions of said shank portion and having one of said transverse dimensions in one direction greater than said first predetermined transverse dimension of said opening and a second transverse dimension less than said first predetermined transverse dimension of said opening for enabling the expansion element to be rotated within said opening for expanding the shank portion behind a work structure during assembly of the device with the work structure, said expansion element being located substantially entirely within said shank portion and avoiding axially directed engagement with said head portion when said device is fully assembled with the work structure.

3,319,511
UNIVERSAL CARTRIDGE HOLDER
Paul D. McLean, 2670 Lakeshore Blvd. W., Toronto, Ontario, Canada
Filed Oct. 8, 1965, Ser. No. 494,195
5 Claims. (Cl. 86—44)



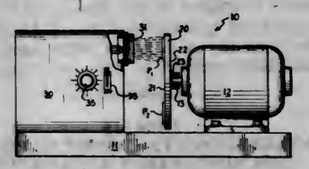
1. A holder for a cartridge case having a rim adapted to be mounted in a side opening ram recess in the top end of a ram, said ram recess having a downwardly facing ram surface, comprising a main member including a lower portion receivable in said ram recess and an upper portion having a side opening cartridge recess and circumferentially spaced substantially horizontal guide ways, adjustable cartridge hold down means including fingers mounted in said guide ways and cam means operatively interconnected with said fingers for enabling adjusting movement of said fingers for receiving cartridges of various diameters, lock means for operatively engaging said main member to downwardly clamp said fingers and cam means against the top end of the ram and upwardly clamp the lower portion of the main member against the downwardly facing surface of the ram for locked engagement of the holder on the ram and for simultaneously locking said fingers in a predetermined radial position.

3,319,512
COLORIMETER HAVING A PLURALITY OF FLOW CELLS THAT ARE SUCCESSIVELY MOVED TO A TEST STATION
Jack Isreeli, Tuckahoe, N.Y., assignor to Technicon Instruments Corporation, Chauncey, N.Y., a corporation of New York
Filed Oct. 31, 1962, Ser. No. 234,302
6 Claims. (Cl. 88—14)



1. Apparatus for the colorimetric analysis of fluids comprising: a plurality of flow cells, each for receiving a stream of fluid therethrough; holding means for holding each of said plurality of flow cells; a source of light and a light detector having a common light path therebetween; moving means intercoupling said holding means, said source of light and said light detector to intermittently relatively traverse said holding means and said common light path to serially insert each flow cell into said light path, and hold each such flow cell stationary within said common light path for a predetermined interval of time during which the colorimetric analysis of the fluid may be performed; light control means coupled to said moving means for limiting the amount of light passing along said light path into each flow cell, said control means being variably adjustable with respect to each flow cell.

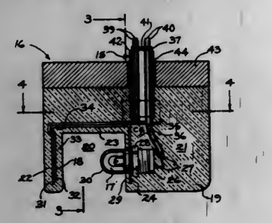
3,319,513
REGISTER VERIFICATION DEVICE
Graham L. Gulick, 1742 W. Henderson St., Chicago, Ill. 60657
Filed Apr. 30, 1962, Ser. No. 191,015
4 Claims. (Cl. 88—14)



1. In a device for checking the registry of a plurality of offset printing plates or the like, the combination comprising, a dynamically balanced member disposed for rotation about its axis, said member adapted to mount a plurality of plates symmetrically about the axis of rotation thereof, means for rotating said member about its

axis, means opposite said member for providing a flashing beam of light directed onto said member for illuminating a portion thereof such that said plates when mounted on said member pass through said beam when said member is rotated, and means for regulating the frequency of said flashing beam with respect to the speed of rotation of said member so that said plates visually appear in said beam of light to be superimposed one upon the other when said member is rotated, thereby permitting the registry of said plates, or the lack thereof, to be visually observed.

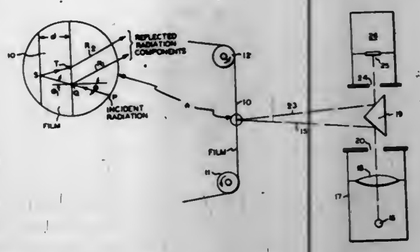
3,319,514
SUBMERSIBLE TURBIDITY DETECTOR UNIT
Decker G. McAllister, Jr., 435 Green St., San Francisco, Calif. 94133
Filed June 13, 1962, Ser. No. 202,125
2 Claims. (Cl. 88—14)



1. A turbidimeter for determining the sludge level in a liquid stored in a tank comprising:
a generally U-shaped internal support member having a pair of substantially parallel spaced apart arms;
a socket member attached to one of said arms and facing the other arm and a light bulb in said socket member;
transparent cover means for said light bulb and said socket to seal said bulb and socket from the liquid;
a photo-electric cell fixed to the other said arm and facing the bulb to intercept the direct rays of light from said bulb;
an integral encapsulating body member for retaining said socket member and said photo-electric cell in a fixed predetermined spaced apart position, said body member having a relatively thin uniform layer of clear plastic over said photo-electric cell and surrounding said socket, and an open space between said light bulb and said cell;
power means for supplying current to said light bulb;
graduated flexible tape means attached to said internal support member and embedded in said body member for supporting said members in suspension with the photo-electric cell and light bulb in a substantially horizontal plane;
lead wires fixed to said tape means extending from said power means to said light bulb and to said cell within said plastic body;
and means connected to said lead wires from said cell for indicating an electrical signal that is characteristic of the turbidity of a liquid within said open space of said body member.

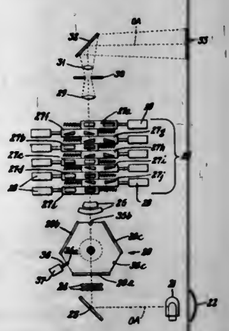
3,319,515
INTERFEROMETRIC OPTICAL PHASE DISCRIMINATION APPARATUS
Philip A. Flournoy, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Aug. 27, 1963, Ser. No. 304,849
7 Claims. (Cl. 88—14)

1. A method for determining a physical property of a specimen on the basis of interferometric optical phase discrimination comprising, in sequence, directing analytical radiation upon said specimen along a course such that there is developed an optical phase difference between radiation emanating from a first radiation-reflective surface of said specimen and from a second radiation-reflective surface of said specimen, cyclically varying at a predetermined time rate the length of the path of travel of said radiation emanating from a given one of the pair consisting of said first radiation-reflective surface of said specimen and said second radiation-reflective surface of said specimen, with respect to the length of the path of travel of the radiation emanating from the other of said pair over a span inclusive of a zero-order



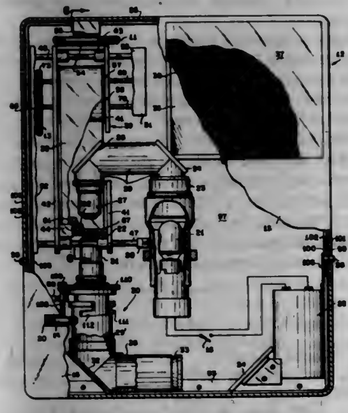
peak at which there exists constructive interference between said radiation emanating from said first radiation-reflective surface of said specimen and from said second radiation-reflective surface of said specimen, measuring the elapsed time existing between the scan traverse of said zero-order peak at which there exists said constructive interference and a preselected reference point synchronized in time with the cycle of said scan traverse, said preselected reference point being originally established in location by scanning said specimen through a span inclusive of a central zero-order peak, and determining said physical property of said specimen as a function of said elapsed time.

3,319,516
TAPE CODING DEVICE
Merritt J. Brown, Baldwin, N.Y., assignor to Eltra Corporation, a corporation of New York
Filed Apr. 1, 1964, Ser. No. 356,402
8 Claims. (Cl. 88—24)



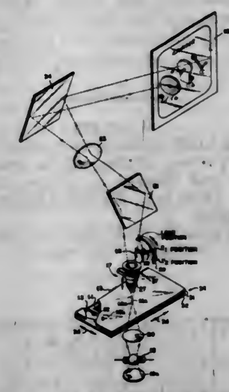
1. A Chinese ideograph coding mechanism wherein the code signals are based on an upper radical-lower radical classification system, said mechanism comprising a keyboard having keys representative of upper radicals, lower radicals and ideographs within an ideograph family defined by an upper radical and a lower radical, a first signal storage banks means for storing an upper radical signal in response to the actuation of a key representing an upper radical, a second signal bank means for storing a lower radical signal in response to the actuation of a key representing a lower radical, a third signal storage bank means for storing an ideograph signal in response to the actuation of a key representing an ideograph in the family defined by the upper radical and lower radical represented by the signals stored in said first and said second signal storage bank means, signal means, and means responsive to the storage of the ideograph signal for sequentially encoding on the signal means the signals stored in the first, second, and third signal storage bank means.

3,319,517
MICRO-IMAGE STORAGE AND RETRIEVAL APPARATUS
Ivan V. Rondas, Compton, and John L. Jones, Gardena, Calif., assignors to The National Cash Register Company, Dayton, Ohio, a corporation of Maryland
Filed Jan. 18, 1965, Ser. No. 426,049
9 Claims. (Cl. 88—24)



1. A micro-image storage and retrieval apparatus comprising: a film strip having micro-images printed in rows and columns thereon; means for producing a projection light beam; a screen placed in the path of said projection light beam for displaying an enlarged picture of one of said micro-images on said film strip; a film transport means for supporting said film strip in the path of said beam to cause said beam to pass through the film strip, said film transport means including: two spools on which the ends of said film strip are wound; a frame for supporting said spools in rotating relation therewith; means for moving said frame and film strip across said projection light beam to cause said projection light beam to move transversely across said film strip; two spline shafts on which said spools are respectively mounted and disposed to rotate with and to move axially along the respective shafts; means for mounting both of said spline shafts in rotating relation within said apparatus; gear means for coupling said two shafts together to cause one of the shafts to rotate in a direction to unwind said film strip therefrom at the same time the other shaft is rotated in a direction to wind the film strip thereon; and spring means disposed in at least one of said spools for maintaining a tension on said film strip.

3,319,518
SYSTEM FOR RETRIEVING MICROIMAGES FORMED ON SUPERPOSITIONED MICROFORMS AND THE LIKE
Carl O. Carlson, Los Angeles, Calif., assignor to The National Cash Register Company, Dayton, Ohio, a corporation of Maryland
Filed Feb. 17, 1965, Ser. No. 433,440
9 Claims. (Cl. 88—24)



1. An article of manufacture comprising: a first microform including a first high resolution film having a base and an emulsion coating on which a two dimensional array of microimages is formed, and a transparent protective layer of substantially uniform thickness disposed on both the upper and lower surfaces of said first film, a second microform including a second high resolution film having a base and an emulsion coating on which a two dimensional array of microimages is formed, and a transparent protective layer of substantially uniform thickness and disposed on both the upper and lower surfaces of said second film, means for disposing said microforms one on top of the other such that the microimages formed in one array are superposed above the correspondingly positioned microimages formed in the other array, the plane formed by the emulsion coating on one of said films being spaced a predetermined distance from the parallel plane formed by the emulsion coating on the other film in accordance with the reduction ratio of the microimages formed on the film, said latter means including means for detachably interconnecting said microforms to superpose corresponding microimages of respective arrays whereby any one of the microforms can be separated from the other and another microform be detachably connected thereto for interchangeably superposing microimages of respective microforms.

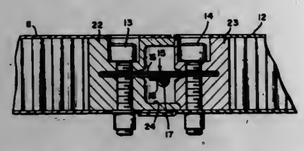
3,319,519
POLARIZED IMAGE-PROJECTION SYSTEM
Morris V. Shelanski, 431 Wister Road, Wynnewood, Pa. 19096
Original application Aug. 23, 1962, Ser. No. 219,026, now Patent No. 3,235,631, dated Feb. 15, 1966. Divided and this application Aug. 25, 1965, Ser. No. 482,537
1 Claim. (Cl. 88—24)



An image-projection system comprising a composite including a film consisting at least partially of polyvinyl alcohol and having a front surface covered with an

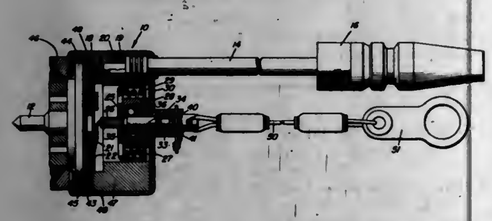
iodine-containing stain, said front surface being divided into a plurality of polarized areas, at least two of said areas having different planes of polarity, said front surface being fully exposed to view, said film having a rear surface that is in face-to-face parallel arrangement with a reflective surface, a source of light in spaced relation to said front surface, said front surface being exposed to the light rays from said source, a rotatable polarizing disc means for selectively varying the polarity of the light from said source, said disc means being positioned between said source and said front surface, and said reflective surface being constructed and arranged to direct the light toward an observer positioned in front of said front surface.

3,319,520
HIGH SPEED LOW SHOCK SEPARATION SYSTEM
Nicholas M. Stefano, Rolling Hills, Stanley H. Rush, Chatsworth, and Stanley L. Green, Gardena, Calif., assignors to TRW Inc., Redondo Beach, Calif., a corporation of Ohio
Filed June 23, 1965, Ser. No. 466,387
9 Claims. (Cl. 89—1)



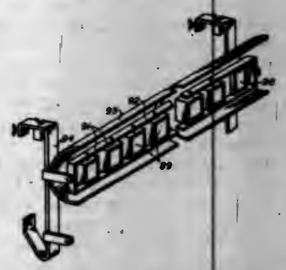
1. A separating mechanism capable of reducing a complex structure into a predetermined number of parts comprising
a first member and a second member joined together by a load bearing burnable material,
and a pyrotechnic contiguous fuse held in intimate contact with said load bearing burning material,
said pyrotechnic contiguous fuse adapted to generate a temperature greater than the combustion temperature of said burnable material.

3,319,521
ELECTROMAGNETIC RADIATION PROOF BOMB-ARMING DEVICE
Robert H. Semenoff, Takoma Park, Md., assignor to the United States of America as represented by the Secretary of the Navy
Filed Aug. 27, 1965, Ser. No. 483,379
1 Claim. (Cl. 89—1.5)



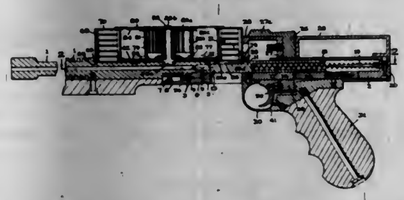
An electromagnetic radiation proof bomb-arming device comprising:
a fixed contact positioned within the fuze-charging assembly of a bomb,
a housing secured to the fuze-charging assembly,
a movable contact comprising a spring-loaded piston slideably mounted within said housing and having a stabber portion at one end thereof facing towards the fixed contact in the assembly and having an axial bore in the other end thereof,
a total shield foil positioned within said housing between said fixed and movable contacts for shielding the fixed contact and the fuze from electromagnetic radiation,
a plunger slideably positioned in said piston within said bore,
ball-lock means between said piston and said housing and releasably secured in the locked position by said plunger for preventing movement of said movable contact,
said ball lock means comprising an internal recessed groove within said axial bore of said piston containing a plurality of balls therein, said balls being constrained from radially inward movement by said plunger,
an annular conductive plate member within said housing between said total shield foil and said movable contact and spaced therefrom,
an electrical cable connected to said conductive plate member for providing current flow thereto from the aircraft,
releasable connection means between said cable and said aircraft,
a lanyard between said plunger and said aircraft,
and a shear pin linking said plunger to said housing to normally prevent withdrawal of the plunger therefrom and adapted to shear under a predetermined stress,
whereby when said bomb is released, the shear pin is sheared and the plunger is withdrawn from the housing to unlock the ball-lock between the piston and the housing, thus permitting the piston to be driven forward by the spring until it engages the conductive plate and the stabber thereon penetrates the total shield foil and contacts the fixed contact, thereby providing continuity between the aircraft power supply, the electrical cable, the conductive plate member, the movable contact and the fixed contact to enable charging of the fuze as the bomb continues to fall away from the aircraft.

3,319,522
LAUNCHING DEVICE
Bert B. Gould, Berkeley, and Arthur T. Biehl, Diablo, Calif., assignors to MB Associates, a corporation of California
Filed Feb. 16, 1965, Ser. No. 433,547
10 Claims. (Cl. 89—1.813)



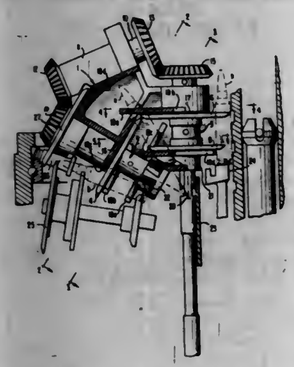
1. A unitary demountable support means including a launching module therefor comprising in combination, at least one module having front and rear surfaces and further having perforations extending entirely therethrough, a miniature rocket in each of said perforations said rockets including ignition means facing toward the rear of said module, pyrotechnic means on the rear surface of said module adapted to communicate with said ignition means, holding means for said module, said holding means being associated with a support type mounting means, a shroud-like deflector member adapted to encompass said support mounting means and to project the effluent from an ignited rocket in a forwardly direction, and demountable bracket means for mounting said module relative to a mobile body.

3,319,523
DRUM CARTRIDGE FEEDING MECHANISM
Richard J. Casull, Salt Lake City, Utah, assignor of one-half to Richard J. Casull and Geraldine Casull, Salt Lake City, Utah, as joint tenants in common, and one-half to K. R. Eskelsen and Fern P. Eskelsen, Sandy, Utah, as joint tenants in common
Filed Aug. 27, 1964, Ser. No. 392,540
10 Claims. (Cl. 89—33)



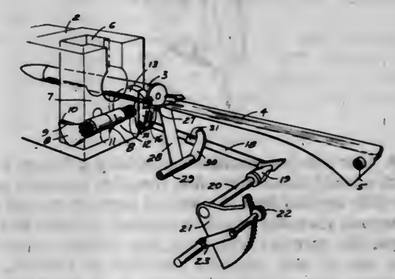
1. A machine gun comprising, a receiver, a barrel secured to the forward part of said receiver, a rotary horizontal cartridge magazine on top of said barrel, a chamber in the forward part of said receiver adjacent the rear of said barrel, said magazine including a bullet separator comprising a plurality of substantially horizontal spaced apart circular decks adapted to receive a layer of cartridges between each pair thereof, a base plate secured to the lowermost of said decks, said plate having an opening adjacent the free end of the lowermost of said decks and juxtaposed to said chamber, a circular drum housing provided at its lower portion with a central horizontal driving plate and adapted to fit over said bullet separator for rotary movement with respect thereto, vertically disposed means within said housing engaging the ends of the cartridges between said decks, and power means within said magazine engaging said driving plate to rotate said drum housing for advancing the cartridges through said separator and into said chamber through said opening.

3,319,524
TRANSFER MECHANISM FOR AMMUNITION
Douglas P. Tassie, St. George, Vt., assignor to General Electric Company, a corporation of New York
Filed Nov. 30, 1965, Ser. No. 510,526
7 Claims. (Cl. 89—33)



1. Means for transferring unlinked ammunition from feeder means to a rapid fire gun comprising:
(A) a housing;
(B) rotatable entrance sprocket means having teeth to engage rounds of ammunition available from the feeder means;
(C) first guide means within said housing engaging the rounds so as to move their nose ends radially outwardly from the longitudinal axis of said entrance sprocket means such that the rounds execute a smooth pivoting motion and are propelled through a quasi-arcuate path as said entrance sprocket rotates;
(D) exit sprocket means having teeth to receive and engage rounds of ammunition available from said entrance sprockets;
(E) second guide means within said housing engaging the rounds so as to move their base ends radially outwardly away from the longitudinal axis of the exit sprocket means such that the rounds execute a smooth pivoting motion and are brought individually and successively into position for hand off to the gun as said exit sprocket rotates; and
(F) torque transmitting means engaging said entrance and exit sprocket means such that said sprockets rotate in synchronism and in opposite directions.

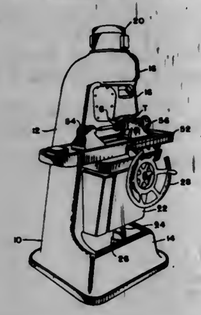
3,319,525
UNLOADING MECHANISM FOR AN AUTOMATIC GUN
Erik Wilhelm Jäfwert, Kariskoga, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden, a Swedish company
Filed July 30, 1965, Ser. No. 476,080
Claims priority, application Sweden, Aug. 14, 1964, 9,884/64
3 Claims. (Cl. 89—45)



1. An automatic gun having a recoiling barrel with a breech ring attached to the rear end of the barrel, a firing chamber in the rear end of the barrel and in the breech ring, a breech block movable in said breech ring between a closed position closing said firing chamber and an open position, a breech block operating mechanism for opening and closing said breech block in response to a recoil movement and recuperation movement respectively of said barrel and breech ring, a non-recoiling loading tray disposed rearward of said breech ring and with its forward end spaced from said breech ring when the barrel and the breech ring are in the fully run-out position by a distance exceeding the length of the recoil movement of the barrel and the breech ring, wherein the improvement comprises an unloading mechanism for unloading a live round from said firing chamber with the barrel and the breech ring in the fully run-out position and the barrel somewhat elevated, said unloading mechanism including manual control means for opening and closing the breech block; first coupling means operatively connecting said manual control means to said breech block operating mechanism when the barrel and the breech ring are in the fully run-out position, whereby the breech block can be opened by actuation of said manual control means when the barrel and the breech ring are in

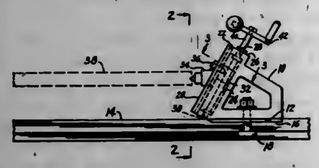
the fully run-out position; a guide member movable between an inactive position in which said guide member is located outside the path of movement of said breech ring during the recoil and recuperation movement, and an active position in which said guide member is interposed between said breech ring and the forward end of the loading tray so as to form a guide path for a live round sliding out of the firing chamber through said breech ring; second coupling means connecting the guide member to the manual control means for moving said guide member from the inactive position to the active position upon actuation of said manual control means for opening said breech block and for returning said guide member to the inactive position upon actuation of said manual control means for closing said breech block.

3,319,526
GEAR SHAVING MACHINE
David W. Daniel, Birmingham, and Arthur B. Bassoff, Oak Park, Mich., assignors to National Broach & Machine Company, Detroit, Mich., a corporation of Michigan
Filed Oct. 14, 1965, Ser. No. 495,814
14 Claims. (Cl. 90—1.6)



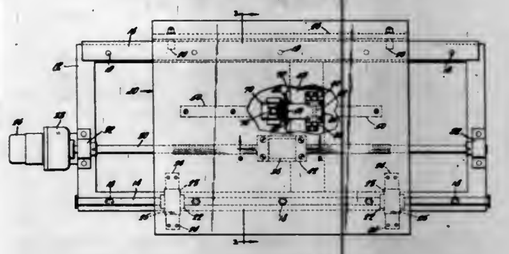
1. A gear shaving machine comprising a frame, a first support on said frame for a first rotatable gear-like member, a slide on said frame, a second support on said slide for a second rotatable gear-like member in mesh with the first gear-like member with their axes crossed, means for driving one of said gear-like members in rotation, and feed means for moving said slide in a direction perpendicular to the axes of both gear-like members, said feed means comprising a link connecting said frame and slide and movable into substantial alignment with the direction of movement of said slide as said gear-like members move into the position of minimum spacing between the axes thereof.

3,319,527
VERTICAL TAIL STOCK SUPPORT
George E. Pipes, 1968 S. Tuxedo St., Stockton, Calif. 95204
Filed Aug. 3, 1966, Ser. No. 570,081
10 Claims. (Cl. 90—23)



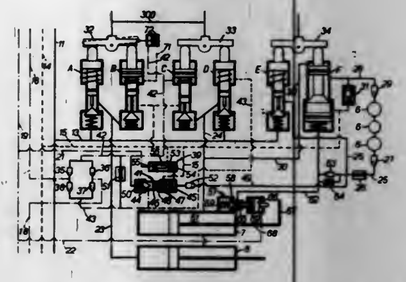
1. A vertical tail stock support comprising; a support block including integrally formed therein, a base surface for resting engagement with a mill bed, a front surface forming an acute angle with respect to the base surface forming therein a key groove along the length of the surface; a key slidably held in the key groove, a center point secured to the key for engagement with stock material, and means for adjustably moving the key along the key groove.

3,319,528
PRECISE POSITIONING DEVICE
Harris Lee Cooperman, 215 W. Willow Grove Ave., Philadelphia, Pa. 19118
Filed Oct. 4, 1965, Ser. No. 492,759
9 Claims. (Cl. 90—58)



1. A precise positioning device comprising a frame, an element movably mounted on said frame for selective translational positioning with respect thereto, a coarse positioning means for establishing an approximate position of said element, and a fine positioning means for establishing an exact position of said element, said fine positioning means comprising interengageable toothed members mounted in juxtaposed relation on said frame and said element, a first one of said toothed members being fixedly mounted on said frame or said element, means restricting linear movement of the second one of said toothed members to a plane perpendicular to the line of movement of said element and means for selectively engaging said toothed members to establish a precise position of said element with respect to said frame.

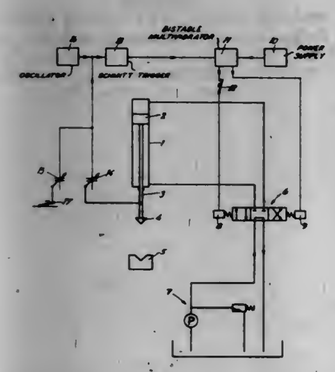
3,319,529
ADVANCEABLE ROOF SUPPORT ASSEMBLIES
Douglas Herbert Hewlett Bolton, Winchcombe, Frank Pawling, Cheltenham, and Michael Charles Potts, Prestbury, England, assignors to Dowty Mining Equipment Limited, Ashchurch, England, a British company
Filed Sept. 3, 1964, Ser. No. 394,359
Claims priority, application Great Britain, Sept. 6, 1963, 35,330/63
1 Claim. (Cl. 91—189)



An advanceable roof support assembly including a series of advanceable fluid-pressure-operated roof supports, each roof support including a first valve assembly

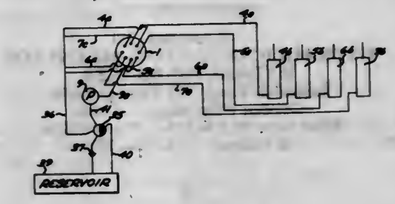
operable to cause the roof support to undergo an advancing operation, an advance-start line connected to the first valve assembly to initiate operation of the first valve assembly upon pressurization of the advance-start line, and a second valve assembly connected to the advance-start line of that roof support, and a signal line connected from the second valve assembly of each roof support to the second valve assembly of the next roof support, each second valve assembly including a series of non-return valves and a control valve arranged to allow, for each roof support, pressurization of the signal line connected to the preceding roof support or pressurization of the signal line connected to the next roof support to cause pressurization of the advance-start line of that roof support with consequent initiation of operation of the first valve assembly of the roof support, and also arranged to prevent pressurization of the signal line not previously pressurized until the control valve is operated to cause pressurization of the signal line not previously pressurized, each roof support also including locking means which operates to hold the control valve, when operated, in the operated condition, said locking means being independent of loss in pressure in the signal line.

3,319,530
CONTROL DEVICE FOR DOUBLE-ACTING FLUID PRESSURE CYLINDERS
Sten Olof Evald Sjöberg, Sundbyberg, Sweden, assignor to Industriaktiebolaget Skomab, Nasby Park, Sweden
Filed May 11, 1965, Ser. No. 454,940
Claims priority, application Sweden, May 14, 1964, 5,899/64
5 Claims. (Cl. 91—275)



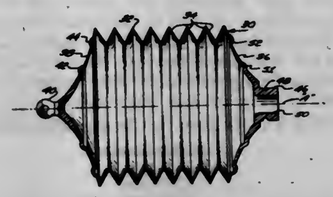
1. A control device for imparting a reciprocating motion about an adjustable centre to a piston and piston rod in a double-acting fluid pressure cylinder controlled through a valve operated by two solenoids, comprising a changeover switch arranged to pass operating current from a power supply to either one of the solenoids according to its momentary state and to be switched over by a bistable level-sensing device of the kind wherein a continuously variable input voltage corresponds to either one of two constant output voltage levels and wherein, with an increasing input voltage, transition from one level to the other occurs for an input voltage higher than the input voltage for which transition from said other level to said one level occurs with a decreasing input voltage, the input voltage being controlled by the resulting impedance of two independently variable impedances, of which impedances one is positively varied from a maximum to a minimum value as the piston and piston rod move from a first dead centre to a second, and vice versa, while the other is manually adjustable at will.

3,319,531
INTEGRATING VALVE
Lawrence M. Sanders, Renton, Wash. (121 E. 10th St., Dallas, Tex. 75203)
Filed Aug. 2, 1965, Ser. No. 476,576
6 Claims. (Cl. 91—413)



1. In a device for applying pressure to a plurality of utilization means in sequence;
(a) a pressure source;
(b) a head;
(c) a pressure chamber defined within said head by an end thereof and an intermediate distribution plate;
(d) a pressure conduit leading from said pressure source to said head and communicating with said pressure chamber therewithin;
(e) a shaft rotatably journaled within said pressure chamber and arranged to be driven by motor means disposed externally thereof;
(f) a pressure distributing plate mounted on said shaft and having a delivery port formed therethrough;
(g) a plurality of delivery ports formed through the end of said chamber;
(h) a plurality of arcuate slots formed through said intermediate distribution plate and communicating with said delivery ports and intermittently with said delivery port formed through said pressure distributing plate; and
(i) means for maintaining substantially uniform pressure during delivery through said arcuately slotted portion of said pressure distributing plate and during the intervals between delivery through successive ones of said arcuate slots.

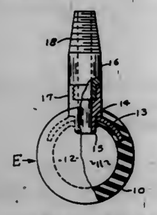
3,319,532
BELLOWS ACTUATOR
Donald C. Pridham, Jr., Orange, Calif., assignor to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware
Filed Aug. 12, 1963, Ser. No. 301,546
9 Claims. (Cl. 92—34)



1. A collapsible bellows customarily subjected to a vacuum for its operation comprising:
a hollow body portion having opposed ends and including a side wall means having an accordion type convolution means for allowing compression of the bellows when the interior thereof is subjected to a vacuum, and

end portions integral with said ends of said body portion with at least one of said end portions having the shape of a cone and including a circular rib formed therein for preventing radial collapse of that end portion when the interior of said bellows is subjected to said vacuum.

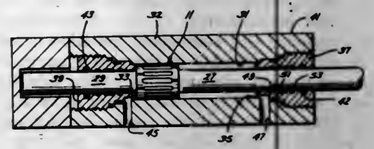
3,319,533
HYDRAULIC OPERATING MEANS FOR HYDRAULIC BRAKES
James O. Ford, 712 Pennsylvania, Garden City, Kans. 67846
Filed Sept. 2, 1965, Ser. No. 484,666
2 Claims. (Cl. 92—75)



1. A device for operating brake shoes; said device having and comprising in combination a cylinder, said cylinder having means thereon for rigidly attaching the cylinder in a fixed position to a supporting element therefor, said cylinder having both ends thereof open, the wall of said cylinder having a passage therethrough intermediate the ends of the cylinder, an expansible container having a cylindrical side wall and end walls, said container having a hollow fluid passage element sealed thereto and communicating with the interior of the container for the passage of fluid under pressure into and out of the said container, the inner end of said passage element having a plate means rigidly carried thereon, with said plate means being enclosed within the cylindrical side wall of said container, said plate means conforming to the shape of said cylindrical side wall, said container being positioned within the central portion of the cylinder and havng the side wall portion of the container bearing against the inner surface of the wall of the cylinder and having the hollow passage element passing through the said passage in the wall of the cylinder and co-operating means carried by both the cylinder and the hollow passage means to prevent rotary movement of the said hollow passage element in the said passage means through the wall of the cylinder, a pair of cap elements, one for and being longitudinal slidably positioned one on each end of the cylinder, a pair of threaded studs, said studs being threaded one through and on the center axis of each of said caps, a pair of cups, one for and being slidably positioned in each end of the cylinder and bearing against its adjacent and respective end portion of the said expansible container, one end of each stud being positioned in and bearing against its adjacent and respective cup for outward movement thereby, the end walls of said container expanding outwardly when under pressure, the other end of each of said studs having means thereon for engaging a brake shoe for the operation thereof.

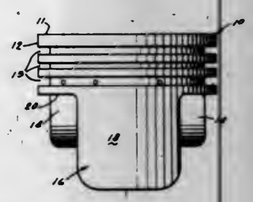
3,319,534
PISTON
Julius C. Boonshaft, Huntingdon Valley, Pa., assignor to Weston Instruments, Inc., Murray Hill, N.J., a corporation of Texas
Filed Jan. 29, 1965, Ser. No. 428,914
2 Claims. (Cl. 92—162)

1. In a piston and cylinder apparatus, the combination of means for providing radial support of said piston when said piston is operating within said cylinder, which means comprises: valve means at each end of said cylinder providing fluid intake and discharge means for said cylinder; said piston having two end faces and a working surface on said piston sized for close fitting reception within the inner wall of said cylinder, said piston having at least one of said end faces connected to a piston rod; said working surface comprising a smooth outer peripheral wall of said piston having extending from said surface only a plurality of first and second diametrically arranged parallel recesses, said first recesses being equi-



distantly spaced radially about said piston, said first recesses further being longitudinally elongated and spaced on the working surface of said piston so that said recesses are formed in the outer wall of said piston extending a major portion of the length of said piston intermediate said end faces of said piston; said plurality of second recesses arranged to connect alternate ones of said first recesses with opposite ends of said piston, said second recesses having smaller cross-sectional areas than said first recesses.

3,319,535
PISTON WITH UNDULATED SKIRT
Wallace Philip Holcombe, Birmingham, Mich., assignor to TRW Inc., Cleveland, Ohio, a corporation of Ohio
Filed Aug. 19, 1965, Ser. No. 480,845
8 Claims. (Cl. 92—208)

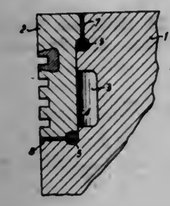


5. In an engine piston, the improvement of an undulating skirt having opposed cylinder wall engaging portions and flat side walls radially inward from the cylinder wall engaging portions and connected thereto through outwardly bulged portions.

3,319,536
PISTON FOR INTERNAL COMBUSTION ENGINES
Eberhard Kohl, Stuttgart, and Rudolf Maier, Stuttgart-Wellimdorf, Germany, assignors to MAHLE Komm.-Ges., Stuttgart-Bad Cannstatt, Germany
Filed Feb. 23, 1966, Ser. No. 529,342
Claims priority, application Germany, Mar. 13, 1965, M 64,525
5 Claims. (Cl. 92—231)

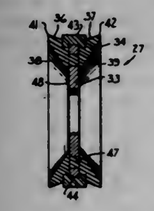
1. In an internal combustion engine piston having a piston head with a member inserted therein to form with said piston head a hollow chamber in said piston, and a charged particle beam weld in the seams between said

head and said member, the improvement comprising ring means associated with said member and said chamber and



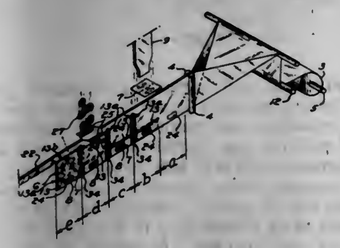
through which at least one seam extends for spacing said seam from said chamber.

3,319,537
PISTON FOR PNEUMATIC CYLINDERS
Glen R. Pittman, San Leandro, Calif., assignor to Flair-Line, San Leandro, Calif., a corporation of California
Filed Nov. 8, 1965, Ser. No. 506,735
5 Claims. (Cl. 92—242)



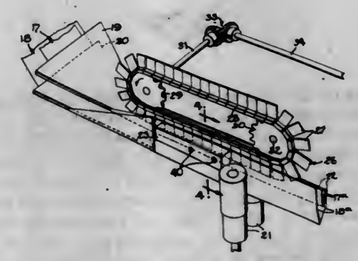
1. A pneumatic piston comprising a rigid washer, a cylindrical rubber body bonded concentrically to said washer, said body having peripheral portions inwardly tapered from its opposite ends and having inwardly dished ends to peripherally define seal lips at the opposite ends of the body, and a slip ring of rigid low friction plastic material concentrically rigidly secured about said washer intermediate sad lips.

3,319,538
BAG MAKING MACHINE
William A. Bodolay, 54 Shady Brook Lane, and Stephen M. Bodolay, 15 Daviston St., both of Springfield, Mass. 01108
Filed Feb. 1, 1965, Ser. No. 429,357
10 Claims. (Cl. 93—8)



1. In a bag making, filling and closing machine wherein a bag is formed from a web material that is folded at its lower portion and sealed along its sides and top portion, an attachment having a folder, means for supplying header labels, means for positioning one of said header labels in the path of said folder, means for causing said folder to force said header label downwardly as it folds said header label into the mouth and the bottom of a partially formed bag prior to the sealing operation and means for horizontally sealing the header label between the web fold, said seal being on the opposite side of the header label from the web fold, whereby said header is movably located between said fold and said horizontal seal.

3,319,539
MACHINE FOR MAKING DOUBLE-WALL PACKAGES
Kenneth R. Johnson and Carl J. Beert, Rockford, Ill., assignors to Bartelt Engineering Company, Inc., Rockford, Ill., a corporation of Delaware
Filed Jan. 25, 1965, Ser. No. 427,709
7 Claims. (Cl. 93—20)

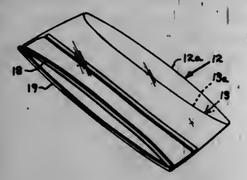


1. In a package making machine having operating stations spaced along a horizontal path, the combination of, a device for folding an elongated web of thermoplastic liner material within a web of cover material to form two strips of liner material disposed on opposite sides of a vertical plane and between two strips of cover material with the free edges at the tops of the strips, mechanism for drawing the webs through said device and advancing the folded webs endwise along said path, a pair of sprocket wheels supported on said machine above said path and spaced apart longitudinally of the path on opposite sides of one of said stations, an endless chain trained around said wheels and having a straight run adjacent said free edges, a plurality of edge-to-edge backing plates mounted on said chain in said plane and projecting downwardly from said run between said liner strips to form a substantially continuous backing separating the upper portions of said liner strips, mechanism for rotating said sprocket wheels to move said backing along said path with said strips through said one station, and a pair of opposed sealing bars supported on said machine at said one station and having opposed heated sealing faces positioned on opposite sides of said path for sliding engagement with the upper portions of said cover strips level with portions of said plates and pressing the strips together and against said plates thereby to heat said liner strips through said cover strips and seal each liner strip to the adjacent cover strip.

3,319,540
METHOD OF FORMING BAG OF HEAT-SEALABLE MATERIAL AND BAG FORMED THEREBY
Edward J. Stengle, Jr., Toledo, Ohio, assignor to Owens-Illinois, Inc., a corporation of Ohio
Filed Nov. 5, 1964, Ser. No. 409,227
7 Claims. (Cl. 93—35)

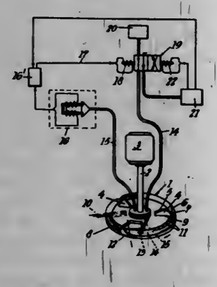
1. In the method of forming a bag of heat sealable material, the steps of: providing a pair of plies of heat sealable material that are joined to one another along three

edges two of which are parallel to one another and the third of which extends normally to the other two between loci adjacent the extremities thereof; advancing the third joined edge of each of the plies partially to the unjoined edges of the plies interiorly of the plies to form an item that is shaped like a W in transverse section; heat sealing each of the sides of each of the U-shaped portions of the W-shaped item to the other side of the same U in a linear pattern extending thereacross, parallel to the unjoined edges of the sheets and adjacent the apex of the U; spreading each of the U's of the W-shaped item toward the un-



joined edges of the plies to form a surface comprising the interior side of each of the U-shaped portions and a pair of triangular flaps each of which extends inwardly from one of the opposing edges of the plies normal to the unjoined edges thereof, the base portions of each of the triangular flaps being disposed toward one another and being generally parallel to one another; and permanently securing the triangular flaps to the underlying portions of the surface by heat sealing in a linear pattern along the two sides of each triangle extending from an edge of the opposing edges of the plies normal to the unjoined edges.

3,319,541
COUNTING MACHINE
Alexander Lvovich Bereslavsky, Alexander Alexandrovich Naglbin, Konstantin Alexandrovich Chichoogov, Victor Petrovich Gryzhin, and Alexey Pavlovich Koorenkov, Moscow, U.S.S.R., assignors to Vsesoluzny Nauchno-Issledovatel'Sky Institute Goznaka, Moscow, U.S.S.R.
Filed Aug. 21, 1964, Ser. No. 391,255
13 Claims. (Cl. 93—93)



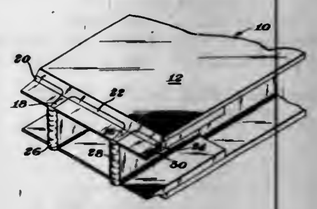
1. A sheet counting machine comprising sheet support means for a packet or bundle of sheets, a rotary driven disc provided with at least one radial slot, said disc being adapted to engage uncounted sheets at a corner of each sheet in sequence, a means to provide suction, recessed suction means upon a first side of the disc and terminating at the leading edge of the radial slot and adapted to displace each sheet corner toward said disc, a projection on the trailing edge of the slot in substantial circumferential alignment with said recessed suction means, and a peripheral ridge in the proximity of said recessed suction means, said ridge extending from the leading edge of the slot while decreasing in height.

3,319,542
CONTROLLED DIVERGENCY REFLECTOR
Bjorn Bergsmov-Hansen, Palo Alto, Calif., assignor, by mesne assignments, to Chandler Ide, San Francisco, Calif.
Filed Dec. 26, 1962, Ser. No. 247,009
10 Claims. (Cl. 94—1.5)



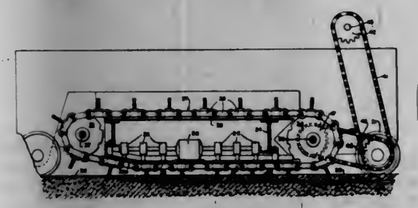
1. A highway delineating marker comprising:
a light-refracting body having a light-entering surface forming a convex arc in a vertical plane,
a mirror formed on said body and forming a concave arc in said vertical plane, said mirror being so positioned relative to said light-entering surface that light in said vertical plane which enters said body through said light-entering surface is refracted toward said mirror, said mirror having a center of curvature substantially in the middle of said light-entering surface so that the image of the light-entering surface reflected by said mirror is coincident with said light-entering surface,
the radius of curvature of said mirror being sufficiently less than the focal length with respect to said light-entering surface that parallel light rays entering said body through said light-entering surface will be reflected by said mirror to and focused at a predetermined point between said mirror and light-entering surface and will emerge from said light-entering surface in the shape of a diverging bundle of rays whose axis is parallel to the light entering said body and whose angle of divergence is predetermined.

3,319,543
STRUCTURAL UNIT
Karl F. Braeuninger, Ferguson, Mo., and Gordon K. Glaza, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
Filed May 5, 1965, Ser. No. 453,280
9 Claims. (Cl. 94—13)



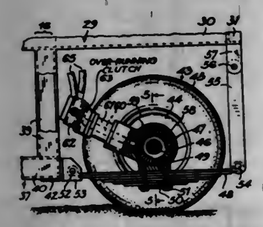
1. A structural unit comprising elongated plate-like top and bottom members joined by spaced apart longitudinally extending web members which run from end-to-end of said top and bottom members, said top and bottom members and said web members defining a plurality of channels when viewed in transverse cross-section, a plurality of tubular elements, each of said tubular elements being dimensioned to fit closely but slidably into one of said channels, the length of said tubular elements being a minor fraction of the length of said unit, said tubular elements being disposed within said channels with an end of each of said channels being coextensive with the end of one of said web members, said end of said channels and said end of said web members being welded together, the end parts of said top and bottom members and said tubular elements being beveled whereby the top of said tubular elements and the top and bottom parts of said web members are exposed, and an elongated end coupling element being received on said beveled surfaces, said coupling element being welded to said top and bottom members, the top and bottom parts of said tubular elements, and the top and bottom parts of said web members.

3,319,544
CONTINUOUS WIRE MESH INSTALLER AND PROCESS FOR INSTALLING WIRE MESH IN PLASTIC CONCRETE
Carl J. Heltzel, 523 Country Club Drive NE., Warren, Ohio 44484
Filed June 4, 1965, Ser. No. 461,358
13 Claims. (Cl. 94—39)



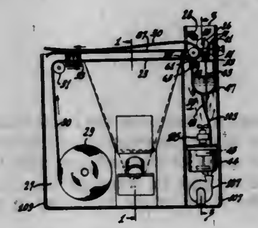
1. A machine for installing reinforcing material in plastic concrete slabs comprising
(a) reinforcing engaging means,
(b) thrust means on the machine for moving the reinforcing engaging means in a direction to push the reinforcing material into the concrete slabs, means for moving the machine forwardly over the plastic slabs, and
(c) retrograde means on the machine for moving the reinforcing engaging means rearwardly relatively to the machine at substantially the same rate of speed at which the machine is moving forward so that during installing thrust movement the reinforcing engaging means will not partake of the forward motion of the machine.

3,319,545
VEHICLE HAVING DUAL-WHEEL TRACTION UNITS
Harry J. Seaman, Milwaukee, Wis.; Ann Seaman and American City Bank & Trust Company, executors of Harry J. Seaman, deceased, assignors to Seaman Corporation, a corporation of Wisconsin
Original application Apr. 22, 1963, Ser. No. 274,621, now Patent No. 3,224,347, dated Dec. 21, 1965. Divided and this application Oct. 18, 1965, Ser. No. 497,318
7 Claims. (Cl. 94—50)



1. In an earth working machine, a vehicle including pneumatic-tired supporting wheels forming a compacting roll, said wheels being arranged in a plurality of axially aligned pairs, a gear housing between at least one pair of said wheels with an axle shaft secured to said wheels, resilient torque resisting means between said gear housing and vehicle maintaining said gear housing in proper attitude relative to said vehicle, said gear housing including an extension between said adjacent wheels, a drive shaft in said extension having a gearing connection with said axle shaft, and a hydraulic motor coupled to said drive shaft.

3,319,546
ELECTROSTATIC PRINTING APPARATUS
Knut J. Magnusson, Princeton, N.J., assignor to Radio Corporation of America, a corporation of Delaware
Filed May 18, 1962, Ser. No. 195,864
5 Claims. (Cl. 95—1.7)



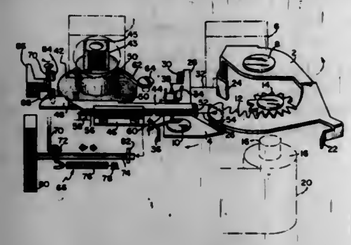
1. Electrophotographic recording apparatus of the type wherein heat tends to develop beyond a desired temperature during use, said apparatus comprising:
(a) web feeding means for an insulating photoconductive recording web medium;
at a first fixed station for said web:
(b) means for providing a uniform electrostatic charge to the surface of said insulating photoconductive recording medium;
(c) means for projecting an electromagnetic image upon said charged medium to establish a corresponding electrostatic image thereon; and
(d) means for circulating a cooling fluid around opposite sides of said medium for cooling said medium below about 45° C. to improve the electrostatic charge retention characteristics of said medium;
(e) a source of liquid developer;
(f) means for cooling said developer below about 50° C.;
(g) developer roller means at a second station for applying said developer to said electrostatic image to provide a visible recorded image;
(h) heating means located adjacent to said developer roller means for fixing said developed image; and
(i) air circulating means for cooling said developer roller means and for circulating air through said heating means to said recording web.

3,319,547
PHOTOGRAPHIC APPARATUS
George W. Parsons, Hughesville, and Ronald G. Petts, Williamsport, Pa., assignors, by mesne assignments, to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed May 13, 1964, Ser. No. 367,125
17 Claims. (Cl. 95—11)

1. A flash attachment for use with a resettable mechanism in a camera operable to make an exposure, comprising in combination:
means for detachably mounting and retaining a unitary flashlamp package having a plurality of flashlamps with an individual reflector for each flashlamp,

indexing means operable to move the mounted flashlamp package and sequentially advance the package flashlamps to a predetermined operative position,

means interconnecting the indexing means to the camera mechanism to operate the indexing means in response to resetting of the camera mechanism, and



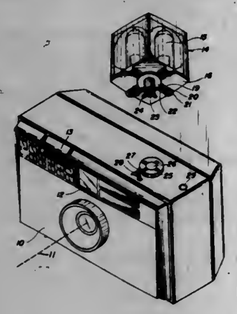
lockout means to disengage the interconnecting means to prevent further movement of the mounted flashlamp package after each advancement to the operative position, and to reengage the interconnecting means after firing of the flashlamp in the operative position.

3,319,548

MULTILAMP FLASH PHOTOGRAPHY

Franklin D. Kottler, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Filed Dec. 14, 1964, Ser. No. 417,915
12 Claims. (Cl. 95—11)



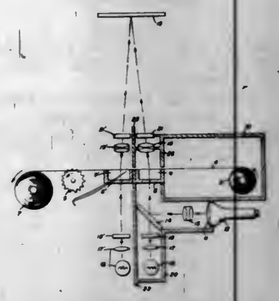
1. A photographic camera having a picture-taking axis comprising: a camera body, socket means on the camera body for receiving a multilamp photoflash unit, the socket means defining an access opening for insertion of a portion of the unit in the camera body with the unit in a preselected one of a plurality of flash positions with a corresponding one photoflash lamp of a plurality of lamps facing the direction of the picture-taking axis, spring retaining means engageable with the portion of the unit for releasably retaining the unit in the socket means, circuit terminal means disposed at the socket means for electrical contact with the corresponding photoflash lamp, circuit means for firing the corresponding photoflash lamp in timed relationship with camera operation, means responsive to insertion of the unit for adjusting the camera for flash operation, and ejector means for releasing the unit from the spring retaining means.

3,319,549

PHOTOGRAPHIC APPARATUS FOR RECORDING, PROCESSING, AND PROJECTING DATA WITH FAST ACCESS TIME

Frank H. Jackson, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Filed Apr. 13, 1964, Ser. No. 359,183
4 Claims. (Cl. 95—12)



1. Photographic apparatus for rapidly recording light data on a photosensitive material, and for illuminating and projecting the recorded data onto a viewing screen, comprising:

means for positioning an area of a photosensitive material at an exposing station;

exposing means including a light deflecting means for directing light data on said area of photosensitive material at said station to expose said area, forming a latent image of said data thereon;

means at said station operating simultaneously with said exposing means for treating said area of photographic material at said station, while said area is being exposed, to process said latent image, as it is being formed, to a visible image; and

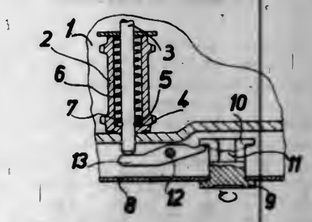
means at said station for directing light through said light deflecting means and operating to illuminate said visible image and project an image thereof onto a viewing screen at the same time that said latent image from which it is derived is being formed and processed simultaneously with said exposing and treating means.

3,319,550

PHOTOGRAPHIC CAMERAS HAVING A DEVICE FOR LOCKING ITS FILM LOADING APERTURE AND A DEVICE FOR DISENGAGING THE FILM

Werner Broche, Jena, Germany, assignor to VEB Carl Zeiss Jena, Jena, Germany

Filed Aug. 21, 1964, Ser. No. 391,340
4 Claims. (Cl. 95—31)



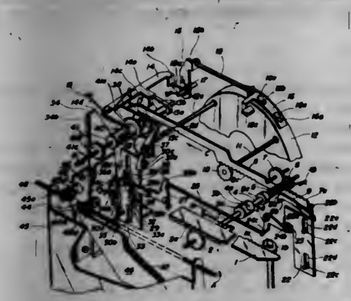
1. A photographic camera comprising a lid for inserting and removing perforated films, a film feed sprocket, a mechanism for locking said lid and an axially resilient means for disengaging said sprocket, said means being operable together with said mechanism, said mechanism being capable of assuming two end positions, the one of said end portions being the open position and the other of said positions being the closed position, said mechanism being capable of assuming also a third position between said two end positions, said third position being for disengagement of said sprocket, each of said three positions being secured by a click stop and characterized by a symbol.

3,319,551

SINGLE LENS REFLEX CAMERA

Helmut Ettischer, Ruit, Kreis Esslingen, and Kurt Stelzlinger, Stuttgart-Hedelfingen, Germany, assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Filed Sept. 15, 1964, Ser. No. 396,503
3 Claims. (Cl. 95—42)



1. In a single lens reflex camera, the combination comprising:

a set-type shutter mechanism including shutter blades which are initially movable from a maximum aperture position to a closed position and then opened and closed to make an exposure, and including diaphragm blades which are movable from a maximum aperture position to a selected aperture position for exposure;

a mirror and a light blocking flap pivotally movable between a blocking position in which they respectively reflect and block light rays entering said camera, and a normal unblocking position in which they are removed from the path of said light rays;

film advancing means;

means connecting said film advancing means to said shutter mechanism and including a first power means movable to a tensioned position upon movement of said film advancing means to advance the film, and during said movement cocking said shutter and moving said shutter blades to their closed position;

means for releasably latching said connecting means against the bias of said first power means in its tensioned position;

means for moving said mirror and cover flap between their blocking and unblocking positions;

means releasably coupling said connecting means to said moving means;

release means for said first power means and said shutter;

a second power means responsive to movement of said release means for movement from a normal position to a tensioned position;

means for releasably holding said second power means in its tensioned position;

means interconnecting said second power means and said mirror and cover flap moving means so that movement of said second power means to its normal position causes said moving means to move said mirror and cover flap to their unblocking position; and

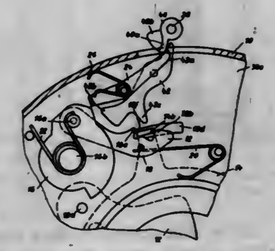
means interposed between said coupling means and said shutter mechanism, and responsive to said shutter mechanism at the conclusion of an exposure to (1) uncouple said coupling means and (2) release said holding means.

3,319,552

PHOTOGRAPHIC SHUTTER FOR SINGLE LENS REFLEX CAMERAS

Karl Härtl, Munich, Germany, assignor to Compur-Werk Gesellschaft mit beschrankter Haftung & Co., Munich, Germany, a firm of Germany

Filed Mar. 1, 1965, Ser. No. 436,244
Claims priority, application Germany, Mar. 6, 1964, C 11,515
2 Claims. (Cl. 95—42)



1. In a single lens reflex camera having a reflector actuating means, a shutter housing, an opening member pivotally mounted in said shutter housing, said opening member having a pair of arms, one of said arms extending out of the housing, a shaft disposed parallel to the shutter axis and outside said shutter housing, said shaft being coupled to the reflector actuating means, a first cam mounted on said shaft and engageable with said one arm, a shutter trip lever pivotally mounted in the housing and having an end portion projecting out of the shutter housing, a second cam mounted on said shaft, said second cam adapted to cooperate with the projecting end portion of the shutter trip lever, shutter blades pivotally mounted in said housing, a blade driving means movable in said housing for the purpose of opening and closing said blades, the other arm of said opening member disposed in the housing and cooperating with the blade driving means for the purpose of disengaging said blade driving means and for moving the blades into open position for interim inspection upon rotation of said shaft and first cam.

3,319,553

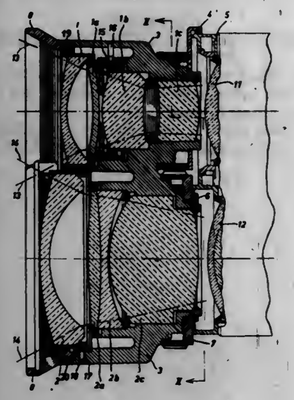
FRONT LENS ATTACHMENT FOR CHANGING THE FOCAL LENGTH IN TWO-LENS MIRROR REFLEX CAMERAS

Heinz Vogel, Schnaitheim, Heidenheim, Germany, assignor to Carl Zeiss-Stiftung, doing business as Carl Zeiss, Wurttemberg, Germany, a foundation established in Germany

Filed Sept. 23, 1963, Ser. No. 310,801
Claims priority, application Germany, Sept. 26, 1962, Z 8,086
5 Claims. (Cl. 95—44)

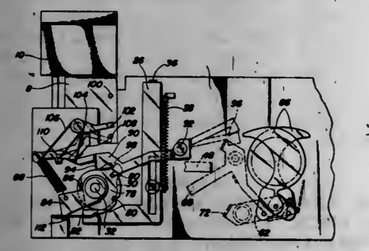
1. A detachable device containing optical systems for changing the focal lengths of the objective lens and the viewfinder lens mounted in the front wall of a two-lens mirror reflex camera, said device comprising a single mount, two optical systems mounted therein about two parallel optical axes spaced from each other a distance which is about 60% of the focal length of said objective lens, and means for detachably attaching said mount to the body of said camera in front of the two lenses of the

same, said means comprising a collar-like rib on the upper portion of said front wall from which said mount is suspended, and a locking ring on said mount for connecting the lower portion of said mount to said front wall, whereby simultaneously the focal length of both said lenses is



changed, each one of said optical systems comprising a plurality of axially aligned lenses, the front lens of the optical system to be positioned in front of the objective lens of the camera having a diameter which is greater than 110% of the distance between the two optical axes of said objective lens and said finder lens, respectively.

3,319,554
SHUTTER EXPOSURE SETTING MECHANISM FOR A CAMERA
Richard J. Bresson, Rochester, and Robert G. Elton, Spencerport, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed Mar. 25, 1965, Ser. No. 442,609
6 Claims. (Cl. 95—53)



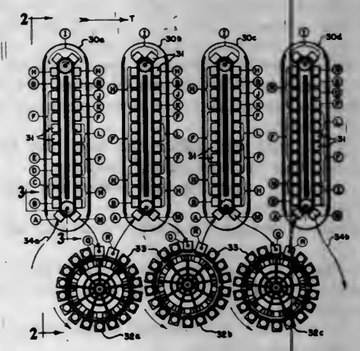
1. In a shutter exposure setting mechanism for a camera, the combination comprising:
shutter means for making an exposure when released and including members movable between closed and open positions;
means for releasing said shutter means to make an exposure;
means for arresting said shutter means with said members in said open position after said shutter has been released by said releasing means;
shutter speed setting means for said shutter means and movable from an initial position, in which said arresting means is ineffective, to a bulb position, in which said arresting means is effective; and
means responsive to said releasing means when said shutter speed setting means is in its bulb position for returning said shutter speed setting means to its initial position when said shutter means is released to make an exposure.

3,319,555
PHOTOGRAPHIC APPARATUS FOR HOLDING SENSITIZED SHEETS
Lewis F. Jennings, McHenry, and Walter Wanielista, Westchester, Ill., assignors to Robertson Photo-Mechanix, Inc., Des Plaines, Ill., a corporation of Illinois
Filed Feb. 5, 1965, Ser. No. 430,694
5 Claims. (Cl. 95—66)



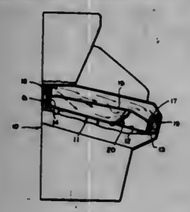
1. In a transport holder for light sensitive sheets,
a frame assembly,
a transparent plate mounted in said frame,
a pressure plate mounted in said frame for movement in parallel spaced relation to said transparent plate,
a slide plate slidably mounted in the frame adjacent said pressure plate for controlling the movement of the pressure plate,
a leaf spring normally biasing said pressure plate toward said transparent plate and having two similar end portions and an angular portion therebetween, one of said end portions rigidly attached to said slide plate and the other end portion engaging said pressure plate, a clip rigidly attached to said pressure plate on the side facing said slide plate, one end of said clip overlying said other end portion of said leaf spring, and
stationary cam means mounted on said frame for reacting on said angular portion of said leaf spring to cam said pressure plate and said transparent plate into a parallel spaced relation as said slide plate is moved in said frame.

3,319,556
COLOR TUBE COATING APPARATUS
Joseph P. Fiore, Wheeling, Ill., assignor to The Rauland Corporation, Chicago, Ill., a corporation of Illinois
Filed Aug. 25, 1964, Ser. No. 391,864
16 Claims. (Cl. 95—73)



1. Apparatus for applying a phosphor coating to the screen section of a color television tube comprising:
a first endless conveyor having a series of workholders for individually supporting a screen section of a color television tube and for transporting said screen section from a loading station through a multiplicity of screen processing stations to a discharge station;
coating apparatus at one of said processing stations for depositing on said screen section a coating of photosensitive material and phosphor material;
a second endless conveyor having a series of light exposure housings for individually supporting and selectively exposing predetermined portions of said coating on said screen section while transporting said screen section from a loading station in close proximity to said discharge station of said first conveyor to a discharge station of said second conveyor;
a third endless conveyor having a series of workholders for individually supporting said screen section and for transporting said screen section from a loading station in close proximity to said discharge station of said second conveyor through a multiplicity of screen processing stations to a discharge station of said third conveyor;
and apparatus in at least one of said processing stations of said third conveyor for removing unexposed portions of said coating of said screen section.

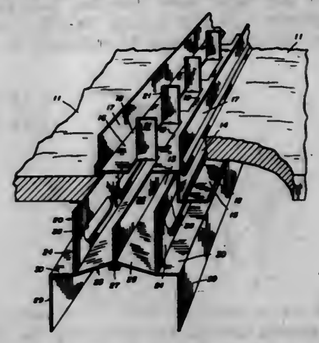
3,319,557
SELF-ADJUSTING AIR DEFLECTOR
Arthur Perez, Niles, Mich., assignor to Clark Equipment Company, a corporation of Michigan
Filed Feb. 10, 1965, Ser. No. 431,506
5 Claims. (Cl. 98—36)



1. For use in a display case having a perforate shelf vertically adjustable above the bottom of a chamber in which air may flow beneath said shelf, an air deflector comprising a baffle, a flange extending along an edge of said baffle, an aperture in the baffle, an aperture in said flange substantially aligned transversely of said edge with said baffle aperture, said baffle having a dimension in the direction transverse of said edge greater than the distance between the chamber bottom and the shelf in at least the lowest vertically adjusted position thereof, and a flat spring extending through both apertures and having a bent end portion beyond the flange adapted to engage releasably with said chamber bottom.

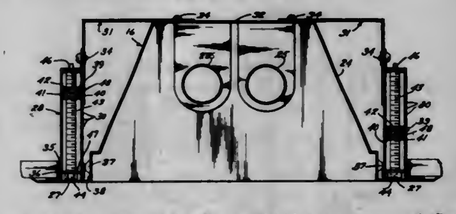
3,319,558
PARTITION WALL HEADER WITH VENTILATING AIR DIVIDER
Marcus Bodian, Los Angeles, Calif., assignor to Sunbeam Lighting Company, Los Angeles, Calif., a limited partnership
Filed Jan. 4, 1965, Ser. No. 422,890
7 Claims. (Cl. 98—40)

1. A header member for dividing ventilating air from an elongated ceiling duct to the two sides of a room partition wall disposed beneath said duct comprising an upwardly facing channel having side walls extending upwardly and adapted to engage said ceiling duct, both of said side walls having air openings distributed along the length thereof; a bottom member for said channel; a vertical elongated divider wall in said channel supported by said bottom member; and depending flanges on said



bottom member and extending therebelow, said flanges being adapted to engage the said partition wall.

3,319,559
AIR VOLUME CONTROL SOUND TRAP
George K. Raider, Melrose Park, and Edmund J. Little, Chicago, Ill., assignors to The Pyle-National Company, Chicago, Ill., a corporation of New Jersey
Filed July 13, 1965, Ser. No. 471,691
3 Claims. (Cl. 98—40)

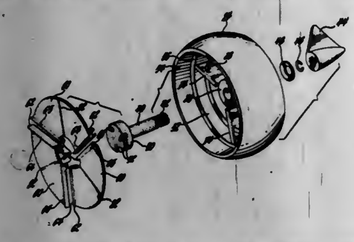


2. In a troffer light fixture having an external flange formed at opposite sides thereof and an elongated diffuser slot formed within each of said external flanges, an air volume control sound trap comprising
a rectangular shaped enclosure having a port conforming substantially to said diffuser slot and mounted thereabout at said external flange,
said rectangular shaped enclosure having side walls extending to a substantial height above said port in comparision to the width of said diffuser slot, said side walls having plural air passages formed therein,
a volume control piston slidably fitted within said sound trap enclosure and contacting said side walls at the periphery thereof,
said volume control piston having a sound absorbing medium disposed thereon and facing said port of said sound trap enclosure, and
means for adjusting the axial position of said volume control piston within said sound trap enclosure, thereby providing a means for regulating the flow of air while absorbing sound.

3,319,560
DIRECTIONAL AIR VENT NOZZLE WITH FLEXING VANES
Henry W. Schaaf, Ortonville, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Oct. 11, 1965, Ser. No. 494,819
6 Claims. (Cl. 98—40)

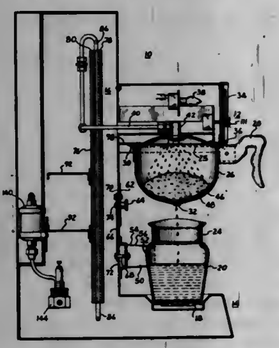
1. An air vent nozzle having a body in the form of a segment of a sphere having a main passage through it,

a hub coaxial with said main passage, radial webs connecting said body to said hub for supporting the latter, each of said radial webs extending in a plane substantially parallel with said passage, flexible vanes each having one margin connected to one edge of one of said



webs at the air entrance side of said main passage, and means passing through said hub from the air discharge side and connected to another margin of each of said vanes for opening and closing said main passage by flexing said vanes.

3,319,561
AUTOMATIC COFFEE BREWER
Harold Bloomfield, Glencoe, and August C. Purpura, Melrose Park, Ill., assignors to Bloomfield Industries, Inc., Chicago, Ill., a corporation of Delaware
Filed Dec. 16, 1963, Ser. No. 330,818
9 Claims. (Cl. 99—283)



1. In a coffee brewing machine, a continuous flow type heat exchanger comprising:

a pair of plates having good heat conducting properties fastened one to the other one of said plates having a plurality of grooves formed therein;

a serpentine shaped tube positioned in some of said grooves and sandwiched between said plates for the passage of water through said pair of plates;

and heating means comprising electrical heaters positioned in other of said grooves and sandwiched between said plates for transferring heat from said heating means to heat said plates, said tube and the water flowing therethrough.

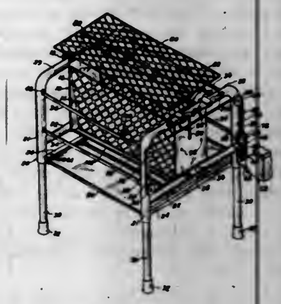
3,319,562
PORTABLE GRILL EQUIPMENT
Joseph A. Turcott, 5581 Lodwyck, Detroit, Mich. 48224, and Henry A. Turcott, Detroit, Mich.; said Henry A. Turcott assignor to said Joseph A. Turcott
Filed June 16, 1965, Ser. No. 469,042
41 Claims. (Cl. 99—339)

1. A cooking grill assembly comprising,

(a) a fire basket for containing charcoal and the like and having a bottom grate, a pair of spaced side members and a pair of spaced end members,

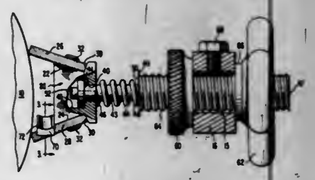
(b) said end members being spaced farther apart than said side members,

(c) a pair of inverted U-shaped support frame structures and means for selectively removably securing said frame structures to said end members in an



operating position to provide support for said fire basket and means for selectively removably securing said frame structures to said side members in a carrying position to provide a more compact package for carrying.

3,319,563
INK SEPARATOR
Clarence M. Champion, Wheatridge, Colo. (6942 Vance St., Arvada, Colo. 80002), and Manford A. Ordelheide, 2803 E. Amherst Ave., Denver, Colo. 80210
Filed Sept. 18, 1964, Ser. No. 397,562
6 Claims. (Cl. 101—207)



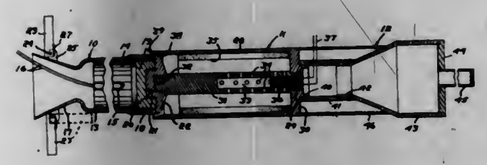
6. An ink separator for preventing flow of ink between contiguous peripheral portions of a printink ink roller comprising: a scraper head including a plurality of blades projecting outwardly from the scraper head to free ends adapted to simultaneously engage circumferentially spaced portions of an inking roller, a support member having peripheral threads, means mounting said scraper head for slidable movement on said support member while preventing pivotal movement of said scraper head relative to said support member, means on said support member resiliently urging said scraper head outwardly towards one end of said support member for causing the free ends of said blades to resiliently engage the inking roller when the separator is in use, and clamping means threaded on said support member for clamping the separator to a support.

3,319,564
METHOD FOR PREPARING PLASTIC-BACKED ELECTROTYPES
Daniel Louis Goffredo, 104 Main St., Riverton, N.J. 08077
No Drawing. Filed May 20, 1963, Ser. No. 281,749
2 Claims. (Cl. 101—401.1)

1. The method of producing a flexible printing plate from an electrotype shell which comprises the following steps: (1) placing the electrotype shell face down on a flat surface, (2) holding the electrotype shell against the flat surface, (3) surrounding the electrotype shell with a barrier, (4) applying to the back of the electrotype shell a liquid plastic composition that cures to a soft state, (5) causing the plastic composition to cure, (6) coating the printing surface with an acid-resistant coating, and (7) etching through the non-printing areas of the electrotype shell and thereby exposing the soft plastic beneath.

3,319,565
WITHDRAWN

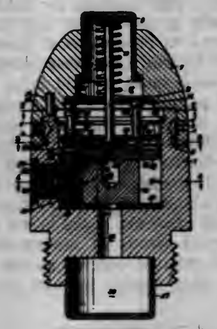
3,319,566
NON-SPIN ROCKETS AND THEIR GUIDANCE
Paul V. Choate, Milton, and Michael A. Nee, Melrose, Mass., assignors to Norris Industries, Inc., Los Angeles, Calif., a corporation of California
Filed July 25, 1966, Ser. No. 570,124
10 Claims. (Cl. 102—49.7)



1. In a non-spin stabilized rocket, a motor having a chamber, and a propellant charge in said chamber, said motor including a rearwardly opening annular nozzle having a throat and surrounding said rocket in a zone approximately inclusive of the center of gravity of said rocket during the burning of said charge, said motor including a mixing chamber having rearward, direct, annular and substantially unobstructed communication with the throat of said nozzle, a line lengthwise of any portion of the part of said rocket rearwardly of said nozzle being capable of being presented to the viewer as a fore-and-aft line of the rocket at least when the rocket is in flight, the part of said rocket rearwardly of said nozzle being cylindrical and of a diameter less than the outside diameter of said nozzle in a zone commencing immediately adjacent the nozzle and extending substantially throughout its length, and the nozzle being disposed to direct the propelling gas stream resulting from the burning of said charge substantially parallel to the flight axis of the rocket and close to said rearward part along the entire cylindrical length thereof whereby, during the burning of said charge, the rocket is held on course by a non-biasing, expanding gas stream enveloping said rearward rocket part.

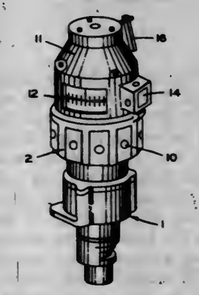
3,319,567
PROJECTILE FUSE
André Combourieux, Geneva, Switzerland, assignor to Industrial Holding Establishment, Vaduz, Liechtenstein
Filed May 24, 1965, Ser. No. 458,195
Claims priority, application Switzerland, May 27, 1964, 6,895/64
4 Claims. (Cl. 102—76)

1. An impact projectile fuze in which a trajectory safety means is provided comprising a body, a balance rotatably mounted in said body, a spring driving said balance to control the arming of the fuze, locking means preventing said balance from functioning before firing and being released after the projectile is fired, a cap movable angularly with relation to said body, stop means cooperating with said cap, said stop means limiting two extreme angular positions of said cap each corresponding to one firing position, a detonator carrier, a rack carrying said detonator carrier, a driving member connected to said cap for simultaneously moving in rotation said detonator carrier and said rack for actuating said balance, two driving springs having different characteristics to afford two different safety trajectories to bias separately said rack when said rack has been displaced into alignment with one of said springs and said locking means comprising an inertia member locking said balance when the projectile is not fired.



3,319,568
FUEL INJECTION PUMP ASSEMBLY
Louis L. Repko and Aladar O. Simko, Detroit, Mich., assignors to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed July 16, 1965, Ser. No. 472,422
14 Claims. (Cl. 103—2)

1. An injection pump assembly comprising, in combination, a stationary housing having a central bore and a source of fluid under pressure connected to said bore,



a rotatable drive shaft member mounted in said bore for an axial movement, drive shaft driven fluid pumping means having a plurality of fluid discharge passages each connected in parallel to a fluid discharge injection line and to a fluid spill line connected to said bore, said spill line receiving fluid from and spilling fluid into said bore, a drive shaft driven fluid metering valve member slidably and rotatably mounted in said bore between said source and said spill lines, means connecting said metering and drive shaft members for limited relative axial and rotational movements therebetween, said metering member having fluid flow control portions thereon vari-

ably controlling the flow of fluid through said spill lines as a function of the axial and rotative movements of said metering member, movable external control means, means responsive to movement of said control means in one direction for moving said drive shaft and metering members axially in a spill line closing direction, and speed responsive governor means coaxially disposed about and driven by said drive shaft member for moving said metering member axially in an opposite spill line opening direction, first means to prevent axial movement of said metering member by said speed responsive means below a first predetermined speed of said drive shaft member to condition said assembly for a first predetermined flow of fluid through said spill lines, and second means to prevent axial movement of said metering member by said speed responsive means in a higher speed range between second and third predetermined drive shaft member speeds permitting control of the axial movements of said metering and shaft members in the speed range between said first and second speeds by movement of said governor means and external control means, and between the second and third speeds by said external control means.

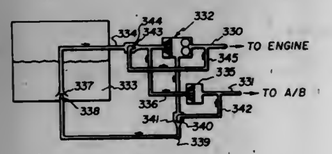
3,319,569

FUEL FEEDING SYSTEMS

Carl L. Norris, Huntsville, Ala., Robert L. Williams, Murray D. Nelsen, and Howard E. Corner, Wichita, Kans., James E. Goodbar, Huntsville, Ala., and Ivan L. Oliver, New Orleans, La., assignors to The Boeing Company, Seattle, Wash., a corporation of Delaware

Original application Jan. 2, 1964, Ser. No. 335,236. Divided and this application Dec. 14, 1965, Ser. No. 528,012

4 Claims. (Cl. 103—5)



1. A fuel feeding system for an aircraft engine comprising, a fuel tank, first ejector pump means having first eductor means with first nozzle means therein disposed in said fuel tank, a two-stage pump having an intake line and an outlet line, said pump being located externally of said fuel tank, said pump intake line being connected to said first eductor means, and a first pressure boost feedback line connecting the first stage of said pump to said first nozzle means for boosting the pressure in said pump intake line, second ejector pump means having second eductor means with second nozzle means therein and operatively disposed in said pump intake line, a second pressure boost feedback line having one end thereof connected to one of said stages of said two-stage pump and having another end thereof connected to said second nozzle means of said second ejector pump means in said pump intake line, a fuel feed line having an intake end in said pump intake line between said second ejector pump means and said pump and having another end thereof adapted to be connected to an afterburner for supplying fuel thereto, an afterburner pump in said afterburner fuel feed line and having an intake side and a discharge side, third ejector pump means having third eductor means with third nozzle means therein in said first pressure boost feedback line, and a third pressure boost feedback line having an intake end connected into said afterburner fuel feed line on said discharge side of said afterburner pump and having another end thereof connected to said third nozzle means of said third ejector pump means for assisting said two-stage pump in pumping fuel to said first nozzle means.

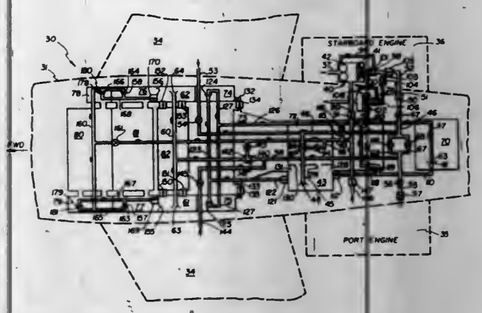
3,319,570

FUEL FEEDING SYSTEMS

Carl L. Norris, Huntsville, Ala, Robert L. Williams, Murray D. Nelsen, and Howard E. Corner, Wichita, Kans., James E. Goodbar, Huntsville, Ala., and Ivan L. Oliver, New Orleans, La., assignors to The Boeing Company, Seattle, Wash., a corporation of Delaware

Original application Jan. 2, 1964, Ser. No. 335,236. Divided and this application Dec. 14, 1965, Ser. No. 528,013

4 Claims. (Cl. 103—5)



1. A fuel feeding system for an aircraft engine comprising, a fuel tank, first ejector pump means having first eductor means with first nozzle means therein disposed in said fuel tank, a two-stage pump having an intake line and an outlet line, said pump being located externally of said fuel tank, said pump intake line being connected to said first eductor means, a first pressure boost feedback line having one end connecting the first stage of said pump to said first nozzle means for boosting the pressure in said pump intake line, second ejector pump means having second eductor means with second nozzle means therein and operatively disposed in said first pressure boost feedback line, a second pressure boost feedback line having an intake end connected into said pump outlet line and having another end thereof connected to said second nozzle means of said second ejector pump means.

3,319,571

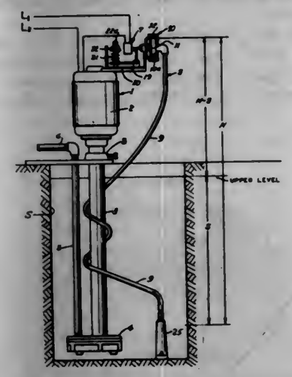
LIQUID LEVEL RESPONSIVE APPARATUS

Carl A. Schaefer, Asheville, N.C., assignor to Square D Company, Park Ridge, Ill., a corporation of Michigan

Filed Oct. 27, 1964, Ser. No. 406,723

12 Claims. (Cl. 103—25)

1. A level detector comprising an elongated body having an upper end at an upper elevation and a lower end at a lower elevation with a continuous passage extending between the ends, an expansible and contractible chamber communicating with the passage and hermetically closing the upper end of the body, said chamber having a movable wall for expanding and contracting the chamber, an expansible and contractible reservoir communicating with the passage and hermetically closing the lower end of the body and positioned to be responsive to the level to be detected, a liquid completely filling the passage, the chamber and the reservoir, a resilient means constantly urging the wall in a direction to expand the chamber, and means responsive to the position of the wall for detecting movements of the wall in response to expansion and contrac-



tion of the chamber and reservoir which occur consequent upon changes in the level to be detected.

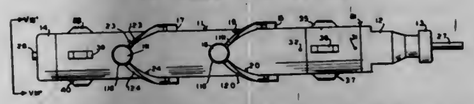
3,319,572

FREE PISTON

Cecil Ray Lyles, Farmington, N. Mex., assignor to Unitex Engineering Service Inc., Perryton, Tex., a corporation of Texas

Continuation of application Ser. No. 35,831, June 13, 1960. This application Oct. 18, 1965, Ser. No. 502,758

10 Claims. (Cl. 103—52)



1. A device for lifting fluids through a well pipe including a hollow body, actuating means movable longitudinally within the body and having at least one end thereof protruding from an end of said body, means for releasably holding the actuating means in either of two positions, said actuating means having at least a pair of wedge elements intermediate its ends, each wedge element being substantially identical and having a face inclined relative to the longitudinal axis of said body, at least a pair of expansible pistons spaced longitudinally in said body and extending normal to its longitudinal axis, each piston being at an angle to the adjacent piston and having two elements longitudinally movable relative to each other and urged away from each other by resilient means located therebetween, the resilient means forcing each piston element into contact with an inclined face of a wedge element whereby each wedge element limits the length of each piston, said body having openings to permit the pistons to extend from said body in a direction normal to its longitudinal axis, and a plurality of longitudinally extending helical segments each attached at either of their ends to one of said pistons, the helical segments cooperating with said pistons to circumscribe said body, said body having recesses for receiving said segments in the contracted position of said pistons, said pistons having outer ends substantially flush with the exterior of said body in said contracted position.

3,319,573

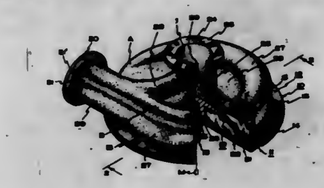
CENTRIFUGAL PUMP

Thomas E. Judd, 1960 Browning Ave., Salt Lake City, Utah 84108

Filed Feb. 10, 1966, Ser. No. 526,433

4 Claims. (Cl. 103—103)

1. A centrifugal pump comprising a structure defining a centrifugal pumping chamber, a centrifugal impeller operatively disposed in said chamber, said impeller having a convex blade supporting surface provided with a vaneless central portion and a peripheral bladed fluid energizing portion in said chamber, means sealingly journaled in said structure and centrally connected to said impeller and extending rearwardly thereof for driving said impeller, an inlet chamber for admitting fluids containing solids therein to said impeller chamber, said inlet chamber having a restriction therein extending circumferentially of the impeller, and defining a circumferentially spaced liquid phased auxiliary channel about the periph-



eral bladed portion, means defining a main outlet chamber communicating with said inlet chamber proximate the central vaneless portion of the impeller, said auxiliary channel and said main outlet chamber merging in a downstream direction whereby the energized pressure fluid from the auxiliary channel engages the solids entrained in said main outlet chamber fluid and forces the entrained solids in a downstream direction.

3,319,574

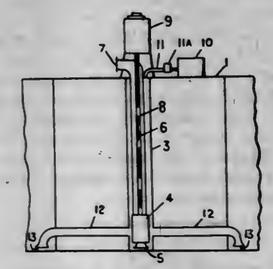
PUMPING ARRANGEMENT FOR CARGO SHIPS ARRANGED TO CARRY LIQUID BULK CARGO

Charles Henderson Carslaw, Yoker, Glasgow, Scotland, assignor to Drysdale & Company Limited, Yoker, Scotland, a corporation of the United Kingdom of Great Britain and Northern Ireland

Filed May 24, 1965, Ser. No. 458,037

Claims priority, application Great Britain, May 23, 1964, 21,400/64

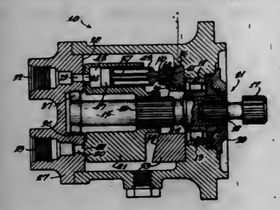
1 Claim. (Cl. 103—113)



A pumping installation for a ship constructed to carry liquid bulk cargo in storage tanks, comprising at least one trunk closed at the top and extending from the level of the ship's deck downwardly as far as the bottom of the storage tanks, which latter are in communication with the interior of the trunk at points above the trunk bottom, a pump located at the bottom of the trunk and having a suction port open to the trunk, driving means for the pump located at deck level, a driving shaft connecting said driving means and said pump, and evacuating means comprising a vacuum pump and float gear connected to the top of the trunk for drawing off air and vapor continuously as it accumulates at the top of the trunk, causing the trunk to function as a large separator for air and vapor entrained in the liquid and permitting such air and vapor to escape upwardly through the column of liquid

in the trunk at a rate faster than the liquid is moving downwardly.

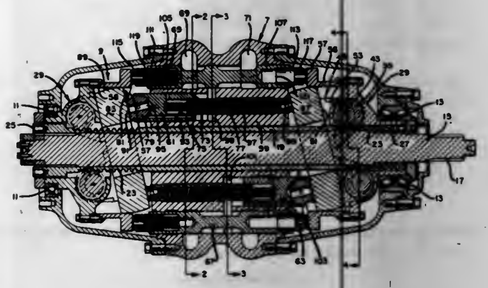
3,319,575
PISTON
Arnold L. Havens, Rockford, Ill., assignor to Sundstrand Corporation, a corporation of Illinois
Filed June 14, 1965, Ser. No. 463,673
4 Claims. (Cl. 103—162)



1. A multiple piston hydraulic translating device, comprising: a cylinder block having a plurality of cylinders therein, valve means having inlet and outlet ports, each of said cylinders communicable serially with said inlet and outlet ports as said cylinder block rotates with respect to said valve means, pistons slidable in each of said cylinders including, an elongated rigid cylindrical piston element constructed in one piece and having at one end thereof a generally spherical projection, bearing means engaging said spherical projection, the other end of said element defining a working face of the piston, said cylindrical element serving to transfer the hydraulic force on said working face to said bearing means, an axial lubrication passage in said element extending from the working face through said spherical projection, an annular recess in the cylindrical surface of said one piece element extending axially from a plane adjacent the projection to a plane adjacent but spaced from said working face, said recess having an inner diameter substantially less than the diameter of the piston, said recess defining spaced cylindrical surfaces on said element one adjacent each end thereof, a separate cylindrical cover surrounding and enclosing said recess being thin with respect to said piston element, the ends of the cover engaging and fixed to the cylindrical surfaces on the one piece element, the outer diameter of the cover being equal to the desired piston diameter, at least one of said surfaces having a diameter throughout its length less than the inner diameter of the cover to permit insertion of the element in the cover, and a cam member for reciprocating said pistons and having a cam surface engaging said bearing means.

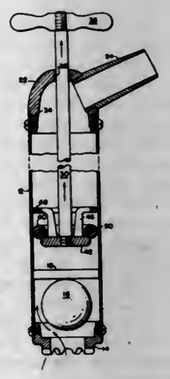
3,319,576
FREE PLATE MOTOR OR PUMP
Elias Orshansky, Jr., 1079 Lombard St., San Francisco, Calif. 94109
Filed Sept. 24, 1965, Ser. No. 489,822
5 Claims. (Cl. 103—173)

1. A variable displacement hydraulic motor or pump comprising in combination:
(a) a fixed cylinder block,
(b) a shaft mounted for rotation therein,
(c) a collar on said shaft and rotatable therewith, said collar being mounted for reciprocation on said shaft,
(d) wobble plates at each end of said shaft lying adjacent said cylinder block,
(e) pads supports members at each end of said shaft affixed thereto,
(f) power take off pads mounted on said support members, said pads defining the position of the wobble plates,
(g) rack means on said collar and mating pinion means on said pad supports whereby the position of said collar determines the angle which the pads make with the shaft,
(h) a first set of pistons mounted for reciprocation in said block, each of said pistons having a head pressing against one of said wobble plates and a retractor pressing against the opposite wobble plate,



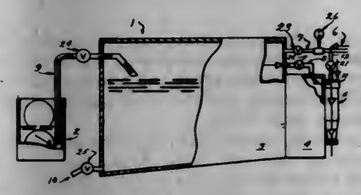
(i) a second set of pistons alternating with said first set of pistons, each of said second set of pistons having heads and retractors mounted in the opposite direction from said first set of pistons,
(j) said wobble plates freely floating between said pistons and said pads, and
(k) valve means associated with said pistons controlling the flow of hydraulic fluid thereto.

3,319,577
SLIDING SEAL AND VALVE FOR RECIPROCATING PUMP PLUNGER
Lewis Francis Herreshoff, Marblehead, Mass., assignor to Margrete L. Stinnes, New York, N.Y.
Filed Feb. 25, 1965, Ser. No. 435,307
3 Claims. (Cl. 103—178)



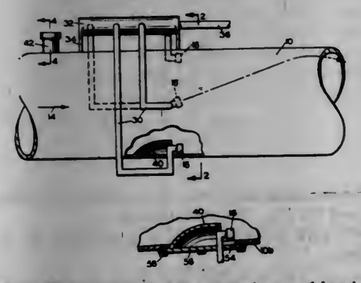
1. In a pump for liquids, the pump having a cylindrical barrel and a reciprocable plunger rod therein, a pump piston on said rod having combined sliding seal and check valve means comprising an annulus of resilient material in peripheral sliding engagement with the interior of the pump barrel, a piston cage loosely confining said annulus for limited axial movement relative to said cage, the cage including an annular stop member and a disc against which the annulus seats on the suction stroke of the pump, the disc having a diameter approximating the mean diameter of the annulus, said piston cage including a small number of independent supporting arms each secured at one end to said annular stop member and at the other end to said disc and spaced from each other a distance substantially greater than the width of said arms and serving as sole support of said annular stop member in spaced relation to said disc for supporting said annulus during the reverse stroke of the pump and to provide a large space for free flow of fluid between said arms during said reversal stroke of the pump.

3,319,578
LIQUID TRANSFER UNIT
John T. Ware, Mooresville, N.C., assignor to Burlington Industries, Inc., Greensboro, N.C.
Filed June 18, 1965, Ser. No. 465,139
3 Claims. (Cl. 103—235)



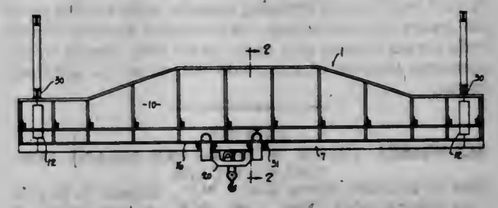
1. A size recovery unit for transferring liquid textile size solutions comprising a liquid receiver, an ancillary vacuum chamber associated with and connected through valve means to said receiver, a vacuum generator operating on the venturi jet principle associated with said vacuum chamber and connected with said vacuum chamber to pull a vacuum on the same, a compressed gas source and compressed gas conduit with valve for supplying compressed gas to said vacuum generator, a second conduit with valve connected to said liquid receiver and to said gas source whereby said second conduit can supply compressed gas to said liquid receiver, a liquid intake conduit with valve communicating said liquid receiver with a body of liquid, and a liquid outlet conduit with valve for said receiver.

3,319,579
FLUID FLOW PUMP AND BOOSTING APPARATUS
Ronald D. Stack, 18323 SE. Stark, Portland, Oreg. 97233
Filed May 10, 1965, Ser. No. 454,347
1 Claim. (Cl. 103—263)



A fluid flow boosting apparatus in combination with a pipe having an aperture in its side wall and which pipe is arranged to carry fluid from a pump, comprising at least one nozzle projecting through said aperture in said pipe and secured to a plate member releasably secured to said pipe over said aperture, said nozzle having an outlet end disposed closely adjacent to the inner surface of said pipe, said nozzle being directed in the direction of fluid flow at an acute angle relative to the axis of said pipe, air compressor means associated with said nozzle for supplying compressed air to the latter, the compressed air being ejected from said nozzle causing said fluid to flow spirally in said pipe, and means secured to said plate member projecting radially inwardly through said aperture in said pipe wall, the outer end of said nozzle being partially covered by said inwardly projecting means so that said nozzle is protected from the particles in said fluid.

3,319,580
GIRDER CRANE MONORAIL BEAM
Henry L. Bohm, 16908 Lakewood Heights Blvd., Lakewood, Ohio 44107
Filed Mar. 15, 1965, Ser. No. 444,502
16 Claims. (Cl. 104—98)

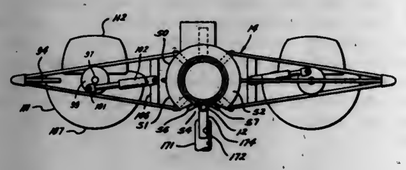


1. A monorail beam for comprising a longitudinally extending transverse top plate, a longitudinally extending vertical plate extending downwardly from said top plate and comprising a first web with a lower edge, a longitudinally extending I-beam having a web and flanges and secured to said lower edge of said first web with said I-beam web horizontal and said flanges vertical and one said flange on each side of and spaced from said first web, vertically extending stiffeners secured to and spaced longitudinally along both sides of said first web, gusset plates secured to said stiffeners, respectively, and said top plate, vertical stiffeners secured to said I-beam flanges and the underside of said I-beam web, longitudinally extending rails mounted on the upper surface of said I-beam web with one said rail on each side of said first web and intermediate said first web and the adjacent I-beam flange, respectively, electrically insulated support means carried by said beam, a longitudinally extending electrical conducting bar supported by said support means, and a trolley mounted on said beam, said trolley having electrical collector means engaging said conducting bar and wheels rolling on said rails, respectively.

3,319,581
MONORAIL
Fred L. Churchman, Rte. 1, De Ridder, La. 70634, and James H. Gibson, P.O. Box 534, San Pablo, Calif. 94806
Filed Nov. 25, 1964, Ser. No. 413,899
5 Claims. (Cl. 105—141)

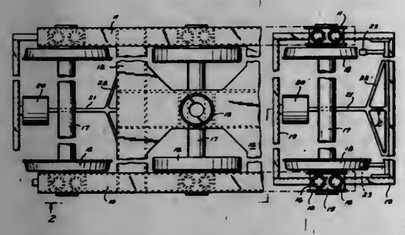
1. Monorail apparatus, comprising track means having a uniform circular exterior cross-sectional configuration, a single guide rail means extending along a side of the exterior of said track means, monorail vehicle means comprising arcuate body means spacedly surrounding said track means from one side of said guide rail means around said track means to the other side of said guide means whereby said guide rail means is disposed in a gap along the lower side of said arcuate body means, laterally extending frame means depending from each side of said

body means each spaced from the gap of said body means in which said guide rail means is disposed, compartment means carried by each said frame means, said frame means and compartment means being balanced at opposite sides of said arcuate body means, plural wheel means carried



by said body means engaging said track means for movably supporting said body means moving along said track means, driven wheel means carried by said body means engaging said track means for propelling said body means along said track means, and guide wheel means carried by said body means engaging opposite sides of said guide rail means for maintaining the azimuthal position of said body means around said track means with respect to the azimuthal location of said guide rail means on said track means.

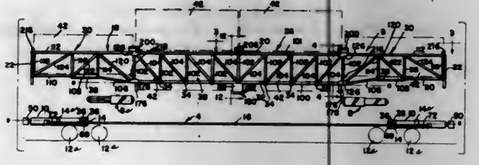
3,319,582
SIX-WHEEL TRUCK WITH BRAKE MEANS FOR RAILWAY CARS
John G. Kneiling, Staten Island, N.Y., assignor to Devenco Incorporated, New York, N.Y., a corporation of New York
Filed Feb. 18, 1965, Ser. No. 433,599
2 Claims. (Cl. 105—196)



1. In a railroad car, a six-wheel truck comprising a single rigid chassis including lateral side frames, bolsters, and bracing; three wheel units each consisting of an axle and wheels rigidly secured to it, each side frame being provided with three slots adapted respectively to receive the adjacent ends of said axles; a separate resilient cushion between each axle end and the base of the slot within which it is mounted, and an individual brake assembly suspended on each axle in a fixed spatial relationship thereto independent of the movement of said axle relative to the others and to the chassis, said brake assembly comprising a pneumatic actuating cylinder, a transverse brake beam controlled thereby, and brake shoes attached to said brake beam in operative relation to the wheels on said axle.

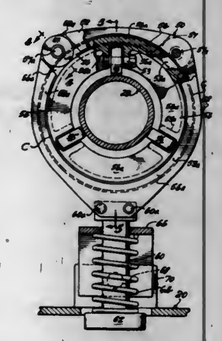
3,319,583
RAILROAD CAR
Jack E. Gutridge, Dyer, Ind., assignor to Pullman Incorporated, Chicago, Ill., a corporation of Delaware
Filed Aug. 31, 1965, Ser. No. 484,059
20 Claims. (Cl. 105—366)

3. A railroad car comprising:
a railroad car underframe,
said underframe having a pair of opposed longitudinally extending end sill-like structures for transmitting draft and buff forces from the railroad car couplers,
said underframe defining an open space between each of said sill-like structures,
a pair of longitudinally extending laterally opposed flexible elongated draft force transmitting side ribbon sill elements interconnecting with said sill-like structures,
a railroad car body means having end portions mounted over said sill-like structures for support thereby for longitudinal reciprocation with respect to said sill structures,



said car body means having a central container carrying open well portions within said space and said well portion extending above and below a plane common with the neutral axis of said sill-like structure and the coupler draft height,
said car body means being provided with means intercoupling said car body means with said flexible side ribbon sill elements of the underframe generally in said plane for longitudinal guiding and supporting of said underframe ribbon sill elements with respect to said car body means whereby said flexible side ribbon elements can withstand impact forces.

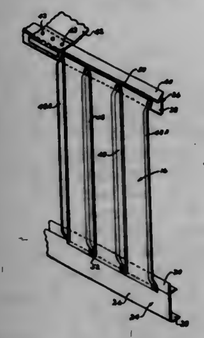
3,319,584
LOAD DIVIDER SUPPORT MECHANISM
John W. Erickson, Huntington Beach, Calif., assignor to Preco Incorporated, Los Angeles, Calif., a corporation of California
Filed Nov. 23, 1964, Ser. No. 412,911
14 Claims. (Cl. 105—376)



14. In a movable load dividing structure for transport vehicles and the like, the combination of
gate structure adapted to form a partition in a compartment,
longitudinal rail structure including at least one pair of opposite upper parallel longitudinal rails each having a horizontally projecting flange,
each said flange having a longitudinal series of spaced rack-like formations,

a transversely extending squaring shaft having rotatively fixed at its ends respective sprockets engaging and riding said rack-like formations, said shaft carrying said gate structure,
the carriage of the gate structure by the squaring shaft embodying
two concentric sleeve-like members one surrounding the other and both surrounding the squaring shaft,
the outer one of said members being mounted on the inner one for relative rotation about the axis of the squaring shaft,
the inner one of said members being mounted on the squaring shaft for axial movement thereon.

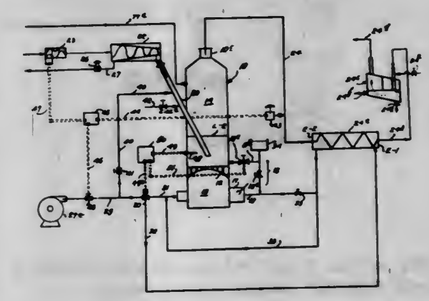
3,319,585
RAILWAY CAR
Frank C. Pulcrano, Bridgeton, Mo., assignor to ACF Industries, Incorporated, New York, N.Y., a corporation of New Jersey
Filed Apr. 23, 1965, Ser. No. 450,350
10 Claims. (Cl. 105—409)



1. A railway box car side construction comprising an upper side plate having a vertical web and horizontal upper plate to form a T-shape, a roof extending over the horizontal upper plate and secured thereto, a lower side sill extending generally the length of the car, a plurality of performed panels spaced along the side of the car each having a plurality of integral vertical stiffeners projecting outwardly from the outer face of the box car side and forming longitudinally extending recessed portions on the opposite face of the side, each of said panels having a flat marginal portion at the upper and lower ends of the stiffeners lying in a plane coincident with the plane of the panel, the upper flat marginal portion of each panel being secured to said vertical web of the side plate and the lower flat marginal portion of each panel being secured to the lower side sill, and an upper door frame and a pair of door posts defining a door opening in said box car sides between a pair of adjacent panels, said upper door frame comprising a channel secured to the upper side plate thereby to form a box-shaped section for reinforcing the upper door frame.

3,319,586
TREATMENT AND DISPOSAL OF WASTE SLUDGES
Orris E. Albertson, Norwalk, and William E. Budd, Ridgefield, Conn., assignors to Dorr-Oliver Incorporated, Stamford, Conn., a corporation of Delaware
Filed July 10, 1961, Ser. No. 131,455
14 Claims. (Cl. 110—8)

1. The method of oxidizing the organic solids contained in waste sludges by combustion, which comprises in a combustion chamber providing a body of hot graded inert granular material having heat storing and heat radiating capability; supplying to said body of granular material a continuous upward stream of combustion air for maintaining said material in a fluidized state while hot; simultaneously introducing waste sludge into the body of hot fluidized material in a locality above the bottom plane thereof, to effect combustion of the organic solids; controlling the rate of supply of said sludge to said combustion chamber and the rate of supply of combustion air relative to each other so as to maintain complete thermal oxidation of the organic sludge solids with the total of

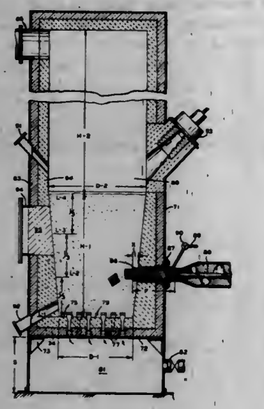


the air supply such as to provide a space rate of the resulting combustion gases in said chamber sufficient and not in excess of that required for maintaining said fluidized state; diverting a portion of the required total of combustion air and preheating said diverted portion by heat exchange with the combustion gases; and controlling the proportion of diverted combustion air relative to the organic solids concentration in the sludge and supplying said diverted portion together with the non-diverted portion of the combustion air to said fluidized bed for maintaining said complete oxidation at a predetermined temperature.

3,319,587
DISPOSAL OF WASTE MATERIAL BY COMBUSTION IN AN INERT FLUIDIZED BED
Orris E. Albertson, Norwalk, and William M. H. Kilmer, Sandy Hook, Conn., assignors to Dorr-Oliver Incorporated, Stamford, Conn., a corporation of Delaware
Filed Mar. 31, 1964, Ser. No. 356,211
12 Claims. (Cl. 110—8)

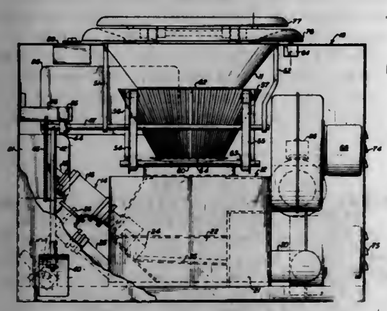
6. A combustion apparatus for effecting the combustion of high moisture organic waste which comprises a combustion unit having a transverse constriction plate dividing the unit into a combustion chamber and a windbox chamber and adapted to support a bed of substantial depth of hot inert granular material having heat storing and heat radiating capability, said combustion unit including instrumentalities for maintaining said bed at between 1200 and 1800° F., means for supplying combustion air under pressure to said windbox chamber for maintaining said granular material in a fluidized state, means for extrusion feeding a compressed plug of said high moisture waste material through the wall of said combustion chamber directly into said fluidized bed at a position in the lower half thereof, the portion of said combustion chamber surrounding said fluidized bed being of tapered form having a pre-determined graduated horizontal cross-sectional area increasing from substantially bottom to top by an amount sufficient to compensate for the increased volume of gas resulting from volatilizing the water and organic material in the waste so as to maintain the space rate of the rising gases in the bed at a generally uniform space rate of the rising gases through the fluidized mate-

rial in which the maximum such space rate at any depth varies from the minimum by no more than 2 to 1, to



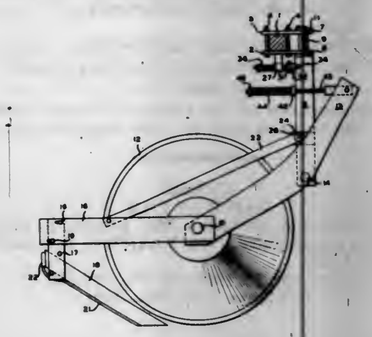
retain plug portions in said bed for maximum burning in the bed and minimum burning in the freeboard.

3,319,588
TOTAL DISPOSAL UNIT AND METHOD
Leon L. Duncan, Washington, Mo., assignor to William J. King, Palos Park, Ill.
Filed Sept. 15, 1964, Ser. No. 396,544
16 Claims. (Cl. 110—9)



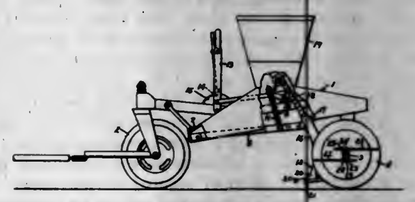
2. A waste disposal unit for substantially completely incinerating waste deposited in a receptacle of flexible and combustible material, said waste disposal unit comprising an enclosed housing having a waste receiving opening in the top thereof, a combustion chamber disposed in said housing below said opening and having a doorway in vertical alignment therewith, a door mounted in said housing for movement between an incinerating position closing said doorway and a retracted position opening said doorway, said door in the incinerating position thereof providing a seat for a receptacle inserted through said opening and resting on said seat and in vertical alignment with said opening, means for withdrawing air from the portion of said housing disposed between said top and said combustion chamber to position and to hold the receptacle on said seat, and mechanism for moving said door to the retracted position thereof to drop the receptacle and its contents into said combustion chamber and thereafter for moving said door to the incinerating position thereof, thus completely to incinerate the receptacle and its contents.

3,319,589
APPARATUS FOR SUPPLYING FERTILIZER TO THE SOIL
Jesse N. Moran, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Aug. 2, 1965, Ser. No. 476,530
8 Claims. (Cl. 111—7)



1. A fertilizer applicator assembly for supplying fertilizer to the soil comprising in combination a disk-type rotatable colter for cutting a furrow in the soil in response to rotational movement of said colter; a clamp adapted to be rigidly attached to the tool bar of a fertilizer applicator vehicle; horizonal pivot means including a housing connected to said clamp and a shaft in said housing, said housing and said shaft being mounted to allow said shaft to be rotated in said housing about a substantially vertical axis disposed longitudinally with said shaft; vertical pivot means connected to said horizontal pivot means and sail colter to allow said vertical pivot means and said colter to be moved in a vertical plane about a horizontal axis; and an injection knife connected to said vertical pivot means and depending therefrom for allowing fertilizer to be injected into the furrow formed by said colter.

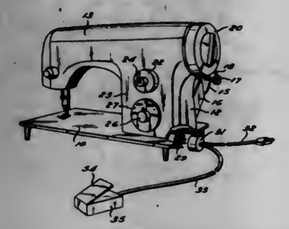
3,319,590
SEED DRILL
Clarence Robert Zimmerman, P.O. Box 6, Almira, Wash. 99103
Filed July 27, 1964, Ser. No. 385,204
6 Claims. (Cl. 111—85)



1. In a seed drill having a main frame and a seed hopper on said frame, a seed depositing assembly operable to deliver seeds from said hopper into the soil, said assembly comprising;
- a seed delivery tube including an upper tube portion connected to the hopper and a lower rigid tube portion receiving seeds from the upper portion and providing a seed passage open at its lower end;
- a furrow opener mounted on the front of said lower tube portion and having sides adjoining the lower tube portion at its side surfaces and forming forward continuations of said side surfaces;

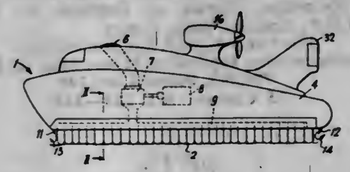
said opener having a soil penetrating point spaced forwardly from the lower end of said lower tube portion, and its front edge inclined upwardly and rearwardly from the point to the lower rigid tube portion;
- a press wheel shaft below and connected to said main frame;
- a pair of press wheel disks on said shaft having substantially circular rims spaced apart with said lower seed tube portion extending between the rims along the front thereof and in juxtaposition to the rim edges, substantially to block soil at the sides of the opener from flowing together or entering the space between said disks;
- said disks having generally conical portions extending outwardly from the rim portions toward the disk shaft and operable together to press the soil separated by said opener sides into sloping compacted side walls on the furrow;
- the opener having a seed trench forming blade along the bottom thereof the front end of which forms a continuation, at reduced width, of said point of the furrow opener, the blade terminating in front of the lower end of said seed passage, whereby to keep a trench open for deposit of the seed.

3,319,591
SEWING MACHINE SPEED CONTROL
Sidney J. Hamlett, Parma, Ohio, assignor to White Consolidated Industries, Inc., Cleveland, Ohio, a corporation of Delaware
Filed Aug. 4, 1965, Ser. No. 477,095
7 Claims. (Cl. 112—220)



1. A sewing machine having base means including a frame, a stitch producing mechanism on said frame, drive shaft means on said frame to drive said stitching mechanism, an electric motor carried by said frame to rotatably drive said drive shaft, said electric motor being of the series commutator type, a source of alternating current having a pair of conductor lines, means connecting one of said lines to one side of said electric motor, a solid state controlled rectifier connected between the other side of said electric motor and the other of said lines, control means for controlling the conduction of said controlled rectifier, said control means including a first manually operable control having a control member remote from said frame movable by an operator's lower limb to control the conducting period of said controlled rectifier and the speed of said electric motor, a second manually operable control on said base means in a position accessible to an operator, said second control cooperating with said first control to control the maximum conducting period of said controlled rectifier and hence determine the maximum speed of said electric motor obtainable by said first manually operable control, and a trimmer connected to cooperate with said manually operable controls to determine the minimum conducting period of said controlled rectifier and hence determine the minimum speed of said electric motor obtainable by said manually operable controls, said first control being operable through substantially its full range of movement in all positions of adjustment of said second control whereby the sensitivity of said first control is increased as the maximum speed of said motor is decreased by said second control.

3,319,592
GAS-CUSHION VEHICLES FOR OPERATION OVER WATER
Rowland Delville Hunt, Hythe, Southampton, England, assignor to Hovercraft Development Limited, London, England, a British company
Filed July 21, 1965, Ser. No. 473,715
Claims priority, application Great Britain, July 24, 1964, 29,724/64
6 Claims. (Cl. 114—67)



1. A gas-cushion vehicle for operation over water which, in operation, is supported above the surface of the water by at least one cushion of pressurised gas formed and contained beneath the vehicle body, comprising a pair of flexible wall structures for partially containing said cushion, said wall structures being of hollow, inflatable form, extending longitudinally along the sides of the vehicle body parallel to the fore and aft axis of the vehicle and projecting downwardly therefrom towards the water, the lower parts of said wall structures being adapted to dip into the water beneath the vehicle, actuating means for so distorting the wall structure on at least one side of the vehicle body that at least its lower part is moved towards and away from the water in order to vary the drag created by immersion thereof, wall means extending parallel to the fore and aft axis of the vehicle and dividing the cushion longitudinally into cushion cells, and means responsive to sideways tilt of the vehicle for varying the pressures of the cushion cells should the vehicle tilt to one side.

3,319,593
BOUNDARY LAYER CONTROL
Hermann Papst, St. Georgen, Black Forest, Germany
Original application Dec. 23, 1963, Ser. No. 332,619. Divided and this application Mar. 16, 1966, Ser. No. 534,906
Claims priority, application Germany, Dec. 24, 1962, P 30,859
5 Claims. (Cl. 114—67)



1. A watercraft having a front end and a rear end and being adapted to be placed into a fluid stream, comprising the combination of a skeleton profile; an outer covering for said profile, said covering having an outer side along which a boundary layer develops during relative movement of said watercraft and said fluid stream, said covering being provided with narrow slots whose width increases in a direction inwardly from said outer side so that the boundary layer may enter through said slots, said

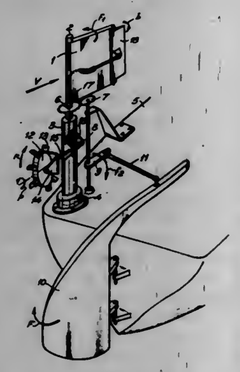
slots extending transversely of the direction of said relative movement; rotary propeller means provided in the region of said rear end for propelling said watercraft; and channel means extending from the respective slots to the region of said rear end for propelling said watercraft; and located forwardly thereof so that rotation of said propeller means results in creation of a suction effect in said channel means, whereby said boundary layer is aspirated into said slots and conveyed in said channel means to said propeller means.

3,319,594

RATE GYRO TYPE CORRECTOR FOR AUTOMATIC BOAT STEERING GEAR UTILIZING AN AERODYNAMIC SURFACE

Marcel Louis Gianoli, Neuilly-sur-Seine, France, assignor to Mecanique Navale et Outillage de Precision M.N.O.P., Asnieres, Seine, France

Filed May 7, 1965, Ser. No. 454,012
Claims priority, application France May 12, 1964, 974,093, Patent 1,403,748
15 Claims. (Cl. 114—144)



1. In a rate gyro type corrector for automatic boat steering gear of the kind comprising an aerodynamic surface which is connected to the submerged rudder of the boat and exposed to the wind, the reactions of which thereon generate the sensing energy and motive power, said submerged rudder having a helm and a trailing edge, the improvement comprising, in combination, a rate gyro for sensing course deviations, a member for modifying the aerodynamic reaction of said aerodynamic surface exposed to the wind and means for controlling the positional relationship of said aerodynamic surface and said modifying member through said rate gyro and for generating a correction to said submerged rudder for any course deviation, through the resultant modification of said aerodynamic characteristics, with a reduced course deviation and an aperiodic damping.

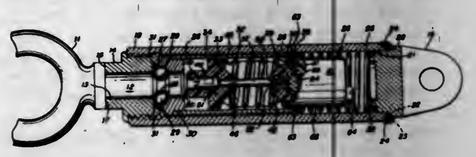
3,319,595

TIMED ACTUATING MECHANISM

William G. Van Dorn, 6611 Muirlands Drive, La Jolla, Calif. 92037, and Harry F. Fogleman, San Diego, Calif.; said Fogleman assignor to said Van Dorn

Filed Jan. 21, 1966, Ser. No. 522,108
6 Claims. (Cl. 114—206)

1. A timed actuating mechanism comprising:
a compression spring retained by first and second mounting means;
a metallic link disposed axially within said compression spring and insulated therefrom;
said metallic link being carried by said first and second mounting means and defining the distance between first and second mounting means;
said metallic link being dimensioned for causing said compression spring to be in a compressed condition between said first and second mounting means;
an electric current regulating means electrically connected between said metallic link and said tension spring, whereby upon immersion in an electrically



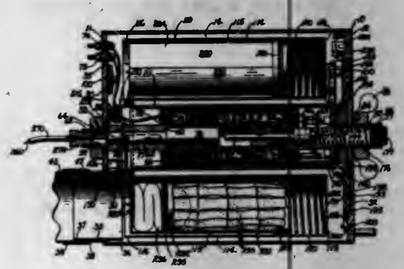
conducting medium said metallic link and said tension spring form an electrochemical cell which upon conduction of electrical current between said metallic link and said tension spring through said electrically conducting medium cause said metallic link to decompose and part.

3,319,596

SIGNALING DEVICE

Cletus Neal Walter, San Diego, Calif., assignor of thirty-seven and one-half percent to the firm of McCormick, Barstow, Sheppard, Coyle & Best, Fresno, Calif.

Filed Mar. 27, 1964, Ser. No. 355,175
10 Claims. (Cl. 116—63)



1. A signaling device comprising a rotatable magazine having a plurality of chambers; a barrel; means for indexing the magazine in units of stepped progression successively to align the chambers with the barrel; resiliently collapsible signals; substantially cylindrical housing individual to the signals containing their respective collapsed signals under compression and individually slidably received in the chambers of the magazine, the housings being longitudinally divided into separable segments; and trigger operated means for discharging the signals and their respective housings through the barrel when their respective chambers are aligned therewith, the segments of each housing being separable upon impact under the expansion forces of the signal compressed therein to release the signal.

3,319,597

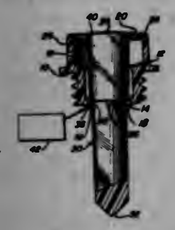
LIQUID LEVEL INDICATOR

Homer D. Schnitzius and Robert D. Sullivan, both of Indianapolis, Ind., assignors to The Richardson Company, Melrose Park, Ill., a corporation of Ohio

Filed Apr. 20, 1966, Ser. No. 543,904
6 Claims. (Cl. 116—118)

1. A vent plug assembly adapted to be positioned in a filling well of a cell of an electrical storage battery, said assembly including a light signalling indicator for indicating the relative level of electrolyte and the cell, and comprising in combination a hollow body having upper and lower closure ends with inner and outer surfaces on said

closure ends having a hollow lower portion and an outwardly flared hollow upper portion, and a light transmitting rod of transparent material mounted in the hollow body, extending through the ends of said body and terminating below said body in a conical shape, said light transmitting rod having at least one shoulder positioned against one of the inner surfaces of the ends of said body



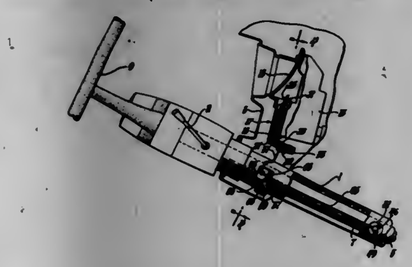
for positioning the rod in the body, and means for venting gases from the cell through the hollow body to the atmosphere, said means including a small vent opening in the lower end of the body on one side of the light-transmitting rod and a second vent opening in the body on the opposite side of the rod whereby the rod serves as a baffle for electrolyte containing gases being vented from the cell.

3,319,598

TRANSMISSION CONTROL INDICATOR

John Z. De Lorean, Birmingham, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Oct. 20, 1964, Ser. No. 405,128
6 Claims. (Cl. 116—124)



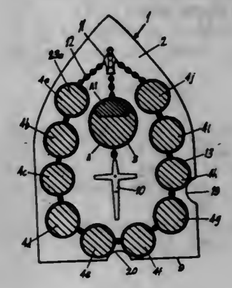
1. In a position indicator, support means, a rotatable member mounted on said support means for rotation substantially about an axis, operating means operatively connected to said member for rotating said member, a bar extending generally longitudinally with respect to said axis, means securing one point of said bar to said rotatable member at a point transversely spaced from the axis of said member for bodily movement with said rotatable member to impart a turning movement to said bar substantially about its own longitudinal axis, retainer means mounted on said support means receiving another point of said bar longitudinally spaced from said one point and restraining said another point from bodily rotation with said member while permitting rotation of said bar about its own longitudinal axis, indicator means operatively connected to a portion of said bar longitudinally spaced from said one point to indicate the relative rotary position of said member, said bar being turned on its own longitudinal axis to operate said indicator means when said one point is bodily turned with said member in response to rotation of said member and said another point is simultaneously restrained from bodily rotation with said member.

3,319,599

ROSARY GUIDE

Joan V. Kusman, 775 Danvers Drive, Cincinnati, Ohio 45240

Filed May 8, 1964, Ser. No. 365,887
5 Claims. (Cl. 116—133)



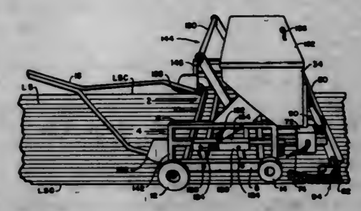
1. A rosary guide, comprising a first panel having a flanged edge at its periphery, a second panel having a shoulder at its periphery and adapted to receive said flange to thereby define a pocket for receiving a panel insert, means along at least one common edge of said panels for access to said pocket, a rotatable disk mounted on said second panel and spaced between said first and second panels, said disk arranged with indicia thereon representing each of the five titles of each of the three Mysteries of the rosary prayers, a first opening in said first panel overlying said disk and of a size to selectively expose indicia of a given Mystery and its five titles when rotated, a series of ten spaced apart openings in said first panel and spaced outwardly from said first opening, a removable and reversible insert received in said pockets in a first position, said insert panel having at least one opening therein adapted to coincide with at least a portion of the opening in said first panel, whereby said insert panel masks a portion of the indicia containing area of said rotatable disk otherwise visible through the opening in said first panel.

3,319,600

BOWLING LANE SURFACE COATING DEVICE

Patrick J. Regan, Elm Grove, Wis., assignor, by mesne assignments, to Brunswick Corporation, Chicago, Ill., a corporation of Delaware

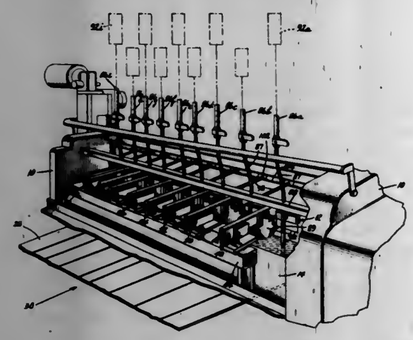
Filed Apr. 8, 1964, Ser. No. 358,160
4 Claims. (Cl. 118—108)



1. A bowling lane surface coating device comprising a frame having a first pair of cylindrical rollers spaced to run along the two opposed edges of a bowling lane when the device is propelled lengthwise of the lane and a second pair of rollers spaced forwardly of said first pair, said second pair of rollers being conical-shaped and spaced to ride on the corner of the two edges of the lane surface to

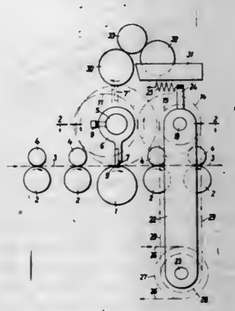
prevent the device from running off the lane surface, a tank for coating material supported by said frame, discharge means communicating with said tank and adapted to discharge coating material across the width of the lane surface behind said pairs of rollers, leveling bar means extending across the width of the lane surface and pivotally connected to said frame to swing about an axis coincident with the axis about which said first pair of cylindrical rollers turn in propulsion of the device, and means for adjusting the height of said leveling bar means from the lane surface.

3,319,601
APPARATUS FOR APPLYING DECORATIVE COATINGS TO WOOD PANELS
Willis L. Baker, Fort Wayne, and Cleo B. Briggs, New Haven, Ind., assignors to Plastiwall, Inc., Auburn, Ind., a corporation of Indiana
Filed Nov. 20, 1964, Ser. No. 412,707
6 Claims. (Cl. 118—255)



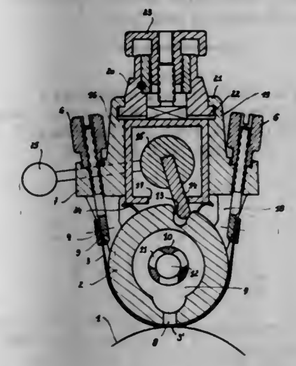
1. Apparatus for coloring a surface of a rectangular panel having a plurality of straight longitudinally extending simulated planks on said surface, said simulated planks individually being of uniform width from end-to-end of said panel and also being arranged edge-to-edge, comprising a roll-coating machine having a frame with upright spaced apart supports, first and second cylindrical rollers rotatably mounted on and extending between said supports, the axes of said rollers being parallel and spaced apart, said first and second rollers being horizontally arranged and engageable to provide a horizontal paint trough therebetween, said trough in cross-section having a generally V-shape, said first and second rollers engaging each other with sufficient force to retain liquid paint in said trough, said first roller being of metal, said second roller being of rubber-like material in the outer peripheral portion thereof, a plurality of partition devices disposed in said trough in spaced apart relation for dividing said trough into a plurality of separate trough sections; each partition device comprising a flat self-supporting rigid plate of tetrafluoroethylene plastic material disposed parallel to a vertical plane normal to the axes of said first and second rollers, said plate having a bottom edge shaped identically to the cross-sectional shape of said trough, said bottom edge having two opposite side portions which are curved to fit congruently the curvatures of said first and second rollers respectively, said two side portions joining in an apex which intimately fits the apex of said trough, said plastic plate extending above said second roller and having a forward edge which extends beyond a vertical diameter of said second roller, two rigid side plates clamped onto and secured to opposite sides of said plastic plate, a supporting bar secured to said side plates and extending horizontally over said first roller, two members secured to said frame and having two parallel spaced apart upstanding surfaces which define a vertical slot therebetween which extends parallel to a plane normal to the axes of said first and second rollers, said two members being positioned on the side of said first roller opposite said trough, a rigid guide plate secured to said bar and depending vertically therefrom, said guide plate being slidably received by said slot for vertical and horizontal movement therein, whereby slight vertical and horizontal motion imparted to said plastic plate by said first and second rollers is accommodated by the movable fit between said slot and said guide plate; a plurality of scraper blades having straight edges engaged with the peripheral surface of said second roller, said blades being flat and arranged in an upright plane in succession from one end of said second roller to the other, there being one blade for each trough section, each blade being fitted between two adjacent plastic plates rearwardly of the forward edges thereof, means supporting said blades in position for movement selectively into and out of engagement with said second roller, and a plurality of reservoirs having conduits extending therefrom to said trough sections, there being at least one conduit and reservoir for each section, each conduit being operatively supported by said frame and having an end which opens into the respective trough section, each conduit having a valve therein for controlling flow of paint therethrough, whereby different colored paint may be metered into and contained by said trough sections, said partition devices preventing the flow of paint between trough sections.

3,319,602
DEVICE FOR APPLYING AN ADHESIVE TO MOVING SURFACES
Richard Winkler, Burgermeister-Wink-Strasse, Rengsdorf, Germany, and Kurt Dunnebier, Am Birkenhang, Gladbach, Germany
Filed June 9, 1965, Ser. No. 462,561
Claims priority, application Germany, July 27, 1964, W 37,251
9 Claims. (Cl. 118—258)



1. A device for applying an adhesive to moving surfaces, said device comprising a rotary applicator operatively engageable during each revolution with a moving surface to be coated with the adhesive, supply means for the adhesive operatively engageable with the applicator during each revolution thereof for transferring adhesive to the applicator, and variable speed drive means for rotating said applicator, said drive means imparting to the applicator a rotational speed substantially equal to the rate of movement of the surface when the applicator is engaged with the same for applying the adhesive thereto and a reduced rotational speed when the applicator is engaged with said adhesive supply means.

3,319,603
APPARATUS FOR THE APPLICATION OF LIQUID SUBSTANCES, PARTICULARLY ADHESIVES
Willy Hesselmann, Herbststrasse 27, Rosenheim, Upper Bavaria, Germany
Filed Oct. 28, 1963, Ser. No. 319,346
Claims priority, application Germany, Oct. 26, 1962, P 30,456
8 Claims. (Cl. 118—410)



1. A device for applying a fluid to a work surface, comprising a stationary beam; a holder slidably and non-rotatably carried on said beam; a foil supported on said holder and forming a laterally projecting loop thereon, said foil being provided with an opening at a portion of said loop remote from said beam; a dispenser having a substantially cylindrical body with an axis parallel to said beam rotatably cradled in said loop, said body being provided with a peripheral bore registering with said opening in an operative position of said dispenser; feed means for supplying a working fluid to the interior of said body; a rotatable shaft supported on said beam and extending in the direction of the latter; an elongated blade peripherally carried on said shaft, said body having a peripheral formation engaged by said blade in different axial positions of said dispenser and said holder with reference to said beam; and actuating means connected with said shaft for swinging the latter about its axis, thereby rotating said body into an inoperative position in which said bore and said openings are disaligned.

3,319,604
XEROGRAPHIC TRANSFER APPARATUS
Thomas C. Murray, Rochester, Franklin S. Reese, Victor, Frank A. Roselli, Webster, Robert A. Schaeffer, Rochester, and Joseph B. Stone, Penfield, N.Y., assignors to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Mar. 2, 1964, Ser. No. 348,340
7 Claims. (Cl. 118—637)

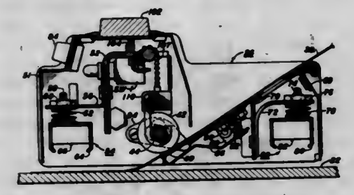
1. Apparatus for transferring powder images from a xerographic plate to a sheet of support material including:

a frame adapted to support a xerographic plate in a position to have a powder image thereon, transferred to a sheet of support material,

an electrostatic transfer device spanning the xerographic plate and moveable supported, by the frame, to traverse the xerographic plate,

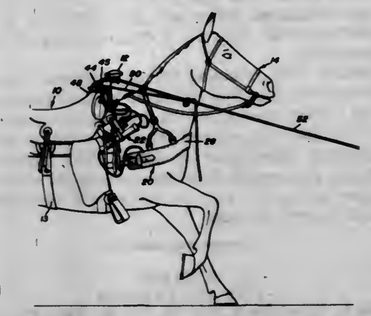
means to feed a sheet of support material onto the surface of the xerographic plate as the electrostatic charging device traverses the plate,

said sheet feeding means arranged for movement with said electrostatic transfer device and operative to feed the sheet of support material at a rate substantially equal to the rate of movement of the electrostatic charging device across the plate surface, and when inoperative to arrest the sheet in close proximity with said xerographic plate,



and means to apply an electrical potential to the electrostatic charging device to electrostatically tack the support material to the plate surface and to transfer a powder image from the plate to the support material.

3,319,605
TRAINING DEVICE FOR MAINTAINING A TAUT LARIAT ON A ROPING HORSE
Hallie O. Early, 1407 Avenue E, Kenneth R. Schafer, 4001 Austin Ave., and Herman R. Kirkland, 3901 Austin Ave., all of Brownwood, Tex. 76801
Filed July 8, 1965, Ser. No. 470,466
3 Claims. (Cl. 119—29)

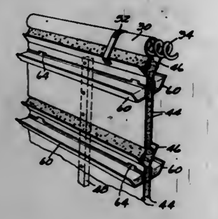


1. In combination with a saddle a training apparatus for training a horse to maintain a taut lariat during the throwing and tying of a calf without interfering with the horse's normal bridle accoutrements which training apparatus comprises an electrically energized battery-powered high tension shocking means for attachment to the saddle including battery means, grounding means substantially carried by the saddle independent of the normal bridle accoutrements, said grounding means normally conductively connecting portions of said shocking means to the horse, said shocking means including a normally conductive spring biased switch means carried by the saddle and interposed in a conductive path between said battery means and said grounding means, a lariat having one end attached to the saddle and the other end for engaging an animal to be lassoed, means connecting said spring biased switch to said lariat intermediate its ends, said switch means being operable by said lariat whereby when tension is placed on said lariat by the horse during the roping of an animal said spring biased switch will be urged into an off position thereby interrupting the shocking current so as to condition the horse to maintain a taut lariat without requiring a person in the saddle to manipulate the normal bridle accoutrements.

3,319,606
CHICKEN FEEDING AND MAINTAINING APPARATUS

Richard K. Virgil, Cassopolis, Mich.; Florence Virgil, executrix of the estate of said Richard Virgil, deceased, assignor to Florence Virgil

Filed Aug. 2, 1965, Ser. No. 476,605
6 Claims. (Cl. 119—51)

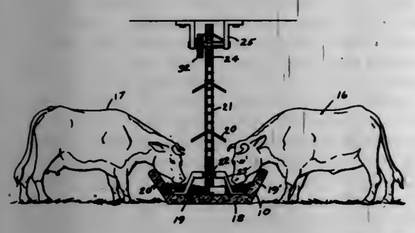


1. A chicken feeding device comprising,
a horizontal screw conveyor having a longitudinal bottom discharge opening,
a first assembly suspended from said conveyor and including a V-shaped feed trough beneath said conveyor discharge opening, downwardly extending feed confining panels depending from and communicating with said feed trough and open at the bottom thereof, a water trough supported by a panel below said feed trough and an inclined feed and water deflector carried by a panel below said water trough,
a second assembly of feed trough, feed confining panels, water trough and feed and water deflector similar to and positioned below said first assembly to receive feed material from the bottom opening of said first assembly,
a bottom feed retaining trough positioned below the lowermost assembly and receiving feed material from the bottom opening of the lowermost assembly,
said troughs being spaced from the adjacent discharge openings thereabove to collect feed material to a height closing the discharge opening thereabove, and support means for said conveyor, said assemblies and said bottom trough.

3,319,607
ANIMAL FEEDER

Charles L. Lovercheck, 632 W. 7th St., Erie, Pa. 16502

Filed Oct. 22, 1965, Ser. No. 501,298
1 Claim. (Cl. 119—52)

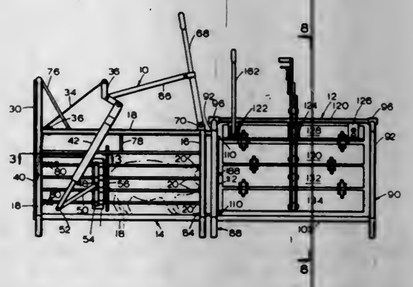


In combination, a feeder for livestock for feeding bulk feed and a conveyor,
said feeder comprising an elongated trough having a substantially wide bottom and spaced sides extending upwardly therefrom,
said conveyor comprising an elongated continuous belt, spaced, laterally extending generally V-shaped flights attached to said belt,
a part of said flights engaging said bottom and adapted to slide in close relation thereto from approximately one end thereof to the other,
and means to deposit feed in one end of said trough, said flights being substantially less in length than the width of said trough at said bottom whereby feed is carried along said trough by said flights and deposited in said trough along the ends of said flights, said flights being of substantial height, said flights are attached to said belt adjacent their centers and the ends of said flights incline rearwardly from the direction of travel of said belt.

3,319,608
PIG HANDLING ASSEMBLY

John R. Klooster, Rte. 1, Britt, Iowa 50423

Filed Oct. 24, 1965, Ser. No. 504,647
5 Claims. (Cl. 119—98)



1. A pig handling assembly comprising: a vestibule section and a pig tilting section, said vestibule section comprising a framework having sides defining an elongated chute therebetween having an entrance end and an exit end, sliding members mounted on said framework on each side of said chute in a manner for permitting said sliding members to move longitudinally of said chute, swinging doors hingedly secured to said sliding members respectively and extending transversely of said chute when in closed pig-pushing positions, means urging said doors toward closed positions, means attached to said frame for engaging said doors and causing said doors to open as said sliding members are moved toward said chute entrance, a hand lever pivotally mounted on said frame, means attaching said hand lever to said sliding members for urging them toward said entrance and exit as said hand lever is moved in each of two directions, an entrance door moveably mounted on said frame for opening and closing said entrance, said pig tilting section having means for gripping an upright pig and turning said pig upsde down to be treated.

3,319,609
ANIMAL RESTRAINER

George C. Pickard, 17610 Hamlin, Van Nuys, Calif. 91406, Adolph C. Glass, 20146 Hart St., Canoga Park, Calif. 91306, and Samuel Hodesson, 2139 Casa Grande Drive, West Covina, Calif. 91790

Filed Oct. 21, 1965, Ser. No. 499,206
10 Claims. (Cl. 119—153)

1. A snare comprising:
an elongate pole-like handle having inner and outer ends;
a longitudinally and rotatably movable snare operating shaft extending lengthwise of and supported by said handle;
said shaft having an exposed hand grip at its inner end;

said handle having a longitudinal opening at its outer end generally longitudinally aligned with the outer end of the shaft;
a snare cord comprising a relatively stiff though flexible tempered spring wire secured at its ends to said outer ends, respectively, of said handle and shaft and extending through said handle opening to form an open loop-shaped noose;

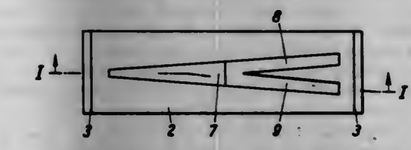


said handle and shaft being relatively longitudinally movable to radially enlarge and constrict said noose and said handle and shaft being relatively rotatable in either direction to angularly move said noose relative to said handle along a direction line transverse to said handle and to the plane of said noose; and
locking means coacting between said handle and shaft and operable in all relative angular positions thereof for releasably locking said handle and shaft against relative longitudinal movement in various relative longitudinal positions thereof.

3,319,610
CIRCULAR PISTON MACHINE

Erwin Höjj, Essen, and Eberhard Fezer, Essen, Bredeney, Germany, assignors to Beteiligungs- und Patentverwaltungsgesellschaft mit beschränkter Haftung, Essen, Germany

Filed Feb. 28, 1964, Ser. No. 348,133
Claims priority, application Germany, Mar. 12, 1963, B 71,080
6 Claims. (Cl. 123—8)



1. A circular piston machine, especially circular piston motor, which includes: a housing with an epitrochoidal inner contour, a shaft journalled in said housing and provided with an eccentric, a rotary piston rotatable relative to said inner contour of said housing and journalled on said eccentric for rotation relative thereto, said piston being of triangular cross sectional shape so as to have three circumferentially spaced edges extending in the direction of the axis of rotation of said piston, sealing strip means respectively mounted at said edges and contacting said inner contour, said piston having the three areas thereof which are located between said strip means and face said inner contour each provided with a single trough structure only having a volume of at least 15% of the minimum volume confined by said housing and each of said areas of said rotary piston during a complete rotation of the latter, each of said trough structures extending in a direction transverse to the axle of rotation of said rotary piston and substantially circumferentially of the piston, and nozzle means located in said housing and having its mouth opening into an area of said housing which together with said trough structure during a revolution of said rotary piston confines a chamber of minimum volume, said nozzle means injecting fuel into each trough structure substantially in the direction of the longitudinal axis of the respective trough structure and the side walls of said trough structures diverging in the direction of fuel injection so as to be free at least to the major extent from contact with the fuel jet ejected by said nozzle means into the chamber confined by the respective trough structure and the respective adjacent housing inner contour, the effective compression ratio of said machine being at least 10:1, and the maximum turning angle of the sealing strip means being at least 21°, said turning angle being defined by the equation:

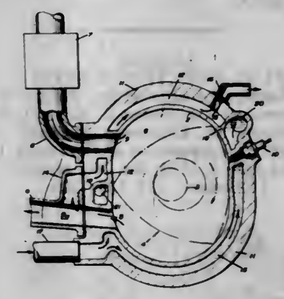
$$\sin \varphi = \frac{3E}{R}$$

in which E=the distance between the axis of said shaft and the axis of said eccentric, whereas R=the distance between the axis of said eccentric and the tip of said strip means.

3,319,611
INTAKE GAS HEATING MEANS FOR A ROTARY PISTON ENGINE

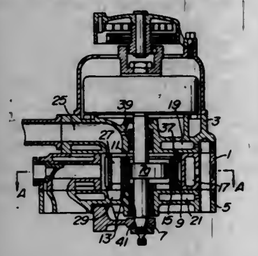
Yasuto Terazawa, Aki-gun, Hiroshima-ken, Japan, assignor to Toyo Kogyo Company Limited, Aki-gun, Hiroshima-ken, Japan

Filed Aug. 9, 1965, Ser. No. 478,360
Claims priority, application Japan, Aug. 13, 1964, 39/46,735
2 Claims. (Cl. 123—8)



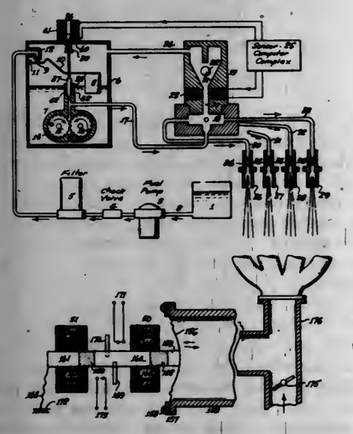
1. A rotary internal combustion engine having intake gas heating means, said engine comprising an engine casing having an annular trochoidal shaped internal peripheral wall, a crankshaft within said casing, a triangular shaped rotary piston mounted on said crankshaft for eccentric rotation within the casing, said piston having the apexes engaging the internal peripheral wall to define suction and compression spaces between the piston and the internal wall within said engine casing, said casing having a gas intake port and an exhaust port therein, an exhaust manifold connected to said casing over said exhaust port, and a jacket at least around the portion of said casing along which the suction space extends and defining a fluid chamber between said casing and said jacket, the end of said fluid chamber adjacent said intake port being connected to said exhaust manifold and said fluid chamber having an exhaust opening at the other end thereof, whereby a portion of the exhaust gases passing through the exhaust manifold are diverted through said fluid chamber for heating the engine casing along the suction space therein.

3,319,612
WATER-COOLED ROTARY PISTON ENGINE
Yoshitsugu Hamada, Nagahama-shi, Japan, assignor to Yanmar Diesel Engine Co., Ltd., Osaka, Japan, a corporation of Japan
Filed Sept. 27, 1965, Ser. No. 490,228
Claims priority, application Japan, Sept. 30, 1964, 39/76,342
3 Claims. (Cl. 123—8)

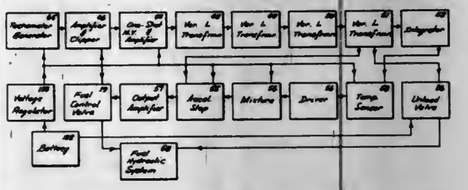


1. A water-cooled rotary piston engine of the type including a housing comprised of a shell, the inner surface of which has a multi-lobed profile approximating an epitrochoid, and end walls secured to said shell at its opposite ends, an engine shaft extending axially through said housing and including an eccentric portion between said end walls thereof and a piston mounted on said eccentric portion of said engine shaft and adapted to rotate in the same direction as said engine shaft at a predetermined revolution ratio thereto, said piston having an approximately polygonal transverse cross section defining apex portions slidable along the inner surface of said shell, means for water-cooling said shell and end walls of said housing and means for circulating a fuel-air mixture through said piston.

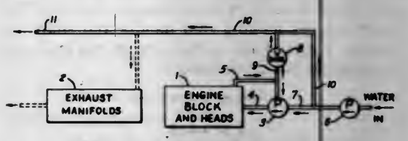
3,319,613
FUEL INJECTION SYSTEM
Warren W. Begley, Mission Hills, Robert E. Wilcox, North Hollywood, and Britten E. Kimball, Inglewood, Calif., assignors to Electronic Specialty Co., Los Angeles, Calif., a corporation of California
Filed June 3, 1965, Ser. No. 461,111
14 Claims. (Cl. 123—32)



3. In a fuel injection system for an engine having a fuel pump and an electrically-controlled fuel control valve connected to said pump, an electrical computer for the control of said fuel system comprising first means to form an alternating electrical output related to the speed of operation of said engine, second means connected to said first means to alter said electrical output in relation to the air pressure within said fuel system, third means connected to said second means to convert the altered said electrical output to direct current electrical energy, fourth means to form direct current electrical energy related to the temperature of air within said fuel system, fifth means connected to said third and fourth means to combine the electrical energies of the same, and means to connect said fifth means to said fuel control valve for the control of the latter in accordance with the recited electrically determined aspects of the operation of said engine.



3,319,614
MARINE ENGINE COOLING SYSTEM
Robert J. Shanahan, Neenah, Wis., assignor to Kiekhaefer Corporation, Fond du Lac, Wis., a corporation of Delaware
Filed Dec. 17, 1964, Ser. No. 419,041
6 Claims. (Cl. 123—41.08)

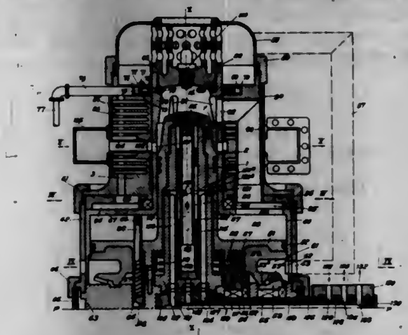


1. A marine engine cooling system, comprising a recirculating system including the cooling passages in the engine block and head, a pump in said recirculating system to effect the recirculation of water therein during operation of the engine, a thermostatically regulated discharge line from said recirculation system adapted to discharge water therefrom when the water in the system exceeds a predetermined temperature, a water supply pump connected between a source of water and said recirculating system to supply water to the system in correlation to said discharge of water from the system, said supply pump providing water at a substantially greater rate than needed to replenish the water in said recirculating system, and an overflow discharge line connected between said supply pump and said recirculating system for free discharge of the excess water above that needed by said recirculating system, said thermostatically regulated discharge line and said overflow discharge line having effective discharge points substantially above all parts of said recirculation system whereby a substantially constant head of water is maintained in the system during operation.

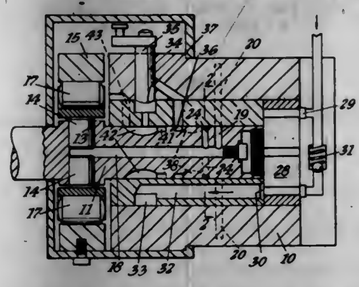
3,319,615
RECIPROCATING ENGINE
Henry Girerd, Paris, France, assignor of one-half to Conservatoire National des Arts et Metiers, Paris, France
Filed May 11, 1965, Ser. No. 454,833
Claims priority, application France, May 14, 1964, 3,127
15 Claims. (Cl. 123—43)

1. In a reciprocating engine,
casing means having ports therein for the admission and the exhaust of working fluid,

hollow cylinder means rotatable within said casing, said cylinder means having ports opening through the wall thereof from the hollow interior of said cylinder means and cyclically communicating with said admission and exhaust ports of the casing means upon rotation of said cylinder means,
two independently movable piston means slidable within said cylinder means at opposite sides of a plane of symmetry of the engine and defining with said cylinder means at least one combustion chamber with which said ports of the cylinder means communicate,
means remote from said combustion chamber longitudinally positioning each of said piston means individually in said cylinder means in correspondence to the rotational position of the respective piston means and thereby effecting rotation of each said piston means upon reciprocation thereof in said cylinder means,
means rotatably coupling each said piston means with said cylinder means to effect rotation of the latter in response to said rotation of the piston means, and
means outside said interior of said cylinder means and constituted, at least in part, by said cylinder means correlating the rotational positions of said two piston means so as to, at all times, equally displace and symmetrically disposed said two piston means with respect to said plane of symmetry.

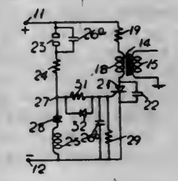


3,319,616
LIQUID FUEL PUMPS FOR USE WITH INTERNAL COMBUSTION ENGINES
Paul Edgar Glikin, London, England, assignor to C.A.V., Limited, London, England
Filed Jan. 26, 1965, Ser. No. 428,094
Claims priority, application Great Britain, Feb. 25, 1964, 7,753/64
5 Claims. (Cl. 123—139)



1. A liquid fuel pump for supplying fuel to internal combustion engines and comprising a body part, a rotary distributor within the body part, a transverse bore formed within the distributor, a pair of plungers mounted in the opposite ends of said bore respectively, a cam ring having three pairs of cam lobes equiangularly disposed about the distributor and positioned to cause inward movement of the plungers during rotation of the distributor, the lobes of each pair of cam lobes being diametrically disposed relative to each other, the lobes being shaped to permit a limited outward movement to the plungers after the inward movement has taken place, a delivery passage in the distributor, three equiangularly spaced delivery ports formed in the body part and with which the delivery passage registers in turn as the distributor rotates during the full inward movement of the plungers, the limited outward movement of the plungers taking place whilst the delivery passage is still in register with a delivery port and serving to partially relieve liquid pressure in said delivery port, a recuperation chamber and means for placing said recuperation chamber in communication with the transverse bore during the time when the plungers are moved inwardly by the cam lobes and when the delivery passage is not in register with a delivery port.

3,319,617
SPARK IGNITION SYSTEMS FOR INTERNAL COMBUSTION ENGINES
Brian Gilbert, Sutton Coldfield, England, assignor to Joseph Lucas (Industries) Limited, Birmingham, England
Filed Nov. 22, 1963, Ser. No. 325,661
Claims priority, application Great Britain, Dec. 5, 1962, 45,984/62
10 Claims. (Cl. 123—148)

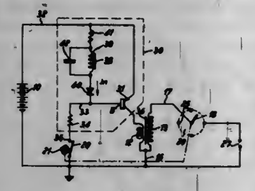


1. A spark ignition system for an internal combustion engine, of the kind in which current flow in a winding controls discharge across a spark plug of the engine, comprising in combination a D.C. source having a positive terminal and a negative terminal, a switchable rectifier having its anode and cathode connected across said terminals in series with said winding, said switchable rectifier having an anode, a cathode and a gate, and being turned on by a positive pulse between its gate and cathode, and turned off by a negative pulse between its gate and cathode, a series circuit connected across said terminals, said series circuit including a contact breaker having one side thereof connected to said positive terminal and an inductor through which the other side of said contact breaker is connected to said negative terminal, means coupling a point in said series circuit intermediate the contact breaker and inductor to the gate of the switchable rectifier, so that the switchable rectifier is switched on when the contact breaker closes, and is switched off by the energy stored in the inductor when the contact breaker opens, a first capacitor connected across the contact breaker, and an additional capacitor connected in the system, said additional capacitor being connected in a position such that in the event of the interrupter breaking down after it opens, the charge on this additional capacitor will prevent inadvertent switching on of the switchable rectifier.

3,319,618
BATTERY IGNITION SYSTEM

Gerhard Söhner, Geradstetten, Kreis Waiblingen, Germany, assignor to Robert Bosch GmbH, Stuttgart, Germany

Filed July 27, 1964, Ser. No. 385,187
6 Claims. (Cl. 123—148)

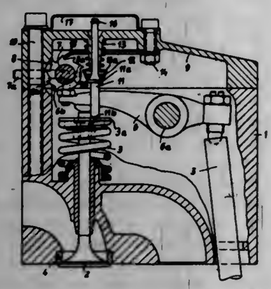


1. In a battery ignition system for internal combustion engines including an ignition coil having a primary and a secondary winding, a battery connected to said primary winding, a transistor, having its emitter-collector path between one terminal of said battery and said primary winding, and an interrupter connected between the base of said transistor and other terminal of said battery and changing between conductive and nonconductive positions for periodically changing said transistor between conductive and nonconductive conditions including, in combination, inductance means and rectifier means connected with each other as a series-combination, said series-combination being connected in parallel with the emitter-collector path of said transistor, said rectifier means being arranged in said series-combination in such a manner that the direction of its conductivity permits, when the interrupter is in conductive position, a current to flow through said series-combination in parallel with the emitter-base current through said transistor, and permits, when said interrupter is in nonconductive position, a current to flow through said series-combination and against the normal current direction through said emitter-base path of said transistor, whereby the change of said transistor from conductive condition to nonconductive condition is accelerated.

3,319,619
DECOMPRESSION DEVICES FOR INTERNAL COMBUSTION ENGINES

Karl-Heinz Neuer, Ruhstorf, near Passau, Germany, assignor to Motorenfabrik Hatz G.m.b.H., Ruhstorf, near Passau, Germany

Filed Aug. 31, 1965, Ser. No. 483,976
Claims priority, application Germany, Sept. 16, 1964, M 62,444
6 Claims. (Cl. 123—182)

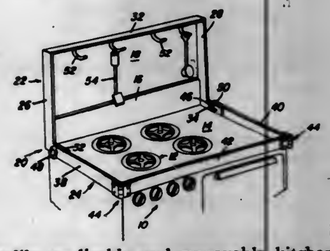


1. In a valve controlled internal combustion engine, in combination; an exhaust valve, exhaust valve gear comprising movable members operating and controlling said valve, an engine housing a part of which accommodates and surrounds said valve gear, a rotatable decompression element capable of being disposed for engagement by a relevant one of said valve operating and controlling members suchwise as to prevent full closure of the valve and so produce a condition of decompression, means coupled to the decompression element and operable for turning said element in a direction to terminate decompression, a driver for operating said means, said driver being automatically actuatable from another of the aforesaid members of the exhaust valve gear, and a common carrier in which are mounted the decompression element, the means coupled to the latter for turning it and the said driver being supported by a spring-biassed plunger which is axially displaceable in the common carrier and is so disposed that, when the said carrier is mounted on the engine housing, an end of the plunger will, as a matter of course, be applied against the relevant movable member of the exhaust valve gear.

3,319,620
RANGE GUARD

Joseph L. Nazzaro, 13 Oakland Ave., Jersey City, N.J. 07306

Filed Oct. 13, 1965, Ser. No. 495,664
8 Claims. (Cl. 126—211)

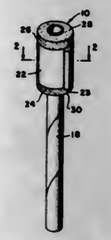


1. A readily applicable and removable kitchen range safety guard comprising, in combination, a guard adapted to be disposed in a first position about the upper edge of the front and side of a kitchen range with portions of said guard extending above the plane defined by the range top, means at right angles to and for supporting said guard, said supporting means including leg means resting atop but free of positive connection with said range top said guard including side rim portions hingedly attached to said leg means whereby said guard is rotatable from a first horizontal in-use position to a second position above the plane defined by the range top.

3,319,621
SALIVATION TESTING METHODS AND DEVICES

Paul Schwerin, Dumont, N.J., assignor to Schwerin Research Corporation, New York, N.Y., a corporation of New York

Filed Dec. 18, 1963, Ser. No. 331,482
5 Claims. (Cl. 128—2)

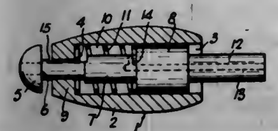


1. A salivation testing device comprising: a roll of paper tape; the paper of said tape being nontoxic, odor less and tasteless, formed of short fibers, whereby the path for the travel of moisture longitudinally of the tape is short, thin, having good wet strength, and uncoated on both surfaces; said roll comprising a series of convolutions of said paper tape in continuous surface-to-surface contacting relation; the ends of said roll and the adjacent marginal side portions of said roll being moisture proofed whereby penetration of moisture into said roll is confined to radially through the side of said roll intermediate said marginal portions.

3,319,622
DEVICE FOR GASTRO-INTESTINAL FLUIDS

Margot Shiner, London, England, assignor to National Research Development Corporation, London, England, a British corporation

Filed Dec. 26, 1963, Ser. No. 333,399
Claims priority, application Great Britain, Jan. 4, 1963, 574/63
3 Claims. (Cl. 128—2)



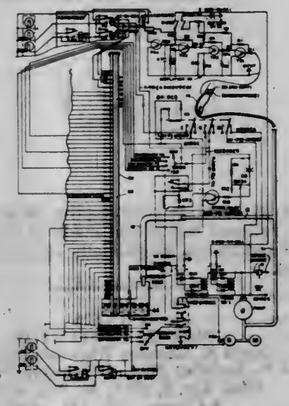
1. A gastro-intestinal fluid sampling device which comprises a hollow capsule having a cylindrical bore, the distal part of which capsule tapers to form a nose cap, and which is detachable, a movable member longitudinally located in said bore, the distal part of said movable member being adapted for connection to said cap and so dimensioned as to occupy only a small part of the bore of the capsule, the proximal part thereof being so dimensioned as to form a piston having a slidable sealing fit within said bore, a spring located in the distal part of the bore of the capsule and contained therein at the distal end by an inwardly depending extension of the internal wall of the capsule and at the proximal end by said piston and adapted by exerting a pressure on said piston to retain the cap, when in connection with the movable member, in the closed and sealing position, said movable member being apertured axially, which aperture communicates at the distal end thereof via a port with the bore of the capsule and at the proximal end thereof is adapted to communicate via a tubular line with an external source of suction and which member is adapted by connection to said source to allow a reduction in the internal pressure of the capsule sufficient to overcome the retaining spring pressure whereby the nose cap is displaced from the capsule and a fluid sample is admitted thereto, whereupon an increase in internal pressure causes the spring to return the nose cap to its normal closure and sealing position.

3,319,623
BLOOD PRESSURE MONITORS

Seymour B. London, 35 E. Dilido Drive, Dilido Ave., Miami, Fla. 33139

Filed July 13, 1964, Ser. No. 382,255
13 Claims. (Cl. 128—2.05)

1. A blood pressure monitor apparatus comprising:
(a) an inflatable cuff;
(b) pump inflating means including a conduit in communication with said cuff;
(c) a bleeder valve positioned in said conduit to allow said cuff to so decompress;
(d) an electrically conductive pressure responsive aneroid manometer in communication with said conduit;
(e) a display panel electrically connected via a series of independent circuits to respective pressure gradient contact points adjacent said aneroid manometer, said display panel including visual indicia means corresponding to mid-pressure gradient contact points adjacent said manometer;
(f) a source of electrical energy supplying said pump inflating means, said aneroid manometer, and said display panels;
(g) a pressure select switch in circuit with said aneroid manometer and said pump inflating means, said pressure select switch being actuable within said aneroid manometer to cut off said source of electrical energy from said pump inflating means at a predetermined pressure;

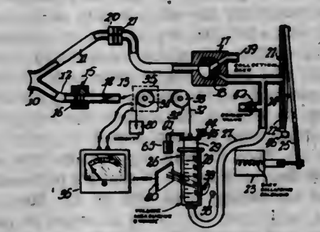


(h) a decompression valve in said conduit and a pressure responsive switch interconnecting said aneroid manometer and said valve, gauging decompression according as a pre-set pressure is detected in said manometer;
(i) an interval control switch in circuit with said source of electrical energy and closing said source of energy with said pump inflating means at predetermined intervals; and
(j) sound detecting means in communication with said cuff and independently relayed to said visual indicia, so as to limit electrical energization of said indicia, except as Korotkow sounds are detected.

3,319,624
APPARATUS FOR MEASURING BREATH VOLUME

Leon J. Arp, Ames, Iowa, and Ronald J. Griffith, Morristown, N.J., assignors to Iowa State University Research Foundation, Inc., Ames, Iowa, a corporation of Iowa

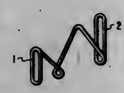
Filed Jan. 15, 1964, Ser. No. 337,778
10 Claims. (Cl. 128—2.08)



1. In respiratory volume measuring apparatus, a thin inelastic collapsible sack, volumetric measuring means, a conduit adapted to be coupled at one end thereof to a

patient whose breath volume is to be measured, the other end of said conduit being coupled to said collapsible sack, valve means interposed in said conduit, a second conduit coupling said sack to said volumetric measuring means, valve means operably associated with said second conduit, and electromechanical collapsing means for collapsing said sack to expel a given breath volume therefrom into said volumetric measuring means.

3,319,625
INTRA-UTERINE CONTRACEPTIVE DEVICE
Basil Paul Appleby, 136 Harley St., London W1, England
Filed July 6, 1966, Ser. No. 563,183
Claims priority, application Great Britain, Aug. 6, 1965, 33,819/65
8 Claims. (Cl. 128—130)

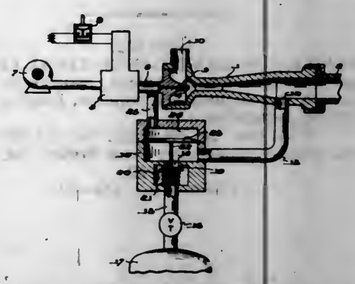


1. An intra-uterine contraceptive device comprising a radially flattened helical coil made of resiliently flexible material and having substantially closed oblong loops at each end.

3,319,626
MOUTH PROTECTOR
David K. Lindsay, Whitefish Bay, Wis.
(5922 N. Berkeley Blvd., Milwaukee, Wis. 53217)
Filed Apr. 8, 1965, Ser. No. 446,571
8 Claims. (Cl. 128—136)

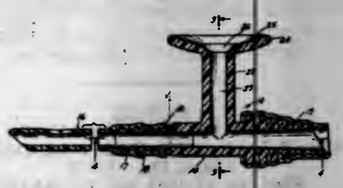
4. A mouth protector comprising: a tray member adapted to receive a filler of impression material, said tray member being generally U-shaped to define a frontal bite portion and rearwardly extending leg portions, said tray having a generally flat floor and generally vertical inner and outer side walls, the floor in the frontal bite portion being substantially thicker than the floor in the leg portions; a plurality of generally vertical ribs spaced along substantially the entire lengths of the inner surfaces of both side walls that are adapted to centeringly engage the teeth of the user along substantially the entire jaw line, said ribs having their lower ends at the floor and their upper ends on the walls and being inwardly inclined from top to bottom, the ribs in the leg portions being canted from front to rear; a pair of upstanding medial ribs on the floor in both leg portions that extend substantially the entire length of said leg portions; and a plurality of upstanding cross ribs on the floor in both leg portions, said cross ribs being arranged in pairs branching from said medial ribs with the cross ribs extending laterally and rearwardly from the medial ribs, the outer end of each cross rib terminating at and merging with the bottom end of an associated vertical rib.

3,319,627
INTERMITTENT POSITIVE PRESSURE BREATHING APPARATUS
Fred N. Windsor, Pittsburgh, Pa., assignor to Mine Safety Appliances Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Feb. 20, 1964, Ser. No. 346,141
4 Claims. (Cl. 128—145.5)



1. Intermittent positive pressure breathing apparatus comprising a conduit having an outlet end, a nozzle connected to said end of the conduit and provided with a restricted passage, means for intermittently supplying compressed gas through said conduit to the nozzle, a tube for receiving gas from said nozzle at a lower pressure than it enters the nozzle and having an outlet adapted to deliver said gas to a patient, a valve housing having an inlet for connection to a supplemental gas source and having an outlet connected with said tube, said housing containing a valve port, a closure member at the inlet side of said port normally closing the port, a stem extending through the port and connected at one end of the closure member, a flexible diaphragm mounted in the housing and engaging the opposite end of said stem, said valve outlet being located between said port and one side of the diaphragm, and means connecting said conduit with the inside of said housing at the opposite side of the diaphragm so that gas pressure in the conduit will flex the diaphragm and cause it to push said closure member away from said port.

3,319,628
REGULATOR TO CONTROL THE FLUID FLOW OF A SUCTION CATHETER
James C. Halligan, Radburn, N.J., assignor to Becton, Dickinson and Company, Rutherford, N.J., a corporation of New Jersey
Filed Feb. 3, 1964, Ser. No. 342,146
1 Claim. (Cl. 128—276)



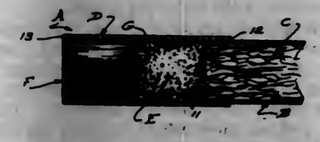
A suction catheter apparatus having improved regulating means for controlling the fluid flow and suction therethrough comprising a flexible plastic elongated catheter beveled at one end and having an opening formed adjacent said end, a regulator formed of a relatively rigid plastic material having a longitudinally extending conduit tube, the other end of said catheter being mounted in sealing engagement at one end of said conduit tube and the other end of said conduit tube adapted to be mounted to a source of suction so that material sucked through the catheter will be drawn through the conduit tube, an integrally formed control tube extending transversely from said conduit tube between the opposite ends and provided with an open outer end formed with a flanged finger engaging piece surrounding the opening, said finger engaging piece having a first concave surface extending inwardly from the outer portion of the flange to approximately the mid-point thereof and a second concave surface of greater angularity to the transverse axis of the finger piece than the first concave surface and extending inwardly from the first concave surface so that the lower portion of said second concave surface communicates with the bore of said control tube whereby the regulation of air flow is controlled by varying the pressure applied by a finger on the finger engaging piece.

3,319,629
FILTER CIGARETTE
Ralph Joseph Chamberlain, Glenbrook, Conn., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine
Filed May 20, 1965, Ser. No. 457,281
3 Claims. (Cl. 131—10)



1. A smoke filter cigarette wherein the filter element comprises cationic cyanamide-cellulose acetate tow having an adsorbed content of pigmentary activated carbon.

3,319,630
TOBACCO SMOKE FILTER
Norman B. Ormsbee, 2610 W. 78th Place, Inglewood Calif. 90305
Filed June 29, 1964, Ser. No. 378,723
10 Claims. (Cl. 131—10.7)

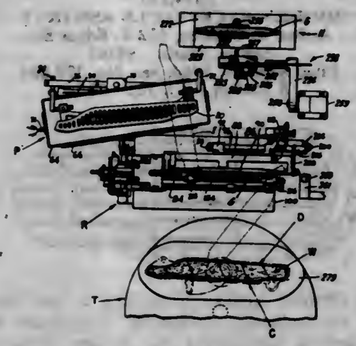


1. In a tobacco filter, a filter pack of dehydrated coffee brew extract granules in cellular form and arranged in bridging contact with each other and formed as a tobacco smoke filter.

2. In a tobacco filter construction of the character referred to, a filter pack of dehydrated tea brew extract granules in cellular form and arranged in bridging contact with each other and formed as a tobacco smoke filter.

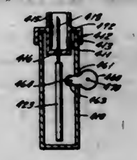
3,319,631
CIGAR MACHINE
Thomas A. Godfrey, Elmont, and Sterling T. Gustavson, Rosedale, N.Y., assignors to American Machine & Foundry Company, a corporation of New Jersey
Application Oct. 9, 1963, Ser. No. 315,004, now Patent No. 3,225,772, dated Dec. 28, 1965, which is a division of application Ser. No. 81,361, Jan. 9, 1961, now Patent No. 3,139,091, dated June 30, 1964. Divided and this application Mar. 29, 1965, Ser. No. 443,394
2 Claims. (Cl. 131—35)

1. In a cigar machine having a wrapper cutting station, a single carrier for picking up shaped lengths of wrapper at said cutting station and delivering them to a cigar bunch rolling station, said carrier having a horizontal wrapper holding surface, means for applying paste to one entire surface of said wrapper, means for transporting the carrier over the wrapper paste applying means, and means for temporarily arresting the carrier over the paste applying means; said paste applying means comprising in combination a paste reservoir, a single horizontal plate corresponding in shape substantially to said wrapper and supported adjacent said reservoir and reciprocable vertically between a submerged position in



the paste reservoir and a raised position in contact with a wrapper on said carrier, said plate comprising a substantially flat unitary member having a plurality of elliptically shaped downwardly tapered drainage openings, the long axes of which being substantially perpendicular to the longitudinal axis of said plate and means operable in syhchronism with the arresting means of the carrier to momentarily raise the plate into contact with a wrapper on the carrier to apply paste to said wrapper.

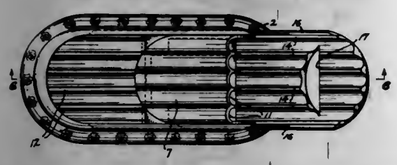
3,319,632
CIGARETTE MOISTENER
Henry Burbig, 1519 Metropolitan Ave., New York, N.Y. 10062
Filed Aug. 31, 1964, Ser. No. 393,148
3 Claims. (Cl. 131—133)



1. A cigarette moistening device comprising a container for liquid;
an opening for said container;
a cap covering said opening;
said cap being provided with a well-like receptacle;
the axis of said receptacle being normal to the plane of said opening;
a hollow needle mounted on the bottom surface of said receptacle, parallel to the axis of said receptacle and extending above and below said bottom surface;
and means for forcing liquid from said container through said hollow needle;
said receptacle being shaped and adapted to receive an end of a cigarette with said hollow needle entering the cigarette end;
said hollow needle having a plurality of openings along that portion of its side that extends into said receptacle;
said means for forcing liquid from the container through said hollow needle comprising a pump having a flexible pressure bulb extending in sealed relationship through one wall of the container;

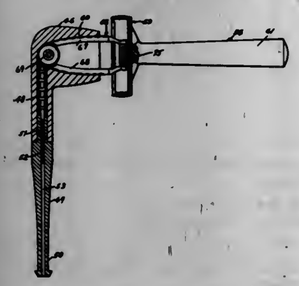
that portion of the bulb which extends within the confines of the container being provided with a plurality of slits normally closed, which are opened under the application of pressure on the bulb portion exterior of the chamber, to permit the passage of air, under pressure, into said container.

3,319,633
HIDDEN RECEPTACLE ASHTRAY
Arthur R. Glidden, 132 E. Edgar St., Seattle, Wash. 98102
Filed Sept. 28, 1964, Ser. No. 399,604
5 Claims. (Cl. 131—235)



1. A cigarette ashtray comprising a base having a stepped top including, at opposite sides of the step, an upper portion constituting the bottom portion of a snuffer and a lower portion constituting an ash receptacle, and a cover fittable on said base and including a portion overlying said upper base portion and constituting the top portion of the snuffer and having raker means movable over the snuffer bottom portion for raking cigarette butts thereform into the ash receptacle by manipulation of said cover and a closure portion adapted substantially to cover the ash receptacle lower portion of said base, said cover having an access opening therethrough for passage of cigarette butts therethrough to the snuffer.

3,319,634
PIPE CLEANER DEVICE
Sumas Payne, 8522 Maryland Ave., Chicago, Ill. 60619
Filed Nov. 16, 1964, Ser. No. 411,503
1 Claim. (Cl. 131—246)



An expandable smoking pipe bowl cleaner comprising, an elongated handle with an integral enlarged hollow head chamber at one end thereof forming a spring housing, a cylindrical coil spring arranged within said head chamber, a pivot means, and a reamer means embodying two longitudinally curved scraper arms pivoted by said pivot means at end portions thereof remote from said head, and having cutting edges adjacent to the said pivot means and extending along the outer edges of said scraper arms toward the terminal free ends thereof, said head chamber having a flat wall arranged at right angles relative to the axis of said handle and formed with two T-shaped slots spaced longitudinally away from each other, one portion of the slots extending transversely and adjacent the ends of said flat wall, the leg portions of said slots extending longitudinally in alinement with each other and parallel to the sides of said wall, the terminal free ends of said arms being assembled with said head chamber whereby they extend through the spaced apart T-shaped slots and into the interior of said head chamber, the terminal free ends of said arms being substantially flat and enlarged relative to the width of said arms and of substantially square shape having flat outer surfaces and inner surfaces having confronting nodes thereon, and coil spring being arranged and supported solely by and upon said inner surfaces between the terminal free ends of said pair of arms, the ends of said coil spring being in pressing engagement with the inner surfaces of said terminal free ends of said arms and yieldably resisting any change in position of either of said arms toward each other, but permitting change of position of said arms away from each other and travel within the leg portions of said slots whereby said cutting edges of said arms will come into yielding engagement with the walls of the pipe bowl when in use therewith.

3,319,635
PROCESS FOR THE PURIFICATION OF TOBACCO SMOKE
Eldon E. Stahly, Ellicott City, Md., assignor to Oliver W. Burke, Jr., Fort Lauderdale, Fla.
No Drawing. Original application Dec. 14, 1962, Ser. No. 244,573, now Patent No. 3,246,654, dated Apr. 19, 1966. Divided and this application Apr. 18, 1966, Ser. No. 543,051
10 Claims. (Cl. 131—262)

1. A process for the purification of tobacco smoke from the burning, in a smoking article, of conventional tobacco which produces a smoke that may contain trace quantities of transition metal compounds, which method comprises passing said smoke through a filter into the mouth of the user downstream therefrom, said filter containing a base material carrying a non-toxic organo-phosphorous compound having a metal chelatnig ligand grouping, said compound being other than tri(nonylphenyl)-phosphite and being essentially free of animal protein so as to be stable against bacterial spoilage, and being selected from the class consisting of the following groups:

(a) the phosphines, phosphites and phosphates having three substituent radicals selected from the radicals of group I, said group I consisting of the following radicals: the alkyl, alkenyl, alkynyl, cycloalkyl, terpenyl, aryl, alkaryl, alkoxyaryl, haloaryl, aralkyl, arylene, morpholinyl, pyridyl, alkylpyridyl, pyrrolydinyl, piperazinyl, quinolyl and isoquinolyl radicals which contain not more than 18 carbon atoms;

(b) the diphosphines having four substituent radicals selected from said group I;

(c) the solid polyphosphite compounds having the formula $D[O_{3-x}P(OR)_x]_s$ wherein D is a polyvalent polyol moiety, x is 1 or 2, s is an integer from 2 to 1000, and the R of each OR group is selected from said group I;

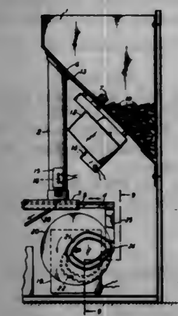
(d) the amino-alcohol esters of acids of phosphorous; and

(e) the phosphatides.

3,319,636
AUTOMATIC COIN DISPENSERS
Henry E. Verbeke, Tannersbrook Road, Chester, N.J. 07930
Filed Dec. 20, 1965, Ser. No. 515,088
1 Claim. (Cl. 133—2)

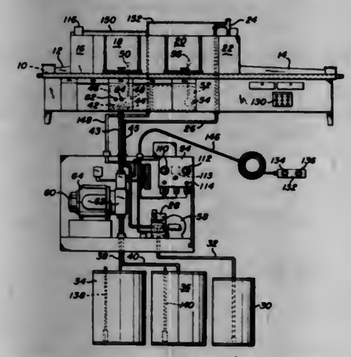
An automatic coin dispenser comprising a two element device consisting of a first element coin tube comprising the reservoir of a single reservoir coin dispenser, a sorter for rearranging coins taken from random positions in bulk to a pile of coins accurately stacked in said coin tube,

said sorter consisting of a bulk storage bin for holding a supply of coins and having a rotatable plate mounted for movement in said storage bin beneath the said store of coins, said plate having a thickness dimension substantially equal to the thickness of coins stored in said bin, said plate having a circumferential line of apertures therein each substantially equal in diameter to the diameter of a coin, means for rotating said plate to pass said circumferential line of apertures over the entrance of said tube whereby coins taken from bulk by said plate are dropped one by one into said tube to be accurately stacked therein



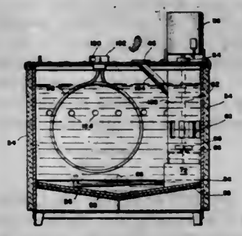
and a second element set of multiple slides for automatically extracting a plurality of sets of coins from said stack of coins, each set of coins being limited invariably to a given number and the total of said sets constituting a predetermined number of coins to be dispensed, means being provided to move said slides of said second element in succession whereby first the bottom slide and set of coins is extracted while the top slide and stack of coins is held without movement and then, as part of the same cycle, the top slide and its plurality of coins is extracted while the bottom slide is held without movement.

3,319,637
MEANS FOR MONITORING AND MAINTAINING CONCENTRATION OF DEPLETABLE WORK SOLUTIONS
William H. Gore, Brookfield, and Paul E. Leising, Milwaukee, Wis., and Edward B. Tooper, Cincinnati, Ohio, assignors to Intercontinental Chemical Corporation, Cincinnati, Ohio, a corporation of Ohio
Filed July 11, 1966, Ser. No. 567,341
8 Claims. (Cl. 134—57)



1. In combination a device for washing articles by subjecting them to a custom work solution containing two or more normally incompatible liquid chemical ingredients, comprising: a receptacle, means for introducing simultaneously two or more normally incompatible liquid chemical ingredients into the receptacle for providing a custom work solution containing minimal amounts of the various ingredients required to effect the desired washing of the particular articles subjected to said work solution, separate storage containers for each of said chemical ingredients located remotely from said receptacle, said means for introducing said ingredients into said receptacle including associated piping, ingredient moving means and adjustable regulating means operable for simultaneously delivering each of said ingredients in separate controlled amounts, and in predetermined ratios with each other from their respective storage containers and discharging them separately directly into said custom work solution to produce a preselected concentration, and means including a sensor immersed in and responsive to the concentration of said custom work solution for initiating the operation of said ingredient moving means whenever the chemical content of the work solution is less than the preselected concentration.

3,319,638
ENGINE BLOCK WASHING TANK
Claude R. Ellison, Saluda Dam Road, Rte. 1, Greenville, S.C. 29611
Filed Sept. 23, 1965, Ser. No. 489,715
8 Claims. (Cl. 134—107)

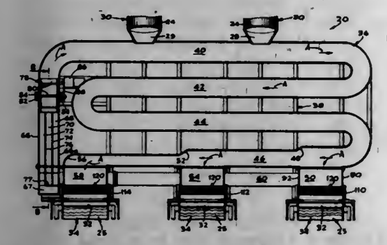


1. A washing tank comprising:
(a) a liquid-holding tank;
(b) a heater mounted in said tank so as to contact said liquid;
(c) a liquid circulation system mounted within said tank and including:
(i) a rotary impeller mounted within a liquid intake column supported on a manifold and a series of liquid straightening vanes mounted in said column beneath said impeller and adjacent said manifold;
(ii) one or more liquid distribution pipes leading from manifold to remote portions on the bottom of said tank; and
(d) a workpiece support grill positioned in said tank above said distribution pipes.

3,319,639
ARTICLE ACCUMULATING AND FEEDING APPARATUS
Gerald R. Anderson, Campbell, Calif., assignor to FMC Corporation, San Jose, Calif., a corporation of Delaware
Filed July 21, 1965, Ser. No. 473,785
7 Claims. (Cl. 134—134)

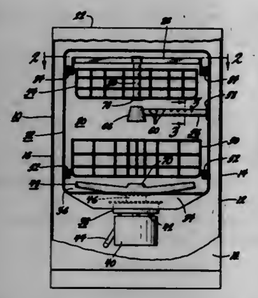
1. An article accumulating and feeding apparatus for receiving articles from an inlet mechanism and for feeding the articles into a processing mechanism comprising a flume for receiving articles from the inlet mechanism, means for circulating a liquid through the flume for moving the articles in one direction and for accumulating a supply of articles adjacent the processing mechanism, means in said processing mechanism defining a

support surface and a reciprocating abutment surface with the reciprocating abutment surface being downstream of the support surface for periodically restraining a limited quantity of articles on said support surface, and means for periodically removing a quantity of such articles which are disposed in a single layer from said accumulated supply independent of the rate of entry of articles into said flume and for discharging only enough of the single layer of removed articles into the processing mechanism sufficient to cover said supporting surface



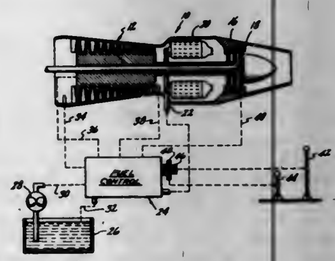
with a single layer of articles upstream of said abutment surface to assure full capacity operation of said processing mechanism while supplying a quantity of articles insufficient to overload the processing mechanism, the articles remaining on said removing means after filling said supporting surface of the processing mechanism being returned to said accumulated supply of articles for acceptance of other articles on said removing means and upon the next periodic removing operation said returned articles being again presented to said supporting surface of the processing mechanism for acceptance thereby.

3,319,640
DISHWASHING MACHINE
Frank E. La Flame, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Aug. 23, 1965, Ser. No. 481,497
2 Claims. (Cl. 134—139)



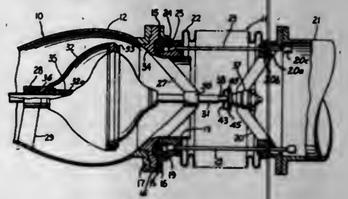
1. In an automatic dishwasher the combination of, a water container including a sump region, a first dish rack supported on said container immediately above said sump region, a fluid circulating pump supported on said container within said sump region including an inlet and an outlet, a spray arm rotatably supported on said pump and driven by fluid discharged through said outlet to distribute fluid against articles supported on said first dish rack, said spray arm having an upwardly facing nozzle therein for directing a high-velocity fluid stream upwardly through said water container, a second dish rack supported on said container above said first dish rack, an elongated tubular fluid distributing member having one end thereof fixedly secured to said water container and the opposite end thereof cantilevered horizontally inwardly of said water container in fixed spaced relationship with said rotatable second dish rack, a venturi fixedly secured on the end of said tubular fluid distributing member having an inlet opening fixed in a constant vertical axial alignment with said nozzle for receiving fluid therefrom, said venturi having a high-pressure outlet, means for communicating said high-pressure outlet with the interior of said fluid distributing member, means forming a plurality of openings in said fluid distributing member for distributing pressurized fluid therefrom upwardly against said upper rack into cleaning relationship therewith.

3,319,641
SPEED SETTING MECHANISM AND TRIMMING MEANS THEREFOR
Charles F. Stearns, East Longmeadow, Mass., assignor to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
Filed Apr. 27, 1964, Ser. No. 362,881
7 Claims. (Cl. 137—18)



1. For a fuel control adapted to control the rotational speed of a rotating member in a power plant, a pilot lever, means connected to said pilot lever including a first orifice, a second orifice and a third orifice establishing a signal equivalent to the position of the pilot lever, said first orifice being serially connected to said second orifice when said rotating member is rotating at a first predetermined speed, and said first orifice being serially connected to said third orifice when said rotating member is at a second predetermined speed, adjusting means in said third and second orifices adapted to vary the area thereof for independently resetting said signal at said first predetermined speed and said second predetermined speed.

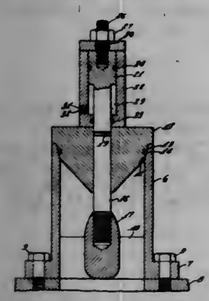
3,319,642
BREAK-AWAY COUPLING WITH A TRIGGERED VALVE
Zola Fox, Verona, N.J., assignor to Thiokol Chemical Corporation, Bristol, Pa., a corporation of Delaware
Filed June 4, 1964, Ser. No. 372,488
20 Claims. (Cl. 137—68)



1. In a fluid conduit coupling assembly, the combination of: a first sub-assembly and a second sub-assembly, of which sub-assemblies both are of tubular form with

lateral walls and arranged in substantially axial mated alignment with contiguous inner ends and axially remote outer ends to provide normally intercommunicating fluid flow passages; a radially flat connective shear seal ring of frangible material interposed between the contiguous ends of said sub-assemblies; an outer pair of axially opposed clamping rings embracing the radially outer marginal portion of said connective shear seal ring and being secured in hermetically sealing manner to the lateral wall of one of said sub-assemblies; an inner pair of axially opposed clamping rings embracing the radially inner marginal portion of said connective shear seal ring and being secured in hermetically sealing manner to the lateral wall of the other of said sub-assemblies; and shear seal rupturing means responsive to axial separation of said sub-assemblies constructed and arranged to cause rupture of the connective shear seal ring progressively around the circumference thereof from a starting point to completion.

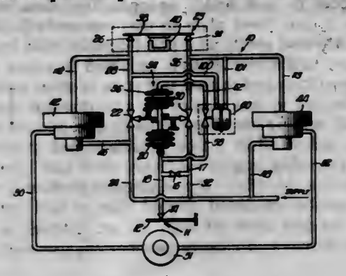
3,319,643
PRESSURE SURGE SUPPRESSOR
John M. Horn, York, Pa., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Dec. 28, 1964, Ser. No. 421,514
2 Claims. (Cl. 137—70)



1. A valve for suppressing high pressure fluid surges comprising: a valve housing having one end thereof connected to a source of high pressure fluid; a plug in the other end of said housing; a valve body member; a piston member contained for sliding movement within said valve body and defining therewith a fluid containing chamber, one of said members connected to said valve housing and the other of said members engaging said plug; means connecting said piston to said valve body in a manner to hold said plug in fluid sealing engagement with said housing, said means having a portion adapted to rupture at a predetermined force as imposed by fluid pressure on said plug; a metering orifice through the wall of said valve body opening into said fluid chamber, said orifice being of a size to permit escape of fluid from said chamber at a predetermined rate as said members move relative to one another; and a plug in said orifice adapted for expulsion therefrom at a predetermined fluid pressure in said chamber.

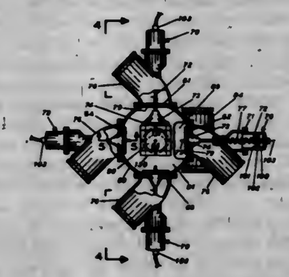
3,319,644
PNEUMATIC CONTROL UNIT
David H. Thorburn, Oak Park, Ill., assignor to The Powers Regulator Company, Skokie, Ill., a corporation of Illinois
Filed Jan. 19, 1965, Ser. No. 426,623
18 Claims. (Cl. 137—85)

1. A pressure pulse generating device comprising: first means, including a first signal responsive portion and a second signal responsive portion, for generating in response to a predetermined signal applied to said first signal responsive portion serial pressure pulses and for deactivating in response to a negative feedback signal applied to said second signal responsive portion; second means for applying said predetermined signal to said first signal responsive portion of said first means such that



said first means is activated to generate one or more serial pressure pulses; and third means for subsequently deriving and applying said negative feedback signal to said second signal responsive portion of said first means such that said first means is deactivated.

3,319,645
BOTTOM LOADING SYSTEM FOR TANK TRUCKS AND TRAILERS
Frank D. Mahoney, Atherton, and Homer E. Reed and Harold B. Uhlig, Belmont, Calif., assignors to Chevron Research Company, a corporation of Delaware
Filed Dec. 18, 1964, Ser. No. 419,538
7 Claims. (Cl. 137—267)

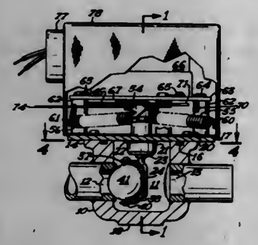


4. A manifold for use in bottom loading tank trucks comprising means forming a generally cylindrically shaped central chamber means having a floor section and a top section, a plurality of spaced apart first ports formed in said central chamber means, valve seats formed in each of said first ports, valve means for seating in each of said valve seats, said valve means being normally seated in each of said valve seats to close each of said first ports and being extendible into said central chamber means to open each of said first ports, actuating means positioned outside of said central chamber means for selectively extending each of said valve means into said central chamber means to open each of said first ports and second port means formed in the floor section of said central chamber means.

3,319,646
CONTROL APPARATUS
Roman Smulka, Minneapolis, Minn., assignor to Honeywell Inc., a corporation of Delaware
Filed Dec. 24, 1964, Ser. No. 421,065
10 Claims. (Cl. 137—269)

3. A motor-driven valve comprising: a body having a generally symmetrical cavity therein; inlet and outlet ports connected to said cavity and substantially aligned on opposite sides of said body; a cover plate adapted to be

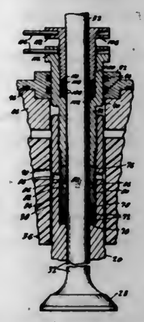
mounted on said body to cover said cavity; symmetrical mounting means attaching said cover plate to said valve body so that said cover plate can be selectively mounted in either of two diametrically opposed angular positions with respect to said body; an operating stem rotatably mounted in said cover plate so that one end of said stem extends into said cavity at a point equidistance from said ports when said cover plate is mounted in either of said angular positions and so that said stem is offset a predetermined distance to one side of an axis through said ports when said cover plate is mounted in one of said angular positions and is offset a like predetermined angular distance to the other side of said axis when said cover plate is mounted in the other of said angular positions; a valve closure member mounted on said stem in said cavity and movable by said stem through an arc between a closed position wherein said closure member engages one of said



ports and an open position wherein said closure member is positioned intermediate said ports, said closure member, when in said closed position, engaging said inlet port when said cover plate is mounted in one of said angular positions and engaging said outlet port when said cover plate is mounted in the other of said angular positions; motor means mounted on said cover plate; means operably connecting said motor means to said operating stem, said motor means being operable to rotatably drive said stem and thereby said closure member to one of its said angular positions; and spring means operably connected to said stem and urging said stem and thereby said closure member to the other of its said angular positions, said spring means being yieldable upon operation of said motor means to permit rotation of said stem by said motor means but of sufficient strength to return said stem to said other of its angular positions upon cessation of operation of said motor means.

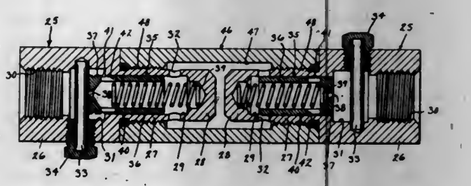
3,319,647
VALVE PACKING CONSTRUCTION FOR VALVES USED AT LOW TEMPERATURES
Willard A. Morain, Mount Vernon, Ohio, assignor to The Cooper-Bessemer Corporation, Mount Vernon, Ohio, a corporation of Ohio
Filed Jan. 17, 1964, Ser. No. 338,348
3 Claims. (Cl. 137—312)

1. A valve for controlling the flow of fluids at cryogenic temperatures comprising: a body member, a heat insulating member positioned adjacent an external surface of said body member, said body member having a tubular projection extending through said heat insulating member and having an axially extending opening therethrough, a poppet valve having a head within said body member and a valve stem projecting through said opening, an inner packing positioned between said valve stem and the sidewalls of said opening generally opposite said heat insulating member, an outer packing positioned between said valve stem and the sidewalls of said opening generally outwardly of said heat insulating member, first means for adjustably compressing said first packing between said stem and said sidewalls of said opening, second means for adjustably compressing said second packing between said stem and sidewalls of said opening independently of said first means, and passage means connecting the space between said stem and sidewalls of said opening from a point outwardly of said inner packing through said heat



insulating member, said passage means opening into said space at a point closer to said inner packing than to said outer packing to cause the space between said point and said outer packing to be stagnant.

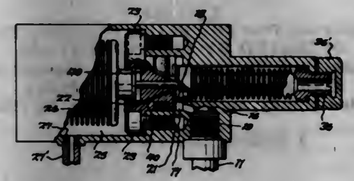
3,319,648
PRESSURE-COMPENSATED FLOW CONTROL VALVES
Verne P. Donner, Palatine, Ill., assignor to Deltrol Corp., Bellwood, Ill., a corporation of Delaware
Filed Apr. 27, 1965, Ser. No. 451,224
2 Claims. (Cl. 137—504)



1. In a pressure-compensated flow control valve, the combination comprisnig: a sleeve-like bonnet defining a central cavity and a pair of valve openings leading outwardly therefrom at opposite ends; a pair of valve housings fitted to the bonnet at the openings, each of said housings comprising an enlarged head portion abuttingly engaging an assocaited end of the bonnet and a chamber portion extending through the associated valve opening into the cavity, each housing being hollowed to define a closed inner end in the cavity and a bore leading outwardly therefrom through the head portion to define an inlet adapted to be connected to a fluid line, there being an enlarged chamber intermediate the ends of the bore, each housing having a wall port near the closed end that affords communication between the bore and the bonnet cavity; a pair of piston valve members, one slidably disposed in each bore between the closed inner end and the enlarged chamber, each piston having a head facing the inlet and a skirt facing the closed end, the heads of the pistons being provided with fluid ports therethrough, each piston being movable between an inner closed position wherein its skirt at least partially covers the associated wall port, an intermediate retracted position wherein the skirt is removed from the wall port, and an outer

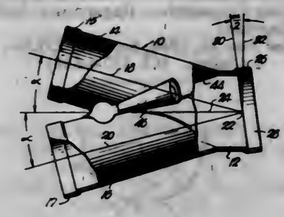
open position wherein its head extends into the enlarged chamber, each piston being provided with a reverse port extending through its skirt near its head which extends into the enlarged chamber only when the piston is in its open position; and bias means in each bore operating between the closed end and the underside of the piston head to urge the piston towards its open position.

3,319,649
VALVE CONSTRUCTION
Richard D. Cummins, Hamburg, N.Y., assignor to Carleton Controls Corporation, East Aurora, N.Y., a corporation of New York
Filed Dec. 23, 1963, Ser. No. 332,743
1 Claim. (Cl. 137—505.18)



A valve construction comprising a housing, first conduit means in communication with said housing for conducting fluid relative to said housing, a valve seat body mounted in said housing, an annular valve seat on said valve seat body, an annular valve head in said housing having a lip for engagement with said annular valve seat and having an external portion and an internal portion, a hollow bellows means, said hollow bellows means having an inner surface defining an internal portion and an outer surface defining an external portion, said hollow bellows means having a first end in sealed engagement with said annular valve head and a second end mounted relative to said housing, first chamber means in said housing in communication with said first conduit means and surrounding said external portion of said valve head and said external portion of said bellows means, second chamber means in said housing, an aneroid having first and second portions in said second chamber means with said first portion being connected to said housing, second conduit means in communication with said second chamber means for conducting fluid, stem means located proximate said second portion of said aneroid and effectively extending between said aneroid means and said valve head for moving said valve head into and out of seated engagement with said valve seat to thereby effect communication between said first and second conduit means when said valve head is unseated and to prevent such communication when said valve head is seated, means mounted relative to said housing for maintaining movement of said second portion of said aneroid means within a predetermined valve head actuating path, third conduit means extending through said valve seat body for effecting communication between said second chamber means and said internal portion of said bellows and said internal portion of said valve head when said valve head is in seated engagement with said valve seat, said lip having a first effective diameter and said bellows means having a second mean effective diameter, said first diameter and said second diameter being substantially equal to each other to thereby cause the action of the fluid in said first and second conduit means to provide a substantially constant force tending to bias said valve head relative to said valve seat in all positions of said valve head whether opened, closed or in transit between opened and closed positions.

3,319,650
CONSTRUCTION FOR Y-SHAPED VALVES, COUPLINGS OR THE LIKE
Loren Nell Peterson, Salina, Kans., assignor to Salina Manufacturing Company, Inc., Salina, Kans., a corporation of Kansas
Filed Aug. 17, 1964, Ser. No. 389,853
8 Claims. (Cl. 137—561)



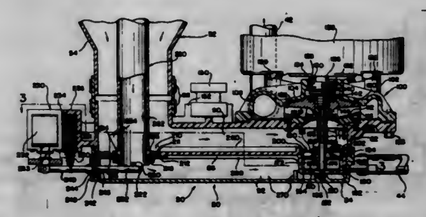
1. In a Y-shaped coupling body provided with a shank and a pair of diverging legs extending from one end of the shank, the axis of the shank extending between the axes of the legs and forming an angle α with the axis of one of said legs, the combination with said shank of:

a conduit provided with an offset end piece disposed with its axis forming an angle with the axis of the conduit substantially equal to $\alpha/2$;

structure at the other end of said shank presenting an offset mouth and disposed with the axis of the mouth forming an angle with the axis of the shank substantially equal to $\alpha/2$; and

means for joining the end piece and the structure with the axes of the end piece and the mouth in alignment, and with the conduit disposed in any one of two positions, the first position being with the conduit in substantial axial alignment with said one leg, the second position being with the conduit in substantial axial alignment with said shank.

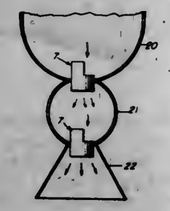
3,319,651
DISHWASHER WATER CIRCULATION MECHANISM
Myron E. Ullman, Jr., Canfield, and Jerry M. Harroff, Salem, Ohio, assignors to Mullins Manufacturing Corporation, Salem, Ohio, a corporation of Ohio
Filed Dec. 10, 1963, Ser. No. 329,422
13 Claims. (Cl. 137—563)



9. In a dishwasher water circulating mechanism comprising a cabinet having a lower sump, a recycling passageway communicated with said sump, a drain passageway, a valve means for selectively connecting said drain passageway with said sump, impeller means in said recycling passageway for pumping water from said recycling passageway into said cabinet, and impeller means in said drain passageway for exhausing water from said sump when said valve means is opened, the improvement comprising: said recycling passageway being directly below said sump, said drain passageway being directly below said recycling passageway and said valve means being positioned between said passageways whereby water

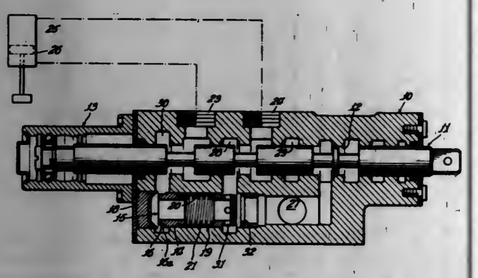
will flow into and through said recycling passageway when said valve is closed and will by-pass said recycling passageway and flow into said rain passageway when said valve is opened.

3,319,652
DISCHARGE ORIFICES
Willard R. Custer, Hagerstown, Md., assignor to Custer Channel Wing Corporation, Hagerstown, Md., a corporation of Maryland
Filed Jan. 24, 1964, Ser. No. 339,966
5 Claims. (Cl. 137—590)



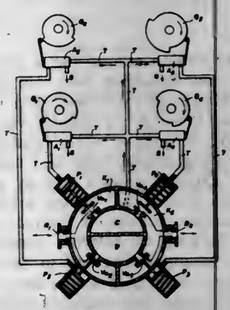
1. A pressure compensating device for the discharge orifice in a wall of a fluid containing chamber, comprising an open-ended pressure deflecting channel of substantially arcuate shape in cross-section, one open end of said channel communicating with said orifice and its opposite open end being directed into said chamber, the longitudinal edges of said channel terminating in a plane which radially intersects the boundary of said orifice at substantially its mid point, which, together with said projecting open end, provides contiguous open areas in said channel, communicating with said orifice, whereby the radial pressures of the fluid adjacent said orifice in directions opposed to the open areas of said channel are deflected, and the restriction of flow through said orifice is minimized.

3,319,653
FLOW CONTROL VALVES
William T. Stephens, Palatine, Ill., assignor to Borg-Warner Corporation, a corporation of Illinois
Filed Nov. 21, 1963, Ser. No. 325,429
5 Claims. (Cl. 137—596)



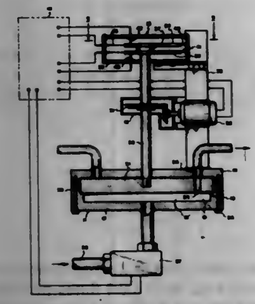
2. In a spool valve device comprising in combination;
(a) a spool valve body provided with first and second bores therein,
(b) a spool reciprocally operable in said first bore,
(c) a cylindrical anticavitation valve having an axial bore extending therethrough and having a reduced diameter at its forward end thereby providing an annular shoulder,
(d) a cylindrical load check having a transverse opening therethrough, said cylindrical anticavitation valve and said cylindrical load check being in contiguous alignment and reciprocally operable in said second bore,
(e) a first seat operably associated with said anticavitation valve,
(f) a second seat operably associated with said load check,
(g) a spring interposed between said anticavitation valve and said load check thereby urging said anticavitation valve and load check in opposite directions into engagement with said first and second seats respectively, and
(h) fluid communication means between said first and second bores.

3,319,654
AIR DISTRIBUTOR FOR FLUID PUMPING PLANTS OPERATED BY COMPRESSED AIR
Giovanni Faldi, Via Forese Donati 27, Florence, Italy
Filed Jan. 20, 1964, Ser. No. 339,013
Claims priority, application Italy, Jan. 30, 1963, 682,245
3 Claims. (Cl. 137—624.13)
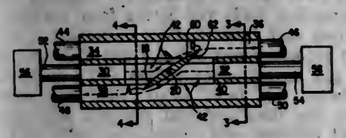


1. A distributor for cyclically supply pulses of compressed air from a source thereof to apparatus operable thereby; said distributor comprising a housing having means therein dividing said housing into a supply chamber adapted to be connected with the source of compressed air, a waste chamber opening to the atmosphere and at least two control chambers, each of said control chambers having inlet and outlet ports communicating with said supply and waste chambers, respectively, and an opening for communication with the apparatus to be operated by pulses of compressed air from the respective control chamber; main valve means for each of said ports including a blocking member movable to and from a seated position where it hermetically seals the respective port, a cylinder, and a piston reciprocable in said cylinder and being connected rigidly with said blocking member to move the latter to and from said seated position, said piston of each main valve means having an effective area subject to the action of compressed air in the respective cylinder which is greater than the area of the respective port; conduit means extending from said supply chamber to said cylinder of each of said main valve means; individual pilot valve means for each of said main valve means interposed in the respective conduit means and controlling the supplying of compressed air to said cylinder of the respective main valve means for action against said effective area of the piston therein; and cam means operating said pilot valve means to cause said blocking members for the inlet and outlet ports of said control chambers to move alternately to said seated positions thereof in a predetermined cyclical sequence.

3,319,655
TIME CONTROLLED DISTRIBUTOR VALVE MEANS
Lynn M. Palmer, 510 West 3840 South, Salt Lake City, Utah 84104
Filed Mar. 13, 1964, Ser. No. 351,678
2 Claims. (Cl. 137—624.18)



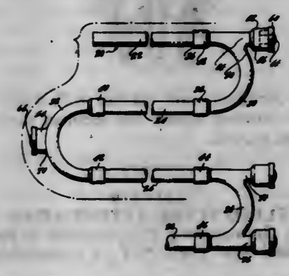
1. Flow control apparatus comprising a closed cylindrical body having an inlet end provided with an inlet and an outlet end provided with a plurality of outlets spaced angularly about and equidistant from the center of said end, a circular valve disc rotatably mounted transversely in said body substantially filling its cross section, means in said body holding said disc adjacent said outlet end in face to face relationship therewith and spaced from said inlet end thereby to define an inlet chamber between said disc and said inlet end, a rotatable shaft fixed to the center of said disc to extend axially therefrom out one end of said cylindrical body whereby to effect rotation of said disc in said body, a port through said disc, said port being of smaller cross section than said inlet and located to move successively into and out of registration with said outlets upon rotation of said disc, a supply valve for controlling liquid flow to said inlet, control means for shifting said supply valve between the on and off position in response to rotation and position of said disc said control means comprising an electric motor for driving said shaft to rotate said disc, time delay means for energizing said motor at preset time intervals to rotate said disc to register said port with a selected succeeding outlet, switch means operable upon rotation of said shaft for deenergizing said motor upon arrival of said port in registration with said selected outlet and supply valve control means responsive both to energization of said motor and nonregistration of said port with said outlet to shift said supply valve to the off position and to de-energization of said motor with said port aligned with an outlet to shift said valve to the on position.

3,319,656
BISTABLE DEVICE
Trevor D. Reader, King of Prussia, Pa., assignor to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Filed Nov. 8, 1963, Ser. No. 322,409
7 Claims. (Cl. 137—625.44)



6. A fluid switch comprising: means defining a fluid chamber; means for injecting into said chamber in opposing directions first and second high velocity fluid streams; a movable element mounted in said chamber for rotating movement in the paths of said fluid streams about an axis extending through the axes of said streams; means for selectively rotating said movable element to a first or a second position; and a plurality of output channels connected to said chamber for selectively receiving said fluid streams after they are diverted by said movable element, said movable element having two curved surfaces for diverting said fluid streams, said surfaces being shaped such that said fluid streams exert forces thereon tending to hold said movable element in said first or said second position after it has been rotated thereto.

3,319,657
COIL FREEZE PROTECTION DEVICE
Louis A. Nyiri, 120 N. Fairview St., Lock Haven, Pa. 17745
Filed Oct. 16, 1964, Ser. No. 404,295
1 Claim. (Cl. 138—27)

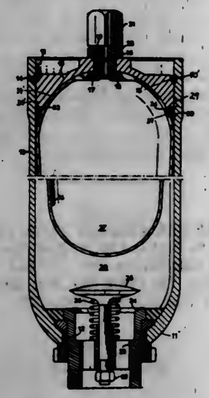


In a heat exchange coil of serpentine form having straight sections and U-bends connecting the straight sections, relief means in the U-bends for relieving pressure caused by fluid within the coil freezing into a solid comprising a housing mounted in the U-bend and communicating with the interior of the coil and a plug supported by the housing having a plug body held by the housing and a disc in the plug body adapted to be separated from the plug body by the pressure of the freezing solid.

3,319,658
SEALING DEVICE FOR PRESSURE VESSELS
Jacques H. Mercier, Neuilly-sur-Seine, France, assignor to Mercier Oleer Patent Corporation, Wilmington, Del., a corporation of Delaware
Filed Apr. 30, 1964, Ser. No. 363,873
Claims priority, application France, May 17, 1963, 935,207
3 Claims. (Cl. 138—30)

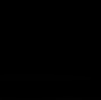
1. A pressure vessel comprising a cylindrical container having a port at one end and open at the other end, a substantially cylindrical closure member positioned in the open end of said container, means to prevent outward movement of said closure member from said container, said closure member having a port therethrough, a deformable and expansible bladder in said container intervening between said ports and defining a chamber on each side thereof, said bladder having a mouth at one end, means securing the mouth of said bladder to the closure member so that the bladder extends substantially axially of said container, said closure member having an annular flange at its inner end on its outer periphery, an annular sealing member of compressible resilient material having an annnular groove on its inner surface of height less than that of said flange, whereby when said annular sealing member is positioned over the inner end of said closure member with said annular flange forced into said annular groove, the material of said sealing member will be forced outwardly to press against the wall of said container to form a seal, said sealing member having a

wedge shaped portion integral therewith, having an inclined surface, said inclined surface extending outwardly from the inner end of the closure member toward the



wall of the container, said bladder wall when said bladder expands pressing against the inclined surface of said wedge shaped portion.

3,319,659
FLUID PULSE ATTENUATOR
Peter Bauer, Germantown, Md., assignor to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Filed Dec. 31, 1964, Ser. No. 422,710
19 Claims. (Cl. 138—41)



1. A device for attenuating a fluid pulse having a predetermined physical flow length in a fluid data handling system, which comprises the combination of:

(a) an elongated fluid channel having an input opening at one end thereof for receiving the fluid pulse, and an output opening at the opposite end thereof for discharging the fluid pulse, with the cross-sectional flow area of said fluid channel throughout its length being such, relative to the cross-sectional flow area of the entering fluid pulse, to insure full channel flow therethrough of the fluid pulse; and

(b) a flexible and coarse-surfaced spongy medium of low density and large strain hysteresis which is located within at least a portion of said fluid channel to completely fill the cross-sectional flow area thereof, said medium having substantially uniform pores of a size considerably smaller than both the said flow length of the fluid pulse and the diameter of said fluid channel portion, and of a number such that the sum of all pore cross-sectional flow areas at any point in said fluid channel portion is nearly equal to the fluid channel cross-sectional flow area at said point.

3,319,660
METERING PLUG
Melvin Levine, New York, N.Y., assignor to Sperry Rand Corporation, Ford Instrument Company Division, Long Island City, N.Y., a corporation of Delaware
Filed June 1, 1964, Ser. No. 371,714
8 Claims. (Cl. 138—42)

1. A fluid flow device comprising a mounting member with a recess having a cylindrical wall and a metering plug mounted within said recess, said plug including a cylindrical element having a plurality of flutes in its exterior surface; said flutes extending parallel to the cylindrical axis of said element and being separated from each other by radially projecting crowns extending par-



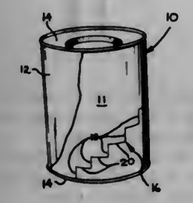
allel to said axis; said crowns having their tips in frictional engagement with said wall; said flutes providing metering orifices bounded by said wall; said element being provided with a tapered recess extending along the cylindrical axis.

3,319,661
LINE BLIND
George R. Shindler, Houston, Tex., assignor to FMC Corporation, San Jose, Calif., a corporation of Delaware
Filed Aug. 10, 1964, Ser. No. 388,482
9 Claims. (Cl. 138—94.5)

1. A line blind comprising wall means including a main wall surrounding a passageway, confronting annular inner walls projecting outward relative to the main wall in axially spaced relation to each other, annular intermediate walls extending axially toward each other from their respective inner walls, and confronting annular outer walls projecting outward from respective intermediate walls and axially spaced a first predetermined distance apart, said outer walls defining a gap therebetween which communicates with the atmosphere; annular resiliently compressible seals surrounding the passageway and having back and outer surfaces respectively engaging said inner and intermediate walls and having front surfaces axially spaced from each other in their unstressed condition by a second predetermined distance less than said first distance; a gate having opposite faces and a thickness measured between said faces greater than said second distance but less than said first distance, said gate being positioned between said confronting walls and in said gap with said opposite faces engaging the front surfaces of the seals; means for sliding said gate relative to the seals while maintaining the outer walls at said first distance from each other and wherein said gate is axially movable

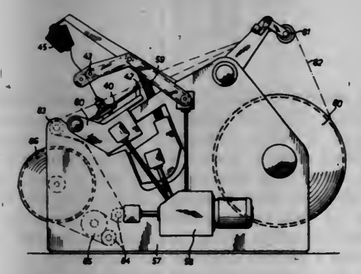
in opposite directions between positions with its opposite faces engaging their respective confronting outer walls; and said seals each having an inner surface of a greater width axially of said passageway than any other portion of said seal so that the seal inner surface maintains contact with the gate faces and inner walls irrespective of the axial position of said gate.

3,319,662
SPIRALLY WOUND CONTAINER
Edward James Stengle, Jr., Toledo, Ohio, assignor to Owens-Illinois, Inc., a corporation of Ohio
Filed Jan. 2, 1964, Ser. No. 335,114
14 Claims. (Cl. 138—154)



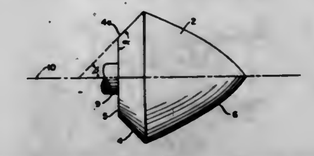
1. In a tubular structure formed of spirally wound sheet material, the improvement comprising the edges of said sheet material arranged so as to provide a butt seam, the adjacent edges forming said seam correspondingly shaped so as to provide a stair-step seam arranged to prevent slippage between said adjacent edges.

3,319,663
MEANS FOR SUPPLYING SHUTTLES OF LOOMS WITH THREAD AND APPARATUS THEREFOR
Heinrich Fend, Zurich, Switzerland, assignor to Verwaltungsgesellschaft der Werkzeugmaschinenfabrik Oerlikon, Zurich, Switzerland
Filed Mar. 18, 1964, Ser. No. 352,882
Claims priority, application Switzerland, Mar. 19, 1963, 3,490/63
19 Claims. (Cl. 139—12)



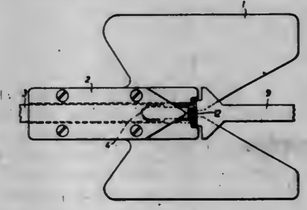
1. Method for supplying the shuttles of looms with weft thread comprising continually supplying through a plurality of thread paths a single weft thread to be used in supplying shuttles, supplying a first shuttle with said weft thread along a first thread path, freeing a second thread path leading to a second shuttle during the travel of said thread in said first thread path, cutting said thread to supply a cut-to-length piece of weft thread to said shuttle, blocking said first thread path during said cutting operation and directing said thread along said second thread path.

3,319,664
METALLIC POINTS FOR LOOM SHUTTLES
Reinhold Mueller, Sandwiesenstrasse 3, Alsbach, Bergstrasse, Germany
Filed June 1, 1965, Ser. No. 460,340
Claims priority, application Germany, June 6, 1964, M 61,269
6 Claims. (Cl. 139—196)



1. A shuttle for looms, comprising a non-metallic body portion having a central longitudinal axis and a forwardly-facing end surface, a generally conical metallic point attached thereto and having a rearwardly-facing base surface in contact with said end surface, and means securing said surfaces in contacting relation to form a shuttle assembly having a smooth regular contour, the peripheral edge of said rearwardly-facing base surface being beveled at an angle to said central longitudinal axis.

3,319,665
APPARATUS FOR TYING-OFF SAUSAGE TUBES OR THE LIKE
Wilhelm Hauser, Munich-Grafelfing, Germany, assignor to Hamac-Hansella Aktiengesellschaft, Vlersen, Germany, a corporation of Germany
Filed Mar. 12, 1965, Ser. No. 439,404
1 Claim. (Cl. 140—93)

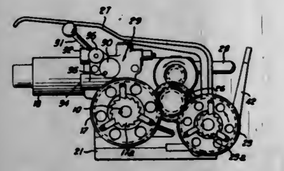


In an apparatus for tying-off a sausage tube or the like, a pair of opposed relatively movable elements on opposite sides of the tube adapted to squeeze a region of the tube into a compacted pinched condition, one of said elements being provided with a guide channel, a pusher movably mounted in said channel and adapted to advance a U-shaped bendable wire staple through said channel to said pinched region, and an opposed pusher carried by the other of said elements and provided on its front face with a pair of anvil surfaces, said anvil surfaces being arranged in adjacent parallel planes and being stationary with respect to each other, said channel being so inclined to the plane of said opposed pusher that when the pushers move together one of the staple ends will encounter one of said anvil surfaces while the other staple end will encounter the other anvil surface.

3,319,666
PACKAGE BANDING TOOLS
Oswald Victor Langford and Robert David Sansum, London, England, assignors to Seal-Less Strapping Limited, London, England, a corporation of Great Britain
Filed July 22, 1964, Ser. No. 384,471
Claims priority, application Great Britain, Aug. 14, 1963, 32,081/63
8 Claims. (Cl. 140—932)

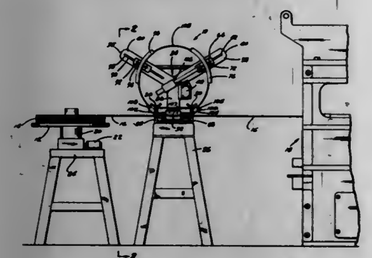
1. A tool for binding packages, of the type set forth, comprising a reversible rotating power-driven element, ten-

sioning means, jointing means, a pair of oppositely-acting free-wheeling clutches, one of which operatively connects said tensioning means to said power-driven element and the other of which operatively connects said jointing means to said power-driven element, and control means for causing rotation of said power-driven element alterna-



tively and selectively in either direction, whereby said tensioning means will be actuated independently of said jointing means when said control means causes said power-driven element to rotate in one direction, and said jointing means will be actuated independently of said tensioning means when said control means causes said power-driven element to rotate in the opposite direction.

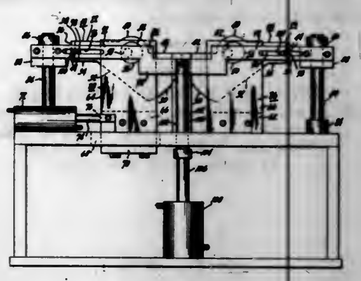
3,319,667
WIRE GUIDING APPARATUS
John J. Foltz, Georgetown, Ky., assignor to Hoover Ball and Bearing Company, Saline, Mich., a corporation of Michigan
Filed Sept. 21, 1964, Ser. No. 397,681
8 Claims. (Cl. 140—147)



1. In combination with a coil of wire having an upright axis and a wire bending machine for bending said wire, wire guiding apparatus located between said coil and said bending machine, said apparatus comprising means forming a track arranged so that when wire from said coil is extended through said track and into said machine, said wire is arranged in a return bent upon itself loop between said coil and said machine, and means mounting said track forming means for movement to a plurality of positions in which the plane of said loop is inclined with respect to said axis.

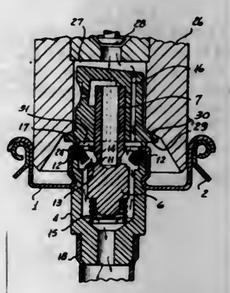
3,319,668
WIRE STRAIGHTENER
Robert C. Shambelan, Somerville, N.J., assignor to Radio Corporation of America, a corporation of Delaware
Filed Aug. 11, 1964, Ser. No. 388,830
9 Claims. (Cl. 140—147)

1. A lead wire straightening device comprising
(a) a pair of blades, each blade having a circular edge formed with a longitudinal groove of a cross section to fit a portion of the surface of a wire to be straightened,
(b) means for mounting one of said blades for motion towards the other thereof,
(c) means for mounting said blades for rotation about respective, parallel, spaced axes with their grooved edges facing each other,



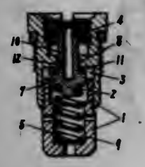
(d) means for moving one of said blades towards the other thereof to the point where said grooves are in wire gripping position, and
(e) means for so rotating said blades about their respective axes as to provide the same rate of linear motion of their circular edges.

3,319,669
AEROSOL DISPENSER
Robert Henry Abplanalp, 10 Hewitt Ave., Bronxville, N.Y. 10708
Continuation of application Ser. No. 284,225, May 29, 1963. This application Aug. 15, 1966, Ser. No. 575,489
4 Claims. (Cl. 141—20)



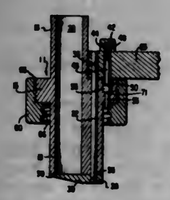
1. An aerosol container having a top wall supporting a dispensing valve comprising a hollow valve housing, the interior of which communicates with the interior of the container, a valve body within said housing having an operable valve stem projecting through a guide opening in said top wall with sufficiently close spacing between the edge of said opening and stem to keep the valve stem from excessive tilting, an annular resilient sealing disk having a central aperture embracing the valve stem to serve as a valve seal and having its outer margin clamped between the upper edge of the hollow valve housing and an overlying part of the top wall of the container, and at least one additional opening in said top wall positioned radially outwardly of the edge of the guide opening and in communication with the central aperture of the resilient sealing disk such that upon delivery of propellant under pressure from the exterior of the container the inner portion of the sealing disk is deflected downwardly to unseal the periphery of the central aperture from the valve stem to permit delivery of propellant to the interior of the container through the central aperture of the sealing disk.

3,319,670
FILL VALVE FOR LIQUIFIED GAS LIGHTER
Seiichi Kitabayashi, 2-2246 Nishisugamo, Toshima-ku, Tokyo, Japan
Filed Sept. 18, 1964, Ser. No. 397,553
Claims priority, application Japan, Sept. 26, 1963, 38/50,702
2 Claims. (Cl. 141—286)



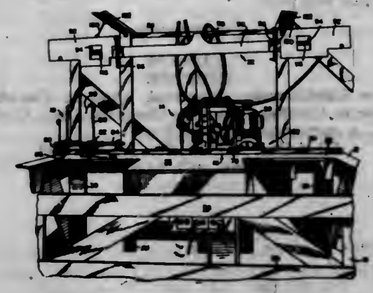
1. A fuel fill valve for use with liquified gas lighters comprising a cylindrical body having a bore opening at one end of said body, at least one opening communicating with said bore in the opposite end portion of said body and said bore having a restricted portion, a member slideably extending through said bore restricted portion and having an axial bore for engaging a fuel supply container discharge orifice, a side opening in communication with said axial bore and a shoulder, a sealing member composed of a soft porous and elastic material positioned between said shoulder and said body bore restricted portion and a spring positioned in said bore tending to hold said member shoulder against said sealing member compressing the same and positioning said member side opening with said sealing member between said member side opening and said body opening until said member is manually moved against said spring allowing said sealing member to expand permitting gas to pass through the pores thereof and positioning said member side opening in communication with said body opening.

3,319,671
DISPENSING DEVICE WITH LOCKING MEANS
Russell M. Wiseman, Mentor, Ohio, assignor to Diamond Alkali Company, Cleveland, Ohio, a corporation of Delaware
Filed Jan. 9, 1964, Ser. No. 336,763
5 Claims. (Cl. 141—346)



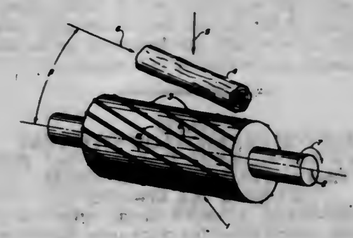
1. An apparatus for dispensing fluent materials which comprises a core member, a coupling nut, a gate and a handle, said core providing a channel for fluent material having said gate at the lower end thereof, said core also providing means for attaching said coupling nut to provide an annular hole between said core and a lower portion of said coupling nut, said lower portion of said coupling nut having an internal configuration suitable for supporting a container, said handle being remote from said gate and being operable to open said gate when said gate is within said container said handle being provided with means to prevent opening of said gate, said means being movable to inoperative position by said container.

3,319,672
AUTOMATIC DOOR BORING MACHINE
William C. Phelps, 140 W. D'Amour St., Chalmette, La. 70043
Filed Dec. 7, 1965, Ser. No. 416,302
11 Claims. (Cl. 144—3)



1. A door boring machine comprising
a support for carrying a door to be bored in a horizontal plane,
aligning means mounted on the support for mounting a door to be bored in a selected orientation with respect to the support,
clamping means carried by the support for holding the door in the selected orientation on the support,
a vertically mounted drill carried by the support for drilling a latch cutout in the door,
means connected to the aligning means and the vertical drill and clamp for activating the clamping means and the vertical drill in response to a door being placed on the support,
a horizontally mounted drill carried on the support adjacent the vertical drill for drilling the latch bolt cutout in the door,
and means connected to the horizontal drill and responsive to deactivation of the vertical drill for actuating the horizontal drill.

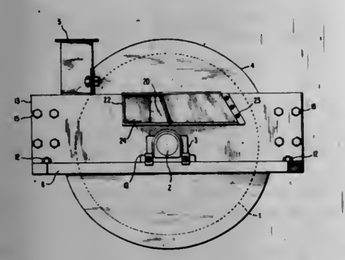
3,319,673
MACHINE FOR PRODUCING WOOD CHIPS
Peter Voelskow, Hildesheim, Germany, assignor to Hombak Maschinenfabrik KG., Bad Kreuznach, Germany, a corporation of Germany
Filed Sept. 21, 1964, Ser. No. 397,908
Claims priority, application Germany, May 16, 1964, H 52,712
10 Claims. (Cl. 144—172)



1. A machine for producing wood chips from a log, comprising a tool with a substantially cylindrical body rotatable about its axis, blade means of constant height extending skew to said axis along the periphery of said

body, supporting means adjacent said body for holding a log at an acute angle to said axis with a part of said log in the orbit of said blade means and with freedom of progressive displacement of said part toward said axis, and unidirectional drive means for rotating said body about said axis in such a sense as to shift the point of contact between said blade means and said log in the direction of the vertex of said angle upon movement of said blade means past said part.

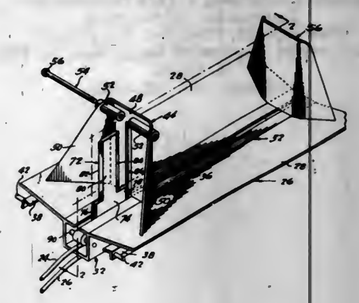
3,319,674
CHIPPER
Andrew Zaichkowsky, Montreal, Quebec, Canada, assignor to Carthage Machine Company, Inc., Carthage, N.Y., a corporation of New York
Filed Dec. 9, 1964, Ser. No. 417,031
5 Claims. (Cl. 144—176)



1. A chipper for chipping wood slabs and the like comprising a housing, a vertical cutting disc rotatably mounted on a horizontal shaft in said housing, a feed spout extending into the housing to receive a slab to be chipped, said feed spout including a flat horizontal base to support the slab during the chipping operation, said base having its inner end adjacent the outer face of said disc, said inner end being fixed above the center of rotation of said shaft and laterally displaced from said shaft in the direction of rotation of the upper part of said disc, said housing having a chip outlet through which the chips are discharged, a plurality of chipping blades secured to said disc at circumferentially spaced locations, said blades including cutting edges projecting from said face of said disc to slice across the end of a slab supported in a horizontal position on said base, said blades extending toward the periphery of said disc in a nonradial direction with the outer end of said edges being angularly displaced from the inner end thereof in the direction of rotation of said disc so that said edges lead the radial line drawn from the center of rotation of said disc through the inner end of said cutting edges, whereby the slab is securely held in a substantially horizontal position on said base as said blade edges slice across the end of the slab moving downwardly and outwardly from substantially the beginning to the end of the engagement of the slab by said edges.

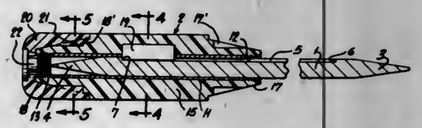
3,319,675
TRACTOR CARRIED LOG SPLITTERS
Marcus J. Bles, Sr., R.F.D. 2, McLean, Va. 22101
Filed Apr. 23, 1965, Ser. No. 450,289
12 Claims. (Cl. 144—193)

1. In combination, a tractor having upper and lower movable link means extending rearwardly therefrom and a hydraulic control assembly having first and second hydraulic lines extending rearwardly therefrom, a log centering trough supportably secured, at its forward end, to said links, a log splitting blade mounted on and extending above the trough to move along the trough in opposite directions, a two-way hydraulic cylinder connected at opposite ends thereof to said hydraulic lines, upstanding sta-



tionary longitudinally spaced front and rear log abutments mounted on the trough, said hydraulic cylinder being secured at opposite ends to the blade and to the trough.

3,319,676
TWO-WAY SCREWDRIVERS AND THE LIKE TOOLS
Maurice Bélanger, P.O. Box 73, L'Islet, Quebec, Canada
Filed Jan. 21, 1966, Ser. No. 522,163
6 Claims. (Cl. 145—64)

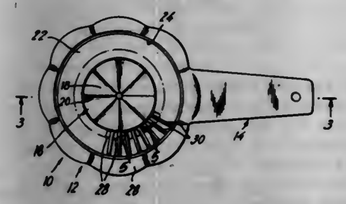


1. A rotary manual tool comprising a stem having at its two end means for coupling said stem with an element to be rotated, a handle having a through bore opening at the two ends of the handle, said bore receiving said stem, said handle displaceable along said stem, means for preventing rotation of said stem with respect to said handle, abutments near the two ends of said stem against which said handle abuts in its two limit positions along said stem, and a removable cap capable of being secured to one or the other of the two ends of said handle and against which abuts the end of said stem adjacent the abutment against which said handle abuts in one or the other of its limit positions, whereby said handle can be rigidly secured to said stem in one or the other of its two limit positions, and said handle cannot become separated from said stem.

3,319,677
JUICER CONSTRUCTION
Charles O. Bliss, Los Angeles, Calif.; Beatrice Bliss, executrix of said Charles O. Bliss, deceased, assignor to Blisscraft of Hollywood, Gardena, Calif.
Filed Nov. 13, 1964, Ser. No. 410,945
2 Claims. (Cl. 146—3)

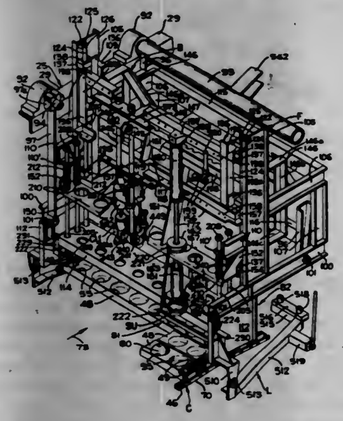
1. A moulded plastic juicer comprising:
a concave upwardly annular bottom portion;
a peripheral, upwardly directed, side wall, integral with the outer part of said bottom portion;
a downwardly concave reamer, integral with and upstanding from the central part of said bottom portion;
a plurality of radially spaced apart, concentric, downwardly directed, annular walls, integral with an intermediate part of said bottom portion, the innermost of said downwardly directed walls being radially spaced from said reamer;

a plurality of angularly spaced apart ribs formed integrally into said bottom portion, extending between and integral with said reamer and said peripheral side wall, and thicker than the remainder of said bottom portion;
a plurality of radially elongated apertures through said bottom portion, each formed between two respectively adjacent ribs, and extending between said reamer and said innermost downwardly directed wall;



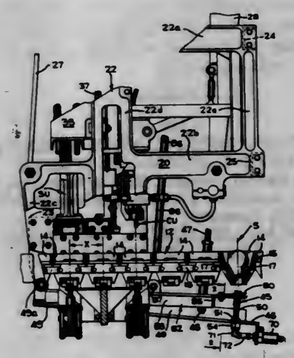
whereby said juicer can be supported on top of a larger receptacle by resting said bottom portion thereon with at least said innermost downwardly directed wall disposed within and concentric with such a receptacle, and juice can pass from the upper, outer surface of said reamer through said apertures into such a receptacle, said ribs serving to strengthen said bottom portion against the forces resulting from the fruit squeezing action of said reamer.

3,319,678
FRUIT PROCESSING MACHINE WITH MEANS TO ALIGN TOOL WITH WORK
Gerald R. Anderson, Campbell, Calif., assignor to FMC Corporation, San Jose, Calif., a corporation of Delaware
Original application July 2, 1962, Ser. No. 206,955, now Patent No. 3,246,676, dated Apr. 19, 1966. Divided and this application Mar. 26, 1965, Ser. No. 452,433
5 Claims. (Cl. 146—52)



1. In a fruit processing apparatus, a main frame, a substantially horizontal conveyor mounted in said main frame and providing a plurality of fruit supporting cups in longitudinally spaced relation to each other along said conveyor, a carrier frame, means mounting said carrier frame in said main frame for oscillatory movement above said conveyor and about a substantially horizontal axis transversely thereof, a fruit cutting unit mounted in said carrier frame for elevational movement toward and away from said conveyor for engaging fruit in the cups thereof, a common drive mechanism for said carrier frame and said conveyor mechanism being mounted on said main frame, means interconnecting said drive mechanism and said conveyor for continuously motivating said conveyor at a predetermined velocity, means interconnecting said carrier frame and said drive mechanism for oscillating said carrier frame first in the same direction and at the same speed as said conveyor and with said cutting unit in alignment with a cup while said unit engages and subsequently disengages a fruit therein to perform a cutting action and thence in the opposite direction of movement from said conveyor to align said unit with a cup behind the cup previously aligned with said unit, and means releasably interengaging said carrier frame and said conveyor while said carrier frame is moving in the same direction as said conveyor for maintaining said unit in precise alignment with a cup.

3,319,679
STEM PULLING APPARATUS
Sherman H. Creed, San Jose, Calif., assignor to FMC Corporation, San Jose, Calif., a corporation of Delaware
Filed July 27, 1964, Ser. No. 385,303
6 Claims. (Cl. 146—55)

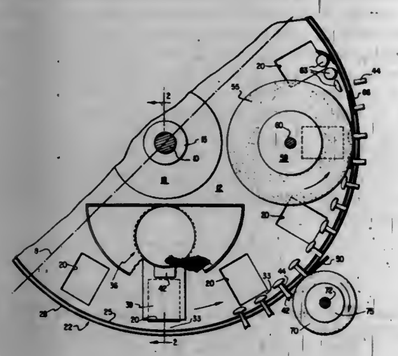


1. In an apparatus for processing fruit, means for holding a fruit with its stem projecting from its stem end, a stem-gripping mechanism mounted for movement between a first position spaced from said fruit support means to a second position adjacent said fruit support means, said stem-gripping mechanism having a plurality of fixed gripping means each circumferentially spaced from one another and movable gripping means, means for holding said movable gripping means in open position spaced from said fixed gripping means, means for moving said stem-gripping mechanism to said second position to position the stem of the fruit between said fixed gripping means and said movable gripping means, and means for moving said movable gripping means to closed position adjacent said fixed gripping means when said gripping mechanism is in said second position.

3,319,680
MUSHROOM TRIMMING MACHINE
Richard A. Coleman, Kennett Square, and Samuel J. Losito, Avondale, Pa., assignors to Vincent Losito and Sons, Toughkenamon, Pa., a partnership
Filed July 26, 1966, Ser. No. 567,868
6 Claims. (Cl. 146—81)

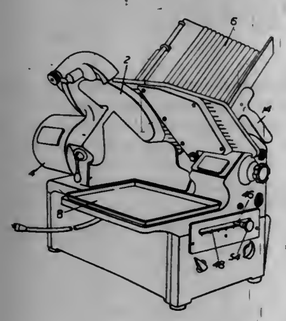
1. A mushroom trimming machine having a horizontally movable support for the stem of a mushroom, an end of the mushroom being able to overhang said support horizontally and a cutter for said end in combination with a horizontally arranged rotatable resilent wheel abutting

said support adjacent said cutter and in a position to be rotated by frictional contact with said support, said wheel being soft enough to envelop said mushroom end without



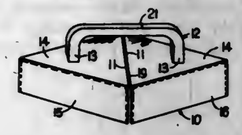
bruising it and contact said support in the presence of a mushroom end, yet firm enough to nudge said mushroom end into cutting position on said support and be frictionally driven by said support.

3,319,681
SLICING MACHINE HAVING MEANS FOR VARYING CARRIAGE STROKE
Jozef Longin Anecki, Taplow, Buckinghamshire, England, assignor to Lan-Elec Limited, Buckinghamshire, England, a British company
Filed May 26, 1964, Ser. No. 370,286
3 Claims. (Cl. 146—102)



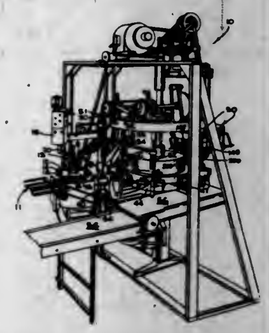
1. An automatic food slicing machine comprising a rotatable blade, a motor driving said blade, a hopper adapted to receive food and mounted for reciprocation past said blade, a motor to drive said hopper past said blade, link mechanism operated by said hopper motor and forming a reciprocating drive for said hopper, said link mechanism comprising a sleeve, an arm pivoted between its ends upon said sleeve, said sleeve being movable along the arm, the portion of the arm on one side of of the pivot being connected to said hopper motor and reciprocal through a fixed amplitude by said hopper motor and the portion on the other side of the pivot being connected to the food hopper to reciprocate said hopper through an amplitude depending upon the position of the pivot.

3,319,682
SANDWICH HOLDER
Vera M. L. Hall, Box 739 A, Rte. 1, Slidell, La. 70458
Filed Sept. 14, 1964, Ser. No. 396,111
2 Claims. (Cl. 146—150)



1. A sandwich holder of the character described, comprising two identical members each having a flat top, a hypotenuse and downwardly extending sides, each member appearing as a right triangle when viewed from the top, said members arranged with their tops in the same plane and with their hypotenuse in parallel spaced relation to one another, a single handle, means securing said handle to both members to retain said arrangement, the said two members being adapted to fit down over a sandwich which is now cut in two separate parts by a knife inserted in the space between the said two separate parts of the said sandwich holder.

3,319,683
METHOD OF SECTIONIZING CITRUS FRUIT
Wilber C. Belk, Lakeland, Fla., assignor to FMC Corporation, San Jose, Calif., a corporation of Delaware
Original application Apr. 30, 1962, Ser. No. 190,898, now Patent No. 3,205,926, dated Sept. 14, 1965. Divided and this application Dec. 11, 1964, Ser. No. 425,101
3 Claims. (Cl. 146—236)



1. In a method of sectionizing a whole peeled citrus fruit the steps of making a circular cut in the stem end of the fruit in an area encircling the core to sever connections at the stem end between the meat segments of the fruit and the core, and engaging each meat segment at the blossom end of the fruit and forcing the segment away from the adjacent membranes, the separation between membrane and the segment taking place progressively from the blossom end to the stem end of the fruit.

3,319,684
COLLAPSIBLE CONTAINER
William D. Calhoun, La Crescenta, Calif., assignor to Pharmaseal Laboratories, Glendale, Calif., a corporation of California
Filed Nov. 30, 1964, Ser. No. 414,649
8 Claims. (Cl. 150—8)

1. A collapsible seamless thermoplastic container for handling liquids, said container comprising:

(a) a support member for suspending said container;

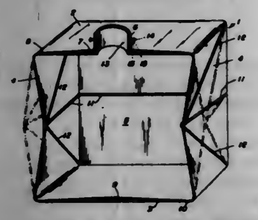
(b) a top thinning progressively outwardly from a central portion to a thin, foldable, rectangular peripheral portion;

(c) thin, foldable, rectangular sides and ends integrally connected with the peripheral portion of the top;

(d) a bottom which becomes thinner progressively outwardly from a rigid central portion to a thin, foldable, rectangular peripheral portion that is integrally connected to said thin, foldable, rectangular sides and ends;

(e) one of said top, bottom, sides and ends having a passage therethrough for liquid to flow;

(f) said top, bottom, sides and ends being of a one-piece integral homogeneous mass of thermoplastic material, with the sides and ends collapsing so the top and bottom are in close proximity to each other for compact packaging of the container;



(g) a center fold line across each side and end, said center fold line being generally parallel to the top and extending across a middle of each side and end; and

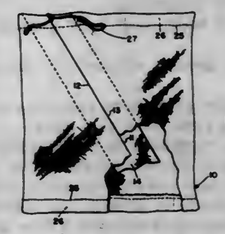
(h) diagonal fold lines across each end between opposite corners of said ends, the expanded container having said ends slightly longer across their diagonals than a straight line distance between diagonally opposite corners of said ends, so the ends toggle between slightly bowed out and slightly bowed in positions to insure the ends collapse in a predetermined direction, the rectangular top and bottom which thin progressively outwardly from their rigid center portions keeping the container in the general shape of a rectangular solid when containing liquid.

3,319,685
FLOATABLE KIT
Frank O. Urban, Bronx, N.Y., assignor to Howe Plastic and Chemical Co., Inc., New York, N.Y.
Filed Aug. 23, 1965, Ser. No. 481,772
3 Claims. (Cl. 150—52)



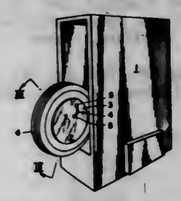
1. Flexible container construction comprising: an inflatable element, including first and second planar walls of synthetic resinous material interconnected along the principal edges thereof as a result of heat-sealing to form a hollow enclosure; valve means communicating between said hollow enclosure and the exterior of said inflatable element; a pneumatically sealed opening extending through said walls, and tie string means engaged within said opening; and at least one pocket element including first and second flexible synthetic resinous strips secured to one surface of one of said planar walls; said first strip being of greater width than said second strip and having upper, lower and side edges, said lower and side edges being heat-sealed to said outer surface of one of said planar walls to define a pocket open at the upper edge of said first strip, said second strip having upper, end and lower edges, said upper and end edges being heat-sealed to said outer surface of said planar wall, said lower edge extending past said upper edge of said first strip, said first and second strips having selectively interconnectable means for closing said pocket.

3,319,686
PROTECTIVE COVER FOR SANDING MACHINES
Melvin H. Prevette, Lexington, N.C., assignor to Lexington Abrasive Belts, Incorporated, Lexington, N.C., a corporation of North Carolina
Filed Sept. 13, 1965, Ser. No. 486,679
5 Claims. (Cl. 150—52)



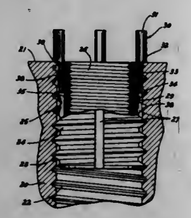
1. A cover for pneumatic tube sanding machines comprising a rectangular piece of canvas cut on the bias and having opposite end edges cut at an angle in parallel relation to each other, and an elastic adhesive adhering the said end edges in adjoining relation, the joint defined by the adjoining end edges being of substantially the same modulus of elasticity as the remainder of said cover.

3,319,687
ACCESSORY FOR TIRE-TREATING APPARATUS
Joseph A. Tomchak, 600 Broadway, McKees Rocks, Pa. 15136
Filed July 12, 1965, Ser. No. 471,306
5 Claims. (Cl. 150—54)



1. Apparatus for sealing the circular opening in an automotive tire against the admission of liquids and other matter into the interior of the tire, comprising a circular flat plate having a diameter slightly larger than the circular opening in said tire, a hook device secured to one side of said plate at the periphery thereof and adapted to fit over the edge of said circular opening and engage the inner periphery of the opening, and a plurality of latching devices circumferentially spaced from said hook device around the periphery of the plate, each of said latching devices including a generally C-shaped arm having a first position which permits the circular plate to fit over and cover the opening in the tire and a second position wherein it engages the inner wall of the tire at the periphery of said opening for holding the circular plate in snug abutting relationship with the periphery of the opening.

3,319,688
INSERT HAVING HOLLOW LOCKING PINS
José Rosán, San Juan Capistrano, and Marvin P. Reece, Dana Point, Calif., assignors to Rosan Engineering Corp., Newport Beach, Calif., a corporation of California
Filed Oct. 22, 1965, Ser. No. 509,252
6 Claims. (Cl. 151—23)



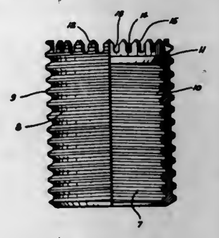
1. A fastener comprising:
a cylindrical body, said body provided with external threads;
longitudinal grooves situated on the exterior of said body;
circumferential projections extending into said grooves formed by portions of said body;
locking pins engaged with said circumferential projections so as to be retained thereby in tight association therewith, said locking pins being slidably positioned in said grooves in longitudinal alignment therewith, said pins having an enclosed hollow axially extending, circumferentially continuous cavity therein for accommodating debris and sheared workpiece material accumulated during the axial displacement of the locking pins into an operative or fully locked position, said pins being provided with guide means for guiding said pins during axial displacement thereof in said grooves, said guide means being comprised of an integral projection extending longitudinally from the body of said pin, said projection having a tapered face; and
combination shearing and locating shoulders carried by said pins.

3,319,689
LOCKING WASHER
Donald McDougall, Portland, and Albert H. McKibbin, East Hartford, Conn., assignors to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
Filed Aug. 20, 1965, Ser. No. 481,168
5 Claims. (Cl. 151—28)



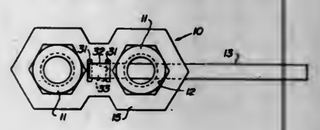
1. A nut lock assembly comprising in combination:
a threaded shaft having longitudinal grooves in its outer surface at its threaded extremity,
a cooperating nut threaded on the shaft, the nut having a length exceeding its engagement length with the shaft, and
a lock washer to prohibit relative rotation between the shaft and the nut comprising a deformable sleeve closely encircled by the nut, the sleeve having a diameter not exceeding the internal diameter of the nut and being supported on a plurality of legs which engage the shaft within the grooves, the sleeve frictionally engaging the unengaged internal surface of the nut when the sleeve is crimped diametrically.

3,319,690
TOP DRIVEN LOCKING INSERT
José Rosán, San Juan Capistrano, and Milan Novakovich, Balboa Island, Calif., assignors to Rosan Engineering Corp., Newport Beach, Calif., a corporation of California
Filed Jan. 2, 1964, Ser. No. 335,972
6 Claims. (Cl. 151—41.73)



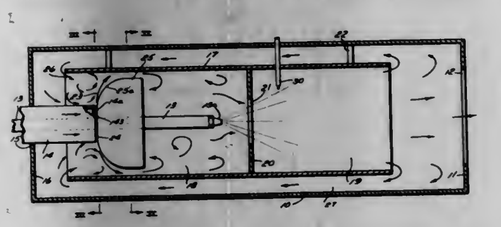
1. In a one-piece insert adapted to be installed in a bore in a workpiece, the combination of:
an internally threaded cylindrical body having a counterbore at one end thereof;
combined driving and outwardly expandable locking means provided at the counterbored end of said body, said combined driving and locking means being comprised of a plurality of axially extending serrations spaced around the circumference of said counterbored end, said serrations being of uniform axial extent, said combined driving and locking means being engageable by a matching tool so as to rotate said body into a bore and subsequently outwardly expand said locking means so as to embed the same into the workpiece material, thereby providing a torque-resistant lock by coaction with the material of said workpiece;
recesses extending radially through the entire radial thickness of said counterbored end to form essentially radially extending faces on said serrations, said recesses being of the same axial extent as said serrations; and
external threads carried by said body, said external threads continuing to the location of said serrations and forming thread segments on the exterior of the serrations interrupted by said recesses.

3,319,691
NUT HOLDER FOR LINER PLATES AND THE LIKE
Roy Fisher, Winnipeg, Manitoba, Canada, assignor to Christopher L. Fisher, St. Boniface, Manitoba, Canada
Filed Mar. 8, 1965, Ser. No. 437,807
6 Claims. (Cl. 151—41.74)



1. A nut holder for supporting a pair of nuts in spaced relationship with one another upon a pair of nesting liner plates, comprising in combination a nut holding frame, said frame being apertured, the edges of said frame defining said apertures forming apertures the configuration of which is similar to the outer configuration of said nuts being held thereby, means to hold said nuts within said apertures, and means to secure said nut holder to one of said pair of nesting liner plates, said means to secure said nut holder to one of said pair of nesting liner plates including a malleable strip formed on one end of said frame and extending therefrom parallel to the longitudinal axis of said frame, said strip being formed in a hook engageable over the edge of said one liner plate.

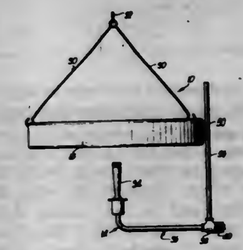
3,319,692
OIL BURNER
Imants Reba, Chicago, Ill., and Paul W. Cooper, Albuquerque, N. Mex., assignors to IIT Research Institute, Chicago, Ill., a corporation of Illinois
Filed June 1, 1965, Ser. No. 460,054
8 Claims. (Cl. 158—1)



1. In combination in a fuel burner, a generally cylindrical housing, a generally cylindrical shroud fixedly secured within said housing providing an axially extending passage between said housing and said shroud, an axially extending open-ended tubular conduit introducing primary air under positive pressure axially into one end of said cylindrical shroud, means closing said one end of said housing around said conduit, a flow directing body in said shroud intermediate the ends thereof and immediately downstream of the open end of said conduit and combining therewith to provide an annular radially opening slit for the passage of air from the conduit in a direction radially outwardly adjacent said body, means providing an opening between the interior of said shroud and said passage upstream of said body, the upstream surface of said body being gradually curved in the downstream direction whereby air leaving said slit attaches to said surface for deflection downstream in said shroud and for entrainment of gas in said shroud upstream of the body, means introducing fuel into said shroud downstream of said body for mixture with air flowing downstream around said body, means for igniting said mixture in said shroud to provide combustion at the downstream end of said shroud and an opening in the downstream end of said housing providing for the escape of exhaust gases following combustion.

3,319,693
LOW TEMPERATURE RADIANT HEATER
Robert Clayton Bryant, Rte. 1, S. Main St., and Richard A. Innes, Rte. 5, S. Holden St., both of Warrensburg, Mo. 64093
Continuation of application Ser. No. 289,586, June 21, 1963. This application Apr. 4, 1966, Ser. No. 540,101
2 Claims. (Cl. 158—113)

1. A brooder comprising:
a heat-absorbing body of relatively low thermal conductivity having a lowermost, generally flat, downwardly facing surface;
a flame-producing burner having a fuel-receiving head arranged to direct the flame emanating therefrom in an upward direction;
means supporting said head beneath said surface in sufficiently closely spaced relationship thereto to cause said flame to impinge directly on a portion of said surface, whereby the body is subjected to the heat produced by fuel combustion as well as the gaseous products of combustion,
said surface extending beyond said portion to a peripheral region thereof and presenting a surface zone between the portion and the region along which said products must flow in direct contact therewith prior to rising above the body,
said zone having an area appreciably greater than the area of said portion and of a size to preclude substantial heating of said peripheral region and maintain the temperature along the zone lower than the temperature of the products in thermal contact therewith, whereby said zone absorbs substantial amounts of heat from said products as they flow therealong,
said body having a substantially uniform thickness throughout, sufficient in a direction normal to said surface to impede substantial heat conduction in said direction, whereby the brooder provides useful heat energy in the form of radiation from said body emanating essentially only from said surface; and
means mounting said body at a location spaced above the ground therebelow, and including an elongated,

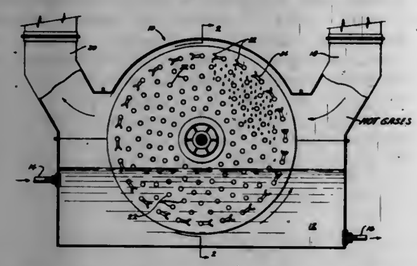


transversely narrow, continuous member circumscribing said body and presenting a rim engaging the body and retaining the latter within the rim with said surface extending thereacross, and a hanger assembly connected to said rim and suspending the latter in a substantially horizontal attitude, whereby the body is suspended with said surface generally horizontally disposed,
said body having an uppermost face extending across the rim,
said rim having opposed, upper and lower marginal edges extending above and below said face and said surface respectively,
said hanger assembly engaging said rim adjacent said upper edge,
said lower edge having an inwardly extending flange in underlying engagement with said peripheral region of the surface,
said head-supporting means including cantilever support structure depending from said rim and being provided with a fuel-supplying conduit projecting laterally beneath said body and having a free end mounting said burner thereon in vertical, central alignment with said body.

3,319,694
CASCADE EVAPORATOR AND MEANS OF IMPROVING PERFORMANCE
Jay H. Freiday, West Hartford, Conn., assignor to Combustion Engineering Inc., Windsor, Conn.
Filed Dec. 6, 1965, Ser. No. 511,901
1 Claim. (Cl. 159—10)

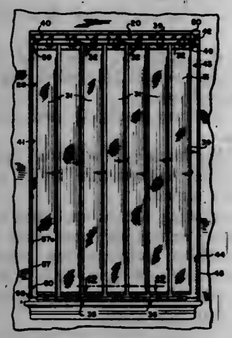
An evaporator for recovering chemicals from black liquor including a housing, said evaporator having a first lower portion which houses a pool of black liquor to be evaporated, and an upper portion forming a gas passage through which hot gases flow, inlet means in said upper portion through which hot gases enter the housing, outlet

means diametrically opposite said inlet means in said upper portion through which the hot gases leave the housing, rotatable means positioned in the housing, said rotatable means including two spaced, parallel, vertical outer discs mounted on a horizontal axis, which axis is transverse of the gas passage, a plurality of first members extending transversely between the two discs, driving means for rotating said rotatable means such that the plurality of members pass alternately through the pool of black liquor and the gas passage, a plurality of trough-shaped second members extending transversely between the two



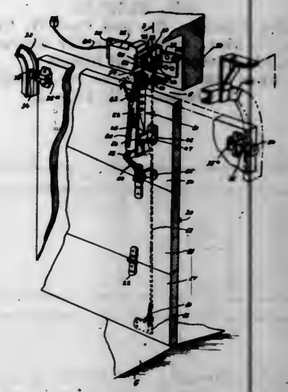
discs, said first and second members being positioned in a series of radially spaced circumferential rows, said second members being only in the outermost circumferential row, and being entirely within the peripheral edges of the discs, said trough-shaped members being positioned such that when they are rotated through the pool, they are filled with black liquor, and as they rotate through the gas passage, black liquor is discharged therefrom, said black liquor passing down through the spaces between the plurality of first members, and also falling onto the surfaces of the first members.

3,319,695
BLIND WITH VERTICAL LOUVERS
Walter Houmère, 10 E. 8th St., New York, N.Y. 10003
Filed Mar. 9, 1965, Ser. No. 438,205
12 Claims. (Cl. 160—168)



1. A blind for a window or like opening, which comprises a horizontal suspension bar mounted to extend across the opening, a plurality of tapes attached at one end to the bar to depend therefrom in parallel planes normal to the axis of the bar, angular movement of the bar causing the tapes to twist to vary the angles of the tapes to the bar, a louver attached to the other end of each tape with its plane in the plane of the end of the tape, to which it is attached, and means for moving the louvers to a side of the opening, including a traverse bar extending normal to the suspension bar in a horizontal plane and movable across the opening to swing the tapes and adjacent portions of the louvers to horizontal position.

3,319,696
AUTOMATIC OVERHEAD DOOR OPENER
John R. Wiegand, Valley Stream, N.Y., assignor to Wiegand Electronics Co., Inc., County of Union, N.J., a corporation of New Jersey
Filed June 4, 1965, Ser. No. 461,366
9 Claims. (Cl. 160—188)



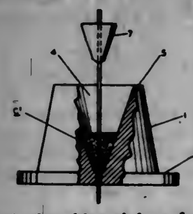
1. A door opener for a door mounted between curved guide rails at a doorway and movable between a lowered closed position and an overhead open position, comprising a cable attachable at one end to said door near its bottom end, a winch assembly mountable on a lintel over said doorway, said winch assembly including a winch pulley, said cable being entrained on said pulley for pulling the door upwardly on said rails and for paying out the cable as the door descends, a reversible motor in said assembly operatively connected to and driving said pulley, a coil spring connected at one end to the other end of the cable, a bracket mountable on said door, a vertical drawbar pivotally mounted on said bracket, an idler pulley carried at the upper end of said drawbar and guiding an end part of said cable beyond said winch pulley, an arm extending outwardly of the lower end of said drawbar, the other end of said coil spring being connected to said arm for holding said end part of the cable in a taut position when the door is lowered, whereby said drawbar is held in a vertical position, and an angle bar mountable over said drawbar to prevent passage of said drawbar and manual opening of said door.

3,319,697
GARAGE DOOR GUARD
John M. Krohn, 3260 N. 45th St., Milwaukee, Wis. 53216
Filed June 22, 1965, Ser. No. 465,914
1 Claim. (Cl. 160—229)



In an overhead roll-type garage door, the combination with two adjacent hinged door panels, the hinge means of said panels being disposed on one side of said panels and the axis of said hinge means being disposed in a line of intersection common to the planes of adjacent sides of said panels, of an elongated resilient plate extending substantially the width of said door, said plate hingedly mounted on one panel on a side of said one panel and opposite said one side of said panels, said plate contacting the other door panel, the hinge mounting of said plate including a hinge pin having its axis disposed in a plane coinciding with the axis of said hinge means and the adjacent planes of said panels and a spring member urging said plate into contact with said other panel, said spring comprising a torsion coil spring disposed about the axis of said hinge pin.

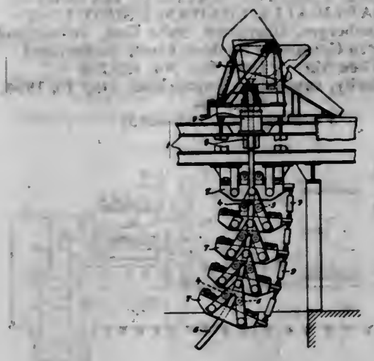
3,319,698
MEANS AND METHODS FOR MAKING SINKERS FOR FISHING LINES
Charles I. Starnes, R.R. 1, Box 415, Edwardsville, Ill. 62025
Filed June 3, 1964, Ser. No. 372,329
2 Claims. (Cl. 164—112)



1. The method of making sinkers for fishing lines; said method comprising the following steps:
(a) providing a mold having a wide upwardly opening mouth and a downwardly converging mold-cavity which is provided at its bottom extremity with an aperture;
(b) threading a piece of wire through the aperture so that a portion of the wire extends above the mold-cavity and a portion of the wire extends below the mold-cavity;
(c) holding the portion of the wire within the mold-cavity at rest;
(d) pouring a quantity of molten metal, the melting point of which is substantially below that of the wire, into the mold-cavity and around a portion of the wire within the mold-cavity;
(e) allowing the molten metal to solidify in the formation of a bob;
(f) pulling the wire and bob upwardly through the mouth of the mold-cavity whereby to remove the bob from the mold-cavity; and
(g) pouring a successive quantity of said molten metal into the mold-cavity around that portion of the wire located within the mold-cavity in downwardly spaced relation to the bob previously cast and allowing it to solidify to form a second bob on the wire.

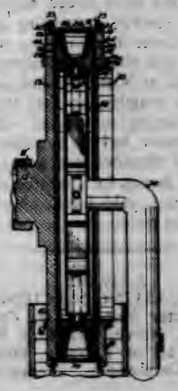
3,319,699
APPARATUS FOR WITHDRAWING AND ADVANCING THE CASTING IN A CONTINUOUS CASTING MACHINE
Erik Allan Olsson, Tagerhalde 6, 8700 Kusnacht, Zurich, Switzerland
Filed Feb. 4, 1965, Ser. No. 432,442
16 Claims. (Cl. 164—282)

1. Apparatus for withdrawing and advancing the casting in a continuous casting machine wherein the casting leaving an open-ended mold may have a molten interior comprising:
(a) at least three pair of opposed driven roll means positioned successively in the direction of movement of the casting for frictionally advancing and guiding the casting without altering the cross-sectional shape thereof,
(b) means for:
(1) independently adjusting the alignment of said pairs of rolls relative to one another and relative to the direction in which the casting leaves the mold and



(2) successively bending the casting away from the direction in which it leaves the mold to a direction at an angle thereto,
(c) each of said pairs of rolls being positioned along a non-circular arcuate path.

3,319,700
RADIAL COOLING SYSTEM FOR CASTING WHEEL
Thomas L. Bray, Birmingham, Ala., and George C. Ward, Carrollton, Ga., assignors to Southwire Company, Carrollton, Ga., a corporation of Georgia
Filed Feb. 12, 1965, Ser. No. 432,211
12 Claims. (Cl. 164—283)



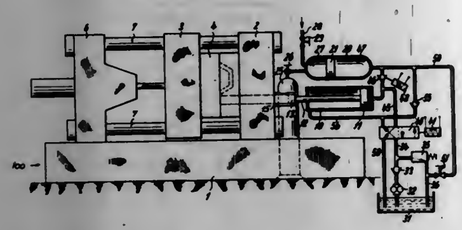
1. In a casting machine, a casting ring having in its peripheral surface a casting groove and having formed therein a plurality of separate first channels each of which extends adjacent said casting groove from inwardly of said casting groove substantially to said peripheral surface and each of which is along its length substantially equi-distant from said casting groove, means for positioning said casting ring for rotation about an axis and for providing with said casting ring a plurality of second channels each of which is continuous with one of said first channels and extends inwardly toward said axis, and

means positioned inwardly of said casting groove for flowing coolant through said first channels and said second channels.

3,319,701
PRESSURE CASTING MACHINE HAVING A HYDRAULICALLY LOADABLE SHOT UNIT

Ulrich Eggenberger, Oberuzwil, Saint Gall, Switzerland, assignor to Gebrueder Buehler, Uzwil, Switzerland

Filed May 5, 1965, Ser. No. 453,290
Claims priority, application Switzerland, May 13, 1964, 6,215/64
3 Claims. (Cl. 164—315)



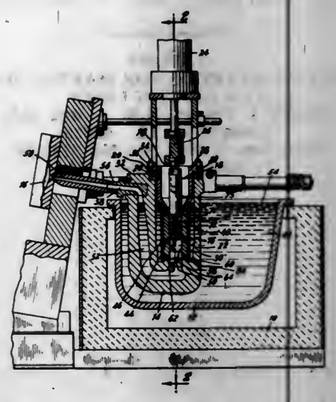
2. A pressure casting device comprising, means defining a mold, a bushing connected to said mold for filling the mold with a charge of material to be cast, a shot piston displaceable in said bushing for directing the charge of material into the mold under pressure, a pressure cylinder, a pressure piston slidable in said pressure cylinder and connected to said shot piston for displacing said shot piston in said bushing, means for directing fluid under pressure to said pressure cylinder including a pump connected to said pressure cylinder for directing an initial flow of relatively low fluid pressure behind said pressure piston during the initial movement of said shot piston for injecting a material to be cast into said mold and a fluid pressure accumulator connected to said pressure cylinder and located in close proximity to said pressure cylinder for supplying fluid under higher pressure than said pump, a short conduit connecting said accumulator to said pressure cylinder for directing pressure to effect rapid movement of said shot piston after an initial movement has taken place, at least said shot piston being made of a relatively light material so that the kinetic energy imparted thereto during movement will be relatively small, said accumulator having a piston slidable therein and dividing said chamber into a gas chamber and a liquid chamber, and means for charging said gas chamber with a pressurized gas, said liquid chamber being connected to said pressure piston.

3,319,702
DIE CASTING MACHINE

Jurgen Hartwig, Victor Mandorf, Jr., Crescenzo F. Fulgenzi, Robert H. Norris, Maynard W. Roisen, and Peter A. Lerch, all of Fostoria, Ohio, assignors to Union Carbide Corporation, a corporation of New York

Filed Nov. 1, 1963, Ser. No. 320,693
12 Claims. (Cl. 164—316)

5. The combination of a die casting machine for casting lightweight, high melting point die casting alloys including a holding furnace having a pot containing molten metal to be cast, and a gooseneck suspended from a yoke into said pot, said gooseneck having a cavity and a connecting passage communicating with a die cavity, a shot cylinder assembly disposed within said cavity of said gooseneck and comprising a cylinder having a cavity therein and at least one intake aperture, a piston assembly reciprocally mounted in said cavity of said cylinder and comprising a stud having a cylindrically shaped sleeve member fixedly positioned to said stud, means reciprocating said piston assembly in said cavity whereby the upward stroke of said piston assembly opens said intake aperture allowing said molten metal to fill said cavity of said cylinder and the downward stroke closes said intake aperture forcing said molten metal from said cavity through said passage of said gooseneck and into a

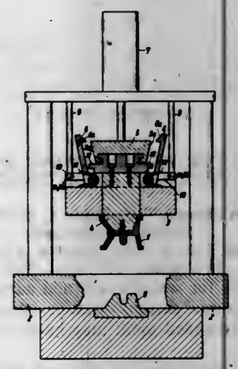


die, means for maintaining said cylinder and said gooseneck in alignment and means for maintaining a fluid tight seal between said cylinder and said gooseneck comprising disposing a seal ring between said gooseneck and said cylinder, said seal ring being provided with an annular groove containing a seal member.

3,319,703
EXTRACTION OF CASTINGS

Josef Heim, Odheim, Germany, assignor to Firma Karl Schmidt G.m.b.H., Neckarsulm, Wurttemberg, Germany, a corporation of Germany

Continuation of application Ser. No. 328,561, Dec. 6, 1963. This application July 11, 1966, Ser. No. 564,430
Claims priority, application Germany, Dec. 7, 1962, Sch 32,441
11 Claims. (Cl. 164—344)

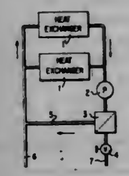


10. Casting machine comprising:
(a) a mold including a lower mold member, an upper mold member and an ejector member, said ejector member being disposed to abut a portion of a casting in the mold;
(b) lift means for the upper mold member for raising said upper mold member relative to the lower mold member.
(c) means releasably securing the ejector member to the upper mold member for the raising of the ejector member with the upper mold member, with the ejector member in a first position with respect to the upper mold member, and release of the ejector following said raising, the ejector being movable downwardly of the upper mold member following release thereof from the upper mold member to a second position with respect to said upper mold member;
(d) release means for releasing the ejector member for actuation thereof, following lifting of the upper mold member and the ejector member;
(e) said release means limiting upward movement of the ejector after operation of the release means to release said ejector, the lift being adapted to lift the upper mold member above a position corresponding to the uppermost position of the ejector;
whereby the upper mold member and the ejector member are movable upwardly of the lower mold member to operative engagement with the release means, and a casting adhering to the upper mold member, following operation of the release means, is pressed by the ejector member for ejection thereof from the upper mold member, and upon failure of the ejector following release thereof to eject the casting from the upper mold member, the upper mold member can be raised further to thereby forcibly eject the casting.

3,319,704
METHOD AND ARRANGEMENT FOR CLEANING AND CONTROLLING TUBE-TYPE HEAT-EXCHANGERS

Hans Nasse, Angermund, Germany, assignor to Ludwig Taprogge-Reinigungsanlagen fur Rohren-Warmeaustauscher, Angermund, Germany

Filed Feb. 1, 1965, Ser. No. 429,244
Claims priority, application Germany, Feb. 18, 1964, T 27,881
15 Claims. (Cl. 165—1)

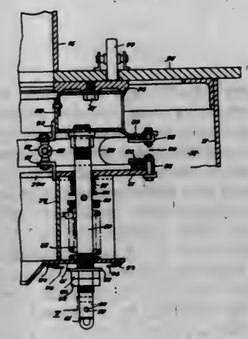


1. A method of cleaning and controlling a heat exchanger system having a source of heat exchange fluid, at least one tube-type heat exchanger unit and means for applying a heat exchange fluid containing a plurality ot rubbing elements thereto, the method comprising
dividing the heat exchanger fluid flowing from said heat exchanger unit into a first portion including said rubbing elements and a second portion free of rubbing elements,
conveying said first portion of said heat exchange fluid directly to the input of said heat exchanger unit,
applying said second portion to said source of heat exchange fluid and
while maintaining a constant pressure gradient in said heat exchanger unit varying the proportion of said first portion with respect to said second portion in accordance with the instantaneous control status required by said heat exchanger unit.

3,319,705
ROTARY REGENERATIVE HEAT EXCHANGERS

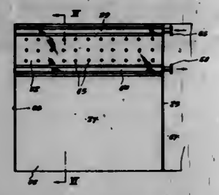
Herbert Sandmann, Olpe, Westphalia, Germany, assignor to Apparatebau Rothemuhle Brandt & Kritzler, Olpe, Westphalia, Germany, a company of Germany

Filed Sept. 27, 1965, Ser. No. 490,326
Claims priority, application Germany, Sept. 29, 1964, A 22,505
4 Claims. (Cl. 165—4)



1. A rotary regenerative heat exchanger comprising a casing, a hot gas inlet chamber at one end of said casing, a gas outlet chamber at the other end of said casing, a stationary regenerator within said casing between said chambers, a mass of plates in said regenerator providing a multiplicity of axial passages therethrough an outlet air duct one open end of which is disposed within said gas inlet chamber, an inlet air duct one open end of which is disposed within said gas outlet chamber, rotatable air duct members at each axial end of said regenerator having necks disposed in rotatable air and gas tight engagement with the open ends of the inlet and outlet air ducts, each air duct member having ducts with openings at their ends adjacent the axial end faces of said regenerator whereby air emitted from said inlet air duct passes through said regenerator into said outlet air duct, and sealing assemblies disposed around the peripheries of the openings of said air duct members, each sealing assembly comprising a sealing member, a frame attached to said sealing member, an expansion member between said air duct member and said frame, swivel joint means between said air duct member and frame for transmitting the rotational movement of said air duct members to said sealing member, and resilient means urging said frame from said air duct members toward said regenerator, said resilient means comprising a series of bolts disposed at spaced intervals around and secured to said frame, spring means around each said bolt and urging the bolt axially thereof together with the said frame towards the regenerator, each bolt passing freely through a flange on the air duct member, the end of the bolt remote from the said frame being provided with a flange which normally is disposed with a clearance from the flange on the air duct member and is adapted to abut said flange on the air duct member whereby to limit said axial movement of the bolt, characterised in that a slide of appropriate thickness is placed between the flange on the bolt end and the flange on the air duct member whereby to adjust the dimension of the said clearance to a desired amount of, for example, 0.5 mm.

3,319,706
REGENERATIVE HEAT EXCHANGERS
Arthur Kritzler, Freudenberg uber Siegen, and Herbert Sandmann, Olpe, Westphalia, Germany, assignors to Apparatebau Rothmuhle Brandt & Kritzler, Olpe, Westphalia, Germany, a German company
Filed Dec. 21, 1964, Ser. No. 420,064
Claims priority, application Germany, Dec. 24, 1963, A 44,882
5 Claims. (Cl. 165—7)



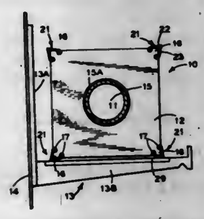
1. In a regenerative heat exchanger comprising a regenerator containing heat transfer material, said regenerator having inner and outer radially spaced walls and radial partition walls which divide the space between the walls into sector-chambers, said walls having a hot end and a cold end and wherein the sector-chambers may or may not be divided into smaller chambers, means for flowing a hot fluid medium through the heat transfer material, and means for flowing a medium to be heated through the heat transfer material whereby heat is transferred via the heat transfer material from the hot fluid medium to the medium to be heated, the improvement which comprises a plurality of radial partition walls having a cold end portion formed as a laminate of a thick plate and a thin plate, said thin plate having surface irregularities which define passages between the thick and thin plates through which a heating medium can pass, said thin plate being secured to said thick plate by tack welding and being sealingly secured around its periphery to the thick plate, said cold end portion wall comprising said thick and thin plates being affixed to the hot end of said wall.

3,319,707
ROTARY REGENERATOR MATRIX WITH STIFFENERS OF LOW TEMPERATURE GRADIENT
Clarence F. Luedemann, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Aug. 11, 1966, Ser. No. 571,850
4 Claims. (Cl. 165—8)



1. An annular matrix for a rotary regenerator comprising, in combination, two rims defining the margins of the matrix, stiffeners distributed circumferentially of the matrix extending between and connected to the rims, and heat exchange material having two faces and pervious to fluid flow from face to face thereof extending from one rim to the other between the stiffeners, each stiffener having one edge adjacent each face of the heat exchange material, characterized by hollow stiffener structure defining a flow path starting at one edge of the stiffener and terminating at the other edge of the stiffener, for circulating fluid through the stiffeners from edge to edge in response to the pressure gradient operative to cause fluid flow through the heat exchange material from face to face of the matrix, said stiffener structure including
two bars disposed face to face, at least one bar being recessed to define a passage within the stiffener extending in the edge-to-edge direction of the stiffener
means defining holes in both edges of the stiffener communicating with the said passage
and baffle means within the passage defining a retroverse path with an odd number of mutually overlapping passes for the fluid in the direction from edge to edge of the stiffener within the passage.

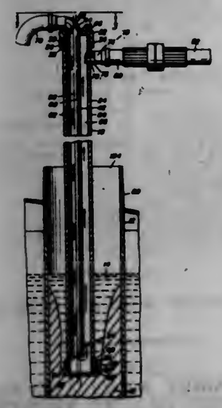
3,319,708
PENETRABLE TRACT FOR FINNED HEATING UNIT WITH BARBS
Elliot S. Nelson, Westbury, N.Y., assignor to Embassy Industries, Inc., Farmingdale, N.Y., a corporation of New York
Filed June 18, 1965, Ser. No. 464,949
6 Claims. (Cl. 165—67)



6. For use in a fin tube unit having a plurality of fins, said fin having aligned corner portions defined by a given included angle and having barbs formed thereon, the improvement of a track for protecting the corners of a fin tube unit comprising:
(a) an elongated flexible member formed of a penetrable material having opposed leg portions defining an acute angle therebetween,
(b) and, the opposed leg portions of said member terminating in an inwardly beaded edge whereby the opposed leg portions are adapted to straddle the adjacent sides of a fin at the corners thereof, wherein the angle included between the opposed leg portions of said track is less than the angle of the corner which said track is adapted to cover.

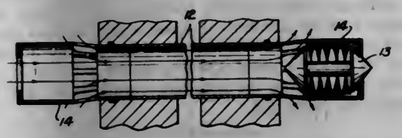
3,319,709
FLUID HEATER FOR THAWING FROZEN PIPE LINES
Roy S. Strunk, 649 Jackson St., Kingsport, Tenn. 37660
Filed Nov. 2, 1964, Ser. No. 408,112
3 Claims. (Cl. 165—86)

1. In combination, a tank containing freezable liquid, a tank well line which contains frozen liquid therein for removing liquid from the tank, said well line extending from near the top of said tank to near the bottom of said tank and in open communication with the liquid in the tank, and a pipe-like heater inserted into said well line, and supplied witht heated fluid from an external source, said heater comprising an outer elongated casing closed at both ends, an inner tubular member supported within and extending from the upper end to closely adjacent the lower end of said casing, said member being arranged in said casing toward one side thereof to provide a relatively large unobstructed flow path therein, inlet means connected to said member and outlet means connected to said casing whereby heated fluid can be passed in through the inner tubular member and out through said flow path to effect uniform and rapid heating of the exterior of said casing, said casing having an effective diameter substantially smaller than said well line and said inlet and outlet



means having flexible fluid connections for passing heated fluid to and from said heater whereby said heater can be agitated from side to side within said conduit to promote casing, the lower end of the inner tubular member being of a length sufficient to extend from the top of said well line to near the bottom of the tank whereby said heater may be inserted into the full length of the well line to thaw liquid frozen therein and to thereby allow free flow of liquid from the tank through said well line.

3,319,710
APPARATUS FOR CLEANING SURFACE CONDENSER AND HEAT EXCHANGER TUBES
Hermann Heeren, Hans Kratzer, and Bernhard Dege, Nurnberg, Germany, assignors to Maschinenfabrik Augsburg-Nurnberg A.G., Nurnberg, Germany
Filed May 31, 1962, Ser. No. 198,976
Claims priority, application Germany, June 2, 1961, M 49,232; Sept. 7, 1961, M 50,247; Feb. 28, 1962, M 51,966
6 Claims. (Cl. 165—95)



1. In a heat exchanger having a bundle of tubes extending between water boxes common to all the tubes, cleaning means comprising a cleaning instrument in each tube, respectively, an instrument catching chamber joined to each end of each tube and extending into its respective water box, openings in each chamber for the passage of water therethrough, and valve means in the raw water supply and discharge lines communicating with said openings for periodically reversing the direction of raw cooling water through the water boxes, each chamber and through the tubes to move each instrument back and forth through its tube and into the chamber at the end of the tube during normal operation of the exchanger.

3,319,711
FIN PLATE FOR RADIATOR CORES
Maxime Louis Jentet, Chatou, Seine-et-Oise, France, assignor to Societe Anonyme des Usines Chausson, Asnieres, France, a French company
Filed June 22, 1964, Ser. No. 376,697
Claims priority, application France, June 28, 1963, 939,857, Patent 1,386,229
1 Claim. (Cl. 165—151)

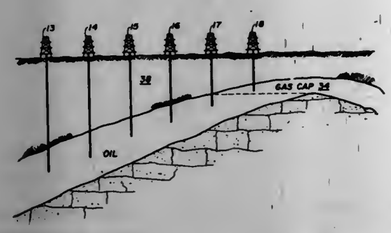


In a cooling radiator assembly which includes a plurality of fluid conduit tubes arranged in a pattern in spaced apart relation to one another, the assembly including stacked, substantially parallel, spaced apart plate members with openings therein in said pattern which admit the tubes therethrough, improved spacing means for the plates comprising:
a plurality of spacers bent outwardly from the adjacent plate members, the spacers being secured to the plate members from which they are bent along fold portions thereof;
each spacer comprising a lug having a maximum height substantially equal to the desired spacing of the plates;
the spacers of each plate extending in the same direction;
the spacers each being of multi-sided form and including an elongated base, having a long side fixedly joined to the adjacent plate at the fold portion thereof;
an oblique portion connected to each base and having an outer side substantially parallel to the long side and contacting the adjacent plate member;
each plate having an opening formed therein comprising the section from which the spacers are bent outwardly;
the spacers being in complementary pairs formed from the same opening;
the spacers of each pair being located on opposite sides of said openings and the respective fold portions thereof being substantially parallel and on the opposing sides of the openings; and
the oblique portions of each pair of spacers being oppositely directed and being offset from said openings to thereby prevent any penetration of the outer sides into or through adjacent plate openings.

3,319,712
SECONDARY OIL RECOVERY METHOD
Leo J. O'Brien, Crystal Lake, Ill., assignor, by mesne assignments, to Union Oil Company of California, Los Angeles, Calif., a corporation of California
Filed Apr. 6, 1965, Ser. No. 445,898
10 Claims. (Cl. 166—2)

1. In a subterranean oil- and gas-bearing formation penetrated by rows of wells, the method of recovering substantially all of the oil and a minor portion of the gas, comprising the steps:
(a) injecting water at the gas-oil interface in an amount sufficient to prevent the migration of the gas from the gas-bearing portion of said formation into the oil-bearing portion;

(b) selecting alternate wells in one of the rows as injection wells downstream from the point of water injection;
(c) selecting a plurality of wells, in line with, upstream from and adjacent to said injection wells;
(d) selecting at least one well downstream from said injection wells as a production well;
(e) producing a portion of the water injected at the oil-gas interface from the plurality of wells selected upstream of and adjacent to said injection wells;
(f) simultaneous with step (e);



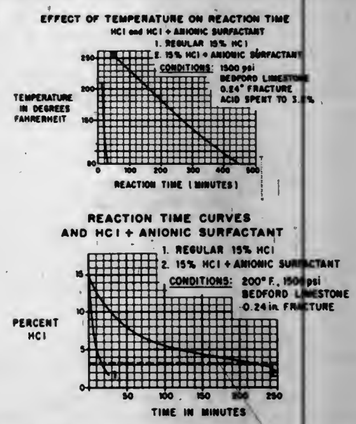
(1) injecting into said injection wells a petroleum solvent in an amount sufficient to form a band of solvent between the injection wells and the remaining wells in said row in which said injection wells are located;
(2) producing fluids from the remaining wells of said row of wells in which said alternate injection wells are located until a trace of said solvent is detected in the effluent from said remaining wells, and thereafter shutting in said remaining wells;
(g) recovering oil, solvent, water and gas from said production well.

3,319,713
METHOD OF DETERMINING THE OIL AVAILABILITY CONTOUR OF AN OIL FIELD
Olan T. Moore, P.O. Box 3297, Midland, Tex. 79701
Filed Feb. 11, 1964, Ser. No. 343,997
16 Claims. (Cl. 166—4)

14. A method of obtaining an indication of the highest and lowest gas columns in an oil reservoir from which oil is obtainable through wells, which comprises recovering occluded gases separating from oil in a plurality of said wells; testing to determine the relative amount in such removed gases, of methane in comparison with the total amount of gases from methane through at least the pentanes, separately for each of said plurality of wells; and correlating such relative amounts for said wells with the geographical location of the respective wells to obtain an indication of those areas in which said wells have the highest and lowest gas columns.

3,319,714
WELL ACIDIZING METHOD
John A. Knox, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla., a corporation of Delaware
Filed Sept. 25, 1964, Ser. No. 399,251
15 Claims. (Cl. 166—42)

1. A method of acidizing an oil containing calcareous formation with a well acidizing acid, wherein the reaction time of the acid acting on the formation is substantially increased, comprising the step of: contacting the oil containing calcareous formation with a well acidizing acid containing an anionic surface active agent which in the presence of said acid renders oil containing calcareous formations substantially oil-wet, and said surface active agent being present in an amount sufficient to substantially increase the reaction time of the acid acting on the formation.



3,319,715
POLYSACCHARIDE B–1459 AND $Mg(OH)_2$ IN BRINES USED IN WELL TREATMENTS
Christ F. Parks, Tulsa, Okla., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Feb. 17, 1965, Ser. No. 433,492
15 Claims. (Cl. 166—42)

1. The flowable composition of matter comprising Polysaccharide B–1459, $Mg(OH)_2$, a water-soluble inorganic salt, and water in an amount of each, by weight, of between about 0.015 and about 1.5 parts of polysaccharide B–1459, at least about 10% by weight of the $Mg(OH)_2$ based on the weight of the polysaccharide B–1459 employed, and the salt and water in a proportion of each of the salt and water to make a brine of the salt and water having a specific gravity of at least about 1.005, and in a total amount of both the salt and water to make 100 parts by weight of said composition.

8. The method of reducing loss of an aqueous fluid to an earth formation when in contact therewith which comprises admixing with said fluid prior to contacting the formation, by weight, polysaccharide B–1459 in an amount of between about 0.015 and 1.5 parts, based on 100 parts of said fluid, and $Mg(OH)_2$ in an amount of at least about 10% by weight of the polysaccharide B–1459 employed, and sufficient water-soluble inorganic salt which, when admixed with an amount of water equal to that present in said aqueous fluid results in a brine having a specific gravity of at least about 1.005 to make a flowable composition and forcing the resulting composition into contact with the formation.

3,319,716
FLUID LOSS ADDITIVE FOR WELL FLUIDS, COMPOSITION AND PROCESS
Walter R. Dill, Duncan, Okla., assignor to Halliburton Company, Duncan, Okla., a corporation of Delaware
No Drawing. Filed Oct. 21, 1965, Ser. No. 500,338
23 Claims. (Cl. 166—42)

1. A fluid loss additive for well treating fluids comprising a mixture of finely divided particles of an oil soluble resin selected from the mixture consisting of dicyclopentadiene type synthetic alkyl aromatic petroleum hydrocarbons, oil soluble resins containing rosin acid dimers and pentaerythritol esters of rosin acid dimers and finely divided particles of a water soluble gum.

3,319,717
MULTIPLE ZONE INJECTION APPARATUS FOR WELL BORES
David V. Chenoweth, Houston, Tex., assignor to Baker Oil Tools, Inc., City of Commerce, Calif., a corporation of California
Filed Oct. 4, 1965, Ser. No. 492,750
17 Claims. (Cl. 166—115)



1. In apparatus for injecting fluid into a plurality of longitudinally spaced formation zones from the top of a well bore: a tubing string in the well bore; packing means adapted to be set in the well bore in sealed relation to said tubing string to isolate the formation zones from one another; a separate flow regulator in said tubing string at each zone to conduct fluid from said tubing string into each zone; each flow regulator including flow restricting means to reduce the pressure of the fluid received from said tubing string, whereby reduced pressure fluid is discharged individually from each flow regulator for passage into its associated formation zone; each of said flow regulators further including means for maintaining the fluid pressure drop across its flow restricting means substantially constant.

3,319,718
WELL TESTER
Jerry C. Graff, Houston, Tex., assignor, by mesne assignments, to Schlumberger Technology Corporation, Houston, Tex., a corporation of Texas
Continuation of application Ser. No. 333,223, Dec. 24, 1963. This application Oct. 31, 1966, Ser. No. 591,018
16 Claims. (Cl. 166—150)



4. Apparatus forming a valve system in a well tool suspended from a string of pipe including: a main valve means having a port and movable means for selectively passing fluid through the port, and an auxiliary valve means having longitudinally spaced ports and means for selectively passing fluid through one of said longitudinally spaced ports, said last mentioned valve means being responsive to longitudinal positioning of said string of pipe for selectively closing said auxiliary valve means.

3,319,719
CAM BIASED WELL ANCHOR WITH DETACHABLE SETTING MEANS
Perry J. Decuir, Rte. 1, P.O. Box 72, New Iberia, La. 70560
Filed June 16, 1964, Ser. No. 375,613
22 Claims. (Cl. 166—217)

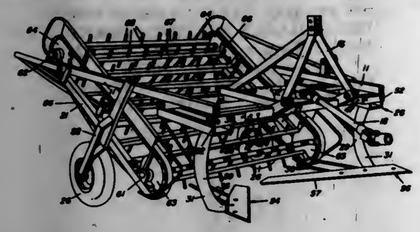


1. A well setting tool for use in setting a well anchor in a well casing, said well setting tool comprising
a tubular support member,
a cylindrical mandrel telescopically mounted in said support member for relative movement therein within defined limits and having the lower portion thereof extending out of the lower end of said support member,
expandable means mounted in said well setting tool for causing relative movement between said support member and said mandrel,
a trigger block mounted on the upper end of said mandrel and having a recess,
a plurality of locking balls disposed in said recess in said trigger block,
a trigger arm in said trigger block and having a first lug for engaging said locking balls and a second lug, and
sensing means in said tool for engagement with said second lug of said trigger arm.

3,319,720
PEANUT DIGGER
Oliver K. Hobbs, P.O. Box 1306, Suffolk, Va. 23434
Filed Aug. 24, 1964, Ser. No. 391,500
4 Claims. (Cl. 171—101)

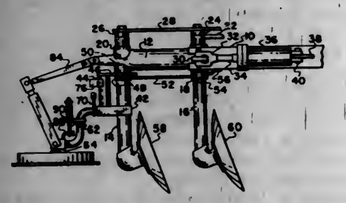
1. In a peanut digger, a main frame having longitudinally extending side rails, a first element disposed transversely of said side rails and forming a part of the main frame, a second element disposed transversely of said side rails spaced rearwardly of the first element and forming a part of the main frame, a plow and sub-frame assembly subject to twisting action in a peanut digging operation, a first elongated bar forming a part of said sub-frame having a vertical flange throughout the length of the first bar abutting a front face of said second element and having a horizontal flange throughout the length of the first bar fitting under said second element, a second elongated bar forming a part of

said sub-frame having a vertical flange throughout the length of the second bar abutting a front face of the first element and a horizontal flange throughout the length of the second bar fitting under the first element, a pin carried by the vertical flange of the first bar adjacent each end thereof with said pins extending rearwardly therefrom, said second element having spaced holes receiving said pins, a pin carried by the vertical flange of



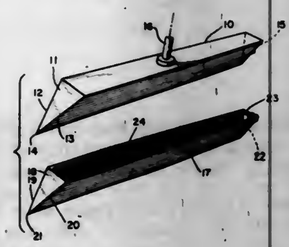
the second bar near one end thereof and extending rearwardly therefrom, said first element having holes therein for receiving the pin on the second bar, a threaded bolt extending forwardly from the first element, the vertical flange of the second bar having an opening therein near the other end thereof accommodating said bolt, and a nut threaded on said bolt detachably holding the vertical flanges along the front faces of said elements.

3,319,721
AGRICULTURAL IMPLEMENT
Miller M. Keplinger and Philip D. Wenzel, both of Rockford, Ill., assignors to J. I. Case Company, Racine, Wis., a corporation of Wisconsin
Filed July 13, 1964, Ser. No. 382,284
2 Claims. (Cl. 172—212)



1. A reversible disk plow comprising the combination of a mobile frame, a longitudinally extending beam mounted on said frame for swinging about a substantially vertical axis, a plurality of downwardly directed standards mounted on the beam, a plow disk on each standard in position to engage the ground at an angle to the direction of progress of the plow, and positioned relatively to said beam to become reversed in its angle to said direction of progress by reason of swinging of said beam, means for swinging said beam, a tail wheel construction including a bearing portion pivotally mounted on said beam for side-to-side swinging, means connected with said bearing portion and with said frame operative to maintain said bearing portion with its axis substantially parallel to said direction of progress, a crank arm journaled on said bearing portion for side-to-side rocking movement in an upright transverse plane, stop means limiting said rocking movement to a predetermined amount, a rocker member on the free end of said crank arm, a furrow wheel journaled on said rocker member to lie in a substantially horizontal plane in one position of the parts, means connected with said rocker member for rocking the same in the direction to lower that portion of the periphery of said furrow wheel which will be directed toward the unplowed land in the direction of plowing for which said beam is positioned, so that ground pressure will displace said furrow wheel to swing said crank arm toward the furrow to the extent permitted by said stop means, a bracket on said crank arm spaced upwardly from said rocker and providing a seat portion on the side of said bracket away from said rocker, a base member supported in said seat portion, a lever arm on said rocker, a tension member connected with said lever arm, spring means seated on said base member and supported from said bracket and connected with said tension member, and said tension member being connected to said lever arm and to said rocker in position to bias said crank arm in relation to said rocker toward a position substantially normal to the plane of said furrow wheel.

3,319,722
COVER FOR A BULLDOZER ATTACHMENT TOOTH
John W. Marron, 1318 Partridge Lane, Oceanside, Calif. 92054
Filed Jan. 17, 1966, Ser. No. 521,122
4 Claims. (Cl. 172—719)



1. A cover for a bulldozer tooth of inverted triangular cross section and having a forwardly and downwardly sloping front end terminating in a nose point coincident with the apex of said inverted triangular cross section, said cover comprising: an elongated trough shaped structure of hard metal defining a V-shaped cavity for receiving the lower portion of said tooth, the front end of said cavity extending forwardly and downwardly to define an undercut cavity portion for receiving the nose portion of said tooth and securing the front end of said cover to said tooth, the rear end of said cover including a rear end portion extending upwardly in engagement with the rear end of said tooth, said portion having a vertical slot; a first bracket member secured to the rear end of said tooth in a position to project rearwardly through said slot; second and third bracket members secured to said rear end portion of said cover adjacent either side of said slot and extending rearwardly to sandwich said first bracket member therebetween, said first, second, and third bracket members having transversely extending openings arranged to be in co-axial alignment when said cover is positioned on said tooth; and a bolt adapted to be passed through said aligned openings to secure the rear portion of said cover to said tooth.

3,319,723
AXIAL PISTON PULSE GENERATOR
Leo Kramer, Chester, N.J., assignor to Ingersoll-Rand Company, New York, N.Y., a corporation of New Jersey
Filed Apr. 1, 1965, Ser. No. 444,657
7 Claims. (Cl. 173—93.6)

1. An impulse tool for applying a series of torque impulses to an object, said tool comprising:
a driven member;

a driving member mounted on said driven member for relative rotation therebetween;
drive means connected to said driven member;
said driving member being engageable with said object;
said members cooperating to form a piston cavity and a spindle cavity;
a fluid contained in said portion cavity and said spindle cavity;
cam means in said spindle cavity and rotatively keyed to one of said members;
piston means in said piston cavity engaging said cam means and rotating with the other of said members



whereby relative rotation between said members causes said piston means to ride up on said cam means and to pump said fluid in said piston cavity;
passage means communicating said piston cavity with said spindle cavity and located in said piston cavity where it is blocked by said piston means during a portion of its pumping stroke causing said piston means to be abruptly resisted against further movement partway through its pumping stroke, as a result of the compression of the fluid remaining in the piston cavity, resulting in said members being momentarily locked together to apply a torque impulse to said object.

3,319,724
DEMOLITION DEVICE
Wesley B. Cunningham, 2 Morris St., Charleston, W. Va. 25301
Filed Feb. 17, 1965, Ser. No. 433,364
3 Claims. (Cl. 173—119)



1. An impact imparting device comprising:
an elongated hollow housing;
an impact member mounted in the housing and extendable outwardly thereof;
the impact member including a shaft and a striking head;
spring means in the housing adapted to bias the impact member in one direction;
means to load the impact member in opposition to the spring bias;
the shaft being of elongated hollow construction;
a weight having upper and lower ends, slidably mounted in the shaft;
springs arranged on opposite ends of the weight; and
release means to permit movement of the impact member.

3,319,725
REMOTE CONTROL FOR ROCK DRILL
Richard A. Edwards, Denver, Colo., assignor to Gardner-Denver Company, a corporation of Delaware
Filed Feb. 28, 1966, Ser. No. 538,442
20 Claims. (Cl. 173—157)



1. A control system for a rock drill and feed assembly including a drill feed mounting, a rock drill supported on said mounting for reciprocating movement and having a fluid actuated drill motor, and a reversible fluid actuated feed motor for moving said drill along said mounting, characterized by:
a main valve comprising a housing, defining a valve chamber, and a valve member disposed in said chamber; said housing having ports opening into said chamber including a supply port for communication with a source of pressure fluid, a motor port for communication with said drill motor, a feed for port for communication with one side of said feed motor, and a retract port for communication with the other side of said feed motor; means projecting from said housing for manually actuating said valve member;
means urging said valve member to a first position wherein said valve member communicates said supply port with said retract port to effect retraction of said drill along said mounting; said valve member being movable to a second position wherein said valve member communicates said supply port with said motor port to actuate said drill motor, and with said feed port to effect feed of the drill along said housing;
means for directing pressure fluid to said valve chamber to hold said valve in said second position;
an auxiliary valve communicating with said main valve chamber and mounted to be actuated in response to predetermined feed movement of said drill along said mounting; said auxiliary valve, when actuated, venting said main valve chamber to effect the shifting of said main valve member to said first position.

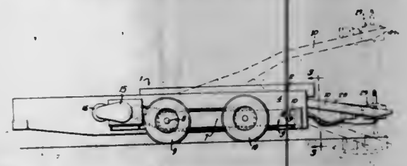
3,319,726
EXTENSIBLE COUPLINGS FOR WELL PIPES
Cicero C. Brown, Houston, Tex., assignor to Brown Oil Tool, Inc., a corporation of Texas
Filed Oct. 29, 1964, Ser. No. 407,468
13 Claims. (Cl. 175—5)



1. In marine drilling from a floating vessel,
(a) a rotary drill pipe string having its upper end connected to the vessel,
(b) a drill bit carried by the lower end of said drill pipe string for drilling in subnatant land, and
(c) an extensible coupling mounted between sections of said pipe string to accommodate vertical movements of the vessel relative to the land while maintaining said drilling bit in rotary drilling contact with said land, said coupling comprising:
(d) telescopically engaged inner and outer tubular members,
(e) spline means forming a non-rotating longitudinally slidable connection between said members, and including means limiting relative longitudinal movement of the members,
(f) longitudinally spaced seal means arranged between said members on opposite sides of said spline means to define a fluid-confining chamber therebetween,
(g) a body of hydraulic fluid confined within said chamber,
(h) one of said seal means comprising an annular piston longitudinally slidably disposed between said members,
(i) an additional seal means arranged between said members in spaced relation to said piston, and
(j) port means in said outer member providing fluid communication between the exterior thereof and the interior thereof between said piston and said additional seal means.

3,319,727
PORTABLE DRILL WITH DUST COLLECTION MEANS
Harley G. Pyles, Fairmont, W. Va., assignor, by mesne assignments, to Galis Manufacturing Company, Fairmont, W. Va., a corporation of West Virginia
Original application Jan. 23, 1963, Ser. No. 254,544, now Patent No. 3,252,525, dated May 24, 1966. Divided and this application Feb. 4, 1966, Ser. No. 525,053
4 Claims. (Cl. 175—213)

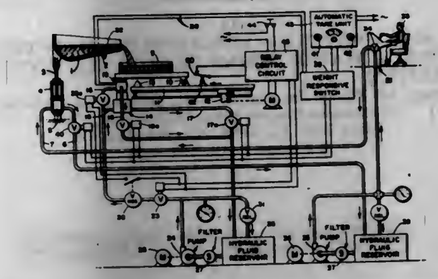
2. The combination of a portable drilling machine and dust collecting means comprising,
a wheeled car having a frame,
main drive means for said wheeled car mounted on said frame,
a boom pivotally mounted on one end on said frame for swinging movement in a vertical plane,
a drill pot pivotally mounted on the other end of said boom remote from said wheeled car frame,
a hydraulic motor supported by said boom drill pot and connected to said main drive means,
a first bevel gear positioned within said boom drill pot and drivingly connected to said hydraulic motor, said hydraulic motor arranged to rotate said first bevel gear,
an upwardly extending vertical column integral with the bottom of said drill pot and having one end extending into the interior of said drill pot in spaced relation to said first bevel gear,
said vertical column having a central passageway extending longitudinally therethrough,
a drill turret rotatably mounted on said vertical column and extending into the interior of said drill pot,
said drill turret having a second bevel gear within the interior of said drill pot,
said second bevel gear meshing with said first bevel gear so that upon rotation of said hydraulic motor the drill turret rotates on said vertical column,



said drill turret having bit receiving means with a vertical passageway communicating with said vertical column central passageway,
a drill bit secured in said bit receiving means and having an axial bore extending longitudinally therethrough, said bit axial bore communicating with said bit receiving means vertical passageway,
said drill bit having dust ports opening into said axial bore,
dust collection means mounted on said wheeled car and having a dust receiver spaced from said drill means,
a conduit connected at one end to said vertical column central passageway and to said dust collection means, and
suction means connected to said dust collection means operable to withdraw dust formed by said drill bit through said dust ports in said drill bit and through said communicating passageways in said drill bit receiving means, said drill pot vertical column and said conduit into said dust collection means while said hydraulic motor rotates said drill turret.

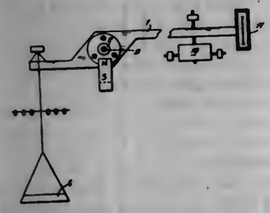
3,319,728
AUTOMATIC WEIGHER AND ROTARY MOLD CONVEYOR FOR LIQUID METAL
Fritz Agne Johansson, Erik Alvar Lundgren, and Lars Gunnar Bonde Magnusson, Skelleftehamn, Sweden, assignors to Bolidens Gruvaktiebolag, Stockholm, Sweden, a joint-stock company limited of Sweden
Filed July 13, 1964, Ser. No. 382,259
Claims priority, application Sweden, July 23, 1963, 8,153/63
5 Claims. (Cl. 177—53)

1. An apparatus for weighing predetermined amounts of metal in a liquid state comprising a molding station including a ladle and means to rotate said ladle to pour liquid metal therefrom, a plurality of molds, means to sequentially position said molds beneath the said ladle in said molding station, each said mold being pivotally mounted by one end on said means, a force measuring device, the free end of said mold in said molding station being positioned directly above said force measuring device, said force measuring device being mounted in such a way to raise said mold to substantially bear the entire



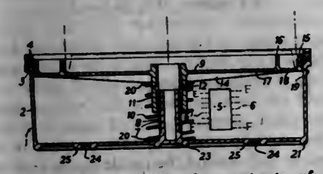
weight thereof thereon, means within said force measuring device for measuring the increase in weight of the mold determined by the amount of molten metal placed therein.

3,319,729
TORSION BALANCE WITH MAGNETS SUPPORTING DEAD LOAD
Kanesuke Iwasaki, Ichikawa, Chiba Prefecture, Japan, assignor to Sankyo Company Limited, Tokyo, Japan
Filed Aug. 23, 1965, Ser. No. 481,810
5 Claims. (Cl. 177—225)



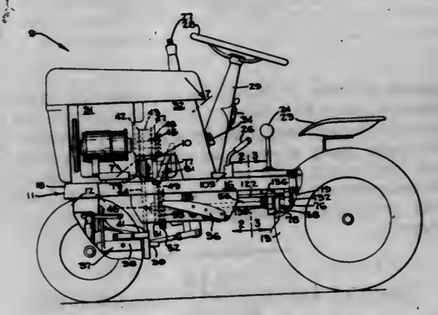
1. A torsion balance comprising a beam, a first magnet of substantially hollow cylindrical shape affixed to said beam between its ends, the axis of said first magnet substantially perpendicular to said beam and substantially horizontal, a torsion bar coaxially within said first magnet and secured thereto, said bar having both its ends fixed to a beam support, a second magnet vertically spaced from said first magnet whereby the forces generated between said first and second magnets compensate for the dead load of said torsion balance.

3,319,730
DEVICE FOR MEASURING CONTENTS OF LIQUEFIED GAS CONTAINERS
Angus Humphrey Cuddon-Fletcher, Oshkosh, Wis., assignor to The Great Grimsby Coal, Salt and Tanning Company Limited, Grimsby, England
Filed Aug. 11, 1966, Ser. No. 571,906
4 Claims. (Cl. 177—233)



1. A device for measuring the contents of a liquefied gas container comprising a base, having an axial guide boss and a peripheral wall, a platform having an upper surface shaped to conform to the base end of a standard container for a liquefied gas and a sleeve-like axial boss fitting over said axial guide boss to guide said platform for vertical movement in said base, a compression spring arranged between the base and the platform and around said sleeve-like axial boss on said platform, an index means on said platform co-operating with a calibrated scale on the base.

3,319,731
COMBINED CLUTCH AND BRAKE CONTROL FOR TRACTORS
Robert A. Kenkel, South Bend, Ind., assignor to FMC Corporation, San Jose, Calif., a corporation of Delaware
Continuation of application Ser. No. 233,743, Oct. 29, 1962. This application Apr. 2, 1965, Ser. No. 446,786
11 Claims. (Cl. 180—53)

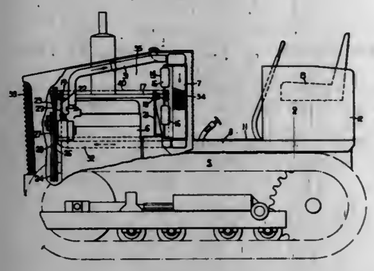


7. In a tractor having a set of steerable wheels and a set of driven wheels, and a power train which includes an engine, a main drive shaft and clutch means adapted to connect said engine with said main drive shaft when engaged and to disconnect said engine from said main drive shaft when disengaged, the improvement comprising a driven shaft having a worm gear operatively connected to said driven wheels, transmission means having a plurality of selectively engageable gears connecting said driven shaft with said main drive shaft, an actuating pedal operative to engage and disengage said clutch means, means biasing said pedal into a position wherein said clutch means is engaged, a brake operating rod mounted on said tractor for oscillation about its longitudinal axis, a brake disc mounted on said driven shaft, a brake shoe mounted on said rod and moveable into a position engaging said brake disc to stop said tractor, and means connected to said pedal and to said rod for oscillating said rod wherein movement of said pedal disengages said clutch means and oscillates said rod causing said brake shoe to contact said brake disc.

3,319,732
ENGINE COOLING SYSTEM FOR TRACTORS (RADIATOR AND FAN LOCATED BETWEEN ENGINE AND OPERATOR)
Ronald J. Soeteber, New Berlin, Robert S. Reaves, Waukesha, and William R. Bryant, West Allis, Wis., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Feb. 12, 1965, Ser. No. 432,188
1 Claim. (Cl. 180—54)

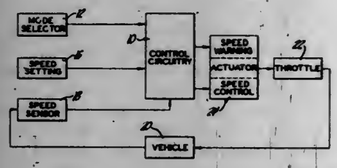
In combination, a crawler tractor having a longitudinally extending main frame, an engine mounted on the forward end of said frame, an operator's station mounted on a portion of said frame rearwardly of said engine,

a radiator having longitudinal extending air passages therein and being operatively connected to said engine and being mounted on said frame longitudinally between said operator's station and said engine, an open grille mounted on said frame forwardly of said engine and a suction fan operatively connected to said engine and mounted on said frame longitudinally between said engine and said



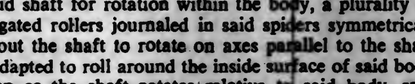
radiator to move air longitudinally from said operator's station, through said radiator air passages, over said engine and through said grille for cooling said engine, and said engine being mounted on said frame in a compartment having said grille at the forward end thereof and said compartment having removable side sheets for selectively providing a secondary exit for hot air passing forwardly.

3,319,733
VEHICLE SPEED RESPONSIVE CONTROL SYSTEM
Gerald A. Rath, Jackson R. Templin, and Kenneth H. Clayton, all of Anderson, Ind., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed July 16, 1965, Ser. No. 472,588
7 Claims. (Cl. 180—106)



1. A motor vehicle speed responsive control system comprising vehicle throttle positioning means,
electromagnetic means operatively coupling the vehicle throttle to said positioning means,
control circuitry,
means for applying an actual vehicle speed input and a desired vehicle speed input to said control circuitry,
switching means for programming said control circuitry for either a speed warning or speed control mode of operation,
said control circuitry applying a first pulsating electrical signal to said electromagnetic means when said actual vehicle speed reaches said desired vehicle speed during the speed warning mode of operation,
said control circuitry applying a second pulsating electrical signal to said throttle positioning means and a direct current to said electromagnetic means during the speed control mode of operation,
said second pulsating electrical signal having an average value indicative of the difference between said actual vehicle speed and said desired vehicle speed.

3,319,734
ELASTIC DETECTION STREAMER DEAD SECTION FOR A WATER BORNE SEISMIC SURVEYING SYSTEM
George M. Pavey, Jr., Dallas, Tex., assignor to Whitehall Electronics Corporation, Richardson, Tex.
Filed June 17, 1965, Ser. No. 464,739
9 Claims. (Cl. 181—5)



4. A waterborne seismic prospecting system for subaqueous geological structures comprising, in combination,
(1) an oil filled flexible elongated neutrally buoyant detection streamer adapted to be towed by a vessel at a uniformly high rate of speed beneath the surface of a body of water and having a plurality of seismic detecting devices therein,
(2) a lead-in tow cable secured to the vessel for towing the streamer through the water,
(3) elastic yieldable means interconnecting the trailing end of said tow cable with the leading end of said detection streamer for preventing vibrations of the tow cable from adversely affecting said detecting devices while the streamer is towed through the water at a uniform high rate of speed,
(4) said yieldable means comprising an elastic oil filled dead section streamer having a plurality of plastic strain cables composed of nylon extending substantially throughout the length thereof,
(5) means connecting the ends of said plastic cables to said tow cable and to said detection streamer respectively for applying a towing force to the detection streamer,
(6) and the dead section streamer includes
(a) a pair of packing members sealed within the end portions of the streamer respectively,
(b) and a plurality of relatively short lengths of metallic strain cables connected at the ends of said plastic strain cables and to said tow cable and detection streamer respectively, said metallic strain cables extending through said packing members in oil tight sealed relation therewith.

3,319,735
MECHANICAL NOISEMAKER
Harvey C. Hayes, Washington, D.C., Raymond L. Steinberger and Keith H. Odenweller, Alexandria, Va., and George R. Vernon, Washington, D.C., assignors to the United States of America as represented by the Secretary of the Navy
Filed July 31, 1944, Ser. No. 547,468
2 Claims. (Cl. 181—.5)

1. An underwater noisemaker having a hollow cylindrical body portion, a driving shaft journaled within said body portion axially thereof, means for rotating said shaft relative to said body portion, a pair of spiders mounted on said shaft for rotation within the body, a plurality of corrugated rollers journaled in said spiders symmetrically about the shaft to rotate on axes parallel to the shaft and adapted to roll around the inside surface of said body portion as the shaft rotates relative to said body, said rollers being corrugated longitudinally, and rubber cushioned bearings resiliently holding the rollers against the inside surface of the body as the shaft is rotated irrespective of variation in roller surface due to corrugation whereby said rollers will produce underwater noise, the diameter of said rollers and the inside diameter of the



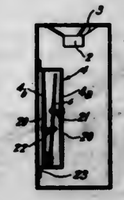
hollow body with which they contact being so related to each other and to the pitch of the corrugations, that there will be a precession of one corrugation each revolution.

3,319,736
STETHOSCOPE
Walker Reynolds, Jr., 305 E. 10th St., Anniston, Ala. 36201
Filed Nov. 9, 1966, Ser. No. 593,120
7 Claims. (Cl. 181—24)



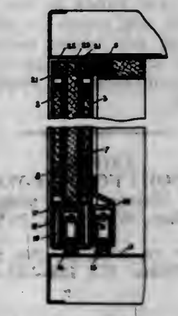
1. A stethoscope comprising:
(a) ear pieces communicating with one end of at least one collecting tube,
(b) a chest piece having a hollow, shallow cavity therein communicating with the other end of said collecting tube,
(c) an adjustable diaphragm at one side of said hollow cavity having section movable relative to each other to vary the effective open area of said diaphragm, and
(d) actuating means operatively connected to said sections to move the sections relative to each other to vary said effective open area of said diaphragm so that said chest piece is operable selectively as a substantially open type and as a diaphragm type chest piece having a variable opening therein.

3,319,737
ACOUSTICAL ENCLOSURES
Lucien Berthel, 54 Rue de Rome, Paris, France
Filed June 17, 1966, Ser. No. 558,403
8 Claims. (Cl. 181—31)



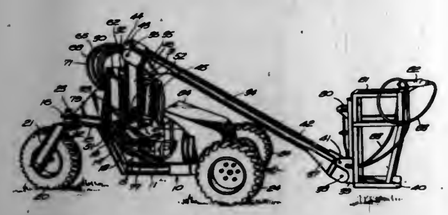
1. An acoustic device comprising a substantially closed resonator chamber with sound-generating means therein, a rigid, thin-walled box in said chamber spaced from said sound-generating means and provided with at least one wall aperture which opens into said chamber for the transmission of acoustic energy between the air within said box and the surrounding atmosphere inside said chamber, said box being substantially closed otherwise, and a vibratile reed in said chamber mounted on a wall surface of said box in vibration-transmitting relationship with a wall thereof.

3,319,738
SOUND ATTENUATING DOOR AND PANEL CONSTRUCTION
Herbert W. Wehe, Jr., Ligonier, Pa., assignor to Overly Manufacturing Company
Filed Sept. 8, 1966, Ser. No. 578,026
9 Claims. (Cl. 181—33)



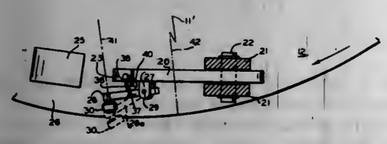
1. In a sound attenuating panel member for use as door and wall partitions, in combination
spaced front and rear panel face plates having secured to the inner opposing surfaces thereof stiffening members terminating in spaced relation to the inner face of the opposite panel,
a septum member extending transversely of each said front and rear panel face plates and in abutting engagement with the said stiffening members thereon,
means connecting the adjacent peripheral edges of said front and rear panel face plates, and
a filling of sound pervious material between the opposing faces of said septums and between the opposite face of each septum and the adjacent inner face of said panel member.

3,319,739
SELF-PROPELLED AERIAL PLATFORM
Peter W. Morse, 207 Arnold St., West Wrentham, Mass. 02093
Filed May 27, 1965, Ser. No. 459,318
3 Claims. (Cl. 182—2)



1. A self-propelled aerial platform comprising a rectangular frame, a raised rearwardly extending portion extending from the rear edge of said frame, a supporting wheel swivelly mounted beneath the rear end of said extending portion, a drive wheel mounted on each side adjacent the front end of said frame, a fixed vertical mast extending from said rear raised portion of said frame, said mast comprising a vertically mounted I-beam, vertically spaced hinges on the front edge of said fixed I-beam, a second I-beam having complementary vertically spaced hinges mounted on said hinges in front of said fixed I-beam, said second I-beam having a horizontal hinge movement limited to 40° by the contact of the adjacent edges of said I-beams, a boom arm pivotally mounted adjacent the upper end of said second I-beam, a platform mounted on the other end of said boom arm, means for maintaining said platform in horizontal position in any vertical position of said boom arm, means for pivoting said boom arm vertically, said pivoting means comprising a hydraulic cylinder mounted on said second I-beam, the lower end of said cylinder being pivotally mounted adjacent the lower end of said second I-beam, and a piston extending from said cylinder and having its free end pivotally attached to said boom arm, means for swinging said boom arm horizontally on said hinged mounting, means for driving each front wheel independently, and means on said platform for controlling said pivoting, swinging and wheel driving means.

3,319,740
PAWL HOLDOUT FOR ONE-WAY BRAKE
Phillip D. Savage, Malone, N.Y., assignor to Hall Ski-Lift Company, Inc., Watertown, N.Y., a corporation of New York
Filed Nov. 16, 1965, Ser. No. 508,103
9 Claims. (Cl. 188—82.4)



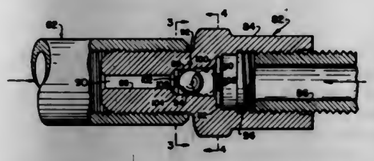
1. A counterrevolution preventing device, comprising: a wheel rotatably supported in a stationary frame, a pawl oscillatably supported in the frame and extending from its support in the direction of normal rotation of the wheel, ratchet teeth on the side of the wheel, the pawl being biased toward the wheelside to engage the teeth upon reversal of rotation of the wheel, and pawl lifting means secured to the pawl including a roller normally engaging the wheel side in a path radially spaced from the teeth and normally supporting the pawl disengaged from the teeth, said lifting means being swingable away from the pawl to drop the pawl into engagement with the teeth upon reversal of rotation of the wheel, the roller having its axis of rotation extended passing to the side of the axis of rotation of the wheel in the direction of the normal direction of rotation of the wheel, whereby, during normal rotation, the roller is constrained to the path alongside the teeth to hold the pawl disengaged from the teeth by the frictional engagement of the roller with the wheel and, upon reversal of rotation of the wheel, the roller is directed away from the pawl thereby allowing the pawl to engage the ratchet teeth.

3,319,741
HYDRAULIC VIBRATION DAMPER
Urban Hauck, Michelau, Germany, assignor to Fichtel & Sachs A.G., Schweinfurt, Germany
Filed Jan. 19, 1966, Ser. No. 521,691
Claims priority, application Germany, Jan. 22, 1965, F 45,038
6 Claims. (Cl. 188—96)



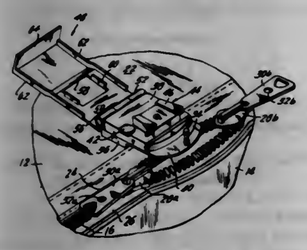
1. A vibration damper for the rotating drum of a washing machine and like applications comprising, in combination:
(a) a cylinder member having an axis and formed with an axially extending cavity adapted to retain a body of liquid;
(b) piston means axially movable relative to said cylinder member and including a piston portion and a rod portion,
(1) said piston portion dividing said cavity into first and second compartments and moving inward and outward of said compartments during the movement of said piston means,
(2) said rod portion extending from said piston portion through said first compartment and projecting outward of said cavity through said cylinder member,
(3) said piston portion being formed with a restricted passage therethrough between said compartments, the passage having an orifice in one of said compartments,
(4) said piston means being further formed with an axial bore at least partly extending in said rod portion and open to the other one of said compartments, the bore communicating with said one compartment through an aperture in said piston rod portion;
(c) a sleeve member axially slidable on said rod portion toward and away from an operative position in which the sleeve member substantially obstructs said aperture;
(d) spring means connecting said sleeve member to said piston means for axial oscillation of said sleeve member about said position thereof;
(e) jet means on said piston means communicating with said bore at a position axially spaced from said aperture along said bore for directing a stream of liquid toward the other face of said sleeve member when the latter is in said position thereof, said other compartment contains liquid, and said piston member moves inward of said other compartment.

3,319,742
TORQUE ACTUATED BRAKE SYSTEM
James C. Cumming, Pleasant Ridge, Mich., assignor to Rockwell-Standard Corporation, Pittsburgh, Pa., a corporation of Delaware
Filed Apr. 7, 1965, Ser. No. 446,281
3 Claims. (Cl. 188—152)



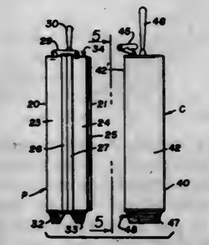
1. Hydraulic brake system comprising a primary brake connected to be actuated by a master cylinder in a primary hydraulic circuit, a secondary brake in an independent secondary hydraulic circuit, actuator means associated with said primary brake and responsive to the torque reaction force derived from application of said primary brake to cause fluid to flow in a first direction in said secondary circuit to apply said secondary brake, the fluid in said secondary circuit flowing in the opposite direction to release said secondary brake when said primary brake is released, and valve means in said secondary circuit for restricting the flow therethrough in both directions between said primary brake and said secondary brake to reduce pressure variations in said secondary circuit.

3,319,743
ARTICLE-STORING DEVICES
Joseph Pelavin, Brooklyn, and Julius Sheiman, North Woodmere, N.Y., assignors to Lark Luggage Corp., New York, N.Y., a corporation of New York
Filed Sept. 21, 1965, Ser. No. 488,855
12 Claims. (Cl. 190—41)



1. An article-storing device, such as a piece of luggage, comprising a container member and a lid member movable to and from a closed position closing said container member, a slide fastener operatively connected with said members and having an unfastened position releasing said lid member for movement from its closed position and a fastened position at least partly fastening said lid member in said closed position thereof, said slide fastener including a slider element and a pull-tab element connected thereto, releasable retaining means operatively connected with one of said elements of said slide fastener for releasably retaining said one element in the location it has when said slide fastener is in said fastened position thereof, cover means movable to and from a position covering said releasable retaining means for preventing access thereto, and releasable lock means operatively engaging said cover means for releasably locking the latter in said position covering said retaining means.

3,319,744
COMBINATION HAND CASE
William Norman Smith, 1815 Park Ave., Laramie, Wyo. 82070
Filed Apr. 8, 1965, Ser. No. 446,535
8 Claims. (Cl. 190—52)

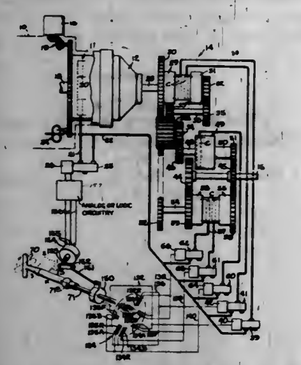


2. A combination hand case including a primary section formed as a flat, box-like membed and a companion section formed as a similar flat, box-like, shell member including a removable wall portion within the shell of the companion section which is inset a short distance from the open side edges thereof, said companion section being of the same side size and being adapted to snugly fit against the primary section when the two sections are placed together side by side and comprising in combination therewith: (a) a first locking means at the top edges of the sections adapted to interconnect the top of the sections together; (b) a second locking means at the bottom edges of the sections adapted to connect the bottom edges of the sections together; and wherein the primary section is formed with a rabbeted edge on a side face and the companion section is formed as a cup-like shell having an outward edge about the ends, top and bottom thereof adapted to nest over the rabbeted edge when the sections are moved together to a side-by-side position.

3,319,745
TRANSMISSION AND CLUTCH WITH SINGLE CONTROL
Conrad R. Hilpert, Winnebago, Ill., assignor to Twin Disc Clutch Company, Racine, Wis., a corporation of Wisconsin
Filed July 19, 1965, Ser. No. 473,122
8 Claims. (Cl. 192—3.5)

1. A control mechanism for manual operation to regulate a power system for driving a load, said power system including a prime mover drivingly connected to the load through a modulated clutch and a multi-drive-ratio reversible-drive transmission connected in tandem, said control mechanism comprising, a control rod, means supporting said rod for longitudinal movement between predetermined limits and swiveled movement to a plurality of positions each corresponding to one of the drive ratios of the transmission and rotary movement of the rod between first and second positions, a handle attached to said rod, and conveniently positioned to be manually pushed,

pulled, rotated and moved to move said rod into said plurality of positions, first sensing means for signaling the longitudinal positioning said rod, second sensing means for signaling the position said rod is swiveled to, third sensing means for signaling the rotary position said rod is moved to, a modulating actuator for varying the engagement of said modulated clutch in proportion to the degree activated, first regulating means acting in response to sig-



naling by said first sensing means to activate said modulating actuator proportionally to the longitudinal positioning of said rod, second regulating means acting in response to signaling by said second sensing means for setting the transmission in the drive ratio corresponding to the swiveled positioning of said rod, and third regulating means for setting the transmission in the forward and reverse drive ratios in response to said rod being rotated to the first and second positions respectively.

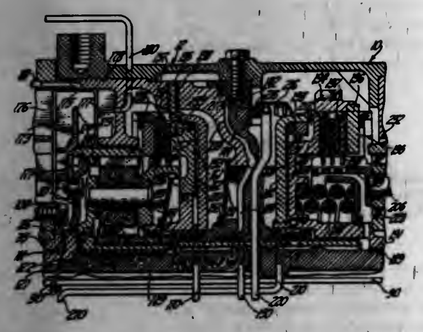
3,319,746

TRANSMISSION WITH HYDRODYNAMIC BRAKE AND TORQUE CONVERTER

Howard W. Christenson, Indianapolis, Ind., Edward T. Mabley, Bloomfield Hills, Mich., and Mark E. Fisher, Carmel, Ind., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Original application Dec. 22, 1955, Ser. No. 554,866, now Patent No. 3,255,642, dated June 14, 1966. Divided and this application Oct. 21, 1965, Ser. No. 499,778

15 Claims. (Cl. 192—4)



1. In combination, an input element, an output element, drive means including a fluid device for establishing a driving connection between said input and output elements, a pump, a regulator valve controlling the pressure of the fluid delivered by said pump, means for supplying fluid from said pump to said fluid device, a hydrodynamic brake having a brake rotor rotatable with said input element and a braking chamber surrounding said rotor, brake valve means for supplying liquid to said braking chamber, and means responsive to the torque being absorbed by said hydrodynamic brake for adjusting said regulator valve to increase the pressure of the fluid delivered by said pump proportional to the torque being absorbed during operation of said hydrodynamic brake.

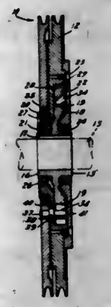
3,319,747

LOST MOTION DRIVE WITH ANTI-FEED BACK BRAKE

Warner R. Lauper, San Pedro, Calif., assignor to Adams Rite Manufacturing Company, Glendale, Calif., a corporation of California

Filed Feb. 15, 1965, Ser. No. 432,581

7 Claims. (Cl. 192—8)



1. An irreversible enclosed compact clutch unit, comprising:

(a) a central support having a circumferentially extending surface;

(b) an input member and an output member rotatable on said central support, said members having confronting inner faces and outer end portions respectively positioned on opposite sides of said surface;

(c) wedging locking means rotatably positioned between said outer end portions cooperable with said surface and a radially outwardly positioned surface of said output member for automatically locking said output member and support against relative movements; and

(d) members carried by said input member for initially releasing said locking means in response to movement of the input member in either of its directions of rotation and thereafter establish a direct driving connection between the input and output members, when a rotative force is applied to the input member.

3,319,748

CAPSTAN DRIVE

Hardin Joyce, Jr., Marion, Iowa, assignor to Collins Radio Company, Cedar Rapids, Iowa, a corporation of Iowa

Filed Oct. 18, 1965, Ser. No. 497,371

9 Claims. (Cl. 192—18)

1. Shaft driving means comprising:

shaft means having a thin flexible disc mounted concentrically and rigidly thereon, and in a plane normal to the plane of the axis of said shaft means;

flywheel means mounted concentrically on said shaft means and constructed to rotate freely on said shaft means;

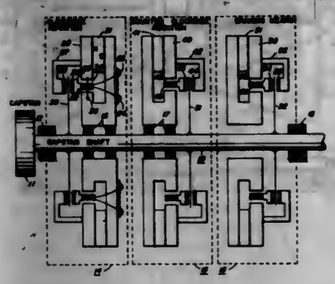
a pair of clutch faces mounted on said flywheel means and positioned on opposite sides of said flexible disc;

permanent magnet means mounted on said flywheel means;

actuating coil means constructed to hold securely a first of said clutch faces and movably mounted on said flywheel means to move in a direction substantially normal to the plane of said disc;

means for driving said flywheel means; and

means for energizing said actuating coil means to produce a magnetic field therearound;



said permanent magnet means and said actuating coil means being constructed to produce interacting magnetic fields to cause said actuating coil means to move toward said disc and to grip said disc between the said two clutch faces and thereby alter the angular velocity of said disc to the angular velocity of said flywheel means.

3,319,749

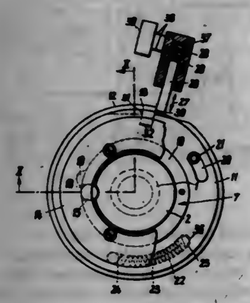
CONTROLLABLE FREE-RUNNING CLUTCH

Gert Saeger, Hamburg-Lemsahl, Germany, assignor to Stielow G.m.b.H., Hamburg, Germany

Filed Dec. 27, 1965, Ser. No. 516,263

Claims priority, application Germany, Dec. 29, 1964, St 23,149

7 Claims. (Cl. 192—27)



1. A free-running coupling comprising, in combination,

a first driving coupling member including a shaft (1) on which a disc-shaped hub (2) is arranged and which is elongated to form an axial shaft extension (4),

a second driven coupling member (7) freely rotatably mounted on said first coupling member,

said second coupling member having a flange (9) extending radially of the coupling parallel to the disc-shaped hub (2),

said second coupling member having a rib (10) projecting axially from said flange (9) around said disc-shaped hub (2),

and said second coupling member including drive transmission means (8),

said rib (10) having a hole (18) formed therethrough,

said disc-shaped hub (2) having a part-circular first recess (16) formed therein which is open to said rib (10),

a control ring (11) mounted to be freely rotatable around said rib (10),

said control ring having a second recess (19) formed therein which corresponds to said first recess (16) and is open to said rib (10),

said first and second recesses and said hole being so arranged that they can be moved into alignment with each other,

a rotatable body (15) disposed in said hole (18) and dimensioned such that when seated in one of said recesses and the hole in the rib it cannot project into the other of said recesses on the other side of the rib,

locking means (20, 21) disposed between said flange (9) and said control ring (11) permitting only limited arcuate movement of the control ring relative to the rib (10) between two terminal positions, such that in one of said terminal positions said second recess (19) is offset relative to the hole (18) and in the other of said terminal positions said second recess (19) is aligned with said hole (18),

a pawl member (26) arranged to be movable into retaining engagement with an abutment stop (30) defined by said control ring (11), and being arranged in a direction such that on engagement of the pawl member (26) with the abutment stop (30) said locking means is moved from said one to said other of the terminal positions,

bearing means (3, 3a, 34) in which said shaft (1) and said shaft extension (4) are mounted,

a frame (33) in which said bearing means are disposed, and control means (28) for said pawl member (26) mounted in said frame.

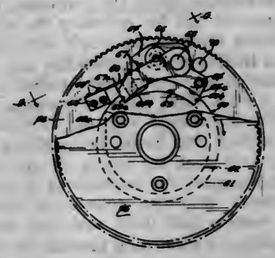
3,319,750

LOST REVOLUTION CLUTCH IN ONE DIRECTION

Phillip E. Olson, Rockford, Ill., assignor to Rockford Machine Tool Co., a corporation of Illinois

Filed June 3, 1965, Ser. No. 460,993

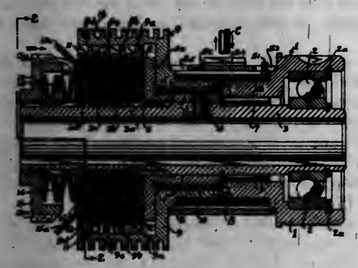
7 Claims. (Cl. 192—43.1)



1. A lost revolution clutch comprising, a driving clutch member, a driven clutch member, a first clutch element carried on one clutch member and a cooperable first clutch element on the other clutch member, means on said one clutch member for maintaining said first clutch elements engaged during motion of said driving clutch member in a forward direction thereby driving said driven clutch member proportionately with the movement of said driving clutch member, a second clutch element on one clutch member and a cooperable second clutch element on the other clutch member, means normally maintaining said second clutch elements disengaged during rotation of said driving clutch member in the forward direction and during the initial revolution of said driving clutch

member in a reverse direction, and means on said clutch members for engaging said second clutch elements upon completion of one revolution of said driving clutch member in a reverse direction.

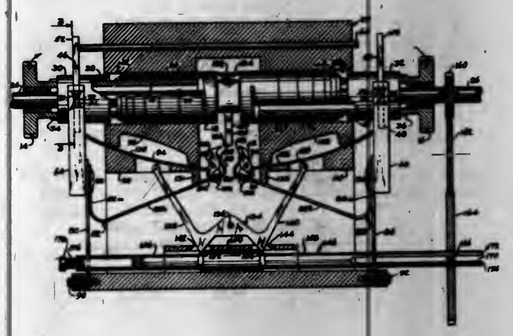
3,319,751
SPRING CLUTCH AND SLIP COUPLING CONNECTED IN SERIES
Columbus R. Sacchini, Willowick, Ohio, assignor to Curtiss-Wright Corporation, a corporation of Delaware
Filed Mar. 2, 1965, Ser. No. 436,486
7 Claims. (Cl. 192—48)



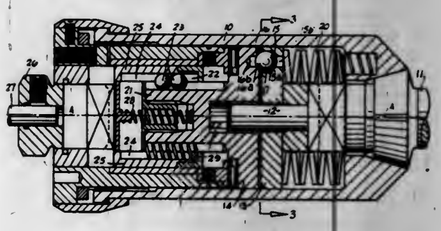
1. A clutch assembly comprising a unitary central shaft for connection to a load, a first clutch member directly mounted for free rotation on one end of said shaft for receiving input power, a second clutch member separately mounted for rotation on said shaft in axial alinement with said first clutch member to form therewith a short cross-over gap, said first and second clutch members and the central shaft constituting a compact assembly of optimum over-all length, a helical spring constituting a uni-lateral coupling between said members for transmission of said input power across said gap, selectively operated clutching and declutching means apart from said input member for controlling said helical spring at one end thereof for clutching and declutching the second clutch member with respect to input power, said selectively operative means having alternative means for controlling the helical spring at its opposite end for reversing the direction of power transmission through the clutch assembly, a plurality of spaced friction disks surrounding said shaft and fixed for rotation within said second member, a plurality of companion friction disks fixed for rotation with said shaft and closely interleaved with the aforesaid spaced disks to form a stack and means for applying axially a resilient bias to said stack for urging all said disks into mutual frictional contact for establishing a driving and bi-directional shock absorbing connection between the second clutch member and shaft, said bias determining the maximum torque transmission through the clutch assembly to the shaft-connected load at the opposite end of said shaft.

3,319,752
FRICTION CLUTCH WITH SNAP ACTION ACTUATION MEANS
Charles W. Chillson, Wayne, Ellarson R. Stout, Fayson Lakes, Gordon R. Smith, Sparta, and William J. Lebo, Pequannock, N.J., assignors to Curtiss-Wright Corporation, a corporation of Delaware
Filed Feb. 17, 1965, Ser. No. 433,432
18 Claims. (Cl. 192—51)

1. Actuating mechanism comprising a rigid support having a concave surface therein, an elongated resilient element, means loading the ends of the element and forcing said element against the support along said concave surface, means operable to locally deflect the element in a direction away from the support and thereby cause the element to buckle under the end loads, and a control member actuable in response to the buckling of said element.



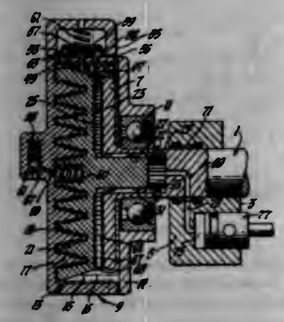
3,319,753
OVERLOAD CLUTCHES
Olaf John Barclay Orwin, Quinton, Birmingham, and David John Fortune, Weston, Bath, England, assignors to Fisher & Ludlow Limited, Stafford, England, a British company
Filed July 20, 1965, Ser. No. 473,362
Claims priority, application Great Britain, July 30, 1964, 36,271/64; Mar. 16, 1965, 11,005/65, 11,006/65; July 3, 1965, 28,276/65
4 Claims. (Cl. 192—56)



1. An overload clutch comprising:
(a) driving and driven clutch members,
(b) means mounting said members for relative rotational movement about a common axis in side-by-side relationship,
(c) resilient loading means urging said two members towards one another,
(d) a plurality of torque transmitting balls disposed between said two members,
(e) each of said two members having a plurality of oppositely directed circular ball engaging openings of diameter less than the diameter of the balls and having line engagement therewith,
(f) said openings being so disposed as to be in register with one another for specific relative rotational positions of the two clutch members,
(g) one of said two clutch members having a ball retaining part rotatable therewith,
(h) said ball retaining part having a plurality of ball guiding slots each receiving one of said balls with the width of said slots being greater than the diameter of the balls therewithin,

(i) each slot having a medial portion the centre part of which is in register with one of the ball engaging openings of the clutch member with which said ball retaining part is rotatable and each slot having its two ends out of register with said ball engaging openings for all relative rotational positions of the two clutch members,
(j) said medial portion of each slot extending beyond opposite edges of the ball engaging openings with which it is in register and in a direction tangential to a radius line from the clutch axis to the centre of said medial portion so that each ball is free to roll along the medial portion of its associated slot in a circumferential direction on disengagement from the torque transmitting openings.

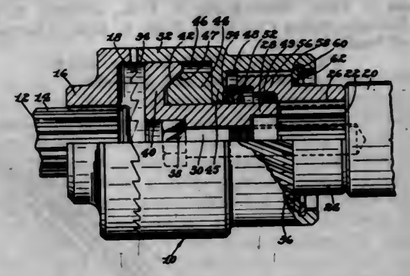
3,319,754
CLUTCH
David G. Kokochak, Royal Oak, and James J. Gumbleton, Troy, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Jan. 8, 1965, Ser. No. 424,355
8 Claims. (Cl. 192—57)



8. In a torque transmitting device for driving a load, the combination of drive and driven members, each having a facing friction surface, a working fluid disposed between said members, means for axially moving one of said members toward the other of said members, a plurality of separable ball units confined between the friction faces of said members, said units being initially operative in response to movement of one of said members toward the other of said members to mechanically connect said members while allowing relative rotation between said members for gradual load pickup, said ball units being closely confined upon further movement of one of said members toward the other of said members to couple said members together for rotation as a unit to increase the torque transmitting capacity of said device.

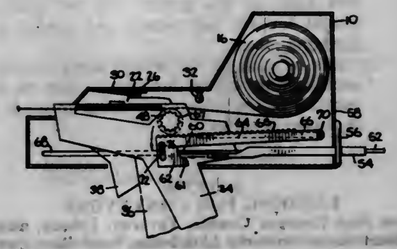
3,319,755
STARTER CLUTCH DEVICE WITH CENTRIFUGAL CLUTCH SEPARATING MEANS
James J. Digby, Elmira, N.Y., assignor to The Bendix Corporation, Elmira, N.Y., a corporation of Delaware
Filed Feb. 8, 1965, Ser. No. 430,917
3 Claims. (Cl. 192—104)

1. In a starter clutch device comprising:
a drive shaft member;
a driving clutch member splined thereto;
a driven clutch member having means for operatively engaging said driving clutch member;
a radially-inwardly-extending projection on said driven clutch member forming a first and second cavity inside of said driven clutch member;
a driven shaft member;
a collar member splined to said driven shaft member;
said collar member shaped to form an annular recess around said driven shaft;
said driven clutch member axially slidable relative to said driven collar;
an extension member projecting axially from said driven shaft toward the driving clutch member and connected to said driven shaft;
said extension member having an annulus extending radially outwardly;
said radial annulus having a first surface inclined obliquely;
said first cavity defined in part by the said extension member and by said radially-extending annulus;



a plurality of weights within said first cavity each having a second face inclined obliquely and slidably engaging said first surface, each of said weights slidably contacting said projection;
said weights capable of moving radially responsive to the angular velocity of said driven shaft operative to disengage said driven clutch member from said driving clutch member by forcing said projection apart from said radial annulus;
a retainer cup member mounted concentrically with said extension;
an axially-extensible spring member concentric to said extension in said second cavity, abutting said retainer cup member and said collar; and
means for limiting the axial translation of said driven clutch member.

3,319,756
BAGGAGE MARKER
Theodore C. Pelikan, Los Robles 380, San Isidro, Lima, Peru
Filed Aug. 19, 1965, Ser. No. 480,921
7 Claims. (Cl. 194—2)



1. A label making machine comprising a housing, a tape embossing station, embossing means disposed in said embossing station, a handle lever for actuating said embossing means, means for advancing said tape past said embossing station comprising a tape feed wheel, motive means for said tape feed wheel, a pinion gear, means

mounting said tape feed wheel and pinion gear for common rotation, a rack mounted for reciprocal sliding movement, said rack being arranged to engage said pinion gear for a series of step movements in one direction and to be in disengaged position with respect to said pinion gear when in movement in the opposite direction, a coin slide extending into said housing beneath said rack and mounted for reciprocal sliding movement substantially parallel to the axis of said rack, and said coin slide being arranged to engage said rack for urging said rack in said opposite direction, whereby one coin is deposited for releasing a series of embossing steps.

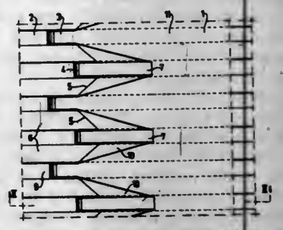
3,319,757
BALE PICKUP
Hass S. Eldy, Sioux Falls, S. Dak., assignor to Du-Al Manufacturing Co., Sioux Falls, S. Dak., a corporation of South Dakota
Filed Mar. 1, 1965, Ser. No. 435,957
5 Claims. (Cl. 198—9)



1. A field operated bale pickup and loading mechanism comprising,
an elevating means lifting bales upwardly to be loaded on a bale carrying vehicle,
frame means supporting the elevating means for moving it forwardly over the ground,
and a pickup mechanism including opposed ground engaging idler frame supported wheels rotating on axes extending generally laterally relative to the direction of travel of the mechanism over the ground and having a bale receiving space therebetween with the lower portion of the wheels positioned adjacent the ground,
said bale receiving space between the wheels extending longitudinally relative to the direction of travel and leading to the elevating means so that bales on the ground will be frictionally caught between said wheels and carried to the elevating means,
the axis of each of the wheels being canted upwardly in an inward direction so that the lower portions of the wheels are closer together than the upper portions.

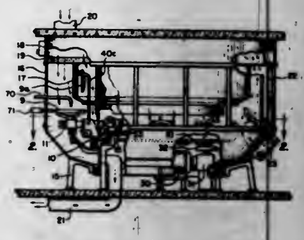
3,319,758
LANDING FOR CONVEYORS
Jacques Jean Georges Goubie, Taverny, France, assignor to Sandvikens Jernverks Aktiebolag, Sandviken, Sweden, a corporation of Sweden
Filed Nov. 12, 1965, Ser. No. 507,479
Claims priority, application France, Nov. 13, 1964, 994,820, Patent 1,422,334
3 Claims. (Cl. 198—16)

1. Landing for a longitudinally ribbed conveyor moving longitudinally in relation to the landing, said landing having the edge adjacent the conveyor shaped as a comb, the teeth of which enter between the ribs of the conveyor,



the teeth having different longitudinal protrusion from the landing, so that the points of the teeth form a zig-zag line.

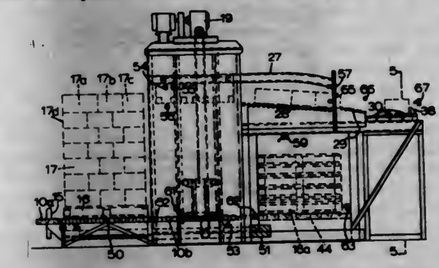
3,319,759
COLOR TUBE SCREENING APPARATUS
Thaddeus J. Hajduk and Raymond J. Pekosh, both of Chicago, Ill., assignors to The Rauland Corporation, Chicago, Ill., a corporation of Illinois
Filed Jan. 26, 1966, Ser. No. 523,164
10 Claims. (Cl. 198—19)



1. Cathode-ray tube processing apparatus comprising:
an endless conveyor extending along a reference path;
indexing means for effecting step-by-step movement of said conveyor between a plurality of work stations disposed along said path;
a plurality of carts secured to said conveyor to be presented seriatim to said work stations;
a rotatable workholder on each of said carts for supporting a tube in process;
a drive system on each of said carts coupled to said workholder and terminating in a driven clutch element;
a driving motor and a driving clutch element in at least some of said work stations, individually movable between a rest position in which said driving clutch element is clear of the path of movement of said driven clutch elements and a work position in which said driving clutch element engages the driven clutch element of the workholder instantaneously at the assigned one of said work stations;
and means, independent of movement of said conveyor, for concurrently displacing said driving motors and driving clutch elements between their said rest and work positions in timed relation to the indexed movement of said conveyor.

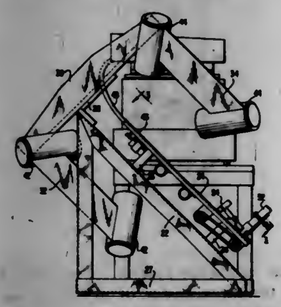
3,319,760
MECHANICAL HANDLING EQUIPMENT
Francis Duncan Sheldon and Charles Alan North, both of Tividale, Tipton, England, assignors to The Lawrence Engineering Company Limited, Tividale, Tipton, England, a British company
Filed May 25, 1965, Ser. No. 458,666
4 Claims. (Cl. 198—32)

1. Mechanical handling equipment for providing a single line of spaced and aligned individual articles from a block-like layer of such articles, said layer comprising a plurality of side-by-side rows of articles, comprising:
(i) a first conveyor for receiving the whole of said layer.
(ii) a second conveyor lowerable into alignment with the first conveyor to receive a first row of articles therefrom and raisable to serve as an obstacle to the subsequent row of articles in said layer,



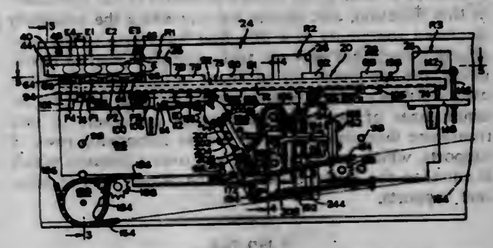
(iii) means for lowering and raising said second conveyor,
(iv) a third conveyor extending transversely of the second conveyor for receiving said row of articles from said second conveyor and conveying said row longitudinally,
(v) accelerating means in said third conveyor for separating and spacing the articles in said row, and
(vi) turning means for turning any misaligned articles.

3,319,761
AUTOMATIC +X-AXIS DETECTOR, MARKER, SORTER AND COLLECTOR FOR CRYSTAL WAFER BLANKS
Howard H. Aiken and Robert W. Birrell, Carlisle, Pa., James B. Cummins, Silver Spring, Md., and Maynard W. Richards, York, Pa., assignors to Howard Aiken Industries, Carlisle, Pa., a corporation of Delaware
Filed Jan. 25, 1965, Ser. No. 427,574
20 Claims. (Cl. 198—31)



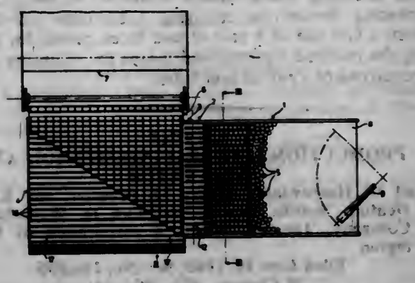
1. An apparatus for detecting the +X-axis of quartz crystal wafer blanks and for collecting the blanks in accordance with the determination of the +X-axis, the apparatus comprising; a detecting station for a quartz crystal wafer blank, polarized light and photoelectric detecting means for detecting the +X-axis of the quartz crystal wafer blank at the detecting station, a blank collecting means, at least one path for passage of the blank leading from the detecting station to the blank collecting means, switch means in said path, automatic electromechanical means responsive to the +X-axis detecting means for controlling the switch means and thereby controlling movement of the blank on passage of the blank along the path from the detecting station to the collecting means so that all blanks with the same +X-axis orientation are collected together at the collecting means.

3,319,762
ARTICLE FEED MECHANISM
Boyd W. Rose, Riverside, Calif., assignor to FMC Corporation, San Jose, Calif., a corporation of Delaware
Filed Sept. 24, 1965, Ser. No. 489,921
9 Claims. (Cl. 198—32)



1. An egg distributing mechanism comprising means defining a row of spaced egg cradles, means mounting said cradles for simultaneous vertical movement between upper and lower positions, means providing a row of spaced egg pockets, means mounting said pockets for simultaneous horizontal movement between upstream and downstream positions, said cradles and said pockets having individual upwardly facing egg support surfaces, the support surfaces of one of said rows horizontally straddling the support surfaces of the other of said rows when said pockets are in said upstream and downstream positions, means for feeding a plurality of eggs into predetermined cradles when said cradles are in said upper position, and power means connected to said cradle and pocket mounting means for sequentially lowering said cradles when said pockets are in said upstream position to transfer the eggs from said cradles to said pockets, moving said pockets and the eggs therein to said downstream position, and raising said cradles until the eggs are transferred from the pockets to cradles downstream of said predetermined cradles.

3,319,763
DEVICE FOR TRANSFORMING THE RELATIVE POSITION OF A NUMBER OF CONTAINERS
Johannes B. van der Winden, Amstelveen, Netherlands, assignor to Gebr. Stork & Co's Apparatenfabriek N.V., Amsterdam, Netherlands
Filed Dec. 10, 1964, Ser. No. 417,295
Claims priority, application Netherlands, Dec. 13, 1963, 301,766
12 Claims. (Cl. 198—33)



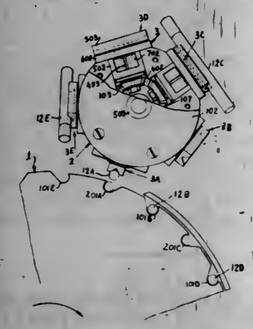
1. A device for transforming the relative position of a number of containers and for periodically discharging said containers in rows in an orientation which is different from that in which they are supplied, the length of the supplied as well as of the discharged rows being directed transverse to the respective directions of movement, said device comprising: at least one device for feeding the containers in upright position and for advancing said containers in a

plurality of rows, the number of containers in each row corresponding to that of the periodically discharged rows, at least one mechanism for periodically tilting the foremost row of containers by a quarter turn in their direction of advancement and for subsequently positively displacing the tilted containers in their direction of advancement over a distance at least equal to the dimension of the containers in this direction, and means for advancing the positively displaced containers in a direction transverse to the feed direction such that between two successive positive movements, the containers are advanced in transverse direction over a distance which is equal to the distance between the center lines of two adjacent rows of containers in said transverse direction, the latter means comprising rows of supports, which are stepwise driven over a distance which is equal to the distance between the center lines of adjacent supports.

3,319,764
DEVICE FOR SETTING CIGARETTES IN THE SAME DIRECTION

Goffredo Gamberini, Bologna, Italy, assignor to American Machine & Foundry Company, a corporation of New Jersey

Filed Apr. 15, 1965, Ser. No. 448,325
Claims priority, application Italy, Apr. 27, 1965, 6,656/65
5 Claims. (Cl. 198—33)



1. A cigarette orienting machine comprising a cigarette orienting wheel and a coacting cigarette supply drum, a succession of pairs of flutes arranged transversely on the cylindrical surface of said supply drum, a plurality of individual cigarette orienting devices, spaced substantially one from another angularly radially, projecting from said orienting wheel, means connected to each of said orienting devices for receiving a cigarette individually from a first one of a pair of said flutes, means for orienting the received cigarette and means for returning it to a second one of a pair of said flutes.

3,319,765
PRODUCTION LINE SPACING METHOD AND APPARATUS

Earl D. Hasenwinkle, Henry M. Preusser, and Eric B. Denton, Seattle, Wash., assignors to Weyerhaeuser Company, Tacoma, Wash., a corporation of Washington

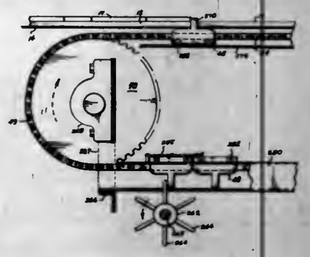
Filed June 10, 1963, Ser. No. 286,555
8 Claims. (Cl. 198—34)

2. In a method of manufacturing laminated products on a potentially continuous flow production conveyor line wherein spacing of some laminae is required so the passing lamina may initiate, control and accomplish production operations, a method of spacing laminae, comprising:

(a) maintaining a spacer supply near the commencement of the continuous flow production line;

(b) supporting and moving the spacer supply in a closed loop travel path co-extensive with the production line where needed;

(c) feeding each lamina to said production line with a space between the trailing edge of a previously fed lamina and the leading edge of the oncoming lamina;



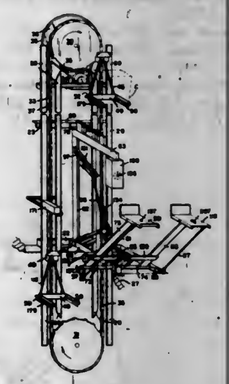
(d) sensing the movement of said leading edge toward said production line;

(e) directing in response to said sensed movement a spacer from said spacer supply along the loop to said conveyor level to be inserted ahead of said leading edge.

3,319,766
VERTICAL SELECTIVE CONVEYOR

Peter F. Crosby, Cazenovia, and Fraser A. Hurd, Liverpool, N.Y., assignors, by mesne assignments, to Diebold Incorporated, Canton, Ohio, a corporation of Ohio

Filed Nov. 10, 1965, Ser. No. 507,113
8 Claims. (Cl. 198—38)

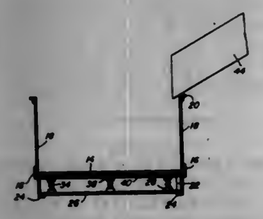


1. A vertical conveyor system for a multi-floor building structure for the transfer of articles from one floor station to another, said conveyor system comprising a pair of laterally spaced apart vertically disposed tracks extending from each floor station to the next, sprockets journalled in the upper and lower ends of said tracks, an endless chain trained over said sprockets with the up-run of said chain extending in juxtaposition to one of said tracks, and the down-run extending in juxtaposition to the other of said tracks, power means for effecting rotation of said sprockets, carriers connected to said chain at spaced intervals therealong and having sliding engagement with said tracks for guidance thereby, each of said carriers having article engaging arms spaced apart transversely of said tracks and having an actuating lug extending in a direction laterally of each of said arms, a loading and unloading unit mounted at each floor station and comprising a frame disposed vertically medial of the up and down movements of said carriers, a loading mechanism mounted on one side of said frame in juxtaposition to the upward movement of said carriers, said loading mechanism including an article supporting load platform movable into and out of the path traveled by said upwardly moving carriers, an unloading mechanism mounted on the opposite side of said frame in juxtaposition to the downward movement of said carriers and including an article supporting unload platform movable into and out of the path traveled by said downwardly moving carriers, each of said platforms having a transverse dimension less than the spacing between the arms of said carriers, a pair of vertically spaced apart platform actuators carried by said frame and associated with each of said platforms, linkage operatively connecting the actuators of each pair together and to the associated platform, one actuator of each pair having an end portion shiftable into the path traveled by an actuating lug on a carrier approaching the floor station for engagement by said lug, electro-responsive means operable when energized to shift said actuator end portion, said first actuator and linkage being cooperable upon such engagement by said lug to move the associated platform inwardly into the path traveled by said carriers for the transfer of an article from the inwardly positioned load platform to the carrier, and the transfer of an article from the carrier to the inwardly positioned unload platform, said linkage being also operable upon such movement of said first actuator to move said second actuator in position for engagement by an actuating lug on said carrier to effect return movement of the associated platform outwardly from the path traveled by said carriers.

3,319,767
IMPACT COMPENSATING MEANS FOR BELT CONVEYORS

Charles E. Breternitz, Littleton, Colo. (232 Union Station, Denver, Colo.); Alfred I. Dale, 301 Union Station, Denver, Colo.; and Haskell F. Sloan, Englewood, Colo. (301 Union Station, Denver, Colo.)

Filed Mar. 4, 1965, Ser. No. 437,047
1 Claim. (Cl. 198—52)

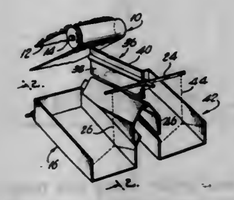


In combination, an elongated conveyor belt, said belt including a generally horizontal run adapted to receive and move material, material loading means located in spaced relation to said belt run for discharging material over a material receiving portion of said belt run, and an impact compensating means for the conveyor belt, said impact compensating means comprising upper and lower vertically spaced parallel plates, said lower plate constituting a support plate, said upper plate constituting an impact plate positioned parallel to and immediately below the material receiving portion of the belt run in general alignment with the material loading means, a plurality of upright resilient coiled compression springs extending between said plates at laterally and longitudinally spaced points and constituting the sole means retaining said impact plate in a vertically spaced parallel position over said support plate, said springs being located both at peripherally spaced points about said plates and at predetermined central locations whereby any portion of said impact plate will be provided with substantially immediately adjacent means to resiliently resist movement toward the support plate upon the introduction of a load thereon in response to material being received on said material receiving portion of the belt.

3,319,768
STRUCTURE FOR CONTROLLING THE FLOW OF BULK SOLIDS

William T. Holzhauer, Basking Ridge, and George F. Ort, Murray Hill, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware

Filed Mar. 18, 1966, Ser. No. 535,503
8 Claims. (Cl. 198—68)



1. A flow divider for a stream of bulk solids traveling along a given path and having an irregular distribution across the width of said path, comprising chute means intersecting said path for receiving a part of the width of said stream of bulk solids and for conveying the received part of the stream to a predetermined location, so that said chute means will at any given instant during its operation have thereon a predetermined proportion of the bulk solids traveling to said predetermined location, weight-responsive support means supporting said chute means for downward movement in response to an increase in weight upon said said chute and for upward movement in response to a decrease in weight upon said chute, and deflector means situated in the path of the stream of bulk solids in advance of said chute means for deflecting a proportional part of said stream away from said chute means, said deflector means being operatively connected with said chute means for responding automatically to downward movement of said chute means for deflecting a greater portion of the stream away from said chute means and to upward movement of said chute means for deflecting a lesser portion of the stream away from said chute means, so that said chute means is automatically maintained at a position to direct a predetermined proportion of the bulk solids traveling in said stream to said predetermined location.

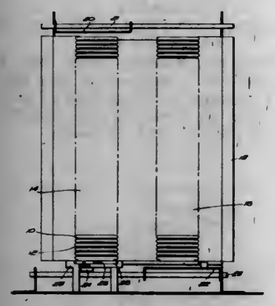
3,319,769
RADIATION DETECTION

John E. Krasinski, Quincy, Mass., assignor to Baird-Atomic, Inc., Cambridge, Mass., a corporation of Massachusetts

Filed Apr. 16, 1965, Ser. No. 448,722
4 Claims. (Cl. 198—85)

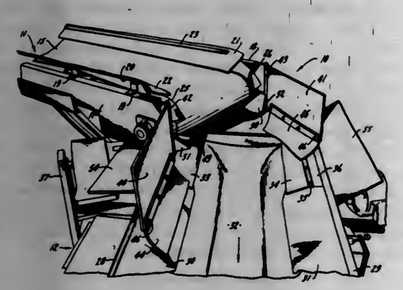
1. An automatic sample changer for measuring radioactivity of samples, said sample changer comprising a sample-holder storage support means, a sample-holder transport means, and a circuit means, said sample-holder storage support means being disposed in two vertical columns, each of said columns having a plurality of elongated comblike moveable jaws adjacent to the sides thereof, each forming a station capable of supporting a single sample-holder, means for moving each sample-holder successively from one station to another and means for moving sample-holders from one column to the other, a transport station being disposed at the base of said magazine and being supported by an elongated track horizontally perpendicular to the rear of the magazine in a plane

parallel to said sample-holder, a carrier for transferring each sample-holder to the remote extremity of said track and returning it to said magazine, a mechanical linkage from said carrier to a transport arm pivotally arranged



to transfer the said carrier along said track, power means for actuating said transport arm, and said circuit means for constraining the motion of said magazine and said transport means and for interrupting the operation of said storage support means.

3,319,770
MATERIAL TRANSFER ASSEMBLY FOR CASCADE CONVEYORS
Anthony R. Bieden, Chicago, Ill., assignor to Westinghouse Air Brake Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Oct. 22, 1965, Ser. No. 501,408
10 Claims. (Cl. 198—100)



1. Apparatus for the transfer area between adjacent conveyors which are disposed in discharging relationship one to the other, said apparatus including

impact wall means carried by a first conveyor and arranged in generally vertical material confining condition in all relative positions of the conveyors to one another,

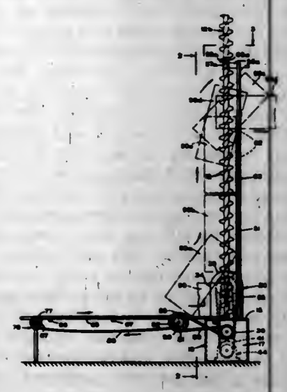
auxiliary wall means carried by a second conveyor,

said auxiliary wall means comprising a first and second wall structure disposed, respectively, on the first and second sides of the second conveyor,

means for collapsing the auxiliary wall structure toward a horizontal position on the side of the second conveyor toward which the first conveyor is laterally disposed out of operative position when the conveyors are disposed at an angle substantially less than 180° with respect to another, and

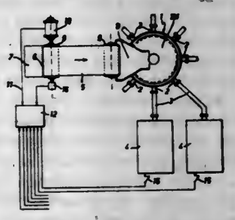
means for maintaining the remaining auxiliary wall structure in operative position so long as the other auxiliary wall structure is out of operative position.

3,319,771
HAY ELEVATOR UPRIGHT SCREW TYPE BALE LIFT
Clifford A. Nesseth, Brimley, Mich. 49715
Filed May 28, 1965, Ser. No. 459,822
15 Claims. (Cl. 198—104)



1. In a bale elevator, the combination comprising:
(a) a base member;
(b) a pair of laterally spaced, parallel rotary augers mounted on said base member and extending upwardly therefrom, said augers being positioned to grip the opposite side surfaces of a bale therebetween and being of opposite hand;
(c) guide means substantially parallel to said augers having a bale contacting portion thereof between said augers and spaced rearwardly therefrom to limit the rearward transverse movement of a bale engaged by said augers;
(d) said augers forwardly thereof being free of any bale guide means; and
(e) means connected to said augers rotating said augers in opposite directions inwardly toward said bale and said guide means, whereby the bale will be drawn transversely inwardly and held against said guide means as said bale is moved vertically upwardly by said augers, and thence discharged rearwardly over the end of said guide means.

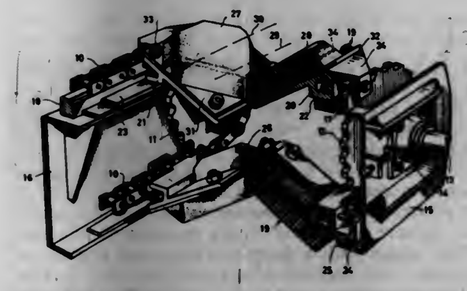
3,319,772
METHOD AND APPARATUS FOR CONTROLLING THE FEED OF SHREDDED TOBACCO TO A DISTRIBUTOR CONNECTED TO A PLURALITY OF CIGARETTE-MAKING MACHINES
Ciancarlo Orlandi, Bologna, Italy, assignor, by mesne assignments, to American Machine & Foundry Company, New York, N.Y., a corporation of New Jersey
Filed Mar. 29, 1965, Ser. No. 443,292
Claims priority, application Italy, Apr. 1, 1964, 7,454/64
5 Claims. (Cl. 198—110)



1. A cigarette-making plant comprising a source of shredded tobacco, a conveyor for continuously conveying said tobacco to a chute showering said tobacco onto a

distributor; and a plurality of separate suction ducts each connecting said distributor to one of a plurality of electrically operated independent cigarette-making machines; the arrangement of variable-speed driving means in driving connection with said conveyor; wherein the conveyor is a belt conveyor driven by a D.C. motor and means are provided for feeding to said motor such a current as to vary its speed proportionally to the number of the cigarette-making machines in operation, said means comprising the arrangement, in the electric feed circuit of the conveyor-driving motor, of a number of serially-arranged switches respectively connecting to said suction ducts for control thereof and with each switch having a resistor connected in parallel thereto and with said combinations of switches and resistors being connected in series to said motor.

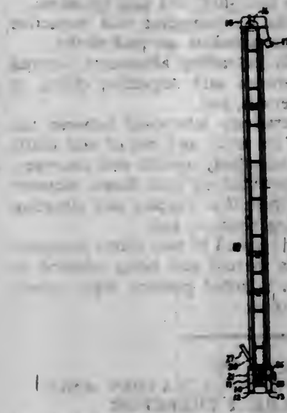
3,319,773
LOG CONVEYOR
Harding Tannerstål, Soderhamn, Sweden, assignor to Soderhamns Verkstaber Aktiebolag
Filed Dec. 7, 1964, Ser. No. 416,296
Claims priority, application Sweden, Jan. 22, 1964, 760/64
2 Claims. (Cl. 198—131)



1. A log conveyor of the type comprising a plurality of carrying members driven by parallel endless driving chains and following one after the other, said carrying members having an upwardly open V shape for centering the logs in the vertical longitudinal center plane of the conveyor, said carrying members further being provided with supporting blocks of an elastically resilient material mounted in pairs one on each side of the vertical longitudinal center plane of the conveyor, each said supporting block being wedge-shaped as seen from above and disposed with their points adjacent each other in each pair so as to have a resistance to elastic deformation gradually increasing outwardly from the longitudinal center plane, said supporting blocks further being secured to plates by vulcanization, said plates being bolted to the carrying members.

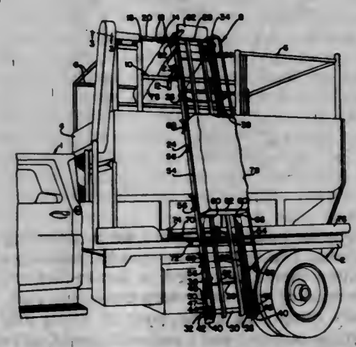
3,319,774
ELEVATING CONVEYOR
Alfred C. Christensen, Chicago, Ill., assignor to Lester B. Knight & Associates, Inc., Chicago, Ill., a corporation of Illinois
Filed Oct. 5, 1965, Ser. No. 493,086
7 Claims. (Cl. 198—149)

1. In an elevating conveyor, the combination comprising a plurality of column sections, each of the column sections including a pair of rectangular side plates spaced parallel to one another and joined by spacer plates having their edges secured to the inner walls of the side plates, interengaging means on the upper and lower edges of the side plates forming joints for registering the sections in stacked relation end to end with the lateral edges of the plates in continuous alinement, pulleys at the upper and lower ends of the stack, an endles conveyor belt trained about the pulleys and having buckets spaced thereon, covers of channel shape having corners of large radius terminating in parallel flanges spaced for mating with the



lateral edges of the side plates, and means for detachably securing the flanges to the lateral edges of the side plates with the covers overlapping the joints between the adjacent column sections.

3,319,775
PORTABLE ELEVATOR CONVEYERS FOR USE WITH TRUCKS
Sigurd J. Andreasen and Owen A. Meyer, both of P.O. Drawer 630, Bowie, Tex. 76230
Filed May 14, 1965, Ser. No. 455,711
6 Claims. (Cl. 198—154)



1. A detachable conveyor for a truck which conveyer comprises;

(a) a pair of spaced apart frame members,

(1) means positioned between said frame members to rigidly secure said frame members in spaced apart, parallel relation,

(b) a first shaft passing transversely through said spaced apart parallel frame members and being journaled therein near an end thereof,

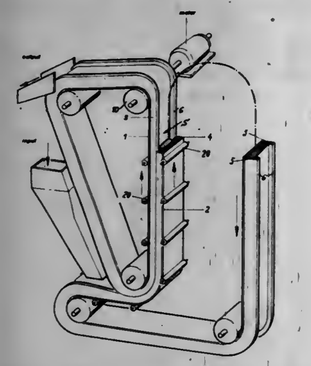
(c) a second shaft passing transversely through said spaced apart parallel frame members and journaled therein near the opposite end of said frame members and being parallel to said first shaft,

(d) a pair of spaced apart sprockets on each shaft,
(1) each said sprocket on one shaft being in aligned driving relation with the respective sprockets on the other of said shafts,
(2) power take-off means connected to a source of power on the truck and with one of said shafts to rotate said shaft and said sprockets,
(3) an endless chain surrounding said respective pairs of aligned sprockets on said shafts,
(i) outwardly extending abutments secured to and between said respective chains at spaced intervals, and
(e) clutch means operatively interposed between the source of power on the truck and one of said shafts of said conveyer to selectively operate said conveyer,
(f) a support hook mounted on each frame member near the upper end thereof to support said elevating conveyer in a loading position, and
(g) a brace hingeably secured to said frame members near the lower ends thereof and being adapted to support conveyer in adjusted position with respect to the body of the truck.

3,319,776
STEEP CONVEYOR INSTALLATION AND CONVEYOR BELT THEREFOR

Gert Bechtloff, Wolfgang Bruns, and Andreas Pitter, all of Wilhelmshaven, Germany, assignors to Beteiligungs- und Patentverwaltungsgesellschaft mit beschrankter Haftung, Essen, Germany

Filed Dec. 23, 1965, Ser. No. 515,839
Claims priority, application Germany, Dec. 30, 1965, B 79,950
4 Claims. (Cl. 198—165)

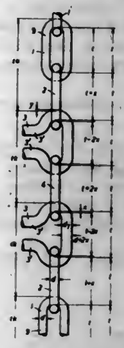


1. A conveyor installation with a steep conveying path, which includes: two endless conveyor belts having a conveying section thereof arranged in fact-to-face relationship and extending over said steep conveying path, each of said belts comprising a first layer of strong load supporting flexible material and a second layer of soft elastic foam material connected to said first layer, the arrangement being such that over said steep path said second layers of foam material face each other and are adjacent to each other, each of said second layers having its longitudinal marginal portions designed thicker than the intermediate section between said marginal portions so that said longitudinal marginal portions of each belt form strips protruding beyond said intermediate section in a direction away from the first layer connected thereto, and means arranged adjacent said first layers of said belts over said steep path and operable to press said belts over said steep path against each other so that the abutting surfaces of said marginal portions form a substantial seal against bulk material.

3,319,777
CHAIN STRAND, ESPECIALLY FOR MINING CONVEYORS

Günther Dommann, Altlunen, Westphalia, Germany, assignor to Gewerkschaft Eisenhutte Westfalia, Wethmar, near Lunen, Westphalia, Germany, a corporation of Germany

Filed Oct. 20, 1965, Ser. No. 498,955
Claims priority, application Germany, Oct. 31, 1964, G 41,912
13 Claims. (Cl. 198—168)



1. In a chain strand having a plurality of interconnecting links adapted to be conducted along a path of travel by driving engagement with a chain driving drum having chain link engaging means thereon at predetermined spaced intervals therearound for accommodating the chain links thereon within a given tolerance, the improvement which comprises such chain strand having a plurality of first normal links with a normal diameter and a normal pitch distance for normal driving engagement with such a drum within such a given tolerance, said plurality of first links being interrupted by a set of anormal links including in tandem a second link and a third link, said third link being a carrier link having an increase in diameter and a resulting decrease in pitch distance as compared with said normal diameter and normal pitch distance as well as having means for attaching an element to be carried thereby along such path of travel, and said second link having said normal diameter and an increase in pitch distance as compared with said normal pitch distance substantially ranging between the increase in diameter of said third link and said increase in diameter less said tolerance.

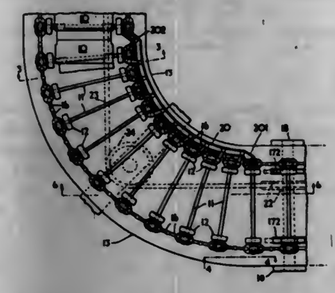
3,319,778
ENDLESS CHAIN CONVEYORS

Albert Douglas Bessant, Morden, England, assignor to Himpelm Engineers Ltd., Walsall, England, a corporation of Great Britain and Northern Ireland

Filed Mar. 30, 1966, Ser. No. 538,781
Claims priority, application Great Britain, Apr. 1, 1965, 13,786/65; Aug. 19, 1965, 35,572/65
4 Claims. (Cl. 198—182)

1. An endless chain conveyor incorporating a conveying surface means, main rollers for supporting said conveying surface means, axles for carrying opposite pairs of said main rollers, tracks for said main rollers arranged at each side of the conveying surface means, endless chains arranged at each side of the conveying surface means including links which are interconnected so as to permit hinging about both horizontal and vertical axes, sprockets for carrying and driving said endless chains the teeth of which are engaged by said main rollers, control rollers provided at each side of the conveying surface and located outboard of the main rollers aforesaid, links located below the plane of the supporting surface means

which are hingedly interconnected by common vertical pivot pins, said vertical pivot pins serving also as axles for the said control rollers thereby permitting them to contract or fold in a horizontal direction, discontinuous auxiliary tracks for the control rollers provided around a lateral bend outboard of said main rollers to define and control the direction of travel of the endless chains around the relevant lateral bend, said auxiliary tracks

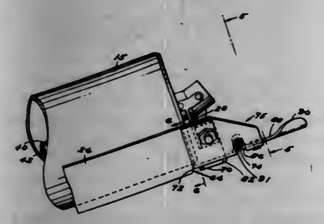


located below the plane of the conveying surface means, said conveying surface means being arranged in a plane above the main rollers, control rollers and links aforesaid and being capable of variation of effective surface area to permit the conveying surface means to negotiate lateral bends under the governance of said control rollers in association with the auxiliary tracks aforesaid, said means adjacent each bend for resisting torque resulting from the negotiation of each bend.

3,319,779
ROLL STAND CONSTRUCTION FOR BELT CONVEYORS

William E. Herrmann, Ypsilanti, Mich., assignor to Jervis B. Webb Company, Detroit, Mich., a corporation of Michigan

Original application July 25, 1962, Ser. No. 212,351, now Patent No. 3,217,862, dated Nov. 16, 1965. Divided and this application Aug. 27, 1965, Ser. No. 483,369
5 Claims. (Cl. 198—192)

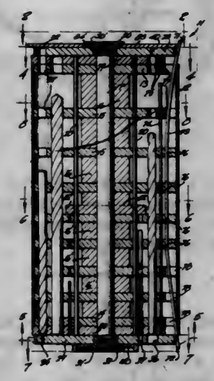


1. A belt conveyor roll stand comprising a pair of flexible supporting members, a roll assembly including a sub-frame including a pair of flat sheet metal frame to the supporting members including a pair of downwardly facing notches on the sub-frame adjacent each end thereof, the notches of each pair being spaced transversely of the sub-frame for engagement with one of the supporting members at longitudinally spaced locations thereon, and means on the sub-frame for engaging each supporting member intermediate the notches of a pair and deforming the supporting member upwardly comprising a lever pivotally connected to the sub-frame

3,319,780
DRILL DISPENSING CONTAINER

Richard E. Russell, 162 Dalton Ave., Pittsfield, Mass. 01201

Filed May 14, 1965, Ser. No. 455,898
9 Claims. (Cl. 206—17)



1. A drill holder comprising a generally cylindrical main body formed with at least two concentric circular series of graduated drill-retaining bores at different radial distances from the axis of said main body and dimensioned to receive a series of drills of different diameters and located to support the drills in positions parallel to the axis of the main body, respective cover discs journaled to the opposite ends of said main body, each cover disc being formed with a dispensing opening located at the same radial distance from the axis of said main body as and registrable with the drill-retaining bores of a respective circular series, the dispensing opening of the cover disc at one end of said main body being at a different radial distance from said axis than the dispensing opening of the cover disc at the other end of said main body, whereby different size of drills may be selectively dispensed from the opposite ends of the drill holder by registering the openings of the discs with the selected drills, and an inwardly-bowed rod-like detent member longitudinally-secured at its intermediate portion in said main body and having resilient free end portions engaging the edges of the cover discs and yieldably holding said cover discs against rotation relative to said main body.

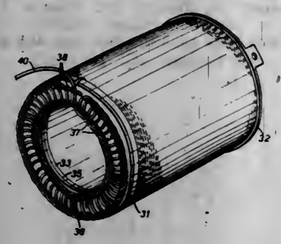
3,319,781
CONTROL WIRE DISPENSER FOR A GUIDED MISSILE

James Charles Simpson, Baldock, and Henry George Wells, Stevenage, England, assignors to British Aircraft Corporation (Operating) Limited, London, England, a company of Great Britain

Filed Nov. 16, 1965, Ser. No. 508,024
Claims priority, application Great Britain, Nov. 17, 1964, 46,856/64
4 Claims. (Cl. 206—59)

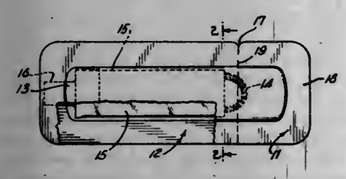
1. A control wire dispenser for a guided missile, which comprises a length of control wire, a hollow cylindrical former, a generally helical main winding of the control wire of cylindrical external form wound on the former, a supporting ring attached to one end of the former and having a generally flat end surface facing away from the

former, a generally helical auxiliary winding of the control wire comprising loops flatly attached in a circle to said flat end surface of said supporting ring and individually secured thereto by rupturable stitching, the length of con-



trol wire having a trailing end leading away from one end of the auxiliary winding and each loop of the auxiliary winding partially overlapping the adjacent loop more remote from the said trailing end.

3,319,782
STERILE SURGICAL PACKAGE
Donald R. Bowes, Fanwood, N.J., assignor to Ethicon, Inc., a corporation of New Jersey
Filed June 28, 1963, Ser. No. 291,482
6 Claims. (Cl. 206—63.3)



1. A sterile surgical package which comprises opposed panels of an impervious laminate having an alcohol resistant heat-sealable layer interposed between them, said panels being heat-sealed together around their edges through said heat sealable layer to completely enclose and hermetically seal off a central space in which the panels are unattached to one another, and a sterile surgical product in said space, said panels each comprising an inner layer of aluminum foil and an outer layer of a polyester film joined to one another by a polyester adhesive, said aluminum foil layer normally providing an effective barrier to all gases and fluids with which the package might come in contact, and said polyester film being adapted to protect the foil layer from external moisture induced electrolytic corrosion, heavy metals attack and mechanical damage and possessing the following combination of properties for these purposes:

(a) toughness, i.e., high tensile and impact strength,
(b) good tearability, i.e., moderate to low tear strength and elongation,
(c) low rates of moisture absorption and moisture vapor transmission, and
(d) strong adhesion to the aluminum foil through the polyester adhesive,

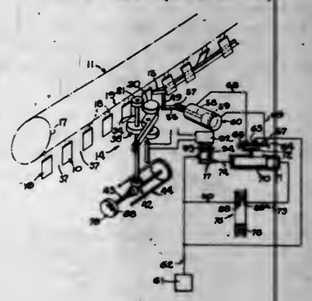
said polyester film also possessing very low permeability to gases and acting as a secondary barrier to penetration of the package by gases and fluids, said package being sterilizable by irradiation without degradation of any of the materials making up the package.

3,319,783
STORING, SHIPPING AND DISPLAY PACKAGE
Stanley B. Henrici, O'Hara Township, Allegheny County, and Peter Kenneth Shoemaker, Mount Lebanon Township, Allegheny County, Pa., assignors to H. J. Heinz Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed May 12, 1964, Ser. No. 366,809
1 Claim. (Cl. 206—65)



A combined shipping, storage and display package of products packed in rigid containers with labels thereabout comprising a shallow tray with upstanding side and end walls, a plurality of rigid containers of like shape, height and size snugly fitted in the tray and restrained by the tray and by one another from shifting about in the tray, the walls of the tray being substantially less in height than the height of the containers whereby a major area of the labels on the walls are exposed above the walls of the tray, a flat panel of cardboard substantially coextensive in area with the tray positioned on top of the containers, and a transparent wrapper enclosing the tray, the walls and the panel for confining the containers in the tray, said cardboard panel acting to protect the transparent wrapper from being cut or broken by direct contact with the top edges of the individual containers while the transparent wrapper exposes the labels to view.

3,319,784
APPARATUS FOR DETECTING AND REJECTING IMPROPERLY FILLED PACKAGES
Howard J. Granger, Rockton, Ill., assignor to Bartelt Engineering Company, Inc., Rockford, Ill., a corporation of Delaware
Filed July 1, 1965, Ser. No. 468,893
12 Claims. (Cl. 209—74)



8. Apparatus for separating improperly filled packages from a succession of properly filled packages, said apparatus including, in combination, a carrier for gripping the tops of a succession of such pouches and carrying the same edgewise in spaced edge-to-edge relation along a predetermined path, a diverter disposed along said path and selectively movable between first and second positions to deflect the packages in different directions as they pass the diverter, a detector disposed along said path in advance of said diverter and operable to produce a signal in response to the passing of an improperly filled package, and means for shifting said diverter back and forth between said positions including an actuator, a control valve operable in response to pressure fluid introduced alternately into its opposite ends to operate said actuator back and forth, a first operating valve for introducing pressure fluid into one end of said control valve and shifting the diverter into said first position as each package approaches said detector, and a second operating valve operable in response to signals from said detector to shift said diverter into said second position before each improperly filled package reaches the diverter.

3,319,785
FLOTATION PROCESS FOR THE PURIFICATION OF SILICON CARBIDE
Franz Schroll, Sankt Mang, Germany, assignor to Elektroschmelzwerk Kempten G.m.b.H., Munich, Germany
No Drawing. Filed Aug. 24, 1964, Ser. No. 391,773
Claims priority, application Germany, Sept. 30, 1963, E 25,610
7 Claims. (Cl. 209—166)

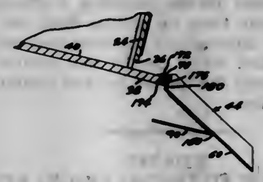
1. In a process for the separation of crystalline silicon carbide from substantially carbon-free crude silicon carbide produced from coal and sand, the step which consists of subjecting said substantially carbon-free silicon carbide in particle size not substantially in excess of 1.5 mm. to flotation in an aqueous medium in the presence of a cation-active flotation agent selected from the group consisting of primary, secondary and tertiary alkyl amine salts and quaternary ammonium salts, and recovering the resultant foam with the adhering crystalline silicon carbide.

3,319,786
CLAMP-RAIL CONNECTOR
Leopold L. Rudolf, % Summit Construction Co., Rapid City, S. Dak. 57701
Filed Aug. 29, 1963, Ser. No. 305,374
1 Claim. (Cl. 209—414)



A friction-lock, clamp-rail connector for holding a clamp rail against the face of a hopper to secure the edge of a screen or the like, wherein the clamp rail is formed generally as an angle bar with one leg substantially shorter than the other and with the end edge only of the short leg in direct contact with a screen or the like for gripping said screen or the like between the clamp rail and hopper wall and wherein the clamp rail and hopper wall includes aligned holes through each member and comprising, in combination therewith, a headed pin having a smooth shank adapted to be extended through a set of aligned holes in the clamp rail and in the wall of the hopper to bring the head of the pin against the clamp rail surface, a box-like framework outstanding from the opposite side of the wall of the hopper, said box-like framework including a member having a first leg welded to the underside of the hopper and having a slot therein, a second shorter leg extending at right angles to said first leg, and a pair of parallel legs extending from said second leg and rigidly secured to said hopper and said second leg, a lock plate having a tongue at one end inserted in said slot so as to be swingably mounted within this framework and having an orifice therein through which the shank of the pin passes, said lock plate being shiftable from the normal position perpendicular to the bolt to an inclined, locking position towards the hopper wall, with respect to the bolt and with the orifice therethrough being sized to permit free movement of the shank therein when in said normal position but to wedgingly lock against the shank when tilted to said locking position, and means within the framework adapted to urge the lock plate toward the wall of the hopper to said locking position and out of said normal position, whereby movement of the pin into the lock rail and through the wall of the hopper to tighten the grip of the rail upon the hopper is accompanied with movement of the pin tending to push the lock plate towards its normal position whereby to permit the pin to move therethrough, but opposite retracting movement of the pin is prevented by the lock plate gripping the shank of the pin.

3,319,787
UNLOADING AND SCREENING CHUTE FOR SHELLED CORN
Paul Downey, Rte. 1E, Merna, Nebr. 68856
Filed Mar. 1, 1965, Ser. No. 435,880
1 Claim. (Cl. 209—421)

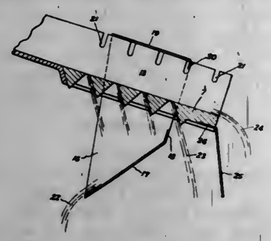


In combination: a dumping vehicle having a dump box having a rearward dump end provided with a discharge opening and an unloading and screening chute for shelled corn comprising a chute bottom having a forward end and a rearward end, said bottom having a screening section having openings therethrough of sizes for preventing the passage therethrough of corn kernels while permitting the passage therethrough of particles of cracked and ground-up corn and dirt substantially smaller than corn kernels, means for attaching said chute to the dump box of said dumping vehicle in a position rearwardly of and below said rearward end dump opening thereof in a position for gravity fall of small particles through said screening section and gravity fall of the larger corn kernels across the top of said screening section, said chute bottom lying generally in a plane, said chute having a forward wall attached to and extending upwardly from its bottom, the forward side of said forward wall having an obtuse angular relationship with respect to the said plane of said bottom for disposing a forward side of said forward wall in position for engaging the rearward edge of said rearwardly projecting floor section of said dump box to hold the chute so its bottom declines downwardly and rearwardly as its rearward end is approached when said dump box is in dumping position, and means connected to said chute for preventing small particles from blowing freely towards the rearward end of said chute.

3,319,788
CONCENTRATE TAKE-OFF DEVICES FOR PINCHED LAUNDER CONCENTRATORS
Ernst Reichert, Southport, Queensland, Australia, assignor to Mineral Deposits Pty. Limited, Sydney, Australia, a company of Australia
Filed Aug. 26, 1964, Ser. No. 392,246
Claims priority, application Australia, Sept. 3, 1963 34,934/63
15 Claims. (Cl. 209—493)

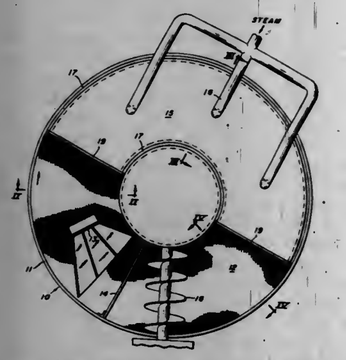
14. A splitter device for use in conjunction with a concentrator pinched launder of the type having a floor extending between inlet and outlet ends of the launder, a pair of side walls projecting upwardly from the floor on opposite sides thereof, and a number of slots in the floor

extending laterally of the floor; the splitter device including a floor, opposite side walls projecting upwardly from the floor, a roof portion adapted to be engaged on the upper edge of the launder side walls with the side walls of the splitter disposed laterally outwardly of the launder side walls and with the splitter floor extending



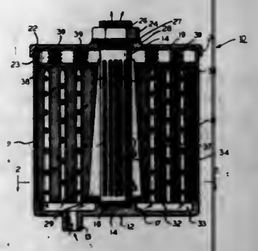
below the underside of the launder floor below the slots thereof, said splitter further including a divider means projecting upwardly from the splitter floor and adapted to be positioned intermediate the inlet and outlet ends of the launder, and means on the roof portion of said splitter for retaining the splitter in fixed position on the walls of the launder.

3,319,789
METHOD OF FILTERING LIQUID FROM SOLID PARTICLES
James H. Brown, Penn Hills Township, Allegheny County, and Elza F. Burch, Monroeville Borough, Pa., assignors to United States Steel Corporation, a corporation of Delaware
Filed Apr. 9, 1964, Ser. No. 358,518
1 Claim. (Cl. 210—67)



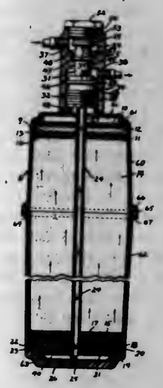
A method of separating liquid from solids suspended therein comprising depositing a slurry of said liquid and solids onto the upper surface of a traveling horizontal permeable medium at one point in its travel, applying a partial vacuum to the lower surface of said medium to withdraw liquid from the slurry and form a filter cake on said upper surface, moving the medium and cake under a steam discharge hood substantially immediately after free liquid has disappeared from the surface of the cake, passing dry super-heated steam from said hood through the cake in an amount sufficient to heat only a stratum of an cake near the upper surface and assist further withdrawal of liquid therefrom by lowering the viscosity of said liquid, moving the medium and cake away from said hood, drawing atmospheric air through said medium and cake, which air is heated by contact with the heated stratum and conveys heat to the remainder of the cake, and removing solids from said medium.

3,319,790
FILTERS EMPLOYING A FIBROUS PAPER ROLL
Richard C. Lindberg, 8348 Lincoln Ave., Skokie, Ill. 60076
Filed Nov. 10, 1964, Ser. No. 410,188
7 Claims. (Cl. 210—232)



1. In a filter of the type adapted to employ a roll of fibrous tissue having a central opening as a filtering medium, a cylindrical casing having an internal diameter substantially conforming to the external diameter of said roll, a closure for said casing, a bulkhead spaced from one end of said casing to define a chamber, a hollow central arbor adapted to receive said roll at the central opening thereof for placement thereon against said bulkhead, a plurality of knife means extending from said arbor for splitting said roll at said central opening, a plurality of openings in said hollow arbor between said knife means, a plurality of hollow probes supported by said bulkhead and having the interior thereof in communication with said chamber, each of said probes having at least one opening therein whereby the filtering action takes place in directions normal to the longitudinal axis of said roll.

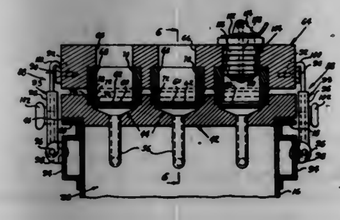
3,319,791
POPPET VALVE AND DISPOSABLE CONTAINER COMBINATION
Fred H. Horne, 541 Prospect Ave., Lake Bluff, Ill. 60044
Filed Mar. 2, 1964, Ser. No. 348,684
18 Claims. (Cl. 210—234)



1. In combination, a valve body having an inlet opening and an outlet opening, a valve element movable in said valve body to and from a closed position controlling flow through said body of a fluid from the inlet opening to the outlet opening, said valve element tending normally to move to closed position and when closed being held closed under fluid pressure from the inlet opening,

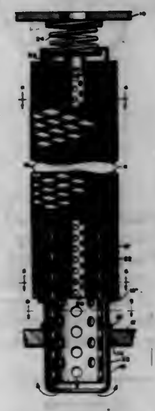
a container for material through which the fluid must be passed before discharge from said outlet opening having a neck portion threadedly connectible in another opening provided in said valve body, the last mentioned opening being in transverse relationship to the outlet opening, the direction of threading of said container neck into said valve body being also the direction of unseating of said valve, said container having an inlet opening in the neck connectible with the valve body inlet opening when the valve element is moved to open position and having an outlet opening in the neck connectible with the valve body outlet opening, and means on the valve element arranged to engage the container neck between the inlet and outlet openings in the neck for (1) moving the valve element to open position operable in the threading of said container neck into the valve body from a retracted position, and (2) establishing the flow circuit through said container from the valve body inlet opening to the valve body outlet opening.

3,319,792
MULTIPLE FILTRATION APPARATUS
Philip Leder, Bethesda, Md., and Charles J. Byrne, Arlington, Va., assignors to the United States of America as represented by the Secretary of the Department of Health, Education, and Welfare
Filed Oct. 19, 1964, Ser. No. 404,993
10 Claims. (Cl. 210—238)



1. A multiple filtration apparatus comprising chamber means, vacuum-producing means operatively connected to said chamber means, filter plate means removably carried in overlying relation to said chamber means, portions of said filter plate means defining a plurality of spaced filtering cells in communication with said chamber means, filtering means associated with each of said cells for collecting precipitate from samples passing through said cells, pressure plate means removably carried in overlying relation to said filter plate means, portions of said pressure plate means defining elongated spaced bores aligned with each of said cells and communicating with said chamber means through said cells, and securing means removably engaging said chamber means, said filter plate means and said pressure plate means in substantially pressure-tight assembled relationship, said chamber means including a chamber member having a bottom element and upstanding peripheral side walls carried by said bottom element, said side walls having upper terminal portions defining an open top, said filter plate means spanning said open top and resting on said upper terminal portions of said side walls, said filter plate means including a filter plate member having portions defining a plurality of openings therethrough, one for each of said filtering cells, each of said openings including a relatively small portion communicating with the underside of said filter plate member, a relatively large portion communicating with the upper side of said filter plate member, and a frustoconical funnel portion interconnecting said relatively small and relatively large portions, said filtering means being carried between said relatively large portion and said frusto-conical funnel portion, said pressure plate means including a pressure plate member, an annular protuberance extending from the underside of said pressure plate member surrounding each of said bores and dimensioned to be received in said relatively large portion of its associated filtering cell, and gasket means interposed between each of said protuberances and said portions of said filter plate member defining the relatively large portion of its associated filtering cell.

3,319,793
CORD WOUND FILTER ELEMENT
Charles A. Miller, Jr., 4302 N. Charles St., Baltimore, Md. 21218; Joseph B. Masnochi, Baltimore County, Md. (112 Shetland Hills Drive, Lutherville, Md. 21093); and Robert W., Miller, Jr., Baltimore County, Md. (1219 Wine Spring Lane, Towson, Md. 21204)
Filed June 8, 1965, Ser. No. 462,364
2 Claims. (Cl. 210—243)

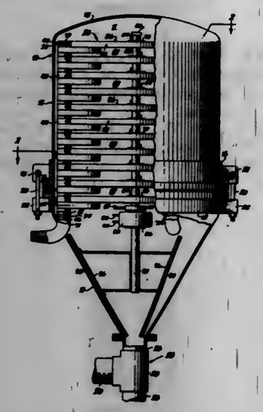


2. A filter tube for a filter unit comprising:
(a) a cord wound filter tube having a perforated rigid core extending throughout the entire length of the filter tube,
(b) a tubular extension constructed of insulating material and of substantially larger diameter than the core having a part positioned in the wound body of the filter tube and a part extending outwardly beyond one end of the filter tube, the portion of the tubular extension extending within the filter tube surrounding the said core and spaced radially outwardly from the sidewalls of the core by a plurality of cord windings and a plurality of cord wrapping extending over the outer surface of the section of the tubular extension positioned within the filter tube.

3,319,794
HORIZONTAL PLATE FILTER
Richard P. Gross, 611 Cornwall Ave., Tonawanda, N.Y. 14150
Filed Oct. 23, 1965, Ser. No. 503,515
13 Claims. (Cl. 210—334)

1. A horizontal plate filter, comprising an upright shell forming a chamber, an inlet to said chamber for the liquid to be filtered, a stack of generally counterpart horizontal metal plates each recessed over the greater part of its top area to provide an upwardly facing cavity, a filter cloth covering each cavity, means holding each filter cloth in position, a plurality of vertical nipples projecting from each plate at spaced intervals around and near the rim thereof and providing openings to the exterior of the plate, means

providing a conduit leading from each cavity to the opening in each of said nipples, socket means providing openings to the exterior of each plate and each communicating with a corresponding conduit thereof and snugly receiving a companion nipple of an adjacent plate, said nipples holding said plates in vertically spaced relation to one another to provide horizontal spaces therebetween which are open to said chamber substantially over their full



height around the greater part of said rims of said plates to minimize impedance to cleaning and to the flow of said liquid to be filtered from said chamber into said space between said plates, means blocking the openings from said chamber to the plate at one end of said stack, and an outlet for the filtrate connected to each of the outlet openings from the plate at the other end of said stack.

3,319,795
FLUID FILTER WITH STACKED FILTERING ELEMENTS
Heinz W. Schmidli, Redondo Beach, Calif. (37 Marimar St., Thousand Oaks, Calif. 91360)
Filed July 11, 1963, Ser. No. 294,424
4 Claims. (Cl. 210—457)



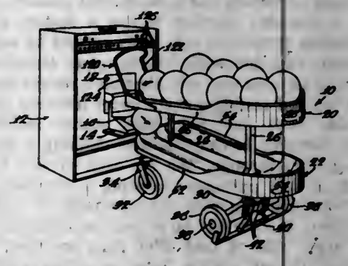
3. In a fluid filter,
a plurality of thin washer-shaped wire mesh filter elements,
a plurality of flat washer elements,
an elongated centrally located hollow core member having a plurality of apertures in the side walls thereof and a passageway running through the longitudinal extent thereof,
an end plate fixedly attached to one end of said core member, said end plate sealing off one end of said passageway, the other end of said core member having an aperture formed therein for passing fluid,
said filter elements and said flat washer elements being alternately stacked on said core member in concentric relationship therewith to substantially fill up said core member, said mesh filter elements and said flat washer elements being fabricated of a non-corrosive metal such that said filter elements are not substantially deformed by axial assembly pressure, said filter elements in their installed position being capable of withstanding high fluid pressures radially without deforming,
a load washer mounted on said core member in concentricity therewith on top of said stacked filter and washer elements near the other end of said core member, and
torque nut assembly means for adjusting the compression of said washer and filter elements against each other.

3,319,796
FILTER ELEMENT
David R. Royer, Detroit, and John W. Bezek, Waterford, Mich., assignors to The Rossen Filter Company, Hazel Park, Mich., a corporation of Michigan
Filed Sept. 2, 1964, Ser. No. 393,862
7 Claims. (Cl. 210—457)



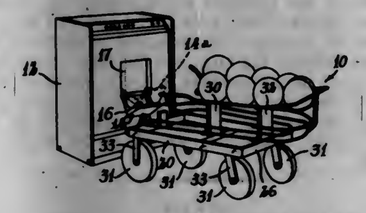
1. A filter element comprising
(a) a substantially cylindrical perforated support member,
(b) a sheet of filtering material and means detachably securing one edge of said sheet to said support member,
(c) said sheet being wound about said support member in a wound position, and
(d) means carried by said sheet for removably fastening said sheet in said wound position, said means carried by said sheet being spaced from said securing means by a longitudinal portion of said sheet.

3,319,797
BALL CART
Eugene F. Felstehausen, Hoopeston, Ill., assignor to Brunswick Corporation, a corporation of Delaware
Filed May 10, 1965, Ser. No. 454,290
15 Claims. (Cl. 211—15)



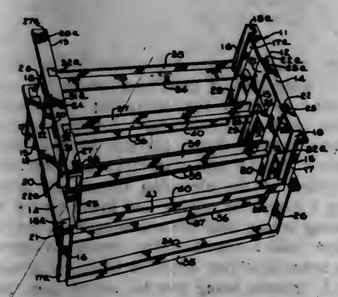
1. In a ball cart for automatically feeding balls one at a time into a polishing machine, the combination of, an inclined supply track adapted to receive unpolished balls thereon and having a ball discharge end, an oppositely inclined storage track for receiving polished balls, a ball stop member pivotally mounted on said supply track adjacent said discharge end, means normally latching said ball stop member in a ball arresting position, means for releasing said latch means in response to a polished ball rolling onto said storage track whereupon the ball or balls on said supply track pivots said ball stop member out of said ball arresting position, and means for returning said ball stop member to said ball arresting position after one ball has rolled off of said supply track while a succeeding ball rolls toward the stop member and before the succeeding ball reaches the stop member so that balls are fed one at a time into said polishing machine.

3,319,798
BALL CART
Eric S. Stevens, St. Charles, Mo., assignor to Brunswick Corporation, a corporation of Delaware
Filed May 10, 1965, Ser. No. 454,291
21 Claims. (Cl. 211—15)



1. A gravity feed device comprising; a frame; an inclined supply track on said frame and having a discharge end; a storage track on said frame; releasable means for holding members on said supply track; and means responsive to a member moving onto said storage track for releasing said releasable means to free a member for movement off of the discharge end of said supply track.

3,319,799
TRAY FOR MUSHROOM PICKING BOXES
Ted L. Paxton, Riverside, Calif., assignor to Eleanor M. Paxton, Riverside, Calif.
Filed July 23, 1965, Ser. No. 474,300
4 Claims. (Cl. 211—126)



1. In a picking box tray, the combination of: first and second end members, each of which includes a horizontal plate extending entirely across said tray at the top level thereof, a pair of thin walled corner legs united with inner edge portions of said plate at its opposite ends, and thin walled interior leg means united with said inner edge portion of said plate interiorly of said corner legs and symmetrically related therewith, said corner legs and leg means of both said plates inclining inwardly and downwardly from inner edges of the latter, the corner legs and leg means of said first end member being integrally connected at their lower ends respectively to the lower ends of the corner legs and leg means of said second end member by flat picking box supporting bars disposed horizontally and having vertical flanges extending upwardly from and lengthwise of said bars for retaining said boxes on said bars, said flanges being integral with said horizontal bars and said corner legs and interior leg means respectively to give said tray rigidity; deeply tapering channel bosses incorporated with said first corner legs and said second interior leg means and extending outwardly therefrom, said channel bosses opening upwardly and inwardly whereby two trays will interfit vertically a substantial distance in nesting relation, when like end members are placed together, but will be stackable with said bosses of the upper tray resting on the plates of the lower tray when unlike end members are placed together.

3,319,800
PILFER-DETERRING DISPLAY RACK
John W. Bowles, Denver, Colo., assignor of fifty percent to Baldwin Bracelet Corporation, New York, N.Y., a corporation of New York
Filed Oct. 1, 1965, Ser. No. 492,121
3 Claims. (Cl. 211—163)

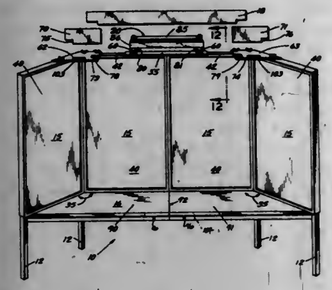


1. A display rack comprising a stand having radially and horizontally arranged hook means having bights and hooks for suspending a plurality of rectangular articles of a maximum given width, plate means rotatably mounted on the stand and extending into the bights of said hook means for blocking removal of a suspended article from said hook means, said plate means having at least one notch formed in its periphery of a width slightly greater than said given width for selectively releasing a respective suspended article when said notch coincides peripherally with one of said hook means.

3,319,801
PORTABLE DISPLAY DEVICE
Richard L. Nordstrom, 806 Clinton Place, Evanston, Ill. 60201
Filed Aug. 20, 1965, Ser. No. 481,276
4 Claims. (Cl. 211—178)

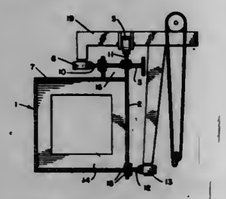
1. A portable display device adapted to be manually transported and assembled on location, said display device convertible to a table supported device or convertible to a floor supported device, said display device comprising: a first display module including hinged panel portions, a second display module including hinge panel portions, means to secure said modules together, means to secure said panel portions of the respective modules in angular relationships to one another, leg means in at least one of said panel portions of said first and second modules, means to secure said legs in an extended

position for supporting said display device on said floor and for securing said legs in a retracted position within



said panel portions whereby said display device may be supported on a table.

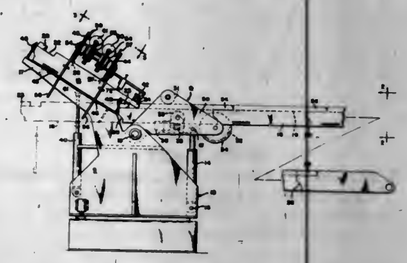
3,319,802
SINGLE CRANE GIRDER
Misumi Osawa, Tokyo-to, Japan, assignor to Ishikawajima-Harima Jukogyo Kabushiki Kaisha, Tokyo-to, Japan, a company of Japan
Filed Apr. 2, 1965, Ser. No. 445,134
Claims priority, application Japan, Oct. 22, 1964 (utility model), 39/82,825
6 Claims. (Cl. 212—17)



1. A single crane girder for use with a trolley comprising: a girder having an upper and a lower chord; a beam supported by said girder and disposed along a portion of the topmost portion thereof, said beam comprising a plurality of members disposed above said upper chord, said members forming at least one substantially horizontal bearing surface and at least one substantially vertical bearing surface, strengthening means disposed above said upper chord and connecting said members; rail means disposed on said bearing surfaces and on a lower portion of said girder forming means for sustaining pressure from the wheels of a trolley and that the width of said upper chord exceeds by a substantial amount the combined width of said beam, said horizontal bearing surface and the horizontally disposed wheel contacting said horizontal bearing surface.

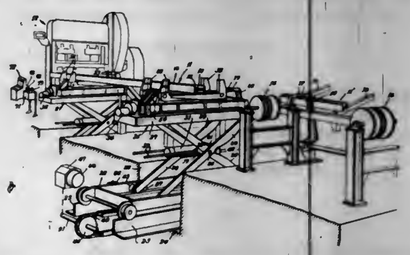
3,319,803
RETRACTABLE CHAIN BOOM
Derek John Northcott, Middlesex, England, assignor to Fairey Canada Limited, Dartmouth, Nova Scotia, Canada, a corporation of Canada
Filed Apr. 12, 1966, Ser. No. 542,077
12 Claims. (Cl. 212—55)

11. In combination with a retractable chain boom comprised of a row of links detachably connected in a straight-arm assembly, a support for the inner end of the chain boom, intermittently acting means operable when the boom is retracted for disconnecting the then inner link from the boom and feeding the same to a way station, a magazine for storing the disconnected links side-by-side and including the way station as one of its storage spaces, and a conveyor structure operating in each of a succession of interrupted movements to shift the links laterally from one to a next adjacent space in the magazine, the conveyor structure comprising an endless reversible conveyor chain trained about sprocket wheels so that a run of the chain lies overhead and at right angles to links occupying said spaces, flights on the conveyor chain functional to engage and shift the links occupying said spaces in either of two opposite lateral directions depending upon the direc-



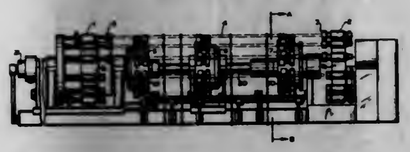
tion in which the conveyor chain moves, live shafts on which said sprocket wheels are fixed, a pair of independently operated double-acting rams, and an operative interconnection between the rams and the shafts operating to turn the shafts in one direction by cyclic operation of one ram and in the other direction by cyclic operation of the other ram, the amount of said turn, measured in terms of flight travel, moderately exceeding the width of a boom link.

3,319,804
BEAM HANDLING APPARATUS
William C. Beatty, Munster, Ind., Donald G. Krause, Calumet City, Ill., and Lowell C. Beatty, Munster, Ind., assignors to Beatty Machine & Manufacturing Company, Hammond, Ind., a corporation of Indiana
Filed Jan. 21, 1965, Ser. No. 426,597
10 Claims. (Cl. 214—1)



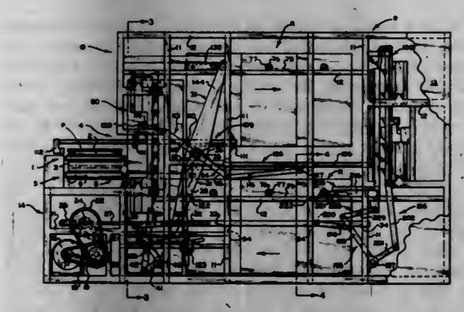
1. Beam handling apparatus including a plurality of mobile elevating turning units and means for controlling the plurality of units for operation substantially synchronously; each unit including a power-moved carriage, a powered elevating frame carried thereby, and a pair of oppositely facing and overlapping power-pivoted L frames carried by the elevating frame and adapted for supporting a beam for raising and lowering the beam by the elevating frame and for movement of the beam by the carriage; said L frames being separately operable for turning a beam in either direction from the area of overlap, said L frames being pivotal about axes transverse with respect to the direction of mobility and widely separated to receive a beam with its web horizontally disposed between them; and, when positioned to so receive such beam, each having a vertical arm, and a horizontal arm extending the full distance between the vertical arms to engage and support a beam flange resting against either vertical arm.

3,319,805
GRIPPING APPARATUS FOR TRANSPORTED PIPES
Hans Brauer, Solingen, Germany, assignor to Th. Kieserling and Albrecht, Solingen, Germany
Filed Apr. 9, 1965, Ser. No. 446,806
Claims priority, application Germany, Apr. 18, 1964, K 52,736
20 Claims. (Cl. 214—1)



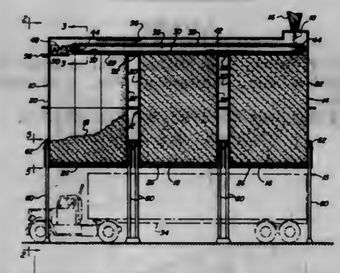
18. A gripping apparatus comprising, in combination, gripping means movable to and from a gripping position; actuating means connected with said gripping means for moving the same to and from said gripping position; operating means including first and second operating members, said first operating member being connected with said actuating means for moving the same, lost-motion means connecting said first and second operating members for relative movement, biasing means for urging said first operating member to a position in which said actuating means urges said gripping means to said gripping position; and drive means for operating said second operating member and by said lost-motion means also said first operating member, said lost-motion means permitting movement of said first operating member relative to said second operating member by said biasing means for a limited distance so that a workpiece is resiliently gripped by said gripping means.

3,319,806
APPARATUS FOR HANDLING BAKERY PRODUCTS
Hiram E. Temple, Saginaw, Mich., assignor to Baker Perkins Inc., Saginaw, Mich., a corporation of New York
Filed Dec. 23, 1963, Ser. No. 332,813
3 Claims. (Cl. 214—16.4)



1. In farinaceous product treating apparatus: a plurality of rack carriers, each having vertically spaced surfaces for supporting farinaceous products; means forming a conveyor circuit for said carriers including longitudinally spaced, generally vertically extending run portions connected by upper and lower run portions; said means including a first support station means having a series of vertically spaced support surfaces forming one vertically extending run portion and a second support station means having a series of vertically spaced support surfaces forming the other vertically extending run portion; means for loading and unloading the support surfaces of the carriers adjacent said one of said vertically extending run portions; there being a greater number of support station surfaces forming said one run portion than forming the other run portion; means on said carriers by which said carriers are supported at successive support station surfaces; means for transferring said carriers between said vertically extending run portions and upper and lower run portions; and means at each vertically extending run portion for moving the carriers vertically from one support station surface to another so that said carriers are moved around said circuit.

3,319,807
DUMPING TYPE STORAGE BIN
Frederick F. Van Raden, Hillsboro, Oreg., assignor to Peerless Trailer and Truck Service, Inc., Portland, Oreg., a corporation of Oregon
Filed May 28, 1965, Ser. No. 459,719
4 Claims. (Cl. 214—16)

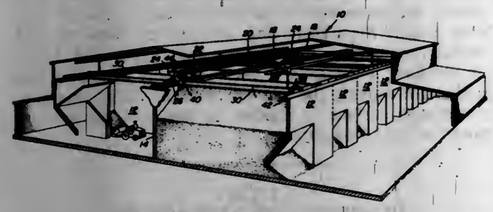


3. In a storage bin of the class described:
a pair of opposite, parallel, vertical side walls;
a second pair of opposite side walls extending between the first mentioned side walls;
said side walls defining at their bottom edges an opening for the release of product from said bin;
a gate means for opening and closing said opening including a pair of leaves;
pivot means for supporting said leaves for swinging movement about axes perpendicular to said vertical side walls, and spaced equidistantly on opposite sides of the vertical central plane of said bin;
said leaves each comprising a substantially planar toe portion which, in the closed position of said leaves, are substantially horizontal and which meet substantially along said central plane, the meeting edges of the toe portions being provided with interfitting triangular teeth;
said leaves being adapted to swing about said axes to an open position in which said toe portions are inclined downwardly toward each other to define a chute for guiding the contents of said bin discharging through said bin opening;
and means for swinging said leaves between their open and closed positions.

3,319,808
AUTOMATIC BIN FILLING SYSTEM FOR FREEFLOWING MATERIALS
Walter J. Sackett, Sr., Baltimore, Md., assignor to A. J. Sackett & Sons Company, Baltimore, Md., a corporation of Maryland
Filed Aug. 17, 1965, Ser. No. 480,466
6 Claims. (Cl. 214—17)

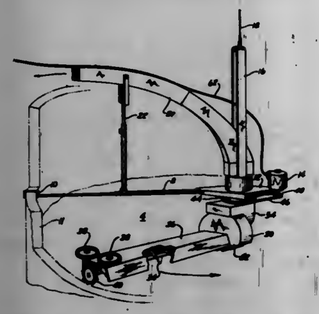
1. Apparatus for filling a bin with granular material, comprising shiftable means for discharging said granular material into one end of said bin to form a pile of said granular material therein, means for scraping off the top

of said pile after it reaches a certain height and distributing the resultant scraped-off granular material progressively across said bin to the opposite end thereof, means responsive to a predetermined height of granular material



piled at said opposite end for halting operation of said scraping means, and means responsive to said predetermined height for shifting said discharging means to discharge said granular material into a relatively empty space in said bin.

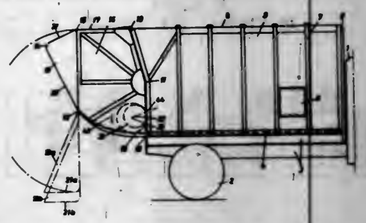
3,319,809
SILO UNLOADER
George D. Prentice, Milwaukee, Wis., assignor to A. F. Klinzing Co., Inc., Milwaukee, Wis., a corporation of Wisconsin
Filed Aug. 26, 1965, Ser. No. 482,732
7 Claims. (Cl. 214—17)



1. Apparatus for unloading material from a bulk storage container comprising, means providing a non-rotatable support within the storage container, a motor fixedly mounted on said support, material gathering and discharge means rotatably carried by said support, said material gathering and discharge means including a radiating conveyor for moving material toward a pickup station, means for removing the material from the pickup station and discharging the same exteriorly of the container, and power transmission means independently rotatably carried by said support and drivingly connecting said motor with said material gathering and discharge means for revolving the same in a horizontal plane relative to said support and for additionally driving both the radiating conveyor and the discharge means at speeds dependent upon the torque imposed on said drive means.

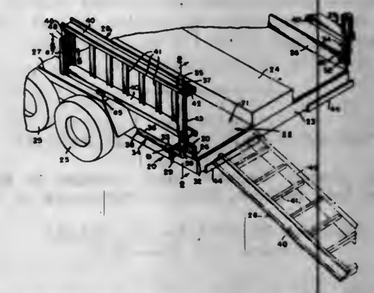
3,319,810
REFUSE VEHICLE
Mikko Jooseppi Terho, Autolava Oy, Raisio, Finland
Filed Apr. 8, 1965, Ser. No. 446,620
5 Claims. (Cl. 214—83)

1. In a refuse truck having a closed body with an opening therein having a floor, a packing and crushing device in the opening and located above the floor of said opening to cooperate with said floor to crush refuse and move it into the body of said truck, said packing and crushing device consisting of a hollow rotatable cylindrical roller mounted on axle studs, means for rotating said roller, an axle whose axis remains stationary in relation to said studs mounted eccentrically but parallel to the axis of said roller and inside thereof, slidable arms



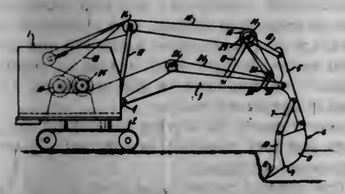
rotatably mounted side by side on said axle and extending at right angles thereto through openings in the periphery of said roller so that upon the rotation of said roller said arms move in and out through their respective openings in said roller surface.

3,319,811
SWING AWAY RAMP
Raymond D. Martin, Jr., Centreville, Md., assignor to Tag-A-Long Trailers, Inc., Centreville, Md.
Filed Apr. 23, 1965, Ser. No. 450,390
2 Claims. (Cl. 214—85)



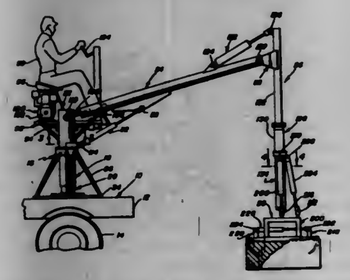
1. In a trailer, a frame including a rearwardly disposed beam, said trailer including upstanding side members and raised side sections, spaced apart hook brackets affixed to the rear portion of the trailer, L-shaped mounting members pivotally connected to said side members and said mounting members including first and second portions arranged at right angles with respect to each other, said first portions being pivotally connected to said side members, a cylindrical hub affixed to said second portion of the mounting member, an L-shaped pivot arm including first and second sections arranged at right angles with respect to each other, and said second section of the pivot arm extending through said hub, anchor pins on the ends of the first and second sections of the pivot arm, a pair of ramps each including a pair of spaced parallel channel pieces, a plurality of cross pieces extending between said channel pieces and affixed thereto, a hollow sleeve at one end of each ramp extending between the channel pieces and secured thereto, said sleeve having a first portion of the pivot arm swivelly and pivotally mounted therein, a hook bracket on an end of the ramp for engagement with the corresponding hook bracket affixed to the rear of the trailer, guide members on said side sections, end pieces affixed to said ramps, channel units having their lower ends affixed to said side sections, and detachable securing elements for selectively engaging said channel units and end pieces.

3,319,812
MECHANISM FOR ACTUATING THE DIPPER STICK OF A POWER OPERATED APPARATUS
John P. Waite, Menomonee Falls, Wis., assignor to J. P. Waite, Inc., Milwaukee, Wis., a corporation of Wisconsin
Filed Sept. 29, 1965, Ser. No. 491,137
8 Claims. (Cl. 214—138)



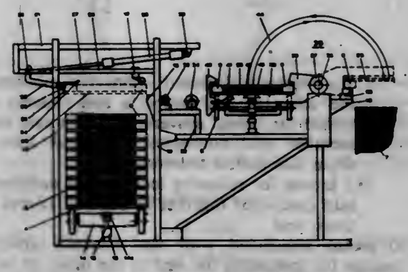
1. In a power operated excavating apparatus, a supporting structure, a boom having one end pivotally connected to the supporting structure, a dipper stick pivotally attached at a position intermediate of its ends to the outer portion of the boom, a dipper secured to the lower portion of the dipper stick and adapted to penetrate into the material to be excavated, a first arm pivotally connected to the upper end of the dipper stick, a second arm pivotally connected to the boom, connecting means for pivotally connecting the arms together, and power means interconnecting the boom and said connecting means for moving said connecting means toward and away from the boom to thereby pivot the dipper stick with relation to the boom.

3,319,813
HAY LOADER
Orville Beyea, Dickens, Nebr. 69132
Filed July 15, 1965, Ser. No. 472,215
17 Claims. (Cl. 214—133)



1. A hay loader adapted to lift and displace cut hay, said loader comprising an upright standard including upper and lower sections rotatable relative to each other, the lower end of said lower section including base means adapted to be supported from a vehicle, first power means operatively connected between said upper and lower sections and operative to effect selective rotation of said upper section relative to said lower section, a lift boom, means pivotally securing one end of said lift boom to said upper section for rotation about a horizontal axis extending transversely of said upper section and said lift boom, second power means operatively connected between said upper section and said lift boom and operative to selectively swing said lift boom relative to said upper section, a reach boom pivotally secured at one end to the free end of said lift boom for rotation about a horizontal axis extending transversely of said lift and reach booms, third power means operatively connected between said lift and reach booms and selectively operable to effect swinging movement of said reach boom relative to said lift boom, a grapple assembly universally supported from the free end of said reach boom and including clam-type grapple arm assemblies including hay bale engaging means on their free ends, means connected between said grapple arm assemblies and operable to open and close the latter, and first and second means operatively connected between said grapple assembly and said reach boom operative to selectively oscillate said grapple assembly relative to said reach boom about axes disposed generally normal to each other and the longitudinal axis of said reach boom.

3,319,814
DEVICE FOR MANUFACTURING LIGHT WEIGHT BUILDING BOARDS
Gerrit Jan Van Elten, 1 Tromplaan, Voorthuizen, Netherlands
Filed Jan. 7, 1965, Ser. No. 424,001
Claims priority, application Germany, Jan. 8, 1964, E 26,184
2 Claims. (Cl. 214—308)



1. An ejector for ejecting light weight building boards from forming plates comprising, a shaft mounted for rotation about a horizontal axis, a clamping frame mounted on said shaft and secured to said shaft for rotation therewith, stacking means for stacking a plurality of forming plates parallel to said shaft, means at the top of said stacking means for pushing the uppermost forming plate stacked on said stacking means from such stack onto said clamping frame, gripping means on said clamping frame, means for moving said gripping means into gripping engagement with said forming plate on said clamping frame, means for turning said shaft and said clamping frame with said forming plate gripped thereon about said horizontal axis from a first horizontal position at one side of said axis in which said forming plate is pushed onto said clamping frame to a second horizontal reversed position at the opposite side of said axis, conveyor means at said opposite side of said axis for receiving a light weight building board ejected from said forming plate in said horizontal reversed position, means for turning said shaft and said clamping frame from said second horizontal reversed position at said opposite side of said axis to said first horizontal position at said one side of said axis and to a position slightly beyond said first horizontal position, and roller means at said position slightly beyond said first horizontal position for engagement with said forming plate for removing said forming plate from said clamping frame.

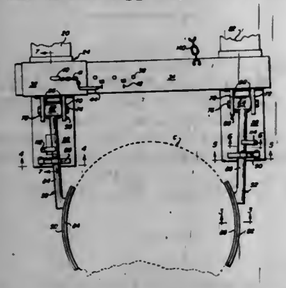
3,319,815
LOAD HANDLING ATTACHMENT FOR FORK LIFT TRUCKS
Albam M. Vik, New Brighton, Minn., assignor to Tamco, Inc., St. Paul, Minn., a corporation of Minnesota
Filed Sept. 24, 1964, Ser. No. 398,889
3 Claims. (Cl. 214—620)

1. In a drum handling attachment for fork lift trucks including a pair of opposed supports slidable over the ends of the forks, a pair of opposed drum gripping members

carried by said supports for supporting a drum therebetween by clamping engagement with peripheral portions of the drum, the combination of:

(a) laterally adjustable means connecting said supports and adapted to selectively position said drum gripping members in a predetermined laterally spaced relation to each other according to the size of the drum to be carried, including:

(1) a hollow laterally disposed member mounted on one of said supports;

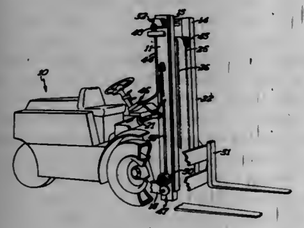


(2) a laterally disposed connector mounted on the other of said supports and slidably positioned for lateral movement within said hollow member said connector having at least two drum size indicia thereon;

(3) means for releasing locking said member and said connector together in selected lateral positions; and

(b) means associated with said laterally adjustable means for indicating the size of the drum to be carried by said drum gripping means.

3,319,816
TILT AND HOIST CONTROL MECHANISM FOR A LIFT TRUCK
John C. Christenson, Battle Creek, Mich., assignor to Clark Equipment Company, a corporation of Michigan
Filed Mar. 15, 1965, Ser. No. 439,885
12 Claims. (Cl. 214—673)



1. Apparatus for use with a mobile fork lift having upright members guiding a fork assembly in substantially vertical and rotational movement, the rotational movement being about an axis transverse to the upright members and to the direction of movement of the fork lift, the axis being adjacent the lowermost portion of the upright members, said apparatus comprising:

(a) first transducer means connected to the upright members and the fork lift for sensing rotational movement therebetween and producing an output impedance change representative of the rotation sensed;

(b) second transducer means connected to the fork assembly and the fork lift for sensing substantially vertical movement therebetween and producing an output impedance change representative of the movement sensed;

(c) first bridge circuit means having a plurality of controllable impedances and said first transducer means connected therein, said transducer means impedance varying between balancing and unbalancing said first bridge circuit means to produce output signals representative of the unbalance of said first bridge circuit means;

(d) second bridge circuit means having a plurality of controllable impedances and said second transducer means connected therein, said transducer means impedance varying between balancing and unbalancing said second bridge circuit means to produce output signals representative of the unbalance of said second bridge circuit means;

(e) power means for driving the fork lift upright members and fork assembly in substantially vertical and rotational movement;

(f) first control means connected to said first bridge circuit means and said power means, said power means being controlled by said first bridge circuit means output signals to provide a rotational movement of the fork assembly as long as said first transducer means causes said first bridge circuit means to be unbalanced;

(g) and second control means connected to said second bridge circuit means and said power means, said power means being controlled by said second bridge circuit means output signals to produce a substantially vertical movement of the fork assembly as long as said second transducer means causes said second bridge circuit means to be unbalanced.

3,319,817
SELF-PROPELLED LOADER
James L. Juhl and Lyle H. Tufty, Hudson, Iowa, assignors to Universal Manufacturing Company, Hudson, Iowa, a corporation of Iowa
Filed July 1, 1965, Ser. No. 468,684
16 Claims. (Cl. 214,778)



1. In a loader device,

a frame means having opposite sides and rearward and forward ends,

a first pair of wheels on one side of said frame means,

a second pair of wheels on the opposite side of said frame means,

a first power means for rotating at least one of the wheels of said first pair of wheels in a forwardly or rearwardly direction at times and for rotating at least one of the wheels of said second pair of wheels in a forwardly or rearwardly direction at times,

a lifting means including second and third power means,

a first control means operatively secured to said first power means to control the direction of rotation of at least one of the wheels of said first pair of wheels and to control the operation of said second power means, said first control means including a first control lever operatively pivotally secured to said frame means and being movable rearwardly and forwardly with respect to said frame means and being operatively connected to said first power means, said first control means also including a first handle member pivotally secured to said first control lever and being movable transversely with respect thereto, said first handle member being operatively connected to said second power means to control the operation of said second power means,

a second control means operatively secured to said first power means to control the direction of rotation of at least one of the wheels of said second pair of wheels and to control the operation of said third power means, said second control means including a second control lever operatively pivotally secured to said frame means and being movable rearwardly and forwardly with respect to said frame means and being operatively connected to said first power means, said second control means also including a second handle member pivotally secured to said second control lever and being movable transversely with respect thereto, said second handle member being operatively connected to said third power means to control the operation of said third power means.

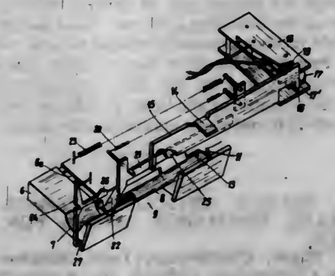
3,319,818
MANUFACTURE OF CATHODE RAY TUBES FOR COLOR TELEVISION
William H. Hudson, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y., a corporation of New York
Filed May 8, 1962, Ser. No. 193,286
6 Claims. (Cl. 220—2.1)



1. The method of forming a cathode ray tube for color television reception which comprises the steps of providing a glass funnel component and a glass face plate component, said components having generally complementary annular seal edges, sealing together said funnel component and said face plate component by applying heat to said edges to soften said edges and bringing said edges into contact to produce a fusion seal therebetween to form a single hollow glass envelope, separating said envelope to form a funnel portion and a face plate portion, said portions having complementary annular second seal edges, mounting a color-producing component in at least one of said portions, interposing between said second seal edges a sealing agent having a softening temperature lower than that of said edges, heating said sealing agent to its softening temperature, bringing said second seal edges together, and cooling said sealing agent to seal together said funnel portion and said face plate portion.

3,319,819
CIGARETTE DISPENSER AND LIGHTER
Rudolf A. W. Naujoks, Im Metzenacker, Baden-Baden, Josef Held, Ebersteinburg, near Baden-Baden, Franz Josef Prinzbach, Haslach, Kinzigtal, and Erich Rudolf Gantner, Baden-Baden, Germany; said Held, Prinzbach, and Gantner assignors to said Naujoks
Filed Dec. 17, 1964, Ser. No. 418,964
Claims priority, application Germany, Dec. 20, 1963, N 24,187
12 Claims. (Cl. 221—15)

1. A cigarette dispenser comprising a housing, a storage chamber therein for storing a plurality of cigarettes, a dispensing tray slidably mounted beneath the chamber for receiving unlighted ciagrettes therefrom, releasable means engaging said tray for locking it beneath the chamber, lighter means at one end of the tray for lighting a cigarette, manually controlled means for engaging a cigarette on the tray for shifting the cigarette along the tray to a position adjacent the lighter means and for maintaining the cigarette adjacent the lighter means, timer means actuated by the manually controlled means for releasing said locking means at a predetermined time for movement of said tray from the position under the storage chamber to a position remote therefrom whereby to allow removal of a lighted cigarette, and means engaging said tray for so moving it.



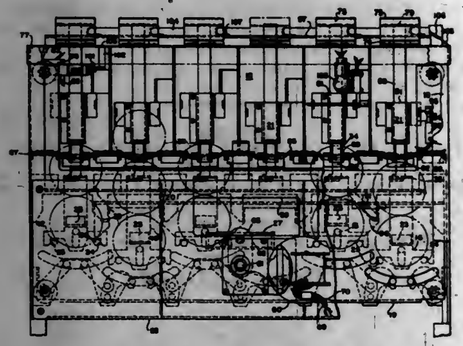
3,319,820
CELLULAR MAGAZINE TYPE CARD-VENDING MACHINES
Shigeharu Matsuda and Shozo Okawa, Tokyo, Japan, assignors to Hitachi, Ltd., Tokyo, Japan
Filed Aug. 17, 1965, Ser. No. 480,369
Claims priority, application Japan, Jan. 27, 1965, 40/4,000
2 Claims. (Cl. 221—25)



1. A vending machine for the sale of cards or like articles arranged in a ribbon-like string of envelopes, each having at least one article sealed therein and consecutively interconnected by transverse weakened lines such as perforations for severance, comprising: a casing having a sales aperture; card storage means for accommodating said string of envelopes in a manner that said string can be pulled at one of its ends out of said card storage means; a first and a second pair of delivering rollers arranged between said card storage means and said sales aperture; drive means including an electric motor for simultaneously driving said pairs of delivery rollers; guide means for directing said string of envelopes successively through said first and second pairs of delivery rollers; electric control mean for controlling said drive means including a coin closed switch; said drive means driving said second pair of delivery rollers at a peripheral speed higher than that of said first pair of delivery rollers to apply an appropriate tension to the portion of said string of envelopes that lies between said pairs of delivery rollers and includes the foremost one of said transverse weakened lines for severing the foremost one of the envelopes lying ahead of the foremost line to be delivered exteriorly of the machine; coin receiving means for retaining a coin in

switch closing position until actuated; said electrical control means including delivery detecting switch means having actuator means arranged in the vicinity of the inlet to said second pair of delivery rollers for completing a motor circuit through said coin closed switch positioned for engagement by said string of envelopes passing through said second pair of delivery rollers and for establishing, when the foremost envelope has passed out of engagement therewith through the second pair of delivery rollers, another motor circuit not including said coin closed switch to actuate said coin receiving means to release the coin while continuously energizing the drive means motor, said actuator means being engaged by the next succeeding envelope reaching the vicinity of the inlet to said second pair of delivery rollers to open said another motor circuit.

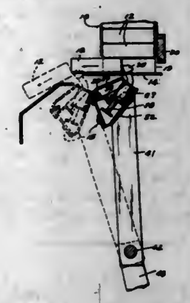
3,319,821
PLURAL SOURCE ARTICLE DISPENSER WITH SEPARATE DISCHARGE MEANS FOR EACH SOURCE
Harry R. Payne, Chattanooga, Tenn., assignor to The Seeburg Corporation, Chicago, Ill., a corporation of Delaware
Filed Feb. 7, 1966, Ser. No. 525,470
10 Claims. (Cl. 221—125)



1. A direct select mechanism for a dispenser having a bin for articles in vertical stack, a pair of support rods movably mounted beneath the lowermost article in the bin, a pair of lowering rods beneath the support rods, a lock plate in restraining engagement with the support rods, and motor means for actuating the lowering rods comprising means for moving the lock plate out of restraining engagement with the support rods for movement of the support rods including a lock release arm connected to the lock plate, a push rod, an end on said push rod loosely embracing said arm and holding said arm against gravitational movement, a lock release plate mounted for reciprocating movement, the motor means moving said lock release plate, and a movable selector link engaging said push rod whereby when said selector link is moved said push rod is moved and said lock release arm is freed for gravitational movement and for engagement by said lock release plate and said lock release plate releases the support rods.

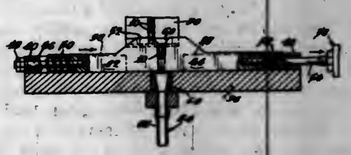
3,319,822
VENDING MACHINE DISCHARGE MEANS
Walter C. Ovsienko, 1530 N. Humboldt, Milwaukee, Wis. 53202
Filed Mar. 10, 1965, Ser. No. 438,623
5 Claims. (Cl. 221—129)

1. In a machine for delivering single articles from a stack for which said machine provides a dispensing compartment having a slotted bottom, said machine further comprising an ejection arm pivoted below said bottom and movable in an article ejecting direction from a normally retracted position, and a finger pivoted to said arm and having an article ejecting head normally at a level below said bottom and gravity biased toward said level and movable about the pivotal connection of the finger with the arm toward a level above said bottom and in an upper position in which it is in registry with the lowermost article of said stack, the slot in the bottom being adapted to receive said finger for movement of said head as it impels said article from said stack, means for oscillating the arm, and means for momentarily pivoting said finger upwardly with respect to said arm and toward said position;



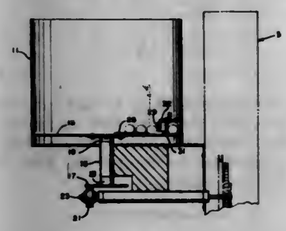
the improvement which consists in a magnet mounted on said compartment and for which said head provides an armature, the magnet being at a level to attract said head toward said upper position of registry with the article and to hold it in said position following the momentary pivoting of the finger toward said upper position, whereby to assist in completing the pivoting of said finger toward said upper position, the movement of said arm in an article ejecting direction thereupon causing the finger to move through the slot to engage and eject said article from said stack and to pull the armature from said magnet.

3,319,823
ORIENTATION OF TAPERED ELEMENTS
William O. Shineflug, Elmhurst, Ill., assignor to Chicago Rivet & Machine Co., Bellwood, Ill., a corporation of Illinois
Filed Nov. 17, 1965, Ser. No. 508,275
5 Claims. (Cl. 221—171)



1. Apparatus for orienting and conveying tapered plugs or the like comprising, in combination, a pair of first and second slide members disposed in end-to-end relation and slidable along a common path, said members being slidable into and out of engagement with one another and defining a plug-receiving recess adjacent the juncture thereof when engaged with one another, first delivery means disposed generally above said slide members for delivering randomly oriented plugs one at a time to said recess when said slide members are in a plug-receiving position, second delivery means disposed beneath said slide members and offset along the length of said path from said first delivery means for receiving a plug released small end first by said slide members, said first slide member having a blocking portion thereon for blocking said first delivery means when said first slide is moved in overlying relation thereto, and actuating means for (1) moving said slide members into a plug-receiving position with said slides in engagement with one another and said recess disposed in alignment with said first delivery means so as to receive a plug therefrom, (2) moving said engaged slide members along said path so as to align said recess with said second delivery means while moving said first slide member into blocking relation with said first delivery means, and (3) separating said slide members at a controlled rate of speed so as to release said plug small end first into said second delivery means.

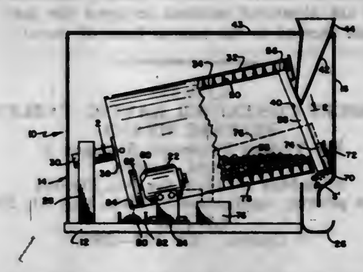
3,319,824
BALL FEEDING DEVICE
James G. Haworth, 100 Green Lane, Eugene, Oreg. 97402
Filed Oct. 11, 1965, Ser. No. 494,979
2 Claims. (Cl. 221—184)



1. A feeding device for a ball throwing machine or the like comprising in combination:
(a) a cylindrical, vertical hopper,
(b) a disk forming the bottom of said hopper, said disk being mounted for rotation therein,
(c) means for rotating said disk,
(d) a ball break-up bar on said disk, said break-up bar forming a slight angle to a radius of the disk and tending to propel balls outwardly,
(e) a ball deflector bar on said disk, said deflector bar making a greater angle to a radius than said break-up bar, and
(f) a chute leading from said hopper and substantially forming a tangent thereto,
(g) a deflector adjacent the end of said chute extending outwardly over said disk and having sufficient clearance with said disk so said bars can pass thereunder, and
(h) a deflector cover covering the space above the deflector whereby balls cannot enter from the top of said deflector.

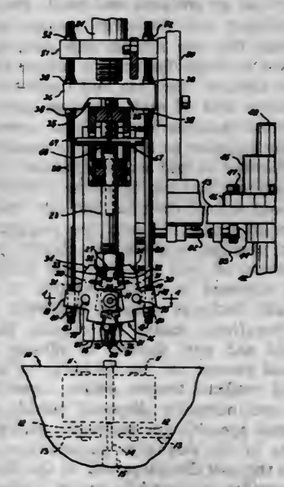
3,319,825
DEVICE FOR DISPENSING LUMP SUGAR
Benelli Dondi Dore, Bologna, Italy, assignor to Carlo E. Valente, Milan, Italy
Filed Mar. 14, 1966, Ser. No. 533,990
5 Claims. (Cl. 221—186)

1. A lump-sugar dispensing machine comprising, a cabinet having a coin slot and coin operated actuating means, a motor connected to be actuated by said means, a pair of concentric drums having opposite aligned ends journalled for rotation in the interior of the cabinet on a canted axis disposing one end of the drums vertically displaced above the opposite end thereof, said motor connected to rotate said drums concurrently, said opposite end of the drums being closed and said one end of the drums being open, the outer circumference of the inner drum being spaced from the inner circumference of the other drum, helical feed means in said space extending between said ends of the drum, said inner drum having access openings in the circumferential wall thereof communicating with said worm feed means, a chute secured



diametrically across said open end in communication with said feed means for receiving lump sugar therein when said chute is vertically oriented, and a receiving tray aligned with said chute accessible from exterior of the cabinet.

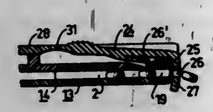
3,319,826
WORKPIECE TRANSFER DEVICE WITH WORKPIECE HEAD GRIPPING JAWS
James J. Gallagher, Chalfont, Pa., assignor to Standard Pressed Steel Co., Jenkintown, Pa., a corporation of Pennsylvania
Filed Sept. 14, 1965, Ser. No. 487,205
8 Claims. (Cl. 221—210)



1. Apparatus for transferring elongated workpieces comprising a pair of workpiece engaging jaws having gripping surfaces facing each other, pivot means mounting said jaws for movement of said gripping surfaces towards and away from each other, drive means for reciprocating said jaws between first and second limits of travel, a camming block having a recess adjacent said first limit of travel, a camming surface on each of said jaws, said jaw camming surfaces being oriented to be engaged by the sides of the recess to open said jaws to receive a workpiece upon movement of the jaws to the first limit of travel, a pair of guide rods mounted on opposite sides of and extending parallel to the plane of movement of the jaws, said jaws each having a guide recess within which one of said guide rods is adapted

to fit, said guide recesses being shaped to allow for pivotal movement of the jaws between the open and closed position, abutment members mounted on said guide rods adjacent said second limit of jaw travel, and abutment surfaces on said jaws spaced from said pivotal mounting means, said abutment members being positioned in the path of aid abutment surfaces to open the jaws upon movement thereof to the second limit of travel.

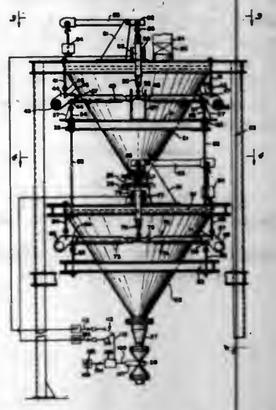
3,319,827
TABLET CONTAINER HAVING TABLET RELEASE MEANS
Per Torsten Englesson, Sjovagen 3, Danderyd, Sweden
Filed May 28, 1964, Ser. No. 371,056
Claims priority, application Sweden, May 31, 1963, 6,061/63
9 Claims. (Cl. 221—299)



1. A compact container for receiving small articles such as pills or tablets and operable for dispensing the articles one at a time, said container comprising walls defining a closed supply chamber for receiving the articles in random order in three dimensions, said walls also defining a discharge passage at one end of the container having a discharge end opening to the outside of the container and an entrance end inside the container, said walls confining said discharge passage to a width and height such that the articles can pass therealong in a single layer in single file only, a second chamber in said container adjacent said one end thereof and into which said entrance end of said discharge passage opens and which second chamber has restricted communication with said supply chamber so that articles transferred from said supply chamber to said second chamber will normally be in small amount and can distribute themselves in a single layer in said second chamber and can then readily move therefrom in single file into the entrance end of said discharge passage, a discharge control member moveably mounted on said container and having an end part normally disposed in closing relation to said discharge end of said discharge passage to prevent discharging of articles therefrom, means for moving said member to cause said end part thereof to release said discharge end of said passage for the discharge of an article therefrom, and resilient tongue means depending from said member and normally disposed outside said discharge passage and operable for resiliently clampingly engaging the article in the discharge passage next to the article therein at the said discharge end of the discharge passage as said member is moved to article discharging position.

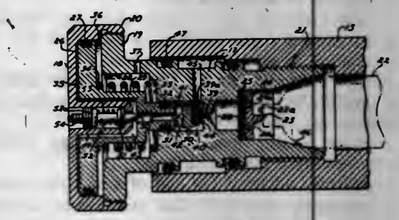
3,319,828
WEIGHT RATE CONTROL
Milton Maxwell, Newark, N.J., assignor to Colgate-Palmolive Company, New York, N.Y., a corporation of Delaware
Filed Oct. 28, 1964, Ser. No. 406,997
19 Claims. (Cl. 222—1)

1. A method of metering the rate of flow of a fluent material comprising passing said material through two receptacles connected in series, one of said receptacles containing a continuously changing weight of said material, and the other of said receptacles having said material discharged into it periodically, continuously weighing the contents of said one of said receptacles to produce a measured signal corresponding to the rate of change of weight, continuously weighing the combined contents of said receptacles when said other receptacle is not receiving material but while said one receptacle continues to change in weight so as to produce a measured signal of



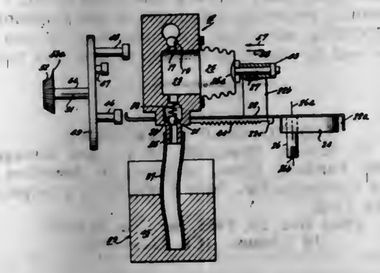
equivalent value corresponding to said rate of change of weight, successively comparing said measured signals to a predetermined command signal, and applying the resultant of said comparison to control the flow rate of said material at said one receptacle.

3,319,829
ENCAPSULATED PRESSURE REGULATOR FOR LIQUID DISPENSER
Adam J. Sentz, Strongsville, Ohio, assignor to The Barth Corporation, Cleveland, Ohio, a corporation of Ohio
Filed Feb. 24, 1966, Ser. No. 529,737
12 Claims. (Cl. 222—5)



1. A pressure regulator adapted for quick assembly and disassembly with an embracing housing comprising a generally cylindrical body having a threaded connection at its inner end for assembly in a housing and a manipulating knob at its outer end by which the body may be rotated about its axis, a cartridge piercer extended from the inner end of said body in position to pierce a pressurized cartridge by manipulation of said threaded connection by means of said knob, pressure regulating means in said body between said two ends, there being an inlet opening for entry of high pressure gas into said body from a pierced cartridge and communicating with said pressure regulator means, there being an outlet opening for discharge of low pressure gas out of said body and communicating with said pressure regulating means, and there being a low pressure gas chamber between said body and said housing and in communication with said outlet opening when said body is assembled in said housing, whereby said body and pressure regulating means may be quickly rendered operative by insertion into an embracing housing.

3,319,830
LIQUID DISPENSER
Wallace W. Ward, 28 Long Hill Lane, Chatham Township, Chatham, N.J. 07928
Filed Apr. 12, 1965, Ser. No. 447,172
13 Claims. (Cl. 222—20)



1. Liquid dispensing means for use in automatic vending machines and the like comprising first housing means having an elongated opening for passage of a first liquid therethrough to the outlet end; said first means having a second passageway aligned transverse to and communicating with said first opening; said passageway comprising a first chamber positioned beneath said elongated opening; first valve means connecting said first chamber to said elongated opening; and second valve means connecting said first chamber to a second liquid source containing a liquid different from that contained in the first liquid source; reciprocally movable bellows means sealing said first chamber; second means for operating said bellows means through at least one operating cycle; said cycle being comprised of expansion of said bellows means followed by contraction of said bellows means; said first valve means being normally closed during contraction of said bellows means and including means for opening said first valve means upon expansion of said bellows means; said second valve means being normally closed during expansion of said bellows means and including means for opening said second means during contraction of said bellows means to introduce the liquid from said second liquid source into said elongated opening; said first valve means being positioned partially within said elongated opening so as to be cleansed by the fluid from said first liquid source during each dispensing operation.

3,319,831
REMOTELY OPERATED DIAPHRAGM VALVE AND SYSTEM
Donelson B. Horton, Madison, Ala., assignor to John Blue Company, Incorporated, Huntsville, Ala., a corporation of Alabama
Filed Aug. 20, 1965, Ser. No. 481,286
1 Claim. (Cl. 222—52)

A dispensing system for dispensing highly volatile liquid from a supply tank comprising:

liquid conduit means for conveying liquid from said tank to a liquid dispenser,

a valve control unit having a dispensing valve for opening and closing said liquid conduit, and including a fluid-controlled diaphragm for actuating said dispensing valve,

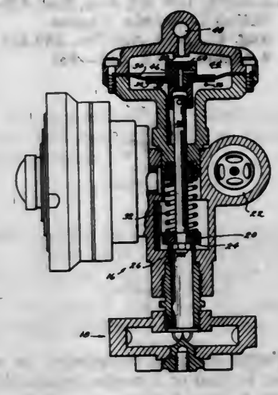
a first vapor conduit leading from a vapor section of said supply tank and into a first chamber adjoining a first surface of said diaphragm in said unit for supplying fluid to said first chamber to actuate said dispensing valve to an open position,

a by-pass conduit connecting said first chamber with a second chamber within said unit, said second chamber adjoining a surface of said diaphragm which is opposed to said first surface of the diaphragm,

a second vapor conduit leading from said second chamber for bleeding vapor from said second chamber,

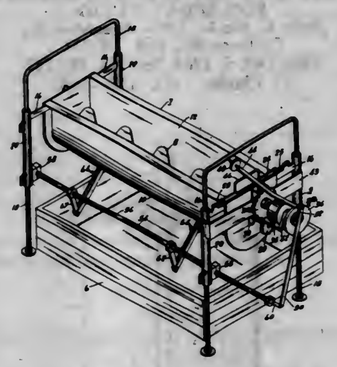
a secondary valve means carried by said diaphragm for opening and closing said second chamber relative to said second vapor conduit, and

separate valve means included in said second vapor conduit for stopping and starting the flow of vapor from said second chamber, said separate valve means being actuated separately from said valve



control unit so that a closing of said second vapor conduit by the separate valve means results in a delayed increase of pressure in said second chamber for delaying a closing of the dispensing valve, while providing a quick release of pressure in the second chamber when the separate valve is opened, and whereby said dispensing valve may be regulated by pressure differential changes on opposed surfaces of said diaphragm.

3,319,832
AUTOMATIC FEEDER GATE OPERATOR
George D. Prentice, Milwaukee, Wis., assignor to A. F. Klinzing Co., Inc., Milwaukee, Wis., a corporation of Wisconsin
Filed Sept. 10, 1965, Ser. No. 486,305
5 Claims. (Cl. 222—52)



5. A feed distributing device comprising, an elongated trough having a side opening for distributing feed therefrom, a gate for opening and closing the side opening of said trough, means for conveying feed along said trough, means for actuating said gate to selectively open and close the same in response to feed accumulation and pressure build-up at one end of said trough, said gate actuating means including a clutch having an input and output

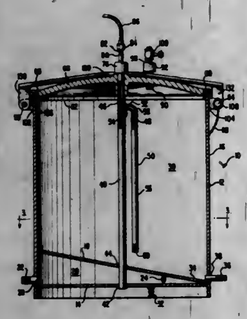
shaft, a cam carried by the output shaft of said clutch, gate operating mechanism also operably connected to the output shaft of said clutch, and means responsive to pressure build-up in the trough for engaging said clutch and responsive to cam operation for permitting disengagement of said clutch.

3,319,833
TOOTHBRUSH AND DENTIFRICE HOLDER
George A. Church, 130 3rd Ave., Port Alberni, British Columbia, Canada
Filed Aug. 11, 1964, Ser. No. 389,241
4 Claims. (Cl. 222—93)



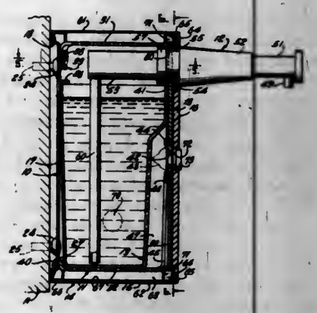
1. A prophylactic compact comprising, an elongated unitary container formed of a resilient material having a first substantially L-shaped compartment shaped to receive a toothbrush and open at one end, and a second elongated compartment for a dentifrice, the latter extending adjacent a leg of the first compartment and having a nozzle at its end opposite the open end of said first compartment and being closed at its other end, both compartments having a common wall, said common wall being thicker than the opposite wall of the dentifrice compartment, said dentifrice compartment tapering towards its closed end whereby said opposite wall of the latter may be collapsed progressively from said closed end of the dentifrice compartment thereof towards the nozzle end whereby substantially all of the dentifrice may be ejected therefrom and closure means detachably securable to the open end of each of the compartments.

3,319,834
SPRAY TANK WITH HEATING MEANS FOR SPRAY FLUID
Irvin E. Steele, 1004 Houghton St., Connersville, Ind. 47331
Filed Oct. 5, 1965, Ser. No. 493,167
12 Claims. (Cl. 222—146)



1. A container comprising a tank having a body portion including a slanted bottom, a top for said tank body, a fluid outlet coupling in said tank body adjacent the lowermost portion of said slanted bottom, said tank top having an aperture therein, a clamping rod secured at one end to said tank bottom and passing outwardly of said tank through said aperture in said tank top, said clamping rod having a fluid passageway in its other end, means coupled to said clamping rod for directing incoming fluid from said passageway onto said tank bottom adjacent said fluid outlet coupling, and a cap having a fluid inlet coupling removably attachable to said clamping rod for establishing inlet fluid communication to said passageway and for clamping said top to said tank body.

3,319,835
LIQUID SOAP DISPENSERS
Robert H. Ensign, Bronxville, N.Y., and George H. Woods, Fairfield, Conn., assignors to American Dispenser Company, Inc., New York, N.Y., a corporation of New York
Filed Dec. 23, 1965, Ser. No. 515,956
10 Claims. (Cl. 222—180)

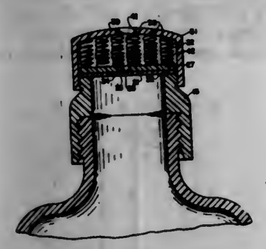


1. A liquid soap dispenser comprising a mounting plate having means for attachment to a wall, a mounting bracket in the form of a U-shaped strap secured to said mounting plate and having an upstanding front wall section spaced from said mounting plate and upper and lower arms extending rearwardly to said mounting plate and connected thereto, a soap dispenser valve secured to the front wall section of said bracket and having a reciprocable plunger extending transverse to said mounting plate, whereby the dispensing manipulating forces on said valve are transmitted to said mounting plate through said arms, a soap tank supported on said lower arm between said mounting plate and said front wall bracket section, a housing enclosing substantially the entire tank and said bracket and having a front wall with a hole through which said valve extends, and means removably securing said housing in position.

3,319,836
SPILL-PROOF BOTTLE CLOSURE
Robert Bruce Cubitt, Bound Brook, N.J., assignor to Colgate-Palmolive Company, New York, N.Y., a corporation of Delaware
Filed Mar. 14, 1966, Ser. No. 534,065
10 Claims. (Cl. 222—207)

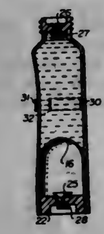
1. In a dispenser assembly, a flexible container having an opening in a wall thereof, a relatively rigid member extending across said opening and formed with a through port, means mounting a unidirectional flow valve at the underside of said member for preventing flow of the container contents through said port when the container is upended or flexed while permitting the entrance of air through said port into the container when the container is relaxed after flexing, a cap affixed to said container over said opening and having a dispensing aperture, means

mounting said rigid member within said cap for displacement with respect to said container opening, said member being movable within the cap with respect to both said cap and said container, and resilient means extending between said member and the interior of said cap for



biasing said member toward said container opening for providing a liquid tight closure over said opening, so that when said container is flexed internal pressure is developed that is effective to displace said member sufficiently with respect to said container to permit flow of the contents of the container through said opening into said cap.

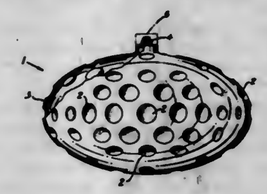
3,319,837
DISPENSING DEVICE
John J. Mueller, Richmond Heights, Ohio, assignor to Air-Ject Corporation
Filed Jan. 27, 1965, Ser. No. 428,363
18 Claims. (Cl. 222—212)



16. A liquid spray dispenser comprising a flexible, resilient outer container having two internal chambers; a nozzle; a passageway from each chamber to said nozzle; a check valve in one of said passageways constructed and arranged to permit flow only from within the associated chamber to the nozzle; an air inlet into the chamber associated with the passageway having the check valve; a check valve cooperating with said air inlet constructed and arranged to permit flow only from outside the chamber to within; and an expansible and inflatable bladder within the chamber associated with the air inlet, fixed to one internal surface thereof, isolating the air inlet from the passageway of the chamber to the nozzle.

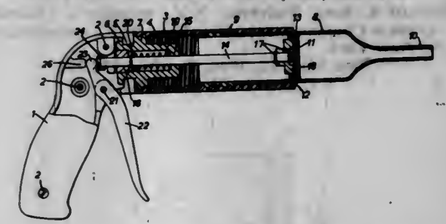
3,319,838
DISPOSABLE LIQUID SOAP PACKAGE
Samuel Heagan Bayles, Sands Light, Sands Point, N.Y. 11050, and Samuel Milton Peck, 33 E. 70th St., New York, N.Y. 10021
Filed Mar. 22, 1966, Ser. No. 536,420
1 Claim. (Cl. 222—215)

A disposable container for the packaging and dispensing of liquid soap comprising a disposable, flexible dispensing container having outlet means through which a quantity of liquid soap may be dispensed therefrom, the surface of the container being of a configuration to provide over substantially the entire external surface area of the container a multiplicity of discrete depressed areas which, upon the application of pressure to the external surface of the container serving to press the container



against a resisting surface, will cause depressed areas in contact with said resisting surface to function as suction cups adhering thereto.

3,319,839
DISPENSING DEVICE FOR LIQUID AND SEMI-LIQUID SUBSTANCES
Patrick Clement Cox, "The Pippins," Brimpton, Reading, England
Filed July 8, 1965, Ser. No. 470,454
Claims priority, application Great Britain, July 15, 1964, 29,134/64
1 Claim. (Cl. 222—327)

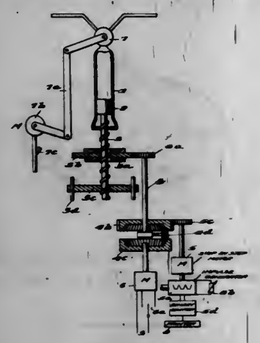


Apparatus for dosing animals with liquid or semi-liquid substances including a cartridge in the form of a cylinder for the substances to be dispensed having a discharge passage at one end and an externally screw-threaded portion at its other end, a free piston arranged to slide within the cylinder to eject the substance through the discharge passage, the base diameter of said screw-threaded part being not less than the external diameter of the remaining part of said cylinder, a supporting structure in the form of a gun having an internally screw-threaded barrel portion engaging said screw-threaded portion on the cylinder whereby rotation of the cylinder relatively to the barrel portion causes axial movement of said cylinder relative to said barrel, an actuating member on said supporting structure and having predetermined movement axially of the cylinder independently of but capable of acting on said free piston, and an operating member arranged to impart said predetermined axial movement to said actuating member, and a trigger-like member arranged to operate the actuating member.

3,319,840
BURETTE, ESPECIALLY FOR DISPENSING SMALL VOLUMES
Friedrich Oehme and Hans-Joachim Wolf, Bassersdorf, Switzerland, assignors to Polymetron AG, Zurich, Switzerland, a corporation of Switzerland
Filed Mar. 15, 1965, Ser. No. 439,583
Claims priority, application Switzerland, Mar. 16, 1964, 3,500/64
2 Claims. (Cl. 222—333)

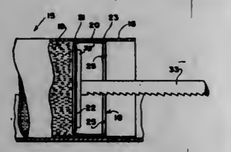
1. A burette comprising a cylinder, a piston movable in said cylinder, a step-by-step electric motor, a continuous

electric motor, differential mechanism operatively connecting both said motors to the piston for moving the



same, and an impulse generator connected to the step-by-step motor for feeding operating impulses thereto.

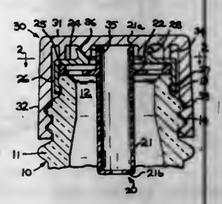
3,319,841
LEAK-PROOF CARTRIDGES HOUSING CEMENTS, CAULKING COMPOUNDS OR THE LIKE
Howard A. Berg, Malverne, N.Y., assignor to Columbia Cement Company, Inc., Brooklyn, N.Y., a corporation of New York
Filed Mar. 21, 1966, Ser. No. 535,792
5 Claims. (Cl. 222—386.5)



1. In a cartridge of the character described, a cardboard tube housing a viscous mass to be ejected therefrom; said tube terminating in a discharge nozzle at one end, and a cup positioned within said tube, with its mouth facing and spaced from the other end of said tube; said cup serving as a plunger in said tube, adapted for movement therein for ejecting said mass through said nozzle; the peripheral wall of said cup having a plurality of prongs struck therefrom so the mouth rim of said cup is ruptured at each prong, thereby forming two teeth at each prong in said mouth rim, one tooth aside each side edge of the prong; said prongs extending away from said nozzle; said prongs and teeth being bent outwardly and engaging said tube.

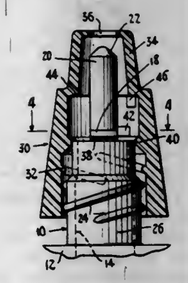
3,319,842
ANTI-SPLASH LIQUID POUROUT FITMENT AND CLOSURE THEREFOR
Ira H. Miller, Lambertville, Mich., assignor to Owens-Illinois, Inc., a corporation of Ohio
Filed Oct. 23, 1965, Ser. No. 503,718
3 Claims. (Cl. 222—479)

1. A liquid pour-out fitment and removable screw closure in combination with a bottle, the latter having an exteriorly threaded neck portion for selectively applying the closure thereto, said neck having a rim defining an opening for the bottle and defining an annular snap-on flange intermediate the rim and its said threads, the pour-out fitment comprising a disc element adapted to engage the rim surface of said neck, an integral axial hollow tube concentrically located on the disc, said tube having an open outer end and its opposite inner end defining a coaxially disposed air vent opening of lesser size than said open outer end, a plurality of slots located intermediate the tube and the neck rim in the disc, said slots being circumferentially distributed on said disc and providing access for pouring a liquid from the interior of the bottle through the neck opening, an elastomeric retaining baffle



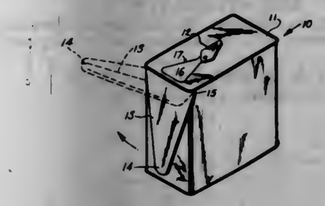
member having a peripheral skirt and a top panel spaced from the top surface of said disc and defining a central pour-out aperture concentrically located about the tube and larger than said tube, the top panel having an outwardly flared, upstanding portion, the slots of the disc and said pour-out aperture being connected into said space between the disc and the top panel, the skirt having an internal annular bead adapted to snap-on below the snap-on flange of the neck, thereby fastening the pour-out fitment in sealing engagement on the rim of the bottle.

3,319,843
CAPTIVE CLOSURE CAP CONSTRUCTION
Morton B. Stull, Boonton, N.J. (% Stull Engraving Co., 221–223 Banta Ave., Garfield, N.J. 07026)
Filed Dec. 6, 1965, Ser. No. 511,593
8 Claims. (Cl. 222—499)



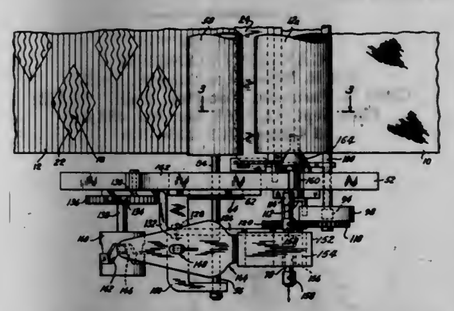
1. A twist-to-open closure comprising, in combination:
(a) a body member having means for securing the same to the mouth of a container,
(b) said body member including a tubular discharge portion provided with external screw threads,
(c) a closure member carried by said tubular discharge portion and having internal screw threads cooperable with said external threads to enable the closure member when being unscrewed to axially move in an opening direction away from the body member,
(d) cooperable detent means on the closure and body members, limiting said axial opening movement to a predetermined relative position, and
(e) cooperable shoulders on said closure and body members, periodically engaging and forcing past each other when the closure member is continually turned in unscrewing direction, thereby to provide an indication of the open condition of the closure.

3,319,844
GAS CAN WITH TEAR TAB CLOSURE FOR, AND MOVABLE DISCHARGE GUIDE ASSOCIATED WITH, ITS DISPENSING OPENING
Dick Dombro, 270 Duxbury, Port Charlotte, Fla. 33950; Robert L. Hill, Jr., 555 4th Ave., and Lorraine P. Hogan, 1132 Diana Ave., both of Naples, Fla. 33940
Filed Apr. 5, 1965, Ser. No. 445,390
6 Claims. (Cl. 222—529)



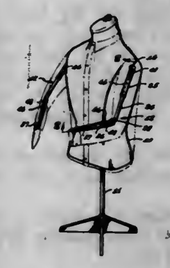
1. An emergency gasoline or liquid petroleum product container comprising a pressure sealed container of any suitable material having a flat top closing one end thereof, a discharge opening in said flat top, a pull tab particularly adapted to cover and close said discharge opening forming a part of said flat top; said tearable pull tab portion being separable by tearing from said flat top in a manner to uncover and open said discharge opening to permit pouring of the gasoline or liquid petroleum product from the container through said discharge opening, a separate trough-like funnel element flexibly fixed at one of its ends to the upper outer edge of the flat top container closure; said trough-like funnel element arranged parallel to one vertical side of the container and normally in close proximity to said vertical side; said funnel element adapted to be flexed outwardly away from the side of the container along the upper outer edge at which it is flexibly fixed to the flat top closure to a position of projection in operative alignment with the discharge opening in the container.

3,319,845
PLEATING APPARATUS
Mack Liebeskind, 65 Sutton Place, Lawrence, N.Y. 11559
Filed July 28, 1964, Ser. No. 385,697
4 Claims. (Cl. 223—30)



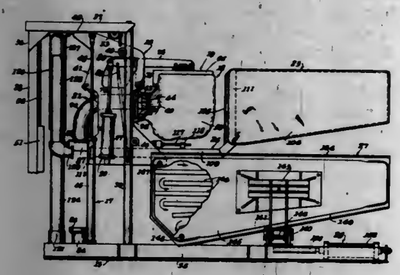
1. A pleating apparatus for simultaneously forming a fancy and plain pleat pattern in a fabric comprising opposing rollers and drive means therefor for intermittently advancing said fabric in a forward direction, pleating means in engagement with said fabric having a prescribed pleating stroke for causing during intervals of intermittent fabric advancement, a body fold in said fabric lying generally transverse to the direction of fabric advance, said pleating means including a pleating knife disposed transversely to the direction of fabric advance and having an undulating contoured fold line forming leading edge thereon for normally producing a corresponding contoured fold line in said fabric during each pleating stroke resulting in the formation of a fancy pleat pattern in said fabric along such a contoured fold line, and a body of paper having cut-out areas therein interposed between said leading edge of the pleating knife and the fabric for permitting the normal formation of a fancy pleat pattern only in those portions of the fabric coextensive with a paper cut-out area and otherwise being itself folded in a substantially straight fold line during each pleating stroke for producing a corresponding straight fold line in the fabric resulting in the formation of a plain pleat pattern in said fabric along such a fold line.

3,319,846
ADJUSTABLE MANNEQUIN ARMS
Morris A. Wolf, 1545 N. Laurel Ave., Los Angeles, Calif. 90046
Filed Jan. 25, 1965, Ser. No. 427,768
4 Claims. (Cl. 223—68)



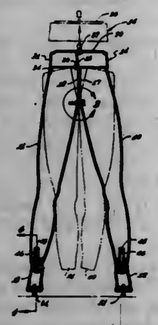
1. In an articulated arm for clothing display mannequins, the combination comprising:
a first pair of telescopically engaged tubes, each of which tubes constitutes a portion only of the distance between an elbow joint and a shoulder joint of said arm, said pair of tubes together comprising the full length of the distance between the shoulder and elbow joints of said mannequin arm;
a latch means for detachably securing said first pair of tubes together;
a ball member connected to a lower end of said pair of tubes;
a second pair of telescopically slidably engaged tubes to simulate a lower arm and having an upper end serving as a socket for said ball member each of said second pair of tubes constituting a portion only of the distance between an elbow joint and a wrist location of said arm, said second pair of tubes together comprising the full length of the distance between the elbow joint and wrist location of said mannequin arm;
a spring biased means interconnected between said ball member and said second pair of tubes for biasing said ball member and socket together;
a second latch means for detachably securing said second pair of members together;
a second ball member adapted to be connected to the shoulder of a mannequin, an upper end of said first pair of tubes serving as a socket for said second ball member; and
a second spring biased means interconnected between said second ball member and said first pair of tubes to bias together said second ball member and said socket of said first pair of tubes.

3,319,847
PANTS-PRESSING MACHINE
Harold V. Hoisve and John L. Strike, Salt Lake City, Utah, assignors to McGraw-Edison Company, Elgin, Ill., a corporation of Delaware
Filed July 6, 1964, Ser. No. 380,471
23 Claims. (Cl. 223—73)



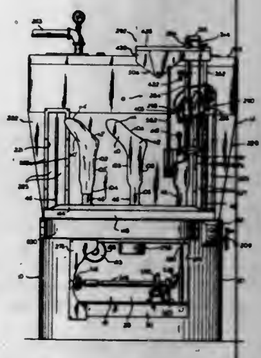
1. A pants-pressing machine comprising:
(a) a pants topper buck,
(b) a single internally heated leg buck provided with a crotch-engaging end,
(c) means mounting the leg buck for longitudinal movement toward and from the pants topper buck,
(d) means to move the leg buck between a position longitudinally separated from the topper buck and an assembled position in which the topper buck is in end engagement with the mentioned end of the leg buck,
(e) means to move the assemblage of bucks from a pants-dressing position to a pants-pressing position, and
(f) press head means in position to engage the buck assemblage in the latter position to press against the opposite sides thereof.

3,319,848
MANIKIN
Morris A. Wolf, 7048 Macapa Drive, Los Angeles, Calif. 90028
Filed July 2, 1965, Ser. No. 469,117
3 Claims. (Cl. 223—72)



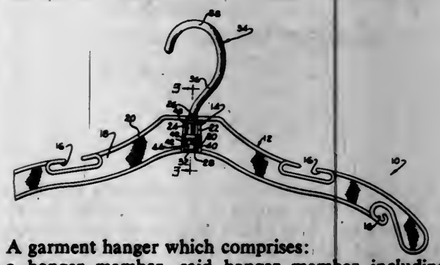
1. In a manikin, the combination comprising:
a pair of legs, each of which is integrally formed with a hip simulating portion;
means interconnecting said pair of legs in sidewardly swingable relationship to one another for changing the angle included between said legs whereby said legs can be moved between approximately parallel and angularly related positions;
said hip simulating portions having confronting portions that abut one another to limit swinging apart of said legs to a predetermined angular relationship;
and a means for releasably interconnecting said pair of legs to hold them in said predetermined angular relationship.

3,319,849
HOSIERY PROCESSING MACHINERY AND APPARATUS
Charles Horberg, Jr., Chicago, Ill., assignor to Paramount Textile Machinery Co., Kankakee, Ill., a corporation of Illinois
Filed Feb. 15, 1963, Ser. No. 258,795
11 Claims. (Cl. 223—76)



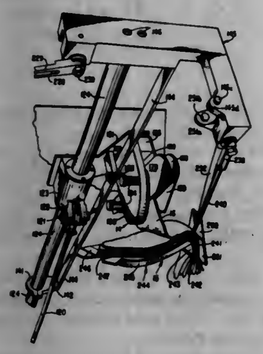
1. Stocking handling apparatus comprising a plurality of stocking receiving forms mounted for bodily movement along a path having a fixed linear portion, means for moving said forms in succession along said path, means mounted for reciprocation along a fixed path intersecting the linear portion of the path of movement of said forms for transferring the stockings from the forms to a location remote from said forms, and means operatively connected to said form moving means and said transferring means for moving said forms and for reciprocating said transferring means in timed relation to said forms to engage a stocking on a moving form while said transferring means is moving away from the point of intersection of said paths to strip a stocking from a form without interrupting the movement of said form along the linear portion of said path.

3,319,850
GARMENT HANGERS
Jack R. Rosen, Los Angeles, Calif.
(2009 N. Parmalee, Compton, Calif. 90222)
Filed Sept. 17, 1965, Ser. No. 488,023
1 Claim. (Cl. 223—92)



A garment hanger which comprises:
a hanger member, said hanger member including a hanger body and centrally located vertically extended conical bearing opening means formed therein, said bearing opening means comprising wall surfaces on said hanger body and upper and lower arcuate bearing ribs, the upper end of said bearing opening means being smaller than the lower end of said bearing opening means, said bearing opening means extending substantially from the bottom to substantially the top of said hanger body, openings formed on said wall surfaces on said hanger body opposite each of said arcuate bearing ribs, said upper and lower arcuate bearing ribs being positioned closer together than the height of said conical bearing opening means so as to leave exposed a portion of at least one of said wall surfaces;
a hook member having a hook on one end thereof and a base attached to the other end of said hook member, said base fitting within said bearing opening means and embraced by one of said bearing ribs and one of said wall surfaces with said hook member extending out of the small end of said bearing opening means above said hanger body, said shank fitting closely within the upper most end of said bearing opening means, said hook member having such curvature with respect to the positioning of said upper and lower arcuate bearing ribs so that said hook can be inserted through said exposed portion of said wall surfaces and passed through said bearing opening means to position said base within said bearing opening means, said base being of circular section and comprising upper and lower spaced flanges, said lower flange being in retentive engagement with said lip on said hanger member and said upper flange being in engagement with one of said wall surfaces and with one of said arcuate bearing ribs so as to permit rotation of said hook member with respect to said hanger member;
said hanger member further including a lip on said hanger body, said lip being positioned adjacent the lower end of one of said wall surfaces and being engaged by said base on said hook member so as to prevent downward motion of said hook member with respect to said hanger member.

3,319,851
METHOD AND APPARATUS FOR HANDLING HOSIERY AND THE LIKE
Charles Horberg, Jr., Chicago, Ill., assignor to Paramount Textile Machinery Co., Kankakee, Ill., a corporation of Illinois
Filed Nov. 26, 1963, Ser. No. 326,127
18 Claims. (Cl. 223—112)



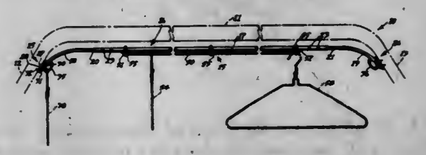
2. Apparatus for handling a hosiery article or the like boarded upon an upstanding form, comprising means for gripping the foot portion of the hosiery article and for stripping the article from the form and carrying said article to a receiving station wherein the major portion of the article hangs downwardly, a platform, means for moving said platform endwise along a predetermined path into displacing engagement with the hanging portion of said hosiery article, and means for actutaing said gripping means to release its grip upon said foot portion of said article during said movement of said platform and after said engagement of said platform with said article, thereby to deposit said article upon said platform.

3,319,852
SLING
Neale A. Perkins, 190 Oak Meadow Road, Sierra Madre, Calif. 91024
Filed Aug. 27, 1965, Ser. No. 483,249
1 Claim. (Cl. 224—1)



An adjustable sling for a rifle having a pair of spaced-apart D rings secured thereto, comprising an elongated flexible strap having first and second ends, the second end having a pair of spaced-apart holes, a body of thistle-cloth hooks secured to a face of the strap adjacent the first end, an elongated body of thistle-cloth pile secured to said face of the strap adjacent the body of thistle-cloth hooks and extending toward the second end, the first end being threaded through one respective D ring and folded back in a loop to be secured by the thistle-cloth hooks to the thistle-cloth pile, a first keeper disposed over the looped first end around the engaged bodies of thistle-cloth hooks and pile, a post screw extending through the holes in the second end to secure the second end in a loop threaded through the other respective D ring, and a second keeper disposed over the looped second end to cover the post screw.

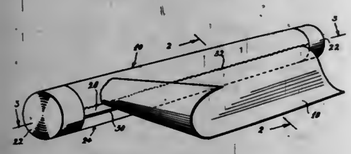
3,319,853
AUTOMOBILE CLOTHES RACK
Tom Virgil Wigington, Rte. 2, College Grove, Tenn. 37046
Filed Oct. 23, 1965, Ser. No. 503,230
6 Claims. (Cl. 224—42.1)



1. A clothes rack for the interior of an automobile having opposite side walls comprising:
(a) an elongated support rod member having opposite ends,
(b) means for securing said opposite ends to said opposite walls to mount said rod member transversely of the interior of said automobile,
(c) an elongated hanger rod shorter than said rod member,
(d) means fixing said elongated hanger rod parallel to and below said rod member,
(e) a plurality of hanger loop members fixed normal to, depending from, and spaced longitudinally of said rod member,

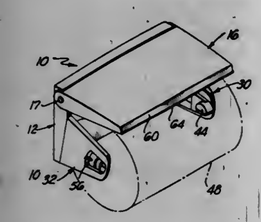
(f) each hanger loop member including a straight transverse bottom rod disposed normal to said rod member and adapted to support clothes hangers transversely of said automobile.

3,319,854
DISPENSING CONTAINER
George L. Palmer, 89-26 155th Ave., Howard Beach, N.Y. 11414
Filed May 14, 1965, Ser. No. 455,749
1 Claim. (Cl. 225—23)



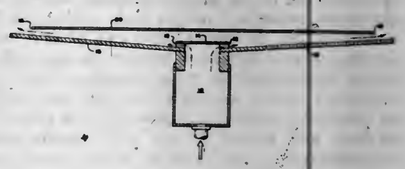
A dispensing container for roll wax paper comprising an elongated hollow cylindrical housing open at both ends, cup-shaped closures for said ends, with each closure having therein means to support a roll of paper, said housing having an elongated slot extending from end to end thereof, an elongated hollow cylindrical cutting device sleeved over the housing, said cutting device having an elongated slot adapted to register with the slot in the housing, the edge of said latter slot being serrated serving as knife edges for tearing off paper projecting from the roll of paper in the housing and extending through the slots when the slots are aligned, said elongated hollow cylindrical cutting device rotatable as a sleeve to close the slot in the housing.

3,319,855
DISPENSER FOR ROLL TOWELING
Council A. Tucker, Glendale, and J. C. Layton, La Habra, Calif., assignors to Towlsaver, Inc., Los Angeles, Calif., a corporation of California
Filed Apr. 27, 1965, Ser. No. 451,201
3 Claims. (Cl. 225—67)



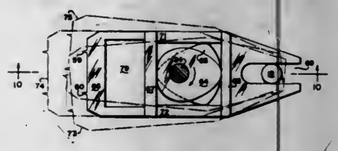
2. In a dispenser for a roll of strip material, the combination of: an elongated mounting plate for securement to a supporting surface; two roll supports, one of said roll supports being hingedly connected to each side extremity of said mounting plate and movable between extended roll holding positions in which said roll supports project angularly away from said mounting plate and folded positions projecting laterally toward each other in parallelism with said mounting plate; a cover hingedly connected to an upper portion of said plate, said cover being disposable in a first position in which it is located in overlying parallel relationship with said plate covering and maintaining said roll supports in said folded positions and in a second position in which it is disposed angularly away from said mounting plate and spaced above said roll supports, said cover having an edge portion engageable with a roll of strip material to retard free rotation thereof when said roll is retained between said roll supports in said roll support extended roll holding positions and said cover is in said second portion, said edge portion having a cutting edge thereupon to facilitate the severance of a selected length of said strip material from said roll; and spring means interposed between said cover and said mounting plate for urging said cover toward said first position.

3,319,856
METHOD AND APPARATUS FOR SUPPORTING MEMBERS
Charles J. Stanley, Walnut Creek, Calif., assignor to Kaiser Aluminum & Chemical Corporation, Oakland, Calif., a corporation of Delaware
Original application Aug. 11, 1961, Ser. No. 130,889, now Patent No. 3,198,499, dated Aug. 3, 1965. Divided and this application Dec. 30, 1964, Ser. No. 432,919
4 Claims. (Cl. 226—7)



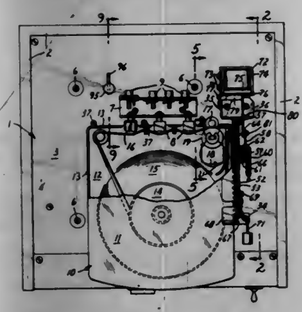
1. A method of supporting members comprising ejecting a gas through an orifice toward the topside of a member to be supported, directing said gas outwardly in opposite paths away from the orifice, progressively confining the paths of flow of said gas in a progressively decreasing flow passageway along the topside of said member so as to provide a restrictive opening for the discharge of gas along at least a portion of the periphery of the member being supported.

3,319,857
SOUND FILM MAGAZINE
Floyd E. White, Jr., Placentia, Calif. (20248 Lantana Drive, Huntington Beach, Calif. 92646)
Filed Aug. 23, 1963, Ser. No. 304,107
4 Claims. (Cl. 226—73)



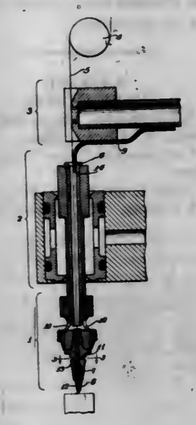
1. A motion picture projector magazine having an integral intermittent assembly comprising:
- a housing having sprocketed motion picture film enclosed therein, said film being adapted to be moved within said housing;
- means defining a projection aperture in a wall of said housing through which images from said film may be projected;
- a stationary guide pivot secured within said housing;
- a single-lobed eccentric cam means rotatably mounted in a first plane within said housing and spaced apart from said guide pivot;
- a multi-lobed cam means rotatably mounted in a second plane which is spaced apart from and parallel to said first plane, the axes of rotation of said single-lobed cam and said multi-lobed cam being coaxial;
- a unitary shuttle movably supported within said housing in proximity to said aperture defining means;
- a guide portion of said shuttle slidably engaging said guide pivot,
- a first cam follower portion of said shuttle in said first plane slidably engaging said single-lobed eccentric cam means whereby a reciprocating motion may be imparted to said shuttle;
- a second cam follower portion of said shuttle located in said second plane slidably engaging said multi-lobed cam means whereby an arcuate side-to-side motion may be imparted to said shuttle about the pivotal axis of said guide pivot; and
- a claw portion on said shuttle for intermittently engaging said sprocketed film in response to the motions of said shuttle and thereby intermittently move said film past said projection aperture.

3,319,858
CARTRIDGE ACTUATED MOVABLE PRESSURE ROLLER FOR MAGNETIC TAPE DRIVING MEANS
Wayne E. Schober, Minneapolis, and Paul J. Nieland, South St. Paul, Minn., assignors to Viking of Minneapolis, Inc., Minneapolis, Minn., a corporation of Minnesota
Filed Aug. 3, 1964, Ser. No. 387,073
7 Claims. (Cl. 226—90)



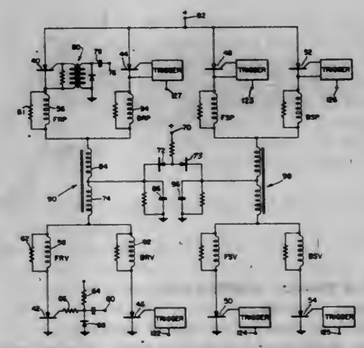
1. In a magnetic tape cartridge handling machine:
- (a) a deck structure having a tape cartridge supporting surface,
- (b) tape driving mechanism comprising a power driven capstan and a cooperating idle pressure roller,
- (c) a rockshaft mounted for rocking movements about an axis that is generally normal to the capstan axis and is radially spaced from the capstan axis,
- (d) means mounting the pressure roller on the rockshaft for arcuate swinging movements about the axis of the rockshaft toward and away from the capstan between an operative tape driving position and an inoperative position, and
- (e) pressure roller control means comprising:
  - (1) a slide mounted below said deck and having an actuator projecting upwardly through an aperture in said deck and disposed in the path of travel of a tape cartridge received on said surface whereby sliding movements of said cartridge impart lineal sliding movements to said slide,
  - (2) a pitman rod connecting said slide to the rockshaft for causing said rocking movement of the rockshaft upon cartridge actuated lineal movement of said slide so as to impart said arcuate swinging movements to the pressure roller, and
  - (3) means for releasably retaining the pressure roller in its said operative position.

3,319,859
CAPILLARY WIRE FEED DEVICE
Charles Fredrick Miller, Anaheim, Calif., assignor to Basic Products Corporation, Milwaukee, Wis.
Filed Mar. 4, 1965, Ser. No. 437,135
5 Claims. (Cl. 226—91)



1. Device for threading wire through a capillary comprising means defining an elongated passage having at least three sections of diminishing cross-section and terminating in a capillary passage through which wire is to be threaded, a source of pressurized gas communicating with said passage for creating a turbulent stream of gas therethrough from the larger end thereof toward the capillary passage, means for exhausting gas from said passage adjacent to the junctures of different sections thereof to maintain constant linear velocity of said gas through said passage as said gas passes from one section of said passage to the next, and means adjacent said capillary passage for exhausting substantially all gas from said passage substantially to obviate passage of gas through said capillary.

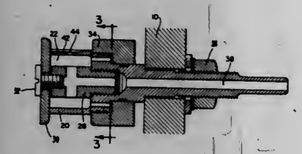
3,319,860
TAPE TRANSPORT SYSTEM
Robert S. Wooldridge, Norristown, Pa., assignor to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Filed Apr. 30, 1965, Ser. No. 452,252
11 Claims. (Cl. 226—95)



1. In combination with first and second circuits each adapted to be in a first or second state of operation, a center tapped transformer having first and second halves,

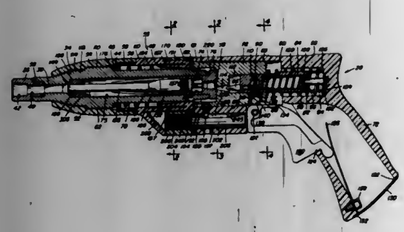
a capacitive network, means for charging said capacitive network through said first half of said transformer when said first circuit is in said first state of operation, means for driving said second circuit to said first state of operation to discharge said capacitive network through said second half of said transformer to induce a signal in said first half of said transformer driving said first circuit to said second state of operation.

3,319,861
TAPE GUIDE
Joseph Molina, Minneapolis, Minn, and Herbert Morello, Utica, and John E. Lopez, Ilion, N.Y., assignors to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Filed June 1, 1965, Ser. No. 460,429
9 Claims. (Cl. 226—199)



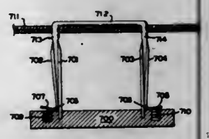
1. A tape guide mechanism comprising a tape receiving cylindrical element for receiving said tape along its flat surface when said tape is moved, an edge guide element for engaging one edge of said tape, said edge guide element being maintained in a fixed relationship with respect to said tape receiving cylindrical element, a movable edge guide element for exerting a force on the other edge of said tape during movement thereof, said movable edge guide element being dimensioned to movably ride over said cylindrical element, and means for pneumatically actuating said movable edge guide element to compensate for variations in the width of said tape during operation whereby said tape is continuously engaged by said edge guide elements during movement thereof.

3,319,862
POWDER ACTUATED TOOL
Roy G. Neighorn, Portland, Oreg., assignor to Omark Industries, Inc., Portland, Oreg, a corporation of Oregon
Original application Aug. 26, 1963, Ser. No. 304,463. Divided and this application Apr. 19, 1966, Ser. No. 543,614
12 Claims. (Cl. 227—10)



1. In a powder actuated tool,
a barrel housing,
a barrel carried by the barrel housing,
means holding the barrel against rotation relative to the barrel housing,
a hinge ring rotatable on the barrel housing between an operative position and a breaking position,
a breech housing,
a breech block carried by the breech housing,
means holding the breech block against rotation relative to the breech housing,
means locking the breech block to the barrel against relative rotation therebetween when the hinge ring is in said operative position, permitting rotation of the breech block relative to the barrel to a released position when the hinge ring is moved to said breaking position, and permitting longitudinal movement of the breech block relative to the barrel to a disengaged position when the breech block is in said released position,
and hinge means mounting the breech housing rotatably relative to the hinge ring on an axis parallel to the barrel and offset laterally from the barrel and permitting such rotation only when the breech block is in said disengaged position relative to the barrel.

3,319,863
STAPLING DEVICE
Arthur Dritz, 171 Beach 125th St., Rockaway Park, N.Y. 11694
Filed Mar. 1, 1965, Ser. No. 436,037
2 Claims. (Cl. 227—71)



1. A device for facilitating the passage of fastener elements through at least two layers of material, comprising in combination:
(a) two elongated piercing means mounted perpendicularly on a base member in substantially parallel relationship,
(b) each of said piercing means consisting of two sections that are hingedly connected adjacent said base for relative movement,
(c) one of said hingedly connected sections of each piercing means having a laterally extending member which is adapted to be moved, and
(d) resilient means contacting said laterally extending member and normally maintaining the hingedly connected sections of each piercing means in a closed position whereby each piercing means is adapted to receive the legs of a fastener element when said piercing means are passed through the material and said members are depressed to separate said sections, and to releasably retain said legs when said members are released.

3,319,864
APPARATUS FOR FEEDING AND FASTENING CLIPS
Ian Leonard Adams, South Blackburn, near Melbourne, Victoria, Australia, assignor to John Royston Siddons, Lower Plenty, Victoria, Australia
Filed May 19, 1965, Ser. No. 457,075
Claims priority, application Australia, May 22, 1964, 44,836/64
7 Claims. (Cl. 227—76)

1. Apparatus for fastening wiring clips in position comprising a body member, means on the body member for holding a supply of staples, means for driving said staples into a support, means on the body member for holding a supply of wiring clips comprising a reel holder pivotally mounted on said body member, said means for driving said staples including means for pivoting said reel holder,

a feed blade operatively connected to said reel holder and adapted upon pivotal movement of the latter relative



to the body to feed a wiring clip to a position whereat such clip may be attached to said support by a staple driven by said staple driving means.

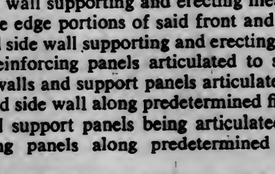
3,319,865
MULTIPLE PACKAGES
George Livas, Santa Margherita Ligure, Italy, assignor to King Packaging Limited, Tunbridge Wells, England
Filed Nov. 2, 1964, Ser. No. 408,095
Claims priority, application France, Nov. 7, 1963, 952,999
2 Claims. (Cl. 229—2.5)



1. A multiple package for fragile rounded articles comprising first and second package portions foldably connected to each other along one common edge for folding together into face to face relationship; a plurality of generally hemispherical housing walls formed in each portion and symmetrically disposed with respect to said edge for cooperation when said portions are folded together to define complete housings for individually surrounding the articles to be carried; an annular protuberance formed in each housing wall and projecting towards the interior of the housing to maintain said articles in a fixed position in relation to said package; a first external, generally cylindrical projection extending in an axial direction from the apex of each housing wall on both said first and second package portions; and a second generally cylindrical external projection extending in the same axial direction from said first projection on each housing wall on said first package portion and having a diameter smaller than the diameter of said first projection, said first projections on said housing walls on said second package portion each being formed with a cylindrical depression in its free end generally complementary in size and configuration to said second projection.

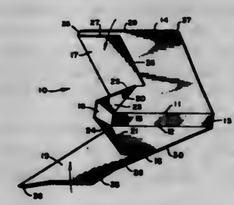
3,319,866
INNER PACKING FOR TUBING
Thorne C. Kitchell, Spartansburg, S.C., assignor to Union Camp Corporation, a corporation of Virginia
Filed Apr. 25, 1966, Ser. No. 545,022
11 Claims. (Cl. 229—14)

1. In a container for supporting reels of coilable material, an improved inner packing comprising:
an inner member having an X-shaped aperture and a pair of tongues extending through one leg of said aperture, and
an overlapping member having a complementary X-shaped aperture and a pair of slotted tongues, said overlapping member overlying said inner member so that said tongues of said inner member extend through one leg of said aperture in said overlapping



member and said slotted tongues of said overlapping member extend through the opposite leg of said aperture in said inner and overlapping members in interlocking engagement with said tongues of said inner member.

3,319,867
PACKAGING LINER
George Vrana, Flushing, N.Y., assignor to Riegel Paper Corporation, New York, N.Y., a corporation of Delaware
Filed June 20, 1966, Ser. No. 558,788
5 Claims. (Cl. 229—14)

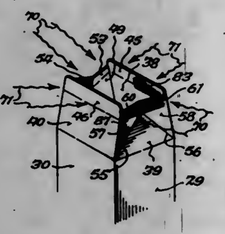


1. In a package for a relatively non-rigid article or the like adapted to be overwrapped by a non-rigid, transparent, flexible, plastic film or the like, a reinforcing liner element formed from a one-piece paperboard blank, comprising
(a) consecutively articulated front, bottom, and rear walls;
(b) a side wall articulated to an end edge of said bottom wall;
(c) side wall supporting and erecting means articulated to side edge portions of said front and rear walls;
(d) said side wall supporting and erecting means including reinforcing panels articulated to said front and rear walls and support panels articulated to the edges of said side wall along predetermined first score lines;
(e) said support panels being articulated to said reinforcing panels along predetermined second score lines;
(f) the included angles between said first and second score lines being 45°;
(g) said reinforcing panels being folded into face-to-face relation with said front and rear walls;
(h) said support panels being folded into back-to-back relation with said reinforcing panels;
(i) whereby said liner defines a boxlike structure having two square corners defined by said front, bottom, rear, and side walls;
(j) said boxlike structure being open at its top and at the side opposite said side wall.

3,319,868
COMPOSITION FOR SEALING PLASTIC COATED CONTAINERS

Denis K. Huang, Philadelphia, and Harold B. Moors, Richboro, Pa., assignors to International Paper Company, New York, N.Y., a corporation of New York

Division of application Ser. No. 107,348, May 3, 1961, now Patent No. 3,292,842, dated Dec. 20, 1966. Continuation of application Ser. No. 343,434, Jan. 16, 1964. This application May 13, 1966, Ser. No. 551,840
5 Claims. (Cl. 229—17)



1. In a dispensing container having a tubular body surmounted by a sealed closure sanitarily housing a pouring lip, said closure and lip being formed of sheet material having a polyethylene surface with a sealing resistant coating applied over said surface at said lip, the improvement wherein said sealing resistant coating consists essentially of:

(A) an R.S. nitrocellulose base forming about 12 to 24 percent by weight of said composition;

(B) a solvent system for said nitrocellulose in a concentration of 10 to 70 percent by weight;

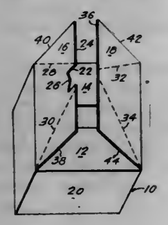
(C) a plasticizer for said nitrocellulose in a concentration of less than about 3 percent by weight and selected from the class consisting of diethyl phthalate and di-isooctyl phthalate; and

(D) From about 4 to 25 percent by weight of additives to produce adherence of said composition to the polyethylene surface and to facilitate release of said areas.

3,319,869
CONTAINER CLOSURE

Henry Ostwald, Winnipeg, Manitoba, Canada, assignor to Dominion Tar & Chemical Company, Limited, Montreal, Quebec, Canada

Filed Dec. 4, 1964, Ser. No. 416,055
5 Claims. (Cl. 229—39)

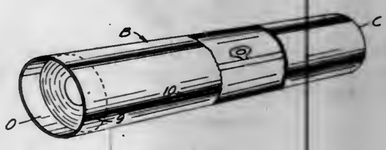


1. A carton having at least one pair of opposed closure flaps, locking means for holding said pair of flaps in closed position, said locking means including a notch adjacent the centre of the free edge of one flap of the pair of flaps, a tab projecting outward from the bottom of said notch, the other flap of said pair of flaps co-operating with said notch and tab to releasably lock said carton closed, the combined lengths of said pair of flaps minus the depth of said notch being longer than the distance to be spanned by said pair of flaps so that at least the central portions adjacent the free edges of said pair of flaps extend into said carton when said one flap and said other flap are in locked position.

3,319,870
PROTECTIVE SHEATH FOR ROLLED SHEET MATERIAL AND PROCESS OF MANUFACTURE

William R. Haider, St. Paul, and Robert E. Cole, West St. Paul, Minn., assignors to Louis F. Dow Co., St. Paul, Minn., a joint venture

Filed June 18, 1965, Ser. No. 465,122
2 Claims. (Cl. 229—53)



1. A protective sheath in combination with a cylindrical article such as rolled sheet material.

said sheath comprising a tubular body constructed of highly flexible material having a closed gusset end an an opposite open receiving end,

an abutment and retaining cuff completely encircling and disposed internally of said open end and constructed integrally from the material of said body and having free circumferential edges disposed inwardly a short distance from said open end,

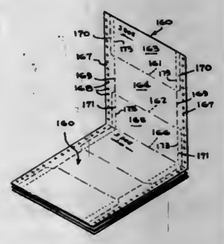
the length of said body being greater than the length of the article to be enclosed to an extent where the outer end of said article extends at least very slightly inwardly of said free circumferential edges,

and means for securing narrow longitudinal zones of said cuff to the surrounding portions of said body, said zones being spaced apart to leave free inward abutment edges to restrain outward longitudinal displacement of the article encased within said sheath.

3,319,871
CONTINUOUS LETTER FORMS

John H. Hayes, Jr., Box 825, Bristol, Va. 24201

Filed Oct. 29, 1965, Ser. No. 505,659
4 Claims. (Cl. 229—69)

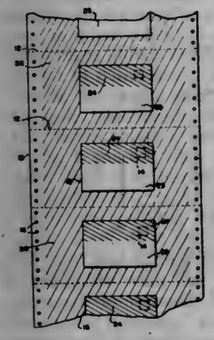


1. A continuous series of joined letter sheets each of which are transversely scored to define a top, bottom and at least one intermediate panel, the letter sheets adapted to be folded about the score lines to position the panels in superposed overlying relation with the top and bottom panels having detachable marginal edges, the intermediate panel being of a width less than the total width of each of the other panels and their associated marginal edges, a marginal sprocket drive tab being detachably connected adjacent the length of the detachable marginal edges of the top and bottom panels, the drive tab having a plurality of sprocket openings along the length thereof, the top and bottom panels adapted to be folded to position the marginal edges of each panel in superposed relation thereby permitting surface contact of the marginal edges of the top and bottom panels, adhesive positioned on selected portions of the marginal edges of at least one of the panels wherein the marginal edges having the adhesive will extend past the marginal extent of the intermediate panel when the sheet is folded for registry whereby the drive tab is adapted to be removed from the letter sheet and the marginal edges of the top and bottom panels adhered to one another with the intermediate panel positioned therebetween.

3,319,872
MAILER

Irving C. Beckman and Alex Morrell Beerbohm, Huntington Woods, Mich. (both of 30105 Stephenson Highway, Madison Heights, Mich. 48071)

Filed May 23, 1966, Ser. No. 552,213
1 Claim. (Cl. 229—69)



A continuous burstable printing form for permitting high speed computerized printing of small or wallet size stiff plastic card components thereof, such as are conventionally used as identification and credit cards;

with the form being burstable into individual card containing mailers;

said form comprising one long continuous uncovered web of paper or light card stock;

the web having horizontal tear lines uniformly spaced along the form and extending from one vertical continuous edge to the other to enable the form to be burst on such tear lines into rectangular individual card mailers;

there being an adhesive spot in each individual mailer within its periphery for removably sealing a card in place;

each mailer, while still a part of the form, containing as a component, and adhesively but removably secured thereon, one small or wallet size stiff heavy stock rectangular printable plastic card such as is conventionally used as an identification or credit card; the length and width of each card being considerably less than the length and width of the mailer so that all four edges of the card are well spaced from all four edges of the mailer;

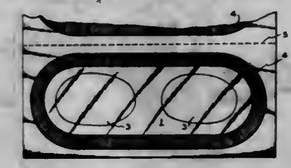
and with all cards being uniformly spaced and in alignment in the form for printing continuously;

the form also having at each vertical edge a vertical line of uniformly and closely spaced feed holes.

3,319,873
WRAPPER FOR ROLLS

Wolfgang Koennecke, Bad Homburg vor der Hohe, Germany, assignor to Bockenheimer Brotfabrik F. Reissig G.m.b.H., Wiesbaden, Germany

Filed Nov. 18, 1964, Ser. No. 412, 005
Claims priority, application Germany, Nov. 20, 1963, B 74,340
4 Claims. (Cl. 229—87)

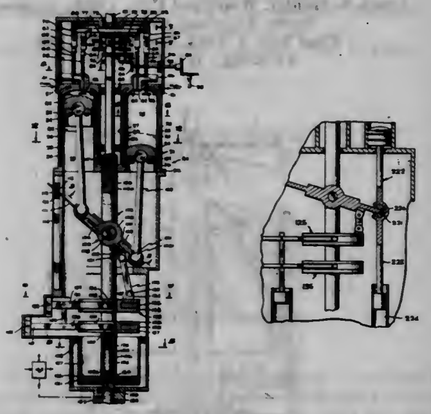


1. A wrapper for keeping rolls and similar baked goods in fresh crisp condition comprising a transparent water vapor permeable cellulose front sheet marginally joined to a back sheet consisting of a paper having at a weight per unit area of about 50 g./m.² an absorption time of less than 20 seconds.

3,319,874
VARIABLE DISPLACEMENT-VARIABLE CLEARANCE DEVICE

Robert A. Welsh, % J.A.W.Q. Box 36, Indiana University, Bloomington, Ind. 47401, and Harvey W. Welsh, 5631 Wilhemina Ave., Woodland Hills, Calif. 91364

Filed Dec. 16, 1964, Ser. No. 418,850
3 Claims. (Cl. 230—56)



1. An internal combustion engine comprising:

a plurality of pistons each slidable within a cylinder;

an axially movable shaft;

wobble plate means pivotally mounted in said shaft about an axis transverse to the axis of said shaft;

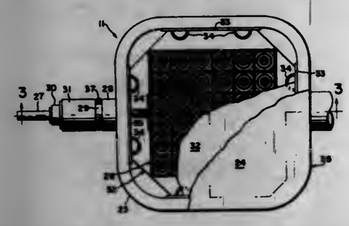
a plurality of piston rods for connecting said piston to said wobble plate;

means for varying the angle between said wobble plate and said shaft to vary the stroke of said pistons;

means for axially moving said shaft and wobble plate to provide a desired clearance for any piston displacement; and

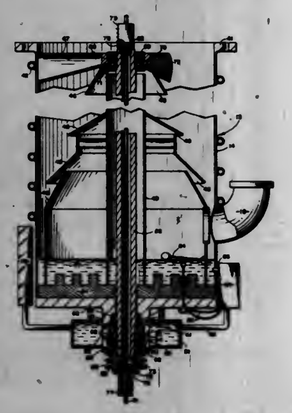
hydraulic pump means having piston means connected with said piston rods on the opposite side of said plate from said engine pistons to transfer a large part of the power from the engine piston directly to said hydraulic piston means thereby relieving the forces on the wobble plate and other engine parts.

3,319,875
ION VACUUM PUMPS
Robert L. Jepsen, Los Altos, Calif., assignor to Varian Associates, Palo Alto, Calif., a corporation of California
Filed Mar. 22, 1965, Ser. No. 441,502
6 Claims. (Cl. 230—69)



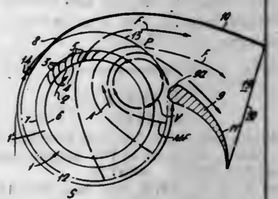
1. A sputter cathode grid for a magnetically confined glow discharge apparatus comprising: means forming a cold cathode base plate; and means forming a cold cathode grid extending outwardly from said cathode base plate, said grid including a plurality of spaced-apart, concentrically disposed frustoconical elements of increasing radius each having a surface portion exposed to relatively intense ion bombardment, the angle which the surface portion of a respective element makes with said base plate decreasing with increase in radius of said element.

3,319,876
SEALING MECHANISM FOR OIL DIFFUSION PUMP
Frank B. Hunter, Woodland Hills, Calif., assignor to North American Aviation, Inc.
Filed May 1, 1963, Ser. No. 277,380
4 Claims. (Cl. 230—101)



1. In combination:
an oil diffusion pump having an upper and lower end, said upper end for communication with a vacuum chamber, said pump further provided with a first oil reservoir therein,
a rotatable shaft disposed concentrically within and extending through said pump,
oil face seal means surrounding said shaft at said lower end of said pump,
a second oil reservoir surrounding said seal means and in communication therewith,
and means for transporting the oil from said first reservoir to said second reservoir.

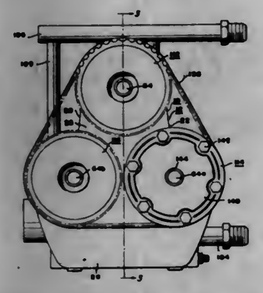
3,319,877
MACHINES OF THE CROSS-FLOW TYPE FOR INDUCING MOVEMENT OF FLUID
Bruno Eck, Cologne-Klettenberg, and Nikolaus Laing, Stuttgart, Germany, assignors, by mesne assignments, to Laing Vortex, Inc., New York, N.Y.
Continuation of application Ser. No. 453,352, May 5, 1965, which is a continuation of application Ser. No. 221,620, Sept. 5, 1962. This application Sept. 1, 1966, Ser. No. 589,147
Claims priority, application Germany, Dec. 7, 1956, L 26,388, E 13,333, E 13,334
5 Claims. (Cl. 230—125)



1. A fluid flow machine of the cross-flow type comprising a rotor having a cylindrical ring of rotor blades of predetermined diameter mounted for rotation about a cylindrical axis and having a substantially unobstructed hollow interior, said blades being of concave shape and having outer axially extending edges leading inner axially extending edges in the direction of rotation of said rotor, and said blades being supported at their ends by substantially flat discs substantially closing the ends of the cylindrical ring; and a casing about said rotor comprising a plurality of walls defining a peripheral inlet and a peripheral outlet spaced from each other about the circumference of the rotor, said walls including a first peripheral guide wall spiraling outwardly away from the periphery of the rotor with the location of nearest approach of said first wall to said rotor being spaced radially outwardly of said rotor within the range of 5–20% of the preselected diameter of the rotor and with said first wall having an "upstream portion defining a side of the inlet and a downstream portion defining a side of the outlet, and a smooth curved guide body forming a second peripheral guide wall in opposite relation to said first peripheral guide wall with said body being defined by a convex surface, said guide body having an upstream portion forming a side of the peripheral inlet and a downstream portion forming a side of the peripheral outlet with the location of nearest approach of said body to said rotor being spaced radially outwardly of said rotor within the range of 5–10% of the preselected diameter of the rotor, and said second guide wall extending downstream from said location of nearest approach of said body to said rotor and having a convex guide surface at its upstream end which defines with the periphery of the rotor a means whereby on rotation of said rotor the blades cooperate with the body to establish a rotating vortex of fluid rotating in the direction of the rotor and interpenetrating the blades adjacent said inlet to induce flow through said inlet into the rotating cylindrical ring of blades and thence out through said outlet.

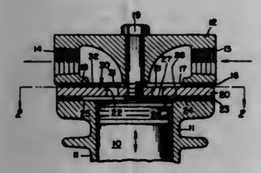
3,319,878
REFRIGERATING APPARATUS
William K. Steinhagen, Royal Oak, and Donald C. Unger, Grosse Pointe Park, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Aug. 16, 1965, Ser. No. 479,754
9 Claims. (Cl. 230—186)

1. In a plural compressor assembly the combination of, a plurality of compressor units, each of said compressor units having a cylinder block including a plurality of cylinder bores therein, pistons in each of said cylinder bores, a rotatable shaft in each of said blocks, and means connecting said pistons in each of said blocks to one of said shafts for producing reciprocating movement of said pistons within said cylinder bores, a housing common to each of said plurality of compressor units including a plurality of open-ended axial spaces therethrough, each of said spaces having one of said cylinder blocks supported therein, a head member closing each of the open ends of said spaces in said housing, an inlet and an outlet in each of said heads at only one end of said housing,



means including valve means in said heads for directing fluid from each of said inlets interiorly of said cylinders and for directing fluid from said cylinders to said outlets upon reciprocation of said pistons, each of said shafts having an end directed exteriorly of said housing, a pulley on each of said shafts, a continuous drive belt directed over each of said pulleys about a fixed center belt drive system, and means connected directly to one of said pulleys adapted to be operatively connected to a power source for rotating said one of said pulleys, said continuous belt being driven upon rotation of said one of said pulleys to concurrently drive the other of said pulleys.

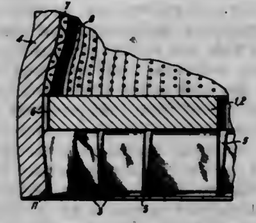
3,319,879
VALVE MECHANISM
Arthur E. Brown, Corning, N.Y., assignor to Ingersoll-Rand Company, New York, N.Y., a corporation of New Jersey
Filed Oct. 31, 1963, Ser. No. 320,362
4 Claims. (Cl. 230—231)



1. A valve comprising:
a valve plate disposed across a flow path having a port for allowing fluid to pass therethrough;
flow control means including a flat flexible plate mounted on said valve plate and having a slot open at one end to provide a pair of elongated fingers connected to each other at the end of the flat plate opposite from the open end of said slot;
one of said fingers being normally seated against said valve plate overlying said port to provide a flow blocking closure;
the other of said fingers being secured to said valve plate at a point adjacent the open end of said slot; and
said closure finger being movable substantially away from said plate for opening said port to allow fluid to pass therethrough.

2. In combination with a cylinder having a piston mounted for reciprocal movement therein and a cylinder head having an inlet passage and an outlet pasage, valve means comprising:
a valve plate fixedly mounted between the cylinder and a cylinder head and having a pair of spaced ports therethrough each aligned with one of the passages in the cylinder head;
first means mounted on one side of said valve plate for limiting the flow of fluid through one of said passages to one direction;
second means mounted on the other side of said valve plate for limiting the flow of fluid through the other of said passages to the opposite direction;
each flow limiting means including a flat flexible plate having a slot open at one end to provide a pair of elongated fingers connected to each other at the end of the flat plate opposite from the open end of said slot;
one of said fingers being normally seated against said valve plate overlying one of said ports to provide a flow blocking closure;
the other of said fingers being secured to said valve plate at a point adjacent the open end of said slot; and
said closure finger being movable substantially away from said plate for opening one of said ports to allow fluid to pass therethrough.

3,319,880
CENTRIFUGAL DRUM
Kurt Pause, Ledernstrasse 13, Grevenbroich, Germany
Filed Apr. 27, 1965, Ser. No. 451,127
Claims priority, application Germany, May 2, 1964, P 34,189
11 Claims. (Cl. 233—1)

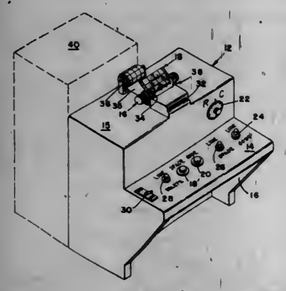


1. In a centrifugal drum, in combination, a continuous cylindrical casing having opposite open ends; and a pair of end wall means shrink fitted in said open ends and each having a transverse wall portion extending transversely through and inwardly of the respective open end and an outwardly directed annular flange portion extending substantially in direction of the axis of said drum and engaging with the outer surface thereof the inner surface of said casing, said annular flange portion being formed with a plurality of axially extending angularly spaced slots therethrough.

3,319,881
PATTERN SHEET CODING APPARATUS
Howard L. Loflen, Mount Airy, N.C., assignor to Pine State Knitwear Company, Mount Airy, N.C., a corporation of North Carolina
Filed June 4, 1965, Ser. No. 461,290
12 Claims. (Cl. 234—59)

1. An apparatus for transferring a pattern from a master design chart formed by lines corresponding to knitted courses and channels corresponding to knitted

wales to a knitting machine pattern sheet by transmitting the intelligence conveyed by the form and arrangement of these lines and channels to a plurality of remote punches near a knitting machine pattern sheet in a cocked position for subsequent actuation and perforator coding of the pattern sheet, this sheet simulating the master design chart stitch pattern when perforator coded and subsequently controlling knitting instrumentalities that will knit fabrics having colored stitches duplicating the stitch patterns formed on the master design chart, said apparatus comprising in combination: a traverse slide laterally movable between proximal and distal limits, said slide having an integral tracer to visually indicate said slide position with respect to said design chart lines and channels; a space key and a punch positioning key operable with said slide, said space key being effective to displace said slide incrementally upon actuation and said punch positioning key being effective to displace said slide incrementally upon actuation while simultaneously directing a selected perforator proximate said pattern sheet for subsequent



perforation; slide return means for displacing said slide and tracer to said proximal limit; perforator restoration means for selectively withdrawing proximately positioned perforators from said pattern sheet to prevent subsequent perforation; recording indicator means operatively connected to said slide and said punch positioning key, said means visually indicating and retaining operator-performed space key and punch positioning key actuations until said slide moves from said proximal to said distal limit; a carriage displacing pawl operable with said carriage for the rotational displacement thereof; means for displacing said pawl to rotate said carriage and said chart a preselected distance; and means for positioning all perforators proximate said pattern sheet for subsequent perforation whereby a master design chart containing a design pattern for a knitted fabric is visually compared and simulated by selective space key and punch positioning key operations to effect the positioning of predetermined punches proximate a pattern sheet for a knitting machine for subsequent perforator coding.

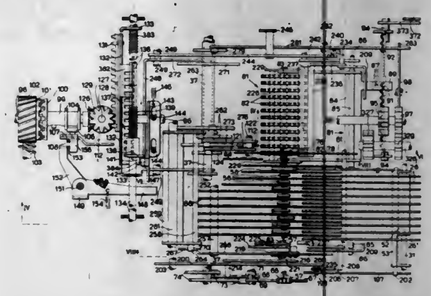
3,319,882
TEN KEY CALCULATING MACHINE
Teresio Gassino, Ivrea, Italy, assignor to Ing. C. Olivetti & C., S.p.A., Ivrea, Italy, a corporation of Italy
Filed Sept. 24, 1964, Ser. No. 398,915
Claims priority, application Italy, Oct. 2, 1963, 20,406/63
18 Claims. (Cl. 235—60)

1. In a calculating machine having a ten key keyboard, and a multiorder indexing device adapted to be set order by order under the control of said keyboard, the combination comprising:

(a) a set up device controlled by each key of said keyboard and operable for setting up each order of said indexing device,

(b) transversely traveling means for step by step changing the relationship between said indexing device and set up device upon setting up each one of said orders,

(c) an operating mechanism adapted to be cyclically conditioned at the depression of each key of said keyboard for operating said set up device,

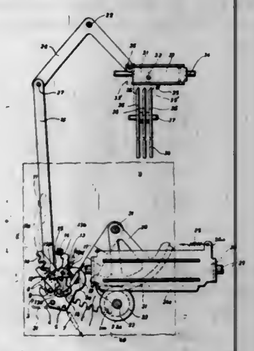


(d) normally effective zeroizing means operable by said mechanism for zeroizing all the orders of said indexing device before operation of said set up device,

(e) and means for rendering said zeroizing means ineffective upon setting up the first order of an amount,

(f) and means operable upon processing the amount so set up for restoring said zeroizing means to their effective condition.

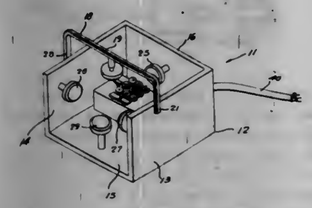
3,319,883
CARRIAGE COUPLING ARRANGEMENT FOR A CALCULATOR
Paul Thevis, Oberndorf, Germany, assignor to Olympia Werke A.G., Wilhelmshaven, Germany
Filed Apr. 29, 1965, Ser. No. 452,027
Claims priority, application Germany, Oct. 24, 1964, O 10,464
20 Claims. (Cl. 235—60)



1. In a calculator, in combination, a carriage coupling arrangement comprising first carriage means movable between an inoperative position and a sequence of operative positions; second carriage means movable between a sequence of operative positions; coupling means connected with said first carriage means for movement and being in a disengaged position and in an engaged position when said first carriage means is in said inoperative

position, and in one of said operative positions, respectively, said coupling means in said engaged position connecting said first and second carriage means for movement together; and actuating means movable between first and second positions for moving said coupling means between said disengaged and engaged positions so that said first carriage means is moved from said inoperative position to said one operative position and back while said second carriage means remains in the same operative position, and so that said first and second carriage means are coupled to each other for movement together between said operative positions.

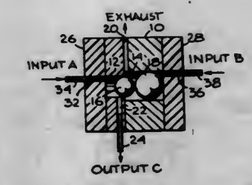
3,319,884
TOUCH-ACTUATED CONTROL FOR MULTI-FUNCTION MACHINES
David L. Franklin, 1233 N. Campbell Ave., Tucson, Ariz. 85719
Filed Mar. 11, 1966, Ser. No. 533,718
10 Claims. (Cl. 235—145)



1. A manual control device comprising a housing adapted to receive an operator's hand, said housing having a bottom wall, opposite side walls, a rear wall and transverse support means connecting the top margins of said side walls, a keyboard mounted horizontally on said bottom wall and having a plurality of operating keys located in positions to be actuated by the fingers of the operator's hand when the hand is received in the housing in an operating position, and respective push button control elements mounted on the opposite side walls, said bottom wall, said rear wall and said transverse support means, said push button control elements being operatively engageable by the operator's hand responsive to lateral, downward, forward and upward movement respectively from said operating position while contained in said housing.

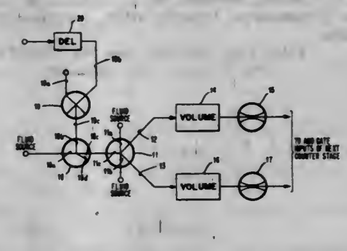
3,319,885
FLUID LOGIC STRUCTURES
John J. Eige, Redwood City, Calif., assignor to Stanford Research Institute, Menlo Park, Calif., a corporation of California
Original application May 31, 1963, Ser. No. 284,725. Divided and this application Apr. 26, 1965, Ser. No. 450,679
5 Claims. (Cl. 235—201)

1. A fluid-actuated logic structure comprising a first fluid actuated means, a second fluid actuated means, each having a first and a second fluid pressure input, an output, means responsive to a fluid pressure applied to its first input to provide a fluid pressure output, and means responsive to a fluid pressure applied to its second input to prevent any fluid pressure output, and means coupling said first and second fluid actuated means for providing an output manifestation indicative of the fluid pressure inputs to said first and second fluid actuated means, said means coupling said first fluid actuated means to said second fluid actuated means for providing an output manifestation indicative of the fluid pressure inputs comprises a third and fourth fluid actuated means having structure identical to the structure of said first and second fluid actuated means, means coupling the output of said first fluid actuated means to the second input of said third fluid actuated means, means coupling the output of said third fluid actuated means to the first input of said second fluid actuated means, means coupling the output of



said second fluid actuated means to the second input of said fourth fluid actuated means, and means coupling the output of said fourth fluid actuated means to the first input of said first fluid actuated means whereby the outputs of said first and fourth fluid actuated means indicate whether a fluid pressure input was applied to said first or said second fluid actuated means.

3,319,886
PURE FLUID BINARY COUNTER
Edwin R. Phillips, Rosemont, Pa., assignor to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Filed Oct. 21, 1965, Ser. No. 500,137
16 Claims. (Cl. 235—201)

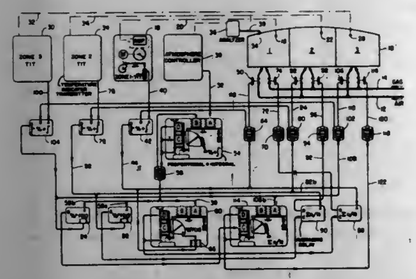


1. A fluid binary counter, comprising in combination: a fluid bi-stable device having a main power input channel for powering said bi-stable device and first and second output channels, each of said output channels including a fluid capacitance and a fluid resistance, each said fluid capacitance and resistance providing a fluid circuit having a predetermined time constant, pulse source means connected to said main power input channel providing said bi-stable device with fluid pulses separated by intervals which are short in comparison to the time constants of either of said fluid circuits.

3,319,887
MULTI-ZONE FURNACE TEMPERATURE AND ATMOSPHERE CONTROL
Bernard E. Gallagher, Indianapolis, Ind., assignor to Bailey Meter Company, a corporation of Delaware
Filed Feb. 28, 1964, Ser. No. 348,236
6 Claims. (Cl. 236—15)

4. Apparatus for controlling the temperature and atmosphere in a multi-zone furnace having a burner located in each zone for supplying the elements of combustion thereto, a temperature responsive means for each zone generating a first signal corresponding to the

temperature of the zone, control means for each zone responsive to the signal corresponding to the temperature of the zone regulating the flow of one element of combustion to the burner located in the zone, means generating a second signal corresponding to the atmospheric analysis in a selected one of said zones, a compensating means for each zone responsive to the signal corresponding to the temperature of the zone and to said second



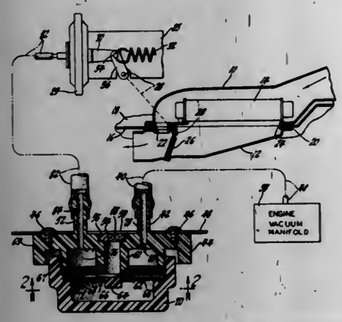
signal generating an output signal corresponding to the temperature of the zone modified by the atmospheric analysis and an averaging means for each zone responsive to the output signal generated by the compensating means for the zone and the signal corresponding to the temperature of the zone regulating the flow of another element of combustion to the burner located in the zone.

3,319,888

VACUUM OPERATED AUTOMOTIVE TEMPERATURE CONTROL SYSTEM

John E. Creager, Fenton, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Feb. 25, 1966, Ser. No. 530,095
10 Claims. (Cl. 236—87)



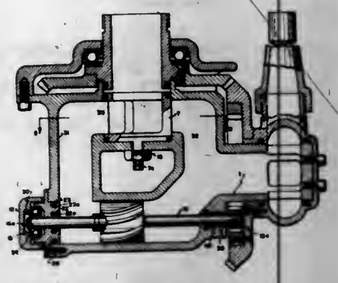
1. An automotive temperature control system comprising a heat flow regulating element, a vacuum motor linked to said element to position said element, a control unit mounted in a compartment the temperature of which is to be controlled, a source of vacuum supply, an air inlet port leading from said compartment to the interior of said control unit, a bimetal valve element within said unit and controlling said inlet port, connections of the said motor and also said unit interior where said bimetal valve element is located leading to said vacuum source, and the arrangement being such that the degree of vacuum imposed on said vacuum motor is dependent upon the effect of the temperature of said compartment on said bimetal valve element.

3,319,889

METHOD FOR AUTOMATICALLY CONTROLLING THE ROTATING SPEED OF A LIQUID DISTRIBUTOR

William Lynn Nelson, Woodmanstene, England, assignor to Butterworth System, Incorporated, a corporation of Delaware

Original application Sept. 26, 1963, Ser. No. 324,157, now Patent No. 3,292,863. Divided and this application June 14, 1966, Ser. No. 571,163
Claims priority, application Great Britain, Sept. 28, 1962, 36,958/62
2 Claims. (Cl. 239—1)



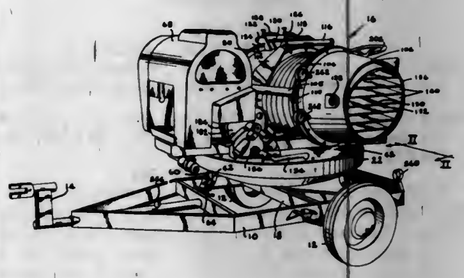
1. A method for controlling the speed of rotation of a rotating liquid distributing device driven by the stream of liquid distributed, comprising bypassing a portion of the liquid feed stream to the distributing device, and passing the said bypassed portion of liquid through a driven means positively connected to the said liquid distributing device, and adapted to be driven by the said bypassed liquid in opposition to the motion of the distributor device to exert a braking action on the said distributor device in accordance with the amount of bypassed liquid and varying the amount of liquid bypassed to the driven means in accordance with the speed of rotation of the liquid distributing device to maintain the speed substantially constant independent of variation in pressure of the liquid supply.

3,319,890

SPRAYING APPARATUS

Dale E. Wolford, Ashland, Ohio, assignor to The F. E. Myers & Bro. Co., Ashland, Ohio, a corporation of Ohio

Filed July 30, 1965, Ser. No. 476,074
22 Claims. (Cl. 239—77)



1. In a spraying apparatus; a wheeled support frame, a shaft upstanding from the frame, a disc like tank having a central sleeve extending axially therethrough mounted on said frame with said shaft extending through said sleeve to provide rotatable support for the tank, spraying mechanism mounted on the tank including a blower and a drive engine for the blower and a pump for pumping liquid from the tank and supplying the liquid

to the air blast from the blower, an operator's station on the tank, and means in said station manually operable for causing rotation of said tank and the parts mounted thereon on said frame.

ERRATUM

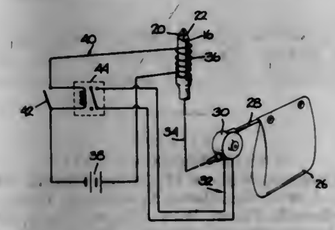
For Class 239—1 see:
Patent No. 3,319,889

3,319,891

ELECTRICALLY HEATED WINDSHIELD WASHING NOZZLE IN TIME DELAY CIRCUIT

Virginia K. Campbell, 62 Middlesex Road, Buffalo, N.Y. 14216

Filed July 6, 1965, Ser. No. 469,447
6 Claims. (Cl. 239—130)



2. A windshield cleaning device comprising, in combination, a nozzle for directing a spray against the windshield to be cleaned, a manually actuatable heater for said nozzle, a pump for forcing the spray liquid under pressure to said nozzle, and time delay means for actuating said pump maens a preselected period of time after actuation of said heater.

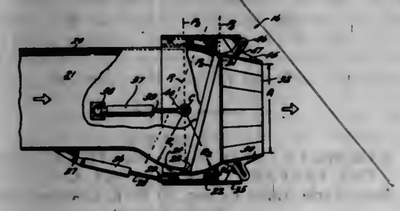
3. In combination with a motor vehicle having a windshield, a windshield washing device comprising a liquid pump and a battery; a spray jet nozzle positioned in front of and adjacent said windshield, means for supplying liquid from said liquid pump to said spray jet nozzle, a coil type heating element surrounding said nozzle and being connected in an electrical circuit in combination with said battery, and manual means for closing said circuit.

3,319,892

VARIABLE EXHAUST NOZZLE ASSEMBLY

Louis Isadore Zirin, Marblehead, Mass., assignor to General Electric Company, a corporation of New York

Filed Sept. 1, 1965, Ser. No. 484,409
9 Claims. (Cl. 239—265.35)



3. A variable area and variable direction exhaust nozzle assembly for jet propulsion engines, said exhaust nozzle assembly comprising:

wall means forming an axial passageway for the flow of motive fluid between upstream and downstream ends thereof,

said wall means adjacent the downstream end of said passageway having the configuration of a spherical segment,

a ring having the configuration of a spherical segment surrounding the spherical portion of said wall means in proximity thereto and concentric therewith,

a plurality of flaps carried by said spherical ring and extending downstream therefrom to form an exhaust opening,

means to vary the positions of said flaps so as to thereby vary the area of said exhaust opening,

and means to rotate said spherical ring about an axis transverse to the downstream direction of fluid flow in said passageway so as to thereby vary the direction at which motive fluid is discharged through said exhaust opening.

3,319,893

SPRINKLER

James Linn Rodgers, 9606 La Serna Drive, Whittier, Calif. 90605, and Robert B. Caves, 10028 Deerhaven Drive, Santa Ana, Calif. 92705

Filed June 13, 1966, Ser. No. 562,052
9 Claims. (Cl. 239—393)



8. A sprinkler device comprising

a body having

a chamber means therein,

an inlet means for said chamber means

and an outlet means for said chamber means,

said inlet means being adapted for connection to a source of liquid under pressure,

and a member in said chamber means adjacent said outlet means,

said member having spaced opening means in the exterior thereof,

said member having means interiorly thereof interconnecting said opening means,

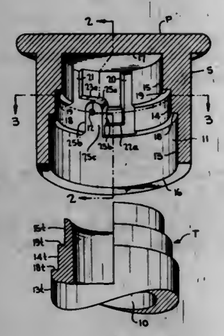
said chamber means including means receiving said member for allowing limited linear movement of said member toward and away from said outlet means and for allowing rotational movement of said member relative to said chamber means,

said outlet means and said member being proportioned such that upon said rotational movement of said member said opening means are individually positionable at said outlet means in communication with the exterior of said chamber means while remaining opening means are remote from said outlet means and in communication with the interior of said chamber means,

whereby liquid under pressure received from said inlet means flows through said member and discharges from the opening means positioned at said outlet means in communication with the exterior of said chamber means, and moves said member linearly toward said outlet means,

said outlet means and said member having surfaces interengageable when said member is so moved linearly for precluding flow of liquid around said member at said outlet means.

3,319,894
LIQUID DISPENSER
Rex C. Cooprider, Hacienda Heights, Calif., assignor, by mesne assignments, to Diamond International Corporation, New York, N.Y., a corporation of Delaware
Filed Aug. 10, 1965, Ser. No. 478,599
13 Claims. (Cl. 239—490)



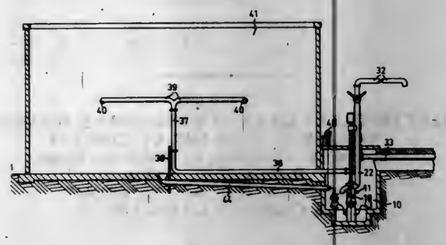
5. A unitary spray head formed with a socket having coaxial sections of circular cross section which sections are of successively-increasing internal diameter toward the open end of the socket, axially outwardly-presented annular inner and outer shoulders being provided between adjoining said sections, said spray head being formed with a spray orifice opening outwardly from said socket to the exterior thereof and with a spin chamebr in the form of a depression around the inner end of said orifice, said spin chamber extending between and axially intersecting said shoulders to open axially outwardly through said outer shoulder and to have its inner end closed by a portion of said inner shoulder, said outer shoulder having an axially-relieved portion extending circumferentially into said chamber to define a swirl passage, and said spray head being provided with means for delivering pressurized liquid into said indentation at a location remote from said chamber.

3,319,895
ELASTOMER GRINDING
Frank R. Williams, Quincy, and Erivan Hagopian, Newton, Mass., assignors to Cabot Corporation, Boston, Mass., a corporation of Delaware
No Drawing. Filed May 26, 1965, Ser. No. 459,098
10 Claims. (Cl. 241—17)

1. A process for making rubber dust containing 90% particles having a diameter of less than 20 microns and containing at least 10% particles having a sub-micron diameter comprising cooling a rubber preground to pass through about an 18-mesh screen to below the brittle point thereof, grinding said cooled rubber in a fluid energy grinding mill in a stream of gas while still below said brittle point, and collecting the resulting grind from said mill.

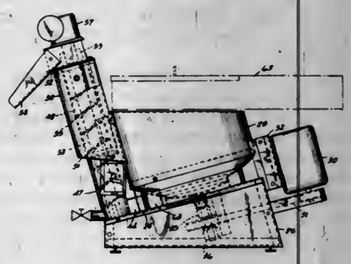
3,319,896
METHOD OF AND APPARATUS FOR CONVEYING MANURE FROM STABLE GUTTERS
Nils Einar Andersson, Teatergatan 23, Klippan, Sweden
Filed Aug. 12, 1963, Ser. No. 301,377
Claims priority, application Sweden, Aug. 17, 1962, 8,967/62; Apr. 19, 1963, 4,315/63
8 Claims. (Cl. 241—25)

1. A method of handling manure by flushing, comprising the steps of comminuting a mixture of urine, water, droppings, and straw materials into a pumpable state, pumping said mixture from a collecting container with an outlet near the upper end and an inlet at a lower level to a distributing point from where it is allowed to flow by gravity through upwardly open manure gutters in a stable,



said gutters receiving the droppings directly from the animals, the flowing mixture adapted to carry solid and liquid constituents from said gutters back to said container.

3,319,897
WASTE DISPOSAL UNIT
Sam N. Craig and William H. Combs, Devon, Francis E. Hilbert, Coatesville, Harry L. Kemper, Honey Brook, and Arthur B. Tahar, West Chester, Pa., assignors to Somat Corporation, Coatesville, Pa., a corporation of Delaware
Filed Sept. 8, 1964, Ser. No. 394,751
17 Claims. (Cl. 241—46)

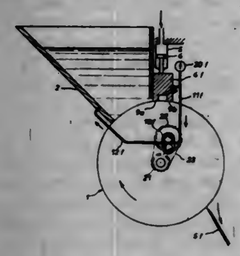


1. A waste disposal unit comprising an annular wall and a bottom forming a tank for receiving waste material and water, a disk impeller in said tank circumferentially spaced from said wall, an upper surface of said impeller, material disintegrating cutters on said upper surface, a sieve in the form of a tubular member having through apertures supported in said tank and encirculing said impeller, an ear attached at the periphery of said impeller and spaced from said sieve with a vertical dimension sufficient to span the apertures of said sieve.

3,319,898
BAR-MILLS USED MORE PARTICULARLY FOR THE PREPARATION OF INKS AND PAINTS
Jean Marie Annic Brizon, 35 Blvd. Gouvion Saint-Cyr, Paris, France
Filed May 21, 1964, Ser. No. 369,219
Claims priority, application France, May 31, 1963, 936,779
5 Claims. (Cl. 241—241)

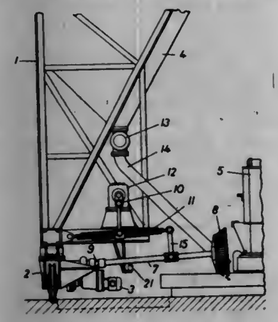
1. A cylinder bar-mill comprising a distributing hopper for the material to be ground, said hopper having an input opening and an output opening, a cylinder positioned immediately adjacent said output opening, a bar pressed against said cylinder by means of fluid actuated jacks, said bar having two longitudinal lips separated by a groove

which is closed at its extremities and which is spontaneously filled with material in the course of grinding, the width of said groove being greater than the thickness of the two lips combined, said mill being further provided with controllable discharge means for discharging the



material which fills the groove, said discharge means comprising a conduit system connecting the groove of the bar to a container for the discharged material, and screw means with a micrometer thread for progressively closing said conduit system.

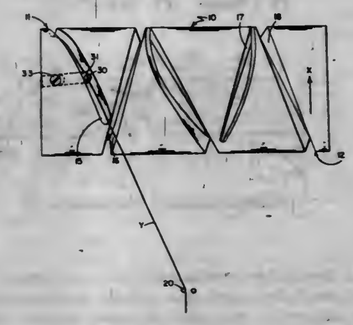
3,319,899
CRUST BREAKING DEVICE FOR ELECTROLYSIS FURNACES
Johan Nikolai Ström and Gudmund Heggstad, Hoyanger, Norway, assignors to A/S Norsk Aluminium Company, Oslo, Norway
Filed Mar. 2, 1964, Ser. No. 348,520
Claims priority, application Norway, Mar. 4, 1963, 147,756
9 Claims. (Cl. 241—283)



1. A crust breaking device for use with electrolysis furnaces, including means for producing continuous movement of the device alongside the furnace during the crust breaking and comprising an arm which extends transversely to the direction of said movement and is pivoted at the end remote from the furnace for movement about a horizontal axis extending parallel to the said direction, and a head mounted at the free end of the pivoted arm and adapted to act upon the furnace crust during the movement of the device.

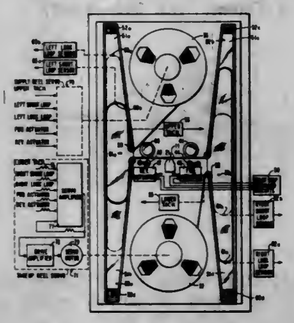
3,319,900
YARN TRAVERSING ROLL FOR WINDING MACHINES
Samuel L. Abbott, Wilton, N.H., assignor to Abbott Machine Co., Inc., Wilton, N.H., a corporation of New Hampshire
Filed Mar. 12, 1965, Ser. No. 439,364
5 Claims. (Cl. 242—43.2)

1. A rotary yarn traversing roll having a yarn-receiving groove for traversing the yarn and including a member extending from one side wall of the groove and yieldingly pressing against the opposite side wall of the groove, the member extending across the groove and being displaceable by tensioned yarn to permit the yarn to



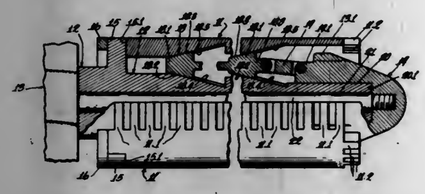
seat in the groove, the pressure of said member against said opposite wall restraining a substantially untensioned yarn against being thrown from the groove.

3,319,901
LOOP CONTROL SYSTEM FOR TAPE TRANSPORTS
Harold A. Kurth, Woodland Hills, Calif., assignor to Ampex Corporation, Redwood City, Calif., a corporation of California
Filed Apr. 17, 1963, Ser. No. 273,681
11 Claims. (Cl. 242—55.12)



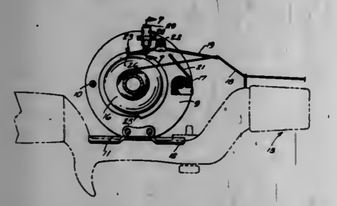
1. In a tape transport system including vacuum chambers providing low inertia tape loops in the tape path between the storage reels and the tape driving mechanism, a servo system for maintaining a predetermined loop position comprising means for sensing the length of the tape loop and providing a bilevel position signal indicative of the length relative to the predetermined loop position, servo means for driving said tape at a speed in accordance with the magnitude of a driving signal, tachometer means providing a signal proportional to the velocity of the tape, means for providing a command signal representing the direction of tape travel, and signal adder means for algebraically combining said command signal, said position signal, and said velocity signal to provide a driving signal to the servo means for varying the tape speeds to maintain the desired tape length oscillating under positive control at the predetermined loop position.

3,319,902
EXPANSIBLE-CONTRACTABLE REEL
William W. Stevens, Salem, Ohio, assignor to The McKay Machine Company, Youngstown, Ohio
Filed Sept. 9, 1965, Ser. No. 486,029
28 Claims. (Cl. 242—72.1)



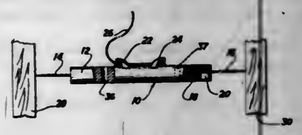
1. An expansible-contractable reel comprising a rotatably mounted shaft having a radially outwardly directed surface inclined in one axial direction, means supported on said shaft and movable radially outwardly and radially inwardly thereof to respectively expand and contract said reel, said means having a radially inwardly directed surface inclined in the opposite axial direction from said shaft surface, and a member interposed between said means and said shaft and in engagement with respective inclined surfaces aforesaid, said member being movable axially of said shaft to effect radial movement aforesaid of said means.

3,319,903
ANTI-BACKLASH ATTACHMENT FOR FISHING REELS
Leo D. Mosier, 4130 Lyndale Ave. N., Minneapolis, Minn. 55412
Filed Oct. 28, 1964, Ser. No. 407,097
2 Claims. (Cl. 242—84.52)



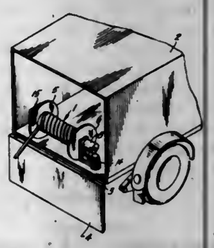
1. An anti-backlash device for a fishing reel of the casting type having a pair of laterally spaced end plates held in assembled relation by means of a plurality of cross-rods and a reel spool having opposed end flanges journaled in said end plates, said anti-backlash device comprising a pivotally mounted forwardly projected bail-like member having a transverse member extending between the said end plates of the reel above the central longitudinal axis of the reel spool and substantially forwardly thereof, said bail-like member having at least one rearwardly projecting arm on one side portion thereof in close proximity to one side plate of the reel wherein the said projecting arm overlies the reel spool, and at least one cam-like notch formed in the end flange of the spool for engagement with the said rearwardly projecting arm of the bail-like member, said bail-like member and its rearwardly projecting arm being actuated by the action of the fishing line thereon wherein, as the said fishing line, pulled by its terminal tackle, runs over the transverse member of the bail-like member and automatically controls the engagement of the rearwardly projecting arm with the notch in the flange of the reel spool, releasing such engagement as the cast initiates line pressure on the bail-like member and, conversely, spring means for urging the said rearwardly projecting arm into engagement with said notch as the fishing line releases pressure on said bail-like member when said fishing line goes slack at the end of the cast, the resulting engagement of said rearwardly projecting arm with said notch completely stopping the overrun of the line loaded reel spool, said spring means including adjustable means whereby the tensioning of the rearwardly projecting arm of the bail-like member on the notches in the flange plate of the reel spool may be selectively varied, said adjustable means being mounted on the inner surface of one of the end plates of the reel in vertically disposed alignment with the rearwardly projecting arm of the bail-like member and comprising a small housing mounted on said end plates and having a spring loaded plunger the lower end portion of which is notched to engage the said rearwardly projecting arm and an adjusting screw having screw threaded engagement with the said housing, a spring interposed between said plunger and the adjusting screw wherein the tension of the notched plunger on the rearwardly projecting arm may be varied by adjustment of the said screw.

3,319,904
TOOL CONSTRUCTION
John V. Camlet, 317 Getty Ave., Paterson, N.J. 07503
Filed Aug. 26, 1965, Ser. No. 482,773
5 Claims. (Cl. 242—85.1)



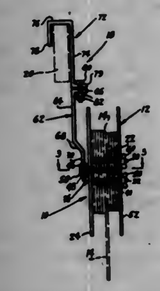
1. A tool, for mounting between studs of a framework for supporting a reference line, comprising a substantially rectilinear rod member having a pointed fixed portion at one end engageable in a stud and a pointed portion, which is telescopic within said rod member, at its opposite end and engageable in an adjacent stud, and means on said rod member for storing a length of reference line for withdrawing from said rod member.

3,319,905
HOSE REEL INSTALLATION
Shlomo Kissilov, 83 Arlozoroff St., Haifa, Israel
Filed Jan. 13, 1966, Ser. No. 520,424
5 Claims. (Cl. 242—86.2)



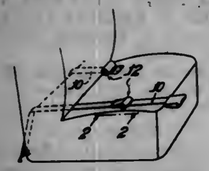
1. A hose reel apparatus comprising a pair of standards, a spindle disposed between said standards for receiving a hose thereon, a first circular member adapted to be fixedly attached to a base, the circumferential periphery of the upper surface of said member being comprised of a substantially circular array of serrations, a second member affixed to said reel and terminating in a circular structure of like dimension as said first member, the circumferential periphery of the lower surface of said circular structure being comprised of a substantially circular array of serrations corresponding to the serrations of said first member and interdigitating therewith, whereby the rotation of said circular structure on said first member effects a corresponding angular movement of said hose reel, said interdigitating serrations enabling the anchoring of said hose reel in said movement in small incremental angular steps, each of said steps corresponding to the angular width of said serrations.

3,319,906
WIRE REEL
Robert L. Atkinson, 1110 Custom Way, Springfield, Oreg. 97477
Filed Aug. 3, 1965, Ser. No. 476,935
7 Claims. (Cl. 242—106)



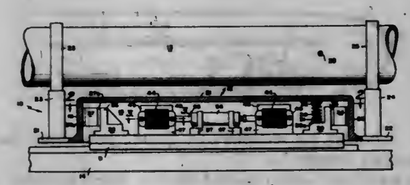
1. A wire reel comprising
a hub about which a wire may be wound including two ends, a periphery, and a central axis,
a pair of flanges, one of said flanges secured to said hub adjacent one end thereof and another of said flanges secured to said hub adjacent the other end, said flanges extending beyond said periphery of said hub,
first mounting means mounting said hub for rotation about said central axis,
second mounting means mounting said first mounting means for universal rotation about an axis at an angle to said central axis, said second mounting means providing temporary attachment means for loosely securing said second mounting means to a fixed member.

3,319,907
BELT RETRACTING MEANS
Herbert Austin McAninch, Auburn, Ind., and Hugo W. Velander, Cary, Ill., assignors to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois
Filed Jan. 10, 1964, Ser. No. 336,896
5 Claims. (Cl. 242—107.11)



5. In a retractable safety belt device for a belt of the flat surface type having a substantial width relative to the thickness thereof, and adapted to have one end anchored to a vehicle and the other end placed about a passenger, said device comprising means defining an elongated hollow tubular reel having an axial length substantially the same as the width of said belt and a diameter only a small fraction of the length thereof, said tubular reel being adapted to receive the flat surface of a safety belt in double spiral coiled relation thereon; attaching means for said belt intermediate the ends thereof, said attaching means extending radially outward from the periphery of said reel and having a belt engageable underportion in outwardly spaced relation to the outer periphery of said reel, formed as a part of said tubular reel and providing an opening for the introduction of the belt from the side thereof; means defining a bar-like reaction bail in respect to which the said reel is rotatably mounted, said reaction bail having a contact guide surface substantially spaced from the axis of rotation of said reel and of a length substantially the same as the width of the belt, and arranged for guiding contact along the flat surface of the belt transversely thereof; and an elongated helical coil torsion spring confined within said tubular reel and extending coaxially thereof, one end of said spring being connected in driving relation to said reel adjacent a first terminal of said reel and the other end of said spring being anchored in relation to said reaction bail adjacent the other terminal of said reel; whereby when the belt is completely withdrawn from the reel and in functional position about a passenger, the pull is directly through the belt to the vehicle anchorage and the reactor unit floats on the belt without being subject to the force of impact imposed upon the belt by the passenger.

3,319,908
MISSILE TRANSFER CAR
Andrew R. Wilhelm, Elkridge, Md., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed Mar. 30, 1965, Ser. No. 444,093
7 Claims. (Cl. 248—21)



1. A missile transfer car comprising:
an elongated, horizontally extending undercarriage;
a platform superposed over said undercarriage;
resilient means disposed between said undercarriage and said platform for resiliently resisting movements thereof with respect to said undercarriage; and
lock-out means mounted on one of said platform and said undercarriage and actuable to frictionally resist movement therebetween.

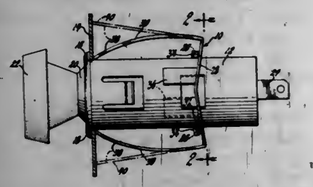
3,319,909
CIGARETTE LIGHTER RETAINER
Gerald E. Goslin, Mount Clemens, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Nov. 15, 1963, Ser. No. 324,093
5 Claims. (Cl. 248—27)

1. A fastener for use with:
a panel having an aperture therethrough;
and a generally cylindrical housing inserted through said aperture in said panel and having a flange portion adapted to engage one face of said panel around said aperture, said housing having a pair of opposed protuberances on its outer side;

said fastener comprising:

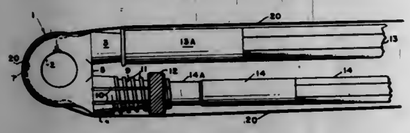
a collar having cut-out portions to allow said collar to pass over said pair of protuberances on said cylindrical housing, and cammed locking depressings to receive said protuberances upon rotation of said fastener with respect to said cylindrical housing after said collar has passed over said protuberances;

stabilizing legs extending from the inner circumference of said collar to lie adjacent to said cylindrical housing;



and deformable spring support legs extending from the outer circumference of said collar into contact with said panel at said aperture, said legs being of sufficient length to spring bias said fastener between the protuberances of said cylindrical housing and said panel to thereby secure said cylindrical housing to said panel.

3,319,910
COMBINATION FISHING ROD CARRIER, HOLDER, AND DISPLAY HANGER
Arthur Carl Collin and Viola Rose Collin, both of 372 W. Oak St., Lebanon, Oreg. 97355
Filed May 17, 1966, Ser. No. 551,850
5 Claims. (Cl. 248—40)



1. A holder for sections of a fishing pole comprising a main body member,

at least two arms carried by the body member and extending outwardly therefrom in parallel relation to each other,

one of said arms adapted for telescopic frictional engagement with the interior of an open ended ferrule at one end of one of said fishing pole sections, and

the other of said arms of hollow tubular form adapted for telescopic engagement with the exterior of a ferrule at one end of another of said fishing pole sections.

3,319,911
FISHING POLE HOLDER
Harry K. Fuller, Fairfax County, Va. (1509 Orange St., Beaumont, Tex. 77701)
Filed June 2, 1966, Ser. No. 554,731
3 Claims. (Cl. 248—42)

1. A fishing pole holder comprising

support cradle means (15),

means (14, 16) for pivotally mounting said support cradle means for rotation in a horizontal plane,

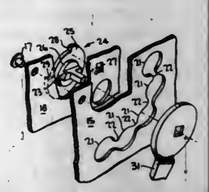
a plurality of apertures (21) in said support cradle means radially disposed about said means for pivotally mounting and having

passages (22) communicating therebetween,

pole receiving means (18) pivotally mounted on said support cradle means for movement in a vertical plane, and

locking means for selectively positioning said pole receiving means in one of a plurality of positions in a vertical plane, said locking means comprising

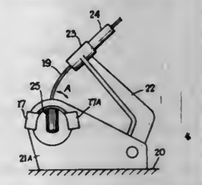
key means (23),



said key means being shaped to pass through said passages when turned in one position and to remain locked within one of said apertures in another position, and

means (31) to position said key means within said apertures to lock said pole receiving means in one of a plurality of selectable positions with respect to said support cradle means.

3,319,912
FASTENER
George Noel Crowther, Stoke Poges, England, assignor to United-Carr Incorporated, Boston, Mass., a corporation of Delaware
Filed June 8, 1965, Ser. No. 462,264
Claims priority, application Great Britain, June 18, 1964, 25,280/64
5 Claims. (Cl. 248—74)

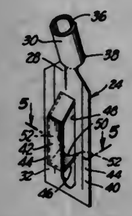


1. The combination of a cable having an enlarged end attached to a support member having two spaced parallel arms formed with aligned apertures with the aid of a fastener comprising a body portion adapted to extend across the two arms, the body portion being slotted from the centre to a side edge of the body portion and having extensions at each end adapted to extend into the apertured arms, the cable extending through the slot with the enlarged end located behind the body portion and being slidable along and out of the slot when the fastener is disengaged from the support.

3,319,913
REFILL HOSE MOUNTING CLIP
Adolf Schoepe, 1620 N. Raymond Ave., Fullerton, Calif. 92631, and Frederic E. Schmuck, 535 Century Drive, Anaheim, Calif. 92805
Filed June 23, 1966, Ser. No. 559,778
7 Claims. (Cl. 248—75)

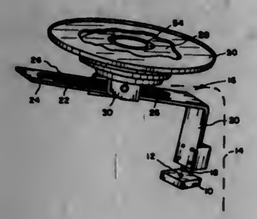
1. In the combination of a hose mounting clip securing an extremity of a refill hose in operative relationship with the associated extremity of an overflow tube of a toilet flush tank: said resilient refill hose having a tubular extremity with a normal interior diameter; said rigid upstanding overflow tube having a tubular upper extremity; said hose mounting clip including a body having a tube mounting portion and a hose engaging portion, said tube mounting portion engaging said refill tube and retaining said hose engaging portion oriented with respect to said tube upper extremity, said hose engaging portion being

disposed within the interior of said hose extremity, said hose engaging portion being of greater dimension than said normal interior diameter of said hose to expand said hose extremity and provide for frictional engagement of said hose interior by said hose engaging portion; and said clip hose engaging portion including a hollow cylindrical



part having a slot formed axially therethrough, said cylindrical part being disposed within said hose interior and having a selected outer diameter greater than said hose interior diameter providing said hose extremity expansion, said selection of said cylindrical part outer diameter determining said hose expanded interior diameter.

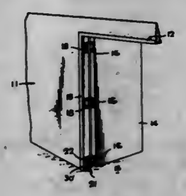
3,319,914
MOVABLE TABLE ATTACHMENT FOR A MACHINE TOOL
Patsy Chiappetta, Jr., Snow Crystal Lane, Stamford, Conn. 06905
Filed May 20, 1965, Ser. No. 457,322
3 Claims. (Cl. 248—205)



1. In combination with a machine tool, a tool and instrument table comprising an elongated arm having an elongated slot therein, a track on either side of said slot, means on said machine tool for pivotally mounting said arm thereon, a rotatable table top having a pivot that is slideable in said slot, a pair of spaced guide members secured to the undersurface of said table top, roller members located in the area between said spaced guide members and in rolling engagement with both the top and bottom surfaces of said elongated arm, said guide members being movable along said elongated arm and the pivot of said table top being slideable in said slot whereby said table top may be moved over said arm from a position in proximity to said machine to a position remote therefrom, said table top being freely rotatable at any given time.

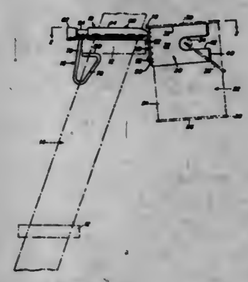
3,319,915
DOOR HANGER BRACKET
Gilbert E. Durand, 1483 Royal Blvd., Glendale, Calif. 91207
Filed July 23, 1965, Ser. No. 474,355
12 Claims. (Cl. 248—205)

1. A door hanger bracket adapted to be secured to a door jamb having butt hinge plate recesses in its surface, comprising a body adapted to be secured to the door jamb with a portion received in one of the recesses in the door jamb and bearing against the shoulder in the jamb defining the bottom of the recess, and a door support member mounted on said body and extending laterally thereof



and providing an upper surface portion at the height of the bottom of the recess upon which to place a butt hinge installed on the door to be hung and thereby support the door thereon.

3,319,916
CAN HOLDER
Robert C. Malicoat, Carmichael, Calif. (3405 Concetta Way, Sacramento, Calif. 95821)
Filed Aug. 31, 1965, Ser. No. 483,982
8 Claims. (Cl. 248—210)



1. A paint can holder comprising

can receiving means including an annular member forming at least a portion of a circle having an upper edge adapted to receive in load supporting relation a bead of a paint can,

means for releasably grasping a ladder rung including a substantially straight member secured to said can receiving means carrying a depending finger having a load carrying portion substantially parallel to and spaced from said straight member,

said straight member including a first element comprising a conduit and a plurality of openings communicating with said conduit, a second element slidably fitted within said conduit and means on said second element including a stud and resilient means for biasingly urging said stud into one of said openings for releasably fixing said first element to said second element.

3,319,917
HOOK BRACKET FOR APERTURED BOARD
Lucien J. Bilodeau, 71 Orange St., Barre, Vt. 05641
Filed Aug. 31, 1966, Ser. No. 576,293
2 Claims. (Cl. 248—225)

1. A bracket for use in combination with an apertured panel, said apertured panel having opposed face surfaces, and having spaced apertures therethrough, said bracket having an upper and a lower hook,

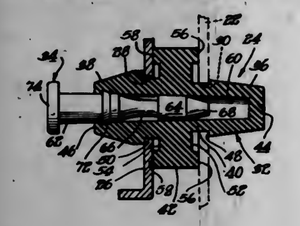
(a) the upper hook comprising an elongated support member with an upwardly protruding outer end,

(b) said unitary bracket having a thin section therein between the upper and lower hooks,



(c) and the lower curved hook being upwardly curved and rotatable about the center of the thin section adapted to be received in and held by a second aperture in said apertured panel.

3,319,918
SHOCK MOUNTING GROMMET
George M. Rapata, Park Ridge, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill., a corporation of Delaware
Filed June 18, 1965, Ser. No. 464,939
6 Claims. (Cl. 248—239)



1. A panel mounting device comprising: cylindrical grommet means including a first end portion, a second end portion, a medial portion of lesser radial extent than said first and second end portions; flange means radiating from said medial portion spaced axially from said first and second end portions, and a central, pin receiving bore penetrating said end portions and said medial portion; and pin means for assembly in said bore, including axially spaced portions sized to expand said medial portion radially outwardly adjacent its junctures with said end portions and including a transversely reduced portion between said axially spaced portions adapted to promote flexing of portions of said grommet means aligned therewith.

3,319,919
MOUNTING AND LEVELING DEVICE FOR LIGHTING FIXTURES
Maurice Eisenberg, Chicago, Ill., assignor to Solar Light Manufacturing Co., Melrose Park, Ill., a corporation of Illinois
Filed Sept. 27, 1965, Ser. No. 490,596
6 Claims. (Cl. 248—343)



1. The combination with an electric fixture of a mounting and leveling assembly for said fixture and carried thereby for engagement with a fixture-supporting ceiling construction member, said assembly comprising:

a one-piece sheet metal body having a top wall, a bottom wall, a front wall, and a pair of spaced vertically extending parallel side walls,

each one of said pair of side walls including an integral transversely and outwardly extending flange adapted for abutment against a side wall of said fixture for attachment thereto,

fastening means securing said flanges of said body to said electric fixture,

said front wall having an elongated vertically extending slot, a top portion of said slot being angled obliquely upwardly in said front wall and communicating with a cut out in one of said side walls,

an elongated threaded rod within said body and rotatably journaled in said top and bottom walls thereof,

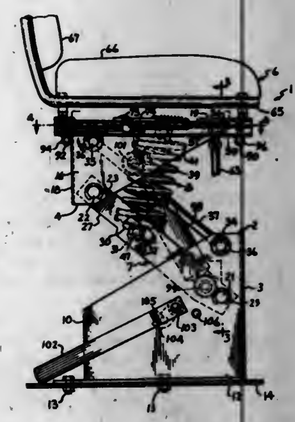
said rod extending parallel to a plane defined by said slot and keyed against axial displacement,

a supporting and leveling arm threadably affixed on said rod for upward and downward movement thereon upon rotation of said rod, said arm disposed transversely of said rod and adapted to extend through said cut out in a position parallel to said side wall of said fixture and to swing through 90 degrees to enter said slot upon rotation of said rod and to extend outwardly of said fixture for engagement with said construction member,

edges defining said cut out and said obliquely angled slot portion constituting cam surfaces for guiding and controlling horizontal pivoting of said arm,

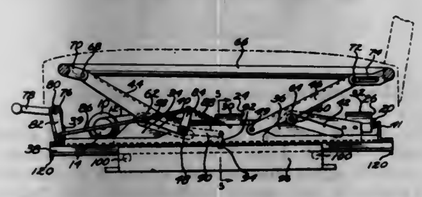
whereby said fixture leveling and supporting arm is pivotal into and out of fixture-supporting position and is movable linearly upwardly and downwardly along said rod toward and away from said fixture supporting member for vertical positioning of said fixture.

3,319,920
VEHICLE SEAT
Paul Freedman, Chicago, and Robert A. Wahls, Des Plaines, Ill. (both of P.O. Box 1250, Evanston, Ill. 60204)
Filed May 11, 1965, Ser. No. 454,909
6 Claims. (Cl. 248—399)



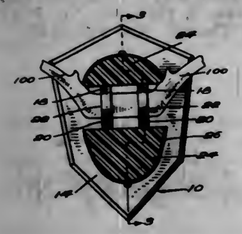
1. A seat suspension comprising a base portion and a seat-supporting portion, means including a linkage pivotally secured to each portion and extending therebetween for movably supporting the seat-supporting portion on the base portion, spring means extending between the seat-supporting portion and the linkage, means for pivotally mounting one end of the spring means to the seat-supporting portion, and means, including means for selectively supporting pivotally said other end of the spring means on the linkage in positions intermediate the pivotal connections of the linkage with said two portions, for adjusting the amount of deflection of the seat-supporting portion for a given load thereon, said adjusting means further comprising means for moving one of said portions relative to the other to a position that permits detachment of said other end of the spring means from its pivotal connection so that said other end of the spring means can be moved to another position of pivotal connection.

3,319,921
ADJUSTABLE ELECTRICALLY POWERED AIRCRAFT SEAT
Proctor W. Nichols, Colorado Springs, Colo., assignor to Aircraft Mechanics, Inc., Colorado Springs, Colo., a corporation of Colorado
Filed Apr. 30, 1965, Ser. No. 452,271
7 Claims. (Cl. 248—419)



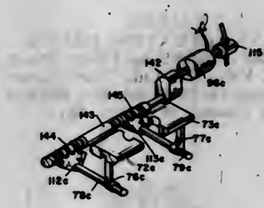
1. An adjustable seat comprising a support, a pair of parallel rails mounted on said support and designed to permit manual longitudinal movement of said rails along said support, a screw operatively positioned on said support, reversible drive means operatively connected to said screw and mounted on said support, power operated means positioned on said screw and adapted to travel along said screw upon energization of said power means, a pair of front and rear camming means mounted for longitudinal movement along said parallel rails and operatively connected for movement with said power actuated means, a seat means pivotally connected to said longitudinal movable parallel rails and operatively connected to said front and rear camming means thus providing a seat which is manually movable in a longitudinal direction and selectively power movable in a vertical direction.

3,319,922
TROPHY MOUNT
Garn G. Christensen, Salt Lake City, Utah, assignor to Buckhorn Corporation
Filed July 22, 1965, Ser. No. 473,991
1 Claim. (Cl. 248—466)



A trophy mount for antlers or horns of animals in which the several parts are readily and easily assembled and disassembled comprising a flat body piece adapted to be supported from a wall and predrilled with four holes forming a quadrangle approximately in the center thereof, the antlers being adapted to be placed between the upper pair and the lower pair of said holes, two steel spring strips adapted to be placed over the antlers when said antlers are placed on said body piece, first means extending into the upper pair of holes for separately securing one end of each of said strips to said body piece, second means extending into the lower pair of holes for separately securing the other end of each of said strips to said body piece and for bending said strips about said antlers to thereby cinch the antlers to said body piece, a half-ovoidal shaped shield of foamed polystyrene pressed against said body piece over said steel strips, and a fabric arranged over said shield and secured to said body piece, said shield having an at least partially hollow interior with the hollow being arranged over said steel strips.

3,319,923
ELECTRO-HYDRAULIC BLOWOUT PREVENTER
John A. Haeber and Kenneth W. Foster, Houston, Tex., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware
Original application Apr. 20, 1962, Ser. No. 189,113, now Patent No. 3,250,336, dated May 10, 1966. Divided and this application July 16, 1965, Ser. No. 482,970
3 Claims. (Cl. 251—1)



1. A blowout preventer comprising

(a) a hollow body member having aligned pipe openings in one pair of opposite walls to provide a pipe passage therethrough,

(b) at least a pair of oppositely-arranged sealing rams movable toward and away from the central axis of said pipe passage,

(c) sealing means carried on the terminal adjacent portions of said ram means,

(d) actuating linkage means connected to each of said rams,

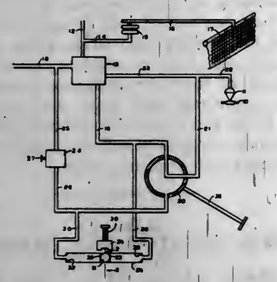
(e) electrical motor means carried in fixed relation to said body member and being operatively connected to said actuating linkage means, and

(f) circuit means for said motor means, said circuit means including variable voltage means positioned remotely of said motor means for selectively varying the thrust of said rams at least in their closed position.

3,319,924
DIFFERENTIAL PRESSURE INDICATOR AND PNEUMATIC CONTROL SYSTEM INCORPORATING THE SAME
James S. Wilson, Thomaston, Conn., assignor, by mesne assignments, to American Chain & Cable Company, Inc., New York, N.Y., a corporation of New York
Filed July 1, 1964, Ser. No. 379,470
11 Claims. (Cl. 251—26)

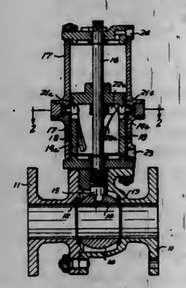
9. A fluid pressure differential indicator for connection between two sources of fluid under pressure, comprising a tubular member forming a longitudinal passage and adapted to be connected at its opposite end portions to respective ones of said sources of fluid under pressure,

an indicating member formed of magnetic material in said tubular member and deflectable from a zero position in opposite directions longitudinally relative to said tubular member, said indicating member extending transversely



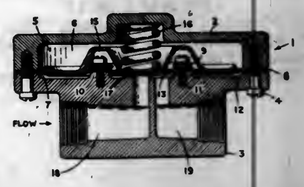
in said tubular member and closely fitting the same, and magnetic means for biasing said indicating member against deflection from said zero position in the absence of a pressure differential across it greater than a predetermined amount.

3,319,925
VALVE-ACTUATING DEVICE
Koichi Kojima and Hiroshi Sato, Tokyo, Japan, assignors to T. V. Valve Co., Ltd., Tokyo, Japan
Filed Sept. 24, 1965, Ser. No. 489,826
1 Claim. (Cl. 251—58)



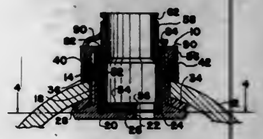
A valve actuating device comprising a cylinder attached to the outside of a valve body; a valve rod which is adapted to actuate a valve rotatably mounted within the cylinder, a housed cylindrical piston within the cylinder slidably mounted on the rod; a first plurality of guide slots in the wall of the piston and inclined relative to the longitudinal axis of said piston, a second plurality of guide slots in the wall of the piston and inclined relative to the longitudinal axis of said piston, said second plurality of guide slots being oppositely inclined with respect to said first plurality of guide slots; a first plurality of protruding plugs secured to the cylinder wall and extending into said first plurality of guide slots, a second plurality of protruding plugs secured to the valve rod and extending therefrom into said second plurality of guide slots; means for reciprocating the piston by fluid pressure alternately charged into the cylinder from axially spaced ports provided in the proximities of the ends of the cylinder, wherein reciprocation of said piston produces rotary motion of said valve consisting of the superposition of the rotary motion of said piston caused by the first plurality of guide slots and protruding plugs, and the rotary motion of the valve rod caused by the second plurality of guide slots and protruding plugs, whereby providing a greater valve rotation in a shorter piston displacement.

3,319,926
MULTIPLE SIGNAL ACTUATED DIAPHRAGM VALVE
Henry William Boger, Westwood, Mass., assignor to Worthington Corporation, Harrison, N.J., a corporation of Delaware
Filed Dec. 17, 1965, Ser. No. 514,559
5 Claims. (Cl. 251—61)



1. A fluid pressure actuated valve comprising:
(a) a body having a cavity therein;
(b) a flexible member fixedly mounted in said cavity and dividing said cavity into a first signal chamber, a second signal chamber and a fluid flow chamber;
(c) means in said cavity coacting with said flexible member and said body to isolate the chambers from one another;
(d) said body having a fluid flow inlet passage therein communicating with the fluid flow chamber and terminating in a valve seat within said fluid flow chamber;
(e) said body having a discharge passage therein communicating with said fluid flow chamber;
(f) said body having a first signal passage communicating with said first signal chamber, and a second signal passage communicating with said second signal chamber, for receiving separate pressure fluid signals; and
(g) an actuating means movably mounted in said first signal chamber and coacting with said member to operate said valve by moving the flexible member against the valve seat, and permitting the flexible member to move away from the valve seat in response to pressure signals in the second signal chamber and in the fluid flow chamber which are in excess of the pressure exerted against the diaphragm in the first signal chamber.

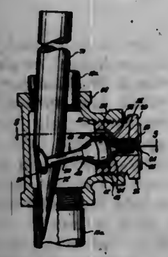
3,319,927
IRRIGATION PIPE VALVE
Andy L. Thompson, R.R. 2, Courtland, Kans. 66939
Filed June 8, 1964, Ser. No. 373,250
6 Claims. (Cl. 251—145)



6. A valve comprising, a valve body having a circular cross section and an end wall having an opening therein, a flange on said body adapted to conform to the inside surface of a pipe, tank, or the like, connecting means on the outside of said valve body, means engageable with said valve body and flange and said connecting means thereon

and a pipe, tank, or the like, when said valve body is mounted in same to sealingly secure said valve body therein, a hollow valve core turnably disposed in said valve body having an end wall having an opening therein selectively alignable with said opening in said valve body, outlet means on said valve core, engagement means on said valve core, valve core adjustment means disposed on said valve body in engagement with said connecting means on the outside of said valve body, sealing means disposed between said valve body and said valve core and surrounding an opening, means to keep said valve adjustment means in desired position relative to said valve body, said valve adapted in use to be opened and closed by turning said valve core to align and misalign said openings in said core and said valve body.

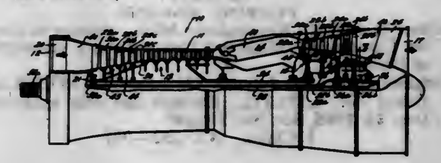
3,319,928
DRAIN BACK VALVE
Noel M. Anderson, P.O. Box 392, Storm Lake, Iowa 50588
Filed July 25, 1966, Ser. No. 567,496
11 Claims. (Cl. 251—145)



1. A drain plug for a standing pipe for water or the like, comprising:
a plug member adapted to be removably inserted in the wall of a standing pipe,
said plug member being provided with a through opening to serve as a drain hole communicating at its inner end with the interior of said pipe,
an elongated movable closure member carried by said plug member,
said closure member being pivotally secured at one end to said plug member adjacent the inner end of said drain hole,
said closure member being spring loaded so as to normally close the inner end of said drain hole and to extend into the interior of said pipe transversely of the longitudinal axis thereof, and
means selectively insertible into said standing pipe intermediate said closure member and the interior wall of said standing pipe to bias said closure member to open position relative to said drain hole.

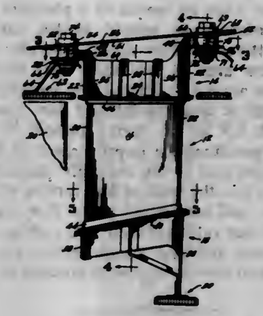
3,319,929
VIBRATION DAMPING MEANS
Thomas Frederick Lawrence, Beverly, and Jack Reid Martin, Bedford, Mass., assignors to General Electric Company, a corporation of New York
Filed Dec. 31, 1964, Ser. No. 422,624
8 Claims. (Cl. 253—39)

1. In a turbomachine having stator and rotor members cooperating to form a motive fluid passage therethrough, a seal assembly to prevent leakage of motive fluid from said passage, said seal assembly comprising:
a first seal member carried by said stator member,
a second seal member carried by said rotor member for rotation therewith,
said first and second seal members cooperating to form therebetween a seal for preventing leakage of motive fluid from said passage,
said first member having a substantially cylindrical surface thereon,



and a polygon ring having an odd number of discrete sides engaging said cylindrical surface at a plurality of points none of which are diametrically opposed, the number of contact points being equal to the number of sides of said polygon ring.

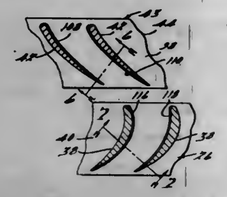
3,319,930
STATOR ASSEMBLY FOR TURBOMACHINES
Werner Ernst Howald, Cincinnati, Ohio, assignor to General Electric Company, a corporation of New York
Filed Dec. 19, 1961, Ser. No. 160,669
8 Claims. (Cl. 253—78)



1. In an axial-flow turbomachine having a thin-walled, sheet-metal outer casing and at least one rotor stage, a stator assembly comprising:
an outer stator ring channel-shaped in cross-section and including radially outwardly-extending side portions and a connecting bottom portion;
a plurality of radially-extending stator vanes having leading and trailing edges with integral prolongations thereof, the outer ends of said vanes piercing the bottom portion of said outer stator ring, said leading and trailing edges being rigidly affixed to the side portions of the ring co-extensively of the radial lengths thereof;
a plurality of discrete locating surfaces on outer portions of the prolongations of at least one of said edges;
discrete locating and supporting means on said casing; and
fastening means extending through the casing locating and supporting means, at least one of said stator ring side portions, and said prolongation locating surfaces for rigid interconnection thereof;
and an inner channel-shaped stator ring having radially inwardly-directed side portions and a connecting top portion, the inner ends of said stator vanes piercing said top portion, said leading and trailing edges being rigidly affixed to the inner stator ring side portions co-extensively of the radial lengths thereof,

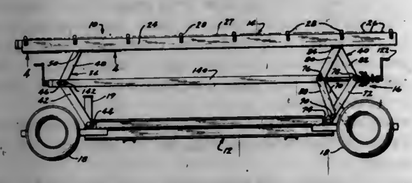
the stator ring and vane assembly providing rigidity and roundness for the thin-walled, sheet-metal outer casing.

3,319,931
TURBINE ENGINE
Albert H. Bell III, Birmingham, Mich., assignor to Chrysler Corporation, Highland Park, Mich., a corporation of Delaware
Original application July 25, 1963, Ser. No. 297,538, now Patent No. 3,252,212. Divided and this application Dec. 23, 1965, Ser. No. 516,047
1 Claim. (Cl. 253—78)



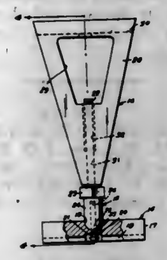
In a gas turbine engine having a compressor; a compressor drive turbine wheel; and a turbine wheel inlet nozzle assembly; wherein said turbine wheel and nozzle assembly define, each by means of a plurality of radially directed circumferentially spaced blades, turbine wheel and nozzle motive gas flow areas; wherein said nozzle motive gas flow area is less than said turbine wheel motive gas flow area; and wherein the velocity of motive gas flow through at least one of said flow areas is in the range of Mach 0.9 to 1.0 during periods of maximum engine speed operation; the improvement of having said turbine wheel and said nozzle assembly critically matched to each other so that the ratio of said turbine wheel motive gas flow area to said nozzle motive gas flow area is within one percent of that ratio between said turbine wheel motive gas flow area and said nozzle motive gas flow area which enables said turbine engine to produce its maximum power.

3,319,932
PALLET TRAILER HAVING A TOGGLE-OPERATED PLATFORM TILTABLE ABOUT ONE OR MORE AXES
John A. Szczepanik, East Northport, N.Y., assignor to Dorr-Oliver Incorporated, Stamford, Conn., a corporation of Delaware
Filed Sept. 3, 1965, Ser. No. 484,898
8 Claims. (Cl. 254—9)



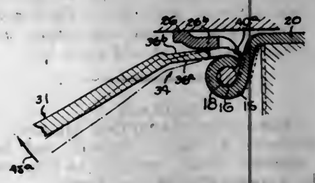
1. A toggle-operated elevating-platform trailer having four rectangularly related elevating toggles and toggle-operating drive means for actuating said toggles in pairs, said drive means actuating at least two perpendicularly-related pairs of toggles independently whereby the trailer platform can be selectively tilted about perpendicular axes, said toggle-operating drive means including parallel bar means respectively interconnecting the toggle center pivots of parallel pairs of toggles whereby both toggles in a pair can operate together and further including means to simultaneously vary the effective length of said respective bar means whereby one toggle of each of the parallel pairs can be operated independently of the other toggles of these pairs.

3,319,933
TENSION FEED ROLL JACK
Billy C. Gray, 765 De Baca Road, Las Cruces, N. Mex. 88001
Filed Nov. 23, 1965, Ser. No. 510,152
3 Claims. (Cl. 254—101)



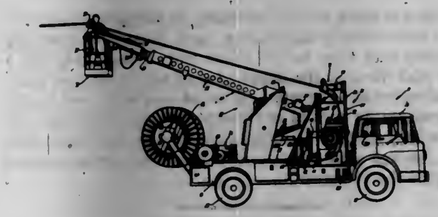
1. A jack for use in the mounting and dismounting of a feed roll unit in a card punch machine comprising, a foot; an elevation bolt having a threaded portion at its upper end, a nut portion below said threaded portion and a head portion extending downwardly from said nut portion; a frame for supporting said feed roll unit threadably engaging said elevation bolt; and means carried by said foot and said elevation bolt for swivelably mounting said elevation bolt on said foot, said means including a rounded end on said head, a smooth axial bore in said head, a threaded bore in said head and disposed normal to said smooth bore, a semicircular socket located centrally in the upper portion of said foot, said socket receiving said rounded end of said head for swivelable movement therein, a clearance recess in the lower portion of said foot, an outwardly and downwardly flaring slot connecting said recess and said socket, a button headed, smooth shank bolt received in said axial bore and extending through said slot and into said recess and a set screw threaded into said radial bore whereby said smooth bolt is held against axial movement and preventing removal from said axial bore.

3,319,934
HINGE ADJUSTING TOOL
Carl J. Dargene, Rockford, Ill., assignor to Amerock Corporation, Rockford, Ill., a corporation of Illinois
Filed Apr. 6, 1965, Ser. No. 445,955
2 Claims. (Cl. 254—131)



1. A hinge tool for adjusting a hinge pivotally supporting a door on a frame and including a frame leaf attached to the frame and supporting a plurality of spaced frame flanges extending to and supporting cylindrical shaped hinge curls, said tool comprising, a flat rigid wedge member having first and second flat surfaces facing opposite and having a thickness therebetween less than the spacing between the frame leaf and curls, said wedge member including a plurality of parallel extending spaced fingers supported from one edge, said fingers being spaced apart a distance greater than the width of the frame flanges and positioned to extend therebetween, a first abutment including the first flat surface of said wedge member, a second abutment on the side of said fingers adjacent the second flat surface of said wedge member and shaped to fit the curved surface of the curls, a handle attached to the edge of said wedge member opposite said fingers and extending in the direction said first flat surface faces and at an acute angle with the plane of the wedge member, whereby said tool can be inserted in the hinge with the wedge member between the frame leaf and curls and the fingers extending between the frame flanges and a force applied on said handle to bring said first abutment into contact with the frame leaf and said second abutment into contact with said curls to bend the frame flanges and reposition the curls and door in a lateral direction towards the frame leaf.

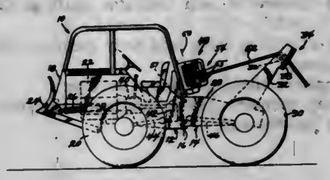
3,319,935
APPARATUS FOR LASHING AND PLACING AERIAL CABLE AND STRAND
Jay M. Eltel, Los Altos, Bertram J. Leigh, Redwood City, and Edward R. Williams, Los Altos, Calif., assignors, by mesne assignments, to Telsta Corporation, Carlos, Calif., a corporation of California
Filed Aug. 12, 1965, Ser. No. 479,212
17 Claims. (Cl. 254—134.3)



1. In apparatus for placing aerial cable and strand, a platform, at least one reel of cable, means for rotatably mounting the reel of cable so that it is positioned in the vicinity of the platform, at least one reel of strand, means for rotatably mounting the reel of strand on the platform, lashing apparatus carried upon the platform, guiding means mounted on the platform for guiding the reel of cable into the lasher, means mounted on the platform for guiding the strand from the reel of strand into the lashing apparatus, means for guiding and applying a tension to the strand before it passes into the lasher, means connected to the means for guiding and applying a tension to the strand giving an indication of the amount of tension applied to the strand, said means for guiding and applying a tension including a sheave frictionally engaged by the strand, an arm, means rotatably mounting the sheave on the arm, and means pivotally mounting one end of the arm for movement about a pivot point, said means connected to the means for guiding and applying a tension and giving an indication including means for measuring the movement of said arm about said pivot point.

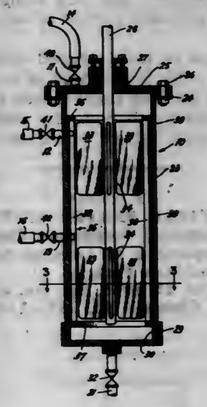
3,319,936
ARTICULATED LOGGER VEHICLE
William J. Askins, Libertyville, Ill., assignor to International Harvester Company, a corporation of Delaware
Filed Jan. 26, 1966, Ser. No. 523,088
8 Claims. (Cl. 254—166)

1. An articulated logger vehicle including the combination of: a first frame; a second frame articulated to the first frame about a first upright axis; a winch mounted on the first frame and rotatable about a second upright axis, the winch having an extensible and retractable



cable; and, means on the second frame for guiding the cable to and from the winch.

3,319,937
APPARATUS FOR MAKING FOAMS
Christopher L. Wilson, Sloatsburg, and Don G. Hutton, Yonkers, N.Y., assignors to Hudson Foam Plastics Corporation, Edgewater, N.J., a corporation of New York
Original application May 16, 1956, Ser. No. 585,298. Divided and this application Sept. 15, 1960, Ser. No. 80,712
7 Claims. (Cl. 259—8)

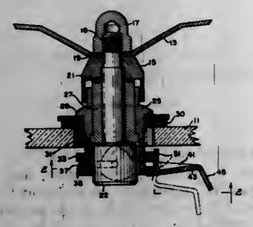


1. Apparatus for mixing a plurality of liquid chemical reactants adapted to react to form a foamed product comprising a single chambered cylindrical mixing head having a plurality of closely spaced inlets along the axis thereof and an outlet at the lower end thereof, a paddle shaft rotatably and axially mounted within said head, paddle members extending radially from said shaft toward the inner surface of said head, and radially disposed baffle members arranged about the inner surface of said head, said baffle members and paddle members having opposed edge portions in closely spaced relation.

3,319,938
REMOVABLE BLADE ASSEMBLY
Roy L. Swanke, Newington, and Raymond J. Rogenski, Torrington, Conn., assignors to Dynamics Corporation of America, New York, N.Y., a corporation of New York
Filed Oct. 21, 1965, Ser. No. 499,780
7 Claims. (Cl. 259—107)

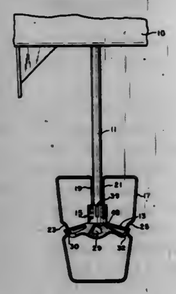
1. A removable blade assembly for an upright container which comprises

a body member extending through the base of said container,
a rotatable shaft mounted within said body member and extending therethrough,
a blade secured to said rotatable shaft at the upper end thereof,
a flange extending from said body member within said container,
sealing means within said flange member,
said body member being externally threaded at the lower end thereof,



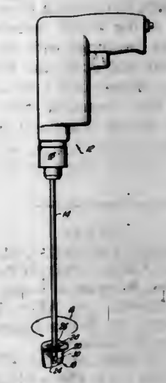
first and second nuts retained on said threaded portion with a space therebetween,
a half-ring member rotatably secured between a rigid U-shaped member, said ring being adapted to encircle said threaded portion of said body member, and
camming means on said U-shaped member for bearing against the outer bottom wall of said container and placing said half-ring under tension against said body member whereby to compress said sealing means against the inner bottom wall of said container.

3,319,939
ROTATABLE BEATER ASSEMBLY
Raymond J. Rogenski, Torrington, Conn., assignor to Dynamics Corporation of America, New York, N.Y., a corporation of New York
Filed Oct. 21, 1965, Ser. No. 499,793
7 Claims. (Cl. 259—134)



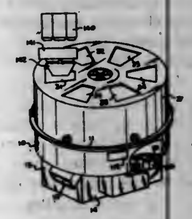
4. A rotatable beater device comprising,
a shaft terminating at one end thereof in an offset face, said face being substantially parallel to the axis of said shaft,
said shaft forming a shoulder adjacent to said face,
a groove in said shaft adjacent said shoulder and terminating at said face,
a semi-rigid hub having a central recess substantially mating with said one end of said shaft,
a beater, and
means for securing said beater to said hub.

3,319,940
DEVICE FOR STIRRING LIQUIDS
Adelbert Mentnech, Locust Valley, N.Y., assignor of thirty-three and one-third percent to Albert C. Notte, Jr., New York, N.Y., and thirty-three and one-third percent to Clinton G. Bush, Jr., Centre Island, Oyster Bay, N.Y.
Continuation of application Ser. No. 359,334, Apr. 13, 1964. This application Apr. 8, 1966, Ser. No. 541,394
9 Claims. (Cl. 259—138)



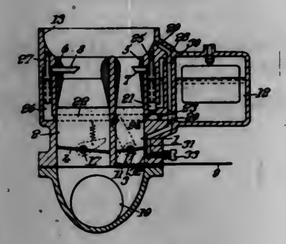
9. In a stirring device including an elongated rotatable rod, a substantially flat stirring vane, means for pivotally mounting said vane to the lower end of said rod, and a cover plate fixed to the upper edge of said vane, said plate extending beyond the lateral faces of said vane, and means for limiting the pivotal movement of said plate and said vane with respect to said rod including an opening in said plate through which said rod passes with predetermined clearance therebetween.

3,319,941
METHOD AND MIXING APPARATUS
William Bruce Isaacs, Jr., Lexington, Ky., and Roger G. Heaton, Cincinnati, Ohio, assignors to Machinery Development Company, Cincinnati, Ohio, a corporation of Ohio
Continuation of application Ser. No. 425,033, Jan. 12, 1965. This application May 20, 1966, Ser. No. 554,633
24 Claims. (Cl. 259—161)



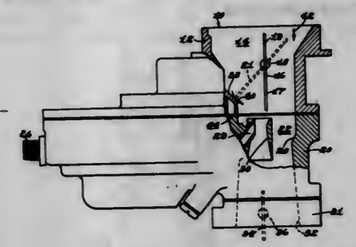
1. Mixing apparatus comprising a stationary frame, a generally circular housing rotatably mounted upon and supported by said frame, means for rotating said housing, said housing during its movement passing in sequence over a discharge station and beneath a loading station, a plurality of invertible mixing chambers mounted within said housing and movable therewith, each of said chambers having an opening in a wall thereof for receiving and for discharging material, means for inverting said chambers seriatum at said discharge station and for restoring the same to upright position at said loading station, means within said chambers for mixing material contained therein, and means for driving said mixing means.

3,319,942
MULTISTAGE CARBURETORS FOR INTERNAL COMBUSTION ENGINES
André Louis Menneson, Neuilly-sur-Seine, France, assignor to Societe Industrielle de Brevets et d'Etudes S.I.B.E., Neuilly-sur-Seine, France, a French society
Filed Apr. 16, 1965, Ser. No. 448,773
Claims priority, application France, Apr. 21, 1964, 971,782
1 Claim. (Cl. 261—23)



A multistage carburetor for an internal combustion engine which comprises, in combination,
an air intake,
primary and secondary induction pipes,
primary and secondary throttle valves mounted respectively in said primary and secondary induction pipes, means operative manually for actuating said primary throttle valve, means responsive to the position of said primary throttle valve for controlling said secondary throttle valve in such manner that said secondary throttle valve opens when said primary throttle valve has been opened,
primary and secondary venturis mounted respectively in said primary and secondary induction pipes upstream of said throttle valves,
primary and secondary spray nozzles opening respectively into said primary and secondary venturis,
primary and secondary vertical wells connected respectively with said primary and secondary spray nozzles,
primary and secondary vertical air bleed tubes connected with the air intake and dipping respectively in said primary and secondary wells,
a constant level fuel chamber,
a common fuel feed conduit opening from said constant level fuel chamber,
a common fuel metering orifice in said common fuel feed conduit for metering the total fuel flow rate through said common fuel feed conduit,
primary and secondary fuel feed conduits starting respectively from the portion of said common fuel feed conduit downstream of said common fuel metering orifice and leading to said primary and secondary vertical wells, respectively, and
a second fuel metering orifice in said primary fuel feed conduit below the air bleed tube in said primary well, whereby the fuel flow rate through said primary feed conduit is metered through said common and second fuel metering orifices in series so as to create a small suction upstream of said second metering orifice when said secondary throttle valve starts being opened whereby the richness of the mixtures remains approximately constant.

3,319,943
CARBURETOR CHOKING DEVICE
Donald F. Morgan, Horseheads, N.Y., assignor to The Bendix Corporation, Elmira, N.Y., a corporation of Delaware
Filed Apr. 19, 1965, Ser. No. 449,174
2 Claims. (Cl. 261—39)

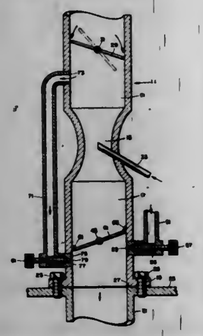


1. A carburetor for an internal combustion engine comprising:
an air horn having an induction passage therethrough;
shaft means extending through said induction passage;
a choke plate pivotally mounted on said shaft means in said induction passage capable of controlling air flow therethrough;
temperature responsive means connected to said choke plate operative when cold to bias said choke plate in a closed direction;
manifold vacuum responsive means connected to said choke plate operative to partially open said choke plate in opposition to said temperature responsive means to establish a choke plate vacuum kick position for cold idle engine conditions;
said choke plate eccentrically mounted on said shaft means to provide a major portion and a minor portion of said choke plate;
a first flow path defined by said major portion and said induction passage;
a second flow path defined by said minor portion and said induction passage;
a shelf means downstream of said major portion cooperative with said major portion to restrict the air flow through said first flow path through a range of choke plate positions from closed through vacuum kick positions.

3,319,944
CARBURETOR ICING-ELIMINATING STRUCTURE
Albert E. Brenneman, Middletown, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware
Filed Oct. 30, 1964, Ser. No. 408,470
1 Claim. (Cl. 261—41)

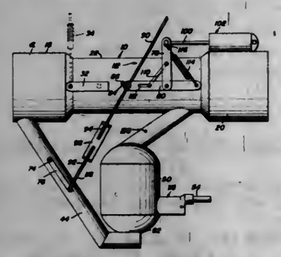
In a carburetor for a gasoline engine the combination which comprises:
(a) a main curburetor barrel having upper and lower ends,
(b) a choke valve across the upper end of said barrel,
(c) a throttle valve near the lower end of said barrel,
(d) a venturi constricted fuel and air mixing zone in an intermediate position between said choke valve and said throttle valve,
(e) a main fuel line leading to and terminating in said zone,
(f) an idle fuel by-pass line for supplying fuel below said throttle valve, said fuel by-pass line having an outlet to said main carburetor barrel at a point just below said throttle valve,

(g) an air by-pass line for supplying fuel-free air below said throttle valve when said throttle valve is in a closed condition, said air by-pass line being connected from a point on said carburetor barrel below said choke valve and above said venturi zone and main fuel line to a point on said barrel below said throttle valve, said last point being diametrically opposite and somewhat below the outlet of said fuel by-pass line, and



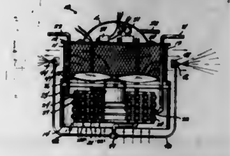
(h) needle valve adjusting means located on the lower most extremity of said air by-pass line for positively and accurately adjusting the air flow from said air by-pass line, said adjusting means including a valve body having a conically shaped seat and an adjustable valve stem having a matching conically shaped end, said seat and said valve stem being so disposed in said air by-pass line so as to insure accurate adjustment of fuel-free air flow from said air by-pass line into said carburetor barrel substantially opposite the outlet of said fuel by-pass line.

3,319,945
CARBURETOR CONSTRUCTION
Lawrence Person, 5530 Callejon Drive, Carpinteria, Calif. 93013
Filed Apr. 29, 1965, Ser. No. 451,827
6 Claims. (Cl. 261—46)



1. A fuel-air mixing device comprising first and second air passage means including first and second adjustable air flow regulating valve means, respectively, operatively associated therewith for controlling the flow of air therethrough, said first and second air passage means including corresponding air inlet ends for receiving air into said passage means and air outlet ends merging together downstream of said second air flow regulating valve means to form a single outlet for discharging air and air and fuel mixtures therefrom, said first air passage means including fuel inlet means operative to admit fuel into said first air passage means in amounts increasing and decreasing as the flow of air through said first air passage means increases and decreases, respectively, said second air passage means being devoid of fuel inlet means, means operatively connecting said first valve means with said second valve means for opening and closing of the latter in response to opening and closing of the former, said means operatively connecting said valve means including a free lost motion connection with said second valve means affording for limited movement of said first valve means in both direction independent of movement of said second valve means but preventing movement of said first valve means toward a closed position past the corresponding closed position of said second valve means thereby assuring that the latter will close with said first valve means, means yieldingly urging said second valve means to an open position corresponding to the adjusted open position of said first valve means, and double acting dashpot means yieldingly resisting movement of said second valve means toward its open position.

3,319,946
ENVIRONMENTAL CONTROL APPARATUS
Joseph W. Fulton, Jr., 1824 Southern Ave., Shreveport, La. 71101
Filed Jan. 7, 1963, Ser. No. 249,733
4 Claims. (Cl. 261—129)

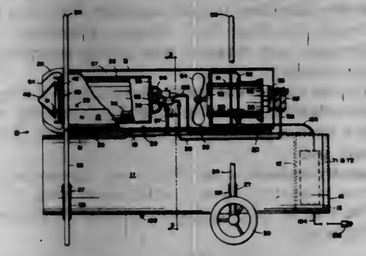


2. Apparatus for controlling the environment of an enclosure comprising in combination:
a circular housing adapted to be suspended from the ceiling of the enclosure, said housing having a closed top and an open bottom;
a fan mounted within said housing and rotatable to pull air upwardly through said bottom and to force it against said closed top;
said housing having an annular side opening through which said air is diffused outwardly of said housing and into said enclosure;
a plurality of fluid transmitting, arcuately spaced conduits rotatably mounted as a unit in said housing, and having a spray nozzle connected at each end of said conduits external of said housing; and
a plurality of vanes mounted on said conduits and in the path of said diffused air whereby said conduits and nozzles rotate about said housing.

3,319,947
PORTABLE SPACE HEATERS
Merlyn R. Truesdell, Marion, Iowa, assignor to Century Engineering Corporation, Cedar Rapids, Iowa, a corporation of Iowa
Filed Dec. 14, 1964, Ser. No. 417,987
1 Claim. (Cl. 263—19)

In a portable space heater including a cylindrical heater jacket open at each end and horizontally disposed above a fuel container therebelow, a cylindrical combustion chamber disposed within a downstream portion of said jacket effective to provide an air heating passage between said chamber and jacket and having a centrally disposed burner inlet opening in its upstream end, a motor driven fan in a portion of said jacket upstream of said burner inlet opening effective to draw air in the open upstream end of said jacket and propel it both toward said opening and out the downstream end of said jacket through said passage, said fan motor being provided with and driving an air compressor, said compressor being of the eccentric vane type and having carbon formed vanes, and a burner

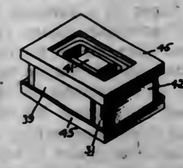
head assembly mounted to said combustion chamber, said assembly including a burner housing enclosing said burner inlet opening and having a plurality of supplementary air inlet ports adjacent said opening receiving therethrough a portion of the air propelled by said fan, said ports directing said air into said combustion chamber through said burner inlet opening transversely with respect to the axis of said chamber, the improvement comprising: said fuel container having an elongated, horizontally disposed tank with end walls and its bottom, top and side walls formed from a single piece of sheet material, the abutting ends of said sheet material forming a seam extending longitudinally of said tank along the top wall thereof, said seam including upwardly turned portion of said abutting ends disposed in face to face contact with and secured to each other, heater jacket supporting portions thereabove extending laterally outward in opposite directions from the upper end of said upwardly turned portions effective to form an elongated seat providing a mount for said jacket extending longitudinally along and beneath the outer wall of said jacket, a pair of air aspirating nozzles operatively connected to said fuel container and said compressor, said nozzles being mounted in said burner



housing to discharge into said combustion chamber through said burner inlet opening, the supplementary air entering said combustion chamber through said supplementary air ports passing across the spray patterns of said nozzles, the axes of said nozzles being laterally spaced so that said spray patterns overlap in an area lying within said combustion chamber and between said nozzle axes, an additional air inlet port in the rear of said burner housing between said nozzle axes effective to direct a further portion of the air supplied by said fan into said combustion chamber generally axially thereof through said burner inlet opening and thence into the aforesaid overlap area of the spray patterns of said nozzles, ignition means including a pair of spaced electrodes adjacent each of said nozzles effective to maintain continuous ignition of the air-fuel mixture supplied to said combustion chamber, and an air filter for the aspirating air supplied by said compressor to said nozzle, said filter comprising a permanent air filtering element having an outer visible filter surface to which air upstream of said element is supplied by said compressor and a transparent housing enclosing said surface effective to permit visual ascertainment of the cleanliness of said element.

3,319,948
ANNEALING BOX FOR TRANSFORMER CORES
Willy Olsen, Lynchburg, Va., assignor to H. K. Porter Company, Inc., Lynchburg, Va., a corporation of Delaware
Original application Oct. 24, 1963, Ser. No. 318,726. Divided and this application Aug. 15, 1966, Ser. No. 579,447
4 Claims. (Cl. 263—49)

1. An annealing box for holding in desired form the internested plural turns of a centrally windowed rectangularly formed wound transformer core during annealing, comprising in combination, a pair of identical centrally apertured rectangular rigid frame members each provided with peripherally extending side flanges turned at right angles to the principal plane of the frame member, a pair of rigid side plates of length less than that of the formed core length and of a height substantially the same as that of the core, a pair of rigid end plates of length less than that of the width of the formed core and of a height equal to that of the said side plates, the box structure being formed by the disposition of the said side and end plates in flat surface contact with the



sides and ends respectively of the formed rectangular core, and with the plates held in position by disposition of the frame members respectively against the upper and lower edges of the said plates with the upper and lower outside marginal edges of the plates held against outward movement by disposition against the inside faces of the frame members side flanges, the box structure being held together by the radially outward directed force exerted by the formed core on the side and end plates which strongly biases the latter into firm engagement against the side flanges of the frame members.

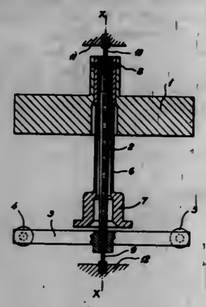
3,319,949
APPARATUS FOR MAKING PALLET OF IRON ORE AND FLUX
Glenn M. Hanson, Wauwatosa, Robert D. Frans, Brookfield, Glenn A. Heian, Franklin, and Eugene W. Price, West Allis, Wis., assignors to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Original application Oct. 5, 1961, Ser. No. 143,097, now Patent No. 3,163,519, dated Dec. 29, 1964. Divided and this application Jan. 8, 1964, Ser. No. 336,602
3 Claims. (Cl. 266—21)



1. Apparatus for making strong pellets from such as iron ore and flux material comprising: a first rolling means for rolling a mixture of finely divided iron ore and flux material, a first moisture supply means connected to said first rolling means for adding moisture to said mixture in said first rolling means to form a moist core; a reroll drum, connected to said rolling means for rerolling said core in ore free of added flux; an ore spreader and a second moisture supply means both mounted in said reroll drum and both having discharge openings spaced along substantially the entire axial length of said reroll drum for discharging moisture and said ore free of added flux, said reroll drum being operable to roll on a coating of said ore free of added flux about said core until said coating is applied and compressed to the degree that said coating is permeable to vapor of said moisture but impermeable to liquids of the viscosity of molten slag of the aforementioned flux ore at approximately 2200–2400 degrees Fahrenheit; means defining at least first, second and third pellet heating zones; a fuel combustion device connected to the end of said third zone remote

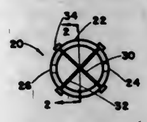
from said second zone and a gas discharge stack connected to said first zone for providing a flow of heated gases from said device through said zones; a pellet conveying means connecting said reroll drum to said zone defining means for forming said composite pellets into a movable gas permeable body (with said pellets at rest relative to each other within said body) and means mounted within said zone defining means for conveying said body of pellets through said first zone, means for heating said pellets in said first zone to vaporize and drive off said moisture at less than a rate that is observed to heat escaping vapor to a pressure that will fracture said coating, said conveying means carrying said body through said second zone, means for further heating said pellets in said second zone to initiate bridging of adjacent grains of hematite; a downwardly inclined chute connecting said second and third zones for dumping said body of pellets into said third zone before a continuous network of bridged hematite grains is achieved throughout the coating of each pellet; and drive means connected to said means defining the third zone imparting a motion to said third zone defining means for tumbling said pellets through said third zone while heating said tumbling pellets to a range above the temperatures of said first and second zones but below the incipient melting temperature of the ore in said coating, until bridging of said hematite grains yields a network throughout the coating of each pellet.

3,319,950
PRIMARY STAGE FOR HYDRAULIC DISTRIBUTOR
Rene Lucien, 56 Blvd. Maillot, Neuilly-sur-Seine, France
Filed Feb. 18, 1965, Ser. No. 433,758
Claims priority, application France, July 17, 1961, 868,053, Patent 1,302,520
7 Claims. (Cl. 267—1)



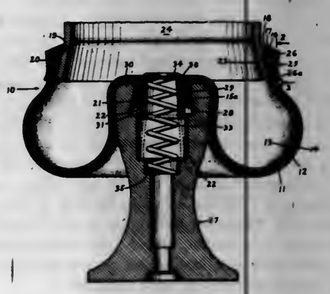
1. In a hydraulic distributor having two stages, one of which is constituted by a torque motor; a rigid shaft having opposite ends, said torque motor being rigidly connected to said shaft, a blade rigidly connected to said shaft at a location spaced from said torque motor and controlling the other of the stages of the distributor, a torque tube encircling said shaft and having one end terminating at a location between the torque motor and the blade, said torque tube being fixedly supported at said one end externally of said shaft, said torque tube having an end remote from said one end, means fixedly connecting said torque tube at said remote end to the shaft, and a pair of separate rods each of circular section of substantially smaller diameter and length than the shaft, said rods each having one end fixedly secured externally of said shaft and an opposite end coaxially and fixedly secured to a respective end of the shaft to constitute torsion axles for said shaft and permit solely torsional deflection of said shaft.

3,319,951
FLEXURAL PIVOT DEVICE AND METHOD OF MAKING SAME
Frederick A. Seelig, New Hartford, N.Y., assignor to The Bendix Corporation, Utica, N.Y., a corporation of Delaware
Filed Mar. 15, 1965, Ser. No. 439,621
5 Claims. (Cl. 267—1)



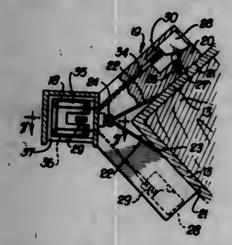
1. A flexural pivot device comprising:
a tubular core means having two axially-extending arcuate members of uniform thickness throughout;
flat longitudinally-spaced crossed spring means interconnecting said axially-extending arcuate members on a substantially common circle, said spring means having a diameter substantially equal to the diameter of said tubular core;
said axially-extending arcuate members having a total arc length less than 360°, thereby providing a circumferential gap between said axially-extending arcuate members;
a plurality of cylindrical outer sleeve means having an axially-extending, radially-inwardly-projecting inner surface over a portion of said outer sleeve circumference; and
said radially-inwardly-extending inner circumferential surfaces connected to said axially-extending arcuate members so to permit relative angular displacement therebetween.

3,319,952
PNEUMATIC OR AIR SPRINGS
Georges Louis Travers, Clermont-Ferrand, France, assignor to Compagnie Generale des Etablissements Michelin, raison sociale Michelin & Cie, Clermont-Ferrand, France
Filed Mar. 15, 1965, Ser. No. 440,025
5 Claims. (Cl. 267—65)



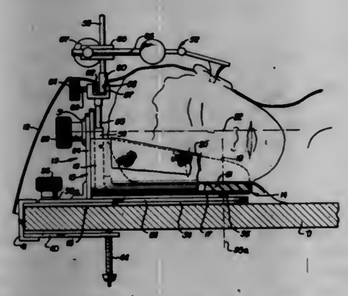
1. An air spring bellows comprising an endless flexible wall and open end portions, a plurality of plies of cords reinforcing said end portions, the cords of each ply being substantially parallel and the cords of said plies being laid in no more than two directions, said end portions being devoid of circumferentially extending reinforcements and being substantially wedge-shaped and each end portion having inner and outer surfaces converging toward the other end portion and an elastomer in said end portions having a hardness between about 70° and 90° Shore whereby said end portions are substantially incompressible in cross-section and slightly extensible circumferentially and axially.

3,319,953
CORNER PLASTER BEAD APPLICATOR
Ralph R. Sleeper, Jr., 1014 Chautauqua Blvd., Pacific Palisades, Calif. 90272
Filed Oct. 9, 1964, Ser. No. 402,728
12 Claims. (Cl. 269—19)



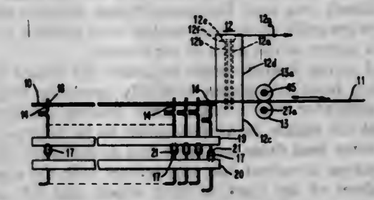
1. Device for the application to building wall corners of an angular strip having flanges to be secured to the wall surfaces prior to plastering and presenting at the flange juncture a lineal bead for exposure at the wall corner from subsequently applied plaster overlying the flanges, comprising,
(A) a portable post,
(B) supports carried by the post at spaced intervals and containing alined recesses to receive the strip, and
(C) means carried by said supports and movable relative thereto to releasably penetrate the wall surfaces beyond the flanges to mount the strip and post assembly to the wall surfaces while securing the strip flanges thereto.

3,319,954
SURGICAL HEAD HOLDER
Irving M. Shevick, 17653 Palora St., Encino, Calif. 91316, and Ernest C. Wood, Los Angeles, Calif.; said Wood assignor to said Shevick
Filed Jan. 21, 1965, Ser. No. 426,956
14 Claims. (Cl. 269—328)



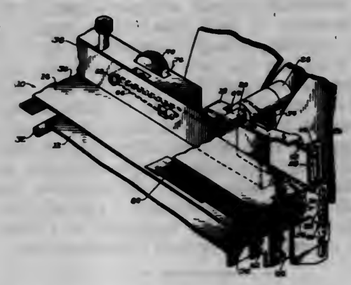
1. In a head holder: a base; a bracket; a head rest having head-supporting surfaces defining a seat to locate the head of the subject relative to the head rest with the top of the head at one end region of the head rest and the neck at the other end region of the head rest; means pivotally mounting the head rest on the bracket for movement about a first axis fixed with respect to the head rest and the bracket, said axis extending longitudinally of the head rest to pass longitudinally through the head and neck of the subject; and means pivotally mounting the bracket on the base for movement about a second axis fixed with respect to the bracket and the base, said second axis extending transverse to said first axis to extend transversely of the seat as well as transversely through the neck of the subject.

3,319,955
CARD STOP ACTUATOR
Earl Masterson, Newtonville, Mass., assignor to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Filed Feb. 1, 1965, Ser. No. 429,502
3 Claims. (Cl. 271—60)



1. In a record card transport apparatus the combination comprising a card operating station for operating upon record cards, a card bed provided with a card path for delivering said record cards by said operating station, drive means operatively associated with said bed for moving said card by said operating station, and a selectively operable card stop apparatus including an E shaped magnetizable armature having two outer arms and a center arm and having a coil means wrapped about the center arm thereof, a first permanent magnet poled in a first direction positioned above the center arm of said armature, a second permanent magnet poled in a second direction positioned below the center arm of said armature, a movable stop member connected to one of the outer arms of said armature and in spaced relationship with said card bed and electric pulse generating means for momentarily energizing said coil means to magnetize said armature in the first polarity whereby said armature is attracted to one of said permanent magnets and said stop member is moved from said card path.

3,319,956
SHEET FEED TRAYS
Walter F. Bishop, Hoffman Estates, Ill., assignor to Bell & Howell Company, Chicago, Ill., a corporation of Illinois
Filed June 14, 1965, Ser. No. 463,645
6 Claims. (Cl. 271—60)



1. In a copy producing machine provided with a sheet feed tray for supporting and positioning a stack of copy sheets for input to the machine and provided with a sheet feed drive means disposed adjacent the sheet feed tray for retractile movement into engagement with the uppermost sheet of the stack of copy sheets thereon, the improvement in the sheet feed tray comprising:
a platen for supporting the stack of copy sheets, said platen having a front edge;
at least one side rail mounted on said platen and extending rearwardly from said front edge for laterally containing the stack of copy sheets;

a corner separator mounted for movement vertical to said platen at said front edge of said platen adjacent said side rail,

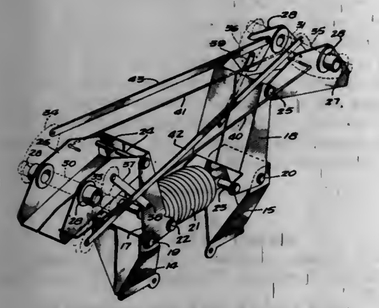
said corner separator including a vertical stop portion and a horizontal flange portion connected thereto,

said vertical stop portion extending laterally of said side rail to provide a front stop for the stack of copy sheets and said horizontal flange portion extending rearwardly from said vertical stop portion to overlie a corner of the stack of copy sheets;

and spring loaded corner separator lift means upstanding from said platen vertically operating said corner separator into a raised stack loading position,

said lift means being positioned to be engaged by the sheet feed drive means so that as the sheet feed drive means is moved into engagement with the uppermost sheet of the stack of copy sheets said lift means is moved to lower said corner separator into engagement with the corner of the stack of copy sheets at said flange portion.

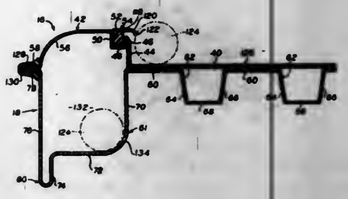
3,319,957
ROCKING HORSE WITH MOVING LEGS
John W. Ryan, 11027 Cashmere St.,
Bel Air, Calif. 94558
Filed Mar. 22, 1962, Ser. No. 181,711
2 Claims. (Cl. 272—53.2)



1. A rocking horse having a body, front and rear axles, and legs independently pivoted on said axles, comprising a stanchion, a pair of spaced-apart first links pivotally mounted on said stanchion, a tension spring having its ends respectively connected to each of said first links, front and rear axle links respectively pivotally mounted between the ends thereof on said axles and their adjacent ends respectively pivoted to each of said first links, a pair of crossed tie rods connected to said axle links on opposite sides of their axles, pair of front and rear leg actuating links respectively connected to a front and rear leg at the inner side of the respective leg axle and to each of said first links, and a pair of front and rear leg tie links respectively connected to a front and rear leg on opposite sides of their respective axles.

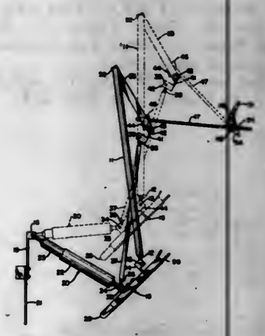
3,319,958
POOL TABLE WITH HOLLOW REINFORCING RIM CONSTITUTING POCKET CONNECTED BALL CONVEYING MEANS
Louis Bender, 606 Crescent Ave.,
Plainfield, N.J., 07060
Filed Mar. 15, 1965, Ser. No. 439,901
12 Claims. (Cl. 273—11)

1. A base for a pool table, comprising an upper portion and a lower portion, said upper portion comprising a horizontal planar part of rectangular periphery surrounded by an upwardly extending downwardly concave marginal portion including an upwardly extending wall along the periphery of said horizontal planar part, said lower portion comprising a horizontal planar part surrounded by a downwardly extending upwardly concave marginal portion whose outer peripheral edge is in substantial register with the outer peripheral edge of said upper marginal portion, said downwardly extending concave marginal portion defining ball track return means that is



slanted toward a ball receiving station, means permitting access from outside said table base to said ball receiving station, means for connecting said horizontal parts to one another, means for connecting said outer peripheral edges of said marginal portions to one another in surface-to-surface relation, said upper portion having aperture means therein in registry with said ball track return means.

3,319,959
PIT CUSHION MOUNT AND ACTUATOR MECHANISM FOR BOWLING MACHINES
Ronald A. Lenhart, 8462 W. 24th St.,
Lakewood, Colo. 80215
Filed Nov. 23, 1964, Ser. No. 413,185
7 Claims. (Cl. 273—43)



1. An improved pit cushion mount for bowling machines which include a general frame structure, machine drive elements, support arms interconnected to said drive elements for holding the said pit cushion in lowered operative position across the rear of the pit thereof and alternately in a raised out of the way position, comprising pivot elements disposed at the lower end of said support arms, a pit cushion for engagement with said pivot elements, said pivot elements being in position of non-alignment with respect to the plane of the pit cushion whereby the said pit cushion hangs at a backwardly inclined angle in the pit of said machine, a pivot support on frame elements of said machine and disposed behind the pivot elements for said pit cushion, a pivot bracket on said pit cushion in location below the said pivot elements for the pit cushion, and a dashpot pivotally mounted between said pivot support and bracket for resisting rearward swinging movement of said pit cushion when bowling balls are impacted against the front of said pit cushion, said dashpot permitting relatively easy extension of the dashpot whereby forward movement of said pit cushion and movement to the raised out of way position above said pit is relatively unimpeded.

3,319,960
PELLET TARGET EMPLOYING A FREELY SUSPENDED ELASTOMERIC IMPACT SHEET
Stanley W. Wilcox, Tulsa, Okla., assignor of one-half to Century Geophysical Corporation, Tulsa, Okla., a corporation of Delaware
Filed Nov. 27, 1964, Ser. No. 414,359
5 Claims. (Cl. 273—102.4)



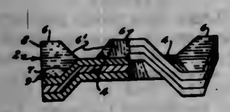
1. A pellet target with rebound control which comprises:

(a) an energy-absorbing impact sheet of Butyl rubber having a durometer test of the order of about 45 and of thickness of not less than 3/32 inch,

(b) means for supporting said sheet from the upper margin as to hang free in space with the impact face thereof substantially vertical, and

(c) a pierceable sheet supported closely adjacent to and in front of the target face of said impact sheet for intercepting pellets upon rebound from said impact sheet.

3,319,961
GAME PACKAGE BOARD AND GAME PIECES AS CORE THEREOF
Henry A. Wilson, 1000 Eldorado Ave.,
Clearwater Beach, Fla. 33515
Filed Dec. 6, 1963, Ser. No. 328,584
2 Claims. (Cl. 273—136)



1. A game package comprising a suitably marked flexible board roller in cylindrical form about a plurality of complementary shaped interfitted games pieces as a core therefor, each of said game pieces comprising a circular planar central body portion and projections and depressions consecutively and evenly spaced around the periphery of said central body portion and on opposite sides thereof, said pieces being of such shape that each has a circular periphery formed at least in part by a cylindrically curved surface, the edges of each surface being in contact with the edges of the corresponding surfaces of pieces immediately adjacent thereto, whereby said core has a vertically continuous peripheral surface of cylindrical curvature.

3,319,962
GOLF PUTTER
Roger E. Summers, 5106 W. 14th St., Cicero, Ill. 60650
Filed May 26, 1964, Ser. No. 370,236
5 Claims. (Cl. 273—164)



1. A precision pendulum putter comprising a shaft having an elongated handle portion at the upper end thereof, a head affixed to the lower end of said shaft, the front face of said handle portion being flattened, said head having a planar striking face on the front thereof and being elongated rearwardly from said striking face, the intermediate portion of said shaft being curved rearwardly so that the axis of the handle portion of the shaft extends through the head in front of the center of gravity thereof, alignment indicia provided on the top of the head and lying in a plane which extends generally perpendicular to the plane of the flattened front face of the handle portion of the shaft and to the planar striking face of the head for facilitating alignment of the putter.

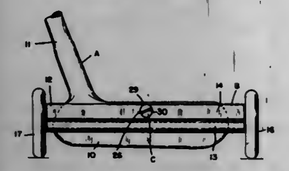
3,319,963
GOLF SWING GUIDING DEVICE INCLUDING CORRECT SWING INDICATOR
David H. Cockburn, 1 N. Park, Iver, England
Filed Nov. 15, 1963, Ser. No. 324,121
Claims priority, application Great Britain, Nov. 16, 1962, 43,474/62
1 Claim. (Cl. 273—186)



A golf practice device comprising a member, socket means on one end thereof carrying a golf club, a vertical fixed support, means at the opposite end of said member for mounting it on said fixed support, the member including three pivot connections, namely, a first main pivot connection with the fixed support, a second wrist turning

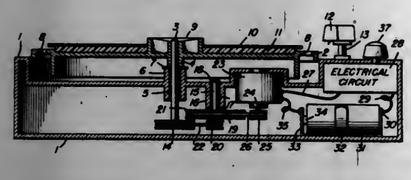
pivot connection with the golf club, permitting the club to turn about the axis of its shaft, and a third intermediate wrist cocking pivot connection, means whereby the position of said main and wrist cocking pivot connections can be separately adjusted vertically to insure that the pivot axes thereof, if continued, would pass substantially through the top of the hips and elbows of the golfer and substantially through the wrists of the golfer respectively, and means for imparting to the hands of the player a definite feel that the club face is in the correct position relative to the ball at the time of impact comprising a notch at one end of said socket, a pin in said club shaft, means for biasing said pin and notch into engagement when the club face is in the correct ball striking position.

3,319,964
PRACTICE GOLF CLUB
William F. Steinberg, 25824 Dundee, Huntington Woods, Mich. 48070
Filed May 4, 1964, Ser. No. 364,401
6 Claims. (Cl. 273—194)



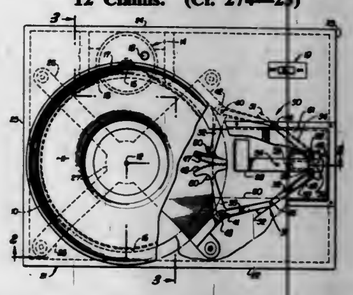
1. In combination, a golf club having a blade, a horizontal elongated member extending substantially parallel and contiguous to said blade, a horizontal shaft extending through and beyond opposite ends of said elongated member, said shaft being rotatably mounted in said member, a supporting wheel on and at each end of said shaft, said blade and said member each having a horizontally extending cylindrical aperture between its ends, means for connecting said member to said blade comprising a pin passing through the aperture in said member and having a first portion removably secured in the aperture in said blade, said pin having a second cylindrical portion extending axially from said first portion, said second portion having a diameter greater than that of said first portion and cooperating with the aperture in said member to form a bearing whereby pivotal movement of said member with respect to said blade is permitted, and means for holding said member on said bearing.

3,319,965
BATTERY OPERATED PORTABLE TOY PHONOGRAPH
Tobin Wolf, Bloomfield, N.J., assignor to The Singer Company, New York, N.Y., a corporation of New Jersey
Filed July 13, 1964, Ser. No. 382,054
2 Claims. (Cl. 274—1)



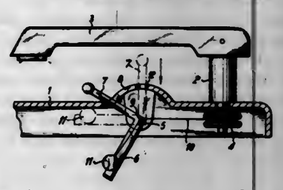
1. A portable battery-operated phonograph including a frame holding a direct current motor having an output shaft and a rheostat connected in series with said motor and having a manual control member secured thereto for adjusting the speed of said motor, a turntable including a drive shaft integral therewith and journaled in said frame, a first pulley of relatively large diameter secured on said drive shaft and spaced from said turntable, a second pulley of relatively small diameter secured on said motor output shaft, an intermediate shaft journaled in said frame adjacent to said drive shaft and said motor output shaft, and a third relatively large and a fourth reltively small pulley secured on said intermediate shaft to rotate therewith, a first belt connecting said first and fourth pulleys and a second belt connecting said second and third pulleys.

3,319,966
PHONOGRAPH PICKUP CARRIAGE
Fred Schroeder, Jr., Van Nuys, Calif., assignor to Superscope Incorporated, Sun Valley, Calif., a corporation of California
Filed Aug. 31, 1964, Ser. No. 393,013
12 Claims. (Cl. 274—23)



1. In a device for essentially frictionlessly guiding a recording pickup to travel bodily in traversing relation to the recording, first and second pairs of complementary members, a pickup support carried for displacement with at least one of the members of the second pair, and means mounting the members of each pair to swing mutually oppositely with the second pair of members pivotally carried by the first pair of members and said means synchronizing said swinging to effect pickup support displacement along a predetermined path during said pickup travel, said means including a first pair of pivots respectively mounting the members of the first pair to swing mutually oppositely, and gearing carried on said first pair of members in spaced relation to said pivots to remain intermeshing during said swinging.

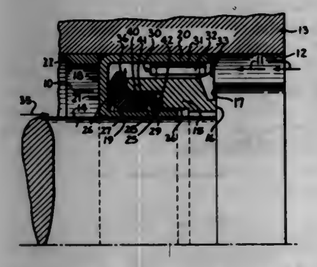
3,319,967
ANTI-SKI SKATING DEVICE
Heinrich Zimmermann, St. Georgen, Black Forest, Germany, assignor to Dual Gebruder Steidinger, St. Georgen, Germany, a corporation of Germany
Filed Jan. 14, 1966, Ser. No. 520,686
Claims priority, application Germany, Jan. 16, 1965, St 23,214
4 Claims (Cl. 274—23)



1. In a record player including a turntable and a pickup arm carrying a pickup at one end,
a base plate,

said pickup arm being pivotally mounted at the other end about an axis disposed parallel to the pivot axis of said turntable,
a roller rotatably mounted on said pivot axis of said pickup arm and rotating jointly with the latter,
a slide path inclined downwardly and adjustably secured to said base plate to assume any one of a plurality of inclined positions,
a manually operable lever secured to one end of said slide path and projecting through said base plate for operation of said lever above said base plate,
a weight guided along said slide path, and
a thread one end of the latter being secured to said weight and the other end of said thread being connected with and wound about said roller, whereby said weight will move along said slide path upon pivoting said pickup arm.

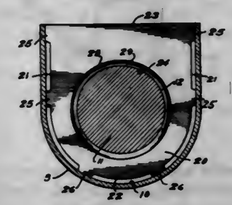
3,319,968
REVERSE PRESSURE CARTRIDGE-TYPE FACE SEAL
Kermit D. Yost, Skokie, Ill., assignor to Continental Illinois National Bank and Trust Company of Chicago, trustee
Filed Apr. 1, 1965, Ser. No. 444,576
3 Claims. (Cl. 277—40)



1. A rotary seal assembly comprising, in combination, an annular cartridge case defining opposed inner and outer cylindrical walls, an annular stator loosely fitted between said walls within said case, said stator having a sealing surface adapted to extend from said case and an annular shoulder adjacent said inner wall within said case, a first O-ring fitted against said inner wall within said case and adjacent said shoulder of said stator, an annular washer having an internally tapered nose portion adapted to press said first O-ring against said inner wall and said shoulder, means for biasing said annular washer against said first O-ring, said stator formed to define an internal cylindrical surface overlying said annular washer, means defining an annular groove between said cylindrical surface and said washer, and a second O-ring disposed in said groove and sealingly engaging said cylindrical surface and said annular washer.

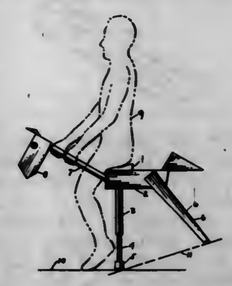
3,319,969
RAILWAY CAR JOURNAL BOX SEALS AND THE LIKE
Richard L. Olson, Chicago, Ill., assignor to Dike-O-Seal Incorporated, Chicago, Ill., a corporation of Illinois
Filed Aug. 13, 1963, Ser. No. 301,749
2 Claims. (Cl. 277—130)

1. In a railway car journal box having an opening therethrough about which is a seal pocket and a rotary journal extending through said opening into the journal box and subject to relative movements in respect to said box during rotary operation:
a sealing member substantially complementary to and mounted within said pocket;
said sealing member including a body of compressible elastomeric material having an opening through which said journal extends and defined by an annular portion having an edge sealingly gripping said journal;
said body having substantially uniformly distributed therethrough small gas-filled closed bubble-like cells, with the cells in said annular portion being of substantially larger size than the cells in the body surrounding said annular portion so that said annular portion is more flexible than the remainder of the body to permit relative easily following movement of said annular portion with the journal in said relative movements of the journal and relative to said remainder of the body;



said remainder of the body being of substantially greater thickness than said annular portion as well as having smaller cells therein;
said edge being normally cylindrical;
said annular portion having a substantially ogee curvature on its sides from said edge to said remainder of the body;
and perforations extending into and through said edge and through said sides into some of said larger cells and lubricant being in said larger cells into which said perforations extend.

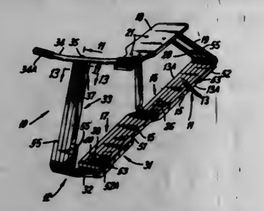
3,319,970
WHEELLESS RIDABLE TRAVELING TOYS
Abraham Joseph Sherman, 50 Havenwood Drive, Livingston, N.J. 07039
Filed June 3, 1965, Ser. No. 460,901
5 Claims. (Cl. 280—1.13)



1. In a toy of the class described, the combination of a seat means adapted to carry a rider, a single, axially resilient, axially unbending strut means structurally connected to the underside of the said seat means and extending axially downwards therefrom, and a control-handle means structurally connected to the underside of the said seat means and positioned forward therefrom by a distance adapted for the unhindered grasp of a seated rider, the said resilient strut means being adapted to press its bottom end against the ground and having a length adapted to permit the said seated rider to press his feet against the ground when in an at-rest position thereon, and the said

control-handle means providing grippable, structural portions thereof for each hand of the said rider, the said grippable, structural portions being spaced apart a distance as measured in the central fore-and-aft vertical plane of the said toy.

3,319,971
SKI SCOOTER
Morton I. Thomas, Bakertown Road, Monroe, N.Y. 10950, and Bertrand R. Lesser, 24 Stonewell Lane, Mamaroneck, N.Y. 10543
Filed Aug. 19, 1965, Ser. No. 480,876
12 Claims. (Cl. 280—16)



1. A ski scooter comprising a rear section, and a front section in articulated relation to said rear section, each of said sections comprising a plurality of metal tubings in side by side relation and means for securing said tubings together, seat means on the rear section and means for supporting said seat means comprising extended portions of selected ones of the tubings forming said rear section; said front section including handle means; said rear section including a forwardly extending and upwardly offset portion overlying a rearwardly extending portion of said front section; and pivot means interconnecting the overlying portions of said front and rear sections.

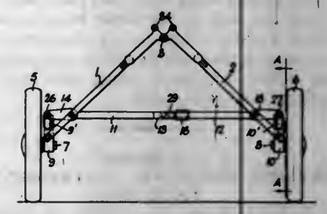
3,319,972
COLLAPSIBLE SLED
Farrell Robert Gallaher, Long Beach, Calif. (920 S. Citron, 4, Anaheim, Calif. 92803)
Filed Dec. 9, 1964, Ser. No. 417,101
12 Claims. (Cl. 280—18)



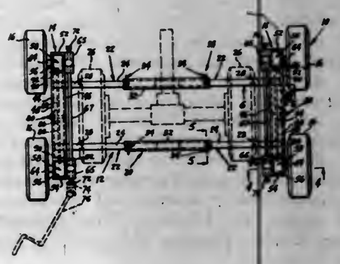
1. A collapsible sled comprising a head section of a stiff sheet material with an upwardly curved nose and a substantially flat bed extending longitudinally for a portion of the length of said sled, and an inflatable load-supporting section comprising a substantially flat casing formed of a flexible, gas-impermeable material having a bottom surface of a moisture and abrasion resistant material, said load-supporting section being attached to said head section and extending rearwardly from said flat bed.

3,319,973
GOLF BUGGIES HAVING A FOLDING FRAME AND RETRACTABLE WHEELS
George Johann Felix Leitl, 40 Station St., Sandringham, Victoria, Australia
Filed Aug. 27, 1964, Ser. No. 392,383
1 Claim. (Cl. 280—42)

A foldable golf buggy comprising an understructure having a frame comprised of a pair of legs pivoted to each other at their upper ends so as to be either splayed outwardly or folded toward each other, said legs each being pivotally connected at its lower end portion with means supporting horizontal wheel axles, wheels mounted on said axles to be vertically disposed when the legs are splayed, wheel control linkage comprising an upwardly extending arm on each axle supporting means and each of said arms being provided with a vertical slot in its upper portion, a pair of wheel control links, each pivotally connected to one of said legs toward the lower portions of said legs respectively, and said links having extensions extending outwardly beyond said legs and having pins slidably engaging in the slots of said arms, respectively, said wheel control links being pivotally connected to each other at their inner ends in a plane passing perpendicular to the pivotal axis of said legs and in the central plane of said legs, and at a distance from said axis where a line between said pins intersects said vertical plane when the structure is opened for use, whereby when said understructure frame is retracted with legs brought together, the wheel control linkage maintains said wheels in vertical position.



3,319,974
TOWING DEVICE
Larry L. Ashley, 945 S. Pacific Highway, Woodburn, Oreg. 97071
Filed Oct. 8, 1965, Ser. No. 494,218
4 Claims. (Cl. 280—43.21)



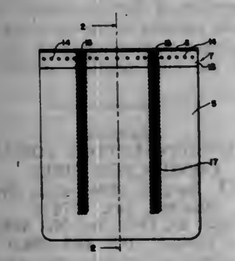
1. A towing dolly comprising support means including a pair of parallel spaced apart support bars having two end portions and a longitudinal axis at right angle to the direction of intended travel adapted to receive the drive wheels of a vehicle to be towed; a connection means positioned adjacent each of said end portions of said support bars including at least one stub axle having a longitudinal axis substantially parallel to the axes of said support bars; ground engaging wheel means mounted on said stub axle providing surface in a direction substantially perpendicular to said axes, means releasably securing said support bars to said connecting means; and elevating means operably connecting said support means with said wheel means for raising and lowering said support means with respect to said wheel means; wherein said connecting means including a casing providing a vertical slot, said stub axle being positioned within said slot, a block member secured on an end of said stub axle within said casing, said block member being vertically slidably mounted within said casing, said elevating means being connected between said block and said casing for raising and lowering said wheel means.

3,319,975
PALLETIZED TRUCK BODY WITH CENTER SPINE
George E. Stafford, San Diego, Calif., assignor of fifty percent to Clyde H. Carlson, San Diego, Calif.
Filed June 28, 1965, Ser. No. 467,475
2 Claims. (Cl. 280—106)



1. In a vehicle having a forward wheeled cab unit, a load carrying body assembly, comprising:
a single straight elongated, narrow beam defining a spine rigidly fixed to and extending longitudinally rearwardly from said cab unit;
a rear wheel suspension carrying frame unit fixed to said spine rearwardly of said cab unit;
said spine extending uninterrupted and rectilinearly above said wheel suspension frame and being the sole spine element of the vehicle;
compartmented, box-like load carrying body portions fixed to said spine on opposite sides thereof in back-to-back relation and secured to each other above the spine;
said body portions extending below said spine along the major portion of the length thereof.

3,319,976
SPLASH GUARD OR MUD FLAP MEANS
Louis D. Eckermann, 420 N. Park, Wellington, Kans. 67152
Filed Apr. 26, 1965, Ser. No. 450,915
7 Claims. (Cl. 280—154.5)



1. A stabilized mud flap or splash guard for a vehicle having rear wheels comprising, a sheet of flexible rubber-like material in a generally rectangular shape swingingly and longitudinally suspendable at its upper end from a vehicle rearward of and adjacent to the wheels or tires of said vehicle, means to connect said flexible splash guard to said vehicle comprising, a length of angle iron transversely connectible to said vehicle rearward of and adjacent to the wheels or tires of the vehicle with one of the two portions of said angle iron in a horizontal plane and projecting rearwardly in relation to the vehicle and the other portion of said angle iron in a vertical plane and projecting downwardly from said vehicle, said sheet of flexible material attached to said vertically projecting portion of said angle iron to depend therefrom when mounted on said vehicle, two spaced bosses rigidly mounted on said horizontal portion of said angle iron equidistant from said vertical portion of said angle iron, said bosses extending a distance less than the projection of said vertical portion of said angle iron, and each of said bosses having a straight helical spring concentrically and weldably mounted thereon to depend therefrom when mounted on said vehicle, said spring engaging said bosses under tension with the inner ends of said springs in engagement with said horizontal portion of said angle iron and extending from said bosses a distance of 65 to 90 percent of the length of said sheet of flexible material, said bosses and springs positioned longitudinally and transversely on said angle iron rearward of said flexible splash or mud flap guard to in operation restrain said mud flap or splash guard from unduly swinging in a rearward direction from said vehicle.

3,319,977
AUTOMATIC HITCH COUPLERS
Philip L. Quandt, 724 Reynolds St. 61103, and Folke C. O. Fyrk, R.R. 4 61111, both of Rockford, Ill.
Filed June 8, 1965, Ser. No. 462,363
29 Claims. (Cl. 280—475)

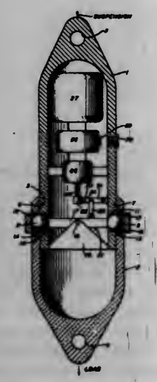


1. In an automatic coupling, the combination of an elongated ramp coupling member swivelled near its one end on one of two things to be coupled together and adapted when uncoupled to gravitate to a rearwardly and downwardly inclined position, a coupling tongue member extending from the other thing, guide means on the forward end of said tongue to engage and run up on the inclined ramp to center the two members relative to one another, one of said tongue and ramp members having a keeper projection on its forward end portion, a latch pivoted on a horizontal axis transversely relative to the front end portion of the other of said members and arranged to hook over said projection to couple said members and thereby couple said two things together, said tongue being disposed with its front end above the level of the lower end of said ramp preparatory to the coupling of said members, said ramp being swingable upwardly toward parallelism with said tongue when said guide means running up said ramp runs forwardly over the swivel support onto the front end portion of said ramp in the coupling operation, and an eye extending downwardly from the tongue in such rearwardly spaced relation to said keeper projection and latch in relation to the length of said ramp that the rear end portion of said ramp is engageable in said eye in the final relative endwise movement of the tongue and ramp members at the end of the coupling operation to hold the tongue and ramp members in aligned and substantially parallel relationship when coupled.

3,319,978
TIMED RELEASE COUPLING

Alfred E. Melhose, Watchung, N.J., assignor to Bell Telephone Laboratores, Incorporated, New York, N.Y., a corporation of New York

Filed Aug. 25, 1964, Ser. No. 392,052
3 Claims. (Cl. 285—18)



1. A detachable coupler having two linking members with an end of one normally encompassing an end of the other,

said coupler further comprising means defining a hole in each of said ends,

said holes normally being aligned with each other,

a locking member normally inserted in said holes for detachably holding said linking members together,

resilient means tending to eject said locking member from said holes,

a pivoted instrumentality normally in a position for blocking the ejection of said locking member from said holes,

and electroresponsive means for tilting said pivoted instrumentality into a position for unblocking the ejection of said locking member from said holes,

said linking members being adapted to become detached from each other in response to the ejection of said locking member from said holes.

3,319,979
QUICK ATTACH AND RELEASE FLUID COUPLING ASSEMBLY

Curt P. Herold and Sam D. Stahley, Huntsville, Ala., assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration

Filed Apr. 3, 1964, Ser. No. 357,337
5 Claims. (Cl. 285—24)

4. A coupling assembly comprising, in combination:

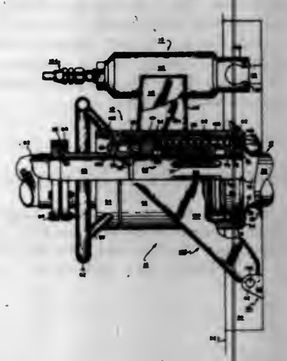
(a) a first support structure supporting a first coupling portion;

(b) a second support structure supporting a second coupling portion and pivotally secured to said first support structure;

(c) a quick releasable mechanism for detachably securing said first and second support structures in position to initially locate said first and second coupling portions in an uncoupled, axially aligned relationship;

(d) a seating means carried by said second support structure for moving said second coupling portion axially into engagement with said first coupling portion; and

(e) a bellow-like means acting between said second coupling portion and said second support structure

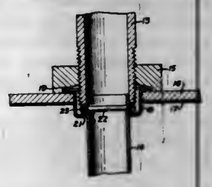


for forcibly maintaining said second coupling portion in sealing engagement with said first coupling portion.

3,319,980
DIP TUBE CONNECTION

William A. Demetriff, Kalamazoo, Mich., and Paul G. Daugirda, Downers Grove, Ill., assignors to Rheem Manufacturing Corporation, a corporation of California

Filed Aug. 9, 1965, Ser. No. 478,345
8 Claims. (Cl. 285—140)



1. In a water heater including a tank having a hot water outlet connection adjacent its top, a cold water inlet connection comprising an internally threaded coupling secured to the top of the tank in registration with an opening therein, a cup member in the tank secured to the top thereof and formed in its bottom with an opening registering with and of smaller diameter than the threaded opening in the coupling, and a vertical conduit extending through the opening in the cup member and formed at its upper end with an enlarged portion of larger diameter than the opening in the cup member but of smaller diameter than the opening in the coupling to pass therethrough, the enlarged portion engaging and supported by the bottom of the cup member around the opening therein.

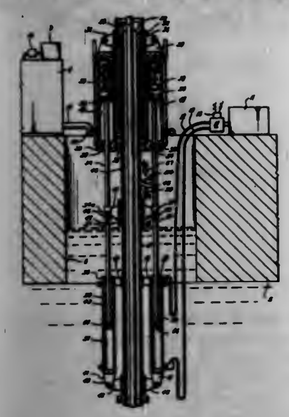
3,319,981
CONSTANT TENSION SUPPORT FOR SUBMERGED CONDUCTOR PIPES

Harry L. Burgess, 1506 Latexo Drive, Houston, Tex. 77018

Filed Mar. 15, 1965, Ser. No. 439,694
10 Claims. (Cl. 285—302)

2. In a conductor pipe for connecting a submerged well and a floating vessel subject to wave and/or tide action, upper and lower telescoping pipe sections, a resilient device secured between said sections and having a normal position for resiliently resisting relative displacement of said sections in at least one direction, a motor secured to said resilient device, and means for energizing said motor to maintain said device in said normal position.

3. In a conductor pipe as described in claim 2, means responsive to departure of said resilient device from said

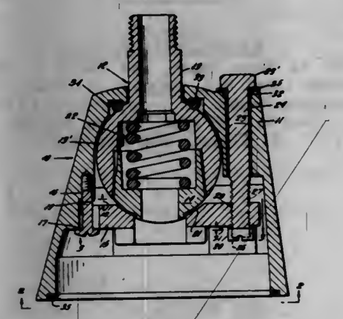


normal position to energize said motor so as to return said device to said position.

3,319,982
LOCKABLE SWIVEL ASSEMBLY

Nathan R. Schwartz, Yonkers, N.Y., assignor to Swiveller Company, Inc., Nanuet, N.Y., a corporation of New York

Filed Sept. 2, 1964, Ser. No. 393,833
1 Claim. (Cl. 287—12)



A weatherproof, lockable swivel assembly comprising:

(a) a hollow shell for said assembly having an elongated groove extending therethrough and an internal, generally spherically shaped seating surface formed therein;

(b) a swivel ball unit received in said top shell including a ball and nipple segment, the nipple portion of which extends through the groove in said top shell for pivotal movement therethrough; a ball segment; and a compression spring urging the ball and nipple segment and the ball segment away from one another toward the sperical seating surface defined by the internal walls of said top shell, and the cup washer defined hereinafter, respectively;

(c) an adjustable cup washer biasing the ball segment against the ball and nipple segment of the swivel ball unit;

(d) a screw loosely securing the cup washer to the top shell and permitting pivotal movement of the cup washer with respect thereto;

(e) adjustable locking means secured to the cup washer for adjusting the force exerted thereby on the swivel ball unit, said locking means including (1) a lock bolt having a first end portion engaging said top shell and a second, threaded end portion extending through and threadingly engaged with said cup washer, and (2) a threaded sleeve engaging the threaded end of the lock bolt on the side of the cup washer remote from the first end portion of said bolt;

(f) a resilient gasket mounted within said top shell and disposed between the walls of said top shell defining said elongated groove and the surfaces of said ball and nipple segment adjacent thereto; and

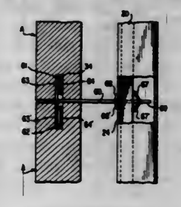
(g) means on said cup washer biasing said resilient gasket against the seating surface of said top shell and against the mating surface of said ball and nipple segment, respectively, to provide a weatherproof seal therebetween;

tightening of the lock bolt increasing the force exerted by the cup washer on the swivel ball unit to prevent rotation and effect locking thereof, and loosening of the lock bolt decreasing the force exerted by the cup washer on the swivel ball unit to facilitate rotation and pivotal movement thereof and simultaneously tightening said sleeve on the lock bolt until said sleeve binds against said side of the cup washer, preventing further loosening of the lock bolt and disengagement of said bolt from the cup washer and top shell of the assembly.

3,319,983
ANCHORING SYSTEM FOR THE INSTALLATION OF SLABS ON VERTICAL AND OVERHEAD SURFACES

Jules Scott Zibell, Tate, Ga., assignor to The Georgia Marble Company, Atlanta, Ga., a corporation of Georgia

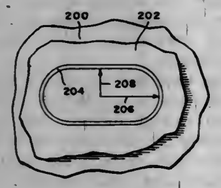
Original application Dec. 27, 1960, Ser. No. 78,477, now Patent No. 3,234,702, dated Feb. 15, 1966. Divided and this application Aug. 25, 1965, Ser. No. 495,741
3 Claims. (Cl. 287—189.35)



1. An anchoring system for slab facing materials having kerfs formed in the peripheral edges thereof comprising a plurality of U-shaped channel struts each having re-entrant portions formed on the legs thereof, and secured in spaced relation with respect to each other to structural members forming the structure on which said slabs are to be anchored, a clip element having a generally rectangular body portion, a pair of oppositely turned kerf engaging portions formed on the edges of one end of said body portion, each of said pair of oppositely turned kerf engaging projections including a spring tongue integral with said rectangular body portion and deformable by the kerfs of a slab fitted over said projections, and means forming friction notches on the opposite end of said rectangular body portion for frictionally securing the same to the re-entrant portions of said U-shaped channel strut said means forming friction notches

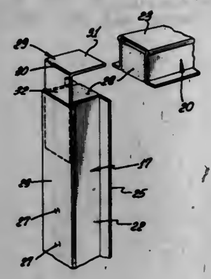
comprising a short arm integral with said body member and transversely struck from the plane thereof, a long spring arm element opposite said short arm and struck in the same direction from said body member as said short arm, said long spring arm element and said short arm, cooperating to grip the re-entrant portions of said U-shaped channel strut.

3,319,984
WELDS
James Byron Jones, West Chester, and Carmine F. De Prisco, Glen Mills, Pa., assignors to Sonobond Corporation, West Chester, Pa., a corporation of Pennsylvania
Filed Oct. 26, 1964, Ser. No. 406,521
9 Claims. (Cl. 287—189.36)



1. A ring-type weld between juxtaposed metal members which are externally deformed to an extent less than 10%, said weld being an ultrasonic weld essentially lacking a cast structure.

3,319,985
REGLET
Robert W. Arnett, Pasadena, Calif. (% Fry Reglet Corp., 4903 San Fernando Road W., Los Angeles, Calif. 90039)
Filed Nov. 18, 1963, Ser. No. 324,489
1 Claim. (Cl. 287—189.36)



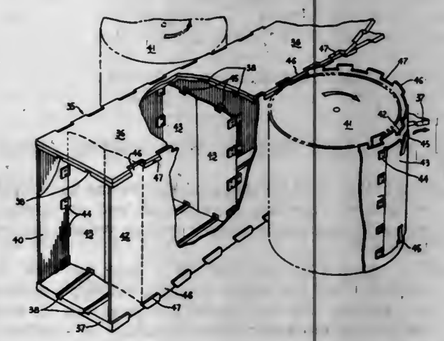
In combination, a pair of reglet parts each having the same uniform cross-sectional configuration characterized by a pair of substantially parallel side wall portions and a connecting wall portion defining a channel having an opening opposite said connecting wall portion, said side wall portions having integrally formed protuberances extending laterally outwardly adjacent said connecting wall portions for interlocking engagement with a body of concrete, said protuberances defining grooves internally of said channels, said side walls having unconnected ends terminating in flanges substantially perpendicular thereto, one of said parts having said flanges at an end supported on an end and said flanges of the other of said parts, and locking means having ends disposed at right angles received in the grooves of said parts respectively and substantially closing the end of one of said channels.

3,319,986
TOP LATCH UNIT
Walter O. Balducci, New Britain, Conn., assignor to Emhart Corporation, a corporation of Connecticut
Filed Feb. 18, 1965, Ser. No. 433,712
6 Claims. (Cl. 292—92)



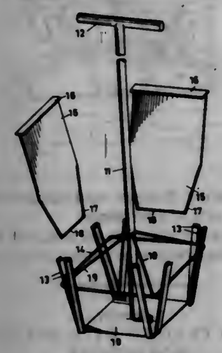
1. A latch unit including a frame, a latchbolt pivotally mounted on said frame and movable between projected and retracted positions, a slide vertically reciprocably mounted in said frame and having a sidewall with a cam slot therein, a projection on said latchbolt extending into said cam slot whereby to cause movement of said latchbolt between its projected and retracted positions as said slide is reciprocated in said frame, abutment means on said slide engageable with said projection on the latchbolt for retaining said latchbolt in retracted position, a nose portion on said latchbolt, and a member adjustably mounted upon said frame and having a notch which in one position of said member receives said nose on the latchbolt to permit engagement of said abutment means on the slide with said projection and a stop portion which in another position of said member is engaged by the nose on the latchbolt to prevent engagement of said projection on the latchbolt with the abutment means on the slide.

3,319,987
EXTENSIBLE BOOM
Alexander H. Bohr, Sparta, and Walter O. Borcherdt, Mountain Lakes, N.J., assignors to Thiokol Chemical Corporation, Bristol, Pa., a corporation of Delaware
Filed Oct. 19, 1965, Ser. No. 497,909
11 Claims. (Cl. 294—19)



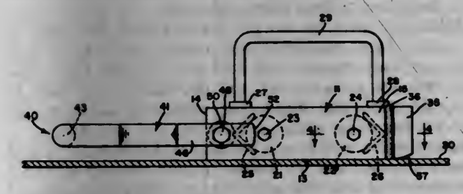
1. An extensible tension-web beam comprising a plurality of separately stored strips extensible into edge-to-edge interlocking engagement to define top and bottom plates and side tension webs, and panels hinged at spaced points to at least one of said strips to define transverse beam reinforcing columns.

3,319,988
APPARATUS FOR MANUALLY DIGGING OUT SODS OF TURF
Charles J. P. Smith, 274 Forest Road, Bexley, New South Wales, Australia
Filed Jan. 28, 1965, Ser. No. 428,658
Claims priority, application Australia, Feb. 19, 1964, 41,118/64
7 Claims. (Cl. 294—50.8)



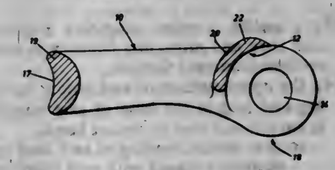
1. Apparatus for manually digging out sods of turf comprising a four sided plate adapted to be placed on the surface of the turf, a pair of channel shaped guides secured to each side with each guide being located adjacent to a respective corner of the plate, the guides on each side of the plate being opposed and having the open channel side of one guide directed towards the open channel side of the other guide, the guides being divergent above the plate, a brace member secured to the divergent ends of the guides, a handle secured to the plate and the brace and extending between and beyond the guides, a cutter blade slidably mounted in each pair of opposed guides and drivable into the turf to cooperate with the plate to remove a piece of sod from the turf when the apparatus is displaced away from the turf by rocking the handle.

3,319,989
MAGNETIC SUPPORTING AND CARRYING DEVICE
Charles W. Ross, 1100 Blackhawk Road, Moline, Ill. 61265
Filed Feb. 23, 1965, Ser. No. 434,382
7 Claims. (Cl. 294—65.5)



1. A magnetic device comprising: a pair of elongated opposed and parallel pole plates having opposite ends and undersides adapted to engage iron products by magnetic attraction; longitudinally spaced permanent magnet means attached to the pole plates for inducing a magnetic field therebetween; a pair of pole plate extensions of non-magnetic material, one of said extensions being rigid with and extending from the end of a respective pole plate and having an extension underside continuing with the underside of its pole plate, the extension undersides being arcuate shaped to afford a rocking surface at one end of the pole plates; a U-shaped lever having a pair of non-magnetic leg portions disposed alongside the pole plates and pivotally connected thereto to swing about a horizontal axis and vertically in respect to the plates, and a bight portion adapted to extend above the pole plates, each of the leg portions having a lower portion adapted to extend below the underside of the respective pole plates upon the lever being swung vertically to thereby rock the pole plates on the extensions when the device is magnetically held to the surface of an iron product; and a manual gripping member rigid with the pole plates disposed above the plates for carrying the device.

3,319,990
CLEVIS
David Hugh Beal, Burlington, Ontario, Canada, assignor to Donald Ropes & Wire Cloth Limited, Hamilton, Ontario, Canada
Filed Aug. 23, 1965, Ser. No. 481,850
2 Claims. (Cl. 294—74)



1. A mainline clevis for use in the logging industry comprising:
a thimble-shaped eye defined by a surrounding wall;
a pair of jaws disposed rearwardly of said eye and having in each jaw an opening, said openings being on a common axis, which axis is substantially perpendicular to the axis of said eye;
a groove formed in the outer face of the wall defining said eye;
said wall comprising at least at the forward end of said eye furthest from said pair of jaws a substantially large bearing radius in the inner face thereof, having regard to the face-to-face thickness of the clevis;
a reinforcement in one face of the clevis extending rearwardly from said eye and at least partially between said jaws, and defining thereby an undercut beneath said reinforcement, behind said eye and between said jaws to permit swinging engagement of a choker terminal held between said jaws by pin means through said openings therein;
the face of said clevis comprising said reinforcement being substantially flat and the opposed face of said clevis being offset away from said first-mentioned face at said jaws.

3,319,991
HOOK-THIMBLE COMBINATION
Ralph A. Ratcliff, 1300 Sunnyslope Ave., Belmont, Calif. 94002
Filed Oct. 11, 1965, Ser. No. 494,832
10 Claims. (Cl. 294—82)

1. A hook-thimble combination, comprising
(A) a hook defined by
(1) a shank portion, and
(2) a curved body portion terminating in an end spaced from said shank portion and defining a throat opening therewith, and
(B) a thimble positioned within said hook body portion, said thimble having
(1) an opening therein, the base of which provides a seat for a load supporting element to be engaged with said thimble,

(2) a central core, a portion of the periphery of which corresponds generally with the configuration of an inner surface of the body portion of said hook along the bottom thereof,

whereby stresses imparted to said thimble upon engagement of said load supporting element with said thimble are distributed by said thimble over a substantial portion of said hook body portion,

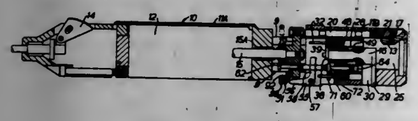


(3) a saddle portion extending transversely of said core and projecting laterally in opposite directions from said thimble,

(4) the upper surface of said saddle portion defining said seat at the base of said opening which is curved and free of abrupt bends,

so that abrupt bending of said load supporting element engaged with said thimble, and resultant damage thereto, is precluded by said thimble.

3,319,992
GRABS
John Eskett Stephens, Heston, England, assignor to Fairey Engineering Limited, Heston, England, a company of Great Britain
Filed Feb. 8, 1965, Ser. No. 431,138
11 Claims. (Cl. 294—83)



1. A grab for grabbing an object in a restricted passage, which comprises a grab body, grab jaws movable between engaged and released positions, power-actuated operating means coupled to the jaws and operable to move them between their engaged and released positions, and a proximity sensing device mounted on the grab body and arranged to operate an indicator device to produce a signal or other indication of the proximity of the grab body to an object to be grabbed.

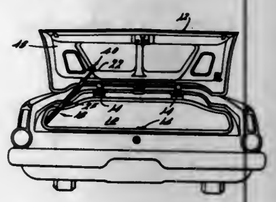
3,319,993
CARGO LID ASSIST MECHANISM
Howard E. Riley, Jr., Detroit, Mich., assignor to Chrysler Corporation, Highland Park, Mich., a corporation of Delaware
Filed Nov. 23, 1964, Ser. No. 412,955
8 Claims. (Cl. 296—76)

1. In a motor vehicle having a cargo compartment and a lid for that compartment:

A. a hinge at one edge of said lid mounting the latter on a fixed portion of said motor vehicle adjacent said compartment for pivotal movement between a closed position sealing said compartment and an open position allowing access thereto;

B. first and second telescopically arranged elongated members;

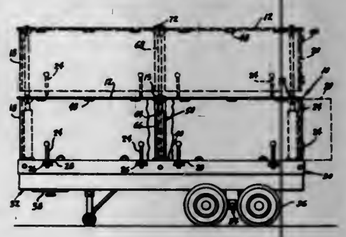
(1) pivotally secured at their respective free ends to a point on said fixed vehicle portion and to a point on said lid; and



(2) extending between said points obliquely to the pivotal axis of said hinge;

C. a coil spring arranged to be tensioned by and upon collapsing telescopic movement of said members.

3,319,994
CLOSED TRAILER WITH ELEVATED ENCLOSURE
Edmund G. Smock, 3155 Winding Way, Zanesville, Ohio 43701
Filed Dec. 22, 1964, Ser. No. 420,313
7 Claims. (Cl. 296—100)



1. A load carrying vehicle which comprises

an undercarriage,

a substantially rectangular floor on said carriage,

a van body comprising side walls and end walls normally resting on said floor,

a roof,

hinge means connecting each side of said roof to one of said side walls,

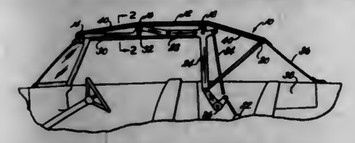
means for selectively disconnecting one or both of said hinge means from either side wall,

releasable latch means for latching said side walls to said floor, extensible lift means interiorly of said van body mounted on each side of said floor adjacent the ends thereof and detachably connected to said roof, and means for selectively actuating the lift means on either or both sides of said floor,

whereby when said means latching said side walls to said floor is released and the hinges on both sides of said roof are connected said roof and body including said side and end walls are lifted from said floor to permit side or end loading onto said floor when said lift means on both sides are simultaneously actuated,

and when said means latching said side walls to said floor is engaged and one of said hinge means and the adjacent lift means is disconnected, with the other of said hinge means connected, actuation of the lift means on the side of said floor opposite said released hinge means pivots said roof to open position about the adjacent connected hinge to permit top loading from the selected side.

3,319,995
INSULATION MEANS FOR CONVERTIBLE AUTOMOBILES
Paul R. Bohn, 27 Morningside Drive, Walpole, Mass. 02081
Filed Nov. 26, 1965, Ser. No. 509,946
5 Claims. (Cl. 296—107)

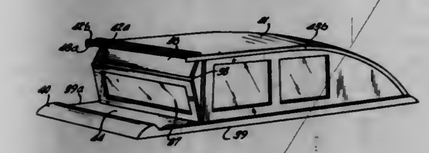


1. In an automobile, including a collapsible, convertible car top, frame means supporting said top and including a plurality of support rods transversely extending under said top and forming the shape thereof, means for alternately collapsing or erecting said frame means and said top supported thereby, and a pair of elongate side pads extending longitudinally under said top between it and said support rods at the lateral margins of said top, the combination of

an insulation batting means extending over and being carried by said transverse support rods intermediate said side pads, and

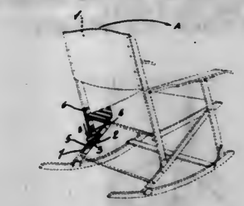
means carried by said batting means at marginal portions thereof for releasably engaging with the laterally extending edges of said side pads whereby said battings and side pads form a unit that extends transversely across the entire width of said convertible car top.

3,319,996
EXTENSIBLE VEHICLE ROOF
Maurice Calthorpe, 369 Oakridge Road, Los Altos, Calif. 94022
Filed Aug. 6, 1964, Ser. No. 387,857
1 Claim. (Cl. 296—137)



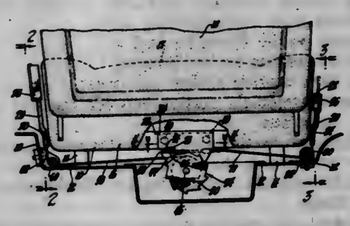
A collapsible roof construction for attachment to the open roof of a vehicle comprising a base for attachment onto the roof of said vehicle, a roof top including a flexible roof sheet transversely connected at its rear portion to said base, said roof top having a plurality of dependent opposed parallel walls, a pair of opposed inwardly movable side panels pivotally connected to the base and located in opposed relationship to each other, said panels being adapted to be swung from a horizontal to a vertical fixed position, a pair of pivotally interconnected front panels hingedly mounted on the front portion of the base adapted to be raised so as to support the roof member in raised position, said front panels being set on the base inwardly with respect to the forward end of the roof, and means for locking the side and front panels to maintain the same in a fixed upright position supporting the roof top, said pair of interconnected front panels, consisting of a top panel and a bottom panel, when horizontally folded one above the other being located within a recess of the front portion of the roof construction, and which front panels are adapted to assume a substantially vertical position when the roof top and the side panels are raised.

3,319,997
LOCKING DEVICE FOR FOLDING CHAIR
Napoleon Clement, 1501 De Ramsay, Trois Rivieres, Quebec, Canada
Filed Sept. 2, 1965, Ser. No. 484,580
8 Claims. (Cl. 297—16)



1. Lock means for folding chair to be located at the intersection of two upright members of the said chair, comprising a plate fixed to the said upright members, a pin in one of the said members, a notch on the edge of said plate adapted to engage said pin, a substantially horizontal lever for pivoting on an axle on said plate, spring means located in one end of said lever for biasing the other end of said lever in the direction of said pin, the said other end of said lever forming a forward, a downward and a rearward portion to form a hook, a finger pivoted at one end on an axle located in the said forward portion, a stop in the rearward portion for holding the finger when the hook is out of engagement with the pin.

3,319,998
SEAT BELT RETRACTOR
Leonard A. Boland, Warren, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Dec. 16, 1965, Ser. No. 514,305
4 Claims. (Cl. 297—388)



1. A locking retractor for first and second safety belts which are adapted to be separably connected to each other at their one end and secured to the locking retractor at their other end, said locking retractor comprising:

a rotatable reel adapted to receive the other end of the first of said belts;

a first spring adapted to resist movement of said reel in one direction of rotation and encourage movement of said reel in the other direction of rotation;

sprocket means attached to and rotatable with said reel;

locking means attached to the other end of the second of said belts and movable with said second belt into contact with said sprocket means to thereby prevent rotation of said reel;

and a second spring adapted to bias said locking means out of locking contact with said sprocket means when said locking means is not being actuated by said second belt.

3,319,999
CHAIR CONSTRUCTION
Edgar M. Lieberman and David Maslan, Kansas City, Mo., and Norman Polsky, Shawnee Mission, Kans., assignors to Fixtures Manufacturing Corporation, Kansas City, Mo., a corporation of Missouri
Original applications Oct. 23, 1961, Ser. No. 146,928, now Patent No. 3,144,271, dated Aug. 11, 1964, and June 14, 1964, Ser. No. 376,076. Divided and this application Apr. 27, 1966, Ser. No. 545,661
5 Claims. (Cl. 297—457)



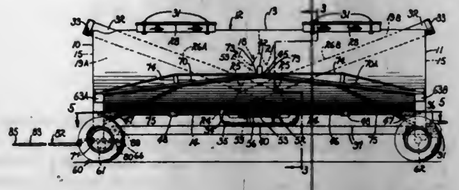
1. A chair comprising:
a frame including:
- a bottom having a forwardly and downwardly bowed front and a pair of spaced sides extending rearwardly from said front,
- said sides sloping upwardly and converging as said front is approached,
- a rear having a top and a pair of spaced uprights depending from said top,
- said uprights being tilted rearwardly and converging as said top is approached, and
- a pair of arcuate corners between the sides and their corresponding uprights,
- said sides and said uprights each being substantially straight;

a separate V-shaped leg structure for each side respectively,
said structures being rigid at the apexes thereof to corresponding sides between said front and said corners,
each structure having a pair of downwardly diverging legs spaced laterally outwardly in their entireties beyond their corresponding sides;
a support on the frame having:
- a seat resting on said bottom,
- a back bearing against said wear,
- an intermediate portion between the seat and the back, and
- a flange on the support at the periphery thereof overlapping the frame; and

means holding the support against displacement from the frame,
said frame and said leg structures being open between said sides, between said apexes, between said uprights and between said corners whereby the support hangs hammock-like within the frame,
said support being flexible whereby the same yields to the weight of a user of the chair resting against said seat, said back and said portion, causing the support to tend to conform to the seated posture of said user.

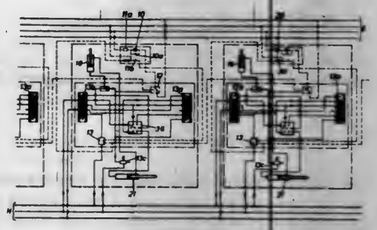
3,320,000
LOAD DISCHARGING DEVICE
Joseph P. Goodman, 105 Beardsley Ave., Bakersfield, Calif. 93308
Filed June 14, 1965, Ser. No. 463,844
8 Claims. (Cl. 298—7)

1. A load discharging device comprising an elongated container having longitudinally opposite end portions, said portions each providing a separate compartment having a bottom and adapted to contain a quantity of material; an elongated duct for each compartment, said ducts being mounted in the container and each having a first end connected to its corresponding compartment adjacently of the bottom thereof and in materials communication therewith, each said duct extending from an end portion of one compartment through the other said compartment with a second end disposed at the opposite end of the container from its corresponding compartment and above said container; means supporting the container in substantially



horizontal relationship with the respective second ends of the ducts disposed at a higher elevation than the first ends; and mean operably associated with the container for selectively elevating either end portion of the container and its compartment above the other end portion, the first end of the duct connected to the elevated compartment being thereby disposed above the second end of said duct, said duct when so disposed being adapted gravitationally to discharge material from said elevated compartment.

3,320,001
SELF-ADVANCING MINE ROOF SUPPORTS AND CONTROL MEANS THEREFOR
Archelaius D. Allen, Leyland, and Richard Ward, Worsley, England, assignors to Gullick Limited, Wigan, England, a British company
Filed Jan. 18, 1965, Ser. No. 426,070
Claims priority, application Great Britain, Feb. 7, 1964, 5,273/64
5 Claims. (Cl. 299—1)



1. A series of self-advancing mine roof supports in side-by-side relationship for supporting a mine roof in the vicinity of the path of movement of a mineral cutting machine along the mineral face, each of said supports having in combination a pressure-fluid ram means for advancing it after the cutting machine has passed, a solenoid-operated control valve for said ram means, a sequence relay in the solenoid circuit of said valve, means for actuating said sequence relay by re-positioning of a preceding support in the series, a memory relay in the solenoid circuit of said valve, and a photo-electric energising circuit for said memory relay including a photo-cell positioned to be energised by a light source on a mineral cutting machine as it passes the support, whereby a support cannot be advanced until a preceding support has been re-positioned and the cutting machine has passed.

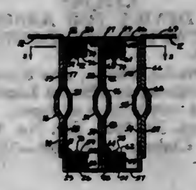
3,320,002
WHEEL RINGS, COVERS OR OTHER TRIMS FOR WHEELS
Herbert Buerger, Walton, N.Y., assignor to Del Krome Corp., Walton, N.Y., a corporation of New York
Filed Feb. 18, 1965, Ser. No. 433,755
7 Claims. (Cl. 301—37)



1. In combination, a member adapted to be attached to a wheel and comprising an annular body portion, a radially outwardly projecting annular web portion extending from said body portion, a cylindrical axially inwardly projecting flange portion extending from the outer end of said radially projecting annular web portion, a clamp ring comprising an annular, substantially axially extending portion surrounding said body portion including an axially outer first cylindrical portion, a radially outwardly projecting annular web portion extending from the axially outer end of said first cylindrical portion of said clamp ring, and contacting the inner surface of the radially outwardly projecting web portion of said member, and a second cylindrical portion extending axially inwardly from the outer end of said web portion of said clamp ring, and contacting the inner surface of said flange portion of said member, and spring fingers extending from the axially inner end of the body surrounding portion of said clamp ring, and inclined radially and axially outwardly, and means to attach said clamp ring to said member, said first and second cylindrical portions and said web portion of said clamp ring comprising means forming an inwardly opening annular channel, a white wall tire simulating ring made of rubber-like material having an annular bead disposed within the inwardly opening channel of said clamp ring, and tightly gripped by said web and cylindrical portions of said channel forming means of said clamp ring, and said simulating ring comprising a portion extending radially and axially outwardly from said bead, said means for attaching said member to said clamp ring comprising an annular bead on the flange of said member, rolled around the end edge of the second cylindrical portion of said clamp ring and provides an annular radially extending shoulder interlocking with said bead.

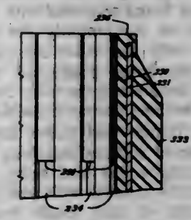
3,320,003
TELESCOPING SLIDE
Leo Edelson, Mamaroneck, N.Y., and Albert H. Rafter, Essex Fells, N.J., assignors to Columbian Slides Inc., Freeport, N.Y., a corporation of New York
Filed July 7, 1964, Ser. No. 380,885
3 Claims. (Cl. 308—3.6)

2. A slide comprising a plurality of interlocking members each having two co-planar webs joined by a section forming a central longitudinal groove extending along the length thereof, the respective webs of a first pair of said members being joined together so that their grooves face in opposite directions to form a first closed tube extending along the length of the slide, the respective webs of a second pair of said members being joined together so that their grooves face in opposite directions to form a second closed tube extending along the length of the slide, one of the longitudinal edges of one member of said first pair and both longitudinal edges of the other member of said first pair being bent over away from the other member of said first pair to form a first beam structure, both longitudinal edges of each member of said second pair of members being bent over away from the other member of said second pair to form a second beam structure, the longitudinal bent-over edges of one member of said second pair of members being additionally bent to form with their respective webs, S-shaped



cross sections interlocking with said bent-over longitudinal edges of the other member of said first pair of members, to permit only longitudinal relative movement between said first beam structure and said second beam structure; and low-friction support members engaging and spacing apart said interlocking longitudinal edges, said low-friction support members being spaced longitudinally apart to form suspension means between said first beam structure and said second beam structure.

3,320,004
EARTH BORING APPARATUS
William R. Garrett, Midland, Tex., assignor to Drilco Oil Tool, Inc., Midland, Tex., a corporation of Texas
Filed June 19, 1964, Ser. No. 376,435
9 Claims. (Cl. 308—4)



1. Apparatus for use in earth boring including in combination with a tubular steel mandrel having an upper end and a lower end and having a sleeve coaxially mounted thereon and stop means at the lower end of the mandrel to prevent downward movement of the sleeve relative to the mandrel beyond said stop means, the inner surface of the sleeve having an elastomeric portion, the outer surface of the mandrel and said elastomeric portion of the inner surface of the sleeve providing cooperating steel and elastomer bearing means constraining the relative motion of the mandrel and sleeve substantially to sliding of the elastomeric portion of the inner surface of the sleeve upon the steel outer surface of the mandrel,
the improvement comprising elastomeric detritus exclusion means on the inner surface of the sleeve adjacent the upper end of the elastomeric portion thereof cooperating with said mandrel to exclude detritus of larger size than will pass between said cooperating bearing means, said detritus exclusion means and mandrel making a closer fit than said cooperating bearing means extending therebelow from said upper end through the mid portion of said elastomeric portion to the lower end thereof,

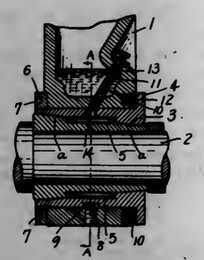
whereby detritus that can enter between the sleeve and mandrel at the upper end of the sleeve past said elastomeric exclusion means will be of a size that can fall through the clearance space between said cooperating steel and elastomer bearing means at the outer surface of the mandrel and inner surface of the sleeve without spoiling the sliding fit therebetween.

3,320,005

ADJUSTING DEVICE FOR ARBOR SUPPORTING BEARING FOR HORIZONTAL MILLING MACHINES

Yoshiro Anno, Ota-ku, Tokyo, and Kiroku Mori, Kawasaki, Japan, assignors to Hitachi Limited, Chiyoda-ku, Tokyo, Japan, a corporation of Japan

Filed Sept. 30, 1963, Ser. No. 312,476
2 Claims. (Cl. 308—35)



1. A bearing assembly for a milling machine which comprises a frame member having a substantially cylindrical aperture therethrough, an arbor extending through said aperture, a bearing collar secured to said arbor, said bearing collar being provided with a tapered surface having a portion at substantially the midpoint thereof which is coaxial with the arbor axis, a needle bearing, said needle bearing being positioned over said portion with said portion constituting the inner race for said needle bearing, a sleeve bushing positioned within said cylindrical aperture of said frame, said sleeve bushing being provided with a tapered surface matching the tapered surface of said bearing collar and being provided with a matching mid-section coaxial with said arbor axis to receive the outer race of said needle bearing, and means for adjusting the axial position of said sleeve bushing within said arbor thereby to vary the clearance between the tapered surface of said bearing collar and the tapered surface of said sleeve bushing at positions astraddle said needle bearing so that at high speeds the arbor rotates supported by said needle bearing and at low speeds, said sleeve bushing is moved into supporting engagement with said bearing collar at positions astraddle said needle bearing.

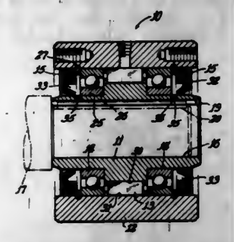
3,320,006

VENTED MECHANICAL DEVICE

Edward Cozzarin, Ithaca, N.Y., assignor to Morse Chain Company, Ithaca, N.Y., a corporation of New York

Filed Nov. 1, 1963, Ser. No. 320,905
1 Claim. (Cl. 308—36.1)

A rotational device adapted to be mounted on a shaft comprising a first inner member mounted on the shaft, a second outer member positioned around said first member, bearing means for rotatably supporting said second member on said first member, seal means extending between said first and second members for enclosing said bearing means between said first and second members, said first member having a passage formed therein extending radially inward and axially outward from the bearing enclosure to the atmosphere surrounding said device, a bearing lubricant contained within the bearing enclosure, and a porous plug secured in the radial portion of the passage, said plug having sufficiently small interstices therein to



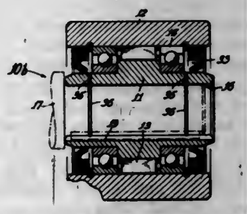
prevent said lubricant from passing therethrough and being interconnected to allow the flow of gas through the passage to maintain the lubricant quantity within the bearing enclosure.

3,320,007

VENTED MECHANICAL DEVICE

James O. Tennies, Robert H. Mead, and Charles M. Allaben, Jr., Ithaca, N.Y., assignors to Morse Chain Company, Ithaca, N.Y., a corporation of New York

Filed Nov. 1, 1963, Ser. No. 320,906
3 Claims. (Cl. 308—36.1)



1. A rotational device adapted to be mounted on a keyed shaft comprising a first member having a passage formed therein for receiving the shaft, a second outer member positioned around said first member, bearing means for rotatably supporting said second member on said first member, and seal means extending between said first and second members for enclosing said bearing means between said first and second members, said first member having a single keyway formed therein opening into the shaft passage and extending axially to the end of the first member, said first member having another passage formed therein at one peripheral point thereof opposite the keyway and extending radially inward from the bearing enclosure and around the surface of the shaft receiving passage and opening into the keyway for venting the bearing enclosure to the atmosphere through the first member.

3,320,008

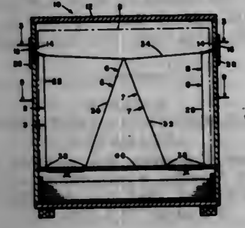
TRACING FILE

Warren L. Godman, 6646 Loch Hill Road, Baltimore, Md. 21212

Filed Oct. 20, 1965, Ser. No. 498,539
4 Claims. (Cl. 312—183)

1. A filing arrangement for a plurality of large thin sheets, comprising a support structure, a plurality of wire frame members mounted to said structure and dividing it into a plurality of narrow spaces, each for receiving and maintaining flat one of said large thin sheets, with said frame members each having spaced rounded crimped projections extending therefrom in a plane transverse to the plane of said frame members so as to minimize the

contact between said frame members and said large thin sheets, with each said frame member having a loop extending from each of a pair of opposite sides thereof in



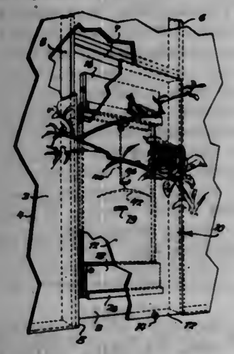
the plane of each of said frame members, with each said loop being formed of said wire so as to be integral with their respective frame members.

3,320,009

COLLAPSIBLE WARDROBE

James V. Vevirt, Kenmore, and Francis J. Ihlenfeld, Cheektowaga, N.Y., assignors to McDonald Products Corporation, Buffalo, N.Y.

Filed Aug. 5, 1965, Ser. No. 477,533
16 Claims. (Cl. 312—242)



1. A collapsible wardrobe comprising:
(a) a normally upright panel supported for horizontal collapsing movement against an upright mounting panel;
(b) vertically spaced articulated members carried by said collapsible panel for attachment to a mounting panel, said members extending generally the full width of said front panel to comprise shelves for storing headgear, footwear and the like, each of said members including front and rear leaf sections hinged for folding upwardly one against the other, said members unfolding and locking open to space said collapsible panel from its mounting panel and folding to collapse the former against the latter;
(c) means extending between said members for simultaneous folding thereof.

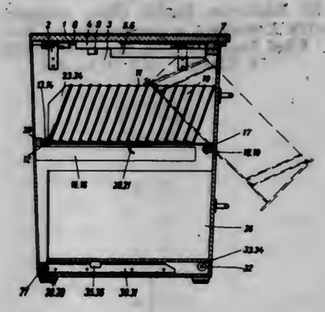
3,320,010

FILING CABINET WITH TILTABLE DRAWER

Gerhard Ritzerfeld, Franzenshader Strasse 21, Berlin-Grunewald, Germany

Filed May 12, 1965, Ser. No. 455,071
Claims priority, application Germany, May 15, 1964, R 37,906
5 Claims. (Cl. 312—323)

1. In a filing cabinet having a pair of side walls and top wall means, in combination, an elongated drawer mounted between said side walls movable between a substantially horizontal rest position located between said side walls of said filing cabinet and an operative position projecting in part beyond front edges of said side walls and tilted relative to said horizontal rest position, said drawer having a bottom wall, a pair of side walls of a length substantially equal to that of said bottom wall and projecting upwardly from the latter, and a plurality of transverse walls projecting between said side walls of the drawer upwardly from said bottom wall and forwardly inclined with respect to the latter, said transverse walls defining in said drawer a plurality of adjacent compartments; guide means between said side walls of said cabinet for guiding said drawer along a substantially horizontal path; abutment means fixed to said bottom wall of the drawer substantially midway between opposite ends



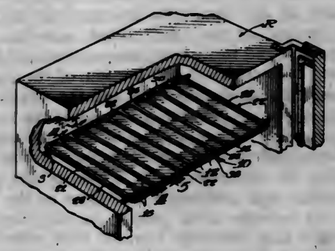
thereof for movement therewith along said path; fixed pivot means extending transversely between said side walls of said cabinet in the region of said front edges thereof and located in the path of said abutment means to be engaged thereby when said drawer is moved to said operative position, said abutment means being constructed to limit in said operative position of said drawer further outward movement thereof and to hold said drawer on said pivot means; and cooperating engagement means formed by rear faces of said side walls of said drawer and bottom face of said top wall means engaging each other in said working position of said drawer for limiting tilting movement of the latter and to hold the same in a position in which all of said compartments are accessible while some of said compartments are located rearwardly of said pivot means.

3,320,011

LINER FOR A REFRIGERATOR SHELF

Ben B. Sachnoff and Myron M. Levin, Lincolnwood, Ill., assignors to E-Z-Por Corporation, Chicago, Ill., a corporation of Florida

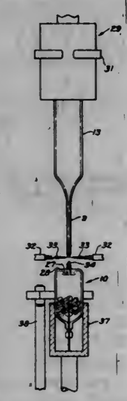
Filed Oct. 1, 1965, Ser. No. 492,136
6 Claims. (Cl. 312—351)



1. A liner for refrigerator shelves or the like comprising, a generally rectangular-shaped body, said body having a raised border along the front, rear and opposite ends thereof to prevent or restrict any material spilled

on said liner from flowing off of said liner, said body provided with equally spaced raised portions which divide the body of the liner into equally spaced and equally sized rectangular-shaped shallow recessed portions which provide with said raised portions a substantially flat surface so that an object may rest partially on said raised and partially on said recessed portions without capsizing, said rectangular-shaped recessed portions preventing or restricting the flow of material from passing into adjacent recessed portions, said raised portions extending to two oppositely positioned borders.

3,320,012
METHOD OF MANUFACTURING PHOTOFLASH LAMPS
Robert M. Anderson, Euclid, Ohio, assignor to General Electric Company, a corporation of New York
Filed June 29, 1965, Ser. No. 467,886
5 Claims. (Cl. 316—20)



3. In a process for producing a tubular photoflash lamp closed at one end by an exhaust tip, the steps of:

(A) sealing a lamp-mount structure comprising lead-in wires into one end of a glass lamp tube to form a stem-press base thereof, with the mount structure having ignition means including a filament wire at its end inside the lamp and allowing for electrical contact means with its ends outside of said lamp,

(B) applying through the open other end of the lamp tube a quantity of primer material onto a portion of the lead-in wires located within the lamp tube so that the primer material contacts the filament wire,

(C) introducing into said lamp tube through said open other end a quantity of combustible material,

(D) positioning the combustible material into the portion of the lamp tube adjacent to the sealed end,

(E) heating to a plastic condition and attenuating a portion of the lamp tube intermediate to the portion containing the combustible material and the open other end to form an attenuation and to define a lamp bulb which is the portion of the lamp tube between the stem-press base and the attenuation,

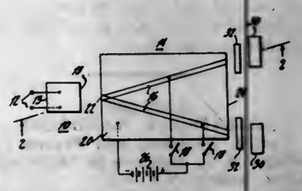
(F) blowing a gas into the open end of the lamp tube while heating the conjuncture of the attenuation with the lamp bulb to form a convex dome on the lamp,

(G) after the attenuation has cooled to the point of becoming rigid and while the dome of the lamp is still hot enough to be plastic, moving along their common axis relatively towards each other the attenuation and the lamp bulb so that the open end of the lamp bulb at the contraction takes the form of a retroverted well surrounded by a reentrant raised rim with the attenuation arising from approximately the center of the well,

(H) exhausting the lamp bulb and introducing into it through the open other end a combustion-supporting gaseous medium,

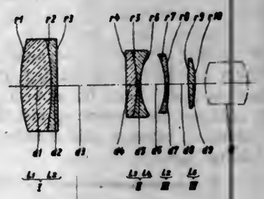
(I) heating and closing by tipping off the contraction close to the end of the lamp bulb to hermetically seal off the lamp bulb, forming an exhaust tip and a lamp.

3,320,013
SELECTIVELY CONTROLLABLE LIGHT GUIDE APPARATUS
Harwick Johnson, Princeton, N.J., assignor to Radio Corporation of America, a corporation of Delaware
Filed June 3, 1963, Ser. No. 285,122
4 Claims. (Cl. 350—1)



1. Selectively controllable light guide apparatus comprising a semiconductor body substantially transparent to light of a given wavelength and normally having a predetermined index of refraction for light of said given wavelength, said body including a plurality of individual separate P-N junction regions extending from a common point, and control means for selectively injecting sufficient carriers in the vicinity of any particular P-N junction region to cause the index of refraction of that particular P-N region to exceed said predetermined index of refraction, whereby a P-N junction is effective as a light guide solely in response to said sufficient carriers being injected in the vicinity thereof.

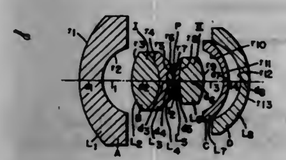
3,320,014
FOUR COMPONENT AFOCAL FRONT ATTACHMENT FOR CAMERA OBJECTIVES
Karl H. Macher, Bad Kreuznach, Rhineland, Germany, assignor to Jos. Schneider & Co. Optische Werke, Bad Kreuznach, Rhineland, Germany, a corporation of Germany
Filed July 18, 1963, Ser. No. 296,035
Claims priority, application Germany, July 27, 1962, Sch 31,807
1 Claim. (Cl. 350—184)



An optical lens system adapted to be used as a substantially afocal front attachment for camera objectives, consisting of four air-spaced components including a substantially fixed positively refracting first component consisting of a biconvex first lens and a nearly plano-concave second lens cemented together along a forwardly concave dispersive surface, an axially shiftable negatively refracting second component consisting of a nearly plano-convex third lens and a biconcave fourth lens cemented together along a forwardly concave collective surface of greater power than said dispersive surface, an axially shiftable negatively refracting third component in the form of a meniscus-shaped fifth lens with a more strongly curved forward face, and a fixed positively refracting fourth component in the form of a biconvex sixth lens with a more strongly curved rear face, said second and third components being movable into a first position of minimum magnification, a second position of intermediate magnification and a third position of maximum magnification; relative numerical values of the radii $r1$ to $r10$ and of the thicknesses and separations $d1$ to $d9$ of said first, second, third, fourth, fifth and sixth lenses L1 to L6, their refractive indices n_d and their Abbé numbers ν being, in said second position substantially as given in the following table:

	Lens	Radii	Thicknesses and Separations	n_d	ν
I	L1	$r1 = +46.20$	$d1 = 9.60$	1.61772	49.78
	L2	$r2 = -64.83$	$d2 = 1.50$	1.75520	27.53
		$r3 = -700.00$	$d3 = 20.57$	Air space	
II	L3	$r4 = -1487.50$	$d4 = 3.40$	1.72830	28.66
	L4	$r5 = -36.19$	$d5 = 1.00$	1.62041	60.29
		$r6 = +18.09$	$d6 = 7.12$	Air space	
III	L5	$r7 = -18.63$	$d7 = 1.00$	1.62364	36.75
		$r8 = -46.78$	$d8 = 5.91$	Air space	
IV	L6	$r9 = +100.04$	$d9 = 2.00$	1.61821	65.18
		$r10 = -26.27$	$d_{total} = 52.00$		

3,320,015
WIDE-ANGLE OBJECTIVE
Ludwig Bertele, Heerbrugg, Switzerland, assignor of one-half to Wild Heerbrugg Aktiengesellschaft, Heerbrugg, Switzerland
Filed Mar. 13, 1963, Ser. No. 264,866
Claims priority, application Switzerland, Mar. 15, 1962, 3,137/62
3 Claims. (Cl. 350—216)



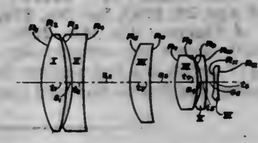
1. A wide-angle objective comprising a compound converging component having two parts one of which is disposed on one side of the diaphragm plane of the objective and the other of which is disposed on the other side of such plane, and three diverging components, the converging component being disposed between one of the diverging components and the remaining two diverging components, each of the three diverging components being concave towards the converging component, and one of the two parts of the converging component that is between said one of the three diverging components and the diaphragm plane containing two cemented surfaces which are collecting and are convex towards each other, each of the two cemented surfaces having a converging effect and these two effects being additive and the other of the two parts having a converging effect, their indices of refraction n_d and their Abbé numbers ν have numerical values substantially as given in the following table, wherein the symbols designate the following:

L the individual lenses,
r the radii of curvature of the individual surfaces,
d the axial thicknesses of the lenses,
l the air spaces between lenses,
n_d the refractive indices for the helium d-line, and
ν the Abbé number.

The suffices denote the particular item in sequence from the object side or front of the objective.

Lens	Radius of curvature	Thickness or air space	Kinds of glass n_d	Kinds of glass ν
L1	$r_1 = +103.8$	$d_1 = 25.31$	1.69651	55.6
	$r_2 = +37.96$	$l_1 = 34.17$		
	$r_3 = +69.85$	$d_2 = 31.63$	1.72952	36.6
L2	$r_4 = -40.75$	$d_3 = 9.11$	1.69823	31.1
L3	$r_5 = +22.78$	$d_4 = 6.83$	1.71317	36.5
L4	$r_6 = +2842.4$	$l_2 = 0.30$		
	$r_7 = -2480.3$	$d_5 = 4.39$	1.71079	29.7
L5	$r_8 = +191.0$	$d_6 = 28.0$	1.71079	53.9
L6	$r_9 = -69.85$	$l_3 = 29.61$		
	$r_{10} = -36.7$	$d_7 = 4.05$	1.48744	70.0
L7	$r_{11} = -54.57$	$l_4 = 13.64$		
	$r_{12} = -43.96$	$d_8 = 6.33$	1.48744	70.0
L8	$r_{13} = -71.72$			

3,320,016
SIX ELEMENT PETZVAL TYPE PROJECTION LENS
Wesley H. Van Graafeiland, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed Mar. 26, 1963, Ser. No. 268,045
1 Claim. (Cl. 350—215)



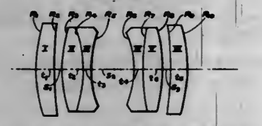
An objective having substantially the following specifications where N_D is the index of refraction and V the dispersion index of the elements numbered from the long conjugate side, which is herein referred to as the front, R is the radius of curvature of the surfaces, + and − indicate surfaces respectively convex and concave to the front, t and s are the axial thicknesses and spacings of the elements, all numbered from the front, and F is the focal length of the objective:

Lens	N_D	V	Radii, F	Thicknesses F
I	1.52	65	$R_1 = +1.1$	$t_1 = .3$
			$R_2 = -1.8$	$s_1 = .049$
II	1.72	29	$R_3 = -1.4$	$t_2 = .1$
			$R_4 = +32.$	$s_2 = .5$
III	1.59	61	$R_5 = +.8$	$t_3 = .2$
			$R_6 = +4.3$	$s_3 = .2$
IV	1.62	60	$R_7 = +.6$	$t_4 = .3$
			$R_8 = -.7$	$s_4 = .0017$
V	1.72	29	$R_9 = -.7$	$t_5 = .06$
			$R_{10} = -3.9$	$s_5 = .09$
VI	1.69	31	$R_{11} = -.7$	$t_6 = .03$
			$R_{12} = +1.7$	

3,320,017
PROJECTION PRINTER LENS

Willy E. Schade, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Filed Mar. 26, 1963, Ser. No. 268,012
3 Claims. (Cl. 350—222)



1. A lens having substantially the following specifications, where N_D is the index of refraction and V is the dispersive index of the elements, R is the radius of curvature of the surfaces, t is the axial thickness and s is the spacing of the elements all numbered by subscripts from front to rear and F is the focal length of the lens:

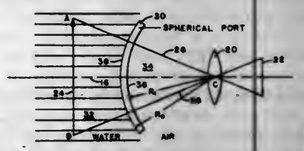
Lens	N_D	V	Radii	Thicknesses
I	1.75	46	R_1 = +38 F	t_1 = .05 F
			R_2 = +1.41 F	s_1 = .02 F
II	1.57	57	R_3 = +.45 F	t_2 = .05 F
III	1.57	43	R_4 = −.41 F	t_3 = .02 F
			R_5 = +.23 F	s_2 = .06 F
IV	1.57	43	R_6 = −.23 F	t_4 = .02 F
V	1.57	57	R_7 = +.41 F	t_5 = .05 F
			R_8 = −.45 F	s_3 = .02 F
VI	1.75	46	R_9 = −1.41F	t_6 = .05 F
			R_{10} = −.38 F	

3,320,018
OPTICAL SYSTEM FOR PHOTOGRAPHING OBJECTS AT LEAST IN PART IN A LIQUID MEDIUM

Max H. Pepke, 309 W. 19th St., New York, N.Y. 10011

Filed Apr. 29, 1963, Ser. No. 276,336
5 Claims. (Cl. 350—223)

1. An optical system for substantially distortionless photographing of objects in a first medium through boundary means between said first medium and a second medium of the same or different index of refraction, said optical system comprising said boundary means and camera lens means in said secondary medium through which to photograph said objects, said boundary means consisting of a

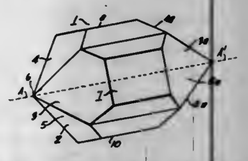


meniscus lens having substantially concentric spherical surfaces, each convex to the objects and having their center of curvature at the center of the entrance pupil of said camera lens means.

3,320,019
SCANNING PRISM UTILIZING FOUR ROOF PRISM COMPONENTS

Henry E. Brunelle, Jr., Scotia, N.Y., and Stanley J. Schwartz, Clarks Summit, Pa., assignors to General Electric Company, a corporation of New York

Filed Dec. 30, 1963, Ser. No. 334,154
2 Claims. (Cl. 350—286)



1. A composite optical prism which comprises four identical roof-prism elements joined together in abutting relationship so that the roof edge formed by intersection of the two roof surfaces in each prism element provides a common edge constituting the central viewing axis of the composite prism so formed, each of said roof-prism elements being defined by oppositely sloping planes at opposite ends of the element which intersect the roof surfaces to form a common acute angle in the element between the intersecting plane and the central viewing axis, whereby the intersection of said sloping planes with said central viewing axis at each end of said elements is at a common point, and means to cause light reflection from each of the roof surfaces.

CHEMICAL

3,320,020
COMPOSITION FOR AND DYEING CELLULOSE COPPER AND NICKEL TETRAZAPORPHIN-BETAINE DYE COMPOSITIONS AND REACTIVE DYEING CELLULOSE THEREWITH

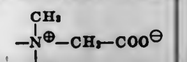
Arnold Tartter, Lambsheim, Pfalz, and Adolf Blum, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Mar. 2, 1964, Ser. No. 348,791
Claims priority, application Germany, Dec. 22, 1960, B 60,586; Oct. 27, 1961, B 64,550
12 Claims. (Cl. 8—25)

1. A process for dyeing and printing cellulosic textile material, which comprises applying to said textile material a composition comprising (A) a tetrazaporphin dye of the formula

$$T-(CH_2-Y)_n$$

in which T denotes a member selected from the class consisting of copper tetrazaporphin and nickel tetrazaporphin, Y denotes the radical of the formula



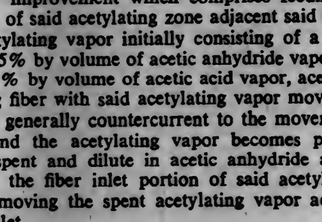
and n denotes one of the whole numbers from 1 to 8 and (B) an alkaline-reacting agent, and then heating the material thus treated at a temperature between about 50 and 150° C.

3,320,021
PROCESS FOR THE DYEING OF SYNTHETIC POLYAMIDES

Jacques Guenthard, Binningen, Basel-Land, Switzerland, assignor to Sandoz Ltd., also known as Sandoz A.G., Basel, Switzerland

No Drawing. Filed Dec. 1, 1965, Ser. No. 510,939
6 Claims. (Cl. 8—39)

1. In the dyeing of hydrophobic synthetic linear polyamides from a weakly acid to neutral dyebath with acid dye, the improvement wherein the acid dye is dye of the formula



(I)

wherein

R represents a member selected from the group consisting of substituted and unsubstituted low molecular alkyl and cycloalkyl,

X represents a member selected from the group consisting of hydrogen, halogen, substituted and unsubstituted low molecular alkyl and alkoxy,

n represents one of the integers 1 and 2 and at least one of the ortho positions of the phenyl radical relative to the —NH— group is unsubstituted.

3,320,022
METHOD FOR THE CONTINUOUS VAPOR PHASE ACETYLATION OF CELLULOSE FIBER

Frederick J. Hill, Wallingford, Pa., assignor to FMC Corporation, Philadelphia, Pa., a corporation of Delaware

Filed Apr. 27, 1964, Ser. No. 362,770
3 Claims. (Cl. 8—121)

1. In a process for the continuous vapor phase acetylation of dry, catalyst impregnated cellulose fiber wherein the fiber is continuously moved on a conveying means through an acetylating zone having a fiber inlet and outlet, the improvement which comprises feeding into the portion of said acetylating zone adjacent said fiber outlet, an acetylating vapor initially consisting of a mixture of 75 to 95% by volume of acetic anhydride vapor and from 25 to 5% by volume of acetic acid vapor, acetylating the moving fiber with said acetylating vapor moving in a direction generally countercurrent to the movement of the fiber and the acetylating vapor becomes progressively more spent and dilute in acetic anhydride as it moves toward the fiber inlet portion of said acetylating zone, and removing the spent acetylating vapor adjacent said fiber inlet.

3,320,023
PREPARATION OF REFRACTORY METAL CHLORIDES

Angelo George, Wayne, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Sept. 10, 1963, Ser. No. 307,821
3 Claims. (Cl. 23—16)

1. A process for preparing refractory metal chlorides which comprises adding to a reaction chamber previously heated to a temperature ranging from 600° C. to 700° C. and reacting therein (1) ore containing a refractory metal oxide selected from the group consisting of titanium, zirconium, hafnium, vanadium, niobium and tantalum and mixtures thereof, (2) acetylene, and (3) chlorine, introducing said reactants at such a rate that sufficient heat is evolved from the reaction to maintain a self-sustaining exothermic reaction with hydrogen chloride formation to promote and complete chlorination of said oxidic ore, and recovering the resulting metal chlorides.

3,320,024
PROCESS OF RECOVERING HIGH PURITY VANADIUM COMPOUNDS

Blair Burwell, P.O. Box 1951, Grand Junction, Colo. 81501

Filed July 5, 1963, Ser. No. 292,979
10 Claims. (Cl. 23—18)

1. In a process of recovering vanadium compounds in excess of 99.5% purity from vanadium ore or concentrates, including roasting such a vanadium-bearing material mixed with sodium chloride and in finely divided condition at a temperature of about 800° C. under oxidizing conditions so as to form sodium vanadate containing substantially no silicon, iron, chromium or phosphorus, leaching the roast calcine with water to extract vanadium as an anion with the valency of 5 and establishing a pH of about 5.5 to 7 in the leach solution, and filtering the leaching slurry for separation of the metal vanadate solution from insolubles, the improvement which comprises extracting the anionic vanadium oxide component of the sodium vanadate compound in the aqueous leach solution into a liquid-to-liquid ion exchange solution which consists of a water-insoluble amine complexing agent selected from the group consisting of tertiary and quaternary aliphatic amines having 8 to 10 carbon atoms dissolved in an organic solvent to obtain a two-phase liquid mixture, separating the organic phase from the aqueous phase containing metallic cationic impurities, extracting the vanadium ion from the separated organic phase by mixing with an aqueous solution containing not less than 9% ammonium chloride by weight and not less than 1% ammonia by weight to maintain a pH of at least 9 and thereby form a three-phase mixture of an organic phase, an aqueous phase containing ammonium chloride and ammonia, and a solid phase of crystalline ammonium metavanadate in the form of a slurry in said aqueous phase, separating the ammonium metavanadate from the aqueous phase by filtration, scrubbing the roaster gases with recycled aqueous solution having a pH not less than 5 and containing not less than 9% amonium chloride by weight and not less than 1% ammonia, thereby concentrating the ammonia chloride solution by evaporation, separating solids containing impurities from the conecntrated ammonium chloride solution, returning at least part of said concentrated ammonium chloride solution for forming the three-phase mixture after replacement of ammonia therein in a quantity at least equal to the amount consumed in a previous cycle, separating the precipitated ammonium metavanadate crystals from associated aqueous solution, and recycling the organic phase to the three-phase mixture stage after precipitating the ammonium metavanadate.

3,320,025
PROCESS FOR THE PREPARATION OF A TITANATE CONTAINING TWO ALKALI METALS

Foord Von Bichowsky, 1620 Harvey Road, Wilmington, Del. 19803

No Drawing. Filed Sept. 11, 1963, Ser. No. 308,078
4 Claims. (Cl. 23—51)

1. A process for the preparation of sodium potassium hexatitanate in the form of quadrangular prisms comprising heating at a temperature within the range of 900–

1100° C. a dry mixture containing stoichiometric amounts of TiO_2 and a sodium potassium salt selected from the group consisting of sodium potasium carbonate, sodium potassium tartrate and sodium potassium phthalate until the reaction is completed, recovering as product sodium potassium hexatitanate in the form of quadrangular prisms and grinding said product whereby irregular cubic particles are produced.

3,320,026

METHOD OF PREPARING CALCITE AND THE PRODUCT THEREOF

William F. Waldeck, Milford, N.J., assignor to Chas. Pfizer & Co., Inc., New York, N.Y., a corporation of Delaware

Filed Feb. 20, 1964, Ser. No. 346,349

16 Claims. (Cl. 23—66)

1. A process for the preparation of discrete calcite crystals of novel habit which comprises the steps of introducing carbon dioxide and thoroughly dispersing it in an aqueous calcium hydroxide suspension, said hydroxide containing at least 50 percent by weight of particles coarser than 10 microns, while maintaining the temperature below about 20° C. at least until calcite crystallization is in progress, and continuing said introduction with thorough dispersion until calcite crystallization is substantially complete.

16. A calcite crystal of novel habit characterized by stubby-prismatic doubly terminated form, each of said termini consisting of three faces of a rhombohedron, all six faces belonging to one unit calcite rhombohedron of 75° interfacial angle, said prismatic portion being characterized by six gently curved convex subhedral faces substantially parallel to the prismatic length and constituting a substantially vertical prism having a length between about one and three times the prismatic cross-section width.

3,320,027

CLAY BLEACHING UNDER NON-OXIDIZING ATMOSPHERES

Robert N. Maynard and Joseph Iannicelli, Macon, Ga., assignors to J. M. Huber Corporation, Locust, N.J., a corporation of New Jersey

No Drawing. Filed May 5, 1964, Ser. No. 365,135

5 Claims. (Cl. 23—110)

1. In the process of brightening kaolin clay in an aqueous slurry by the use of hydrosulfite bleaching agents, the improvement which consists of carrying out the process in a non-oxidizing atmosphere.

3,320,028

PRODUCTION OF BIUREA AND HYDRAZINE

William C. Klingelhoefer, Hopewell, and Harold T. Gerry, Petersburg, Va., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York

Filed Nov. 5, 1962, Ser. No. 235,425

17 Claims. (Cl. 23—190)

4. The process of producing hydrazine which comprises subjecting a compound selected from the group consisting of urea, guanidine, melamine, their salts and mixtures thereof to nuclear irradiation of sufficient intensity and for a time sufficient to form an intermediate reaction product which upon hydrolysis forms hydrazine, separating said intermediate reaction product from the fission products, and hydrolyzing the intermediate reaction product to produce hydrazine.

3,320,029

METHOD OF PREPARING MAGNESIA

Mark F. Adams, Pullman, Wash., assignor to Northwest Magnesite Company, Pittsburgh, Pa., a corporation of Washington

Filed Dec. 21, 1964, Ser. No. 419,708

9 Claims. (Cl. 23—201)

1. A process of producing high purity magnesia consisting essentially of the steps of:

(A) subjecting a feed material of the group consisting essentially of (1) the progenitor ores of magnesia, (2) flue dust recovered from the caustic calcination and dead burning of such ores, and (3) magnesium hydroxide, which feed material includes as an impurity constituent calcium oxide with a minor amount of Al_2O_3, Fe_2O_3, and Cr_2O_3, to a first calcination treatment in the range at least about 450° C. to less than 700° C. for from 10 minutes to 1 hour;

said feed material all being reduced to finer than about 44 microns and;

(B) passing the material to an aqueous solution of that material for leaching;

(1) subjecting the aqueous solution and reduced material to intimate contact with each other and with CO_2 gas, while precipitating calcium oxide-impurity and Al_2O_3, Fe_2O_3, and Cr_2O_3 constituents,

(2) maintaining the temperaure of the solution in the range 15 to 25° C.,

(3) continuing the intimate contact for a period of 5 to 30 minutes to recover 78 to 98%, by weight on an oxide basis, of the available MgO values of the feed materials;

(C) recovering a saturated liquid from the leaching step containing 15 to 25 grams of dissolved feed values per liter;

(D) precipitating dissolved MgO values from the saturated liquid of step C by boiling it for 10 to 20 minutes;

(E) recovering the precipitate from the foregoing step and subjecting it to a heat treatment in the range 200 to 800° C. and recovering a calcined active MgO of at least about 97% MgO, by weight on the basis of an oxide analysis.

3,320,030

PRODUCTION OF SULFURYL FLUORIDE

Alfred G. Bisignani, Claymont, Del., and Raymond H. Edgecomb, Somerville, N.J., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed June 24, 1963, Ser. No. 290,154

10 Claims. (Cl. 23—203)

1. The process which comprises introducing a substantially anhydrous gaseous mixture comprising chlorine, sulfur dioxide, and hydrogen fluoride into a reaction zone in which there is present a solid catalytic material comprising a major weight proportion of activated carbon and alkali metal bifluoride in a minor weight proportion not less than about 5% of the total catalytic material; maintaining in the reaction zone elevated temperature not substantially in excess of 350° C.; discharging reaction products from said zone and recovering from said products material of the group consisting of SO_2ClF and SO_2F_2.

3,320,031

DIOXYGEN CHLORINE TRIFLUORIDE

Aristid V. Grosse and Alex G. Streng, Philadelphia, Pa., assignors to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed Mar. 22, 1963, Ser. No. 267,369

1 Claim. (Cl. 23—203)

Dioxygen chlorine trifluoride having the formula O_2ClF_3.

3,320,032

EXTRACTING IRON FROM ALUMINUM SALT SOLUTIONS USING BIS(2-ETHYLHEXYL) PHOSPHORIC ACID

Harold L. Feller, Newark, Del., assignor to J. M. Huber Corporation, Locust, N.J., a corporation of New Jersey

No Drawing. Filed Sept. 5, 1962, Ser. No. 221,436

6 Claims. (Cl. 23—312)

1. The process for producing a colorless substantially iron-free aqueous aluminum nitrate solution which comprises: (1) contacting said aqueous solution containing iron impurities and at least 65% aluminum nitrate with sufficient hydrogen peroxide to oxidize all of the iron present to the ferric state, (2) intimately contacting said iron containing concentrated aluminum nitrate solution with bis (2-ethylhexyl) phosphoric acid in kerosene for a time sufficient to remove substantially all the iron, allowing the aqueous and organic phases to separate into a clear upper organic layer and a cloudy lower aqueous layer containing organic solvent residue, removing the organic layer, heating while agitating the cloudy aqueous layer until said organic residue coagulates, skimming the coagulant off the aqueous layer, and recovering the clear aqueous substantially iron-free aluminum nitrate.

3,320,033

ABSORBENT, ITS PREPARATION AND USE TO RECOVER METAL VALUES

Mayer B. Goren, Golden, Colo., assignor to Kerr-McGee Oil Industries, Inc., a corporation of Delaware

No Drawing. Filed Mar. 18, 1964, Ser. No. 352,987

29 Claims. (Cl. 23—337)

1. An absorbent for recovering dissolved metal values by absorption from aqueous solutions thereof comprising a substantially water insoluble organic solvent extractant for metal values adsorbed on the surface of a water insoluble solid substance, the solid substance having an inert hydrophobic surface of extended surface area and the organic solvent extractant being adsorbed thereon.

10. A process for preparing an absorbent for recovering dissolved metal values by absorption from aqueous solutions thereof comprising intimately contacting the surface of a solid water insoluble substance with a solution in an organic solvent of a substantially water insoluble organic solvent extractant for metal values, the solid substance having an inert hydrophobic surface of extended surface area and being intimately contacted with the solution of organic solvent extractant, and removing the organic solvent of the solution whereby the organic solvent extractant is deposited on the hydrophobic surface of the solid substance.

19. In a solvent extraction process wherein an organic solvent extractant for desired metal values is contacted with an aqueous medium containing the metal values dissolved therein and the metal values are absorbed, the organic solvent extractant together with the absorbed metal values is separated from the aqueous medium and the absorbed metal values are recovered therefrom, the improvement comprising contacting the aqueous medium with an absorbent to thereby absorb the metal values, the absorbent comprising a substantially water insoluble organic solvent extractant for the desired metal values adsorbed on the surface of a water insoluble solid substance, the solid substance having an inert hydrophobic surface of extended surface area and the organic solvent extractant being adsorbed thereon, and separating the absorbent together with the absorbed metal values from the aqueous medium.

3,320,034

CONVERSION OF U_3O_8 TO UC

Sydney Strausberg, Woodland Hills, Calif., assignor, by mesne assignments, to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed Nov. 5, 1964, Ser. No. 409,305

7 Claims. (Cl. 23—349)

1. The process for preparing uranium monocarbide of controlled carbon content from triuranium octaoxide which comprises reacting triuranium octaoxide with carbon in a molar ratio of approximately 1:10 in a two-stage carbothermic reduction process, the first stage reaction including evolution of a gas consisting principally of carbon dioxide, the temperature being maintained below 1050° C. and the second stage reaction including evolution of a gas consisting principally of carbon monoxide, the temperature being maintained above 1100° C.

3,320,035

NITROGEN COMPOUND SYNTHESIS

Donald H. Kelly, Gladstone, and Bernard Sukornick, Elizabeth, N.J., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed July 18, 1963, Ser. No. 296,885

3 Claims. (Cl. 23—356)

1. The process for making difluoramine which comprises forming an equeous solution of sulfamide, introducing into said solution gaseous elemental fluorine, in amount not substantially in excess of four mol proportions of fluorine per mol of $NH_2SO_2NH_2$, while maintaining temperature of said solution substantially in the range of zero–5° C., and thereafter heating the reaction mass to higher temperature but not substantially above 85° C. to effect evolution of gaseous difluoramine from the reaction mass.

3,320,036

DUCTILE MOLYBDENUM COMPOSITION CONTAINING A SPINEL DISPERSION

David M. Scruggs, Southfield, Mich., assignor to The Bendix Corporation, Southfield, Mich., a corporation of Delaware

Filed Oct. 26, 1964, Ser. No. 406,223

3 Claims. (Cl. 29—182.5)

3. A ductile molybdenum composition consisting essentially of a sintered molybdenum composite having a spinel dispersed throughout, said spinel being in finely-divided form and comprising about 3 to 12 percent of the total volume of the two materials, and said spinel selected from the group consisting of nickel aluminate, magnesium aluminate and mixtures of nickel aluminate and magnesium aluminate.

3,320,037

DUCTILE TUNGSTEN COMPOSITION CONTAINING A SPINEL DISPERSED UNIFORMLY THROUGHOUT

David M. Scruggs, Southfield, Mich., assignor to The Bendix Corporation, Research Laboratories, Southfield, Mich., a corporation of Delaware

Filed Oct. 26, 1964, Ser. No. 406,224

4 Claims. (Cl. 29—182.5)

4. A ductile tungsten composition consisting essentially of a sintered tungsten composite having a refractory spinel dispersed uniformly throughout, said refractory spinel being in finely divided form and comprising from about 3 to 15% of the total volume of the two materials, and said refractory spinel selected from the groups consisting of magnesium aluminate, magnesium chromate, and mixtures of magnesium aluminate and magnesium chromate.

3,320,038

SINTERED TANTALUM CARBIDE BODIES

Siegfried Scholz and Bernd Lersmacher, Aachen, Germany, assignors to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Oct. 26, 1964, Ser. No. 406,595
Claims priority, application Germany, Aug. 10, 1960, N 18,757
2 Claims. (Cl. 29—182.7)

1. A carbide body sintered under pressure and consisting essentially of tantalum carbide and from about 0.01 to 1% by weight of an auxiliary sintering-accelerator material selected from the group consisting of manganese and a mixture, in approximately equal weights, of manganese and iron.

3,320,039

ELECTRICAL RESISTANCE ELEMENTS AND THE LIKE

Ralph George Hollister, Thorpe Bay, Essex, England, assignor to Johnson, Matthey & Company Limited, London, England, a British company

Filed Nov. 12, 1963, Ser. No. 323,032
Claims priority, application Great Britain, Nov. 16, 1962, 43,421/62
4 Claims. (Cl. 29—193)



1. An electrical resistance wire comprising a composite material formed of an outer tubular member composed of a metal selected from the group consisting of platinum group metals and alloys of platinum group metals and a filling within said tubular member composed of particular refractory ceramic material selected from the group consisting of alumina zirconia and magnesia which will not alloy with the metal of said tubular member at the operating temperature of said wire but which is capable of sintering at the said temperature into the form of a solid rod-like core within and supporting said tubular member.

3,320,040

GALVANIZED FERROUS ARTICLE

William P. Roe, Westfield, and Willard J. Lantz, Milltown, N.J., assignors to American Smelting and Refining Company, New York, N.Y., a corporation of New Jersey

No Drawing. Filed Aug. 1, 1963, Ser. No. 299,164
3 Claims. (Cl. 29—196.5)

1. A galvanized ferrous article having a coating of galvanizing metal adhering thereto which comprises a zinc base alloy containing, by weight, .1–3.5% aluminum, .02–.2% magnesium, and less than .1% lead.

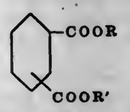
3,320,041

JET FUEL CONTAINING ANTI-WEAR AROMATIC DIESTER

Hugh L. Hemmingway, Woodstock, Ill., assignor, by mesne assignments, to Union Oil Company of California, Los Angeles, Calif., a corporation of California

No Drawing. Filed Sept. 12, 1963, Ser. No. 308,358
16 Claims. (Cl. 44—58)

1. A jet fuel oil composition containing metal wear-reducing amounts of a dibasic aromatic ester of the formula



wherein the COOR' group is in a position other than meta to the COOR group and R and R' are of the group consisting of C_1—C_{10} alkyl radicals, C_3—C_{10} branched chain alkyl radicals, C_3—C_{10} secondary alkyl radicals, and C_3—C_7 cycloaliphatic radicals, said wear reducing amount being about 6 to less than 50 pounds of said ester per 1000 barrels of said fuel.

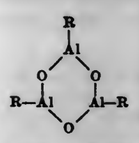
3,320,042

COLOR STABLE FUEL OIL

Joseph C. Mason, Jr., Wallingford, Pa., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

No Drawing. Filed Nov. 21, 1962, Ser. No. 239,369
1 Claim. (Cl. 44—66)

Method for desulfurizing and increasing the color stability of sulfur-containing cracked gas oil boiling mainly within the range of 425° F. and 700° F. and containing at least 0.3% sulfur which comprises (1) contacting in liquid phase said gas oil with a sulfur-resistant hydrogenation catalyst, in an atmosphere of hydrogen at a temperature of from 500° F. to 650° F. and a pressure of from 300 p.s.i.g. to 1000 p.s.i.g., (2) recovering a substantially desulfurized cracked gas oil, and (3) adding to said desulfurized cracked gas oil a minor amount of a substituted cyclic aluminum oxide trimer of the formula



where "R" is selected from the group consisting of acylate anions of aliphatic monocarboxylic acids containing 12 to 22 carbon atoms per molecule and alkoxy anions of alcohols containing from 1 to 10 carbon atoms per molecule said minor proportion being an amount sufficient to inhibit color degradation of said petroleum fraction.

3,320,043

METHOD FOR MAKING THIN FILM GLASS ELEMENTS

John D. MacKenzie, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York

Original application Aug. 23, 1962, Ser. No. 219,045. Divided and this application Oct. 21, 1965, Ser. No. 499,267
2 Claims. (Cl. 65—21)

1. In the method of making a glass sheet having special utility in electrical insulating applications including the steps of forming a glass bubble and then shaping a portion of the glass bubble to predetermined form and thickness between one-half mil and one-half inch, the combination of the preliminary step of providing as the glass to be used in the formation of the glass bubble a glass having room-temperature resistivity of at least 10^{-18} ohm

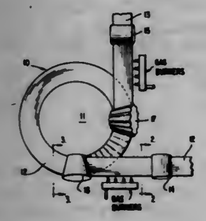
centimeters consisting of about 40 mole percent calcium oxide and about 60 mole percent silica and containing sodium in an amount at least 10 times greater than the sodium content of fused silica having resistivity less than that of said glass over the temperature range of 300 to 500° C.

3,320,044

METHOD AND APPARATUS FOR MAKING CERAMIC OR VITREOUS ARTICLES

Felix Cole, West Hartford, Conn., and Eugene L. Modreski, Wellsboro, and Robert W. Van Tilburg, Bradford, Pa., assignors to Corning Glass Works, Corning, N.Y., a corporation of New York

Filed Apr. 29, 1964, Ser. No. 363,557
11 Claims. (Cl. 65—44)



1. A method of making a ceramic or vitreous article comprising; supply a ribbon of a ceramic or vitreous working material which differs in thickness across the width of the ribbon from a thin edge of the ribbon gradually to a thicker edge of the ribbon, directing the ribbon of differing thickness to a winding zone with the thickest edge of the ribbon the greatest distance from the center of the winding zone, applying pressure to at least the thickest portion of the ribbon to reduce the thickness of the thickest edge of the ribbon until the ribbon has the same thickness across the width and thereby impart curvature to the ribbon and helically wind the ribbon in the winding zone, and adhering adjacent courses of the ribbon together to form a unitary structure.

6. An apparatus for making ceramic or vitreous articles comprising; a first forming means for forming a ribbon of ceramic or vitreous material into a ribbon which differs in thickness across the width of the ribbon from a thin edge portion of the ribbon to a thick edge portion of the ribbon, a second forming means for applying pressure to the ribbon to simultaneously corrugate and reduce the ribbon to a ribbon having the same thickness across its width and thereby impart a curvature to the ribbon and helically wind said ribbon, and a winding mandrel adjacent the second forming means upon which the ribbon may be helically wound to form a cylindrical body.

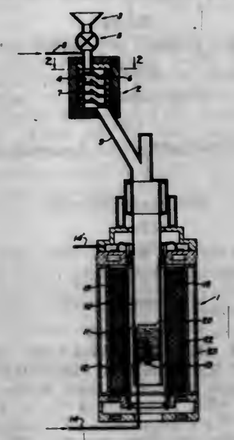
3,320,045

FURNACE FOR THE MANUFACTURE OF FUSED QUARTZ

Werner Weiss, Berlin-Hermsdorf, and Karl Vatterodt, Berlin-Spandau, Germany, assignors to Patent-Treuhand-Gesellschaft für elektrische Glühlampen m.b.H.

Filed June 21, 1963, Ser. No. 289,643
Claims priority, application Germany, June 25, 1962, P 29,686
5 Claims. (Cl. 65—335)

1. In combination, an electric furnace for the continuous production of fused quartz from crystalline quartz comprising an elongated crucible open at the top for the introduction of quartz crystals, an aperture at the bottom of the crucible for the flow of molten fused quartz out of the crucible, a pretreatment furnace and means mounting the pretreatment furnace in communication with and above the level of the melt in the crucible for delivering pretreated crystals by gravity to the crucible, means for heating the interior of the pretreatment furnace to an elevated temperature lower than the melting temperature of



the crystals to be treated, a conduit opening into said pretreatment furnace for the introduction of gas having a lower partial pressure than the gas physically dissolved in the crystals, and means for guiding the crystals through the pretreatment furnace and into the crucible.

3,320,046

FORMULATION FOR CONDITIONING CUT FLOWERS AND PROCESS FOR EFFECTING SAME

Sanford M. Siegel, White Plains, N.Y., assignor to Union Carbide Corporation, a corporation of New York

No Drawing. Filed May 14, 1964, Ser. No. 367,561
20 Claims. (Cl. 71—2.4)

1. A solid formulation which is useful when dissolved in water for conditioning leaves, branches, flowers and other portions of plants which have been severed from their natural growing environment, said formulation comprising:

(1) at least one component selected from the group consisting of:

(A) the iodides and bromides of metals of the group consisting of sodium, potassium, and magnesium, and at least one member of the group consisting of boric acid and the water soluble inorganic salts and chelates of the divalent metal ions copper, zinc, manganese, magnesium, cobalt, and nickel, with the proviso that said component (A) contain at least one of the aforesaid metal ions and when one of said metal ions copper and zinc are present, at least one other of the aforesaid metal ion be present;

(B) at least one organic reducing agent selected from the group consisting of ascorbic acid, isoascorbic acid, tryptophane, and thiourea, and

(2) a water-soluble antioxidant.

3,320,047

HERBICIDAL COMPOSITION AND METHOD

Everett E. Gilbert, Morris Township, Morris County, N.J., assignor to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Dec. 16, 1963, Ser. No. 330,545
10 Claims. (Cl. 71—2.7)

1. A method for combating growth of undesirable vegetation which comprises applying to said vegetation

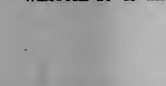
in phytotoxic concentration a compound having the formula selected from the group consisting of:



wherein R is alkyl having 1 to 3 carbon atoms,

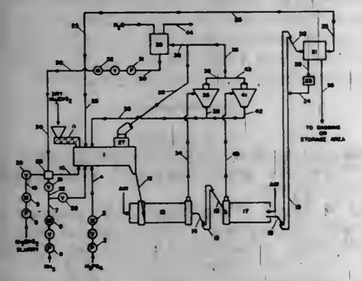


wherein R' is alkyl having 1 to 4 carbon atoms, and



wherein R'' is a member selected from the group consisting of hydrogen and alkyl having 1 to 11 carbon atoms.

3,320,048
PROCESS FOR THE PREPARATION OF MAGNESIUM AMMONIUM PHOSPHATE
Casimer C. Legal, Baltimore, and Burton L. Mobley, Ellicott City, Md., assignors to W. R. Grace & Co., New York, N.Y., a corporation of Connecticut
Filed May 26, 1964, Ser. No. 370,291
9 Claims. (Cl. 71—42)



1. A fully continuous process for preparing a nonburning granular fertilizer comprising fertilizer grade magnesium ammonium phosphate analyzing about 7–9% nitrogen, as N, and about 42–45% P_2O_5, said process comprising;

(a) reacting ammonia, magnesium hydroxide, and phosphoric acid solution analyzing about 40–58% P_2O_5 in the mole ratio of NH_3:$Mg(OH)_2$:H_3PO_4 of about 1–1.1:1:1 to form magnesium ammonium phosphate and granulating the resultant product in a reactor-granulator;

(b) drying the resulting granules in a drying unit;

(c) screening the thus dried granules in a screening device and recovering, (1) those granules passing a 3 mesh screen and retained on a 6 mesh screen, and (2) those granules passing a 6 mesh screen and retained on a 16 mesh screen, the recovered granules comprising fertilizer grade magnesium ammonium phosphate analyzing about 7–9% nitrogen, as N, and about 42–45% P_2O_5;

(d) recycling the fine, —16 mesh, granules to the reactor-granulator;

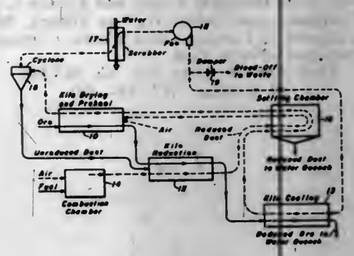
(e) crushing the overize, +3 mesh, granules and recycling the crushed particles to said screening device;

(f) simultaneously passing air from the drying and cooling units through dust collectors and recycling the collected dust to the reactor-granulator;

(g) simultaneously passing exhaust air from the reactor-granulator and the dust collectors through a water scrubbing tower, whereby ammonia vapor in said air is absorbed in water; and

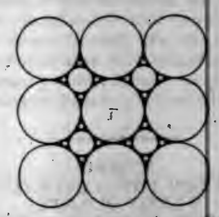
(h) simultaneously recycling the thus absorbed ammonia to the reactor-granulator.

3,320,049
REDUCTION ROASTING OF ORE
Luther G. Hendrickson, Duluth, Minn., assignor to United States Steel Corporation, a corporation of Delaware
Filed Apr. 27, 1964, Ser. No. 363,005
15 Claims. (Cl. 75—1)



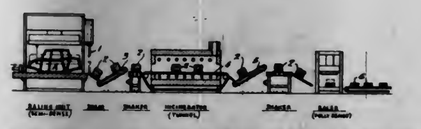
1. A method of converting hematite to magnetite comprising drying and preheating hematite ore fines in a first kiln, continuously transferring the fines from said first kiln to a second kiln, continuously introducing fresh reducing gas at an elevated temperature from an outside source to said second kiln and thereby reducing hematite in the fines to magnetite, continuously transferring the reduced fines from said second kiln to a third kiln, continuously passing gas which has gone through said second kiln and is at least mildly reducing through said third kiln, said last-named gas serving as a cooling medium for the fines and preventing reoxidation of the magnetite, continuously recycling gas from said third kiln through one of the other kilns, continuously passing gas which has gone through at least one other kiln through said first kiln, and burning in last-named gas in said first kiln to supply heat thereto.

3,320,050
FLUID BED PROCESS
Francis Xavier Mayer, Baton Rouge, La., and Darryl S. Roberts, Lawrence, Kans., assignors to Esso Research and Engineering Company, a corporation of Delaware
Filed Dec. 16, 1963, Ser. No. 330,769
7 Claims. (Cl. 75—26)



1. An improved method for preventing bogging in a fluid bed of finely divided particles which have a tendency to bog under normal fluid bed operating conditions and which have a particle size distribution similar to that of a maximum density aggregate of the same particle size range which comprises providing in said bed larger particles of generally uniform size at least about twice the size of the largest of said finely divided particles, the larger particles being provided in an amount ranging from about 5 to 30 wt. percent of the finely divided particles in the fluid bed, whereby the overall particle size distribution is made substantially different from that of a maximum density aggregate of the same particle size range.

3,320,051
PROCESS FOR RECOVERING AND REFINING SCRAP MATERIAL
Calvin Lieberman, 2818 Meadowwood Drive, Toledo, Ohio 43606
Filed Jan. 21, 1965, Ser. No. 426,958
8 Claims. (Cl. 75—43)

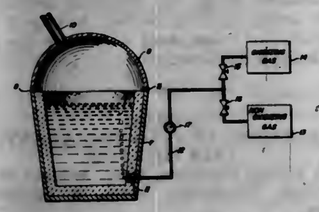


8. A method of recovering and refining scrap metal from a scrap source including metallic material and combustible matter comprising the steps of partially compacting and shearing a scrap body in a baling shear to form a plurality of scrap bales of increased density and of a reduced size capable of being conveyed to and received by a tunnel incinerator, passing said bales through said tunnel incinerator whereby the combustible matter therein is completely volatilized or reduced to ash, agitating said incinerated bales to remove the residual ash therein, and further compacting said bales to form high density bundles of substantially pure metallic scrap material.

3,320,052
FLUX USED IN THE MAKING OF STEEL
James J. Bowden, P.O. Box 127, Cortland, Ohio 44410
No Drawing. Filed Sept. 17, 1964, Ser. No. 397,302
2 Claims. (Cl. 75—53)

1. The method of producing a low-cost steel-making flux from a waste product produced in the manufacture of aluminum by melt electrolysis of a solution of aluminum oxides in molten fluorides, said oxides and fluorides being introduced into the melt furnace in genrally powdery state wherein a dust is formed by such introduction and whereby dust particles are entrained in the gas formed in the reduction of aluminum oxides to aluminum metal, said dust being collected and treated with water to inhibit its tendency to remain airborne and said water transforming the dust into a sludge, the method comprising adding to and mixing with the sludge materials selected from the group consisting of lime, limestone, iron oxide, mill scale and dolomite until the water in the sludge is absorbed to the extent that the mixture may be safely charged into a steel-making furnace as a flux to assist in the steel-making process.

3,320,053
METHOD OF INJECTING GASES INTO STEEL MELTS
Albert L. Lehman, Center Valley, Pa., assignor, by mesne assignments, to Bethlehem Steel Corporation, a corporation of Pennsylvania
Filed Sept. 25, 1964, Ser. No. 399,186
4 Claims. (Cl. 75—59)



1. A method of keeping the tip of a injection tube in contact with molten metal constantly open comprising maintaining a continual flow of non-oxidizing gas through said tube and intermittently adding to said flow of non-oxidizing gas, small quantities of an oxidizing gas sufficient to melt any accretions of metal that may have formed around the tip of said tube.

3,320,054
BRAZING ALLOY
Horace G. MacKerrow, Vallejo, Calif., William G. N. Heer, El Paso, Tex., and Peter M. Burke, Los Altos, Calif., assignors to the United States of America as represented by the Secretary of the Navy
No Drawing. Filed Feb. 4, 1965, Ser. No. 430,502
3 Claims. (Cl. 75—134)

1. A brazing alloy consisting of about 36% silver, about 20% copper, zinc from about 25% to about 30%, nickel from about 5% to about 8%, about 7% cadmium, 0.02% lithium.

3,320,055
MAGNESIUM-BASE ALLOY
George S. Foerster, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Aug. 19, 1964, Ser. No. 390,739
10 Claims. (Cl. 75—168)

1. A magnesium-base alloy which consists essentially of by weight from 0.01 to 0.8 percent of calcium, from 0.05 to 0.95 percent of zinc, the product of the percent of calcium, times the percent of zinc minus 0.2, being a numerical value not greater than 0.1, and the balance substantially magnesium.

3,320,056
LIQUID PHASE EXTRUSION FOR FORMING REFRACTORY MATERIALS
Robert F. Stoops, Raleigh, N.C., assignor to the United States of America as represented by the United States Atomic Energy Commission
No Drawing. Filed May 14, 1965, Ser. No. 456,009
14 Claims. (Cl. 75—201)

1. A method of powder compaction which comprises (1) forming a mixture of a sinterable refractory powder and a material which wets and flows along the surface of said powder as a liquid to dissolve at least a small amount of said powder and in an amount which insures the formation of a continuous liquid phase of said material, (2) heating said mixture to a temperature at which a continuous liquid phase of said material is formed and in which said refractory powder exists as a solid dispersed phase, and (3) then concurrently pressing essentially all of the liquid phase out leaving the solid phase as a densified compact.

3,320,057
METAL STRUCTURE FABRICATION
Russell E. Palmateer, Emporium, Pa., assignor to Sylvania Electric Products Inc., a corporation of Delaware
Continuation of application Ser. No. 258,768, Feb. 15, 1963. This application Dec. 31, 1964, Ser. No. 422,843
4 Claims. (Cl. 75—206)

1. A process for manufacturing a solidified metal mixture comprising the steps of:

wetting powdered metal particles with a volatile solvent solution of a soluble basic salt from the metal group consisting essentially of aluminum, beryllium, titanium, zirconium, hafnium, and thorium, said salt including an acid and metal in respective proportions in excess of those necessary to produce a neutral salt of the metal and the acid;

heating said wetted particles to volatilize said solvent and agitating said particles during the heating thereof to prevent adherence therebetween, and provide a film thereon; and rolling said film-covered metal particles to form a strip; and

firing said film-covered particles to decompose said film to refractory oxide particles and sinter said metal particles whereby the oxide particles are substantially uniformly dispersed and entrapped intermediate the metal particles.

3,320,058
METHOD OF PRODUCING A POROUS TUNGSTEN STRUCTURE WITH AN IMPERVIOUS SKIN
Richard H. Krock, Peabody, and Edward J. Zdanuk, Lexington, Mass, assignors to P. R. Mallory & Co. Inc., Indianapolis, Ind., a corporation of Delaware
Filed Feb. 16, 1966, Ser. No. 527,909
11 Claims. (Cl. 75—208)

1. A method of making a tungsten structure having an impervious skin and a porous core comprising the steps of: forming powder tungsten into a determined shape; coating the surfaces of said tungsten shape with powdered nickel; and heating said nickel coated tungsten body in an atmosphere so as to sinter and bond together the particles of said tungsten shape forming a tungsten structure having an impervious skin of nickel coated tungsten particles and a core of sintered tungsten particles.

3,320,059
VOLTAGE-PRESSURE BONDING
Alex Labounsky, Wayaawi Ave., Bayville, N.Y. 11709
No Drawing. Filed Feb. 4, 1964, Ser. No. 342,548
15 Claims. (Cl. 75—214)

1. The method for forming shaped bodies which comprises subjecting a confined mass of pulverulent inorganic material to a deformation pressure in excess of fifty percent and impressing thereon an electromotive force in excess of 100,000 volts without substantial change in temperature therefrom.

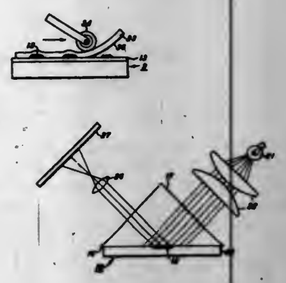
3,320,060
DEFORMATION IMAGE REPRODUCTION PROCESS UTILIZING A VOLTAGE THRESHOLD REDUCING SURFACTANT
William L. Goffe, Webster, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Nov. 29, 1963, Ser. No. 326,831
22 Claims. (Cl. 96—1.1)

13. A method of producing a pattern upon an insulating thermoplastic layer, comprising in sequence the steps of:
(a) applying a surfactant to a thermoplastic layer in a desired pattern;
(b) electrostatically charging said thermoplastic layer;
(c) softening said thermoplastic layer until surfactant-bearing surface areas deform into randomly oriented ridges and valleys; and,
(d) hardening said thermoplastic layer.

22. A method for modifying the voltage threshold required to form a frost deformation pattern on a frostable insulating thermoplastic, comprising depositing a layer of a surfactant for said thermoplastic on the surface of said thermoplastic, said surfactant layer having a thickness of less than about 0.5 micron.

3,320,061
MASKING BY TOTAL INTERNAL REFLECTION FOR IMAGE REPRODUCTION AND DISPLAY
Robert W. Gundlach, Victor, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed June 24, 1963, Ser. No. 290,089
8 Claims. (Cl. 96—1.4)

1. The method of producing an image comprising:
(a) forming a transferable powder image;
(b) transferring said powder image to a non-reflecting web;
(c) presenting said non-reflecting web bearing said powder image to a reflecting surface of a transparent body, whereby optical contact is made between said reflecting surface and said web except where prevented by said powder image;



(d) directing collimated light into said body toward said reflecting surface at an angle within the range for total internal reflection at said reflecting surface where contact between said reflecting surface and said web is prevented by said powder image; and,
(e) imaging light totally internally reflected from said reflecting surface at a receiving plane.

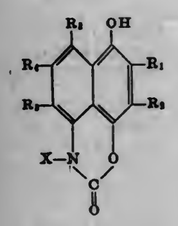
3,320,062
PHOTOGRAPHIC PROCESSES COMPRISING STEPWISE CONTROL OF DYE DEVELOPER DIFFUSIBILITY IN ALKALI
Edwin H. Land, Cambridge, and Howard G. Rogers, Weston, Mass., assignors to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware
No Drawing. Filed July 30, 1963, Ser. No. 298,539
7 Claims. (Cl. 96—3)

1. A diffusion transfer process for forming multicolor images comprising the steps of exposing a photosensitive element containing blue-sensitive, green-sensitive and red-sensitive silver halide emulsions, said emulsions having associated therewith, respectively, a yellow image dye providing substance, a magenta image dye providing substance, and a cyan image dye providing substance; applying to said exposed photosensititve element a processing composition providing a pH of about 10 to 12.5 at which said image dye providing substances are substantially nondiffusible; developing said exposed silver halide emulsions at said pH, and, as a function of said development, reacting said image dye providing substances in developed areas to thereby provide an imagewise distribution of image dye providing substances associated with each of said silver halide emulsions; and thereafter increasing the pH to a level at which said imagewise distribution of image dye providing substances is rendered diffusible, and transferring, by diffusion, at least a portion of said diffusible image dye providing substances to a superposed image-receiving element to impart thereto a positive multicolor image, each said image dye providing substance being a dye developer.

3,320,063
PHOTOGRAPHIC DEVELOPING AGENTS AND USES THEREOF
Stanley M. Bloom, Brookline, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware
No Drawing. Filed Dec. 4, 1963, Ser. No. 328,116
11 Claims. (Cl. 96—29)

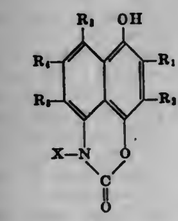
1. A process of developing an exposed photosensitive silver halide emulsion which comprises treating said emul-

sion with an aqueous alkaline solution of a leuco compound having the formula:



wherein R_1 and R_2 are each members selected from the group consisting of hydrogen and lower alkyl, R_3, R_4, and R_5 are each members selected from the group consisting of hydrogen, hydroxyl, halogen, lower alkyl, substituted lower alkyl, aryl, and substituted aryl, and X is a member selected from the group consisting of hydrogen and lower alkyl.

2. In a process of forming photographic images in color, the steps which comprise developing an exposed silver halide emulsion with an aqueous alkaline solution of a leuco compound having the formula:

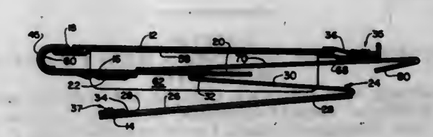


wherein R_1 and R_2 are each members selected from the group consisting of hydrogen and lower alkyl, R_3, R_4, and R_5 are each members selected from the group consisting of hydrogen, hydroxyl, halogen, lower alkyl, substituted lower alkyl, aryl, and substituted aryl, and X is a member selected from the group consisting of hydrogen and lower alkyl, to thereby provide in said emulsion a predetermined distribution of unoxidized leuco compound, transferring at least part of said distribution of unoxidized leuco compound by imbibition from said emulsion to an image-receiving layer in superposed relationship with said emulsion, and oxidizing the diffused, transferred, unoxidized leuco compound to impart to said image-receiving layer a reversed, positive dye image of the developed image.

3,320,064
NON-SILVER HALIDE LIGHT SENSITIVE MATERIALS
Wesley T. Hanson, Jr., and John Williams, Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed Mar. 19, 1963, Ser. No. 266,328
20 Claims. (Cl. 96—49)

1. A non-silver halide photographic element comprising a support having thereon light insensitive physically developable nuclei and a compound or combination of compounds which upon exposure to light forms or releases a desensitizing agent which causes the nuclei to be deactivated for physical development.

3,320,065
PHOTOGRAPHIC FILM UNIT HAVING A RESILIENT LIQUID TRAPPING MEMBER
John E. Campbell, Needham, Mass., assignor to Polaroid Corporation, Cambridge, Mass., a corporation of Delaware
Filed June 14, 1963, Ser. No. 287,917
3 Claims. (Cl. 96—76)



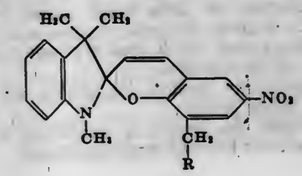
1. A photographic film unit which is adapted to be processed by passing said unit between a pair of juxtaposed pressure-applying members, which film unit comprises, in combination, a first photosensitive sheet element, a second nonphotosensitive sheet element and a rupturable container retaining a fluid processing composition, said sheet elements adapted to be superposed with said container positioned intermediate said sheet elements transverse the leading edge thereof passing intermediate said pair of juxtaposed pressure-applying members, whereby to effect unidirectional discharge of said container's contents between and in contact with opposed surfaces of said elements upon application of compressive force to said container by said juxtaposed pressure-applying members, each of said sheet elements having resilient interengaging members mounted on and extending transverse the opposed surfaces of the trailing edge thereof for interengagement with the opposed surface of the other of said sheet elements upon application of compressive force to said interengaging members by said juxtaposed pressure-applying members, whereby to secure the opposed surface of one of said trailing edges to the opposed surface of the other of said trailing edge.

3,320,066
HIGH WET STRENGTH PAPER
Leonid G. Garth, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Filed Sept. 6, 1966, Ser. No. 577,155
13 Claims. (Cl. 96—85)

1. A composition of matter comprising paper-making fibers dispersed in water to which has been added a polyamide-epichlorohydrin resin and a dialdehyde carbohydrate derivative.

3,320,067
COMPOSITION AND PROCESS UTILIZING PHOTOSPIRANS
Lloyd D. Taylor, Everett, Mass., assignor to Polaroid Corporation, Cambridge Mass., a corporation of Delaware
No Drawing. Filed Sept. 3, 1963, Ser. No. 306,325
4 Claims. (Cl. 96—90)

1. A composition of matter capable of undergoing a reversible color change when exposed to radiant energy, comprising a polymeric film having dispersed therein a water-soluble photospiran of the formula:



wherein R is a radical selected from the group consisting of $—R'^{\oplus}Z^{\ominus}$ wherein $R'^{\oplus}$ is a quaternized amine of not more than 16 carbon atoms and $Z^{\ominus}$ is an anion;

$$—SO_2{}^{\ominus}Na^{\oplus}$$

$—COO^{\ominus}Na^{\oplus}$; and $—D^{\oplus}HZ^{\ominus}$ wherein $D^{\oplus}$ is a tertiary amine radical of not more than 16 carbon atoms and $Z^{\ominus}$ is an anion in which film the property of dichroism is exhibited.

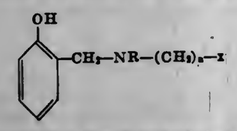
3,320,068

SILVER HALIDE EMULSIONS WITH INCREASED SENSITIVITY

Wolfgang Müller-Bardorff, Cologne, and Wilhelm Saleck, Schildgen, Bergisch-Gladbach, Germany, assignors to Agfa Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed Mar. 31, 1964, Ser. No. 356,075
Claims priority, application Germany, Apr. 24, 1963, A 42,947
5 Claims. (Cl. 96—107)

1. In a process for producing a sensitized photographic silver halide emulsion, the step which comprises after-ripening the emulsion on the acid side of neutrality in the effective presence of at least one water-soluble salt of a Group VIII metal having an atomic weight of greater than 100 or gold and in the effective presence of an o-hydroxybenzylamine compound of the formula



wherein R represents a substituent of the group consisting of hydrogen, alkyl, and a phenyl, x stands for a member of the group consisting of hydrogen, hydroxy and halogen and n in an integer between 1 and 5.

3,320,069

SULFUR GROUP SENSITIZED EMULSIONS

Bernard D. Illingsworth, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed Mar. 18, 1966, Ser. No. 535,350
16 Claims. (Cl. 96—107)

1. A silver bromoiodide-gelatin photographic emulsion in which the iodide comprises 1–10 mole percent of the halide, said emulsion being sensitized with a sulfur, selenium or tellurium sensitizer, said emulsion when coated on a support at a silver coverage of between 300 and 1000 mg. per square foot and exposed on an intensity scale sensitometer and processed for five minutes in Kodak Developer DK–50 at 68° F. has a log speed of 280–400 and a remainder resulting from subtracting its granularity value from its log speed of between 180 and 220.

11. A method of preparing washed silver bromoiodide photographic emulsions, the silver halide grains of which have a high ratio of surface to internal sensitivity, which comprises:

(a) simultaneously introducing a solution of silver nitrate and a solution of an alkali metal halide into a nonammoniacal solution of protein peptizer, the halide which is 99–90 mole percent of bromide and 1–10 mole percent of iodide being kept in 4–20 mole percent excess therein per mole of silver present;
(b) contacting the silver halide grains thus formed with 5–50 grams per mole of silver of a water-soluble thiocyanate which does not have a deleterious effect on the emulsion;
(c) subsequently washing the soluble salts from the silver halide grains;
(d) digesting the grains by subjecting a dispersion thereof to an elevated temperature; and
(e) sensitizing the silver halide suspension with a sulfur, selenium or tellurium sensitizer.

3,320,070

VEGETABLE BASE HIGH PROTEIN FOOD PRODUCT

Warren Emery Hartman, Worthington, Ohio, assignor to Worthington Foods, Inc., Worthington, Ohio, a corporation of Ohio

No Drawing. Filed May 27, 1963, Ser. No. 283,546
18 Claims. (Cl. 99—17)

1. A vegetable base high protein food product consisting essentially of a coherent body of molecularly-oriented man-made fibers of natural vegetable protein with said fibers in random position and at least in substantially unoriented fashion in said food product and held together by means of an edible binder comprising albumin admixed with an edible proteinate, said product containing meat-like flavoring and having zones simulating in appearance lean portions of meat of animal flesh type and other zones simulating in appearance non-lean portions, said zones simulating the appearance of said lean portions containing a higher proportion of albumin in the binder than used in the non-lean portions.

3,320,071

PROCESS FOR PRODUCING ISOHUMULON-RICH HOPS EXTRACTS

Adam Muller, Coburg, Germany, assignor to Chemisches Laboratorium Dr. A. Muller, Coburg, Germany, a corporation of Germany

No Drawing. Filed Jan. 22, 1964, Ser. No. 339,321
8 Claims. (Cl. 99—50.5)

1. A process for the preparation of hops extracts which compriss extracting raw hops with an organic solvent at least slightly soluble in water and selected from the group consisting of alkyl ethers and alkanols with a water content of 1 to 6% and halogenated hydrocarbons having a water content of 1 to 2% and mixtures thereof to extract the bitter substances from the hops, then extracting the said hops with hot water to extract the tanning substances from the said hops, concentrating the said extracts separately to a water content of 10 to 20% based on the dried extract and mixing the two extracts in the presence of air at temperatures of about 45 to 70° C. in proportions to obtain a hops extract having a ratio of bitter substances to tanning substances of 1:0.1 to 1:1.75, said water having a total German hardness of at least 12° and a residual German alkalinity of at least 8°.

3,320,072

INFANT'S FORMULA MADE WITH ELECTRODIALYZED MILK

Robert E. Clark, Lansing, and Elbert R. Spence and Rexford C. Stribley, Mason, Mich., assignors to American Home Products Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Dec. 13, 1963, Ser. No. 330,231
5 Claims. (Cl. 99—63)

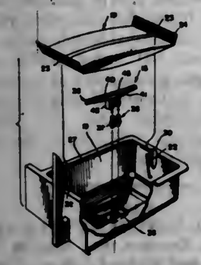
1. A process for the preparation of a food product particularly adapted for human infant nutrition substantially approximating human milk in composition and nutritional content having an ash content of from 0.20 to 0.40 percent when reconstituted for feeding at 12.3 to 12.5 percent total solids which comprises, electrodialyzing skim milk until it contains 34 percent to 45 percent the ash content of normal skim milk, electrodialyzing whey until it contains 2 percent to 10 percent the ash content of normal whey and then admixing, on a dry solid basis, 0.56 part of said electrodialyzed skim milk, 1.5 parts of said electrodialyzed whey, 1.0 part of a blend of fats and 0.45 part of lactose, said electrodialyzed whey and electrodialyzed skim milk in combination providing, in the final product without addition of phosphorus, phosphorus in the amount of 117–130 mg./100 g. and, with the addition of not more than 100–130 mg./100 g. of calcium, calcium in the amount of 250–280 mg./100 g. of product solids and a whey protein to casein ratio of 1.46:1.

3,320,073

MEANS FOR BREWING COFFEE

George Bixby, Jr., Scottsdale, Ariz., and Jerry Devaris Whiting, Ind., assignors to Automatic Marketing Industries, Inc., Phoenix, Ariz.

Filed Oct. 16, 1964, Ser. No. 404,389
2 Claims. (Cl. 99—71)



2. In a method of brewing coffee, the steps of providing unbrewed coffee in a closed flexible bag having opening equipped tab means at each end thereof for manual grasping and support of said bag, said bag, prior to manipulation, being provided in over-folded condition with said tab means overlying the bag central portion wherein said unbrewed coffee is located, manually grasping said tab means to deform said bag to disperse said unbrewed coffee, and positioning said flexible bag in a brewing vessel so that the openings engage upstanding posts in said brewing vessel, and brewing coffee therewith.

3,320,074

PROCESS FOR PRODUCING OF LOW-CALORIE SWEETENING COMPOSITION

Hans T. Gebhardt, Marysville, Ohio, assignor to Afico S.A., Lausanne, Switzerland, a corporation of Switzerland

No Drawing. Filed Dec. 1, 1964, Ser. No. 415,160
5 Claims. (Cl. 99—141)

4. A process for preparing a sweetening composition, comprising spray-drying a pressurized, aerated, aqueous solution containing between about 30% and about 65% by weight of dextrin substantially free of mono-, di-, and trisaccharides, and from about 1% to about 12%, based on the weight of the dextrin, of noncaloric artificial sweetener, under conditions producing granular, free-flowing particles having a moisture content below about 10%, said solution being aerated with sufficient gas which is noninflammable and unreactive with the constituents of said solution to provide a product having a bulk density not exceeding 0.15 g./cc.

3,320,075

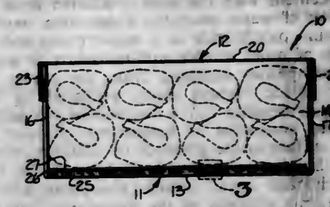
METHOD OF PACKAGING PRECHILLED FOOD PRODUCTS

Thomas J. Lemmons, Prairie Village, Kans., assignor to Cellu Products Company, Inc., Patterson, N.C., a corporation of North Carolina

Filed Nov. 29, 1965, Ser. No. 510,270
4 Claims. (Cl. 99—192)

1. A method of packaging and refrigerating pre-chilled food products which are subject to weepage of water and other fluids therefrom and utilizing a box having substantially imperforate body and cover portions, said method comprising:

(a) pre-chilling the body portion of the box to a temperature approximating the temperature of the pre-chilled food product to be placed therein by disposing a predetermined amount of finely divided particles of dry refrigerant thereinto,
(b) then positioning an absorbent pad of non-toxic absorbent material and a water permeable, generally



non-absorbent spacer member within the body portion in overlying covering relation to the refrigerant in the bottom thereof and with the spacer member uppermost,
(c) placing a pre-chilled food product within the body portion on the spacer member which supports the same in spaced relation to the absorbent pad and the refrigerant, and
(d) then closing the body portion with the cover portion.

3,320,076

METHOD OF RECLAIMING CALCINED KAOLIN FROM DE-INKING SLUDGE RESIDUE

Robert W. Sutton, Falls Church, Va., assignor to The Hydrand Corporation, Lake Barcroft, Va., a corporation of Delaware

Filed May 19, 1965, Ser. No. 457,146
1 Claim. (Cl. 106—72)

A method of recovering calcined kaolin from the ash content of the sludge residue of a convenitnal de-inking process employed in paper manufacture, said residue having substantially the following analysis:

Moisture	2.40
Volatile material	31.16
Fixed carbon	2.74
Ash	63.70
Sulfur	.10
	100.10

said ash content including the following ingredients within the quantity ranges indicated:

	Percent
Silica	45–53
Aluminum oxide	39–46
Titanium dioxide, approximately	4.38
Calcium oxide, approximately	5

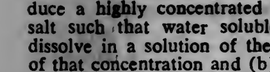
in addition to minor quantities of ingredients, including boron, cobalt, iron, lead, magnesium, manganese, nickel, potassium, silver and vanadium; said method consisting of removing the major portion of any liquid contained in said residue, breaking the latter into particles, conveying said particles through an initial drying zone to reduce the moisture content thereof to from 18–35%, agitating said particles while conducting the same through a plurality of heating zones, sequentially maintained at progressively increased temperatures from the first heating to the last, within the range of from 700° F.–1700° F., wherein the final heating zone is maintained at a temperature of from 1500–1700° F., removing said minor quantities of ingredients from said ash content during passage through said heating zones, discharging the calcined kaolin from the final heating zone, and cooling the discharged calcined kaolin.

3,320,077
INORGANIC PLASTIC CEMENTS AND PROCESS FOR THE PREPARATION THEREOF
William L. Prior, 95 N. 10th St., Newark, Ohio 43055
No Drawing. Filed Jan. 19, 1966, Ser. No. 521,517
23 Claims. (Cl. 106—105)

18. The article of manufacture which comprises a high strength substantially water insoluble cured inorganic plastic cement with the system selected from the group consisting of water insoluble magnesium oxysulfate and magnesium oxychloride as a major phase and only trace amounts of water soluble sulfate-hydroxide and chloride-hydroxide phases resulting from the curing of an inorganic plastic cement slurry prepared by mixing by high shear blending (a) a magnesium salt selected from the group consisting of magnesium chloride and magnesium sulfate in the presence of sufficient water to produce a highly concentrated solution of the magnesium salt such that water soluble phosphate salts will not dissolve in a solution of the magnesium salt and water of that concentration and (b) finely divided, active magnesium oxide which is reactive with the magnesium salt, so as to deagglomerate and deflocculate the magnesium oxide and to uniformly disburse the magnesium oxide and magnesium salt solution, to produce a low viscosity inorganic cement slurry.

3,320,078
PROCESS FOR INSOLUBILIZING PROTEIN
Edward B. Dunning and Daniel P. Gilboe, Minneapolis, Minn., and Garson P. Shulman, Baltimore, Md., assignors to Archer-Daniels-Midland Company, Minneapolis, Minn., a corporation of Delaware
No Drawing. Filed Jan. 18, 1965, Ser. No. 426,441
11 Claims. (Cl. 106—124)

1. A composition comprising a protein containing a compound having the formula



wherein R and R′ are hydrocarbyl radicals having from one to ten carbon atoms.

3,320,079
ETHER-ACID POLYESTER COMPOSITION
Milton A. Perry and Frank C. Canter, Longview, Tex., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Original application July 11, 1960, Ser. No. 41,722. Divided and this application Oct. 22, 1962, Ser. No. 240,189
7 Claims. (Cl. 106—181)

2. A plasticized resin composition comprising (a) a member selected from the groups consisting of a polyvinyl resin, copolymers of polyvinyl resins or a cellulose derivative resin and (b) from about 20 to about 80 parts by weight per 100 parts by weight of said resin of a linear polyester of 3,3′-oxybis(2,2-dimethylpropionic acid) and 1,4-cyclohexanedimethanol having an intrinsic viscosity of from about 0.35 to about 0.55.

3,320,080
WATER RESISTANT PAPER COATING COMPOSITIONS
Emil D. Mazzarella, Plainfield, and Edward Dalton, Jersey City, N.J., assignors to National Starch and Chemical Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed June 5, 1964, Ser. No. 373,070
8 Claims. (Cl. 106—210)

1. A paper coating composition comprising water, an inert mineral pigment, and a binder; said binder being an insolubilized cationic starch in a concentration of at least 3% and up to 100% as based on the weight on said inert mineral pigment; the total solids content of the composition being in the range of from 20–65%, by weight; said insolubilized cationic starch comprising a reaction product of: (1) a cationic starch selected from the group consisting of starch ethers and starch esters containing substituents selected from the group consisting of tertiary and quaternary amine groups, sulfonium groups and phosphonium groups with (2) from about 2–30%, by weight of said cationic starch, of an insolubilizing reagent selected from the group consisting of (a) aldehydes selected from the group consisting of formaldehyde, paraformaldehyde, glyoxal, glutaraldehyde, acrolein and dialdehyde starch; (b) salts of the polyvalent metals selected from the group consisting of zinc oxide, aluminum chloride, chromic chloride, potassium pyroantimonate, zirconium chloride, and barium titanate; (c) thermosetting resins containing a plurality of methylol groups selected from the groups consisting of urea-formaldehyde resins, phenol-formaldehyde resins, melamine formaldehyde resins and resorcinol-formaldehyde resins; (d) water soluble vinyl polymers selected from the group consisting of styrene:maleic anhydride copolymers, polymers of ethyleneimine, and polymers of propyleneimine; and, (e) polyamide resins selected from the group consisting of the polyamidamine-epichlorohydrin condensates.

3,320,081
STARCH AND N-HYDROXYALKYL AMIDES
Austin H. Young, Decatur, Ill., Marvin T. Tetenbaum, Petersburg, Va., and Richard J. Pratt, Menomonie Falls, Wis., assignors to A. E. Staley Manufacturing Company, Decatur, Ill., a corporation of Delaware
No Drawing. Filed Nov. 20, 1963, Ser. No. 325,145
22 Claims. (Cl. 106—210)

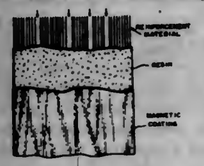
1. A composition comprising an amylosic material containing at least 50% by weight amylose wherein the amylose portion of said amylosic material is present in the form of a material selected from the group consisting of the separated amylose fraction of whole starch, whole starch containing at least 50% by weight amylose and mixtures thereof, plasticized with a plasticizing concentration of a water-soluble N-hydroxyalkyl amide having from 2 to 4 carbon atoms in said hydroxyalkyl group.

3,320,082
COLLOIDAL SILICA PROTECTIVE COATING AND METHOD OF MAKING SAME
Walter Michael McMahon, La Habra, and Gabriel H. Law, Pasadena, Calif., assignors to American Pipe and Construction Co., Los Angeles, Calif., a corporation of Delaware
No Drawing. Filed Jan. 30, 1963, Ser. No. 257,807
13 Claims. (Cl. 106—287)

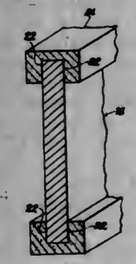
1. A protective coating composition which upon application converts under ambient temperature conditions to a hard, water insoluble film, said composition consisting essentially of a dispersion of an alkali-stabilized colloidal silica in sufficient water to give the composition the fluidity required for application, zinc dust in an amount ranging between about 8 and 15 parts zinc dust per part dry colloidal silica, lead oxide in an amount up to about 25% by weight of the amount of zinc dust used, a water miscible organic amine having a boiling point up to 360° C. in an amount equal to at least 10% and not more than 50% by weight of the dry colloidal silica, and an alkali metal chromate in an amount up to 0.02 part per part of dry colloidal silica.

3,320,083
METHOD OF MAKING MAGNETIC TAPES
Adolphe Rusch, Jr., Rumson, N.J., assignor to the United States of America as represented by the Secretary of the Army
Filed June 21, 1963, Ser. No. 289,765
1 Claim. (Cl. 117—4)

The method of making individual, non-fraying reinforced plastic magnetic recording tapes of prescribed widths from a wide sheet of reinforcing material, said reinforcing material comprising a plurality of threads of at least one member of the group consisting of ultra-thin inorganic textile yarns and ultra-thin organic textile yarns, said method consisting of: placing said plurality of threads into a planar configuration of longitudinally extending parallel threads to form the wide sheet of reinforcing material; arranging said longitudinally extending threads into spaced parallel groups whose widths correspond to the prescribed widths of the individual reinforced plastic magnetic tapes; impregnating and coating said wide sheet of reinforcing material with polycarbonate resin; coating said impregnated and coated wide sheet of reinforcing material on one of its surfaces with a magnetic ferric oxide coating material; and slitting the magnetic coated wide sheet of reinforced plastic lengthwise within the space formed by said spaced parallel groups.



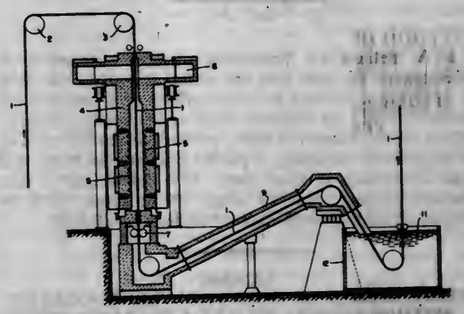
3,320,084
VAPOR DIFFUSION PROCESS AND PROTECTION MEANS
Nick G. Lirones, North Muskegon, Mich., assignor to Howmet Corporation, a corporation of Delaware
Filed Sept. 20, 1963, Ser. No. 310,264
15 Claims. (Cl. 117—5.5)



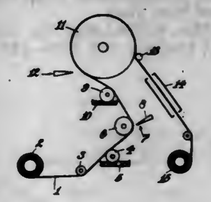
1. In the process of chromizing and aluminizing metal parts by vapor diffusion to provide a vapor diffusion coating on the surface of the metal parts, the improvement whereby, when the metal part is exposed entirely to the vapor diffusion treatment for chromizing or aluminizing, only selected portions of the part are coated while other portions are protected from the vapors to prevent formation of the diffusion coating, consisting of covering said other portions of the metal part with a layer of a composition selected from the group consisting of lithium aluminum silicate, lithium aluminum silicate in admixture with an oxide of a metal selected from the group consisting of aluminum and zirconium, and graphite in admixture with a material selected from the group consisting of nickel, chromium and an oxide of a metal selected from the group consisting of zirconium and aluminum in finely divided form, said layer having a thickness of at least 1/16-inch.

3,320,085
GALVANIZING
Charles A. Turner, Jr., Flourtown, Pa., assignor to Selas Corporation of America, a corporation of Pennsylvania
Filed Mar. 19, 1965, Ser. No. 441,286
9 Claims. (Cl. 117—51)

1. The method of coating an elongated length of steel having a slight oxide on its surface which comprises heating a furnace by direct combustion of fuel and air therein to a temperature at least 2400° F. and with an atmosphere of gaseous products of combustion having no free oxygen and at least 3% combustibles, and providing a coating bath to molten zinc maintained at coating temperature, moving the length of steel that is free of scale and grease or oil into and through the products of combustion in the furnace, keeping the length of steel in the furnace long enough to heat it to a temperature below that at which it will be oxidized in said products of combustion so that when it reaches the bath it will be within 100° F. of the temperature of the bath, the furnace removing any oxide from the surface of the steel, and moving the steel through a protective atmosphere from the furnace into the coating bath.

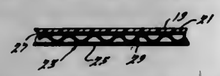


3,320,086
COATING TRAVELLING WEBS
Richard Arthur Rose and Cyril Howard Phillips, Bridgwater, Somerset, England, assignors to British Cellophane Limited, Bridgwater, England, a British company
Filed Dec. 12, 1962, Ser. No. 244,082
Claims priority, application Great Britain, Dec. 21, 1961, 45,838/61
2 Claims. (Cl. 117—68)



1. A method of coating a flexible travelling web of cellulosic or synthetic plastic film with a liquid coating composition comprising an aqueous solution or dispersion of a synthetic polymer; which method consists essentially of coating a first side of the travelling web from edge to edge with the liquid coating composition whereby the first side is wetted; removing any excess coating composition from the first side of said web; then, while the coating on the first side is still wet, coating the second side of said web from edge to edge with said liquid coating composition; and removing any excess coating composition from said second side of the web by directing a blast from the nozzle of an air knife against said second coated side of the web while the travelling web is supported with the first coated side in close contact with a smooth heated surface to thereby substantially dry the coating applied to the first side of the web; and then removing said web from said smooth heated surface.

3,320,087
METHOD OF PROTECTING SURFACE FROM FIRE
Paul N. Erickson, Birmingham, Mich., assignor to Evans Products Company, Plymouth, Mich., a corporation of Delaware
Filed Nov. 6, 1962, Ser. No. 235,895
5 Claims. (Cl. 117—137)

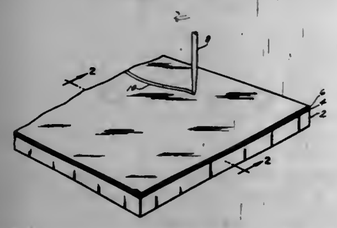


1. A method for protecting surfaces susceptible to deterioration by heat and fire which comprises the steps of applying a coating on said surface of a composition comprising (1) an aqueous mass of acid-curing thermosetting liquid, foamable resin, product of partial reaction of ingredients including a phenol and an aldehyde, said mass containing at least about 55% by weight of said reaction product, and (2) about 1% to about 100% by weight, of said aqueous mass of aluminum chloride.

3,320,088
STEREOREGULAR POLYPROPYLENE COATED WITH AN INSOLUBILIZED ETHYLENE OXIDE POLYMER
George B. Feild, New Castle, Del., assignor to Hercules Incorporated, a corporation of Delaware
No Drawing. Filed Oct. 4, 1963, Ser. No. 313,800
6 Claims. (Cl. 117—138.8)

1. As a new article of manufacture, stereoregular polypropylene substrate having a substantially permanent and antistatic coating of an ethylene oxide polymer selected from the group consisting of homopolymers of ethylene oxide and copolymers of ethylene oxide with another lower alkylene oxide wherein said copolymer contains at least about 40% by weight of ethylene oxide, insolubilized by cross-linking with an azido cross-linking agent.

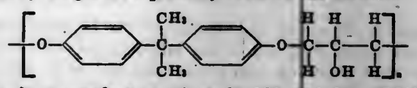
3,320,089
METHOD OF MAKING BLUSH COATED RECORDING SHEET, COATED SHEET AND COATING COMPOSITION
Edward G. Bourgeois, South Amherst, Mass., assignor to Judson-Bigelow, Incorporated, Long Island City, N.Y., a corporation of New York
Filed Mar. 9, 1964, Ser. No. 350,404
12 Claims. (Cl. 117—157)



1. In the method of making a recording sheet for marking by a heated stylus and the like, the steps comprising: admixing a lacquer consisting essentially of cellulose ester in a solvent therefor providing a resin solution with an organic liquid which is a non-solvent for said cellulose ester and in a sufficient amount to shock only a portion of said cellulose ester into resin particles within a matrix of said resin solution and form a gelatinous flocculate which is dispersible by agitation into an apparently clear solution; thereafter admixing said first-mentioned admixture with a second lacquer consisting essentially of cellulose ester in a solvent therefor to provide a second admixture which comprises shocked minute resin particles distributed throughout a resin solution of desired bonding power and which blushes upon evaporation of the solvent therein; and applying said second admixture to the surface of sheet material to provide a blushed coating thereon.

3,320,090
PHENOXY-POLYURETHANE MAGNETIC TAPE BINDER
Lawrence Graubart, Daly City, Calif., assignor to Ampex Corporation, Redwood City, Calif., a corporation of California
No Drawing. Filed July 30, 1964, Ser. No. 386,427
5 Claims. (Cl. 117—161)

1. A magnetic recording medium comprising a backing material and an adherent coating thereon, said coating comprising finely divided magnetic particles dispersed in a resinous binder, said binder containing from 25% to 75% by weight of a phenoxy resin of the formula

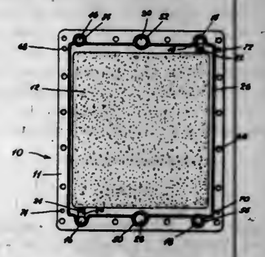


wherein n equals approximately 100 and from 75% to 25% of a polyurethane resin made by reacting a diisocyanate, a dibasic acid and a polyol.

3,320,091
METHOD FOR IMPREGNATING TUNGSTEN DISPENSER CATHODES
Otto G. Koppius, Lexington, Ky., assignor to Semicon Associates, Inc., Lexington, Ky., a corporation of Kentucky
Filed Sept. 24, 1963, Ser. No. 311,174
6 Claims. (Cl. 117—223)

3. The method of impregnating a porous tungsten body to form an emissive cathode, comprising the steps of mixing barium oxide particles with tungstate particles selected from the class consisting of barium tungstate, strontium tungstate and calcium tungstate, heating and cooling the mixed particles to form a fused mixture, grinding the fused mixture into a powder, covering the tungsten body with the powder and heating the covered body in a furnace at a temperature above 1750° C. at which the impregnant normally tends to corrode the tungsten body and in the presence of barium vapor to melt the powder and to cause complete impregnation of said body, said barium vapor being derived in part from an auxiliary source to produce a vapor pressure exceeding the values normally present and in excess of the minimum value required to inhibit said corrosion.

3,320,092
FRAME FOR FLAT PLATE FUEL CELL ELECTRODES
Lawrence J. Uline, Lakewood, Ohio, assignor to Union Carbide Corporation, a corporation of New York
Filed Dec. 28, 1962, Ser. No. 248,083
10 Claims. (Cl. 136—86)

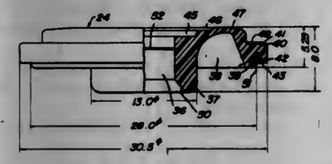


1. A flat electrode unit for a fuel cell which comprises: (1) a frame of an elastomer material and a carbon plate electrode having a gas face and an electrolyte face marginally secured therein, said frame having a plurality of apertures spaced about its peripheral margin, at least one of said apertures communicating with a channel so constructed and arranged in one side of said frame as to provide access of gas to the gas face of said electrode, and at least another of said apertures communicating with a channel so constructed and arranged in the opposite side of said frame as to provide access of electrolyte to the electrolyte face of said electrode; and (2) sealing beads integrally molded with said frame and completely circumscribing the peripheral margin of at least one side of said frame, said circumscribing sealing bead partially surrounding certain of said apertures and completely surrounding others of said apertures.

3,320,093
METHOD OF FORMING A CARBON CONTAINING FUEL CELL ELECTRODE
William A. Harding, Media, Pa., Saul Gerald Hindin, Wilmington, Del., and Harold Shalit, Drexel Hill, Pa., assignors to Air Products and Chemicals, Inc., Philadelphia, Pa., and Northern Natural Gas Company, Omaha, Nebr., both corporations of Delaware
No Drawing. Filed Apr. 1, 1963, Ser. No. 269,800
7 Claims. (Cl. 136—122)

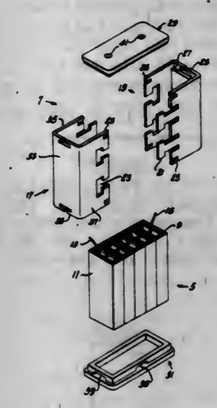
1. The method of forming a fuel cell electrode, which comprises the steps of: placing a relatively-inert, conductive electrode in a heating zone; purging said heating zone with inert gas while heating said body to a temperature of 200–1400° C.; exposing the heated body, at a pressure of from atmospheric to 1,000 p.s.i.g., to a gaseous carbon-containing compound dissociable under such conditions for a period of time sufficient to progressively deposit upon the surface of said body a relatively thin layer of porous active carbon; removing the source of heat and gradually cooling said body to a temperature of about 150° C., with continuing exposure of said body to said carbon-containing compound; discontinuing the exposure of said body to said carbon-containing compound and again purging said zone with said inert purging medium while returning said body to ambient conditions of temperature and pressure; impregnating the carbon coated body with an aqueous solution of a compound containing an active metal of the platinum group; and reducing said compound to deposit said active metal upon the impregnated surface areas of said body.

3,320,094
PRIMARY BATTERIES
Shobei Yamamoto, Osaka, Katsujiro Nakaiwa, Moriguchi-shi, Shosuke Kawauchi, Neyagawa-shi, and Hideharu Kanai, Kyoto, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan, a corporation of Japan
Filed Feb. 24, 1964, Ser. No. 346,674
Claims priority, application Japan, Feb. 28, 1963, 38/14,487; Mar. 26, 1963, 38/21,948
3 Claims. (Cl. 136—133)



2. A primary cell comprising a container having power generating elements including a current collecting terminal rod installed therein, said container having an open end sealed by a flexible plastic sealing member, said sealing member having an inner sleeve provided with a bore formed concentrically with said sleeeve, said bore being smaller in diameter than the diameter of said terminal rod and said terminal rod being fitted thereinto, said sealing member having an outer sleeve provided with an annular subflange including an annular rib downwardly extending to define an annular groove between it and said outer sleeve, the upper end of said container being fitted into said groove with the upper end portion of the inner wall of said groove contacting the upper inside wall of said container, the lower end portions of said inner wall having a slant surface so that the outside diameter of the lower end thereof is smaller than the inside diameter of the upper end of said container, said inner and outer sleeves of said sealing member being formed concentrically and integrally with a relatively thin portion continuously interposed therebetween, said sealing member being provided with a recessed portion on the upper peripheral edge thereof, the outer side surface of said container being covered by a thin film plastic tubular body the upper end of which is adhered closely to said recessed portion of said sealing member, a jacket positioned around said container, a sealing plate positioned upon said sealing member, and the upper end of said jacket being bent on the periphery of said sealing plate and the lower end of said jacket being bent inwardly, whereby both ends of said container are sealed.

3,320,095
MULTIPLE CELL CONTAINER
Wilbur H. Bingeman, Theodore W. Blickwedel, and Louis R. Wanner, Emporium, Pa., assignors to Sylvania Electric Products Inc., a corporation of Delaware
Filed Dec. 28, 1964, Ser. No. 421,480
6 Claims. (Cl. 136—166)

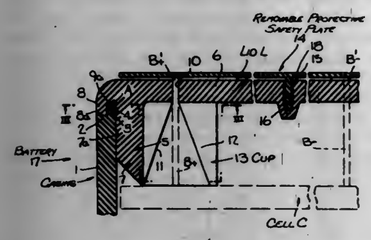


1. A container for a plurality of battery cells comprising:
a pair of half-sections having male and female portions, said half-sections being joined by at least one interlockingly engaged male and female portion to provide an open-ended enclosure surrounding and compressively holding a plurality of electrically insulated battery cells, said enclosure having a longitudinal axis extending in the direction of the open-ends thereof and exerting a compressive force on said cells in a direction substantially normal to said longitudinal axis.

3,320,096
BATTERY CASE AND COVER AND METHOD OF SEALING THE SAME

Jean Firmin Jammet, Poitiers, Vienne, France, assignor to Societe des Accumulateurs Fixes et de Traction (Société Anonyme), Romainville, France, a company of France

Filed July 21, 1964, Ser. No. 384,190
Claims priority, application France, July 23, 1963, 942,351
4 Claims. (Cl. 136—170)

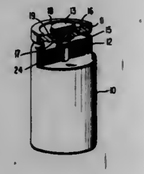


1. A sealing arrangement for an electric battery or the like comprising:
a tubular casing open at one end,
a lid comprising a cover and a tubular body depending therefrom for closing said battery, said tubular body fitting snugly against said tubular casing and joined thereto in a fluid-tight sealing engagement by adhesive, said cover having a recess in its exterior surface and a pair of slots extending therethrough,
a pair of electrode terminal blades of opposite polarity extending through said slots and having end portions folded down against the exterior of said cover,
means forming a fluid tight seal between said blades and said lid,
and a removable safety plate for preventing short circuiting of said battery prior to use thereof, said safety plate comprising a single strip of non-conductive material in contact with said end portions of said blades and spaced from said cover and a frangible member extending from said strip into said recess, said frangible member being destructible to permit removal of said safety plate prior to using said battery.

3,320,097
RESEALABLE VENT FOR A SEALED CASING

Raymond K. Sugalski, Gainesville, Fla., assignor to General Electric Company, a corporation of New York

Filed Aug. 6, 1964, Ser. No. 387,868
14 Claims. (Cl. 136—178)

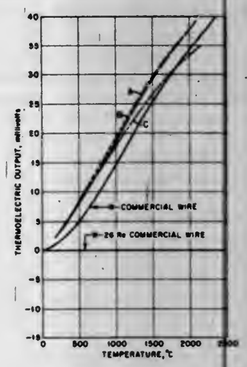


1. A resealable vent for a sealed casing comprising:
(a) a sealed casing including a cap portion having a vent hole therein,
(b) a member having a head at the outer end and a stem extending from said head and received in said hole,
(c) a resilient washer disposed between said head and said cap portion and being circumjacent said stem, and
(d) means for securing said member to said cap portion with the inner face of said head in fixed relation to the face of the cap portion axially adjacent to said head face and for causing said washer to be normally slightly compressed between said cap portion and said head so as to form a seal between said cap portion and said head,
(e) said washer being radially outwardly expanded by abnormally high pressure within said casing to temporarily break the seal to relieve the abnormally high pressure,
(f) the resilient energy stored in said washer causing it to radially contract and again form a seal between said cap portion and said head.

3,320,098
TUNGSTEN-OSMIUM THERMOCOUPLE AND ELEMENT THEREOF

William C. Kuhlman, Cincinnati, Ohio, assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Feb. 24, 1965, Ser. No. 435,102
3 Claims. (Cl. 136—236)



2. A thermocouple comprising a first leg consisting of the composition 0.5 to 1.0 atom percent osmium and the balance tungsten and a second leg consisting of the composition 26 percent rhenium and the balance tungsten.

3,320,099
METHOD OF PROCESSING STEEL

Anthony P. Weber, Griffith, Ind., assignor to United States Steel Corporation, a corporation of Delaware

No Drawing. Filed Aug. 12, 1964, Ser. No. 389,212
4 Claims. (Cl. 148—2)

1. A method of processing steel to produce a substantially non-aging, ductile product comprising:
(A) adding to a melt of aluminum-killed steel which has a carbon content of at least 0.08%, not more than 0.6% manganese and not more than 0.02% silicon, a nitrogen-bearing compound in an amount to provide a final nitrogen content in the steel of from 0.008 to 0.015% by weight and then solidifying said melt,
(B) substantially completely dissolving said nitrogen in said steel by maintaining said steel at nitrogen-dissolution temperature,
(C) hot rolling said steel at a temperature above about 1520° F.,
(D) rapidly cooling the hot rolled steel to a temperature below about 1100° F. to minimize precipitation of aluminum-nitride and thereafter cold reducing said steel,

(E) annealing said cold reduced steel for a time sufficient to obtain a recrystallized, elongated grain structure wherein the grains are not larger than ASTM No. 7 and to precipitate aluminum-nitride around said grains whereby the growth of said grains during annealing is restricted by said aluminum-nitride, and
(F) temper rolling to increase the yield strength of the steel.

3,320,100
SUBMERGED ARC FLUX COMPOSITION AND METHOD OF MAKING THE SAME

Thomas L. Coless, Maplewood, N.J., assignor to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Sept. 28, 1964, Ser. No. 399,870
7 Claims. (Cl. 148—26)

1. A self-bonding flux composition suitable for use in submerged arc welding consisting of the following ingredients in approximately the indicated percentages

Material:	Percent by wt.
Aluminum oxide (Al_2O_3)	20–60
Marble ($CaCO_3$)	10–40
Manganese slag ($MnO\text{-}SiO_2$)	Up to 15
Calcium fluoride (CaF_2)	10–30
Cryolite (Na_3AlF_6)	5–20
Magnesia (MgO)	Up to 15

wherein said ingredients are self-bonding.

3,320,101
HOT ROLLED STEEL ROD

David W. McLean, Hamilton, Ontario, and Charles G. Easter, Burlington, Ontario, Canada, assignors, by mesne assignments, to Morgan Construction Company, Worcester, Mass.

Filed May 24, 1963, Ser. No. 282,939
4 Claims. (Cl. 148—36)

1. A steel product comprising a substantial length of medium to high carbon steel rod, the microstructure of said steel throughout the length of said rod being substantially uniformly dispersed predominantly fine pearlite grains with a minimum of grain boundary ferrite and substantially free of bainite, said grains being the transformation product of austenite grains which have been hot worked and sequentially cooled prior to transformation rapidly enough to give a resulting grain size which is substantially smaller than that which results from reheating the same rod, after it has once cooled through transformation, to about 1800° F. and thereafter cooling the same in still air; the scale on the surface of said rod being uniform and relatively free from iron and magnetite in the wustite area, said scale amounting to less than 1 weight percent of said rod.

3,320,102
METHOD OF SHAPING METAL

Perry J. Murphy, Jr., McCandless Township, Allegheny, County, and John T. Shultz, Whitehall Borough, Pa.; said Shultz assignor to United States Steel Corporation, a corporation of Delaware, and said Murphy assignor to The Van Dorn Iron Works Company, Cleveland, Ohio, a corporation of Ohio

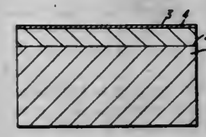
No Drawing. Filed Nov. 6, 1964, Ser. No. 409,616
2 Claims. (Cl. 148—131)

1. A method of making shaped ferrous material srtuctural members having yield strengths of at least about 100,000 p.s.i. comprising shaping the member within its elastic limit without plastically deforming the member by exceeding the member's yield strength, restraining the member in said shaped configuration, heating the member to stress relieving temperature in the range of from about 900° F. to the A_1 temperature, maintaining the member at stress relieving temperature until stresses caused by shaping are substantially eliminated and thereafter cooling and unrestraining said member to permit handling.

3,320,103
METHOD OF FABRICATING A SEMICONDUCTOR BY OUT-DIFFUSION

Cyril Francis Drake and Kenneth Leopold Ellington, London, England, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

Filed July 9, 1963, Ser. No. 293,604
Claims priority, application Great Britain, Aug. 3, 1962, 29,958/62
13 Claims. (Cl. 148—191)

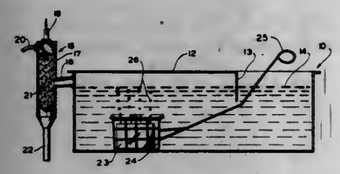


1. A process for treating a monocrystalline semiconductor body having first and second regions of given and opposite respective conductivity types with a p-n junction therebetween,
at least a portion of said junction being disposed at a predetermined depth from a given surface of said body,
at least one of said regions containing a conductivity-type-determining impurity material,
said body containing at least one non-significant impurity material the presence of which in either of said regions has no substantial effect on the conductivity type thereof,
the diffusion constant of said non-significant impurity material in said semiconductor body at a given temperature being substantially greater than the diffusion constant of said conductivity-type-determining impurity material in said semiconductor body at said temperature, comprising the steps of:
forming a disturbed region within said body having a relatively high concentration of lattice defects at a predetermined distance from said p-n junction portion; and
heating said semiconductor body to said given temperature for a given time such that the distribution of said at least one non-significant impurity within said body is substantially modified while the distribution of said at least one conductivity-type determining impurity within said body remains relatively unaffected.

3,320,104
METHOD OF MAKING LEAD STYPHNATE PRIMER COMPOSITIONS
Hans Stadler, Nurnberg, and Heinz Gawlick, Furth, Bavaria, Germany, assignors to Dynamit Nobel Aktiengesellschaft, Troisdorf, Germany
No Drawing. Filed Feb. 26, 1965, Ser. No. 435,692
Claims priority, application Germany, Feb. 28, 1964, D 43,750
5 Claims. (Cl. 149—24)

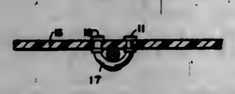
1. A method for making a conductive primer composition adapted to be detonated or ignited by means of an electric current which comprises mixing a conductive additive selected from the group consisting of metallic powders, conductive metallic oxides and graphite with an inorganic carrier material insensitive to mechanical stresses and adding the resultant mixture by gentle mixing to a major amount of a lead styphnate primer material, said primer material being sensitive to mechanical stresses, to form said primer composition.

3,320,105
METHOD AND APPARATUS FOR ETCHING METAL BY IMMERSION
Elmer Lawrence Brevik, Los Angeles, Calif., assignor to Chemical Milling International Corporation, El Segundo, Calif., a corporation of California
Filed June 3, 1964, Ser. No. 372,740
5 Claims. (Cl. 156—2)



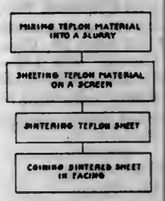
1. A process for treating a workpiece in a liquid media wherein the liquid is confined in a tank which is partially covered and which cover is sufficiently extensive to enclose the entire portion of the tank immediately above the workpiece by a vapor-tight seal between the tank and the cover on one or more sides, the remaining sides of the cover extending into the interface of the liquid, and exhausting the vapor confined under the cover through a collector by its own motive power.

3,320,106
FASTENING PROCESS
Wylie C. Kirkpatrick, Greenwich, Conn., and John W. Harrison and Robert D. Lowry, Winchester, Mass., assignors to W. R. Grace & Co., Duncan, S.C., a corporation of Connecticut
Original application Dec. 3, 1959, Ser. No. 857,013, now Patent No. 3,113,408, dated Dec. 10, 1963. Divided and this application Sept. 13, 1963, Ser. No. 308,872
2 Claims. (Cl. 156—86)



1. A method of fastening an object to a backing member comprising providing at least two apertures in said backing member, inserting the ends of an elongated heat shrinkable polymeric member through said apertures to form a U-shaped member, an object being positioned between said U-shaped member and said backing member, and applying heat to the end portions extending through said apertures to form integral beads adjacent opposite sides of the backing member to cooperatively exert compressive force thereon thereby securing the U-shaped member to the backing member.

3,320,107
METHOD OF MAKING A FACING FOR USE IN ENERGY TRANSMITTING DEVICE
Howard W. Christenson, Indianapolis, and Robert H. Schaefer, Westfield, Ind., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Jan. 30, 1963, Ser. No. 255,063
4 Claims. (Cl. 156—89)



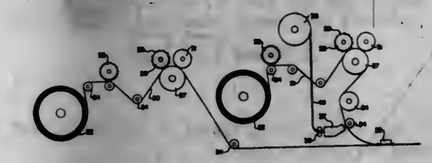
1. A method of making a facing for use in an energy transmitting device consisting essentially of felting nonmetallic fibrous material including at least 50% by weight of polytetrafluoroethylene fibers into a sheet, sintering the sheeted fibers for causing the polytetrafluoroethylene fibers to fuse together at their contacting portions and coining the resulting sheet under an elevated temperature and pressure for consolidating the sheet into a strong facing material.

3,320,108
METHOD OF FORMING TUFTED CUSHION ELEMENTS
Bernard Z. Lande, 161 S. Benton St., Denver, Colo. 80226
Filed Nov. 26, 1963, Ser. No. 325,847
4 Claims. (Cl. 156—219)



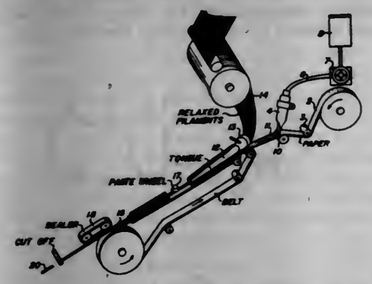
1. A method of forming tufted cushion elements comprising:
(a) mounting upstanding pattern strips upon a backing board to form open-topped pockets of uniform height upon said board;
(b) spreading a fabric cover sheet over said pockets;
(c) depressing the cover sheet into the pockets to form upstanding ridges conforming to the desired pattern;
(d) applying a layer of adhesive along the upper crests of said ridges;
(e) placing a unitary pad of resiliently compressible material over said adhesive layer;
(f) applying a second layer of adhesive on the upper surface of said pad along and over the positions of said ridges;
(g) placing a continuous sheet of backing fabric over said second layer of adhesive;
(h) placing a flat press plate over said backing fabric and forcing said plate downwardly to compress said pad to a substantially solid state impregnated with adhesive over and along said ridges; and thence
(i) maintaining said compression until said adhesive has fully set.

3,320,109
PROCESS FOR BINDING TOGETHER COATED MANIFOLD SHEETS
Howard T. Braner, Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio, a corporation of Maryland
Filed Sept. 9, 1963, Ser. No. 307,583
2 Claims. (Cl. 156—252)



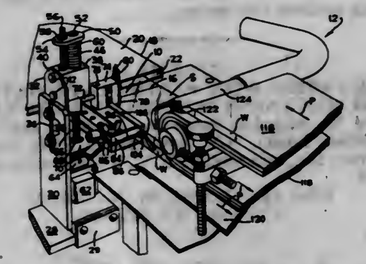
1. The method of providing a mechanical bond between the edge portions of two substantially continuous sheets of fibrous materials whose mating surfaces contain a coating material that resists penetration of liquid adhesive into the fibrous content of both sheets including the steps of
(a) continuously advancing each sheet of fibrous material at a relatively high rate of speed;
(b) rupturing each sheet and its coating material along one edge portion by means of a knurled roller, said rupture consisting of a large number of minute serrations penetrating the coating and the fibrous content of each sheet sufficiently to prevent the accumulation of any residue on said sheets and to allow the flow of an applied adhesive in a liquid state into the fibrous content;
(c) collating the ruptured sheets with an intervening strand of a hot thermoplastic adhesive between the serrated portions of the mating sheets;
(d) and then applying pressure to the serrated portions of the mating sheets to force the adhesive through the serrations of both sheets to form a continuous mechanical bond between the fibrous content of one sheet to the fibrous content of the other sheet.

3,320,110
APPARATUS FOR MAKING FILAMENT TOBACCO SMOKE FILTERS
Paul Gallagher, Kingsport, Tenn., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Continuation of application Ser. No. 135,245, Aug. 31, 1961. This application Aug. 1, 1966, Ser. No. 570,133
5 Claims. (Cl. 156—438)



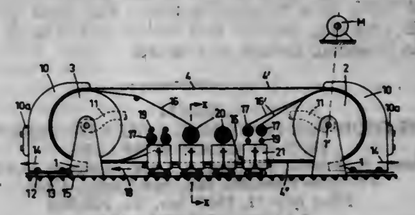
1. In a filter-making apparatus comprising, a filter-forming garniture, means for feeding a strip of filter wrap paper into said garniture along a predetermined path, means for feeding cellulose acetate filter-forming filaments into said garniture to be enwrapped therein by said strip, and means for applying a coating to said strip before it is fed into said garniture, the improvement wherein said filter wrap paper is further characterized by having a thickness of less than 0.06 millimeter and said coating contains a plasticizer for cellulose acetate; and said coating applying means comprises an applicator having a slot for applying said coating to said strip, strip supporting means for guiding said strip as it moves in said path, and means supporting said applicator in contact adjacent said slot with said strip, at a position downstream of said strip supporting means, said strip being deflected from said path by said contact, whereby a uniform, continuous coating is applied at high speeds to said strip without tearing it, and filaments, which contact the coated strip, are bonded to it in said garniture.

3,320,111
CUTTING AND FUSING APPARATUS
Carroll J. Lucia, Depere, and Raymond J. Sinclair, Green Bay, Wis., assignors to FMC Corporation, San Jose, Calif., a corporation of Delaware
Filed May 14, 1963, Ser. No. 280,353
12 Claims. (Cl. 156—515)



1. An apparatus for cutting and fusing superimposed continuous thermoplastic sheets comprising means for moving such sheets along a predetermined longitudinal path, guide means defining an elongated passageway for slidably receiving selected longitudinal marginal regions of such sheets, a heated cutting and fusing means extending across said passageway and intersecting such selected marginal regions, and means for moving said cutting and fusing means out of intersecting relation with such selected marginal regions when said moving means is rendered inactive.

3,320,112
MACHINE FOR MAKING FOILS OR WEBS OF RUBBER OR RUBBER-LIKE MATERIAL
Friedrich Meyer, Gehrden, Hannover, Germany, assignor to Continental Gummi-Werke Aktiengesellschaft, Hannover, Germany
Filed July 15, 1963, Ser. No. 295,168
6 Claims. (Cl. 156—543)



1. In an apparatus for the treatment in a continuous operation of web and foil material of indeterminate length, which includes: two stands spaced from each other in horizontal direction, a first and a second heatable drum respectively rotatably supported by said stands and provided with an outer smooth cylindrical surface, driving means drivingly connected to one of said drums, endless pull-resistant pressure belt means passed around said drums along the shortest path therebetween so as to encompass said drums over approximately half the cir-

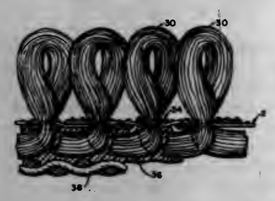
cumference of each of said drums, two sets of rolls independent of each other and arranged between and respectively pertaining to said first and second drums, each of said sets including a supply roll for feeding material to and into frictional engagement with the respective drum to which the respective supply roll pertains and between the respective drum and the belt portion encompassing the latter, each of said sets also including a receiving roll for receiving the material passed from the supply roll of the same set of rolls over the respective drum pertaining thereto, and driving means independent of each other and respectively drivingly directed to and disengageable from said receiving rolls.

2. An apparatus according to claim 1, in which each of said sets of rolls includes two supply rolls operable simultaneously to feed web material in superimposed arrangement into the bite between the respective drum and the said endless belt means for laminating the material fed into said bite of the respective drum and said endless pressing pressure belt means.

3,320,113
GLASS FABRIC WITH PARTICULATE MATERIAL AND PILE YARNS PENETRATING THE SAME

Edward W. Nicholas, Rotterdam Junction, and Ara T. Dildilian, Fonda, N.Y., assignors to Fiber Glass Industries, Inc., Amsterdam, N.Y., a corporation of New York

Filed Apr. 17, 1964, Ser. No. 360,523
2 Claims. (Cl. 161—66)



1. A fabric comprising interwoven strands of smooth substantially twistless roving of continuous glass filaments having discrete solid resinous particles of a size between about 10 and about 200 mesh attached to exposed surface portions of said strands on at least one side of said fabric to impart a roughened surface to said fabric, said particles occupying less than the entire area of said surfaces and serving to hinder sideways slippage of one strand relative to a transverse strand and to bond individual filaments together.

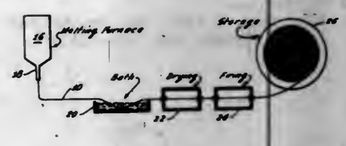
2. A pile textile comprising a fabric base as defined in claim 1 together with tufts of yarn projecting through said fabric base forming thereon a pile, some of said tufts projecting between said strands and some of said tufts projecting through said strands.

3,320,114
METHOD FOR LOWERING INDEX OF REFRACTION OF GLASS SURFACES

Werner P. Schulz, San Bruno, Calif., assignor to Litton Precision Products, Inc., San Carlos, Calif.

Filed July 31, 1963, Ser. No. 298,980
7 Claims. (Cl. 161—175)

1. A method for preparing an optical fiber which comprises treating a substantially pure fused silica fiber having a thickness from about 250,000 to 750,000 angstrom units with an aqueous chloride solution selected from the group of alkali and earth alkali chlorides in admixture with a wetting agent, drying the treated fiber to form a chloride coating on the fiber surface, and firing the coated fiber at a temperature sufficient to cause in situ reaction of the chloride coating with the pure silica fiber to a depth of about 3,000 to 4,000 angstroms for producing a glass layer having an index of refraction different from pure silica.



6. An optical fiber prepared in accordance with the method set forth in claim 1.

3,320,115
PROCESS FOR BONDING POLYOLEFIN TO METAL AND ARTICLE OF MANUFACTURE

Donald E. Reid and Harold M. Spurlin, Wilmington, Del., assignors to Hercules Incorporated, a corporation of Delaware

No Drawing. Filed Sept. 3, 1964, Ser. No. 394,308
17 Claims. (Cl. 161—191)

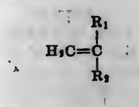
10. A metal object having an adherent, uniform layer of crystalline polyolefin bonded thereto through an intermediate layer of a phosphorylated propylene polymer containing phosphonic acid substituent groups.

3,320,116
BENZOPHENONE AND ACETOPHENONE STABILIZED POLYMERS

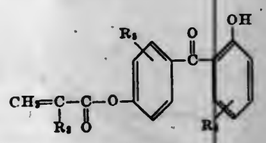
Stanley Tocker, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed June 12, 1963, Ser. No. 287,214
16 Claims. (Cl. 161—252)

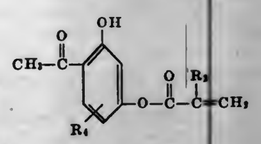
12. A laminate comprising a base layer adherably associated with a top layer, said top layer being a linear copolymer of at least one unsaturated compound having the structural formula:



wherein R_1 is selected from the group consisting of hydrogen and alkyl having 1–4 carbon atoms,
R_2 is hydrogen,
and .01–10 mole percent of at least one unsaturated compound, selected from the group consisting of:



and



wherein R_3 is selected from the group consisting of hydrogen and alkyl having 1–3 carbon atoms,
R_4 and R_5 are each selected from the group consisting of hydrogen, halogen, alkyl and alkoxy.

3,320,117
PROCESS FOR THE MANUFACTURE OF RAYON PAPER OR NON-WOVEN FABRIC BY THE WET SYSTEM

Yoshikazu Aoki, Otsu, Shiga Prefecture, Teruji Kamei, Sakyo-ku, Kyoto, and Akira Hayami, Kita-ku, Kyoto, Japan, assignors to Tachikawa Research Institute, Higashiyama-ku, Kyoto, Japan, a corporation of Japan

No Drawing. Filed May 28, 1963, Ser. No. 283,686
Claims priority, application Japan, May 31, 1962, 37/21,695
5 Claims. (Cl. 162—157)

1. A process for manufacturing rayon paper or other non-woven fabric by the wet system consisting essentially of the steps of introducing by means of a spinneret viscose having a D.P. of more than 400 into a single coagulating bath containing from 5 to 30 grams per liter sulphuric acid and from 0.1 to 2.0 grams per liter zinc sulphate, drawing from said single coagulating bath incompletely regenerated cellulosic filaments the residual gamma value of which is from 2 to 20, cutting said incompletely regenerated filaments and dispersing them in water and forming sheets by a conventional paper making process.

3,320,118
CATIONIC STARCH COMPLEX

William C. Black and Vernon L. Winfrey, Cedar Rapids, Iowa, assignors to Penick & Ford, Ltd., Cedar Rapids, Iowa, a corporation of Delaware

No Drawing. Filed Nov. 21, 1960, Ser. No. 70,426
12 Claims. (Cl. 162—175)

1. A starch composition consisting essentially of the complex of gelatinized unmodified starch and a quaternary ammonium compound which contains at least one fatty aliphatic group having from 12 to 22 carbon atoms, said gelatinized starch and said quaternary ammonium compound being united by a complex-type linkage and said composition being substantially free of ether linkages between said gelatinized starch and said quaternary ammonium compound, said composition containing from .1 to 10 parts by weight of said quaternary ammonium compound per 100 parts of said starch.

6. The method of modifying starch to provide cationic properties, comprising contacting and mixing gelatinized starch unmodified in an aqueous suspension with a quaternary ammonium compound to form a complex of said gelatinized starch and said compound, said compound being an aliphatic fatty quaternary ammonium compound which contains at least one fatty aliphatic group having from 12 to 22 carbon atoms, said contacting and mixing being carried out under non-etherifying conditions, and said quaternary compound being employed in the proportion of .1 to 10 parts by weight per 100 parts of said starch.

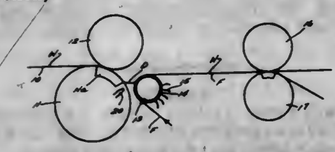
10. A paper characterized by containing from .1 to 3% by weight of starch complex distributed therethrough and in intimate association with the cellulosic fibers thereof, said complex comprising gelatinized unmodified starch associated with from .5 to 5 parts by weight of a quaternary ammonium compound per 100 parts of said starch, said quaternary ammonium compound containing a single aliphatic group having from 12 to 22 carbon atoms, said quaternary ammonium compound consisting of carbon, hydrogen, nitrogen and one anion.

3,320,119
SUCTION FELT ROLL WITH TRANSVERSE BLOW OFF

Fred R. Erbach, Beloit, Wis., assignor to Beloit Corporation, Beloit, Wis., a corporation of Wisconsin

Filed Apr. 20, 1964, Ser. No. 360,881
4 Claims. (Cl. 162—306)

1. In a paper machine the combination comprising,
a felt loop for receiving and carrying a paper web,
a felt supporting roll shell wrapped by said felt loop engaging the felt over a portion of its circumference and being uncovered by the felt over another portion of its circumference,
said roll shell mounted for rotation in a predetermined direction,

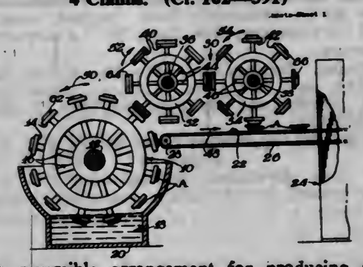


means defining radial openings through said roll shell, and skinner blades extending radially outwardly and angled inwardly forward with respect to roll shell rotation positioned at said uncovered portion withdrawing air outwardly from said openings and tending to draw air away from the felt in said covered portion.

3,320,120
REVERSIBLE MOLDING MACHINE

Walter H. Randall, Waterville, Maine, assignor to Keyes Fibre Company, Waterville, Maine, a corporation of Maine

Filed Apr. 20, 1964, Ser. No. 361,030
4 Claims. (Cl. 162—391)



1. A reversible arrangement for producing molded pulp articles comprising container means for holding a supply of pulp slurry, open face pulp collecting die means mounted for shifting motion along a path leading into and out of the supply of pulp slurry held in the container means to mold articles by suction deposition of pulp thereon, a drying chamber including conveyor means to transport molded pulp articles thereto, open face article transfer die means mounted for shifting motion along another path which is fixed with respect to the path of the collecting die means and the drying chamber conveyor means so that at one point it is contiguous with the path of the collecting die means and at another point it is located closely above and running in the same direction as the drying chamber conveyor means to remove molded pulp articles from the collecting die means and deliver them to the drying chamber conveyor means, the arrangement being adjustable to selectively deliver molded pulp articles to the drying chamber conveyor means with the die side of articles oriented either up or down whereby different molded pulp articles requiring different drying orientation may be produced on the reversible arrangement.

3,320,121
2 - (2',2' - DIHALOCYCLOPROPYL) - 1,1 - DIHALOCYCLOPROPANE AND 2,2 - DIHALOCYCLOPROPYL CARBOXYLIC ACID AS ANTIBACTERIAL AGENTS

John D. Douros, Jr., Fanwood, N.J., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

No Drawing. Filed Nov. 21, 1963, Ser. No. 325,485
9 Claims. (Cl. 167—30)

1. A method of inhibiting the growth of bacteria which

comprises contacting said bacteria with a bactericide selected from the group consisting of 2-(2',2',-dihalocyclopropyl)-1,1-dihalocyclopropane and 2,2-dihalocyclopropyl carboxylic acid, wherein the halo substituent is selected from the group consisting of chloro and bromo, in an amount effective to inhibit the growth of said bacteria.

3,320,122

CONTROLLING FUNGI WITH α-ETHYNYL-1-NAPHTHALENEMETHANOL OR α-ETHYNYL-2-NAPHTHALENEMETHANOL

Alan J. Lemin, Richland Township, Kalamazoo County, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Filed May 31, 1960, Ser. No. 32,518
8 Claims. (Cl. 167—32)

1. A process for the control of fungal infestations of seeds and of soil which comprises applying to the locus to be treated a fungicidally effective amount of a compound selected from the class consisting of α-ethynyl-1-naphthalenemethanol and α-ethynyl-2-naphthalenemethanol.

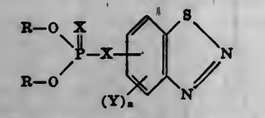
3,320,123

INSECTICIDES OF PHOSPHORUS ESTERS OF HYDROXY-1,2,3-BENZOTHIADIAZOLES

Johannes Th. Hackmann, Enschede, Netherlands, and Peter Kirby, Maidstone, Kent, England, assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Original application Dec. 6, 1965, Ser. No. 512,019, now Patent No. 3,275,647, dated Sept. 27, 1966. Divided and this application May 27, 1966, Ser. No. 553,304
Claims priority, application Great Britain, Dec. 8, 1964, 49,894/64
10 Claims. (Cl. 167—33)

1. A method for controlling insects comprising subjecting insects to the action of a phosphorus ester of the formula:



wherein each R represents alkyl of from 1 to 4 carbon atoms, *n* is zero or one, Y represents middle halogen and each X represents oxygen or sulfur.

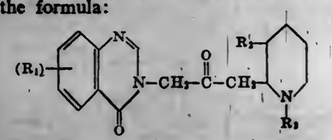
3,320,124

METHOD FOR TREATING COCCIDIOSIS WITH QUINAZOLINONES

Emanuel Waletzky, Princeton, and Gerald Berkelhammer and Sidney Kantor, Trenton, N.J., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed July 20, 1964, Ser. No. 383,910
20 Claims. (Cl. 167—53)

1. A method of controlling coccidiosis in animals comprising orally administering to domestic animals an edible carrier containing an effective amount of an anticoccidial of the formula:



wherein R_1 is a member of the group consisting of hydrogen, halogen, nitro, benzo, lower alkyl, phenyl, and lower alkoxy, R_2 is a member of the group consisting of hydroxy, acetoxy, and lower alkoxy, and R_3 is a member of the group consisting of hydrogen and lower alkenoxycarbonyl, and the physiologically acceptable salts thereof.

3,320,125

INHALATION AEROSOL COMPOSITION

Wayne M. Grim, Bucks County, Pa., assignor to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed Apr. 28, 1964, Ser. No. 363,278
6 Claims. (Cl. 167—54)

1. An aerosol composition consisting by weight of from 0.01 to 1% of an anti-inflammatory steroid, from 0.01 to 1% of isoproterenol sulfate, from 0 to 5% of ethanol, from 5 to 50% of trichlorofluoromethane, from 0 to 0.1% of sodium sulfate, and the remainder being a propellant selected from the group consisting of dichlorodifluoromethane, 1,2-dichloro-1,1,2,2-tetrafluoroethane and their mixtures.

3,320,126

GASTRIC ANTI-SECRETORY COMPOSITIONS

Robert I. Meltzer, Rockaway, N.J., and Wilson B. Lutz, North Manchester, Ind., assignors to Warner-Lambert Pharmaceutical Company, Morris Plains, N.J., a corporation of Delaware

No Drawing. Filed Oct. 14, 1963, Ser. No. 316,120
1 Claim. (Cl. 167—55)

An anti-secretory composition in dosage unit form comprising an inert pharmaceutical carrier in combination with from about 5 to 200 mg. of a member of the group consisting of 2-dimethylamino-3,5,6-trimethylpyrazine and the non-toxic pharmaceutically acceptable acid addition salts thereof.

3,320,127

21 - DESOXY - 9 - ALPHA - FLUORO - 6 - METHYLPREDNISOLONE DERMATOLOGICAL COMPOSITIONS

Ladislaus Desiderius Aladarus Szabo and Birgit Yrsa Keimer, both of Copenhagen, Denmark, assignors to Kefalas A/S, Copenhagen-Valby, Denmark

No Drawing. Filed Nov. 25 1964, Ser. No. 413,973
10 Claims. (Cl. 167—58)

1. A steriod composition for dermatological use, which comprises 0.01–0.25 part by weight of 21-desoxy-9α-fluoro-6-methylprednisolone and 75 to 99.99 parts by weight of a solvent selected from the group consisting of butyro lactone, diethyleneglycol monobutylether, and diacetin.

3,320,128

DX27 ANTIBIOTIC AND ITS PRODUCTION

Annie (Boussac) Aubriot, Paris, France, assignor to Société Anonyme l'Industrie Biologique Francaise, Gennevilliers, France

No Drawing. Filed Dec. 13, 1963, Ser. No. 330,238
4 Claims. (Cl. 167—65)

1. A process of producing the antibiotic DX27 which comprises inoculating a nutrient medium with *Streptomyces gabonae* sp. Aubriot 272 (ATCC accession No. 15,282), aerobically cultivating the inoculated nutrient medium at a temperature of 28° C. to 30° C. for 50 to 118 hours and separating the antibiotic thus produced from the culture medium.

4. The antibiotic DX27, a basic chemical compound of empirical formula $C_{32}H_{41}O_8N_3S$ melting at 212° C. to 215° C. in the crystalline state and having a molecular weight of about 590, and further characterized by an optical rotation in benzene of about $(\alpha)=72°$, ultraviolet absorption maxima at 210 and 360 mμ in a sodium phosphate buffer solution of pH 7.8, a positive biuret test for polypeptidic linkage, a negative ninhydrin test for α-amino acid, a negative Fehling test for aldehydic carbohydrates, and possessing antibiotic activity against *Streptococcus hemolyticus, Escherichia coli, Salmonella paratyphi* B, *Staphylococcus albus, Staphylococcus aureus, Klebsiella pneumoniae, Mycobacterium tuberculosis* and foot and mouth disease virus, said antibiotic being soluble in aqueous alkali, slightly soluble in water of pH 6 at 70° C. and soluble in C_4 to C_8 aliphatic alcohols in its non-salt acid form, extractable by n-butanol in its acid form and soluble in methanol in alkali salt form, said antibiotic being produced by the process of claim 1.

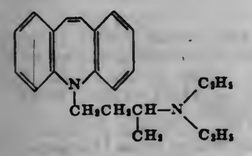
3,320,129

METHODS FOR TREATING SPASTIC CONDITIONS

Charles Ganszer, Paris, France, and Walter Schindler, Riehen, near Basel, Switzerland, assignors to Geigy Chemical Corporation, Ardsley, N.Y., a corporation of New York

No Drawing. Original application Oct. 30, 1962, Ser. No. 235,177. Divided and this application Feb. 10, 1964, Ser. No. 355,136
Claims priority, application Switzerland, Aug. 28, 1959, 77,491/59; Jan. 13, 1960, 299/60; Feb. 25, 1960, 2,108/60
3 Claims. (Cl. 167—65)

1. A method for the treatment of spastic afflictions of the gastro-intestinal, urogenital and biliary tracts and of the bronchial system in mammals, which comprises administering to a mammal suffering from such affliction an effective amount of a compound of the formula



thereby having a spasmolytic effect on said affliction, with predominant anticholinergic action and musculotropic action on the smooth muscle, and secondary antihistaminic action and reduced reserpine-antagonistic activity.

3,320,130

MEDICAMENT FOR COLITIS, GASTROENTERITIS AND ENTEROCOLITIS

Michel C. G. A. Henry, Neuilly-sur-Seine, France, assignor to EURORGA, Paris, France, a company of France

No Drawing. Filed July 16, 1963, Ser. No. 295,516
Claims priority, application France, July 19, 1962, 904,533; July 24, 1963, 939,081
10 Claims. (Cl. 167—73)

1. Process for the preparation of a medicament which comprises the step of culturing separately, on milk containing gastro-pyloric mucin of the pig, lysine, arginine and histidine, *Lactobacillus acidophilus* and antibiotic-resistant non-pathogenic *Escherichia coli*, and the subsequent combined steps of lyophilizing the cultures so produced and mixing said cultures.

3,320,131

METHOD FOR THE TREATMENT OF HERNIATION OF INTERVERTEBRAL DISCS

Lyman W. Smith, Elgin, Ill., assignor to Baxter Laboratories, Inc., Morton Grove, Ill., a corporation of Delaware

No Drawing. Filed Oct. 23, 1964, Ser. No. 406,144
7 Claims. (Cl. 167—73)

1. The method of treating a herniated spinal disc in an animal which comprises the step of injecting into said disc an amount of a pharmaceutically acceptable solution of a proteolytic enzyme sufficient to selectively dissolve the nucleus pulposa of said disc.

3,320,132

COMPOSITION CONTAINING 1-β-D-ARABINOFURANOSYLCYTOSINE USEFUL IN TREATING MICE TUMORS

John S. Evans, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Filed Aug. 1, 1963, Ser. No. 299,178
3 Claims. (Cl. 167—78)

1. A pharmaceutical preparation comprising, in combination,

(a) 1-β-D-arabinofuranosylcytosine, and

(b) a member selected from the group consisting of porfiromycin, mitomycin C and 6-purinethiol wherein (1) the preparation provides per day from about 0.8 mg./kg. to about 120 mg./kg. of the 1-β-D-arabinofuranosylcytosine and (2) the ratio of the 1-β-D-arabinofuranosylcytosine to the member is from about 1:4 to about 30:1.

3,320,133

PREPARATION OF A FACE LOTION WITH A PEARLY LUSTER

Kazuo Suga and Takeshi Yamamoto, Tokyo, Japan, assignors to Toyo Koatsu Industries, Incorporated, Tokyo, Japan, a corporation of Japan

No Drawing. Filed Feb. 6, 1963, Ser. No. 256,516
Claims priority, application Japan, Feb. 8, 1962, 37/3,929
1 Claim. (Cl. 167—91)

A method for producing a face lotion with a pearly luster which comprises:

adding at a temperature not greater than 80° C. 0.1 to 20 parts of an amine to 0.1 to 20 parts of at least one fatty compound containing beauty nutriments and a phenol;

adding thereto a solubility increasing agent in an amount sufficient to inhibit precipitation of said fatty compound;

adjusting pH to between 4.5 and 6.5; and

adding thereto 0.1 to 20 parts of at least one stabilizing compound to stably float crystallized crystals in the solution,

said amine being selected from the group consisting of monoethanolamine, diethanolamine and triethanolamine, said fatty compound being selected from the group consisting of fatty acids, fats and oils, said phenol being selected from the group consisting of orizanol, ferulic acid and cinnamic acid and said stabilizing compound being selected from the group consisting of polyvinyl pyrrolidone, sodium polyacrylate, sodium polymethacrylate, carboxy polymethylene, pyrrolidone and ethanol.

3,320,134

METHOD OF REDUCING CARBON LOSS FROM GRAPHITE MODERATOR IN CARBON DIOXIDE-COOLED NUCLEAR REACTOR

Malcolm Frederick Sheppard, Sale, and Henry Chapman Cowen, Manchester, England, assignors to United Kingdom Atomic Energy Authority, London, England

Filed June 30, 1964, Ser. No. 379,308
Claims priority, application Great Britain, July 5, 1963, 26,835/63; Feb. 19, 1964, 7,026/64
3 Claims. (Cl. 176—38)

1. A method of reducing the loss of carbon from a graphite moderator in a carbon dioxide-cooled nuclear reactor, the method comprising the step of introducing a fluid paraffin hydrocarbon into the carbon-dioxide coolant, to maintain a concentration of at least 50 parts per million by volume of paraffin hydrocarbon in the coolant, wherein at least some carbon monoxide is also present in the coolant.

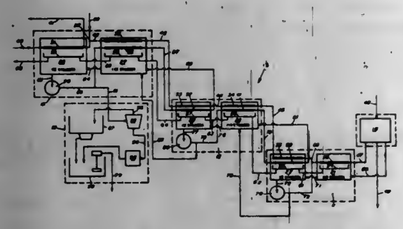
3,320,135
METHOD OF PRODUCING L-GLUTAMIC ACID FROM HYDANTOINPROPIONIC ACID
Shinji Okumura, Tamio Ito, and Ryuichiro Tsugawa, Tokyo, Noboru Katsuya, Kanagawa-ken, and Masahiro Takahashi, Tokyo, Japan, assignors to Ajinomoto Co. Inc., Tokyo, Japan
No Drawing. Filed Oct. 11, 1966, Ser. No. 585,741
Claims priority, application Japan, May 25, 1963, 38/27,194
8 Claims. (Cl. 195—30)

1. A method of producing L-glutamic acid which comprises contacting hydantoinpropionic acid in aqueous solution at pH 6–11 with an enzyme of microbial origin capable of hydrolyzing hydantoinpropionic acid until said hydantoinpropionic acid is converted to L-glutamic acid, and recovering said L-glutamic acid from said solution.

3,320,136
PROCESS FOR PREPARING A POLYSACCHARIDE FLOCCULATING AGENT
James E. Zajic, Oklahoma City, Okla., assignor to Kerr-McGee Oil Industries, Inc., a corporation of Delaware
No Drawing. Filed May 19, 1964, Ser. No. 368,707
12 Claims. (Cl. 195—31)

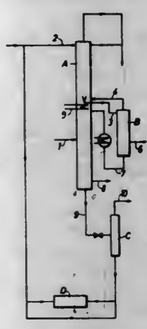
1. A process for preparing a polysaccharide comprising cultivating black yeast in an aqueous fermentation medium therefor, the fermentation medium having an initial pH value between 2 and less than 6.0 and containing at least one substance selected from the group consisting of carbohydrates and normally gaseous hydrocarbons utilized by the black yeast as a source of carbon, the black yeast and including at least one microorganism selected from the group consisting of *Pullularia pullulans*, *Dematium chodati*, and *Cladosporium herbarum* having the capacity to synthesize a polysaccharide material having activity as a flocculant when cultivated in the said fermentation medium and being cultivated therein until a polysaccharide flocculant material is produced.

3,320,137
MULTIFLASH DISTILLATION WITH RECYCLE OF CONCENTRATE THROUGH UP-STREAM CONDENSER AND FLASH STAGES
Ray H. Jebens, Bethesda, Md., and Everett N. Sieder, McLean, Va., assignors to the United States of America as represented by the Secretary of the Interior
Filed Mar. 23, 1964, Ser. No. 354,507
4 Claims. (Cl. 202—173)



1. In a multiple-effect multiple-stage flash distillation system including a plurality of heat effects comprising first, second and third heat effects having operative temperature gradients ranging progressively from a high to low condition, respectively, and each effect including a plurality of evaporation stages whose operative temperatures range progressively from high to low conditions, respectively, a first section in each effect having a major portion of said plurality of stages therein and comprising high temperature stages, and a second section in each effect having a minor portion of said plurality of stages therein and comprising low temperature stages, a primary heat exchanger arrangement operatively associated with each of said first and second sections, and connected successively for flow of feed distilland in a direction from the low to high temperature gradients to preheat the feed, means for elevating the feed to its highest temperature level after flow through said primary heat exchanger arrangement, means directing the feed as distilland successively through the first and second sections of the respective effects for flashing, the successive sections being at successively lower pressure and temperature for evaporation of a portion of the solvent distilland and condensation of the vapor in a vapor space in heat exchange with the primary heat exchanger arrangement, means for withdrawing a portion of the distilland from the second section of the respective effects, means operatively associated respectively with said second effect and each successive lower temperature effect for directing said portion through a second heat exchanger arrangement in the vapor space of the first section of the same effect from which it was withdrawn and then through a third heat exchanger arrangement in the vapor space of the second section of the effect up-stream in terms of distilland flow of the effect from which the portion was withdrawn, whereby vapors condense in said vapor spaces in heat exchange with said second and third heat exchangers, and means for recirculating the portion heated in the third heat exchanger arrangement to the first section of the effect from which the portion was withdrawn.

3,320,138
PROCESS FOR SEPARATING C_5-HYDROCARBON MIXTURES, CONTAINING PARAFFINIC, MONOOLEFINIC AND DIOLEFINIC C_5-HYDROCARBONS BY DISTILLATION WITH N-METHYLPYRROLIDONE
Hans-Walther Brandt, Cologne-Flittard, Bernhard Schleppinghoff and Walter Bayer, Dormagen, Feliks Bitners, Leverkusen, and Erich Meier, Cologne-Deutz, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a German corporation
Filed Dec. 23, 1963, Ser. No. 333,277
Claims priority, application Germany, Dec. 22, 1962, E 24,076
7 Claims. (Cl. 203—58)



1. Process for separating C_5-hydrocarbon mixtures, containing paraffinic, monoolefinic and diolefinic C_5-hydrocarbon fractions, into hydrocarbon fractions each consisting substantially of only one of said fractions, which comprises feeding the C_5-hydrocarbon mixture to the middle portion of an extractive distillation column, feeding N-methylpyrrolidone to the head of said column to act as a selective solvent; withdrawing a liquid side-stream, which contains substantially only the C_5-monoolefines and N-methylpyrrolidone from the lower portion of the upper half of the column; returning the N-methylpyrrolidone, after freeing it from the C_5-monoolefines, to the extractive distillation column at a point below the withdrawal point; maintaining the N-methylpyrrolidone/hydrocarbon ratio approximately constant in the extractive distillation column by effecting a partial condensation of vaporous hydrocarbons above the feedback point; withdrawing the C_5-diolefines in vapor form from the lower portion of the extractive distillation column above the sump; withdrawing the paraffines at the head of the extractive distillation column; and returning the N-methylpyrrolidone collected in the bottom of the extractive distillation column to the head of said column.

3,320,139
METHOD FOR PREPARING NEGATIVE ELECTRODES
Michael Golben, St. Paul, Minn., and Gustav A. Mueller, Montclair, N.J., assignors to Union Carbide Corporation, a corporation of New York
No Drawing. Filed Jan. 21, 1965, Ser. No. 427,132
6 Claims. (Cl. 204—35)

1. A method of preparing a negative electrode for use in alkaline galvanic cells which comprises the steps of preparing a plating bath from an aqueous solution of cadmium nitrate [$Cd(NO_3)_2$]; immersing in said bath a conductive metal matrix having open interstices each extending through the matrix and of a substantially uniform size, and also immersing in said bath at least one electrode of cadmium metal; then passing a current through said bath utilizing the cadmium electrode as an anode and said conductive matrix as a cathode, and at the same time adding a sufficient quantity of nitric acid to said bath to maintain the pH thereof in the range of 1.4 to 2.3, thereby depositing an adhering nitrogen-cadmium hydroxide complex in the interstices of said conductive matrix and on other surfaces thereof, the amount of said complex deposited being sufficient to completely fill said interstices.

3,320,140
ELECTROLYTIC PRODUCTION OF FLUORINE
Anthony W. Yodis, Whippany, N.J., assignor to Allied Chemical Corporation, New York, N. Y., a corporation of New York
No Drawing. Filed Dec. 13, 1963, Ser. No. 330,230
4 Claims. (Cl. 204—59)

1. The process for making elemental fluorine which comprises introducing NOF·3HF into an electrolytic cell, subjecting liquid-phase NOF·3HF in said cell to the action of a direct electric current to electrolytically decompose NOF·3HF and liberate elemental fluorine, and discharging elemental fluorine from said cell.

3,320,141
ELECTROLYTIC PROCESS OF MAKING TERNARY SULFONIUM HYDROXIDES
Merle E. Cisney and Robert J. Herschler, Camas, Wash.; assignors to Crown Zellerbach Corporation, San Francisco, Calif., a corporation of Nevada
No Drawing. Filed Dec. 8, 1965, Ser. No. 512,534
8 Claims. (Cl. 204—101)

1. The process of preparing a ternary sulfonium hydroxide of high purity comprising:
providing an electrolysis cell comprising an anode compartment containing an anode, a cathode compartment containing a cathode, and a semi-permeable membrane diaphragm separating said anode chamber and said cathode chamber, said diaphragm being composed of a material which has no chemical reactivity with the ternary sulfonium hydroxide product to be formed and having a porosity, measured as water permeability substantially greater than 2×10^{-4} gallons per minute per square foot at 1.0 p.s.i., but less than about 150 gallons per minute per square foot at 1.0 p.s.i.;
placing into said anode compartment an aqueous solution of a ternary sulfonium halide of the general formula

$$RR_1R_2S^+X^-$$

wherein the R groups are hydrocarbon radicals having a total number of carbon atoms not exceeding 20, and X is a halide;
placing water into said cathode compartment;
effecting electrolysis by impressing an electrical current between said anode and said cathode, thereby forming a ternary sulfonium hydroxide in said cathode compartment;
and recovering said ternary sulfonium hydroxide from said cathode compartment.

3,320,142
PROCESS FOR PREPARING TRIFLUOROACETYL CHLORIDE
Otto Scherer, Bad Soden, Taunus, and Helmut Hahn, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany
No Drawing. Filed Mar. 3, 1964, Ser. No. 349,153
Claims priority, application Germany, Mar. 7, 1963, F 39,186
2 Claims. (Cl. 204—158)

1. A process for preparing trifluoroacetyl chloride, which comprises reacting fluoral with chlorine in the liquid phase, at a temperature in the range of —60° C. and 0° C. and in the presence of ultraviolet light.

3,320,143
PROCESS FOR NITROSATION OF HYDROCARBONS
Pierre Baumgartner, Asnieres, and Claude Roux-Guerraz, Paris, France, assignors to Institut Francais du Petrole, des Carburants et Lubrifiants, Rueil-Malmaison, France
No Drawing. Filed May 9, 1963, Ser. No. 279,323
Claims priority, application France, May 23, 1962, 898,554
11 Claims. (Cl. 204—162)

1. A process for the production of a product selected from the group of oximes and salts thereof by nitrosation of a hydrocarbon selected from the group of alkanes and cycloalkanes, containing at least 5 carbon atoms in the molecule, comprising the steps of:
(a) passing said hydrocarbon in liquid phase having dissolved therein a nitrosation agent in an amount less than 5% by weight, in front of an actinic light source at an average linear velocity of the liquid phase of at least 1 cm. per second and at a Reynolds Number, with respect to the reaction mixture, which is of the order of 5,000 to 50,000, and
(b) separating the formed reaction product.

3,320,144
MANUFACTURE OF ETHYL BROMIDE
David E. Harmer, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Aug. 30, 1962, Ser. No. 220,542
4 Claims. (Cl. 204—163)

1. In a process for making ethyl bromide which comprises contacting ethylene and hydrogen bromide in a reaction zone filled with an inert solvent at about —20° to about 100° C. in the presence of a field of high energy ionizing radiation of 5,000–10,000,000 rads per hour intensity, the improvement which consists of intimately mixing said ethylene and said hydrogen bromide prior to their introduction into said reaction zone.

3,320,145
ARC TORCH REDUCTION OF METAL HALIDE
Laura E. Case, Lafayette, Ind., assignor to Union Carbide Corporation, a corporation of New York
Filed Nov. 14, 1961, Ser. No. 152,210
8 Claims. (Cl. 204—164)

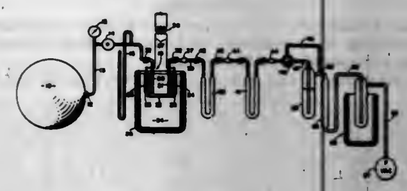


1. A process for reduction of metal halides to metal comprising passing a stream of hydrogen through a collimated electric arc; contacting the effluent stream of highly reactive hydrogen downstream from said electric arc with a metal halide; essentially maintaining the mole ratio of hydrogen to metal halide greater than 2 and simultaneously essentially maintaining at least 100 Kcal. of energy per gram mole of said metal halide in the reaction zone during reaction between said effluent stream of hydrogen and said metal halide; and cooling and recovering powders of the metal of said metal halide.

3,320,146
PROCESS OF MAKING ACETYLENE IN AN ELECTRIC ARC
Homer C. Neely, Jr., Pittsburgh, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Apr. 17, 1964, Ser. No. 360,741
4 Claims. (Cl. 204—171)

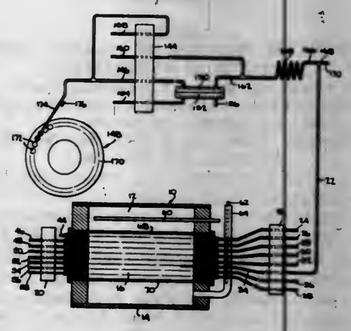
1. In a process for making acetylene by the pyrolysis of a hydrocarbon in an electric arc furnace having a carbon cathode in the form of a round rod, a coaxially aligned elongated cylindrical metal anode exending beyond the end of the cathode and having an internal diameter greater than the diameter of the cathode and a rotating electric arc formed from the tip of the cathode and striking the anode in a zone beyond the tip of the cathode, which process comprises passing the hydrocarbon and hydrogen gas in a gaseous stream under a pressure of at least 2 inches of mercury absolute through the furnace past the cathode tip through the electric arc, exposing the end portion of the cathode to the gaseous stream over a length of at least about 2 times its diameter, strongly cooling the shank of the cathode above said end portion to a temperature below about 1100° C., applying a direct electric current to the cooled shank of the cathode to form and maintain the electric arc, adjusting the strength of said current within the safe current-carrying capacity of the cathode in accord with the gas pressure and the diameter of the cathode to provide a current of at least about 1400 amperes per inch of cathode diameter at which the cathode tip burns off steadily at a rate of at least 2 inches of length per hour and the diameter of the cathode is maintained substantially constant, and advancing the cathode into the furnace at the rate at which it is consumed so as to maintain said exposed end portion; the improvement which comprises controlling the amounts of hydrocarbon and hydrogen gas such that the ratio of total hydrogen atoms in the components of said mixture to the carbon atoms is greater than 4:1 but less than 5:1.

3,320,147
SYNTHESIS OF TRIFLUORAMINE OXIDE
Walter Maya, West Los Angeles, Calif., assignor to North American Aviation, Inc.
Filed Nov. 8, 1962, Ser. No. 236,210
8 Claims. (Cl. 204—177)



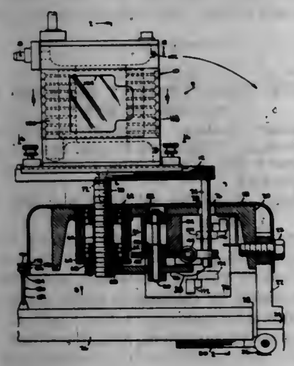
1. The process of synthesizing trifluoramine oxide comprising the steps of preparing a supply of gases comprising from two to three reactants; when the number of said reactants is three, the reactants are nitrogen, fluorine and oxygen, and when the number of said reactants is two, one of said two reactants is fluorine and the other of said two reactants is a binary compound of nitrogen and oxygen; subjecting said reactants to an electrical discharge to excite said reactants whereby an electron of each of the reactants passes from its normal orbit to one of higher energy as a result of the absorption of radiation; quenching the excited reactants to a temperature below that at which trifluoramine oxide is unstable, trifluoramine oxide being formed as a result of said exciting and quenching steps, and collecting the trifluoramine oxide.

3,320,148
METHOD AND APPARATUS FOR ELECTROPHORETIC DENSITY GRADIENT SEPARATION AND ANALYSIS
Leonard T. Skeggs, Cleveland, Ohio, assignor to Technicon Instruments Corporation, Chauncey, N.Y., a corporation of New York
Filed Dec. 4, 1961, Ser. No. 156,583
27 Claims. (Cl. 204—180)



1. A method of electrophoresis according to which buffer liquid and a sample liquid are introduced into a chamber of an electrophoresis cell across which a voltage is applied for the electrophoretic treatment of the sample liquid in said chamber for electrophoretically separating ingredients thereof, said method comprising providing a plurality of buffer liquids of different densities, respectively, treating the sample liquid to impart thereto a selected density, introducing a horizontally flowing stream of said treated sample liquid into said chamber at a predetermined level, simultaneously introducing into said chamber individual horizontally flowing streams of said buffer liquids at different levels, respectively, below and above the level of said sample in said chamber, the density of the treated sample liquid being not greater than the density of the buffer below the sample liquid and greater than the density above the sample liquid, for forming in said chamber, by the flow of said sample and buffer liquids, a horizontal layer of sample ilquid and a density gradient above said sample liquid, the density of at least one of the buffer liquids introduced into the chamber above the level of the sample liquid being greater than a buffer liquid introduced into the chamber adjacent to and below said one of the buffer liquids so as to mix therewith by gravity during the flow of the liquids into said chamber, applying said voltage for the electrophoretic treatment of said layer of the sample liquid, scanning the liquid in said chamber in the region of at least part of said density gradient for examining the voltage-induced migration of ions from the sample liquid into the density gradient, and operating a recorder in response to the scanning operation for providing a record of the quantities of the electrophoretically separated ingredients, respectively, of the sample liquid.

3,320,149
ELECTROPHORESIS APPARATUS
Jack Isreeli, Tuckahoe, N.Y., assignor to Technicon Instruments Corporation, Chauncey, N.Y., a corporation of New York
Filed Apr. 16, 1962, Ser. No. 187,515
6 Claims. (Cl. 204—299)

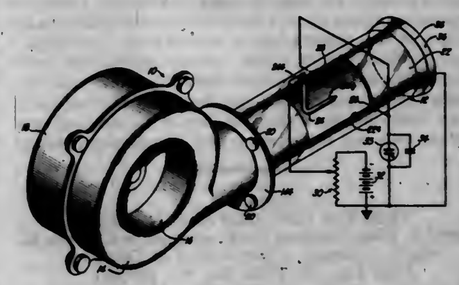


3. Electrophoresis apparatus, comprising:
(a) an electrophoresis cell having a chamber provided with light permeable portions for the passage of light through the liquid in said chamber,
(b) said cell having a series of inlet openings disposed laterally of each other at different levels and in communication with said chamber for transmitting a series of liquid streams to said chambers,
(c) said cell having a series of outlet openings horizontally spaced from said inlet openings and disposed laterally of each other at different levels and in communication with said chamber for transmitting a series of liquid streams therefrom, and
(d) means mounting said cell for movement into a position inclined from the vertical so that at least one of said outlet openings is at a level above said inlet openings for removing air from said chamber by transmitting liquid to said chamber while said cell is in said inclined position.

3,320,150
MOLDED CARBON MATERIALS
William Joseph Metraller, Baton Rouge, La., assignor to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Filed Sept. 6, 1963, Ser. No. 307,019
6 Claims. (Cl. 204—294)

1. A molded coke formulation comprising a coarse coke aggregate in which at least 90 wt. percent of the particles have a particle size of 300–10,000 microns, a fines aggregate in which at least 90 wt. percent of the particles have a particle size of less than 150 microns and a carbonaceous binder, wherein the ratio of reactivity of the fines aggregate to CO_2 and the reactivity of the coarse aggregate to CO_2 at the same reactivity test conditions is between about 1/2 respectively and 1/5 respectively.

3,320,151
APPARATUS FOR TREATMENT OF GASES
Charles F. Tepe, and Lewis O. Jones, Fairport, N.Y., assignors to Chemetron Corporation, Chicago, Ill., a corporation of Delaware
Filed July 3, 1963, Ser. No. 292,665
7 Claims. (Cl. 204—313)

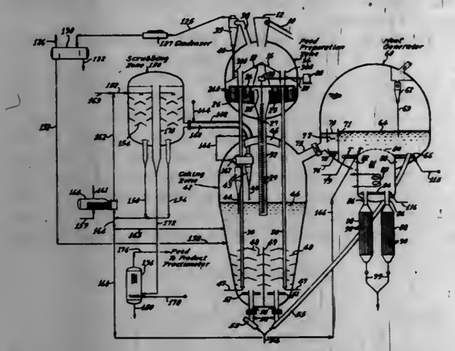


1. Gas treatment apparatus comprising means forming an electrically isolated passageway, means for producing a flow of gas through the passageway, first point electrode means directed generally downstream and in spaced relation to said means forming a passageway, second electrode means comprising at least one electrode of small area lying in the flow of gas and disposed generally in a region of short axial length downstream from said first electrode means, said second electrode means having an area which is only a relatively small portion of the area of said means forming the passageway in said region, and means for applying an electrical potential between the first electrode means and the second electrode means to establish a field to treat gas flowing through the passageway.

3,320,152
FLUID COKING OF TAR SANDS
Marvin F. Nathan, Westport, Conn., and George T. Skaperdas, Westfield, and George C. Grubb, Little Silver, N.J., assignors to Pullman Incorporated, Chicago, Ill., a corporation of Delaware
Filed June 1, 1965, Ser. No. 460,366
6 Claims. (Cl. 208—11)

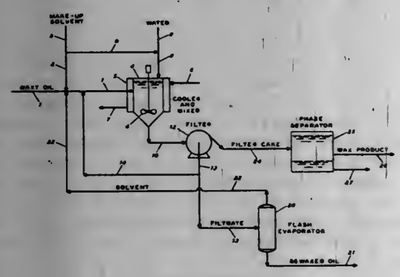
4. A method of recovering hydrocarbons from tar sands which comprises maintaining a first zone containing a supported bed of solid material at a temperature between

about 250° F. and about 600° F.; introducing tar sand agglomerates having an average particle size ranging from above about ½ inch to about 4 inches into said zone, introducing relatively hot contact material obtained from a second zone as hereinafter defined and admixing such contact material and agglomerates in said first zone under temperature and pressure conditions to reduce the viscosity of the hydrocarbon and drive off water from the agglomerates thereby providing a fluidizable mixture of



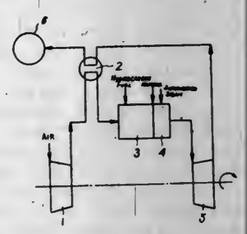
sand and hydrocarbon material, preferentially withdrawing a portion of said fluidizable mixture having the smallest particle size into the upper portion of a pressure developing column of such fluidizable mixture, flowing the mixture in the column into a second zone containing a dense fluidized bed of solids material maintained under hydrocarbon coking conditions including an elevated temperature and pressure, and passing solids material withdrawn from the dense fluidized bed at an elevated temperature into said first zone as said hot contact material.

3,320,153
PROCESS FOR DEWAXING OILS
Manuel A. Pino, Oakland, Calif., assignor to Chevron Research Company, a corporation of Delaware
Filed Dec. 10, 1964, Ser. No. 417,451
5 Claims. (Cl. 208—33)



1. A process for dewaxing waxy oils which comprises mixing said oil with a dewaxing solvent, cooling the resultant mixture to a temperature below the freezing point of water to form a slurry of wax crystals, before filtration adding water to the cold slurry of wax crystals in an amount equal to at least 25% by weight of the wax in said slurry that crystallizes at said temperature, and then filtering the cold slurry to recover a filter cake comprising solid wax and ice.

3,320,154
METHOD FOR CRACKING HYDROCARBON PRODUCTS
Hiroshi Tokuhisa, Sendai-shi, Eitaro Ishihara, Kobe, and Toshisada Kinoshita, Fujisawa-shi, Japan, assignors to Michikazu Takeyoshi, Hayama-machi, Miura-gun, Kanagawa-ken, Japan
Filed May 19, 1964, Ser. No. 368,654
Claims priority, application Japan, May 29, 1963, 38/27,936
2 Claims. (Cl. 208—130)



1. A method of driving a gas turbine while cracking naphtha, said method comprising compressing an oxygen containing gas in a compressor, mixing the compressed gas and a hydrocarbon fuel in a combustion chamber and effecting complete combustion of the fuel in said chamber to produce a combustion gas at a temperature of between 1300 and 1500° C., mixing said combustion gas with a mixture of naphtha and superheated steam in a cracking furnace to crack the naphtha, the naphtha and superheated steam being added to the combustion gas in a quantity and a pressure such that the temperature of the thus obtained gas mixture is between 700 and 800° C., adiabatically expanding the latter gas mixture in a turbine to drive the same while rapidly cooling the gas mixture to prevent polymerization thereof, cooling and thereafter separating the cracked constituents of the naphtha from the gas mixture after the latter has been discharged from the turbine, and driving said compressor by said turbine.

3,320,155
OCTANE IMPROVEMENT PROCESS FOR MOTOR FUELS
Joseph Matthew Kelley, Westfield, and Donald Lee Baeder, Berkeley Heights, N.J.; said Baeder assignor to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Filed Oct. 26, 1962, Ser. No. 234,009
1 Claim. (Cl. 208—134)

In a method for treating a light naphtha feed boiling at a temperature of from 30° to 350° F. containing at least 20 percent by volume of olefinic hydrocarbons with a catalyst prepared by sulfiding a nickel oxide distended on a silica-alumina cracking catalyst base, the improved method for treating said light naphtha which comprises optimizing process conditions to produce as a principal product a middle distillate fraction having a high cetane number and low pour point and boiling in the range of 300° to 600° F. by passing said naphtha over a silica-alumina cracking catalyst base containing from 0.5 to 20 percent by weight of nickel deposited thereon, said nickel having been prepared by reducing with hydrogen a nickel salt deposited on said base to nickel metal and treating with a sulfur-containing material selected from the group consisting of a gas containing hydrogen sulfide and a light naphtha feed boiling in the temperature range of from 30° to 350° F. containing naturally occurring sulfur therein, to substantially convert all of the nickel to the nickel sulfide form, the feed rate of said naphtha being from 0.1 to 10 v./v./hr. at a hydrogen pressure of from 500 to 2,000 p.s.i.g. and a temperature of 350° to 500° F.,

said treatment being conducted in the presence of from 2,000 to 5,000 standard cubic feet of hydrogen per barrel of said naphtha.

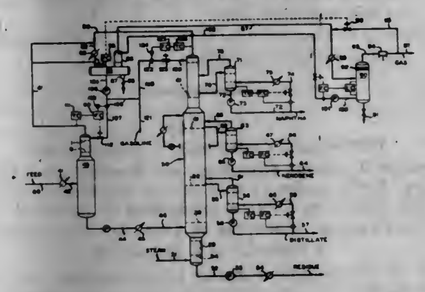
3,320,156
DESULFURIZATION OF RESIDUAL CRUDES
Maurice Amedee Bergougnou, Madison, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Filed Nov. 16, 1964, Ser. No. 411,629
10 Claims. (Cl. 208—244)

1. The process for removing sulfur impurities from a hydrocarbon fraction containing from 0.5 to 7.0 wt. percent sulfur which comprises contacting said fraction at a temperature in the range of 500–750° F. with a reagent consisting essentially of cobalt hydroxide and recovering a fraction of substantially reduced sulfur content.

3,320,157
DESULFURIZATION OF RESIDUAL CRUDES
William Floyd Arey, Jr., and William Judson Mattox, Baton Rouge, La., assignors to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Filed Nov. 16, 1964, Ser. No. 411,600
8 Claims. (Cl. 208—249)

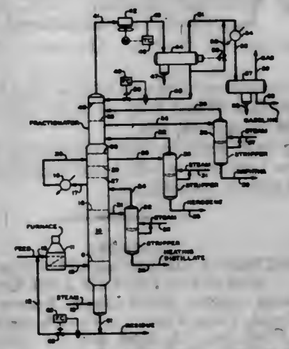
1. The process for removing sulfur impurities from a hydrocarbon fraction containing from 0.5 to 7.0 wt. percent sulfur which comprises contacting said fraction in the liquid phase at a temperature of 500–700° F. with a reagent consisting essentially of manganese hydroxide and recovering a fraction of substantially reduced sulfur content.

3,320,158
CRUDE OIL FRACTIONATION METHOD
Mack F. Potts, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Nov. 6, 1964, Ser. No. 409,406
7 Claims. (Cl. 208—358)



1. A process which comprises
   (a) passing a separable crude oil feed to a pre-flash zone having trays at least in the upper portion thereof;
   (b) obtaining an overhead stream from said pre-flash zone;
   (c) obtaining a bottoms stream from said pre-flash zone;
   (d) passing said bottoms stream to a distillation zone;
   (e) in said distillation zone, separating said bottoms stream into a plurality of product streams including an overhead product;
   (f) combining said overhead product with said overhead stream, at least partially condensing said combined overhead product and said overhead stream to obtain a condensate;
   (g) passing at least a portion of said condensate to the top tray of said pre-flash zone as reflux therefor and another portion of said condensate to the top of said distillation zone as reflux therefor; and
   (h) recovering as a product of the process any remaining condensate.

3,320,159
CONTROLLING REFLUX IN A DISTILLATION PROCESS
Mack F. Potts, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed June 8, 1964, Ser. No. 373,398
2 Claims. (Cl. 208—363)



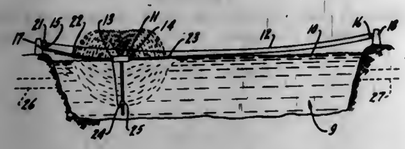
1. A method of controlling the reflux to a fractionation zone of the heavier constituents in a vaporous water-hydrocarbon stream from said fractionation zone comprising: (a) cooling said vaporous water-hydrocarbon to a first temperature so that water and at least a portion of the heavier hydrocarbons in said vaporous stream are condensed to thereby form a first liquid vapor stream; (b) passing said first liquid-vapor stream to a first accumulation zone being maintained at a temperature at or below said first temperature; (c) withdrawing condensed water from said first accumulation zone; (d) passing a stream of the condensed heavier hydrocarbons from said first accumulation zone to the top of said fractionation zone as reflux at a predetermined flow rate; (e) removing the vapor from said first accumulation zone; (f) removing a second stream of condensed heavier hydrocarbons from said first accumulation zone in response to liquid level control therein and combining said second stream of condensed heavier hydrocarbons as a liquid with said vapor from said first accumulation zone to form a second liquid vapor stream which stream is at a temperature no higher than said first temperature; (g) cooling said second liquid vapor stream to a second temperature lower than said first temperature so that at least a portion of the vapor in said second liquid vapor stream is condensed to form a third liquid vapor stream; (h) passing said third liquid vapor stream to a second accumulation zone; (i) withdrawing liquid hydrocarbon product from said second accumulation zone; (j) withdrawing condensed water from said second accumulation zone; (k) withdrawing vapor from said second accumulation zone.

3,320,160
METHOD AND APPARATUS FOR AERATING A BODY OF LIQUID
Donald P. Welles, Jr., Rockford, Ill., and Ronald J. Weis, Beloit, Wis., assignors to Welles Products, Inc., Roscoe, Ill., a corporation of Illinois
Filed Aug. 24, 1965, Ser. No. 482,202
7 Claims. (Cl. 210—14)

6. A method of minimizing sludge deposits in areas of low turbulent influences in a body of liquid being

aerated by a plurality of fixed aerating units located in spaced relationship to one another across the surface of said body of liquid and in which an area of said body of liquid is not influenced by the aeration effect of said fixed units including the steps of:

floating in said body of liquid at least one power operated aerating unit capable of being moved reciprocally across the surface of said body of liquid,



operating said aerating unit to draw liquid from beneath the surface of said body of liquid and to discharge it above the surface, and

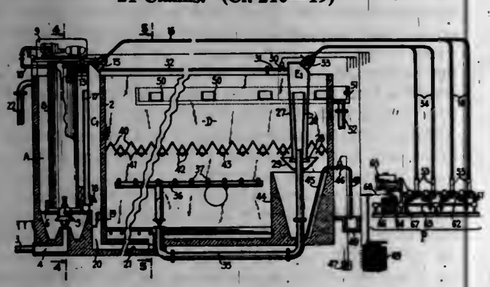
moving said aerating unit reciprocally along a path across said area in which the aeration effect of said fixed units is not effective.

3,320,161

METHOD AND APPARATUS FOR THE DECANTATION OF LIQUIDS

André Louis Lapaix, Saint-Cloud, France, assignor to Prat-Daniel, Paris, France, a French body corporate

Filed Aug. 24, 1964, Ser. No. 391,376
Claims priority, application France, Aug. 30, 1963, 946,132
21 Claims. (Cl. 210—19)



1. A process for the decantation of waters and other liquids comprising the steps of continuously introducing water to be treated, to which a coagulation reagent has been added, into a decantation zone according to a sinusoidally modulated flow, continuously removing a portion of the sediments formed and reinjecting them continuously into the decantation zone according to a sinusoidally modulated flow in phase shift relation with the modulation of the flow of water, the said modulated flows of said water and of said sediments in phase shift relation thus creating a stationary sediment bed in said decantation zone and distributed over both sides of a neutral zone, from both sides of which the sediment particles are activated by opposite movements, removing from the bottom of said bed the sediments and removing separately from the top of said bed the decanted water.

6. An apparatus for the decantation of waters and other liquids, comprising a vat, means dividing the vat into a feed compartment for untreated water and a decantation compartment, a connecting means interconnecting the feed compartment and the decantation compartment to pass water from the feed compartment to the decantation compartment, a means sinusoidally modulating the flow of water passing from the feed compartment into the decantation compartment, a recycling means for the sediments connected to the decantation compartment for removing the sediments from the decantation compartment and reinjecting them into the decantation compartment in a zone at an intermediate level therein, a means sinusoidally modulating the reinjection flow of the sediments in phase shift relation with the modulation of the flow of water, and means for removing the decanted water and the sediments formed from above and below said intermediate level respectively.

3,320,162

INCREASING THE BASE NUMBER OF CALCIUM PETROLEUM SULFONATE

William N. Axe and Sidney Schiff, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware

Filed May 22, 1964, Ser. No. 369,376
4 Claims. (Cl. 252—33)

1. A process for producing a lubricant additive which comprises the steps of:

contacting a lubricant additive composition comprising a compound selected from the group consisting of a petroleum sulfonic acid and a calcium petroleum sulfonate, wherein the sulfonated stock is highly paraffinic, deasphalted and solvent refined petroleum fraction having a viscosity of about 180 to 230 SUS at 210° F. and having a viscosity index of at least about 85, with methanol, in an amount equal to 5 to 100 volume percent of said composition, an amount of a calcium compound selected from the group consisting of calcium oxide, and calcium hydroxide to provide 2 to 6 times the amount chemically equivalent to a desired overbasing, and a sufficient amount of an ammonium compound selected from the group consisting of ammonium carbonate, ammonium bicarbonate and ammonium carbamate to furnish carbon dioxide by decomposition to react with all of said calcium compound, while maintaining the uncombined water content of the resulting mixture below about 7 volume percent of the amount of said methanol; and

heating to a temperature in the range of 150 to 500° F. until basic vapors no longer are evolved.

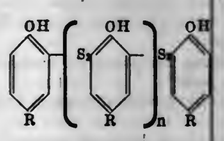
3,320,163

PHENOLIC CORROSION INHIBITORS

Andrew D. Abbott, Greenbrae, and Warren Lowe, Berkeley, Calif., assignors to Chevron Research Company, San Francisco, Calif., a corporation of Delaware

No Drawing. Filed Oct. 8, 1965, Ser. No. 494,259
4 Claims. (Cl. 252—48.2)

1. A composition of matter which comprises the reaction product of a compound according to the formula:



wherein R is an alkyl group of from 8 to 20 carbon atoms, *n* is a cardinal number not greater than 10, with from 1 to 10 weight percent of sulfur based on the weight of said compound, reacted at a temperature in the range of about 200° to 400° F. and in the presence of an inert hydrocarbon solvent.

4. A lubricating composition comprising an oil of lubricating viscosity and from 0.5 to 20 weight percent of a composition according to claim 1.

3,320,164

NON-CORROSIVE, LUBRICATING, CUTTING AND COOLING ADDITIVES

Henri Brunel, 9 Rue du General Niox, Paris, France

No Drawing. Filed July 14, 1965, Ser. No. 472,051
3 Claims. (Cl. 252—49)

1. Process of lubricating, cutting and cooling metal parts while protecting said parts against corrosion consisting in bringing into contact with the metal parts to lubricate and cool the same and promote cutting thereof, a liquid selected from the group consisting of aqueous solutions and dispersions and oil solutions of at least one additive possessed of lubricating, cutting, cooling and anticorrosive properties adapted to said metal, said additive consisting essentially of

chromic acid which is at least partially neutralized,

said acid being at least partially neutralized with an amino base selected from the group consisting of water soluble amines and oil soluble fatty amines,

said water soluble amines consisting essentially of a mixture of monocyclohexylamine and triethanol amine,

said oil soluble fatty amines being selected from the group consisting of fatty alkylamines containing 8 to 24 carbon atoms in the alkyl group and alkylaminopropylamines containing 8 to 24 carbon atoms in the alkyl group,

adjusting the proportion of acid and amine to provide a pH of 7 to 9 in the lubricating, cutting, cooling and anticorrosive solutions.

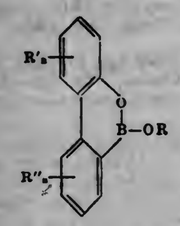
3,320,165

LUBRICANTS AND FUELS STABILIZED WITH ANTIOXIDANTS FOR HIGH AND LOW TEMPERATURE CONDITIONS

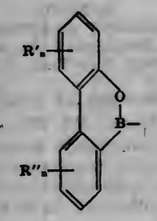
Robert F. Bridger, Yardley, Leo J. McCabe, Princeton, and Albert L. Williams, Paulsboro, N.J., assignors to Mobil Oil Corporation, a corporation of New York

No Drawing. Filed May 11, 1965, Ser. No. 454,993
20 Claims. (Cl. 252—49.6)

1. A composition capable of withstanding oxidation at high and low temperatures successively comprising a major proportion of a member selected from the group consisting of mineral lubricating oils, synthetic lubricating oils, greases obtained therefrom and hydrocarbon fuels and a minor proportion, sufficient to provide antioxidant properties thereto, of (1) a boroxarophenanthrene of the formula



wherein R is selected from the group consisting of hydrogen, alkyl having from 1 to 25 carbon atoms and



R' and R'' are selected from the group consisting of alkyl, halogen, and haloalkyl, wherein the alkyl radicals have from 1 to 25 carbon atoms, and *n* is 0 to 4; and (2) an aromatic compound selected from the group consisting of an alkylated hydroxy hydrocarbyl aromatic compound having up to 7 ring nuclei and an aromatic secondary amine.

3,320,166

LUBRICATING COMPOSITION CONTAINING SCHIFF BASE-INORGANIC HALIDE ADDUCT

Frederic C. McCoy, Beacon, and Edwin C. Knowles, Poughkeepsie, N.Y., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Feb. 14, 1966, Ser. No. 527,057
11 Claims. (Cl. 252—49.7)

1. A lubricating composition comprising a major proportion of a lubricating oil and 0.05 to 10 percent by weight of an oil-soluble adduct of a Schiff base and a halide having the formula:

$$(RN{=}\overset{H}{C}R')_y{\cdot}MX_z$$

in which R is an alkyl radical having from 1 to 30 carbon atoms, R' is selected from the group consisting of hydrogen and an alkyl radical having from 1 to 18 carbon atoms, the sum of the carbon atoms in R and R' being at least 12, *y* is an integer from 1 to 6, M is a polyvalent cation selected from the class consisting of boron, aluminum, titanium, tin, zinc, copper, cadmium, magnesium, mercury, zirconium, antimony, bismuth, manganese and iron, X is a halide ion selected from the group consisting of chloride, bromide and iodide ions and in the case of divalent tin and the cations having a valence of 3 to 4 the fluoride ion, and *z* is an integer from 2 to 4 equal to the valence of M.

3,320,167

LUBRICANTS

Edwin C. Knowles, Poughkeepsie, N.Y., Edward L. Kay, Akron, Ohio, and Frederic C. McCoy, Beacon, N.Y., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware

No Drawing. Original application Dec. 19, 1961, Ser. No. 160,642, now Patent No. 3,275,636, dated Sept. 27, 1966. Divided and this application Aug. 27, 1965, Ser. No. 483,334
10 Claims. (Cl. 252—49.7)

1. A lubricating composition comprising a major portion of a lubricating oil and an effective load-carrying amount of an amine salt having a formula selected from the group consisting of

$(R''R'R\overset{+}{N}H)H\bar{T}F_4$ $(R''R'R\overset{+}{N}\overset{+}{H})_3\bar{T}F_6$

$(Y\overset{+}{N}H_nH)H\bar{T}F_6$ $(Y\overset{+}{N}H_nH)_3\bar{T}F_6$

wherein R is selected from the group consisting of hydrocarbyl radicals and hydroxy substituted hydrocarbyl radicals containing from 8 to about 30 carbon atoms, R' and R'' are selected from the group consisting of hydrogen and a hydrocarbyl radical containing from 1 to about 24 carbon atoms, Y is selected from the group consisting of 4 and 5 membered di and trivalent radicals said di and trivalent cyclic radicals consisting of hydrogen substituted carbon atoms, oxygen and nitrogen and *n* is an integer selected from 0 to 1.

3,320,168
CATIONICALLY PREPARED COPOLYMERS OF 4-METHYL-1-PENTENE AND α,ω-DIENE AND LUBRICATING OILS CONTAINING SUCH POLYMERS

Shigeto Suzuki, San Francisco, Calif., assignor to Chevron Research Company, San Francisco, Calif., a corporation of Delaware

No Drawing. Filed Nov. 1, 1965, Ser. No. 505,958
5 Claims. (Cl. 252—59)

1. A copolymer composition prepared by copolymerizing 4-methyl-1-pentene and about .02 to .08 mol percent α,ω-diene having the formula:

$$H_2C{=}CH{-}(CH_2)_n{-}CH{=}CH_2$$

wherein n is an integer from 1 to 8 at from about −35° to −70° C. in the presence of 0.05 to 5 weight percent cationic polymerization catalyst, based on the pentene, and an inert hydrocarbon solvent.

4. A lubricating composition comprising a base lubricating oil and the copolymer of claim 1.

3,320,169
DEVELOPER MIXES

Robert M. East, Mount Prospect, and John A. Harmon, Arlington Heights, Ill., assignors to Addressograph-Multigraph Corporation, Mount Prospect, Ill., a corporation of Delaware

No Drawing. Filed Aug. 3, 1964, Ser. No. 387,218
10 Claims. (Cl. 252—62.1)

1. A developer mix for developing electrostatic latent images on photoconductive insulating material employing a magnetic brush for applying the developer to the latent images, which developer mix consists essentially of magnetic carrier particles and toner particles having a particle size smaller than the particle size of the magnetic carrier particles, the toner particles consisting essentially of a pigmented thermoplastic resin having a resistivity less than 10^{10} ohm-cm. and a particle size of from 1 to 75 microns, said toner particles being mixed with the magnetic carrier particles having a particle size of from 25 to 150 microns in the proportions of from 10 to 100 parts of magnetic carrier particles per part of toner particles by weight, and said developer mix containing from 0.02 to 0.4 part by weight of a third component per 100 parts by weight of carrier particles, said third component intimately mixed with and forming a coating on the exterior of said magnetic carrier particles and said toner particles, said third component being selected from the group consisting of (a) fatty acids containing from 10 to 26 carbon atoms; (b) a salt of such fatty acids, the cation of the salt being selected from the group consisting of calcium, barium, sodium, lithium, magnesium, manganese, zinc, nickel, iron, cobalt, lead and ammonium; (c) a mixture of said fatty acids; (d) a mixture containing at least one of said fatty acids and at least one of said salts; and (e) a mixture of said salts.

3,320,170
TRANSPARENT MAGNETIC GLASS COMPOSITIONS

Ronald C. Vickery, Okauchee, Wis., and Joseph V. Fisher, Valencia, Pa., assignors to Semi-Elements, Inc., Saxonburg, Pa., a corporation of Pennsylvania

Filed Aug. 9, 1965, Ser. No. 478,202
9 Claims. (Cl. 252—62.5)

1. A glass composition exhibiting magnetic characteristics, consisting essentially of a glass matrix selected from the group consisting of phosphate, borate and fluoride matrices, the glass being water-white transparent and containing a paramagnetic ion at least in an amount sufficient to render the glass magnetically susceptible.

3,320,171
POWDERLESS ETCHING BATH AND METHOD FOR ETCHING CURVED SEGMENTS

Marvin H. Fishaber, Saginaw, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Aug. 27, 1964, Ser. No. 392,589
10 Claims. (Cl. 252—79.4)

1. In an etching bath composition comprising substantially nitric acid, a sulfonated dodecyl diphenyl oxide filming agent, a film controlling agent and an organic water-immiscible fluid substantially stable in the presence of dilute nitric acid, the balance being essentially water; the improvement consisting essentially of employing a three-component organic solvent system as the water-immiscible fluid, said system comprising as a first component from about 0.5 to about 2.0 volume percent of the bath of at least one organic liquid having a kauri-butanol value within the range of from about 25 to about 75, as a second component from about 0.8 to about 2.8 volume percent of the bath of an organic liquid having a kauri-butanol value within the range of from about 75 to about 100, and as a third component from about 0.25 to about 1.5 volume percent of the bath of an organic liquid having a kauri-butanol value in excess of 100.

3,320,172
DETERGENT COMPOSITION

Frank Mains, Don Mills, Ontario, and David W. White, West Hill, Ontario, Canada, assignors to Domtar Limited, Montreal, Quebec, Canada

No Drawing. Filed Dec. 7, 1964, Ser. No. 416,587
11 Claims. (Cl. 252—137)

1. A detergent composition consisting essentially of an aqueous solution of an anionic detergent selected from the group consisting of an alkyl aryl sulphonate detergent, an alkyl sulphate detergent and mixtures thereof, in an amount between 5% and 50% by weight of total solution, and as a foaming and detergency enhancing additive a water-soluble compound selected from the group consisting of an alkali-metal and ammonium molybdate, an alkali-metal and ammonium tungstate and ceric ammonium nitrate, in an amount between 0.00001% and 0.5% by weight of detergent.

3,320,173
HEAVY DUTY LIQUID DETERGENT

John T. Minor, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla., a corporation of Delaware

No Drawing. Filed Apr. 17, 1964, Ser. No. 360,765
6 Claims. (Cl. 252—137)

1. A liquid detergent composition consisting essentially of:

(a) water soluble, anionic alkane sulfonate detergent having about 12–18 carbon atoms, about 13–25%;
(b) potassium pyrophosphate, about 20–35%;
(c) hydrotrope, about 5–10%, where said hydrotrope consists of benzene sulfonate having 0–4 alkyl carbon atoms, 25–75%, and urea, 75–25%; and
(d) the remainder substantially water.

3,320,174
DETERGENT COMPOSITION

Joseph Rubinfeld, Brooklyn, N.Y., assignor to Colgate-Palmolive Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Apr. 20, 1964, Ser. No. 361,289
9 Claims. (Cl. 252—138)

1. A detergent composition consisting essentially of a mixture of higher alkyl benzene sulfonates, the alkylated benzene content of said sulfonates having an average molecular weight within the range of 250 to 270, said alkyl groups being linear and containing a minimum of about 85% of alkyl chains of 12 to 14 carbons with at least about 10% having 12 carbon atoms, at least about 10% having 13 carbon atoms and at least about 10% having 14 carbon atoms, said alkyl benzene sulfonates having phenyl isomers in at least one of the 2- and higher positions of said alkyl groups, said phenyl isomers being a minimum of about 37% of 5-phenyl and higher phenyl isomers and a maximum of about 27% of 2-phenyl isomers, said amounts being by weight.

3,320,175
PROCESSING OF RADIOACTIVE LIQUIDS

Bernard A. Podberesky, Norwich, and Harrison T. Loeser, Waterford, Conn., assignors to General Dynamics Corporation, New York, N.Y., a corporation of Delaware

Filed July 5, 1961, Ser. No. 122,012
3 Claims. (Cl. 252—301.1)

1. A method for processing radioactive liquid wastes which comprises contacting a liquid containing radioactive non-metallic ions with electrodes including at least one anode and one cathode, the anode being fabricated from a metal which is reduced and goes into solution thereby combining with the non-metallic ions to form an insoluble precipitate.

3,320,176
METHOD OF PRODUCING CERAMIC NUCLEAR FUEL MATERIAL HAVING INCORPORATED THEREIN BURNABLE POISON

Fred W. Davis, Lynchburg, Va., assignor to The Babcock & Wilcox Company, New York, N.Y., a corporation of New Jersey

No Drawing. Filed Apr. 1, 1966, Ser. No. 539,267
7 Claims. (Cl. 252—301.1)

1. A method of producing ceramic nuclear fuel material comprising the steps of preparing a colloid of a nuclear fertile material, drying said colloid to form gel particles, calcining said gel particles at a temperature sufficient to substantially completely densify said particles, adding fissionable material to said fertile material after the colloid has been prepared, and adding a burnable neutron poison to said fertile material after the colloid has been prepared and prior to the complete densification of said particles.

3,320,177
PROCESS FOR MAKING NUCLEAR FUEL MATERIALS

Carroll J. Halva, Lynchburg, Va., assignor to The Babcock & Wilcox Company, New York, N.Y., a corporation of New Jersey

No Drawing. Filed Apr. 1, 1966, Ser. No. 539,278
30 Claims. (Cl. 252—301.1)

1. A process for preparing a mixed oxide nuclear fuel material comprising the step of contacting a gel of a fertile nuclear material with a fissionable material in liquid phase to directly impregnate said gel with said fissionable material.

3,320,178
PROCESS FOR MAKING NUCLEAR FUEL MATERIAL

Edgar H. Dewell, Lynchburg, Va., assignor to The Babcock & Wilcox Company, New York, N.Y., a corporation of New Jersey

No Drawing. Filed Apr. 1, 1966, Ser. No. 539,279
13 Claims. (Cl. 252—301.1)

1. A process for preparing a ceramic mixed oxide nuclear fuel material comprising the steps of preparing a colloid of a fertile nuclear material, drying said colloid to form gel particles, passing said gel particles through a first fissionable material bearing fluid in liquid phase to directly impregnate said gel particles with said fissionable material, passing the thus impregnated particles from said first fluid directly into a second disengaging fluid to abruptly and controllably disengage said gel particles from contact with said fissionable material bearing solution, and densifying said particles by calcination.

3,320,179
OPENLY POROUS REFRACTORY NUCLEAR FUEL MICROSPHERES AND METHOD OF PREPARATION

Theodore A. Gens, Tonawanda, N.Y., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Sept. 22, 1966, Ser. No. 582,200
13 Claims. (Cl. 252—301.1)

1. A porous refractory microsphere fuel particle selected from the group consisting of ThO_2, UO_2, PuO_2 and mixtures thereof having an open porosity of at least 15% of the particle volume, wherein pores opening to the surface of said particle communicate with inner pores of said particle.

5. A method for preparing porous refractory fuel microspheres by sol-gel techniques wherein gel microspheres are prepared from aqueous sols by dispersing said sol in a water-immiscible organic liquid comprising the steps of incorporating a volatile inorganic material within the gel microspheres and thereafter calcining said gel microspheres at an elevated temperature, thereby effecting volatilization of said inorganic material and pore formation.

3,320,180
THERMOLUMINESCENT DOUBLY DOPED LIF PHOSPHOR

Carl F. Swinehart, University Heights, Ohio, assignor, by mesne assignments, to Kewanee Oil Company, Bryn Mawr, Pa., a corporation of Delaware

Filed Nov. 7, 1963, Ser. No. 322,248
6 Claims. (Cl. 252—301.4)

1. A thermoluminescent material consisting essentially of a crystal of lithium fluoride doped with activators composed of from about 40 to about 400 parts per million of at least one member of a first group consisting of magnesium, calcium, and barium, when such member is expressed as the fluoride, and at least one member of a second group consisting of aluminum, titanium, and europium, said member of said second group being used in an amount of 20 to 200 parts per million parts of lithium fluoride when said second group member is expressed as lithium cryolite or europium fluoride, and an amount of 20–60 parts per million parts of lithium fluoride when said second group member is expressed as lithium fluotitanate.

3,320,181
HYDROCARBON CONVERSION CATALYSTS COMPRISING MOLYBDENUM SULFIDE AND NICKEL SULFIDE DISPERSED WITHIN ALUMINA

Paul E. Fischer, Berkeley, Waldeen C. Buss, Pinole, and Edwin A. Goldsmith, Oakland, Calif., assignors to Chevron Research Company, a corporation of Delaware

No Drawing. Filed Jan. 30, 1964, Ser. No. 341,399
2 Claims. (Cl. 252—439)

1. The method for producing a gel catalyst comprising molybdenum sulfide and nickel sulfide microscopically dispersed within alumina which comprises the steps:

(a) forming a solution comprising nickel chloride, molybdenum pentachloride and aluminum chloride,
(b) adding to said solution from about 1.0 to 5.0 mols of at least one oxirane containing from 2 to 3 carbon atoms per molecule per mol of chloride ion, thereby forming a hydrogel,

(c) dehydrating said hydrogel to a gel by the steps comprising:
(1) partially drying said hydrogel at a temperature below about 400° F.,
(2) contacting the partially dried hydrogel with heated hydrogen in the absence of a sulfur-containing compound to a temperature in the range of from about 800° to about 1150° F., thereby completing the dehydration, and
(d) contacting the alumina-molybdenum-nickel-containing compound with hydrogen and a sulfur-containing compound at elevated temperatures to convert a substantial portion of the nickel and molybdenum components to their corresponding sulfides.

3,320,182
HIGH ACTIVITY NICKEL-ALUMINA CATALYST
William F. Taylor, Scotch Plains, and John H. Sinfelt, Berkeley Heights, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Filed Oct. 21, 1963, Ser. No. 317,799
4 Claims. (Cl. 252—466)

1. A catalyst of high activity and activity maintenance for producing methane by reaction of C_5 to C_8 paraffins with steam and reaction of CO with H_2 at 600° to 925° F., when the catalyst is activated by treatment with H_2 at 600° to 925° F., consisting essentially of an interspersion of nickel oxide and aluminum oxide in dried and calcined coprecipitated nickel and aluminum compounds of the class consisting of hydroxides, carbonates, and basic carbonates, containing 40 to 60 wt. percent Ni and 60 to 40 wt. percent Al_2O_3 on a dry basis, having a total surface area of about 100 to 200 square meters per gram of catalyst and having 20 to 30 square meters of nickel surface area per gram of catalyst when activated.

2. A catalyst as defined in claim 1 containing an oxide of a promoter metal of the class consisting of barium, strontium, cesium, and potassium in a promoting amount of 0.001 to 1.0 promoter metal atoms per nickel atom.

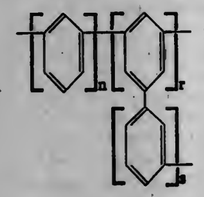
3,320,183
ARYL-HYDROCARBON POLYMERS
Gordon P. Brown, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York
No Drawing. Filed Feb. 1, 1962, Ser. No. 170,492
3 Claims. (Cl. 260—2)

1. Solid copolymers consisting essentially of material having the structural formula



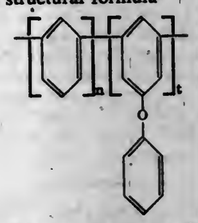
wherein x is a monovalent halogen substituent and n and r are both integers with n having a greater value than r.

2. Solid resinous branched polymers consisting essentially of material having the structural formula



wherein n, r, and s are all integers with n having a greater value than r and s having a value of at least 1.

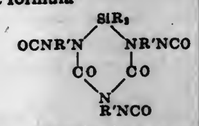
3. Solid resinous polymers consisting essentially of material having the structural formula



wherein n and t are both integers, and wherein the ratio n/t is varied according to the ratio of starting monomers.

3,320,184
SILICON-CONTAINING POLYISOCYANATES
Walter Fink, Zurich, Switzerland, assignor to Monsanto Company, a corporation of Delaware
No Drawing. Filed Dec. 9, 1963, Ser. No. 329,258
Claims priority, application Switzerland, Dec. 13, 1962, 14,561/62
14 Claims. (Cl. 260—2)

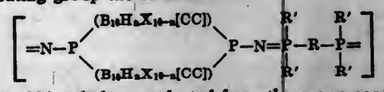
14. A polymer of a silicon-containing heterocyclic triisocyanate of the formula



wherein R is hydrocarbon having not more than 18 carbon atoms, which is not sterically voluminous and R' is a hydrocarbon having not more than 18 carbon atoms, formed by heating said silicon-containing heterocyclic triisocyanate at a temperature above the optimum temperature of reaction and below the temperature of decomposition.

3,320,185
NOVEL POLYMERS FROM CONDENSATION OF DIMERIC AZIDOPHOSPHA (III)-CARBORANE AND DIPHOSPHINE
Roy P. Alexander, Killingworth, and Hansjuergen A. Schroeder, New Haven, Conn., assignors to Olin Mathieson Chemical Corporation, a corporation of Virginia
Filed Nov. 13, 1963, Ser. No. 323,394
2 Claims. (Cl. 260—2)

1. A linear polymeric condensation product having as a repeating group the structure:



wherein X is a halogen selected from the group consisting of chlorine, bromine and iodine, n is an integer from 0 to 10 inclusive, R is selected from the group consisting of an alkylene radical having from 1 to 8 carbon atoms, an arylene radical having not more than 8 carbon atoms and diphenylene, and R' is selected from the group consisting of phenyl, tolyl, xylyl, napthyl and biphenylyl; the molecular weight of the said linear polymeric product being from about 2000 to about 5000.

3,320,186
POLYVINYLCYANOPYRIDINE DERIVATIVES AND THEIR USE IN THE PREPARATION OF AMPHOTERIC ION EXCHANGE RESINS
Wayne E. Feely, Rydal, Pa., assignor to Rohm & Haas Company, Philadelphia, Pa., a corporation of Delaware
No Drawing. Filed Jan. 9, 1963, Ser. No. 250,224
17 Claims. (Cl. 260—2.1)

1. A process for the introduction of cyano groups into the nucleus of the pyridine rings of a polymer or copolymer prepared from 85 parts to 100 parts by weight of a vinylpyridine with from 0 to 15 parts by weight of a polyvinyl compound, the said pyridine rings having available for substitution one or more of the positions 2, 4 and 6, said pyridine rings having substituent groups selected from the group consisting of 0 to 2 lower alkyl groups having 1 to 4 carbon atoms, which comprises reacting the water insoluble N-alkoxy quaternary inorganic salts of said polymer, in which the N-alkoxy groups have 1 to 4 carbon atoms, with an alkali metal cyanide ion at a temperature of from —10° C. to 100° C.

10. A process for the preparation of amphoteric ion exchange resins having weakly basic groups and carboxyl groups which comprises
(A) preparing a copolymer by free radical polymerizing
(I) 85 to 100 parts by weight of a vinylpyridine having at least one of the 2, 4 and 6 positions available for substitution, with
(II) 0 to 15 parts by weight of a polyvinyl compound,
(B) preparing the N-oxide of the copolymer by reacting with hydrogen peroxide,
(C) quaternizing the N-oxide by reacting it with an alkylating agent selected from the group consisting of alkyl halides and dialkyl sulfates,
(D) reacting the resultant quaternary with a compound which provides alkali metal cyanide ion,
(E) isolating the resultant copolymer containing cyano groups, and
(F) hydrolyzing the cyano groups to form carboxyl groups.
14. Polyvinylpyridine carboxylic acid polymers.

3,320,187
EPOXY RESIN FOAMING PROCESS
Samuel L. Burt, Huntsville, Ala., assignor to the United States of America as represented by the Secretary of the Army
No Drawing. Filed June 27, 1962, Ser. No. 206,549
19 Claims. (Cl. 260—2.5)

1. The process for making, stable, foamed-in-place resins which comprises:
(a) mixing a liquid epoxy phenolic ether resin with an organic amine curing agent for said resin and an amine carbamate salt thereby forming a mixture, said salt being the reaction product of an organic amine that is a curing agent for said resin with carbon dioxide, said mixture comprising a ratio of 1 to 5 parts by weight of amine curing agent and 5 to 15 parts by weight of amine carbamate salt for every 100 parts by weight of said resin;
(b) elevating the temperature of said mixture to the decomposition temperature of said salt and thereafter allowing the carbon dioxide evolved by said decomposition to expand said resin while said organic amine simultaneously released by said decomposition completes the cure of said resin.

3,320,188
PROCESS FOR PREPARING MULTICELLULAR BODIES
Louis Dijkema, The Hague, Netherlands, assignor to Stamicarbon N.V., Heerlen, Netherlands
No Drawing. Filed Dec. 3, 1962, Ser. No. 241,497
Claims priority, application Netherlands, Dec. 5, 1961, 272,191
25 Claims. (Cl. 260—2.5)

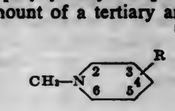
1. A process for preparing multicellular synthetic thermoplastic bodies comprising forming a melt of a synthetic thermoplastic polymer containing a blowing agent and a wax, in a finely divided state, having a higher solidification point than the thermoplastic polymer; and introducing the melt into a zone of lower pressure to solidify and expand said polymer and form a multicellular body.

3,320,189
FOAMABLE POLYMER COMPOSITIONS WHEREIN THE BLOWING AGENT IS THE REACTION PRODUCT OF AN AZODICARBOXYLATE AND AN AMINE
George E. Ham, Leawood, Kans., assignor, by mesne assignments, to Gulf Oil Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
No Drawing. Original application Sept. 4, 1962, Ser. No. 221,351, now Patent No. 3,244,692, dated Apr. 5, 1966. Divided and this application Apr. 9, 1965, Ser. No. 457,889
7 Claims. (Cl. 260—2.5)

1. A foamable polymer composition comprising a thermoplastic polymer and a product obtained by reacting in solution a lower alkyl azodicarboxylate and an amine selected from the group consisting of lower alkylenediamine, piperazine and p-phenylenediamine at a reaction temperature below that at which decomposition occurs with evolution of gas, said product being present in an amount effective to foam said polymer.

3,320,190
POLYURETHANES PREPARATION UTILIZING PIPERIDINE COMPOUNDS AS CATALYSTS
Dennis Charlton Allport, George Albert Gamlen, and John Anthony Corran, Runcorn, and David Crawford Eaton and Harry James Twitchett, Manchester, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain
No Drawing. Filed Jan. 27, 1966, Ser. No. 523,269
Claims priority, application Great Britain, Feb. 3, 1965, 4,682/65
7 Claims. (Cl. 260—2.5)

1. A process for the manufacture of polyurethane materials which comprises reacting an organic polyisocyanate with an organic polyhydroxy compound in the presence of a catalytic amount of a tertiary amine of the general formula:



wherein R, which is attached to a carbon atom in the 3 or 4 position, represents a 2'-, 3'- or 4'-pyridyl or a 1'-methyl-2'-, 1'-methyl-3'- or 1'-methyl-4'-piperidyl radical.

3,320,191
SUB COATINGS FOR BONDING PHOTOGRAPHIC EMULSIONS TO RESINOUS SUPPORTS
George R. Secrist, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Original application Jan. 5, 1961, Ser. No. 80,759, now Patent No. 3,212,897, dated Oct. 19, 1965. Divided and this application May 24, 1965, Ser. No. 458,393
2 Claims. (Cl. 260—8)

1. An aqueous composition for thermoplastic resinous surfaces consisting essentially of 55–65% by weight polystyrene resin latex, 15–25% by weight casein, and 15–25% by weight gelatin, solids basis.

3,320,192
AMINOPLAST MOLDING COMPOUNDS CONTAINING ZINC SULFITE
Joel Ostrowicz, Alagoas 475, Sao Paulo, Brazil
No Drawing. Filed Aug. 1, 1962, Ser. No. 213,904
8 Claims. (Cl. 260—17.3)

1. An aminoplast resin molding composition comprising a urea-melamine-formaldehyde resin, the ratio of urea to melamine in said resin being from 1:10 to 2:1, a filler,

a colorant, a stabilizer and an accelerator comprising a zinc compound consisting of zinc sulfite of the formula $ZnSO_3$ in an amount of from 0.6 to about 1.2 weight percent, based on the weight of said composition on a dry basis.

2. A process for the production of an aminoplast molding compound which comprises densifying to a bulk factor of about 2.5 a composition comprising a urea-melamine-formaldehyde resin, a filler, a colorant, a stabilizer, and from 0.6 to 1.2 weight percent, based on the weight of said composition on a dry basis of an accelerator comprising a zinc compound consisting of zinc sulfite of the formula $ZnSO_3$ about 8 to about 12% of water based on the weight of said composition, by passing said composition through the nip of differentially heated pressure rolls so as to form a homogeneous, firm sheet on the cooler roll, said cooler roll being maintained at a temperature about 20° C. below the temperature of the other roll, said other roll being maintained at a temperature from 75° to about 85° C., and subsequently processing said sheet to form a molding compound of desired particle size.

3,320,193

HARDENING OF EPOXY COMPOUNDS WITH TRISUBSTITUTED TRIETHANOL - AMINE TITANATES

Hans J. Beck and Karl W. Schmidt, Hamburg, and Gunther Weigel, Hamburg-Wandsbek, Germany, assignors to Dr. Beck & Co., G.m.b.H., Eiselensweg, Germany

No Drawing. Filed Jan. 21, 1963, Ser. No. 252,608

Claims priority, application Germany, Jan. 22, 1962, B 65,608

10 Claims. (Cl. 260—18)

5. In the method of hardening an epoxy compound by heating the same at a temperature between 40 and 200° C., the improvement which comprises using as a hardening agent a solution of a trisubstituted-amine-titanate of the formula:



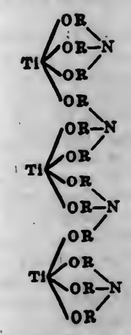
wherein R is alkyl of up to 8 carbon atoms dissolved in a solvent therefor which is also a modifying agent for said epoxy compound and being selected from the group consisting of alcohols, hydroxyl group-containing mono- and polyethers, saturated and unsaturated drying oils and non-drying oils, phenol fatty acids, trialkylphosphites and triarylphosphites, said trisubstituted-amine-titanate being present in an amount equal to between about 5 and 50% of the weight of said epoxy compound, whereby the epoxy compound can be hardened to a from hard to highly elastic, unmeltable and insoluable resin.

6. In the method of hardening an epoxy compound by heating the same, the improvement which comprises using as a hardening agent a trisubstituted-amine-titanate of the formula:



wherein R is alkyl of up to 8 carbon atoms along with a poly-amine hardening agent, whereby the epoxy compound can be hardened to a from hard to highly elastic, unmeltable and insoluble resin.

8. In the method of hardening an epoxy compound by heating the same, the improvement which comprises hardening an epoxy compound selected from the group consisting of the reaction product of a polycarboxylic acid with epichlorohydrin, the reaction product of a polycarboxylic acid with dichlorohydrin, epoxidized diolefins, epoxidized dienes, epoxidized diolefinic unsaturated carboxylic acid esters, the reaction product of a polyvalent alcohol with epichlorohydrin, the reaction product of a polyvalent alcohol with dichlorohydrin, the reaction product of a polyvalent phenol with epichlorohydrin, the reaction product of a polyvalent phenol with dichlorohydrin, the alkaline condensation product of a primary aromatic amine with epichlorohydrin and the alkaline condensation product of a secondary aromatic amine with epichlorohydrin using as a hardening agent a trisubstituted-amine-titanate of the formula:



wherein R is alkyl of up to 8 carbon atoms as the hardening agent, whereby the epoxy compound can be hardened to a from hard to highly elastic, unmeltable and insoluble resin.

3,320,194

CURING EPOXIDIZED RESINS AND PHENOLIC ESTER MODIFYING COMPOSITIONS THEREFOR

Arthur C. Hecker Forest Hills, N.Y., Mark W. Pollock, Teaneck, N.J., and Donald Bachrach, Brooklyn, N.Y., assignors to Argus Chemical Corporation, a corporation of Delaware

No Drawing. Filed Feb. 17, 1966, Ser. No. 528,053

17 Claims. (Cl. 260—18)

1. In the process for curing a liquid epoxy resin having an epoxy equivalency greater than 1 with an epoxy resin curing agent, the improvement which comprises curing the said epoxy resin in the presence of a phenol ester having at least one phenolic hydroxyl group, the phenolic hydroxyl groups on the phenol being esterified with an organic hydrocarbon carboxylic acid having from one to about twenty-four carbon atoms per carboxylic acid group, the phenol having from one to about thirty carbon atoms per phenolic hydroxyl group.

6. A process in accordance with claim 1 in which the phenol ester is a tallate ester.

3,320,195

COATING COMPOSITIONS CONTAINING A TETRASUBSTITUTED GUANIDINE

Robert A. Braun, Newark, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Sept. 15, 1966, Ser. No. 579,529

10 Claims. (Cl. 260—23.5)

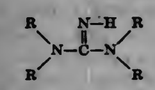
1. A liquid coating composition comprising

(A) at least one compound containing a plurality of 1,3-cyclic acetal radicals which bear vinyl or substituted vinyl radicals in their 2-positions;

(B) a metal drier;

and

(C) a compound represented by the formula



where R is

an alkyl radical of 1 through 8 carbon atoms,

an alkenyl radical of 3 through 10 carbon atoms, or

a cycloalkyl radical of 6 through 10 carbon atoms.

3,320,196

COATING COMPOSITION COMPRISING A TERPOLYMER, AN ALKALI SOLUBLE RESIN, AND A ZIRCONYL-FUGITIVE LIGAND COMPOUND

John R. Rogers, Racine, Wis., assignor to S. C. Johnson & Son, Inc., Racine, Wis.

Filed Aug. 30, 1965, Ser. No. 483,424

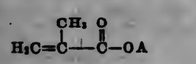
9 Claims. (Cl. 260—27)

1. A stable aqueous coating composition having a pH from greater than 7 to about 9 and a difference in optical density after seven days at about 51° C. of less than about 0.1 comprising:

A. an organic film former containing:

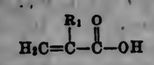
(1) a polyligand emulsion polymer having a minimum film forming temperature of less than about 80° C. consisting essentially of:

(a) from about 30% to about 80% by weight of a methacrylate monomer having the structural formula



wherein A is a saturated alkyl radical having from one to ten carbon atoms,

(b) from about 5% to about 10% by weight of a ligand-containing, polymerizable, ethylenically unsaturated monomer having the structural formula

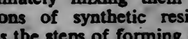


wherein R_1 is selected from the group consisting of a hydrogen atom and a methyl radical,

(c) from about 10% to about 60% by weight of a ligand-free, polymerizable, ethylenically unsaturated monomer which is free from methyl groups on the alpha carbon atom having the structural formula

$$CH_2{=}CH{-}X$$

wherein X is selected from the group consisting of aryl and alkaryl radicals and



radicals wherein A is as defined above,

(2) a resin cut containing:

(a) a low molecular weight, polyligand, alkali soluble resin having an acid number from about 140 to about 300, selected from the group consisting of rosin/maleic anhydride/polyol condensation resins having a number average molecular weight from about 600 to about 5,000 and styrene/acrylic acid resins having a number average molecular weight from about 2,000 to about 5,000 and

(b) an aqueous base, at least about 50% of the moles of which are comprised of ammonia,

B. a zirconyl-fugitive ligand complex which is capable of undergoing ligand transfer with ligands of the film former containing:

(1) a zirconyl ion,

(2) carbonate ions, and

(3) ammonium ions.

3,320,197

PROCESS OF PRODUCING CONCENTRATED AQUEOUS EMULSIONS OF WATER-INSOLUBLE SUBSTANCES AND EMULSIONS PRODUCED BY SUCH PROCESS

Heinz Enders, Stadtbergen, near Augsburg, and Hans Deiner, Augsburg, Germany, assignors to Chemische Fabrik Pfersee G.m.b.H., Augsburg, Germany, a firm of Germany

No Drawing. Filed Mar. 18, 1964, Ser. No. 352,969

Claims priority, application Germany, Mar. 26, 1963, C 29,477; Apr. 6, 1963, C 29,593

7 Claims. (Cl. 260—29.2)

1. The process of producing concentrated aqueous emulsions of organic or inorganic water-insoluble substances by intimately mixing them with concentrated aqueous solutions of synthetic resin pre-condensates, which comprises the steps of forming said pre-condensate by heating compounds selected from the class consisting of aliphatic and aromatic compounds containing epoxy groups with polyamines selected from the class consisting of aliphatic, cycloaliphatic and heterocyclic polyamines to yield said pre-condensates of a degree of condensation characterized by its ability to form in water clear to opalescent soluble condensation products, admixing said pre-condensates with water to form an aqueous solution thereof, bringing the solution of said products by a volatile acid to a pH of 5–7, and then emulsifying by intimately mixing 5–15 parts by weight of said water-insoluble substances with 1 part by weight of said condensation products.

3,320,198

LATEX PAINT CONTAINING BENZOPHENONE

Trevor B. Hill, Drexel Hill, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Jan. 28, 1963, Ser. No. 254,440

7 Claims. (Cl. 260—29.6)

1. As a novel latex paint, an aqueous dispersion of a water-insoluble acrylic interpolymer, pigment, and about

0.3 to 10% of benzophenone based on the dry weight of said interpolymer, the paint having a pigment volume concentration of about 10 to 50%, and said interpolymer being composed of polymerized units of the monomers

(A) an alpha, beta-unsaturated mono-olefinic carboxylic acid,

(B) a soft-unit monomer selected from the group consisting of (1) esters of acrylic acid and a primary alkanol of 1 to 18 carbon atoms, (2) esters of acrylic acid and a secondary alcohol of 1 to 18 carbon atoms, (3) esters of methacrylic acid and a primary alkanol of 5 to 18 carbon atoms, and (4) esters of methacrylic acid and a secondary alkanol of 5 to 18 carbon atoms, and

(C) a hard-unit monomer selected from the group consisting of (1) alkyl methacrylates in which the alkyl group has 1 to 4 carbon atoms, (2) tert-amyl methacrylate, (3) tert-butyl acrylate, (4) tert-amyl acrylate, (5) cyclohexyl acrylate, and (6) cyclohexylate,

the weight of A being about 0.3 to 4% of the combined weight of A, B and C, and B:C weight ratio being about from 90:10 to 10:90.

3,320,199

AQUEOUS EMULSIONS OF VINYL ACETATE-VINYL SULFONIC ACID COPOLYMERS, AND METHOD OF PREPARATION

Julius J. Breziński, St. Albans, and Howard M. Rife, Charleston, W. Va., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Continuation of application Ser. No. 5,369, Jan. 29, 1960. This application Dec. 21, 1964, Ser. No. 420,140

25 Claims. (Cl. 260—29.6)

1. A mixture suitable for use in the preparation of high-gloss water-based paints consisting of:

(a) from 49.5 percent by weight to 56.5 percent by weight of vinyl acetate;

(b) from 0.2 percent by weight to 0.4 percent by weight of a compound selected from the group consisting of alkali metal and ammonium salts of vinyl sulfonic acid;

(c) from 0.25 percent by weight to 0.40 percent by weight of a compound selected from the group consisting of alkali metal and ammonium alkyl sulfate salts wherein the alkyl radicals each contain from 10 to 18 carbon atoms;

(d) from 0.7 percent by weight to 1.5 percent by weight of a polyalkylene glycol ether selected from the group consisting of: polyalkylene glycol ethers represented by the general formula

$$HO—(CH_2CH_2O)_m—(CH_2CH(CH_3)O)_n—(CH_2CH_2O)_o—H$$

wherein *m*, *n* and *o* are whole integers having a value sufficient to impart an average molecular weight of from 2000 to 3500 to the polyalkylene glycol ether, there being from 20 percent by weight to 80 percent by weight of —CH_2CH_2O— radicals present in said polyalkylene glycol ether; polyalkylene glycol ethers represented by the general formula

$$RO—(CH_2CH(CH_3)O)_p—(CH_2CH_2O)_q—H$$

wherein R represents an alkyl radical having from 1 to 8 carbon atoms, and *p* and *q* are whole integers having a value sufficient to impart an average molecular weight of from 2000 to 3500 to the polyalkylene glycol ether, there being from 20 percent by weight to 80 percent by weight of —CH_2CH_2O— radicals present in said polyalkylene glycol ether; and polyalkylene glycol ethers represented by the general formula

$$RO—Z—(CH_2CH_2O)_r—H$$

wherein R represents an alkyl radical having from 1 to 8 carbon atoms, Z represents a combination of —CH_2CH_2O— and —$CH_2CH(CH_3)O$— radicals containing from 2 percent by weight to 5 percent by weight of —CH_2CH_2O— radicals, and *r* is a whole integer, there being a sufficient number of —CH_2CH_2O— and —$CH_2CH(CH_3)O$— radicals present to impart an average molecular weight of from 2000 to 3500 to the polyalkylene glycol ether, and there being from 20 percent by weight to 80 percent by weight of —CH_2CH_2O— radicals present in said polyalkylene glycol ether;

(e) from 0.05 percent by weight to 0.3 percent by weight of a water-soluble vinyl polymerization catalyst; and

(f) from 41.0 percent by weight to 48.0 percent by weight of water.

3,320,200

POLYVINYL ALCOHOL ADHESIVES CONTAINING BORIC ACID AND HEXAMETHYLENETETRAMINE OR TRIETHYLENEDIAMINE AS ADDITIVE TO IMPART QUICK TACK

Thomas G. Kane, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Mar. 1, 1965, Ser. No. 436,276

6 Claims. (Cl. 260—29.6)

1. A dry mixture adapted to form an adhesive, said mixture comprising polyvinyl alcohol, 1 to 7% boric acid based upon the weight of said polyvinyl alcohol, and, based upon said boric acid, 0.7 to 12% of a compound of the group consisting of hexamethylenetetramine, triethylenediamine and mixtures thereof.

3,320,201

PROCESS FOR PEPTISING SULPHUR MODIFIED CHLOROPRENE LATEX

Anthony Archibald Sparks, Epsom Downs, and Robert Charles Moore, Sutton, England, assignors to The Distillers Company Limited, Edinburgh, Scotland, a British company

No Drawing. Filed June 4, 1964, Ser. No. 372,663

14 Claims. (Cl. 260—29.7)

14. A process for the peptisation of a sulphur modified polychloroprene latex which comprises peptising a sulphur modified polychloroprene latex with a peptising agent selected from the group consisting of tetra ethyl thiuram disulphide and a mixture of tetra ethyl thiuram disulphide and a member selected from the group consisting of sodium hydroxide, sodium phosphate, diethylamine, dimethyl ammonium dimethyl dithiocarbamate, diethyl ammonium diethyl dithiocarbamate and sodium dimethyl dithiocarbamate in the presence of less than one percent by weight of added sodium formaldehyde sulphoxylate based on the weight of dry rubber in the latex.

3,320,202

POLYTRIMELLITAMIDE SOLUTIONS AND COATINGS THEREFROM

Benjamin A. Bolton and James R. Stephens, Gary, Ind., assignors to Standard Oil Company, Chicago, Ill., a corporation of Indiana

No Drawing. Filed Oct. 1, 1964, Ser. No. 400,890

12 Claims. (Cl. 260—30.2)

1. An aromatic polytrimellitamide solution suitable for producing solid, smooth, continuous coatings without blisters at baking temperatures of about 400° C., said solution comprising about 15 to 40 weight percent of said polytrimellitamide, an organic polar solvent selected from the group consisting of nitrogen-containing and sulfoxide-containing polar solvents boiling below about 220° C., and a nitrogen-containing organic boiling about 220–320° C.; wherein said co-solvent is present in an amount equal to about 5 to 40 weight percent of the solution.

3,320,203

SPRAYABLE POLYVINYL BUTYRAL WOOD PRIMER FOR POLYURETHANE OR POLYESTER FINISH

Morton D. Kellert, Longmeadow, Mass., a trustee, by mesne assignments, to Monsanto Company, a corporation of Delaware

No Drawing. Filed Apr. 1, 1963, Ser. No. 269,706

1 Claim. (Cl. 260—32.8)

A sprayable priming composition for polyester and polyurethane wood finishes consisting of the following formulation:

	Parts by weight
Polyvinyl butyral	7.0
Ethylene glycol monoethyl ether	9.3
Diacetone alcohol	4.7
n-Butyl alcohol	13.9
Proprietary ethyl alcohol (95%)	18.6
Xylene	27.9
Toluene	18.6
Total	100.0

wherein the polyvinyl butyral has a molecular weight range of 35,000 to 50,000, a polyvinyl alcohol content of 17.5 to 21%, a residual acetate content of less than 3.0%, and a 10% ethyl alcohol solution viscosity of 125 to 275 centipoises at 25° C.

3,320,204

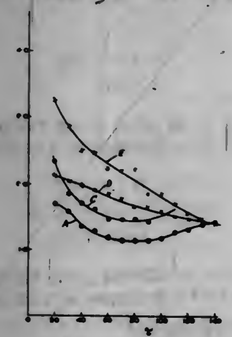
METHOD OF PREPARING A VULCANIZED SYNTHETIC RUBBER

Allan Frederick Blanchard, Sutton Coldfield, and Michael John Palmer, Cambridge, England, assignors to Dunlop Rubber Company Limited, London, England, a British company

Filed May 23, 1963, Ser. No. 282,761

Claims priority, application Great Britain, June 1, 1962, 21,144/62

13 Claims. (Cl. 260—33.6)



1. A method of preparing a vulcanizate of a synthetic rubber polymer having groups hydrolyzable to carboxylic groups prepared by polymerizing an ester of a 1,2-unsaturated carboxylic acid with butadiene, which comprises vulcanizing the rubber polymer in the presence of (a) a curing agent selected from the class consisting of sulfur curatives and organic peroxides, (b) lead monoxide or an oxide or hydroxide of calcium as supplementary curing agent, and (c) a non-acidic organic hydroxy compound.

3,320,205

METHOD OF MANUFACTURING SPINNING SOLUTIONS OF MIXED VINYL CHLORIDE AND ALPHA-METHYLSTYRENE POLYMERS

Kiyokazu Imai, Osamu Fukushima, and Sadamaru Miyazaki, Kurashiki, Japan, assignors to Kurashiki Rayon Company Limited, Kurashiki, Japan, a corporation of Japan

No Drawing. Filed June 27, 1963, Ser. No. 290,922

Claims priority, application Japan, July 28, 1962, 37/31,890

2 Claims. (Cl. 260—33.6)

1. A method of manufacturing spinning solutions which comprises solution polymerizing α-methylstyrene in an aromatic solvent, selected from the group consisting of benzene, toluene, styrene, ethylbenzene, cumene and halogenated derivatives thereof, then removing solvent to a polymer concentration of at least 20%, thereafter adding thereto polyvinyl chloride and a common solvent for the mixture of poly-α-methylstyrene and polyvinyl chloride.

3,320,206

VINYL FLUORIDE RESINS STABILIZED WITH MIXTURES OF THIODIALKANOIC ACID ESTERS AND ALIPHATIC POLYOL

Clifford A. Neros, Willoughby, Ohio, assignor to Diamond Alkali Company, Cleveland, Ohio, a corporation of Delaware

No Drawing. Filed May 25, 1964, Ser. No. 370,075

16 Claims. (Cl. 260—41)

1. A vinyl fluoride resinous composition comprising a major amount of a vinyl fluoride polymer containing at least 75% by weight of the total weight of the polymer of vinyl fluoride and a minor amount sufficient to improve stabilization of said polymer of a stabilizer comprising a mixture of a thiodialkanoic acid ester having the formula:

$$S(C_nH_{2n}COOR)_2$$

wherein *n* is an integer from about 1 to 8 and R is a hydrocarbon radical from about 6 to 20 carbon atoms and an aliphatic polyol having at least two to about eight alcoholic hydroxyl groups for each two to about fifteen carbon atoms said stabilizer being present in amounts from about 0.5 to 10 parts, by weight, based on 100 parts, by weight, of vinyl fluoride polymer, said ester and polyol being present in said composition in an ester to polyol ratio within the range of 0.25 to 4:1.

3,320,207

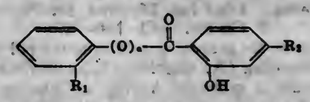
PROCESS FOR APPLYING ULTRAVIOLET ABSORBERS TO TEXTILE MATERIALS

Philip B. Roth, Somerville, N.J., Leonard B. Hallows, Lima, Peru, and William N. Nakajima, Somerville, N.J., assignors to American Cyanamid Company, New York, N.Y., a corporation of Maine

No Drawing. Filed Dec. 21, 1961, Ser. No. 161,275

10 Claims. (Cl. 260—45.95)

1. A method for the stabilization of nylon material which comprises applying thereto a stabilizing amount of a compound of the general structure:



wherein R_1 is selected from the group consisting of hydrogen and hydroxy, R_2 is selected from the group consisting of hydroxy and lower alkoxy and *n* represents an integer selected from the group consisting of 0 and 1; drying said treated material and subsequently dry heat treating the material within the range of from about 225° F. up to about 350° F. for a period of time sufficient to effect a non-uniform penetration of said compound into the body of said nylon material in an amount

sufficient to stabilize said material against the degrading effect of ultraviolet light, said period of time ranging from about 0.5 minute to about 5.0 minutes.

3,320,208
OXYALKYLATED CYCLIC RESINS

Franklin E. Mange, St. Louis, Mo., assignor to Petrolite Corporation, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Sept. 14, 1962, Ser. No. 223,800
9 Claims. (Cl. 260—47)

1. An oxyalkylated polymer containing m-dioxane units prepared by reacting

(I) the polymeric reaction product of
- (a) an unsaturated m-dioxane and
- (b) a member selected from the group consisting of
  - (1) a phenolic compound,
  - (2) a polyol, and
  - (3) a mixture of (1) and (2)

with

(II) an oxyalkylating agent, the ratio of number of moles of I to the number of moles of II being 1:1 to 1:1000.

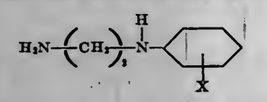
3,320,209
EPOXY RESINS

Bart J. Bremmer, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Oct. 11, 1962, Ser. No. 229,981
12 Claims. (Cl. 260—47)

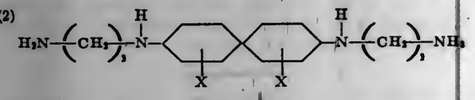
1. The epoxy resin composition prepared by epoxidizing terminal amino groups of a halogenated phenyldiamine selected from the class consisting of:

(1)



wherein x represents a total of 5 substituents, at least 2 of which are selected from the class consisting of Br and Cl and the balance is H, and

(2)



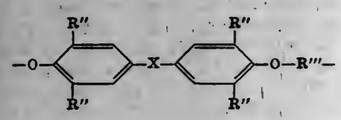
wherein each x represents a total of 4 substituents, at least 2 of which are selected from the class consisting of Br and Cl and the balance is H.

3,320,210
PROCESS FOR PREPARING CHLORINATED POLYCARBONATES AND POLYESTERS

John R. Caldwell and Winston J. Jackson, Jr., Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed Jan. 24, 1964, Ser. No. 339,887
9 Claims. (Cl. 260—47)

1. A process for preparing a chlorinated polyester, said process comprising (A) dissolving in a chlorinated hydrocarbon solvent a polyester having an inherent viscosity of at least 0.4 as measured in chloroform, and containing at least 10 percent of the recurring complex three-dimensional structural unit repreneted by the general formula:



wherein the several R'' may be the same or different and are members selected from the group consisting of hydrogen atoms, halogen atoms, and alkyl radicals containing from 1 to 4 carbon atoms, R''' is a member selected from the group consisting of (1) the residue of a dicarboxylic acid precursor having up to 40 carbon atoms and (2) a carbonyl group, X is a gem-bivalent radical having a saturated polycyclic three-dimensional structure which includes a saturated bicyclic atomic bridged hydrocarbon ring member, and (B) contacting the polyester with chlorine at a temperature of from about 0 to about 100° C. in the presence of a chlorination promoter selected from the group consisting of visible light, ultraviolet light and a free-radical catalyst.

3,320,211
POLYCARBONATES OF HYDROXY ETHYL ETHERS

William E. Bissinger, Akron, Franklin Strain, Barberton, and Henry C. Stevens and William R. Dial, Akron, Ohio, and Raymond S. Chisholm, Pittsburgh, Pa., assignors to Pittsburgh Plate Glass Company, Pittsburgh, Pa., a corporation of Pennsylvania

No Drawing. Continuation of applications Ser. No. 698,055, Nov. 22, 1957, Ser. No. 113,628, May 31, 1961, and Ser. No. 185,796, Apr. 9, 1962, now Patent No. 3,215,668, dated Nov. 2, 1965. This application Sept. 17, 1965, Ser. No. 488,286
3 Claims. (Cl. 260—47)

1. A polycarbonate of (*a*) carbonic acid, (*b*) diol selected from the group consisting of aliphatic dihydric alcohols containing esterifiable hydroxy groups and alkylidene bis phenols and (*c*) a bis hydroxy alkyl ether of an alkylidene bis phenol and monoepoxy cyclopentadiene.

3,320,212
α-SULFOCARBOXYLIC ESTERS OF OXYALKYLATED POLYPHENOLS

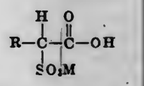
Kwan-Ting Shen and Patrick M. Quinlan, St. Louis, Mo., assignors to Petrolite Corporation, Wilmington, Del., a corporation of Delaware

No Drawing. Filed May 3, 1962, Ser. No. 192,087
9 Claims. (Cl. 260—49)

1. An ester formed by reacting

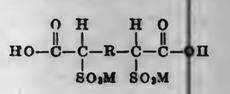
(I) an α-sulfocarboxylic acid selected from the group consisting of

(1)



wherein R is an alkyl group having 6–50 carbon atoms and M is hydrogen or a cation, and

(2)



wherein R is an alkylene group having 1–50 carbon atoms, and M is hydrogen or a cation,

with the reaction product of

(II) an oxyalkylated polyphenolic compound and

(III) an organic carboxylic acid selected from the group consisting of
- (1) an organic monocarboxylic acid,
- (2) an organic dicarboxylic acid, and
- (3) an organic tricarboxylic acid,

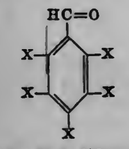
the ratio of the number of moles of (I) to the number of moles of (II) to the number of moles of (III) varying from 0.1:1:0 to 5.5:1:5.

3,320,213
SELF-EXTINGUISHING PHENOL-ALDEHYDE RESINS PREPARED BY REACTING PHENOL WITH HALOGEN-SUBSTITUTED AROMATIC ALDEHYDES

Harry A. Smith, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Jan. 27, 1964, Ser. No. 340,545
10 Claims. (Cl. 260—55)

1. A film-forming, self-extinguishing, resinous polymer obtained by heating, at reaction temperature between about 100° C. and the boiling point of the reactants, with evolution of water, a mixture of (a) a hydroxy aromatic compound having only aromatic unsaturation and only one hydroxy group attached directly to the aromatic ring and (b) a halogen-substituted aryl aldehyde of the formula:



wherein X is a radical selected from the group consisting of halogen, hydrogen, alkyl, aryl, arylalkyl, alkoxy, aroxy and nitro radicals, at least one X radical being halogen.

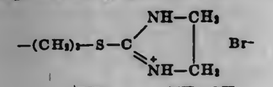
3,320,214
MODIFIED POLYMETHYLENE HAVING SIDE CHAINS SUBSTITUTED BY SULFUR CONTAINING GROUPS

Charles John Pedersen, Salem, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

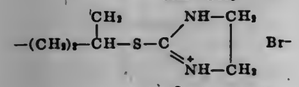
No Drawing. Filed Apr. 26, 1962, Ser. No. 190,260
13 Claims. (Cl. 260—66)

1. A chain-saturated ethylene copolymer comprising monomer units of (I) ethylene, (II) 5-bromo-1-pentene or 5-bromo-1-hexene units, (III) units of a non-conjugated hydrocarbon diene of from 6 to 22 carbon atoms, and (IV) units of a monomer of the formula $CH_2{=}CH{-}A$ wherein A is a side-chain radical selected from the group consisting of:

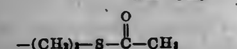
(a)



(b)



(c)

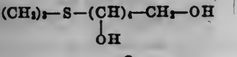


(d) $-(CH_2)_2-S-CH_2-CH_2-OH$

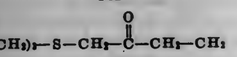
(e) $-(CH_2)_2-S-(n-C_{12}H_{25})$

(f) $-(CH_2)_2-S-C{\equiv}N$

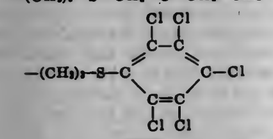
(g)



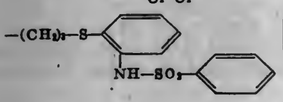
(h)



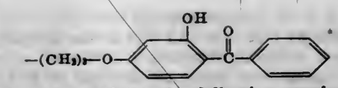
(i)



(j)



(k)



the copolymer containing the following number of side chains per 100 chain carbon atoms; up to about 1.7 side chains from the diene units (III), up to about 7 side chains from the bromine-containing monomer units (II), and about 2 to 8.2 side chains from the $CH_2{=}CH{-}A$ units (IV).

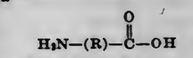
3,320,215
WATER-SOLUBLE NYLON-TYPE RESINS

John S. Conte, Ridley Park, and Robert W. Faessinger, Media, Pa., assignors to Scott Paper Company, Philadelphia, Pa., a corporation of Pennsylvania

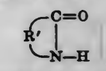
No Drawing. Filed Oct. 24, 1963, Ser. No. 318,493
13 Claims. (Cl. 260—78)

1. The method of preparing a water-soluble nylon-type resinous composition which comprises reacting:

(a) a compound selected from at least one member of the group consisting of amino-carboxylic acids of the formula



and lactams of the formula



wherein R is an aromatic group or an aliphatic hydrocarbon chain of from 1 to 18 carbon atoms and R' is an aliphatic hydrocarbon chain of from 3 to 18 carbon atoms in the interposed chain;

(b) a compound selected from at least one member of the group consisting of a dicarboxylic acid of the formula

$$HOOC{-}R''{-}COOH$$

wherein R'' is a divalent hydrocarbon radical selected from the group consisting of saturated and unsaturated aliphatic hydrocarbon radicals up to 20 carbon atoms, alicyclic hydrocarbon radicals, aromatic hydrocarbon radicals, and the esters and anhydrides of these acids;

(c) at least one polyalkylene polyamine compound of the formula

$$H_2N(R'''NH)_n{-}H$$

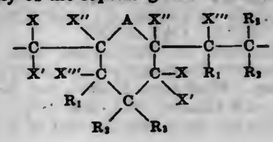
wherein R''' is an alkylene group of from 2 to 8 carbon atoms and n is an integer of from 2 to 5, the above (a), (b) and (c) components on mole basis in the reaction mixture being from about 0.1:1.0:0.9 to about 2.0:1.0:1.3 respectively; thereafter further reacting the obtained condensation product with about 0.5 to about 2.0 moles of epichlorohydrin or 1,3-dichloropropanol per mole of reactive amine groups.

3,320,216
SATURATED LINEAR COPOLYMERS

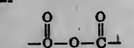
George B. Butler, Gainesville, Fla., assignor to Peninsular Chem Research, Inc., Gainesville, Fla., a corporation of Florida

No Drawing. Filed Mar. 2, 1965, Ser. No. 436,677
12 Claims. (Cl. 260—78.5)

1. Novel linear high molecular weight copolymers useful in forming molded or fiber or film articles consisting essentially of the repeating unit of the structure:

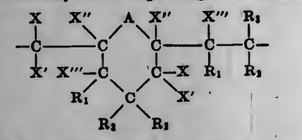


wherein A is an element selected from the group consisting of Groups IVa, Va, and VIa of the Periodic Table, said groups including elements 6, 7, and 8, respectively, the free valencies of which are satisfied by bonding to a radical selected from the group consisting of oxygen, hydrogen, lower alkyl, lower alkylene, cyano-lower alkyl, monocyclic aryl, carboxy-lower alkyl and halogen; wherein R_1 and R_2 are selected from the group consisting of hydrogen, lower alkyloxy, carboxy lower alkyl, nitrile and carboxyhalide, and together R_1 and R_2 represent when A stands for an element other than oxygen, the anhydride radical

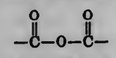


wherein R_3 stands for a member selected from the group consisting of hydrogen and lower alkyl; and wherein X, X', X'', and X''' are selected from the group consisting of hydrogen, lower alkyl, monocyclic aryl, nitrile, halogen, and carboxy-lower alkyl.

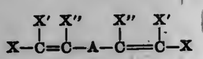
7. A process for the preparation of linear copolymers consisting essentially of the repeating unit of the structure:



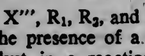
wherein A is an element selected from the group consisting of Groups IVa, Va, and VIa of the Periodic Table, the free valencies of which are attached to a radical selected from the group consisting of oxygen, hydrogen, lower alkyl, lower alkylene, cyano-lower alkyl, monocyclic aryl, carboxy-lower alkyl and halogen; wherein R_1 and R_2 are selected from the group consisting of hydrogen, lower alkyloxy, carboxy lower alkyl, nitrile and carboxyhalide, and together R_1 and R_2 represent, when A stands for an element other than oxygen, the anhydride radical



wherein R_3 stands for a member selected from the group consisting of hydrogen and lower alkyl; and wherein X, X', X'', and X''' are selected from tthe group consisting of hydrogen, lower alkyl, monocyclic aryl, nitrile, halogen, and carboxy-lower alkyl, which comprises copolymerizing approximately 1 molar part of a 1:4-diene monomer of the formula



with approximately 2 molar parts of a monoolefin monomer having the formula



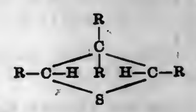
where X, X', X'', X''', R_1, R_2, and R_3 have the definitions stated above in the presence of a catalytic amount of a free radical catalyst in a reaction medium, at a total monomer concentration of at least about 15%, by weight, of the total ingredients, and at a temperature above 0° C. and below the decomposition of said monomers for a necessary period of time of at least one hour.

3,320,217
NOVEL POLYMER AND METHOD OF OBTAINING THE SAME BY POLYMERIZATION OF A TRIMETHYLENE SULFIDE IN PRESENCE OF AN ALKALI METAL CATALYST

James T. Edmonds, Jr., Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

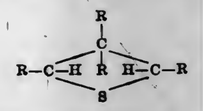
No Drawing. Filed Nov. 5, 1963, Ser. No. 321,421
12 Claims. (Cl. 260—79)

1. A process for the polymerization of at least one of trimethylene sulfide and a substituted trimethylene sulfide having the following structural characteristics



wherein each R is selected from the group of alkyl, aryl, cycloalkyl radicals, and combinations of said radicals, which comprises subjecting the same to the polymerizing action of an alkali metal polymerization catalyst.

11. A polymer obtained by polymerizing in the presence of an alkali metal polymerization catalyst at least one of trimethylene sulfide and a substituted trimethylene sulfide having the following structural characteristics



wherein each R is selected from the group of alkyl, aryl and cycloalkyl radicals, and combinations of said radicals.

3,320,218
CROSS-LINKED SULFONATED ALIPHATIC HYDROCARBON POLYMERS

Charles A. Levine, Concord, Calif., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Apr. 5, 1963, Ser. No. 270,801
13 Claims. (Cl. 260—79.3)

1. Process for preparing a sulfonated hydrocarbon polymer containing sulfone cross-linkages by swelling a solid aliphatic hydrocarbon polymer with a liquid halogenated hydrocarbon swelling agent, sulfonating the swollen polymer with an inorganic sulfur-containing acidic sulfonating agent, recovering a sulfonated polymer having predominately sulfonic acid groups on the polymer chains thereof, and heating at a temperature in the range from about 60° to about 400° C. such sulfonated polymer causing further reaction of some of the sulfonic acid groups and forming sulfone cross-linkages in the resulting product.

3,320,219
VULCANIZATION PROCESS

Alan Dibbo, Chalfont St. Peter, England, and Ernest Bryson McCall, Llangollen, Wales, assignors to Monsanto Chemicals Limited, London, England, a British company

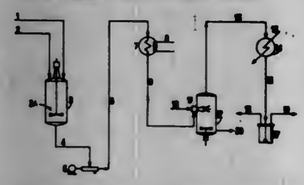
No Drawing. Filed Aug. 1, 1963, Ser. No. 299,150
Claims priority, application Great Britain, Aug. 9, 1962, 30,550/62
9 Claims. (Cl. 260—79.5)

1. A process for the vulcanization of a sulfur-vulcanizable rubber, in which an accelerating amount of a 3,3' or 4,4'-methylenebis(aliphatic-oxyaniline) wherein the aliphatic radical is selected from a group consisting of alkyl of 1–10 carbon atoms, lower alkenyl, lower alkoxyalkyl, cyclohexyl and benzyl and wherein the nitrogen valences are satisfied by a member of the group consisting of hydrogen, alkyl of 1–10 carbon atoms, cyclohexyl, benzyl, lower alkoxyalkyl and saturated divalent radicals which with the nitrogen constitute a heterocyclic ring containing at least five but not more than six ring members, is incorporated in the rubber together with a sulfur vulcanizing agent, and the mixture heated to effect vulcanization.

3,320,220
PROCESS FOR SEPARATING ELASTOMERIC HOMOPOLYMERS AND COPOLYMERS FROM SOLUTIONS THEREOF

Giovanni Di Drusco, Bologna, and Arturo Colamussi, Ferrara, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

Filed Mar. 20, 1964, Ser. No. 353,392
Claims priority, application Italy, Mar. 21, 1963, 5,764/63
4 Claims. (Cl. 260—80.5)



1. A process for separating elastomers selected from the group consisting of elastomeric olefin homopolymers and elastomeric olefin copolymers from solutions thereof, which comprises emulsifying the solution with from about 20% to about 80% by weight of the resulting emulsion of water, heating the aqueous emulsion to a temperature of at least about 100° C., and spraying the heated aqueous emulsion, together with superheated steam, into a body of continuously agitated warm water to evaporate the solvent and precipitate the polymer in the form of fine particles which are dispersed in the water.

3,320,221
METHOD OF PRODUCING ACRYLONITRILE COPOLYMERS

Marvin Wishman, White Plains, N.Y., Richard E. Anderson, Plainfield, N.J., Frederic Detoro, Pensacola, Fla., and Peter Jarovitzky, Astoria, N.Y., assignors to American Cyanamid Company, New York, N.Y., a corporation of Maine

No Drawing. Filed Nov. 24, 1961, Ser. No. 154,839
5 Claims. (Cl. 260—85.5)

1. In a continuous method of preparing a polymer of polymerizable monomeric material comprising a major proportion by weight of acrylonitrile and a minor proportion by weight of at least one other ethylenically unsaturated material which is copolymerizable with acrylonitrile and which includes a vinyl-substituted heterocyclic tertiary amine, and wherein the said monomeric material is continuously polymerized in an aqueous acidic medium with the aid of a water-soluble polymerization catalyst, the improvement which comprises continuously carrying out the said polymerization in two stages which include (1) polymerization in a first zone wherein the concentration of said monomeric material in the aqueous acidic medium at the reaction temperature is such that all of the monomeric material charged to said zone is in solution in the said aqueous acidic medium and is within the range of, by weight, from about 1% to about 10% of the said aqueous medium, the residence time in the first zone of the charge thereto being from about 1 minute to about 10 minutes, and (2) polymerization in a main reaction zone that continuously receives the reaction mass from the first zone, as well as additional monomeric material to be polymerized that was not charged to the first zone, the total weight of polymerizable monomeric material charged to the main reaction zone being between about 15% and about 50% of the total material charged to the first and main reaction zones, the residence time in the main reaction zone being within the range of from about ½ to 2 hours; reaction conditions in each of said first zone and said main reaction zone being different to produce polymer of substantially uniform composition and substantially uniform molecular weight.

3,320,222
COPOLYMERS OF ETHYLENE AND 2-HYDROXYMETHYL-5-NORBORNENE

Saul M. Cohen, Springfield, Mass., assignor, by mesne assignments, to Monsanto Company, a corporation of Delaware

No Drawing. Filed Oct. 28, 1963, Ser. No. 319,526
3 Claims. (Cl. 260—88.1)

1. A copolymer of 2-hydroxymethyl-5-norbornene and ethylene in which the weight content of 2-hydroxymethyl-5-norbornene units is within the range of about 10 to 25% by weight.

3,320,223
RECOVERY OF α-OLEFIN POLYMERS FROM POLYMERIZATION REACTION PRODUCT

Donald E. Moore, Coleman, and Aaron E. Prout, Rosebush, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed July 5, 1962, Ser. No. 207,772
5 Claims. (Cl. 260—88.2)

1. A process for the recovery of α-olefin polymers from their polymerization reaction mixture in organic solvents and containing an organometallic polymerization catalyst mixture of an alkyl aluminum compound and a compound of a metal selected from the class consisting of metals of Groups IV–B, V–B and VI–B of the Periodic System of the Elements by forming an emulsion comprising the polymerization mixture containing the polymer, organometallic catalyst, organic solvent, water and an emulsifying agent; mixing such emulsion with a ketone which is at least partially soluble in water to precipitate the polymer from the emulsion; and separating the polymer therefrom.

3,320,224
POLYMERIZATION CATALYST SYSTEM AND PROCESS

William J. Raich, Midland, and Maurice R. Peacock, Wheeler, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

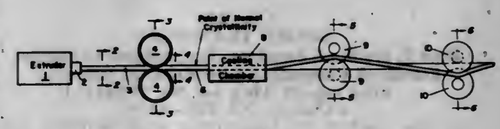
No Drawing. Filed Jan. 27, 1964, Ser. No. 340,536
8 Claims. (Cl. 260—93.7)

1. A process for the polymerization of propylene, which comprises effecting the polymerization in an inert hydrocarbon liquid and in the presence of a catalyst system consisting essentially of (a) a trialkylaluminum, (b) a titanium trichloride, and (c) a dialkylaluminum cyclopentadiene, the molar ratio of said dialkylaluminum cyclopentadiene compound to titanium trichloride being within the range of 0.01:1 to 0.5:1.

3,320,225
METHOD FOR MANUFACTURING A PLASTIC HINGE

Roy Bradbury, Morrisville, Pa., assignor to The Electric Storage Battery Company, a corporation of New Jersey

Filed Feb. 8, 1965, Ser. No. 430,870
8 Claims. (Cl. 260—93.7)



1. A method for manufacturing a plastic hinge which comprises feeding an olefin polymer material into an extruder, forcing the olefin polymer material through an extrusion die to form an extrudate, passing the hot and soft extrudate between a pair of continuous pressure rolls, at least one of said continuous pressure rolls having a groove forming projection which compresses the extrudate and reorients the molecular chains across the

line of extrusion by permanently forming a groove in the extrudate, said pressure rolls contacting the extrudate at a temperature above its crystalline melting point, substantially immediately after reorientation cooling the extrudate to a temperature below its crystalline melting point to lock in the reorientation, and recovering an extruded olefin polymer strip material having a groove formed in the central portion thereof on at least one side of said olefin polymer strip material which has sufficient flexural strength to be useful as a hinge.

3,320,226

DYE-RECEPTIVE POLYOLEFIN FIBERS CONTAINING SATURATED, UNSUBSTITUTED DICARBOXYLIC ACID OR ACID ANHYDRIDE

Vittorio Cappuccio, Terni, and Ubaldo Riboni, Turin, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Filed Apr. 26, 1966, Ser. No. 545,252
2 Claims. (Cl. 260—93.7)

1. A fiber having improved dye receptivity, said fiber having been prepared by intimately mixing polypropylene and a compound selected from the group consisting of saturated, unsubstituted dicarboxylic acids and saturated, unsubstituted dicarboxylic acid anhydrides, and extruding the resulting mixture to form a fiber.

3,320,227

CATALYST FOR THE POLYMERIZATION OF OLEFINS CONSISTING OF TIN OR LEAD TETRAHYDROCARBYLS, A TRANSITION METAL HALIDE, A HALIDE OF A METAL SELECTED FROM THE THIRD AND FIFTH GROUPS AND AN ETHER

Félix Bloyaert and Henri Toussaint, Brussels, Belgium, assignors to Solvay & Cie., Societe en commandite, a simple of the Kingdom of Belgium

No Drawing. Filed July 1, 1963, Ser. No. 292,069
Claims priority, application Belgium, Oct. 22, 1962, 623,911
8 Claims. (Cl. 260—94.9)

1. In a process for the polymerization of olefins having from 2 to 4 carbon atoms in the presence of a catalyst obtained by commingling (*a*) a material selected from the group consisting of tetraalkyls of tin, tetraaryls of tin, tetraalkyls of lead and tetraaryls of lead containing up to 40 carbon atoms per molecule, (*b*) a halide of a metal selected from the group consisting of titanium, vanadium, chromium, molybdenum and tungsten, and (*c*) a halide of an element selected from the group consisting of aluminum, antimony and boron, wherein all valences of said element are satisfied by halogen, the improvement which comprises conducting the polymerization in the presence of a minor amount of an ether, selected from the group consisting of saturated aliphatic, saturated cyclic and aromatic ethers having up to 12 carbon atoms per molecule, and thus modifying the molecular weight distribution of the polymer obtained.

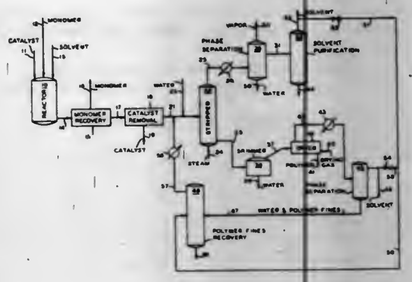
3,320,228

SOLIDS TRANSFER

Dale E. Bradford, Pasadena, Tex., assignor to Phillips Petroleum Company, a corporation of Delaware

Filed July 23, 1963, Ser. No. 297,055
5 Claims. (Cl. 260—94.9)

1. The method of transferring solid particles suspended in a first liquid into a second liquid which is substantially immiscible with the first liquid and which has a lower density than the first liquid, said particles having a lower density than the first liquid, which comprises positioning quantities of the first and second liquids in a confined zone to form separate phases, agitating the second liquid phase to entrain solid particles therein, and introducing additional first liquid containing such solid particles suspended therein into said zone in sufficiently close proximity to the interface between the two liquids



so that the solid particles accumulate at the interface and are then entrained by the agitated second liquid.

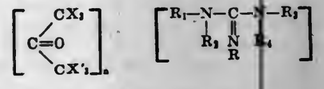
3,320,229

COMPLEXES OF GUANIDINES WITH COMPLETELY HALOGENATED ACETONES

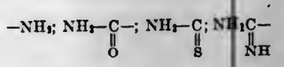
Karoly Szabo, Pleasantville, N.Y., and Ashley H. Freiberg, Santa Clara, Calif., assignors to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Aug. 26, 1963, Ser. No. 304,607
18 Claims. (Cl. 260—96.5)

1. A guanidine complex of completely halogenated acetone having the following formula



wherein the substituents R, R_1, R_2, R_3 and R_4 are each selected from the class consisting of hydrogen, an alkyl radical of from 1 to 20 carbon atoms; a cycloalkyl radical of from 5 to 6 carbon atoms; phenyl; benzyl; phenethyl; naphthyl; substituted-phenyl wherein said substituents are selected from the group consisting of chlorine, fluorine, bromine, lower alkyl, lower alkoxy and lower dialkylamino;



and —CN; the number of non-hydrocarbon R groups attached to the same nitrogen atom does not exceed 1; X and X^1 are selected from the group consisting of chlorine and fluorine, there always being at least 3 fluorines present, and *n* is an integer of from 1 to 2.

3,320,230

PROCESS FOR SEPARATING CARBOXYLIC ACIDS

Edward James Bennett, Newark, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Apr. 26, 1963, Ser. No. 276,073
3 Claims. (Cl. 260—419)

1. A process for separating at least one member of class (A) consisting of monocarboxylic acids having up to 18 carbon atoms and selected from the group consisting of alkane, alkene, haloalkane and haloalkene from a mixture containing said monocarboxylic acid of (A) and at least one organic acid of class (B) having up to 6 carbon atoms and selected from the group consisting of hydroxyaliphatic monocarboxylic acid, aminoaliphatic monocarboxylic acid, ketoaliphatic monocarboxylic acid and sulfoaliphatic monocarboxylic acid, which process comprises treating said mixture with a liquid halofluoroalkane selected from the group consisting of 1,1,2-trichloro-1,2,2-trifluoroethane, monofluorotrichloromethane, 1,2-dichlorotetrafluoroethane, monofluorodichloromethane, monochlorodifluoromethane and 1,2-dibromotetrafluoroethane, then separating said halofluoroalkane containing the dissolved monocarboxylic acid of class (A) from the undissolved substituted monocarboxylic acid of class (B) and recovering said monocarboxylic acid of class (A) from said halofluoroalkane.

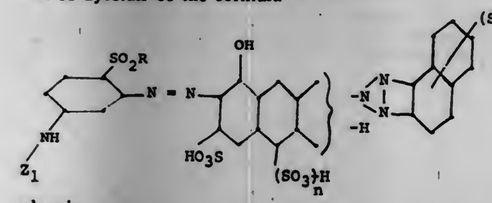
3,320,231

REACTIVE MONOAZO DYESTUFFS CONTAINING A NAPHTHYLTRIAZOLYL GROUP

Jurg Ammann, Basel, and Werner Bossard, Riehen, Switzerland, assignors to J. R. Geigy A.-G., Basel, Switzerland

No Drawing. Filed Oct. 22, 1963, Ser. No. 318,096
Claims priority, application Switzerland, Oct. 25, 1962, 12,537/62
11 Claims. (Cl. 260—153)

1. A dyestuff of the formula



wherein

n is one of the integers 0 and 1,

p is an integer ranging from 0 to 3, the sum of $n+p$ ranging from 1 to 3,

R is a member selected from the group consisting of hydroxy and lower alkyl, and

Z_1 is a fiber-reactive dyestuff substituent containing at least one mobile halogen atom of an atomic number ranging from 9 to 35.

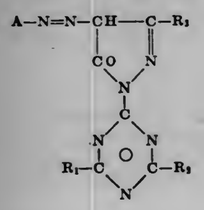
3,320,232

DISPERSIBLE MONO AZO DYES

Hans E. Wegmüller and Werner Bossard, Riehen, Switzerland, assignors to J. R. Geigy, A.-G., Basel, Switzerland

No Drawing. Filed Feb. 7, 1964, Ser. No. 343,202
Claims priority, application Switzerland, Feb. 15, 1963, 1,904/63, 1,905/63
5 Claims. (Cl. 260—153)

1. A yellow to orange metal-free monoazo dye-stuff free from groups dissociating acid in water and from sulfonic acid amide, carbonic acid amide and aryloxy-sulfonyl radicals, which dyestuff is of the formula



wherein

A represents an azo dyestuff diazo component radical selected from the group consisting of a benzene diazo component, a naphthalene diazo component, a thiazole diazo component and a benzothiazole diazo component,

R_1 is a member selected from the group consisting of $-NH_2$, N-alkyl-amino wherein "alkyl" is of from 1 to 6 carbon atoms, N-hydroxy-alkylamino wherein "alkyl" is of from 2 to 6 carbon atoms, N-lower alkoxy-alkylamino wherein alkyl is of from 2 to 4 carbon atoms, β-cyanoethyl amino, N,N-di-alkyl-amino, N,N-bis-(hydroxy-alkyl)-amino wherein each alkyl is of from 2 to 3 carbon atoms, N-alkyl-N-hydroxy-alkyl-amino wherein "hydroxy-alkyl" is of from 2 to 3 carbon atoms, N-alkyl-N-alkoxy-alkyl-amino wherein the last-mentioned alkyl is of from 2 to 3 carbon atoms, N,N-bis-(β-cyano-ethyl)-amino, piperidinyl-(1), morpholinyl-(1), alkoxy of from 1 to 6 carbon atoms, chloro- and bromo-alkoxy, alkoxy-alkoxy, cyano-alkoxy, the four latter members having from 2 to 4 carbon atoms in the alkoxymoiety linked to the triazinyl nucleus, and alkylthio of from 1 to 6 carbon atoms;

R_2 is a member selected from the group consisting of the radicals defined above under R_1, hydroxy, mercapto, phenylamino, chlorophenylamino, bromophenylamino, lower alkyl phenylamino, lower alkoxy phenylamino, cyclohexylamino, benzylamino, phenylethylamino, N-lower alkyl-N-phenylamino, N-lower alkyl-N-cyclohexylamino, N-lower alkyl-N-benzylamino, benzyloxy and cyclohexyloxy, and

R_3 is a member selected from the group consisting of alkyl, phenyl, alkylphenyl, alkoxycarbonyl, carbomyl, N-alkyl-carbamyl and N,N-dialkyl-carbamyl.

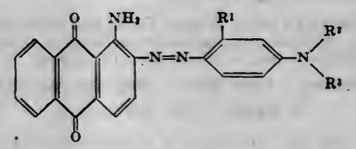
3,320,233

1-AMINO-2-ANTHRAQUINONEAZO DYESTUFFS

Willy Braun, Heidelberg, and Ingo Paetzke, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Dec. 16, 1964, Ser. No. 418,861
Claims priority, application Germany, Dec. 20, 1963, B 74,748
4 Claims. (Cl. 260—192)

1. A dye of the formula



wherein R^1 is a member selected from the class consisting of hydrogen and methyl, R^2 is a member selected from the class consisting of alkyl of 1 to 6 carbon atoms, hydroxyethyl, hydroxypropyl and cyanoethyl, and R^3 is a member selected from the class consisting of alkyl of 1 to 6 carbon atoms, phenyl, hydroxyethyl, hydroxypropyl and cyanoethyl.

3,320,234

β-ARYLATED NAPHTHOXIDINE CONTAINING MONO AZO DYESTUFFS

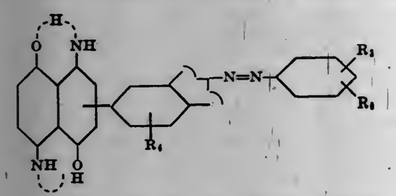
Werner Boessard, Riehen, and Hans Bosshard, Basel, Switzerland, assignors to J. R. Geigy A.G., Basel, Switzerland

No Drawing. Original application Mar. 18, 1965, Ser. No. 440,918. Divided and this application Oct. 5, 1965, Ser. No. 509,663

Claims priority, application Switzerland, Nov. 15, 1961, 13,244/61

4 Claims. (Cl. 260—205)

1. A dyestuff of the formula



wherein R_4 is a member selected from the group consisting of lower alkyl and hydrogen,

R_5 is a member selected from the group consisting of hydrogen, lower alkyl, chlorine, bromine, hydroxy, N-mono-lower alkylamino, nitro and N-di-lower alkylamino, and

R_6 is a member selected from the group consisting of hydrogen, lower alkyl, chlorine and bromine.

3,320,235

STABLE AND ACTIVE FRADIOMYCIN SALTS AND PREPARATION THEREOF

Hiroaki Nomura, Nishinomiya, and Keiichi Sugimoto, Suita, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Filed Sept. 9, 1964, Ser. No. 395,330

Claims priority, application Japan, Sept. 13, 1963, 38/48,882

4 Claims. (Cl. 260—210)

1. Fradiomycin salt consisting of M mole of fradiomycin cation, N mole of citric acid anion and L mode of calcium ion, M, N and L being in the relation of the equation

$$3N-2L=kM$$

where k is an integer from 1 to 6.

3,320,236

REACTION PRODUCTS OF POLYMERIC DIALDEHYDE POLYSACCHARIDES WITH p-AMINOSALICYLATES

Galen Franklin Collins, Bristol, Tenn., and Lawrence John Daher, Elkhart, Ind., assignors to Miles Laboratories, Inc., Elkhart, Ind., a corporation of Indiana

No Drawing. Filed Mar. 7, 1963, Ser. No. 263,418

10 Claims. (Cl. 260—233.3)

1. A reaction product of a p-aminosalicylate with a polymeric dialdehyde polysaccharide having about from 50% to 100% of the original anhydroglucose units present in oxidized form, said reaction product formed by reacting one mole part of said p-amino salicylate with from one to two mole parts of said dialdehyde polysaccharide at a temperature of about from 22° C. 80° C. for a period of about from 20 minutes to 8 hours.

3,320,237

ALKALI-METAL STARCH PHOSPHATES AND THEIR PREPARATION

Dahlia S. Greidinger and Brilliantina M. Cohen, Haifa, Israel, assignors to Chemicals & Phosphates Limited, Haifa Bay, Israel,

No Drawing. Filed July 13, 1962, Ser. No. 209,756

Claims priority, application Israel, Aug. 4, 1961, 15,869

6 Claims. (Cl. 260—233.5)

1. A process for the preparation of a starch phosphate containing 6–12% of phosphorous comprising mixing at a temperature of 40–70° C. an aqueous alkali metal phosphate solution having a pH of 4–6.5 and a concentration above the saturation concentration at room temperature with an amount of starch not exceeding half the weight of the phosphate solution, separating the phosphate-soaked starch from the solution, drying the product and then heating the dried product to 120–170° C. for at least two hours.

3,320,238

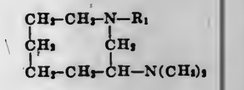
CERTAIN 3-DIMETHYLAMINO-OCTAHYDROAZOCINE COMPOUNDS AND THEIR PREPARATION

Leo A. Paquette, Columbus, Ohio, assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Continuation of application Ser. No. 307,370, Sept. 9, 1963. This application July 16, 1964, Ser. No. 383,238

7 Claims. (Cl. 260—239)

1. A compound selected from the group consisting of the free base form and acid addition salts of a compound of the formula:



wherein R_1 is selected from the group consisting of hydrogen and lower alkyl.

3,320,239

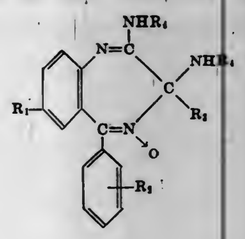
CERTAIN 2,3-BIS(SUBSTITUTED AMINO)-5-ARYL-3H-1,4-BENZODIAZEPINE-4-OXIDE COMPOUNDS AND THEIR PREPARATION

Arthur Stempel, Teaneck, and Leo Henryk Sternbach, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey

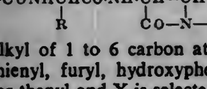
No Drawing. Filed Mar. 22, 1965, Ser. No. 441,863

7 Claims. (Cl. 260—239)

1. A compound selected from the group consisting of compounds of the formula

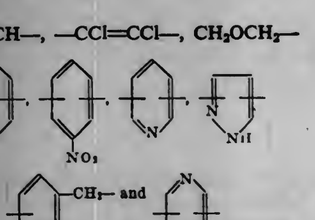


wherein R_1 and R_2 are selected from the group consisting of hydrogen, halogen, nitro and trifluoromethyl; R_4 is selected from the group consisting of hydrogen and lower alkyl; and R_4 is selected from the group consisting of lower alkyl, benzyl, lower alkenyl, lower alkynyl, C_3–C_7 cycloalkyl and



wherein n is a whole integer from 0–4.

7. A process which comprises reacting a compound of the formula



wherein R_1 and R_2 are selected from the group consisting of hydrogen, halogen, nitro and trifluoromethyl; R_3 is selected from the group consisting of hydrogen and lower alkyl and X is a halogen

with a primary amine of the formula

$$R_4NH_2$$

wherein R_4 is selected from the group consisting of lower alkyl, lower alkenyl, lower alkynyl, benzyl, C3–C7 cycloalkyl and



wherein n is a whole integer from 0–4.

3,320,240

ALPHA-CARBOXYACYLAMINO PENICILLINS

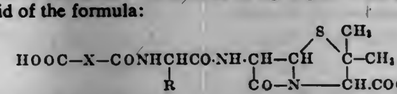
George Robert Fosker, Horsham, John Herbert Charles Nayler, Dorking, and Harry Smith, Maplehurst, near Horsham, England, assignors to Beecham Group Limited, Brentford, England, a British company

No Drawing. Filed Aug. 17, 1965, Ser. No. 480,477

Claims priority, application Great Britain, Sept. 3, 1964, 36,206/64

5 Claims. (Cl. 260—239.1)

1. A member selected from the group consisting of an acid of the formula:



wherein R is alkyl of 1 to 6 carbon atoms, phenyl, hydroxyphenyl, thienyl, furyl, hydroxyphenylakyl, phenylalkyl, furfuryl or thenyl and X is selected from the group consisting of a direct linkage, divalent alkyl of 1 to 6 carbon atoms,

and the sodium, potassium, calcium, aluminum and ammonium salts thereof and non-toxic substituted ammonium salts derived from an amine selected from the group consisting of a tri(lower)alkylamine, procaine, dibenzylamine, N-benzyl - beta - phenethylamine, 1-ephenamine, N,N'-dibenzylethylenediamine, dehydroabietylamine, N,N'-bis-dehydroabietylethylenediamine and a N-(lower)-alkylpiperidine.

3,320,241

CONTINUOUS TWO-STAGE PROCESS FOR THE PRODUCTION OF EPSILON-CAPROLACTAM

Harold E. Kyle, St. Albans, and James H. Bricker, Jr., Charleston, W. Va., assignors to Union Carbide Corporation, a corporation of New York

Filed Mar. 15, 1965, Ser. No. 439,765

8 Claims. (Cl. 260—239.3)

1. A continuous two-stage process for producing epsilon-caprolactam from epsilon-caprolactone in high yield with minimum formation of by-products not convertible to epsilon-caprolactam under the process conditions which comprises (1) admixing epsilon-caprolactone, ammonia and water at a temperature of below about 200° C. and at a pressure at least equal to the autogenous pressure for a period of time sufficient to effect substantial conversion of the epsilon-caprolactone to reaction intermediates, (2) subjecting the reaction product of step (1) to a temperature of from about 300° C. to about 400° C. and a pressure of at least about 2000 p.s.i.g. for a period of time sufficient to produce epsilon-caprolactam, (3) continuously recovering the epsilon-caprolactam from the reaction product of step (2) to leave a residue comprising ammonia, water and reaction intermediates, and (4) continuously recycling said residue for admixture in step (1), the rate of recyle and the rate of feed of the epsilon-caprolactone, ammonia and water being such as to maintain a ratio of about 2 to about 12 moles of ammonia and about 3 to about 26 moles of water per mole equivalent of epsilon-caprolactone in step (1).

3,320,242

17β,20-EPOXY STEROIDS AND METHODS FOR THEIR PRODUCTION

Paul L. Creger, Ann Arbor, Mich., assignor to Parke, Davis & Company, Detroit, Mich., a corporation of Michigan

No Drawing. Filed Nov. 12, 1964, Ser. No. 410,729

3 Claims. (Cl. 260—239.55)

1. A member of the class consisting of 17β,20-epoxy-17α-methylandrost - 5 - en-3β-ol and 17β,20-epoxy-17α-methylandrost-4-en-3-one.

3,320,243

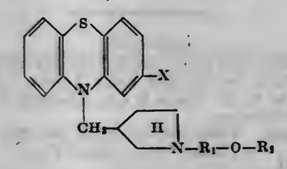
NEW HYDROXY COMPOUNDS AND THEIR ESTERS AND ETHERS

Ernst Habicht and Georg Feth, Schaffhausen, Switzerland, assignors to Ciba-Chemie Limited, Schaffhausen, Switzerland, a Swiss company

No Drawing. Filed Mar. 10, 1964, Ser. No. 350,663

7 Claims. (Cl. 260—243)

1. A member selected from the group consisting of a phenothiazine derivative of the formula



wherein X represents a substituent selected from the class consisting of hydrogen and chlorine, R_1 represents an alkylene radical having 2 to 3 carbon atoms, and R_2 is a group selected from the class consisting of hydrogen, methyl and lower carboxylic acyl, and the pharmaceutically acceptable acid addition salt of the said phenothiazine derivative.

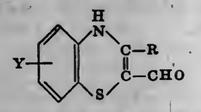
3,320,244

1,4-BENZOTHIAZINE ALDEHYDES

Gosta Brunnstrom, Somerville, N.J., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Mar. 9, 1964, Ser. No. 350,580
1 Claim. (Cl. 260—243)

A compound represented by the formula:



wherein R is a member selected from the group consisting of a lower alkyl radical and an aryl radical of less than three 6-membered carbocyclic rings, said rings having no substituents other than a member selected from the group consisting of lower alkoxy and halogen radicals; and Y is a member selected from the group consisting of hydrogen lower alkyl radicals, lower alkoxy radicals and chloro.

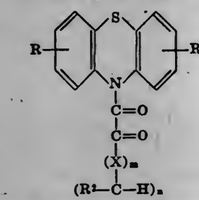
3,320,245

DERIVATIVES OF PHENOTHIAZINE-10-GLYOXYLIC ACIDS AND INTERMEDIATES IN THE PREPARATION THEREOF

Milton Wolf, Chester, and Francis J. Greek, Philadelphia, Pa., assignors to American Home Products Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Aug. 21, 1964, Ser. No. 391,288
26 Claims. (Cl. 260—243)

1. A compound having the formula:



wherein: R and R′ are selected from the group consisting of hydrogen, (lower) alkanoyl, (lower)alkyl, phenyl (lower) alkyl, halogen, (lower)alkoxy, halo(lower)alkyl, sulfamyl, carbalkoxy having up to 4 carbon atoms, cyano, di(lower)alkylamino, (lower)alkanoylamino; X is selected from the group of oxygen, imino, (lower)alkylimino and sulfur; Y is selected from the group of amino, di(lower)alkylamino, di(lower)alkylamino(lower)alkyl, 1-methyl-4-piperidyl, 4-methyl-1-piperazinyl, 4-phenyl-1-piperazinyl, 4-benzyl-1-piperazinyl, 4-(2-hydroxyethyl)-1-piperazinyl, 2,3,5,6-tetramethyl-1-piperazinyl, 3,5-dimethyl-1-piperazinyl, cis- and trans-2,5-dimethyl-1-piperazinyl; R^2 is selected from the group consisting of hydrogen, (lower)alkyl and phenyl(lower)alkyl, *n* is an integer ranging from 0 to 4, *m* is an integer ranging from 0 to 1 and the pharmaceutical acid addition salt thereof.

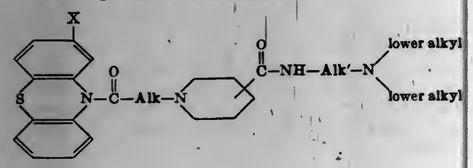
3,320,246

DERIVATIVES OF ISONIPECOTAMIDE

John W. Cusic, Skokie, and Peter Yonan, Chicago, Ill., assignors to G. D. Searle & Co., Chicago, Ill., a corporation of Delaware

No Drawing. Filed Jan. 18, 1965, Ser. No. 426,375
6 Claims. (Cl. 260—243)

1. A compound of the formula



wherein X is selected from the group consisting of hydrogen and chlorine; Alk is lower alkylene; and Alk′ is lower alkylene separating the nitrogens attached thereto by at least 2 carbon atoms.

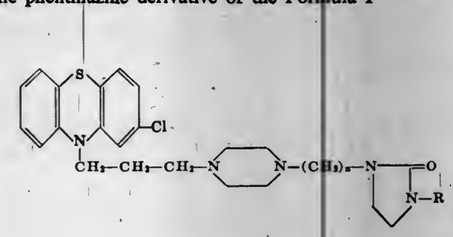
3,320,247

PHENTHIAZINE COMPOUNDS

Herbert Arnold and Rolf Rebling, Bielefeld, Norbert Brock, Uber Bielefeld, and Hans-Dieter Lenke, Bielefeld, Germany, assignors to Asta-Werke AG, Chemische Fabrik, Brackwede, Germany, a corporation of Germany

No Drawing. Filed Feb. 10, 1965, Ser. No. 431,712
Claims priority, application Germany, Feb. 28, 1964, A 45,348
13 Claims. (Cl. 260—243)

1. A compound selected from the group consisting of the phenthiazine derivative of the Formula I



I

wherein R is a member selected from the group consisting of ethyl and methyl and *n* is a numeral selected from the group consisting of 2 and 3,
and the salt thereof with a pharmacologically acceptable acid.

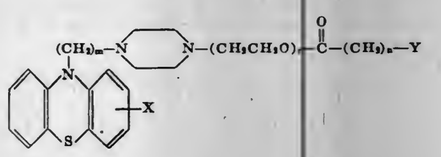
3,320,248

ADAMANTANE CARBOXYLIC ACID ESTERS OF PHENOTHIAZINE

Jack Bernstein, New Brunswick, N.J., assignor to Olin Mathieson Chemical Corporation, New York, N.Y., a corporation of Virginia

No Drawing. Filed July 9, 1965, Ser. No. 470,877
6 Claims. (Cl. 260—243)

1. A member selected from the group consisting of a compound of the formula



wherein X is selected from the group consisting of hydrogen, halogen, trifluoromethyl, lower alkyl, lower alkoxy, lower alkanoyl, lower alkyl mercapto, trifluoromethylmercapto, lower alkylsulfonyl, and di-lower alkylsulfamyl; *m* is an integer from 2 to 7, *n* is an integer from 0 to 2, *r* is 1 or 2, Y is selected from the group consisting of adamantyl and 3-R-5-R^1-adamantyl wherein R and R^1 is a member of the group consisting of halogen, lower alkyl, lower alkoxy or phenyl, and a pharmaceutically acceptable acid-addition salt thereof.

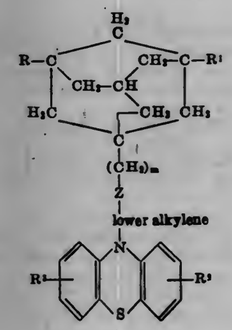
3,320,249

ADAMANTYL DERIVATIVES OF PHENOTHIAZINES

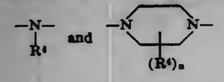
Jack Bernstein, New Brunswick, N.J., assignor to Olin Mathieson Chemical Corporation, New York, N.Y., a corporation of Virginia

No Drawing. Filed July 9, 1965, Ser. No. 470,930
14 Claims. (Cl. 260—243)

1. A compound selected from the group consisting of a base of the formula



wherein R and R^1 each is a member of the group consisting of hydrogen, halo, lower alkyl, phenyl, and lower alkoxy; R^2 and R^3 each is a member of the group consisting of hydrogen, halo, trifluoromethyl, lower alkyl and lower alkoxy; Z is a member of the group consisting of



R^4 is a member of the group consisting of hydrogen and lower alkyl, *m* is an integer from 0 to 7, and *n* is an integer from 1 to 2,
a pharmaceutically acceptable acid-addition salt thereof, and a pharmaceutically acceptable quaternary ammonium salt thereof.

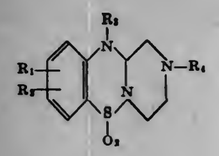
3,320,250

1,2,3,4,11,11a-HEXAHYDROPYRAZINO[1,2-b][1,2,4]BENZOTHIADIAZINE 6,6-DIOXIDES

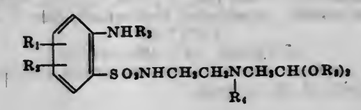
Peter H. L. Wei, Upper Darby, and Stanley C. Bell, Philadelphia, Pa., assignors to American Home Products Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Mar. 14, 1966, Ser. No. 533,876
2 Claims. (Cl. 260—243)

1. A process for the production of a compound of the formula:



wherein R_1 and R_2 are both selected from the group consisting of hydrogen sulfamoyl, halogen, and lower alkyl; R_3 and R_4 are both selected from the group consisting of hydrogen, lower alkyl, phenyl, lower alkylphenyl and halophenyl; which comprises reacting a compound selected from the group consisting of those having the formula:



wherein R_1, R_2, R_3 and R_4 are defined as above and R_5 is lower alkyl; with a mineral acid, in a reaction-inert solvent at a temperature that is in the range from about 50° C. to about 100° C. for a period of about one-half to about five hours.

3,320,251

PROCESS FOR PREPARING AMINOPHOSPHINES

Ludwig Maier, Zurich, Switzerland, assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed June 1, 1964, Ser. No. 371,735
Claims priority, application Switzerland, June 7, 1963, 7,071/63
7 Claims. (Cl. 260—246)

1. A process for preparing aminophosphines of the formula $[(R)_2N]_nPR'_{3-n}$ wherein the R groups are selected from the class consisting of alkyl, cycloalkyl, aralkyl, and aryl hydrocarbon having not more than 18 carbon atoms when taken singly and when taken together with the nitrogen atom to which they are attached pyrrolidine, piperidine and morpholine, R′ is selected from the class consisting of aliphatic, cycloaliphatic, araliphatic and aryl hydrocarbon having not more than 18 carbon atoms, *n* is an integer from 1 to 2, comprising reacting an aminohalogeno-compound of the formula $[(R)_2N]_nPX_{3-n}$ wherein R and *n* are as described hereinabove and X is a halogen atom, with an organoaluminum compound of the formula R'_mAlX_{3-m} wherein R′ and X are as defined hereinabove and *m* is an integer from 1 to 3.

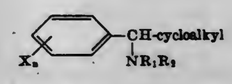
3,320,252

CERTAIN CYCLOALKYL BENZYLAMINES

Karl J. Doebel, Ossining, and Frederick Leonard, Yonkers, N.Y., assignors to Geigy Chemical Corporation, Greenburgh, N.Y., a corporation of Delaware

No Drawing. Filed Oct. 24, 1963, Ser. No. 318,761
4 Claims. (Cl. 260—247)

1. A compound of the class consisting of a base of the formula



wherein NR_1R_2 is selected from the group consisting of mono(lower)alkylamino, morpholino, N-methylpiperazino, piperidino, pyrrolidino and hexamethyleneimino
X is chosen from the group consisting of hydrogen, chlorine, bromine, trifluoromethyl, lower alkyl and lower alkoxy;
n is an integer of 1 to 3, cycloalkyl is selected from the group consisting of cyclopentyl and cyclohexyl or nontoxic, pharmaceutically acceptable acid addition salts thereof.

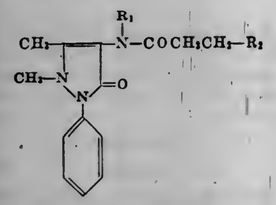
2. N-(α-cyclopentyl-m-chlorobenzyl)morpholine.

3,320,253
4-(β-AMINOPROPIONYLAMINO)-ANTIPYRINES

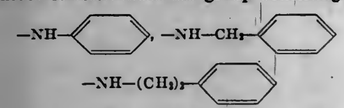
Herbert Mühle, Basel, Switzerland, assignor to Chemische Fabrik Schweizerhall, Basel, Switzerland, a Swiss company

No Drawing. Filed Dec. 2, 1964, Ser. No. 415,454
Claims priority, application Switzerland, Dec. 3, 1963, 14,777/63
15 Claims. (Cl. 260—247.2)

1. A member selected from the group consisting of compounds of the formula



and the pharmaceutically acceptable salts thereof with acids, wherein R_1 is a member selected from the group consisting of H and alkyl of 1 to 3 carbon atoms, and R_2 is a member selected from the group consisting of



piperidino, alkylpiperidino wherein the alkyl is alkyl of 1 to 3 carbon atoms, phenylpiperidino, pyrrolidino, morpholino, hexamethyleneimino and 4-phenyl-1,2,3,6-tetrahydropyridino.

9. 4-(β-morpholino-propionylamino)-antipyrine.

3,320,254
BASIC ETHERS OF GUAIACOL AND THYMOL WITH POLYOXYETHYLENIC CHAIN AND THEIR DERIVATIVES

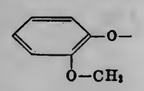
Massimo Carissimi and Franco Ravenna, Milan, Italy, assignors to Maggioni & C., S.p.A., Milan, Italy, a company of Italy

No Drawing. Filed Jan. 20, 1964, Ser. No. 338,609
Claims priority, application Italy, Jan. 24, 1963, 1,508/63; Dec. 5, 1963, 24,935/63
3 Claims. (Cl. 260—247.7)

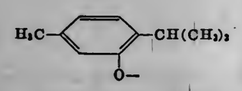
1. A compound selected from the group consisting of basic ethers having the formula:

$$Ar(CH_2—CH_2—O—)_n—CH_2—CH_2—Z$$

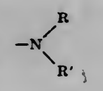
and their nontoxic acid addition salts; where Ar is



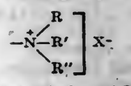
or



n is an integer from 1 to 5 inclusive; and Z is selected from the group consisting of piperidino, morpholino, N-methyl-piperazino, pyrrolidino, an amino group of the formula



or a quaternary ammonium group of the formula



where R, R′ and R″ are ethyl, and X^- is an anion.

2. A compound according to claim 1, wherein Z is selected from the group consisting of piperidino, morpholino, N-methyl-piperazino or pyrrolidino.

3,320,255
PRODUCTION OF THIOETHERS

Cevat Kalav, Wesseling, Bezirk Cologne, Germany, assignor to Union Rheinische Braunkohlen Kraftstoff Aktiengesellschaft, Wesseling, near Cologne, Germany, a corporation of Germany

No Drawing. Filed May 24, 1963, Ser. No. 282,855
Claims priority, application Germany, June 9, 1962, U 9,033; June 29, 1962, U 9,082; July 13, 1962, U 9,111; Sept. 11, 1962, U 9,251; Mar. 30, 1963, U 9,684
5 Claims. (Cl. 260—248)

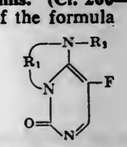
1. A process for producing thioethers which comprises reacting in liquid phase an organic N-methylol compound with hydrogen sulfide in the presence of hydrochloric acid at a temperature of between 0 and 100° C. and recovering the thus formed thioether from the reaction mixture.

3,320,256
FLUORINATED IMIDAZO[1,2-c]PYRIMIDINES AND PYRIMIDO[1,2-c]PYRIMIDINES

Robert Duschinsky, Essex Fells, and Thomas Francis Gabriel, West Paterson, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey

No Drawing. Filed Apr. 9, 1965, Ser. No. 447,050
9 Claims. (Cl. 260—256.4)

1. A compound of the formula



wherein R_1 is a member selected from the group consisting of the alkylene radicals $—CH_2—CH_2—$ and

$$—CH_2—CH_2—CH_2—$$

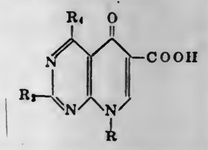
and the same wherein 1 or more of the hydrogen atoms has been replaced by a lower alkyl group; and R_2 is a member selected from the group consisting of hydrogen, lower alkyl, hydroxy lower alkyl, halogeno-lower alkyl and lower alkoxy lower alkyl and pharmaceutically acceptable acid addition salts thereof.

3,320,257
PYRIDO[2,3-d]PYRIMIDINES, PYRIDO[3,2-d]PYRIMIDINES, AND INTERMEDIATES AND PROCESS THEREFOR

George Yohe Lesher, Schodack, N.Y., assignor to Sterling Drug Inc., New York, N.Y., a corporation of Delaware

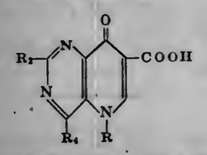
No Drawing. Filed Apr. 12, 1965, Ser. No. 447,568
22 Claims. (Cl. 260—256.4)

2. A compound of the formula



where R is lower-alkyl, and, R_2 and R_4 are each a member selected from the group consisting of hydrogen and lower-alkyl.

10. A compound of the formula



where R is a lower-alkyl, and, R_2 and R_4 are each a member selected from the group consisting of hydrogen and lower-alkyl.

22. Diethyl N-(2,4 - dimethyl - 5- pyrimidyl)-aminomethylenemalonate.

3,320,258
THIAMINE PANTETHEINE DISULFIDE DERIVATIVES

Hiroshi Hirano, Tokyo, Shojiro Yurugi, Kyoto, Hiroyuki Asakawa, Suita, and Yoshikazu Oka, Amagasaki, Japan, assignors to Takeda Chemical Industries, Ltd., Osaka, Japan

No Drawing. Filed Dec. 21, 1964, Ser. No. 420,187
Claims priority, application Japan, Dec. 26, 1963, 38/70,406
2 Claims. (Cl. 260—256.5)

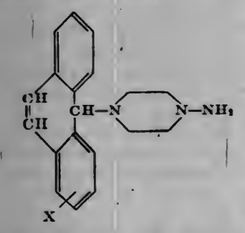
1. Thiamine γ-benzoylpantetheine disulfide.

3,320,259
DIBENZOCYCLOHEPTEN-5-YLPIPERAZINES

John W. Cusic, Skokie, and Peter Yonan, Chicago, Ill., assignors to G. D. Searle & Co., Chicago, Ill., a corporation of Delaware

No Drawing. Filed Mar. 25, 1966, Ser. No. 537,302
Claims priority, application Great Britain, Apr. 12, 1965, 15,469/65
2 Claims. (Cl. 260—268)

1. A compound of the formula



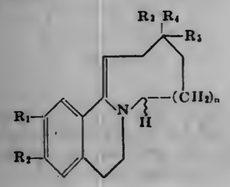
wherein X is selected from the group consisting of hydrogen and chlorine.

3,320,260
BENZOCYCLOPENTAINDOLIZINES AND DIBENZINDOLIZINES

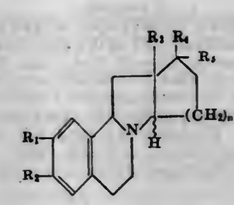
Richard E. Brown, Hanover, and Robert I. Meltzer, Rockaway, N.J., assignors to Warner-Lambert Pharmaceutical Company, Morris Plains, N.J., a corporation of Delaware

No Drawing. Filed Apr. 3, 1964, Ser. No. 357,275
23 Claims. (Cl. 260—287)

1. A compound selected from the group consisting of the stereoisomers and mixtures thereof of compounds represented by the formulae:



and



wherein R_1 and R_2 each is a member selected from the group consisting of hydrogen, hydroxy, and lower alkoxy; R_3 is a member selected from the group consisting of hydrogen and lower alkyl; R_4 and R_5 are each hydrogen and the non-toxic pharmaceutically acceptable salts thereof.

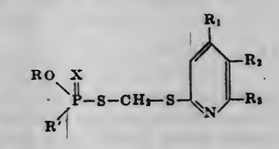
12. 1,2,3,4,4a,6,7,11b,12,12a-decahydro-9,10 - dimethoxy-12a-methyl-1-carbethoxy-dibenz [b,g] indolizine.

3,320,261
PYRIDYL AND QUINOLYL MERCAPTO METHYL PHOSPHORUS ESTERS

Walter Lorenz, Wuppertal-Vohwinkel, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a German corporation

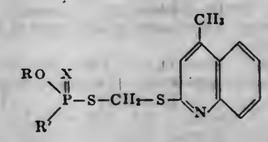
No Drawing. Filed Aug. 10, 1964, Ser. No. 388,688
Claims priority, application Germany, Aug. 8, 1963, F 40,454
6 Claims. (Cl. 260—283)

1. A compound of the formula



in which
R stands for lower alkyl having up to four carbon atoms,
R′ stands for a member selected from the group consisting of lower alkyl up to four carbon atoms and lower alkoxy up to four carbon atoms,
R_2 and R_3 stand for members selected from the group consisting of hydrogen and a fused benzene nucleus,
R_1 stands for a member selected from the group consisting of hydrogen and methyl,
X stands for a member selected from the group consisting of oxygen and sulfur, with the proviso that R_1 is methyl if R_2 and R_3 stand for a fused benzene nucleus.

3. A compound of the formula



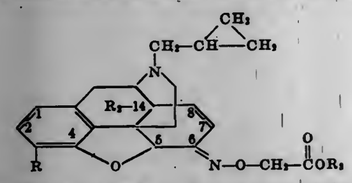
in which
R stands for lower alkyl having up to four carbon atoms,
R′ stands for a member selected from the group consisting of lower alkyl up to four carbon atoms and lower alkoxy up to four carbon atoms and
X stands for a member selected from the group consisting of oxygen and sulfur.

3,320,262
14 HYDROXY MORPHINE AND CODEINE CARBOXYMETHYLOXIMES

Mozes J. Lewenstein, 80—49 Park Lane, Kew Gardens, N.Y. 11415; Evalina Lewenstein, executrix of Mozes J. Lewenstein, deceased, and Jack Fishman, New York, N.Y.; said Fishman assignor to said Lewenstein

No Drawing. Filed Sept. 22, 1964, Ser. No. 398,426
12 Claims. (Cl. 260—285)

1. Carboxymethyloxime compound of the formula:



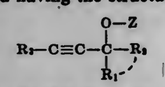
wherein R is selected from the group consisting of hydroxy and methoxy, and R_2 is selected from the group consisting of hydrogen or hydroxy, and wherein R_3 is selected from the group consisting of H, CH_3, CH_3CH_2, $CH_3CH_2CH_2$, $CH_2{=}CH{-}CH_2$ and $C_6H_5CH_2$.

3,320,263
MICROBIOLOGICALLY ACTIVE QUATERNARY AMMONIUM COMPOUNDS

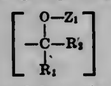
Reginald L. Wakeman, Philadelphia, Pa., and Joseph F. Coates, Washington, D.C., assignors, by mesne assignments, to Millmaster Onyx Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Mar. 17, 1964, Ser. No. 352,659
6 Claims. (Cl. 260—286)

1. The compound having the structure:



wherein R_1 and R_2 are selected from the group of alkyl and cycloalkyl branched and straight chain group having from 1 to 8 carbon atoms, and alkylene groups wherein R_1 and R_2 together comprise a cycloalkyl group; R_3 represents a member of the group consisting of hydrogen and



and Z and Z_1 are selected from the group consisting of H and a bacteriologically active quaternary ammonium cation, at least one of which is said quaternary ammonium cation.

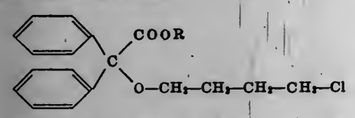
6. Lauryl isoquinolinium 2,4,7,9 tetramethyl 5 decyndiolate.

3,320,264
AMINO ALKYL ESTERS OF α-(4-CHLORO-BUTOXY)-BENZILIC ACID

Josef Klosa, Berlin-Zehlendorf, Germany, assignor to Rhein-Pharma Arzneimittelgesellschaft m.b.H., Heidelberg, Germany

No Drawing. Filed Oct. 1, 1963, Ser. No. 312,856
Claims priority, application Germany, Oct. 11, 1962, K 47,947
7 Claims. (Cl. 260—294.3)

1. A member selected from the group consisting of compounds of the formula:



wherein R is selected from the group consisting of di-lower alkyl amino-lower alkyl, N-methyl piperidinyl, morpholinyl, N-methyl, morpholinyl, piperizinyl, piperidinyl, and pyrazolinyl, and physiologically compatible acid addition salts thereof.

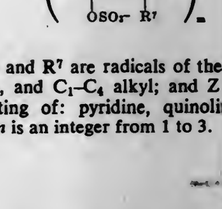
6. α - (4-chlorobutoxy)-benzilic acid-(N-methylpiperidyl-(4)-oxy)-ester.

3,320,265
6-PHENYL-1,2,3,4,5,6-HEXAHYDRO-2,6-METHANO-3-BENZAZOCINES

Frank H. Clarke, Jr., Armonk, N.Y., assignor to Geigy Chemical Corporation, Ardsley, N.Y., a corporation of Delaware

No Drawing. Continuation of abandoned application Ser. No. 322,063, Nov. 7, 1963. This application Nov. 10, 1966, Ser. No. 593,326
19 Claims. (Cl. 260—294.7)

1. A compound selected from the group consisting of (a) a benzomorphan of the formula:



wherein each of R^1 and R^2 is independently selected from the group consisting of hydrogen, halogen, (lower)alkyl, (lower)alkoxy, (lower)alkanoyloxy, hydroxy and trifluoromethyl;
each of R^3 and R^4 is independently selected from the group consisting of hydrogen, hydroxy, (lower)alkoxy and (lower)alkanoyloxy;
X is a member selected from the group consisting of hydrogen and (lower)alkyl; and
Y is a member selected from the group consisting of hydrogen, (lower)alkenyl, halo(lower)alkenyl, (lower) alkynyl and Z-alkylene wherein
Z is a member selected from the group consisting of hydrogen, cycloalkyl, phenyl, halophenyl, nitrophenyl, aminophenyl, (lower)alkoxyphenyl, amino, alkylamino, dialkylamino, hydroxy, (lower)alkoxy and (lower) alkanoyloxy; and
(b) the salts thereof with pharmaceutically acceptable nontoxic acids.

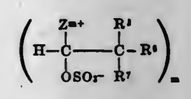
3. A compound as defined in claim 1 wherein the compound is 2'-hydroxy-2-methyl-5-phenyl-6,7-benzomorphan.

3,320,266
SULFATO BETAINES AND A METHOD FOR THEIR PREPARATION

Donald L. Klass, Barrington, Ill., assignor, by mesne assignments, to Union Oil Company of California, Los Angeles, Calif., a corporation of California

No Drawing. Filed Jan. 10, 1964, Ser. No. 336,879
18 Claims. (Cl. 260—294.3)

1. A betaine comprising:



where R^5, R^6 and R^7 are radicals of the group consisting of: hydrogen, and C_1–C_4 alkyl; and Z is selected from group consisting of: pyridine, quinoline, acridine and aniline; and *m* is an integer from 1 to 3.

3,320,267
2,3-DICARBOXYLIC ACID AND DERIVATIVES OF NORBORNANES AND THE CORRESPONDING NORBORNENES

George Ireland Poos, Ambler, Pa., assignor to McNeil Laboratories, Incorporated, a corporation of Pennsylvania

No Drawing. Filed Oct. 21, 1964, Ser. No. 405,567
7 Claims. (Cl. 260—295)

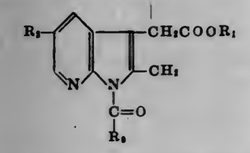
1. A member selected from the group consisting of 7-R_1,R_2-Y-2-R_3-3-R_4-5-norbornene and the corresponding norbornanes, wherein R_1 is a member of the group consisting of phenyl and pyridyl, R_2 is phenyl; R_3 and R_4 each is a member selected from the group consisting of carboxyl, loweralkyl carboxylate, and β-phenethylamine carboxylate salt; and Y is a member selected from the group consisting of methyl and methylene wherein Y is methyl, the 7-position carbon atom is further substituted with hydroxyl and wherein when Y is methylene, R_1 is pyridyl.

3,320,268
1-AROYL OR HETEROAROYL-7-AZAINDOLE-3-CARBOXYLATES AND DERIVATIVES

Tsung-Ying Shen, Westfield, and Glen E. Arth, Cranford, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed Aug. 14, 1964, Ser. No. 389,804
5 Claims. (Cl. 260—295)

1. A compound of the formula:



wherein:

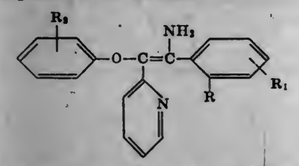
R_1 is selected from the group consisting of hydrogen, lower alkyl, substituted lower alkyl, and ar-lower alkyl;
R_5 is selected from the group consisting of hydrogen, lower alkoxy, arylalkyloxy, and dimethylamino;
R_6 is selected from the group consisting of phenyl, pyridyl, 2-thienyl, 3-thienyl, 4-thiazolyl, 5-halo-2-furyl, 5-lower alkyl-4-oxazolyl and substituted phenyl wherein the substituent is selected from the group consisting of halo, lower alkoxy, trifluoroacetyl, difluoroacetyl, di (lower alkyl)sulfamyl, lower alkanoyl, carb-lower alkoxy, trifluoromethylthio, lower alkyl sulfinyl, lower alkyl sulfonyl, benzylthio, di(lower alkyl)amino, lower alkanoyl amino and di(lower alkyl)sulfonamido.

3,320,269
β-AMINO-α-PHENOXY-2-STILBAZOLE DERIVATIVES

Horace A. De Wald, Ann Arbor, Mich., assignor to Parke, Davis & Company, Detroit, Mich., a corporation of Michigan

No Drawing. Filed July 19, 1963, Ser. No. 296,388
5 Claims. (Cl. 260—296)

1. A compound of the formula



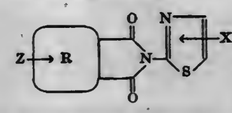
where R is a member of the class consisting of halogen, lower alkyl, lower alkoxy, trifluoromethyl, and methylthio; R_1 is a member of the class consisting of hydrogen, halogen, methyl, and methoxy; in combination R and R_1 at position 3 are the —CH=CH—CH=CH— radical; and R_2 is a member of the class consisting of hydrogen, halogen, lower alkyl and lower alkoxy.

3,320,270
CERTAIN 2-ACYLIMIDOTHIAZOLE COMPOUNDS

Charles H. Grogan, Falls Church, Va., and Leonard M. Rice, Minneapolis, Minn., assignors to Tri-Kem Corporation, Washington, D.C., a corporation of the District of Columbia

No Drawing. Filed Oct. 8, 1963, Ser. No. 314,625
4 Claims. (Cl. 260—306.8)

1. A compound of the formula:



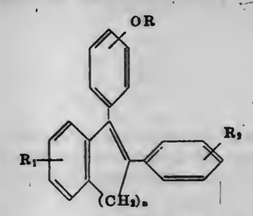
wherein ring R is 1,2-cyclohexane, 1,8-naphthalene, Δ^4-3, 6-endomethylene-1,2-cyclohexene, phthalyl, 1,2(3,6-endoxycyclohexane), —CH=CH—, 1,3-trimethylene, Δ^4-1, 2-cyclohexene, 1,3-cyclopentane, 1,2-cyclopropane or 1,2-cyclobutane; Z is at least one of hydrogen, nitro, chloro or methyl; and X is at least one of hydrogen, methyl, nitro, naphtho or biphenylyl.

3,320,271
1,2-DIPHENYL-3,4-DIHYDRONAPHTHALENES AND 2,3-DIPHENYLINDENES

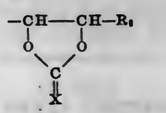
Daniel Lednicer, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Filed June 1, 1964, Ser. No. 371,827
13 Claims. (Cl. 260—307)

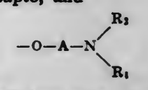
1. A compound selected from the class consisting of: (a) compounds having the formula



wherein R is lower-alkyl substituted by a radical selected from the class consisting of dihydroxyalkyl from 2 to 5 carbon atoms, inclusive, epoxyalkyl from 2 to 8 carbon atoms, inclusive, 1-hydroxy-2-aminoethyl, 5 - (2 - thioxooxazolidinyl)-, 5 - (2-oxo-oxazolidinyl)-, and



wherein R_6 is selected from the class consisting of hydrogen and lower-alkyl, and X is selected from the class consisting of oxygen and sulfur;
R_1 and R_2 are each selected from the class consisting of hydrogen, lower-alkyl, lower-alkenyl, lower-alkoxy, lower-alkenyloxy, halogen, trifluoromethyl, lower-alkylmercapto, and



wherein A is an alkylene group containing from 2 to 6 carbon atoms, inclusive, and R_3 and R_4 are selected

from the class consisting of lower-alkyl and lower-alkyl linked together to form, with the attached nitrogen atom, a 5 to 7 ring atom saturated heterocyclic radical; and *n* is an integer from 1 to 2, inclusive;

(b) the acid addition salts with pharmacologically acceptable acids of those compounds of the above formula which contain an amino group; and

(c) the quaternary ammonium salts of those compounds of the above formula which contain a tertiary amino group, the anion of said quaternary ammonium salts being that of a pharmacologically acceptable acid.

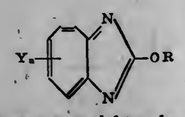
3,320,272

PROCESS FOR PREPARING 2-ALKOXYCYCLOHEPTIMIDAZOLE DERIVATIVES

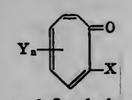
Genshun Sunagawa and Mitsuo Watatani, Shinagawa-ku, Tokyo, Japan, assignors to Sankyo Company, Limited, Tokyo, Japan

No Drawing. Filed Sept. 10, 1963, Ser. No. 307,810
Claims priority, application Japan, Oct. 1, 1962, 37/43,387
1 Claim. (Cl. 260—309)

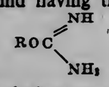
A process for preparing a compound having the formula



wherein Y is hydrogen, a straight or branched alkyl group of 1 to 5 carbon atoms, phenyl group, halogen, nitro group, cyano group, hydroxy group, an alkoxy group of 1 to 5 carbon atoms, an aliphatic acyl of 1 to 3 carbon atoms, an alkoxy-carbonyl group of 2 to 6 carbon atoms or dimethylamino group, Y's may be the same or different from one another when *n* is an integer of 2 or 3, *n* is an integer of 1 to 3 and R is an alkyl group of 1 to 4 carbon atoms which comprises reacting a compound having the formula



wherein Y and *n* are as defined above and X is halogen, an alkoxy group of 1 to 2 carbon atoms or tosyloxy group with a compound having the formula



wherein R is as defined above or with a salt thereof in the presence of a sufficient amount of an alkaline substance to convert the said salt to the corersponding free base, the said alkaline substance being seleted from the group consisting of an alkali metal and a hydride, amide, alkoxide, hydroxide, carbonate and bicarbonate thereof.

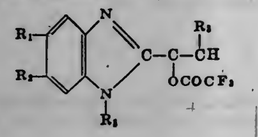
3,320,273

TRIFLUOROACETOXY ALKENYL OR ALKYL BENZIMIDAZOLES

Janos Kollonitsch, Westfield, N.J., assignor to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

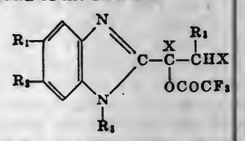
No Drawing. Filed Nov. 29, 1963, Ser. No. 327,104
15 Claims. (Cl. 260—309.2)

1. A compound selected from the group consisting of compounds of the formula



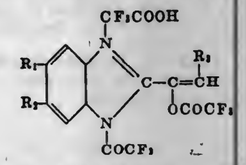
wherein R_1 and R_2 are selected from the group consisting of hydrogen, lower alkyl, lower alkoxy and trifluoromethyl, R_3 is selected from the group consisting of hydrogen and lower alkyl, and R_5 is selected from the group consisting of hydrogen and trifluoroacetyl, and the trifluoroacetic acid addition salts thereof.

6. A compound of the formula

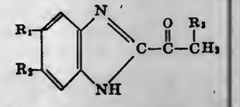


wherein R_1 and R_2 are selected from the group consisting of hydrogen, lower alkyl, lower alkoxy and trifluoromethyl, R_3 is selected from the group consisting of hydrogen and lower alkyl, R_5 is selected from the group consisting of hydrogen and trifluoroacetyl, and X is selected from the group consisting of chlorine and bromine, and the trifluoroacetic acid addition salts thereof.

13. The method for preparing compounds of the formula



which comprises treating a keto compound selected from the group consisting of compounds of the formula



and acid addition salts thereof with trifluoroacetic acid anhydride in the presence of a strong sulfonic acid as a catalyst, wherein R_1 and R_2 are selected from the group consisting of hydrogen, lower alkyl, lower alkoxy, and trifluoromethyl, and R_3 is selected from the group consisting of hydrogen and lower alkyl.

3,320,274

N,N'-DI(3-AMINOPROPYL)ETHYLENE UREA

Billy E. Lloyd, Hopewell, Va., assignor to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Aug. 16, 1963, Ser. No. 302,717
1 Claim. (Cl. 260—309.7)

N,N'-di(3-aminopropyl)ethylene urea.

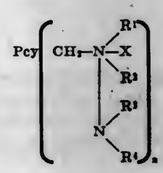
3,320,275

WATER SOLUBLE PHTHALOCYANINE DYES

Chi K. Dien and Walter B. Richards, Erie County, N.Y., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed July 29, 1963, Ser. No. 298,441
3 Claims. (Cl. 260—314.5)

1. A novel water soluble compound having substantivity for cellulosic materials and having the general formula



wherein *n* stands for an integer 1 to 8;

X is chlorine or bromine;

R^1 and R^2 are the same or different radicals of the group consisting of alkyl containing 1 to 12 carbon atoms, cyclohexyl, benzyl, nitrobenzyl, methoxy benzyl and chlorobenzyl, phenyl, 2,4-dinitrophenyl and 3-trifluoromethylphenyl, provided that when R^1 is aryl R^2 is alkyl or aralkyl;

R^3 and R^4 are the same or different members of the group consisting of hydrogen and radicals represented by R^1;

Pcy represents a metal free or metal containing phthalocyanine group or metal free or metal containing polychloro, tetraphenyl, or tetrasulfamyl phthalocyanine group;

and wherein the methylene group is attached to an aryl nucleus of the phthalocyanine group.

3,320,276

PROCESS FOR THE HALOGENATION OF PHTHALOCYANINES

Alexander Hamilton and John Dewar Stewart, Glasgow, Scotland, assignors to J. R. Geigy A.G., Basel, Switzerland

No Drawing. Filed Feb. 1, 1966, Ser. No. 523,958
Claims priority, application Great Britain, Jan. 5, 1962, 453/62
10 Claims. (Cl. 260—314.5)

1. A process for producing green metal phthalocyanines having at least about 13 chlorine atoms per molecule, comprising

reacting at a temperature of about 130° to 200° C. a complex metal phthalocyanine in a melt consisting essentially of a Friedel-Crafts chlorination catalyst with, per 10 parts by weight of said phthalocyanine, from about 55 to 80 parts by weight of sulfuryl chloride and from about 6 to 20 parts by weight of sulfur monochloride,

thereby obtaining a green metal phthalocyanine of the aforesaid chlorine content free from dulling by combined sulfur.

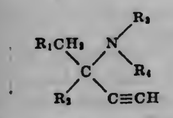
3,320,277

3-AMINO-3-HYDROXYMETHYLALKYNES

Minoo Dossabhoy Mehta, Wimbledon, and David Miller, Dorking, Surrey, England, assignors to Beecham Group Limited, Brentford, England, a British company

No Drawing. Filed Aug. 27, 1965, Ser. No. 483,330
Claims priority, application Great Britain, Sept. 3, 1964, 36,205/64
26 Claims. (Cl. 260—326.5)

1. A compound selected from the group consisting of an acetylenic amine of the formula:



and non-toxic acid-addition salts thereof, wherein R_1 is hydroxy, R_2 is methyl, ethyl or phenyl, and R_3 and R_4 are alkyl of 1 to 4 carbon atoms, prop-2-ynyl and benzyl, or NR_3R_4 is pyrrolidino.

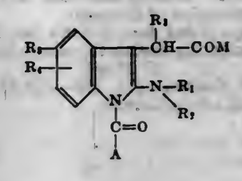
3,320,278

ALPHA-(2-AMINO)-3-INDOLYL LOWER ALIPHATIC ACID DERIVATIVES

William V. Ruyle, Scotch Plains, and Tsung-Ying Shen, Westfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed June 30, 1965, Ser. No. 468,550
6 Claims. (Cl. 260—326.12)

1. A compound selected from the group consisting of free bases and pharmaceutically acceptable acid addition salts of compounds represented by the formula:



wherein

A is selected from the group consisting of phenyl, substituted phenyl, wherein the substituent is selected from the group consisting of lower alkylthio, halo, lower alkoxy, phenoxy, trifluoroacetyl, N,N-dilower alkylsulfamyl, lower alkanoyl, cyano, trifluoromethylthio, lower alkylsulfinyl lower alkylsulfonyl, benzylthio, mercapto, N,N-dilower alkylcarboxamido, carb-lower alkoxy, N,N-dilower alkylsulfonamido, nitro, dilower alkylamino, lower alkanoylamino and hydroxy; and furyl, 1-methylimidazolyl, 1-methylbenzimidazolyl, 5-nitrofuryl, oxazolyl, benzoxazolyl, thiazolyl, thienyl, 2-phenylthiazolyl and 2-benzylmercaptothiazolyl;

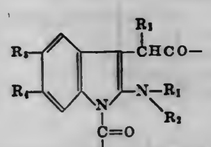
R_1 and R_2 are each selected from the group consisting of hydrogen, lower alkyl, lower alkanoyl, cyclo lower alkyl and carbobenzyloxy;

R_3 is selected from the group consisting of hydrogen and lower alkyl;

R_4 is selected from the group consisting of hydrogen and trifluoromethyl;

R_5 is selected from the group consisting of hydrogen, hydroxy, halogen, lower alkyl, lower alkoxy, nitro, amino, dilower alkylamino, lower alkanoyl, bis(hydroxy lower alkyl)amino, 1-pyrrolidinyl, 4-methyl-1-piperazinyl, 4-morpholino, amino lower alkyl, di(lower alkyl)amino lower alkyl, trifluoromethyl, benzyloxy, 1-azacyclopropyl, cyclopropylmethyloxy, cyclobutylmethyloxy, diethanolamino, p-chloroanilino, phenethylamino, ethanolamino, benzylamino and cyclopropyloxy;

M is selected from the group consisting of hydroxy, amino, dilower alkylamino, lower alkyl amino, diethanolamine, aniline, monomethylaniline, benzylamine, p-chloroaniline, β-methoxyethylamine, morpholine, p-methoxyaniline, allylamine, phenethylamine, N-ethylphenethylamine, piperazine, N-phenyliperazine, piperidine, 1-ethyl-2-aminomethyl piperidine, pyrrolidine, 2-aminomethyl pyrrolidine and tetrahydrofurfurylamine; lower alkoxy, cyclolower alkyl-oxy, benzyloxy; OZ wherein Z is selected from the group consisting of sodium, potassium, calcium, aluminum, iron and magnesium and H:B wherein B is an organic base selected from the group consisting of triethylamine, ethanolamine, n-butylamine, 2,3-xylidine, choline and piperazine; and OY wherein Y is represented by the formula



4. (1-p-methylthiobenzoyl - 2-amino-5-methyl-3-indolyl) acetic acid.

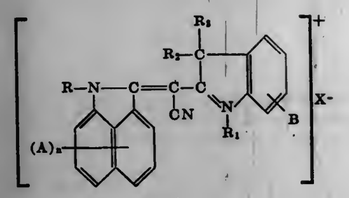
3,320,279

REACTION PRODUCT OF NAPHTHOLACTAMS AND INDOLE DERIVATIVES AS DYESTUFFS

Alfred Brack, Leverkusen, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

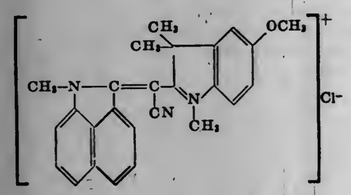
No Drawing. Filed Aug. 8, 1963, Ser. No. 300,934
Claims priority, application Germany, Aug. 29, 1962, F 37,687
5 Claims. (Cl. 260—326.15)

1. A dyestuff of the formula



wherein R stands for a member selected from the group consisting of hydrogen, lower alkyl, benzyl and phenyl; R_1, R_2, and R_3 stand for a lower alkyl; X stands for the residue of an acid used for salt formation of basic dyestuffs; A stands for a member selected from the group consisting of hydrogen, chlorine, bromine, methyl, ethyl, lower alkyl-substituted amino, and phenylazo; B stands for a member selected from the group consisting of hydrogen, methoxy, ethoxy, chlorine, bromine, and carbo lower alkoxy; and *n* stands for an integer ranging from 1 to 2.

2. The dyestuff of the formula



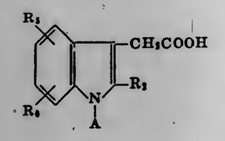
3,320,280

PROCESS FOR PREPARING α-(3-INDOLYL) LOWER ALIPHATIC ACIDS

George Gal, Summit, and Meyer Sletzinger, Plainfield, N.J., assignors to Merck & Co., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed Apr. 13, 1964, Ser. No. 359,512
6 Claims. (Cl. 260—326.12)

1. A process of making a compound having the formula:



wherein:

A is selected from the group consisting of benzoyl, biphenoyl, naphthoyl, and



wherein Het is selected from the group consisting of furyl, thienyl, pyrryl, thiazolyl, thiadiazolyl, pyrazinyl, pyridyl, pyrazolyl, imidazolyl, oxazolyl, pyrimidinyl and isoxazolyl and substituted benzoyl, biphenoyl, naphthoyl and



wherein said substituent is selected from the group consisting of lower alkylthio, lower alkoxy, phenoxy, dilower alkylsulfamyl, trifluoromethylthio, lower alkanoyl, carbomethoxy, halo, cyano, benzylthio, nitro, mercapto, lower alkylsulfonyl, lower alkylsulfinyl, dilower alkylamino and hydroxy;

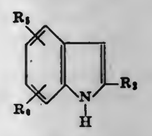
R_2 is selected from the group consisting of hydrogen, lower alkyl, lower alkenyl, phenyl, phenyl(lower alkyl), chlorophenyl and methoxy phenyl;

R_5 is hydrogen, lower alkyl, lower alkoxy, nitro, amino, lower alkylamino, di(lower alkyl)amino, lower alkanoylamino, lower alkanoyl, bis(hydroxy lower alkyl)amino, 1-pyrrolidino, 4-methyl-1-piperazinyl, 4-morpholinyl, cyano, di(lower alkyl)amino lower alkyl, trifluoromethyl, halogen, di(lower alkyl)sulfamyl, benzylthio, lower alkylbenzylthio, lower alkoxy benzylthio, halogenobenzylthio, benzyloxy, lower alkylbenzyloxy, lower alkoxybenzyloxy, halogenobenzyloxy, lower alkenyl, lower alkenyloxy, 1-azacyclopropyl, cyclopropylmethyloxy or cyclobutylmethyloxy;

R_6 is hydrogen, alkyl, lower alkyl, fluorine or trifluoromethyl;

which comprises the steps of:

(a) condensing a compound having the formula:



in which R_2, R_5 and R_6 are as defined above, with a dialkylamine and the t-butyl ester of the glyoxalate acid to form the tertiary butyl ester of the corresponding indole-3-acetic acid having a dialkylamine group in the α-position of the acetic acid side chain;

(b) hydrogenating in a non-acidic medium said intermediate to remove the α-dialkylamino group;

(c) intimately contacting in an inert solvent a reagent selected from the group consisting of an A-halide and an A-ester of p-nitrophenol, with the N-alkali metal salt of the intermediate compound prepared in (a); and

(d) pyrolyzing the arylated ester produced in (b) to form the desired compound.

2. The method in accordance with claim 1 wherein said dialkylamine is dimethylamine.

4. The method in accordance with claim 2 wherein A is p-methylthiobenzoyl.

3,320,281

METHOD OF PREPARING 3-INDOLYLACETIC ACID

Lev Beniaminovich Shagalov and Nickolai Nickolaevich Suvorov, Moscow, U.S.S.R., assignors to Vsesojuzny Nauchno-Issledovatelsky Khimiko-Farmatsevticheskv Institute, Moscow, U.S.S.R.

No Drawing. Filed Jan. 6, 1965, Ser. No. 423,812
5 Claims. (Cl. 260—326.13)

1. A method for the manufacture of 3-indolylacetic acid which comprises reacting chloroacetic acid with indole in the presence of an alkali at a pressure of 50 to 90 atm. and a temperature of 250 to 290° C.

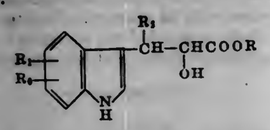
3,320,282

PROCESS FOR PREPARING ESTERS OF 2-HYDROXY-3-(3-INDOLYL)ALKANOIC ACIDS

Manfred Schach von Wittenau and Billie Kenneth Koe, Gales Ferry, Conn., assignors to Chas. Pfizer & Co., Inc., New York, N.Y., a corporation of Delaware

No Drawing. Original application Oct. 29, 1962, Ser. No. 233,911. Divided and this application Feb. 24, 1965, Ser. No. 444,481
4 Claims. (Cl. 260—326.13)

1. A process for the production of a compound of the formula:

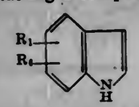


wherein

R_1 and R_6 are selected from the group consisting of hydrogen, chloro, fluoro, nitro, amino, alkyl of one to four carbon atoms and alkoxy of one to four carbon atoms;

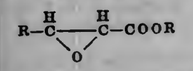
R_3 and R are alkyl of one to three carbon atoms;

which comprises contacting a compound of the formula:



wherein R_1 and R_6 are as previously defined;

with a compound of the formula:



wherein R_3 and R are as previously defined.

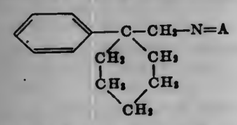
3,320,283

PHENYLCYCLOHEXYLMETHYLAMINE COMPOUNDS

Erik Fred Godefroi, Turnhout, Belgium, assignor to Parke, Davis & Company, Detroit, Mich., a corporation of Michigan

No Drawing. Filed July 6, 1965, Ser. No. 469,847
5 Claims. (Cl. 260—326.87)

1. A compound selected from the group consisting of a free base and its pharmaceutically acceptable acid addition salts, said free base having the formula:



where —N=A is selected from the group consisting of ethylamino, propylamino and pyrrolidino.

5. 1-(1-phenylcyclohexylmethyl)pyrrolidine.

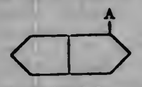
3,320,284

BICYCLO-[3.3.0]-OCTYL LACTONES

Rostyslaw Dowbenko, Gibsonia, Pa., assignor to Pittsburgh Plate Glass Company, Pittsburgh, Pa., a corporation of Pennsylvania

No Drawing. Filed Apr. 19, 1963, Ser. No. 274,337
10 Claims. (Cl. 260—343.6)

1. A compound of the formula:



where A is the radical derived from a lactone containing 4 to 6 members in the ring by replacement of a hydrogen atom, said lactone being selected from the group consisting of unsubstituted lactones and lactones having alkyl substituents of 1 to 10 carbon atoms.

3,320,285

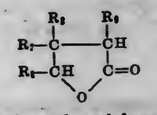
PROCESS FOR THE PREPARATION OF SUBSTITUTED γ-LACTONES FROM TETRAHYDROTHIAPYRAN-1,1-DIOXIDES AND PRODUCT

Jacques Martel, Bondy, and Chanh Huynh, Villemomble, France, assignors to Roussel-Uclaf, S.A., Paris, France, a corporation of France

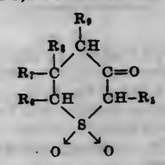
No Drawing. Filed Aug. 3, 1965, Ser. No. 477,013
Claims priority, application France, Aug. 6, 1964, 984,411
4 Claims. (Cl. 260—343.6)

1. The lactone of 3-phenyl-6-methyl-4-hydroxy-5-hepten-1-oic acid.

2. A process for the preparation of a γ-lactone of the formula



wherein R_6 is a member selected from the group consisting of hydrogen, lower-Δ^1-alkenyl, phenyl, lower-alkylphenyl, halophenyl and lower-alkoxyphenyl; R_7 and R_8 are members selected from the group consisting of hydrogen, lower alkyl, phenyl, lower-alkyl-phenyl, halophenyl and lower-alkoxyphenyl, and, when taken together, alkylene having from two to six carbon atoms; and R_9 is a member selected from the group consisting of hydrogen and lower alkyl, which comprises the steps of treating a tetrahydrothiapyran-1,1-dioxide of the formula



wherein R_6, R_7, R_8 and R_9 have the above-indicated meanings and R_5 is a member selected from the group consisting of hydrogen, lower-Δ^1-alkenyl, phenyl, lower-alkylphenyl, halophenyl and lower-alkoxyphenyl, in an aqueous media in the presence of a basic agent selected from the group consisting of ammonium hydroxide, alkali metal hydroxides, alkali metal carbonates and alkaline earth hydroxides, and recovering said γ-lactone.

3,320,286

SYNTHESIS OF 2,2-DIMETHYL-7-BENZOFURANOL

Borivoj Richard Franko-Filipasic, Makefield Township, Bucks County, Pa., assignor to FMC Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Mar. 1, 1965, Ser. No. 436,279
4 Claims. (Cl. 260—346.2)

1. A process of preparing 2,3-dihydro-2,2-dimethyl-7-benzofuranol which comprises

(a) reacting o-nitrophenol with a methallyl halide to form o-methallyloxynitrobenzene,

(b) rearranging o-methallyloxynitrobenzene to an isomer selected from the group consisting of 2-nitro-6-methallylphenol and 2-nitro-6-isobutenylphenol,

(c) cyclizing said isomer to 2,3-dihydro-2,2-dimethyl-7-nitrobenzofuran,

(d) reducing 2,3 - dihydro-2,2-dimethyl-7-nitrobenzofuran to 7 - amino-2,3-dihydro-2,2-dimethylbenzofuran,

(e) diazotizing 7 - amino-2,3-dihydro-2,2-dimethylbenzofuran to a salt of 7-diazonium-2,3-dihydro-2,2-dimethylbenzofuran,

(f) hydrolyzing the salt of 7-diazonium-2,3-dihydro-2,2-dimethylbenzofuran to 2,3-dihydro-2,2-dimethyl-7-benzofuranol.

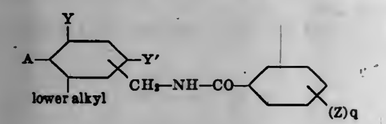
3,320,287

1-AMINO-4-[AROYLAMINOMETHYL-ALKYL-SUBSTITUTED-AMINO]-ANTHRAQUINONE-2-SULFONIC ACIDS

Hans Rodolf Schwander, Riehen, near Basel, Switzerland, assignor to J. R. Geigy A.G., Basel, Switzerland

No Drawing. Filed June 8, 1965, Ser. No. 462,410
Claims priority, application Switzerland, July 24, 1959, 76,175
3 Claims. (Cl. 260—372)

1. A dyestuff of the formula



wherein

A represents 1-amino-2-sulfo-anthraquinonyl-4-imino,

Y represents a member selected from the group consisting of hydrogen and lower alkyl,

Y' represents a member selected from the group consisting of hydrogen and lower alkyl,

Z represents a member selected from the group consisting of hydrogen, chlorine and bromine in at least one of the positions ortho and para to the —CO— group,

q is an integer ranging from 1 to 2.

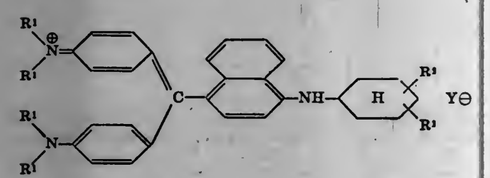
3,320,288

BIS-(4-DIALKYLAMINO-PHENYL)-(4-CYCLOHEXYLAMINO-NAPHTHYL)-METHANE DYES

Ludwig Bettag, Freiburg im Breisgau, and Emil Kern, Albert Palm, Walter Seibert, and Emil Weiss, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Aug. 13, 1963, Ser. No. 301,889
Claims priority, application Germany, Sept. 19, 1962, B 68,909
4 Claims. (Cl. 260—388)

1. A dye of the formula



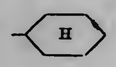
wherein:

R^1 represents lower alkyl;

R^2 represents a member selected from the group consisting of hydrogen, lower alkyl, cyclohexyl, cyclohexylmethylene and methylcyclohexyl;

R^3 represents a member selected from the group consisting of hydrogen and lower alkyl;

R^2 and R^3 when taken together with the structure



further represent decahydronaphthyl; and

Y is a halogen atom selected from the group consisting of chlorine and bromine.

3,320,289

16-FLUORO-ANDROSTENES AND ESTRENES CONTAINING A 17-UNSATURATED HALOGENATED HYDROCARBON SIDE CHAIN

John Fried, Plainfield, John Hannah, Strathmore-at-Matawan, and Arthur A. Patchett, Cranford, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed Mar. 19, 1964, Ser. No. 353,291
19 Claims. (Cl. 260—397.4)

1. A compound selected from the group which consists of 16α-fluoro-17-hydroxy-androst-4-en-3-one substituted at the 17-position with an unsaturated halogenated hydrocarbon side chain selected from the group consisting of trihalovinyl, trihalopropynyl and haloethynyl.

3,320,290

4,8α,14β-TRIMETHYL-9β-ANDROST-4-ENE-3,11,17-TRIONE AND PREPARATION THEREOF

Patrick A. Diassi, Westfield, and Pacifico A. Principe, South River, N.J., assignors, by mesne assignments, to E. R. Squibb & Sons, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Mar. 23, 1965, Ser. No. 442,202
1 Claim. (Cl. 260—397.3)

4,8,14-trimethyl-18-nor-8α,9β,14β-androst-4-en-3,11,17-trione.

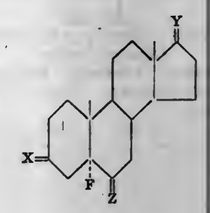
3,320,291

5-FLUORO-6-NITRIMINO- AND 6-KETO STEROIDS AND THEIR PREPARATION

Sam Andreades, Wilmington, and George A. Boswell, Jr., Newark, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Sept. 15, 1964, Ser. No. 396,745
14 Claims. (Cl. 260—397.4)

1. A steroid of the formula



wherein X is selected from the group consisting of (H,OH) and (H,O-acyl); Z is selected from the group consisting of =N—NO_2 and =O; and when Z is =O, Y is selected from the group consisting of (H,OH), (alkyl, OH), (alkyl, O-acyl), (H,$COCH_3$), (OH,$COCH_3$), (O-acyl, $COCH_3$), (H,CHOH—CH_3), and (=O); and when Z is =N—NO_2, Y is selected from the group consisting of any one of the above groups defined for Y, (H, O-acyl), and [H,CH(O-acyl)—CH_3]; acyl being a hydrocarbon carboxylic acid group of up to 10 carbon atoms, and alkyl being lower alkyl.

3,320,292

PREPARATION OF SULFONATED FATTY ACID ESTER SURFACE-ACTIVE AGENTS

Arno Cahn, Pearl River, N.Y., and Henry Lemaire, Leonia, Vincent Lamberti, Teaneck, and Robert A. Haass, Ridgewood, N.J., assignors to Lever Brothers Company, New York, N.Y., a corporation of Maine

No Drawing. Filed Sept. 5, 1963, Ser. No. 306,718
6 Claims. (Cl. 260—400)

1. A method of preparing a compound of the formula $RCOOR'SO_3M$, wherein R is an aliphatic hydrocarbon

having from 7 to 19 carbon atoms, R' is selected from the group consisting of divalent hydrocarbon radicals containing from 2 to 4 carbon atoms, and M is an alkali metal, the process comprising heating an acid of the formula RCOOH with a compound of the formula

$$HOR'SO_3M$$

in the presence of a zinc compound selected from the group consisting of zinc oxides and soaps of zinc with an organic acid of the formula RCOOH at a temperature of about 200° to about 240° C., the ratio of RCOOH to $HOR'SO_3M$ being at least about 1.2 moles per mole.

3,320,293

ORGANIC COMPOUNDS CONTAINING COVALENT GOLD

Charles E. Coffey, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Oct. 5, 1962, Ser. No. 228,732
11 Claims. (Cl. 260—429)

1. A compound of the structure

$$(R_3MAu)_nY(CO)_zR'_x$$

wherein R represents at least one organic radical of up to 12 carbon atoms, any aliphatic moiety represented by R being saturated; R' is a radical selected from the group consisting of cyclopentadienyl, R_3P— and R_3As—; M is selected from the group consisting of phosphorus and arsenic; and Y is selected from the group consisting of manganese, iron, cobalt, molybdenum, tungsten and rhenium; wherein *n* is 1 to 2 inclusive; *z* is 1 to 5 inclusive; *x* is a cardinal number of up to 1; the sum of *n*, *z* and *x* is such that the number of electrons in the shells of Y is equal to the number of electrons in the shells of the next higher inert gas to Y in the Periodic Table; and when Y is selected from the group consisting of tungsten and molybdenum, *x* is 1 and R' is cyclopentadienyl.

3,320,294

PROCESS FOR MAKING MOLYBDENUM ACETYLACETONATE

Melvin L. Larson, Royal Oak, Mich., assignor to American Metal Climax, Inc., New York, N.Y., a corporation of New York

No Drawing. Filed May 21, 1963, Ser. No. 282,135
6 Claims. (Cl. 260—429)

1. A method of making molybdenum (III) beta-diketone complexes which comprises the steps of forming a liquid reaction medium containing molybdenum hexacarbonyl and a beta-diketone compound corresponding to the formula:

$$R_1—CO—CH_2—CO—R_2$$

in which R_1 and R_2 are radicals selected from the group consisting of alkyl radicals having 1 to 8 carbon atoms, aryl radicals including phenyl, alkyl substituted aryls wherein the alkyl substituents thereon have 1 to 8 carbon atoms, the halogen substituted alkyl, aryl, and alkyl-aryl derivatives thereof; as well as mixtures thereof; agitating said reaction medium under an inert atmosphere for a period of time sufficient to effect formation of a molybdenum (III) beta-diketone complex, and thereafter isolating said molybdenum (III) beta-diketone complex from the reaction medium.

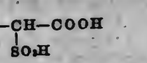
3,320,295

RADIOACTIVE SALTS OF ALPHA-SULFO FATTY ACIDS

Arthur L. Fox, Greenwood, Va., assignor to Stepan Chemical Company, Northfield, Ill., a corporation of Delaware

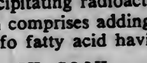
No Drawing. Filed Mar. 3, 1965, Ser. No. 436,910
9 Claims. (Cl. 260—429.1)

1. A salt of a cation and an acid having the general formula:



wherein R is an alkyl radical having from 8 to 20 carbon atoms, said cations being selected from the group of radioactive cations consisting of Sm, Ra, Fr, Po, Ac and the members of the actinium series having atomic weight of at least 230.

8. A method of precipitating radioactive cations from aqueous solution which comprises adding to said solution an amount of an α-sulfo fatty acid having the formula:



wherein R is an alkyl radical having from 8–20 carbon atoms, said cation being selected from the group of radioactive cations consisting of Sm, Ra, Fr, Po, Ac and the members of the actinium series having an atomic weight of at least 230.

3,320,296

METHOD FOR PREPARATION OF COMPOUNDS WITH THE FORMULA $R_2Al—N(CH_3)_2$

Nell R. Fetter, Arlington, Calif., and Bodo K. W. Bartocha, Indian Head, Md., assignors to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed Aug. 23, 1962, Ser. No. 219,078
5 Claims. (Cl. 260—448)

1. A process for the synthesis of compounds with the general formula $R_2Al—N(CH_3)_2$ where R is a member from the group consisting of hydrogen and lower alkyl radicals, comprising distilling about one mole tetramethyltetrazene onto about one mole a member selected from the group comprising aluminum hydride trimethylamine, trimethylaluminum trimethylamine, triethylaluminum and bi-isobutyl aluminum hydride at temperatures ranging from —146° C. to —196° C., slowly warming the resulting mixture to room temperature then heating for from 6 to 18 hours at temperatures ranging from 55° C. to 90° C., and vacuum distilling whereby a white crystalline compound is obtained.

3,320,297

PROCESS FOR PREPARING POLYSILOXANE MIXTURES

Manuel A. Pino, Oakland, Calif., assignor to Chevron Research Company, a corporation of Delaware

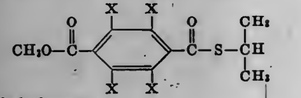
No Drawing. Filed Jan. 30, 1963, Ser. No. 255,077
4 Claims. (Cl. 260—448.8)

1. Process for preparing polyalkoxypolysiloxane mixtures which comprises reacting a mixture consisting essentially of (a) silicon tetrahalide selected from the group consisting of silicon tetrachloride, silicon tetrabromide and silicon tetraiodide, (b) alkanol selected from the group consisting of primary and secondary alkanols of from 4 to 10 carbon atoms each, (c) water, and (d) tetraalkyl orthosilicate in which the alkyl groups correspond to the alkyl radical of the above alkanol, said alkanol being present in a ratio of from about 2.0 to 3.3 mols per each mol of said tetrahalide, said water being present in an amount from about 10 to 25 mol percent based on the combined quantity of alkanol and water and said tetraalkyl orthosilicate being present in a ratio of from about 10:1 to about 1:10 volumes for each

volume of the final reaction product mixture, said reaction being at a temperature in the range from about 70 to about 105° F. and said final reaction product mixture containing less orthosilicate than in the beginning reaction mixture.

3,320,298
METHYL S-ISOPROPYL 2,3,5,6-TETRAHALO-MONOTHIOTEREPHTHALATES
Sidney B. Richter, Chicago, and Alfred A. Levin, Skokie, Ill., assignors to Velsicol Chemical Corporation, Chicago, Ill., a corporation of Illinois
No Drawing. Filed May 13, 1964, Ser. No. 367,224
5 Claims. (Cl. 260—455)

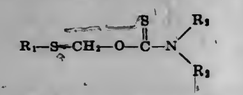
1. A compound of the general formula:



wherein X is halogen.

3,320,299
ALKYL MERCAPTOMETHYL THIONO-CARBAMATES
Ivan C. Popoff, Ambler, Pa., assignor to Pennsalt Chemicals Corporation, Philadelphia, Pa., a corporation of Pennsylvania
No Drawing. Filed June 23, 1964, Ser. No. 377,411
4 Claims. (Cl. 260—455)

1. Compounds having the structure



where R_1 is an alkyl group containing from 8 to 12 carbon atoms and R_2 is a lower alkyl group.

3,320,300
BUTYL (BUTYLTHIO)THIOLACETATE, AND METHOD OF PREPARING THIOL ESTERS
Richard C. Doss, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
No Drawing. Filed Oct. 26, 1964, Ser. No. 406,553
14 Claims. (Cl. 260—455)

1. Butyl (butylthio)thiolacetate.

14. A method of preparing a thiol ester having a sulfide linkage alpha to the ester group comprising contacting a thiol with a compound selected from the group consisting of dihalo aldehydes and trihalo aldehydes, the contacting being carried out under a pressure sufficient to keep the reactants substantially liquid and when the compound is dihalo aldehyde at a temperature of from about 20 to about 300° C. and when the compound is trihalo aldehyde at a temperature of from about 150 to about 300° C.

3,320,301
PRODUCTION OF AROMATIC SULFONIC ACID ESTERS
Alexander F. MacLean, Corpus Christi, Tex., assignor to Celanese Corporation, a corporation of Delaware
No Drawing. Filed Sept. 18, 1963, Ser. No. 309,851
7 Claims. (Cl. 260—456)

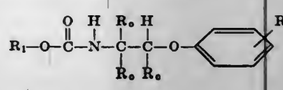
1. The method of producing an ester represented by the general formula

$$R—O—SO_2R'$$

where R represents a radical selected from the group consisting of aromatic hydrocarbon radicals and nuclearly halogenated aromatic hydrocarbon radicals, and R' represents a lower alkyl radical, said method comprising oxidizing an aromatic compound selected from the group consisting of aryl hydrocarbons, alkaryl hydrocarbons and nuclearly halogenated aromatic hydrocarbons with a bis(methanesulfonyl) peroxide.

3,320,302
ALKYL(ARYLOXYETHYL)CARBAMATES AND PROCESS
George Edward Ham and Leonard Levine, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed Nov. 13, 1963, Ser. No. 323,253
10 Claims. (Cl. 260—471)

1. A compound of the formula



wherein:

(a) each R group is independently selected from the group consisting of a hydrogen atom and an alkyl group of from 1 to 3 carbon atoms,

(b) *n* is an integer from 0 to 3 which represents the number of alkyl R groups attached to the aromatic nucleus,

(c) R_o is selected from the group consisting of the hydrogen atom and a lower alkyl group, and

(d) R_1 is an alkyl group of from 1 to 6 carbon atoms.

3,320,303
PRODUCTION OF TEREPHTHALIC ACID ESTERS
Walter Schenk, Heidelberg, Hans Nienburg, Ludwigshafen (Rhine), and Oskar Dorschner, Bad Homburg vor der Hohe, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
No Drawing. Filed Mar. 19, 1963, Ser. No. 266,208
Claims priority, application Germany, Mar. 23, 1962, B 66,488
7 Claims. (Cl. 260—475)

1. A process for the production of esters of terephthalic acid which comprises:

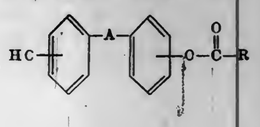
converting in a first stage at a temperature of about 40° C. to 150° C. a neutral alkali metal salt of terephthalic acid into the acid alkali metal salt of terephthalic acid by means of an acid having a higher acidity than terephthalic acid and being selected from the group consisting of benzenecarboxylic acids and the corresponding anhydrides and acid alkali metal salts of said benzenecarboxylic acids in an amount sufficient to achieve a pH in said first stage of about 5.4 to 6.1;

reacting said acid alkali metal salt of terephthalic acid in a second stage at a temperature of about 80° C. to 350° C. with a compound selected from the group consisting of alkanols of 1 to 4 carbon atoms, α,ω alkanediols of 2 to 10 carbon atoms and 1,2-epoxides of 2 to 4 carbon atoms; and

separating the resulting ester of terephthalic acid.

3,320,304
MONOESTERS OF BISPHENOLS AND PROCESS
Henry E. Hennis and Leonard R. Thompson, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
No Drawing. Filed July 3, 1963, Ser. No. 292,770
6 Claims. (Cl. 260—479)

1. A compound of the formula



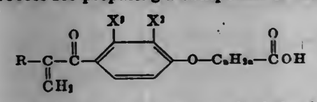
wherein A is selected from the group consisting of alkylidene of 1–4 carbon atoms, benzylidene, and cyclohexylidene and R is alkyl of 1–3 carbon atoms.

3,320,305
PROCESS FOR CONVERTING NITRILES
Herbert K. Wiese, Cranford, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Filed Jan. 28, 1964, Ser. No. 340,774
12 Claims. (Cl. 260—486)

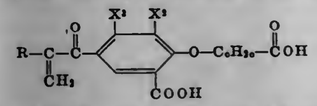
1. A method for the preparation of carboxylic acids which comprises heating a nitrile having the formula RCN wherein R is selected from the group consisting of alkyl, alkenyl, cycloalkyl, cycloalkenyl, hydroxy substituted saturated hydrocarbon groups, aralkyl and aryl groups with sulfuric acid and a nitrosating agent selected from the group consisting of nitrosyl sulfuric acid, N_2O_3, NOCl, NOBr, C_1–C_{12} alkyl nitrites, nitrous acid and nitrosyl sulfuric anhydride.

3,320,306
PROCESS FOR THE PREPARATION OF 4-(2-METHYLENEALKANOYL)PHENOXY ALKANOIC ACIDS BY DECARBOXYLATION
John M. Chemerda, Plainfield, N.J., and John B. Bicking, Lansdale, Pa., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey
No Drawing. Filed Jan. 29, 1964, Ser. No. 341,131
7 Claims. (Cl. 260—520)

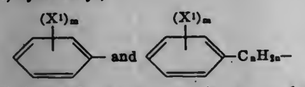
1. A process for preparing a compound of the formula:



which comprises treating a compound of the formula:



with hot diethyl succinate and boiling the mixture for a short period; wherein R is a member selected from the group consisting of lower alkyl, trihalomethyl substituted lower alkyl, cycloalkyl,



wherein X^1 in each occurrence, is a member selected from the group consisting of hydrogen, halogen, lower alkyl and lower alkoxy and *m*, in each occurrence, is an integer having a value of 1–4; X^2 and X^3 each represents a member selected from the group consisting of hydrogen, halogen, lower alkyl, lower alkoxy and, taken together, the X^2 and X^3 radicals are combined to form a 1,3-butadienylene linkage and *n*, in each occurrence, is an integer having a value of 1–5.

3,320,307
PROCESS FOR THE PRODUCTION OF POTASSIUM SORBATE
Frank Ernest Kerr, Hull, England, assignor to The Distillers Company Limited, Edinburgh, Scotland, a British company
No Drawing. Filed May 23, 1963, Ser. No. 282,570
Claims priority, application Great Britain, June 20, 1962, 23,651/62
6 Claims. (Cl. 260—526)

1. A process for the production of potassium sorbate which comprises adding potassium carbonate to a solution of sorbic acid in a solvent consisting essentially of acetone, heating the mixture to reflux temperature and recovering potassium sorbate from the reaction mixture.

3,320,308
PREPARATION OF ALKYL AND DIALKYL CARBAMYL HALIDES
Camille Cottin, Lyon, France, assignor to Progil, Paris, France
Continuation of application Ser. No. 301,113, Aug. 9, 1963. This application Sept. 8, 1965, Ser. No. 495,006
5 Claims. (Cl. 260—544)

1. In a process for the manufacture of alkyl and dialkyl carbamyl halides, which comprises passing a mixture of substantially equimolar proportions of an amine selected from the group consisting of monoalkylamines and dialkylamines and a carbonyl halide through a heated reaction zone maintained within the range of from 200° to 250° C., and separating the carbamyl halide thus produced from the reaction mixture, the improvement comprising recovering the carbamyl halide product by absorbing the effluent mixture from the reaction zone in an inert liquid maintained at temperatures of no more than 90° C. to rapidly cool said mixture and effect recovery of the carbamyl halide without concomitant decomposition thereof.

3,320,309
PROCESS FOR PREPARING CARBODIIMIDES
Paul Schlack, Leitershofen, near Augsburg, and Günter Keil, Lorsbach, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany
No Drawing. Filed Oct. 8, 1963, Ser. No. 314,608
Claims priority, application Germany, Oct. 13, 1962, F 38,042
10 Claims. (Cl. 260—551)

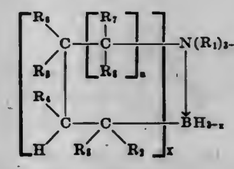
1. A process for the manufacture of carbodiimides which comprises heating a thiourea of the formula

$$NHR—CS—NHR'$$

in which R and R' are lower tertiary alkyl or cyclohexyl with an alkali metal amide, an alkali metal hydride or an alkali metal secondary or tertiary alcoholate of three to four carbon atoms, in an inert organic solvent to about the reflux temperature of said solvent, and removing any secondary or tertiary alcohol, formed in the process, in the form of an azeotropic mixture.

3,320,310
HETEROCYCLIC BORON-NITROGEN COMPOUNDS
Mervin D. Marshall, Fombell, and Roy M. Adams, Darlington, Pa., assignors to Callery Chemical Company, Pittsburgh, Pa., a corporation of Pennsylvania
No Drawing. Filed May 28, 1964, Ser. No. 371,101
10 Claims. (Cl. 260—551)

1. A compound having the formula



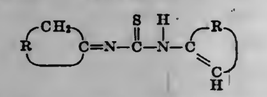
wherein R_1 represents lower alkyl having 1 to 4 carbon atoms, R_2 through R_8 represents hydrogen or lower alkyl having 1 to 4 carbon atoms, *n* is an integer from 0 to 2 and *x* is an integer 1 or 3.

3,320,311
N-CYCLOALKYLIDENE - N' - CYCLOALKYL-1-ENYL-THIOUREAS AND METHOD OF PREPARATION

Charanjit Rai, Crystal Lake, Ill., assignor, by mesne assignments, to Union Oil Company of California, Los Angeles, Calif., a corporation of California

No Drawing. Filed July 17, 1963, Ser. No. 295,794
13 Claims. (Cl. 260—552)

1. A compound of the formula



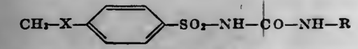
wherein R is a substituted or unsubstituted methylene chain of the formula $-(CH_2)_n-$, wherein n is 2 to 5, said substituents consisting of up to three members of the group consisting of methyl, ethyl, propyl, butyl, chloro, and fluoro.

3,320,312
PHENYLSULFONYL CYCLO-ALKYLUREAS AND THE PREPARATION THEREOF

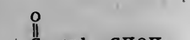
Max V. Sigal, Jr., and Arthur M. Van Arendonk, Indianapolis, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind., a corporation of Indiana

No Drawing. Filed Apr. 28, 1960, Ser. No. 25,209
4 Claims. (Cl. 260—553)

1. A compound of the class consisting of an N-substituted phenylsulfonyl-N'-cyclo-alkylurea and its salts formed with nontoxic cations, said sulfonylurea being of the following formula:



wherein R is a member of the group consisting of cyclohexyl and cycloheptyl, and X is a member of the group consisting of

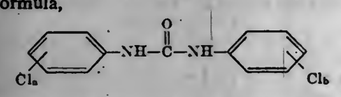


3,320,313
PREPARATION OF HALOGENATED CARBANILIDES

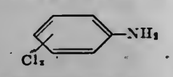
John Frederick Herber, Clayton, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed June 12, 1964, Ser. No. 374,827
10 Claims. (Cl. 260—553)

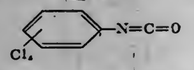
1. In a process for preparing a halogenated carbanilide of the formula,



wherein a is an integer from 1 to 3, and b is an integer from 2 to 3, by reacting an amine of the formula



with an isocyanate of the formula



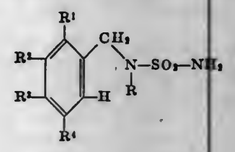
wherein x and z are each integers from 1 to 3, and the sum of x and z is at least 3, the improvement which comprises adding, substantially simultaneously, an o-dichlorobenzene solution of said amine and an o-dichlorobenzene solution of said isocyanate to a reaction vessel, and carrying out the reaction at a temperature of from about 100° C. to about 170° C.

3,320,314
CHLOROBENZYL SULFAMIDES

William J. Houlihan, Mountain Lakes, N.J., assignor to Sandoz Inc., Hanover, N.J.

No Drawing. Filed June 15, 1964, Ser. No. 375,288
6 Claims. (Cl. 260—556)

1. A compound of the formula



wherein

R is cyclopropyl; and

each of

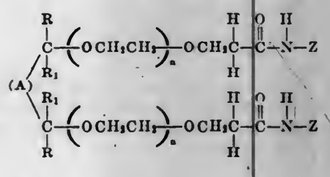
R^1, R^2, R^3, and R^4 is a member selected from the group consisting of a hydrogen atom, lower alkyl, lower alkoxy, fluoro and chloro; at least one of R^1, R^2, R^3 and R^4 being chloro.

3,320,315
BIS-(β-OXYPROPIONAMIDO)-ALKYNES)

Jack L. Towle, East Cleveland, and Dale G. Block, Cleveland, Ohio, assignors, by mesne assignments, to Kewanee Oil Company, Bryn Mawr, Pa., a corporation of Delaware

No Drawing. Filed Aug. 31, 1964, Ser. No. 393,403
6 Claims. (Cl. 260—561)

1. A class of compounds represented by the following general formula:



wherein n is an integer ranging from 0 to 20 inclusive, A represents a member selected from the group consisting of ethynylene and diethynylene, and when n is 0, R represents hydrogen and R_1 represents a member selected from the group consisting of hydrogen and alkyl having from 1 to 2 carbon atoms, and when n is 1 to 20, R and R_1 represent a member selected from the group consisting of hydrogen and alkyl having from 1 to 2 carbon atoms, and Z represents a member selected from the group consisting of hydrogen, methyl and hydroxymethyl.

3,320,316
3a,4,7,7a - TETRAHYDRO - 2,3,3a,4,5,6,7,7a - OCTAHALO - 4,7 - METHANOINDENE - 1,8 - DIONE DIIMINES AND PROCESS FOR THEIR PRODUCTION

Earl T. McBee, Lafayette, Ind., assignor to Purdue Research Foundation, West Lafayette, Ind., a corporation of Indiana

No Drawing. Filed Dec. 16, 1963, Ser. No. 330,603
8 Claims. (Cl. 260—566)

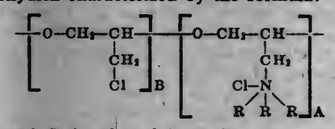
1. 3a,4,7,7a - tetrahydro - 2,3,3a4,5,6,7,7a - octahalo-4,7-methanoindene-1,8-dione diimine wherein halo is chloro or bromo.

3,320,317
QUATERNARY AMMONIUM ADDUCTS OF POLYEPICHLOROHYDRIN

William A. Rogers, Lake Jackson, Tex., and James E. Woehst, Savannah, Ga., assignors to the Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed July 9, 1963, Ser. No. 293,842
4 Claims. (Cl. 260—567.6)

1. A water-soluble adduct of a trialkylamine with polyepichlorohydrin characterized by the formula:



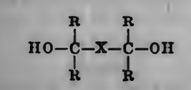
wherein each R is selected from the group consisting of methyl and ethyl; A and B are integers whose sum is an integer of from 4 to about 500; and the ratio of A to B is at least about 1:5.

3,320,318
THIOBENZENE-DIOL-POLYAMINE CORROSION INHIBITING COMPOSITION

Olen L. Riggs, Jr., Louis H. Wolfe, and Richard L. Every, Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla., a corporation of Delaware

No Drawing. Filed Aug. 19, 1963, Ser. No. 303,141
12 Claims. (Cl. 260—570.5)

1. A composition formed by: mixing one part of thiobenzene with from one to five parts of the dehydration-condensation reaction product of an unsaturated diol of the formula



wherein R is selected from the group consisting of hydrogen, methyl, and ethyl, and x is selected from the group consisting of

$$-C\equiv C- \text{ and } -CH=CH-$$

and an approximately equimolar quantity of a polyalkylene polyamine of the formula

$$H_2N-(R_1-NH)_y-R_1-NH_2$$

wherein R_1 is a radical selected from the group consisting of ethylene and propylene and y is an integer from 1 to 4, inclusive; and heating the mixture to a temperature of about 40–140° C. and maintaining the temperature for about 5–30 minutes.

3,320,319
1-(ARYL)-2-METHYL-2-ALIPHATIC AMINO-PROPANES

Wilhelm Alfons Schuler, Bad Homburg, and Helmut Beschke, Frankfurt am Main, Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany

No Drawing. Filed Aug. 6, 1965, Ser. No. 477,947
Claims priority, application Germany, Mar. 29, 1961, D 35,763; May 29, 1964, D 44,564
4 Claims. (Cl. 260—570.8)

1. 1-(p-chlorophenyl) - 2 - methyl-2-(2-hydroxyethyl-amino)-propane.

3,320,320
PROCESS FOR PRODUCING DIMETHOXY-HEXANITROBIPHENYL AND DIAMINO HEXANITROBIPHENYL

Mortimer J. Kamlet, Silver Spring, Md., and Darrell V. Sickman, Washington, D.C., assignors to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed May 26, 1965, Ser. No. 459,130
9 Claims. (Cl. 260—581)

1. The process for producing 3,3'-dimethoxy-2,2',4,4',6,6'-hexanitrobiphenyl which comprises producing said 3,3'-dimethoxy-2,2',4,4',6,6'-hexanitrobiphenyl at a temperature between about 80° C. and 90° C. by nitrating a solution of 3,3'-dimethoxybiphenyl with a mixture of nitric acid and oleum, said nitric acid being present in an amount that is at least stoichiometrically sufficient to nitrate said 3,3'-dimethoxybiphenyl to 3,3'-dimethoxy-2,2',4,4',6,6'-hexanitrobiphenyl and said oleum being present in an amount sufficient to maintain the reaction mixture substantially anhydrous.

6. A process for producing 3,3'-diamino-2,2',4,4',6,6'-hexanitrobiphenyl which comprises:

(a) mixing a solution of the 3,3'-dimethoxybiphenyl with nitric acid and oleum, said nitric acid being present in an amount that is at least stoichiometrically sufficient to convert 3,3'-dimethoxybiphenyl to 3,3'-dimethoxy-2,2',4,4',6,6'-hexanitrobiphenyl and said oleum being present in an amount sufficient to maintain the reaction mixture substantially anhydrous;

(b) raising the temperature of the mixture to between about 80° C. and 90° C. to produce 3,3'-dimethoxy-2,2',4,4',6,6'-hexanitrobiphenyl; and

(c) aminating the 3,3'-dimethoxy-2,2',4,4',6,6'-hexanitrobiphenyl to 3,3'-diamino-2,2',4,4',6,6'-hexanitrobiphenyl.

3,320,321
PHOSPHONIUM ETHYL AMINE DERIVATIVES

Martin Grayson, Norwalk, Patricia Tarpey Keough, Ridgefield, and Michael McKay Rauhut, Norwalk, Conn., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed June 28, 1963, Ser. No. 291,281
5 Claims. (Cl. 260—583)

1. A compound of the formula

$$[(R^1R^2R^3P^{\oplus}CH_2CH_2)_nA']X_n^{\ominus}$$

wherein R^1, R^2 and R^3 each represent a member selected from the group consisting of alkyl C_1–C_{16}, substituted alkyl C_1–C_{16}, cycloloweralkyl, phenyl, naphthyl and substituted phenyl, wherein the substitutents for alkyl are lower alkoxy or cyano and the substituents for phenyl are lower alkyl, lower alkoxy or halogen; A' represents the residue of a member selected from the group consisting of ammonia, a primary aliphatic C_1–C_{12} amine, a secondary aliphatic C_1–C_{12} amine, a substituted secondary aliphatic amine wherein the substituents are cyano or $-Si(CH_3)_3$ and a diamine H_2NRNH_2 wherein R is lower alkylene; X is halogen; and n is a value from 1 to 2, inclusive.

3,320,322
PURIFICATION PROCESS

William K. Langdon, Grosse Ile, and Michael Kokorudz, Wyandotte, Mich., assignors to Wyandotte Chemicals Corporation, Wyandotte, Mich., a corporation of Michigan

No Drawing. Filed Aug. 2, 1963, Ser. No. 299,470
17 Claims. (Cl. 260—593)

10. A process for the simultaneous production and purification of a 1,1,1-trihalo-2-ketone contained in a crude halogenation mixture comprising a 1-halo-2-ketone and a 1,3-polyhaloacetone which comprises reacting said mixture with a hypohalite in aqueous medium, the halo-

gen of said hypohalite having an atomic weight of at least 35, while maintaining the pH in the range of about 6 to about 10 and separating the 1,1,1-trihalo-2-ketone from the resulting mixture.

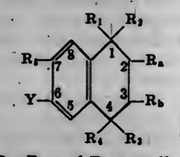
3,320,323

ALKYL SULFUR DERIVATIVES OF POLYALKYL TETRAHYDRONAPHTHALENES AND PROCESS FOR MAKING SAME

Robert Lusskin, Haworth, and Joseph Levy, Paramus, N.J., assignors to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

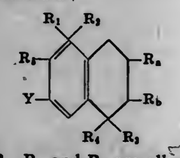
No Drawing. Filed June 22, 1964, Ser. No. 377,052
12 Claims. (Cl. 260—607)

1. A compound having the following structural formula:

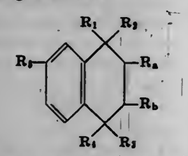


in which R_1, R_2, R_3, R_4 and R_5 are alkyl radicals selected from the group consisting of methyl and ethyl; R_a and R_b are selected from the group consisting of hydrogen, methyl and ethyl; and Y is selected from the group consisting of methyl and ethyl -mercapto, -sulfinyl and -sulfonyl radicals.

7. Process for preparing a compound having the following structural formula:



in which R_1, R_2, R_3, R_4 and R_5 are alkyl radicals selected from the group consisting of methyl and ethyl; R_a and R_b are selected from the group consisting of hydrogen, methyl and ethyl; and Y is selected from the group consisting of methyl and ethyl -mercapto, -sulfinyl and -sulfonyl radicals which comprises: (A) reacting a dialkyldisulfide selected from the group consisting of dimethyldisulfide and diethyldisulfide in the presence of a Friedel-Crafts catalyst with a polyalkyltetrahydronaphthalene having the following formula:



in which R_1, R_2, R_3, R_4 and R_5 are alkyl radicals selected from the group consisting of methyl and ethyl and R_a and R_b are selected from the group consisting of hydrogen and ethyl to form an alkylmercapto substituted tetrahydronaphthalene; (B) reacting the alkylmercapto substituted tetralin thus obtained with an oxidizing agent to form an alkylsulfonyl or alkylsulfinyl substituted polyalkyl-tetrahydronaphthalene; and (C) recovering the desired product.

3,320,324

PROCESS FOR THE MANUFACTURE OF p-NITROSOPHENOL

Delore L. Kouba, Wilmington, Del., assignor to Hercules Incorporated, a corporation of Delaware

No Drawing. Filed Jan. 8, 1964, Ser. No. 336,346
8 Claims. (Cl. 260—621)

1. The process of producing p-nitrosophenol which comprises bringing together continuously and simultaneously with rapid agitation aqueous solutions of sodium nitrite, phenol, and a mineral acid of the group consisting of sulfuric acid and hydrochloric acid, as reagents in the chemically equivalency proportions for the production of p-nitrosophenol of about 1.2:1.0:1.2 to 1.4:1.0:1.4, in a reaction medium comprising essentially an aqueous sodium salt solution of said mineral acid and saturated with p-nitrosophenol at a pH lower than 5 and a temperature in the range of about 0–15° C., at such a rate that the pH is maintained below 5 and phenol dissolves completely in the aqueous phase without formation of a phenol phase, whereby a slurry of crystalline p-nitrosophenol is formed with said reaction medium, and separating said crystalline p-nitrosophenol substantially free of mother liquor from said reaction medium, the amount of water introduced with said reagents being substantially the amount required for producing a reaction mixture of substantially the same concentration with respect to the salt of said mineral acid as the reaction medium itself.

3,320,325

PRODUCTION OF IMPROVED PARTICULATE SALTS

Alexander H. Widiger, Jr., and Edward C. Staehling, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Apr. 2, 1964, Ser. No. 356,958
5 Claims. (Cl. 260—623)

1. In a process wherein a dispersed aqueous alkali metal phenate is thermally dried to produce a particulate solid and wherein said phenate is the alkali metal salt of pentachlorophenol, tetrachlorophenol, trichlorophenol, chlorocresol, or phenylphenol, the improvement which consists of essentially uniformly wetting said solid with sufficient aqueous alkali metal hydroxide solution to provide a wetted particulate solid containing from about one to about 15 mole percent of free alkali metal hydroxide.

3,320,326

PREPARATION OF NON-CONJUGATED DIOLEFINS

Herman S. Bloch, Skokie, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

No Drawing. Filed July 20, 1964, Ser. No. 385,544
5 Claims. (Cl. 260—666)

1. A process for the production of a non-conjugated diolefinic hydrocarbon which comprises copolymerzing propylene with a diolefinic hydrocarbon at a temperature in the range of from about 50° to about 300° C. and at a pressure in the range of from about 5 to about 250 atmospheres in the presence of a catalyst comprising an alkali metal amide composited on a high surface area, substantially anhydrous solid support which has been promoted with a compound selected from the group consisting of the salts and hydroxides of the alkali metals and alkaline earth metals and thereafter calcined, and recovering the resultant non-conjugated diolefinic hydrocarbon.

3,320,327

BICYCLIZATION

Paul R. Stapp, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed Feb. 7, 1966, Ser. No. 525,331
6 Claims. (Cl. 260—666)

1. A method for forming bicyclic olefins comprising contacting under bicyclization conditions at least one of 4-vinylcyclohexene and alkyl substituted derivatives thereof with a catalyst formed on admixing at least on halide of at least one metal selected from the group consisting of beryllium, magnesium, calcium, strontium, barium, zinc, cadmium, and mercury with at least one alkali metal aluminum hydride.

3,320,328

PERMSELECTIVE MEMBRANES

Alan S. Michaels, Lexington, Mass., assignor to Amicon Corporation, Cambridge, Mass., a corporation of Massachusetts

No Drawing. Filed June 14, 1963, Ser. No. 287,788
2 Claims. (Cl. 260—674)

1. The method of making a diffusion membrane which has a selective permeability for paraxylene of a mixture of ortho- and paraxylene at a selected temperature which comprises first stretching a membrane of material selected from the class consisting of low density polyethylene, high density polyethylene, and high density polyethylene-maleate, and subsequently maintaining said stretched membrane in contact with paraxylene at a temperature below the dissolution temperature and at least 5° C. above said selected temperature, and cooling the membrane.

2. The method of separating paraxylene from a mixture of fluid materials which comprises preparing a diffusion membrane as claimed in claim 1, thereafter placing one side of said membrane in contact with a supply of said mixture, and collecting material diffusing through the membrane.

3,320,329

OXIDATIVE DEHYDROGENATION OVER STANNIC PHOSPHATE CATALYST

George J. Nolan, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed Apr. 23, 1965, Ser. No. 450,508
10 Claims. (Cl. 260—680)

1. A method for dehydrogenating a compound selected from the group consisting of alkenes, cycloalkenes, alkylpyridines and alkyl aromatics comprising contacting said compound in the presence of oxygen with a catalyst consisting essentially of stannic phosphate.

3,320,330

PROCESS FOR THE CATALYTIC OXIDATIVE DEHYDROGENATION OF OLEFINS TO DIOLEFINS

James Louis Callahan, Bedford, Berthold Gertisser, Cleveland Heights, and Joseph J. Szabo, Chagrin Falls, Ohio, assignors to The Standard Oil Company, Cleveland, Ohio, a corporation of Ohio

No Drawing. Original application Apr. 25, 1962, Ser. No. 190,038, now Patent No. 3,248,340, dated Apr. 26, 1966. Divided and this application Sept. 30, 1965, Ser. No. 510,416
7 Claims. (Cl. 260—680)

1. A process for the dehydrogenation of monoolefins to diolefins which comprises contacting the olefin and oxygen in the vapor phase at a temperature at which dehydrogenation proceeds with a catalyst composition consisting essentially of oxides of bismuth and molybdenum as the essential catalytic ingredients, the bismuth oxide being present in an amount to furnish a bismuth to molybdenum Bi:Mo atomic ratio of above 1:3, promoted by a mixture of oxides of boron and bismuth, in the proportion of about 0.5 to about 1%, calculated as boron, and about 5 to about 10%, calculated as bismuth.

3,320,331

OXIDATIVE DEHYDROGENATION OF ALIPHATIC HYDROCARBONS OVER ALUMINUM PHOSPHATE SUPPORTED MOLYBDENUM AND VANADIUM

Noel J. Gaspar and Israel S. Pasternak, Sarnia, Ontario, Canada, assignors to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Filed Jan. 27, 1966, Ser. No. 523,268
19 Claims. (Cl. 260—683.3)

1. A process for the oxidative dehydrogenation of aliphatic hydrocarbons, which comprises contacting an aliphatic feed and oxygen in a reaction zone at a temperature of between about 900° F. and about 1300° F. with a catalyst comprising a major amount of aluminum phosphate and a minor amount of a heavy metal oxide selected from the group consisting of (a) molybdenum oxide, (b) vanadium pentoxide, and (c) a combination of (a) and (b).

11. An oxidative dehydrogenation catalyst consisting essentially of a major amount of aluminum phosphate and a minor amount of a heavy metal oxide selected from the group consisting of (a) molybdenum oxide, (b) vanadium pentoxide, and (c) a combination of (a) and (b).

3,320,332

PROCESS FOR CONVERTING 1,2,3,4-TETRAHYDRONAPHTHALENE TO OCTAHYDROANTHRACENE AND OCTAHYDROPHENANTHRENE

Abraham Schneider, Overbrook Hills, Pa., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

No Drawing. Filed Oct. 5, 1964, Ser. No. 401,663
10 Claims. (Cl. 260—668)

1. Method of preparing an octahydrotricyclic aromatic selected from the group consisting of octahydroanthracene and octahydrophenanthrene which comprises (1) contacting 1,2,3,4-tetrahydronaphthalene including hereinafter recited recycle 1,2,3,4-tetrahydronaphthalene at a temperature in the range of 0°–120° C. with a catalytically effective amonut of an aluminum halide-1,2,3,4-tetrahydronaphthalene-hydrogen halide complex catalyst, including hereinafter recited recycle catalyst, formed by contacting an aluminum halide selected from the group consisting of $AlCl_3$ and $AlBr_3$ with 1,2,3,4-tetrahydronaphthalene in the presence of a hydrogen halide, the halide in said hydrogen halide being the same as the halide in said aluminum halide, (2) settling the resulting two-phase system whereby there is obtained an upper organic layer containing said octahydrotricyclic aromatic and unreacted 1,2,3,4-tetrahydronaphthalene and a lower catalyst layer, (3) separating said organic layer from said catalyst layer, (4) recovering said octahydrotricyclic aromatic and 1,2,3,4-tetrahydronaphthalene from said organic layer, and (5) utilizing 1,2,3,4-tetrahydronaphthalene recovered in step (4) and catalyst separated in step (3) as said recycle 1,2,3,4-tetrahydronaphthalene and recycle catalyst respectively.

3,320,333

CURABLE JOINT SEALING COMPOSITIONS COMPRISING HALOGENATED BUTYL RUBBER, PHENOL-ALDEHYDE RESIN, AND PETROLEUM HYDROCARBON RESIN

Fred Battline, Bayshore, N.Y., assignor to W. R. Grace & Co., Cambridge, Mass., a corporation of Connecticut

No Drawing. Filed Apr. 7, 1964, Ser. No. 358,071
5 Claims. (Cl. 260—846)

1. A curable sealing composition comprising between about 3.5 to 5.0 parts by weight of a halogenated rubbery copolymer containing a major amount of isobutylene copolymerized with up to about 5% by weight of a diolefin, said copclymer containing between about 1.0 and 1.5 weight percent of combined halogen, between about 1.0 to 2.5 parts by weight of a petroleum hydrocarbon resin which is a polymerizate derived from the cracked distillate composed of unsaturated hydrocarbons and between about 1.0 and 1.5 parts by weight of a heat-reactive phenol-aldehyde resin, said resin being a condensate of formaldehyde and a compound selected from the group consisting of phenol and p-alkyl phenol having 1 to 6 carbon atoms in the alkyl group.

3,320,334
POLY-ALPHA-OLEFIN PYRIDINIC POLYAMIDE COMPOSITIONS HAVING HIGH RECEPTIVITY TO DYESTUFFS

Alberto Bonvicini and Ennio Ildos, Terni, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy

No Drawing. Filed May 21, 1962, Ser. No. 196,441
Claims priority, application Italy, May 23, 1961, 9,567/61
9 Claims. (Cl. 260—857)

1. A polymer composition having a high dye receptivity, containing at least one poly-alpha-olefin and 1–25%, based on the weight of poly-alpha-olefin, of a pyridinic polyamide poly-condensation product of a member selected from the group consisting of isocinchomeronic acid and its esters with at least one aliphatic diamine.

3,320,335
PROCESS FOR POLYMERIZING HIGHER LACTAMS IN THE PRESENCE OF URETHANE POLYMER PROMOTERS

Ross M. Hedrick, St. Louis, and Edward H. Mottus, Ballwin, Mo., assignors to Monsanto Company, a corporation of Delaware

No Drawing. Filed Apr. 22, 1963, Ser. No. 274,784
9 Claims. (Cl. 260—858)

1. A process for effecting the polymerization of a higher lactam containing at least 6 carbon atoms in the lactam ring, comprising the anionic polymerization of the said lactam under substantially anhydrous conditions at a polymerization initiation temperature of from about 140° C. up to about 200° C. in the presence of an effective amount of from about 0.05 to about 30 mole percent, based on the lactam, of a urethane polymer promoter compound having a plurality of the N-carbamate repeating structural units



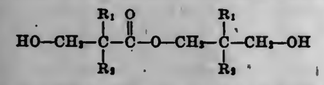
wherein X is a member selected from the group consisting of O and S; Y is a member selected from the group consisting of O and S; and R′ is selected from the group consisting of a hydrogen atom, hydrocarbyl radicals, and substituted hydrocarbon radicals containing inert atoms from the group consisting of halogen, oxygen, and sulfur atoms; said repeating structural units being linked together through a plurality of divalent radicals R and R′ selected from the group consisting of divalent hydrocarbon radicals, free from nonbenzenoid unsaturation, and substituted divalent hydrocarbon radicals containing inert atoms from the group consisting of halogen, oxygen and sulfur atoms.

3,320,336
UNSATURATED POLYESTERS HAVING BRANCHED STRUCTURES

Roy B. Duke, Jr., Smyrna, Ga., and Milton A. Perry, Longview, Tex., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed Nov. 14, 1963, Ser. No. 323,615
17 Claims. (Cl. 260—861)

1. An unsaturated polyester having a molecular weight in the range of about 750–5000 of equimolecular amounts of (1) a bifunctional dihydroxy organic compound of which at least 50 mole percent has the general structure:



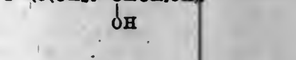
wherein each of R_1 and R_2 represents an alkyl group having 1–4 carbon atoms, and (2) a bifunctional dicarboxylic acid of which at least 50 mole percent is an unsaturated dibasic acid selected from the group consisting of maleic acid, maleic anhydride, fumaric acid, tetrahydrophthalic acid, tetrahydrophthalic anhydride, itaconic acid, citraconic acid, mesaconic acid and chlorine substituted derivatives of said acids.

3,320,337
TRANSESTERIFICATION OF PHOSPHITES

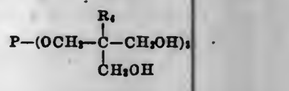
Charles F. Baranauckas and Irving Gordon, Niagara Falls, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York

No Drawing. Filed Feb. 17, 1964, Ser. No. 345,088
3 Claims. (Cl. 260—982)

1. A process for preparing a tertiary phosphite selected from the group consisting of



and

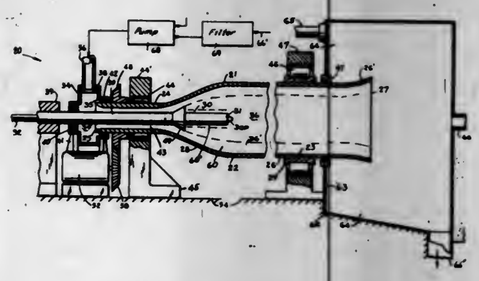


wherein b is an integer between 1 and 10 inclusive and R_4 is lower alkyl, which comprises reacting at a temperature in the range of about 25 degrees centigrate to 300 degree centigrade, about 1 mole of a tertiary phosphite having the formula $P(OR')_3$, wherein R′ is selected from the group consisting of alkyl, alkenyl, aryl and arylalkyl, with about three moles of a triol, and recovering the tertiary phosphite.

3,320,338
PARTICLE MANUFACTURE

Jerome H. Lemelson, 85 Rector St., Metuchen, N.J. 08840

Filed Oct. 22, 1965, Ser. No. 501,393
8 Claims. (Cl. 264—14)

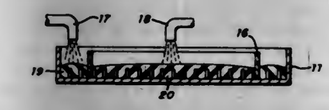


1. A process for making particulate material comprising:
(a) generating a spray of molten particulate material in a 360° spray flow thereof,
(b) generating a cylindrical wall of coolant liquid such as water and directing same to surround said spray flow of particulate material and flow therepast,
(c) causing said particulate material to be directed into said cylindrical wall of liquid,
(d) solidifying said particulate material in said liquid,
(e) directing said cylindrical wall of liquid into a water body at the end of said cylindrical liquid wall which body defines an uninterrupted water surface terminating said cylindrical wall of liquid,
(f) directing said particulate material to flow along said cylindrical liquid wall into said water body, and
(g) separating said particulate material from said liquid.

3,320,339
METHOD OF MANUFACTURING FOAM RUBBER ARTICLES

Howard S. Smith, Asheville, N.C., assignor to Dayco Corporation, Dayton, Ohio, a corporation of Ohio

Filed Oct. 23, 1963, Ser. No. 318,365
12 Claims. (Cl. 264—46)

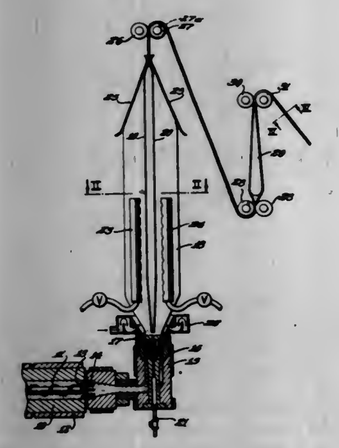


1. The method of manufacturing molded unitary foam rubber articles in a mold cavity having core pins mounted therein, comprising the steps of placing an impervious strip within said mold cavity to separate said cavity into different portions, introducing foamable rubber latex into one portion of said cavity, introducing foamable rubber latex of a different density into the remaining portion of said cavity, maintaining separate identity of said latices by means of said strip during foaming and eliminating said strip while vulcanizing said latices into a unitary member.

3,320,340
CONTROLLED COOLING OF EXTRUDED PLASTIC

Jacob L. Luca, New York, N.Y., assignor, by mesne assignments, to Minigrip, Inc, New York, N.Y., a corporation of New York

Filed July 20, 1964, Ser. No. 383,815
11 Claims. (Cl. 264—95)



9. The method of extruding a tube for making bags having integral pressure closing rib and groove elements thereon which comprises the steps,
extruding a tube of thermoplastic from a die having an annular slot with enlarged recesses for forming rib and groove elements, cooling the tube and pressurizing the inside of the tube to form a tube bubble, and directing an auxiliary flow of cooling fluid at the tube only at the location of the rib and groove elements.

3,320,341
METHOD OF MANUFACTURING A LIGHT-WEIGHT MICROWAVE ANTENNA

William L. Mackie, Ventura, Calif., assignor to the United States of America as represented by the Secretary of the Navy

Original application Feb. 24, 1960, Ser. No. 10,815. Divided and this application Dec. 26, 1963, Ser. No. 333,767
1 Claim. (Cl. 264—104)



The method of molding a hollow microwave antenna by utilizing a male and female die assembly, such that the resulting product possesses a smooth inner surface capable of conducting microwave energy with a minimum of attenuation, said method comprising the steps of:
(1) coating the male portion of the mold with a plurality of coats of mold-release solution, each coat being allowed to dry before the application of the next succeeding coat,
(2) applying over the dried mold release an electrically-conductive gel coating consisting of a thoroughly blended mixture of
(a) 100 parts by weight of diglycidyl ether of 4-hydroxy-phenyl-dimethyl-methane
(b) 540 parts by weight of finely divided flake silver, and
(c) a stoichiometric quantity of primary aliphatic polyamine
(3) allowing the electrically-conductive gel coating to partially polymerize
(4) inserting the coated male mold into the mold assembly
(5) filling the mold assembly with an electrically non-conductive thermo-setting plastic material
(6) allowing the filled mold assembly to cure, and
(7) disassembling the mold, the electrically-conductive gel coating being integrally bonded to the plastic material which constitutes the body of the antenna, and with the surface of such electrically conductive gel coating that was in contact with the male mold portion being smooth and free from discontinuities and irregularities and hence capable of conducting microwave energy with a minimum of attenuation.

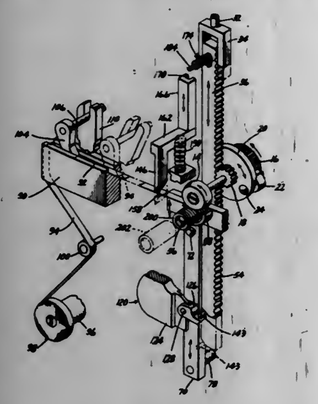
3,320,342
TAPE-WRAPPING APPARATUS AND METHOD

Leonard B. Vinson, 3025 Willow Oaks Drive 46807, and Charles G. Ewald, 6528 Donna Road 46809, both of Fort Wayne, Ind.

Filed Dec. 13, 1963, Ser. No. 330,390
14 Claims. (Cl. 264—138)

1. Apparatus of the character described comprising a supporting frame, said frame being a plate-like member having opposite sides, a drive roller of soft rubber material fixedly mounted on a shaft, said shaft passing through and being rotatably mounted on said frame, a ratchet wheel fixedly mounted on said shaft, said roller being disposed on one side of said frame and said ratchet wheel being on the other side, a spur gear rotatably mounted on said shaft on the same side of said frame as said ratchet wheel, a disc coaxially fixedly secured to said gear for rotation therewith and for rotation relative to said shaft, a pawl carried by said disc, means yieldably urging said pawl

into operative engagement with said ratchet wheel whereby rotation of said gear in a first direction engages said pawl with said ratchet wheel and rotates the latter as well as said shaft and roller therewith and rotation in the reverse direction disengages said pawl from said ratchet wheel and permits said ratchet wheel, shaft and roller to remain stationary, a gear rack mounted on said other side of said frame for reciprocal rectilinear movement between two opposite extreme positions, said gear rack being meshed with said spur gear, a spindle disposed adjacent to and in parallelism with said roller, means mounting said spindle on said frame and urging said spindle into operative engagement with said roller, means on said rack for moving said spindle out of operative engagement with said roller when said rack is in one of its two extreme positions, a feeder block fixedly mounted on said one side of said frame adjacent to but spaced from said roller, said feeder block having a straight elongated guide channel having a flat bottom which lies in a plane substantially tangent to that peripheral portion of said roller adjacent to said spindle, said channel having opposite ends, one of the last-mentioned ends being adjacent to but spaced from said roller, an elongated guide slot in said frame which is adjacent to and extends parallel with said guide channel, a guide bar transversely received by said guide slot



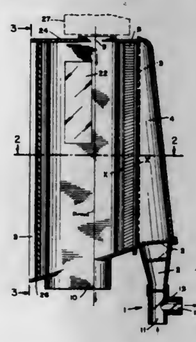
and having opposite ends disposed on the opposite sides, respectively, of said frame, one end of said guide bar pivotally carrying a feeding finger which operatively engages the bottom of said guide channel, means yieldably pivoting said finger into engagement with said channel bottom, a crank pivotally mounted on said other side of said frame, said crank having two arms, one of said arms having a lost motion connection with the other end of said guide bar, means yieldably pivoting said crank in a retractile direction which retracts said finger in a direction away from said roller, the other arm of said crank extending toward said rack and being located adjacent to said one end of said rack when the latter is in the other of its two extreme positions, a lever pivotally mounted at one end on said other arm and being pivotable between two opposite positions, said lever having an abutment portion engageable with said other arm to swing said crank in a protractile direction which moves said finger toward said roller, a cam element on said one end of said rack which is engageable with said lever to pivot the latter with respect to said other crank arm when said rack is moved from said one extreme position in a direction toward the other extreme position and to engage said lever with said other crank arm to swing said crank in said protractile direction when said rack is moved from its other extreme position toward said one extreme position, a knife member having a cutting edge, said knife member being mounted for movement on said one side of said frame immediately adjacent to said one end of said guide channel, means guiding said knife member for reciprocatory movement in a direction transverse to the plane of said channel bottom whereby said cutting edge may be passed through said plane in a second plane perpendicular thereto, means yieldably urging said knife member out of cutting relation with said guide channel, a cam block mounted on said other side of said frame for reciprocal movement in a direction parallel to the movement of said knife member, means connecting said knife member to said cam block for concurrent movement therewith, cam-actuating means mounted on said rack for engaging said cam block and moving said knife member in cutting direction across the plane of said channel bottom in response to movement of said rack from said other extreme position toward said one extreme position, said cam-actuating means being located on said rack in a position whereby engagement with said cam block occurs when said gear rack approaches its one extreme position just prior to engagement with said abutment member, and means for reciprocating said rack from said one extreme position to said other extreme position and back to said one extreme position.

3,320,343

PROCESS FOR MELT-SPINNING OF SYNTHETIC LINEAR HIGH POLYMERS

Gerhard Emil Buschmann and Hans-Dieter Gotthardt, Rudolstadt, and Hans Koch, Leipzig, Germany, assignors to Veb Chemiefaserwerk Schwarza "Wilhelm Pieck," Rudolstadt, Germany

Filed Sept. 9, 1963, Ser. No. 308,619
3 Claims. (Cl. 264—176)



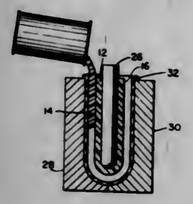
1. In a process for melt-spinning thread, the steps of directing thread, issuing from a spinning nozzle, longitudinally through an elongated cooling zone of predetermined length and width having in the region of said nozzle an inlet end for receiving thread from the nozzle and distant from the nozzle an outlet end through which the thread leaves the cooling zone, while maintaining the thread in a non-deflected condition as it moves through the cooling zone from the inlet to the outlet end thereof, and simultaneously with the movement of the thread through the cooling zone, directing across the thread from only one side thereof and throughout the entire length and width of the cooling zone a gaseous cooling medium having a non-turbulent, impact-free flow in a direction which at the inlet end of said cooling zone extends perpendicularly across the thread, which at the outlet end of the cooling zone extends across the thread at an angle of 10–30° displaced from a line perpendicular to the thread in the direction of thread movement toward the outlet end of the cooling zone, and which between said inlet and outlet ends of said cooling zone gradually changes in inclination from said direction perpendicularly across the thread to the direction of from 10–30° angularly across the thread in the direction of thread movement.

3,320,344

METHOD OF MANUFACTURING PLASTIC PRODUCTS

Roy M. Slipp, 97 Anthony Ave., Seekonk, Mass. 02771

Filed Sept. 29, 1964, Ser. No. 400,055
4 Claims. (Cl. 264—219)



1. A method of making a compound plastic product portions of which are of a plastic material that passes through a gel state when solidifying from a liquid state, comprising the steps of

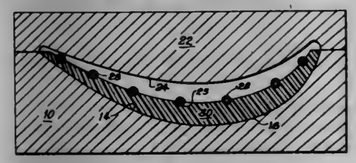
(a) forming a flexible mold for each of said portions,
(b) casting one portion of said product in one of said molds,
(c) stripping the mold from said one portion when said one portion is in a gel state,
(d) positioning said one portion in the larger second mold for another portion,
(e) casting said other portion in said other mold and onto said one portion while said one portion is in a gel state,
(f) allowing said portions to solidify and unite in assembled relation.

3,320,345

METHOD FOR THE PRODUCTION OF CORED PATTERNS

Nick G. Lirones, North Muskegon, Mich., assignor, by mesne assignments, to Howmet Corporation, a corporation of Delaware

Continuation of application Ser. No. 85,322, Jan. 27, 1961. This application Feb. 15, 1965, Ser. No. 432,686
5 Claims. (Cl. 264—255)



1. In a method for the production of metal castings having elongate passages of small dimension extending internally therethrough by the build-up of a mold having walls about a pattern formed of disposable material and disposing of the pattern to leave a corresponding mold cavity within the walls of the mold, the process of producing the pattern having cores extending therethrough in the areas corresponding to the passages comprising providing first and second die parts defining a portion of the mold pattern in a cavity therebetween with at least one of said die parts having at least one obtrusion in the face thereof corresponding to the extent that said pattern portion will be occupied by said cores and in which the obtrusions extend to an edge of said pattern, and continue across the adjacent edges of the one die part to conform with corresponding recesses in another die part, closing said die parts, introducing the pattern material into the cavity to form said pattern portion with impressions being formed in the surfaces of said pattern portion due to the presence of said obtrusions, opening said die parts, providing core members having a length greater than the length of said impressions, placing said core members in the impressions formed by said obtrusions whereby the ends of said core members extend beyond the opposite ends of the impressions and beyond said adjacent adges of the die part, providing other die parts defining a cavity therebetween corresponding to the completed pattern, mating said die parts with the formed pattern portion in the desired position within the cavity, introducing pattern material into the cavity to complete the pattern with the cores embedded therein and with the ends of the cores extending beyond the completed pattern.

3,320,346

METHOD OF PRODUCING FABRIC LAMINATED ARTICLES

Bernard I. Galitzki and Robert C. Burbank, both of Portland, Oreg.; said Burbank assignor to Jantzen Inc., a corporation of Nevada

Original application July 17, 1961, Ser. No. 124,610, now Patent No. 3,225,768, dated Dec. 28, 1965. Divided and this application Dec. 23, 1965, Ser. No. 516,029
5 Claims. (Cl. 264—229)



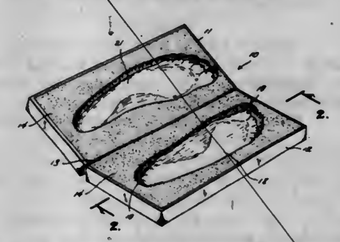
1. In the manufacture of a laminated cloth and plastic piece with three-dimensional curvature in the piece; the method comprising employing a stretchable and resilient cloth as the cloth in the piece and a heat-softenable flexible and resilient plastic as the plastic; preparing a sheet assembly comprising a sheet of the cloth and a sheet of the plastic with the sheet of plastic disposed over one face of the cloth sheet and with the cloth sheet stretched and under tension; forming the sheet assembly with proper three-dimensional curvature by heat softening the plastic sheet to a degree less than one that makes said sheet fluid or tacky, and then shaping the assembly and mechanically bonding together the fabric and plastic sheets in the assembly; then cooling the sheet assembly; and on cooling of the assembly relaxing the tension in the cloth sheet portion of the assembly.

3,320,347

METHOD OF MAKING AN ARCH SUPPORT BY MEASURING AN IMPRESSION OF A FOOT

Monte H. Greenawalt, 1394 Locust St., Dubuque, Iowa 52001

Filed May 18, 1964, Ser. No. 368,133
3 Claims. (Cl. 264—223)

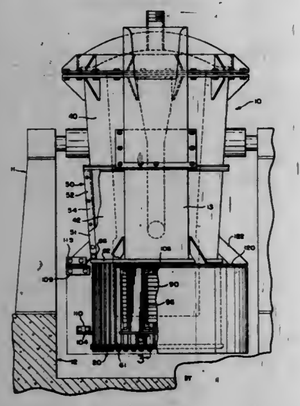


1. A method of making a corrective arch support for a human foot, which comprises the following steps:

preparing a block of settable phenolic resinous foam which will become stiff when set and retain the impression of a form pressed therein;
placing the block on a stationary surface;
pressing the foot into the block to make a negative impression thereof;
removing the foot from the impression;
measuring the contours of the impression; and
forming one or more pieces of leather into a corrective arch support while employing said measurements to accommodate the arch support to the foot from which the impression was made.

ELECTRICAL

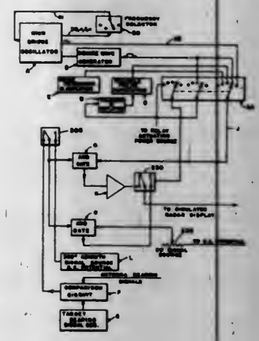
3,320,348
INDUCTION MELTING FURNACE
Gerhard W. Seulen, Remscheid-Hasten, Germany, and John T. Vaughan, Tampa, Fla., assignors to V & V Companies, Inc., Cleveland, Ohio, a corporation of Ohio
Filed Aug. 7, 1964, Ser. No. 388,116
21 Claims. (Cl. 13—27)



1. In apparatus of the general type described comprising in combination a container formed of a refractory material and having a bottom and side walls defining a chamber adapted to receive molten metal, a multi-turn induction coil surrounding said side walls and adapted to be connected to a source of alternating current of known frequency and rib means including a plurality of non-magnetic, metallic, vertically extending rib members arranged in circumferentially spaced relationship inside of said coil and in physically supporting relationship to said refractory material, the number and spacing of said rib members providing a total supported refractory area sufficient to enable the unsupported refractory area to withstand the static, molten metal pressure per unit area from within said container and the thickness of each said rib member through which the magnetic flux must pass being less than the reference depth at the frequency of said power source.

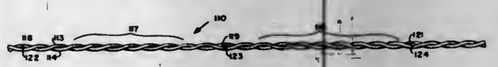
3,320,349
SIMULATED RADAR JAMMER
Norman S. Pollack, Commack, and Roland P. Grieshammer, Douglaston, N.Y., assignors, by mesne assignments, to the United States of America
Filed Feb. 3, 1965, Ser. No. 430,227
4 Claims. (Cl. 35—10.4)

1. In a radar simulator apparatus having rotary transformer means for generating simulated antenna bearing signals and having simulated target display means, a device for supplying to said display means simulated jamming signals, said device comprising;
signal generator means for generating simulated jamming signals;
rotary transformer means for generating simulated target bearing signals;
comparison means responsive to antenna bearing signals and target bearing signals for providing azimuth signals corresponding to coincidences of antenna and target bearings; and



"and" gate means connected to said signal generator means and responsive to said azimuth signals to pass said jamming signals as an output for use by said display means.

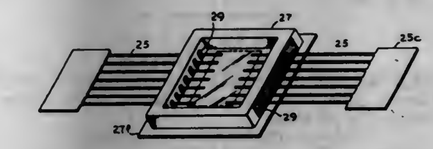
3,320,350
REVERSE LAY STRAND
Roy E. Corrall, Franklin Square, and George N. Menasoff, Tarrytown, N.Y., assignors, by mesne assignments, to Anaconda Wire and Cable Company, a corporation of Delaware
Original application July 2, 1962, Ser. No. 206,764, now Patent No. 3,169,360, dated Feb. 16, 1965. Divided and this application Aug. 24, 1964, Ser. No. 395,639
13 Claims. (Cl. 174—34)



1. An electric cable comprising:
(A) a plurality of insulated conductors twisted with a reversing direction of lay having periodic points of reversal,
(B) binding applied to said cable at said points,
(C) said cable being free from said binding elsewhere along its length.
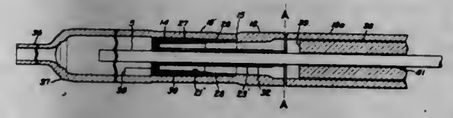
3,320,351
MINIATURE CIRCUIT HOUSING
Mannes N. Glickman, 3145 Lombardy Road, Pasadena, Calif. 91107
Filed Jan. 29, 1965, Ser. No. 428,963
7 Claims. (Cl. 174—50.5)

1. A housing for hermetically enclosing a miniature circuit comprising a box-like metallic frame defining a hollow cylinder and having a C-shaped structure on at least one side thereof, the center wall of said C-shaped structure defining the height of said cylinder, said structure having a plurality of openings in the center wall thereof; electrically insulating material fusedly encased and substantially filling said C-shaped structure, to form a vacuum-tight seal thereat; and a plurality of conducting leads each having a portion thereof fusedly encased in



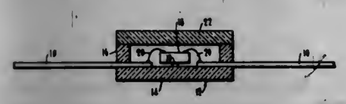
said insulating material within said C-shaped structure and electrically insulated from said metallic frame, one end of each lead protruding into the inside of said box-like metallic frame through another of said openings, and the other end of each lead extending from said metallic frame.

3,320,352
QUARTZ-TO-METAL SEAL
Delmar D. Kershaw, Cleveland, Ohio, assignor to General Electric Company, a corporation of New York
Filed Sept. 29, 1964, Ser. No. 400,267
6 Claims. (Cl. 174—50.63)



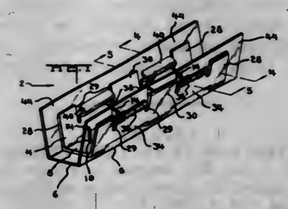
1. A sealed vitreous electric device having a high pressure resistant stem sealed thereto comprising a vitreous outer stem tube, a rod conductor extending through said tube, an elongated metal thimble encircling said rod, said rod extending through said thimble and being hermetically joined thereto at its closed end, said thimble having its open end facing in the direction of the inner end of said stem which is sealed to said electrical device, the open end of said thimble having a feathered edge sealed to said outer stem tube, and a capillary vitreous portion within said outer stem tube at its inner end having an aperture therethrough through which said rod extends.

3,320,353
PACKAGED ELECTRONIC DEVICE
Terry P. Smith, Corning, N.Y., assignor to Corning Glass Works, Corning, N.Y., a corporation of New York
Filed Oct. 29, 1963, Ser. No. 319,830
5 Claims. (Cl. 174—52)



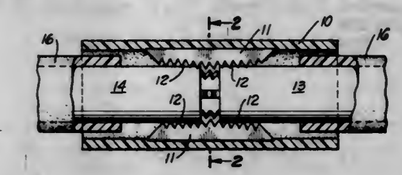
1. An article of manufacture comprising,
(a) a metallic member having an adherent cladding of gold applied thereto, said gold having a thickness ranging from about 0.00035 inch to about 0.00065 inch, and
(b) a body of sintered glass particles formed about said member and adhered thereto to form a seal therebetween, said glass having a sintering temperature of up to 730° C.

3,320,354
INSULATION PIERCING ELECTRICAL CONNECTION
James Earl Marley, Middletown, Lincoln Edwin Roberts, Harrisburg, and John Ambrose Ward, Carlisle, Pa., assignors to AMP Incorporated, Harrisburg, Pa.
Filed Feb. 15, 1965, Ser. No. 432,621
7 Claims. (Cl. 174—84)



5. An electrical connector intended to be applied to an insulated wire, said connector having a generally channel-shaped cross-section comprising a web and upstanding sidewalls, a pair of tongues struck-up from said web and extending transversely thereacross, a notch in each of said tongues, said sidewalls each having a remote portion which is remote from said web and each having an adjacent portion which is adjacent to said web, said remote portions being bendable relatively inwardly towards each other and towards said web, and wire stuffer means extending inwardly from at least one of said sidewalls, said wire stuffer means lying between said tongues whereby, upon positioning a wire between said sidewalls and on said tongues and bending said remote sidewall portions inwardly and towards said web, said wire is forced into said notches in said tongues by said wire stuffer means and an electrical connection between said wire and said connector is established.

3,320,355
HEAT SHRINKABLE CONNECTOR FOR ELECTRICAL WIRE
Aylwin R. Booker, 4887 Palo Drive, Tarzana, Calif. 91356
Filed Sept. 7, 1965, Ser. No. 485,217
7 Claims. (Cl. 174—84)

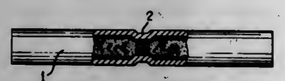


1. In a connector for electrically and mechanically joining two or more wires, the combination of:
a sleeve of heat shrinkable plastic insulation; and
a plurality of metallic clamp members disposed about the inner surface of said sleeve in spaced relation with each other for receiving at least two wires to be connected, so that application of heat produces shrinkage of said sleeve about the wires and clamp members compressing said clamp members against the wires.

3,320,356
CRIMPABLE ELECTRICAL CONNECTORS MADE OF SINK DRAWN TUBING

Charles A. Kirwin, Collinsville, Ill., assignor to Kearney-National Inc., St. Louis, Mo., a corporation of Delaware

Filed July 28, 1965, Ser. No. 478,528
2 Claims. (Cl. 174—94)

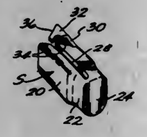


1. As an article of manufacture, a connector for splicing electrical conductors by crimping the connector onto the conductors, said connector comprising a sink drawn copper sleeve having a conductor stop intermediate its ends.

3,320,357
INSULATOR FOR FLAG TYPE TERMINALS

Neal Houbolt, Joliet, Ill., assignor to Jemco Engineering Co., Joliet, Ill., a corporation of Illinois

Filed Apr. 4, 1966, Ser. No. 539,873
5 Claims. (Cl. 174—138)

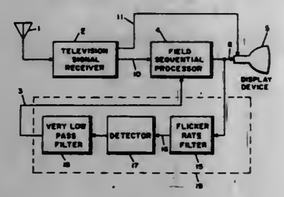


1. An insulator for the wire crimp and insulation support portions of a flag-type terminal comprising a tubular socket member to receive the terminal, said socket member having an axially extending slot in one side thereof from the open end thereof to adjacent the closed end thereof to receive the flag of said terminal, and having a resilient retainer blade adjacent the open end of said slot and overlying said slot, said blade having an inclined portion to coact with said flag to deflect said flag as said flag passes it and being adapted to spring back to retaining position after passage of said flag to engage the rear side of said flag to normally retain said terminal against removal from said insulator.

3,320,358
FLICKER REDUCTION CIRCUIT FOR COLOR TELEVISION RECEIVERS

Richard E. Williams, Fairfax, Va., assignor to Scope, Incorporated, Falls Church, Va., a corporation of New Hampshire

Filed Apr. 21, 1965, Ser. No. 449,793
9 Claims. (Cl. 178—5.4)

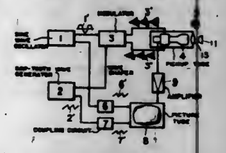


1. In a color television system having a television signal receiver, a field sequential processor, a cathode ray display device for displaying color pictures in response to the video output of said receiver and the chrominance signal provided by said field sequential processor, means for filtering from said chrominance signal those frequency components falling below about sixty cycles per second and carrying flicker frequency information, means responsive to said flicker frequency information for developing a direct current control signal, and means responsive to said direct current control signal for reducing the gain of said field sequential processor for a period of time and to an extent adequate to remove manifest flicker of color in said pictures.

3,320,359
TELEVISION SYSTEM

Yoshizo Ikegami, Amagasaki, Japan, assignor to Konan Camera Laboratory Company Limited, Kobe, Japan, a corporation of Japan

Filed Apr. 30, 1964, Ser. No. 363,859
Claims priority, application Japan, Dec. 12, 1963, 38/67,099
2 Claims. (Cl. 178—6.8)



1. A television display system comprising a pickup tube and a picture tube, optical means for focusing an image upon the target surface of said pickup tube, spiral scanning means for causing said pickup tube to scan said target surface spirally to develop a video signal corresponding to said image, means coupling said video signal to said picture tube, and rectangular scanning means for scanning said picture tube rectangularly in synchronization with said spiral scanning means to reproduce said image as a spread picture, the scanning periods of said spiral scanning means and said rectangular scanning means being so related that each line of said rectangular scan corresponds to at least 360 degrees of said spiral scan, whereby at least 360 degrees of said image is displayed on said picture tube.

3,320,360
TELEVISION TRACKING ERROR DETECTOR

Julian L. Thompson, China Lake, Calif., assignor to the United States of America as represented by the Secretary of the Navy

Filed May 8, 1964, Ser. No. 366,200
2 Claims. (Cl. 178—6.8)

1. In a system for determining the azimuthal characteristic of a target in a field of view with respect to one boundary of such field, the combination of:

a television cathode-ray camera tube having a photosensitive screen;

optical means for focusing said field of view onto the screen of said camera tube;

a vertical deflection generator producing a series of output pulses at the field-scanning rate of the electron beam of said cathode-ray camera tube;

a horizontal deflection generator for developing a series of output pulses to control the deflection of the electron beam of said camera tube at line-scanning frequency;

a video output circuit from said camera tube in which the said target image appears as a pulse produced when the electron beam impinges that particular portion of the photosensitive screen on which the image of said target appears;

means for differentiating the said target pulse to obtain therefrom a pulse having a steeply-rising leading edge;

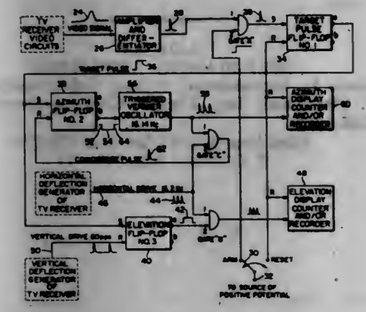
a first flip-flop network having two steady-state conditions, said network being initially in one of such conditions;

a circuit for applying the differentiated target pulse to said first flip-flop network to cause the latter to attain the other of its steady-state conditions and thereby develop in the output thereof a rectangular pulse the leading edge of which is developed upon the change of said flip-flop network to its said other condition;

a second flip-flop network likewise having two steady-state conditions and being placed in one of such conditions upon the reception thereby of the leading edge of the rectangular pulse output of said first flip-flop network;

a triggered oscillator operating at a predetermined frequency;

a connection for applying the output of said second flip-flop network to said oscillator to initiate the operation thereof when said second flip-flop network attains its said one condition, said oscillator producing in the output thereof a series of regularly-recurring data pulses at the said predetermined frequency;



a first dual-input "and" gate to which the pulse output of said oscillator is applied;

a connection for also applying to said first gate a series of pulses representing the output of the said camera tube horizontal deflection generator, said gate being opened upon the time coincidence of one of the pulses generated by said oscillator and one of the pulses representing the end of a cycle of operation of said horizontal deflection generator, so as to develop in the gate output circuit a single coincidence pulse representing such simultaneous input pulse occurrence;

means for applying the coincidence pulse from said first gate to the said second flip-flop circuit to cause the latter to attain the other of its two steady-state conditions and thereby vary the signal applied therefrom to said oscillator to terminate the operation of the latter; and

a counting circuit connected to said oscillator, whereby said counting circuit is effective to indicate the number of pulses developed by said oscillator during the time that it was in operation, such indication being representative of the desired azimuthal characteristic of said target.

3,320,361
TELEVISION RECEIVER INCLUDING A CRISPENER NETWORK COMPRISING A SERIES CONNECTED INDUCTOR AND VARIABLE RESISTOR

Walter J. Strob, Barrington, Ill., assignor to Zenith Radio Corporation, a corporation of Delaware

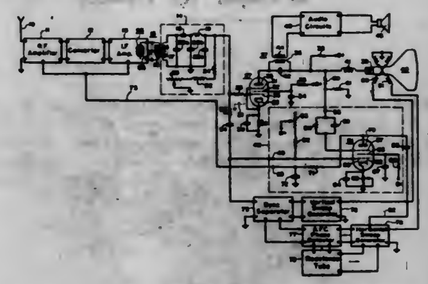
Filed Nov. 27, 1961, Ser. No. 154,954
1 Claim. (Cl. 178—7.3)

A television receiver comprising:

a tuned IF amplifying stage for developing a composite television signal;

means, including a video detector, coupled to the output of said IF stage and responsive to said composite television signal for developing a detected composite video signal;

a video amplifier having an input circuit coupled to said video detector and an output circuit for developing from said detected signal an output signal having video components and a D.C. component;

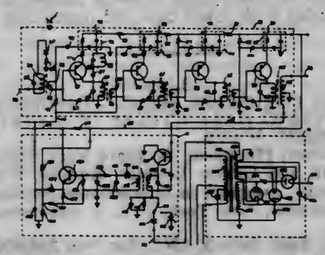


and means including a crispener network, included in said video detector, comprising an inductor and a variable resistor connected in series and constituting the output load and the principal video bandwidth determining parameter of said detector for adjusting the frequency response of both said video detector and said IF stage while maintaining the D.C. component of said output signal substantially constant.

3,320,362
KEYED A.G.C. CIRCUIT FOR TELEVISION RECEIVERS

Satoshi Shimada, Tokyo, and Toshihiro Fujimoto, Chiba-ken, Japan, assignors to Sony Corporation, Tokyo, Japan, a corporation of Japan

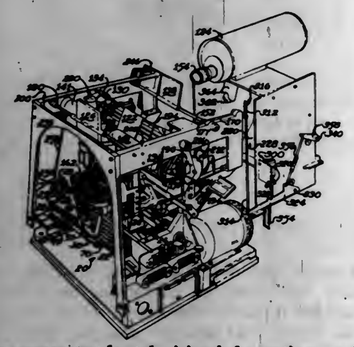
Filed June 24, 1963, Ser. No. 289,963
3 Claims. (Cl. 178—7.3)



1. In an automatic control circuit for a television receiver including an R.-F. amplifier stage, a frequency converter stage, an I.-F. amplifier having a plurality of stages, a video detector stage, and means for developing fly-back pulses during horizontal synchronizing pulse intervals, means including a D.C. amplifier having negative feedback for deriving from one stage of said I.-F. amplifier a video I.-F. signal including horizontal synchronizing pulse portions, means associated with at least one of said stages of said receiver preceding said one stage of said I.-F. amplifier for responding to a D.C. input signal to exert a controlling effect on said video I.-F. signal, band pass amplifier means including a D.C. amplifier having negative feedback for amplifying said horizontal synchronizing pulse portions of said video I.-F. signal, rectifier means for converting the output from said band pass amplifier means to a D.C. control signal, means for applying said D.C. control signal to said control means, and means for applying said fly-back pulses to said band pass amplifier means to render said band pass amplifier means

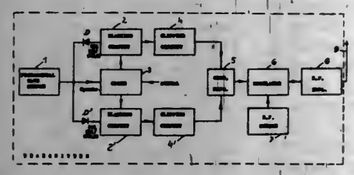
operative only during horizontal synchronizing pulse intervals.

3,320,363
SYSTEM FOR PRINTING AND TELEVISING
William G. Laird, Donald W. Johnston, Lyle O. Keys, and Donald L. McClellan, all of Salt Lake City, Utah, assignors to Telemation, Inc.
Filed Feb. 21, 1966, Ser. No. 529,142
29 Claims. (Cl. 178—25)



2. In an apparatus for televising information received in the form of telegraphic code signals as the information is printed in spaced lines upon a web by a telegraph page printer comprising printer platen means adapted to shift between lower and upper case print positions, televising means having a field of view comprising the portion of the web subjected to the fore and aft displacement along the length of the web in response to shifting of the platen means between said print positions, and means to compensate for the fore and aft displacement of the web caused by the shifting movement of the printer platen means whereby the printed characters being televised appear in combination as an essentially stationary picture when a given line of information is being printed at the platen means using both lower case and upper case print positions.

3,320,364
SYSTEM FOR PHASE CODING INFORMATION BY BLANKING HALF CYCLES OF A CONTINUOUS PERIODIC WAVE
Fritz Steiner, Pforzheim, Bernhard Kutz, Stuttgart, Weilimdorf, and Günter Leichter, Korntal, Wurttemberg, Germany, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed June 3, 1963, Ser. No. 284,930
Claims priority, application Germany, June 7, 1962, St 19,333
19 Claims. (Cl. 178—67)



1. A system for transmitting information by means of a serial code comprising:

first means for generating a continuous periodic wave;

a source of serial code including time sequential mark and space signals, each of said mark and space signals being time coincident and coextensive with a different full cycle of said periodic wave;

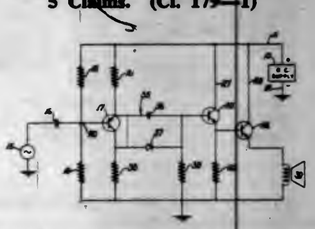
second means coupled to said first means and said source responsive to one of said mark and space signals to blank the positive half cycle of said full cycle associated with said one of said mark and space signals and responsive to the other of said mark and space signals to blank the negative half cycle of said full cycle associated with said other of said mark and space signals to code said periodic wave;



third means coupled to said second means responsive to said coded periodic wave to restitute said periodic wave; and

fourth means coupled to said second means and said third means responsive to said coded periodic wave and said restituted periodic wave to recover said serial code.

3,320,365
SELF-BIASING AMPLIFIER
Clarence L. Auernheimer, Fresno, Calif., assignor to A. V. Electronics, Inc., Fresno, Calif., a corporation of California
Filed June 8, 1964, Ser. No. 373,174
5 Claims. (Cl. 179—1)

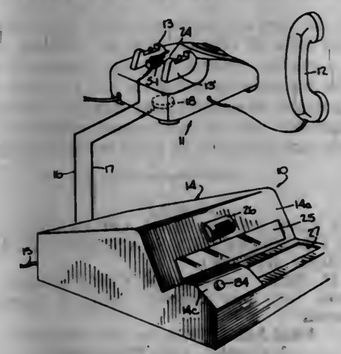


4. A self-biased transistor amplifier comprising a source of operating potential; a preamplifier transistor having base, emitter and collector elements; a voltage divider connecting said source of potential and the base of the preamplifier transistor; a source of input signals connected to the base of the preamplifier transistor; a pair of output transistors having respective base emitter and collector elements wherein said transistors are connected in emitter follower relation; means respectively connecting the collectors of said output transistors with said source of operating potential; a loud speaker connected across the emitter of said second output transistor and said source of operating potential; a capacitor having one side connected to the emitter of said preamplifier transistor; a semiconductor diode having one side connected to the collector of said preamplifier transistor with a polarity not to impede current flow therethrough due to input signals; conductor means connecting the other side of said diode to the other side of said capacitor and to the base of said first output transistor; and a resistance circuit connected to said source of operating potential at opposite ends of said diode.

3,320,366
COMMUNICATION METERING AND REGISTERING APPARATUS
James W. Plummer, Red Bank, N.J., assignor of fifteen percent to Douglas R. Burke, Middletown, N.J., and thirty-three and one-third percent to Roy K. Lewis, Brooklyn, N.Y.
Filed June 22, 1964, Ser. No. 376,866
7 Claims. (Cl. 179—7.1)

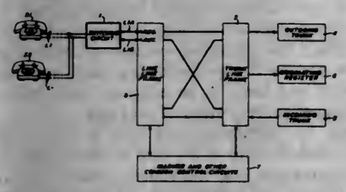
1. A metering and registering apparatus for use with a communication device, comprising visual timer means

for providing a visual indication of time elapsed during each communication, a record member, printing timer means juxtaposed to said record member and normally out of contact therewith, means for moving one of said printing timer means and record member into contact with the other to enable printing on the latter of an elapsed time of communication figure, means for indexing said record member past said printing timer means, timing motor means for identically driving said visual timer means and said printing timer means, electrical control circuit means operatively connected with all said means, main control switch means constituting a part of said control circuit means and operable, in response to preliminary activation of said communication device preparatory to the start of actual communication, to permit energization of a part of said control circuit means



for setting both said visual and printing timer means to zero and for actuating said indexing means to position a fresh portion of said record member in operative relation to said printing timer means, and pick-up means arranged to sense the actual communication signals and to generate a control current in response thereto for application to said control circuit means, thereby to permit the energization of the remainder of said control circuit means and consequent actuation of said timing motor means upon sensing of the first communication signal, said control circuit means being operable, in response to and for a short time interval following the deactivation of said communication device and the consequent reversal of said main control switch means, to actuate said moving means for effecting the printing of the elapsed time of communication figure on said record member.

3,320,367
TELEPHONE LINE CIRCUIT
Myron E. Krom, Minerva Lake, Ohio, assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Oct. 22, 1963, Ser. No. 317,930
35 Claims. (Cl. 179—18)



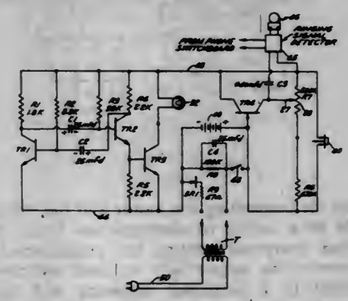
1. In a switching system,

a special service line having two line appearances and comprising selectively operable means for generating a discrete signal,

means for connecting a calling line to said special service line responsive to a busy condition of one of said appearances for selecting the other of said appearances and for thereupon transmitting a call-waiting tone to said special service line, and

means responsive to each repetition of a discrete signal from said special service line for alternately connecting said special service line exclusively to each of said appearances.

3,320,368
TELEPHONE MESSAGE-WAITING MONITORING DEVICE
Curtis H. Applebaum, Pasadena, Calif., assignor, by direct and meme assignments, of forty percent to G. J. McGrath, Mankato, Minn., thirty percent to Curtis H. Applebaum, Pasadena, Calif., and thirty percent to William B. Lagerquist, North Mankato, Minn.
Filed Feb. 28, 1964, Ser. No. 348,084
17 Claims. (Cl. 179—84)



1. Automatic signal mechanism adapted to be activated by the ringing of a phone and continuing to provide a signal indefinitely after the ringing signal has ceased, said signal mechanism comprising electrically energized signal means adapted to be located in close proximity to a phone and normally de-energized, power means for said signal means, and means free of moving parts for connecting said power means to said signal means to energize the same including silicon controlled rectifier means and means responsive to the ringing of the phone in proximity to said signal mechanism to activate said power connecting means indefinitely and irrespective of the discontinuance of the ringing operation.

3,320,369
AUTOMATIC CODE TRANSMITTER UTILIZING A CODE BEARING MEDIUM HAVING BITS OF INFORMATION
Harold J. Hershey, Robert J. O'Connor, and Merville L. Warnock, Indianapolis, Ind., assignors to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Mar. 20, 1964, Ser. No. 353,356
8 Claims. (Cl. 179—90)

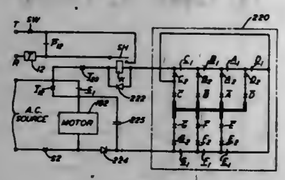
1. A call transmitter operating in conjunction with a code bearing member having a plurality of digits identifying a telephone subscriber encoded thereon, the code transmitter comprising:

a plurality of switches actuated responsive to the coding on the code bearing member, particular ones of which are actuated in response to each encoded digit;

means for positioning a portion of the code bearing member having an individual digit encoded thereon in juxtaposition with the code actuated switches;

a programmed member having a particular pattern of conductive and nonconductive areas thereon;

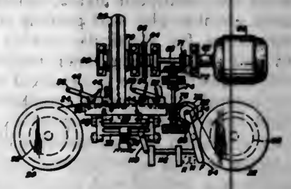
a motor for rotating the programmed member in a particular direction;
a normally engaged clutch for connecting the motor to the programmed member;
a spring member energized by the rotation of the programmed member in the particular direction for returning the programmed member to a rest position when the clutch is disengaged;
a plurality of brushes extending into engagement with the surface of the programmed member, the interaction between the brushes and the conductive and nonconductive pattern of the programmed member providing a plurality of sequentially actuated switches and a pulsing switch;
means for connecting the pulsing switch across a telephone line;
a switching matrix comprising the sequentially actuated switches interconnected with the code actuated switches;



means for connecting the motor and the switching matrix to a source of electromotive force, the motor when energized rotating the programmed member whereby the sequentially actuated switches are actuated in a particular sequence and the pulsing switch opens and closes to interrupt the telephone line and transmit pulses thereover;
a relay connected in series with the switching matrix, the actuation of sequentially actuated switches corresponding to the actuated code actuated switches providing a path through the switching matrix to energize the relay;
means responsive to the energization of the relay for disengaging the clutch whereby the spring member is permitted to return the programmed member to the rest position;
means responsive to the energization of the relay for shorting the pulsing switch; and
means responsive to the energization of the relay for advancing the code bearing member to position another encoded digit in juxtaposition with the code actuated switches.

3,320,370
MAGNETIC TAPE RECORDER WITH RECESSED CONCAVE TAPE GUIDE
Leonard Dodge Barry, Detroit, Mich., assignor to Ampex Corporation, Redwood City, Calif., a corporation of California
Continuation of application Ser. No. 78,348, Dec. 27, 1960, which is a division of application Ser. No. 292,013, May 27, 1952. This application Nov. 27, 1962, Ser. No. 240,284
2 Claims. (Cl. 179—100.2)

1. In a magnetic tape recorder, at least one transducer unit, means serving to carry said unit for rotation, motor means rotating the unit at a constant speed, tape transport means for moving the tape from one side to the other of the plane of rotation of the unit, means for rendering said tape transport means operable and inoperable, guide means for said tape including guide block having a concave surface with a radius substantially the same as the scanning path of the transducer unit, said surface having a recess therein which extends along the scanning path of the rotating transducer unit, a projection on said guide block for supporting an edge of said tape to prevent transverse movement of said tape as a result of the movement of said transducer unit against said tape, means for mounting said guide block for movement from a position



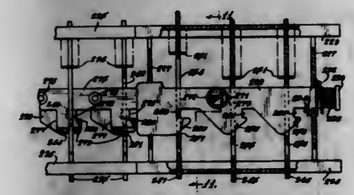
wherein the concave surface of said guide block maintains said tape in contact with the rotating transducer unit to a position spaced from the transducer unit, and means for maintaining said guide block in said first mentioned position when said tape transport means is rendered operable and in said second mentioned position when said tape transport means is rendered inoperable.

3,320,371
VIDEO TAPE RECORDING APPARATUS UTILIZING TRANSVERSELY SCANNING ERASE AND RECORD HEADS
Walter H. Bach, Los Angeles, Calif., assignor to Bach Auricon, Inc., Los Angeles, Calif., a corporation of California
Filed Jan. 8, 1963, Ser. No. 250,077
3 Claims. (Cl. 179—100.2)



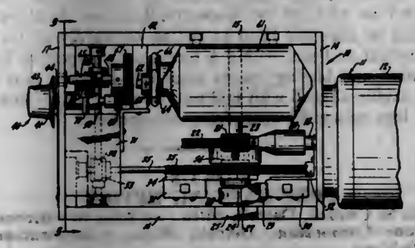
2. An arrangement for recording successive transverse tracks across a magnetizable portion of a tape comprising:
magnetic transducer means movable in an ellipitical path for recording said transverse magnetic tracks across said tape, said transducer means including at least one pair of tape heads in side-by-side relationship, one of said tape heads of said pair being an erase head and the other of said tape heads being a recording head, the erase head of each pair of tape heads leading the respective recording head of the same pair only during the portion of said elliptical path when a desired magnetic track is being recorded, said erase head lagging said recording head during the remaining portion of said elliptical path;
drive means for reciprocating said transducer means back and forth in an elliptical path only across the magnetizable portion of said tape;
means for advancing said tape at a rate which bears a constant ratio to the rate at which said drive means reciprocates said transducer means across said tape;
and means for maintaining all the tape heads of said transducer means in physical contact with the magnetizable portion of said tape at all times while said transducer means is being reciprocated across said tape.

3,320,372
CHANNEL SELECTING SWITCH WITH IMPROVED LOCKING MEANS
Raymond F. Lewandowski and William F. Boulter, Mount Prospect, and Robert R. Gustafson and Harry S. Tice, Jr., Crystal Lake, Ill., assignors to Oak Electro/Netics Corp., a corporation of Delaware
Filed Feb. 15, 1965, Ser. No. 432,614
22 Claims. (Cl. 200—5)



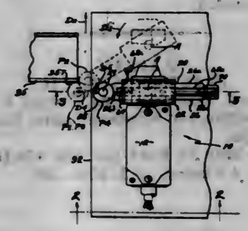
2. A switch assembly comprising: a frame; selector switch means on said frame including a plurality of individually movable switching members, each member being movable to a position for selecting one of a plurality of channels, said switch members each being operable in several different modes for selecting said channels; a control means on said frame for controlling the mode of operation of said selector switch members and including, a control latch bar having a latching member for each selector switch mode, means mounting said latch bar for movement longitudinally of said frame, control plunger for each selector switch mode, means mounting each control plunger for reciprocating movement on said frame, each control plunger having means for releasably engaging one of said latching members to move said latch bar longitudinally of said frame and latch the respective control plunger in an "in" position, and means responsive to movement of different ones of said control plungers to said "in" position for operating said selector switch members in said different modes.

3,320,373
POSITIVE TIMING DEVICE WITH INFINITE SETTING
Otto Charles Krolopp, Villa Park, Ill., assignor to Blaw-Knox Company, Pittsburgh, Pa., a corporation of Delaware
Filed Aug. 4, 1964, Ser. No. 387,382
11 Claims. (Cl. 200—38)



1. Apparatus for generating timed signals which may be imparted to a cyclical mechanism such as a reversing motor, comprising
first and second switches located in spaced relation to one another, each of said switches, when actuated, generating a signal,
means supporting said first and second switches and carrying an actuator arcuately movable at a substantially constant rate of speed over substantially the entire distance between the spaced switches, and
means for varying the distance between the spaced switches, and thereby the time interval derived from movement of the actuator between the switches,
said distance varying means including
a switch supporting member carrying the first switch which is movable relative to the second switch, and
gear means carried by the supporting means for moving the switch supporting member, and the first switch carried thereby, independently of movement of the actuator.

3,320,374
PLUNGER TYPE SWITCH
Anthony R. Chasar and Alfonso W. Mehlbrodt, Cleveland, Ohio, assignors to The Triax Company, Cleveland, Ohio, a corporation of Ohio
Filed Dec. 21, 1961, Ser. No. 161,110
4 Claims. (Cl. 200—47)

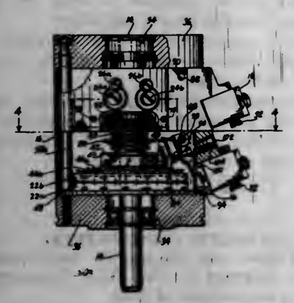


1. In an apparatus comprising a fixed member and a movable member movable into alignment with said fixed member; a switch unit carried by said movable member in use in normally unactuated position and actuatable to effect stopping of said movable member, said unit having a pivot shaft pivotable to effect actuation of said unit, a solenoid fixedly mounted upon said shaft and axially disposed at right angles to said shaft, an elongated armature bar slidably disposed through said solenoid and extending therebeyond in either direction, said bar having a retainer adjacent one end and a stop adjacent the other end thereof, a coil spring telescoped over said bar between said retainer and said solenoid and normally urging said bar in a retracted position with said stop engaging said solenoid to limit the retraction of said bar, said solenoid so acting, when energized, as to move said bar in an extended position to cause contact of said arm with said fixed member and cause pivoting of said shaft as said movable member approaches said fixed member.

3,320,375
CONTINUOUSLY ADJUSTABLE LIMIT SWITCH
Charles S. Aldrich, 205 Hawthorne Road, Kings Park, N.Y. 11754, and Leon N. Canick, 6700 192nd St., Fresh Meadows, N.Y. 11365
Filed Oct. 5, 1965, Ser. No. 493,006
11 Claims. (Cl. 200—47)

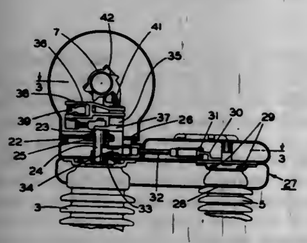
5. In a switch actuating apparatus of the type including a hollow, apertured housing, an axial shaft having at least a portion thereof, rotatably journaled in the housing, first and second cam means disposed in the housing, cam follower means secured to and rotatable with the shaft, means to independently vary the angular relationship between each of the cams and the shaft and pivotally mounted switch-actuating means responsive to

the movement of the cam follower means, that improvement therein which comprises a compound switch actuating lever having a first section loosely mounted on the shaft and a second section pivotally coupled to said first



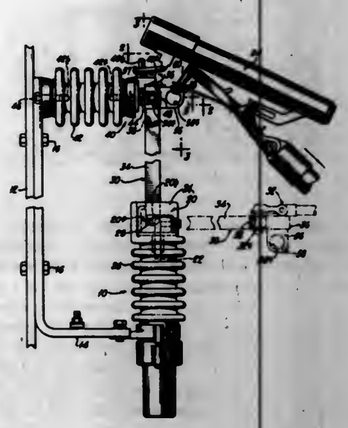
section, a portion of said second section being in abutting engagement with the switch, and adjustment means adapted to vary the position of said second section with respect to the switch.

3,320,376
ELECTRIC SWITCH
John R. Caldwell, Hampton, and Payton C. Mayo, Atlanta, Ga., assignors to Southern States, Inc., a corporation of Georgia
Filed May 24, 1965, Ser. No. 458,105
4 Claims. (Cl. 200—48)



1. An electric switch comprising a fixed vertically disposed supporting insulator having a substantially horizontal circular rim mounted thereon, a movable support having low friction means arranged to ride on said circular rim whereby said support is rotatable about an axis which is substantially coaxially arranged relative to said supporting insulator, a switch blade mounted on said support and rotatable about its own axis, said blade being arranged for swinging movement bodily in a plane transverse to the axis of said supporting insulator, a fixed pivot supported by said supporting insulator, a rocker arm pivotally mounted intermediate its ends on said fixed pivot and arranged to swing in a plane transverse to the axis of said supporting insulator, operating means for imparting swinging movement to said rocker arm about said fixed pivot, a twist element pivotally connected to said switch blade and to said rocker arm, and a swing element pivotally mounted on said movable support and pivotally connected to said rocker arm, said rocker arm and said twist element being arranged to impart rotating movement to said switch blade about its axis at the beginning of a switch opening operation and said rocker arm and said swing element being arranged to impart bodily swinging movement to said movable support and to said switch blade during succeeding stages of a switch opening operation.

3,320,377
HIGH VOLTAGE SWITCH DEVICE
Edward H. Yonkers, Glencoe, Ill., assignor to Joslyn Mfg. and Supply Co., Chicago, Ill., a corporation of Illinois
Original application July 26, 1962, Ser. No. 212,513, now Patent No. 3,172,979, dated Mar. 9, 1965. Divided and this application Nov. 6, 1964, Ser. No. 409,481
3 Claims. (Cl. 200—48)

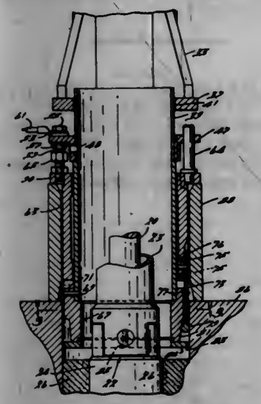


1. An electrical switching device comprising first and second spaced apart terminals and a switching element having one end pivotally mounted on said first terminal and movable in a plane to engage its opposite end with said second terminal when in a closed position and to be disengaged from said second terminal when in an open position, said switching element comprising a pair of parallel spaced confronting blade members, said blade members defining opposed recesses on their confronting faces, and contact means on said second terminal disposed to lie between and engageable with said recesses of said blade members when said switching element is in a closed position, said contact means including a closed loop of strip material formed with a central base at one end secured to said second terminal, a pair of spaced apart leg members extending from said base between and closely confronting inner surfaces of respective ones of said blade members and end members formed at the other end of said loop, a pair of contact buttons, one button carried on each of the respective legs and each button having an enlarged head extending outwardly of the leg to contact and seat within a recess of a respective blade member and biasing means extending between said legs and axially aligned with said buttons for normally biasing said legs outwardly apart from one another.

3,320,378
BORE GAUGING DEVICE
Albin S. Czubak, Detroit, Mich., assignor to Micromatic Hone Corporation, Detroit, Mich., a corporation of Michigan
Filed Sept. 4, 1964, Ser. No. 394,500
6 Claims. (Cl. 200—61.41)

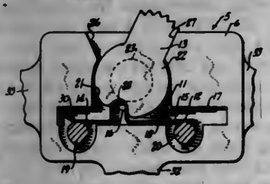
1. In a machine having a tool provided with a drive shaft for enlarging the bore of a workpiece,
a bracket disposed for movement toward and away from said bore in unison with tool movement,
a bore gauging device carried by said bracket and including a gauge body encircling the drive shaft of the tool for reciprocation in and out of the bore,

said gauge body comprising a first sleeve having radially movable gauging fingers mounted thereon adapted to be freely received within the bore,
a second sleeve disposed within said first sleeve and having a portion thereof adapted to move said gauging fingers into contact with said bore upon relative movement between said first and second sleeves,
means supporting said second sleeve on said bracket for movement therewith and for longitudinal movement relative thereto,
resilient means biasing said second sleeve away from said bracket and toward said bore,



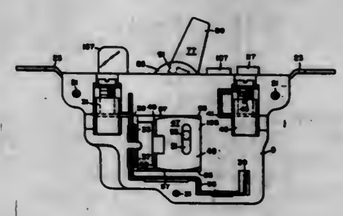
electrical switch means adapted to be actuated upon a predetermined relative movement between said first and second sleeves,
means operable to limit longitudinal movement of said first sleeve relative to the workpiece while permitting the continued longitudinal movement of said second sleeve with the tool as the tool is moved longitudinally of said bore, whereby the continued movement of the tool will cause said second sleeve to move said fingers into contact with said bore.

3,320,379
SNAP ACTION ELECTRICAL SWITCH
Robert D. Franzene, Chicago, Ill., assignor to Deltrol Corp., Bellwood, Ill., a corporation of Delaware
Filed Sept. 13, 1965, Ser. No. 486,741
7 Claims. (Cl. 200—76)



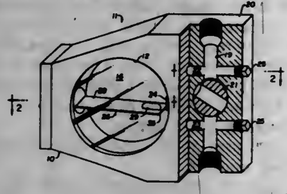
1. An electric switch having a housing of electrical insulating material with an elongated upwardly facing substantially flat supporting surface that extends lengthwise between a pair of stationary contacts in its interior, at a level adjacent to but below the contact surfaces of said contacts, a resiliently flexible contactor blade which is movable lengthwise over the supporting surface between switch open and switch closed positions, and an actuator drivingly connected with the contactor for moving the same to said positions thereof in consequence of movement of the actuator between defined limits corresponding to said positions, wherein the improvement comprises:
(A) means mounting the actuator on the housing for pivotal motion about a fixed axis which is disposed
(1) transverse but substantially parallel to said supporting surface,
(2) and over a zone of said surface intermediate the stationary contacts;
(B) means fixed with respect to the actuator providing contactor drive means which faces toward said supporting surface and which moves bodily with the actuator arcuately across said intermediate zone of the supporting surface from a position at either side of said zone thereof during pivotal movement of the actuator between its limits of motion;
(C) said contactor blade having
(1) a first arm at all times engaged with one stationary contact,
(2) a second arm cooperable with the other stationary contact,
(3) and a part intermediate and connecting said arms and positively and directly interengaged with said drive means to constrain the contactor to move in unison with the contactor and thereby provide said driving connection therebetween;
(D) said second contactor arm bearing upon the supporting surface in spaced relation to said other stationary contact in the switch open position of the contactor, and being movable off of the supporting surface and onto said other stationary contact in consequence of actuation of the contactor to its switch closed position;
(E) and said drive means cooperating with said part on the contactor to flex the latter toward the supporting surface and thereby maintain the contactor arms so stressed that in each of its switch open and switch closed positions the restoring force in the contactor arms exerts a turning moment of substantial magnitude upon the actuator through the drive means thereon to positively but yieldingly hold the actuator at its corresponding limit of motion.

3,320,380
CIRCUIT INTERRUPTER WITH AN IMPROVED CONTACT STRUCTURE
John N. Groves and Howard E. Reichert, Beaver, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Original application Nov. 15, 1961, Ser. No. 152,395. Divided and this application June 24, 1965, Ser. No. 466,784
6 Claims. (Cl. 200—76)



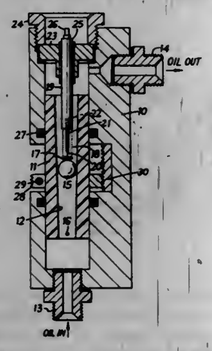
1. A circuit breaker comprising stationary contact means, a movable contact member comprising a generally flat plate having contact means at one end thereof, two generally parallel track surfaces, said track surfaces engaging oppositely disposed end surfaces of said plate to guide said plate, means operable to move said plate between said track surfaces into and out of engagement with said stationary contact means, and said oppositely disposed end surfaces of said plate being curved surfaces to permit said plate to rock in the planes of its largest flat surfaces.

3,320,381
FLUID FLOW INTERLOCK AND INDICATOR
Forrester K. Crosby, Moraga, and William F. Eaton, Kensington, Calif., assignors to the United States of America as represented by the United States Atomic Energy Commission
Filed May 12, 1965, Ser. No. 455,354
1 Claim. (Cl. 200—81.9)



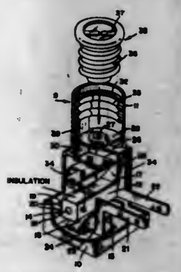
A fluid flow interlock comprising a body having a cavity therein with parallel sidewalls and spaced apart inlet and outlet means for directing a fluid flow therethrough in a direction parallel to said sidewalls, a valve connecting said inlet and outlet to bypass a selected portion of said fluid flow around said cavity, a flat spring vane disposed in said cavity between said inlet and outlet and having a fixed end and a free end, said vane being sufficiently broad to extend between said cavity sidewalls whereby the fluid flow between said inlet and outlet passes principally around said free end of said vane, a switch attached to said vane near the free end thereof to move therewith, said switch being of a type which is operated by being tilted between two positions, conductor means extending into said body for connecting said switch to external circuitry, and a protuberance disposed on the wall of said cavity between said inlet and outlet and projecting towards said free end of said vane and providing a flow passage around said free end of said vane which is constricted over only a narrow range of motion thereof whereby the motion of said vane relative to change in flow rate is amplified, said switch being operable within said narrow range.

3,320,382
DEVICES RESPONSIVE TO FLUID FLOW
Evelyn S. L. Beale, Staines, England, assignor to Alan Muntz & Company Limited, Feltham, England
Filed Oct. 13, 1965, Ser. No. 495,504
Claims priority, application Great Britain, Jan. 8, 1965, 1,007/65; July 14, 1965, 29,913/65
11 Claims. (Cl. 200—81.9)



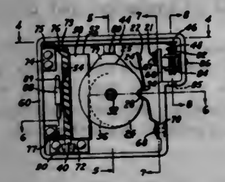
1. A device responsive to fluid flow comprising a tube, a spherical ball of diameter substantially less than that of the bore of said tube arranged within said bore, a fluid inlet to said bore on one side of said ball, a fluid outlet from said bore on the opposite side of said ball, an electrical contact assembly mounted within said bore, said contact assembly including a shoe, means resiliently supporting said shoe for movement in an axial direction parallel to the axis of said tube bore and in a direction transverse with respect to said axis, said shoe having a convex surface to engage said ball and having a portion of its surface electrically conducting, a contact member positioned in said bore to engage said conducting portion of said shoe, means resiliently supporting said contact member for movement in a direction parallel to said axis and in a direction transverse with respect to said axis, terminals disposed outside said bore, and means for making electrical connections between said conducting portion and said contact member, on the one hand, and said terminals on the other hand.

3,320,383
MULTIPLE ELECTRICAL OUTLET FUSED PLUG RECEPTACLE
Leonard Koetter, 915 Coleman Ave., San Jose, Calif. 95110
Filed Nov. 2, 1965, Ser. No. 506,085
3 Claims. (Cl. 200—115.5)



1. An electrical safety socket comprising an insulated housing, bar means of insulation disposed transversely within said housing, and providing a top, bottom and side wall, contact members, one generally above and one generally below said bar means, each contact member having three fingers engaging said bar means to provide a three-point support and reinforcement for the contact members as well as to provide three sets of female contacts for the reception simultaneously of three separate electrical appliances, two fingers of one of said contact members being aligned and terminally engaging said top wall, two fingers of the other contact member being aligned and engaging said bottom wall, the third finger of each contact member being intermediate the other fingers thereof and extending laterally beyond said bar means and contacting the said side wall between said top and bottom walls to reinforce said contact members against torsional displacement, conductor prongs mounted in said housing in a plane intermediate said contact members, one of said prongs leading to one of said contact members, a conductor strip leading from the other contact member provided with a ring, said ring and contact element being arranged for engagement by a fuse plug, the other prong leading to said contact element, said housing having three sets of openings for the reception of the prongs of the three electrical appliances so that the prongs of the respective electrical appliances will engage one finger of each set of female contacts of the contact members, said other prong including an arm supporting said contact element and a shelf of insulating material being carried by and within the housing in spaced relation above said contact members, said arm and contact element resting upon the face of said shelf remote from said contact members, and the upper contact member having a conductor strip extending upwardly and marginally therefrom between the shelf and the housing and reinforced thereby.

3,320,384
SNAP ACTING SWITCH MECHANISM
Charles C. Gambill, Tipp City, and Richard S. Gaugler, Dayton, Ohio, assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed June 27, 1963, Ser. No. 291,117
3 Claims. (Cl. 200—122)



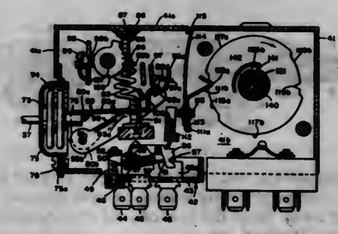
1. An electrical control device associable with a power source for regulating the energization of an electrical device comprising, means including a pair of contacts for interrupting current flow from the power source to the controlled device, a thermally responsive element having a predetermined transition temperature at which it abruptly expands, means for heating said thermally responsive element to said predetermined transition temperature, means for connecting said thermally responsive element to one of said pair of contacts for moving said contacts to an open position when said thermally responsive element reaches said predetermined transition temperature for controlling the energization of the controlled device, an element of thermal conductive material serving as a heat sink, means for supporting said element of thermal conductive material in heat transfer relationship with said thermally responsive element, and means varying the heat transfer relationship between said thermal conductive element and said thermally responsive element to vary the heat sink capacity of said thermal conductive element for varying the rate of temperature increase of said thermally responsive element to modulate the contact controlling action thereof.

3,320,385
ELECTRICAL CONNECTOR FOR TAPPING POWER FROM AN INSULATION COVERED CONDUCTOR
Henry A. Sherwood, Short Hills, N.J., assignor to U.S. Servicator Corporation, Clifton, N.J., a corporation of Delaware
Filed July 28, 1965, Ser. No. 475,443
5 Claims. (Cl. 200—129)



1. Automatic splicing apparatus including housing means having a portion defining a chamber with a through passage for receiving an insulation covered conductor, electrical conducting means including a first section having a piercing means extending into said through passage, means securing said first section to said housing means, first means mounted to said housing and extending into said chamber, second means operable to move said first means toward said piercing means and in so doing cause piercing means to electrically engage an insulation covered wire positioned in and extending beyond both ends of said through passage; said portion including a threadably mounted cap to which said second means is mounted; third means having an aperture through which said piercing means extends; said third means disposed within said chamber and positioned to engage insulation covering of different sizes of wire to maintain such wire aligned with said piercing means as said first means moves toward said piercing means; said third means including spaced arms extending toward said cap with each of said arms having a free edge with multiple projections of varying height.

3,320,386
AUTOMATIC DEFROSTING CONTROL MECHANISM FOR HEAT PUMPS AND THE LIKE
John Liebermann, Columbus, and Robert E. Brooks, Worthington, Ohio, assignors to Ranco Incorporated, Columbus, Ohio, a corporation of Ohio
Filed Dec. 11, 1963, Ser. No. 329,816
5 Claims. (Cl. 200—136.3)

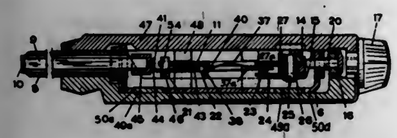


1. In a control mechanism for heat pumps and the like, an electric snap switch mechanism having an actuator arm movable between two switch operative positions, means continually urging said arm towards a single one of said positions, a first blocking means movable into and out of the path of movement of said arm to block movement toward said one position, thermally responsive means to move said blocking means into and out of said path, a second blocking means movable along said path of movement of said arm and adapted to be engaged by said arm and separable therefrom when said arm is blocked by said first blocking means, and timer driven cam means for moving said second blocking means in opposite directions along said path of movement.

3,320,387
ROD AND TUBE TYPE THERMOSTAT WITH AXIAL MOVABLE ADJUSTMENT MEANS
Owen Murray Kendon, 1 Cecil St., Upper Hutt, Wellington, New Zealand
Filed June 14, 1965, Ser. No. 463,687
1 Claim. (Cl. 200—137)

A thermostat switch comprising a thermostat body, a frame member positioned in said body, a thermostat tube secured to said frame member and extending from said body, a thermostat rod within said tube having a different coefficient of thermal expansion from that of said tube, means fixing said rod to said tube at the end thereof remote from said body for constituting a thermostat rod and tube assemblage, a movable support member within said body, a manual operable control means mounted in said body opposite said tube, operating axial adjusting means for adjusting the position of said support member toward and away from said rod mounted in said

tube, a fixed contact for said support member located at a distance remote from said rod and tube assemblage, a spring-toggle switch blade mounting means carried by said support means adjacent the end of said rod within said body, a spring-toggle switch blade having a movable contact for cooperation with said fixed contact, means mounting said switch blade on said spring-toggle switch blade mounting means, an abutment for a spring of said switch blade mounting means mounted on said support means, said spring-toggle switch blade mounting means and said abutment for the spring being so arranged that the spring of said switch blade is biased for moving the movable contact in one direction with a snap action and upon sufficient force being exerted on said switch blade for causing deformation thereof for ultimately causing said movable contact to move in the other direction with a snap action, a bell crank member having a stiffly resilient arm attached to said switch blade in proximity to said spring-toggle switch blade mounting means with said resilient arm extending over said switch blade and having pressure transmitting points adjacent the end thereof for transmitting force to the switch blade adjacent the abutment means, said bell crank member also being provided with an abutment arm of shorter length than the length of said stiffly resilient arm and having a pressure transmitting point thereon adapted to be engaged by the end



of said thermostat rod, the adjustment of said manually operable control effecting sliding of said support member toward or away from the end of said rod thereby varying the distance through which said rod must be moved due to temperature change prior to the rod applying such pressure to the abutment arm as to cause operation of said movable contact thus varying the temperature setting of the thermostat by operation of said manually operable control, with an increase in temperature of said tube causing said rod to move away from said bell crank member under spring pressure from said spring-toggle switch blade mounting means following the movement of said rod and with said resilient arm deforming under the release of pressure due to the movement away of said rod, said switch blade following the pressure points of said bell crank member until the spring action thereof operates the movable contact with a snap action to open the switch and during cooling of the thermostat, an increase of pressure caused by movement of said rod toward said bell crank member causing said bell crank member to move for applying pressure to said switch blade with said resilient arm flexing under such pressure until the pressure build-up is sufficient for causing the switch blade to change its position to close the movable contact on to the fixed contact with a snap action and the pressure points follow said switch blade loss of flexing in said resilient arm.

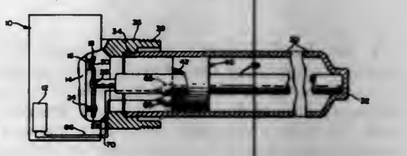
3,320,388
COMBINATION BIMETAL THERMAL SWITCH MOUNTED IN BETWEEN A ROD AND TUBE THERMAL RESPONSIVE DEVICE
Kenneth Gilbert Kreuter, Goshen, Ind., assignor to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware
Filed Dec. 30, 1965, Ser. No. 517,592
5 Claims. (Cl. 200—137)

1. A thermal responsive device having dual temperature responsive means comprising

first temperature sensor means including a tube of thermally expandable, heat conductive material and a rod of thermally non-expandable material longitudinally disposed in said tube in spaced relation thereto,

said rod and tube having adjacent end portions secured together whereby said rod is moved longitudinally in response to expansion and contraction of said tube,

second temperature sensor means including a hollow cylindrical enclosure having radially spaced inner and outer walls, a bottom wall joining adjacent ends of said walls and an annular insulating cover disposed between said walls at their other ends,

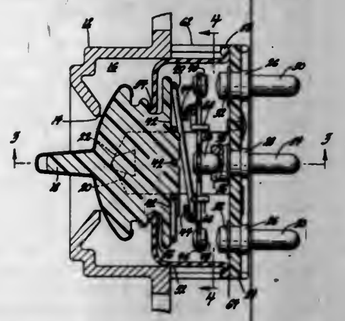


said enclosure being disposed in space between said rod and tube with said outer wall in heat conductive relation with said tube and said inner wall defining a sleeve for free movement of said rod therethrough,

switch means carried by said cover having one wire conductor with a bent portion defining fixed contact means and a second wire conductor with a bent extension defining movable contact means normally biased into engagement with said fixed contact means,

bimetal snap means in said enclosure adjacent said bottom wall for operating said movable contact means in response to heat conduction between said tube and said enclosure.

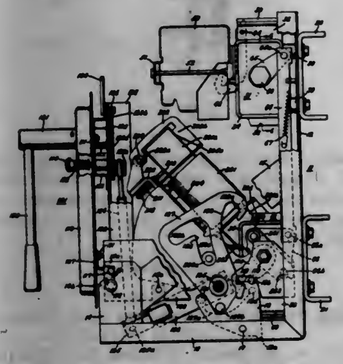
3,320,389
ELECTRIC SWITCH HAVING PIVOTING STRUCTURE ON FIXED CONTACT
Alfonsas Arlauskas, Livonia, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Nov. 23, 1964, Ser. No. 412,998
5 Claims. (Cl. 200—153)



1. An electric switch comprising: a switch body having a compartment formed therein and an aperture through one wall of said switch body from said compartment, said switch body having a series of channels formed in opposed walls thereof; actuator means pivotally disposed in said compartment and having a portion extending through said aperture and means cooperating with said series of channels to pivotally support said actuator means; a series of terminals carried in one wall of said switch body and

including heads exposed to the inside of said compartment serving as fixed contacts for said switch and a head having a pocket therein; biasing means carried by said actuator means for centering said actuator means in the aperture in the switch body; and contact means carried by said biasing means and being pivotable in the pocket formed in said contact head in response to a pivoting movement of said actuator to selectively engage said contact means and said fixed contacts.

3,320,390
CONTACT PRESSURE CLAMP FOR AN ELECTRIC SWITCH
Leslie L. Baird, Swarthmore, Pa., assignor to General Electric Company, a corporation of New York
Filed Jan. 21, 1965, Ser. No. 427,061
10 Claims. (Cl. 200—166)



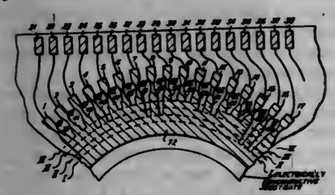
8. Means for clamping a blade-like contact between a pair of jaw-like contacts comprising:

(a) a movable actuating member having a predetermined initial position;

(b) first means responsive to movement of the actuating member from its first position toward a predetermined second position for compressing the interposed contacts until they are subjected to a preset compression of predetermined magnitude; and

(c) second means responsive to continued movement of the actuating member beyond its second position for positively effecting additional compression of said contacts.

3,320,391
BLANK FOR SELECTOR SWITCH
Michel Jean Lafont, Saint-Maur, France, assignor to Societe d'Instrumentation Schlumberger, Paris, France, a corporation of France
Filed June 7, 1965, Ser. No. 462,032
Claims priority, application France, June 10, 1964, 977,811
4 Claims. (Cl. 200—166)



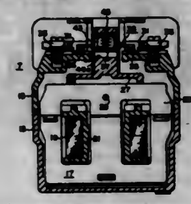
1. A blank for use in manufacturing the fixed contact members of a selector switch comprising

an electrically conductive strip having first and second parallel longitudinal edges and a plurality of electrically nonconductive paths contained within the boundaries of said strip extending inwardly from the second of said longitudinal edges thereof generally transversely of said strip and toward the other of said edges,

said nonconductive paths each terminating at one of a plurality of N distances from the second of said edges, said N distances defining N reference levels in said strip,

each of said N distances being less than the total width of said strip.

3,320,392
ELECTRIC CONTROL DEVICE WITH IMPROVED CONTACT STRUCTURE
John H. Mullen, Brighton Township, Beaver, and Zelko J. Kruzic, Daugherty Township, Beaver, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Oct. 15, 1965, Ser. No. 496,355
10 Claims. (Cl. 200—166)

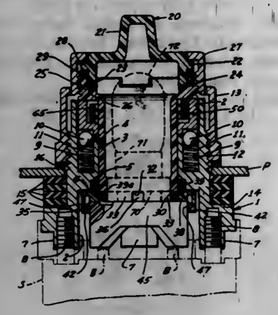


8. A control device comprising support means, a pair of stationary contacts mounted on said support means in a spaced relationship, a contact carrier mounted for movement relative to said support means, an elongated bridging contact member supported on said contact carrier, a pair of movable contacts on said bridging contact member in a spaced relationship, each contact of a first pair of said pairs of contacts comprising a main surface and a projection extending from the main surface, means for moving said contact carrier to move said bridging contact member generally rectilinearly toward said stationary contacts to a closed position and away from said stationary contacts to an open position, resilient means backing said bridging contact member on said contact carrier such that during closing operations when said movable contacts engage said stationary contacts said contact carrier can move a further distance in the closing direction to a fully closed position during which further movement of said contact carrier said resilient means is charged to provide contact pressure between said movable contacts and said stationary contacts, and said pairs of contacts and the supports thereof being constructed and arranged such that during closing operations said projections of said first pair of said pairs of contacts will first engage the second of said pairs of contacts and as said contact carrier moves to the fully closed position charging said resilient means said bridging contact member will rock until another part of said first pair of contacts engages said said second pair of contacts to thereby provide a wiping action of said projections against said second pair of contacts.

3,320,393
ILLUMINATED SELECTOR SWITCH
Carl B. Sohns, Whitefish Bay, and Josef Bierenfeld, Shorewood, Wis., assignors to Square D Company, Park Ridge, Ill., a corporation of Michigan
Filed Nov. 15, 1965, Ser. No. 507,825
13 Claims. (Cl. 200—167)

1. A selector switch operator comprising a base having a through lineal passage therein;

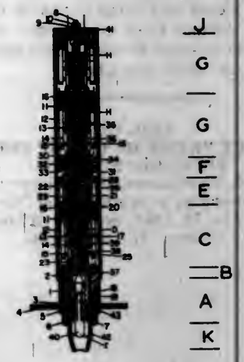
rotor means mounted in the passage for rotation about the axis of the passage;
an operating knob coaxial with, and connected to, one end of the rotor means for rotation therewith, and having a gripping portion disposed outwardly from the base beyond said one end of the base passage;
cam means detachably connected to the opposite end of the rotor means in coaxial relation therewith and for rotation therewith, and having an operating surface facing outwardly endwise of the base in a direction away from the rotor means;
an annular indexing adaptor detachably connected to the rotor means in surrounding relation thereto and for rotation therewith;



complementary yieldable detent means carried by the base and adaptor, respectively, for yieldably arresting rotation of the adaptor in predetermined rotated positions of the rotor means and cam means relative to the base;
said base being adapted for connection to switch means for holding the switch means in an operating position relative to the base wherein the switch means are operable by rotation of the cam means;
and said rotor means and cam means being annular and having coaxial central passages, respectively, which are open at both ends so that a light module can be installed for illuminating the knob.

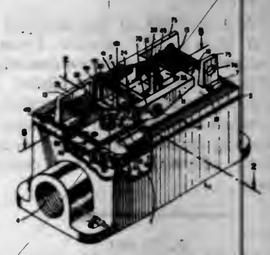
3,320,394
MODULE SWITCH HAVING A ROTATABLE AND RECIPROCAL ACTUATOR
Marcel Verneau, Lyon, France, assignor to Compagnie Generale d'Entreprises Electriques, Levallois-Perret, France
Filed July 18, 1966, Ser. No. 565,803
22 Claims. (Cl. 200—167)

1. Electrical switch comprising at least one first contact supporting element and at least one second contact supporting element each formed by a generally cylindrical casing open at both ends and closed by removable apertured cover members, each of said contact supporting elements enclosing contact means including at least one movable contact cooperating with at least one fixed contact, each of said contacts carried by an elongated flexible lamina fixedly secured at one end to said contact supporting elements, said movable contacts being redially displaceable with respect to the axis of said casing, said first and said second contact supporting elements disposed with their axes aligned, an elongated first control element passing through the open ends of said first contact supporting element and having ramp means adapted to actuate said movable contact of said first supporting element upon displacement of said first control element along its longitudinal axis, an elongated second control element passing through at least one open end of said second supporting element and having rib means adapted to actuate said movable contact of said second supporting element upon rotation of said second control element about its



longitudinal axis, and connecting means linking said first control element with said second control element, said connecting means being adapted to transmit solely a rotational movement of said first control element to said second control element.

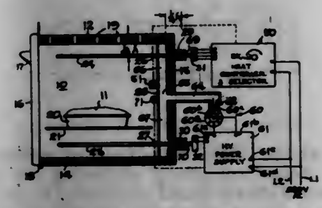
3,320,395
OPERATING MECHANISM FOR MANUALLY ACTUATED SWITCHES
Woodrow A. De Smidt, Whitefish Bay, Wis., assignor to Allen-Bradley Company, Milwaukee, Wis., a corporation of Wisconsin
Filed Feb. 1, 1966, Ser. No. 524,158
11 Claims. (Cl. 200—168)



1. An enclosed electrical switching station comprising, in combination:
a housing, the walls of which define an internal cavity therein and a shaft receiving aperture therethrough;
an electrical switch assembly supported in said housing cavity;
a rotatable operating shaft having a portion extending internally of said housing through said apertrue;
an external actuating arm engaged with and arranged to operate said shaft;
a second actuating arm residing in said housing cavity and operably engaging the internal portion of said shaft, said second actuating arm positioned substantially normal to the rotational axis of said shaft;
overtravel takeup means interposed between said second actuating arm and said shaft permitting said second actuating arm to be laterally movable relative to the axis of said shaft;

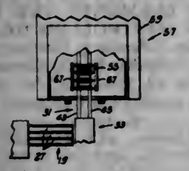
a reciprocally, linearly movable plunger supported in said housing cavity independently of said second actuating arm and said switch assembly, and adapted to actuate said switch assembly, said plunger slidably engaging said second actuating arm at a point spaced from said shaft;
whereby rotational movement of said shaft will be transmitted to said plunger to provide linear motion of said plunger.

3,320,396
ELECTRONIC OVEN
Helmut Boehm, Rockford, Ill., assignor, by mesne assignments, to Technology Instrument Corporation, Newbury Park, Calif., a corporation of California
Filed June 18, 1964, Ser. No. 376,185
17 Claims. (Cl. 219—10.55)



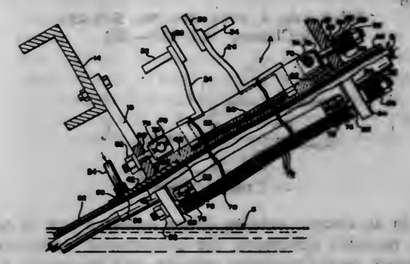
1. In an oven, the combination comprising means defining an oven chamber, a metal element disposed in said chamber, means for supplying microwave electrical energy to said element to cause such element to act as a driven antenna radiating microwave energy therefrom and into the chamber, and means for passing current other than at microwave frequencies through said element to generate heat by I^2R dissipation therein.

3,320,397
PRE-HEATING PROCESS
Robert H. Alexander and Louis R. Wanner, Warren, Pa., assignors to Sylvania Electric Products Inc., a corporation of Delaware
Filed June 24, 1963, Ser. No. 290,003
5 Claims. (Cl. 219—10.69)



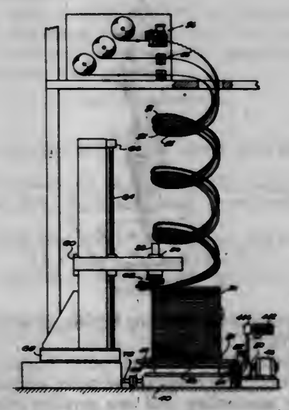
1. A preform pre-heating process adapted for use in a molding operation comprising the steps of:
depositing preforms of dielectric material into a heating zone, each of said preforms having a substantially uniform diametrical dimension and a peripheral surface in a plane normal thereto and said heating zone including a pair of spaced electrodes in planes substantially perpendicular to a diameter of the preforms, said preforms being disposed intermediate said electrodes and continuously rotated about the axis of said diametrical dimension by pressure exerted on a continuously changing portion of said peripheral surface;
dielectrically heating said preforms at atmospheric pressure and to a temperature less than the temperature and pressure of polymerization of said material during a molding operation by electrically energizing said electrodes at an RF frequency; and
discharging said preforms from said heating zone and to a molding operation.

3,320,398
INDUCTION HEATING COIL ASSEMBLY
Robert G. Armstrong, Chardon, Ohio, assignor to The Ohio Crankshaft Company, Cleveland, Ohio, a corporation of Ohio
Filed Aug. 5, 1964, Ser. No. 387,585
4 Claims. (Cl. 219—10.79)



1. An induction heating coil assembly including spaced non-magnetic support members, a multi-turned coil having an axially extending workpiece receiving passage and input leads adapted to be connected to a source of high frequency current, a refractory material surrounding said coil, a plurality of tie rods surrounding said coil and extending between said support members, said tie rods being formed from high permeability iron laminations with said laminations extending axially with respect to said coil, each of said rods being secured onto one of said support members and means at the other support member for applying a tension in said tie rods to compress said refractory material and rigidify said assembly.

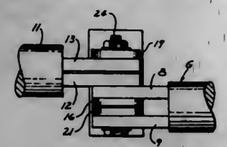
3,320,399
METHOD AND APPARATUS FOR MAKING A HONEYCOMB FILTER
Oscar Luthi, Nashua, N.H., assignor, by mesne assignments, to Improved Machinery, Inc., Nashua, N.H., a corporation of Delaware
Filed Sept. 13, 1963, Ser. No. 308,874
16 Claims. (Cl. 219—78)



1. The method of manufacturing a filter drum from successively produced coils of a filter strip assembly comprising a waved strip and at least one separate straight

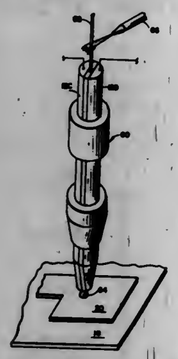
tape which comprises the steps of rotating a rotary support, guiding said filter strip assembly onto said rotary support and winding it into successive helical coils progressively stacked on each other to form an axial drum build-up, and fastening successive portions of said filter strip assembly to said rotating drum build-up.

3,320,400
PORTABLE WELDER WITH AUTOTRANSFORMER
Chester F. Leathers, Kalamazoo, Mich., assignor to Cal Manufacturing Company, Kalamazoo, Mich., a partnership
Filed Aug. 1, 1966, Ser. No. 569,457
10 Claims. (Cl. 219—89)



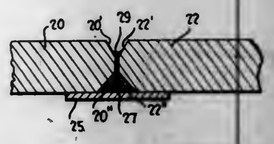
1. In an electric welding device having a pair of relatively movable electrodes, the combination comprising:
support means movably relating said electrodes with respect to each other;
autotransformer means separable from said support means and said electrodes and connected in circuit with said electrodes for reducing the voltage across said electrodes and means releasably attaching said autotransformer means to said support means so that said autotransformer means can be easily separated as a unit from said welding device without requiring disassembly of said support means; and
flexible conductor means releasably and electrically connected to said autotransformer means at said support means and said flexible conductor means being at least partially supported by said support means.

3,320,401
DIFFUSION BONDER
Clyde L. Zachry, Norco, and Jack B. Northrup and William R. Cann, Anaheim, Calif., assignors to North American Aviation, Inc.
Filed May 24, 1963, Ser. No. 282,904
10 Claims. (Cl. 219—119)



1. An apparatus for diffusion bonding a wire to a workpiece comprising
a first electrically-conductive outer portion;
a second electrically-conductive outer portion;
means for assembling said two portions into a unitary split electrode structure that permits electricity to flow down one said outer portion and back through the other said outer portion;
means whereby a wire may be fed into the top of said split electrode and emerge from the bottom of said split electrode and means for enlarging a portion of said emergent wire, and wherein said electrode structure is adapted to transmit pressure to said enlarged portion.

3,320,402
METHOD AND APPARATUS FOR FUSION WELDING
Rae H. Cunningham, Newport News, Va., assignor to Newport News Shipbuilding and Dry Dock Company, Newport News, Va., a corporation of Virginia
Continuation of abandoned application Ser. No. 343,825, Feb. 10, 1964. This application Sept. 9, 1966, Ser. No. 578,410
2 Claims. (Cl. 219—137)

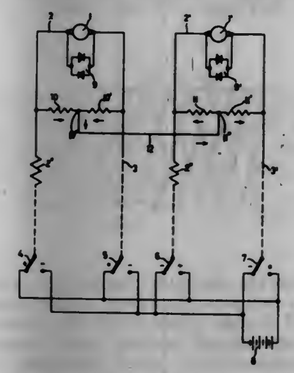


1. The method of fusion welding two members along the edges thereof comprising positioning the edges of the members in closely spaced relationship to one another to provide a gap therebetween, positioning a back-up means at one side of said members extending along said gap, at least partially filling said gap with only powdered metal which is supported on said back-up means, and then welding said members to one another, along said edges from the opposite side of said members, the two members having inner and outer surfaces, and the edges of the members being oppositely similarly beveled inwardly from the said inner surfaces and such beveled edges terminating substantially medially of each member, and inwardly of the said beveled edges the edges of the members being substantially parallel and these parallel edges terminating in similarly oppositely disposed bevels on each of the said edges to the said outer surfaces.

3,320,403
REMOTE CONTROL SYSTEM FOR INFLUENCING ADJUSTABLE ELEMENTS AND FOR PRODUCING REMOTE CONTROLLED HEATING
Heinrich Falder, Allersberg, Germany, assignor to Max Grundig, Furth, Germany
Filed July 10, 1964, Ser. No. 381,766
Claims priority, application Germany, Oct. 25, 1963, G 39,033
4 Claims. (Cl. 219—209)

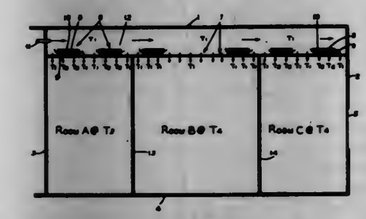
1. In a direct current operated remote control system for influencing adjustable elements and for producing remote controlled heating, in combination, a source of direct current having a positive and a negative terminal; at least two direct current motors each having a first and a second terminal; circuit means including a plurality of motor energizing leads respectively connecting said motor terminals with said source and including switch means movable between a first position in which each of said motors has both its terminals simultaneously connected with a selected one of said terminals of said source whereby both said motors are caused to be at a standstill, and a second position in which each of said motors has each of its terminals connected respectively to different terminals of said source whereby both said motors are energized; and at least two heating resistor means, each being connected in parallel with a different one of said motors and each of said resistor means being composed of two halves in series-connection and joined with each other at a central junction point therebetween,

said junction points of said two resistor means being connected with each other so that both said heating resistor means are energized through said motor energizing leads when said switch means are in said first position thereof



and said motors are at a standstill, provided that both said terminals of one of said motors are connected to said positive terminal of said source and both said terminals of the other motor are connected with said negative terminal of said source.

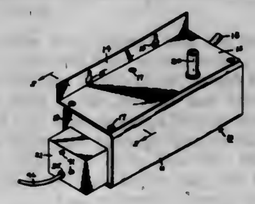
3,320,404
VENTILATING CEILING CONSTRUCTION AND COMBINED HEATING AND VENTILATING PANEL UNITS THEREFOR
Henry J. Roux, Lancaster County, Pa., assignor to Armstrong Cork Company, Lancaster, Pa., a corporation of Pennsylvania
Filed Jan. 19, 1965, Ser. No. 426,594
10 Claims. (Cl. 219—213)



1. A combination heating and ventilating ceiling panel unit comprising a ventilating ceiling panel provided with air ventilating holes for metering air from a primary plenum to a room below, imperforate means spaced from the back of said ventilating ceiling panel and defining a secondary plenum chamber therewith, a heating element positioned within said secondary plenum chamber, and passage means whereby conditioned air from the primary plenum may be directed into heat exchange relationship with said heating means prior to its passage through the air ventilating holes.

3,320,405
EVAPORATOR UNIT
Anthony R. Costantini, Lafayette Hill, and Anthony Di Angelus, Manoa, Pa., assignors to Victory Metal Manufacturing Company, Plymouth Meeting, Pa., a corporation of Pennsylvania
Filed July 28, 1964, Ser. No. 385,748
5 Claims. (Cl. 219—271)

1. An automatic temperature operated evaporator device, comprising in combination,
(a) a liquid receiver having an inlet opening thereto proximate to the bottom thereof, and a liquid vapor outlet therefrom proximate to the top thereof,
(b) an electrically energizable heater element mechanically supported by and disposed within said liquid receiver above the elevation of the receiver inlet opening, said heater element being electrically and substantially thermally insulated from direct contact with said liquid receiver and having electrical energization terminals projecting externally of the receiver for connection to a source of electrical energy,
(c) a thermally highly conductive heat transfer plate mechanically intimately secured to said receiver heater in broad area contact therewith for good heat transfer therebetween to thereby increase the effective area of heat transfer between the liquid in said receiver and said heater element, said heat transfer plate having a flange portion positioned adjacent to an aperture in a wall of said receiver which flange

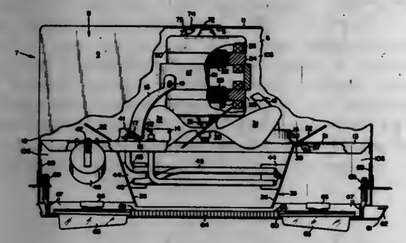


is thermally insulated from said receiver by an intervening liquid tight gasket preventing escape of liquid from said receiver through said wall aperture,
(d) a thermostat including
(1) switch means carried by said liquid receiver externally thereof including a pair of electrical contacts connected in series with said heater element by means of said heater terminals and conductor means adapted for connection to a source of electrical energy, said thermostat controlling said switch means so that the electrical contacts thereof open at a first predetermined thermostat temperature higher than the boiling point of water and close at a second predetermined thermostat temperature lower than the boiling point of water,
(2) and a thermal contact face thermally coupled to the flange portion of said heat transfer plate of said energizable heater element through said receiver wall aperture.

3,320,406
COMBINATION HEATING AND VENTILATING UNIT
William L. Wainwright, Rochester, N.Y., assignor to Fasco Industries, Inc., Rochester, N.Y., a corporation of New York
Filed Sept. 16, 1963, Ser. No. 309,023
12 Claims. (Cl. 219—370)

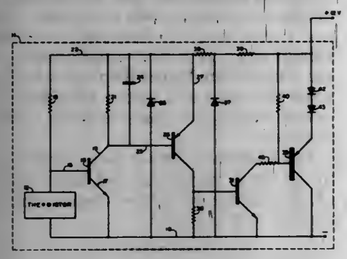
1. A combination heating and ventilating unit, comprising
(a) a housing having a transverse partition therein dividing said housing into two compartments,
(b) a fan mounted in one of said compartments,
(c) a heating element mounted in the other of said compartments,
(d) said partition having a main opening therethrough with which said fan registers, and having a second opening therethrough,
(e) a first damper for closing said second opening,

(f) said housing having an exhaust port therein communicating with said one compartment, and a pair of openings communicating with said other compartment,
(g) a second damper for closing said exhaust port,
(h) a motor for driving said fan selectively in opposite directions,
(i) said fan causing said second damper to be opened and air to flow into said other compartment through one of said pair of openings, and through said main



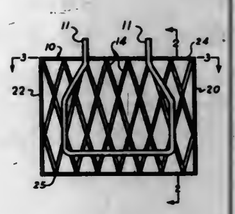
opening and out said exhaust port, when said fan is driven by said motor in one direction, and causing said second damper to be closed and said first damper to be opened and causing air to flow through the other of said pair of openings into said housing, and through said second opening and over said heating element and out said main opening and said one opening of said pair, when said fan is driven by said motor in the opposite direction, and
(j) means for controlling the direction in which said fan is driven by said motor.

3,320,407
SOLID STATE TEMPERATURE CONTROL
Julian C. Holmes, Washington, D.C., assignor to the United States of America as represented by the Secretary of the Navy
Filed Mar. 27, 1961, Ser. No. 98,721
2 Claims. (Cl. 219—501)



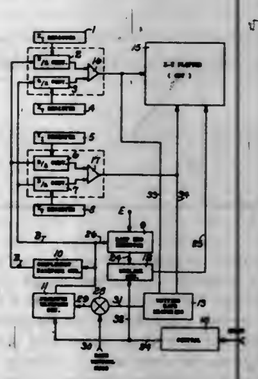
1. A solid state network for controlling the temperature of an enclosure within less than one-tenth degree of a selected temperature comprising temperature sensing means and resistance means connected in series therewith, said temperature sensing means having a resistance value of 1/7 the resistance value of said resistance means connected in series therewith, means connected in parallel with said temperature sensing means and said resistance means for varying current in response to the temperature sensed by said temperature sensing means, and amplifier means connected to said last mentioned means for amplifying said current, said amplifier means including at least one semiconductor of germanium material having its base and emitter electrodes biased to preclude conduction by leakage current after a selected cut-off temperature has been reached, said amplifier means providing linear replacement of heat losses from said enclosure.

3,320,408
HEAT STORAGE APPARATUS
Matthew Mekjean, Niagara Falls, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York
Filed May 4, 1964, Ser. No. 364,547
10 Claims. (Cl. 219—530)



1. A heat storage apparatus comprising a mild steel container for a heat storage medium, a heat storage medium, electrical heating means within the container for heating said heat storage medium, rigid metallic heat conductors distributed in a spaced relationship to each other within said container in contact with said heat storage medium, said heat storage comprising a major proportion by weight of a substantially anhydrous sodium hydroxide composition containing a corrosion inhibitor and wherein said metallic conductors are of mild steel contacting at least two opposed side walls of said container and displacing from said container 5 to 70 percent by volume of said heat storage medium.

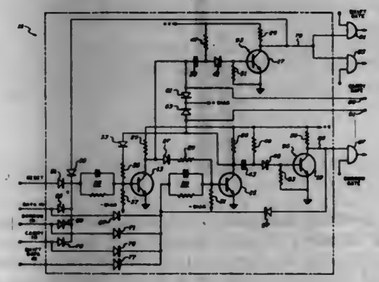
3,320,409
ELECTRONIC PLOTTING DEVICE
Boyd T. Larrowe, Ypsilanti, Mich., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan
Filed Jan. 30, 1963, Ser. No. 254,909
26 Claims. (Cl. 235—151)



1. A device for drawing a straight line on a plotting surface comprising a plurality of pairs of converters, the converter pairs storing in digital notation the X and Y coordinates on said surface which define the initial and terminal points of the line, each converter storing a different one of the coordinates of one of the end points, means for causing the converters which store the X and Y coordinates of the initial point of the line to produce an output which decreases linearly from the analog of the stored digital quantities to zero in a predetermined time, means for simultaneously causing the converters which store the X and Y coordinates of the terminal point of the line to produce an output which increases linearly from zero to the analog of the stored digital quantities,

means for summing the analog outputs from the converters which store the X coordinates, means for summing the analog outputs from the converters which store the Y coordinates, and means connected to said summing means and utilizing the outputs thereof to control the transfer of a drawing means along said plotting surface from said initial point to said terminal point.

3,320,410
REGISTER INCLUDING INTER-STAGE MULTIVIBRATOR TEMPORARY STORAGE
William G. Barrett, Bountiful, and David K. Johnson and Gale H. Thorne, Sr., Salt Lake City, Utah, assignors to Sperry Rand Corporation, Great Neck, N.Y., a corporation of Delaware
Filed June 9, 1964, Ser. No. 373,682
9 Claims. (Cl. 235—175)



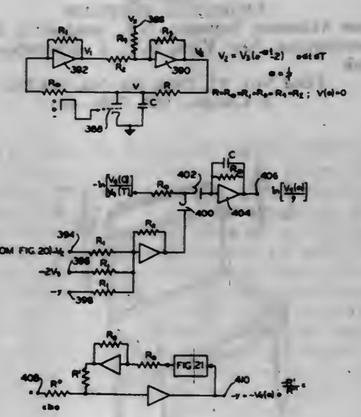
2. A register stage comprising a bistable flip-flop; first and second electron discharge devices in said flip-flop; first and second multivibrators coupled to said first and second electron discharge devices respectively so as to be switched to the quasi-stable state when the associated electron discharge device is rendered conductive, said multivibrators being constructed to remain in the quasi-stable state for a time longer than the settling time of the flip-flop; means to bias the first electron discharge device to saturation while the first multivibrator is in the quasi-stable state; means to bias the second electron discharge device to saturation while the second multivibrator is in the quasi-stable state; and first and second gating means connected to said first and second multivibrators respectively so as to permit output signals to be passed whenever the associated multivibrator is in the quasi-stable state.

3,320,411
METHODS AND APPARATUS FOR GENERATING EXPONENTIAL AND POWER FUNCTIONS
Hugo M. Martinez, Chicago, Ill., assignor to Yuba Consolidated Industries, Inc., San Francisco, Calif., a corporation of Delaware
Original application May 11, 1959, Ser. No. 812,566, now Patent No. 3,259,736, dated July 5, 1966. Divided and this application Dec. 10, 1962, Ser. No. 243,689
7 Claims. (Cl. 235—197)

2. An apparatus for generating an exponential function of the form Be^{kx} of an independent variable x which comprises amplifier means; means for supplying to said amplifier means the negative of said independent variable as part of the input to said amplifier means; means for supplying to said amplifier means a second part of the input to said amplifier means comprising a circuit for producing a periodic time representation of an exponential function of the form Be^{kt} wherein k is a constant and t is time, a comparator, means for supplying said exponential function output of said circuit to said comparator, an auxiliary function generator controlled by the output of said comparator for generating an auxiliary variable having only the two values zero and

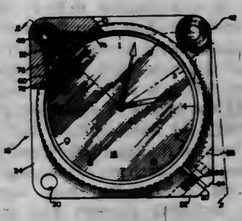
$$\ln\left[\frac{D}{B}\right]$$

where D is the maximum value of said periodic time representation of said exponential function, means for



averaging the output of said auxiliary function generator to produce the natural logarithm of said independent variable; and means for supplying the output of said amplifier means as a second input to said comparator.

3,320,412
AIRCRAFT INSTRUMENT ILLUMINATION
Earl W. Howland, 1540 Elmwood Ave., Buffalo, N.Y. 14207
Filed Mar. 4, 1965, Ser. No. 437,186
5 Claims. (Cl. 240—2.1)



1. An aircraft instrument comprising, in combination,
a tubular body having an open end,
an instrument dial disposed within said body adjacent to but spaced from said open end thereof,
a cover glass disposed within said body in spaced relation to said dial and closing said open end of the body,
said body having a slot therethrough extending between the inner and the outer surfaces thereof within the region between said cover glass and instrument dial,
a mounting flange having an inner surface embracing said outer surface of the body and covering said slot in the body, said flange projecting radially of the body and having means associated therewith for mounting the instrument upon a panel,
means for detachably securing said mounting flange on said body,

said mounting flange having a recess therein, and a light source in said recess, said mounting flange also having a slot extending from said recess to its inner surface, the slots in said mounting flange and said body being in registry,

and prism means for spreading light passing through said slots over the face of said dial.

3,320,413

LIGHTING FIXTURE

Gunnar Mansson, Bayonne, N.J., assignor to Lightolier Incorporated, New York, N.Y., a corporation of New York

Filed Nov. 27, 1964, Ser. No. 414,232
3 Claims. (Cl. 240—4)



1. A lighting fixture comprising an elongated substantially rectangular base plate, an elongated slide channel substantially rectangular in cross section, extending along the length of said base plate, said slide channel having a side wall extending parallel to and spaced from said base plate, the lower edge of said side wall and the opposed surface of said base plate having inwardly extending elongated lips defining an elongated space therebetween, a pair of hollow bracket arms each substantially rectangular in cross section slidably mounted in said slide channel and extending from the outer ends thereof, each of said bracket arms having its outer end turned out of the plane of said base plate, a lamp socket supported on the free end of each arm, a wire enclosing channel extending along the length of said base plate parallel to and spaced from said slide channel, said wire enclosing channel being open at the top thereof, and an electric conductor extending from each socket through the associated bracket arm and through the space between said lips into the wire enclosing channel and an electric cord extending into the wire enclosing channel and connected to said electric conductors.

3,320,414

INSPECTION INSTRUMENT

Charles R. Bowland, 9 Oakdale Road, Spring Valley, Ill. 61362

Filed June 17, 1964, Ser. No. 375,741
1 Claim. (Cl. 240—4.2)

In a mirror-flashlight instrument, the combination of a housing of electrically insulating material having a tubular portion joined at one end to a flat portion which extends in substantially the same direction as the axis of the tubular portion, a mirror fixed on and carried by said flat portion, a light bulb extending from and through said end of said tubular housing portion and overlying said mirror and said tubular housing portion having an inwardly extending lip at this end of the tubular housing portion extending inwardly over a portion of said bulb and holding the bulb from movement farther out of said tubular portion over said mirror, said bulb having a threaded tubular terminal extending around it and having a second boss-like terminal both of which are located in said tubular housing portion, a battery within said tubular housing portion and having a boss-like terminal on one end located adjacent the boss-like terminal on said bulb and having a terminal on its other end in the form of a plate, an electric conductor of yieldable wire which is in the form of a helix on one end wound into the threads of said tubular terminal and which extends through said tubular housing portion at the side of said battery to said other end of the battery and said conductor at its other end being in the form of a flat and



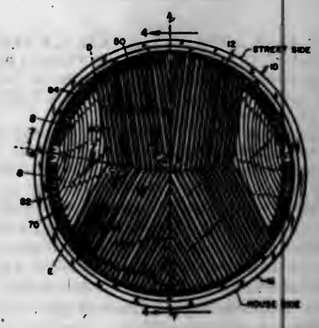
radially inwardly extending coil disposed beneath the plate-like terminal of said battery, said helical portion of said conductor having a plurality of convolutions between said tubular terminal of said bulb and the end surface of said battery surrounding said boss-like terminal of said battery and resting on said end surface so as to normally hold said boss-like terminals apart when said flat coil portion of said conductor is in contact with said plate-like terminal of said battery, and a cap threadedly disposed on the end of said tubular housing portion remote from said bulb for moving said boss-like terminals of said bulb and said battery together against the spring action of said helical portion of said conductor for completing an electric circuit through said battery and bulb when the cap is tightened on said tubular housing portion.

3,320,415

STREET LIGHT REFRACTOR

Franklin M. Neal and John D. Ryan, Corning, N.Y., assignors to Corning Glass Works, Corning, N.Y., a corporation of New York

Filed May 17, 1965, Ser. No. 456,259
6 Claims. (Cl. 240—106)



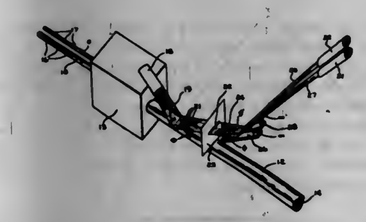
1. A refractor in the general shape of a portion of a sphere defined by a rim, said refractor comprising an inner concave surface and an outer convex surface, one said surface comprising two halves symmetric about a plane of symmetry perpendicular to said rim, each said half comprising a central portion and a side portion, each said central portion comprising two sets of prisms, the prisms within each set having edges parallel to the edges of the remaining prisms of the same set and joining the prisms of the other set at the ends thereof and along a line lying in a second plane generally perpendicular to said rim and forming an angle of about 80° with said plane of symmetry of said refractor, said second planes of said halves forming an angle of about 160° with one another, said prisms of each said central portion having bases along their edges nearest a point defined by the intersection of said rim with said second plane of the same said central portion, said side portion of each said symmetric half having thereon a plurality of curved prisms generally perpendicular to said second plane of the same symmetric half at their intersections therewith and having bases along their edges nearest said point, said central portion of each said symmetric half being bounded by said plane of symmetry, said rim and said side portion of the same said symmetric half, the other said surface of said refractor comprising a plurality of radially extending light-diffusing flutes curved in transverse cross-section.

3,320,416

PROCESS OF DETECTING THE RELATIVE ELONGATION OF TWO FILAMENTS BY STIMULATED EMISSION OF SECONDARY RADIATION

Stephen F. Skala, Chicago, Ill., assignor to Western Electric Company, Incorporated, New York, N.Y., a corporation of New York

Filed Mar. 24, 1964, Ser. No. 354,271
2 Claims. (Cl. 250—51.5)



1. A method of detecting the relative elongation of two filaments which are enclosed in a common covering member with the filaments arranged in spaced parallel relationship therewithin, comprising the steps of:

arranging a plurality of equally spaced markings of a dissimilar material on each of the filaments prior to the enclosure thereof within the covering member so that each marking on the associated filament is aligned with a corresponding marking on the other filament, said dissimilar materials each being responsive to penetrative radiation to emit characteristic secondary radiation of sufficient energy to penetrate the covering member and of sufficient disparity in wave length from that of the other material to render the markings on one of the filaments distinguishable from the markings on the other;

directing a collimated beam of penetrating radiation onto the covering member, the radiation being of sufficient energy to penetrate therethrough to the markings;

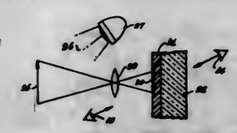
detecting the characteristic secondary radiation emitted by the markings to detemine whether the aligned relationship has been maintained during the covering operation, hence to determine any elongation of one filament relative to the other.

3,320,417

FLUORESCENT IMAGE-FORMING SCREEN

James R. Alburger, 5007 Hillard Ave., La Canada, Calif. 91011

Original application Oct. 4, 1965, Ser. No. 492,674. Divided and this application Mar. 8, 1966, Ser. No. 532,618
19 Claims. (Cl. 250—71)



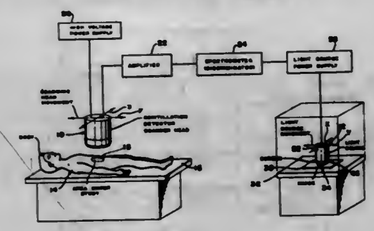
1. A high resolution fluorescent display element comprising a fluorescent layer responsive to optical images of fluorescence-producing radiation, said fluorescent layer comprising a carrier for a fluorescent sensitizer and at least one fluorescent sensitizer dissolved in said carrier, said sensitizer being selectively used singly and in combination and being present in said carrier within the range of proportional concentrations of from at least about 15 grams per pint up to the limit of solubility of said sensitizer, whereby there is provided substantially complete absorption of said fluorescence-producing radiation, and conversion, and fluorescent emission, within a surface film thickness of said layer of less than about .1 millimeter.

3,320,418

SCANNING MEANS INCLUDING A SCREEN WHICH BLOCKS RADIATION ACCORDING TO THE PROBABILITY OF ITS ORIGIN

Donald W. Steel, Cleveland Heights, Ohio, assignor to Ohio-Nuclear, Inc., Cleveland, Ohio, a corporation of Ohio

Filed June 1, 1964, Ser. No. 371,675
22 Claims. (Cl. 250—71.5)

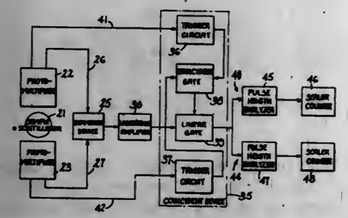


1. In a radioactivity scanning system for scanning a field of radioactivity including radioactivity detector means for receiving radioactivity from said field and developing output signals in accordance therewith and readout image producing means for developing readout image producing signal pulses in response to said output signals for recording a readout image on recording means in accordance with the intensity levels of said radioactive field, the improvement which comprises screening means interposed between said image producing means and said recording means, said screening means exhibiting a predetermined pattern of readout image producing signal pulse passing and blocking characteristics according to a statistical probability as to the location of the origination of detected radioactivity relative to the location of said detector means, whereby for each image producing signal pulse an image pattern is recorded on said recording means in accordance with said predetermined pattern.

3,320,419
LIQUID SCINTILLATION COUNTING SYSTEM FOR THE MEASUREMENT OF SOFT BETA ACTIVITY

Edward W. Thomas and Lincoln Henthorn, Cheshire, and Robert A. Bole, Wilton, Conn., assignors to Ans, Inc., Wallingford, Conn., a corporation of Connecticut

Filed Mar. 18, 1965, Ser. No. 440,832
16 Claims. (Cl. 250—71.5)

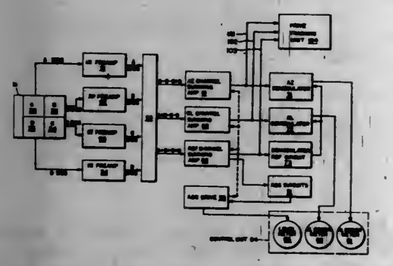


1. A system for measuring the energy of beta particle decay events from a source containing one or more radioactive isotopes, said system comprising in combination, means for converting the energy of each beta decay event into light energy signals proportional to the energy of each beta decay event, means for logarithmically amplifying and converting some of said light energy signals to electrical pulses, a plurality of signal discriminator channels for simultaneously receiving said electrical pulses, and means for gating said electrical pulses prior to their being received by said channels in response to said electrical pulses.

3,320,420
INFRARED DETECTION SYSTEM FOR USE IN EARLY STAGES OF MISSILE LAUNCHING

Mario R. Paglee, Moorestown, and Robert W. Capron, Pennsauken, N.J., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Navy

Filed Mar. 26, 1964, Ser. No. 355,134
3 Claims. (Cl. 250—83.3)



1. A method of improving the acquisition capabilities of a missile tracking system comprising the steps of

sensing radiation emanating from the engines of a missile with an infrared sensitive device located upon the electrical axis of the antenna of a tracking system;

obtaining signals indicative of energization of the individual quadrants of the infrared sensitive device;

computing the relative positions of the antenna and the missile from signals produced by the infrared tracking device;

computing an azimuth angle displacement error signal by adding together certain ones of the quadrant signals;

computing an elevation angle displacement error signal by adding together certain other ones of the quadrant signals;

applying the azimuth and elevation error signals to control circuitry within the tracking system whereby the antenna moves in a manner such that the missile path is followed thereby;

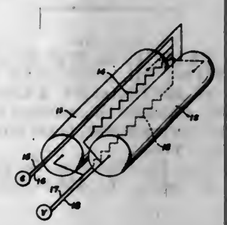
computing a reference signal indicative of the level of radiation sensed by the infrared device by adding together still other ones of the quadrant signals; and

deenergizing the infrared sensitive device upon receipt of reliable signals from some other tracking means forming a portion of the system.

3,320,421
NEUTRON DOSIMETER COMPRISING NICKEL OXIDE WITH LITHIUM AS AN IMPURITY

Reuben S. Krogstad, Seattle, Wash., assignor to The Boeing Company, Seattle, Wash., a corporation of Delaware

Filed Feb. 27, 1964, Ser. No. 347,752
6 Claims. (Cl. 250—83.1)



1. An instrument for detecting neutron radiation comprising a nickel oxide neutron detector element which varies in electrical resistivity in proportion to the quantity of lithium impurity contained therein, said detector element being doped with an isotope which transmutates in the presence of neutron radiation, and means to measure the change in electrical resistivity in the neutron detector element caused by changed quantities of lithium impurity contained therein.

3,320,422
SOLID TRITIUM AND DEUTERIUM TARGETS FOR NEUTRON GENERATOR

Edward A. St. John, Lindenhurst, N.Y., assignor to NRA, Inc., Long Island City, N.Y., a corporation of New York

No Drawing. Filed Oct. 4, 1963, Ser. No. 313,760
4 Claims. (Cl. 250—84.5)

1. A neutron source target including a metallic base of high thermal conductivity, and a hydrogen isotope compound coating on said base, said hydrogen isotope compound comprising a tritide of scandium.

3,320,423
STELLAR DIRECTIONAL ACQUISITION SYSTEM USING PHOTOMULTIPLIER TUBE

Frank Blitzer, Framingham, Henry D. Zwerndorfer, Lexington, and Chauncey P. Dewey, Jr., Stow, Mass., assignors to Raytheon Company, Lexington, Mass., a corporation of Delaware

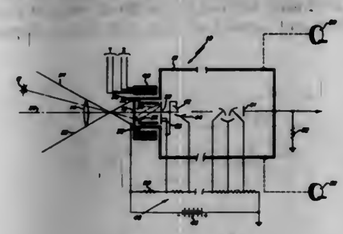
Filed Apr. 30, 1963, Ser. No. 276,801
7 Claims. (Cl. 250—203)

1. In combination:

a radiant energy detecting device having a photoemissive surface to detect a plurality of radiant energy signals impinging thereon and an electrooptical reference axis;

means for electronically scanning said photoemissive surface to detect said radiant energy signals and provide an output signal;

means for biasing out of said output signal detected radiant energy signals below a predetermined threshold intensity;

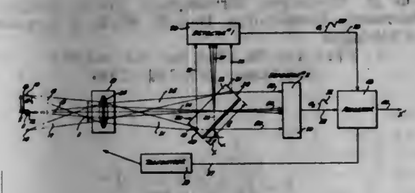


and means for halting said scanning means in response to signals in excess of the predetermined threshold intensity.

3,320,424
PHOTOSENSITIVE OPTICAL ANGLE TRACKER

Gaylord Gene Olson, Inglewood, Calif., David S. Fox, Tucson, Ariz., and Steven D. Dorfman, Santa Monica, Calif., assignors to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware

Filed Nov. 21, 1963, Ser. No. 325,278
5 Claims. (Cl. 250—203)



5. A system for angle tracking a source of energy in space having first and second orthogonal coordinates relative to a tracking axis comprising

focusing means positioned along said tracking axis for focusing the energy from said source at an image plane,

a first mirror positioned substantially at said image plane and having a reflectivity and transmissivity of the energy applied thereto respectively increasing and decreasing substantially linearly in the direction of said first orthogonal coordinate,

a second mirror positioned at said image plane to receive the transmitted energy from said first mirror and having a reflectivity and transmissivity of the received energy respectively increasing and decreasing substantially linearly in the direction of said second orthogonal coordinate,

a first detector responsive to the reflected energy from said first mirror,

a second detector responsive to the reflected energy from said second mirror,

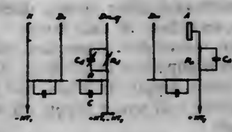
a third detector responsive to the transmitted energy from said second mirror,

and processing means coupled to said first, second and third detectors for developing signals representative of the angular position of said source along said first and second coordinates.

3,320,425
PHOTOMULTIPLIER TUBE CIRCUIT WITH SUBSTANTIALLY LINEAR OUTPUT

Paul Joseph Moatti, Vernouillet, France, assignor to Etablissement Public: Centre de la Recherche Scientifique, Paris, France, a corporation of France

Filed Nov. 14, 1963, Ser. No. 323,632
Claims priority, application France, Nov. 15, 1962, 915,433
10 Claims. (Cl. 250—207)

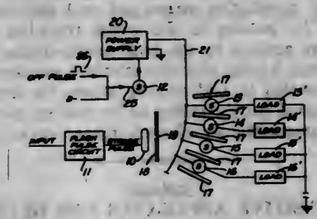


5. A photomultiplier tube circuit comprising a photomultiplier tube having an anode, a cathode, and a number N of dynodes arranged in succession between said cathode and said anode, a first and a second stabilized high-voltage source each having two terminals, one terminal of said first source being connected to one terminal of said second source for series grouping of said sources, said reciprocally connected terminals of said sources being further connected to the dynode of order $(N-q)$ as counted from said cathode, q being an integer smaller than N which may be zero, the other terminal of said first source being connected to said cathode and the other terminal of said second source being connected to said anode, a chain of $(N+1)$ fixed resistances forming a bridge network with said cathode, each of said N dynodes and said anode, respectively, each resistor in said chain having a capacitor connected in parallel therewith, each pair of said resistors and capacitors thereby forming an R-C circuit, an anode resistance connected between said anode and said bridge and a capacitance shunted across said anode resistance to form an anode R-C circuit, and an output and regulator circuit connected to said dynode of order $(N-q)$, said output circuit including an adjustable resistance in series between said dynode of order $(N-q)$ and said bridge, and an adjustable capacitance in parallel with said adjustable resistance to form a dynode R-C output and regulator circuit.

3,320,426
PHOTOELECTRIC COMMUTATOR FOR SELECTIVELY ENERGIZING ONE OR MORE OF A PLURALITY OF LOADS

Michael T. Gray, Los Angeles, Calif., assignor to Scantlin Electronics, Inc., Los Angeles, Calif., a corporation of Delaware

Filed Mar. 2, 1964, Ser. No. 348,446
1 Claim. (Cl. 250—209)



In a commutator for selectively energizing one or more of a plurality of loads, the combination of:

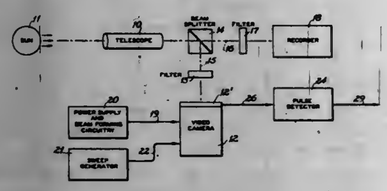
a plurality of switches actuated by a combination of light and voltage, with a switch for each load to be energized;

an electrical power supply;

first circuit means for connecting each of said switches in series with said power supply and a load;

means for optically isolating said switches from each other;
a lamp;
a light shield disposed between said lamp and said switches and including means for sequentially exposing each of said switches to said lamp;
means for flashing said lamp during the period one of said switches is exposed thereto;
another switch actuated by a combination of light and voltage, with said other switch disposed to be exposed to every flash of said lamp;
second circuit means for connecting said other switch to said power supply in controlling relation for turning said power supply on when said other switch is on and turning said power supply off when said other switch is off;
means for applying a voltage to said other switch whereby said other switch is turned on with each flash of the lamp; and
means for coupling a voltage pulse to said other switch for turning said other switch off.

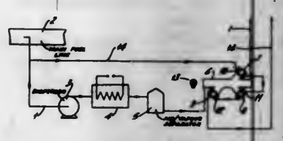
3,320,427
RADIATION MONITORING APPARATUS
William B. Evans, North Babylon, Norman M. Gutlove, Huntington Station, and John P. O'Brien, Huntington, N.Y., assignors, by mesne assignments, to Fairchild Hiller Corporation, Hagerstown, Md., a corporation of Maryland
Filed Sept. 6, 1963, Ser. No. 307,048
9 Claims. (Cl. 250—217)



1. Apparatus for monitoring a spontaneous radiant energy emitting event occurring in a distant radiant energy emitting astrol body, the event characterized by the emission from said body of radiant energy having a characteristic wavelength comprising: telescopic means for optically monitoring said radiant energy emitting body, an electronic camera means having a screen sensitive to the radiant energy of said characteristic wavelength, filter means disposed in an optical path between said optical monitoring means and said electronic camera means for passing to said screen from the total radiant energy emitted by the body substantially only the radiant energy having said characteristic wavelength, and means connected to said camera means for forming an electrical signal corresponding to the radiant energy having the characteristic wavelength imaged on said screen.

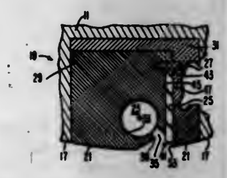
3,320,428
PHOTOSENSITIVE APPARATUS FOR DETECTING SOLID PARTICLES SUSPENDED IN LIQUID
Alan Wagstaffe, David John Charnock, and Leslie Raymond Beynon, all of Sunbury-on-Thames, Middlesex, England, assignors to The British Petroleum Company Limited, London, England, a company of England
Filed Apr. 15, 1964, Ser. No. 359,930
Claims priority, application Great Britain, May 6, 1963, 17,775/63
8 Claims. (Cl. 250—218)

1. An apparatus for detecting minor amounts of solid material suspended in a liquid, comprising a line for the liquid to be tested leading through a light scattering enclosure, means including a source of light for producing and passing a parallel beam of light through the scattering enclosure, and means for measuring the light scattered in said enclosure, said measuring means comprising three photo-electric cells attached to the light scattering enclosure but out of the direct path of said light beam, a first and second of said cells being disposed at



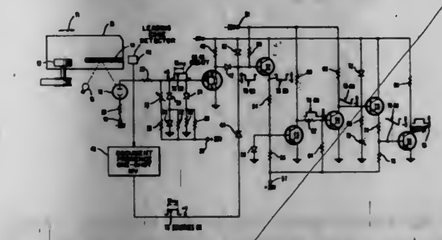
angles of 135° and 45° respectively such that their outputs are employed to compensate for the effect of changing reflectivity of solid material on the output of the third photo-electric cell, the third cell being disposed at an angle of 135°, the angle in each case being the one nearer the source of light and between the direction of the parallel light beam and the direction of light scattered from the beam and incident normally onto the surface of the particular photo-electric cell considered.

3,320,429
OPTICAL READ HEAD USING LIGHT CONDUCTING ROD AND DEFINING A TRIANGULAR READ AREA
Arvin D. McGregor, Birmingham, Mich., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan
Filed Apr. 20, 1964, Ser. No. 361,091
15 Claims. (Cl. 250—219)



1. An optical read head comprising:
a faceted light transmitting means having a first facet closely spaced from a reflective surface, a second facet lying distant therefrom, and a third facet joining said first and second facets,
said transmitting means possessing the optical characteristic of total reflection,
a light energy source positioned more distant from said reflective surface than said first facet,
a light energy transducer proximate to said second facet,
said light energy source emitting light directly upon a portion of said reflective surface and upon said third facet, and
light shielding means proximate to said reflective surface and said first facet isolating said reflective surface from light other than from said source,
a representative portion of said light emitted directly upon said reflective surface reflecting therefrom and being coupled to said light energy transducer through said first and second facets according to the characteristic of total reflection.

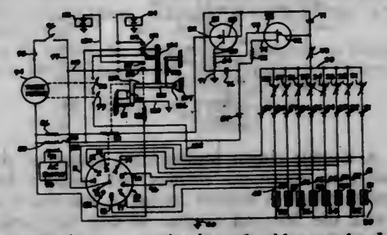
3,320,430
PHOTOSENSITIVE INFORMATION BEARING DOCUMENT DETECTOR
Cecil F. Gorman, Norristown, Pa., assignor to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Filed Sept. 25, 1964, Ser. No. 399,219
10 Claims. (Cl. 250—219)



10. A selected document detector for detecting the passage of a document one or more of which may bear characteristic indicia comprising, means to advance documents, a first detecting means for producing a signal indicating the passage of the leading edge of a document, monostable means responsive to said first detecting means for producing an output signal for a predetermined period of time after receipt of a signal from said first detecting means, second detecting means positioned to observe the characteristic indicia on a document for producing an output signal in response to the passage thereof, said output signal from said monostable means overlapping the period during which said second detecting means may observe the characteristic indicia on a document, a field effect transistor controlled by said second detecting means, means coupled to the input of said transistor for limiting the voltage swing of said second detecting means, an AND circuit coupled to receive the outputs from said transistor and said monostable means, an emitter-follower coupled to said AND circuit and responsive thereto, inverting means coupled to said emitter-follower, means coupled between said emitter-follower and said inverting means for limiting the voltage applied to said inverting means to negative values, a capacitor, electronic switch means coupled to said inverting means for controlling the charge on said capacitor, an emitter-follower coupled to said capacitor and responsive thereto for electrically following the charging of said capacitor, and an amplifying output stage coupled to said last named emitter-follower for producing an output signal at a predetermined time during the charging cycle of said capacitor for indicating passage of a document bearing the characteristic indicia past said first and said second detecting means.

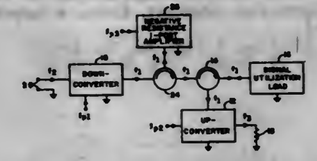
3,320,431
MULTI-STATION VARIABLE TIMING APPARATUS
Bjorn N. De Bough, 3155 Elliott Ave. 98121, and Basil C. Porrelli, 16303 Interlake Ave. N. 98133, both of Seattle, Wash.
Filed Dec. 26, 1963, Ser. No. 333,501
5 Claims. (Cl. 307—41)

1. A current control apparatus comprising in combination; first and second solenoids; current gating means coupled with said first solenoid having a plurality of signal output terminals and responsive to repeated energization of said first solenoid to cause sequential energization of said terminals; a plurality of load means individually connected to different ones of said terminals; a plurality of individually variable resistive impedance elements; means connecting each of said elements to one of said terminals; current control means connected in series circuit with said first solenoid; a timing capacitor; means connecting said capacitor to each of said elements; voltage responsive means connected to said capacitor and to said current control means responsive to a predetermined voltage on said capacitor to render said current control means conductive; first and second switch means connected in series circuit with said capacitor and adapted when closed to apply said predetermined voltage thereto; timing means coupled with said first switch means and adapted to control the time during which said first switch means is closed;



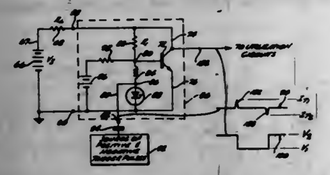
means responsive to energization of said second solenoid to close said second switch means; latch means responsive to closing of said second switch means to latch said second switch means in a closed condition, said latch means being further responsive to operation of said first solenoid to release said second switch means; and circuit means connecting said second solenoid to one of said terminals.

3,320,432
PARAMETRIC AMPLIFICATION SYSTEMS UTILIZING LOW PUMP FREQUENCIES WITH CIRCULATOR AND UP-CONVERTER ISOLATION
Richard La Rosa, South Hempstead, N.Y., assignor to Hazeltine Research, Inc., a corporation of Illinois
Filed Nov. 10, 1964, Ser. No. 410,177
3 Claims. (Cl. 307—88.3)



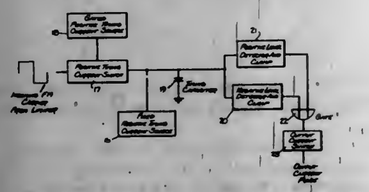
1. A low noise parametric amplification system, for processing input signals prior to final utilization, comprising:
parametric down-converter means, operating with a pump frequency f_{p1}, for converting input signals of frequency f_3 to signals of a lower frequency f_1, where $f_{p1}=f_3+f_1$;
a signal utilization load having an input port which couples back noise;
nonreciprocal coupling means connected to said down-converter means for coupling said signal of frequency f_1 to said input port of said load and for coupling noise from said input port to a separate output port;
parametric upper-sideband up-converter means coupled to said separate output port and operating with a pump frequency f_{p2} for converting noise signals of frequency f_1 to signals of frequency f_3, where $f_3=f_{p2}+f_1$;
and dissipation means coupled to said up-converter means for resistively dissipating said signals of frequency f_3 without further utilization;
whereby noise signals coupled back from said input port of said load are prevented from being reflected with amplification by said down-converter means and coupled to said load, said noise signals being instead up-converted to frequency f_3 and dissipated in said dissipation means.

3,320,433
NEGATIVE RESISTANCE CIRCUIT
Carl David Todd, Costa Mesa, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware
Filed June 1, 1960, Ser. No. 33,249
7 Claims. (Cl. 307—88.5)



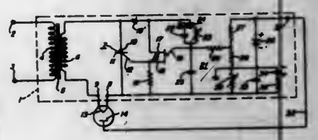
1. A bistable circuit comprising a source of potential including an impedance element and having a first and second terminal, a resistor having a first and a second end with the first end coupled to said first terminal, a tunnel diode coupled between the second end of said resistor and said second terminal, a transistor having a first and a second electrode coupled between said first and second terminals and having a base coupled to the second end of said resistor, a source of current coupled to the second end of said resistor, and a source of trigger pulses of alternate first and second polarity coupled to the first electrode of said transistor for controlling said tunnel diode to render said transistor respectively conductive and non-conductive.

3,320,434
GENERATOR PRODUCING CONTROLLED-AREA OUTPUT-PULSES ONLY WHEN CAPACITOR CHARGES BETWEEN POSITIVE AND NEGATIVE CLAMPS IN RESPONSE TO A.C. INPUT
Owen J. Ott, Brookfield, Conn., assignor to Data-Control Systems, Inc., Danbury, Conn., a corporation of Delaware
Filed Jan. 9, 1964, Ser. No. 336,773
11 Claims. (Cl. 307—88.5)



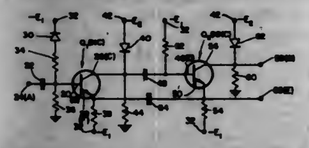
1. A pulse generating circuit having a predetermined operating cycle comprising an input portion for receiving an input signal of varying sense, capacitance means, a plurality of sources of charges of different sense, means connected to said input portion and in circuit with one of said plurality of sources for charging said capacitance means in a predetermined sense in one portion of said operating cycle during which the charge of said capacitance means is changed, said charging means being actuated in response to an excursion of the input signal in one sense, additional means connected to said input portion and in circuit with at least another one of said plurality of sources for charging said capacitance means in a sense opposite to said predetermined sense in the other portion of said operating cycle during which the charge of said capacitance means is changed, said additional charging means being actuated in response to an excursion of the input signal in the opposite sense, and means for producing an output pulse in response to at least one of the conditions of charge of said capacitance means during said operating cycle.

3,320,435
AVERAGE POWER REGULATED POWER SUPPLY FOR CONTROLLING THE INPUT POWER TO NON-LINEAR UTILIZATION MEANS
Robert L. Watters, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York
Filed July 1, 1964, Ser. No. 379,678
8 Claims. (Cl. 307—88.5)



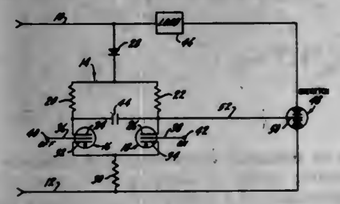
1. An electric power supply for regulating average power to non-linear utilization means, said power supply comprising:
(a) a source of alternating current power, output means adapted to be connected to said power utilization means, and a triggerable device connected in series loop circuit relationship, said triggerable device establishing conduction in the loop circuit so provided for the remainder of a power half-cycle during which a trigger signal is applied to said triggerable device;
(b) sensing means providing a unidirectional output signal with A.C. and D.C. components having an amplitude and a magnitude, respectively, that vary in the same direction as variations in average power supplied to utilization means connected to said output means, said A.C. component decreasing in instantaneous magnitude during the intervals of power half-cycles when said triggerable device is non-conducting;
(c) a voltage breakdown device including first, second and third electrodes and exhibiting a relatively high impedance between said first and third electrodes when the voltage difference between said first and third electrodes is less than a predetermined fraction of the voltage difference between said first and second electrodes, said voltage breakdown device switching to exhibit a relatively low resistance between said first and third electrodes when the voltage difference between said first and third electrodes exceeds said predetermined fraction of the voltage difference between said first and second electrodes;
(d) means connecting said first and second electrodes in effective parallel circuit relationship with said triggerable device and applying said trigger signal to said triggerable device in response to switching of said voltage breakdown device;
(e) voltage dividing means including a first capacitance coupled to said first and third electrodes and a second capacitance coupled to said second and third electrodes, said voltage dividing means providing an instantaneous voltage difference between said third and first electrodes that is substantially equal to but less than said predetermined fraction of the instantaneous voltage difference between said first and second electrodes during power half-cycles;
(f) capacitance charging means connected to the capactive branch located between said first capacitance and supplying charging current thereto; and
(g) means connecting said sensing means to said charging means to enable said unidirectional output signal to oppose said charging current and provide substantial compensation for variations in the sensitivity of said sensing means throughout a broad spectrum of selected output power levels from said power supply.

3,320,436
MONOSTABLE MULTIVIBRATOR WHEREIN INPUT APPLIED VIA FIRST TRANSISTOR TURNS ON SECOND TRANSISTOR WHICH TURNS OFF FIRST TRANSISTOR
Kenneth Sharples, South Braintree, Mass., assignor to Gordon Engineering Corp., Watertown, Mass., a corporation of Massachusetts
Filed Oct. 6, 1964, Ser. No. 401,823
9 Claims. (Cl. 307—88.5)



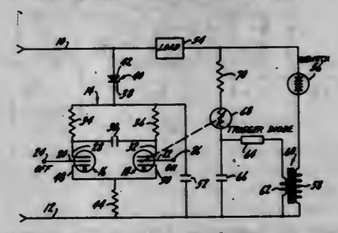
1. An amplifying multivibrator having input and output terminals and comprising, in combination:
a first transistor having a base, emitter, and collector, said base being coupled to said input terminal;
means for providing a first bias level which normally holds said first transistor in conduction;
a second transistor having a base emitter and collector, said output terminal being connected to one of said emitter and collector;
means coupling the collector of said first transistor to the base of said second transistor;
means for providing a second bias level on the base and emitter of said second transistor at substantially the same voltage so as normally to hold said second transistor out of conduction;
a regenerative feedback loop including a series capacitance connecting the emitters of said transistors;
said bias levels being established so that when a pulse signal at a magnitude above a predetermined level is applied to said input terminal, the resulting voltage change on the collector of said first transistor is sufficient to overcome said second bias level and trigger said second transistor into conduction, and so that feedback along said loop from the conducting second transistor is sufficient to overcome said first bias level and force said first transistor into a non-conductive state for a period of time determined by the time constant of the feedback loop.

3,320,437
HUMAN CONTACT CONTROLLED DIMMER CIRCUIT WITH MULTIVIBRATOR AND BISWITCH OPERATION
Thomas E. Myers, St. Charles, Ill., assignor to Ideal Industries, Inc., Sycamore, Ill., a corporation of Delaware
Filed Nov. 12, 1964, Ser. No. 410,501
11 Claims. (Cl. 307—88.5)



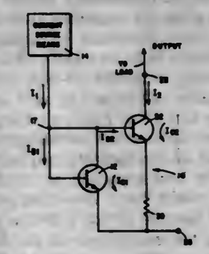
1. In a control circuit for connection to a source of power, a bistable circuit connected across said source, means for causing said bistable circuit to switch from one stable condition to the other a pair of spaced antenna means, each connected to one side of said bistable circuit for switching said bistable circuit upon human contact with one of said antenna means, a load and a gated semiconductor biswitch connected in series across said source, and means cooperating with said bistable circuit and operable when said bistable circuit is in only one stable condition for applying a voltage to the biswitch gate to cause it to conduct and to permit current to pass through said load.

3,320,438
HUMAN CONTACT CONTROLLED SWITCHING CIRCUIT USING A MULTIVIBRATOR AND BISWITCH
Thomas E. Myers, St. Charles, Ill., assignor to Ideal Industries, Inc., Sycamore, Ill., a corporation of Delaware
Filed Nov. 12, 1964, Ser. No. 410,595
10 Claims. (Cl. 307—88.5)



1. In a control circuit for connection to a source of power, a bistable circuit connected across said source, means for causing said bistable circuit to switch from one stable stage to the other, including a pair of spaced antenna means each connected to one side of said bistable circuit for switching said bistable circuit upon human contact, a load and a semiconductor biswitch connected in series across said source, a transformer having a primary coil and secondary coil with the secondary coil being in series with said biswitch, means in series with the primary coil and cooperating with said bistable circuit for applying a voltage to the primary coil when said bistable circuit is in one condition, but applying no voltage to the primary coil when said bistable circuit is in the other condition, the application of a voltage to the primary coil providing a sufficient voltage on the secondary coil to cause said biswitch to conduct and to permit current to flow through said load.

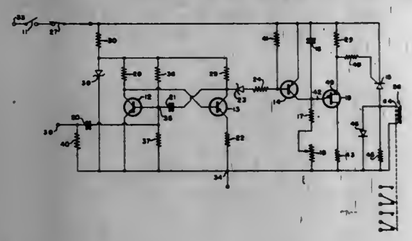
3,320,439
LOW-VALUE CURRENT SOURCE FOR INTEGRATED CIRCUITS
Robert J. Widlar, Mountain View, Calif., assignor to Fairchild Camera and Instrument Corporation, Syosset, N.Y., a corporation of Delaware
Filed May 26, 1965, Ser. No. 458,895
4 Claims. (Cl. 307—88.5)



2. A current source comprising:
a common terminal;
a resistor coupled to said common terminal; and
a pair of transistors operatively coupled to apply the difference between their base-emitter voltages as substantially the entire voltage across said resistor,

whereby the small predictable difference in these voltages enables resistors less than approximately 10K ohms to be employed to supply output currents less than 200 microamperes.

3,320,440
SOLID STATE EVENT MONITORING DEVICE
James P. Reed, Clinton, Iowa, assignor to Avco Corporation, Cincinnati, Ohio, a corporation of Delaware
Filed July 9, 1963, Ser. No. 293,696
1 Claim. (Cl. 307—88.5)



A circuit for indicating failure of a second event to occur within a predetermined time following the occurrence of a first event comprising:

a current supply circuit including a source of current and a switch adapted to be closed to signify the occurrence of a first event;

a monostable device adapted to be coupled to said current supply circuit, said monostable device being adapted normally to assume a stable state when said switch is closed, said monostable device having an output and also an input to which input a recycling pulse is applied to signify the occurrence of the second event and to trigger the monostable device into a quasi-stable state;

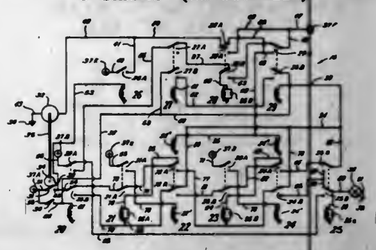
a first switching transistor adapted to be energized by said current supply circuit and having a base and an emitter-collector circuit, said base being coupled to the output of said monostable device whereby the emitter-collector circuit of said trahsistor is nonconductive when the monostable device is in its stable state but conductive when the monostable device is in its quasi-stable state;

a resistance-capacitance time constant circuit including a resistor and a capacitor connected in series to said current supply circuit, said capacitor being connected across the emitter-collector circuit of the first switching transistor whereby the capacitance is charged when the first switching transistor is nonconductive and the monostable device is in its stable state and whereby the capacitor is discharged when the first switching transistor is conducting and the monostable device is in its quasi-stable state;

a second switching transistor of the unijunction type having an emitter connected to said capacitor to be biased thereby and a two-base switching circuit across said capacitor, said second switching transistor having a threshold of conductivity and being biased into conductivity by said capacitor to discharge said capacitor in the event that a recycling pulse fails to be applied to the bistable device within a predetermined time following the occurrence of the first event, and

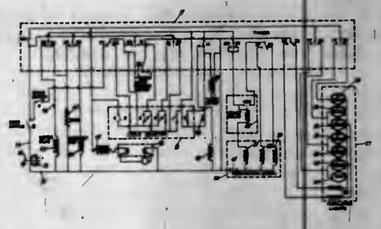
means including a silicon-control rectifier having a rectifying circuit connected to said energy source and a control element coupled to said second switching transistor for supplying an alarm when said second switching goes into conductivity, the quasi-stable state of said monostable device being sufficiently long to assure full discharge of the capacitor.

3,320,441
ELECTRICAL CONTROL CIRCUITS FOR BOREHOLE APPARATUS
Fred Pehoushek, Houston, Tex., assignor, by mesne assignments, to Schlumberger Technology Corporation, Houston, Tex., a corporation of Texas
Filed Dec. 4, 1963, Ser. No. 328,072
6 Claims. (Cl. 307—112)



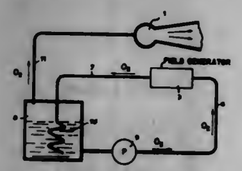
1. A downhole switching device for a well tool comprising: a housing including relatively movable members which can be moved between at least two positions; first and second circuit means in said housing, said first circuit means controlling the operation of second circuit means, said first circuit means including a first switch means; second switch means arranged for actuation in response to positioning of said members in one of said positions; means responsive to actuation of said second switch means for periodically actuating said first switch means in a predetermined timed sequence; channel means coupled to said first and second switch means and responsive to a predetermined time sequence of actuation of said first and second switch means for controlling the operation of said second circuit means, said channel means including parallel electrical paths; a third switch means for coupling one or the other of said paths to said first switch means, said third switch means being responsive to said second switch means; and reset switch means coupled to said electrical paths and responsive to changes from said predetermined timed sequence for deactuation of said periodically-actuated switch means.

3,320,442
CIRCUITRY FOR AUTOMATIC APPLIANCES
Raymond O. Todrank, Connersville, Ind., assignor to Design and Manufacturing Corporation, Connersville, Ind., a corporation of Indiana
Filed Jan. 2, 1964, Ser. No. 335,318
7 Claims. (Cl. 307—141)



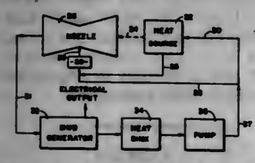
1. In an automatic timer-controlled appliance, containing operating means for carrying on a series of functions, the combination of a timing device having a plurality of sequential positions, said timing device having a first series of switches in connection with said operating means and arranged to energize said operating means in a given sequence forming a timer cycle as said timing device is driven through said sequential positions, a timer motor for driving said timing device at normal speed through said sequential positions, a rapid advance motor for driving said timing device at greater than normal speed through said sequential positions, and a plurality of manually actuable means for selecting a plurality of operating cycles differing as to the operation of said operating means, said manually actuable means serving to operate a second series of switches, certain at least of said second series of switches being connected to energize said rapid advance motor through switches operated by said timing device, whereby said rapid advance motor may be selectively energized at at least one point in said timer cycle to advance said timing device rapidly through certain of said sequential positions for certain operations so as to omit them in said operating cycle, said timing device automatically resuming said normal speed for the performance of the next operation within said operating cycle.

3,320,443
ELECTRIC CURRENT GENERATOR OF THE MAGNETOHYDRODYNAMIC TYPE
Georges Klein, Paris, France, assignor to Compagnie Generale d'Electricite, Paris, France
Filed May 7, 1962, Ser. No. 192,682
Claims priority, application France, May 10, 1961, 861,430; Apr. 18, 1962, 894,919
7 Claims. (Cl. 310—11)



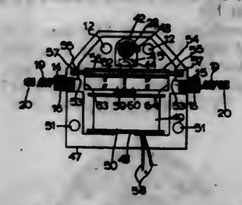
1. An electric current generator of the magnetohydrodynamic type having a space between electrodes in which a magnetic field exists, comprising means for passing a flux of hot ionized gas emanating from a combustion chamber through said space between the electrodes, means for producing a magnetic field within said space including a winding through which an electric current flows, and cooling means utilizing liquid oxygen for cooling said winding means including a cooling circuit having separator means for separating the gaseous oxygen from the liquid oxygen in the gas-liquid mixture returning from said winding, said seprator means being provided with means enabling the removal of the gaseous oxygen, and means for supplying said gaseous oxygen from said last-mentioned means to said combustion chamber.

3,320,444
METHOD OF CONVERTING THERMAL ENERGY DIRECTLY TO ELECTRICAL ENERGY
Lawrence L. Prem, Tarzana, Calif., assignor to North American Aviation, Inc.
Filed June 28, 1965, Ser. No. 470,320
20 Claims. (Cl. 310—11)



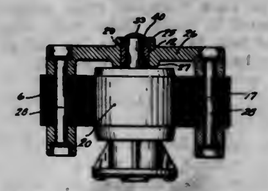
12. The method of converting thermal energy into electrical energy comprising the steps of vaporizing a first portion of an electrically conductive liquid, increasing the kinetic energy of said first portion, mixing said first portion with a subcooled second portion of said liquid so that the kinetic energy of the resultant mixture is increased and the heat content is simultaneously decreased, converting a first part of the energy of said resultant mixture into electrical energy, and converting a second part of the energy of said resultant mixture into static pressure.

3,320,445
RECIPROCATING MOTOR WITH MOTION CONVERSION MEANS
Ahmet K. Bey, 2508 S. Kedzie Ave., Chicago, Ill. 60623
Filed Nov. 30, 1964, Ser. No. 414,802
13 Claims. (Cl. 310—20)



13. An alternating current motor comprising a housing; a shaft having input and output sections journalled in an upper portion of said housing; an electro-magnet disposed in the lower portion of said housing, said housing having a pair of spaced apart recesses disposed in alignment transversely of said shaft; a permanent magnet disposed in said housing between and polarized in the direction of said recesses, said permanent magnet being spaced above said electro-magnet in the thereof induced magnetic field; a pair of guides carried on said permanent magnet and disposed in said recesses, said recesses being slightly larger than said guides, whereby said permanent magnet when energized moves in a straight path in alternating directions transversely of said shaft; an upwardly extending shaft rocker rigidly connected to said magnet; an oscillator secured to said shaft input section and engaging said shaft rocker, whereby the alternating lineal movement of the permanent magnet is converted to an oscillating torque, and means for intermittently clutching the output portion of said shaft to limit its rotation to a single direction.

3,320,446
ROTOR SHAFT BEARING FOR AN ELECTRIC MOTOR
Gordon R. Anderson, Jr., Racine, Wis., assignor, by mesne assignments, to MSL Industries, Inc., Racine, Wis., a corporation of Minnesota
Filed Apr. 12, 1965, Ser. No. 447,245
2 Claims. (Cl. 310—42)



1. In an electric motor, the combination of a rotor, a fixed shaft having bearing support for said rotor, a stator, a shaft-mounting bracket connected with the stator and having an aperture, said bracket being provided at a plurality of points about said aperture with channels defined by surfaces converging toward the center of the apperture, said shaft having a portion in the aperture and free of direct connection with the bracket, and a cast insert in which said shaft portion is embedded and which substantially fills the aperture of the bracket and has portions in said channels wedged between said converging surfaces whereby said insert is accurately centered and is in mechanical unfused interlocked connection with

the bracket, the said wedging of portions of the cast insert between the converging surfaces aforesaid being due to shrinkage of the cast insert, by which shrinkage the cast insert is slightly withdrawn from the bracket surfaces at the bottoms of said channels, the lack of fusion at the juncture between the bracket and the cast insert providing a barrier against sound conduction.

3,320,447

ELECTRIC SYNCHRONOUS MACHINE, WITH ROTOR CONDUCTORS DIRECTLY COOLED BY A LIQUID

Giuseppe Banchieri, Via S. Massimo 3, Padova, Italy

Filed Sept. 15, 1964, Ser. No. 396,537
Claims priority, application Italy, Sept. 24, 1963, 705,628/63; June 1, 1964, 12,047/64
14 Claims. (Cl. 310—54)



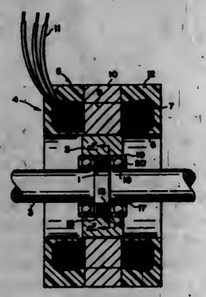
1. A liquid cooled armature for an electric generating machine comprising a rotor; a plurality of coils including hollow conductors each having an end turn extending axially beyond and having a section extending circumferentially of said rotor, said sections of said conductors being stacked in radial direction and located substantially in a plane which is normal to the rotor axis and each section having a connecting portion, the length in circumferential direction of successive connecting portions increasing in a direction away from the rotor axis and said connecting portions including an innermost portion nearest to the rotor axis and additional portions located further away from said axis; liquid conveying means located in the region of said rotor axis; and conduits connecting said liquid conveying means with said connecting portions, each conduit which is connected to one of said additional portions bypassing each connecting portion which is nearer to the rotor axis.

3,320,448

MAGNETIC COUPLING FOR ELECTRIC MOTOR

James R. Turk, Wickliffe, Ohio, assignor to Vincent K. Smith, Gates Mills, Ohio

Filed Feb. 26, 1964, Ser. No. 347,482
18 Claims. (Cl. 310—98)



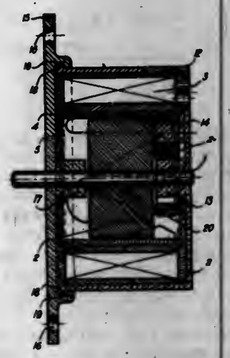
10. In an electric motor of the type having a stator assembly, and a rotor and output shaft concentrically disposed within a bore in said stator assembly; means mounting said output shaft and rotor for relative rotational movement with respect to each other; means operative to maintain the relative positions of said rotor and output shaft when said rotor is rotated and transmit a predetermined amount of torque during such rotation from said rotor to said output shaft only so long as the torque demand on said output shaft does not exceed said predetermined amount of torque, said means also being operative to allow said output shaft to come to a complete standstill during continued rotation of said rotor and eliminate torque transmittal between said rotor and output shaft in response to the torque demand exceeding such predetermined amount of torque.

3,320,449

ON-LOAD SELF-STARTING SYNCHRONOUS MOTOR

Jacques Roger Oscar Delaloye, Villa Beauregard, Blvd. Beausite, Cannes, France

Filed Jan. 18, 1965, Ser. No. 426,061
Claims priority, application France, Jan. 23, 1964, 961,281, Patent 1,391,124; Nov. 30, 1964, 996,756, Patent 86,890
12 Claims. (Cl. 310—156)



1. In an on-load self-starting synchronous motor of the kind comprising a rotor carried by the motor shaft and consisting of a toroidally-shaped permanent magnet having alternating north and south poles along its perimeter, and a stator with one or more circular windings within which fits an asymmetrical magnetic core fulfilling the function of pole-pieces, said rotor and stator being housed in a cowl closed by a web while said motor shaft is supported by bearings on said cowl and web; the improvement comprising an asymmetrical magnetic core consisting of a tubular element having formed in its cylindrical wall a series of identical, successively inverted, scalene right-angle-triangle-shaped openings of which the longer of the two sides including the right angle is parallel with the motor shaft and has a length substantially equal to the width of the rotor, each triangle terminating in a circular arcuate portion opposite its acutest corner, which portion is positioned close to the hypotenuse of the adjacent triangle.

3,320,450

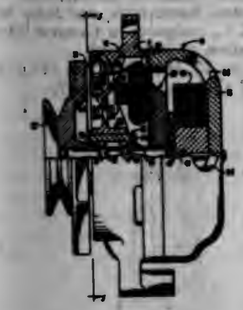
BRUSHLESS ALTERNATOR FOR VEHICLES

George B. Bosco, Jr., Whittier, and Howard E. Corbitt, Arcadia, Calif., assignors to Aerojet-General Corporation, Azusa, Calif., a corporation of Ohio

Filed May 18, 1964, Ser. No. 368,171
12 Claims. (Cl. 310—168)

1. A dynamoelectric machine comprising a housing, a rotatable shaft received in said housing and having one end disposed therewithin, bearing means carried by said

housing and surrounding said shaft to support said shaft for rotation with respect to said housing, a rotor member having oppositely disposed radial faces mounted on the end of said shaft within said housing for rotation with said shaft; said rotor member comprising a radially inner magnetic disc fixed to said shaft and having a plurality of circumferentially spaced radially outwardly extending projections, a radially outer annular magnetic rim extending about said inner disc in spaced relation thereto and having a plurality of spaced radially inwardly extending projections respectively received in spaced relationship between adjacent radially outwardly extending projections on said inner disc, a plurality of non-magnetic spacer members extending between said inner disc and said outer rim connecting said inner disc and said outer rim together in radially spaced relationship, said non-magnetic spacer members occupying only a minor portion of the space existing between said inner disc and said outer rim so as to define therewith a unitary rotor member provided with



voids therein between said inner disc and said outer rim thereof, said radially outwardly extending projections on said inner disc comprising magnetic poles of one magnetic polarity, and said radially inwardly extending projections on said outer rim comprising magnetic poles of the opposite magnetic polarity; a stator member mounted within said housing and carried thereby in axially spaced opposed relation to said rotor member, said stator member comprising an armature core of magnetic material having stator windings thereon, stationary means of magnetic material forming a closed path for magnetic flux through the magnetic disc and rim of said rotor member and said armature core of said stator member, a field coil magnetically associated with said stationary means, and magnetic flux being created through said closed path in response to energization of said field coil, whereby the rotation of said shaft and said rotor member carried thereby generates an alternating voltage in said stator windings.

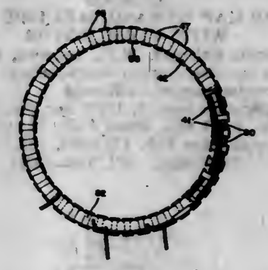
3,320,451

DYNAMOELECTRIC MACHINE ASSEMBLY

John B. Wiley, London, Ontario, Canada, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Original application Nov. 24, 1961, Ser. No. 154,657. Divided and this application Oct. 4, 1965, Ser. No. 492,454
3 Claims. (Cl. 310—259)

1. In a dynamoelectric machine having a housing with a substantially cylindrical body portion complementary to readily removable end cover means that journal rotor means and having a first stator portion of spiral metal material with axially tapered peripheral configuration substantially solid throughout carried tightly inside the body portion in a location radially outwardly from stator winding means, the improvement which comprises a second stator portion including both "loose" metal teeth per se in plural radial locations and an anchor encapsulation material exemplified by varnish-type, epoxy and plastic resin that substantially fills space between said teeth per se and the stator winding means into an annular unitary though removable mass also having an axially tapered peripheral configuration, said second stator por-



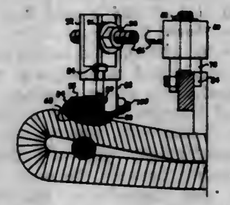
tion having a mechanical tapered interfit axially complementary to the material of the first stator portion as well as having magnetic attraction of said "loose" teeth per se to the material of the first stator portion that holds said second stator portion in place structurally though removable axially therefrom.

3,320,452

TIELESS BRACING OF STATOR COIL END TURNS

John H. Fortenbach, Sun City, Ariz., and Hugh B. Hollowood, Ballston Spa, and Henry E. Mazanek, Amsterdam, N.Y., assignors to General Electric Company, a corporation of New York

Filed Sept. 23, 1963, Ser. No. 310,600
8 Claims. (Cl. 310—260)



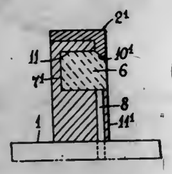
1. In a dynamoelectric machine having a magnetic core and a winding in said core including inner and outer overlapping radially spaced layers of circumferentially spaced end turns projecting substantially axially outward from the core, said end turns being subjected during operation to magnetic and/or mechanical vibratory forces tending to cause relative radial and circumferential displacement thereof, the improvement of tieless bracing means for said end turns comprising: an intermediate ring of substantially inflexible insulating material disposed in the space between the layers of said circumferentially disposed end turns, said intermediate ring contacting and conforming to the radially inner surface of a portion of each end turn in the outer layer and said intermediate ring contacting and conforming to the radially outer surface of a portion of each end turn in the inner layer, the dimensions and material of said intermediate ring being sufficient to substantially restrict radial movement toward said ring of said portions of each end turn in the inner and outer layers; and, said intermediate ring having integral radial projections of said material protruding radially only partially respectively into the spaces between circumferentially adjacent end turns in said inner and outer layers, said projections contacting and conforming to part of the opposing side surfaces of each of said end turn portions in the inner and outer layers and said projections extending radially along said side surfaces a sufficient distance to rigidly engage said side surfaces and

substantially restrict relative circumferential movement of said portions of the end turns in the absence of end turn layer constricting means secured to said core.

3,320,453
AXIAL AIR GAP DYNAMOELECTRIC MACHINE WITH A DISC ROTOR

William Kober, Fairport, N.Y., assignor, by mesne assignments, to The Garrett Corporation, Los Angeles, Calif., a corporation of California

Original application Sept. 9, 1959, Ser. No. 838,949, now Patent No. 3,121,814, dated Feb. 18, 1964. Divided and this application Feb. 17, 1964, Ser. No. 345,157
19 Claims. (Cl. 310—268)

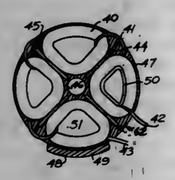


1. In a dynamoelectric machine of the axial air gap type, a rotary field producing structure comprising a shaft journaled for rotation about the axis thereof, an annular body of ceramic permanent magnet material generally concentric with said axis, an annular casing of unitary construction receiving and supporting said magnet body, said casing comprising an outer annular side wall generally concentric with said axis encircling the outer peripheral side of said magnet body for supporting the latter against centrifugal force and an annular end wall extending along one end face of said magnet body from said outer side wall, and means fixing said casing to said shaft for rotation therewith, wherein said casing in formed of a relatively light weight and non-magnetic material, together with an annular flux return member of magnetic material interposed between said casing end wall and said one end face of said body, wherein said flux return member has an annular flange generally concentric with said axis and extending between the outer side of said magnet body and said casing outer side wall thereby to assist the latter in supporting said magnet body against centrifugal force.

3,320,454
ALTERNATING CURRENT GENERATOR

William Kober, Rolling Hills, Calif., assignor, by mesne assignments, to The Garrett Corporation, Los Angeles, Calif., a corporation of California

Continuation of application Ser. No. 192,122, May 3, 1962. This application Feb. 10, 1966, Ser. No. 529,603
14 Claims. (Cl. 310—268)

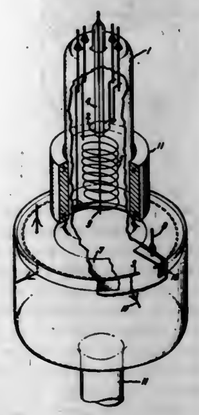


1. A dynamoelectric machine comprising:
(a) a housing;
(b) a shaft journalled for rotation in said housing about an axis;
(c) multiple field-flux conducting structures in said housing secured to said shaft and including magnet means having poles spaced around said axis to provide an annular air gap path;
(d) non-magnetic armature support means secured near its outer periphery to said housing and occupying said path between said structures;
(e) armature windings comprising multiple-conductor turns spaced to provide flattened coils, said windings being rigidly secured to said supoprt means with protions of said turns located in said air gap path; and
(f) said armature windings being grouped in multiply operative relationship on said support means and bonded thereto with cement means.

3,320,455
IONIZATION VACUUM GAUGE HAVING X-RAY SHIELDING MEANS

Nathan Rey Whetten, Burnt Hills, and John M. Houston, Schenectady, N.Y., assignors to General Electric Company, a corporation of New York

Filed Apr. 22, 1966, Ser. No. 544,431
7 Claims. (Cl. 313—7)

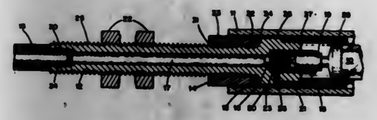


1. An ionization vacuum gauge comprising a sealed envelope connected to a vacuum chamber through an opening for admission of gas, the pressure of which is to be measured,
a thermionic cathode positioned at one end of said envelope,
an ion-collecting electrode comprising a thin conductive wire extending substantially along the axis of said envelope,
an acceleration electrode surrounding said ion-collecting electrode and spaced therefrom,
an electron-collecting electrode positioned at the end of said envelope remote from said cathode and comprising an annular member,
means for establishing a magnetic field extending along the axis of said envelope and having a strength such that electrons in traveling from said cathode to said electron-collecting electrode follow a curved path and are constrained from reaching said acceleration electrode, and
means impressing a potential difference between said cathode and electron collecting electrode of a value such that electrons from said cathode follow said curved path to traverse the opening in said annular member and are collected on the surface of said member remote from said cathode.

3,320,456
CORROSION INHIBITING FITTING FOR FLUID-COOLED ELECTRIC-DISCHARGE LAMPS

Nicholas Reinhardt, Lexington, Abbott S. Galaher, North Andover, and Vincent J. George, Winchester, Mass., assignors to Edgerton, Germeshausen & Grier, Inc., Bedford, Mass., a corporation of Massachusetts

Filed Aug. 25, 1965, Ser. No. 482,508
16 Claims. (Cl. 313—23)

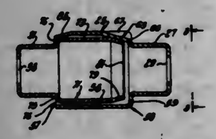


16. A water-cooled flashtube system comprising:
a hollow translucent chamber;
an electric flashtube disposed in said chamber and having an electrode extending from each end thereof into said chamber;
a fitting disposed at each end of said chamber comprising:
an electrically conductive stud having an internal passage for said fluid;
means for sealing the stud to said chamber;
an electrical connector disposed at one end of the stud for attachment to an electrode of said device;
means for connecting said stud to a source of potential; and
an anodic metallic member disposed in electrical contact with said stud; and
a conductive metallic member disposed in electrical contact with the high-voltage electrode of said device and extending therefrom in the direction of the low-voltage electrode.

3,320,457
TWO-PIECE APERTURED ELECTRODE FOR CATHODE RAY TUBE ELECTRON GUN PROVIDED WITH INTEGRAL ALIGNMENT MEANS

Glen A. Burdick, Waterloo, N.Y., Floyd K. Collins, Ottawa, Ohio, and Ross K. Gessford, Sr., Seneca Falls, N.Y., assignors to Sylvania Electric Products Inc., a corporation of Delaware

Filed Mar. 17, 1964, Ser. No. 352,609
9 Claims. (Cl. 313—82)

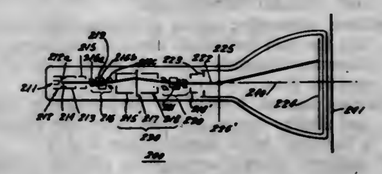


1. In an electron gun structure of an electron discharge device having a longitudinal axis, a two-element double-ended apertured electrode having integral alignment means comprising:
a first element having a substantially cylindrical sidewall portion separating an open end and an opposing partial closure formed with an axial aperture therein, said first element having an interior bearing surface; and
a second element telescoped within said first element having a substantially cylindrical sidewall portion separating an open end and an opposing partial closure formed with an axial aperture therein, said second element axial aperture being oppositely disposed to said first element axial aperture, said second element closure having an exterior peripheral surface, the outside diameter of said second element sidewall portion being diametrically smaller than the inside diameter of said first element sidewall portion to provide compatible contiguity therewith, said sidewall of said second element having bearing means to engage said bearing surface of said first element to provide constrained placement of said elements and alignment of said apertures therein, the sidewall of said second element being longitudinally shorter than the sidewall of said first element, said elements being locked together by a plurality of crimps discretely spaced and simultaneously applied about the peripheral portions of the first element sidewall adjacent the open end thereof in rigid engagement with the exterior peripheral surface of the closure portion of said second element to provide equalized constrained concentricity thereto thereby consummating desired apertural alignment of said elements.

3,320,458
CATHODE RAY TUBES EMPLOYING A NOVEL CONVERGENT ELECTROSTATIC LENS SYSTEM FOR BEAM MODULATION

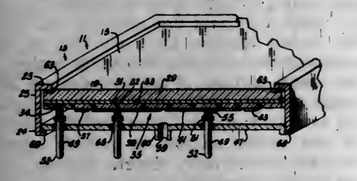
Hideki Kobayashi, Shiba Mita, Minatoku, Tokyo, Japan, assignor to Nippon Electric Company Limited, a corporation of Japan

Filed Jan. 4, 1963, Ser. No. 249,435
Claims priority, application Japan, Jan. 18, 1962, 37/1,803
3 Claims. (Cl. 313—86)



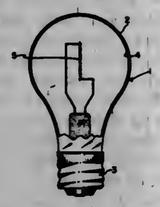
1. An electron beam control system for a cathode ray tube, characterized by comprising a conductive planar member containing only one aperture of any suitable configuration so that upon incidence of an electron beam on one side of the planar member a modulated electron beam intercepted partly thereof by said aperture configuration passes therethrough to emerge from the opposite side of said member, target deflection means for deflecting the electron beam which has passed through said member in moving towards a target means, an electron gun element for producing an electron beam having a fixed cross-sectional area, means controlled by an externally applied voltage for causing said electron beam to be deflected and to be incident on one side of said planar member adjacent to said aperture, and an electrostatic electron lens comprising said planar member and electrodes disposed on opposite sides of said planar member for causing an electron beam which has deviated from the deflection center of said deflection causing means to converge at a point along the central axis of the cathode ray tube; said electrodes being two cylindrical electrodes having their longitudinal axes disposed on the central axis of the cathode ray tube confronting each other with the planar member interposed therebetween and being maintained at a potential higher than the potential of said electrodes; said electron lens being a purely convergent electrostatic lens forming a convergent region around said planar member by perfectly eliminating divergent or non-convergent parts, from the region of action of said electron lens; whereby the brightness of said target means is controlled in response to the external voltage applied to said deflection causing means.

3,320,459
HERMETICALLY ENCASED ELECTROLUMINESCENT DISPLAY DEVICE
Elmer O. Stone, Seneca Falls, N.Y., assignor to Sylvania Electric Products Inc., a corporation of Delaware
Filed Aug. 14, 1964, Ser. No. 389,681
6 Claims. (Cl. 313—108)



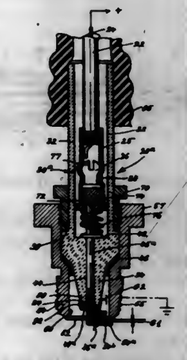
1. In combination with an electroluminescent display device having a viewing panel in the form of a light-transmissive substrate with a substantially transparent electrode disposed thereon and separated from an array of individually energizable electrode segments by an electric field responsive phosphor-dielectric layer therebetween, a hermetic encasement of said device comprising:
an insulative ceramic connector plate formed for compatible engagement with the segment portion of said device, said plate having a sealable port therein and a plurality of conductive pins spacedly sealed therein and extended therethrough;
internal connective means providing electrical connection for said individual electrode segments and said common electrode with the inner ends of said respective pins;
framing means formed to perimetrically encompass said display device and said connector plate to effect a hermetic bond therebetween; and
a confined internal atmosphere effected through said sealable port and being of a desired gaseous content conductive to efficient and reliable operation of said device.

3,320,460
ELECTRIC LAMP COATING COMPRISING AGGLOMERATES OF SILICA COATED WITH A PIGMENT
George H. Bouchard, Ipswich, Alexander Tartakoff, Beverly, and Horace H. Homer, Arlington, Mass., assignors to Sylvania Electric Products Inc., a corporation of Delaware
Filed Jan. 2, 1964, Ser. No. 334,992
4 Claims. (Cl. 313—112)



2. An electric lamp comprising: a sealed glass bulb, an electrical-conductive refractory metal filament therein, and a colored coating on the inside of said bulb; said coating comprising agglomerates of sub-micron size silica particles, the agglomerates being coated on their outside surfaces with pigment particles.

3,320,461
SELF-RENEWABLE SPARK PLUG CONSTRUCTION
Joseph Feins, North Miami Beach, Fla., assignor, by mesne assignments, to Ashwell & Company, Chicago, Ill., a corporation of Delaware
Filed Jan. 27, 1965, Ser. No. 428,429
2 Claims. (Cl. 313—125)



1. A spark plug for an internal combustion engine, comprising an insulated housing having a cylindrical body with a wide cylindrical bore therein open at one end, said housing having an opposite end portion formed with a narrow axial bore therein communicating with the cylindrical bore, said cylindrical bore having a flat seat defined at its junction with the narrow bore, an electrode having an electrically conductive stem extending through said narrow bore and rotatably disposed therein, one end of the stem extending into the wide bore, a flange on the other end of the stem bearing against the free other end of the housing and sealing said narrow bore, first and second electrode tips extending radially from said stem adjacent said flange outside of said housing, a terminal lug for a high voltage cable engaged on the one end of said stem in the wide bore, and a spring partially compressed and located between said seat and said lug urging the stem upwardly in the narrow bore and holding said flange against the free other end of the housing, said terminal lug having means engageable by a tool inserted in the wide bore for turning the electrode to adjust the radial positions of said electrode tip circumferentially with respect to said housing, a metal shell mountable in a metal wall of an engine cylinder, said shell having a central bore formed with a seat receiving the other end of said housing in a fixed non-rotatable position, said shell having a rim at one end of the central bore therein, the first electrode tip being longer than the second electrode tip, the first electrode tip being spaced by a gap from said rim longitudinally of the shell, the second electrode tip being spaced by another gap from the central bore of the shell near said rim, whereby fresh portions of said rim and central bore are exposed to the electrode tips in each rotational position thereof circumferentially of the rim.

3,320,462
SPARK GAP STRUCTURE WITH ANNULAR CONCENTRIC MAGNETS FOR ROTATING ARC
Chester J. Kawiecki, Chicago, Ill., assignor to Joslyn Mfg. and Supply Co., Chicago, Ill., a corporation of Illinois
Filed Sept. 10, 1963, Ser. No. 307,941
9 Claims. (Cl. 313—154)

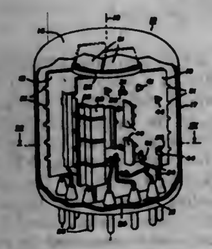
1. In a surge arrester:
a spark gap arrangement comprising a pair of concentric annular electrodes formed of a conductive substantially non-magnetic material;

surge current connector means attached to each of said electrodes,
a pair of annular, annularly polarized permanent type magnets located one within each of said electrodes for providing a magnetic field about each electrode;
said fields being of substantially equal intensity;



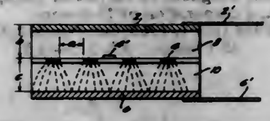
said electrodes each having an annular discontinuity therein so positioned with respect to said surge current connection means that surge current passing through said electrode cannot flow through the hollow core of either of said magnets to link said magnets.

3,320,463
ELECTRON DISCHARGE TUBE HAVING AN IMPROVED ELECTRODE MOUNTING STRUCTURE
Joe F. Stephens, Owensboro, Ky., assignor to General Electric Company, a corporation of New York
Filed July 23, 1962, Ser. No. 211,556
3 Claims. (Cl. 313—241)



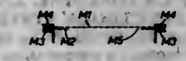
1. An electron discharge device, comprising an envelope, a plurality of frame-type electrodes, a cathode, at least one ear extending laterally from each of the longitudinal edges of each of said electrodes and of said cathode, a pair of spaced insulative supports having peripheral portions in contact with the interior surface of said envelope, each of said pair of spaced insulative supports being formed with a plurality of apertures for receiving said ears to support said electrodes and said cathode in spaced relation between said pair of insulative supports, said ears and said apertures being arranged in a predetermined pattern to ensure the longitudinal axis of said cathode being parallel to the plane of each of said pair of insulative supports, and shield electrodes each having a channel formed therein positioned on the outside surfaces of each of said pair of spaced insulative supports with the channels enclosing corresponding ears of an electrode projecting through said insulative supports for minimizing capacitive coupling between electrodes.

3,320,464
INVERTED SOLID STATE TRIODE AND TETRODE DEVICES
Johann G. Dill, Costa Mesa, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware
Filed May 6, 1963, Ser. No. 278,362
13 Claims. (Cl. 313—258)



1. An electrical device comprising: a source electrode and a drain electrode; said drain electrode having openings therethrough; a body of semi-insulator material disposed between said source and drain electrodes; and a control electrode adjacent said drain electrode and electrically insulated therefrom and from said semi-insulator body.

3,320,465
MESH WITH RASTER-SIZE APERTURE FOR DAMPENING VIBRATIONS OF CAMERA TUBE MESH
Percy Charles Ruggles, Chelmsford, England, assignor to English Electric Valve Company Limited, London, England, a British company
Filed Sept. 14, 1964, Ser. No. 396,196
Claims priority, application Great Britain, Nov. 13, 1963, 44,751/63
6 Claims. (Cl. 313—269)



1. A television or like camera tube having adjacent the scanned target of said tube, a mesh structure consisting of two meshes in contact with one another, one of which is more lightly tensioned than the other and has an aperture of such size and shape as to accommodate the intended scanning raster of the tube and supporting means for supporting the meshes so that when the tube target is scanned in the intended manner the scanning cathode ray encounters only the other mesh.

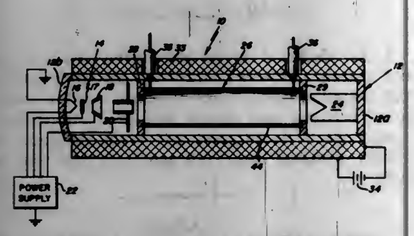
3,320,466
DOUBLE-ENDED ELECTRIC LAMP AND ASSOCIATED U-SHAPED METAL CLIP
Reginald J. Ayres, Shakers Heights, and Paul Vargo, Lyndhurst, Ohio, assignors to General Electric Company, a corporation of New York
Filed Oct. 23, 1959, Ser. No. 848,282
1 Claim. (Cl. 313—318)



An electrical device comprising a double-ended sealed glass envelope provided at its opposite ends with protruding flattened external stem press portions disposed in a common plane, each of said flattened stem press portions having parallel channelways in its flat sides extending longitudinally of said envelope and disposed opposite one another, lead-in wires sealed through respective ones of said stem press portions and extending into said envelope, and U-shaped metal clip members straddling the ends of and secured to said stem press portions with their arm portions snugly received within the said channelways in said stem press portions and lying flush with the surfaces

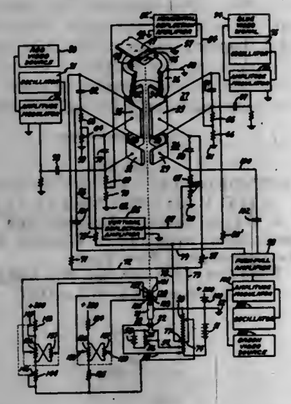
of the flat sides thereof, said metal clip members being electrically connected to respective ones of said lead-in wires to form terminal contacts for the device.

3,320,467
PYROGRAPHITE WAVE STRUCTURES
Burton H. Smith, Lexington, and Sungik F. Paik, Westford, Mass., assignors to Raytheon Company, Lexington, Mass., a corporation of Delaware
Filed Oct. 1, 1963, Ser. No. 312,917
15 Claims. (Cl. 315—3.5)



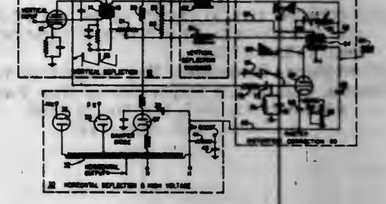
1. A slow-wave structure containing a pyrographite element oriented so that the direction of easy electrical conductivity in said element extends in a direction substantially perpendicular to the direction of propagation of radiation in said structure.

3,320,468
ELECTRON BEAM FOCUSING AND DEFLECTION ELECTRODE SYSTEM
William E. Glenn, Jr., Scotia, N.Y., assignor to General Electric Company, a corporation of New York
Filed July 14, 1965, Ser. No. 471,993
13 Claims. (Cl. 315—14)



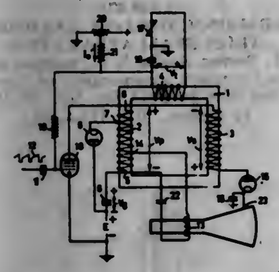
1. An electron beam defiection and focusing system comprising an electron source, an electron receiving surface, means accelerating electrons emanating from said source toward said electron receiving surface and electrostatic means interposed between said source and said electron receiving surface for focusing said electrons and deflecting them over an area of said electron receiving surface, said electrostatic means comprising a first set of four electrodes and a second set of four electrodes longitudinally spaced therefrom in the direction of electron travel with the electrodes of each set of four electrodes having their centers lying substantially in a single plane transverse to the electron path between said source and said electron receiving surface and with said four electrodes of each set positioned to provide orthogonally arranged pairs of electrodes, additional electrode means surrounding the electron path interposed between said electron receiving surface and said second set of electrodes, means for maintaining said additional electrode means and said first set of electrodes at a direct current voltage which is substantially positive with respect to the direct current voltage applied said second set of electrodes to focus the electrons traveling from said source to said electron receiving surface, means applying deflection voltages to the opposed pairs of electrodes in both of said sets of electrodes to deflect said beam over an area of said electron receiving surface, the deflection produced by said first set of electrodes in response to the deflection voltages applied thereto providing a predeflection of the beam in the same direction as caused by said second set of deflecting electrodes to compensate for the asymmetry of the focusing field produced by the deflection voltages on said second set of deflection electrodes and thereby minimize the deflection aberration at said electron receiving surface.

3,320,469
VERTICAL DYNAMIC PINCUSHION CORRECTION CIRCUITS FOR TELEVISION RECEIVERS
William H. Slavik, Chicago, Ill., assignor to Motorola, Inc., Chicago, Ill., a corporation of Illinois
Continuation of application Ser. No. 322,859, Nov. 12, 1963. This application Sept. 13, 1966, Ser. No. 579,173
12 Claims. (Cl. 315—24)



10. A system for dynamically correcting the raster of a cathode ray tube in a television receiver, including in combination; vertical deflection windings for deflecting an electron beam of the cathode ray tube, a vertical deflection system for energizing said vertical deflection windings with a deflection wave at vertical deflection frequency, a horizontal deflection system for the cathode ray tube providing a pulsating wave at the horizontal deflection frequency, resonant circuit means tuned to the horizontal deflection frequency and connected in circuit with said vertical deflection windings, a first coupling circuit connected between said resonant circuit means and said horizontal deflection system for coupling the pulsating wave to said resonant circuit means with a given phase, a second coupling circuit connected between said resonant circuit means and said horizontal deflection system for coupling the pulsating waves to said resonant circuit means with a phase opposite to said given phase, said second coupling circuit including an electron amplifier device, circuit means coupled between said vertical deflection system and said electron amplifier device for controlling the conduction thereof to produce a varying amplitude of the pulsating wave throughout the vertical deflection period, said resonant circuit means combining the pulsating waves from said first and second coupling circuits to produce oscillations in said resonant circuit means at the horizontal deflection frequency and of one phase and declining amplitude during a portion of the vertical deflection period and of opposite phase and increasing amplitude during another portion of the vertical deflection period.

3,320,470
LINE DEFLECTION CIRCUIT HAVING TRANSFORMER WITH TERTIARY WINDING TO COMPENSATE FOR HIGH VOLTAGE LOAD VARIATIONS
Peter Johannes Hubertus Janssen, Emmasingel, Eindhoven, Netherlands, assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
Filed Jan. 3, 1964, Ser. No. 335,605
Claims priority, application Netherlands, Jan. 11, 1963, 287,703
10 Claims. (Cl. 315—27)



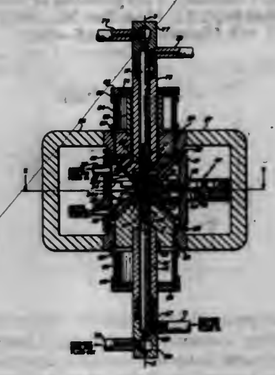
1. A deflection circuit for a display tube comprising, amplifier means for generating a deflection signal and including a control electrode, a transformer comprising a primary winding, a secondary winding, and a tertiary winding inductively coupled with both the primary winding and the secondary winding so as to have induced therein a tertiary flyback voltage composed of first and second voltage components corresponding to the primary and secondary winding flyback pulses, respectively, said transformer windings being arranged so that the polarity of said first and second components are the same and the ratio of said second voltage component to said first voltage component lies in the range between 0.2 and 5, means for applying said deflection signal to said primary winding, a deflection coil coupled to said primary winding, a rectifier connected to said secondary winding to produce the high voltage for the acceleration anode of said display tube, a control circuit coupled to said tertiary winding and including a non-linear element for developing a direct current control voltage determined by said tertiary voltage, and means for supplying said direct current voltage to said control electrode thereby to compensate for variations in the high voltage load.

3,320,471
HIGH POWER AMPLIFIER HAVING A COOLING FLUID MANIFOLD ATTACHED TO THE SLOW-WAVE STRUCTURE
James R. Mims, Natick, Mass., assignor to Raytheon Company, Lexington, Mass., a corporation of Delaware
Filed Apr. 9, 1962, Ser. No. 185,989
2 Claims. (Cl. 315—39.3)

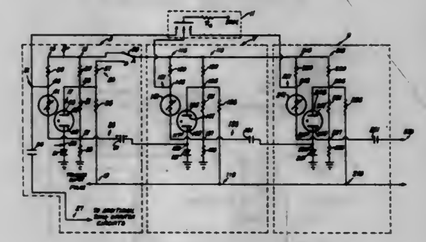
1. An electron discharge device including an envelope enclosing a slow-wave propagating structure having a plurality of tubular elements and a central cathode electrode coextensive with said structure defining an interaction space therebetween comprising:

a pair of oppositely disposed conical shaped bodies of thermally conductive material within the envelope of said device contiguous with said coextensive electrode for conducting heat therefrom;

and cooling fluid manifolds formed by jackets attached to the inside wall of said envelope and formed to substantially fill the space between said conical shaped bodies for supporting said slow-wave structure and for conducting a cooling fluid directly to elements thereof.



3,320,472
NEON TUBE-PHOTOCONDUCTOR MULTIVIBRATOR OR RING COUNTER
Lester M. Tibbetts, Jr., Emporium, Pa., assignor to Sylvania Electric Products Inc., a corporation of Delaware
Filed Dec. 28, 1964, Ser. No. 421,451
8 Claims. (Cl. 315—84.5)



5. A bootstrap circuit comprising in combination:

a voltage source having a positive potential terminal;

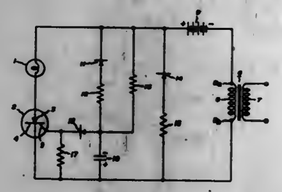
a voltage divider coupling said terminal to a circuit ground and including an impedance interconnecting a first and second voltage tap;

a light source coupling said first voltage tap to circuit ground;

potential altering means coupled to said positive potential terminal and said first voltage tap to provide alterations in potential at said first voltage tap; and

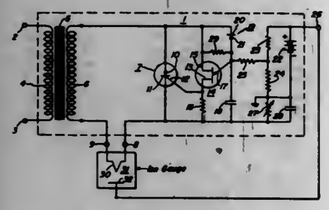
bootstrap circuit means coupling said first voltage tap to said positive potential terminal, said means including said impedance connected in series with a light-responsive variable resistive device light-coupled to said light source whereby increasing the potential at said first voltage tap by said potential altering means causes activation of said light source which reduces the ohmic resistance of said resistive device increasing the potential at said first voltage tap in an amount sufficient to maintain said light source operational.

3,320,473
EMERGENCY LIGHTING SYSTEM
Denis R. Grafham, Auburn, N.Y., assignor to General Electric Company, a corporation of New York
Filed Sept. 22, 1964, Ser. No. 398,176
3 Claims. (Cl. 315—86)



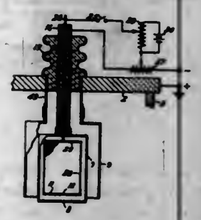
1. An emergency lighting system comprising: a series circuit including a secondary winding, a battery, an electrically energizable lamp and a silicon controlled rectifier; a capacitor to control the firing of said silicon controlled rectifier; means for charging said capacitor from an A.C. power supply through said secondary winding to prevent firing of said silicon controlled rectifier; means for discharging said capacitor upon the failure of said power supply to permit firing of said silicon controlled rectifier by said battery, thereby energizing said lamp from said battery.

3,320,474
EMISSION CURRENT REGULATED POWER SUPPLY FOR THERMIONIC FILAMENT
Robert L. Watters, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York
Filed Nov. 1, 1963, Ser. No. 320,629
6 Claims. (Cl. 315—94)



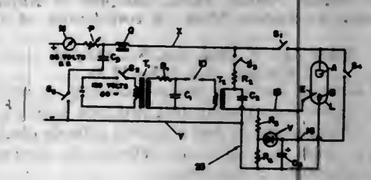
1. In a filament power supply for use with a device having a thermionic electron emissive filament and a current collector electrode for collecting substantially all of the electrons from said filament; said power supply including output means coupled to said filament, a source of alternating current power and a silicon controlled rectifier having anode, cathode, and control electrodes; said output means, source, rectifier anode and rectifier cathode being electrically connected in a series loop network; the improvement of control means for said silicon controlled rectifier comprising:
(a) a unijunction transistor having first and second base electrodes and an emitter electrode;
(b) conductive means electrically connecting said second base electrode to said rectifier anode and electrically connecting said first base electrode to said control electrode;
(c) resistive means electrically connected from said first base electrode to said rectifier cathode and capacitive means connected from said emitter electrode to said rectifier cathode;
(d) circuit means coupled to said capacitance means for effecting a voltage across said capactive means that is substantially equal in magnitude to the voltage output of said alternating current source at the negative-most portion of the voltage cycle of said source;
(e) a charging circuit connected to said capacitive means and providing a predetermined charging rate therefor; and,
(f) means coupling said electron emissive filament to said charging circuit and responsive to variations in the electron current therefrom to provide an opposite variation in said predetermined charging rate.

3,320,475
NONTHERMIONIC HOLLOW CATHODE ELECTRON BEAM APPARATUS
Kenneth L. Boring, Scotia, N.Y., assignor to General Electric Company, a corporation of New York
Filed June 20, 1963, Ser. No. 289,357
15 Claims. (Cl. 315—108)



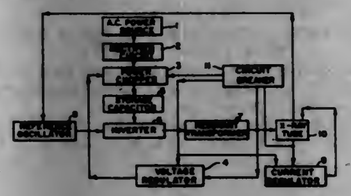
1. In an electron beam apparatus, the combination of an enclosure containing a relatively low pressure ionizable gaseous medium,
a cathode positioned within said enclosure and comprising a hollow electrically conductive structure imperforate except for a beam exit aperture, operating circuit means effective for operating said cathode at a potential sufficiently negative relative to an anode in the operating circuit to initiate and maintain a plasma within the cathode structure by the interaction of the gaseous medium and negative cathode-to-anode potential thereby to effect a nonthermionic electron beam mode of operation of said cathode wherein an electron beam issues from the plasma through said aperture.

3,320,476
STARTING CIRCUIT FOR HIGH INTENSITY SHORT ARC LAMPS
Norman C. Beese, Verona, N.J., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed Aug. 21, 1964, Ser. No. 391,346
5 Claims. (Cl. 315—289)



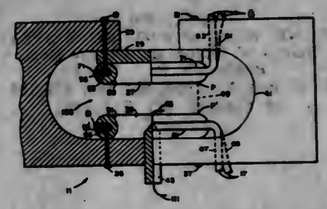
1. A high intensity short-arc discharge lamp formed of a light transmissive discharge vessel containing an ionizable atmosphere and having an anode and a cathode electrode spaced from each other to support an arc path therebetween in combination with starting circuitry for initiating discharge between the anode and cathode comprising,
(a) an auxiliary electrode within the discharge vessel and positioned adjacent said cathode,
(b) an alternating current source and transformer means for stepping up voltage from said source,
(c) said transformer means having means for producing high frequency voltage oscillations,
(d) first circuitry connecting the auxiliary electrode and the cathode with the transformer means for applying the high frequency voltage between the auxiliary electrode and cathode,
(e) second circuitry connecting the anode and the cathode with the transformer means for applying the high frequency voltage between the anode and the cathode,
(f) said first circuitry having voltage divider means therein,
(g) said voltage divider means having a connection to the anode for applying a selected portion of the voltage to the anode and
(h) a direct current source connected across the anode and cathode.

3,320,477
POWER SUPPLY HAVING OVER-VOLTAGE AND OVER-CURRENT PROTECTION MEANS
Harold T. Booher, Brookfield, Wis., assignor to General Electric Company, a corporation of New York
Filed Aug. 19, 1964, Ser. No. 390,668
11 Claims. (Cl. 315—307)



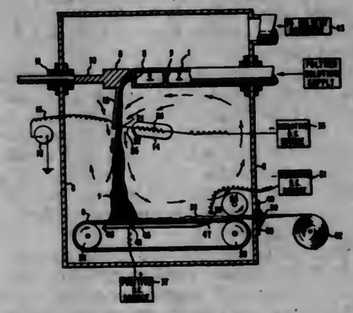
1. A power source for a transformer comprising:
(a) a D.C. source,
(b) capacitor means of sufficient capacity to supply the load current and load voltage requirements of the transformer,
(c) a controlled rectifier chopper switching means constituting a D.C.-to-D.C. converter means connected between the source and the capacitor means for charging the capacitor means to a selectively variable D.C. potential that depends on the conduction frequency of the switching means,
(d) oscillator means operative to produce pulses at a preselected reference frequency and including a feedback circuit from the transformer for maintaining the oscillator frequency in a predetermined relationship with the desired operating frequency of the transformer,
(e) inverter means operative in response to said oscillator pulses to deliver electric pulses from the capacitor means to a transformer at the instantaneous potential of the capacitor means and at a frequency dependent on the reference frequency of the oscillator,
(f) voltage regulator means operative to determine the output voltage of said transformer and to control variably the conduction frequency of the controlled rectifier chopper switching means in dependence on the determined voltage whereby to control the D.C. potential on the capacitor in accordance with the deviation from said determined voltage.

3,320,478
HIGH COULOMB SPARK GAP SWITCH WITH SERIES MAGNET COILS FOR ROTATING THE ARC
John L. Harrison, Princeton, N.J., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed May 3, 1965, Ser. No. 452,950
2 Claims. (Cl. 315—347)



2. A fast-acting spark gap switch comprising two parallel, spaced-apart, non-continuous co-axial ring-shaped electrodes forming grooves on their outside diameter terminating in a gap, conductors having one end connected to said respective rings at the bottom of their grooves near said gap and winding around said rings, across said gap, around said grooves and out of said grooves to form leads for discharging a coulomb source through said switch to a load, and means for initiating an arc for producing said discharge across said switch.

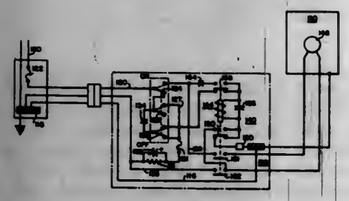
3,320,479
CHARGED WEB COLLECTING APPARATUS
John Edward Owens, Hockessin, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed May 24, 1965, Ser. No. 458,358
3 Claims. (Cl. 317—2)



1. Apparatus for attracting, collecting and discharging a sheet of electrostatically charged fibrous elements comprising in combination a continuous surface adapted to move continuously in a given direction and providing on one face, a path of laydown for the said fibrous elements, a charged plate conforming to the shape of the said continuous surface disposed along and extending transversely of the face of the said surface opposite to that providing the said path of laydown and adapted to generate an electrostatic field of opposite polarity in the path of the said continuous surface, the said plate having a broad side disposed toward said surface, the said plate extending substantially completely across the width of the said path of laydown and terminating at its trailing edge in a sharply tapered shape adapted to provide a corona discharge between the said sheet and the said plate, a charged elongated electrode positioned above and extending substantially across the width of the said path of laydown, proximate to the said trailing edge of the said plate, said elec-

trode having an arcuate surface of low radius of curvature disposed toward said trailing edge and being adapted to generate an electrostatic field opposite in polarity to that generated on the said plate, and means for forwarding to and depositing electrostatically charged fibrous elements upon the said path of laydown, at a point upstream from the said trailing edge.

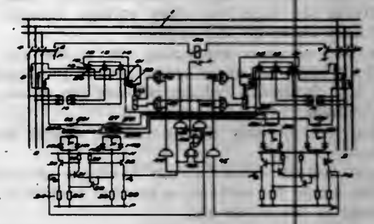
3,320,480
GROUND WIRE MONITORING SYSTEM
Charles W. Fallor, 107 Elmore Road, Pittsburgh, Pa. 15221
Filed Feb. 11, 1965, Ser. No. 431,816
10 Claims. (Cl. 317—18)



1. In an electrical appliance having a power unit circuit consisting of conductors to conduct electricity from the black hot line of a normally 115 volt alternating current power source to the white return line through the power unit of said appliance, a multi-contact "on-off" appliance switch and means for grounding the housing of said appliance, the improvement in combination therewith of a ground monitoring device comprising:
(a) first conductor means disposed to connect the black hot service to the white return and including said multi-contact switch for interrupting and completing the circuit of said first conductor;
(b) a diode within said first conductor means to convert alternating current from said black hot service to direct current;
(c) a capacitor within said first conductor means disposed to receive and retain voltage from said direct current and discharge said voltage through said conductor means to ground when connected thereto;
(d) second conductor means disposed to connect said first conductor means to said housing and ground when said multi-contact switch is in the "on" position so as to cause said capacitor to discharge its voltage to said ground;
(e) contact means for interrupting and completing the circuit of said second conductor means; and
(f) means within said second conductor means disposed to close said contact means and thereby complete said power unit circuit when said capacitor discharges its voltage through said second conductor means.

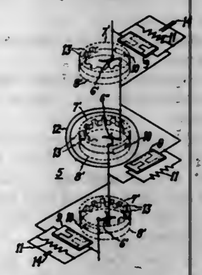
3,320,481
DISTANCE PROTECTION FOR PARALLEL LINES IN NETWORKS WITH GROUNDED NEUTRAL POINT AND COMPENSATION OF THE NEUTRAL CURRENT
Helmut Ungrad, Neuenhof, Switzerland, assignor to Aktiengesellschaft Brown, Boveri & Cie, Baden, Switzerland, a joint-stock company
Filed June 1, 1964, Ser. No. 371,475
Claims priority, application Switzerland, June 17, 1963, 7,488/63
7 Claims. (Cl. 317—36)

1. In a distance protection relay arrangement for a plurality of parallel connected multi-phase feeder lines in networks with grounded neutral point which comprises distance relay means connected respectively to the phases of each said feeder line, said distance relays including a composite control based upon phase current, phase voltage and the neutral current of the respective feeder line, the improvement wherein means included in said distance relay means for each feeder line and which reflects the neutral current of that line is supplied with current from the secondary of an intermediate transformer and whose primary is fed with the neutral current of the feeder line, said transformer secondary being provided with taps



thereon for adjusting the secondary current, means comparing said neutral currents in said paralleled feeder lines and providing a first set of control signals reflecting the relative directions of said neutral currents, means comparing the respective magnitudes of said neutral currents and providing a second set of control signals reflecting the sense of the difference therebetween, and means controlled by said sets of signals for selectively changing the taps on the secondaries of said intermediate transformers.

3,320,482
LIGHTNING ARRESTER FOR HIGH ENERGY SWITCHING SURGES
Eugene C. Sakshaug, Lanesborough, and Earl W. Stetson, Pittsfield, Mass., assignors to General Electric Company, a corporation of New York
Filed June 2, 1964, Ser. No. 372,019
20 Claims. (Cl. 317—61)

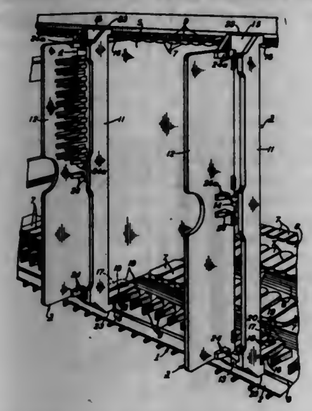


1. In a valve type lightning arrester having at least one spark gap in series with at least one nonlinear resistance valve means, a current switching spark gap connected in shunt with a portion of said valve means.

3,320,483
SUPPORT MEMBER FOR CARD-EDGE TYPE CONNECTORS
Karl-Heinz Pohl, Matawan, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Mar. 11, 1966, Ser. No. 533,544
9 Claims. (Cl. 317—99)

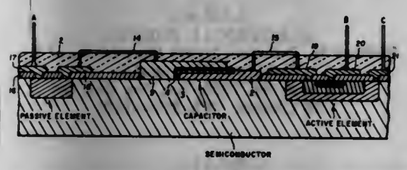
1. In a carrier assembly for printed circuit boards or the like, including top and bottom frames having a plurality of co-operating guide channel pairs for retaining

said boards, apparatus for mounting electrical connector blocks upon said carrier comprising, in combination:
(a) a resilient molded plastic body comprising
(1) a pair of elongated sides,
(2) first and second flanges joining the sides at their opposite ends in spaced parallel relation, and
(3) first and second pair of opposed resilient arms extending from each said joining flange rearwardly of said sides each said flange including a butting edge; and



(b) boss means on said carrier in register with the inner end of each guide channel,
said arm pairs being responsive to placement onto a selected pair of corresponding bosses for spreading apart and grasping said bosses, said butting edges concurrently contacting the respective edges of said first and second frames.

3,320,484
DIELECTRIC DEVICES
James E. Riley, Parma Heights, Ohio, and Billy B. Williams, Richardson, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Filed Nov. 12, 1963, Ser. No. 322,751
2 Claims. (Cl. 317—101)



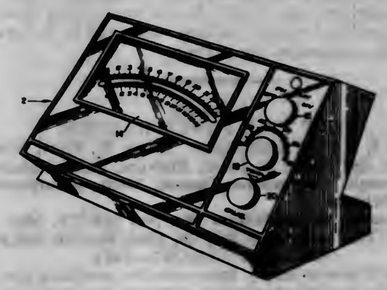
1. A semiconductor integrated circuit comprising at least one active electrical element, at least one passive electrical element, and at least one two dimensional thin film capacitor element, said capacitor element comprising a high resistivity semiconductor wafer substrate, a substantially planar thin layer of aluminum vapor deposit on said substrate, a thin dielectric layer selected from the group consisting of tantalum oxide, silicon oxide, titanium oxide, a glassy insulating ceramic, cerium fluoride boron nitride and silicon nitride, a thin manganese dioxide film having a thickness in the range of 500 to 1500 A. overlying said dielectric layer, electrical conducting means in contact with said thin manganese dioxide film; and electrical circuit means extending to and making electrical connection with at least one said active electrical element, at least one said passive electrical element, and at least one said capacitor element.

3,320,485
DIELECTRIC ISOLATION FOR MONOLITHIC CIRCUIT
James Lang Buie, Panorama, Calif., assignor, by mesne assignments, to TRW Inc., a corporation of Ohio
Filed Mar. 30, 1964, Ser. No. 355,605
1 Claim. (Cl. 317—101)



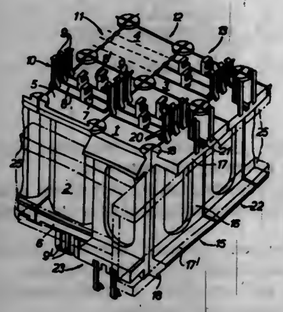
A monolithic semiconductor integrated circuit device including the following characteristics:
a monolithic substrate having at least one plane surface;
said substrate being composed of a non-conductive material;
at least two semiconductor elements disposed within said plane surface of said substrate; and
portions of said monolithic substrate extending between said semiconductor elements;
said portions being monolithicly continuous with said substrate;
said portions extending between said semiconductor elements in such manner as to insulate each said semiconductor element from all other said semiconductor elements.

3,320,486
ELECTRONIC INSTRUMENT
John H. Riseman, Cambridge, Mass., Charles M. Dole, Jr., New York, N.Y., and Theodore Voutselas, Hollis-ton, Mass., assignors to Corning Glass Works, Corning, N.Y., a corporation of New York
Filed Sept. 15, 1964, Ser. No. 396,559
10 Claims. (Cl. 317—101)



1. Electronic apparatus comprising a printed circuit board assembly supporting the circuit components of said apparatus, said components including a front-facing indicator and at least one rear-facing component, a cabinet enclosing said printed circuit board assembly, said cabinet comprising a fore part and a rear part, said fore part providing a pair of side walls as well as the top and front walls for said cabinet, said front wall sloping upwardly and rearwardly and having an opening for said indicator, said rear part providing a rear wall and a bottom wall for said cabinet, said rear wall having an aperture for access to said rear facing component, means securing said printed circuit board assembly to said fore part in parallel spaced relation to said front wall, and means securing said rear part to said fore part.

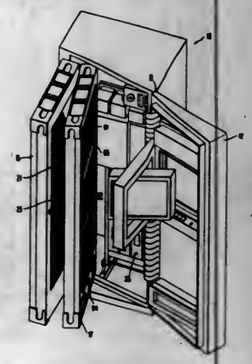
3,320,487
MODULAR ELECTRICAL ASSEMBLIES
Bloomfield James Warman, London, and Raymond John Frederick Derbyshire, Welling, England, assignors to Associated Electrical Industries Limited, London, England, a British company
Filed Mar. 8, 1965, Ser. No. 437,679
Claims priority, application Great Britain, Mar. 11, 1964, 10,292/64
12 Claims. (Cl. 317—101)



1. In combination, a plurality of electric circuit modules assembled together as a modular assembly between two parallel planes, and border terminating members assembled along an edge of said assembly, in which combination: the circuit modules have respective end faces in one of said planes; the circuit modules defining said edge of the assembly have respective sets of connection tags extending outwardly from the plane of their said end faces and standing proud of said edge; the assembly has electrical connections extending from the circuit modules thereof to said connection tags of the edge circuit modules; the border terminating members also have respective end faces in said one plane; and each border member has a set of terminal members thereon comprising respective connection tag portions extending outwardly from said one plane into mutual engagement with the said connection tags of the adjacent edge circuit modules, and respective terminal portions connected to but spaced from the connection tag portions.

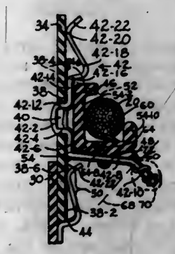
3,320,488
STRIP LINE POWER HARNESS
Joseph J. Karew, Warminster, Harry W. Hess, Norristown, and James E. Jones, Malvern, Pa., assignors to Burroughs Corporation, Detroit, Mich., a corporation of Michigan
Continuation of application Ser. No. 268,771, Mar. 28, 1963. This application July 26, 1966, Ser. No. 568,059
5 Claims. (Cl. 317—101)

1. In a power supply apparatus for providing low inductance, low impedance, power distribution from a power source to a power utilizing module, the latter having a frame for supporting a plurality of printed circuit card utilizing means, the combination comprising:
a rack assembly including means hinged and swingably movable between open and closed positions about the axis of the hinge;
a plurality of rows of printed circuit utilizing means supported within and disposed transversely of the hinge axis of said rack assembly;
electrical power source means supported within said cabinet;
power harness means for supplying power from said source to said printed circuit utilizing means including a plurality of layers of relatively flexible, relatively thin, flat, elongated, electrically conductive uninsulated ground conductor busses having horizontal feeder belt portions, vertical portions orthogonally arranged relative to said feeder belt portions, and a plurality of segments extending parallel to said horizontal portions; and a plurality of layers of relatively flexible, relatively thin, flat, elongated, electrically insulated power conductor busses having horizontal feeder belt portions, vertical portions orthogonally arranged relative said feeder belt portions, and a plurality of power distribution segments parallel to said horizontal portions;
each said electrically insulated power conductor bus being inserted between a pair of said layers of ground conductor busses thereby constituting an alternate power conductor and ground unitary assembly;



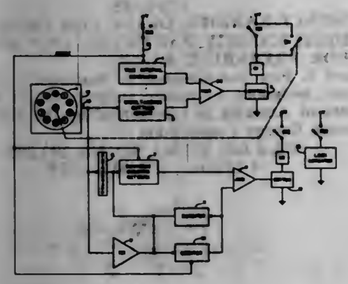
said assembly being routed along the walls of said rack assembly and secured to and along the hinge area of said rack assembly, and connected at its one end to said power supply and continuously extending from said power supply to said circuit utilizing means passing along said hinge area and having certain of the opposite ends of the power distribution segments connected to said circuit utilizing means so that said unitary assembly provides a plurality of continuous shielded power paths capable of flexing back and forth in the manner of a hinge when said hinged means is moved.

3,320,489
ELECTRICAL WIRING
Richard H. Peterson, 10108 Harnew Road E., Oaklawn, Ill. 60453
Filed Mar. 30, 1965, Ser. No. 443,796
18 Claims. (Cl. 317—119)



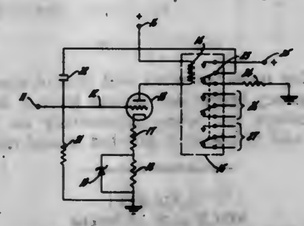
1. A multiple connector assembly comprising, in combination: a panel having at least one face of insulating material; a multiplicity of first conductors, each affixed to the insulating face of said panel, and having one end adjacent a first panel edge; a multiplicity of second conductors affixed to said panel; each second conductor having an intermediate portiton in electrically conductive contact with the homologous first conductor remote from said first panel edge; each second conductor having two end portions extending away from its contact with its homologous first conductor; one, first, end portion of each second conductor nearest said first panel edge extending out away from said panel and away from said first conductor and ending in a tip remote from said first panel edge and from said first conductor; said tip in a position accessible for the convenient affixing of a third conductor to it; the other, second, end portion of each second conductor extending away from the homologous first conductor in a direction away from said adjacent panel edge; said second end portion being resilient and having a clamping tip remote from said adjacent panel edge and close to the face of said panel; said clamping tip positioned to register with the homologous first conductor of another similar panel, and press against said homologous first conductor to maintain electrical contact therewith and to clamp the first panel edge of said other similar panel against said first-mentioned panel; whereby an indefinite number of similar panels can be removably assembled with each first conductor electrically connected through said second conductor with the homologous first conductor of the other panel; the first and second conductors of said panels constituting a bus with as many lateral taps as there are panels and with the same effective electrical relationship regardless of the sequence in which said panels are juxtaposed.

3,320,490
ELECTRONIC COMBINATION LOCK
Hugo M. Beck, Oxon Hill, and Gerald J. Hilwig, Accokeek, Md., assignors to the United States of America as represented by the Secretary of the Navy
Filed Sept. 15, 1964, Ser. No. 396,781
17 Claims. (Cl. 317—134)



17. A solid-state combination-operated electrical lock system which opens a lock when digits of a combination are entered into the system by a number of manually operated push-buttons in accordance with preselected conditions, and push-button switches corresponding to each push-button, which push-button switches are closed only when the corresponding push-button is in the pressed condition, comprising:
input means comprising a plurality of push-button switches which are closed while said push-buttons are pressed and including an output for each of said push-buttons for producing an output signal when the respective push-button is pressed,
a time interval generator for producing an output signal having a predetermined duration,
circuit means connected to said input means for generating an output signal whenever two or more push-buttons are pressed simultaneously.

3,320,491
VACUUM TUBE CIRCUIT TO APPROXIMATE AN IDEAL SWITCH OVER A BROAD TEMPERATURE RANGE
Royal W. Eckstein, Jr., Indianapolis, Ind., assignor to the United States of America as represented by the Secretary of the Navy
Filed Nov. 2, 1964, Ser. No. 408,440
10 Claims. (Cl. 317—142)



1. A reliable electronic switching circuit comprising:
an electron flow control means including an emitting electrode, a collecting electrode, and a control electrode, said control electrode being coupled to an input terminal means for receiving control signals;
an electromagnetic relay means having a control coil and a plurality of sets of contacts, each of said sets of contacts including first and second fixed contacts and a movable contact arm which in a quiescent position is in contact with said first fixed contact and when in an energized position is in contact with said second fixed contact, said control coil being coupled between said collecting electrode of said electron flow control means and a source of direct current potential, one set of said plurality of sets of contacts having its said first fixed contact resistively coupled to ground potential and its said second fixed contact coupled to a source of direct current potential;
an electrical storage means having one terminal thereof coupled to said control electrode of said electron flow control means and further resistively coupled to ground potential, and the other terminal coupled to said movable contact arm of said one set of said plurality of sets of contacts of said relay means;
first and second resistance means coupled in series between a source of ground potential and said emitting electrode of said electron flow control means; and
a potential controlled, variable resistance means coupled in parallel with said second resistance means.

3,320,492
MEANS FOR AUTOMATICALLY STOPPING SOUND REPRODUCTION
Friedrich Knochenhauer and Siegfried Apitz, Altena, Westphalia, Germany, assignors to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed July 13, 1964, Ser. No. 382,114
Claims priority, application Germany, July 20, 1963, St 20,884
4 Claims. (Cl. 317—147)

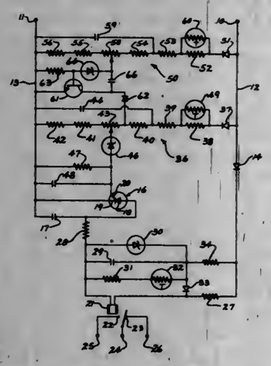
1. A circuit arrangement for detecting a control signal during reproduction of a recording which control signal is within the frequency band of the reproduced recording, comprising:
a high pass filter connected to the input terminals of said circuit for passing frequencies above a first desired level;
a low pass filter connected to the input terminals of said circuit for passing frequencies below a second desired level which is lower than said first level;
a variable resistor connected to said high and low pass filters by means of oppositely poled rectifiers; and

a switching transistor, the base of which is connected to the variable tapping point of said resistor the output of which controls a relay, whereby said variable resistor is adjusted to a value which turns on said



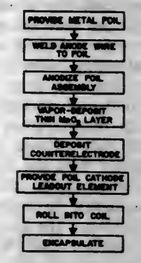
switching transistor when said control signal having a frequency below said second level is detected at said resistor and when substantially no frequency above said first level is detected at said resistor.

3,320,493
VOLTAGE SENSOR
George T. Culbertson, Inglewood, Calif., assignor, by mesne assignments, to Master Specialties Company, Gardena, Calif., a corporation of California
Filed Jan. 22, 1964, Ser. No. 339,514
8 Claims. (Cl. 317—148.5)



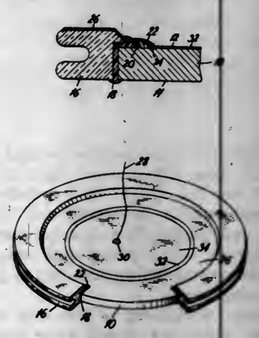
1. A voltage sensing and indicating circuit for detecting and indicating when the voltage of a monitored signal exceeds a predetermined maximum or minimum level, said circuit comprising, in combination,
a pair of input terminals for connection to the source of such monitored signal,
a controlled rectifier having anode, cathode and gate electrodes,
a normally conducting, voltage responsive switch means operatively connected to said gate of said controlled rectifier with said controlled rectifier biased such that it conducts when said voltage responsive switch means is conducting,
a first voltage divider network connected across said input terminals and operatively connected to said voltage responsive switch means whereby said voltage responsive switch means remains conductive so long as the voltage of said monitored signal exceeds such predetermined minimum level,
a second voltage divider network connected across said input terminals and operatively connected to said voltage responsive switch means whereby said voltage responsive switch means remains conductive so long as the voltage of said monitored signal is below said predetermined maximum level,
and means operatively connected to said controlled rectifier for sensing and indicating conduction by said controlled rectifier.

3,320,494
METHOD AND CAPACITOR COMPRISING OXIDE ELECTROLYTE DERIVED FROM PERMANGANIC ACID
James E. Riley, Parma Heights, Ohio, assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Filed Nov. 12, 1963, Ser. No. 322,768
4 Claims. (Cl. 317—230)



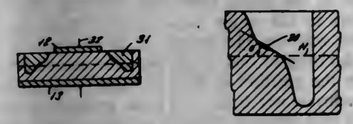
1. A rolled foil solid state electrolyte capacitor comprising:
(a) a tightly coiled valve metal elongated foil electrode,
(b) an anodic oxide dielectric layer on each side of said foil electrode,
(c) a thin film of manganese oxide electrolyte overlying the dielectric layer, said oxide electrolyte being the conversion product of permanganic acid deposited on said dielectric layer,
(d) vapor deposited metallic counterelectrodes overlying said thin film of manganese oxide, and
(e) a counterelectrode leadout assembly comprising a metallized elongated sheet having an electrically conducting wire bonded thereto.

3,320,495
SURFACE-BARRIER DIODE FOR DETECTING HIGH ENERGY PARTICLES AND METHOD FOR PREPARING SAME
Richard J. Fox and Casimer J. Borkowski, Oak Ridge, Tenn., assignors, by mesne assignments, to the United States of America as represented by the United States Atomic Energy Commission
Filed July 2, 1963, Ser. No. 292,290
4 Claims. (Cl. 317—234)



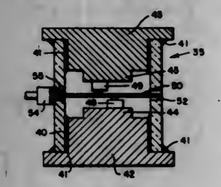
1. A surface-barrier diode which comprises a semiconductor wafer, a ceramic holder, an amine-containing epoxy resin which bonds the semiconductor wafer to the ceramic holder, an amine free epoxy resin which covers the exposed junction of the amine-containing epoxy resin and the semiconductor wafer, a conductive metal layer deposited on the surface of the semiconductor wafer, the amine-free epoxy resin and the ceramic holder and an insulating ring which electrically isolates the central portion of the metal layer.

3,320,496
HIGH VOLTAGE SEMICONDUCTOR DEVICE
Benjamin Topas, Santa Monica, Calif., assignor to International Rectifier Corporation, El Segundo, Calif., a corporation of California
Filed Nov. 26, 1963, Ser. No. 325,872
4 Claims. (Cl. 317—234)



1. In a semiconductor wafer having at least one planar junction therein extending to the periphery of said wafer and at least a first and second electrode on the respective first and second opposing surfaces thereof; a closed annular groove in said first surface of said wafer; said annular groove extending through said junction and defining a relatively thin inactive rim about the periphery of said wafer; said first electrode being on the inner area of said first surface defined by said annular groove; said groove having a configuration whereby a tangent line to the inner wall of said groove at its intersection with said junction is at an angle less than 90° with respect to the plane of said junction.

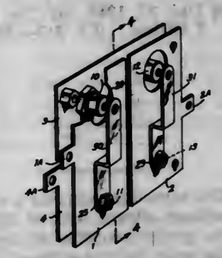
3,320,497
VARIABLE CAPACITANCE DIODE PACKAGES
Donald Neuf, Wantagh, N.Y., assignor, by mesne assignments, to Control Data Corporation, South Minneapolis, Minn., a corporation of Minnesota
Filed Sept. 11, 1964, Ser. No. 395,745
10 Claims. (Cl. 317—234)



1. A diode package comprising:
an outer housing of insulating material,
a contact member held within said housing by the walls thereof,
a cap at each end of said housing having a base portion located within the housing,
and a diode on each said base portion, each said diode being electrically connected to said contact member and offset thereon with respect to each other.

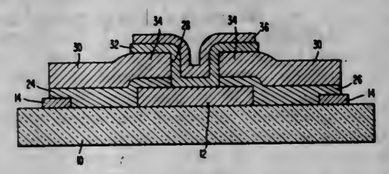
3,320,498
DIODE HEAT SINK AND CIRCUIT MOUNT
Elmer C. Evans, 4278 3rd Ave., San Diego, Calif. 92103
Filed Jan. 14, 1965, Ser. No. 425,641
4 Claims. (Cl. 317—234)

1. A unitary four-diode full-wave rectifier assembly for solid state diodes of the type having an envelope with a stud bolt at one end and an insulated lead coaxially aligned with said stud bolt at the other, said assembly comprising;
a first and a second pair of elongated rectangular metal plates, the plates of each pair being disposed in a spaced parallel arrangement to each other and in the same plane, one pair being spaced and supported in a plane parallel to the plane of the other pair and at right angles to the other pair so that each plate of one pair overlies and is capacitively coupled to one-half of each plate of the other pair, the envelope of two of said diodes being clamped to one plate of said first pair in good thermal and electrical contact and extending through and spaced from holes in the respective overlying portions of the plates of said second pair,



the envelopes of the two additional of said diodes being clamped, respectively, to each plate of said second pair, and extending through and spaced from holes in the respective overlying portions of the plates of the first pair, and
metal straps extending from each of said insulated leads to the adjacent plate.

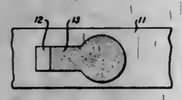
3,320,499
INSULATING GATE THIN FILM TRANSISTOR HAVING A THIN INSULATING LAYER OVERLAPPING A THICK INSULATING LAYER
Robert I. Frank, Concord, Mass., and John G. Simmons, Harlow, England, assignors to Burroughs Corporation, Detroit, Mich., a corporation of Michigan
Filed June 30, 1965, Ser. No. 468,461
4 Claims. (Cl. 317—235)



1. A thin film transistor comprising:
(a) a body of semiconductor material ~.5μ thick disposed on an insulating substrate,
(b) oppositely disposed source and drain electrodes disposed on said semiconductor material, said electrodes spaced from one another by an amount <10μ with opposite ends of the source and drain electrodes secured to attachment pads for connection to a utilization device,
(c) a relatively thick ~9000 A. insulating layer disposed over said source and drain electrodes effective to space said insulator in registration with said source and drain electrodes,
(d) a relatively thin ~1000 A. insulating layer covering a portion of said thick insulating layer and a portion of said source and drain and within the space therebetween, and
(e) a gate electrode disposed on said thin insulating layer so that said gate electrode follows the contour outline of said insulating layer and lies almost totally

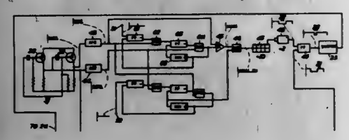
within the space between said source and drain electrodes with relatively little overlap on either side thereof.

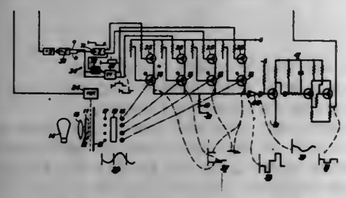
3,320,500
TANTALUM ALLOY CAPACITOR
Norman N. Axelrod, Summit, N.J., Herbert D. Guberman, Oak Ridge, Tenn., and Newton Schwartz, Morris Township, Morris County, and Benjamin H. Vromen, Plainfield, N.J., assignors to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Dec. 27, 1965, Ser. No. 516,655
3 Claims. (Cl. 317—258)



1. A thin film capacitor including a substrate member, a layer of tantalum alloyed with at least one metal selected from the group consisting of copper, silver, gold, zinc, cadmium, mercury, aluminum, gallium, indium, thallium, titanium, zirconium, hafnium, vanadium, niobium, chromium, molybdenum, tungsten, iron, cobalt, nickel, ruthenium, rhodium, palladium, osmium, iridium, and platinum, said metal being present in an amount ranging from 0.01 to 20 atom percent, an anodized layer of said tantalum alloy and an electrically conductive counter-electrode.

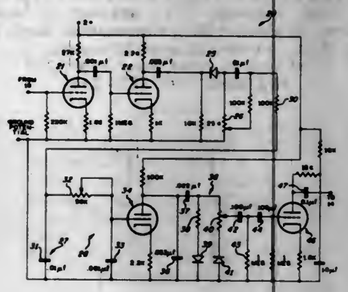
3,320,501
MOTOR CONTROL SYSTEM HAVING A COUNTER RESPONSIVE TO A MODULATED PULSE TRAIN
Beaumont J. Davies, Putnoe, Bedford, England, assignor to George Richards & Company Limited, Altrincham, England, a company of Great Britain
Filed Aug. 4, 1960, Ser. No. 47,544
Claims priority, application Great Britain, Aug. 7, 1959, 27,147/59
9 Claims. (Cl. 318—18)





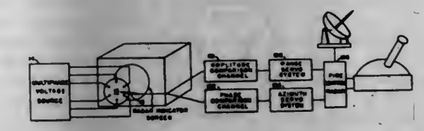
1. A control system including an arrangement for modulating a waveform of regularly-spaced pulses in accordance with information, in the form of command pulses for directing movement of a movable load derived from an external signal generating means comprising, in combination, oscillating pulse generating means to generate two sets of pulses respectively timed with the phase from opposite half cycles of oscillation to occur with pulses in the two sets spaced between each other, the first set of pulses comprising said regularly-spaced pulses, a counter for counting said regularly-spaced pulses, said counter having a normal cyclic period equal to the time to count a predetermined number of said regularly-spaced pulses, selecting means deriving single pulses selectively from either said first set of pulses or the second set of pulses occurring therebetween, a mixer connected to said signal generating means and operative to combine said single pulses from said second set derived in said selecting means to merge with said command pulses with the regularly-spaced pulses to add a pulse between two of the regularly-spaced pulses whereby the output of the counter is advanced by the duration of one count, said mixer also having means operable from said selecting means to subtract one of the pulses from said regularly spaced pulses responsive to the single pulse derived from the first set of pulses whereby the output of the counter is delayed by the duration of one count, detector means for sensing errors in the position of said movable load, means operable synchronously from said pulse generating means deriving in said detector means a position signal, means responsive to said position signal for deriving a control signal from said counter output, and a driving motor connected to receive the control signal and control the movement of said load in accordance with said control signal.

3,320,502
AUTOMATIC GAIN CONTROL FOR SERVO SYSTEMS
John J. Paul, Montreal, Quebec, Canada, assignor to Sperry Gyroscope Company of Canada, Ltd., Montreal, Quebec, Canada
Filed Feb. 17, 1964, Ser. No. 345,232
Claims priority, application Canada, Jan. 24, 1964, 894,048
4 Claims. (Cl. 318—18)



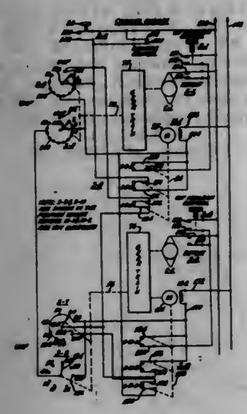
1. An automatic gain control circuit comprising,
(a) means for generating an A.C. error signal having a carrier component,
(b) rectifying means responsive to said error signal for providing a half wave rectified carrier component of said error signal,
(c) voltage dividing means responsive to said rectified error signal for providing a D.C. component of said rectified signal,
(d) filtering means responsive to said D.C. and carrier components for attenuating said carrier component,
(e) differentiating means responsive to said D.C. and carrier components for differentiating said D.C. component,
(f) variable impedance means responsive to said differentiated D.C. component for varying the impedance thereof in accordance with a function of the rate of change of said D.C. component, and
(g) amplifying means connected to said differentiating means and to said variable impedance means for providing an output signal representative to said A.C. error signal compensated as a function of the rate of change of said D.C. component.

3,320,503
RADIAL RESISTIVE POLAR COORDINATE DATE TAKEOFF TRANSMITTER FOR A SERVO CONTROL
Allen H. Schooley, Washington, D.C. (6113 Cloud Drive, Springfield, Va. 22150), and Robert Bennett Whiteley, Washington, D.C. (25 Cascade Drive, Sunnyvale, Calif. 94087)
Filed May 11, 1955, Ser. No. 507,751
11 Claims. (Cl. 318—25)



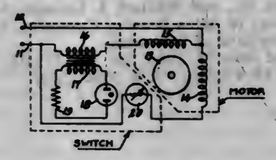
1. In combination, a substantially uniform resistive surface, a multiphase voltage source, means for applying said voltage source to said resistive surface to develop a radial voltage field thereon, electrically conductive probe means positionable at any point on said surface and means for determining the amplitude and phase of voltage detected by said probe means.

3,320,504
PLURAL MOTOR SEQUENTIAL TUNING CONTROL SYSTEM FOR TELEVISION RECEIVERS
Perry C. Olsen, Indianapolis, Ind., assignor to Radio Corporation of America, a corporation of Delaware
Filed Nov. 12, 1963, Ser. No. 322,843
8 Claims. (Cl. 318—102)



1. A motor control system comprising:
first and second electrical motors;
a first rotatable means having a plurality of detent positions and a reference position;
a second rotatable means having a plurality of detent positions and a reference position;
power circuit means including a manually operable switch;
first switching means;
means interconnecting said first switching means, said first and second motors and said power circuit means to complete a power circuit to said first motor in response to a momentary actuation of the said manually operable switch to drive said first rotatable means from one detent position to the next when said first rotatable means is in any of said detent positions, and to complete the power circuit to said second motor in response to a momentary actuation of said manually operable switch to drive said second rotatable means from one detent position to the next when said first rotatable means is in its reference position;
second switching means actuated in response to energization of said first motor to maintain the connection of said first motor to said power circuit means and to maintain the power circuit to the second motor in the open condition when said manually operable switch is held closed during the time said first motor drives the said first rotatable means through its reference position; and
third switching means actuated in response to energization of said second motor to maintain the connection of said second motor to said power circuit means and to maintain the power circuit to said first motor in the open condition when said manually operable switch is held closed during the time said second motor drives said second rotatable means through its reference position.

3,320,505
INDUCTION MOTOR OPTO-ELECTRONIC STARTING CIRCUIT
Robert F. Miller and Johan Lund, Kokomo, Ind., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Feb. 26, 1965, Ser. No. 435,663
14 Claims. (Cl. 318—221)



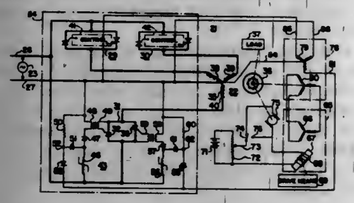
1. An induction motor opto-electronic starting circuit comprising in combination with an induction motor having starting and running windings, an illuminating device characterized by the ability to become illuminated upon energization by an electrical current, means for energizing said illuminating device to a degree which is proportional to the magnitude of current flowing through said running winding, at least one light sensitive device characterized by the ability to become electrically conductive in the presence of light positioned to be illuminated by said illuminating device and means for connecting said light sensitive device in series with said starting winding for establishing an energizing circuit for said starting winding while said motor is in the start mode and for interrupting said energizing circuit while said motor is in the running mode.

3,320,506
REFERENCE SYSTEM FOR CLOSED LOOP VARIABLE FREQUENCY DRIVE
Andrew J. Humphrey, Cleveland, Ohio, assignor to The Reliance Electric and Engineering Company, a corporation of Ohio
Filed Oct. 10, 1963, Ser. No. 315,261
29 Claims. (Cl. 318—231)

1. A reversible variable speed drive system operable from an A.C. source comprising, in combination, an induction machine having a polyphase primary winding,
a frequency changer having a polyphase output connected to said primary winding and having an input connected to said A.C. source,
first means controlled in accordance with speed of said induction machine to develop a first electrical frequency signal as a function of speed,
second means independently controlled to develop a

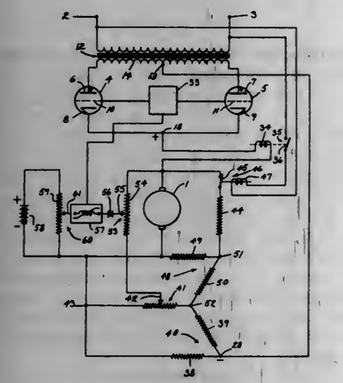
second electrical frequency signal at a predetermined low frequency,

and means to combine said first and second electrical frequency signals alternatively in addition and subtraction to control said frequency changer to produce an output therefrom proportional in frequency to said



combined first and second frequency signals to operate said machine at a variable speed as an induction motor and alternatively as an induction generator with said low frequency signal controlling the slip in each case.

3,320,507
IR COMPENSATION FOR DIRECT CURRENT MOTOR CONTROL
David E. Ford, Jr., and William J. Hudson, Milwaukee, Wis., assignors to Allen-Bradley Company, Milwaukee, Wis., a corporation of Wisconsin
Filed June 15, 1964, Ser. No. 375,032
10 Claims. (Cl. 318—269)



1. In a deceleration control for a dynamo having an armature in which an E.M.F. is generated during operation, the combination comprising:

a dynamic braking circuit adapted for connection across an armature of said dynamo;

an IR compensation impedance;

a transducer including a portion of said dynamic braking circuit to sense a current flowing in said dynamic braking circuit and to impose a signal proportional to said current across said IR compensation impedance;

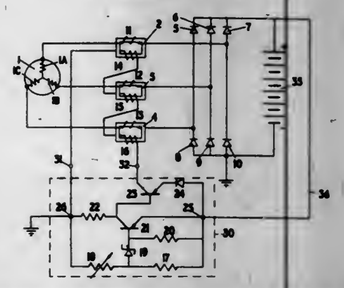
and a feedback signal source connected to said IR compensation impedance and a terminal of said armature of said dynamo to receive a signal proportional to an E.M.F. generated in said armature of said dynamo.

3,320,508
BATTERY AND CHARGING CIRCUIT CARTRIDGE
Franklin C. Bradshaw, Minneapolis, and Terrance M. Smith, St. Paul, Minn., assignors to Gould-National Batteries, Inc., St. Paul, Minn., a corporation of Delaware
Filed Sept. 3, 1964, Ser. No. 394,219
13 Claims. (Cl. 320—2)



1. A battery pack and battery charging circuit cartridge comprising, in combination: an annular casing containing an annular capacitor; at least two battery cells in end-to-end relationship and electrically in series contained in the annular opening of the capacitor; an insulative disc member closing off one end of said capacitor annular opening; electrical charging circuit means including rectifiers, a resistor and circuit connections mounted on said disc; first conducting means for making electrical connections from said charging circuit to said battery cells and said capacitor; second conducting means passing through said disc for making external electrical connections to said battery cells; and third conducting means extending out from said disc for making external electrical connection to said charging circuit.

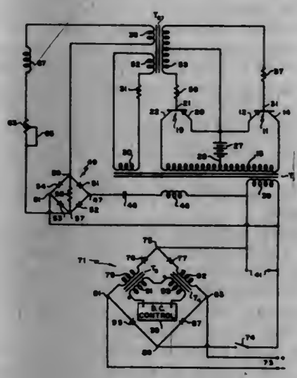
3,320,509
STATIC APPARATUS FOR REGULATING THE RECHARGING OF BATTERIES WITH CURRENT SUPPLIED BY A THREE-PHASE GENERATOR
Antonio Guglielmi, Bologna, Italy, assignor to Ducati Elettrotechnica S.p.A., Bologna, Italy
Filed June 10, 1964, Ser. No. 374,001
Claims priority, application Italy, Nov. 7, 1961, 20,242/61
3 Claims. (Cl. 320—39)



1. In an automatic static regulator for the charging of a battery: a three-phase alternator having a wide range of speeds; a plurality of magnetic reactors of the saturating and autosaturating type coupled to said alternator, each said plurality of magnetic reactors being provided with a control winding; means for connecting each said control winding in a series circuit connection across a pair of terminals; and control circuit means coupled to said pair of terminals for controlling the variations of ampere turns of each said control winding for varying the reactive impedance of its respective magnetic reactor, said circuit means comprising a variable resistor and a fixed resistor connected in series at a first junction, means for coupling the opposite terminal of said variable resistor with respect to said first junction to a point of reference potential and to a negative terminal of said battery, means for connecting the other terminal of said

fixed resistor with respect to said first junction to a positive terminal of said battery, a zener diode having its anode electrode connected to said first junction, a second fixed resistor connected between the cathode electrode of said zener diode and said positive terminal of said battery, a first transistor including circuit means for coupling the base electrode thereof to said cathode electrode of said zener diode, said zener diode being selectively conductive in accordance with the potential at said first junction for controlling the conductive state of said first transistor, and a second transistor coupled between said first-mentioned transistor, and said pair of terminals and including means for being coupled to said positive terminal of said battery through a diode being conductive when said first-mentioned transistor is non-conductive and being non-conductive when said first transistor is conductive; and rectifier means directly coupled to each said plurality of magnetic reactors for supplying a direct current to said battery in accordance with the operation of said plurality of magnetic reactors.

3,320,510
FREQUENCY REGULATED INVERTER
John C. Locklair, Jr., Anne Arundel County, Md., assignor to the United States of America as represented by the Secretary of the Navy
Filed Apr. 27, 1964, Ser. No. 363,031
6 Claims. (Cl. 321—2)



1. A frequency regulated inverter comprising:

a first electronic valve having an input and an output;

a second electronic valve having an input and an output;

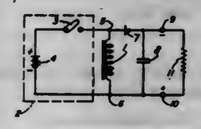
a saturable transformer having a first, second and third windings, said first winding of said saturable transformer having one end connected to said input of said first electronic valve and the other end connected to said input of said second electronic valve;

an output transformer having a first, second and third windings, said first winding having one end connected to said output of said first electronic valve and the other end of said winding connected to said output of said second electronic valve, said second winding of said saturable transformer connected in series with said second winding of said output transformer and forming a circuit path;

a series resonant circuit having one end connected to one end of said third winding of said output transformer; and

a bridge rectifier network having a first, second, third and fourth junction point, said first bridge rectifier network junction point connected to the other end of said resonant circuit and said second bridge rectifier network junction point connected to the other end of said third winding of said output transformer, one end of said third winding of said saturable transformer connected to said third bridge rectifier network junction point, and said other end of said third winding of said saturable transformer connected to said fourth bridge rectifier network junction point.

3,320,511
POLARITY INVERTING D.C. TO D.C. CONVERTER
Jerome J. Tiemann, Burnt Hills, N.Y., assignor to General Electric Company, a corporation of New York
Filed Dec. 12, 1963, Ser. No. 330,059
10 Claims. (Cl. 321—2)

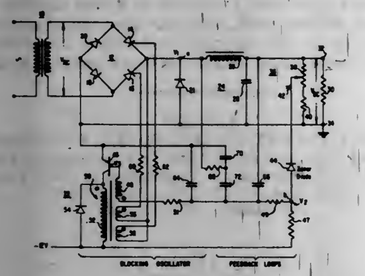


1. A polarity inverting D.C. to D.C. converter comprising: an inductor; charging means adapted to periodically energize said inductor from a source of unidirectional current, said charging means including circuit means for regulating the period of operation of said charging means in accordance with an external control signal; a capacitor and an asymmetrically conducting device; conductive means connecting said capacitor and said device in series circuit relationship and in parallel with said inductor, said device being connected to electrically isolate said capacitor from said inductor during the intervals when said inductor is being energized by said charging means; and, output means connected to said capacitor and adapted to be connected to an electrically energizable apparatus having a predetermined minimum magnitude of resistance, said capacitor being selected to exhibit a sufficiently high magnitude of capacitance so that the period of the natural resonant frequency of said capacitor and said inductor and the time constant of said capacitor and a resistor having a resistance value equal to said minimum magnitude of resistance are both long relative to the longest period of operation of said charging means.

3,320,512
REGULATED POWER SUPPLY WITH HIGH SPEED TRANSIENT RESPONSE
Bodo Kruger, Severna Park, Md., assignor to Martin Marietta Corporation, New York, N.Y., a corporation of Maryland
Filed Nov. 13, 1963, Ser. No. 323,429
4 Claims. (Cl. 321—10)

1. A highly stable regulated power supply for converting an A.C. input to a constant D.C. output comprising means to rectify an A.C. input, a pair of phase sensitive switches operative upon alternate half cycles of the A.C. input for controlling the magnitude of the D.C. output, a phase shifting smoothing filter connected between said switches and the output terminals of said supply, a transistor blocking oscillator producing pulses for opening and closing said switches, a first resistive feedback loop connected to the D.C. output for applying a first D.C. error signal to the input of said blocking oscillator, a second capacitive feedback loop connected to the D.C. output for applying a second derivative error signal to the input of said blocking oscillator, and a third phase shifting loop connected between said pair of switches and said filter for applying a third phase shifted error signal to the input of said blocking oscil-

lator whereby the frequency of said oscillator is varied in accordance with said first, second, and third error



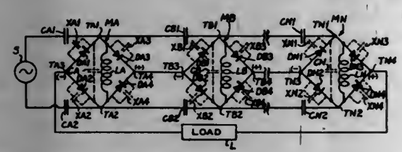
signals to provide highly stable operation over a wide range of A.C. inputs and D.C. outputs.

3,320,513

VOLTAGE MULTIPLICATION APPARATUS

Marshall R. Cleland, Huntington Station, N.Y., assignor to Radiation Dynamics, Inc., Westbury, N.Y., a corporation of New York

Filed Apr. 2, 1964, Ser. No. 356,852
1 Claim. (Cl. 321—15)



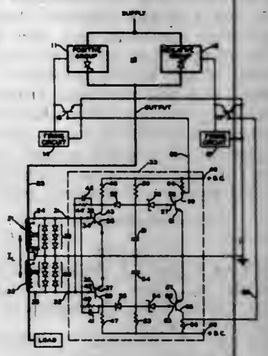
Voltage multiplication apparatus comprising a plurality of rectifying modules each having positive and negative D.C. output terminals and three A.C. input terminals, the output terminals of said modules being connected in series between a pair of high voltage D.C. terminals and adapted to develop a high voltage D.C. potential across a D.C. load impedance connected across said high voltage terminals, a three-phase A.C. power source, three coupling capacitors connected between said source and the A.C. input terminals of one of said modules for coupling three-phase power from said source to said one module, three coupling capacitors connected between the A.C. input terminals of each of said modules and a succeeding module for coupling three-phase power from each module to a succeeding module, each of said modules comprising six metallic rectifying diodes having a reverse impedance at the operating frequency of said A.C. source not substantially greater than the impedance of said load, said six metallic diodes in each module being interconnceted to form a three-phase rectifying bridge circuit wherein current coupled across any one of said diodes in a reverse direction at any instant is compensated for by current coupled across at least one other diode of said module in a forward direction whereby each of said modules converts the three-phase power coupled thereto to a D.C. potential across its respective positive and negative D.C. output terminals, each module further including three inductors interconnected between said A.C. input terminals whereby each of said modules exhibits between any two of said A.C. input terminals the A.C. impedance characteristics of a tuned parallel LC circuit resonant at the operating frequency of said A.C. power source.

3,320,514

CIRCUIT MEANS FOR SELECTIVELY SWITCHING CURRENT-CONDUCTING GROUPS OF A CYCLOCONVERTER IN RESPONSE TO OUTPUT CURRENT

Dennis I. Lawrence, Solon, Ohio, assignor to Lear Siegler, Inc., Los Angeles, Calif., a corporation of Delaware

Filed Sept. 27, 1963, Ser. No. 312,110
10 Claims. (Cl. 321—45)



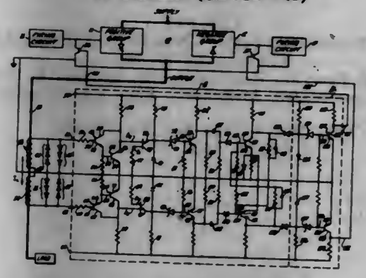
5. A signal-producing circuit comprising
a D.C. voltage source,
a pair of inputs for receiving input signals,
an astable multi-vibrator switching means connected to said inputs and to said D.C. voltage source and having two switching states and responsive to a signal applied to one of said inputs to maintain one of its two switching states and to a signal applied to the other of said inputs to maintain the other of its two switching states and free running between its two switching states in the absence of a signal to either of said pair of inputs,
a pair of resistor-capacitor networks operatively connected to said multi-vibrator circuit means and said voltage source and alternately and oppositely chargeable and dischargeable from said source in response to the alternate switching of said multi-vibrator means between its two switching states,
output circuit means operatively connected to said voltage source and to each of said resistor-capacitor networks and responsive to the charged and discharged condition of its associated capacitor for providing an output signal dependent on the level of charge of its associated capacitor,
said output circuit means comprising a voltage-responsive switch connected between said D.C. voltage source and ground potential and having a control element connected through an avalanche breakdown rectifying device to the junction of the resistor and capacitor of its associated resistor-capacitor network whereby said switch is closed when the charge on said capacitor exceeds the avalanche breakdown potential of said rectifying device preventing the appearance of an output signal at the voltage source side of said switch and open when the charge on said capacitor falls below the avalanche breakdown potential of said rectifying device providing an output signal at the voltage source side of said switch,
said multi-vibrator switching means comprising a pair of switches connected together and to said voltage source in a multi-vibrator configuration, each of said switches being connected in parallel with the capacitor of its associated resistor-capacitor network whereby upon switching from one to the other of its switching states one of said pair of switches closes permitting its associated capacitor to be rapidly discharged to below the avalanche breakdown potential of said rectifying device responsive thereto and whereby the other of said pair of switches opens permitting its associated capacitor to be charged from said voltage source through its associated network resistor in accordance with the time constant and resistor and capacitor combination to the avalanche breakdown level of said avalanche breakdown device responsive thereto.

3,320,515

SIGNAL-PRODUCING CIRCUIT

Carmelo J. Amato, Shaker Heights, and Dennis I. Lawrence, Solon, Ohio, assignors to Lear Siegler, Inc., Los Angeles, Calif., a corporation of Delaware

Filed Aug. 19, 1964, Ser. No. 390,649
13 Claims. (Cl. 321—45)



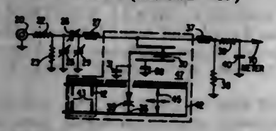
1. A signal-producing circuit comprising:
a D.C. voltage source,
a pair of input terminals for receiving input signals,
a time delay network operatively connected to each of said input terminals and said voltage source for passing input signals of a predetermined duration supplied to said input terminals,
a multivibrator having inputs connected to said time delay networks and said D.C. voltage source and having a switching state corresponding to the appearance of a signal at one of said inputs and a switching state corresponding to the appearance of a signal at the other of said inputs,
a pair of output circuit means operatively connected to said D.C. voltage source and to said multivibrator and responsive to the switching state of said multivibrator for providing an output signal at only one of said output circuit means when said multivibrator is maintained in one of its two switching states and at only the other of said output circuit means when said multivibrator is maintained in the other of its two switching states.

3,320,516

FREQUENCY MULTIPLIER STRUCTURE WHEREIN A DISTRIBUTED PARAMETER CIRCUIT IS COMBINED WITH A LUMPED PARAMETER CIRCUIT

Chu Quon Lee, Maywood, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois

Filed Sept. 16, 1963, Ser. No. 309,150
5 Claims. (Cl. 321—69)



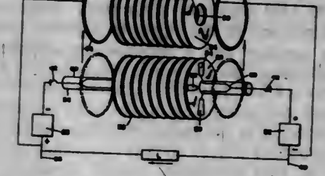
2. A frequency multiplier system for receiving an alternating current of a fundamental frequency and multiplying the same an integral number of times to form an output frequency said system including in combination, a varactor diode, a structure including a coaxial line, first and second capacitors, and waveguide means, said varactor diode being positioned in said waveguide means and coupled thereto and being connected to said coaxial line, an input circuit for coupling said coaxial line to means providing the alternating current of fundamental frequency, said input circuit including a low pass filter portion tuned to attenuate harmonics of the fundamental frequency greater than the first harmonic, and a first band pass filter portion tuned to a low order idler harmonic frequency of the fundamental frequency and connected to said coaxial line, said coaxial line having inner and outer conductors, shorting means connecting said conductors and adapted to be positioned along said line whereby said line is tuned, said first capacitor being coupled to said coaxial line and cooperating therewith to provide a second band pass filter tuned to a high order idler harmonic frequency of the fundamental frequency, said waveguide means coupling said varactor diode to a load and including an output filter tuned to attenuate harmonics other than the desired output harmonic, said second capacitor being coupled between said varactor diode and a reference potential to provide a return path for the output frequency signal, said input circuit and said structure cooperating to provide low impedance paths for each of the fundamental low order idler, high order idler and output harmonic currents to circulate through said varactor diode.

3,320,517

BRUSHLESS OBLIQUE FIELD ELECTROSTATIC GENERATOR

Dominique Gignoux, Washington, D.C., assignor to Cosmic, Inc., Washington, D.C., a corporation of Delaware

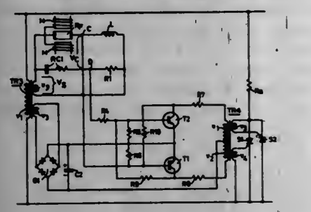
Filed May 28, 1963, Ser. No. 283,896
3 Claims. (Cl. 322—2)



1. An oblique field electrostatic generator of the type having input and output terminals and comprising:
(A) high voltage excitation sources connected to said terminals;
(B) a plurality of coaxially aligned rotor discs of semi-conducting material with input and output inductors radially embedded therein;
(C) an insulating shaft extending axially through said rotor discs and having longitudinal rods therein for closing contacts respectively between said inductors and said high voltage excitation sources;
(D) a plurality of cored stator discs of insulating material, each stator disc having rod-like charge carrier members radially embedded therein in greater number than said inductors and each stator disc being supported alternately with said rotors about said insulating shaft; said charge carriers embedded in the same angular position in each said stator disc being mounted in parallel and collectively connected via axial rod means, whereby a field which is oblique to said rotor and stator surfaces is achieved over a substantial portion of the area intermediate said rotor and stator;
(E) means revolving said shaft and thus said rotor discs relatively to said stator; and

(F) rectifier means connecting each of said charge carrier members from said input terminal and to said output terminal so that the flow of current is from said input terminal to said output terminal via said charge carriers.

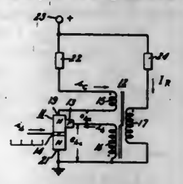
3,320,518
SWITCHED REGULATOR WITH MAGNETIC FIELD RESPONSIVE PHASE CONTROL DEVICE
Herbert Weiss, Nurnberg, Germany, assignor to Siemens-Schuckertwerke Aktiengesellschaft, Berlin-Siemensstadt and Erlangen, Germany, a corporation of Germany
Filed Dec. 19, 1963, Ser. No. 331,654
Claims priority, application Germany, Jan. 30, 1963, S 83,488
4 Claims. (Cl. 323—19)



3. A regulator comprising a magnetic field responsive system for controlling electronic switches in alternating current circuits, said magnetic field responsive system, comprising alternating voltage supply means, semiconductor switching devices connected to said supply means, said semiconductor switching devices having respective gate circuit means for controlling the firing moment relative to the alternating voltage cycle, a four branch bridge network having input diagonal points responsive to said supply means and output diagonal points to be energized in a given phase relation to the alternating current, a magnetic field responsive controlling resistor in one of the four branches of said network, a normally fixed resistance member connected in the opposite network branch, an inductance member and a resistance-capacitance circuit in said remaining two branches, respectively, a bistable flip-flop network having two parallel-connected transistors having input and output electrodes with respective load circuits connected to the output electrodes of said transistors and respective trigger circuits connected to the input electrodes of said transistors, circuit means connecting said trigger circuits between the output diagonal points of said bridge network, a control voltage transformer having a primary winding having two ends each connected to an output electrode of a corresponding one of said transistors and a mid-tap, direct voltage supply means having one pole connected to the mid-tap of said primary winding and another pole connected to input electrodes of said transistors, said transformer having secondary windings connected to said gate circuit means of said respective semiconductor switching devices.

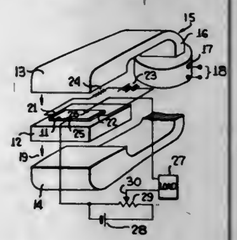
3,320,519
SILICON CONTROL SWITCH-SATURABLE TRANSFORMER CURRENT LIMIT PROTECTIVE CIRCUIT
Raymond E. Morgan, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York
Filed Apr. 13, 1964, Ser. No. 359,148
12 Claims. (Cl. 323—22)

1. A current switch including in combination a silicon controlled switch having two load terminals, a turn-on gate and a hold-on gate, transformer means having at least inductively coupled primary and secondary windings, the primary winding being connected in series circuit relationship with the load terminals of the silicon controlled switch with the series circuit thus comprised being adapted to be connected across a source of electric potential, and the secondary winding of the transformer means



being operatively coupled to the hold-on gate of the silicon controlled switch, and a gating signal source operatively coupled to the turn-on gate of the silicon controlled switch.

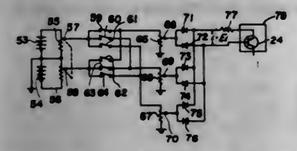
3,320,520
TEMPERATURE COMPENSATION FOR HALL EFFECT DEVICES
Charles B. Pear, Jr., Eau Gallie, Fla., assignor to Radiation Incorporated, Melbourne, Fla., a corporation of Florida
Filed June 4, 1964, Ser. No. 372,605
5 Claims. (Cl. 323—68)



1. Apparatus for maintaining the unbalance voltage of a Hall effect plate substantially constant as the plate temperature varies within limits comprising a Hall plate, means for establishing a magnetic field at right angles to the face of said plate, means for supplying control current through said plate at right angles to said field, a pair of output electrodes on opposite sides of said plate substantially at right angles to the flow direction of said current, said plate deriving an unbalance voltage between said electrodes when said magnetic field is of zero amplitude, said unbalance voltage varying as a function of temperature, said current supplying means including resistance means in circuit with a voltage source, the impedance of said resistance means being selected to define a load line that intercepts a point on each of a pair of constant temperature curves of the current versus output voltage characteristic of said Hall plate when the magnetic field applied to the plate is zero, each of said points being associated with the same unbalance voltage for the respective temperature, the value of said source being selected at the voltage said load line intercepts the zero current line of said characteristic curve.

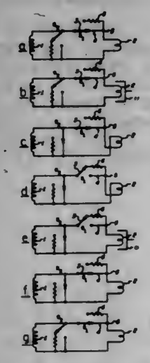
3,320,521
DIRECT CURRENT SIGNAL CONTROL DEVICE
Yasuo Segawa, Tokyo, and Atsuo Ichikawa, Hodogaya-ku, Yokohama-shi, Japan, assignors to Tokyo Shibaura Electric Co., Ltd., Kawasaki-shi, Japan, a corporation of Japan
Filed June 6, 1963, Ser. No. 285,919
Claims priority, application Japan, June 8, 1962, 37/29,745; Sept. 24, 1962, 37/54,957
3 Claims. (Cl. 323—74)

1. A direct current signal control device comprising a source of electric power including a first source of direct current, a first variable resistor with sliding terminal connected in parallel with said first source of electric power, a second source of direct current connected in series with said first source of direct current, and a second variable resistor with a sliding terminal connected in parallel with said second source of direct current; a plurality of groups of contacts, each connected to the slidable terminals of said first and second variable resistors, respectively, to obtain the output voltage of said source of electric power, corresponding contacts in each



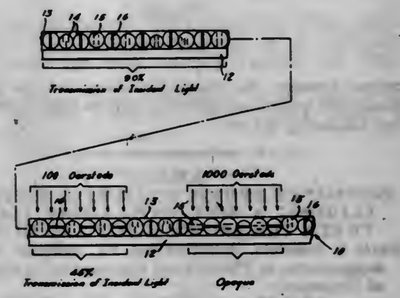
of said groups being connected together to form pairs, a plurality of level setting variable resistors each having a slidable terminal and connected to one of said contact pairs to selectively receive voltage therefrom, a plurality of pairs of rectifier elements connected in opposite polarities, each connected to a corresponding slidable terminal of said level setting variable resistor, means to connect said rectifier elements of one polarity to one output terminal and means to connect said rectifier elements of the opposite polarity to the other output terminal.

3,320,522
SUPERCONDUCTIVE FLUX MAGNIFIER
Roy T. Arnold, Clearwater, Fla., assignor to Sperry Rand Corporation, Great Neck, N.Y., a corporation of Delaware
Filed June 18, 1963, Ser. No. 288,698
4 Claims. (Cl. 324—43)



1. A flux magnifier comprising
a storage coil which is superconducting at supercooled temperatures,
a pick-up coil which is superconducting at supercooled temperatures,
a first switch connected in series circuit with said storage and pick-up coils to form a closed circuit,
a second switch connected to shunt with said storage coil,
each of said first and second switches including a rotatable annular member having a first portion which is normally conducting at a supercooled temperature and a second portion which is superconducting at the same supercooled temperature,
means for supercooling to said temperature said first and second switches and said storage and pick-up coils,
actuable flux control means for admitting and expelling flux relative to said pick-up coil,
and means for rotating said members to make said first and second switches normally conducting and superconducting in a predetermined sequence synchronous with the actuation of said flux control means.

3,320,523
METHOD FOR VISIBLY INDICATING AND RECORDING MAGNETIC FIELDS
Lyne S. Trimble, 4724 Arcola, North Hollywood, Calif. 91602
Filed Feb. 1, 1965, Ser. No. 429,447
3 Claims. (Cl. 324—43)

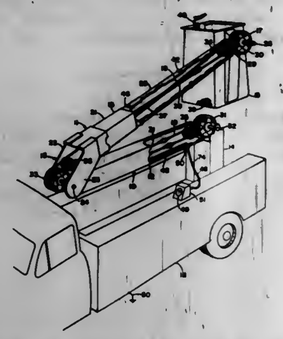


1. The method of creating a visible pattern accurately portraying the existence of a magnetic field, which comprises the steps of:
(a) forming tiny particles of magnetic materials in the size range one-tenth micron to five microns;
(b) forming a water phase solution by mixing the tiny particles in the ratio of 8 parts by weight with 75 parts by weight of glycerin and 17 parts by weight of sucrose;
(c) dispersing the particles in the water phase solution to render the particles thoroughly wet by the water phase;
(d) forming a suspension of water phase droplets by stirring 20 parts by weight of the water phase with 80 parts by weight of acrylic co-polymer phase;
(e) coating a supporting medium with a resin containing the water phase droplets to form a film of approximately 15 microns in thickness;
(f) pre-aligning the position of the tiny particles by subjecting the medium and resin coating to a transverse magnetic field in excess of 1,000 oersteds; and
(g) subjecting the film coating to a magnetic field.

3,320,524
APPARATUS INCLUDING ELECTRODE MEANS FOR DETERMINING ELECTRICAL CONDITION OF AERIAL BOOMS FOR ENERGIZED LINE WORKING
Charles J. Miller, Jr., Wadsworth, Ohio, assignor to The Ohio Brass Company, Mansfield, Ohio, a corporation of New Jersey
Filed Apr. 29, 1963, Ser. No. 276,388
14 Claims. (Cl. 324—54)

1. In an aerial lift, boom means comprising an elongate insulating member of electrical insulating material, means at one end thereof pivotally supporting the insulating member from the said one end and electrically grounded conductive means contacting the insulating member at the said one end thereof, that improvement which comprises electrically conductive electrode means extending substantially about the insulating member adjacent the

said one end thereof and spaced from the grounded means for intercepting electric current along the surface of the member, and current responsive indicating means con-



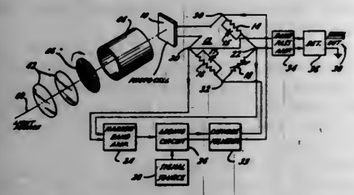
nected between the electrode means and the grounded means for measuring dielectric and leakage current along the insulating member.

3,320,525

IMPEDANCE BRIDGE MEASURING SYSTEM INCLUDING A SELF-OSCILLATORY LOOP BETWEEN THE BRIDGE INPUT AND OUTPUT

David E. Sunstein, Bala-Cynwyd, Pa., assignor, by mesne assignments, to Philco-Ford Corporation, a corporation of Delaware

Filed Mar. 16, 1953, Ser. No. 342,318
14 Claims. (Cl. 324—57)



12. Means for measuring the variation of impedance of a circuit element comprising a bridge network including said circuit element, an amplifier connected from the output of said bridge network to the input thereof, thereby to form a closed self-oscillatory loop, said bridge network being so arranged that it is unbalanced at the no signal level, means included in said bridge circuit and responsive to changes in amplitude of said self-oscillatory signal for causing said bridge to approach balance, the rate at which said bridge approaches balance being slow relative to the variation in impedance to be measured, and means coupled to the output of said bridge network for detecting the variation in amplitude of a signal appearing thereat as a result of unbalances in said bridge network resulting from said relatively rapid variation in the impedance of said circuit element.

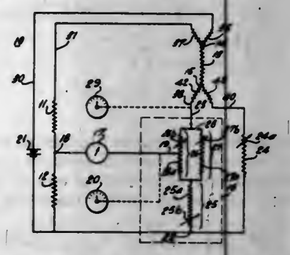
3,320,526

LOW IMPEDANCE MEASURING APPARATUS INCLUDING A PAIR OF MULTIPLE TERMINAL NETWORKS AND A VOLTAGE DIVIDER

Loebe Julie, New York, N.Y., assignor to Julie Research Laboratories, Inc., New York, N.Y., a corporation of New York

Continuation of application Ser. No. 299,587, Aug. 2, 1963. This application June 6, 1966, Ser. No. 562,045
11 Claims. (Cl. 324—57)

1. In an impedance bridge for measuring impedances and having electrically interconnected bridge arms forming a closed loop, the combination including said bridge arms for effectively isolating the impedance element under measurement from spurious lead and terminal connection impedances comprising, first means in a first of said bridge arms for electrical connection to the impedance element under test, first and second voltage divider means for providing respective input and output voltage connections in a second of said bridge arms, an output connection of said first voltage divider means being adjustable for providing a variable voltage, second means for connecting said last-mentioned output to one input side of said second voltage divider means, means in said second bridge arm for extending the range of impedance



bridge measurements, and multiple wire connection means coactive with a portion of said first means for electrically forming a bridge junction and for connecting adjacent ends of said first and second bridge arms, said multiple wire means including respective connections as follows:

(a) a connection from one side of said element to one side of said range extending means,

(b) a connection from said one side of said element to one input side of said first voltage divider means, and

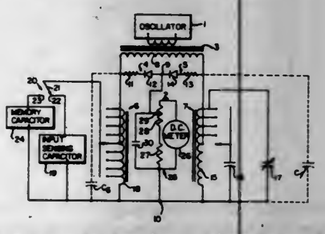
(c) a connection from said one side of said range extending means to a second input side of said first voltage divider means.

3,320,527

CAPACITANCE BRIDGE CIRCUIT INCLUDING A TRANSFORMER FOR SELECTIVE TRANSFORMATION OF THE INPUT CAPACITANCE

Jacob Marlow, King of Prussia, Pa., assignor to Robertshaw Controls Company, a corporation of Delaware

Filed Nov. 2, 1962, Ser. No. 235,093
7 Claims. (Cl. 324—60)
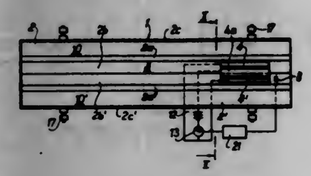


1. A capacitance bridge circuit driven by an alternating current signal including first and second series circuits, said first and second series circuits being connected in parallel with said signal being applied across one of said circuits, said first series circuit including a first impedance arm connected in series with a second impedance arm, and first and second impedance arms each having a diode with said diodes electrically oriented in the same direction with respect to the alternating current signal, said second series circuit including a circuit portion connected in series with an independently adjustable impedance arm, said independently adjustable impedance arm being used to zero balance the bridge circuit when said circuit portion is subjected to a selected condition, an input sensing capacitor, a transformer providing primary and secondary windings, said circuit portion including said transformer with said primary winding connected in series with said independently adjustable impedance arm and with said input sensing capacitor connected in parallel with a selected portion of said secondary winding, and the connection intermediate said first and second impedance arms and the connection intermediate said circuit portion and said independently adjustable impedance arm providing the connections across which a D.C. output signal is presented when the bridge circuit is unbalanced, the polarity of said D.C. signal being indicative of the degree and direction of unbalance from the zero balance condition.

3,320,528

TOBACCO MOISTURE DETERMINING APPARATUS INCLUDING A CONVEYING MEANS HAVING AN ELONGATED DUCT WITH AN OVERFLOW CHANNEL

Albert Eesenwein, Hamburg-Lohbrugge, Germany, assignor to Hauni Werke, Korber & Co., K.G., Hamburg-Bergedorf, Germany

Filed May 7, 1962, Ser. No. 192,834
Claims priority, application Germany, May 10, 1961, H 42,552
9 Claims. (Cl. 324—61)



1. In an apparatus for determining the moisture content of tobacco and like particulate materials, in combination, means for conveying the material in a predetermined path, said conveying means defining an elongated duct and at least one overflow channel positioned to receive the material which overflows laterally upon filling of said duct; a feed for admitting a stream of material into said duct at a rate sufficient to at least fill said duct but less than required to fill said duct and said overflow channel so that any particles in excess of those necessary for filling the duct may overflow into said channel whereby the material remaining in the thus filled duct forms an equalized stream; and means for determining the dielectric constant of the equalized stream in said duct, comprising capacitor means including plate means located in said duct downstream of said feed.

3,320,529

METHOD FOR TESTING A DIELECTRIC LIQUID

Jay H. Vreeland, Yarmouth, Maine, and George Feick III, Needham, Mass., assignors, by mesne assignments, to Anaconda Wire and Cable Company, a corporation of Delaware

Filed Nov. 28, 1962, Ser. No. 240,645
2 Claims. (Cl. 324—62)

1. The method of measuring the resistivity of a dielectric liquid over an extended period of time comprising the steps of repeatedly:

(A) applying a D.-C. voltage across a pair of electrodes immersed in said liquid for a length of time, in seconds,

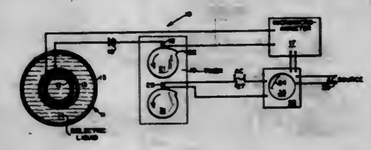
(a) not less than about 1, nor

(b) more than about 10,

(B) measuring the flow of current between said electrodes during said length of time,

(C) recording said flow, and

(D) interrupting said applied D.-C. voltage for a



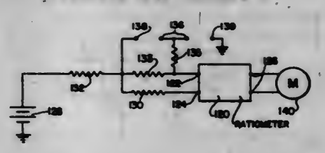
length of time at least several times greater than the length of time of the application of said voltage.

3,320,530

QUASI-LOGARITHMIC MULTIMETER FOR PROVIDING AN OUTPUT WHICH IS A LINEAR FUNCTION OF THE LOGARITHMIC OF THE INPUT

Alan R. Pearlman, Newton Highlands, Mass., assignor to Nexus Research Laboratory, Inc., Canton, Mass., a corporation of Massachusetts

Filed July 8, 1964, Ser. No. 381,160
8 Claims. (Cl. 324—62)



1. An ohmmeter comprising, in combination:

a two-input-terminal logarithmic ratiometeric device for providing an output voltage which is a linear function of the logarithm of the ratio of currents applied respectively at said input terminals;

a source of standard substantially steady-state voltage having an output terminal of a predetermined polarity;

a first standard resistance connected between said output terminal of said source and one of said input terminals so that the input current to said one input terminal is determined only by said steady-state voltage and the value of said resistance;

a second standard resistance connected between said output termined of said source and the other of said input terminals;

a third standard resistance;

means for shunting said second resistance with a series combination of said third resistance and a resistance of unknown value sought to be measured; and

means responsive to said output voltage for indicating said linear function.

3,320,531

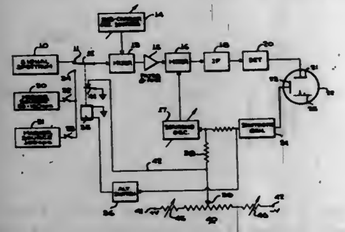
ADJUSTABLE MARKER GENERATOR FOR SPECTRUM ANALYZERS

William I. L. Wu, New Rochelle, N.Y., assignor to The Singer Company, New York, N.Y., a corporation of New Jersey

Filed Mar. 13, 1963, Ser. No. 264,956
14 Claims. (Cl. 324—77)

6. In a system for measuring frequency, means for visually plotting the position of a known frequency against a first frequency representative base line, means for visually plotting the position of an unknown frequency against a second frequency representative base line, means for

relatively adjusting said base lines relative to one another automatically in alternation to effect a simultaneous visual coincidence of said plots, and means for indicating the



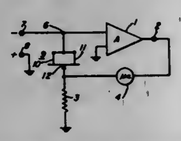
deviation of said base lines relative to one another required to effect said visual coincidence as a measure of the difference of said known and unknown frequencies.

3,320,532

LOGARITHMIC MICRO-MICROAMMETER HAVING FIELD EFFECT TRANSISTOR IN FEEDBACK PATH

Robert L. Watters, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York

Filed July 23, 1963, Ser. No. 297,027
5 Claims. (Cl. 324—123)



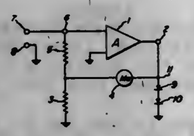
3. A logarithmic micro-microammeter comprising: a substantially linear amplifier having input means and output means; a negative feedback circuit including a field effect transistor having at least one semiconductive junction connected in series circuit from said output means to said input means, said field effect transistor being connected to forward bias said junction; load impedance means connected to said field effect transistor, said load impedance means having an impedance less than the input impedance of said linear amplifier; means adapted to connect a source of current to be measured to said input means; and means coupled to said load impedance means for indicating the magnitude of current flowing through said load impedance means.

3,320,533

HYBRID ELECTROMETER AMPLIFIER HAVING PROTECTIVE MEANS IN FEEDBACK PATH TO LIMIT POSITIVE EXCURSIONS OF NEGATIVE FEEDBACK SIGNAL

Robert L. Watters, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York

Filed May 11, 1964, Ser. No. 366,504
6 Claims. (Cl. 324—123)



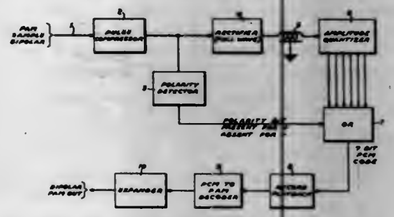
5. A hybrid circuit for measuring weak direct-current signals comprising: an initial amplifying stage having an evacuated voltage amplifying device including an electron-emissive cathode, a control electrode and an anode; a plurality of directly coupled succeeding amplifying stages each having only a single active amplifying element, said element being a semiconductor device; negative feedback means connected from the output of the final stage of said succeeding amplifying stages to the input of said initial stage, said negative feedback means being adapted to return essentially all of the output signal energy of said final stage to the input of said initial stage to essentially null-balance any external positive signal to be measured that is applied to the input of said initial stage; means coupled to said negative feedback means and adapted to measure the magnitude of said output signal energy to provide an indication of the magnitude of any external signal applied to said input; and, protective means connected to said feedback means and adapted to limit positive excursions of the negative feedback signal from said negative feedback means at least during a transient interval after said circuit is de-energized.

3,320,534

PULSE CODE MODULATION ENCODING AND DECODING APPARATUS

Edmund R. Altonji, Pequannock, N.J., assignor to International Telephone and Telegraph Corporation, Nutley, N.J., a corporation of Maryland

Filed Aug. 6, 1963, Ser. No. 300,382
20 Claims. (Cl. 325—38)



12. Pulse code modulation encoding apparatus comprising:

(a) compressing means for receiving and compressing amplitude modulated pulses,

(b) rectifying means connected to the output of said compressing means for rectifying the compressed pulses,

(c) amplitude quantizer means connected to the output of said rectifying means for quantizing each rectified pulse into a combination of bits having equal potentials and different time positions depending on the amplitude of the rectified pulse, each bit representing a different potential level,

(d) utilization means, and

(e) means operatively connected with said quantizer means for feeding the quantized bits in their proper time positions into said utilization means.

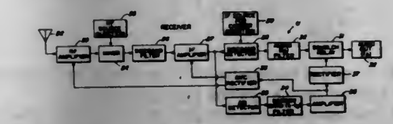
3,320,535

TRANSMITTED SIGNAL TWO TONE DIFFERENCE CONTROLLED SINGLE SIDEBAND SQUELCH AND AVC SYSTEM

Samuel L. Broadhead, Jr., Cedar Rapids, Iowa, assignor to Collins Radio Company, Cedar Rapids, Iowa, a corporation of Iowa

Filed Jan. 4, 1965, Ser. No. 423,160
8 Claims. (Cl. 325—49)

1. In a radio frequency single sideband transmitting and receiving system utilizing a two frequency tone and frequency difference tone signal transmission for developing a control voltage in the receiver useful for a squelch and/or automatic volume control, including: a single sideband transmitter having an audio input source and an IF frequency source input to a balanced modulator and, in addition, two frequency tone inputs from a dual frequency tone signal source to the balanced modulator; and including RF output signal radiating antenna means; a single sideband receiver including a radiated RF signal receiving antenna; an IF amplifier section providing an output to a sideband detector; IF signal source carrier insertion means for said sideband detector connected to provide an output to audio output circuit means; said IF amplifier also connected for providing an output to an AM detector; the output of said AM detector being connected to a filter capable of passing a frequency tone equal to the difference between the two tone frequencies applied as inputs to the balanced modulator of said transmitter; and means for utilizing the output of said filter as a control voltage for said receiver.



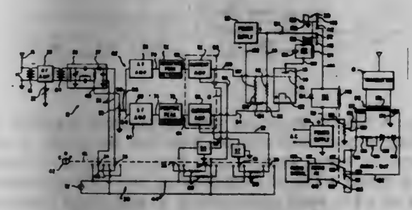
7. In a radio frequency single sideband receiver capable of responding to a predetermined frequency difference tone signal equal to the difference between two received frequency tones modulated on a received radio frequency single sideband transmission for developing a control voltage in the receiver useful for a squelch and/or automatic volume control, including: in the single sideband RF receiver a radiated RF signal receiving antenna; an IF amplifier section providing an output to a sideband detector; IF signal source carrier insertion means for said sideband detector; said sideband detector connected to provide an output to utilizing circuit means; said IF amplifier also connected for providing an output to an AM detector; the output of said AM detector being connected to a filter passing said predetermined frequency difference tone equal to the difference between said two received frequency tones; and means for utilizing the output of said filter as a control voltage for said receiver.

3,320,536

METHOD AND APPARATUS FOR SIGNAL MODULATION CONTROL

Edward C. Lockwood, Miami, Fla., assignor to Storer Broadcasting Company, Miami Beach, Fla., a corporation of Ohio

Filed Oct. 20, 1964, Ser. No. 405,214
9 Claims. (Cl. 325—187)



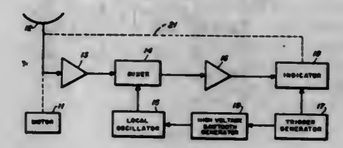
1. A method for maintaining a maximum average modulation output level for an amplitude modulated signal source which provides an amplitude modulated carrier output signal upon the reception of an input signal from a modulating wave source which consists in deriving from said amplitude modulated carrier output signal an alternating electromotive force proportional to the input signal from said modulating wave source, comparing the peaks of the negative excursions of said alternating electromotive force to the peaks of the positive excursions thereof, deriving from said peak comparison a control signal of a polarity and amplitude dependent upon the average variation in amplitude between said negative and positive peaks, and employing said control signal to control the polarity of the input signal received by said amplitude modulated signal source from said modulating wave source whereby a maximum average modulation level of one polarity is maintained.

3,320,537

INTERCEPT RECEIVER FOR INDICATING AZIMUTH AND FREQUENCY OF DETECTED SIGNALS

Charles C. Kuhns, San Diego, and Virgil O. Smith, La Mesa, Calif., assignors to the United States of America as represented by the Secretary of the Navy

Filed July 16, 1963, Ser. No. 295,570
3 Claims. (Cl. 325—336)



1. An intercept receiver comprising:

a directional antenna having an azimuth drive;

a mixer having first and second inputs and an output, said antenna coupled to said first input;

a local oscillator having a frequency control input and an output, said output connected to said mixer second input;

control means for periodically and automatically sweeping said local oscillator frequency connected to said frequency control input;

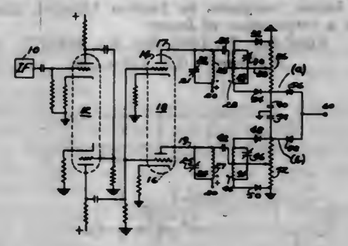
indicating means connected to said azimuth drive said control means, and said mixer output for indicating the presence, azimuth and frequency of any detected signal.

3,320,538

CARRIER DETECTION DEVICE

Kenneth J. Rhead, Denver, Colo., assignor to United Air Lines, Inc., Chicago, Ill., a corporation of Delaware

Filed June 27, 1963, Ser. No. 290,973
9 Claims. (Cl. 325—487)

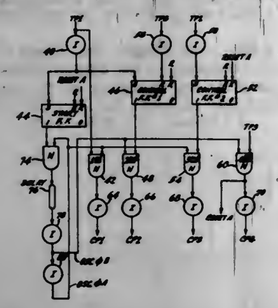


2. In a carrier detection system, the combination comprising a pair of frequency modulation demodulators each having an asymmetrical frequency characteristic relative to an ordinate reference line, a source of frequencies within a predetermined pass band, means connecting both of said pair of demodulators to said source, said characteristics crossing said ordinate reference line at different frequencies within said pass band, whereby the areas of said characteristics above and below said reference line within said pass band are equal, and an output terminal connected with both of said demodulators.

3,320,539
PULSE GENERATOR EMPLOYING A CONTROLLED OSCILLATOR DRIVING A SERIES OF GATES AND EACH BEING CONTROLLED BY EXTERNAL TIMING SIGNALS

Robert A. Rodner, Lake Park, Fla., assignor to Radio Corporation of America, a corporation of Delaware

Filed Mar. 11, 1964, Ser. No. 351,132
5 Claims. (Cl. 328—62)



1. Apparatus for generating, during a given time period, a set of output pulses each having a duration X from an externally supplied set of input pulses supplied during the given time period and each having a duration $Y>X$, said apparatus comprising:

oscillator means having a period 2X;

means responsive solely to a given pulse of said externally supplied set of input pulses for enabling said oscillator means;

a series of coincidence gates equal in number to the output pulses to be generated during a said time period;

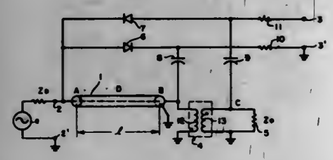
means coupling one input of each of said gates to said oscillator means;

means responsive to at least a plurality of said externally supplied input pulses for applying signals at the second inputs of said coincidence gates selectively.

3,320,540
FM DEMODULATOR OF DISTRIBUTED CONSTANT DELAY LINE TYPE

Masaka Ogi, Tokyo, and Tomoyoshi Yamashita, Kawasaki, Japan, assignors to Fujitsu Limited, Kawasaki, Japan, a corporation of Japan

Filed July 27, 1964, Ser. No. 385,377
9 Claims. (Cl. 329—116)

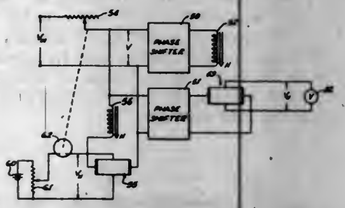


1. An FM demodulator comprising a distributed constant delay line having an electrically equivalent length corresponding to the wave length of the middle frequency of an input signal frequency band, a phase shifter for shifting the phase of the output voltage of said delay line, two envelope detectors for detecting the voltage between the input and the output of said delay line and the voltage between said input and the output of said phase shifter, respectively, and means for producing differential component of the output voltages of said two detectors.

3,320,541
HALL EFFECT FREQUENCY RESPONSIVE SYSTEM

David Silverman, Anaheim, Calif., assignor to Beckman Instruments, Inc., a corporation of California

Filed June 10, 1964, Ser. No. 374,033
7 Claims. (Cl. 329—200)



1. In a system responsive to a predetermined frequency signal applied to the system input terminals,

first Hall effect means coupled to the system input terminals so that the magnetic flux and control current therethrough are in quadrature phase relation when a signal having said predetermined frequency is applied to the system input terminals,

second Hall effect means coupled to the system input terminals so that the magnetic flux and control current therethrough are approximately in phase throughout the input frequency band of interest,

means responsive to the output of said first Hall effect means for providing a system readout, and

means responsive to the output of said second Hall effect means for providing a signal indicative of an error in said system readout caused by (i) a change in magnitude of the signal applied to said system input terminals or (ii) a change in temperature of said Hall elements.

3,320,542
ELECTRONICALLY TUNABLE PARAMETRIC AMPLIFIER OF EXTENDED TUNING RANGE WITH PUMP WAVE LOADING MEANS

Hsiung Hsu, Columbus, Ohio, and Stephen Wanuga, Liverpool, N.Y., assignors to General Electric Company, a corporation of New York

Continuation of application Ser. No. 141,873, Sept. 29, 1961. This application June 12, 1964, Ser. No. 376,294
6 Claims. (Cl. 330—4.6)

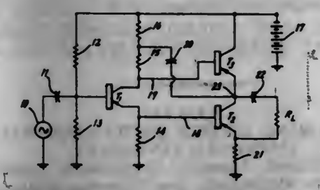


1. A tunable traveling wave parametric amplifier comprising a multipath transmission line the paths of which support a signal wave of frequency ω_s and phase constant β_s, a pump wave of frequency ω_p and phase constant β_p and an idler wave of frequency ω_i and phase constant β_i, where $\omega_p=\omega_s+\omega_i$ and $\beta_p=\beta_s+\beta_i$, said paths being constructed so as to provide signal group velocities that are different from corresponding parametrically interacting idler group velocities over the signal tuning range, loading means including nonlinear reactance means coupled to said paths for successively loading the pump wave at more frequent intervals than said signal and idler waves so as to extend the frequency range over which the pump wave can be propagated, said pump, signal and idler waves reacting across said nonlinear reactance means to provide, in response to adjustment of the pump frequency, parametric amplification of said signal wave over an enhanced range of signal frequencies.

3,320,543
TRANSISTORIZED PUSH-PULL AMPLIFIER CIRCUIT UTILIZING POSITIVE FEEDBACK

Abram Hopengarten, Lafayette Hills, Pa., and Richard F. Wood, Marlton, N.J., assignors to Philco-Ford Corporation, a corporation of Delaware

Filed Mar. 25, 1964, Ser. No. 354,635
9 Claims. (Cl. 330—15)



1. A push-pull output circuit, comprising:

(a) a pair of transistors, the emitter-collector paths thereof being connected in series such that the emitter of one transistor is connected to the collector of the other transistor,

(b) means for supplying a direct current bias across said series-connected emitter-collector paths,

(c) means for supplying an alternating signal to said one of said transistors in a first phase and to said other of said transistors in the opposite phase so as to drive said transistors in push-pull,

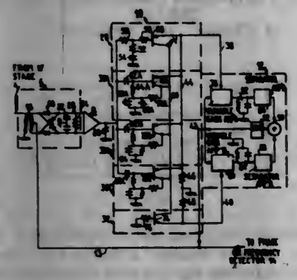
(d) load means connected across said transistor so as to receive current therefrom in proportion to the amplitude of said signal,

(e) positive feedback means (1) responsive to the current change in said load means each time said one of said transistors turns on for hastening the turn-off of said other of said transistors, and (2) responsive to the current change in said load impedance each time said one of said transistors turns off for hastening the turn-on of said other of said transistors, whereby the quiescent bias current requirement of said transistors can be reduced.

3,320,544
ANGLE-MODULATION SIGNAL SYSTEM OF THE ANGLE-LOCK TYPE

Pierre Deman, Paris, France, assignor to Compagnie Francaise Thomson Houston-Hotchkiss Brandt, Paris, France, a corporation of France

Filed Mar. 31, 1966, Ser. No. 539,144
Claims priority, application France, Apr. 1, 1965, 11,498
10 Claims. (Cl. 331—3)



1. In an angle-modulation system including a variable-angle oscillator having an angle-varying input and an output, an angle-discriminator having one input connected to receive angle-modulated input signals and having another input connected to said oscillator output for receiving variable-angle oscillations therefrom whereby to deliver an angle-error output; and means connected to apply said error output to said angle-varying input of the oscillator whereby to constitute an angle-lock servo-loop to lock the frequency and phase of said oscillations into agreement with the frequency and phase of said input signals, the provision in combination therewith of:

a corrective network connected in said servo-loop comprising;

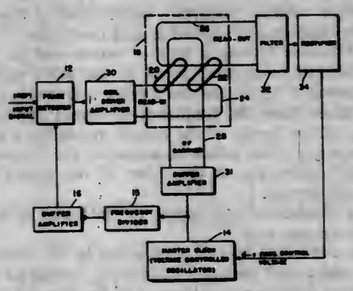
a set of tuned cicuits connected in parallel between an input and an output of said network said tuned circuits having sharp resonant characteristics, each tuned circuit including:

frequency-selective means predetermining the resonant frequency thereof at an individual value different from the resonant frequency of other tuned circuits of said set, whereby to impart to said network an over-all frequency response which is the resultant of all the resonant characteristics of said tuned circuits which over-all frequency response will substantially correspond to the frequency characteristics of said input signals.

3,320,545
ADAPTIVE MEMORY FREQUENCY STABILIZED OSCILLATOR

William A. Huber, Spring Lake, N.J., assignor to the United States of America as represented by the Secretary of the Army

Filed May 26, 1966, Ser. No. 553,610
9 Claims. (Cl. 331—17)



1. A system for synchronizing the frequency and phase of a local slave oscillator RF signal to a remote reference signal comprising,

means for comparing the respective phases of said slave oscillator signal and said remote reference signal whereby an error signal is produced when said slave signal and said reference signal are out of synchronism,

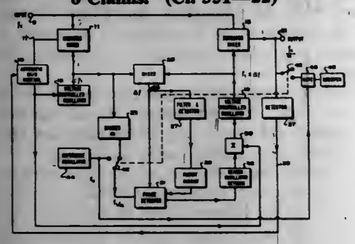
a memory circuit including magnetic saturable means for producing a remanent state of flux responsive to the changes in magnitude of said error signals and resulting therefrom, said magnetic saturable means being responsive to said slave oscillator frequency whereby there is produced an RF signal having a magnitude proportional to said remanent flux,

and means for rectifying said last mentioned signal to produce a D.-C. voltage signal, said D.-C. voltage signal being applied as an adaptive voltage to control the output frequency of said slave oscillator such that the phase difference between said slave oscillator signal and said remote reference signal is reduced to zero.

3,320,546
VARIABLE FREQUENCY CONTROLLED FREQUENCY DIVIDER

Robert L. Allen and Alan S. Bagley, Los Altos Hills, Calif., assignors to Hewlett-Packard Company, Palo Alto, Calif., a corporation of California

Filed Aug. 19, 1965, Ser. No. 481,001
8 Claims. (Cl. 331—22)

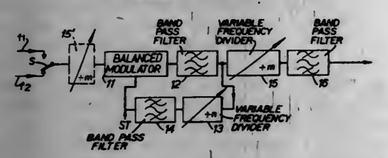


1. Signal divider apparatus comprising:
a pair of mixers each having an output and a pair of inputs;
an input terminal for receiving an applied signal;
means connected to said input terminal and to one input of each of said mixers for applying thereto a signal having a frequency related to the frequency of a signal appearing at said input terminal;
a signal-controlled source of repetitive time-varying signal connected to another input of one of said mixers;
means connecting the output of said one mixer to said source for applying a signal thereto to control the repetition rate of variation with time of the signal from said source to maintain phase lock between the signal at said one input of said one mixer and an integer related frequency component of the signal from said source applied to said one mixer;
circuit means having a pair of inputs and an output connected to another input of the other mixer for applying a signal thereto having a frequency which is offset from the frequency of signal appearing at one of the inputs of the circuit means by a selected frequency value which is related to the frequency of signal appearing at the other of the inputs of the circuit means;
means connecting said source to one input of said circuit means; and
means connected to said source and to the other input of said circuit means for applying thereto an integer related frequency component of the signal from said source.

3,320,547
FREQUENCY SYNTHESIS

Richard Thomas Albert Standford, Fareham, and Anthony Poulett, Bognor Regis, England, assignors to The Plessey Company Limited, Ilford, England, a British company

Filed Oct. 6, 1965, Ser. No. 493,454
3 Claims. (Cl. 331—40)

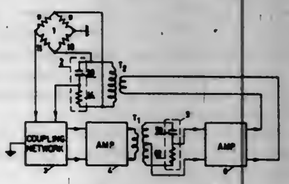


1. A circuit arrangement for generating a random frequency spectrum within a range of frequencies, comprising a modulator, switch means, having two alternative conditions, for selectively applying one of first and second predetermined different frequencies to said modulator, the first frequency having an upper side band and the second frequency having a lower side band, which upper and lower side bands overlap each other, a band pass filter connected to the output from said modulator and having a pass band substantially coinciding with said overlapping upper and lower side bands, a feedback path from the output of said band pass filter to said modulator, and a frequency divider having a variable divisor in said feedback path, such that variation in the divisor of said frequency divider and changes in the condition of said switch means enable a random spectrum to be generated by said circuit arrangement within the pass band of said filter.

3,320,548
MEASURING BRIDGE OSCILLATOR WITH IMPROVED LINEARITY

Pieter de Waard, Monster, Netherlands, assignor to Nederlandse Organisatie voor Toegepast-Natuurwetenschappelijk Onderzoek ten behoeve van Nijverheid, Handel en Verkeer, The Hague, Netherlands

Filed Oct. 22, 1965, Ser. No. 501,839
Claims priority, application Netherlands, Nov. 2, 1964, 6,412,745
1 Claim. (Cl. 331—65)

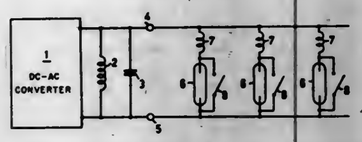


A measuring circuit including a feedback oscillator comprising a measuring bridge which changes oscillator frequency in response to a magnitude being measured which serves to unbalance the bridge, said oscillator having in its feedback network a first R–C phase shift network that changes the phase 120° and a second R–C phase shift network coupled in cascade therewith to change the phase approximately 60° at bridge balance, said measuring bridge being connected across the second said phase shift network to effectively change the oscillator frequently with changes in bridge balance.

3,320,549
ALTERNATING CURRENT GENERATOR HAVING PLURAL SWITCHABLE LOADS IN RESONANT OUTPUT CIRCUIT

Theodorus Hehenkamp, Emmasingel, Eindhoven, Netherlands, assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware

Filed Nov. 6, 1963, Ser. No. 321,849
Claims priority, application Netherlands, Nov. 20, 1962, 285,738
3 Claims. (Cl. 331—75)

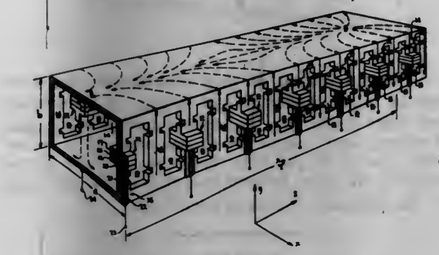


1. An electrical supply circuit comprising, a generator of alternating current having a frequency determining output circuit including the parallel connected combination of an inductance and a capacitance, a plurality of electrical load devices connected in parallel across said output circuit, each of said devices comprising, a reactive impedance element and a substantially resistive element connected in series circuit and switch means connected across said resistive element for individually switching said resistive element in or out of the circuit.

3,320,550
WAVEGUIDE WALL-CURRENT TUNNEL DIODE AMPLIFIER AND OSCILLATOR

Horst W. A. Gerlach, Bethesda, Md., assignor to the United States of America as represented by the Secretary of the Army

Filed Mar. 23, 1965, Ser. No. 442,217
13 Claims. (Cl. 331—96)

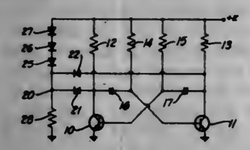


1. A traveling-wave device comprising:
(a) a rectangular waveguide section having two narrow sidewalls and two broad walls; and
(b) at least one array of negative-resistance solid-state devices fabricated into a narrow sidewall of said waveguide section, each negative-resistance solid-state device of said array being positioned in said narrow sidewall to carry only a fractional portion of the total radio-frequency current flowing in said narrow sidewall when said waveguide section is excited in the dominant transverse electric mode.

3,320,551
TEMPERATURE STABILIZED MULTIVIBRATOR

Wayne F. Miller, Arcadia, Calif., assignor to California Institute Research Foundation, Pasadena, Calif., a corporation of California

Filed Apr. 12, 1965, Ser. No. 447,127
9 Claims. (Cl. 331—113)



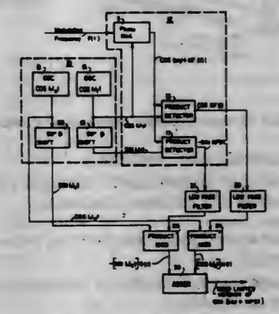
1. In a transistor multivibrator, a temperature compensating circuit comprising a voltage clamp diode connected between a multivibrator transistor collector and a clamp voltage source comprising a passive circuit with the voltage varying as a positive function of temperature.

3,320,552
BAND LIMITED FREQUENCY MODULATION SYSTEM

James R. Glasser, Naperville, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois

Filed June 3, 1964, Ser. No. 372,262
9 Claims. (Cl. 332—23)

1. A system for limiting the bandwidth of an angular modulated signal, including in combination, oscillator means for producing first and second pairs of quadrature carrier signals, angular modulation means coupled to said oscillator means and adapted to receive a modulating signal, said angular modulation means being responsive to said modulating signal and to one of said first pair of quadrature carrier signals to produce an angular modulated signal, a pair of product detector means coupled to said angular modulation means, circuit means coupling each of said product detector means to said oscillator means, each of said product detector means being responsive to said angular modulated signal and to a separate one of said first pair of quadrature carrier signals to produce a trigonometric function signal, a pair of product modulator means coupled to said oscillator

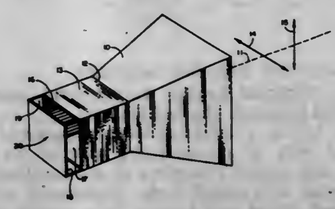


means each receiving a different one of said second pair of quadrature carrier signals, a pair of low pass filter means each coupling a different one of said product detectors to a separate one of said product modulator means, each of said low pass filter means being responsive to said trigonometric function signals to limit the bandwidth thereof, and adder means coupled to said product modulator means, said product modulator means and said adder means being responsive to said trigonometric function signals and to said second pair of quadrature carrier signals to generate a bandwidth limited frequency modulator signal.

3,320,553
POLARIZATION DIVERSITY ANTENNA FEED SYSTEM

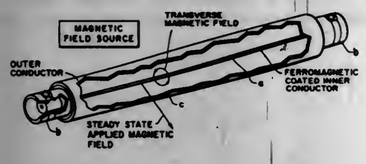
Dean D. Howard, 8914 Oak Lane, Oxon Hill, Md. 20022

Filed June 29, 1961, Ser. No. 123,077
6 Claims. (Cl. 333—11)



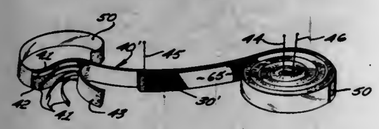
1. In combination, a first waveguide capable of propagating energy in the TE_{10}, TE_{20} and combined TE_{11} and TM_{11} modes in orthogonal planes, secondary waveguide means for coupling to the TE_{10} and combined TE_{11} and TM_{11} modes in the first waveguide, tertiary waveguide means for separately extracting TE_{20} mode energy of the first waveguide of the separate orthogonal planes, and means for coupling said tertiary waveguide means to the first waveguide.

3,320,554
CYLINDRICAL FILM FERROMAGNETIC RESONANCE DEVICES
Harry H. Wieder, Riverside, Calif., assignor to the United States of America as represented by the Secretary of the Navy
Filed Dec. 3, 1964, Ser. No. 415,832
7 Claims. (Cl. 333—24.1)
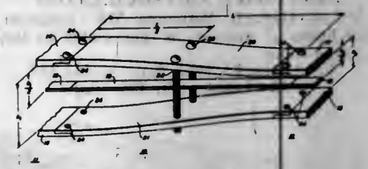


1. A coaxial ferromagnetic resonance device comprising:
(a) a cylindrical inner conductor,
(b) a thin-film of ferromagnetic material on the cylindrical surface of said inner conductor,
(c) an outer conductor coaxial with said inner conductor and spaced therefrom forming a coaxial cavity therebetween,
(d) input and output connector means to said inner and outer conductors,
(e) a uniform applied magnetic field generated from an external source being applied in a direction perpendicular to the longitudinal cylindrical axis of the coaxial conductors and having a magnitude sufficient to excite ferromagnetic resonance in said ferromagnetic thin-film on the surface of said cylindrical inner conductor, and consequently having a large absorption of RF energy corresponding to the ferromagnetic resonance frequency.

3,320,555
ELECTRICAL DELAY LINE
Floyd W. Allen, Fullerton, Calif., assignor to Beckman Instruments, Inc., a corporation of California
Filed Dec. 7, 1962, Ser. No. 243,028
5 Claims. (Cl. 333—29)



1. An electrical delay line comprising:
a thin cylindrical housing having input, output and ground terminals attached thereto;
a unit having a bifilar spiral configuration impregnated with an encapsulating material for sealing said unit against absorption of any electrically lossy material, said spiralled and impregnated unit being secured within said housing by a potting material, said unit including
a length of magnetically permeable material supporting a helical winding and
spaced conductive ribbons supported between films of dielectric material; and
means electrically connecting respective ends of said helical winding to said input and output terminals and said conductive ribbons to said ground terminal.

3,320,556
IMPEDANCE TRANSFORMER
Martin V. Schneider, Middletown, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed May 23, 1963, Ser. No. 282,610
7 Claims. (Cl. 333—34)



1. A tapered section of strip transmission line comprising an inner conductor and a pair of transversely spaced, outer conductors, said section having a first spacing between outer conductors at one end and a second different spacing at the other end, characterized in that the shape of said taper between said ends is that of a beam under the influence of concentrated loads.

3,320,557
FEED-THROUGH CAPACITOR
William W. Garstang, Milwaukee, Wis., assignor to Globe-Union Inc., Milwaukee, Wis., a corporation of Delaware
Filed Apr. 2, 1963, Ser. No. 269,915
The portion of the term of the patent subsequent to May 24, 1983, has been disclaimed
3 Claims. (Cl. 333—79)

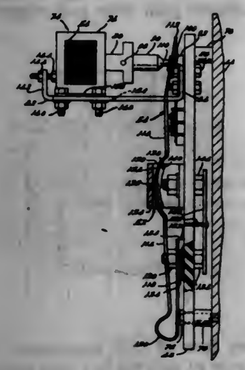


3. A tubular feed-through capacitor including at least first and second capacitive portions each including a tubular dielectric portion having electrodes positioned thereon in capacitive relationship, said tubular portions positioned end-to-end and aligned along a common axis with adjacent ends thereof in relative spaced relationship and characterized in that the dielectric constant of said first capacitive portion is different from the dielectric constant of said second capacitive portion, a spacing medium disposed intermediate said adjacent ends of said tubular portions and comprising a material characterized by a dielectric constant different from that of the tubular dielectric portions of said first and second capacitive portions, said first and second capacitive portions being of substantially equal physical length and exhibiting different resonant conditions.

3,320,558
ELECTRIC SWITCH
Gardiner A. Noble, Farmington, and James A. Muir, Roseville, Mich., assignors to Chrysler Corporation, Highland Park, Mich., a corporation of Delaware
Filed Dec. 23, 1965, Ser. No. 515,881
4 Claims. (Cl. 335—147)

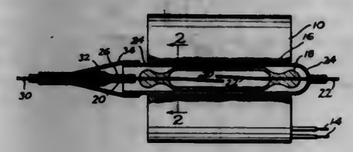
1. An electric switch assembly, comprising a fixed first contact, a generally U-shaped conductor having one leg portion secured to a suitable support and an other leg portion angularly movable between said fixed contact and said one leg portion, a movable second contact carried by said other leg portion adapted for engagement with said fixed contact, said U-shaped conductor being

formed to provide a path for current flow through each of said legs in order to create electromagnetic forces induced by the flow of said current for increasing the force which holds the fixed contact and movable contact in engagement with each other, and a solenoid having an



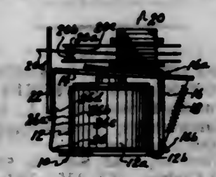
armature, said armature being operatively connected to the free end of said other leg portion of said U-shaped conductor for swinging said free end and said other leg portion generally angularly about the bight portion of said U-shaped conductor.

3,320,559
ELECTRICAL CHOPPER UTILIZING A SHIELDED REED SWITCH
Norman E. Morrison, Portland, Oreg., assignor to Electro Scientific Industries, Inc., Portland, Oreg., a corporation of Oregon
Filed May 17, 1965, Ser. No. 456,086
4 Claims. (Cl. 335—151)



1. An electrical chopper comprising:
(a) a hollow electric coil adapted to be activated by a source of intermittent electric current,
(b) a hollow sealed envelope within the opening of the coil,
(c) a pair of electric contacts within the envelope and projecting outwardly therefrom to opposite ends of the coil, the contacts being of magnetically permeable material and at least one being movable relative to the other contact for releasable engagement therewith under the influence of a magnetic field,
(d) non-magnetic electrical conductor means connected at one end to the projecting end of one of the contacts and extending through the coil opening toward the projecting end of the other contact,
(e) the adjacent ends of said conductor means and projecting end of said other contact being adapted for connection to an electric circuit,
(f) and a non-magnetic electrostatic shield surrounding the envelope and connected electrically to one of the electric contacts.

3,320,560
STEPPING LATCH AND RELAY
John Filko, River Forest, and Carl Faglano, Chicago, Ill., assignors to F & B Manufacturing Company, Chicago, Ill., a corporation of Illinois
Filed Oct. 24, 1965, Ser. No. 504,782
11 Claims. (Cl. 335—168)



1. In a stepping relay, the combination which comprises an electromagnet having a coil adapted to be energized for operation of the relay, an armature mounted for movement away from and toward the electromagnet to respective first and second positions, means for urging the armature away from the electromagnet toward the first position, the armature being moved toward the electromagnet to the second position responsive to the energization of the coil, a latch member and a catch member cooperably operable to latch the armature in a third position intermediate the first and second positions, cam means forming a part of the catch member operable when the armature is moved from the first position to the second position for engaging the latch member and conditioning the latch member to move into latching relationship with the catch member when the armature is thereafter moved toward the first position by the urging means, cam means forming a part of the catch member operable when the armature is moved from the third position to the second position for engaging the latch member and causing the latch member to move out of latching relationship with the catch member, and contact members associated with the armature and controlled in accordance with the position of the armature relative to the electromagnet.

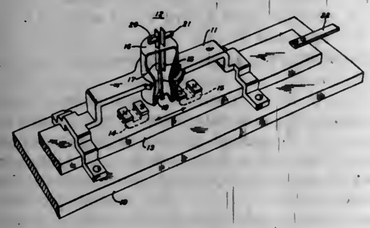
3,320,561
ELECTRICAL CONTACTOR WITH NOVEL TERMINAL MEANS
John W. Moberry, Edina, Minn., assignor to Honeywell Inc., a corporation of Delaware
Filed Mar. 18, 1964, Ser. No. 352,802
1 Claim. (Cl. 335—197)



An electrical contactor, including: frame means cooperatively holding electromagnetic operating means and contact support means; contact means and terminal means mounted on said contact support means with said contact means operated by said electromagnetic operating means; said terminal means including a wire enclosure portion formed from a metallic blank; said enclosure portion having a continuous series of walls formed by bending two ends of said blank until the ends overlap; one of said ends having a projection that passes into an opening in said blank; a threaded opening aligned through said overlapping ends to thereby provide continuous threading through two thicknesses of said metallic blank; and a threaded screw member that passes through said threaded opening and being substantially the same width as said wire enclosure portion; said projection providing

a continuous margin of metal around said threaded opening to support said threaded screw member through both thicknesses of said metallic blank thereby providing said threaded screw member with a sufficient continuous threaded opening to prevent said threaded screw member from stripping said threaded opening when said threaded crew member is utilized as part of said terminal means.

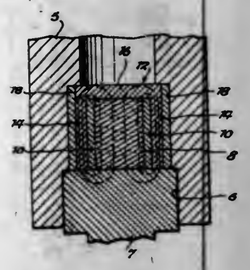
3,320,562
SWITCH ASSEMBLY USING MAGNETICALLY OPERATED SWITCHES
Charles E. Germanton, Summit, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Nov. 30, 1965, Ser. No. 510,619
3 Claims. (Cl. 335—207)



1. A switch arrangement comprising:
switch means comprising a pair of oppositely polarized fixed contacts and a movable contact wherein the movable contact is latched to either one of the fixed contacts when placed in contact therewith and assumes the polarity of the fixed contact,
at least two magnetic means each having a pole piece of a first magnetic polarity and a pole piece of a second magnetic polarity,
a member mounting said means with their pole pieces in line and with the polarity of each means opposite with respect to its immediate neighbors, and
means for moving said switch and said member relative to one another with said switch remaining in close proximity to the line of pole pieces,
said magnetic means causing the movable contact to move from one fixed contact to the other fixed contact when the polarity of the magnetic means in close proximity to the movable contact is the same as the polarity of the movable contact.

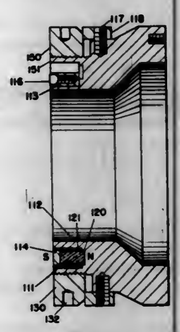
3,320,563
MAGNETIC DRIVING IMPLEMENT WITH CUP-SHAPED MAGNETIC PORTION FOR GREATER HOLDING STRENGTH
Frederick G. Clark, Buffalo, N.Y., assignor of one-half to Wade Stevenson, Buffalo, N.Y.
Filed Jan. 21, 1965, Ser. No. 426,934
1 Claim. (Cl. 335—285)

A rotatable shank for a magnetic driving implement for holding articles of magnetic material, said shank including:
(a) a socket formed in the outer end of said shank to receive an article;
(b) said shank having a tubular centrally disposed bore immediately above said socket and having substantially the same cross sectional area;
(c) a sleeve of non-magnetic material tightly fitted into said tubular bore;
(d) a cup-shaped member of magnetic material having high magnetic conductivity tightly fitted within said non-magnetic sleeve open face down and having its upwardly disposed end wall adjacent to the upper end of said bore;
(e) an inner sleeve of non-magnetic material tightly fitted within said cup-shaped member;
(f) a bar type magnet having poles at opposite ends thereof tightly fitted within said non-magnetic inner sleeve and having an upper pole in engagement with the said end wall of the cup-shaped member, said cup-shaped member thereby providing an annular high flux density path from said magnet upper pole; and



(g) said open face of said cup-shaped member and the lower pole of said magnet both terminating adjacent to said socket to engage an article inserted therein whereby an exposed annular open end magnetic circuit of substantially the same area as the article to be held is presented and nearly all of the top surface of the article becomes part of the magnetic circuit path which radiates outwardly from the said lower pole of said magnet.

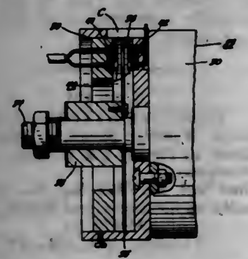
3,320,564
MAGNETIC CHUCK
William F. Sosey and Emerson J. Tenpas, Erie, Pa., assignors to Eriez Manufacturing Co., Erie, Pa., a corporation of Pennsylvania
Filed Mar. 29, 1965, Ser. No. 443,476
1 Claim. (Cl. 335—285)



A magnetic chuck comprising
a generally cylindrical housing made of magnetic material having a hollow central part, a part of the outside of said housing being threaded about its outer periphery,
a collar threadably supported on said housing generally concentric to said housing and having a face parallel to one face of said cylindrical housing,
said threads comprising means to move said collar with its face flush with the end of said housing and to move said collar past the end of said housing to force articles attracted to said magnetic chuck away from said chuck with a substantially equally distributed force,

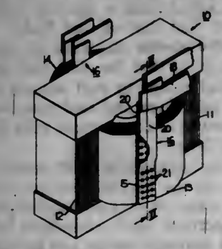
a groove in said cylindrical housing extending into an end thereof and concentric to said hollow central part,
permanent magnet material in said groove with one end of said permanent magnet material adjacent said magnetic material at the bottom of said groove,
non-magnetic material in said groove on each side of said permanent magnet material holding said permanent magnet material in spaced relation to the edges defining said groove.

3,320,565
INDUCTOR DEVICE
Robert W. Campbell, Elbert M. Sawyer, Donald O. Ruff, Thomas E. Kirk, Lyle M. Ramey, and William D. Worrell, Anderson, Ind., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Original application Oct. 19, 1961, Ser. No. 146,180. Divided and this application Oct. 19, 1965, Ser. No. 510,124
5 Claims. (Cl. 336—123)



1. A control device comprising, a first plurality of spaced magnetic cores each carrying a first coil winding, said first coil windings being adapted to be connected to a source of alternating current, a second plurality of spaced complementary magnetic cores each carrying a second coil winding, said second coil windings being adapted to control a semiconductor switching device, said first and second magnetic cores being axially spaced from each other and having axially aligned end faces, and a nonmagnetic plate member rotatable between said first and second plurality of magnetic cores, said plate member having such a configuration that pairs of complementary magnetic cores are alternately coupled and decoupled by rotation of said plate member.

3,320,566
ELECTRIC COILS AND LEAD-IN CONNECTORS
Joseph L. Lohman, Pittsburgh, Pa., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Nov. 5, 1965, Ser. No. 506,545
6 Claims. (Cl. 336—192)



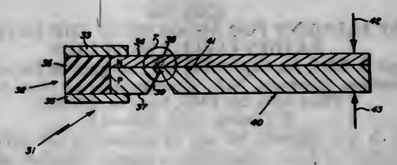
1. In combination with a coil made up of a thin sheet of electric conducting material spirally wound to form a substantially cylindrical coil, a lead-in connector comprising
a plurality of elongated juxtaposed layers of thin electric conducting material extending parallel to and overlapping each other and forming staggered ends adjacent at least one extremity thereof, said layers being attached at their staggered ends to said sheet and at their other extremity to each other.

3,320,567
PRE-STRESSED WINDING ASSEMBLY FOR TRANSFORMERS AND INDUCTANCE COILS
Harry Hoeft, Nurnberg, Germany, assignor to Siemens-Schuckertwerke Aktiengesellschaft, Berlin-Siemensstadt, Germany, a corporation of Germany
Filed Nov. 9, 1964, Ser. No. 409,711
6 Claims. (Cl. 336—197)



1. A pre-stressed winding for transformers and inductance coils, comprising magnetic core means, support means affixed to said magnetic core means and having openings formed therethrough, annular pressure means having recesses formed therethrough, a plurality of coaxially mounted winding means supported in said pressure means, compression means comprising tensioning strips passing around each separate winding means along the perimetric surface of each of said winding means and passing over portions of said pressure means, additional tensioning strips passing through the recesses of said pressure means and through the openings of said support means, and variable pressure applying means for adjusting the tension on said winding means, said variable pressure applying means being mounted in one of said annular pressure means.

3,320,568
SENSITIZED NOTCHED TRANSDUCERS
Lewis K. Russell, Livermore, Wilhelm H. Legat, Woodside, and Roy C. Hackley III, San Jose, Calif., assignors to Raytheon Company, Lexington, Mass., a corporation of Delaware
Filed Aug. 10, 1964, Ser. No. 388,412
4 Claims. (Cl. 338—2)



1. A device comprising
(a) a body of semiconductor material having a first region of selected conductivity type and a second re-

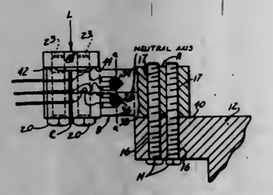
gion of opposite conductivity type, said first and second regions having respective first and second oppositely disposed planar surfaces, and a P-N junction therein between said regions and extending in a plane parallel with one of said surfaces,

(b) a groove extending transversely across said first surface into said first region and terminating short of said junction, said second region having sensitivity enhancing point defects in the area of said junction closest to said groove,

(c) first and second electrodes electrically connected respectively to said first and second regions for connection of the device into an external circuit,

(d) and mounting means connected to one end of the body for supporting the body in a cantilevered position for bending movement about the apex of the groove.

3,320,569
SHEAR LOAD CELL
Edgar J. Jones, Weston, Mass., assignor to Instron Corporation, Canton, Mass., a corporation of Massachusetts
Filed Feb. 17, 1965, Ser. No. 433,351
12 Claims. (Cl. 338—5)



11. A shear load cell for measuring the magnitude of an applied load comprising, in combination:

a cantilever beam with, integrally, a loading portion to which the load is applied, a support portion adapted for engaging an adjacent member on which the load cell may be cantilever mounted, and a thinner intermediate gauging portion,

a substantially cylindrical cavity extending through said gauging portion intermediate shear surfaces thereof with the central axis of said cavity perpendicular to said shear surfaces,

said loading portion and support portion including respectively a longitudinally spaced loading area and a parallel oppositely facing support area,

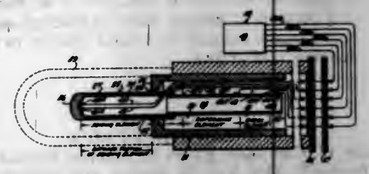
said loading area including a pair of spaced, transverse loading ridges,

said support area including a pair of spaced, transverse support ridges and means closely adjacent said support ridges for securing said load cell to said adjacent member, and

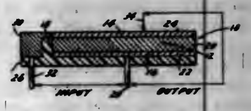
a pair of strain gauges bonded to each of said shear surfaces at equal distances above and below the neutral axis of the beam with strain sensitive resistance filaments of one of the pair at a 45° angle to the neutral axis and perpendicular to strain sensitive resistance filaments of the other of the pair.

3,320,570
TEST ELEMENT FOR MEASURING THE DETERIORATION EFFECT OF FLUIDS
Edgar B. Lied, Jr., Sayreville, N.J., assignor to Encoa Corporation, Fanwood, N.J., a corporation of New Jersey
Filed May 20, 1963, Ser. No. 281,527
8 Claims. (Cl. 338—13)

1. A test element for use in measuring the deterioration effect of fluids, comprising a support member adapted for insertion through a passage leading into a fluid vessel, a tubular sensing element having a portion of its side wall mounted within said support member and having a closed front extremity, seal means between said tubular element and said support member, said sensing element having contact means, including a plurality of lead wires connected thereto, on the interior surface of said front extremity, said tubular element having a rearward extension, and additional contact means carried by at least one of said rearward extension and said tubular element, substantially rearward of said contact means so constructed and arranged that each of said contact means may be electrically connected to an electrical resistance measuring instrument.



3,320,571
RESISTIVE ATTENUATOR
Edmund Ernest Webster, Barnfield, Marlborough, England, assignor to Plessey-UK Limited, Essex, England, a British company
Filed Sept. 16, 1963, Ser. No. 309,163
Claims priority, application Great Britain, Sept. 21, 1962, 35,979/62
5 Claims. (Cl. 338—89)



3. A resistive attenuator comprising, in combination,

a body of resistive material having oppositely facing surfaces and relatively spaced end edge portions,

first terminal means having extensive electrical engagement on one of the surfaces of said body and providing a common input and output terminal for said resistive body,

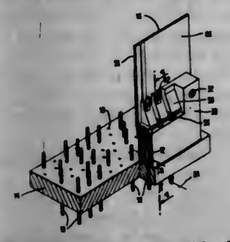
a layer of resistive material having an exposed surface and an oppositely facing surface in confronting electrical engagement with the opposite surface of said body, said layer extending substantially coextensively on said opposite body surface and characterized by being relatively thin as compared to said body and having a specific resistivity substantially lower than that of said body,

second terminal means engaging an end edge of said resistive layer so that the electrical circuit from said first terminal means to said second terminal means is through said layer and said resistive body,

a contact member in engagement with the exposed surface of said layer,

and means for supporting said contact member for movement on the exposed surface of said layer toward and away from said second terminal means, with an electrical input connected across said first and second terminal means and an output connected across said first terminal means and said contact member said body of resistive material and said layer of resistive material providing useable resistance values in the circuit.

3,320,572
ELECTRICAL CONNECTOR ASSEMBLY
Leon Schwartz, Philadelphia, Pa., assignor to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Filed Dec. 3, 1964, Ser. No. 415,703
8 Claims. (Cl. 339—17)



1. An electrical connector assembly for attachment to a printed circuit board comprising, a connector block member having a front surface which is adapted to lie in a plane perpendicular to the plane of the circuit board, a bottom surface which is adapted to face the circuit board and a rear surface spaced from the front surface, said front surface having at least first and second superimposed rows of spaced bores formed therein with the bores forming said first row being offset from the bores forming said second row, each of said bores having a rear wall with a narrow opening therein extending to the rear surface of the connector block, said rear surface having a series of slots formed therein arranged so that each slot is aligned with a respective opening associated with the first row of bores while the spaces between the slots form a series of teeth which are aligned with the openings associated with the second row of bores, electrical connector elements mounted in the bores of said block, each of said connector elements having a tail portion extending out the opening of the bore in which it is positioned, the tail portion extending out the openings associated with the first row of bores being bent to lie in the slots formed in the rear surface of the connector block and to extend downward to the bottom surface of the connector block for conductive connection to the circuit board, and the tail portion of the connector elements extending out the openings of the second row of bores being bent down to lie against the respective toothed portion of the rear surface of the connector block and to extend downward to the bottom surface of the connector block for conductive connection to the circuit board.

3,320,573
CONNECTOR
Joachim Macints and Rolf Heidrich, Hannover, Germany, assignors to Telefunken Patentverwertungsgesellschaft m.b.H., Ulm (Danube), Germany
Filed Aug. 12, 1964, Ser. No. 389,063
Claims priority, application Germany, Aug. 22, 1963, T 16,432
14 Claims. (Cl. 339—185)



1. An electrical connector arrangement comprising: a plurality of electrical connectors each having projecting guide lug means arranged in a unique pattern and at least one permanently attached locating pin, all of said connectors having identical sets of female electrical contacts; and a further electrical connector having a flat body portion carrying a set of male electrical contacts that is complementary to the sets of contacts on said plurality of connectors and that extends at right angles to said flat body portion, said further connector including coding means for rendering its said body portion compatible with the unique guide lug means pattern of any selected one of said plurality of connectors so as to render said further connector capable of being brought into electrically coupled relationship only with said selected connector, said coding means including slot means in said body portion, said slot means being arranged in the pattern of said lug means and locating pin of said selected connector, said locating pin being positioned with respect to said guide lug means for preventing said selected connector from being inserted in said further electrical connector in a position which is rotated by 180° with respect to the desired position.

3,320,574
TWO-PIECE CONNECTOR
Ulrich Tuchel, Neckartalstrasse 51, Heilbronn (Neckar), Germany
Filed Feb. 4, 1964, Ser. No. 342,387
Claims priority, application Germany, Feb. 4, 1963, T 23,421
30 Claims. (Cl. 339—217)



1. For use with an insulated holder having a receiving opening, an elongated contact member having consecutive first, second and third regions, said contact member including two pieces, one of said pieces extending throughout the length of said contact member and hence throughout all of said regions and the other of said pieces being connected to said first piece and extending throughout said second and third regions; said one piece being, in said first region, a contact-making portion; said pieces being, in said second region, an anchoring portion for detachably securing said contact member to the insulated holder; said pieces being, in said third region, a lead-attaching portion at which a cable may be connected to the contact member.

3,320,575
GROOVED COAXIAL CABLE CONNECTOR
Walter R. J. Brown, Lexington, Roy L. Komack, Stoneham, and Norman D. Gilmartin, West Peabody, Mass., assignors to United-Carr Incorporated, Cambridge, Mass., a corporation of Delaware
Filed Mar. 31, 1965, Ser. No. 444,253
3 Claims. (Cl. 339—268)



1. An electrical connector for engagement with an externally grooved coaxial cable, said connector including a housing assembly comprising a tubular shell, a tubular body portion, a separate clamp nut and a collet clamp, means engaging said body portion with said shell

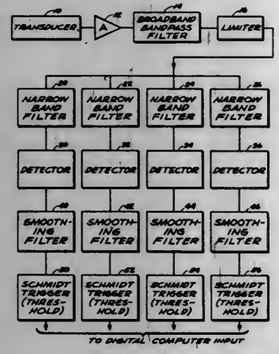
which permits said shell to rotate relative to said body portion, said body portion having an internally threaded portion, said collet clamp comprising a head portion, a series of legs extending from said head portion and aperture means through which the coaxial cable extends, said legs being spaced from each other around the periphery of said aperture means and having internally threaded means associated therewith for threading onto the external grooves of the coaxial cable, said clamp nut having an externally threaded portion and having a tapered aperture formed therethrough, a portion of said collet clamp lying within said body portion and said externally threaded portion of said clamp nut circumscribing a portion of said legs of said collet clamp and threaded into engagement with said internally threaded portion of said body portion, whereby when said clamp nut is screwed into said body portion, said legs cause said threaded means to press against the coaxial cable to make an electrical connection therewith.

3,320,576

RECEIVER FOR PROCESSING A PLURALITY OF ADJACENT CLOSELY SPACED INPUT SIGNALS

Alexander M. Dixon, Burbank, and Reginald J. Cyr, Woodland Hills, Calif., assignors to The Bendix Corporation, a corporation of Delaware

Filed Mar. 30, 1965, Ser. No. 443,984
6 Claims. (Cl. 340—5)



6. A system for receiving and amplifying an input pulse of a specific frequency in a high noise environment comprising a broadband bandpass filter,

a limiter connected to said bandpass filter having an output which is essentially fully limited,

a narrow band filter connected to the output of said limiter having a bandpass characteristic which covers the frequency of said input pulse and which bears a fixed bandwidth ratio to the broadband filter.

and threshold-responsive pulse-generating circuit means connected to said narrow band filter for producing an output pulse whenever the energy level at the output of said narrow band filter is such as to indicate the presence of a pulse signal.

3,320,577

DOPPLER NULLIFICATION APPARATUS

Lawrence G. Wright, Glen Burnie, Md., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy

Filed May 25, 1965, Ser. No. 458,799
1 Claim. (Cl. 340—5)

Apparatus for eliminating system Doppler in a moving system including a transmitting means and a speed measuring element for determining system speed comprising:

input means adapted to receive a signal from the speed measuring element representative of system speed;

speed function means operatively coupled to said input means and adapted to be adjusted in accordance with system speed derived from said input means;

said speed function means comprising a wiper on a potentiometer which is positioned in accordance with system speed coupled in from said input means;

direction function means for producing a function corresponding to direction of transmission;

said direction function means being operatively coupled to said transmitting means and being adjusted in accordance with the azimuthal position of said transmitting means;

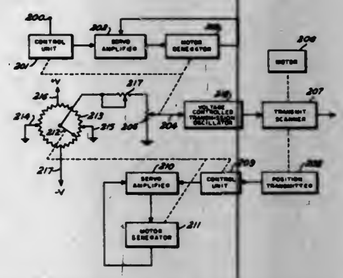
said direction function means comprising a rheostat divided into four quadrants;

said rheostat being center tapped to ground at two points diametrically opposed;

said rheostat having inputs corresponding to plus and minus voltages connected at opposite points 90° displaced with respect to said center tap points;

speed of sound adjusting means operatively connected to said speed function means and said direction function means for producing a function representative of speed of sound under control of an operator;

said speed of sound adjusting means comprising a manually adjustable potentiometer which is adjusted to compensate for changes in the velocity of sound in water;



combining means operatively coupled to said direction function means and speed of sound function means for producing an output corresponding to

$$\left(1-\frac{2V}{C}\cos\theta\right)$$

where C equals the speed of sound in water, V equals system speed and θ equals direction of transmission measured with respect to the system;

a voltage controlled oscillator having an input and an output;

the input to said voltage controlled oscillator being operatively connected to the output of said combining means;

said voltage controlled oscillator having a normal frequency of oscillation corresponding to f_R where f_R is the desired frequency which would indicate a stationary target;

said input from the combining means being operative to modify the output of the voltage controlled oscillator to produce a frequency f_T equal to

$$f_R\left(1-\frac{2V\cos\theta}{C}\right)$$

a transmit scanner element having an input and an output;

an input to said transmit scanner element being operatively coupled to the voltage controlled oscillator;

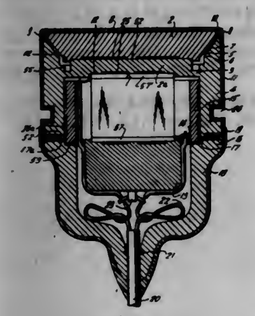
wherein the output of the transmit scanner corresponds to f_T.

3,320,578

ELECTROACOUSTIC TRANSDUCERS FOR SUBMARINE ECHO SOUNDING

Erhard Ahrens and Karl Feher, both of Kiel, Germany, assignors to Electroacustic Gesellschaft mit beschrankter Haftung, Kiel, Germany, a corporation of Germany

Filed June 11, 1965, Ser. No. 463,257
Claims priority, application Germany, June 15, 1964, E 27,220
28 Claims. (Cl. 340—8)



1. Electroacoustic transducer for transmitting and receiving sonic waves in water, suitable for high water pressure and for arrangement in transducer groups, comprising a housing having a front wall forming the frontal side thereof and a thick side wall having an inside surface in said housing, a piston-type oscillatory diaphragm structure joined with said housing by pressure tight means and forming the front wall thereof, said pressure tight means comprising elastic means in interconnecting said diaphragm structure and housing to support said diaphragm structure for oscillatory movement relative to said housing, an oscillator member disposed in said housing behind said diaphragm structure and mechanically connected therewith, said diaphragm structure having a rear surface in said housing and a front face covering substantially the entire frontal side of said housing and extending to substantially the outer limits of the side wall of said housing, said diaphragm structure and said housing forming a sound-shielding and pressure-tight interspace behind said diaphragm front face and near and around the perimeter of said diaphragm structure between part of the rear surface of said diaphragm structure and part of the inside surface of the side wall of said housing and extending substantially to the front face of said diaphragm structure.

3,320,579

COMPLIANT VARIABLE RELUCTANCE ELECTROACOUSTIC TRANSDUCER

Frank R. Abbott, San Diego, Calif., assignor to the United States of America as represented by the Secretary of the Navy

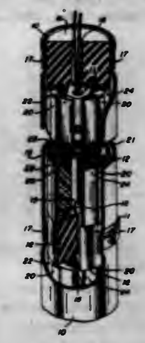
Filed Apr. 11, 1966, Ser. No. 541,862
8 Claims. (Cl. 340—8)

1. A transducer comprising:

an elongated tube of flexible rubber-like material,

the flexible walls of the tube being of a material the magnetic permeability of which is substantially greater than one,

a magnetic core member within and extending across the interior of said tube, the pole faces of the core being shaped to the interior wall of the tube and terminating short of said wall to define an air gap so that flexure of said wall will measurably vary the reluctance of the magnetic circuit including said core and said wall, and



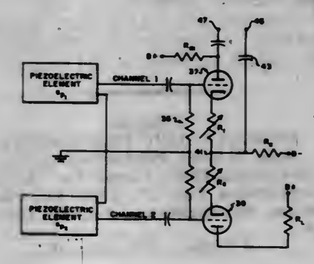
a coil inductively coupled with said magnetic circuit so that current in said coil may be a function of the flexture of said wall.

3,320,580

MULTIPURPOSE PIEZOELECTRIC TRANSDUCER SYSTEM

Alan O. Sykes, Fairfax County, Va. (304 Mashie Drive, Vienna, Va. 22180)

Filed Feb. 27, 1963, Ser. No. 261,549
15 Claims. (Cl. 340—10)



1. A transducing system comprising:

transducer means having first and second piezoelectric elements mounted for response to different input signal parameters, at least two of which parameters are to be utilized;

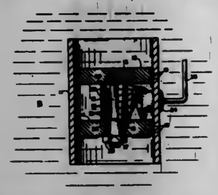
said piezoelectric elements having essentially identical piezoelectric constants and capacities;

transducer output path means connected to each of said piezoelectric elements for providing output signals from said first element 180° out of phase with output signals from said second element;

and sum and difference output signal-producing circuit means having a first output constituting a sum output and a second output constituting a difference output,

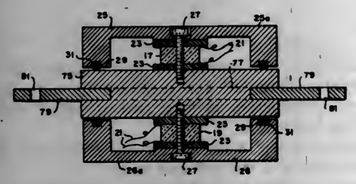
including means for equalizing the amplitudes of said output signals, connected to said output path means for producing one system output measurement signal corresponding to said at least one input signal parameter, whereby the output measurement signal is unaffected by the other received input signal parameter.

3,320,581
PIEZOELECTRIC VOICE RANGE TRANSDUCER
Claude C. Sims, 1308 Heron Drive, Orlando, Fla. 82803
Filed May 27, 1965, Ser. No. 459,483
4 Claims. (Cl. 340—10)



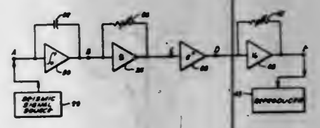
1. An underwater loudspeaker operable in the voice range which comprises:
an open ended cylindrical tubular housing,
first and second diaphragms secured within said housing in a fluid tight relationship with respect to the inner wall surface of said housing equi-distant from and parallel with a plane through the center of said housing perpendicular to the axis of said housing,
a piezoelectric energy converter means secured within said housing between said first and second diaphragms under slight compression,
means passing through said piezoelectric energy converter means coaxial therewith and mechanically secured to said first and second diaphragms for slightly compressing said piezoelectric energy converter means,
a transformer having a primary and secondary winding mounted within said housing in the area between said diaphragms,
said secondary winding of said transformer electrically coupled to said piezoelectric energy converter to supply electrical power thereto, and
means connected with said primary winding of said transformer for conducting electrical energy thereto from a source externally of said housing.

3,320,582
PIEZOELECTRIC TRANSDUCER
Alan O. Sykes, Fairfax County, Va. (304 Mashie Drive, Vienna, Va. 22180)
Original application Feb. 27, 1963, Ser. No. 261,549. Divided and this application Aug. 16, 1965, Ser. No. 489,454
4 Claims. (Cl. 340—10)



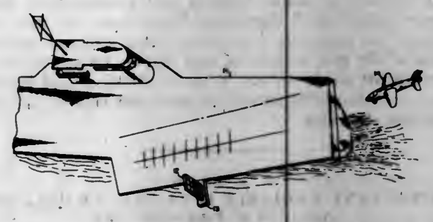
1. A displacement gauge comprising:
a pair of piezoelectric tranducers;
a pair of physical stimulus responsive housings each having a flat rigid end portion in insulated vibrating contact with one flat surface of a corresponding one of said piezoelectric elements, the area of said flat end portion being greater than the opposing surface area of the corresponding piezoelectric element;
a central element responsive to vibrations of a different source of excitation than said housings and located between said housings and between said piezoelectric elements in insulating vibrating contact with the other flat surfaces of said piezoelectric elements;
means for sealably securing said housings to said central element to provide a closed and sealed hollow displacement gauge body;
means for resiliently mounting said displacement gauge means being connected to said central element for mounting said displacement gauge on a body having a displacement to be measured.

3,320,583
CONVERSION OF SEISMOGRAMS TO IMPEDANCE LOGS USING AN ANALOG DEVICE
Bobby J. Thomas, Donald E. Dunster, and Douglas S. Sullivan, Ponca City, Okla., assignors to Continental Oil Company, Ponca City, Okla., a corporation of Delaware
Filed Sept. 15, 1964, Ser. No. 396,512
16 Claims. (Cl. 340—15.5)



1. A system for obtaining lithological information in the form of an impedance log, comprising:
means for obtaining a seismogram of a given geographic location;
means for transducing the seismogram to a time-analog electrical signal;
means for integrating said signal;
means for exponentially amplifying said signal; and
means for proportioning said signal with a constant factor so that the resultant signal is a time-analog voltage representative of an impedance log of said location.

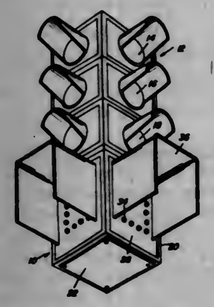
3,320,584
VEHICLE LATERALLY COMPOUNDED OPTICAL GUIDANCE SYSTEM
Henry P. Birmingham, Washington, D.C., assignor to the United States of America as represented by the Secretary of the Navy
Filed Mar. 30, 1965, Ser. No. 444,091
9 Claims. (Cl. 340—26)



1. An improved optical guidance system providing optimum path and error from optimum path indication, comprising:
a plurality of clusters of light cells, each cluster being capable of presenting an indication of error to a vehicle to be guided independent from the other said clusters of light cells;
each of the cells of said clusters having a light source and a lens;
the lights of at least one of said clusters of light cells being focused by said lenses to form virtual images, such that said error indication is codirectional with said vehicle's error;

the lights of the other of said clusters of light cells being focused to form real images, such that said error indication is contra-directional to said vehicle's error;
said clusters of light cells being arranged in a predetermined array to present both said codirectional and said contra-directional indications to said vehicle in juxtaposition, such that the error indication to said vehicle at a given range presented by said array is twice the amplitude of the indication presented by one of said clusters and as the vehicle's error from said optimum path is brought to zero, said codirectional and contra-directional indications are observed to aproach a predetermined representation indicating said optimum path.

3,320,585
TIME INFORMING DISPLAY DEVICE
James L. R. Hines, 826 Rivercrest, Abilene, Tex. 79605
Filed Dec. 23, 1964, Ser. No. 420,716
7 Claims. (Cl. 340—43)



1. In combination with a traffic signal assembly having a directional lamp illuminated for an illumination period by a source of current alternating at a predetermined frequency, a time informing device mounted by said signal assembly comprising, time base establishing means connected to said source of current for developing timing pulses at a relatively low pulse rate having a fixed ratio to said predetermined frequency, storage means having a maximum timing period exceeding said illumination period, gate means rendered operative to supply pulses to the storage means for depleting the timing period stored therein, counter means operatively connected to the gate means for counting the timing pulses developed during said illumination period, transfer means connecting the storage means to the counter means during said illumination period for limiting the count of the counter means to said timing period of the storage means and preventing depletion of the timing period of the storage means, signal detecting means connected to the gate means for stopping supply of timing pulses to the counter means and the storage means upon termination of the illumination period, correcting means rendered operative in response to said termination of the illumination period for supplying pulses at a relatively high pulse rate to the storage means and the counter means until the maximum timing period of the counter means is depleted, output means connected to said counter means for establishing binary code information, and display means operatively connected to said output means for producing illuminated digits in response to establishment of said binary code information.

3,320,586
MOTOR VEHICLE CONTROL LIGHT SYSTEM
Tobias Wagner, Bronx, N.Y., assignor of fifty percent to Mary T. Hanner, Bronx, N.Y.
Filed Nov. 19, 1964, Ser. No. 412,560
16 Claims. (Cl. 340—66)

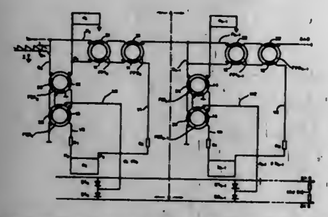


1. A safety signaling system for a vehicle having a body, an operator's position in said body, a braking system operable by the operator, throttle means operable by the operator for controlling speed, and a horn operated by a horn switch; said system comprising a main signaling device mountable on said body and visible from the exterior thereof, an auxiliary monitoring signaling device mounted inside the vehicle at the operator's position; each of the devices comprising a closed housing having an open front, partitions in the housing dividing the interior thereof into three compartments, first, second and third rows of lamps in the three compartments respectively, the lamps in the first row emitting red light, the lamps in the second row emitting amber light, the lamps in the third row emitting green light; first control means for operatively connecting the lamps in the first row to braking system for lighting the first row of lamps to emit red light when the braking system is actuated; second control means for operatively connecting the lamps in the second row to the throttle means for lighting the second row of lamps to emit amber light only when the throttle means is actuated to decelerate the vehicle; and third control means for operatively connecting the lamps in the third row to the throttle means for lighting the third row of lamps to emit green light only when the vehicle is in motion, the lamps in the first, second and third rows of the housing in the main signaling device being connected in parallel with the lamps in the first, second and third rows in the housing of the monitoring signaling device, each housing having another compartment with another lamp emitting a red light, said other lamp and the red lamps in the first row being connected in circuit with said horn switch so that the other lamp and red lamps in each housing light when the horn switch is closed to sound the horn upon occurrence of a dangerous driving condition, and a flasher switch in circuit with the other lamps and red lamps in both devices for interrupting the lighting of the red lamps and other lamps repeatedly while the horn switch is closed.

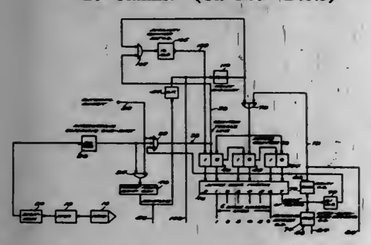
3,320,587
METHODS AND APPARATUS FOR COMPARING THE MAGNITUDE OF TWO NUMBERS IN BINARY CODE
Winfried M. Becker, Berlin, Germany, assignor to European Atomic Energy Community—Euratom, Brussels, Belgium
Filed Sept. 30, 1963, Ser. No. 312,720
Claims priority, application Great Britain, Oct. 1, 1962, 37,160/62
3 Claims. (Cl. 340—146.2)

1. Apparatus for comparing parallelly the magnitude of two binary coded numbers which are signified by one of two distinct voltages in each of several binary stages, comprising, for each binary stage, a first magnetic core with two windings, the first windings of all binary stages being

connected serially and the second windings of all binary stages being supplied by said two distinct voltages, as to be driven into saturation when the two distinct voltage values are different, an auxiliary fluctuating current source input coupled to the first winding of said first magnetic core of the highest order stage, each said binary stage having two additional magnetic cores without considerable rectangularity having three windings respectively, one of said three windings being for said distinct voltages, another of said three windings being for said auxiliary fluctuating current source input, and the third of said three windings being for an output, said one, another and third windings being serially connected by corresponding pairs for each said additional magnetic cores, and said output being applied to at least one output bus line via diodes.

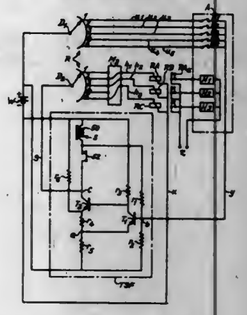


3,320,588
CHARACTER READER
Bennie L. Gallien, Hurst, Tex., assignor to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Filed Dec. 30, 1963, Ser. No. 334,097
10 Claims. (Cl. 340—146.3)



4. A system for identifying characters formed of a plurality of vertical bars separated by spaces of varying distances comprising reading means for generating an electrical waveform induced by the passage of a character and having a plurality of peaks equal in number and corresponding in time to the position of the bars of the character, a digitizer responsive to the peaks and producing square waves therefrom, means under control of said digitizer for generating a sequence of signals having amplitudes corresponding to the time separation of the peaks from said reading means, counting means coupled to said digitizer for generating an output signal on a plurality of conductors for each peak of the waveform and corresponding to the vertical bars of the character, said counting means further generating a read command on one of said plurality of conductors after passage of the last vertical bar of a character past said reading means, a plurality of storage means equal in number to one less than the number of bars forming a character, means under the control of the output signals of said counting means for storing the sequence of signals in said storage means one signal per storage means, means for deriving from the signals in said storage means a reference signal having a value intermediate the values of the stored signals, a plurality of comparator circuits coupled to and equal in number to said storage means, means for applying said reference signal to said comparator circuits to cause certain of said comparator circuits to produce output signals, and means for accomplishing character identification by reception of the read command to determine which of said comparator circuits have generated output signals.

3,320,589
SEQUENTIALLY OPERABLE AUTOMATIC CONTROL SYSTEMS
Hermann Børge Funck Jensen, 16 Møller Meyersvej, Risskov, Denmark
Filed Nov. 26, 1962, Ser. No. 239,926
Claims priority, application Great Britain, Nov. 27, 1961, 42,322/61
23 Claims. (Cl. 340—147)

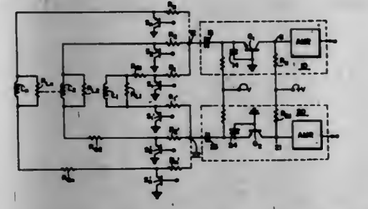


3. In an automatic control system for use with a working machine having a plurality of electrically controlled operation performing members adapted to be controlled by means of command signals, and a plurality of data signal means adapted to produce electrical data signals indicative of the progress of the operation cycle in combination: progressively operable switch means having a plurality of stages and adapted to be switched in response to receipt of an indexing signal, and indexing means operable to produce indexing signals including an electronic input member operable to be actuated in response to receipt of a data signal and an electronic output member operable to produce an indexing signal in response to the actuation of the input member, produce one indexing signal only in response to each data signal, means operatively connecting said indexing means with said progressive switch means to shift said progressive switch means by means of each of said indexing signals to effectively provide data logging represented by numerical values of said progressive switch means, and means operatively connecting said progressive switch means with said operation performing members operable to supply and distribute command signals to said operation performing members in predetermined correlation to the data signals.

3,320,590
SWITCHING SYSTEM FOR SELECTIVELY CONNECTING PLURAL SIGNAL SOURCES TO OUTPUT CHANNELS
Alexander Rovell, Pico Rivera, Calif., assignor to North American Aviation, Inc.
Filed Sept. 12, 1963, Ser. No. 308,545
10 Claims. (Cl. 340—147)

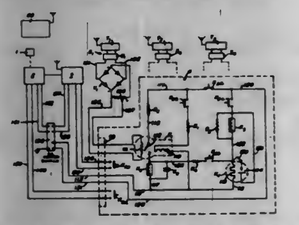
1. In combination
a plurality of signal sources, each connected in series between two terminals,
first and second output channels, each having a separate input terminal,
a first plurality of impedance elements, one for each source, coupling one terminal of each of said sources to the input terminal of said first output channel,

a second plurality of impedance elements, one for each source, coupling the other terminal of each of said sources to the input terminal of said second output channel,
a first plurality of switches, one coupled to said one terminal of each of said signal sources, for shunting to a source of reference potential all signals to said first output channel except from a selected signal source, and



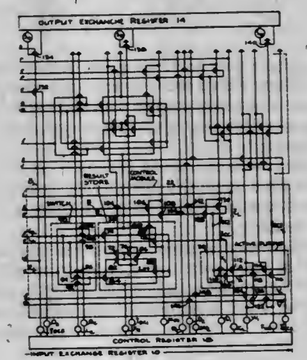
a second plurality of switches, one coupled to said other terminal of each of said signal sources, for shunting to a source of reference potential all signals to said second output channel except from a selected source.

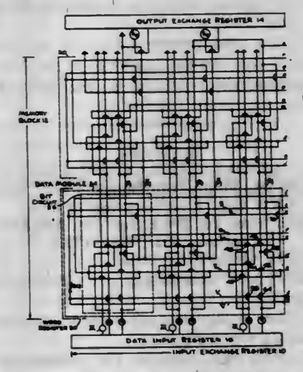
3,320,591
METERING SYSTEM RESPONSIVE TO INTERROGATIONS FROM A CENTRAL STATION
Robert H. Mix, Central Valley, Calif., assignor to the United States of America as represented by the Secretary of the Interior
Filed Dec. 13, 1962, Ser. No. 244,532
11 Claims. (Cl. 340—152)



1. In a signaling system having a central information accumulating station comprising a signal transmitter and a signal receiver, a plurality of remote information gathering stations each comprising a signal receiver and a signal transmitter, including an oscillator, supplying processed data to the central station receiver in response to interrogation signals received by said signal receivers at the remote stations from said central station transmitter, the latter being selectively controlled to broadcast signals at predetermined frequencies within a range of frequencies detectable by the remote station receivers, each said remote station also comprising a band-pass filter tuned to pass only particular predetermined frequencies of said range of frequencies, data processing equipment including an operation initiate and timing apparatus having a timer device and switching means, a data detecting and signal coding arrangement comprising a signal coding control circuit, a data readout register having a plurality of date storage components, each said component including an array of numerically related conductive contact elements and a contact scanning means positionable relative to said array in accordance with the information received in said arrangement to complete a circuit connection with an element of said array, means operable in a regular numerically predetermined stepwise sequence to complete transient circuit connections to the conductive elements corresponding to the same number in all said components, and further means sequentially operable for individually connecting to said signal coding control circuit the circuit-connected conductive elements in contact with said contact scanning means of said components, the output signal of said filter being effective to activate said timer device, and said switching means to complete power supply circuits in said arrangement and said transmitter at the remote station whereby said signal coding control circuit is made operative to produce a steady sequence of pulsating outputs to said signal transmitter oscillator corresponding to the number of said transient circuit connections completed to said contact elements, the number of said pulsating outputs produced in reading out each of said plurality of data storage components, as each is connected by operation of said further means, being determined in accordance with the setting of said contact scanning means in each such component, said oscillator thereby being made responsive to the output of the said arrangement whereby it provides signals at audio tone frequencies for transmission as tone coded data representing the information gathered at said remote station, for a period of time determined by the operation of said timer device in said apparatus.

3,320,592
ASSOCIATIVE MEMORY SYSTEM
John L. Rogers, Hermosa Beach, and Horace T. Mann, Palos Verdes Estates, Calif., assignors, by mesne assignments, to TRW Inc., a corporation of Ohio
Filed Apr. 11, 1963, Ser. No. 272,404
17 Claims. (Cl. 340—172.5)

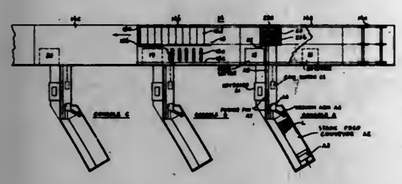




1. In a memory system including means for storing word information in digital form, means for reading out those words for which a selected portion of their information content lies between two predetermined numerical limits, comprising:

means for simultaneously comparing the information contained in each stored word with the information content of one of said predetermined limits;
means for simultaneously comparing the information contained in each stored word with the information content of the other of said predetermined limits;
means for storing the results of such comparisons for each word;
and means for reading out in sequence those words for which the stored result indicates that the selected portion of the stored information lies numerically between said predetermined limits.

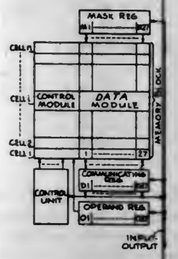
3,320,593
MEMORY TYPE CONTROL SYSTEM FOR MAIL SORTING MACHINE
Robert R. Hedrick, Milwaukee, and Harold S. Montgomery, Wauwatosa, Wis., and Curtis H. Richmond, Plainview, N.Y., assignors to Cutler-Hammer, Inc., Milwaukee, Wis., a corporation of Delaware
Filed Mar. 6, 1964, Ser. No. 349,946
26 Claims. (Cl. 340—172.5)



1. In a system for controlling an article sorting machine of the type which feeds articles one at a time from a supply past a reading station into the sorting machine for travel past a plurality of discharge gates; the improvement comprising:
information memory means having stored therein article destination codes identifying sorter discharge gates and corresponding to name codes of recipients of the articles;
a code register and means operable for inserting in said register in the system name codes from articles passing by the reading station, said name codes comprising at least a portion of the identification data of intended recipients thereof appearing on the articles;
means for extracting from said memory means the article destination code corresponding to each registered name code;
and means for transmitting the article destination code to control the sorting machine at the same time as the corresponding article is fed into the sorting machine.

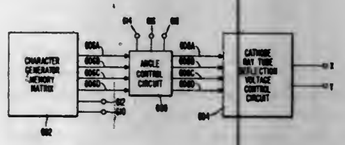
3,320,594
ASSOCIATIVE COMPUTER
Paul M. Davies, Manhattan Beach, Calif., assignor to TRW Inc., a corporation of Ohio
Filed Mar. 10, 1964, Ser. No. 350,843
5 Claims. (Cl. 340—172.5)

3. A plurality of memory cells,
each memory cell comprising a control module, and a data module,
writing means in the control module of each cell for generating a writing signal,
means in every data module for generating a match indicating signal for determining the existence of a match between stored information in said cell and information from a communicating register,
means for feeding the match indicating signal generated in the data module of each memory cell to the control module of that cell,
means for feeding the match indicating signal generated in the data module to the control module of an adjacent cell,
means within each control module responsive to match indicating signals fed to that control module for controlling said writing means,
each of said data module comprising a plurality of bit positions each individually communicating with a corresponding bit position of said communicating register, and



means in each bit position of said communicating register for transmitting a signal having an informational portion and a control portion to all memory cells, each bit position of each data module having means responsive to said control portion and a writing signal from the associated control module for storing the informational portion of said signal.

3,320,595
CHARACTER GENERATION AND CONTROL CIRCUITS
Gilbert Yanishevsky, Philadelphia, Pa., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan
Filed June 16, 1964, Ser. No. 375,523
9 Claims. (Cl. 340—172.5)

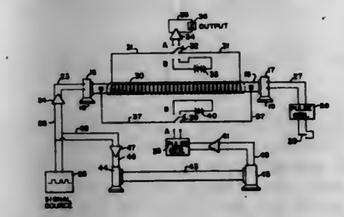


1. The combination comprising:
memory means, adapted to be addressed by a selection circuit, for selectively providing signal outputs representing a radius vector and a polar angle that is stored in said memory means to memory-means output terminals; and
control means electrically connected to said memory means, for selectively changing the value of said polar angle.

3,320,596
STORING AND RECALLING SIGNALS
Noyes D. Smith, Jr., and William L. Roever, Bellaire, Tex., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware
Filed Dec. 7, 1961, Ser. No. 157,796
15 Claims. (Cl. 340—174)

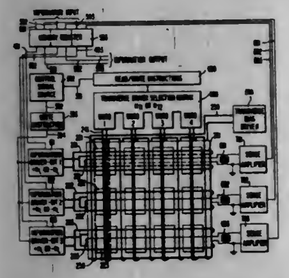
1. The method of storing a signal having an amplitude which varies with time which comprises:
(a) magnetically polarizing an elongate body of magneto-strictive material, said polarizing including an axial component;

(b) applying said signal as a series of mechanical signal stresses to said elongate body and propagating corresponding acoustic signal waves along the length thereof; and



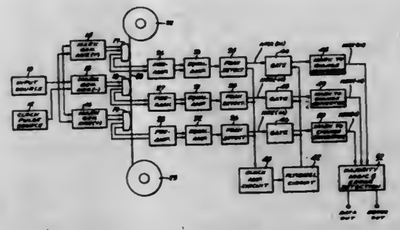
(c) establishing a series of remanent stresses and polarizations along the length of said body corresponding to said signal waves within the body by applying thereto simultaneously at different points along the length of the body a short polarizing pulse during the said propagation of the signal waves, said polarizing pulse including a magnetic component that is orthogonal with respect to the first-mentioned polarization.

3,320,597
MAGNETIC DATA STORE WITH NONDESTRUCTIVE READ-OUT
Joseph W. Hart, Audubon, Pa., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan
Filed Apr. 15, 1963, Ser. No. 273,045
14 Claims. (Cl. 340—174)



1. A data store comprising at least one bistable magnetic storage element capable of attaining opposed states of residual flux density along an average axis of anisotropy, means for magnetizing said element substantially in a predetermined one of said states, means for providing a bias magnetizing field substantially transverse to the initial direction of said axis of anisotropy, said bias magnetizing field causing said axis of anisotropy to rotate from its initial direction toward the direction of said bias field, means for applying an interrogation magnetizing field to said element in substantially the same direction as said bias field, said interrogation magnetizing field being applied to said element after the application of said bias field and while said bias field is present, said interrogation field causing a rotation of the magnetization of said element toward a direction transverse to the initial direction of said axis of anisotropy, the combined amplitudes of said bias and interrogation fields being such that said element is not switched from said predetermined state to its opposite state, the rotation of said axis of anisotropy by said bias field serving to expand and extend the non-switching region of the switching curve for said storage element whereby the degree of rotation of the magnetization of said element effected without domain reversal by said interrogation field is considerably greater than if the axis of anisotropy had not been rotated by said bias field.

3,320,598
SELF-CLOCKING COMPLEMENTARY REDUNDANT RECORDING SYSTEM
Jack Star, San Carlos, Calif., assignor to Ampex Corporation, Redwood City, Calif., a corporation of California
Filed Oct. 4, 1962, Ser. No. 228,418
4 Claims. (Cl. 340—174.1)

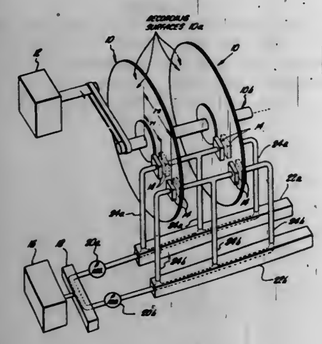


1. A system for recording and reproducing binary digital data with high accuracy and reliability comprising:
pulse generator means responsive to the binary digital data for generating NRZ(M) coded data in a pair of data channels and NRZ(—M) coded data in a single channel, where NRZ (M) represents recording transitions for one of the binary states and NRZ (—M) represents recording transitions for the other of the binary states, such that there is at least one transition for each data position along the channels;
a number of magnetic recording means receiving the data in each of the three channels and coupled to provide parallel track NRZ recordings therefrom;
a number of magnetic reproducing means coupled to play back the parallel track NRZ recordings to provide digital data;
means responsive to the digital data from the magnetic reproducing means for generating a clock pulse for each bit period; and
majority rule logic circuit means responsive to the digital data from each of the parallel tracks and to the clock pulses for generating output binary digital data.

3,320,599
MOUNTING AND ACTUATING APPARATUS FOR A MAGNETIC HEAD
Shahbuddin A. Billawala, Pasadena, Calif., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan
Filed June 7, 1963, Ser. No. 286,374
9 Claims. (Cl. 340—174.1)

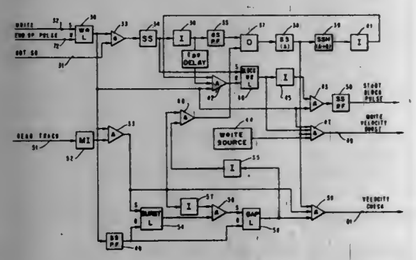
1. In a storage apparatus including a plurality of disk surfaces rotating in a fluid atmosphere so as to form a fluid bearing adjacent thereto, each disc surface including a plurality of circular magnetic tracks positioned at different radial positions thereon, each of said tracks on each disk surface being arranged at the same radial position as a track on each of the other disk surfaces, at least one magnetic head for each of said tracks supported to allow actuation onto the fluid bearing adjacent the corresponding track, means for each of said heads comprising a fluid chamber including an input port and a plunger extending out of said chamber and actuated by fluid pressure in the chamber for applying a force to the corresponding head for moving same into a floating position on the asso-

ciated fluid bearing, and an adjustable pressure regulating device for each different radial position of the heads for coupling a pressure source to the input port of each of the fluid chambers for the heads at corresponding radial



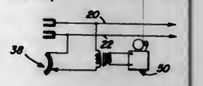
position for controlling the pressure applied to such chambers and to the corresponding plunger for thereby allowing simultaneous control of spacing between head and magnetic surface of all said heads at the same radial position adjacent the disk surfaces.

3,320,600
TAPE VELOCITY CHANGE DETECTION CIRCUIT
Lewis L. Headrick, Wappingers Falls, and Earl W. Miller, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed June 27, 1963, Ser. No. 291,062
11 Claims. (Cl. 340—174.1)



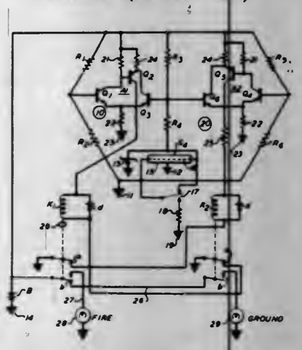
1. A velocity change detection circuit comprising:
a time measuring means for being actuated by at least one predetermined time interval,
means for writing at least two indications on a surface under control of said time measuring means, with said indications being spaced from each other by the predetermined time interval as they are written,
reading means having a predetermined spaced relationship from said means for writing, said reading means following said writing means and sensing both of said indications in subsequent time relationship,
said time measuring means being actuated by the first one of said indications being read,
and means for comparing the time of reading said second indication with the actuation of said time measuring means and providing an indication therefrom.

3,320,601
COMBINED FIRE SENSING ALARM AND ELECTRIC POWER RECEPTACLE
Albert M. Yankus, 6 Ardsley Lane, East Islip, N.Y. 11730
Filed May 11, 1964, Ser. No. 366,285
5 Claims. (Cl. 340—227.1)



1. In combination with a wall mounted enclosure internally receiving a cable enclosing electrical conductors connected to a circuit establishing device and a wall plate, closing said closure and having perforations formed therein, means for providing a fire warning comprising, thermal responsive switch means, means mounting the switch means within the receptacle abutting the wall plate and in alignment with said perforations for exposing the switch means to temperature conditions externally of the enclosure, alarm means mounted within the enclosure for issuing alerting signals externally of the enclosure through said perforations, and means electrically connecting the thermal responsive switch means to the electrical conductors and the alarm means for issuing said altering signals in response to closing of the switch means.

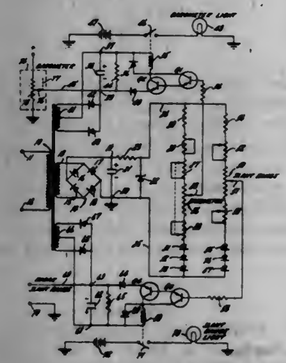
3,320,602
FIRE DETECTOR SYSTEMS HAVING FALSE ALARM PREVENTION
William W. Andrews, Cranford, N.J., assignor to McGraw-Edison Company, Elgin, Ill., a corporation of Delaware
Filed July 17, 1964, Ser. No. 383,360
7 Claims. (Cl. 340—233)



1. A fire detection system including a negative temperature coefficient resistor device for sensing fire conditions, said sensing device being characterized as having a thermal time delay in its response, first and second Wheatstone bridges have a common branch, said sensing device being connected in an arm of said common branch, respective diagonal output circuits connected to said bridges each including an output relay, said first bridge being pre-set in a state of unbalance to operate its respective relay when the resistance of said sensor device falls to a first predetermined value, said second bridge being pre-set in a greater state of unbalance to cause its respective relay to be operated when the resistance of said sensing device falls to a second resistance value substantially lower than said first value, means for delaying said first relay relative to said second relay by an operate time which is substantially less than the response time of said sensing device in falling from said first to said second resistance values responsive to the sensing device being subjected to an elevated temperature whereby upon exposure of said

sensing device to a fire condition said first relay is the first to be operated but upon a short circuit developing in said sensing device said second relay is the first to be operated, an alarm circuit, and means controlled jointly by said relays for activating said alarm circuit.

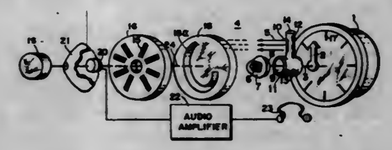
3,320,603
BOMBING RELEASE INDICATOR FOR USE WITH A RANGE RADAR
Robert N. McCaffrey, Indianapolis, and Richard E. McCormick, Beech Grove, Ind., assignors to the United States of America as represented by the Secretary of the Navy
Filed July 7, 1964, Ser. No. 380,961
5 Claims. (Cl. 340—248)



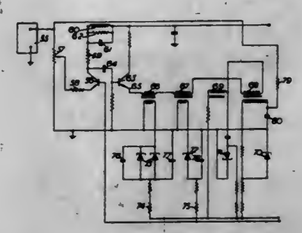
1. A transistor voltage comparing indicator circuit comprising:
a pair of transistors coupled in cascade having a base electrode, a collector electrode, and an emitter electrode;
a switch relay coil and a first diode in parallel having one terminal coupled to said collector electrode;
a capacitor;
means developing a voltage across said capacitor, one terminal of said capacitor being coupled to the other terminal of said parallel coupled coil and diode and the other terminal of said capacitor being coupled through a second diode to said emitter electrode;
an analog voltage representative of a changing factor coupled to said emitter electrode through said second diode;
an adjustable voltage coupled to said base electrode for setting in a desired voltage level to be compared by said changing analog voltage; and
an indicator in circuit with said switch of said switch relay coil whereby the adjustable voltage can be set at a desired level at which the analog voltage will indicate equality by energizing said indicator.

3,320,604
INDICATOR ANNOUNCING SYSTEM
Ralph H. Baer, Manchester, N.H., assignor to Sanders Associates, Inc., Nashua, N.H., a corporation of Delaware
Filed Feb. 10, 1965, Ser. No. 431,533
18 Claims. (Cl. 340—266)

1. An indicator announcing system comprising meter means having a movable indicator, a light source adapted to provide a light beam, means to change the position of said light beam proportional to the displacement of said indicator, at least one film sound track having prerecorded thereon a predetermined meter position of said light beam corresponding to said predetermined meter indication, means for optically scanning said track by said light beam in said predetermined position thereof, photoelectric transducer means to provide an output signal responsive to the light from said beam passing through said sound track and means for converting said output signal to an audio signal corresponding to said predetermined meter indication.



3,320,605
CODING EQUIPMENT FOR PULSE CODE MODULATION SYSTEMS
Alec Harley Reeves, London, England, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware
Filed May 12, 1964, Ser. No. 366,778
Claims priority, application Great Britain, May 24, 1963, 20,842/63
18 Claims. (Cl. 340—347)



1. An analogue-to-digital converter, which comprises a system of inter-coupled multi-stable devices each of which is imparted a different switching characteristic, and to which an analogue quantity to be converted to its digital equivalent can be applied, the application of said analogue quantity tending to set said multi-stable devices to any one of a number of conditions, and an input over which a damped oscillatory condition may be applied to said multi-stable devices, the arrangement being such that when said oscillatory condition ends the conditions to which said multi-stable devices have been set as a result of an analogue condition applied thereto at the same time as said oscillatory condition represent a digital code combination corresponding to said analogue condition.

3,320,606
CODE CONVERTERS
Leon Gryk, New Britain, Conn., assignor, by mesne assignments, to Royal Typewriter Company, Inc., New York, N.Y., a corporation of Delaware
Continuation of application Ser. No. 349,422, Mar. 4, 1964. This application Nov. 16, 1966, Ser. No. 596,716
8 Claims. (Cl. 340—347)

1. Apparatus for converting code patterns of a first system into corresponding code patterns of a second system wherein code patterns in each system may be employed twice to represent upper and lower case information, said dual meaning code patterns being distinguishable by lower and upper case precedence code patterns designating that

the code patterns following a precedence code pattern represent lower or upper case information, and wherein information assigned to upper and lower case is likely to differ from system to system comprising

a first disc having serially recorded therein on radial lines first system code patterns,

a second disc having serially recorded therein on radial lines all of the corresponding ones of second system code patterns, each of said radial lines including the case designator of the information represented by the code pattern, the code patterns in said first and second discs representing corresponding information being orientated at the same angular positions with respect to a reference on each of said discs,

a continuously driven shaft,

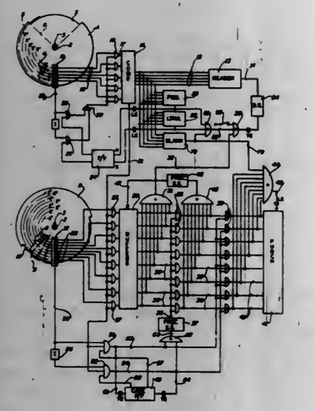
means mounting said discs with said references in alignment on said shaft,

first and second transducer means associated respectively with said first and second discs,

said transducer means being positioned to simultaneously read corresponding code patterns and case designators as the discs are driven, thereby generating code signal patterns and case designator signals,

a source operative to issue first system code signal patterns,

comparator means for generating a gate signal upon coincidence of first system code signal patterns generated by said first transducer means and code signal patterns issuing from said source,



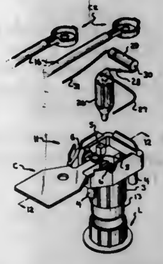
second system code signal pattern storage means,

first gate means conditioned by said gate signal to pass the second system code signal pattern generated by said second transducer means over the interval of coincidence to said storage means,

recording means,

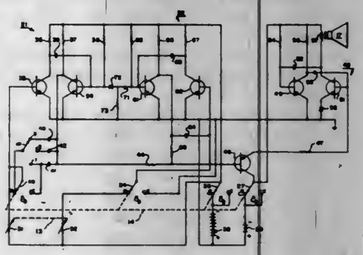
and circuit means operable in response to the simultaneous application of said gate signal and to a case designator signal generated during the coincidence interval by said second transducer means to gate said stored code signal pattern to said recording means if the case designator signal generated is the same as that generated during the previous coincidence interval, said circuit means being operable to generate a case precedence code signal pattern for recording prior to gating said stored code signal pattern to said recording means when the case designator signal generated by said second transducer means differs from that generated during the previous coincidence interval.

3,320,607
HOUSING FOR INDICATING LAMP OR OTHER ELECTRICAL COMPONENTS
Herman Rueger, Lancaster, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed Oct. 25, 1963, Ser. No. 318,977
17 Claims. (Cl. 340—381)



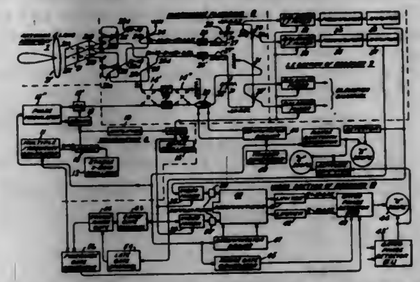
1. An insulative housing for containing electrical components comprising a body portion having a sleeve section and a cover section hingedly connected thereto, post means disposed on said body portion, means engaging said post means to make electrical connection with the electrical components in said body portion, said post means providing strain relief for the electrical connection and means to maintain said cover section in a closed position on said body portion overlying said electrical components.

3,320,608
AFTER BEAT METRONOME
Albert S. Pande, 6776 Thornhill Drive, Oakland, Calif. 94611, and Gordon D. Browning, 19056 Stanton Ave., Castro Valley, Calif. 94546
Filed June 8, 1964, Ser. No. 373,386
3 Claims. (Cl. 340—384)



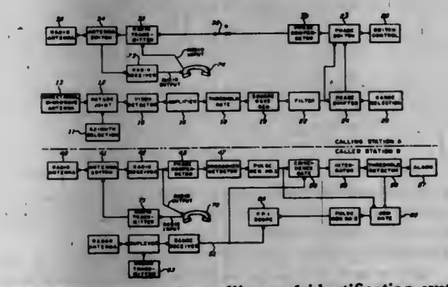
1. An after beat metronome comprising, first and second RC timed electronic multivibrator circuits each producing a regular periodic output pulse discernible from the other and with the frequency of one pulse being an integer multiplier of the other, with said first multivibrator circuit providing the slower and said second multivibrator circuit providing the faster pulse respectively, means coupling said circuits for synchronizing said pulses for simultaneous starting time sequence, said first multivibrator circuit being formed to provide a pulse of longer duration than said faster pulse but in synchronism therewith whereby said slower pulse provides the down beat and said faster pulses the after beats, a manually controlled switch and a plurality of capacitors connected for selection thereby in said second circuit providing after beat frequencies of selectable integer multiples of said down beat frequency, and a pair of variable resistors one in each of said mulitvibrator circuits and gang connected for simultaneous manual operation and formed to provide on simultaneous operation equal ratio changes to their respective maximum resistance values for proportionally changing the frequencies of said down and after beats.

3,320,609
HIGH RESOLUTION RADAR SYSTEMS
Omar J. Jacomini, Severna Park, Md., assignor to General Electric Company, a corporation of New York
Filed June 16, 1964, Ser. No. 376,611
6 Claims. (Cl. 343—5)



1. A high resolution radar system for tracking a moving object comprising means for periodically transmitting several frequencies that are spaced at equal frequency increments and are uncorrelated in phase, a multiple frequency generator for generating the signal transmitted by said transmitting means, means for receiving the returns of the transmitted frequencies, said returns being reflected from all reradiators of the object being tracked, said returns including the transmitted frequencies as well as the Doppler shift frequencies caused by movement of the object being tracked, means coupled to said receiver means and said multiple frequency generator for producing an output spread out in time relative to the time of arrival at said receiving means containing only the Doppler shift frequencies and gating means for passing pulse signals representing the nearest reflecting surface.

3,320,610
DETECTION, IDENTIFICATION AND COMMUNICATION SYSTEM
William L. Lassetter, Charlottesville, Va., assignor to Sperry Rand Corporation, a corporation of Delaware
Filed Sept. 9, 1965, Ser. No. 486,063
8 Claims. (Cl. 343—6)



5. A position-selective calling and identification system including two separated stations,

a search radar at one of said stations for producing a succession of radar pulses at a certain repetition frequency,

directional antenna means at the other of said stations for receiving said radar pulses,

means at said other station responsive to said radar pulses for producing a sine wave having a frequency that is a function of the repetition frequency of said radar pulses,

means at said other station for advancing the phase of said sine wave by an amount corresponding to the phase delay experienced by radar pulses in propagating a round trip between said stations,

switching means at said other station coupled to receive both the phase shifted sine wave and the non-phase shifted sine wave and operable to alternately pass said two difference sine waves,

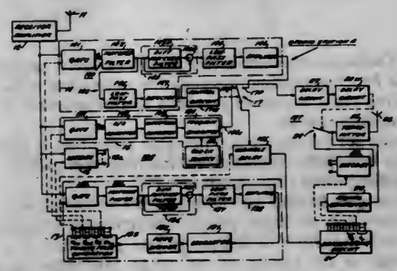
radio transmitting and radiating means at said other station coupled to receive the output of said switching means and operating to radiate a sine wave modulated radio signal,

means at said one station for receiving and detecting said modulated radio signal and for producing reference pulses at predetermined reference points of a detected sine wave,

coincidence means having a first input for receiving said reference pulses and having a second input for receiving presently generated radar triggers from said one station and radar echo pulses from its search radar,

indicator means operable in response to the output of said coincidence means for providing an indication of coincidence of signals applied to said coincidence means.

3,320,611
TIME-DIVISION RADIO RELAY COMMUNICATION SYSTEM
Tadahiro Sekimoto and Hisashi Kaneko, Tokyo, Japan, assignors to Nippon Electric Company Limited, Tokyo, Japan
Filed Mar. 30, 1965, Ser. No. 443,834
Claims priority, application Japan, Apr. 11, 1964, 39/20,424
8 Claims. (Cl. 343—6.5)



2. Time-slot determining means for use in subsidiary stations of a time-division radio relay communication system typically comprised of a relay station, such as a satellite relay station, positioned at an appreciable distance from a plurality of ground stations which are located within the service area of said relay station and which interchange relayed radio communication at the substantially equal frequency band by using said relay station in common but at respectively different predetermined time slots, characterized in that said ground stations are composed of a plurality of subsidiary stations and a master station for sending out to said relay station at a predetermined repetition frequency a transmitter signal comprising both a synchronizing signal serving as the reference of said time slots and a satellite-position-representing signal; and a plurality of subsidiary stations, said time-slot determining means comprising:

first means for sending out search pulses at time points determined by a synchronizing signal and satellite-position-representing signal received from the master station through said relay station and by the information obtained from an ephemeris;

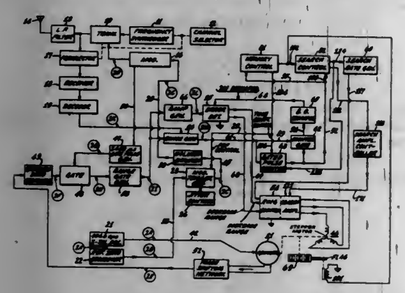
second means for detecting whether each of the search pulses has returned through said relay station to the

associated station prior to or subsequent to a preferred time position predetermined with reference to the pulses of said synchronizing signal;

third means for controlling, in response to the result of the detection, the time at which succeeding search pulses are transmitted so that each of these pulses may return to the associated station at the said preferred time position; and

fourth means for maintaining synchronism, once detected, where the search pulses return to the associated station at the respective preferred time positions.

3,320,612
DME WITH STEPPER TYPE SERVO MOTOR
Robert P. Crow and Dov Malkin, Los Angeles, Calif., assignors to Radio Corporation of America, a corporation of Delaware
Filed Aug. 17, 1965, Ser. No. 480,465
10 Claims. (Cl. 343—7.3)



1. Distance measuring equipment (DME) comprising means for transmitting interrogation pulses and means for receiving reply pulses in response to transmission of said interrogation pulses,

means for producing a range gate pulse that is shiftable in time with respect to an interrogation pulse,

a bidirectional ring counter,

means for driving said ring counter in one direction in response to reply pulses occurring simultaneously with a portion of the range gate pulse that is to one side of the center of the range gate pulse and for driving said ring counter in the other direction in response to reply pulses occurring simultaneously with a portion of the range gate pulse that is to the other side of the center of the range gate pulse,

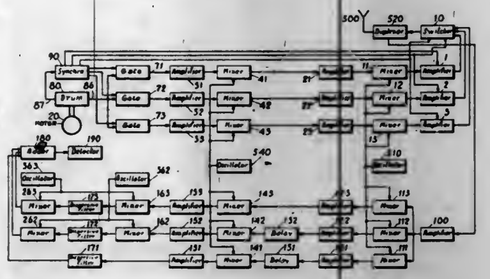
a stepper motor,

means coupling said ring counter to said motor for stepping said motor in one direction in response to said ring counter being driven in one direction and for stepping said motor in the other direction in response to said ring counter being driven in the other direction

and means for shifting the timing of said range gate pulse as a function of the rotation of said motor to make said DME automatically track in range.

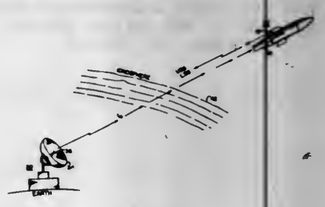
3,320,613
PULSE-COMPRESSION METHODS AND SYSTEMS
Yves Brault and Roland Carré, Paris, France, assignors to Compagnie Generale de Telegraphie Sans Fil, a corporation of France
Filed July 21, 1961, Ser. No. 128,330
Claims priority, application France, July 28, 1960, 834,223
7 Claims. (Cl. 343—17.2)

2. An apparatus for compressing a frequency modulated pulse, capable of being compressed by imparting to its different instantaneous frequencies a delay which is a function of the instantaneous frequency, said apparatus comprising essentially: first means, for splitting said frequency modulated pulse into at least two partial pulses; and second means for imparting said delay to the instantaneous frequencies of each of said partial pulses, said last mentioned means having an output and comprising delay means for imparting the same delay to all



the instantaneous frequencies of at least one of said partial pulses, and dispersive filtering means for filtering each of said partial pulses; and adding means for adding up the resulting pulses thus obtained at said output of said second means.

3,320,614
REMOTE ORIENTATION INDICATOR
Charles E. Jedrey, Jr., 7906 Halleck St., District Heights, Md. 20028
Filed May 27, 1965, Ser. No. 459,478
4 Claims. (Cl. 343—18)



4. A method of optimizing communication between a control station and a remote station of unknown orientation comprising the following steps:

Transmitting from said control station a signal of predetermined frequency which is linearly polarized in a predetermined direction;

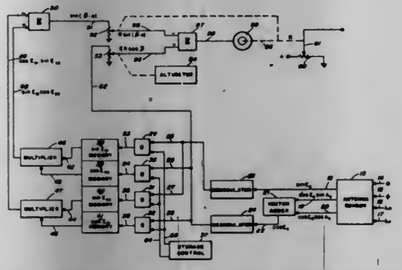
Reflecting said signal from said remote station as two signal components of frequencies different than said predetermined frequency and which have relative amplitudes that are indicative of the orientation of said remote station relative to the direction of polarization of said signal as said signal arrives at said remote station;

Receiving said two signal components at said control station;

Analyzing the amplitudes of said two received signal components to determine the relative orientation of said remote station and said direction of polarization of said signal at said remote station and

Changing the direction of polarization of future signals transmitted by said control station so that said changed polarization direction is at a predetermined optimum relation to the orientation of said remote station when said signals arrive at said remote station.

3,320,615
PASSIVE ANGLE RANGING APPARATUS
John D. Albright, Beltsville, and Clyde R. Chadbourne, Baltimore, Md., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed Nov. 30, 1964, Ser. No. 414,934
4 Claims. (Cl. 343—112)



4. A system for determining the distance between an airborne receiver and an airborne radiating source comprising

radiation receiving means in the receiver having at least one degree of freedom,

storage means connected to the radiation receiver to record signals indicative of the angles at which radiations are received from the radiating source, said angles formed by the intersection of lines between said receiving means and radiating source and a line parallel to the surface of the earth,

first generating means connected to the receiving means to provide a signal indicative of the cosine of the angles at which radiation is received,

second generating means connected to the storage means to provide a signal indicative of the sine of the difference between two angles at which radiation is received,

altimeter means to determine the altitude of the receiver,

third generating means connected to the altimeter and first generating means to provide a signal proportional to the product of the altitude and the cosine of the receiving angle,

means to multiply the output of the second generator by a factor proportional to the desired distance,

means to compare the product of the altitude times the cosine of the received angle with the product of the desired distance and the sine of the difference between the angles, and

means to vary the factor by which the output of the second generator is multiplied until the output of the comparison means is a minimum.

3,320,616
SATELLITE ALTITUDE DETERMINATION BY RADIO INTERFEROMETRY
Maxime G. Kaufman, Camp Springs, Md., and Francis X. Downey, Annandale, Va., assignors to the United States of America as represented by the Secretary of the Navy
Filed Apr. 16, 1965, Ser. No. 448,896
1 Claim. (Cl. 343—112)

In a satellite surveillance system that includes transmitting means that propogates a thin wall of electromagnetic energy:

First receiving site means for detecting electromagnetic energy reflected by a satellite penetrating said wall of energy and for producing a first electrical signal representative of the direction of said satellite from said first receiving site means;

Second receiving site means, separately located from said first receiving site means, for detecting electromagnetic energy reflected by a satellite penetrating said wall of energy and for producing a second electrical signal representative of the direction of said satellite from said second receiving site means and

A computer connected to receive said first and second electrical signals and to produce an indication of the height of said satellite according to the equation

$$h = d\left(\frac{\sin A \cdot \sin B}{\sin A \cdot \cos B + \sin B \cdot \cos A}\right)$$

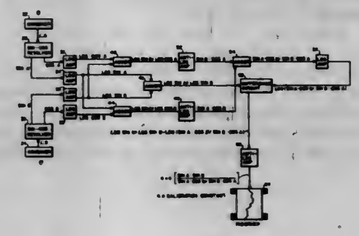
where

h is the height of the satellite,

d is the distance between said first and second receiving site means and

A and B are the angular directions from said first and second receiving site means to the satellite,

said computer comprising:



First and second sin-cos resolvers connected to receive said first and second electrical signals;

Logarithmic amplifiers connected to said first and second sin-cos resolvers to produce signals representative of the logarithms of sin A, sin B, cos A and cos B;

A first combining circuit connected to said logarithmic amplifiers for producing a third electrical signal representative of the sum of the logarithms of sin A and sin B;

A second combining circuit connected to said logarithmic amplifiers for producing a fourth electrical signal representative of the logarithm of the sum of sin $A \cdot \cos B$ and sin $B \cdot \cos A$;

A difference circuit connected to receive said third and fourth electrical signals;

An anti-logarithmic amplifier connected to said difference circuit and

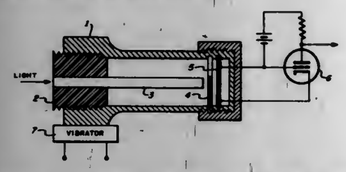
A recorder connected to said anti-logarithmic amplifier.

3,320,617
METHOD OF MAKING FREQUENCY RESPONSIVE APPARATUS
Robert D. Hawkins, Greenlawn, and Leo S. Balandis, Valley Stream, N.Y., assignors to Sperry Rand Corporation, Great Neck, N.Y., a corporation of Delaware
Filed May 19, 1964, Ser. No. 368,542
8 Claims. (Cl. 346—1)

3. The method of producing photographically a recording of a plurality of patterns from an array of light transmitting fibers so supported by a block that said fibers have different resonant frequencies, at least one of said

patterns being representative of a desired signal including the steps of:

(a) exposing a light sensitive film to light transmitted from said fibers when said fibers are in a first condition to provide a first pattern,

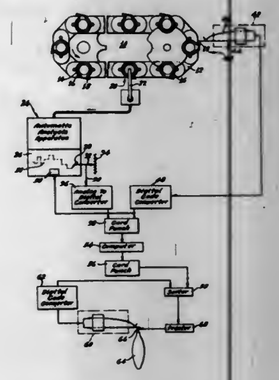


(b) exposing said film to light transmitted from said fibers when said fibers are in a second condition to provide a second snuperimposed pattern representative of said desired signal, and

(c) photographically developing said film to provide a superimposed record of said patterns.

3,320,618
SAMPLE ANALYSIS APPARATUS
Ballin L. Kuch, Brooklyn, Milton F. Pelavin, Greenburgh, and Alvin L. Brooks, New City, N.Y., assignors to Technicon Instruments Corporation, Chauncey, N.Y., a corporation of New York
Filed Nov. 27, 1964, Ser. No. 414,302
16 Claims. (Cl. 346—35)

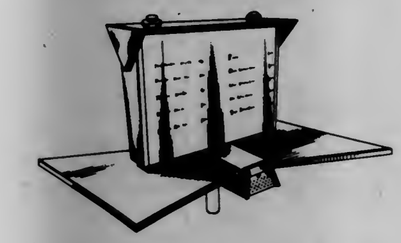
1. A system comprising: a plurality of sample containers, each of said sample containers bearing indicia identifying said sample container, and adapted to contain a sample therein; analysis means for analyzing a plurality of liquid samples and for providing an output signal responsive to the result of each analysis; off-take means for removing a quantity of sample from each of said sample containers and for supplying these samples to said analysis means as a continuous stream of seriatim samples; a plurality of supply containers, each of said supply containers bearing indicia identifying said supply container and correlating said supply container with one of said plurality of sample containers; means coupled to said analysis means for reading out the indicia identifying each said sample container, for reading out the indicia identifying said supply container, and for providing each supply container with indicia responsive to the results of the analysis of the substance in the correlated sample container.



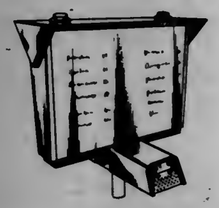
DESIGNS

MAY 16, 1967

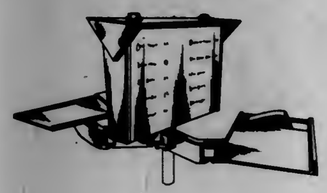
207,621
COMBINED MENU SIGN, TRAY HOLDER, AND COMMUNICATIONS UNIT FOR A DRIVE-IN RESTAURANT
Henry Dreyfuss, New York, N.Y., assignor to American Machine & Foundry Company, a corporation of New Jersey
Filed May 6, 1966, Ser. No. 2,188
Term of patent 14 years
(Cl. D1—12)



207,622
COMBINED MENU SIGN AND COMMUNICATIONS UNIT FOR A DRIVE-IN RESTAURANT
Henry Dreyfuss, New York, N.Y., assignor to American Machine & Foundry Company, a corporation of New Jersey
Filed May 6, 1966, Ser. No. 2,196
Term of patent 14 years
(Cl. D1—12)



207,623
COMBINED MENU SIGN, TRAY HOLDER, AND COMMUNICATIONS UNIT FOR A DRIVE-IN RESTAURANT
Henry Dreyfuss, New York, N.Y., assignor to American Machine & Foundry Company, a corporation of New Jersey
Filed May 6, 1966, Ser. No. 2,205
Term of patent 14 years
(Cl. D1—12)



207,624
BRASSIERE
Enrico Bruno, Brooklyn, N.Y., assignor to Maidenform, Inc., New York, N.Y., a corporation of New York
Filed Sept. 29, 1966, Ser. No. 4,083
Term of patent 7 years
(Cl. D2—24)



207,625
LADY'S CONVERTIBLE COAT
Henrik B. Jorgensen, 1228 Grant Ave., San Francisco, Calif. 94108
Filed Jan. 24, 1966, Ser. No. 724
Term of patent 14 years
(Cl. D2—184)



207,626
SAFETY HAT
Charles S. Evans, 124 Isabella Ave., Atherton, Calif. 94026
Filed July 19, 1965, Ser. No. 86,211
Term of patent 3½ years
(Cl. D2—231)



207,627
SWIM CAP
Adolph Reinsberg, Los Angeles County, Calif., assignor to Roger A. Marrs
Filed Oct. 24, 1965, Ser. No. 87,923
Term of patent 14 years
(Cl. D2—236)



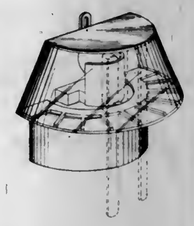
207,628
SLIDE FASTENER ACTUATOR
Warren B. Zern, 1016 N. Evans and Mineral St., Pottstown, Pa. 19464, and Charles H. Bode, New Hope, Pa.; said Bode assignor to said Zern
Filed July 29, 1966, Ser. No. 3,263
Term of patent 14 years
(Cl. D2—415)



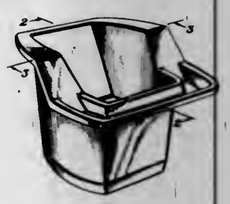
207,629
BRASSIERE
Charles M. Sachs, West Englewood, and Edward Jannicelli, Jr., Ramsey, N.J., assignors to International Playtex Corporation, a corporation of Delaware
Filed Feb. 10, 1966, Ser. No. 993
Term of patent 14 years
(Cl. D2—24)



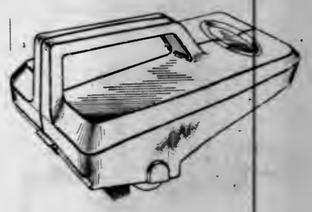
207,630
COMBINED TOOTHBRUSH HOLDER AND DRIER
Noah Byron Jones, R.D. 1, Summer Hill Farm, Brownsville, Pa. 15417
Filed Jan. 14, 1966, Ser. No. 611
Term of patent 14 years
(Cl. D4—3)



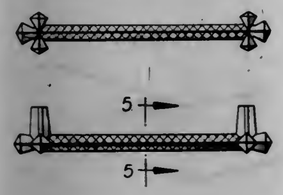
207,631
BABY BATH
Alma R. Baker, 2921 Overton Park E., Fort Worth, Tex. 76109
Filed July 29, 1966, Ser. No. 3,262
Term of patent 14 years
(Cl. D4—4)



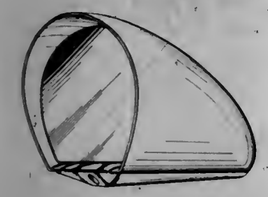
207,632
PORTABLE MANUALLY OPERATED RUG SHAMPOOER
Howard A. Anderson, Pittsburgh, Pa., assignor to Bissell Inc., Grand Rapids, Mich., a corporation of Michigan
Filed Aug. 24, 1966, Ser. No. 3,575
Term of patent 14 years
(Cl. D9—2)



207,633
PULL OR THE LIKE
Nolan K. Rhoades, Beloit, Wis., assignor to National Lock Co., Rockford, Ill., a corporation of Delaware
Filed Dec. 2, 1966, Ser. No. 4,902
Term of patent 14 years
(Cl. D10—8)



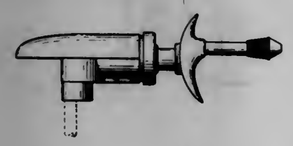
207,634
SIDE VIEW MIRROR
Joachim Engelmann, 57 Wennebostel, Hannover, Germany
Filed Mar. 22, 1966, Ser. No. 1,587
Term of patent 14 years
Claims priority, application Germany Sept. 24, 1965
(Cl. D14—6)



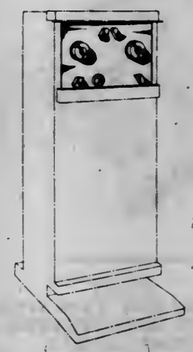
207,635
SQUEEZABLE COUPLING FOR MEDICAL LIQUID ADMINISTRATION SET
Byron H. Wickett, Glendale, Calif., assignor to Don Baxter, Inc., Glendale, Calif., a corporation of Nevada
Filed May 23, 1966, Ser. No. 2,389
Term of patent 14 years
(Cl. D16—1)



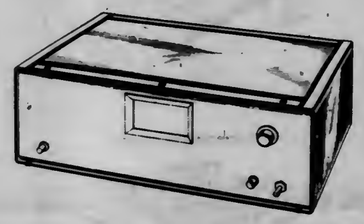
207,636
LIQUID PUMP
Juel D. Clevenger, Raytown, and Michael A. Waters, Independence, Mo., assignors to Cook Chemical Company, Kansas City, Mo., a corporation of Missouri
Filed Aug. 5, 1966, Ser. No. 3,356
Term of patent 14 years
(Cl. D24—1)



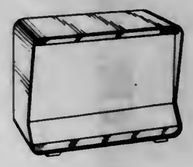
207,637
TAPE DECK
Ronald E. Loosen, Woodland Hills, and Leon C. Sanderson, Los Angeles, Calif., assignors to Ampex Corporation, Redwood City, Calif., a corporation of California
Filed Dec. 9, 1965, Ser. No. 195
Term of patent 14 years
(Cl. D26—5)



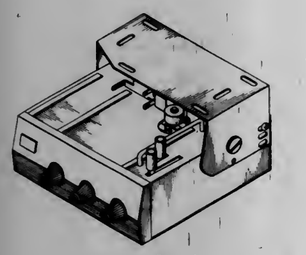
207,638
ENCLOSURE FOR ELECTRONIC EQUIPMENT
Carl J. Clement, Jr., Palo Alto, Calif., assignor to Spectra-Physics, Inc., Mountain View, Calif., a corporation of California
Filed June 14, 1965, Ser. No. 85,713
Term of patent 14 years
(Cl. D26—5)



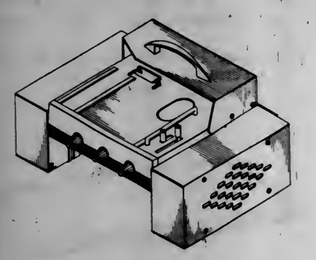
207,639
CASING FOR A COMPUTER CONSOLE
Leslie R. Walstrom, 16823 Excelsior Blvd., Minnetonka, Minn. 55343
Filed Sept. 27, 1965, Ser. No. 87,181
Term of patent 14 years
(Cl. D26—5)



207,640
MAGNETIC TAPE PLAYBACK UNIT OR SIMILAR ARTICLE
David Krechman, 329 S. McCarty Drive, Beverly Hills, Calif. 90212
Filed Aug. 30, 1965, Ser. No. 86,764
Term of patent 14 years
(Cl. D26—14)



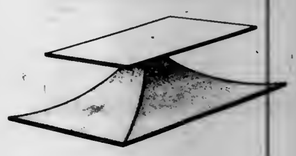
207,641
COMBINED MAGNETIC TAPE STEREO PLAY-BACK DEVICE AND SPEAKER CABINET UNIT OR SIMILAR ARTICLE
David Krechman, 329 S. McCarty Drive, Beverly Hills, Calif. 90212
Filed Oct. 23, 1965, Ser. No. 87,859
Term of patent 3½ years
(Cl. D26—14)



207,642
CAMPAIGN BADGE
Martha Robinson Hartwell, 5163 Cassandra Lane, San Diego, Calif. 92109
Filed June 27, 1966, Ser. No. 2,827
Term of patent 14 years
(Cl. D29—3)



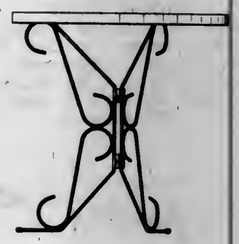
207,643
FURNITURE BASE
Ralph S. Tincher, Montgomery County, Ohio (4731 Babylon St., Dayton, Ohio 45439)
Filed Mar. 12, 1965, Ser. No. 84,232
Term of patent 14 years
(Cl. D33—3)



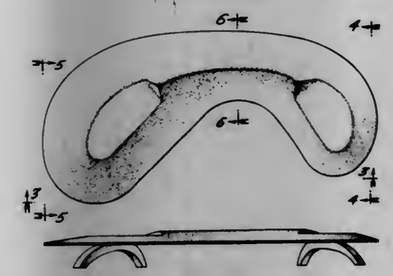
207,644
CLOTHES BAR
John Matyas, 13852 Real Ave., Detroit, Mich. 48227
Filed Feb. 4, 1966, Ser. No. 922
Term of patent 14 years
(Cl. D33—8)



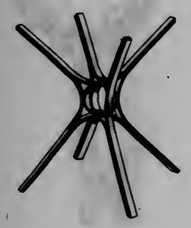
207,645
TABLE OR SIMILAR ARTICLE
Charles R. Goetz, Carnegie, Pa., and William P. Heinrich, Chicago, Ill., assignors to Stylette Plastics, Inc., Oakdale, Pa., a corporation of Pennsylvania
Filed Dec. 1, 1965, Ser. No. 4
Term of patent 14 years
(Cl. D33—14)



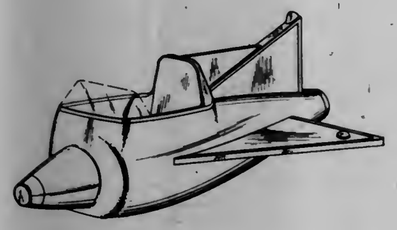
207,646
TABLE
Theodore W. Separa, 320 E. Breckenridge, Ferndale, Mich. 48220
Filed Apr. 20, 1965, Ser. No. 84,882
Term of patent 3½ years
(Cl. D33—14)



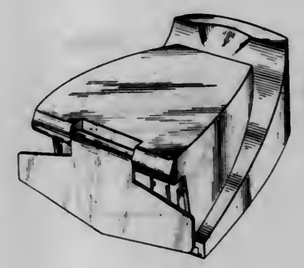
207,647
TABLE SUPPORT
Edward J. Wormley, New York, N.Y., assignor to Dunbar Furniture Corporation of Indiana, Berne, Ind., a corporation of Indiana
Filed Sept. 16, 1965, Ser. No. 87,057
Term of patent 14 years
(Cl. D33—14)



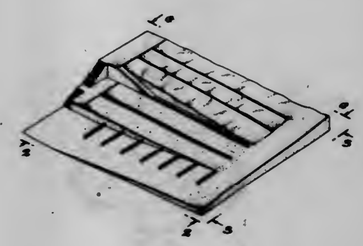
207,648
PASSENGER VEHICLE FOR AMUSEMENT DEVICES
Lavoy Winton, Mount Dora, Fla. 32757
Filed Jan. 27, 1966, Ser. No. 788
Term of patent 14 years
(Cl. D34—.5)



207,649
PRACTICE PUTTING TARGET
Harold W. Scholin, 1125 N. Northwest Highway, Park Ridge, Ill. 60068
Filed Apr. 1, 1966, Ser. No. 1,743
Term of patent 14 years
(Cl. D34—5)



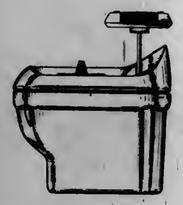
207,650
SKATEBOARD COURSE STRUCTURE
Goodwin Alarik, La Canada, Calif., assignor to Surfers' World, Inc., Laguna Beach, Calif., a corporation of California
Filed Sept. 13, 1965, Ser. No. 86,972
Term of patent 7 years
(Cl. D34—5)



207,651
COMBINED ROCKET AND LAUNCHING VEHICLE TOY
John W. Ryan, Bel Air, and Daniel H. Meggs, Redondo Beach, Calif., assignors to Mattel, Inc., a corporation of California
Filed Feb. 1, 1966, Ser. No. 826
Term of patent 14 years
(Cl. D34—15)



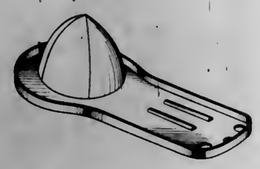
207,652
REMOTE CONTROL FOR A TOY VEHICLE
Jesse D. Horowitz, 61 Jane St., New York, N.Y. 10014
Filed Mar. 31, 1966, Ser. No. 1,706
Term of patent 7 years
(Cl. D34—15)



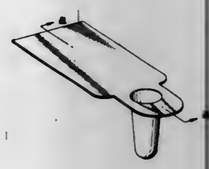
207,653
TOY SPINNING TOP
Peter Ballels, 55 Hermann-Lons-Strasse, Zirndorf, near Nurnberg, Germany
Filed Oct. 22, 1965, Ser. No. 87,741
Claims priority, application Germany Aug. 31, 1965
Term of patent 14 years
(Cl. D34—15)



207,654
BALL ROLLING GAME HAT
David E. Mann, Jr., Wyncote, Pa.
(3223 N. Broad St., Philadelphia, Pa. 19140)
Filed Nov. 24, 1965, Ser. No. 88,210
Term of patent 14 years
(Cl. D34—15)



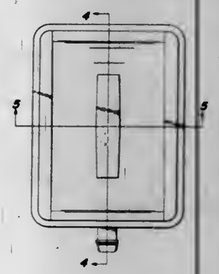
207,655
SEED MEASURING CUP FOR USE WITH CROP PLANTERS
Ralph E. Kunze, Columbus, Ohio, assignor to The Farm Bureau Cooperative Association, Inc., Columbus Ohio, a corporation of Ohio
Filed May 9, 1966, Ser. No. 2,220
Term of patent 14 years
(Cl. D35—2)



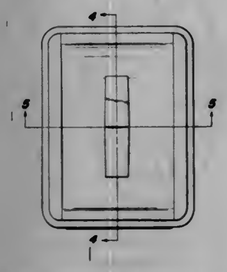
207,656
CLOCK
Benjamin Levy, Hewlett, N.Y., assignor to United Metal Goods Mfg. Co., Inc., a corporation of New York
Filed Oct. 24, 1965, Ser. No. 87,926
Term of patent 7 years
(Cl. D42—7)



207,657
CANISTER OR SIMILAR ARTICLE
Harold O. Wagner, Sheffield Lake, and Manuel S. Ziskin, Mayfield Heights, Ohio, assignors to American Trading and Production Corporation, Baltimore, Md., a corporation of Maryland
Filed Apr. 27, 1966, Ser. No. 2,047
Term of patent 14 years
(Cl. D44—6)



207,658
CANISTER OR SIMILAR ARTICLE
Harold O. Wagner, Sheffield Lake, and Manuel S. Ziskin, Mayfield Heights, Ohio, assignors to American Trading and Production Corporation, Baltimore, Md., a corporation of Maryland
Filed Apr. 29, 1966, Ser. No. 2,069
Term of patent 14 years
(Cl. D44—6)



207,659
COFFEE MAKER
Henricus Franciscus Theresia Schellens, Drachten, Netherlands, assignor to North American Philips Co., Inc.
Filed Jan. 14, 1966, Ser. No. 610
Claims priority, application Switzerland July 14, 1965
Term of patent 14 years
(Cl. D44—26)



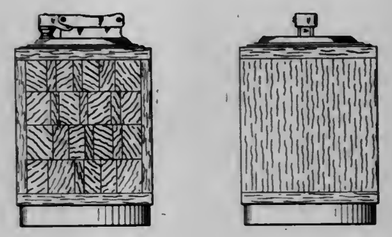
207,660
COMBINED CANDLE HOLDER AND CANDLE THEREFOR
Walter I. Bieger, Minneapolis, Minn., assignor to Arthur Salm Inc., Chicago, Ill., a corporation of Illinois
Continuation of design application Ser. No. 74,996, May 21, 1963. This application Feb. 12, 1965, Ser. No. 83,799
Term of patent 14 years
(Cl. D48—2)



207,661
TABLE LIGHTER
Jeff D. Gandelman, 2185 Lemoine Ave., Fort Lee, N.J. 07024
Filed Apr. 20, 1966, Ser. No. 1,954
Term of patent 14 years
(Cl. D48—27)



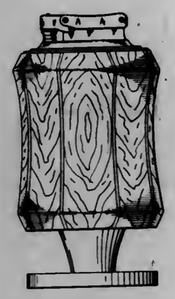
207,662
TABLE LIGHTER
Jeff D. Gandelman, 2185 Lemoine Ave., Fort Lee, N.J. 07024
Filed Apr. 20, 1966, Ser. No. 1,943
Term of patent 14 years
(Cl. D48—27)



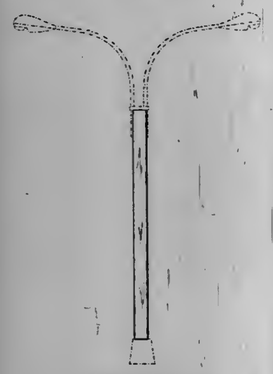
207,663
TABLE LIGHTER
Jeff D. Gandelman, 2185 Lemoine Ave., Fort Lee, N.J. 07024
Filed Apr. 20, 1966, Ser. No. 1,944
Term of patent 14 years
(Cl. D48—27)



207,664
TABLE LIGHTER
Jeff D. Gandelman, 2185 Lemoine Ave., Fort Lee, N.J. 07024
Filed Apr. 20, 1966, Ser. No. 1,955
Term of patent 14 years
(Cl. D48—27)



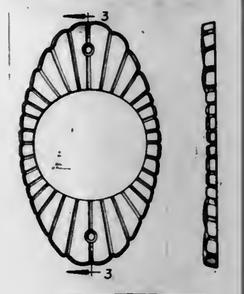
207,665
OUTDOOR LIGHT POST
Donald Deskey, 222 Central Park S., New York, N.Y. 10019, and Alexander Lurkis, 193—12 Nero Ave., Holliswood, Jamaica, N.Y. 11423
Filed July 13, 1965, Ser. No. 86,139
Term of patent 14 years
(Cl. D48—31)



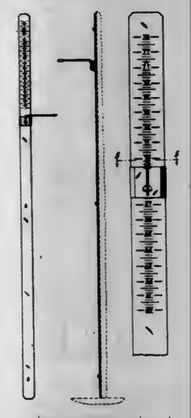
207,666
SIGNAL LIGHT FOR AN AUTOMOBILE
Richard Laupot, New York, N.Y. (% Retract-A-Belt Corp., 75 Clymer St., Brooklyn, N.Y. 11211)
Filed Feb. 18, 1966, Ser. No. 1,110
Term of patent 14 years
(Cl. D48—32)



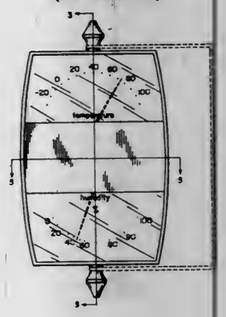
207,667
ESCUTCHEON OR THE LIKE
Roy A. Stone, Rockford, Ill., assignor to National Lock Co., Rockford, Ill., a corporation of Delaware
Filed Sept. 26, 1966, Ser. No. 4,024
Term of patent 14 years
(Cl. D50—6)



207,668
HEIGHT MEASURING SCALE
Gene A. McAtee, St. Louis, Mo., assignor to Lee-Rowan Company, St. Louis, Mo., a corporation of Missouri
Filed Mar. 21, 1966, Ser. No. 1,560
Term of patent 14 years
(Cl. D52—6)



207,669
SPACE CONDITION RESPONSIVE INSTRUMENT
Leo F. Wildgen, Minneapolis, Minn., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware
Filed Jan. 27, 1966, Ser. No. 794
Term of patent 14 years
(Cl. D52—7)



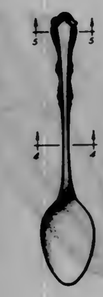
207,670
SNAP SPACER FOR SHAFTS
Zelmer A. Gilbert, 336 La Grande Ave., Fanwood, N.J. 07023
Filed Feb. 17, 1966, Ser. No. 1,090
Term of patent 7 years
(Cl. D54—1)



207,671
SPOON OR SIMILAR ARTICLE
Arnold Thaler, Ossining, N.Y., assignor to American Home Products Corporation, New York, N.Y., a corporation of Delaware
Filed Aug. 1, 1966, Ser. No. 3,286
Term of patent 14 years
(Cl. D54—12)



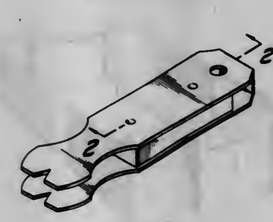
207,672
SPOON OR SIMILAR ARTICLE
Marion Weeber, New York, N.Y., assignor to American Home Products Corporation, New York, N.Y., a corporation of Delaware
Filed Aug. 1, 1966, Ser. No. 3,288
Term of patent 14 years
(Cl. D54—12)



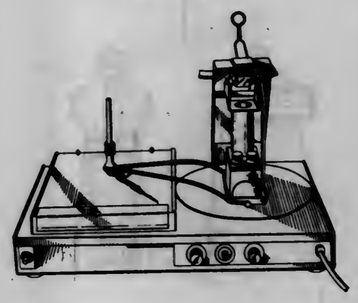
207,673
SPOON OR SIMILAR ARTICLE
Marion Weeber, New York, N.Y., assignor to American Home Products Corporation, New York, N.Y., a corporation of Delaware
Filed Aug. 1, 1966, Ser. No. 3,290
Term of patent 14 years
(Cl. D54—12)



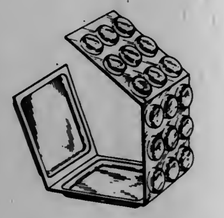
207,674
MAGNETIC NAIL HOLDER OR THE LIKE
Cloyd D. Smith, 13805 Rancheros Drive, Reno, Nev. 89502
Filed July 12, 1966, Ser. No. 3,046
Term of patent 14 years
(Cl. D54—13)



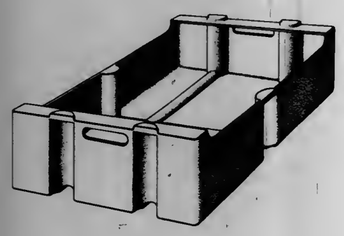
207,675
VISION TESTING APPARATUS
Thomas L. Hermann, Springfield, Ohio, assignor to Bausch & Lomb Incorporated, Rochester, N.Y., a corporation of New York
Filed Aug. 29, 1966, Ser. No. 3,626
Term of patent 14 years
(Cl. D57—1)



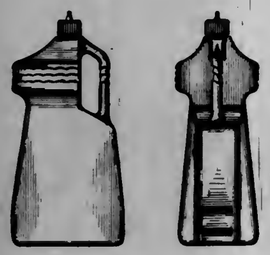
207,676
COMBINED FOLDING TABLET PACK AND INTEGRAL CONTAINER
Edward Walter Tugwood, Iver Heath, England, assignor to Aspro-Nicholas Limited, London, England, a corporation of Great Britain
Filed May 20, 1965, Ser. No. 85,403
Claims priority, application Great Britain Nov. 26, 1964
Term of patent 14 years
(Cl. D58—2)



207,677
STACKING BOX
Franklyn S. Reaume, Ypsilanti, Mich., assignor to Advance Industries, Inc., London, Ohio, a corporation of Ohio
Filed June 2, 1966, Ser. No. 2,524
Term of patent 14 years
(Cl. D58—5)



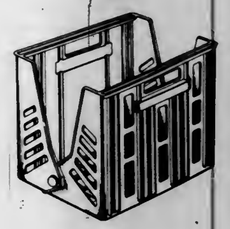
207,678
JUG
James E. Cunningham, Islington, Ontario, Canada, assignor to Witco Chemical Company, Inc., New York, N.Y., a corporation of Delaware
Filed Sept. 10, 1965, Ser. No. 86,929
Term of patent 14 years
(Cl. D58—5)



207,679
PRODUCE TRAY
Thomas B. Kennedy, Stamford, Conn., assignor to Diamond International Corporation, New York, N.Y., a corporation of Delaware
Filed Feb. 3, 1966, Ser. No. 901
Term of patent 14 years
(Cl. D58—12.6)



207,680
RECEPTACLE FOR FOOD STUFFS
James D. Wilson, Long Beach, Calif., assignor to Banner Metals, Inc., Compton, Calif., a corporation of Ohio
Filed Nov. 12, 1965, Ser. No. 508,063
Term of patent 14 years
(Cl. D58—12.6)



207,681
WATERSLED
Russell G. Heston, Jr., Little Silver, N.J., and Wesley F. Junker, Copiague, N.Y., assignors, by mesne assignments, to Union Carbide Corporation, New York, N.Y., a corporation of New York
Filed Aug. 2, 1966, Ser. No. 3,316
Term of patent 14 years
(Cl. D71—1)



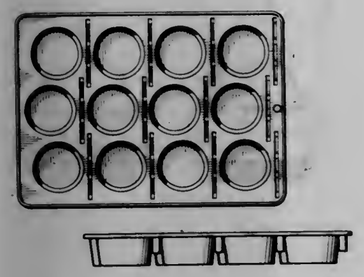
207,682
MAILBOX
Luis F. Villa, 1727 Moravian St., Philadelphia, Pa. 19103
Filed July 12, 1966, Ser. No. 3,041
Term of patent 14 years
(Cl. D74—9)



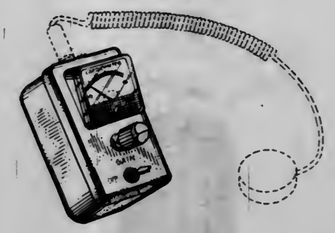
207,683
COUNTER DISPLAY RACK
Daniel E. Gelles, 1140 Broadway, Kerhonkson, N.Y. 10001
Filed June 16, 1966, Ser. No. 2,700
Term of patent 14 years
(Cl. D80—10)



207,684
PILL TRAY
Harry C. Welch, Sr., 1521 Avolancia Ave., Fullerton, Calif. 92132
Filed Mar. 8, 1966, Ser. No. 1,358
Term of patent 7 years
(Cl. D83—1)



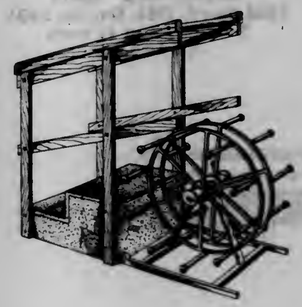
207,685
CARDIOMETER FOR MONITORING HEARTBEATS
Bernard B. King, Venice, Calif., assignor, by mesne assignments, to Douglas Aircraft Company, Inc., Santa Monica, Calif., a corporation of Delaware
Filed June 23, 1966, Ser. No. 2,794
Term of patent 14 years
(Cl. D83—1)



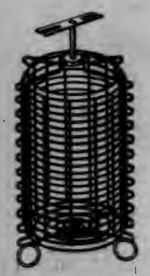
207,686
ELECTRONIC FACIAL MUSCLE STIMULATOR
John I. Moss, Skokie, Ill., assignor to Relaxacizor, Inc., Los Angeles, Calif., a corporation of California
Filed Sept. 16, 1966, Ser. No. 3,887
Term of patent 14 years
(Cl. D83—1)



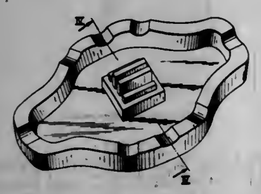
207,687
THERAPEUTIC EXERCISING APPARATUS
William E. Berne, Columbia, S.C., and Eugene R. Douglas, Rockaway, N.J., assignors to La Berne Manufacturing Company, Inc., Columbia, S.C., a corporation of South Carolina
Filed Nov. 4, 1966, Ser. No. 4,552
Term of patent 14 years
(Cl. D83—1)



207,688
COIL SUPPORT FOR CARDIO-VASCULAR BLOOD WARMING UNITS
Glen G. Drexler and William R. Baggott, Cleveland, and George E. Baggott, Mayfield Heights, Ohio, assignors to Crown-X, Inc., Mayfield Heights, Ohio, a corporation of Ohio
Filed July 21, 1965, Ser. No. 86,237
Term of patent 14 years
(Cl. D83—1)



207,689
ASH TRAY OR SIMILAR ARTICLE
Joseph V. Pathe, 2240 W. Granville, Chicago, Ill. 60645
Filed May 25, 1966, Ser. No. 2,428
Term of patent 14 years
(Cl. D85—2)



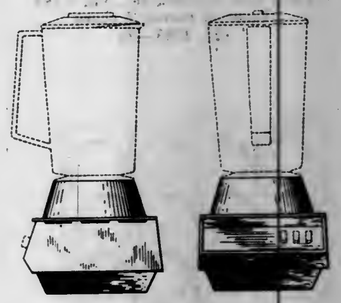
207,690
COMB
Leonard R. Marsano, 3581 Cumberland Ave., Berkley, Mich. 48072
Filed June 9, 1966, Ser. No. 2,633
Term of patent 14 years
(Cl. D86—8)



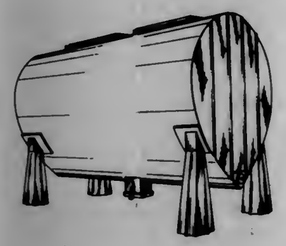
207,691
PLASTIC COATED SHEET MATERIAL
Richard A. Mazur, McFarland, Wis., assignor to Uniroyal, Inc., a corporation of New Jersey
Filed Jan. 14, 1966, Ser. No. 671
Term of patent 14 years
(Cl. D87—3)



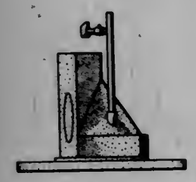
207,692
BASE FOR A BLENDER OR THE LIKE
Downer P. Dykes, Lawrence, Kans., assignor to Rival Manufacturing Company, a corporation of Missouri
Filed May 11, 1966, Ser. No. 2,249
Term of patent 14 years
(Cl. D89—1)



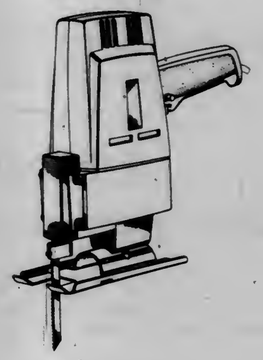
207,693
STORAGE TANK
Leslie W. Haug and Maurice W. Goodwill, both of Box 447, Cooperstown, N. Dak. 58425
Filed Aug. 6, 1965, Ser. No. 86,481
Term of patent 14 years
(Cl. D91—1)



207,694
OUTDOOR DRINKING FOUNTAIN
Luis F. Villa, 1727 Moravian St., Philadelphia, Pa. 19103
Filed July 12, 1966, Ser. No. 3,048
Term of patent 14 years
(Cl. D91—4)



207,695
ELECTRIC SABRE SAW OR SIMILAR ARTICLE
Robert I. Gresens, Rochester, N.Y., and Max C. Hauenstein, Monroe, and Arthur M. Felske, Westport, Conn., assignors to General Electric Company, a corporation of New York
Filed June 30, 1966, Ser. No. 2,874
Term of patent 14 years
(Cl. D93—3)



207,696
COMBINED DRY SHAVER AND HAIR CLIPPER
Henricus Franciscus Theresia Schellens, Drachten, Netherlands, assignor to North American Philips Co., Inc.
Filed Apr. 18, 1966, Ser. No. 1,918
Claims priority, application Switzerland Nov. 24, 1965
Term of patent 14 years
(Cl. D95—3)



LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 16TH DAY OF MAY, 1967

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Faulkner, Willard J., to V-M Corp. Multi-track magazine tape recorder with movable head and elastic band drive for tape and reels. Re. 26,205, 5–16–67, Cl. 274—4.

Greenfield, Albert B. Barrier. Re. 26,203, 5–16–67, Cl. 256—1.

V-M Corp.: *See*—
Faulkner, Willard J. Re. 26,205.

Young, Bernard W., to R. T. Young. Methods of forming and applying mixtures. Re. 26,204, 5–16–67, Cl. 259—149.

Young, Raymond T.: *See*—
Young, Bernard W. Re. 26,204.

LIST OF PLANT PATENTEES

Boerner, Eugene S., to Jackson & Perkins Co. Chrysanthemum plant. 2,739, 5–16–67, Cl. 79.

Boerner, Eugene S., to Jackson & Perkins Co. Chrysanthemum plant. 2,740, 5–16–67, Cl. 81.

Boerner, Eugene S., to Jackson & Perkins Co. Chrysanthemum plant. 2,741, 5–16–67, Cl. 81.

Jackson & Perkins Co.: *See*—
Boerner, Eugene S. 2,739.
Boerner, Eugene S. 2,740.
Boerner, Eugene S. 2,741.

Marzilli, Armond, and J. F. Schmidt, Jr; said Marzilli, assor. of ½ to J. C. Marzilli. Dogwood tree. 2,743, 5–16–67, Cl. 51.

Marzilli, John C.: *See*—
Marzilli, Armond, and Schmidt. 2,743.

Schmidt, John F., Jr.: *See*—
Marzilli, Armond, and Schmidt. 2,743.

Steindorf, Herbert W. Apricot or prunus armeniaca. 2,742, 5–16–67, Cl. 39.

LIST OF DESIGN PATENTEES

Advance Industries, Inc.: *See*—
Reaume, Franklyn S. 207,677.

Alarik, Goodwin, to Surfers' World, Inc. Skateboard course structure. 207,650, 5–16–67, Cl. D34—5.

American Home Products Corp.: *See*—
Thaler, Arnold. 207,671.
Weeber, Marlon. 207,672.
Weeber, Marlon. 207,673.

American Machine & Foundry Co.: *See*—
Dreyfuss, Henry. 207,621.
Dreyfuss, Henry. 207,622.
Dreyfuss, Henry. 207,623.

American Trading and Production Corp.: *See*—
Wagner, Harold O., and Ziskin. 207,657.
Wagner, Harold O., and Ziskin. 207,658.

Ampex Corp.: *See*—
Loosen, Ronald E., and Sanderson. 207,637.

Anderson, Howard A., to Bissell Inc. Portable manually operated rug shampooer. 207,632, 5–16–67, Cl. D9—2.

Aspro-Nicholas Ltd.: *See*—
Tugwood, Edward W. 207,676.

Baggott, George E.: *See*—
Drexler, Glen G., W. R. and G. E. Baggott. 207,688.

Baggott, William R.: *See*—
Drexler, Glen G., W. R. and G. E. Baggott. 207,688.

Baker, Alma R. Baby bath. 207,631, 5–16–67, Cl. D4—4.

Ballels, Peter. Toy spinning top. 207,653, 5–16–67, Cl. D34—15.

Banner Metals, Inc.: *See*—
Wilson, James D. 207,680.

Bausch & Lomb Inc.: *See*—
Hermann, Thomas L. 207,675.

Baxter, Don, Inc.: *See*—
Wickett, Byron H. 207,635.

Berne, William E., and E. R. Douglas, to La Berna Mfg. Co., Inc. Therapeutic exercising apparatus. 207,687, 5–16–67, Cl. D83—1.

Bieger, Walter I., to Arthur Salm Inc. Combined candle holder and candle therefor. 207,660, 5–16–67, Cl. D48—2.

Bissell Inc.: *See*—
Anderson, Howard A. 207,632.

Bode, Charles H.: *See*—
Zern, Warren B., and Bode. 207,628.

Bruno, Enrico, to Maidenform Inc. Brassiere. 207,624, 5–16–67, Cl. D2—24.

Clement, Carl J., Jr., to Spectra-Physics, Inc. Enclosure for electronic equipment. 207,638, 5–16–67, Cl. D26—5.

Clevenger, Juel D., and M. A. Waters, to Cook Chemical Co. Liquid pump. 207,636, 5–16–67, Cl. D24—1.

Cook Chemical Co.: *See*—
Clevenger, Juel D., and Waters. 207,636.

Crown-X, Inc.: *See*—
Drexler, Glen G., W. R. and G. E. Baggott. 207,688.

Cunningham, James E., to Witco Chemical Co., Inc. Jug. 207,678, 5–16–67, Cl. D58—5.

Deskey, Donald, and A. Lurkis. Outdoor light post. 207,665, 5–16–67, Cl. D48—31.

Diamond International Corp.: *See*—
Kennedy, Thomas B. 207,679.

Douglas Aircraft Co., Inc.: *See*—
King, Bernard B. 207,685.

Douglas, Eugene R.: *See*—
Berne, William E., and Douglas. 207,687.

Drexler, Glen G., W. R. and G. E. Baggott, to Crown-X, Inc. Coil support for cardio-vascular blood warming units. 207,688, 5–16–67, Cl. D83—1.

Dreyfuss, Henry, to American Machine & Foundry Co. Combined menu sign, tray holder, and communications unit for a drive-in restaurant. 207,621, 5–16–67, Cl. D1—12.

Dreyfuss, Henry, to American Machine & Foundry Co. Combined menu sign and communications unit for a drive-in restaurant. 207,622, 5–16–67, Cl. D1—12.

Dreyfuss, Henry, to American Machine & Foundry Co. Combined menu sign, tray holder and communications unit for a drive-in restaurant. 207,623, 5–16–67, Cl. D1—12.

Dunbar Furniture Corp. of Indiana: *See*—
Wormley, Edward J. 207,647.

Dykes, Downer P., to Rival Mfg. Co. Base for blender or the like. 207,692, 5–16–67, Cl. D89—1.

Engelmann, Joachim. Side view mirror. 207,634, 5–16–67, Cl. D14—6.

Evans, Charles S. Safety hat. 207,626, 5–16–67, Cl. D2—231.

Farm Bureau Cooperative Association, Inc., The: *See*—
Kunze, Ralph E. 207,655.

Felski, Arthur M.: *See*—
Gresens, Robert I., Hauenstein, and Felske. 207,695.

Gandelman, Jeff D. Table lighter. 207,661, 5–16–67, Cl. D48—27.

Gandelman, Jeff D. Table lighter. 207,662, 5–16–67, Cl. D48—27.

Gandelman, Jeff D. Table lighter. 207,663, 5–16–67, Cl. D48—27.

Gandelman, Jeff D. Table lighter. 207,664, 5–16–67, Cl. D48—27.

Gelles, Daniel E. Counter display rack. 207,683, 5–16–67, Cl. D80—10.

General Electric Co.: *See*—
Gresens, Robert I., Hauenstein, and Felske. 207,695.

Gilbert, Zelmer A. Snap spacer for shafts. 207,670, 5–16–67, Cl. D54—1.

Goetz, Charles R., and W. P. Heinrich, to Stylette Plastics, Inc. Table or similar article. 207,645, 5–16–67, Cl. D33—14.

Goodwill, Maurice W.: *See*—
Haug, Leslie W., and Goodwill. 207,693.

Gresens, Robert I., M. C. Hauenstein, and A. M. Felske, to General Electric Co. Electric sabre saw or similar article. 207,695, 5–16–67, Cl. D93—3.

Hartwell, Martha R. Campaign badge. 207,642, 5–16–67, Cl. D29—3.

Hauenstein, Max C.: *See*—
Gresens, Robert I., Hauenstein, and Felske. 207,695.

Haug, Leslie W., and M. W. Goodwill. Storage tank. 207,693, 5–16–67, Cl. D91—1.

Heinrich, William P.: *See*—
Goetz, Charles R., and Heinrich. 207,645.

Hermann, Thomas L., to Bausch & Lomb Inc. Vision testing apparatus. 207,675, 5–16–67, Cl. D57—1.

Heston, Russell G., Jr., and W. F. Junker, to Union Carbide Corp. Watersled. 207,681, 5–16–67, Cl. D71—1.

Honeywell Inc.: *See*—
Wildgen, Leo F. 207,669.

Horowitz, Jesse D. Remote control for a toy vehicle. 207,652, 5–16–67, Cl. D34—15.

International Playtex Corp.: *See*—
Sachs, Charles M., and Jannicelli. 207,629.

Jannicelli, Edward, Jr.: *See*—
Sachs, Charles M., and Jannicelli. 207,629.

Jones, Noah B. Combined toothbrush holder and drier. 207,630, 5–16–67, Cl. D4—3.

Jorgensen, Henrik B. Lady's convertible coat. 207,625, 5–16–67, Cl. D2—184.

Junker, Wesley F.: *See*—
Heston, Russell G., Jr., and Junker. 207,681.

Kennedy, Thomas B., to Diamond International Corp. Produce tray. 207,679, 5–16–67, Cl. D58—12.6.

King, Bernard B., to Douglas Aircraft Co., Inc. Cardiometer for monitoring heartbeats. 207,685, 5–16–67, Cl. D83—1.

Krechman, David. Magnetic tape playback unit or similar article. 207,640, 5–16–67, Cl. D26—14.

Krechman, David. Combined magnetic tape stereo playback device and speaker cabinet unit or similar article. 207,641, 5–16–67, Cl. D26—14.

Kunze, Ralph E., to The Farm Bureau Cooperative Assn., Inc. Seed measuring cup for use with crop planters. 207,655, 5–16–67, Cl. D35—2.

La Berna Mfg. Co., Inc.: *See*—
Berna, William E., and Douglas. 207,687.

Laupot, Richard. Signal light for an automobile. 207,666, 5–16–67, Cl. D48—32.

Lee-Rowan Co.: *See*—
McAtee, Gene A. 207,668.

Levy, Benjamin, to United Metal Goods Mfg. Co., Inc. Clock. 207,636, 5–16–67, Cl. D42—7.

Loosen, Ronald E., and L. C. Sanderson, to Ampex Corp. Tape deck. 207,637, 5–16–67, Cl. D26—5.

Lurkis, Alexander: *See*—
Deskey, Donald, and Lurkis. 207,665.

Maidenform Inc.: *See*—
Bruno, Enrico. 207,624.

Mann, David E., Jr. Ball rolling game hat. 207,654, 5–16–67, Cl. D34—15.

Marrs, Roger A.: *See*—
Reinsberg, Adolph. 207,627.

Marsano, Leonard R. Comb. 207,690, 5–16–67, Cl. D86—8.

Mattel, Inc.: *See*—
Ryan, John W., and Meggs. 207,651.

Matyas, John. Clothes bar. 207,644, 5–16–67, Cl. D33—8.

Mazur, Richard A., to Uniroyal, Inc. Plastic coated sheet material. 207,691, 5–16–67, Cl. D87—3.

McAtee, Gene A., to Lee-Rowan Co. Height measuring scale. 207,668, 5–16–67, Cl. D52—6.

Meggs, Daniel H.: *See*—
Ryan, John W., and Meggs. 207,651.

Moss, John I., to Relaxacizor, Inc. Electronic facial muscle stimulator. 207,686, 5–16–67, Cl. D83—1.

National Lock Co.: *See*—
Rhoades, Nolan K. 207,633.
Stone, Roy A. 207,667.

North American Philips Co., Inc.: *See*—
Schellens, Henricus F. T. 207,659.
Schellens, Henricus F. T. 207,696.

Pathe, Joseph V. Ash tray, or similar article. 207,689, 5–16–67, Cl. D85—2.

Reaume, Franklyn S., to Advance Industries, Inc. Stacking box. 207,677, 5–16–67, Cl. D58—5.

Reinsberg, Adolph, to R. A. Marrs. Swim cap. 207,627, 5–16–67, Cl. D2—236.

Relaxacizor, Inc.: *See*—
Moss, John I. 207,686.

Rhoades, Nolan K., to National Lock Co. Pull or the like. 207,633, 5–16–67, Cl. D10—8.

Rival Mfg. Co.: *See*—
Dykes, Downer P. 207,692.

Ryan, John W., and D. H. Meggs, to Mattel, Inc. Combined rocket and launching vehicle toy. 207,651, 5–16–67, Cl. D34—15.

Sachs, Charles M., and E. Jannicelli, Jr., to International Playtex Corp. Brassiere. 207,629, 5–16–67, Cl. D2—24.

Salm, Arthur Inc.: *See*—
Bieger, Walter I. 207,660.

Sanderson, Leon C.: *See*—
Loosen, Ronald E., and Sanderson. 207,637.

Schellens, Henricus F. T., to North American Phillips Co., Inc. Coffee maker. 207,659, 5–16–67, Cl. D44—26.

Schellens, Henricus F. T., to North American Phillips Co., Inc. Combined dry shaver and hair clipper. 207,696, 5–16–67, Cl. D95—3.

Scholin, Harold W. Practice putting target. 207,649, 5–16–67, Cl. D34—5.

Separa, Theodore W. Table. 207,646, 5–16–67, Cl. D33—14.

Smith, Cloyd D. Magnetic nail holder or the like. 207,674, 5–16–67, Cl. D54—13.

Spectra-Physics, Inc.: *See*—
Clement, Carl J., Jr. 207,638.

Stone, Roy A., to National Lock Co. Escutcheon or the like. 207,667, 5–16–67, Cl. D50—6.

Stylette Plastics, Inc.: *See*—
Goetz, Charles R., and Heinrich. 207,645.

Surfers' World, Inc.: *See*—
Alarik, Goodwin. 207,650.

Thaler, Arnold, to American Home Products Corp. Spoon or similar article. 207,671, 5–16–67, Cl. D54—12.

Tincher, Ralph S. Furniture base. 207,643, 5–16–67, Cl. D33—3.

Tugwood, Edward W., to Aspro-Nicholas Ltd. Combined folding tablet pack and integral container. 207,676, 5–16–67, Cl. D58—2.

Union Carbide Corp.: *See*—
Heston, Russell G., Jr., and Junker. 207,681.

Uniroyal, Inc.: *See*—
Mazur, Richard A. 207,691.

United Metal Goods Mfg. Co., Inc.: *See*—
Levy, Benjamin. 207,636.

Villa, Luis F. Mailbox. 207,682, 5–16–67, Cl. D74—9.

Villa, Luis F. Outdoor drinking fountain. 207,694, 5–16–67, Cl. D91—4.

Wagner, Harold O., and M. S. Ziskin, to American Trading and Production Corp. Canister or similar article. 207,657, 5–16–67, Cl. D44—6.

Wagner, Harold O., and M. S. Ziskin, to American Trading and Production Corp. Canister or similar article. 207,658, 5–16–67, Cl. D44—6.

Walstrom, Leslie R. Casing for a computer console. 207,639, 5–16–67, Cl. D26—5.

Waters, Michael A.: *See*—
Clevenger, Juel D., and Waters. 207,636.

Weeber, Marion, to American Home Products Corp. Spoon or similar article. 207,672, 5–16–67, Cl. D54—12.

Weeber, Marion, to American Home Products Corp. Spoon or similar article. 207,673, 5–16–67, Cl. D54—12.

Welch, Harry C., Sr. Pill tray. 207,684, 5–16–67, Cl. D83—1.

Wickett, Byron H., to Don Baxter, Inc. Squeezable coupling for medical liquid administration set. 207,635, 5–16–67, Cl. D16—1.

Wildgen, Leo F., to Honeywell Inc. Space condition responsive instrument. 207,669, 5–16–67, Cl. D52—7.

Wilson, James D., to Banner Metals, Inc. Receptacle for foodstuffs. 207,680, 5–16–67, Cl. D58—12.6.

Winton, Lavoy. Passenger vehicle for amusement devices. 207,648, 5–16–67, Cl. D34—5.

Witco Chemical Co., Inc.: *See*—
Cunningham, James E. 207,678.

Wormley, Edward J., to Dunbar Furniture Corp. of Indiana. Table support. 207,647, 5–16–67, Cl. D33—14.

Zern, Warren B., and C. H. Bode; said Bode assor. to said Zern. Slide fastener actuator. 207,628, 5–16–67, Cl. D2—415.

Ziskin, Manuel S.: *See*—
Wagner, Harold O., and Ziskin. 207,657.
Wagner, Harold O., and Ziskin. 207,658.

LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 16TH DAY OF MAY, 1967

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

ACF Industries, Inc.: *See*—
Pulcrano, Frank C. 3,319,585.

AMP Inc.: *See*—
Marley, James E., Roberts, and Ward. 3,320,354.
Rueger, Herman. 3,320,607.

A/S Niro Atomizer: *See*—
Thale, Allan. 3,319,343.

A/S Norsk Aluminium Co.: *See*—
Strom, Johan N., and Heggstad. 3,319,899.

A.V. Electronics, Inc.: *See*—
Auernheimer, Clarence L. 3,320,365.

Abbott, Andrew D., and W. Lowe, to Chevron Research Co. Phenolic corrosion inhibitors. 3,320,163, 5–16–67, Cl. 252—48.2.

Abbott, Frank R., to United States of America, Navy. Compliant variable reluctance electroacoustic transducer. 3,320,579, 5–16–67, Cl. 340—8.

Abbott Machine Co., Inc.: *See*—
Abbott, Samuel L. 3,319,900.

Abbott, Samuel L., to Abbott Machine Co., Inc. Yarn traversing roll for winding machines. 3,319,900, 5–16–67, Cl. 242—43.2.

Abplanalp, Robert H. Aerosol dispenser. 3,319,669, 5–16–67, Cl. 141—20.

Adams, Erby E. Concealed collar and tie tack. 3,319,304, 5–16–67, Cl. 24—49.

Adams, Ian L., to J. R. Siddons. Apparatus for feeding and fastening clips. 3,319,864, 5–16–67, Cl. 227—76.

Adams, Mark F., to Northwest Magnesite Co. Method of preparing magnesia. 3,320,029, 5–16–67, Cl. 23—201.

Adams Rite Mfg. Co.: *See*—
Lauper, Warner R. 3,319,747.

Adams, Roy M.: *See*—
Marshall, Mervin D., and Adams. 3,320,310.

Addressograph-Multigraph Corp.: *See*—
East, Robert M., and Harmon. 3,320,169.

Aerojet-General Corp.: *See*—
Bosco, George B., Jr., and Corbitt. 3,320,450.

Afico S.A.: *See*—
Gebhardt, Hans T. 3,320,074.

Agfa Aktiengesellschaft: *See*—
Müller-Bardorff, Wolfgang, and Saleck. 3,320,068.

Ahrens, Erhard, and K. Feher, to Electroacustic Gesellschaft mit Beschrankter Haftung. Electroacoustic transducers for submarine echo sounding. 3,320,578, 5–16–67, Cl. 340—8.

Aihara, Kenso, S. Tani, and H. Hirokawa, to Ikegai Tekko Kabushiki Kaisha. Lathe tailstock. 3,319,496, 5–16–67, Cl. 82—31.

Aiken, Howard H., R. W. Birrell, J. B. Cummins, and M. W. Richards, to Howard Aiken Industries. Automatic+X-axis detector, marker, sorter and collector for crystal wafer blanks. 3,319,761, 5–16–67, Cl. 198—33.

Aiken, Howard, Industries: *See*—
Aiken, Howard H., Birrell, Cummins, and Richards. 3,319,761.

Air Products and Chemicals, Inc.: *See*—
Harding, William A., Hindin, and Shalit. 3,320,093.
Pryor, John A. 3,319,429.

Air Reduction Co., Inc.: *See*—
Matesanz, Angel C. 3,319,434.

Aircraft Mechanics, Inc.: *See*—
Nichols, Proctor W. 3,319,921.

Air-Ject Corp.: *See*—
Mueller, John J. 3,319,837.

Aishin Seiki Kabushiki Kaisha: *See*—
Kawabe, Tsuneo. 3,319,421.

Ajinomoto Co. Inc.: *See*—
Okumura, Shinji, Ito, Tsugawa, Katsuya, and Takahashi. 3,320,135.

Aktiebolaget Bofors: *See*—
Jiifwert, Erik W. 3,319,525.

Aktiengesellschaft Brown, Boveri, & Cie: *See*—
Ungrad, Helmut. 3,320,481.

Albertson, Orris E., and W. E. Budd, to Dorr-Oliver Inc. Treatment and disposal of waste sludge. 3,319,586, 5–16–67, Cl. 110—8.

Albertson, Orris E., and W. M. H. Kilmer, to Dorr-Oliver Inc. Disposal of waste material by combustion in an inert fluidized bed. 3,319,587, 5–16–67, Cl. 110—8.

Albright, John D., and C. R. Chadbourne, to United States of America, Navy. Passive angle ranging apparatus. 3,320,616, 5–16–67, Cl. 343—112.

Alburger, James R. Fluorescent image-forming screen. 3,320,417, 5–16–67, Cl. 250—71.

Al-craft Mfg. Co.: *See*—
Campbell, Andrew J., and Fischer. 3,319,482.

Aldrich, Charles S., and L. N. Canick. Continuously adjustable limit switch. 3,320,375, 5–16–67, Cl. 200—47.

Alexander, Robert H., and L. R. Wanner, to Sylvania Electric Products Inc. Pre-heating process. 3,320,397, 5–16–67, Cl. 219—10.69.

Alexander, Roy P., and H. A. Schroeder, to Olin Mathieson Chemical Corp. Novel polymers from condensation of dimeric azidophospha (III)-carborane and diphosphine. 3,320,185, 5–16–67, Cl. 260—2.

Allaben, Charles M., Jr.: *See*—
Tennies, James O., Mead, and Allaben. 3,320,007.

Allegheny Ludlum Steel Corp.: *See*—
Masterson, James P., Jr. 3,319,444.

Allen, Archelaius D., and R. Ward, to Gullick Ltd. Self-advancing mine roof supports and control means therefor. 3,320,001, 5–16–67, Cl. 299—1.

Allen-Bradley Co.: *See*—
De Smidt, Woodrow A. 3,320,395.
Ford, David E., Jr., and Hudson. 3,320,507.

Allen, Floyd W., to Beckman Instruments, Inc. Electrical delay line. 3,320,555, 5–16–67, Cl. 333—29.

Allen, Robert L., and A. S. Bagley, to Hewlett-Packard Co. Variable frequency controlled frequency divider. 3,320,546, 5–16–67, Cl. 331—22.

Allied Chemical Corp.: *See*—
Bisignani, Alfred G., and Edgecomb. 3,320,030.
Dien, Chi K., and Richards. 3,320,275.
Gilbert, Everett E. 3,320,047.
Kelly, Donald H., and Sukornick. 3,320,035.
Klingelhoefer, William C., and Gerry. 3,320,028.
Lloyd, Billy E. 3,320,274.
Yodis, Anthony W. 3,320,140.

Allis-Chalmers Mfg. Co.: *See*—
Hanson, Glenn M., Frans, Helan, and Price. 3,319,949.
Horn, John M. 3,319,643.
Lohman, Joseph L. 3,320,566.
Soeteber, Ronald J., Reaves, and Bryant. 3,319,732.
Wilson, John F., and Yant. 3,319,400.

Allport, Dennis C., G. A. Gamlen, J. A. Corran, D. C. Eaton, and H. J. Twitchett, to Imperial Chemical Industries, Ltd. Polyurethanes preparation utilising piperidine compounds as catalysts. 3,320,190, 5–16–67, Cl. 260—2.5.

Altonji, Edmund R., to International Telephone and Telegraph Corp. Pulse code modulation encoding and decoding apparatus. 3,320,534, 5–16–67, Cl. 325—38.

Amato, Carmelo J., and D. L. Lawrence, to Lear Siegler, Inc. Signal-producing circuit. 3,320,515, 5–16–67, Cl. 321—45.

American Chain & Cable Co., Inc.: *See*—
Wilson, James S. 3,319,924.

American Cyanamid Co.: *See*—
Andrews, Arthur L., and Anghinetti. 3,319,378.
Brunnstrom, Gosta. 3,320,244.
Chamberlain, Ralph J. 3,319,629.
Grayson, Martin, Keough, and Rauhut. 3,320,321.
Roth, Philip B., Hallows, and Nakajima. 3,320,207.
Waletzky, Emanuel, Berkelhammer, and Kantor. 3,320,124.
Wishman, Marvin, Anderson, Detoro, and Jarovitzky. 3,320,221.

American Dispenser Co., Inc.: *See*—
Ensign, Robert H., and Woods. 3,319,835.

American Enka Corp., The: *See*—
Bakker, Willem. 3,319,409.
Rice, Charles M. 3,319,411.

American Home Products Corp.: *See*—
Clark, Robert E., Spence, and Stribley. 3,320,072.
Wei, Peter H. L., and Bell. 3,320,250.
Wolf, Milton, and Greek. 3,320,245.

American Machine & Foundry Co.: *See*—
Gamberini, Goffredo. 3,319,764.
Godfrey, Thomas A., and Gustavson. 3,319,631.
Orlandi, Ciancarlo. 3,319,772.

American Metal Climax, Inc.: *See*—
Larson, Melvin L. 3,320,294.
Muessel, Dan C. 3,319,881.

American Pipe and Construction Co.: *See*—
McMahon, Walter Michael, and Law. 3,320,082.

American Smelting and Refining Co.: *See*—
Roe, William P., and Lantz. 3,320,040.

Amerock Corp.: *See*—
Dargene, Carl J. 3,319,934.

Amicon Corp.: *See*—
Michaels, Alan S. 3,320,328.

Ammann, Jurg, and W. Bossard, to J. R. Geigy A.G. Reactive monoazo dyestuffs containing a naphthyltriazolyl group. 3,320,231, 5–16–67, Cl. 260—153.

Ammons, Joseph L., and F. H. Morrow. Method of molding skinless sausage. 3,319,286, 5–16–67, Cl. 17—45.

Ampex Corp.: *See*—
Barry, Leonard D. 3,320,370.
Graubart, Lawrence. 3,320,090.
Kurth, Harold A. 3,319,901.
Star, Jack. 3,320,598.

Anaconda Wire and Cable Co.: *See*—
Corrall, Roy E., and Menasoff. 3,320,350.
Vreeland, Jay H., and Felck. 3,320,529.

Anderson, George A., to Olin Mathieson Chemical Corp. Method of making a finned heat exchange panel. 3,319,822, 5–16–67, Cl. 29—157.3.

Anderson, Gerald R., to FMC Corp. Article accumulating and feeding apparatus. 3,319,639, 5–16–67, Cl. 134—134.

Anderson, Gerald R., to FMC Corp. Fruit processing machine with means to align tool with work. 3,319,678, 5–16–67, Cl. 146—52.

Anderson, Gordon R., Jr., to M&L Industries, Inc. Rotor shaft bearing for an electric motor. 3,320,446, 5–16–67, Cl. 310—42.

Anderson, Nils E. Method of and apparatus for conveying manure from stable gutters. 3,319,896, 5–16–67, Cl. 241—25.

Anderson, Noel M. Drain back valve. 3,319,928, 5–16–67, Cl. 251—145.

Anderson, Olof V., to Anson, Inc. Cravat holder. 3,319,305, 5–16–67, Cl. 24—49.

Anderson, Richard E.: *See*—
Wishman, Marvin, Anderson, Detoro, and Jarovitzky. 3,320,221.

Anderson, Robert M., to General Electric Co. Method of manufacturing photoflash lamps. 3,320,012, 5–16–67, Cl. 316—20.

Andrae, Karl H., to Jeffrey Galion Mfg. Co. Sluice gate and operating mechanism therefor. 3,319,425, 5–16–67, Cl. 61—28.

Andreades, Sam, and G. A. Boswell, Jr., to E. I. du Pont de Nemours and Co. 5-fluoro-6-nitrimino and 6-keto steroid and their preparation. 3,320,291, 5–16–67, Cl. 260—397.4.

Andreasen, Sigurd J., and O. A. Meyer. Portable elevator conveyers for use with trucks. 3,319,775, 5–16–67, Cl. 198—154.

Andrews, Arthur L., and J. R. Anghinetti, to American Cyanamid Co. Garden window. 3,319,378, 5–16–67, Cl. 47—40.

Andrews, William W., to McGraw-Edison Co. Fire detector systems having false alarm prevention. 3,320,602, 5–16–67, Cl. 340—233.

Anecki, Josef L., to Lan-Elec Ltd. Slicing machine having means for varying carriage stroke. 3,319,681, 5–16–67, Cl 146—102.

Anghinetti, Joseph R.: *See*—
Andrews, Arthur L., and Anghinetti. 3,319,378.

Anno, Yoshiro, and K. Mori, to Hitachi Ltd. Adjusting device for arbor supporting bearing for horizontal milling machines. 3,320,005, 5–16–67, Cl. 308—35.

Ans, Inc.: *See*—
Thomas, Edward W., Henthorn, and Boie. 3,320,419.

Anson, Inc.: *See*—
Anderson, Olof V. 3,319,305.

Aoki Yoshikazu, T. Kamei, and A. Hayami, to Tachikawa Research Institute. Process for the manufacture of rayon paper or non-woven fabric by the wet system. 3,320,117, 5–16–67, Cl. 162—157.

Apitz, Siegfried: *See*—
Knochenhauer, Friedrich, and Apitz. 3,320,492.

Apparatebau Rothmuhle Brandt & Kritzler: *See*—
Kritzler, Arthur, and Sandmann. 3,319,706.
Sandmann, Herbert. 3,319,705.

Applebaum, Curtis H., 40% to G. J. McGrath, 30% to C. H. Applebaum, and 30% to W. B. Legerquist. Telephone message-waiting monitoring device. 3,320,368, 5–16–67, Cl. 179—84.

Appleby, Basil P. Intra-uterine contraceptive device. 3,319,625, 5–16–67, Cl. 128—130.

Appleton, Orbra W. Slanted finger board for stringed instruments. 3,319,504, 5–16–67, Cl. 84—314.

Arburg Maschinenfabrik Hehl & Sohne: *See*—
Hehl, Karl. 3,319,300.

Archer-Daniels-Midland Co.: *See*—
Dunning, Edward B., Gilboe, and Shulman. 3,320,078.

Arey, William F., Jr., and W. J. Mattox, to Esso Research and Engineering Co. Desulfurization of residual crudes. 3,320,157, 5–16–67, Cl. 208—249.

Argus Chemical Corp.: *See*—
Hecker, Arthur C., Pollock, and Bachrach. 3,320,194.

Arlauskas, Alfonsas, to General Motors Corp. Electric switch having pivoting structure on fixed contact. 3,320,389, 5–16–67, Cl. 200—153.

Armstrong Cork Co.: *See*—
Roux, Henry J. 3,320,404.

Armstrong, Dale, Sr. Apparatus for straightening metal panels. 3,319,455, 5–16–67, Cl. 72—458.

Armstrong, Robert G., to The Ohio Crankshaft Co. Induction heating coil assembly. 3,320,398, 5–16–67, Cl. 219—10.79.

Arnett, Robert W. Reglet. 3,319,985, 5–16–67, Cl. 287—189.36.

Arnold, Herbert, R. Rebling, N. Brock, and H.-D. Lenke, to Asta-Werke AG, Chemische Fabrik. Phenthiazine compounds. 3,320,247, 5–16–67, Cl. 260—243.

Arnold, Roy T., to Sperry Rand Corp. Superconductive flux magnifier. 3,320,522, 5–16–67, Cl. 324—43.

Arp, Leon J., and R. J. Griffith, to Iowa State University Research Foundation, Inc. Apparatus for measuring breath volume. 3,319,624, 5–16–67, Cl. 128—2.08.

Arth, Glen E.: *See*—
Shen, Tsung-Ying, and Arth. 3,320,268.

Asakawa, Hiroyuki: *See*—
Hirano, Hiroshi, Yurugi, Askawa, and Oka. 3,320,258.

Ashley, Larry L. Towing device. 3,319,974, 5–16–67, Cl. 280—43.21.

Ashwell & Co.: *See*—
Feins, Joseph. 3,320,461.

Askins, William J., to International Harvester Co. Articulated logger vehicle. 3,319,936, 5–16–67, Cl. 254—166.

Associated Electrical Industries, Ltd.: *See*—
Warman, Bloomfield J., and Derbyshire. 3,320,487.

Asta-Werke AG, Chemische Fabrik: *See*—
Arnold, Herbert, Rebling, Brock, and Lenke. 3,320,247.

Atkinson, Robert L. Wire reel. 3,319,906, 5–16–67 Cl. 242—106.

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Blumenkranz, James J. 3,319,268.

Atlas Motor Graders, Inc.: *See*—
Thompson, William R. 3,319,366.

Aubriot, Annie (Boussac), to Societe Anonyme l'Industrie Biologique Francaise. DX 27 antibiotic and its production. 3,320,128, 5–16–67, Cl. 167—65.

Auernheimer, Clarence L., to A. V. Electronics, Inc. Self-biasing amplifier. 3,320,365, 5–16–67, Cl. 179—1.

Austin, Anderson. Carriage rocker. 3,319,271, 5–16–67, Cl. 5—108.

Automatic Marketing Industries, Inc.: *See*—
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Automobiles M. Berliet & Hydromecanique et Trottement: *See*—
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Avco Corp.: *See*—
Reed, James P. 3,320,440.

Axe, William N., and S. Schiff, to Phillips Petroleum Co. Increasing the base number of calcium petroleum sulfonate. 3,320,162, 5–16–67, Cl. 252—33.

Axelrod, Norman N., H. D. Guberman, N. Schwartz, and B. H. Vromen, to Bell Telephone Laboratories, Inc. Tantalum alloy capacitor. 3,320,500, 5–16–67, Cl. 317—258.

Ayres, Reginald J., and P. Vargo, to General Electric Co. Double-ended electric lamp and associated U-shaped metal clip. 3,320,466, 5–16–67, Cl. 313—318.

B & L Lighting Co.: *See*—
Levine, Benson. 3,319,389.

Babcock & Wilcox Co., The: *See*—
Davis, Fred W. 3,320,176.
Dewell, Edgar H. 3,320,178.
Halva, Carroll J. 3,320,177.

Bach Auricon, Inc.: *See*—
Bach, Walter H. 3,320,371.

Bach, Walter H., to Bach Auricon, Inc. Video tape recording apparatus utilizing transversely scanning erase and record heads. 3,320,371, 5–16–67, Cl. 179—100.2.

Bachrach, Donald: *See*—
Hecker, Arthur C., Pollock, and Bachrach. 3,320,194.

Badische Anilin- & Soda-Fabrik Aktiengesellschaft: *See*—
Bettag, Ludwig, Kern, Palm, Seibert, and Weiss. 3,320,288.
Braun, Willy, and Paetzke. 3,320,233.
Schenk, Walter, Nienburg, and Dorschner. 3,320,303.
Tartter, Arnold, and Blum. 3,320,020.

Baeder, Donald L.: *See*—
Kelley, Joseph M., and Baeder. 3,320,155.

Baer, Ralph H., to Sanders Associates, Inc. Indicator announcing system. 3,320,604, 5–16–67, Cl. 340—266.

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Baird-Atomic, Inc.: *See*—
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Baird, Leslie L., to General Electric Co. Contact pressure clamp for an electric switch. 3,320,390, 5–16–67, Cl. 200—166.

Baker Oil Tools, Inc.: *See*—
Chenoweth, David V. 3,319,717.

Baker Perkins Inc.: *See*—
Temple Hiram E. 3,319,806.

Baker, Willis L., and C. B. Briggs, to Plastiwall, Inc. Apparatus for applying decorative coatings to wood panels. 3,319,601, 5–16–67, Cl. 118—255.

Bakker, Willem, to American Enka Corp. Method and device for securing yarn packages. 3,319,409, 5–16–67, Cl. 57—34.

Balandis, Leo S.: *See*—
Hawkins, Robert D., and Balandis. 3,320,617.

Balducci, Walter O., to Emhart Corp. Top latch unit. 3,319,986, 5–16–67, Cl. 292—92.

Baldwin Bracelet Corp.: *See*—
Bowles, John W. 3,319,800.

Ballard, Robert G., to General Electric Co. Compensator for gyroscopic instrument. 3,319,475, 5–16–67, Cl. 74—5.43.

Banchieri, Giuseppe. Electric synchronous machine with rotor conductors directly cooled by a liquid. 3,320,447, 5–16–67, Cl. 310—54.

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Barber, Ralph F., to Miller Wrapping & Sealing Machine Co. Package wrapping machine. 3,319,399, 5–16–67, Cl. 53—379.

Barigant, Pierre, to L'Electronique Appliquee. Device for determining the modulus of young of visco-elastic materials. 3,319,460, 5–16–67, Cl. 73—67.2.

Barnett, Patricia: *See*—
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Barrett, William G., D. K. Johnson, and G. H. Thorne, Sr., to Sperry Rand Corp. Register including inter-stage multivibrator temporary storage. 3,320,410, 5–16–67, Cl. 235—175.

Barry, Leonard D., to Ampex Corp. Magnetic tape recorder with recessed concave tape guide. 3,320,370, 5–16–67, Cl. 179—100.2.

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Granger, Howard J. 3,319,784.
Johnson, Kenneth R., and Beert. 3,319,539.

Barth Corp., The: *See*—
Sentz, Adam J. 3,319,829.

Barthel, Lucien. Acoustical enclosures. 3,319,737, 5–16–67, Cl. 181—31.

Bartocha, Bodo K. W.: *See*—
Fetter, Neil R., and Bartocha. 3,320,296.

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Miller, Charles F. 3,319,859.

Bassoff, Arthur B.: *See*—
Daniel, David W., and Bassoff. 3,319,526.

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Battelle Development Corp., The: *See*—
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Bauer, Peter, to Sperry Rand Corp. Fluid pulse attenuator. 3,319,659, 5–16–67, Cl. 138—41.

Baumann, Hans D. Differential pressure transmitter. 3,319,468, 5–16–67, Cl. 73—407.

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Baxter Laboratories, Inc.: *See*—
Smith, Lyman W. 3,320,131.

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Brandt, Hans-Walther, Schleppinghoff, Bayer, Bitners, and Meier. 3,320,138.

Bayles, Samuel H., and S. M. Peck. Disposable liquid soap package. 3,319,838, 5–16–67, Cl. 222—215.

Beal, David H., to Donald Ropes & Wire Cloth Ltd. Clevis. 3,319,990, 5–16–67, Cl. 294—74.

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Beatty, William C., Krause, and Beatty. 3,319,804.

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Beck, Hans J., Schmidt, and Weigel. 3,320,193.

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Allen, Floyd W. 3,320,555.
Chervenka, Charles H. 3,319,336.
Silverman, David. 3,320,541.

Beckman, Irving C., and A. M. Beerbohm. Mailer. 3,319,872, 5–16–67, Cl. 229—69.

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Beerbohm, Alex M.: *See*—
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Belk, Wilber C., to FMC Corp. Method of sectionizing citrus fruit. 3,319,683, 5–16–67, Cl. 146—236.

Bell, Albert H., III, to Chrysler Corp. Turbine engine. 3,319,931, 5–16–67, Cl. 253—78.

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Melhose, Alfred E. 3,319,978.
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Schneider, Martin V. 3,320,556.
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Dixon, Alexander M., and Cyr. 3,320,576.
Morgan, Donald F. 3,319,943.
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Scruggs, David M. 3,320,037.
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Bentley, John D. Method and apparatus for increasing the speed of clothes dryers. 3,319,347, 5–16–67, Cl. 34—32.

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Bereslavsky, Alexander L., A. A. Nagibin, K. A. Chichoogov, V. P. Gryzhin, and A. P. Koorenkov, to Vsesoiuzny Nauchno-Issledovatel' Sky Institute Goznaka. Counting machine. 3,319,541, 5–16–67, Cl. 93—93.

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Berg, Howard A., to Columbia Cement Co., Inc. Leak-proof cartridges housing cements, caulking compounds or the like. 3,319,841, 5–16–67, Cl. 222—386.5.

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Berk, Martin A., to Deere & Co. Agricultural implement. 3,319,405, 5–16–67, Cl. 56—15.

Berkeley, Edmund C. Teaching or programmed learning machines and automatic teaching computers. 3,319,356, 5–16–67, Cl. 35—9.

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Bessant, Albert D., to Himpsein Engineers Ltd. Endless chain conveyors. 3,319,778, 5–16–67, Cl. 198—182.

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Beyer, Ahmet K. Reciprocating motor with motion conversion means. 3,320,445, 5–16–67, Cl. 310—20.

Beyea, Orville. Hay loader. 3,319,813, 5–16–67, Cl. 214—133.

Beynon, Leslie R.: *See*—
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Bicking, John B.: *See*—
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Bilodeau, Lucien J. Hook bracket for apertured board. 3,319,917, 5–16–67, Cl. 248—225.

Bingeman, Wilbur H., T. W. Blickwedel, and L. R. Wanner, to Sylvania Electric Products Inc. Multiple cell container. 3,320,095, 5–16–67, Cl. 136—166.

Birmingham, Henry P., to United States of America, Navy. Vehicle laterally compounded optical guidance system 3,320,584, 5–16–67, Cl. 340—26.

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Aiken, Howard H., Birrell, Cummins, and Richards. 3,319,761.

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Bisignani, Alfred G., and R. H. Edgecomb, to Allied Chemical Corp. Production of sulfuryl fluoride. 3,320,030, 5–16–67, Cl. 23—203.

Bissinger, William E., F. Strain, H. C. Stevens, W. R. Dial, and R. S. Chisholm, to Pittsburgh Plate Glass Co. Polycarbonates of hydroxy ethyl ethers. 3,320,211, 5–16–67, Cl. 260—47.

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Bixby, George, Jr., and J. Devaris, to Automatic Marketing Industries, Inc. Means for brewing coffee. 3,320,073, 5–16–67, Cl. 99—71.

Black, William C., and V. L. Winfrey, to Penick & Ford, Ltd. Cationic starch complex. 3,320,118, 5–16–67, Cl. 162—175.

Blanchard, Allan F., and M. J. Palmer, to Dunlop Rubber Co., Ltd. Method of preparing a vulcanized synthetic rubber. 3,320,204, 5–16–67, Cl. 260—33.6.

Blaw-Knox Co.: *See*—
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Tommarello, Albert E. 3,319,451.

Bles, Marcus J., Sr. Tractor carried log splitters. 3,319,675, 5–16–67, Cl. 144—193.

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Blitzer, Frank, H. D. Zuerndorfer, and C. P. Dewey, Jr., to Raytheon Co. Stellar directional acquisition system using photomultiplier tube. 3,320,423, 5–16–67, Cl. 250—203.

Bloch, Herman S., to Universal Oil Products Co. Preparation of non-conjugated diolefins. 3,320,326, 5–16–67, Cl. 260—666.

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Bloomfield, Harold, and Purpura. 3,319,561.

Bloyaert, Felix, and H. Toussaint, to Solvay & Cie Societe en Commandite. Catalyst for the polymerization of olefins consisting of tin or lead tetrahydrocarbyls, a transition metal halide, a halide of a metal selected from the third and fifth groups and an ether. 3,320,227, 5–16–67, Cl. 260—94.9.

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Blumenkranz, James J., to Atlantic Research Corp. Water closet coupling. 3,319,268, 5–16–67, Cl. 4—252.

Bockenheimer Brotfabrik F. Reissig G.m.b.H.: *See*—
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Bodian, Marcus, to Sunbeam Lighting Co. Partition wall header with ventilating air divider. 3,319,558, 5–16–67, Cl. 98—40.

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Bodolay, William A. and S. M. Bag making machine. 3,319,538, 5–16–67, Cl. 93—8.

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Norris, Carl L., Williams, Nelsen, Corner, Goodbar, and Oliver. 3,319,569.
Norris, Carl L., Williams, Nelsen, Corner, Goodbar, and Oliver. 3,319,570.

Boeker, Harold T., to General Electric Co. Power supply having over-voltage and over-current protection means. 3,320,477, 5–16–67, Cl. 315—307.

Bogardus, Harold F., to United States of America, Navy. Refillable, leakproof gas adsorption unit. 3,319,401, 5–16–67, Cl. 55—387.

Boger, Henry W., to Worthington Corp. Multiple signal actuated diaphragm valve. 3,319,926, 5–16–67, Cl. 251—61.

Bomh, Henry L. Girder crane monorail beam. 3,319,580, 5–16–67, Cl. 104—98.

Bohn, Paul R. Insulation means for convertible automobiles. 3,319,995, 5–16–67, Cl. 296—107.

Bohr, Alexander H., and W. O. Borcherdt, to Thiokol Chemical Corp. Extensible boom. 3,319,987, 5–16–67, Cl. 294—19.

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Bolton, Benjamin A., and J. R. Stephens, to Standard Oil Co. Polytrimellitamide solutions and coatings therefrom. 3,320,202, 5–16–67, Cl. 260—30.2.

Bolton, Douglas H. H., F. Pawling, and M. C. Potts, to Dowty Mining Equipment Ltd. Advanceable roof support assemblies. 3,319,529, 5–16–67, Cl. 91—189.

Bond, Beverly B., and J. Schnapp, to Ronson Corp. Inner cutter mounting for power shavers. 3,319,334, 5–16–67, Cl. 30—43.92.

Bond, Harry L. F., to Davy and United Engineering Co. Ltd. Rolling mills. 3,319,450, 5–16–67, Cl. 72—238.

Bonvicini, Alberto, and E. Ildos, to Montecatini Edison S.p.A. Poly-alpha-olefin pyridinic polyamide compositions having high receptivity to dyestuffs. 3,320,334, 5–16–67, Cl. 260—857.

Booker, Aylwin R. Heat shrinkable connector for electrical wire. 3,320,355, 5–16–67, Cl. 174—84.

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Boring, Kenneth L., to General Electric Co. Nonthermionic hollow cathode electron beam apparatus. 3,320,475, 5–16–67, Cl. 315—108.

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Bosch, Robert, G.m.b.H.: *See*—
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Bosco, George B., Jr., and H. E. Corbitt, to Aerojet-General Corp. Brushless alternator for vehicles. 3,320,450, 5–16–67, Cl. 310—168.

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Wegmüller, Hans E., and Bossard. 3,320,232.

Bossard, Werner, and H. Bosshard, to J. R. Geigy A.G. β-arylated naphthoxidine containing mono azo dyestuffs. 3,320,234, 5–16–67, Cl. 260—205.

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Bottom, Theodore J. Strip-forming machine. 3,319,448, 5–16–67, Cl. 72—176.

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Boyd, John A. and D. E. Liquefied petroleum gas vaporization system. 3,319,435, 5–16–67, Cl. 62—52.

Bowden, James J. Flux used in the making of steel. 3,320,052, 5–16–67, Cl. 75—53.

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Bowland, Charles R. Inspection instrument. 3,320,414, 5–16–67, Cl. 240—4.2.

Bowles, John W., 50% to Baldwin Bracelet Corp. Pilferdeterring display rack. 3,319,800, 5–16–67, Cl. 211—163.

Bowling, Joseph E., Jr., and R. W. Moore, to The Pangborn Corp. Particle-throwing apparatus. 3,319,383, 5–16–67, Cl. 51—9.

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Bradbury, Roy, to The Electric Storage Battery Co. Method for manufacturing a plastic hinge. 3,320,225, 5–16–67, Cl. 260—93.7.

Bradford, Dale E., to Phillips Petroleum Co. Solids transfer. 3,320,228, 5–16–67, Cl. 260—94.9.

Bradshaw, Franklin C., and T. M. Smith, to Gould-National Batteries, Inc. Battery and charging circuit cartridge. 3,320,508, 5–16–67, Cl. 320—2.

Braeuninger, Karl F., and G. K. Glaza, to The Dow Chemical Co. Structural unit. 3,319,543, 5–16–67, Cl. 94—13.

Brainard, Edward C., II, to Braincon Corp. Apparatus for thermal current navigation. 3,319,465, 5–16–67, Cl. 73—178.

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Braner, Howard T., to The National Cash Register Co. Process for binding together coated manifold sheets. 3,320,109, 5–16–67, Cl. 156—252.

Brauer, Hans, to Th. Kieserling and Albrecht. Gripping apparatus for transported pipes. 3,319,805, 5–16–67, Cl. 214—1.

Brault, Yves, and R. Carre, to Compagnie Generale de Telegraphie Sans Fil. Pulse-compression methods and systems. 3,320,613, 5–16–67, Cl. 343—17.2.

Braun, Robert A., to E. I. du Pont de Nemours and Co. Coating compositions containing a tetrasubstituted guanidine. 3,320,195, 5–16–67, Cl. 260—23.5.

Braun, Willy, and I. Paetzke, to Badische Anilin- & Soda-Fabrik Aktiengesellschaft. 1-amino-2-anthraquinoneazo dyestuffs. 3,320,233, 5–16–67, Cl. 260—192.

Bray, Thomas L., and G. C. Ward, to Southwire Co. Radial cooling system for casting wheel. 3,319,700, 5–16–67, Cl. 164—283.

Bremmer, Bart J., to The Dow Chemical Co. Epoxy resins. 3,320,209, 5–16–67, Cl. 260—47.

Brenneman, Albert E., to Esso Research and Engineering Co. Carburetor icing-eliminating structure. 3,319,944, 5–16–67, Cl. 261—41.

Bresson, Richard J., and R. G. Elton, to Eastman Kodak Co. Shutter exposure setting mechanism for a camera. 3,319,554, 5–16–67, Cl. 95—53.

Breternitz, Charles E., A. I. Dale, and H. F. Sloan. Impact compensating means for belt conveyors. 3,319,767, 5–16–67, Cl. 198—52.

Brevik, Elmer L., to Chemical Milling International Corp. Method and apparatus for etching metal by immersion. 3,320,105, 5–16–67, Cl. 156—2.

Brezinski, Julius J., and H. M. Rife, to Union Carbide Corp. Aqueous emulsions of vinyl acetate-vinyl sulfonic acid copolymers, and method of preparation. 3,320,199, 5–16–67, Cl. 260—29.6.

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Rose, Richard A., and Phillips. 3,320,086.

British Petroleum Co., Ltd., The: *See*—
Wagstaffe, Alan, Charnock, and Beynon. 3,320,425.

Brizon, Jean M. A. Bar-mills used more particularly for the preparation of inks and paints. 3,319,898, 5–16–67, Cl. 241—241.

Broadhead, Samuel L., Jr., to Collins Radio Co. Transmitted signal two tone difference controlled single sideband squelch and avc system. 3,320,535, 5–16–67, Cl. 325—49.

Broche, Werner, to Veb Carl Zeiss Jena. Photographic cameras having a device for locking its film loading aperture and a device for disengaging the film. 3,319,550, 5–16–67, Cl. 95—31.

Brock, Norbert: *See*—
Arnold, Herbert, Rebling, Brock, and Lenke. 3,320,247.

Brookfield, Donald W. Viscometers. 3,319,459, 5–16–67, Cl. 73—59.

Brooks, Alvin L.: *See*—
Kuch, Bailin L., Pelavin, and Brooks. 3,320,618.

Brooks, Robert E.: *See*—
Liebermann, John, and Brooks. 3,320,386.

Brown, Arthur E., to Ingersoll-Rand Co. Valve mechanism. 3,319,879, 5–16–67, Cl. 230—231.

Brown, Cicero C., to Brown Oil Tool, Inc. Extensible coupling for well pipes. 3,319,726, 5–16–67, Cl. 175—5.

Brown, Gordon P. to General Electric Co. Aryl-hydrocarbon polymers. 3,320,183, 5–16–67, Cl. 260—2.

Brown, James H., and E. F. Burch, to United States Steel Corp. Method of filtering liquid from solid particles. 3,319,789, 5–16–67, Cl. 210—67.

Brown, Merritt J., to Eltra Corp. Tape coding device. 3,319,516, 5–16–67, Cl. 88—24.

Brown Oil Tool, Inc.: *See*—
Brown, Cicero C. 3,319,726.

Brown, Richard E., and R. I. Meltzer, to Warner-Lambert Pharmaceutical Co. Bensocyclopentaindolisines and dibenzindolizines. 3,320,260, 5–16–67, Cl. 260—287.

Brown, Walter E. J., R. L. Komack, and N. D. Gilmartin, to United-Carr Inc. Grooved coaxial cable connector. 3,320,575, 5–16–67, Cl. 339—268.

Browning, Gordon D.: *See*—
Pande, Albert S., and Browning. 3,320,608.

Brunel, Henri. Non-corrosive, lubricating cutting and cooling additives. 3,320,164, 5–16–67, Cl. 252—49.

Brunelle, Henry E., Jr., and S. J. Schwartz, to General Electric Co. Scanning prism utilizing our roof prism components. 3,320,019, 5–16–67, Cl. 350—286.

Brunnstrom, Gosta, to American Cyanamid Co. 1,4-benzothiazine aldehydes. 3,320,244, 5–16–67, Cl. 260—243.

Bruns, Wolfgang: *See*—
Bechtloff, Gert, Bruns, and Pitter. 3,319,776.

Brunswick Corp.: *See*—
Felstehausen, Eugene F. 3,319,797.
Regan, Patrick J. 3,319,600.
Stevens, Eric S. 3,319,798.

Bryant, Leland W., C. H. Sharpe, and F. A. Swingle, to General Motors Corp. Fuel distribution system for multiple burners in a gas turbine engine. 3,319,418, 5–16–67, Cl. 60—39.28.

Bryant, Robert C., and R. A. Innes. Low temperature radiant heater. 3,319,693, 5–16–67, Cl. 158—113.

Bryant, William R.: *See*—
Soeteber, Ronald J., Reaves, and Bryant. 3,319,732.

Buckhorn Corp.: *See*—
Christensen, Garn G. 3,319,922.

Budd, William E.: *See*—
Albertson, Orris E., and Budd. 3,319,586.

Buerger, Herbert, to Del Krome Corp. Wheel rings, covers or other trims for wheels. 3,320,002, 5–16–67, Cl. 301—37.

Buie, James L., to TRW, Inc. Dielectric isolation for monolithic circuit. 3,320,485, 5–16–67, Cl. 317—101.

Burbank, Robert C.: *See*—
Galitzki, Bernard I., and Burbank. 3,320,346.

Burbig, Henry. Cigarette moistener. 3,319,632, 5–16–67, Cl. 131—133.

Burch, Elsa F.: *See*—
Brown, James H., and Burch. 3,319,789.

Burch, Paul F., to Wolverine Shoe & Tanning Corp. Fleshing machine. 3,319,442, 5–16–67, Cl. 69—42.

Burdick, Glen A., F. K. Collins, and R. K. Gessford, Sr., to Sylvania Electric Products, Inc. Two-piece apertured electrode for cathode ray tube electron gun provided with integral alignment means. 3,320,457, 5–16–67, Cl. 313—82.

Burgess, Harry L. Constant tension support for submerged conductor pipes. 3,319,981, 5–16–67, Cl. 285—302.

Burke, Douglas R.: *See*—
Plummer, James W. 3,320,366.

Burke, Oliver W., Jr.: *See*—
Stably, Eldon E. 3,319,635.

Burke, Peter M.: *See*—
MacKerrow, Horace G., Heer, and Burke. 3,320,054.

Burlington Industries, Inc.: *See*—
Ware, John T. 3,319,578.

Burroughs Corp.: *See*—
Billawala, Shahbuddin A. 3,320,599.
Frank, Robert I., and Simmons. 3,320,499.
Hart, Joseph W. 3,320,597.
Karew, Joseph J., Hess, and Jones. 3,320,488.
Larrowe, Boyd T. 3,320,409.
McGregor, Arvin D. 3,320,429.
Yanishevsky, Gilbert. 3,320,595.

Burt, Samuel L., to United States of America, Army. Epoxy resin foaming process. 3,320,187, 5–16–67, Cl. 260—2.5.

Burwell, Blair. Process of recovering high purity vanadium compositions. 3,320,024, 5–16–67, Cl. 23—18.

Buschmann, Gerhard E., H.-D. Gotthardt, and H. Koch, to Veb Chemiefaserwerk Schwarza "Wilhelm Pieck." Process for melt-spinning of synthetic linear high polymers. 3,320,343, 5–16–67, Cl. 264—176.

Bush, Clinton G.: *See*—
Mentnech, Adelbert. 3,319,940.

Buss, Waldeen C.: *See*—
Fischer, Paul E., Buss, and Goldsmith. 3,320,181.

Butler, George B., to Peninsular Chem Research, Inc. Saturated linear copolymers. 3,320,216, 5–16–67, Cl. 260—78.5.

Butterworth System, Inc.: *See*—
Nelson, William L. 3,319,889.

Byrne, Charles J.: *See*—
Leder, Philip, and Byrne. 3,319,792.

C.A.V., Ltd.: *See*—
Glikin, Paul E. 3,319,616.

Cabot Corp.: *See*—
Williams, Frank R., and Hagopian. 3,319,895.

Cahn, Arno, H. Lemaire, V. Lamberti, and R. A. Haas, to Lever Bros. Co. Preparation of sulfonated fatty acid ester surface-active agents. 3,320,292, 5–16–67, Cl. 260—400.

Cal Mfg. Co.: *See*—
Leathers, Chester F. 3,320,400.

Caldwell, John R., and W. J. Jackson, Jr., to Eastman Kodak Co. Process for preparing chlorinated polycarbonates and polyesters. 3,320,210, 5–16–67, Cl. 260—47.

Caldwell, John R., and P. C. Mayo, to Southern States, Inc. Electric switch. 3,320,376, 5–16–67, Cl. 200—48.

Calhoun, William D., to Pharmaseal Laboratories. Collapsible container. 3,319,684, 5–16–67, Cl. 150—8.

California Institute Research Foundation: *See*—
Miller, Wayne F. 3,320,551.

Callahan, James L., B. Gertisser, and J. J. Ssabo, to The Standard Oil Co. Process for the catantic oxidative dehydrogenation of olefins to diolefins. 3,320,330, 5–16–67, Cl. 260—680.

Callery Chemical Co.: *See*—
Marshall, Mervin D., and Adams. 3,320,310.

Calmar, Inc.: *See*—
Cooprider, Rex C. 3,319,894.

Calthorpe, Maurice. Extensible vehicle roof. 3,319,996, 5–16–67, Cl. 296—137.

Camlet, John V. Tool construction. 3,319,904, 5–16–67, Cl. 242—85.1.

Campbell, Andrew J., and R. L. Fischer, to Al-craft Mfg. Co. Worm and wheel gearing and housing therefor. 3,319,482, 5–16–67, Cl. 74—425.

Campbell, John E., to Polaroid Corp. Photographic film unit having a resilient liquid trapping member. 3,320,065, 5–16–67, Cl. 96—76.

Campbell, Robert W., E. M. Sawyer, D. O. Ruff, T. E. Kirk, L. M. Ramey, and W. D. Worrell, to General Motors Corp. Inductor device. 3,320,565, 5–16–67, Cl. 336—123.

Campbell, Virginia K. Electrically heated windshield washing nozzle in time delay circuit. 3,319,891, 5–16–67, Cl. 239—130.

Canick, Leon N.: *See*—
Aldrich, Charles S., and Canick. 3,320,375.

Cann, William R.: *See*—
Zachry, Clyde L., Northrup, and Cann. 3,320,401.

Canter, Frank C.: *See*—
Perry, Milton A., and Canter. 3,320,079.

Caplau, Andre, to Societe Fives Lille-Cail. Device for sensing compressive forces. 3,319,461, 5–16–67, Cl. 73—88.5.

Capizzi, Victor T.: *See*—
Hering, Henry H., Jr., and Capizzi. 3,319,854.

Cappuccio, Vittorio, and U. Riboni, to Montecatini Edison S.p.A. Dye-receptive polyolefin fiber containing saturated, unsubstituted dicarboxylic acid of acid anhydride. 3,320,226, 5–16–67, Cl. 260—93.7.

Capron, Robert W.: *See*—
Paglee, Mario R., and Capron. 3,320,420.

Caraher, James M., to United States of America, Navy. Water-cooled, self-regulating, exhaust nozzle for a submarine thermal power plant. 3,319,423, 5–16–67, Cl. 60—242.

Carissimi, Massimo, and F. Ravenna, to Maggioni & C.-S.p.A. Basic ethers of guaiacol and thymol with polyoxyethylenic chain and their derivatives. 3,320,254, 5–16–67, Cl. 260—247.7.

Carleton Controls Corp.: *See*—
Cummins, Richard D. 3,319,649.

Carlson, Carl O., to The National Cash Register Co. System for retrieving microimages formed on superpositioned microforms and the like. 3,319,518, 5–16–67, Cl. 88—24.

Carlson, Clyde H.: *See*—
Stafford, George E. 3,319,975.

Carre, Roland: *See*—
Brault, Yves, and Carre. 3,320,613.

Carslaw, Charles H., to Drysdale & Co. Ltd. Pumping arrangement for cargo ships arranged to carry liquid bulk cargo. 3,319,574, 5–16–67, Cl. 103—113.

Carthage Machine Co., Inc.: *See*—
Zalenkowsky, Andrew. 3,319,674.

Case, J. I., Co.: *See*—
Keplinger, Miller M., and Wenzel. 3,319,721.

Case, Laura E., to Union Carbide Corp. Arc torch reduction of metal halide. 3,320,145, 5–16–67, Cl. 204—164.

Casull, Geraldine: *See*—
Casull, Richard J. 3,319,523.

Casull, Richard J., ½ to K. J. and G. Casull, and ½ to K. R. and F. P. Eskelsen. Drum cartridge feeding mechanism. 3,319,523, 5–16–67, Cl. 89—33.

Caubet, Jacques J., to Automobiles M. Berliet & Hydromecanique et Trottement. Surface treatment for jointly improving friction and fluid tightness. 3,319,314, 5–16–67, Cl. 29—149.5.

Caves, Robert B.: *See*—
Rodgers, James L., and Caves. 3,319,893.

Celanese Corp.: *See*—
MacLean, Alexander F. 3,320,801.

Cellu Products Co., Inc.: *See*—
Lemmons, Thomas J. 3,320,075.

Central Transformer Corp.: *See*—
Winter, David F., and Gill. 3,319,412.

Century Engineering Corp.: *See*—
Truesdell, Merlyn R. 3,319,947.

Century Geophysical Corp.: *See*—
Wilcox, Stanley W. 3,319,960.

Chadbourne, Clyde R.: *See*—
Albright, John D., and Chadbourne. 3,320,615.

Chamberlain, Ralph J., to American Cyanamid Co. Filter cigarette. 3,319,629, 5–16–67, Cl. 131—10.

Champion, Clarence M., and M. A. Ordelheide. Ink separator. 3,319,563, 5–16–67, Cl. 101—207.

Chandler Ide: *See*—
Bergsnov-Hansen, Bjorn. 3,319,542.

Charnock, David J.: *See*—
Wagstaffe, Alan, Charnock, and Beynon. 3,320,428.

Chasar, Anthony R., and A. W. Mehrbrodt, to The Triax Co. Plunger type switch. 3,320,374, 5–16–67, Cl. 200—47.

Chemerda, John M., and J. B. Bicking, to Merck & Co., Inc. Process for the preparation of 4-(2-methylenealkanoyl) phenoxy alkanoic acids by decarboxylation. 3,320,306, 5–16–67, Cl. 260—520.

Chemical Construction Corp.: *See*—
Nebgen, William H. 3,319,482.

Chemical Milling International Corp.: *See*—
Brevik, Elmer L. 3,320,105.

Chemicals & Phosphates Ltd.: *See*—
Greidinger, Dahlia S., and Cohen. 3,320,237.

Chemische Fabrik Pfersee G.m.b.H.: *See*—
Enders, Heinz, and Deiner. 3,320,197.

Chemische Fabrik Schweizerhall: *See*—
Muhle, Herbert. 3,320,253.

Chemisches Laboratorium Muller, A., Dr.: *See*—
Muller, Adam. 3,320,071.

Chemetron Corp.: *See*—
Tepe, Charles F., and Jones. 3,320,151.

Chenoweth, David V., to Baker Oil Tools, Inc. Multiple zone injection apparatus for well bores. 3,319,717, 5–16–67, Cl. 166—115.

Chervenka, Charles H., to Beckman Instrument, Inc. Mechanical differentiator. 3,319,336, 5–16–67, Cl. 33—27.

Chevron Research Co.: *See*—
Abbott, Andrew D., and Lowe. 3,320,163.
Fischer, Paul E. Buss, and Goldsmith. 3,320,181.
Hartung, Roderick L. 3,319,469.
Mahoney, Frank D., Reed, and Uhlig. 3,319,645.
Pino, Manuel A. 3,320,153.
Pino, Manuel A. 3,320,297.
Suzuki, Shigeto. 3,320,168.

Chiappeta, Patsy, Jr. Movable table attachment for a machine tool. 3,319,914, 5–16–67, Cl. 248—205.

Chicago Gasket Co.: *See*—
Clark, Robert A. 3,319,290.

Chicago Rivet & Machine Co.: *See*—
Shineflug, William O. 3,319,823.

Chichoogov, Konstantin A.: *See*—
Bereslavsky, Alexander L., Nagibinm, Chichoogov, Gryzhin, and Koorenkov. 3,319,541.

Chieger, George: *See*—
Tantlinger, Keith W., Wilson, and Chieger. 3,319,393.

Chillson, Charles W., E. R. Stout, G. R. Smith, and W. J. Lebo, to Curtiss-Wright Corp. Friction clutch with snap action actuation means. 3,319,752, 5–16–67, Cl. 192—51.

Chisholm, Raymond S.: *See*—
Bissinger, William E., Strain, Stevens, Dial, and Chisholm. 3,320,211.

Cho, Chi L., to W. Pfister. Internal micrometer. 3,319,342, 5–16–67, Cl. 33—178.

Choate, Paul V., and M. A. Nee, to Norris Industries, Inc. Non-spin rockets and their guidance. 3,319,566, 5–16–67, Cl. 102—49.7.

Christensen, Alfred C., to Lester B. Knight & Associates, Inc. Elevating conveyor. 3,319,774, 5–16–67, Cl. 198—140.

Christensen, Garn G., to Buckhorn Corp. Trophy mount. 3,319,922, 5–16–67, Cl. 248—466.

Christenson, Howard W., E. T. Mabley, and M. E. Fisher, to General Motors Corp. Transmission with hydrodynamic brake and torque converter. 3,319,746, 5–16–67, Cl. 192—4.

Christenson, Howard W., and R. H. Schaefer, to General Motors Corp. Method of making a facing for use in energy transmitting device. 3,320,107, 5–16–67, Cl. 156—89.

Christenson, John C., to Clark Equipment Co. Tilt and hoist control mechanism for a lift truck. 3,319,816, 5–16–67, Cl. 214—673.

Chrysler Corp.: *See*—
Bell, Albert H., III. 3,319,931.
Iavelli, Teno, and Miller. 3,319,479.
Noble, Gardiner A., and Muir. 3,320,558.
Riley, Howard E., Jr. 3,319,993.

Church, George A. Toothbrush and dentifrice holder. 3,319,833, 5–16–67, Cl. 222—93.

Churchman, Fred L., and J. H. Gibson. Monorail. 3,319,581, 5–16–67, Cl. 105—141.

Cilag-Chemie Ltd.: *See*—
Habicht, Ernst, and Feth. 3,320,243.

Cimler, Emil, R. Rippell, and E. H. Van Baush, to Hydrocarbon Research, Inc. Air separation with a nitrogen refrigeration circuit. 3,319,427, 5–16–67, Cl. 62—13.

Cincinnati Milling Machine Co., The: *See*—
Pfister, Stanley A. 3,319,480.

Cirillo, John J.: *See*—
Levitt, Myron B., and Cirillo. 3,319,474.

Claney, Merle E., and R. J. Herschler, to Crown Zellerbach Corp. Electrolytic process of making ternary sulfonium hydroxides. 3,320,141, 5–16–67, Cl. 204—101.

Clark Equipment Co.: *See*—
Christenson, John C. 3,319,816.
Perez, Arthur. 3,319,557.

Clark, Frederick G., ½ to W. Stevenson. Magnetic driving implement with cup-shaped magnetic portion for greater holding strength. 3,320,563, 5–16–67, Cl. 335—285.

Clark, Robert A., to Chicago Gasket Co. Radial compression die molding apparatus. 3,319,290, 5–16–67, Cl. 18—5.

Clark, Robert E., E. R. Spence, and R. C. Stribley, to American Home Products Corp. Infant's formula made with electro-dialyzed milk. 3,320,072, 5–16–67, Cl. 99—63.

Clarke, Frank H., Jr., to Geigy Chemical Corp. 6-phenyl-1,2,3,4,5,6-hexahydro-2,6-methano-3-benzazocines. 3,320,265, 5–16–67, Cl. 260—294.7.

Clarke, James S., and C. E. Loeser, to Esso Research and Engineering Co. Double walled cryogenic tank. 3,319,431, 5–16–67, Cl. 62—45.

Clarostat Mfg. Co., Inc.: *See*—
Prest, Elmer W. J. 3,319,484.

Clayton, Kenneth H.: *See*—
Rath, Gerald A., Templin, and Clayton. 3,319,733.

Cleland, Marshall R., to Radiation Dynamics, Inc. Voltage multiplication apparatus. 3,320,513, 5–16–67, Cl. 321—15.

Clement, Napoleon. Locking device for folding chair. 3,319,997, 5–16–67, Cl. 297—16.

Coates, Joseph F.: *See*—
Wakeman, Reginald L., and Coates. 3,320,263.

Cockburn, David H. Golf swing guiding device including correct swing indicator. 3,319,963, 5–16–67, Cl. 273—186.

Coffey, Charles E., to E. I. du Pont de Nemours and Co. Organic compounds containing covalent gold. 3,320,293, 5–16–67, Cl. 260—429.

Cohen, Brilliantina M.: *See*—
Greidinger, Dahlia S., and Cohen. 3,320,237.

Cohen, Saul M., to Monsanto Co. Copolymers of ethylene and 2-hydroxymethyl-5-nor-bornene. 3,320,222, 5–16–67, Cl. 260—88.1.

Colamussi, Arturo: *See*—
Di Drusco, Giovanni, and Colamussi. 3,320,220.

Cole, Felix, E. L. Modreski, and R. W. Van Tilburg, to Corning Glass Works. Method and apparatus for making ceramic or vitreous articles. 3,320,044, 5–16–67, Cl. 65—44.

Cole, Robert E.: *See*—
Haider, William R., and Cole. 3,319,870.

Coleman, Richard A., and S. J. Losito, to Vincent Losito and Sons. Mushroom trimming machine. 3,319,680, 5–16–67, Cl. 146—81.

Coless, Thomas L., to Union Carbide Corp. Submerged arc flux composition and method of making the same. 3,320,100, 5–16–67, Cl. 148—26.

Colgate-Palmolive Co.: *See*—
Cubitt, Robert B. 3,319,836.
Maxwell, Milton. 3,319,828.
Rubinfeld, Joseph. 3,320,174.

Collin, Viola R.: *See*—
Collin, Arthur C. and V. R. 3,319,910.

Collin, Arthur C. and V. R. Combination fishing rod carrier, holder, and display hanger. 3,319,910, 5–16–67, Cl. 248—40.

Collins, Floyd K.: *See*—
Burdick, Glen A., Collins, and Gessford. 3,320,457.

Collins, Galen F., and L. J. Daher, to Miles Laboratories, Inc. Reaction products of polymeric dialdehyde polysaccharides with p-amino salicylates. 3,320,236, 5–16–67, Cl. 260—233.3.

Collins Radio Co.: *See*—
Broadhead, Samuel L., Jr. 3,320,535.
Joyce, Hardin, Jr. 3,319,748.

Columbia Cement Co., Inc.: *See*—
Berg, Howard A. 3,319,841.

Columbian Slides Inc.: *See*—
Edelson, Leo, and Rafter. 3,320,003.

Control Data Corp.: *See*—
Neuf, Donald. 3,320,497.

Combourieux, André, to Industrial Holding Establishment. Projectile fuse. 3,319,567, 5–16–67, Cl. 102—76.

Combs, William H.: *See*—
Craig, Sam N., Combs, Hilbert, Kemper, and Tahar. 3,319,897.

Combustion Engineering, Inc.: *See*—
Freiday, Jay H. 3,319,694.

Compagnie Francaise Thomson Houston-Hotchkiss Brandt: *See*—
Deman, Pierre. 3,320,544.

Compagnie Generale de Telegraphie Sans Fil: *See*—
Brault, Yves, and Carre. 3,320,613.

Compagnie Generale d'Electricite: *See*—
Klein, Georges. 3,320,443.

Compagnie Generale des Etablissements Michelin, raison sociale Michelin & Cie: *See*—
Travers, Georges L. 3,319,952.

Compagnie Generale d'Enterprises Electriques: *See*—
Verneau, Marcel. 3,320,394.

Compur-Werk Gesellschaft mit beschrankter Haftung & Co.: *See*—
Härtl, Karl. 3,319,552.

Conservatoire National des Arts et Metiers: *See*—
Girerd, Henry. 3,319,615.

Conte, John S., and R. W. Faessinger, to Scott Paper Co. Water-soluble nylon-type resins. 3,320,215, 5–16–67, Cl. 260—78.

Continental Gummi-Werke Aktiengesellschaft: *See*—
Meyer, Friedrich. 3,320,112.

Continental Illinois National Bank and Trust Co. of Chicago: *See*—
Yost, Kermit D. 3,319,968.

Continental Oil Co.: *See*—
Minor, John T. 3,320,173.
Riggs, Olen L., Jr., Wolfe, and Every. 3,320,318.
Thomas, Bobby J., Dunster, and Sullivan. 3,320,583.

Cooper-Bessemer Corp., The: *See*—
Morain, Willard A. 3,319,647.

Cooper, Paul W.: *See*—
Reba, Imanta, and Cooper. 3,319,692.

Cooperman, Harris L. Precise positioning device. 3,319,528, 5–16–67, Cl. 90—58.

Cooprider, Rex C., to Diamond International Corp. Liquid dispenser. 3,319,894, 5–16–67, Cl. 239—490.

Corbitt, Howard E.: *See*—
Bosco, George B., Jr., and Corbitt. 3,320,450.

Corey, Charles S., to The Wurlitzer Co. Piano action assembly. 3,319,503, 5–16–67, Cl. 84—240.

Corner, Howard E.: *See*—
Norris, Carl L., Williams, Nelsen, Corner, Goodbar, and Oliver. 3,319,569.
Norris, Carl L., Williams, Nelsen, Corner, Goodbar, and Oliver. 3,319,570.

Corning Glass Works: *See*—
Cole, Felix, Modreski, and Van Tilburg. 3,320,044.
Hudson, William. 3,319,818.
Neal, Franklin M., and Ryan. 3,320,415.
Riseman, John H., Dole, and Voutselas. 3,320,486.
Smith, Terry P. 3,320,353.

Corrall, Roy E., and G. N. Menasoff, to Anaconda Wire and Cable Co. Reverse lay strand. 3,320,350, 5–16–67, Cl. 174—34.

Corran, John A.: *See*—
Aliport, Dennis C., Camlen, Corran, Eaton, and Twitchett. 3,320,190.

Cortez, Manuel. Carpenter's saw with added multipurpose facilities. 3,319,337, 5–16–67, Cl. 33—75.

Cosmic, Inc.: *See*—
Gignoux, Dominique. 3,320,517.

Costantini, Anthony R., and A. Di Angelus, to Victory Metal Mfg. Co. Evaporator unit. 3,320,405, 5–16–67, Cl. 219—271.

Costner, Jackson, to Ideal Industries, Inc. Roving frame drive. 3,319,413, 5–16–67, Cl. 57—102.

Cottin, Camille, to Progil. Preparation of alkyl and dialkyl carbamyl halides. 3,320,308, 5–16–67, Cl. 260—544.

Cowen, Henry C.: *See*—
Sheppard, Malcolm F., and Cowen. 3,320,134.

Cox, Patrick C. Dispensing device for liquid and semi-liquid substances. 3,319,839, 5–16–67, Cl. 222—327.

Cozzarin, Edward, to Morse Chain Co. Vented mechanical device. 3,320,006, 5–16–67, Cl. 308—36.1.

Craig, Sam N., W. H. Combs, F. E. Hilbert, H. L. Kemper, and A. B. Tahar, to Somat Corp. Waste disposal unit. 3,319,897, 5–16–67, Cl. 241—46.

Creager, John E., to General Motors Corp. Vacuum operated automative temperature control system. 3,319,888, 5–16–67, Cl. 236—87.

Creed, Sherman H., to FMC Corp. Stem pulling apparatus. 3,319,679, 5–16–67, Cl. 146—55.

Creger, Paul L., to Parke, Davis & Co. 17β,20-epoxy steroids and methods for their production. 3,320,242, 5–16–67, Cl. 260—239.55.

Crosby, Forrester K., and W. F. Eaton, to United States of America, Atomic Energy Commission. Fluid flow interlock and indicator. 3,320,881, 5–16–67, Cl. 200—81.9.

Crosby, Peter F., and F. A. Hurd, to Diebold Inc. Vertical selective conveyor. 3,319,766, 5–16–67, Cl. 198—38.

Crow, Robert P., and D. Malkin, to Radio Corp. of America. DME with stepper type servo motor. 3,320,612, 5–16–67, Cl. 343—7.3.

Crown Zellerbach Corp.: *See*—
Claney, Merle E., and Herschler. 3,320,141.

Crowther, George N., to United-Carr Inc. Fastener. 3,319,912, 5–16–67, Cl. 248—74.

Cruthers, Ronald F., to United States of America, Navy. Method of making a potentiometer on a thin film circuitry panel. 3,319,320, 5–16–67, Cl. 29—155.7.

Cubitt, Robert B., to Colgate-Palmolive Co. Spill-proof bottle closure. 3,319,836, 5–16–67, Cl. 222—207.

Cuddon-Fletcher, Angus H., to Great Grimsby Coal, Salt and Tanning Co. Ltd. Device for measuring contents of liquefied gas containers. 3,319,730, 5–16–67, Cl. 177—233.

Culbertson, George T., to Master Specialties Co. Voltage sensor. 3,320,493, 5–16–67, Cl. 317—148.5.

Cumming, James C., to Rockwell-Standard Corp. Torque actuated brake system. 3,319,742, 5–16–67, Cl. 188—152.

Cummins, James B.: *See*—
Aiken, Howard H., Birrell, Cummins, and Richards. 3,319,761.

Cummins, Phil F., to General Dynamics Corp. Survival garment. 3,319,260, 5–16–67, Cl. 2—2.

Cummins, Richard D., to Carleton Controls Corp. Valve construction. 3,319,649, 5–16–67, Cl. 137—505.18.

Cunningham, Rae H., to Newport News Shipbuilding and Dry Dock Co. Method and apparatus for fusion welding. 3,320,402, 5–16–67, Cl. 219—137.

Cunningham, Wesley B. Demolition device. 3,319,724, 5–16–67, Cl. 173—119.

Curren, William J., to The Foxboro Co. Chromatographic apparatus for measuring hydrogen components. 3,319,458, 5–16–67, Cl. 73—23.1.

Curtiss-Wright Corp.: *See*—
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Cusic, John W., and P. Yonan, to G. D. Searle & Co. Derivatives of isonipecotamide. 3,320,246, 5–16–67, Cl. 260—243.

Cusic, John W., and P. Yonan, to G. D. Searle & Co. Dibenzocyclohepten-5-ylpiperazines. 3,320,259, 5–16–67, Cl. 260—268.

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Custer, Willard R., to Custer Channel Wing Corp. Discharge orifices. 3,319,652, 5–16–67, Cl. 137—590.

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Hedrick, Robert R., Montgomery, and Richmond. 3,320,593.

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Dixon, Alexander M., and Cyr. 3,320,576.

Czubak, Albin S., to Micromatic Hone Corp. Bore gauging device. 3,320,378, 5–16–67, Cl. 200—61.41.

Daher, Lawrence J.: *See*—
Collins, Galen F., and Daher. 3,320,236.

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Hopf, Wilhelm, and Kärcher. 3,319,439.

Dale, Alfred I.: *See*—
Breternitz, Charles E., Dale, and Sloan. 3,319,767.

Dalton, Edward: *See*—
Mazzarella, Emil D., and Dalton. 3,320,080.

Daniel, David W., and A. B. Bassoff, to National Broach & Machine Co. Gear shaving machine. 3,319,526, 5–16–67, Cl. 90—1.6.

Daniels, Wilhelm: *See*—
Hofer, Peter, Daniels, and Oetliker. 3,319,396.

Danis, Louis J., to Eaton Mfg. Co. Method of making engine valve. 3,319,321, 5–16–67, Cl. 29—156.7.

Dargene, Carl J., to Amerock Corp. Hinge adjusting tool. 3,319,934, 5–16–67, Cl. 254—131.

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Daugirda, Paul G.: *See*—
Demetriff, William A., and Daugirda. 3,319,980.

Davies, Beaumont J., to George Richards & Co., Ltd. Motor control system having a counter responsive to a modulated pulse train. 3,320,501, 5–16–67, Cl. 318—18.

Davies, Paul M., to TRW Inc. Associative computer. 3,320,594, 5–16–67, Cl. 340—172.5.

Davis, Fred W., to The Babcock & Wilcox Co. Method of producing ceramic nuclear fuel material having incorporated therein burnable poison. 3,320,176, 5–16–67, Cl. 252—301.1.

Davy and United Engineering Co. Ltd.: *See*—
Bond, Harry L. F. 3,319,450.

Dayco Corp.: *See*—
Smith, Howard S. 3,320,339.

De Bough, Bjorn N., and B. C. Porrelli. Multi-station variable timing apparatus. 3,320,431, 5–16–67, Cl. 307—41.

Decuir, Perry J. Cam biased well anchor with detachable setting means. 3,319,719, 5–16–67, Cl. 166—217.

Deere & Co.: *See*—
Berk, Martin A. 3,319,405.

Dege, Bernhard: *See*—
Heeren, Hermann, Kratzer, and Dege. 3,319,710.

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Delaloye, Jacques R. O. On-load self-starting synchronous motor. 3,320,449, 5–16–67, Cl. 310—156.

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Delligatti, Raymond A. Applicator. 3,319,283, 5–16–67, Cl. 15—588.

DeLorean, John Z., to General Motors Corp. Transmission control indicator. 3,319,598, 5–16–67, Cl. 116—124.

Deltrol Corp.: *See*—
Donner, Verne P. 3,319,648.
Franzene, Robert D. 3,320,379.

Deman, Pierre, to Compagnie Francaise Thomson Houston-Hotchkiss Brandt. Angle-modulation signal system of the angle-lock type. 3,320,544, 5–16–67, Cl. 331—8.

Demetriff, William A., and P. G. Daugirda, to Rheem Mfg. Corp. Dip tube connection. 3,319,980, 5–16–67, Cl. 285—140.

DeNicola, Joseph P., to Instron Corp. Extensometer. 3,319,338, 5–16–67, Cl. 33—148.

Denton, Eric B.: *See*—
Hasenwinkle, Earl D., Preusser, and Denton. 3,319,765.

De Prisco, Carmine F.: *See*—
Jones, James Byron, and De Prisco. 3,319,984.

Derbyshire, Raymond J. F.: *See*—
Warman, Bloomfield J., and Derbyshire. 3,320,487.

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DeSmidt, Woodrow A., to Allen-Bradley Co. Operating mechanism for manually actuated switches. 3,320,395, 5–16–67, Cl. 200—168.

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Schuler, Wilhelm A., and Beschke. 3,320,319.

Devaris, Jerry: *See*—
Bixby, George, Jr., and Devaris. 3,320,073.

Devenco Inc.: *See*—
Knelling, John G. 3,319,582.

De Waard, Pieter, to Nederlandse Organisatie voor Toegepast-natuurwetenschappelijk Onderzoek ten Behoeve van Nijverheid Handel en Verkeer. Measuring bridge oscillator with improved linearity. 3,320,548, 5–16–67, Cl. 331—65.

DeWald, Horace A., to Parke, Davis & Co. β-amino-α-phenoxy-2-stilbazole derivatives. 3,320,269, 5–16–67, Cl. 260—296.

Dewell, Edward H., to The Babcock & Wilcox Co. Process for making nuclear fuel material. 3,320,178, 5–16–67, Cl. 252—301.1.

Dewey, Chauncey P., Jr.: *See*—
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Diassi, Patrick A., and P. A. Principe, to Squibb & Sons, Inc. 4, 8a,14β-trimethyl-9β-androst-4-ene-3,11,17-trione and preparation thereof. 3,320,290, 5–16–67, Cl. 260—397.3.

Dibbo, Alan, and E. B. McCall, to Monsanto Chemicals Ltd. Vulcanization process. 3,320,219, 5–16–67, Cl. 260—79.5.

Di Drusco, Giovanni, and A. Colamussi, to Montecatini Edison S.p.A. Process for separating elastomeric homopolymers and copolymers from solutions thereof. 3,320,220, 5–16–67, Cl. 260—80.5.

Diebold Inc.: *See*—
Crosby, Peter F., and Hurd. 3,319,766.

Dien, Chi K., and W. B. Richards, to Allied Chemical Corp. Water soluble phthalocyanine dyes. 3,320,275, 5–16–67, Cl. 260—314.5.

Digby, James J., to The Bendix Corp. Starter clutch device with centrifugal clutch separating means. 3,319,755, 5–16–67, Cl. 192—104.

Dijkema, Louis, to Stamicarbon N.V. Process for preparing multicellular bodies. 3,320,188, 5–16–67, Cl. 260—2.5.

Dike, Melville A., to Tech-Met Corp. Method of preparing magnetic memory device. 3,319,315, 5–16–67, Cl. 29—155.5.

Dike-O-Seal, Inc.: *See*—
Olson, Richard L. 3,319,969.

Dildilian, Ara T.: *See*—
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Dill, Walter R., to Halliburton Co. Fluid loss additive for well fluids, composition and process. 3,319,716, 5–16–67, Cl. 166—42.

Diolot, Lucien, to Societe Nouvelle Spidem. Clamping system for roll-type planishing machine. 3,319,453, 5–16–67, Cl. 72—406.

Distillers Co. Ltd., The: *See*—
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Sparks, Anthony A., and Moore. 3,320,201.

Dixon, Alexander M., and R. J. Cyr, to The Bendix Corp. Receiver for processing a plurality of adjacent closely spaced input signals. 3,320,576, 5–16–67, Cl. 340—5.

Doebel, Karl J., and F. Leonard, to Geigy Chemical Corp. Certain cycloalkyl benzylamines. 3,320,252, 5–16–67, Cl. 260—247.

Dole, Charles M., Jr.: *See*—
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Dombeck, Walter J. Tool for positioning a wheel on an axle. 3,319,327, 5–16–67, Cl. 29—273.

Dombro, Dick, R. L. Hill, Jr., and L. P. Hogan. Gas can with tear tab closure for, and movable discharge guide associated with its dispensing opening. 3,319,844, 5–16–67, Cl. 222—529.

Dominion Tar & Chemical Co., Ltd.: *See*—
Ostwald, Henry. 3,319,869.

Dommann, Gunther, to Gewerkschaft Eisenhutte Westfalia. Chain strand, especially for mining conveyors. 3,319,777, 5–16–67, Cl. 198—168.

Domtar Ltd.: *See*—
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Ostrowski, Henry J. 3,319,462.

Donner, Verne P., to Deltrol Corp. Pressure-compensated flow control valves. 3,319,648, 5–16–67, Cl. 137—504.

Doppelt, Lawrence, M. Rosenblum, and A. Ungaro, to Goldberger Doll Mfg. Co., Inc. Molded floppy-limbed doll with cellular torso and limbs and substantially cell-free thin joints. 3,319,376, 5–16–67, Cl. 46—156.

Dore, Benelli D., to C. E. Valente. Device for dispensing lump sugar. 3,319,825, 5–16–67, Cl. 221—186.

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Albertson, Orris E., and Kilmer. 3,319,587.
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Doss, Richard C., to Phillips Petroleum Co. Butyl (butylthio) thiolacetate, and method of preparing thiol esters. 3,320,300, 5–16–67, Cl. 260—455.

Dowbenko, Rostyslaw, to Pittsburgh Plate Glass Co. Bicyclo-[3-3.0]-octyl lactones. 3,320,284, 5–16–67, Cl. 260—343.6.

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Ham, George E., and Levine. 3,320,302.
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Moore, Donald E., and Prout. 3,320,223.
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Raich, William J., and Peacock. 3,320,224.
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Douros, John D., Jr., to Sun Oil Co. 2-(2',2'-dihalo-cyclopropyl)-1,1-dihalocyclopropane and 2,2-dihalocyclopropyl carboxylic acid as antibacterial agents. 3,320,121, 5–16–67, Cl. 167—30.

Downey, Paul. Unloading and screening chute for shelled corn. 3,319,787, 5–16–67, Cl. 209—421.

Drake, Cyril F., and K. L. Ellington, to International Standard Electric Corp. Method of fabricating a semiconductor by out-diffusion. 3,320,103, 5–16–67, Cl. 148—191.

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Drilce Oil Tool, Inc.: *See*—
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Dritz, Arthur. Stapling device. 3,319,863, 5–16–67, Cl. 227—71.

Drysdale & Co. Ltd.: *See*—
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Dual Gebruder Steidinger: *See*—
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Ducati Elettrotechnica S.p.A.: *See*—
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Duke, Roy B., Jr., and M. A. Perry, to Eastman Kodak Co. Unsaturated polyesters having branched structures. 3,320,336, 5–16–67, Cl. 260—861.

Duncan, Leon L., to W. J. King. Total disposal unit and method. 3,319,588, 5–16–67, Cl. 110—9.

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Jones-Hinton, James, and Gray. 3,319,295.

Dunnebier, Kurt: *See*—
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Dunning, Edward B., D. P. Gilboe, and C. P. Shulman, to Archer-Danels-Midland Co. Process for insolubilizing protein. 3,320,078, 5–16–67, Cl. 106—124.

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Braun, Robert A. 3,320,195.
Coffey, Charles E. 3,320,293.
Flournoy, Philip A. 3,319,515.
George, Angelo. 3,320,023.
Hill, Trevor B. 3,320,198.
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Durand, Gilbert E. Door hanger bracket. 3,319,915, 5–16–67, Cl. 248—205.

Duschinsky, Robert, and T. F. Gabriel, to Hoffmann-La Roche Inc. Fluorinated imidazo[1,2-c] pyrimidines and pyrimido [1,2-c] pyrimidines. 3,320,256, 5–16–67, Cl. 260—256.4.

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EURORGA: *See*—
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Early, Hallie O., K. R. Schafer, and H. R. Kirkland. Training device for maintaining a taut lariat on a roping horse. 3,319,605, 5–16–67, Cl. 119—29.

East, Robert M., and J. A. Harmon, to Addressograph-Multigraph Corp. Developer mixes. 3,320,169, 5–16–67, Cl. 252—62.1.

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Caldwell, John R., and Jackson. 3,320,210.
Duke, Roy B., Jr., and Perry. 3,320,336.
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Eck, Bruno, and N. Laing, to Laing Vortex, Inc. Machines for the cross-flow type of inducing movement of fluid. 3,319,877, 5–16–67, Cl. 230—125.

Eckermann, Louis D. Splash guard or mud flap means. 3,319,976, 5–16–67, Cl. 280—154.5.

Eckstein, Royal W., Jr., to United States of America, Navy. Vacuum tube circuit to approximate an ideal switch over a broad temperature range. 3,320,491, 5–16–67, Cl. 317—142.

Edelson, Leo, and A. H. Rafter, to Columbian Slides Inc. Telescoping slide. 3,320,003, 5–16–67, Cl. 308—3.6.

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Edgerton, Germeshausen & Grier, Inc.: *See*—
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Edmonds, James T., Jr., to Phillips Petroleum Co. Novel polymer and method of obtaining the same by polymerization of a trimethylene sulfide in presence of an alkali metal catalyst. 3,320,217, 5–16–67, Cl. 260—79.

Edwards, Richard A., to Gardner-Denver Co. Remote control for rock drill. 3,319,725, 5–16–67, Cl. 173—157.

Eggenberger, Ulrich, to Gebruder Buehler. Pressure casting machine having a hydraulically loadable shot unit. 3,319,701, 5–16–67, Cl. 164—315.

Eldy, Hass S., to Du-Al Mfg. Co. Bale pickup. 3,319,757, 5–16–67, Cl. 198—9.

Elge, John J., to Stanford Research Institute. Fluid logic structures. 3,319,885, 5–16–67, Cl. 235—201.

Elsenberg, Maurice, to Solar Light Mfg. Co. Mounting and leveling device for lighting fixtures. 3,319,919, 5–16–67, Cl. 248—343.

Eitel, Jay M., B. J. Leigh, and E. R. Williams, to Telsta Corp. Apparatus for lashing and placing aerial cable and strand. 3,319,935, 5–16–67, Cl. 254—134.3.

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Electric Storage Battery Co., The: *See*—
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Electro Scientific Industries, Inc.: *See*—
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Elektroschmelzwerk Kempten G.m.b.H.: *See*—
Schroll, Franz. 3,319,785.

Eli Lilly and Co.: *See*—
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Eller, Edwin F. Curler pillow. 3,319,272, 5–16–67, Cl. 5—338.

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Ellison, Claude R. Engine block washing tank. 3,319,638, 5–16–67, Cl. 134—107.

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Eltra Corp.: *See*—
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Embassy Industries, Inc.: *See*—
Nelson, Elliot S. 3,319,708.

Emhart Corp.: *See*—
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Hand, Albert E. 3,319,382.

Encoa Corp.: *See*—
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Enders, Heinz, and H. Deiner, to Chemische Fabrik Pfersee G.m.b.H. Process of producing concentrated aqueous emulsions of water-insoluble substances and emulsions produced by such process. 3,320,197, 5–16–67, Cl. 260—29.2.

Endicott Machine and Tool Co., Inc.: *See*—
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Englesson, Per T. Tablet container having tablet release means. 3,319,827, 5–16–67, Cl. 221—299.

English Electric Valve Co., Ltd.: *See*—
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Ensing, Robert H., and G. H. Woods, to American Dispenser Co., Inc. Liquid soap dispensers. 3,319,835, 5–16–67, Cl. 222—180.

Erbach, Fred R., to Beloit Corp. Suction felt roll with transverse blow off. 3,320,110, 5–16–67, Cl. 162—306.

Erickson, John W., to Preco Inc. Load divider support mechanism. 3,319,584, 5–16–67, Cl. 105—376.

Erickson, Paul N., to Evans Products Co. Method of protecting surface from fire. 3,320,087, 5–16–67, Cl. 117—137.

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Sosey, William F., and Tenpas. 3,320,564.

Esenwein, Albert, to Hauni Werke, Korber & Co., K.G. Tobacco moisture determining apparatus including a conveying means having an elongated duct with an overflow channel. 3,320,528, 5–16–67, Cl. 824—61.

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Eskelsen, Fern P.: *See*—
Casull, Richard J. 3,319,523.

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Gaspar, Noel J., and Pasternak. 3,320,831.
Holzhauer, William T., and Ort. 3,319,768.
Kelly, Joseph M., and Baeder. 3,320,155.
Mayer, Francis X., and Roberts. 3,320,050.
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Taylor, William F., and Sinfelt. 3,320,182.
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Establishment for Automation in Vaduz Liechtenstein: *See*—
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Etablissement Public; Centre de la Recherche Scientifique: *See*—
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Ethicon, Inc.: *See*—
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Ettischer, Helmut, and K. Steisslinger, to Eastman Kodak Co. Single lens reflex camera. 3,319,551, 5–16–67, Cl. 95—42.

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Evans, Elmer C. Diode heat sink and circuit mount. 3,320,498, 5–16–67, Cl. 317—234.

Evans, John S., to The Upjohn Co. Composition containing 1-B-D-arabinofuranosylcytosin useful in treating mice tumors. 3,320,132, 5–16–67, Cl. 167—78.

Evans Products Co.: *See*—
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Gore, William H., P. E. Leising, and E. B. Tooper, to Intercontinental Chemical Corp. Means for monitoring and maintaining concentration depletable work solutions. 3,319,637, 5–16–67, Cl. 134—57.
Goren, Mayer B., to Kerr-McGee Oil Industries, Inc. Absorbent; its preparation and use to recover metal values. 3,320,033, 5–16–67, Cl. 23—337.
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Graham, Erwin W., to The Pipe Machinery Co. Profile indicator and recorder. 3,319,341, 5–16–67, Cl. 33—174.
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Greiner, Otto. Beds. 3,319,270, 5–16–67, Cl. 5—66.
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Grogan, Charles H., and L. M. Rice, to Tri-Kem Corp. Certain 2-acylimido-thiazole compounds. 3,320,270, 5–16–67, Cl. 260—306.8.
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Ham, George E., to Gulf Oil Corp. Foamable polymer compositions wherein the blowing agent is the reaction product of an asodicarboxylate and an amine. 3,320,189, 5–16–67, Cl. 260—2.5.
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Hawkes, Thomas B. and R. B., to T. W. & C. B. Sheridan Co., a subsidiary of Harris-Intertype Corp. Machine and method for applying crash to the binding edges of books. 3,319,499, 5–16–67, Cl. 83—99.
Hawkins, Robert D., and L. S. Balandis, to Sperry Rand Corp. Method of making frequency responsive apparatus. 3,320,617, 5–16–67, Cl. 346—1.
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Hedrick, Ross M., and E. H. Mottus, to Monsanto Co. Process for polymerizing higher lactams in the presence of urethane polymer promoters. 3,320,335, 5–16–67, Cl. 260—858.
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Henrici, Stanley B., and P. K. Shoemaker, to H. J. Heinz Co. Storing, shipping and display package. 3,319,783, 5–16–67, Cl. 206—65.
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Herold, Curt P., and S. D. Stahley, to United States of America, National Aeronautics and Space Administration. Quick attach and release fluid coupling assembly. 3,319,979, 5–16–67, Cl. 285—24.
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Hobbs, Oliver K. Peanut digger. 3,319,720, 5–16–67, Cl. 171—101.

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Hofer, Peter, W. Daniels, and W. Oetliker, to Winkler, Fallert & Co., Maschinenfabrik. Apparatus for depositing articles into containers. 3,319,396, 5–16–67, Cl. 53—240.

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Hollister, Ralph G., to Johnson, Matthey & Co., Ltd. Electrical resistance elements and the like. 3,320,039, 5–16–67, Cl. 29—193.

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Holmes, Julian C., to United States of America. Solid state temperature control. 3,320,407, 5–16–67, Cl. 219—501.

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Horberg, Charles, Jr., to Paramount Textile Machinery Co. Hosiery processing machinery and apparatus. 3,319,849, 5–16–67, Cl. 223—76.

Horberg, Charles Jr., to Paramount Textile Machinery Co. Method and apparatus for handling hosiery and the like. 3,319,851, 5–16–67, Cl. 223—112.

Horn, John M., to Allis-Chalmers Mfg. Co. Pressure surge suppressor. 3,319,643, 5–16–67, Cl. 137—70.

Horne, Fred H. Poppet valve and disposable container combination. 3,319,791, 5–16–67, Cl. 210—234.

Horton, Donelson B., to John Blue Co., Inc. Remotely operated diaphragm valve and system. 3,319,831, 5–16–67, Cl. 222—52.

Houbolt, Neal, to Jemco Engineering Co. Insulator for flag type terminals. 3,320,357, 5–16–67, Cl. 174—138.

Houlihan, William J., to Sandoz, Inc. Chlorobenzyl sulfamides. 3,320,314, 5–16–67, Cl. 260—556.

Houmere, Walter. Blind with vertical louvers. 3,319,695, 5–16–67, Cl. 160—168.

Houston, John M.: *See*—
Whetten, Nathan R., and Houston. 3,320,455.

Hovercraft Development Ltd.: *See*—
Hunt, Rowland D. 3,319,592.

Howald, Werner E., to General Electric Co. Stator assembly for turbomachines. 3,319,930, 5–16–67, Cl. 253—78.

Howard, Dean D. Polarization diversity antenna feed system. 3,320,553, 5–16–67, Cl. 333—11.

Howe Plastic and Chemical Co., Inc.: *See*—
Urban, Frank O. 3,319,685.

Howland, Earl W. Aircraft instrument illumination. 3,320,412, 5–16–67, Cl. 240—2.1.

Howmet Corp.: *See*—
Lirones, Nick G. 3,320,084.
Lirones, Nick G. 3,320,345.

Hsu, Hsiung, and S. Wanuga, to General Electric Co. Electronically tunable parametric amplifier of extended tuning range with pump wave loading means. 3,320,542, 5–16–67, Cl. 330—4.6.

Huang, Denis K., and H. B. Moors, to International Paper Co. Composition for sealing plastic coated containers. 3,319,868, 5–16–67, Cl. 229—17.

Huber, J. M., Corp.: *See*—
Feller, Harold L. 3,320,032.
Maynard, Robert N., and Iannicelli. 3,320,027.

Huber, William A., to United States of America, Army. Adaptive memory frequency stabilized oscillator. 3,320,545, 5–16–67, Cl. 331—17.

Hudson Foam Plastics Corp.: *See*—
Wilson, Christopher L., and Hutton. 3,319,937.

Hudson, William, to Corning Glass Works. Manufacture of cathode ray tubes for color television. 3,319,818, 5–16–67, Cl. 220—2.1.

Hudson, William J.: *See*—
Ford, David E., Jr., and Hudson. 3,320,507.

Hughes Aircraft Co.: *See*—
Dill, Johann G. 3,320,464.
Olson, Gaylord G., Fox, and Dorfman. 3,320,424.
Todd, Carl D. 3,320,433.

Humphrey, Andrew J., to The Reliance Electric and Engineering Co. Reference system for closed loop variable frequency drive. 3,320,506, 5–16–67, Cl. 318—231.

Hunt, Rowland D., to Hovercraft Development Ltd. Gas-cushion vehicles for operation over water. 3,319,592, 5–16–67, Cl. 114—67.

Hunter, Frank B., to North American Aviation, Inc. Sealing mechanism for oil diffusion pump. 3,319,876, 5–16–67, Cl. 230—101.

Hurd, Fraser A.: *See*—
Crosby, Peter F., and Hurd. 3,319,766.

Hutton, Don G.: *See*—
Wilson, Christopher L., and Hutton. 3,319,937.

Huynh, Chanh: *See*—
Martel, Jacques, and Huynh. 3,320,285.

Hydrand Corp., The: *See*—
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Hydrocarbon Research, Inc.: *See*—
Cimler, Emil, Hippeli, and Van Baush. 3,319,427.

IIT Research Institute: *See*—
Reba, Imants, and Cooper. 3,319,692.

I.R.C. Ltd.: *See*—
Febling, Hans R., and Street. 3,319,331.

Iannicelli, Joseph: *See*—
Maynard, Robert N., and Iannicelli. 3,320,027.

Iavelli, Teno, and E. R. Miller, to Chrysler Corp. Multiple speed power transmission mechanism. 3,319,479, 5–16–67, Cl. 74—333.

Ichikawa, Atsuo: *See*—
Segawa, Yasuo, and Ichikawa. 3,320,521.

Ideal Industries, Inc.: *See*—
Costner, Jackson. 3,319,413.
Myers, Thomas E. 3,320,437.
Myers, Thomas E. 3,320,438.

Ihlenfeld, Francis J.: *See*—
Vevirit, James V., and Ihlenfeld. 3,320,009.

Ikegai Tekko Kabushiki Kaisha: *See*—
Aihara, Kenzo, Tani, and Hirokawa. 3,319,496.

Ikegami, Yoshizo, to Konan Camera Laboratory Co. Ltd. Television system. 3,320,359, 5–16–67, Cl. 178—6.8.

Ildos, Ennio: *See*—
Bonvicini, Alberto, and Ildos. 3,320,334.

Illingsworth, Bernard D., to Eastman Kodak Co. Sulfur group sensitized emulsions. 3,320,069, 5–16–67, Cl. 96—107.

Illinois Tool Works Inc.: *See*—
Rapata, George M. 3,319,510.
Rapata, George M. 3,319,918.

Imai, Kiyokazu, O. Fukushima, and S. Miyazaki, to Kurashiki Rayon Co., Ltd. Method of manufacturing spinning solutions of mixed vinyl chloride and alpha-methylstyrene polymers. 3,320,205, 5–16–67, Cl. 260—33.6.

Imperial Chemical Industries, Ltd.: *See*—
Allport, Dennis C., Gamlen, Corran, Eaton, and Twitchett. 3,320,190.

Improved Machinery, Inc.: *See*—
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Industriaktiebolaget Skomab: *See*—
Sjöberg, Sten O. E. 3,319,530.

Industrial Holding Establishment: *See*—
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Ingersoll-Rand Co.: *See*—
Brown, Arthur E. 3,319,879.
Krämer, Leo. 3,319,723.
Ulbing, Otmar M. 3,319,494.

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Bryant, Robert C., and Innes. 3,319,693.

Institut Francais du Petrole des Carburants et Lubrifiants: *See*—
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Institut für Textiltechnologie der Chemiefasern: *See*—
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Instron Corp.: *See*—
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Jones, Edgar J. 3,320,569.

Intercontinental Chemical Corp.: *See*—
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Headrick, Lewis L., and Miller. 3,320,600.
Mutter, Walter E. 3,319,311.
Roche, Kevin J., and Palmateer. 3,319,317.

International Harvester Co.: *See*—
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International Paper Co.: *See*—
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International Rectifier Corp.: *See*—
Topas, Benjamin. 3,320,496.

International Standard Electric Corp.: *See*—
Drake, Cyril F., and Ellington. 3,320,103.
Knochenhauer, Friedrich, and Apitz. 3,320,492.
Reeves, Alec H. 3,320,605.
Steiner, Fritz, Kutz, and Leichter. 3,320,364.

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Altonji, Edmund R. 3,320,534.

Iowa State University Research Foundation, Inc.: *See*—
Arp, Leon J., and Griffith. 3,319,624.

Isaacs, William B., Jr., and R. G. Heaton, to Machinery Development Co. Method and mixing apparatus. 3,319,941, 5–16–67, Cl. 259—161.

Isaacson, Franklyn, to Foster Wheeler Corp. Demethanization of refinery gases. 3,319,428, 5–16–67, Cl. 62—28.

Ishihara, Eitaro: *See*—
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Ishikawajima-Harima Jukogyo Kabushiki Kaisha: *See*—
Osawa, Misumi. 3,319,802.

Ishizaka, Otoharu. Internal combustion engine type motor power generating apparatus. 3,319,417, 5–16–67, Cl. 60—37.

Isreeli, Jack, to Technicon Instruments Corp. Electrophoresis apparatus. 3,320,149, 5–16–67, Cl. 204—299.

Isreeli, Jack, to Technicon Instruments Corp. Colorimeter having a plurality of flow cells that are successively moved to a test station. 3,319,512, 5–16–67, Cl. 88—14.

Ito, Tamio: *See*—
Okumura, Shinji, Ito, Tsugawa, Katsuya, and Takahashi. 3,320,135.

Iwasaki, Kanesuke, to Sankyo Co. Ltd. Torsion balance with magnets supporting dead load. 3,319,729, 5–16–67, Cl. 177—225.

Jackson, C. D., Mfg., Inc.: *See*—
Bentley, Thomas A., and Jackson. 3,319,488.

Jackson, Carl D.: *See*—
Bentley, Thomas A., and Jackson. 3,319,488.

Jackson, Frank H., to Eastman Kodak Co. Photographic apparatus for recording, processing, and projecting data with fast access time. 3,319,549, 5–16–67, Cl. 95—12.

Jackson, Winston J., Jr.: *See*—
Caldwell, John R., and Jackson. 3,320,210.

Jacomini, Omar J., to General Electric Co. High resolution radar systems. 3,320,609, 5–16–67, Cl. 343—5.

Jäfwert, Erik W., to Aktiebolaget Bofors. Unloading mechanism for an automatic gun. 3,319,525, 5–16–67, Cl. 89—45.

Jammet, Jean F., to Societe des Accumulateurs Fixes et de Traction (Societe Anonyme). Battery case and cover and method of sealing the same. 3,320,096, 5–16–67, Cl. 136—170.

Janssen, Peter J. H., to North American Philips Co., Inc. Line deflection circuit having transformer with tertiary winding to compensate for high voltage load variations. 3,320,470, 5–16–67, Cl. 315—27.

Jantzen Inc.: *See*—
Galitzki, Bernard I., and Burbank. 3,320,346.

Jebens, Ray H., and E. N. Sieder, to United States of America, Interior. Multiflash distillation with recycle of concentrate through up-stream condenser and flash stages. 3,320,137, 5–16–67, Cl. 202—173.

Jedrey, Charles E. Jr. Remote orientation indicator. 3,320,614, 5–16–67, Cl. 343—18.

Jeffrey Galion Mfg. Co.: *See*—
Andrae, Karl H. 3,319,425.

Jemco Engineering Co.: *See*—
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Jennings, Lewis F., and W. Wanielista, to Robertson Photo-Mechanix, Inc. Photographic apparatus for holding sensitized sheets. 3,319,555, 5–16–67, Cl. 95—66.

Jensen, Hermann B. F. Sequentially operable automatic control systems. 3,320,589, 5–16–67, Cl. 340—147.

Jentet, Maxime L., to Societe Anonyme des Usines Chausson. Fin plate for radiator cores. 3,319,711, 5–16–67, Cl. 165—151.

Jepsen, Robert L., to Varian Associates. Ion vacuum pumps. 3,319,875, 5–16–67, Cl. 230—69.

Jetco, Inc.: *See*—
Evans, Clifford J. 3,319,364.

Johansson, Fritz A., E. A. Lundgren, and L. G. B. Magnuson, to Bolidens Gruvaktiebolag. Automatic weigher and rotary mold conveyor for liquid metal. 3,319,728, 5–16–67, Cl. 177—53.

Johnson, Arnold R., to Western Electric Co., Inc. Apparatus for repairing material. 3,319,288, 5–16–67, Cl. 18—1.

Johnson, David K.: *See*—
Barrett, William G., Johnson, and Thorne. 3,320,410.

Johnson, Harwick, to Radio Corp. of America. 3,320,013, 5–16–67, Cl. 350—1.

Johnson, Kenneth R., and C. J. Beert, to Bartelt Engineering Co., Inc. Machine for making double-wall packages. 3,319,539, 5–16–67, Cl. 93—20.

Johnson Matthey & Co., Ltd.: *See*—
Hollister, Ralph G. 3,320,039.

Johnson, S. C., & Son, Inc.: *See*—
Rogers, John R. 3,320,196.

Johnston, Donald W.: *See*—
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Jones, Edgar J., to Instron Corp. Shear load cell. 3,320,569, 5–16–67, Cl. 338—5.

Jones-Hinton, James, and T. E. H. Gray, to Dunlop Rubber Co. Ltd. Shaped articles. 3,319,295, 5–16–67, Cl. 18—19.

Jones, James B., and C. F. De Prisco, to Sonobond Corp. Welds. 3,319,984, 5–16–67, Cl. 287—189.36.

Jones, James E.: *See*—
Karew, Joseph J., Hess, and Jones. 3,320,488.

Jones, John L.: *See*—
Rondas, Ivan V., and Jones. 3,319,517.

Jones, Lewis O.: *See*—
Tepe, Charles F., and Jones. 3,320,151.

Jordan, Bertram L., and J. D. Mitchell. Cutting device. 3,319,407, 5–16–67, Cl. 56—25.4.

Joslyn Mfg. and Supply Co.: *See*—
Kawuecki, Chester J. 3,320,462.
Yonkers, Edward H. 3,320,377.

Joyce, Hardin, Jr., to Collins Radio Co. Capstan drive. 3,319,748, 5–16–67, Cl. 192—18.

Judd, Thomas E. Centrifugal pump. 3,319,573, 5–16–67, Cl. 103—103.

Judson-Biegelow, Inc.: *See*—
Bourgeois, Edward G. 3,320,089.

Juhl, James L., and L. H. Tufty, to Universal Mfg. Co. Self-propelled loader. 3,319,817, 5–16–67, Cl. 214—778.

Julie, Loebe, to Julie Research Laboratories, Inc. Low impedance measuring apparatus including a pair of multiple terminal networks and a voltage divider. 3,320,526, 5–16–67, Cl. 324—57.

Julie Research Laboratories, Inc.: *See*—
Julie, Loebe. 3,320,526.

Kaiser Aluminum & Chemical Corp.: *See*—
Stanley, Charles J. 3,319,856.

Kalav, Cevat, to Union Rheinische Braunkohlen Kraftstoff Aktiengesellschaft. Production of thioethers. 3,320,255, 5–16–67, Cl. 260—248.

Kamei, Teruji: *See*—
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Kamlet, Mortimer J., and D. V. Sickman, to United States of America, Navy. Process for producing dimethoxy-hexanitrobiphenyl and diamino hexanitrobiphenyl. 3,320,320, 5–16–67, Cl. 260—581.

Kanai, Hideharu: *See*—
Yamamoto, Shobei, Nakaiwa, Kawauchi, and Kanai. 3,320,094.

Kane, Thomas G., to E. I. du Pont de Nemours and Co. Polyvinyl alcohol adhesives containing boric acid and hexamethylenetetramine or triethylenediamine as additive to impart quick tack. 3,320,200, 5–16–67, Cl. 260—29.6.

Kaneko, Hisashi: *See*—
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Kantor, Sidney: *See*—
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Karecki, Marion R.: *See*—
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Karew, Joseph J., H. W. Hess, and J. E. Jones, to Burroughs Corp. Strip line power harness. 3,320,488, 5–16–67, Cl. 317—101.

Katsuya, Noboru: *See*—
Okumura, Shinji, Ito, Tsugawa, Katsuya, and Takahashi. 3,320,125.

Kaufman, Maxime G., and F. X. Downey, to United States of America, Navy. Satellite altitude determination by radio interferometry. 3,320,616, 5–16–67, Cl. 343—112.

Kawabe, Tsuneo, to Aishin Seiki Kabushiki Kaisha. Vehicle brake apparatus equipped with a booster. 3,319,421, 5–16–67, Cl. 60—54.6.

Kawauchi, Shosuke: *See*—
Yamamoto, Shohei, Nakaiwa, Kawauchi, and Kanai. 3,320,094.

Kawuecki, Chester J., to Joslyn Mfg. and Supply Co. Spark gap structure with annular concentric magnets for rotating arc. 3,320,462, 5–16–67, Cl. 313—154.

Kay, Edward L.: *See*—
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Kearney-National Inc.: *See*—
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Kefalas A/S: *See*—
Szabo, Ladislaus D. A., and Keimer. 3,320,127.

Keil, Gunter: *See*—
Schlack, Paul, and Keil. 3,320,309.

Keimer, Birgit Y.: *See*—
Szabo, Ladislaus D. A., and Keimer. 3,320,127.

Keller, Joseph D., to Martin-Marietta Corp. Tooling arrangement for installing channel flanged eyelets in printed circuit boards. 3,319,324, 5–16–67, Cl. 29—203.

Kellert, Morton D., to Monsanto Co. Sprayable polyvinyl butyral wood primer for polyurethane or polyester finish. 3,320,203, 5–16–67, Cl. 260—32.8.

Kelley, Joseph M., and D. L. Baeder; said Baeder assor. to Esso Research and Engineering Co. Octane improvement process for motor fuels. 3,320,155, 5–16–67, Cl. 208—134.

Kelly, Donald H., and B. Sukornick, to Allied Chemical Corp. Nitrogen compound synthesis. 3,320,035, 5–16–67, Cl. 23—356.

Kemper, Harry L.: *See*—
Craig, Sam N., Combs, Hilbert, Kemper, and Tahar. 3,319,897.

Kemper, Robert E.: *See*—
Rose, Arthur, and Kemper. 3,319,403.

Kendon, Owen M. Rod and tube type thermostat with axial movable adjustment means. 3,320,387, 5–16–67, Cl. 200—137.

Kenkel, Robert A., to FMC Corp. Combined clutch and brake control for tractors. 3,319,781, 5–16–67, Cl. 180—53.

Kennedy, Samuel F. Snow remover attachment for power lawn mowers. 3,319,363, 5–16–67, Cl. 37—43.

Keplinger, Miller M., and P. D. Wenzel, to J. I. Case Co. Agricultural implement. 3,319,721, 5–16–67, Cl. 172—212.

Keough, Patricia T.: *See*—
Grayson, Martin, Keough, and Rauhut. 3,320,321.

Kern, Emil: *See*—
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Kerr, Frank E., to The Distillers Co. Ltd. Process for the production of potassium sorbate. 3,320,307, 5–16–67, Cl. 260—526.

Kerr-McGee Oil Industries, Inc.: *See*—
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Zajic, James E. 3,320,186.

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Kestenman Bros. Mfg Co.: *See*—
Williams, Howard F. 3,319,808.

Kewanee Oil Co.: *See*—
Swinehart, Carl F. 3,320,180.
Towle, Jack L., and Block. 3,320,315.

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Keys, Lyle O.: *See*—
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Kilmer, William M. H.: *See*—
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King Packaging Ltd.: *See*—
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King, William J.: *See*—
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Kinghorn, Mark D.: *See*—
Knutsen, Herbert K., and Kinghorn. 3,319,329.

Kingsberry Homes Corp.: *See*—
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Kinoshita, Toshisada: *See*—
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Kiraly, Philip Z., to Van Dorn Co. Injection molding apparatus for plastic materials. 3,319,298, 5–16–67, Cl. 18—30.

Kiraly, Philip Z., to Van Dorn Co. Injection molding nozzle. 3,319,299, 5–16–67, Cl. 18—30.

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Kirk, Thomas E.: *See*—
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Kirkland, Herman R.: *See*—
Early, Hallie O., Schafer, and Kirkland. 3,319,605.

Kirkpatrick, Wylie C., J. W. Harrison, and R. D. Lowry, to W. R. Grace & Co. Fastening process. 3,320,106, 5–16–67, Cl. 156—86.

Kirwin, Charles A., to Kearney-National Inc. Crimpable electrical connectors made of zinc drawn tubing. 3,320,356, 5–16–67, Cl. 174—94.

Kissilov, Shlomo. Hose reel installation. 3,319,905, 5–16–67, Cl. 242—86 2.

Kitabayashi, Seiichi. Fill valve for liquified gas lighter. 3,319,670, 5–16–67, Cl. 141—286.

Mitchell, Thorne C., to Union Camp Corp. Inner packing for tubing. 3.319,866, 5–16–67, Cl. 229—14.

Klass, Donald L., to Union Oil Co. of California. Sulfato betaines and a method for their preparation. 3,320,266, 5–16–67, Cl. 260—294.8.

Klein, Georges, to Compagnie Generale d'Electricite. Electric current generator of the magnetohydrodynamic type. 3,320,443, 5–16–67, Cl. 310—11.

Klingelhoefer, William C., and H. T. Gerry, to Allied Chemical Corp. Production of biurea and hydrazine. 3,320,028, 5–16–67, Cl. 23—190.

Klinzing, A. F., Co., Inc.: *See*—
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Prentice, George D. 3,319,832.

Klooster, John R. Pig handling assembly. 3,319,608, 5–16–67, Cl. 119—98.

Klosa, Josef. to Rhein-Pharma Arzneimittelgesellschaft m.b.h. Amino alkyl esters of α-(4-chlorobutoxy)-benzilic acid. 3,320,264, 5–16–67, Cl. 260—294.3.

Knight, Lester B. & Associates, Inc.: *See*—
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Knowles, Edwin C.: *See*—
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Kobayashi, Hideki, to Nippon Electric Co., Ltd. Cathode ray tubes employing a novel convergent electrostatic lens system for beam modulation. 3.320,458, 5–16–67, Cl. 313—86.

Kober, William, to The Garrett Corp. Axial air gap dynamoelectric machine with a disc rotor. 3,320,453, 5–16–67, Cl. 310—268.

Kober, William, to The Garrett Corp. Alternating current generator. 3,320,454, 5–16–67, Cl. 310—268.

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Koennecke, Wolfgang, to Bockenheimer Brotfabrik F. Reissig G.m.b.H. Wrapper for rolls. 3,319,873, 5–16–67, Cl. 229—87.

Koetter, Leonard. Multiple electrical outlet fused plug receptacle. 3,320,383, 5–16–67, Cl. 200—115.5.

Kohl, Eberhard, and R. Maier. Piston for internal combustion engines. 3,319,536, 5–16–67, Cl. 92—231.

Kojima Koichi, and H. Sato, to T.V. Valve Co., Ltd. Valve-actuating device. 3,319,925, 5–16–67, Cl. 251—58.

Kokochak, David G., and J. J. Gumbleton, to General Motors Corp. Clutch. 3,319,754, 5–16–67, Cl. 192—57.

Kokoruds, Michael: *See*—
Langdon, William K., and Kokoruds. 3,320322.

Kollonitsch, Janos, to Merck & Co., Inc. Trifluoroacetoxy alkenyl or alkyl benzimidosoles. 3,320,273, 5–16–67, Cl. 260—309.2.

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Konan Camera Laboratory Co. Ltd.: *See*—
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Koorenkov, Alexey P.: *See*—
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Koppius, Otto G., to Semicon Associates, Inc. Method for impregnating tungsten dispenser cathodes. 3,320,091, 5–16–67, Cl. 117—223.

Kottler, Franklin D. to Eastman Kodak Co. Multilamp flash photography. 3,319,548, 5–16–67, Cl. 95—11.

Kouba, Delore L., to Hercules Inc. Process for the manufacture of p-nitrosophenol. 3,320,324, 5–16–67, Cl. 260—621.

Kneiling, John G., to Devenco Inc. Six-wheel truck with brake means for railway cars. 3,319,582, 5–16–67, Cl. 105—196.

Knochenhauer, Friedrich, and S. Apits, to International Standard Electric Corp. Means for automatically stopping sound reproduction. 3,320,492, 5–16–67, Cl. 317—147.

Knowles, Edwin C., E. L. Kay, and F. C. McCoy, to Texaco Inc. Lubricants. 3,320,167, 5–16–67, Cl. 252—49.7.

Knox, John A., to Halliburton Co. Well acidizing method. 3,319,714, 5–16–67, Cl. 166—42.

Knutsen, Herbert K., and M. D. Kinghorn, to Union Tank Car Co. Method of constructing storage tanks. 3,319,329, 5–16–67, Cl. 29—428.

Kramer, Leo, to Ingersoll-Rand Co. Axial piston pulse generator. 3,319,723, 5–16–67, Cl. 173—93.6.

Krasinski, John E., to Baird-Atomic, Inc. Radiation detection. 3,319,769, 5–16–67, Cl. 198—85.

Kratzer, Hans: *See*—
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Krause, Donald G.: *See*—
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Kreuter, Kenneth G., to Robertshaw Controls Co. Combination bimetal thermal switch mounted in between a rod and tube thermal responsive device. 3,320,388, 5–16–67, Cl. 200—137.

Kritzler, Arthur, and H. Sandmann, to Apparatebau Rothmuhle Brandt & Kritzler. Regenerative heat exchangers. 3,319,706, 5–16–67, Cl. 165—7.

Krock, Richard H., and E. J. Zdanuk, to P. R. Mallory & Co., Inc. Method of producing a porous tungsten structure with an impervious skin. 3,320,058, 5–16–67, Cl. 75—208.

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Krohn, John M. Garage door guard. 3,319,897, 5–16–67, Cl. 160—229.

Kroiopp, Otto C., to Blaw-Knox Co. Positive timing device with infinite setting. 3,320,373, 5–16–67, Cl. 200—38.

Krom, Myron E., to Bell Telephone Laboratories, Inc. Telephone line circuit. 3,320,367, 5–16–67, Cl. 179—18.

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Sackett, Walter J., Sr., to A. J. Sackett & Sons Co. Automatic bin filling system for freeflowing materials. 3,319,808, 5–16–67, Cl. 214—17.

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Schoepe, Adolf, and F. E. Schmuck. Refill hose mounting clip. 3,319,913, 5–16–67, Cl. 248—75.

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Seaman, Harry J., deceased; (A. Seaman, and American City Bank & Trust Co., executors), to Seaman Corp. Vehicle having dual-wheel traction units. 3,319,545, 5–16–67, Cl. 94—50

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Harding, William A., Hinding, and Shalit. 3,320,093.

Shambelan, Robert C., to Radio Corp. of America. Wire straightener. 3,319,668, 5–16–67, Cl. 140—147.

Shanahan, Robert J., to Kiekhaefer Corp. Marine engine cooling system. 3,319,614, 5–16–67, Cl. 123—41.08.

Sharpe, Cecil H.: *See*—
Bryant, Leland W., Sharpe, and Swingle. 3,319,418.

Sharples, Kenneth, to Gordon Engineering Corp. Monostable multivibrator wherein input applied via first transistor turns on second transistor which turns off first transistor. 3,320,436, 5–16–67, Cl. 307—88.5.

Sheiman, Julius: *See*—
Pelavin, Joseph, and Sheiman. 3,319,743.

Shelanski, Morris V. Polarized image-projection system. 3,319,519, 5–16–67. Cl. 88—24.

Sheldon, Francis D., and C. A. North, to The Lawrence Engineering Co, Ltd. Mechanical handling equipment. 3,319,760, 5–16–67, Cl. 198—32.

Shell Oil Co.: *See*—
Hackmann, Johannes, and Kirby. 3,320,123.
Haeber, John A., and Foster. 3,319,923.
Smith, Noyes D., Jr., and Roever. 3,320,596.

Shen, Kwan-Ting, and P. M. Quinlan, to Petrolite Corp. α-Sulfocarboxylic esters of oxyalkylated polyphenols. 3,320,212, 5–16–67, Cl. 260—49.

Shen, Tsung-Ying, and G. E. Arth, to Merck & Co., Inc. 1-aroyl or heteroaroyl-7-azaindole-3-carboxylates and derivatives. 3,320,268, 5–16–67, Cl. 260—295.

Shen, Tsung-Ying: *See*—
Ruyle, William V., and Shen. 3,320,278.

Sheppard, Malcolm F., and H. C. Cowen, to United Kingdom Atomic Energy Authority. Method of reducing carbon loss from graphite moderator in carbon dioxide-cooled nuclear reactor. 3,320,134, 5–16–67, Cl. 176—38.

Sheridan, T. W., & C. B., Co., a subsidiary of Harris-Intertype Corp.: *See*—
Hawkes, Thomas B. and R. B. 3,319,499.

Sherman, Abraham J. Wheelless ridable traveling toys. 3,319,970 5–16–67, Cl. 280—1.13.

Sherwood, Henry A., to U.S. Servicator Corp. Electrical connector for tapping power from an insulation covered conductor. 3,320,385, 5–16–67, Cl. 200—129.

Shevick, Irving M., and E. C. Wood; said Wood, assor. to said Shevick. Surgical headholder. 3,319,954, 5–16–67, Cl. 269—328.

Shimada, Satoshi, and T. Fujimoto, to Sony Corp. Keyed A.G.C. circuit for television receivers. 3,320,382, 5–16–67, Cl. 178—7.3.

Shindler, George R., to FMC Corp. Line blind. 3,319,661, 5–16–67, Cl. 138—94.3.

Shineflug, William O., to Chicago Rivet & Machine Co. Orientation of tapered elements. 3,319,823, 5–16–67, Cl. 221—171.

Shiner, Margot, to National Research Development Corp. Device for gastro-intestinal fluids. 3,319,622, 5–16–67, Cl. 128—2.

Shoemaker, Peter K.: *See*—
Henrici, Stanley B., and Shoemaker. 3,319,783.

Shreck, Peter K., and P. Barnett; said Barnett, assor. to said Shreck. Educational device. 3,319,357, 5–16–67, Cl. 35—35.

Shulman, Garson P.: *See*—
Dunning, Edward B., Gilboe, and Shulman. 3,320,078.

Shultz, John T.: *See*—
Murphy, Perry J., Jr., and Shultz. 3,320,102.

Sickman, Darrell V.: *See*—
Kamlet, Mortimer J., and Sickman. 3,320,320.

Siddons, John R.: *See*—
Adams, Ian L. 3,319,864.

Sieder, Everett N.: *See*—
Jebens, Ray H., and Sieder. 3,320,137.

Siegel, Sanford M., to Union Carbide Corp. Formulation for conditioning cut flowers and process for effecting same. 3,320,046, 5–16–67, Cl. 71—2.4.

Siegenthaler, Karl: *See*—
Wild, Hans, and Siegenthaler. 3,319,500.

Siemens-Schickertwerke Aktiengesellschaft: *See*—
Hoeft, Harry. 3,320,567.
Weiss, Herbert. 3,320,518.

Sigal, Max V., Jr., and A. M. Van Arendonk, to Eli Lilly and Co. Phenylsulfonyl cyclo-alkylureas and the preparation thereof. 3,320,312, 5–16–67, Cl. 260—553.

Sills, Calvin R., deceased, by A. T. Kinnee. Fish lure. 3,319,371, 5–16–67, Cl. 43—42.09.

Silverman, David, to Beckman Instruments, Inc. Hall-effect frequency responsive system. 3,320,541, 5–16–67, Cl. 329—200.

Simko, Aladar O.: *See*—
Repko, Louis L., and Simko. 3,319,568.

Simmons, John G.: *See*—
Frank, Robert I., and Simmons. 3,320,499.

Sim-pli-ci-ty Products Corp.: *See*—
Pope, Courtney C. 3,319,267.

Simpson, Howard W. Heavy duty planetary transmission. 3,319,491, 5–16–67, Cl. 74—740.

Simpson, James C., and H. G. Wells, to British Aircraft Corp. (Operating) Ltd. Control wire dispenser for a guided missile. 3,319,781, 5–16–67, Cl. 206—59.

Sims, Claude C. Piezoelectric voice range transducer. 3,320,581, 5–16–67, Cl. 340—10.

Smith, Vincent K.: *See*—
Turk, James R. 3,320,448.

Sinclair, Raymond J.: *See*—
Lucia, Carroll J., and Sinclair. 3,320,111.

Sinfelt, John H.: *See*—
Taylor, William F., and Sinfelt. 3,320,182.

Singer Co., The: *See*—
Wolf, Tobin. 3,319,965.
Wu, William I. L. 3,320,531.

Sjöberg, Sten O. E., to Industriaktiebolaget Skomab. Control device for double-acting fluid pressure cylinders. 3,319,530, 5–16–67, Cl. 91—275.

Skala, Stephen F., to Western Electric Co., Inc. Process of detecting the relative elongation of two filaments by stimulated emission of secondary radiation. 3,320,416, 5–16–67, Cl. 250—51.5.

Skaperdas, George T.: *See*—
Nathan, Marvin F., Skaperdas, and Grubb. 3,320,152.

Skasik, Frederick A.: *See*—
Needham, Earl D., and Skasik. 3,319,497.

Skeggs, Leonard T., to Technicon Instruments Corp. Method and apparatus for electrophoretic density gradient separation and analysis. 3,320,148, 5–16–67, Cl. 204—180.

Slavik, William H., to Motorola, Inc. Vertical dynamic pincushion correction circuits for television receivers. 3,320,469, 5–16–67, Cl. 315—24.

Sleeper, Ralph R., Jr. Corner plaster bead applicator. 3,319,953, 5–16–67, Cl. 269—19.

Sletzinger, Meyer: *See*—
Gal, George, and Sletzinger. 3,320,280.

Slipp, Roy M. Method of manufacturing plastic products. 3,320,344, 5–16–67, Cl. 264—219.

Sloan, Haskell F.: *See*—
Breternitz, Charles, Dale, and Sloan. 3,319,767.

Slonczewski, Thaddeus, to Bell Telephone Laboratories, Inc. Equipment for and method of retrieving underwater cable. 3,319,426, 5–16–67, Cl. 61—72.3.

Small, Augustus B., to Esso Research and Engineering Co. Liquid supported cryogenic container. 3,319,430, 5–16–67, Cl. 62—45.

Smith, Burton H., and S. F. Palk, to Raytheon Co. Pyrographite wave structures. 3,320,467, 5–16–67, Cl. 315—3.5.

Smith, Charles J. P. Apparatus for manually digging out sods of turf. 3,319,988, 5–16–67, Cl. 294—50.8.

Smith, Gordon R.: *See*—
Chilson, Charles W., Stout, Smith, and Lebo. 3,319,752.

Smith, Harry: *See*—
Fosker, George R., Nayler, and Smith. 3,320,240.

Smith, Harry A., to The Dow Chemical Co. Self-extinguishing phenol-aldehyde resins prepared by reacting phenol with halogen-substituted aromatic aldehydes. 3,320,213, 5–16–67, Cl. 260—55.

Smith, Howard S., to Dayco Corp. Method of manufacturing foam rubber articles. 3,320,339, 5–16–67, Cl. 264—46.

Smith, Lyman W., to Baxter Laboratories, Inc. Method for the treatment of herniation of intervertebral discs. 3,320,131, 5–16–67, Cl. 167—78.

Smith, Noyes D., Jr., and W. L. Roever, to Shell Oil Co. Storing and recalling signals. 3,320,596, 5–16–67, Cl. 340—174.

Smith, Terrance M.: *See*—
Bradshaw, Franklin C., and Smith. 3,320,508.

Smith, Terry P., to Corning Glass Works. Packaged electronic device. 3,320,353, 5–16–67, Cl. 174—52.

Smith, Virgil O.: *See*—
Kuhns, Charles C., and Smith. 3,320,537.

Smith, William N. Combination hand case. 3,319,744, 5–16–67, Cl. 190—52.

Smock, Edmund G. Closed trailer with elevated enclosure. 3,319,994, 5–16–67, Cl. 296—100.

Smulka, Roman, to Honeywell Inc. Control apparatus. 3,319,646, 5–16–67, Cl 137—269.

Societe Anonyme l'Industrie Biologique Francaise: *See*—
Aubriot, Annie (Boussac). 3,320,128.

Societe des Accumulateurs Fixes et de Traction (Societe Anonyme): *See*—
Jammet, Jean F. 3,320,096.

Societe d'Instrumentation Schlumberger: *See*—
Lafont, Michel J. 3,320,391.

Societe Fives Lille-Cail: *See*—
Caplau, Andre. 3,319,461.

Societe Industrielle de Breveta et d'Etudes, S.I.B.E.: *See*—
Mennesson, Andre L. 3,319,942.

Societe Nouvelle Spidem: *See*—
Diolot, Lucien. 3,319,453.

Soderhamns Verkstaber Aktiebolag: *See*—
Tannerstal, Harding. 3,319,773.

Soeteber, Ronald J., R. S. Reaves, and W. R. Bryant, to Allis-Chalmers Mfg. Co. Engine cooling system for tractors (radiator and fan located between engine and operator). 3,319,732, 5–16–67, Cl. 180—54.

Sohner, Gerhard, to Robert Bosch G.m.b.H. Battery ignition system. 3,319,618, 5–16–67, Cl. 123—148.

Sohns, Carl B., and J. Bierenfeld, to Square D Co. Illuminated selector switch. 3,320,393, 5–16–67, Cl. 200—167.

Solar Light Mfg. Co.: *See*—
Eisenberg, Maurice. 3,319,919.

Solin, Lawrence. Gymnasium mats. 3,319,273, 5–16–67, Cl. 5—344.

Solvay & Cie Societe en Commandite: *See*—
Bloyaert, Felix, and Toussaint. 3,320,227.

Somat Corp.: *See*—
Craig, Sam N., Combs, Hilbert, Kemper, and Tahar. 3,319,897.

Sonobond Corp.: *See*—
Jones, James B., and De Prisco. 3,319,984.

Sony Corp.: *See*—
Shimada, Satoshi, and Fujimoto. 3,320,362.

Sosey, William F., and E. J. Tenpas, to Erlez Mfg. Co. Magnetic chuck. 3,320,564, 5–16–67, Cl. 335—285.

Southern States, Inc.: *See*—
Caldwell, John R., and Mayo. 3,320,476.

Southwire Co.: *See*—
Bray, Thomas L., and Ward. 3,319,700.

Souza, Augustine A. Identification holder. 3,319,368, 5–16–67, Cl. 40—10.

Sovkin, Vasily F.: *See*—
Salmanov, Anatoly N., and Sovkin. 3,319,463.

Sparks, Anthony A., and R. C. Moore, to The Distillers Co. Ltd. Process for peptising sulphur modified chloroprene latex. 3,320,201, 5–16–67, Cl. 260—29.7.

Spence, Elbert R.: *See*—
Clark, Robert E., Spence, and Stribley. 3,320,072.

Spencer, Richard C. Steering wheel cover accessory. 3,319,486, 5–16–67, Cl. 74—558.

Speros, Dimitrios M., and R. L. Woodhouse, to General Electric Co. Quantitative differential thermal analysis apparatus. 3,319,456, 5–16–67, Cl. 73—15.

Sperry Gyroscope Co. of Canada, Ltd.: *See*—
Paul, John J. 3,320,502.

Sperry Rand Corp.: *See*—
Arnold, Roy T. 3,320,522.
Bauer, Peter. 3,319,659.
Barrett, William G., Johnson, and Thorne. 3,320,410.
Gallien, Bennie L. 3,320,588.
Gorman, Cecil F. 3,320,430.
Halls, Lawrence M., Koch, and McCarty. 3,319,493.
Hawkins, Robert D., and Balandis. 3,320,617.
Lassetter, William L. 3,320,610.
Masterson, Earl. 3,319,955.
Molina, Joseph, Morello, and Lopez. 3,319,861.
Phillips, Edwin R. 3,319,886.

Sperry Rand Corp.: *See*—
Reader, Trevor D. 3,319,656.
Schwartz, Leon. 3,320,572.
Wooldridge, Robert S. 3,319,860.

Sperry Rand Corp., Ford Instrument Co. Division: *See*—
Levine, Melvin. 3,319,660.

Sprissler, Bernard, and E. P. Pease, to United States of America, Atomic Energy Commission. Tubular extrusion dryer. 3,319,351, 5–16–67, Cl. 34—109.

Spurlin, Harold M.: *See*—
Reid, Donald E., and Spurlin. 3,320,115.

Square D Co.: *See*—
Schaefer, Carl A. 3,319,571.
Sohns, Carl B., and Bierenfeld. 3,320,393.

Squibb & Sons, Inc.: *See*—
Diassi, Patrick A., and Principe. 3,320,290.

Stack, Ronald D. Fluid flow pump and boosting apparatus. 3,319,579, 5–16–67, Cl. 103—263.

Stadler, Hans, and H. Gawlick, to Dynamit Nobel Aktiengesellschaft. Method of making lead styphnate primer compositions. 3,320,104, 5–16–67, Cl. 149—24.

Staehling, Edward C.: *See*—
Widiger, Alexander H., Jr., and Staehling. 3,320,325.

Stafford, George E., 50% to C. H. Carlson. Palletised truck body with center spine. 3,319,975, 5–16–67, Cl. 280—106.

Stahley, Sam D.: *See*—
Herold, Curt P., and Stahley. 3,319,979.

Stahly, Eldon E., to O. W. Burke, Jr. Process for the purification of tobacco smoke. 3,319,635, 5–16–67, Cl. 131—262.

Staley, A. E. Mfg. Co.: *See*—
Young, Austin H., Tetenbaum, and Pratt. 3,320,081.

Stalker, James E., to Home Metal Products Co. Pipe forming machine. 3,319,445, 5–16–67, Cl. 72—80.

Stamicarbon N. V.: *See*—
Dijkema, Louis. 3,320,188.

Standard Oil Co., The: *See*—
Bolton, Benjamin A., and Stephens. 3,320,202.
Callahan, James L., Gertisser, and Szabo. 3,320,330.

Standard Pressed Steel Co.: *See*—
Gallagher, James J. 3,319,826.

Standford, Richard T. A., and A. Poulett, to The Plessey Co., Ltd. Frequency synthesis. 3,320,547, 5–16–67, Cl. 331—40.

Stanford Research Institute: *See*—
Eige, John J. 3,319,885.
Talmuty, Samuel I. 3,319,318.

Stanley, Charles J., to Kaiser Aluminum & Chemical Corp. Method and apparatus for supporting members. 3,319,856, 5–16–67, Cl. 226—7.

Stanley Works, The: *See*—
Loftus, Robert M. 3,319,380.

Stapp, Paul R., to Phillips Petroleum Co. Bicyclization. 3,320,327, 5–16–67, Cl. 260—666.

Star, Jack, to Ampex Corp. Self clocking complementary redundant recording system. 3,320,598, 5–16–67, Cl. 340—174.1.

Starnes, Charles I. Means and methods for making sinkers for fishing lines. 3,319,698, 5–16–67, Cl. 164—112.

Stauffer Chemical Co.: *See*—
Szabo, Karoly, and Freiberg. 3,320,229.

Stearns, Donald F.: *See*—
Groeber, William C., and Stearns. 3,319,379.

Steel, Donald W., to Ohio-Nuclear, Inc. Scanning means including a screen which blocks radiation according to the probability of its origin. 3,320,418, 5–16–67, Cl. 250—71.5.

Steele, Irvin E. Spray tank with heating means for spray fluid. 3,319,834, 5–16–67, Cl. 222—146.

Stefano, Nicholas M., S. H. Rush, and S. L. Green, to TRW Inc. High speed low shock separation system. 3,319,520, 5–16–67, Cl. 89—1.

Steinberg, William F. Practice golf club. 3,319,964, 5–16–67, Cl. 273—194.

Steinberger, Raymond L.: *See*—
Hayes, Harvey C., Steinberger, Odenweller, and Vernon. 3,319,785.

Steiner, Fritz, B. Kuts, and G. Leichter, to International Standard Electric Corp. System for phase coding information by blanking half cycles of a continuous periodic wave. 3,320,364, 5–16–67, Cl. 178—67.

Steinhagen, William K., and D. C. Unger, to General Motors Corp. Refrigerating apparatus. 3,319,878, 5–16–67, Cl. 230—186.

Steisslinger, Kurt: *See*—
Ettischer, Helmut, and Steisslinger. 3,319,551.

Steltz, Douglas C.: *See*—
Schneider, Richard C., and Steltz. 3,319,266.

Stempel, Arthur, and L. H. Sternbach, to Hoffman-La Roche Inc. Certain 2,3-bis(substituted amino)-5-aryl-3H-1,4-benzodiazepine-4-oxide compounds and their preparation. 3,320,289, 5–16–67, Cl. 260—239.

Stengle, Edward J., Jr., to Owens-Illinois, Inc. Method of forming bag of heat-sealable material and bag formed thereby. 3,319,540, 5–16–67, Cl. 93—35.

Stengle, Edward J., Jr., to Owens-Illinois, Inc. Spirally wound container. 3,319,662, 5–16–67, Cl. 138—154.

Stepan Chemical Co.: *See*—
Fox, Arthur L. 3,320,295.

Stephens, James R.: *See*—
Bolton, Benjamin A., and Stephens. 3,320,202.

Stephens, Joe F., to General Electric Co. Electron discharge tube having an improved electrode mounting structure. 3,320,463, 5–16–67, Cl. 313—241.

Stephens, John E., to Fairey Engineering Ltd. Grabs. 3,319,992, 5–16–67, Cl. 294—83.

Stephens, William T., to Borg-Warner Corp. Flow control valves. 3,319,653, 5–16–67, Cl. 137—596.

Sterling Drug Inc.: *See*—
Lesher, George Y. 3,320,257.

Sternbach, Leo H.: *See*—
Stempel, Arthur, and Sternbach. 3,320,289.

Stetson, Earl W.: *See*—
Saksbaug, Eugene C., and Stetson. 3,320,482.

Stevens, Eric S., to Brunswick Corp. Ball cart. 3,319,798, 5–16–67, Cl. 211—15.

Stevens, Henry C.: *See*—
Bissinger, William E., Strain, Stevens, Dial, and Chisholm. 3,320,211.

Stevens, William W., to The McKay Machine Co. Expansible-contractable reel. 3,319,902, 5–16–67, Cl. 242—72.1.

Stevenson, Wade: *See*—
Clark, Frederick G. 3,320,563.

Stewart, John D.: *See*—
Hamilton, Alexander, and Stewart. 3,320,276.

Stewing, Albert, and S. Polonyi, to E. Polonyi (nee Fremersdorf), G. Stewing (nee Haseke), and P. Stewing. Roof structure of concrete blocks having wave-shaped passages containing stressed reinforcing. 3,319,387, 5–16–67, Cl. 52—227.

Stielow G.m.b.H.: *See*—
Saeger, Gert. 3,319,749.

Stikeleather, Allan. Fin winding machines. 3,319,446, 5–16–67, Cl. 72—142.

Stinnes, Margrete L.: *See*—
Herreshoff, Lewis F. 3,319,577.

St. John, Edward A., to NRA, Inc. Solid tritium and deuterium targets for neutron generator. 3,320,422, 5–16–67, Cl. 250—84.5.

Stone, Elmer G., to Sylvania Electric Products, Inc. Hermetically encased electroluminescent display device. 3,320,459, 5–16–67, Cl. 313—108.

Stone, Joseph B.: *See*—
Murray, Thomas C., Reese, Roselli, Schaeffer, and Stone. 3,319,604.

Stoops, Robert F., to United States of America, Atomic Energy Commission. Liquid phase extrusion for forming refractory materials. 3,320,056, 5–16–67. Cl. 75—201.

Storer Broadcasting Co.: *See*—
Lockwood, Edward C. 3,320,536.

Stout, Ellarson R.: *See*—
Chilson, Charles W., Stout, Smith, and Lebo. 3,319,752.

Strain, Franklin: *See*—
Bissinger, William E., Strain, Stevens, Dial, and Chisholm. 3,320,211.

Strausberg, Sydney, to United States of America, Atomic Energy Commission. Conversion of U_3O_8 to UC. 3,320,034, 5–16–67, Cl. 23—349.

Street, Alfred D.: *See*—
Fehling, Hans R., and Street. 3,319,331.

Streng, Alex G.: *See*—
Grosse, Aristid V., and Streng. 3,320,031.

Stribley, Rexford C.: *See*—
Clark, Robert E., Spence, and Stribley. 3,320,072.

Strike, John L.: *See*—
Hoisve, Harold V., and Strike. 3,319,847.

Stroh, Walter J., to Zenith Radio Corp. Television receiver including a crispener network comprising a series connected inductor and variable resistor. 3,320,361, 5–16–67, Cl. 178—7.3.

Strom, Johan N., and G. Heggstad, to A/S Norsk Aluminium Co. Crust breaking device for electrolysis furnaces. 3,319,899, 5–16–67, Cl. 241—283.

Strunk, Roy S. Fluid heater for thawing frozen pipe lines. 3,319,709, 5–16–67, Cl. 165—86.

Stull, Morton B. Captive closure cap construction. 3,319,843, 5–16–67, Cl. 222—499.

Suga, Kasuo, and T. Yamamoto, to Toyo Koatsu Industries, Inc. Preparation of a face lotion with a pearly luster. 3,320,133, 5–16–67, Cl. 167—91.

Sugalski, Raymond K., to General Electric Co. Resealable vent for a sealed casing. 3,320,097, 5–16–67, Cl. 136—178.

Sugimoto, Keiichi: *See*—
Nomura, Hiroaki, and Sugimoto. 3,320,235.

Sukornick, Bernard: *See*—
Kelly, Donald H., and Sukornick. 3,320,035.

Sullivan, Douglas S.: *See*—
Thomas, Bobby J., Dunster, and Sullivan. 3,320,583.

Sullivan, Robert D.: *See*—
Schnitzius, Homer D., and Sullivan. 3,319,597.

Summers, Roger E. Golf putter. 3,319,962, 5–16–67, Cl. 273—164.

Sun Oil Co.: *See*—
Douros, John D., Jr. 3,320,121.
Mason, Joseph C., Jr. 3,320,042.
Schneider, Abraham. 3,320,352.

Sunagawa, Genshun, and M. Watatani, to Sankyo Co., Ltd. Process for preparing 2-alkoxycycloheptimidazole derivatives. 3,320,272, 5–16–67, Cl. 260—309.

Sunbeam Lighting Co.: *See*—
Bodian, Marcus. 3,319,558.

Sundstrand Corp.: *See*—
Hann, Melvin M. 3,319,419.
Havens, Arnold L. 3,319,575.

Sunstein, David E., to Philco-Ford Corp. Impedance bridge measuring system including a self-oscillatory loop between the bridge input and output. 3,320,525, 5–16–67, Cl. 324—57.

Supradur Plastics Corp.: *See*—
Pannullo, Hugo E., H. C. Neville, and H. Neville, Jr. 3,329,390.

Superscope Inc.: *See*—
Schroeder, Fred, Jr. 3,319,966.

Sutton, Robert W., to The Hydrand Corp. Method of reclaiming calcined kaolin from de-inking sludge residue. 3,320,076, 5–16–67, Cl. 106—72.

Suvorov, Nickolai N.: *See*—
Shagalov, Lev B., and Suvorov. 3,320,281.

Susuki, Shigeto, to Chevron Research Co. Cationically prepared copolymers of 4-methyl-1-pentene and a,ω-diene and lubricating oils containing such polymers. 3,320,168, 5–16–67, Cl. 252—59.

Svenska Cellulosa Aktiebolaget: *See*—
Uddén, Per E. C., and Wennerblom. 3,319,263.

Swanke, Roy L., and R. J. Rogenski, to Dynamics Corp. of America. Removable blade assembly. 3,319,938, 5–16–67, Cl. 259—107.

Swinehart, Carl F., to Kewanee Oil Co. Thermoluminescent doubly doped LiF phosphor. 3,320,180, 5–16–67, Cl. 252—301.4.

Swingle, Frank A.: *See*—
Bryant, Leland W., Sharpe, and Swingle. 3,319,418.

Swiveller Co., Inc.: *See*—
Schwartz, Nathan R. 3,319,982.

Sykes, Alan O. Multipurpose piezoelectric transducer system. 3,320,580, 5–16–67, Cl. 340—10.

Sykes, Alan O. Piezoelectric transducer. 3,320,582, 5–16–67, Cl. 340—10.

Sylvania Electric Products Inc.: *See*—
Alexander, Robert H., and Wanner. 3,320,397.
Bingeman, Wilbur H., Blickwedel, and Wanner. 3,320,095.
Bouchard, George H., Tartakoff, and Homer. 3,320,460.
Burdick, Glen A., Collins, and Gessford. 3,320,457.
Palmateer, Russell E. 3,320,057.
Stone, Elmer O. 3,320,459.
Tibbetts, Lester M., Jr. 3,320,472.

Szabo, Joseph J.: *See*—
Callahan, James L., Gertisser, and Szabo. 3,320,330.

Szabo, Karoly, and A. H. Freiberg, to Stauffer Chemical Co. Complexes of guanidines with completely halogenated acetones. 3,320,229, 5–16–67, Cl. 260—96.5.

Szabo, Ladislaus D. A., and B. Y. Keimer, to Kefalas A/S. 21-desoxy-9-alpha-fluoro-6-methylprednisolone dermatological compositions. 3,320,127, 5–16–67, Cl. 167—58.

Szczepanik, John A., to Dorr-Oliver Inc. Pallet trailer having a toggle-operated platform tiltable about one or more axes. 3,319,932, 5–16–67, Cl. 254—9.

Szpytman, Jack J. Parking garage for depressed roadways. 3,319,385, 5–16–67, Cl. 52—169.

TRW Inc.: *See*—
Buie, James L. 3,320,485.
Davies, Paul M. 3,320,594.
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CLASSIFICATION OF PATENTS

ISSUED MAY 16, 1967

NOTE.—First number, class; second number, subclass; third number, patent number

2– 2	3,319,260	29–428	3,319,329	58– 63	3,319,415	75– 59	3,320,053	99–339	3,319,562	133– 2	3,319,636
9	3,319,261	430	3,319,330	60– 24	3,319,416	134	3,320,054	101–207	3,319,563	134– 57	3,319,637
174	3,319,262	441	3,319,331	37	3,319,417	168	3,320,055	401.1	3,319,564	107	3,319,638
4–112	3,319,263	450	3,319,332	39.28	3,319,418	201	3,320,056	102– 49.3	3,319,565	134	3,319,639
172	3,319,264	30– 43.92	3,319,333	53	3,319,419	206	3,320,057	49.7	3,319,566	139	3,319,640
177	3,319,265		3,319,334	54.6	3,319,420	208	3,320,058	76	3,319,567	136– 86	3,320,092
180	3,319,266	33– 1	3,319,335		3,319,421	214	3,320,059	103– 2	3,319,568	122	3,320,093
252	3,319,267	27	3,319,336	105	3,319,422	76–105	3,319,495	5	3,319,569	133	3,320,094
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66	3,319,270	169	3,319,339	61– 28	3,319,425	83– 35	3,319,498	52	3,319,572	178	3,320,097
108	3,319,271	174	3,319,340	72.3	3,319,426	99	3,319,499	103	3,319,573	236	3,320,098
338	3,319,272		3,319,341	62– 13	3,319,427	353	3,319,500	113	3,319,574	137– 18	3,319,641
344	3,319,273	178	3,319,342	28	3,319,428	698	3,319,501	162	3,319,575	68	3,319,642
345	3,319,274	34– 5	3,319,343		3,319,429	84–173	3,319,502	173	3,319,576	70	3,319,643
8– 25	3,320,020		3,319,344	45	3,319,430	240	3,319,503	178	3,319,577	85	3,319,644
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149.3	3,319,275	32	3,319,347		3,319,433	349	3,319,506	104– 98	3,319,580	312	3,319,647
9–310	3,319,276	42	3,319,348		3,319,434	375	3,319,507	105–141	3,319,581	504	3,319,648
12–145	3,319,277	57	3,319,349	52	3,319,435	85– 8.8	3,319,508	196	3,319,582	505.18	3,319,649
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146	3,319,280	155	3,319,353	64– 17	3,319,439	88– 14	3,319,512	106– 72	3,320,076	596	3,319,653
244	3,319,281		3,319,354	65– 21	3,320,043		3,319,513	105	3,320,077	624.13	3,319,654
319	3,319,282	162	3,319,355	44	3,320,044		3,319,514	124	3,320,078	624.18	3,319,655
588	3,319,283	35– 9	3,319,356	335	3,320,045		3,319,515	181	3,320,079	625.44	3,319,656
17– 4	3,319,284	10.4	3,320,349	66–169	3,319,440	24	3,319,516	210	3,320,080	138– 27	3,319,657
32	3,319,285	35	3,319,357	68– 5	3,319,441		3,319,517		3,320,081	30	3,319,658
45	3,319,286	43	3,319,358	69– 42	3,319,442		3,319,518	287	3,320,082	41	3,319,659
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18– 1	3,319,288	36– 4	3,319,360	71– 2.4	3,320,046	89– 1	3,319,520		3,319,587	94.3	3,319,661
5	3,319,289	45	3,319,361	2.7	3,320,047	1.5	3,319,521	9	3,319,588	154	3,319,662
	3,319,290	72	3,319,362	42	3,320,048	1.813	3,319,522	111– 7	3,319,589	139– 12	3,319,663
	3,319,291	37– 43	3,319,363	72– 8	3,319,444	4.5	3,319,525	85	3,319,590	196	3,319,664
	3,319,292	86	3,319,364	30	3,319,445	33	3,319,523	112–220	3,319,591	140– 93	3,319,665
6	3,319,294	94	3,319,365	136	3,319,446		3,319,524	114– 67	3,319,592	93.2	3,319,666
8	3,319,293	117.5	3,319,366	140	3,319,447	90– 1.6	3,319,526		3,319,593	147	3,319,667
19	3,319,295	118	3,319,367	176	3,319,448	23	3,319,527	144	3,319,594		3,319,668
26	3,319,296	40– 10	3,319,368	237	3,319,449	58	3,319,528	206	3,319,595	141– 20	3,319,669
30	3,319,297		3,319,369	238	3,319,450	91–189	3,319,529	116– 63	3,319,596	286	3,319,670
	3,319,298	79	3,319,370	274	3,319,451	275	3,319,530	118	3,319,597	346	3,319,671
	3,319,299	43– 42.09	3,319,371	397	3,319,452	413	3,319,531	124	3,319,598	144– 3	3,319,672
36	3,319,300	56	3,319,372	406	3,319,453	92– 34	3,319,532	133	3,319,599	172	3,319,673
42	3,319,301	100	3,319,373	410	3,319,454	75	3,319,533	117– 4	3,320,083	176	3,319,674
19–106	3,319,302	112	3,319,374	458	3,319,455	162	3,319,534	5.5	3,320,084	193	3,319,675
23– 16	3,320,023	118	3,319,375	73– 15	3,319,456	208	3,319,535	51	3,320,085	145– 64	3,319,676
18	3,320,024	44– 58	3,320,041	17	3,319,457	231	3,319,536	68	3,320,086	146– 3	3,319,677
51	3,320,025	66	3,320,042	23.1	3,319,458	242	3,319,537	137	3,320,087	52	3,319,678
66	3,320,026	46–156	3,319,376	59	3,319,459	93– 8	3,319,538	138.8	3,320,088	55	3,319,679
110	3,320,027	47– 9	3,319,377	67.2	3,319,460	20	3,319,539	157	3,320,089	81	3,319,680
190	3,320,028	40	3,319,378	88.5	3,319,461	35	3,319,540	161	3,320,090	102	3,319,681
201	3,320,029	48.5	3,319,379	96	3,319,462	93	3,319,541	223	3,320,091	150	3,319,682
203	3,320,030	49– 30	3,319,380	105	3,319,463	94– 1.5	3,319,542	118–108	3,319,600	236	3,319,683
	3,320,031	199	3,319,303	136	3,319,464	13	3,319,543	255	3,319,601	148– 2	3,320,099
312	3,320,032	430	3,319,381	178	3,319,465	39	3,319,544	258	3,319,602	26	3,320,100
337	3,320,033	504	3,319,382	357	3,319,466	50	3,319,545	410	3,319,603	36	3,320,101
349	3,320,034	51– 9	3,319,383	362.3	3,319,467	95– 1.7	3,319,546	637	3,319,604	131	3,320,102
356	3,320,035	52–100	3,319,384	407	3,319,468	11	3,319,547	119– 29	3,319,605	191	3,320,103
24– 49	3,319,304	169	3,319,385	421	3,319,469		3,319,548	51	3,319,606	149– 24	3,320,104
	3,319,305	224	3,319,386	462	3,319,470	12	3,319,549	52	3,319,607	150– 8	3,319,684
71.1	3,319,306	227	3,319,387	505	3,319,471	31	3,319,550	98	3,319,608	52	3,319,685
204	3,319,307	235	3,319,388	517	3,319,472	42	3,319,551	153	3,319,609		3,319,686
206	3,319,308	309	3,319,389	74– 5	3,319,473		3,319,552	123– 8	3,319,610	54	3,319,687
28– 1	3,319,309		3,319,390	5.43	3,319,475	44	3,319,553		3,319,611	151– 23	3,319,688
29– 25.18	3,319,310	371	3,319,391	5.6	3,319,474	53	3,319,554		3,319,612	28	3,319,689
25.3	3,319,311	389	3,319,392	18	3,319,476	66	3,319,555	32	3,319,613	41.73	3,319,690
25.42	3,319,312	496	3,319,393	112	3,319,477	73	3,319,556	41.08	3,319,614	41.74	3,319,691
34	3,319,313	53– 24	3,319,394	202	3,319,478	96– 1.1	3,320,060	43	3,319,615	156– 2	3,320,105
149.5	3,319,314	189	3,319,395	333	3,319,479	1.4	3,320,061	139	3,319,616	86	3,320,106
155.5	3,319,315	240	3,319,396	339	3,319,480	3	3,320,062	148	3,319,617	89	3,320,107
	3,319,316	282	3,319,397	424.8	3,319,481	29	3,320,063		3,319,618	219	3,320,108
	3,319,317	375	3,319,398	425	3,319,482	49	3,320,064	182	3,319,619	252	3,320,109
	3,319,318	379	3,319,399	483	3,319,483	76	3,320,065	126–211	3,319,620	438	3,320,110
	3,319,319	55–255	3,319,400	531	3,319,484	85	3,320,066	128– 2	3,319,621	515	3,320,111
155.7	3,319,320	306	3,319,402	543	3,319,485	90	3,320,067		3,319,622	543	3,320,112
156.7	3,319,321	386	3,319,403	558	3,319,486	107	3,320,068	2.05	3,319,623	158– 1	3,319,692
157.3	3,319,322	387	3,319,401	560	3,319,487		3,320,069	2.08	3,319,624	113	3,319,693
182.5	3,320,036	432	3,319,404	586	3,319,488	98– 36	3,319,557	130	3,319,625	159– 10	3,319,694
	3,320,037	56– 15	3,319,405	660	3,319,489	40	3,319,558	136	3,319,626	160–168	3,319,695
182.7	3,320,038	25.4	3,319,406	677	3,319,490		3,319,559	145.6	3,319,627	188	3,319,696
193	3,320,039		3,319,407	740	3,319,491		3,319,560	276	3,319,628	229	3,319,697
196.5	3,320,040	220	3,319,408	750	3,319,492	99– 17	3,320,070	131– 10	3,319,629	161– 66	3,320,113
200	3,319,323	57– 34	3,319,409	792	3,319,493	50.5	3,320,071	10.7	3,319,630	175	3,320,114
203	3,319,324		3,319,410	812	3,319,494	63	3,320,072	35	3,319,631	191	3,320,115
235	3,319,325	38.3	3,319,411	75– 1	3,320,049	71	3,320,073	133	3,319,632	252	3,320,116
271	3,319,326	59	3,319,412	26	3,320,050	141	3,320,074	235	3,319,633	162–157	3,320,117
273	3,319,327	102	3,319,413	43	3,320,051	192	3,320,075	246	3,319,634	175	3,320,118
423	3,319,328	58– 41	3,319,414	53	3,320,052	283	3,319,561	262	3,319,635	306	3,320,119

162–391	3,320,120	198– 31	3,319,761	214–133	3,319,813	240– 4.2	3,320,414	260– 29.2	3,320,197	260–455	3,320,298
164–112	3,319,698	32	3,319,760	138	3,319,812	106	3,320,415	29.6	3,320,198		3,320,299
282	3,319,699		3,319,762	308	3,319,814	241– 17	3,319,895		3,320,199		3,320,300
283	3,319,700	33	3,319,763	620	3,319,815	25	3,319,896		3,320,200	456	3,320,301
315	3,319,701		3,319,764	673	3,319,816	46	3,319,897	29.7	3,320,201	471	3,320,302
316	3,319,702	34	3,319,765	778	3,319,817	241	3,319,898	30.2	3,320,202	475	3,320,303
344	3,319,703	38	3,319,766	219–10.55	3,320,396	283	3,319,899	32.8	3,320,203	479	3,320,304
165– 1	3,319,704	52	3,319,767	10.69	3,320,397	242– 43.2	3,319,900	33.6	3,320,204	486	3,320,305
4	3,319,705	68	3,319,768	10.79	3,320,398	55.12	3,319,901		3,320,205	520	3,320,306
7	3,319,706	85	3,319,769	78	3,320,399	72.1	3,319,902	41	3,320,206	526	3,320,307
8	3,319,707	100	3,319,770	89	3,320,400	84.52	3,319,903	45.95	3,320,207	544	3,320,308
67	3,319,708	104	3,319,771	119	3,320,401	85.1	3,319,904	47	3,320,208	551	3,320,309
86	3,319,709	110	3,319,772	137	3,320,402	86.2	3,319,905		3,320,209		3,320,310
95	3,319,710	131	3,319,773	209	3,320,403	106	3,319,906		3,320,210	552	3,320,311
151	3,319,711	140	3,319,774	213	3,320,404	107.11	3,319,907		3,320,211	553	3,320,312
166– 2	3,319,712	154	3,319,775	271	3,320,405	248– 21	3,319,908	49	3,320,212		3,320,313
4	3,319,713	165	3,319,776	370	3,320,406	27	3,319,909	55	3,320,213	556	3,320,314
42	3,319,714	168	3,319,777	501	3,320,407	40	3,319,910	66	3,320,214	561	3,320,315
	3,319,715	182	3,319,778	530	3,320,408	42	3,319,911	78	3,320,215	566	3,320,316
	3,319,716	192	3,319,779	220– 2.1	3,319,818	74	3,319,912	78.5	3,320,216	567.6	3,320,317
115	3,319,717	200– 5	3,320,372	221– 15	3,319,819	75	3,319,913	79	3,320,217	570.5	3,320,318
150	3,319,718	38	3,320,373	25	3,319,820	205	3,319,914	79.3	3,320,218	570.8	3,320,319
217	3,319,719	47	3,320,374	125	3,319,821		3,319,915	79.5	3,320,219	581	3,320,320
167– 30	3,320,121		3,320,375	129	3,319,822	210	3,319,916	80.5	3,320,220	583	3,320,321
32	3,320,122	48	3,320,376	171	3,319,823	225	3,319,917	85.5	3,320,221	593	3,320,322
33	3,320,123		3,320,377	184	3,319,824	239	3,319,918	88.1	3,320,222	607	3,320,323
53	3,320,124	61.41	3,320,378	186	3,319,825	343	3,319,919	88.2	3,320,223	621	3,320,324
54	3,320,125	76	3,320,379	210	3,319,826	399	3,319,920	93.7	3,320,224	623	3,320,325
55	3,320,126		3,320,380	299	3,319,827	419	3,319,921		3,320,225	666	3,320,326
58	3,320,127	81.9	3,320,381	222– 1	3,319,828	466	3,319,922		3,320,226		3,320,327
65	3,320,128		3,320,382	5	3,319,829	250– 51.5	3,320,416	94.9	3,320,227	668	3,320,332
	3,320,129	115.5	3,320,383	20	3,319,830	71	3,320,417		3,320,228	674	3,320,328
73	3,320,130	122	3,320,384	52	3,319,831	71.5	3,320,418	96.5	3,320,229	680	3,320,329
	3,320,131	129	3,320,385		3,319,832		3,320,419	153	3,320,231		3,320,330
78	3,320,132	136.3	3,320,386	93	3,319,833	83.1	3,320,421		3,320,232	683.3	3,320,331
91	3,320,133	137	3,320,387	146	3,319,834	83.3	3,320,420	192	3,320,233	846	3,320,333
171–101	3,319,720		3,320,388	180	3,319,835	84.5	3,320,422	205	3,320,234	857	3,320,334
172–212	3,319,721	153	3,320,389	207	3,319,836	203	3,320,423	210	3,320,235	858	3,320,335
719	3,319,722	166	3,320,390	212	3,319,837		3,320,424	233.3	3,320,236	861	3,320,336
173– 93.6	3,319,723		3,320,391	215	3,319,838	207	3,320,425	233.5	3,320,237	982	3,320,337
119	3,319,724		3,320,392	327	3,319,839	209	3,320,426	239	3,320,238	261– 23	3,319,942
157	3,319,725	167	3,320,393	333	3,319,840	217	3,320,427		3,320,239	39	3,319,943
174– 34	3,320,350		3,320,394	386.5	3,319,841	218	3,320,428	239.1	3,320,240	41	3,319,944
50.5	3,320,351	168	3,320,395	479	3,319,842	219	3,320,429	239.3	3,320,241	46	3,319,945
50.63	3,320,352	202–173	3,320,137	499	3,319,843		3,320,430	239.55	3,320,242	129	3,319,946
52	3,320,353	203– 58	3,320,138	529	3,319,844	251– 1	3,319,923	243	3,320,243	263– 19	3,319,947
84	3,320,354	204– 35	3,320,139	223– 30	3,319,845	26	3,319,924		3,320,244	49	3,319,948
	3,320,355	59	3,320,140	68	3,319,846	58	3,319,925		3,320,245	264– 14	3,320,338
94	3,320,356	101	3,320,141	72	3,319,848	61	3,319,926		3,320,246	46	3,320,339
138	3,320,357	158	3,320,142	73	3,319,847	145	3,319,927		3,320,247	95	3,320,340
175– 5	3,319,726	162	3,320,143	76	3,319,849		3,319,928		3,320,248	104	3,320,341
213	3,319,727	163	3,320,144	92	3,319,850	252– 33	3,320,162		3,320,249	138	3,320,342
176– 38	3,320,134	164	3,320,145	112	3,319,851	48.2	3,320,163		3,320,250	176	3,320,343
177– 53	3,319,728	171	3,320,146	224– 1	3,319,852	49	3,320,164	246	3,320,251	219	3,320,344
225	3,319,729	177	3,320,147	42.1	3,319,853	49.6	3,320,165	247	3,320,252	223	3,320,347
233	3,319,730	180	3,320,148	225– 23	3,319,854	49.7	3,320,166	247.2	3,320,253	229	3,320,346
178– 5.4	3,320,358	294	3,320,150	67	3,319,855		3,320,167	247.7	3,320,254	255	3,320,345
6.8	3,320,359	299	3,320,149	226– 7	3,319,856	59	3,320,168	248	3,320,255	266– 21	3,319,949
	3,320,360	313	3,320,151	73	3,319,857	62.1	3,320,169	256.4	3,320,256	267– 1	3,319,950
7.3	3,320,361	206– 17	3,319,780	90	3,319,858	62.5	3,320,170		3,320,257		3,319,951
	3,320,362	59	3,319,781	91	3,319,859	79.4	3,320,171	256.5	3,320,258	65	3,319,952
25	3,320,363	63.3	3,319,782	95	3,319,860	137	3,320,172	268	3,320,259	269– 19	3,319,953
67	3,320,364	65	3,319,783	199	3,319,861		3,320,173	283	3,320,261	328	3,319,954
179– 1	3,320,365	208– 11	3,320,152	227– 10	3,319,862	138	3,320,174	285	3,320,262	271– 60	3,319,955
7.1	3,320,366	33	3,320,153	71	3,319,863	301.1	3,320,175	286	3,320,263		3,319,956
18	3,320,367	130	3,320,154	76	3,319,864		3,320,176	287	3,320,260	272– 53.2	3,319,957
84	3,320,368	134	3,320,155	229– 2.5	3,319,865		3,320,177	294.3	3,320,264	273– 11	3,319,958
90	3,320,369	244	3,320,156	14	3,319,866		3,320,178	294.7	3,320,265	43	3,319,959
100.2	3,320,370	249	3,320,157		3,319,867		3,320,179	294.8	3,320,266	102.4	3,319,960
	3,320,371	358	3,320,158	17	3,319,868	301.4	3,320,180	295	3,320,267	136	3,319,961
180– 53	3,319,731	363	3,320,159	39	3,319,869	439	3,320,181		3,320,268	164	3,319,962
54	3,319,732	209– 74	3,319,784	53	3,319,870	466	3,320,182	296	3,320,269	186	3,319,963
106	3,319,733	166	3,319,785	69	3,319,871	253– 39	3,319,929	306.8	3,320,270	194	3,319,964
181– .5	3,319,734	414	3,319,786		3,319,872	78	3,319,930	307	3,320,271	274– 1	3,319,965
	3,319,735	421	3,319,787	87	3,319,873		3,319,931	309	3,320,272	4	RE.26,205
24	3,319,736	493	3,319,788	230– 56	3,319,874	254– 9	3,319,932	309.2	3,320,273	23	3,319,966
31	3,319,737	210– 14	3,320,160	69	3,319,875	101	3,319,933	309.7	3,320,274		3,319,967
33	3,319,738	19	3,320,161	101	3,319,876	131	3,319,934	314.5	3,320,275	277– 40	3,319,968
182– 2	3,319,739	67	3,319,789	125	3,319,877	134.3	3,319,935		3,320,276	130	3,319,969
188– 82.4	3,319,740	232	3,319,790	186	3,319,878	166	3,319,936	326.12	3,320,278	280– 1.13	3,319,970
96	3,319,741	234	3,319,791	231	3,319,879	256– 1	RE.26,203		3,320,280	16	3,319,971
152	3,319,742	238	3,319,792	233– 1	3,319,880	259– 8	3,319,937	326.13	3,320,281	18	3,319,972
190– 41	3,319,743	243	3,319,793	234– 59	3,319,881	107	3,319,938		3,320,282	42	3,319,973
52	3,319,744	334	3,319,794	235– 60	3,319,882	134	3,319,939	326.15	3,320,279	43.21	3,319,974
192– 3.5	3,319,745	457	3,319,795		3,319,883	138	3,319,940	326.5	3,320,277	106	3,319,975
4	3,319,746		3,319,796	145	3,319,884	149	RE.26,204	326.87	3,320,283	154.5	3,319,976
8	3,319,747	211– 15	3,319,797	151	3,320,409	161	3,319,941	343.6	3,320,284	475	3,319,977
18	3,319,748		3,319,798	175	3,320,410	260– 2	3,320,183		3,320,285	285– 18	3,319,978
27	3,319,749	126	3,319,799	197	3,320,411		3,320,184	346.2	3,320,286	24	3,319,979
43.1	3,319,750	163	3,319,800	201	3,319,885		3,320,185	372	3,320,287	140	3,319,980
48	3,319,751	178	3,319,801		3,319,886	2.1	3,320,186	388	3,320,288	302	3,319,981
51	3,319,752	212– 17	3,319,802	236– 15	3,319,887	2.5	3,320,187	397.3	3,320,290	287– 12	3,319,982
56	3,319,753	55	3,319,803	87	3,319,888		3,320,188	397.4	3,320,289	189.35	3,319,983
57	3,319,754	214– 1	3,319,804	239– 1	3,319,889		3,320,189		3,320,291	189.36	3,319,984
104	3,319,755		3,319,805	77	3,319,890		3,320,190	400	3,320,292		3,319,985
194– 2	3,319,756	16	3,319,807	130	3,319,891	8	3,320,191	419	3,320,230	292– 92	3,319,986
195– 30	3,320,135	16.4	3,319,806	265.35	3,319,892	17.3	3,320,192	429	3,320,293	294– 19	3,319,987
31	3,320,136	17	3,319,808	393	3,319,893	18	3,320,193		3,320,294	50.8	3,319,988
198– 9	3,319,757		3,319,809	490	3,319,894		3,320,194	429.1	3,320,295	65.5	3,319,989
16	3,319,758	83	3,319,810	240– 2.1	3,320,412	23.5	3,320,195	448	3,320,296	74	3,319,990
19	3,319,759	85	3,319,811	4	3,320,413	27	3,320,196	448.8	3,320,297	82	3,319,991

294– 83	3,319,992	310–259	3,320,451	317– 61	3,320,482	323– 19	3,320,518	333– 24.1	3,320,554	340–147	3,320,590
296– 76	3,319,993	260	3,320,452	99	3,320,483	22	3,320,519	29	3,320,555	152	3,320,591
100	3,319,994	268	3,320,453	101	3,320,484	68	3,320,520	34	3,320,556	172.5	3,320,592
107	3,319,995		3,320,454		3,320,485	74	3,320,521	79	3,320,557		3,320,593
137	3,319,996	312–183	3,320,008		3,320,486	324– 43	3,320,522	335–147	3,320,558		3,320,594
297– 16	3,319,997	242	3,320,009		3,320,487		3,320,523	151	3,320,559		3,320,595
388	3,319,998	323	3,320,010		3,320,488	54	3,320,524	168	3,320,560	174	3,320,596
457	3,319,999	351	3,320,011	119	3,320,489	57	3,320,525	197	3,320,561		3,320,597
298– 7	3,320,000	313– 7	3,320,455	134	3,320,490		3,320,526	207	3,320,562	174.1	3,320,598
299– 1	3,320,001	23	3,320,456	142	3,320,491	60	3,320,527	285	3,320,563		3,320,599
301– 37	3,320,002	82	3,320,457	147	3,320,492	61	3,320,528		3,320,564		3,320,600
307– 41	3,320,431	86	3,320,458	148.5	3,320,493	62	3,320,529	336–123	3,320,565	227.1	3,320,601
88.3	3,320,432	108	3,320,459	230	3,320,494		3,320,530	192	3,320,566	233	3,320,602
88.5	3,320,433	112	3,320,460	234	3,320,495	77	3,320,531	197	3,320,567	248	3,320,603
	3,320,434	125	3,320,461		3,320,496	123	3,320,532	338– 2	3,320,568	266	3,320,604
	3,320,435	154	3,320,462		3,320,497		3,320,533	5	3,320,569	347	3,320,605
	3,320,436	241	3,320,463		3,320,498	325– 38	3,320,534	13	3,320,570		3,320,606
	3,320,437	258	3,320,464	235	3,320,499	49	3,320,535	89	3,320,571	381	3,320,607
	3,320,438	269	3,320,465	258	3,320,500	187	3,320,536	339– 17	3,320,572	384	3,320,608
	3,320,439	318	3,320,466	318– 18	3,320,501	336	3,320,537	185	3,320,573	343– 5	3,320,609
	3,320,440	315– 3.5	3,320,467		3,320,502	487	3,320,538	217	3,320,574	6	3,320,610
112	3,320,441	14	3,320,468	25	3,320,503	328– 62	3,320,539	268	3,320,575	6.5	3,320,611
141	3,320,442	24	3,320,469	102	3,320,504	329–116	3,320,540	340– 5	3,320,576	7.3	3,320,612
308– 3.6	3,320,003	27	3,320,470	221	3,320,505	200	3,320,541		3,320,577	17.2	3,320,613
4	3,320,004	39.3	3,320,471	231	3,320,506	330– 4.6	3,320,542	8	3,320,578	18	3,320,614
35	3,320,005	84.5	3,320,472	269	3,320,507	15	3,320,543		3,320,579	112	3,320,615
36.1	3,320,006	86	3,320,473	320– 2	3,320,508	331– 8	3,320,544	10	3,320,580		3,320,616
	3,320,007	94	3,320,474	39	3,320,509	17	3,320,545		3,320,581	346– 1	3,320,617
310– 11	3,320,443	108	3,320,475	321– 2	3,320,510	22	3,320,546		3,320,582	35	3,320,618
	3,320,444	289	3,320,476		3,320,511	40	3,320,547	15.5	3,320,583	350– 1	3,320,013
20	3,320,445	307	3,320,477	10	3,320,512	65	3,320,548	26	3,320,584	184	3,320,014
42	3,320,446	347	3,320,478	15	3,320,513	75	3,320,549	43	3,320,585	215	3,320,016
54	3,320,447	316– 20	3,320,012	45	3,320,514	96	3,320,550	66	3,320,586	216	3,320,015
98	3,320,448	317– 2	3,320,479		3,320,515	113	3,320,551	146.2	3,320,587	222	3,320,017
156	3,320,449	18	3,320,480	69	3,320,516	332– 23	3,320,552	146.3	3,320,588	223	3,320,018
168	3,320,450	36	3,320,481	322– 2	3,320,517	333– 11	3,320,553	147	3,320,589	286	3,320,019

CLASSIFICATION OF DESIGNS

D 1– 12	207,621	D14– 6	207,634	D33– 14	207,647	D48– 2	207,660	D54– 12	207,672	D83– 1	207,684
	207,622	D16– 1	207,635	D34– 5	207,648	27	207,661		207,673		207,685
	207,623	D24– 1	207,636		207,649		207,662	13	207,674		207,686
D 2– 24	207,624	D26– 5	207,637		207,650		207,663	D57– 1	207,675		207,687
	207,629		207,638	15	207,651		207,664	D58– 2	207,676		207,688
184	207,625		207,639		207,652	31	207,665	5	207,677	D85– 2	207,689
231	207,626	14	207,640		207,653	32	207,666		207,678	D86– 8	207,690
236	207,627		207,641		207,654	D50– 6	207,667	12.6	207,679	D87– 3	207,691
415	207,628	D29– 3	207,642	D35– 2	207,655	D52– 6	207,668		207,680	D89– 1	207,692
D 4– 3	207,630	D33– 3	207,643	D42– 7	207,656	7	207,669	D71– 1	207,681	D91– 1	207,693
4	207,631	8	207,644	D44– 6	207,657	D54– 1	207,670	D74– 9	207,682	4	207,694
D 9– 2	207,632	14	207,645		207,658	12	207,671	D80– 10	207,683	D93– 3	207,695
D10– 8	207,633		207,646	26	207,659						

CLASSIFICATION OF PLANTS

P. – 39	2,742	P. – 51	2,743	P. – 79	2,739	P. – 81	2,740	P. – 81	2,741

GEOGRAPHICAL INDEX OF RESIDENCE OF INVENTORS

(U.S. States, Territories and Armed Forces, the Commonwealth of Puerto Rico, and the Canal Zone)

(NOTE.—CODES ARE CHANGED AS OF JANUARY 1, 1967)

Alabama	1	Kentucky	21	Oregon	41
Alaska	2	Louisiana	22	Pennsylvania	42
American Samoa	3	Maine	23	Puerto Rico	43
Arizona	4	Maryland	24	Rhode Island	44
Arkansas	5	Massachusetts	25	South Carolina	45
California	6	Michigan	26	South Dakota	46
Canal Zone	7	Minnesota	27	Tennessee	47
Colorado	8	Mississippi	28	Texas	48
Connecticut	9	Missouri	29	Utah	49
Delaware	10	Montana	30	Vermont	50
District of Columbia	11	Nebraska	31	Virginia	51
Florida	12	Nevada	32	Virgin Islands	52
Georgia	13	New Hampshire	33	Washington	53
Guam	14	New Jersey	34	West Virginia	54
Hawaii	15	New Mexico	35	Wisconsin	55
Idaho	16	New York	36	Wyoming	56
Illinois	17	North Carolina	37	U.S. Air Force	57
Indiana	18	North Dakota	38	U.S. Army	58
Iowa	19	Ohio	39	U.S. Navy	59
Kansas	20	Oklahoma	40		

(First number in listing denotes location according to above key. Refer to patent number in body of the Official Gazette to obtain details as to inventor name, location, etc.)

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42 : RE.26,203
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42	3,319,519	42	3,320,146	42	3,320,595	48	3,319,718	51	3,319,720	54	3,320,199
	3,319,528		3,320,186		3,320,597		3,319,726		3,319,871		3,320,241
	3,319,534		3,320,198		3,320,607		3,319,734		3,319,911	55	3,319,400
	3,319,547		3,320,215	44	3,319,305		3,319,775		3,319,948		3,319,405
	3,319,607		3,320,225		3,319,308		3,319,923		3,320,028		3,319,473
	3,319,627		3,320,245		3,319,390		3,319,981		3,320,076		3,319,545
	3,319,643		3,320,250		3,319,495		3,320,004		3,320,176		3,319,600
	3,319,656		3,320,263	45	3,319,638		3,320,079		3,320,177		3,319,614
	3,319,657		3,320,267		3,319,866		3,320,228		3,320,178		3,319,626
	3,319,680		3,320,284	46	3,319,757		3,320,301		3,320,270		3,319,637
	3,319,687		3,320,286		3,319,786		3,320,302		3,320,274		3,319,697
	3,319,738		3,320,299	47	3,319,406		3,320,317		3,320,295		3,319,730
	3,319,761		3,320,310		3,319,709		3,320,441		3,320,358		3,319,732
	3,319,783		3,320,332		3,319,821		3,320,585		3,320,402		3,319,809
	3,319,789		3,320,354		3,319,853		3,320,588		3,320,580		3,319,812
	3,319,826		3,320,380		3,320,110		3,320,596		3,320,582		3,319,822
	3,319,860		3,320,390		3,320,210	49	3,319,523		3,320,610		3,319,832
	3,319,868		3,320,392		3,320,236		3,319,573	53	3,319,272		3,319,949
	3,319,886		3,320,397		3,320,495		3,319,655		3,319,492		3,320,111
	3,319,897		3,320,404	48	Re.26,204		3,319,847		3,319,531		3,320,119
	3,319,984		3,320,405		3,319,260		3,319,922		3,319,590		3,320,170
	3,320,022		3,320,430		3,319,262		3,320,363		3,319,633		3,320,196
	3,320,031		3,320,472		3,319,286		3,320,410		3,319,765		3,320,393
	3,320,042		3,320,480		3,319,364	50	3,319,524		3,320,029		3,320,395
	3,320,053		3,320,488		3,319,445		3,319,917		3,320,141		3,320,446
	3,320,057		3,320,525		3,319,455	51	3,319,335		3,320,421		3,320,477
	3,320,085		3,320,527		3,319,464		3,319,352		3,320,431		3,320,507
	3,320,093		3,320,543		3,319,605		3,319,401	54	3,319,283		3,320,557
	3,320,095		3,320,564		3,319,661		3,319,435		3,319,724		3,320,593
	3,320,102		3,320,566		3,319,713		3,319,675		3,319,727	56	3,319,744
	3,320,125		3,320,572		3,319,717						

DESIGN PATENTS

6	207,625	6	207,684	26	207,690	34	207,670	36	207,672	42	207,628
	207,626		207,685	27	207,639		207,681		207,673		207,630
	207,627	9	207,679		207,660	36	207,621		207,683		207,632
	207,635	12	207,648		207,669		207,622		207,695		207,645
	207,637	17	207,649	29	207,636		207,623	38	207,693		207,654
	207,638		207,667		207,668		207,624	39	207,643		207,682
	207,640		207,686	32	207,674		207,647		207,655		207,694
	207,641		207,689	34	207,629		207,652		207,657	45	207,687
	207,642	20	207,692		207,661		207,656		207,658	48	207,631
	207,650	26	207,644		207,662		207,665		207,675	55	207,633
	207,651		207,646		207,663		207,666		207,688		207,691
	207,680		207,677		207,664		207,671				

PLANT PATENTS

6	2,742	36	2,739	36	2,740	36	2,741	39	2,743		

U.S. DEPARTMENT OF COMMERCE

OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

May 16, 1967 Volume 838 Number 3

TRADEMARKS

NOTICES

Decisions of the Commissioner of Patents

The 1966 edition of the Decisions of the Commissioner of Patents has been released from the printer and is available from the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402.

Price: $1.50.

Service by Publication

A petition to cancel each of the registrations identified below having been filed, and the notice of such proceedings sent by registered mail to each registrant at the last known address having been returned by the Post Office as undeliverable, notice is hereby given that unless the registrants listed herein, their assigns or legal representatives, shall enter an appearance within thirty days from the date of this publication, the cancelation will be proceeded with as in the case of default.

Mandel Manufacturing Company, St. Louis, Mo., Reg. No. 724,535, Canc. No. 8,882.

Camel Color & Paint Corp., assignee, by mesne assignment, of Camel Lead Color & Chemical Products Mfg. Corp., Rego Park, N.Y., Reg. No. 649,181, Canc. No. 8,836.

Korlis, Ltd., New York, N.Y., Reg. No. 723,524, Canc No. 8,840.

Casual Craft, Inc., Chicago, Ill., Reg. No. 442,912, Canc. No. 8,871.

The Predictor Corporation (New York corporation), assignee of The Predictor Corporation (Connecticut corporation), Brooklyn, N.Y., Reg. No. 438,624, Canc. No. 8,874.

Wolff Freres, Inc., New York, N.Y., Reg. No. 504,222, Canc. No. 8,883.

EDWIN L. REYNOLDS,
First Assistant Commissioner of Patents.

Trademark Suits

Notices under 15 U.S.C. 1116; Trademark Act of July 5, 1946

Reg. No. 600,018. (See Reg. No. 746,367.)

Reg. No. 610,968. (See Reg. No. 746,367.)

Reg. No. 645,386. (See Reg. No. 746,367.)

Reg. No. 652,412. (See Reg. No. 746,367.)

Reg. No. 676,726. (See Reg. No. 746,367.)

Reg. No. 699,037 (GALOCHA MARNE), Torch Rubber Company, Inc., Men's rubber overshoes, **filed** June 8, 1962, D.C., S.D.N.Y., Doc. 62-C-2042, *Galocha Moderna, Inc.* v. *Torch Rubber Co., Inc.* Consent judgment; defendant permanently enjoined and restrained, Jan. 25, 1967.

Reg. No. 737,313. (See Reg. No. 746,367.)

Reg. No. 744,930. (See Reg. No. 746,367.)

Reg. No. 746,367 (THE PLAY BOY CLUB), HMH Publishing Co., Operating private social clubs which feature food, drinks, and entertainment; **Reg. No. 600,018** (PLAYBOY), same, Monthly magazine; **Reg. No. 610,968** (PLAYBOY), Gly Barnette & Company, Inc., Boats and boat transporting trailers; **Reg. No. 645,386** (PLAYBOY), HMH Publishing Co., Inc., Cuff links; **Reg. No. 642,412**, same, Phonograph records; **Reg. No. 676,726**, same, Compilations of stories issued annually and calendars; **Reg. No. 737,313** (PLAYBOY TOURS), same, Arranging and conducting travel tours and arranging hotel accommodations and entertainment for tourists; **Reg. No. 744,930** (PLAYBOY), Leaf Brands, Inc., Candy; **Reg. No. 755,901** (PLAYBOY), HMH Publishing Co.,

CONDITION OF TRADEMARK APPLICATIONS AS OF MARCH 31, 1967

Total number of applications awaiting action [excluding renewals and Sec. 12 (c)]	17,856
Date of oldest new application	Jan. 24, 1966
Date of oldest amended application (filing date)	April 10, 1964

C. M. WENDT, Director, Trademark Examining Operation

TRADEMARK EXAMINING DIVISIONS, EXAMINERS AND TRADEMARK CLASSES UNDER EXAMINATION

	Oldest Application	
	New	Amended
(I) L. J. BETTENDORF, Classes 2, 4, 5, 8, 11, 12, 13, 14, 15, 16, 17, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 39, 41, 42, 43, 44	1-24-66	7-30-64
(II) F. H. WETHERBEE, Classes 1, 3, 6, 7, 9, 10, 18, 22, 38, 40, 45, 46, 47, 48, 49, 50, 51, 52; Service Marks, Classes 100, 101, 102, 103, 104, 105, 106, 107; Collective Membership Marks, Class 200; Certification Marks, Classes A and B	4-14-66	4-10-64
Renewals (All Classes)	2-23-67	----------
Sec. 12 (c) Publications (All Classes)	3-1-67	----------

Applications filed during the month of March 1967—2,606

Registrations Issued ---------- 244—No. 828,708 to No. 828,951
Renewals Issued ---------- 80

The TRADEMARK SECTION of the OFFICIAL GAZETTE, issued weekly, is mailed under the direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402 to whom all subscriptions should be made payable and all communications addressed; subscription price, $12.00 per annum, foreign mailing $4.00 additional; single copies, 25 cents each.

PRINTED COPIES OF TRADEMARK REGISTRATIONS are furnished by the Patent Office for 20 cents each. Address orders to the Commissioner of Patents, Washington, D.C., 20231.

Inc., Cigarette lighters; **Reg. No. 764,820**, same, Perfume; **Reg. No. 769,702**, same, operation of establishments which feature food, drink, and entertainment; **Reg. No. 772,131**, same, Cigarettes; **Reg. No. 773,132**, same, Puppets, filed Mar. 4, 1965, D.C., S.D.N.Y., Doc. 65–C–661, *HMH Publishing Co., Inc. v. Inter-Ocean Merchandising Corp. et ano.*

Reg. No. 747,755 (ISLE ST. GEORGE ETC. AND DESIGN), Meier's Wine Cellers, Inc., Claret wine, filed Jan. 27, 1967, D.C.N.J. (Camden), Doc. 105–67, *Meier's Wine Cellers, Inc. v. L. N. Renault & Sons, Inc.*

Reg. No. 755,301. (See Reg. No. 746,367.)
Reg. No. 764,820. (See Reg. No. 746,367.)
Reg. No. 769,702. (See Reg. No. 746,367.)
Reg. No. 772,131. (See Reg. No. 746,367.)
Reg. No. 773,132. (See Reg. No. 746,367.)

MARKS PUBLISHED FOR OPPOSITION

SECTION 1

The following marks are published in compliance with section 12(a) of the Trademark Act of 1946. Application for the registration of these marks in more than one class has been filed as provided in section 30 of said act as amended by Public Law 772, 87th Congress, approved Oct. 9, 1962, 76 Stat. 769. Opposition under section 13 may be filed within thirty days of this publication. See Rules 2.101 to 2.105.

A separate fee of twenty-five dollars for each class opposed must accompany the opposition.

[**NOTE:** For publication of marks presented in applications for registration in one class, see section 2.]

SN 210,064. White, Weld & Co., New York, N.Y. Filed Jan. 18, 1965.

FACTS

Class 101—Advertising and Business

For Advertising and Business Services—Namely, Aiding the Business of Others by Providing Consultation Services Concerning the Use of Computers in Investment Analysis.

Class 102—Insurance and Financial

For Financial and Insurance Services—Namely, Providing a Financial Analysis of Various Companies and Industries, and Securities Selection and Evaluation for Others Through Computer Techniques.

First use Oct. 23, 1964.
Subj. to Intf. with SN 232,687.

SN 241,013. L'Oreal, Paris, France. Filed Mar. 15, 1966.



Owner of French Reg. No. 531,645, dated May 21, 1965 (Seine); Natl. Inst. No. 249,166.

Class 51—Cosmetics and Toilet Preparations

For Nail Enamel, Lipstick, Dusting Powder, Cologne, Perfume, Pore Cleanser, Astringent, Cosmetic Corrective Stick for Skin Blemishes, Makeup Removers, Creams and Lotions for the Hands, for the Face and for the Skin, Cake Rouge Makeup, Eye Mascara, Eyeshadow Stick, Eyebrow and Eyeliner Pencil and Cake Eyeliner.

First use Sept. 1, 1961; in commerce Sept. 1, 1961.

Class 52—Detergents and Soaps

For Complexion Soap.
First use Oct. 16, 1963; in commerce Oct. 16, 1963.

SN 243,331. Marson Corporation, Chelsea, Mass. Filed Apr. 13, 1966.

MR. FIX

Owner of Reg. No. 745,252.

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

For Fasteners and Equipment Therefor—Namely, Rivets.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Fasteners and Equipment Therefor—Namely, Rivet Setting Tools.

First use Nov. 15, 1965.

SN 247,443. Clairol Incorporated, New York, N.Y. Filed June 7, 1966.

NICE 'N SIMPLE

Class 51—Cosmetics and Toilet Preparations

For Hair Tinting, Dyeing, and Coloring Preparation.
First use Oct. 25, 1965.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Apr. 5, 1966.

SN 247,445. Clairol Incorporated, New York, N.Y. Filed June 7, 1966.

LIGHT 'N EASY

Class 51—Cosmetics and Toilet Preparations

For Hair Tinting, Dyeing, and Coloring Preparation.
First use Oct. 25, 1965.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Apr. 5, 1966.

SN 247,449. Clairol Incorporated, New York, N.Y. Filed June 7, 1966.

RICH 'N EASY

Class 51—Cosmetics and Toilet Preparations

For Hair Tinting, Dyeing, and Coloring Preparation.
First use Oct. 25, 1965.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Apr. 5, 1966.

SN 247,450. Clairol Incorporated, New York, N.Y. Filed June 7, 1966.

NICE 'N QUICK

Class 51—Cosmetics and Toilet Preparations

For Hair Tinting, Dyeing, and Coloring Preparation.
First use Oct. 25, 1965.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Apr. 5, 1966.

SN 247,451. Clairol Incorporated, New York, N.Y. Filed June 7, 1966.

NICE 'N NEW

Class 51—Cosmetics and Toilet Preparations

For Hair Tinting, Dyeing, and Coloring Preparation.
First use Oct. 25, 1965.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Apr. 5, 1966.

SN 247,452. Clairol Incorporated, New York, N.Y. Filed June 7, 1966.

YOUNG 'N EASY

Class 51—Cosmetics and Toilet Preparations

For Hair Tinting, Dyeing, and Coloring Preparation.
First use Oct. 25, 1965.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Apr. 5, 1966.

SN 247,453. Clairol Incorporated, New York, N.Y. Filed June 7, 1966.

NICE 'N COLORFUL

Class 51—Cosmetics and Toilet Preparations

For Hair Tinting, Dyeing, and Coloring Preparation.
First use Oct. 25, 1965.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Apr. 5, 1966.

SN 247,454. Clairol Incorporated, New York, N.Y. Filed June 7, 1966.

NEW 'N EASY

Class 51—Cosmetics and Toilet Preparations

For Hair Tinting, Dyeing, and Coloring Preparation.
First use Oct. 25, 1965.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Apr. 5, 1966.

SN 247,455. Clairol Incorporated, New York, N.Y. Filed June 7, 1966.

NICE 'N BREEZY

Class 51—Cosmetics and Toilet Preparations

For Hair Tinting, Dyeing, and Coloring Preparation.
First use Oct. 25, 1965.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Apr. 5, 1966.

SN 247,456. Clairol Incorporated, New York, N.Y. Filed June 7, 1966.

BRIGHT 'N EASY

Class 51—Cosmetics and Toilet Preparations

For Hair Tinting, Dyeing, and Coloring Preparation.
First use Oct. 25, 1965.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Apr. 5, 1966.

SN 247,458. Clairol Incorporated, New York, N.Y. Filed June 7, 1966.

FAST 'N EASY

Class 51—Cosmetics and Toilet Preparations

For Hair Tinting, Dyeing, and Coloring Preparation.
First use Oct. 25, 1965.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Apr. 5, 1966.

SN 251,577. John C. Gudgel, d.b.a. Preventive Maintenance Company, Felton, Calif. Filed Aug. 2, 1966.

pmc

Owner of Reg. No. 800,906.

Class 6—Chemicals and Chemical Compositions

For Wood Preservers.
First use Mar. 4, 1965.

Class 12—Construction Materials

For Asphalt Coatings for Sealing and Waterproofing Roofs, Roadways, and Tanks.
First use Mar. 18, 1965.

SN 252,510. Allied Chemical Corporation, New York, N.Y. Filed Aug. 17, 1966.

A.C.E.

Class 1—Raw or Partly Prepared Materials

For Continuous Filament and Staple Fiber.

Class 43—Thread and Yarn

For Yarn.

First use May 25, 1966.

SECTION 2

The following marks are published in compliance with section 12(a) of the Trademark Act of 1946. Opposition under section 13 may be filed within thirty days of publication. See Rules 2.101 to 2.105.

A fee of twenty-five dollars must accompany the opposition.

[NOTE: For publication of marks presented in a combined application for registration in more than one class, see section 1.]

Class 1—Raw or Partly Prepared Materials

SN 241,735. Bedford Farms, Inc., Shelbyville, Tenn. Filed Mar. 24, 1966.

BFI

For Cattle.
First use on or before Feb. 19, 1964.

SN 245,969. Rogers Corporation, Rogers, Conn. Filed May 18, 1966.

ROGERS PUT THE CHEMIST AT THE BENCH

Applicant disclaims the exclusive right to the word "Chemist" apart from the mark as shown.

For Porous Plastic Materials in Sheet Form, for General Use in the Industrial Arts.
First use on or about June 1, 1965.

SN 248,069. Tragacanth Importing Corp., New York, N.Y. Filed June 14, 1966.

TIC

For Natural Water Soluble Gums—Namely, Arabic (Acacia) Tragacanth, Karaya, Guar, Locust, Tamarind, Agar, Irish Moss, Ghatti Gums, and Other Natural Water Soluble Gums.
First use Jan. 1, 1929.

SN 248,562. H. W. Walcott & Co., Inc., San Mateo, Calif. Filed June 20, 1966.

MISSION

For Alfalfa Seed.
First use in or about 1952.

SN 250,020. Northrup, King & Co., Minneapolis, Minn. Filed July 11, 1966.

PLUS X

For Seed Corn.
First use January 1964.

SN 250,753. Wm. Flemer's Sons, Inc., d.b.a. Princeton Nurseries, Princeton, N.J. Filed July 21, 1966.

PRINCETON

For Nursery Products—Namely, Shade, Berry-Bearing, Fruit-Bearing, and Flowering Trees, Plants, Shrubs, and Vines; Hedges; and Evergreens.
First use in or about 1915.

SN 251,630. Hi-Life Packing Company, Chicago, Ill. Filed Aug. 3, 1966.

PET PAN

For Absorbent Cat Litter.
First use June 28, 1966.

SN 251,972. Ralph W. Voigt, d.b.a. Future Chemicals Mfg. Co., Chicago, Ill. Filed Aug. 8, 1966.

COPY CAST

For Toolmaking, Modeling, and Moldmaking Materials Including Epoxy Resin Systems, Natural and/or Synthetic Rubber Systems, Urethane Systems; Each of Said Systems Including in Addition to the Resin or Rubber Component, an Appropriate Hardener Composition and, Optionally, a Mineral Filler, and Sold for Such Use.
First use on or about Aug. 15, 1959.

SN 263,794. Georgia Kaolin Company, Elizabeth, N.J. Filed Feb. 2, 1967.

ASTRA-COTE

Owner of Reg. Nos. 821,781, 821,782, and 821,783.
For Paper Coating Clays.
First use Sept. 1, 1966.

SN 263,798. Georgia Kaolin Company, Elizabeth, N.J. Filed Feb. 2, 1967.

ASTRA-WHITE

Owner of Reg. Nos. 821,781, 821,782, and 821,783.
For Paper Coating Clays.
First use Dec. 12, 1966.

SN 263,799. Georgia Kaolin Company, Elizabeth, N.J. Filed Feb. 2, 1967.

ASTRA-PAQUE

Owner of Reg. Nos. 821,781, 821,782, and 821,783.
For Paper Coating Clays.
First use Oct. 15, 1966.

Class 2—Receptades

SN 223,395. Fiberplastics, Inc., d.b.a. Handi-Kup Company, Sausalito, Calif. Filed July 15, 1965.



"Handi-Kup" is disclaimed apart from the mark as shown. The drawing is lined for the colors red, yellow, and blue.
For Disposable Polystyrene Plastic Cups.
First use May 15, 1963.

SN 223,640. Colt's Plastics Company, Incorporated, Thompson, Conn. Filed July 19, 1965.

COLT-AINER

Owner of Reg. No. 342,810.
For Plastic Containers for Liquids, Semi-Solids, and Solids.
First use Sept. 26, 1963.

SN 258,648. E. R. Squibb & Sons, Inc., New York, N.Y. Filed Nov. 15, 1966.

UNICOUNT

Owner of Reg. No. 573,977.
For Unit Dosage Package for Pharmaceuticals.
First use Oct. 21, 1966.

SN 258,649. E. R. Squibb & Sons, Inc., New York, N.Y. Filed Nov. 15, 1966.

UNIMATIC

Owner of Reg. No. 573,977.
For Unit Dosage Package for Pharmaceuticals.
First use Oct. 21, 1966.

Class 3—Baggage, Animal Equipments, Portfolios, and Pocketbooks

SN 259,284. Lark Luggage Corp., New York, N.Y. Filed Nov. 23, 1966.

EXECUPACK

For Luggage.
First use Nov. 8, 1966.

Class 5—Adhesives

SN 244,607. National Lead Company, New York, N.Y. Filed Apr. 29, 1966.

BARONITE

For Foundry Sand Binder.
First use Oct. 8, 1965.

Class 6—Chemicals and Chemical Compositions

SN 234,401. Du Page Kinetic Laboratories, Inc., Downers Grove, Ill. Filed Dec. 13, 1965.

RDO

For Laboratory Preparation—Namely, Preparation for Decalcifying Bone.
First use Nov. 20, 1965.

SN 236,332. Albert B. Selleck, d.b.a. Selleck Enterprises, North Hollywood, Calif. Filed Jan. 11, 1966.



For the purposes of registration, no claim is made to the exclusive right to use "Aerosol," but applicant waives none of his common law rights in the mark as shown in the drawing or any feature thereof.
For Spray-Type Chemical Compound Used Primarily as a Rust Preventive With Lubricating and Coating Properties.
First use May 25, 1959.

SN 243,406. Celanese Corporation, New York, N.Y., by change of name from Celanese Corporation of America, New York, N.Y. Filed Apr. 14, 1966.



For Chemicals for Industrial, Commercial, and Other Uses, Such as Acids, Aldehydes, Anhydrides, Organic Oxides, Polyols, Vinyl Monomers, Acrylates, Alcohols, Esters, Ethers, Glycols, Ketones, Amines, Salts, Plasticizers, Solvents, and Intermediates for the Production of Chemical Compounds.
First use Jan. 11, 1966.

SN 243,407. Celanese Corporation, New York, N.Y., by change of name from Celanese Corporation of America, New York, N.Y. Filed Apr. 14, 1966.



For Chemicals for Industrial, Commercial, and Other Uses, Such as Acids, Aldehydes, Anhydrides, Organic Oxides, Polyols, Vinyl Monomers, Acrylates, Alcohols, Esters, Ethers, Glycols, Ketones, Amines, Salts, Plasticizers, Solvents, and Intermediates for the Production of Chemical Compounds.
First use Jan. 11, 1966.

SN 243,408. Celanese Corporation, New York, N.Y., by change of name from Celanese Corporation of America, New York, N.Y. Filed Apr. 14, 1966.



For Chemicals for Industrial, Commercial, and Other Uses, Such as Acids, Aldehydes, Anhydrides, Organic Oxides, Polyols, Vinyl Monomers, Acrylates, Alcohols, Esters, Ethers, Glycols, Ketones, Amines, Salts, Plasticizers, Solvents, and Intermediates for the Production of Chemical Compounds.
First use Jan. 11, 1966.

SN 243,958. Centrala Importowo-Eksportowa Chemikalii Ciech Sp. z o.o., Warsaw, Poland. Filed Apr. 21, 1966.

POLFALAN

Owner of Polish Reg. No. 44,844, dated Jan. 11, 1965.
For Metal Complex Dyestuffs for Use in the Textile Industry.

SN 245,029. Tenneco Chemicals, Inc., New York, N.Y. Filed May 5, 1966.

DURONYLAN

Owner of Reg. Nos. 797,951, 793,878, and 797,950.
For Dyestuffs and Dyeing Assistants.
First use on or about July 21, 1965.

SN 249,236. Hardy Salts Company, St. Louis, Mo. Filed June 29, 1966.

TRU-FLAKE

Owner of Reg. No. 759,401.
For Sodium Chloride.
First use May 23, 1961.

SN 249,396. Analytical Chemists, Inc., Palo Alto, Calif. Filed July 1, 1966.

UNIVERSAL ELECTROPHORESIS FILM

Applicant disclaims the words "Electrophoresis Film" apart from the mark as shown.
For Chemicals for Analytical Use—Namely, a Gel Contained in a Mold for Use in Electrophoresis and Chromatography Processes.
First use about Aug. 1, 1965.

SN 252,734. W. R. Grace & Co., New York, N.Y. Filed Aug. 19, 1966.

pHLOW

For Chemical Compound for the Control of Cooling Water Alkalinity.
First use June 27, 1966.

SN 254,473. Sonford Products Corporation, Minneapolis, Minn. Filed Sept. 14, 1966.



For Pentachlorophenol in Liquid and Crystal Form as a Wood Preservative.
First use February 1959.

SN 254,474. Sonford Products Corporation, Minneapolis, Minn. Filed Sept. 14, 1966.

SONTOX

For Pentachlorophenol in Liquid and Crystal Form as a Wood Preservative.
First use November 1962.

SN 255,093. A. B. Hudson, Prairie Village, Kans. Filed Sept. 26, 1966.



Owner of Reg. No. 777,159.
For Antifreeze.
First use Aug. 15, 1966.

SN 256,401. Givaudan Corporation, Clifton, N.J. Filed Sept. 21, 1966.

VERDYL PROPIONATE

The word "Propionate" is disclaimed apart from the mark as used. Owner of Reg. No. 768,968.
For Aromatic Chemical for Use in the Preparation of Perfume, Soaps, and Cosmetics.
First use Jan. 25, 1966.

SN 256,991. West Virginia Pulp and Paper Company, New York, N.Y. Filed Oct. 21, 1966.

REAX

Owner of Reg. No. 711,407.
For Dispersant for Dyestuffs.
First use June 30, 1966.

SN 257,844. The Fragrance Process Company, Inc., New York, N.Y. Filed Nov. 3, 1966.

PLASTI-SCENT

For Heavy Aroma Liquid for Scenting Vinyl Products.
First use June 15, 1965.

SN 258,119. Johnson Chemical Co., Inc., Brooklyn, N.Y. Filed Nov. 7, 1966.

KING SPRAY

Applicant disclaims "Spray" apart from the mark. Owner of Reg. No. 396,088.
For Household Insecticide for Ants and Roaches.
First use 1944.

SN 258,215. Dead Sea Works Corporation, New York, N.Y. Filed Nov. 8, 1966.

METABROM

For Liquid Soil Fumigant.
First use September 1964.

SN 258,236. Koninklijke Zwavelzuurfabrieken v/h Ketjen N.V., Amsterdam, Netherlands. Filed Nov. 8, 1966.

KETJENSIL

For Synthetic Silica and Silicates.
First use Apr. 1, 1962; in commerce Mar. 9, 1966.

SN 258,513. Eagle-Picher Industries, Inc., Cincinnati, Ohio. Filed Nov. 14, 1966.

COPYOX

For Zinc Oxide.
First use Oct. 27, 1966.

SN 261,771. Purex Corporation, Ltd., Lakewood, Calif. Jan. 3, 1967.

SWIM GARD

For Algaecide-Germicide Preparation for Use in Swimming Pools.
First use Nov. 29, 1966.

SN 263,511. McLaughlin Gormley King Company, Minneapolis, Minn. Filed Jan. 30, 1967.

CLEARMOL

For Insecticide Composition.
First use on or about Oct. 27, 1965.

SN 264,882. Edward C. Lemke, St. Paul, Minn. Filed Feb. 17, 1967.

MARKLINE

For Antifreeze Solutions, Particularly for Use With Automobiles.
First use Aug. 1, 1964.

SN 264,927. Fusion Rubbermaid Corporation, Statesville, N.C. Filed Feb. 17, 1967.

FUTRON

For Polyethylene Powder in Bulk Form.
First use Dec. 6, 1966.

SN 266,242. Marmet Transfer Company, Cedar Grove, W. Va. Filed Mar. 8, 1967.

POOLSAFE
BRAND

The word "Brand" is disclaimed apart from the mark as shown. The drawing is lined for the color red.
For Concentrated Stabilization Preparation for Liberating Chlorine in Swimming Pools.
First use June 15, 1964.

Class 7—Cordage

SN 254,179. Pennsylvania Sling Company, Pittsburgh, Pa. Filed Sept. 9, 1966.

REDI-GRIP

For Flexible Webbing Slings.
First use February 1954.

SN 258,173. Tubbs Cordage Company, San Francisco, Calif. Filed Nov. 7, 1966.

DUOLENE

For Rope.
First use Sept. 23, 1966.

Class 9—Explosives, Firearms, Equipments, and Projectiles

SN 235,149. Aktiebolaget Bofors, Bofors, Sweden. Filed Dec. 23, 1965.

BONOCORD

Owner of Swedish Reg. No. 82,336, dated Apr. 5, 1957.
For Explosives, Artillery and Rifle Ammunition; Detonating Cord; Pyrotechnical Compositions for Use in Rockets, Signal Cartridges, and Star Shells.
First use Jan. 10, 1934; in commerce June 15, 1964.

Class 10—Fertilizers

SN 263,431. Swiss Farms, Inc., Philmont, N.Y. Filed Jan. 27, 1967.

FERTICAPS

For Plant Food Capsules.
First use Jan. 21, 1967.

Class 12—Construction Materials

SN 240,550. Rohm and Haas Company, Philadelphia, Pa. Filed Mar. 9, 1966.



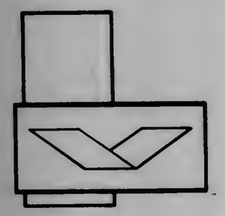
Owner of Reg. Nos. 623,869 and 797,392.
For Plastic Sheets, Both Colored and Uncolored, for Interior and Exterior Constructional Purposes.
First use on or about Jan. 14, 1966.

SN 246,743. Armstrong Cork Company, Lancaster, Pa. Filed May 27, 1966.

LK

For Insulation for High Temperature Piping, Equipment, and the Like.
First use July 1960.

SN 250,061. The Visador Company, Jasper, Tex. Filed July 11, 1966.



For Door Lites, Louvers, and Decorative Mouldings for Cabinets and Doors.
First use on or about Jan. 4, 1963.

SN 250,603. Southply, Inc., Natchitoches, La. Filed July 19, 1966.

SOUTH PLY

For Plywood.
First use July 8, 1966.

SN 250,644. Crane Plastics, Inc., Columbus, Ohio. Filed July 20, 1966.

GLASS MATE

For Extruded Plastic Glazing Strips and Panel-Framing Channels.
First use July 13, 1966.

SN 250,732. The Bailey Company, Inc., Amesbury, Mass. Filed July 21, 1966.

PROBACK

For Pile Weatherstripping.
First use Apr. 21, 1966.

SN 250,855. Middlestadt Corporation, Baltimore, Md. Filed July 22, 1966.

TRANSITUBE

For Contraction Joint Forming Structures for Concrete.
First use June 13, 1966.

SN 251,142. Mees Distributors, Inc., Cincinnati, Ohio. Filed July 27, 1966.

GRACE LINE

For Ceramic Tile.
First use May 26, 1965.

SN 251,161. Searchway, Incorporated, Bridgeport, Conn. Filed July 27, 1966.

TORO

For Polyester Plastic Paste Used for Automobile Body Repair Work and Similar Operations.
First use May 25, 1966.

SN 251,178. Andersen Corporation, Bayport, Minn. Filed July 28, 1966.

PERMA-SHIELD

For Assemblies of Window Sash, Frames, and Hardware Sold Together as Window Units.
First use Sept. 13, 1965.

SN 251,474. The Soundlock Corporation, Hazlehurst, Ga. Filed Aug. 1, 1966.

METALAY

For Acoustical Panels.
First use Jan. 1, 1966.

SN 256,802. Acorn Chemical Company, Cleveland, Ohio. Filed Oct. 20, 1966.

ABRASO-MITE

For Patching Material for Concrete, Metal, and Wood Surfaces.
First use Dec. 3, 1964.

SN 256,888. Swedish Rail System AB, Stockholm-Solna, Sweden. Filed Oct. 20, 1966.

101

For Sleepers for Railroad Tracks.
First use on or about Aug. 15, 1966; in commerce Sept. 28, 1966.

SN 260,798. Viking Sauna Company, San Jose, Calif. Filed Dec. 15, 1966.



Applicant disclaims the exclusive right to the word "Sauna," except as shown herein. Owner of Reg. No. 763,808.
For Prebuilt Sauna Rooms and Prebuilt Doors for Sauna Rooms; Electric Heaters, Dehumidifiers, Timing and Heat Control Devices, All for Use in Association With Sauna Rooms and Sauna Room Doors.
First use Nov. 8, 1965.

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

SN 245,142. American Drill Bushing Co., Los Angeles, Calif. Filed May 9, 1966.

Flex-A-Clamp

For C-Clamps for Tool Room Use.
First use May 18, 1965.

Class 15—Oils and Greases

SN 250,051. Sun Oil Company, Philadelphia, Pa. Filed July 11, 1966.

CHAT-R-FREE

For Lubricating Oil for Industrial Use.
First use June 29, 1966.

SN 250,305. Joseph E. Seagram & Sons, Fort Worth, Tex. Filed July 14, 1966.

TP

Owner of Reg. No. 216,437.
For Lubricating Oils.
First use July 8, 1966.

SN 258,748. The Shivell-Hall Company Inc., New York, N.Y. Filed Nov. 16, 1966.

MODERN DISTILLATE

No claim is made to the word "Modern" and "Distillate" apart from the mark as shown.
For Heating Oil.
First use Oct. 28, 1966.

Class 16—Protective and Decorative Coatings

SN 231,110. The Glidden Company, Cleveland, Ohio. Filed Oct. 22, 1965.

GLID-TILE

Owner of Reg. Nos. 558,213, 558,399, and others.
For Epoxy Resin Enamels for Masonry, Wood, and Metal.
First use January 1959.

SN 251,055. Deft, Incorporated, Torrance, Calif. Filed July 26, 1966.

DEFT

Owner of Reg. No. 616,448.
For Clear Wood Interior and Exterior Finishes, Natural and Color Base Wood Stain, and Paint and Varnish Remover.
First use June 22, 1966, on clear wood finish.

SN 251,326. Plasti-Kote, Inc., Medina, Ohio. Filed July 29, 1966.

M.F.R.

For Moisture and Fungus Resistant Varnish.
First use Nov. 15, 1965.

SN 256,067. Capitol Paint and Varnish Works, Inc., Chicago, Ill. Filed Oct. 10, 1966.

Capri

For Latex Interior Flat Paint and House Paint.
First use Apr. 22, 1960.
Subj. to Intf. with SN 249,528.

SN 264,367. E. I. du Pont de Nemours and Company, Wilmington, Del. Filed Feb. 10, 1967.

CAVALON

Owner of Reg. No. 657,501.
For Sprayable Foam and Liquid Which Hardens To Form a Cellular Resilient Film or Coating Used for Sound Deadening Applications.
First use Sept. 1, 1966.

Class 17—Tobacco Products

SN 250,181. Skandinavisk Tobakskompagni A/S, Herlev, Denmark. Filed July 13, 1966.



Owner of Danish Reg. No. 38–1964, dated Jan. 4, 1964.
For Smoking Tobacco, Cigarettes, Cheroots, Cigars, and Cigarillos.

SN 250,183. Skandinavisk Tobakskompagni A/S, Herlev, Denmark. Filed July 13, 1966.

ADVOKAT

Owner of Danish Reg. No. 521–1953, dated Apr. 25, 1953.
For Smoking Tobacco, Cigarettes, Cheroots, Cigars, and Cigarillos.

SN 250,184. Skandinavisk Tobakskompagni A/S, Herlev, Denmark. Filed July 13, 1966.

GOLF

Owner of Danish Reg. No. 520–1953, dated Apr. 25, 1953.
For Smoking Tobacco, Cigarettes, Cheroots, Cigars, and Cigarillos.

SN 250,308. Skandinavisk Tobakskompagni A/S, Herlev, Denmark. Filed July 14, 1966.

FONTANA

The mark "Fontana" means "fountain" in the Italian language. Owner of Danish Reg. No. 689–1947, dated June 7, 1947.
For Smoking Tobacco, Cheroots, Cigars, and Cigarillos.

SN 250,309. Skandinavisk Tobakskompagni A/S, Herlev, Denmark. Filed July 14, 1966.

PRIMROSE

Owner of Danish Reg. No. 741–1947, dated June 14, 1947.
For Smoking Tobacco, Cigarettes, Cheroots, Cigars, and Cigarillos.

SN 257,764. Carreras Limited, Basildon, Essex, England. Filed Nov. 2, 1966.



Owner of British Reg. No. 884,799, dated Sept. 28, 1965; and U.S. Reg. Nos. 739,263, 757,188, and 807,157.
For Cigarettes.

SN 260,499. Philip Morris Incorporated, New York, N.Y. Filed Dec. 12, 1966.

SHENANDOAH

For Cigarettes.
First use Nov. 10, 1966.

Class 18—Medicines and Pharmaceutical Preparations

SN 207,417. Nopco Chemical Company, Newark, N.J. Filed Dec. 3, 1964.

COLOR-GUARD

For Vitamin Preparations for Use in Fortifying Animal and Poultry Feeds Which Contain One or More of Vitamins A, D, and E.
First use Oct. 10, 1963.

SN 223,588. School Health Supply Company, Addison, Ill. Filed July 16, 1965.

TRAIN-AID

For Pharmaceuticals, Particularly Preparations Used for Training Athletes—Namely, Analgesic Balms, Lotions, Salves, Skin Toughener and Conditioners, Germicide Sprays, Germicide and Deodorizer Aerosol Sprays, Foot and Body Powders, Cold Tablets, Itch Ointments, Thimerosal, Athletic Liniment, Ascorbic Acid, Dextrose Tablets, and Antiseptic Skin Lubricant.
First use July 1, 1962.

SN 244,112. Haver-Lockhart Laboratories, Incorporated, Shawnee, Kans. Filed Apr. 22, 1966.

GERI-CARE

For Dietary Supplement for Animals Containing Hormones, Enzymes, and Vitamins.
First use Nov. 8, 1962.

SN 251,346. West Chemical Products, Inc., Long Island City, N.Y. Filed July 29, 1966.

WescoHEX

Owner of Reg. No. 813,171.
For Medicated Antibacterial Skin Cleanser.
First use Nov. 3, 1965.

SN 252,997. Johnson & Johnson, New Brunswick, N.J. Filed Aug. 24, 1966.

SAFE 'N SURE

Applicant disclaims the term "Safe" separate and apart from the mark as shown.
For Antiseptic Preparation.
First use May 11, 1966.

SN 253,196. American Home Products Corporation, New York, N.Y. Filed Aug. 26, 1966.

FINQUEL

For Pharmaceutical Preparation for Fish and Other Aquatic Organisms Having Sedative Properties.
First use Aug. 3, 1966.

SN 262,244. Bates Laboratories, Inc., d.b.a. Medique Laboratories, Chicago, Ill. Filed Jan. 10, 1967.

medique X

For Acne Lotion, Premenstrual Relief Tablets, Pain Reliever Tablets, Ointment for Application to Sore Gums and Teeth, Ointment for Relief of Hemorrhoids, Tension Relieving Tablets, Anti-Bacterial Throat Lozenges, Decongestant Nasal Spray, Burn Cream, Medicated Baby Lotion, Vitamin Tablets, Cough Syrup, Pharmaceutical Preparation for Aid for Sleeplessness, and Caffeine Tablets.
First use Oct. 14, 1966.

Class 20—Linoleum and Oiled Cloth

SN 251,386. Congoleum-Nairn Inc., Kearny, N.J. Filed Aug. 1, 1966.

CORSICANA

For Plastic Coverings of the Smooth Surface, Resilient Type for Surfaces Such as Floors, Walls, Countertops, and the Like, in the Form of Rolls, Rugs, and Tiles.
First use July 20, 1966.

Class 21—Electrical Apparatus, Machines, and Supplies

SN 229,749. Borg-Warner Corporation, Chicago, Ill. Filed Oct. 11, 1965.

SHURHIT

Owner of Reg. No. 444,794.
For Automobile Electrical and Ignition System Parts and Accessories—Namely, Coils, Contact Sets, Condensers, Cable, Distributor Leads, Switches, Generator and Starter Brushes and Brush Sets, Generator and Starter Bushings, Springs and Bearings, Cut Outs, Voltage Regulators, Relays, Coil Brackets, Distributor Caps, Rotors, Spark Plugs, Coil Resistor Units, Fuse Holders, Solenoid Repair Kits, Connector Plugs and Sockets, Primary Wire, Terminals, Spark Plug Wires, Solenoid Starter Switches, Transistor Ignition System, Vacuum Controls, Voltage Reducers, Temperature Senders, Magneto Parts, Timing Lights, Remote Starter Switch, Potentiometers, Drop Lights, Booster Cables, Extension Cords, Carrier Strap (Battery), Battery Hold-Downs, and Alligator Clips.
First use in or prior to December 1923 on coils.

SN 241,934. Orlo Rotunda, d.b.a. Rotunda Matic Controls, Greeley, Colo. Filed Mar. 25, 1966.

ROTUNDA-MATIC

For Electronic Sprinkler Control Utilizing a Pre-Set Timer and Solenoid Valve Actuating Mechanism.
First use Apr. 1, 1965.

SN 243,912. Shure Brothers Incorporated, Evanston, Ill. Filed Apr. 20, 1966.

UNISPHERE

For Microphones.
First use Apr. 6, 1966.

SN 244,520. George A. Philbrick Researches, Inc., Dedham, Mass. Filed Apr. 28, 1966.

PHILBRICK

For Electrical Apparatus, Component Parts Thereof, and Accessories Therefor, Sold Separately for Use in Analog Computers—Namely, Amplifiers Signal Generators, Filters, Power Supplies, Connectors, Cabinets, and Racks.
First use 1945.

SN 244,521. George A. Philbrick Researches, Inc., Dedham, Mass. Filed Apr. 28, 1966.

Φ

For Electrical Apparatus, Component Parts Thereof, and Accessories Therefor, Sold Separately for Use in Analog Computers—Namely, Amplifiers, Signal Generators, Filters, Power Supplies, Connectors, Cabinets, and Racks.
First use November 1958.

SN 244,787. World Wide Enterprises, Inc., Chicago, Ill. Filed May 2, 1966.

PEARL-GLO

For Christmas Tree Lamps.
First use April 1960.

SN 244,849. Panduit Corp., Tinley Park, Ill. Filed May 3, 1966.

PAN-RAP

Owner of Reg. Nos. 652,333 and 711,773.
For Cable Ties and Clamps.
First use Apr. 14, 1966.

SN 244,977. Dual-Lite Company, Inc., Newton, Conn. Filed May 5, 1966.

DUALESCENT

For Electric Signs.
First use June 7, 1963.

Class 22—Games, Toys, and Sporting Goods

SN 235,158. Brandell Products Corporation, Rosemont, Ill. Filed Dec. 23, 1965.

MARK FORE

For Golf Ball Markers.
First use on or about Dec. 15, 1965.

SN 238,278. The Parker Pen Company, Janesville, Wis. Filed Feb. 7, 1966.

PENFRIEND

For Kit of Materials for Playing a Letter Writing Game.
First use Jan. 3, 1964.

SN 241,342. Honare Products, Incorporated, Detroit, Mich. Filed Mar. 18, 1966.

MERI-COL BOB

Applicant disclaims exclusive rights to the word "Bob" apart from the mark as shown.
For Fishing Bobbers.
First use Jan. 21, 1966.

SN 243,911. Shakespeare Company, Kalamazoo, Mich. Filed Apr. 20, 1966.

Lady SHAKESPEARE

Owner of Reg. Nos. 359,879, 580,535, and others.
For Sporting Goods—Namely, Golf Clubs.
First use Jan. 21, 1966.

SN 244,003. Magna Shot Golf Co., Jacksonville, Fla. Filed Apr. 21, 1966.

MAGNA SHOT

For Golf Clubs and Golf Balls.
First use Dec. 12, 1965, on golf clubs.

SN 245,857. Richmond Athletic Equipment Co., Richmond, Ill. Filed May 17, 1966.

MAT-KING

For Athletic Mats and Wall Pads.
First use March 1963.

SN 246,071. M. A. Gerett, Inc., Menomonee Falls, Wis. Filed May 19, 1966.

SAFE-COIN

Owner of Reg. No. 601,950.
For Coin Banks.
First use 1950.

SN 246,203. Shooting Equipment, Inc., Chicago, Ill. Filed May 20, 1966.

RANGE DIRECTOR

No claim of exclusive right is made to "Range" for the goods recited.
For Shooting Ranges and Parts Thereof, Targets, Bullet Deflectors, Bullet Back-Stops, and Shooting Stalls.
First use Dec. 9, 1964.

SN 246,580. MS & R Inc., Irwin, Pa. Filed May 25, 1966.

Porto-club

No claim of exclusive right is made to the pictorial golf club design for the goods recited.
For Golf Clubs.
First use Nov. 23, 1965.

SN 247,770. John P. Capps, d.b.a. Plan-X Research Labs, Newport News, Va. Filed June 10, 1966.

PLANITRAX

For Electrical Toy for Demonstrating Nuclear and Planetary Motion and the Like.
First use Nov. 2, 1959.

SN 252,090. Funtastic, Inc., Alexandria, Va. Filed Aug. 10, 1966.

SILLY SAND

No claim of exclusive right is made to "Sand" for the goods recited therein.
For Child's Amusement Kit Comprising Colored Sand for Mixing With Water and Dispensing on an Absorbent Surface To Create Scenes and Figures in Three Dimensions.
First use July 11, 1966.
Subj. to Intf. with SN 253,267.

SN 253,267. M. A. Wood Co., Inc., d.b.a. Mark Wood & Associates, Carmel, Ind. Filed Aug. 29, 1966.

SILLY SAND

Applicant disclaims the word "Sand" apart from the mark as shown.
For Specially Constituted Molding Sand for Use by Children as an Amusement Article.
First use Aug. 3, 1966.
Subj. to Intf. with SN 252,090.

SN 261,126. Browning Arms Company, Mountain Green, Utah. Filed Dec. 20, 1966.

BROWNING Silaflex SKY POLE

No claim of exclusive right is made to "Pole" for the goods recited. Owner of Reg. Nos. 523,504 and 542,726.
For Vaulting Poles.
First use on or about Nov. 15, 1962.

SN 261,128. Browning Arms Company, Mountain Green, Utah. Filed Dec. 20, 1966.

SKY POLE

No claim of exclusive right is made to "Pole" for the goods recited. Owner of Reg. No. 542,726.
For Vaulting Poles.
First use on or about Nov. 15, 1962.

SN 261,130. Browning Arms Company, Mountain Green, Utah. Filed Dec. 20, 1966.

Silaflex

Owner of Reg. No. 523,504.
For Vaulting Poles.
First use on or about Nov. 15, 1962.

SN 265,469. Mattel, Inc., Hawthorne, Calif. Filed Feb. 27, 1967.

BECKY

For Dolls, Doll Clothing, and Doll Accessories.
First use Jan. 20, 1967.

SN 265,474. Mattel, Inc., Hawthorne, Calif. Filed Feb. 27, 1967.

RANDI

For Dolls, Doll Clothing, and Doll Accessories.
First use Jan. 20, 1967.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

SN 233,800. Alfred Hagelstein Maschinenfabrik, Lubeck-Travemunde, Germany. Filed Dec. 2, 1965.

KEMNA

Owner of German Reg. No. 665,881, dated Oct. 28, 1953.
For Machines and Machine Parts—Namely, Road Rollers.

SN 236,976. Ekma Entwicklungs und Maschinen AG., Glattbrugg, Zurich, Switzerland. Filed Jan. 21, 1966.

COTRUDER

Owner of Swiss Reg. No. 206,077, dated Nov. 10, 1964.
For Double-Screw Extruders.

SN 237,456. Klose Shave Corporation, Evanston, Ill. Filed Jan. 27, 1966.

KLOSE-SHAVE

For Transformer for Use With Electrical Appliances and Shavers.
First use Jan. 18, 1966.

SN 243,594. Sperry Rand Corporation, Wilmington, Del. Filed Apr. 15, 1966.

MON-O-TROL

For Apparatus for Regulating the Speed of Operation of Bag Making and Filling Machines.
First use Dec. 5, 1965.

SN 243,710. Progressive Engineering, Inc., Rockland, Mass. Filed Apr. 18, 1966.

NY-PRE-LON

For Textile Machinery—Namely, Top Rolls, Top Roll Cradles, and Accessories.
First use February 1960.

SN 244,675. Lewis Card & Co., Inc., Chattanooga, Tenn. Filed May 2, 1966.

CARD

For Tufting Machines and Auxiliary Equipment.
First use Dec. 3, 1965.

SN 244,933. Stephens-Adamson Mfg. Co., Aurora, Ill. Filed May 4, 1966.

VIBRALINE

For Vibrating Conveyors and Feeders.
First use Aug. 26, 1964.

SN 246,173. Hyster Company, Portland, Oreg. Filed May 20, 1966.

HYSTER

Owner of Reg. Nos. 198,628, 761,243, and others.
For Portable Logging Spars.
First use Feb. 1, 1965.

SN 247,110. Davidson Industries Inc., Toccoa, Ga. Filed June 2, 1966.

THORMAC

For Collapsible Dye Springs for Use in Processing Yarn and Thread.
First use Mar. 17, 1966.

SN 247,897. Clark Equipment Company, Buchanan, Mich. Filed June 13, 1966.

MICHIGAN CLARK EQUIPMENT BEST ON EARTH

The drawing is lined for the colors red, blue, yellow, black, and grey, but no claim is made to color as a feature of the mark. The phrase "Best on Earth" is disclaimed apart from the mark as shown. Owner of Reg. Nos. 619,468, 666,829, and 642,533.
For Tractor Shovels (End Loaders), Bulldozers, Scrapers, and Tractor Wagons.
First use on or about Oct. 14, 1965, on tractor shovels.

SN 251,497. Timberjack Machines Limited, Woodstock, Ontario, Canada. Filed June 30, 1966.

PACKJACK

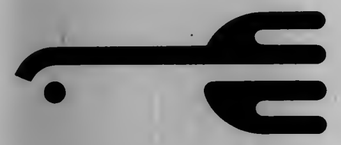
Owner of Canadian Reg. No. 134,931, dated Mar. 13, 1964.
For Self-Loading, Self-Propelled, Ground Vehicles, Primarily for Lumber Operations.

SN 255,650. Space Implements Co., Burbank, Calif. Filed Oct. 3, 1966.

SPACEROUTER

Owner of Reg. No. 784,788.
For High-Precision Router Bits.
First use Apr. 8, 1964.

SN 260,952. Nippon Yushutsu Kinzoku Yoshokki Kogyo Kumiai, Tsubame-shi, Niigata-ken, Japan. Filed Dec. 16, 1966. COLLECTIVE MARK.



For Flatware.
First use at least as early as Nov. 11, 1966; in commerce at least as early as Nov. 11, 1966.

Class 26—Measuring and Scientific Appliances

SN 229,242. Halmar Electronics, Incorporated, Columbus, Ohio. Filed Oct. 4, 1965.

DYNAMP

For Apparatus for Measuring Electrical Currents.
First use Jan. 11, 1963.
Subj. to Intf. with SN 218,256.

SN 232,897. Buchler Instruments, Inc., Fort Lee, N.J. Filed Nov. 18, 1965.

POLY-PREP

For Laboratory Equipment—Namely, Preparative Electrophoresis Apparatus.
First use on or about Apr. 15, 1965.

SN 239,986. Fischer & Porter Co., Warminster, Pa. Filed Mar. 2, 1966.

SCAN-LINE

For Pneumatic and Electronic Instruments Used in Process Control Systems.
First use Feb. 2, 1966.

SN 242,274. Ortho Pharmaceutical Corporation, d.b.a. Ortho Diagnostics, Raritan, N.J. Filed Mar. 30, 1966.

PAPette

For Collection Pipettes for Diagnostic Use.
First use Oct. 19, 1965.

SN 244,522. George A. Philbrick Researches, Inc., Dedham, Mass. Filed Apr. 28, 1966.



The mark consists of two joined capital letters "P" with one being inverted.
For Measuring and Analyzing Apparatus—Namely, Analog Computers, and Measuring and Analyzing Parts and Components Sold Separately for Use in Analog Computers, Namely, Oscilloscopes, Meters, and Computing Circuits, Including Adders, Combiners, Averagers, Integrators, Differentiators, Squares, Logarithm and Root Computing Circuits, Exponential Circuits, Dividers, Multipliers, and Logic Circuits.
First use November 1958.

SN 244,839. Metra-Tech Corporation, Easton, Md. Filed May 3, 1966.

METRA-SCOPE

Owner of Reg. No. 741,605.
For Optical Measuring Equipment—Namely, Optical Scale Reading Devices, Scale Reading Verniers, and Optical Dividing Heads.
First use Apr. 11, 1966.

SN 245,202. Ken-A-Vision Mfg. Co., Inc., Raytown, Mo. Filed May 9, 1966.

KEN-A-VISION

For Micro-Projectors, Microscopes, and Planetariums.
First use July 30, 1952.

SN 258,751. Matec, Inc., Providence, R.I. Filed Nov. 16, 1966.

MATEC

For Electronic Instruments for the Ultrasonic Measurement of Attenuation and Velocity—Namely, Pulse Generators, Receivers, Attenuation Recorders, and Velocity Indicators.
First use Oct. 31, 1966.

SN 259,049. Butler Bin Company, Waukesha, Wis. Filed Nov. 21, 1966.

PUSH-CARD



Owner of Reg. Nos. 735,316 and 737,125.
For Electronically Operated Automatic Batch Controls Used in the Proportionate Mixing of Concrete.
First use June 2, 1962.

Class 27—Horological Instruments

SN 230,097. Sunbeam Corporation, Chicago, Ill. Filed Oct. 13, 1965.

ASSURED TIME

The word "Time" is disclaimed apart from the mark as shown.
For Clocks.
First use June 23, 1965.

Class 29—Brooms, Brushes, and Dusters

SN 243,807. Tackmer Corporation, Palo Alto, Calif. Filed Apr. 19, 1966.



For Roller-Type Lint Remover.
First use Dec. 17, 1965.

SN 245,219. The New York Association for the Blind, New York, N.Y. Filed May 9, 1966.

HANDI-SQUEEZE

For Automatic Sponge Mop.
First use Apr. 25, 1966.

SN 247,619. Quickie Manufacturing Corporation, Philadelphia, Pa. Filed June 8, 1966.

SWIVEL-FLEX

For Sponge Floor Mops and Sponge Refills.
First use Dec. 17, 1965.

SN 250,275. Household Research Institute, San Francisco, Calif. Filed July 14, 1966.

HR

For Floor Polisher Pads.
First use Dec. 1, 1965.

SN 250,399. Pro-phy-lac-tic Brush Company, Florence, Mass. Filed July 15, 1966.

PRO

Owner of Reg. Nos. 349,120, 350,239, and 562,333.
For Whisk Brushes.
First use Jan. 3, 1966.

Class 30—Crockery, Earthenware, and Porcelain

SN 244,138. James M. Relph, d.b.a. Oak Creek Kilns, Sedona, Ariz. Filed Apr. 22, 1966.

LEGENDWARE

For Earthenware Tableware, Vases, and Urns.
First use on or about Jan. 15, 1966.

Class 32—Furniture and Upholstery

SN 247,361. High Point Furniture Industries, Inc., High Point, N.C. Filed June 6, 1966.



Applicant disclaims the word "Desk" and the representation of the desk; and the words "High Point Furniture Industries, High Point, N.C." apart from the mark as shown.
For Office Furniture, Specifically Desks and Credenzas.
First use Oct. 12, 1964.

SN 254,996. Frames, Inc., Brooklyn, N.Y. Filed Sept. 23, 1966.

WILDWOOD

The drawing is lined for fanciful ornamentation or stippling.
For Picture Frames.
First use Nov. 12, 1965.

SN 257,149. Atlantic Company, Atlanta, Ga. Filed Oct. 25, 1966.

WORLD BAZAAR

For Wood and Rattan Chairs, Headboards, Chests, Tables, Bookcases, and Cabinets.
First use on or about Nov. 15, 1965.

SN 257,312. S & L Sales Company, Inc., Baltimore, Md. Filed Oct. 26, 1966.

"ORTHO-BACK"

For Auxiliary Chair and Seat Back Support.
First use Apr. 15, 1966.

SN 257,797. Purofied Down Products Corp., Brooklyn, N.Y. Filed Nov. 2, 1966.



For Cushions and Pillows.
First use May 15, 1943.

SN 259,471. Rightway Mattress Co., Inc., Island Park, N.Y. Filed Nov. 25, 1966.



Color is not claimed as a feature of the mark. Likewise no color is claimed in the lining within the mark.
For Mattresses.
First use Nov. 15, 1966.

SN 262,836. Drexel Enterprises, Inc., Drexel, N.C. Filed Jan. 19, 1967.

INDEX

For Bedroom, Dining Room, Living Room Furniture, Desks, and Credenzas.
First use Nov. 8, 1966.

Class 33—Glassware

SN 240,055. Anchor Hocking Glass Corporation, Lancaster, Ohio. Filed Mar. 3, 1966.

Winchester

For Glass Tableware.
First use on or about Oct. 25, 1965.

Class 35—Belting, Hose, Machinery Packing, and Nonmetallic Tires

SN 241,454. The Goodyear Tire & Rubber Company, Akron, Ohio. Filed Mar. 21, 1966.

T/T SPECIAL

The word "Special" is disclaimed apart from the mark as shown.
For Tires.
First use Feb. 28, 1966.

SN 242,351. The Firestone Tire & Rubber Company, Akron, Ohio. Filed Mar. 31, 1966.

TROPHY PREMIUM

Applicant disclaims any rights in the word "Premium" apart from the mark as shown.
For Pneumatic Vehicle Tires.
First use Mar. 15, 1966.

SN 243,376. Air Reduction Company, Incorporated, New York, N.Y. Filed Apr. 14, 1966.

GOLDEN VAC

For Flexible Floating Hose for Swimming Pools.
First use Feb. 25, 1965.

SN 243,781. Gould-National Batteries, Inc., St. Paul, Minn. Filed Apr. 19, 1966.

MOLY-CROMFLEX

For Piston Rings for Internal Combustion Engines.
First use Nov. 29, 1965.

SN 243,919. Mobile Oil Corporation, New York, N.Y., by change of name from Socony Mobil Oil Company, Inc., New York, N.Y. Filed Apr. 20, 1966.

GOLDEN CIRCLE

For Automobile Tires.
First use Feb. 1, 1966.

SN 244,207. The Firestone Tire & Rubber Company, Akron, Ohio. Filed Apr. 25, 1966.

TANDEM FALCON

Owner of Reg. Nos. 693,860, 785,610, and others.
For Resilient Vehicle Tires.
First use Nov. 9, 1965.

SN 244,208. The Firestone Tire & Rubber Company, Akron, Ohio. Filed Apr. 25, 1966.

SILVER FALCON

Owner of Reg. Nos. 693,860, 785,610, and others.
For Resilient Vehicle Tires.
First use Nov. 9, 1965.

SN 244,209. The Firestone Tire & Rubber Company, Akron, Ohio. Filed Apr. 25, 1966.

SAFETY FALCON

Owner of Reg. Nos. 693,860, 785,610, and others.
For Resilient Vehicle Tires.
First use Nov. 8, 1965.

SN 244,210. The Firestone Tire & Rubber Company, Akron, Ohio. Filed Apr. 25, 1966.

IMPERIAL FALCON

Owner of Reg. Nos. 693,860, 785,610, and others.
For Resilient Vehicle Tires.
First use Nov. 11, 1965.

SN 244,318. The Gates Rubber Company, Denver, Colo. Filed Apr. 26, 1966.

GOLDEN TOUR

For Pneumatic Tires.
First use Jan. 31, 1966.

SN 246,495. Studebaker Corporation, South Bend, Ind. Filed May 24, 1966.

STUDEGRIP

For Studs To Be Inserted Into Tire Treads.
First use Apr. 26, 1966.

SN 257,945. Dayco Corporation, Dayton, Ohio. Filed Nov. 4, 1966.

GOLD LABEL

No claim is made to the word "Label" apart from the mark as shown.
For Power Transmission Belts.
First use in or about March 1965.

SN 265,371. West Virginia Belt Sales and Repairs, Inc., Mount Hope, W. Va. Filed Feb. 24, 1967.

WEBLON

For Conveyor Belting.
First use Nov. 19, 1965.

Class 36 — Musical Instruments and Supplies

SN 225,027. Thomas E. Hodges, d.b.a. Trend Records, Smyrna, Ga. Filed Aug. 5, 1965.

TREND

For Phonograph Records.
First use June 3, 1965.

SN 239,256. G.H.S. Corporation, Battle Creek, Mich. Filed Feb. 21, 1966.

COLOR-CUE

For Strings Used on Musical Instruments and More Particularly Mandolin, Ukulele, Baritone Ukulele, Five String Banjo, and Guitars Including Classic, Hawaiian, Spanish, Electric Spanish, Electric Bass, Twelve String, and Folk Classic.
First use Oct. 15, 1964.

SN 239,432. The Musical Heritage Society, Inc., New York, N.Y. Filed Feb. 23, 1966.

MHS

Owner of Reg. No. 791,034.
For Phonograph Records and Prerecorded Magnetic Tape Recordings.
First use Sept. 15, 1962.

SN 239,907. High Fidelity Recording Inc., Wichita, Kans. Filed Mar. 1, 1966.

kanwic RECORDS

Applicant disclaims the word "Records" apart from the mark as shown.
For Phonograph Records.
First use Dec. 3, 1965.

SN 240,654. Recoton Corporation, Long Island City, N.Y. Filed Mar. 10, 1966.

Bravo

For Nylon Guitar Strings and Steel Guitar Strings.
First use Sept. 15, 1965.

SN 240,907. H. & S. Selmer, Inc., Elkhart, Ind. Filed Mar. 14, 1966.

CLARION

Owner of Reg. No. 227,808.
For Reeds for Saxophones, Clarinets, Oboes, Bassoons, and English Horns, and Mouthpieces for Saxophones and Clarinets.
First use April 1926.

SN 250,916. Akai Electric Company Limited, Ohta-ku, Tokyo, Japan. Filed July 25, 1966.

A

For Tape Recorders and Accessories Therefor.
First use Dec. 3, 1954; in commerce Sept. 30, 1957.

SN 263,726. Dover Publications, Inc., New York, N.Y. Filed Feb. 1, 1967.

DOVER

For Phonograph Records.
First use 1950.

SN 266,186. Happening Records, Inc., New York, N.Y. Filed Mar. 8, 1967.

HAPPENING

For Phonograph Records.
First use Feb. 15, 1967.

Class 37 — Paper and Stationery

SN 229,144. W. K. Sonne, d.b.a. Busiforms, San Francisco, Calif. Filed Oct. 1, 1965.

XEROGRAKARD

For Tab Card Sheets.
First use Oct. 12, 1964.

SN 253,261. Edwin F. Wolff, Indianapolis, Ind. Filed Aug. 29, 1966.

SPOT LINE

Owner of Reg. No. 753,501.
For Paper Charts for Use by Bowlers in Recording Their Proper Positions When Bowling Ball Is Released for a Throw To Convert Pin Leaves Into Spares.
First use Apr. 11, 1960.

Class 38 — Prints and Publications

SN 188,683. Visual Panographics, Inc., New York, N.Y. Filed Mar. 13, 1964.

XOGRAPH

For Photographs Having Three-Dimensional Visual Effect Used as a Part of Postal Cards, Printed Point-of-Sale Displays, Printed Advertisements, and Printed Exterior Surfaces of Packages and Containers.
First use Feb. 27, 1964.

SN 240,801. Jean Strong, Cedar Rapids, Iowa. Filed Mar. 11, 1966.

IOWA ILLUSTRATED

For Magazine Pertaining to the State of Iowa.
First use on or about June 9, 1964.

SN 244,394. The Chemical Rubber Company, Cleveland, Ohio. Filed Apr. 27, 1966.

CRC SCIENTIFIC REVIEW

Without waiving its common law rights, applicant disclaims "Scientific Review" apart from the mark as shown.
For Catalog of Science Publications Issued Periodically.
First use at least as early as December 1965; at least as early as May 1, 1964, as to "CRC" and "Scientific Review," each used separately.

SN 245,336. Norcross, Inc., New York, N.Y. Filed May 10, 1966.

CARDS A LA MODE

The term "Cards" is disclaimed apart from the mark as shown.
For Greeting Cards.
First use Apr. 13, 1966.

SN 246,356. The Platt & Munk Co., Inc., New York, N.Y. Filed May 23, 1966.

A CRICKET BOOK

The applicant disclaims any claim with respect to the word "Book" in the mark.
For Children's Books.
First use Apr. 18, 1966.

SN 246,468. Hotel-Motel Greeters International, Denver, Colo. Filed May 24, 1966.

the GREETER

Owner of Reg. No. 727,725.
For Magazine Published Periodically.
First use Aug. 27, 1963.

SN 246,469. Hotel-Motel Greeters International, Denver, Colo. Filed May 24, 1966.

GREETERS GUIDE

The word "Guide" is disclaimed apart from the mark. Owner of Reg. No. 727,725.
For Periodicals Published in a Particular Locale in the Form of a Directory for Entertainment of Travelers.
First use Jan. 1, 1931.

SN 246,783. Graphic Arts Publishing Company, Chicago, Ill. Filed May 27, 1966.

FDM

For Magazine.
First use September 1960.

SN 247,610. McGraw-Hill, Inc., New York, N.Y. Filed June 8, 1966.

TRUCK DEALER

For Newsletter Issued Periodically.
First use May 31, 1966.

SN 248,158. New Age Assembly Church, Inc., Davenport, Fla. Filed June 15, 1966.

ONWARD

For Periodical Religious Magazine.
First use Jan. 1, 1966.

SN 264,781. Welkin Corporation, New York, N.Y. Filed Feb. 16, 1967.

INTERPLAY

For Magazine.
First use Jan. 20, 1967.

Class 39 — Clothing

SN 231,436. Osvaldo Martini, Castelfranco di Sotto, Pisa, Italy. Filed S.R. Oct. 23, 1965; Am. P.R. Dec. 19, 1966.

MARTINI OSVALDO

For Men's Women's and Children's Footwear Including Sandals and Slippers, in Leather and Other Materials.
First use August 1953; in commerce September 1961.

SN 239,453. Stedman Manufacturing Company, Asheboro, N. C. Filed Feb. 23, 1966.

Locker Hanger

For Men's and Boys' T-Shirts, Polo Shirts, Athletic Shirts and Jackets, Athletic Pants, and Gym Shorts.
First use Feb. 14, 1966.

SN 240,302. Hudson Hosiery Company, Charlotte, N.C. Filed Mar. 7, 1966.

SAF-LON

For Ladies' Hosiery.
First use Feb. 18, 1966.

SN 244,907. I. B. Kleinert Rubber Company, New York, N.Y. Filed May 4, 1966.

DURALITE

For Baby Pants.
First use Jan. 13, 1965.

SN 248,830. Acme Markets, Inc., Philadelphia, Pa. Filed June 27, 1966.

ACME Virginia Lee

The name "Virginia Lee" is fanciful. Owner of Reg. Nos. 562,205, 808,885, and others.
For Ladies' Stockings.
First use Jan. 1, 1951.

SN 249,866. Merrill-Sharpe Ltd., New York, N.Y. Filed July 8, 1966.

MERSETA

For Men's Shirts, Sweaters, and Other Items of Men's Wear.
First use Sept. 1, 1965.

SN 250,099. Melville Shoe Corporation, New York, N.Y Filed July 12, 1966.

FREDDIES

For Women's and Misses' Sandals.
First use July 8, 1966.

SN 250,325. Teenform, Inc., New York, N.Y. Filed June 21, 1966.

PERSIAN GARDEN

For Brassieres and Girdles.
First use Mar. 10, 1966.

SN 250,867. Trimfoot Company, St. Louis, Mo. Filed July 22, 1966.



For Infants' Shoes.
First use on or about July 1, 1966.

SN 250,970. International Playtex Corporation, Dover, Del., by change of name from International Latex Corporation, Dover, Del. Filed July 25, 1966.

WATER PETAL

For Swim Caps and Bathing Caps.
First use July 21, 1966.

SN 251,013. Superb Sportswear Limited, Toronto, Ontario, Canada. Filed July 25, 1966.

PANT-MAN

Applicant disclaims the right to the exclusive use of the word "Pant" apart from the mark as shown. Owner of Canadian Reg. No. 129,939, dated Feb. 15, 1963.
For Women's and Girls' Outer Pants.

SN 251,080. John B. Stetson Company, Philadelphia, Pa. Filed July 26, 1966.



Owner of Reg. Nos. 429,052 and 651,240.
For Headwear, Hats and Caps, Footwear, Suits, Vests, Coats of All Types, Sweaters, Robes, Capes, Rainwear, Trousers, Shorts, Shirts, Underwear, Hosiery, Sleepwear, Swimwear, Neckwear, Belts, Gloves, and Handkerchiefs.
First use 1906 on hats and caps.

SN 251,524. Edison Brothers Stores, Inc., St. Louis, Mo. Filed Aug. 2, 1966.

Junior Parade

For Children's Shoes.
First use July 19, 1966.

SN 251,557. Nolan-Butcher Associates, Inc., Roanoke, Va. Filed Aug. 2, 1966.

SCOR-AM

For Sportswear—Namely, Shirts, Slacks, Socks, and Caps.
First use July 20, 1966.

SN 251,558. Nolan-Butcher Associates, Inc., Roanoke, Va. Filed Aug. 2, 1966.

SCOR-RITE

For Sportswear—Namely, Shirts, Slacks, Socks, and Caps.
First use July 20, 1966.

SN 251,559. Nolan-Butcher Associates, Inc., Roanoke, Va. Filed Aug. 2, 1966.

SCOR-ALL

For Sportswear—Namely, Shirts, Slacks, Socks, and Caps.
First use July 20, 1966.

SN 251,730. Keith Knitting Mills, Inc., Mertztown, Pa. Filed Aug. 4, 1966.

AQUA PACA by DUNBARTON

For Sweaters, Skirts, Dresses, Shorts, Slacks, Jackets, Suits, Coats, and Blouses.
First use July 6, 1966.

SN 251,926. Ira Andrews Ltd., Hempstead, N.Y. Filed Aug. 8, 1966.

Ira Andrews Ltd.

"Ira Andrews" is not the name of a particular person.
For Skirts and Sweaters.
First use May 9, 1966.

SN 252,085. Exquisite Form Industries, Inc., New York, N.Y. Filed Aug. 10, 1966.

THE IN GROUP

For Brassieres, Girdles, and Slips.
First use Aug. 2, 1966.

SN 252,539. Camp and McInnes, Inc., Reading, Pa. Filed Aug. 17, 1966.

GRAND DENIER

Applicant disclaims the exclusive right to the use of the word "Denier" apart from the mark as shown.
For Men's Hosiery.
First use May 26, 1964.

SN 252,639. Burlington Industries, Inc., New York, N.Y. Filed Aug. 18, 1966.

"Bon Vivant"

Owner of Reg. No. 825,357.
For Dress Clothing—Namely, Coats, Jackets, Pants, Vests and Suits, Particularly for Formal Wear.
First use September 1960.

SN 252,735. Hanes Corporation, Winston-Salem, N.C. Filed Aug. 19, 1966.

PANTY PAIR

For Ladies' Hosiery.
First use Aug. 3, 1966.

SN 252,749. Randolph Manufacturing Co. Inc., Randolph, Mass. Filed Aug. 19, 1966.

RANDY 720 SKATE BOARDER

Applicant disclaims the words "Skate Boarder," apart from the mark as shown, reserving all rights as permitted by statute. Owner of Reg. Nos. 584,777 and 679,645.
For Canvas Footwear.
First use Mar. 24, 1965.

SN 252,828. Craddock-Terry Shoe Corporation, Lynchburg, Va. Filed Aug. 22, 1966.

. . . AND SUDDENLY YOU'RE IN LOVE WITH A SHOE!

Owner of Reg. No. 751,863.
For Shoes for Women.
First use July 18, 1961.

SN 252,871. Mister Pants, Inc., New York, N.Y. Filed Aug. 22, 1966.

MODEL T

For Women's Apparel, Consisting of Blouses, Slacks, and Slack Sets.
First use July 8, 1966.

SN 252,964. Palm Beach Company, Portland, Maine. Filed Aug. 23, 1966.

"DUO-LITE"

For Men's and Boys' Suits, Slacks, and Sportcoats.
First use June 2, 1966.

SN 253,036. Leon Levin Sons, Inc., New York, N.Y. Filed Aug. 24, 1966.

Q-SKIRT

Owner of Reg. No. 815,909.
For Skirts and Dresses.
First use spring of 1963.

SN 253,119. Caressa, Inc., Miami, Fla. Filed Aug. 25, 1966.

by PHILIPPE Caressa

Owner of Reg. Nos. 665,773 and 783,702.
For Women's and Girls' Shoes.
First use Aug. 16, 1966.

SN 253,142. Gerberich-Payne Shoe Company, Mount Joy, Pa. Filed Aug. 25, 1966.

Gerberich GOLD COIN

Owner of Reg. No. 566,174.
For Shoes.
First use Feb. 26, 1959.

SN 253,227. Melville Shoe Corporation, New York, N.Y. Filed Aug. 26, 1966.

SUNDAY-MONDAY

For Men's, Women's, Boys', and Girls' Shoes.
First use Aug. 25, 1966.

SN 253,308. George Frost Company, Shirley, Mass. Filed Aug. 29, 1966.

HERCULES

Owner of Reg. No. 57,138.
For Work Belts.
First use June 1, 1959.

SN 253,657. Genesco Inc., Nashville, Tenn. Filed Sept. 1, 1966.

ABBINGTON

For Men's Suits and Coats.
First use June 2, 1966.

SN 254,067. Roytex, Inc., New York, N.Y. Filed Sept. 8, 1966.

ROYTEX

For Bath Robes and Bath Robings.
First use about Sept. 20, 1925.

SN 254,296. Robert M. Leventhal, Los Angeles, Calif. Filed Sept. 12, 1966.

FREAKOUT

For Skirts, Dresses, Slacks, Blouses, Sweaters, Pants, Shirts, Suits, Socks, Jackets, Caps, Hats, Berets, Coats, Shoes, Pajamas, Nightgowns, Brassieres, Panties, and Hose.
First use Sept. 8, 1966.

SN 256,124. Ohrbach's, Inc., New York, N.Y. Filed Oct. 10, 1966.

OHRBACH'S

For Ladies', Men's, Children's, and/or Infants' Clothing, in One-, Two-, and Three-Piece Garments, and Accessories—Namely, Suits, Coats, Pants, Toppers, Jackets, Slacks, Jumpers, Dresses, Housecoats, Pinafores, Skirts, Blouses, Shirts, Sweaters; Lounging and Bath Robes, Negligees, Sleepwear, Underwear, Lingerie, Foundation Garments, Hosiery, Headwear, Neckwear, Footwear, Beachwear, Shorts, Skiwear, Scarfs, Handkerchiefs, Aprons, and Gloves.
First use on or about Feb. 11, 1925.

SN 257,538. E. E. Taylor Corporation, Freeport, Maine. Filed Oct. 28, 1966.

COLE-HAAN

For Shoes.
First use 1958.

SN 259,507. Maidenform, Inc., New York, N.Y. Filed Nov. 28, 1966.

SMOOTH 'N FRESH

For Foundation Garments.
First use Oct. 28, 1966.

SN 259,695. The Lovable Company, Atlanta, Ga. Filed Nov. 30, 1966.

LOVABLE

For Brassieres, Girdles, Panty Girdles, Corsets, Corselettes, Garter Panties, Garter Belts, Panty Briefs, Bikini Shorts, Panty Hose, Girdle Hose, Slips, Bra Slips, Half Slips, Half Slips and Panty Combinations, and Sleepwear.
First use Feb. 1, 1932.

SN 262,089. Morrison Knitwear Co., Inc., Maspeth, N.Y. Filed Jan. 9, 1967.

HOUSE OF MORRISON

Owner of Reg. Nos. 429,913 and 601,711.
For Knitted Outerwear—Namely, Sweaters for Men, Women, and Children; and Ladies' Suits, Jackets, and Skirts.
First use Jan. 1, 1945; April 1943 as to "Morrison."

SN 263,150. Lanvin-Charles of the Ritz, Inc., New York, N.Y. Filed Jan. 24, 1967.

LANVIN

Owner of Reg. Nos. 510,160, 819,281, and others.
For Shirts for Men.
First use Dec. 10, 1966.

SN 263,152. Camp and McInnes, Inc., Reading, Pa. Filed Jan. 24, 1967.

MARINER

Owner of Reg. No. 787,193.
For Men's Hosiery.
First use Oct. 18, 1962.

SN 264,639. The Specialty House, Inc., New York, N.Y. Filed Feb. 14, 1967

tres-elle

The name "Tres-Elle" is French and translated means "very-she" or "very-her."
For Women's Jackets.
First use Feb. 1, 1967.

Class 40—Fancy Goods, Furnishings, and Notions

SN 249,322. Gigi of Italy, Inc., New York, N.Y. Filed June 30, 1966.

CAPILISCIO MABU

For Thermoplastic Strips Used To Straighten Hair.
First use on about Jan. 25, 1966.

SN 252,200. Maynard H. Moore, Jr. Inc., Stoneham, Mass. Filed Aug. 11, 1966.

REVERSLACE

Owner of Reg. No. 426,060.
For Plastic Coated Lacing Material Intended Particularly for Binding the Edges of Leather Goods, and for Making Braided Products.
First use on or about Sept. 20, 1933.

SN 256,026. Wyomissing Corporation, Reading, Pa. Filed Oct. 7, 1966.

Perma-mate

For Woven, Knitted, Braided, and Lace-Braided Narrow Fabrics.
First use Sept. 29, 1966.

SN 257,728. Solo Products Corporation, New York, N.Y. Filed Nov. 1, 1966.

WONDER

For Non-Electric Hair Rollers.
First use November 1964.

SN 264,708. Fashion Tress, Inc., Miami Beach, Fla. Filed Feb. 15, 1967.

GIGI

For Ladies Wigs and Hair Pieces.
First use on or about Feb. 1, 1967.

Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

SN 251,525. Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany. Filed Aug. 2, 1966.

VISTRAM

Owner of U.S. Reg. No. 819,969; and German Reg. No. 813,490, dated Mar. 26, 1965.
For Textile Fabrics for Making Into Coats, Suits, Dresses, Slipcovers, and for Upholstery Purposes.

SN 252,836. Fabrics by Joyce, Inc., New York, N.Y. Filed Aug. 22, 1966.

JOYCETTA

For Acetate Fabrics.
First use May 5, 1965.

SN 253,769. M. Lowenstein & Sons, Inc., New York, N.Y. Filed Sept. 2, 1966.

SUPERFLEECE

For Blankets.
First use Apr. 8, 1959.

SN 253,949. Albany Felt Company, Albany, N.Y. Filed Sept. 7, 1966. Filed Sept. 7, 1966.

H-T

For Dryer Fabric for Papermaking Machines.
First use on or about Aug. 26, 1966.

SN 256,444. Gehring Textiles, Inc., New York, N.Y. Filed Oct. 14, 1966.

PERMA-TUFT

Owner of Reg. Nos. 562,622, 751,803, and others.
For Piece Goods Knit From Nylon in the Piece.
First use on or about Aug. 24, 1966.

SN 256,858. Charles Pindyck, Inc., New York, N.Y. Filed Oct. 20, 1966.

TWIN=LINE

Owner of Reg. No. 716,923.
For Blankets.
First use Jan. 29, 1960.

SN 257,116. Weil & Durrse, Inc., New York, N.Y. Filed Oct. 24, 1966.

THE PRIDE OF FLANDERS

Owner of Reg. No. 221,342.
For Tablecloths, Napkins, Place Mats, Towels, Furniture Scarfs and Throws, Curtains, Drapes, Bedspreads, Toweling, Table-Cover Fabrics, and Linen Piece Goods.
First use Oct. 15, 1923.

SN 257,173. Dyersburg Cotton Products, Inc., Dyersburg, Tenn. Filed Oct. 25, 1966.

MINSK

For Knitted Fabric for Use in the Manufacture of Women's and Children's Outerwear, Such as Coats.
First use in or about May 1964.

SN 257,174. Dyersburg Cotton Products, Inc., Dyersburg, Tenn. Filed Oct. 25, 1966.

Luv-On

For Knitted Fabric for Use in the Manufacture of Infants' Blankets and Sleeping Garments.
First use on or about Feb. 25, 1966.

Class 43 — Thread and Yarn

SN 256,657. Filatures Prouvost & Cie, La Lainiere de Roubaix, Roubaix, Nord, France. Filed Oct. 18, 1966.

PONEY

Owner of French Reg. No. 702,889, dated Dec. 30, 1965.
For Yarns and Threads.

SN 256,694. Compagnie Francaise de Bonneterie, Paris, France. Filed Oct. 13, 1966.

POEMES

Owner of French Reg. No. 424,264, dated Dec. 11, 1952 (Paris); Natl. Inst. No. 296,405.
For Woolen Yarns.

SN 258,758. Deering Milliken, Inc., New York, N.Y. Filed Nov. 16, 1966.



The drawing is lined for violet, but no claim is made to color as a feature of the mark.
For Nylon Yarn for Use Primarily in the Manufacture of Ladies' Hosiery, Lingerie, and the Like.
First use at least as early as March 1963.

Class 44 — Dental, Medical, and Surgical Appliances

SN 230,128. Becton, Dickinson and Company, East Rutherford, N.J. Filed Oct. 14, 1965.

GLASPAK

For Hypodermic Syringes With Detachable Needles.
First use on or about Sept. 1, 1958.

SN 240,325. Dr. Med. Dent. Werner Noetzli, Zurich, Switzerland. Filed Mar. 7, 1966.

PLAST-O-PROBE

Owner of Swiss Reg. No. 211,990, dated July 14, 1965.
For Dental Instruments—Namely, Dental Probes.

SN 246,948. Roberts Dental Manufacturing Co., Inc., Buffalo, N.Y. Filed May 31, 1966.

SHIELD

Owner of Reg. No. 739,313.
For Protective Mouth Guards for All Contact Sports, and Eyeglass Holders.
First use on or about Apr. 17, 1961.

SN 248,121. Helene Curtis Industries, Inc., Chicago, Ill. Filed June 15, 1966.

COLORMASTER

For Heating Apparatus To Aid in Dyeing and Bleaching the Hair.
First use on or about May 27, 1966.

SN 248,732. Parke, Davis & Company, Detroit, Mich. Filed June 22, 1966.

READITUFTS

Owner of Reg. Nos. 589,600, 809,965, and others.
For Cotton Tipped Swabs.
First use on or about May 1, 1966.

SN 249,189. Swiss American Precision Imports, Inc., El Segundo, Calif. Filed June 28, 1966.

SURGISTA

For Medical, Dental, and Orthodontal Instruments—Namely, Forceps, Scalpels, Pliers, Scissors, Probes, and Tweezers.
First use Juse 6, 1966.

SN 250,478. The B. F. Goodrich Company, Akron, Ohio. Filed July 18, 1966.

QUILTED COMFORT

For Hot Water Bottles.
First use Mar. 15, 1966.

SN 250,919. Atlantic Alloy Industries, Inc., Union, N.J. Filed July 25, 1966.

COPE CART

Applicant disclaims the word "Cart" apart from the mark as shown.
For Cardio-Pulmonary Emergency Cart.
First use Mar. 1, 1966.

SN 252,935. AMP Incorporated, Harrisburg, Pa. Filed Aug. 23, 1966.

ZATSTAT

For Surgical Devices—Namely, Ligating and/or Hemostatic Devices.
First use Aug. 9, 1966.

SN 252,938. American Cyanamid Company, Wayne, N.J. Filed Aug. 23, 1966.

LEDERYECT

Owner of Reg. Nos. 280,833, 754,934, and others.
For Disposable Syringe.
First use Aug. 9, 1966.

SN 253,035. Johnson & Johnson, d.b.a. Personal Products Company, New Brunswick, N.J. Filed Aug. 24, 1966.

VEES

For Sanitary Pads.
First use July 19, 1966.

SN 253,047. Ortho Pharmaceutical Corporation, Raritan, N.J. Filed Aug. 24, 1966.

HYSTALOOP

For Intrauterine Device.
First use Apr. 14, 1966.

SN 253,185. White Cross Stores, Inc., Monroeville, Pa. Filed Aug. 25, 1966.

HEALTH CROSS

Owner of Reg. Nos. 725,249 and 763,260.
For Rubber Goods—Namely, Rubber Bottle Syringes.
First use Aug. 1, 1965.

SN 253,212. Deknatel, Inc., Queens Village, N.Y. Filed Aug. 26, 1966.

PLEUR-EVAC

For Surgical Drain.
First use May 24, 1966.

SN 253,397. Pascal Company, Inc., Seattle, Wash. Filed Aug. 29, 1966.

ORATIP

For Disposable Oral Evacuator Tips of Various Sizes and Designs, for General Dental Purposes and for Use in Oral Surgery; and Non-Disposable Adapters for Most Oral Evacuator Systems.
First use June 7, 1966.

SN 254,344. Vibrex Corporation, Woodland Hills, Calif. Filed Sept. 12, 1966.

VIBREX

For Hand-Held Cordless Electric Vibrators for Use on the Human Body.
First use July 15, 1966.

Class 45 — Soft Drinks and Carbonated Waters

SN 250,264. The Fleming Co. Incorporated, Topeka, Kans. Filed July 14, 1966.

PEER

For Soft Drinks.
First use Mar. 15, 1966.

SN 265,013. Cohasset Beverage Company, d.b.a. Holly Beverage Company, Youngstown, Ohio. Filed Feb. 20, 1967.

KINTUKY HOOTCH

No registration rights are claimed to the word "Hootch" apart from the mark as shown.
For Carbonated Soft Drinks.
First use Dec. 23, 1966.

Class 46 — Foods and Ingredients of Foods

SN 223,024. C. E. Grosjean Rice Milling Company, San Francisco, Calif. Filed July 9, 1965.

PORT OF CALL

For Rice.
First use June 4, 1965.

SN 228,518. Carver Foods Company, d.b.a. Country Cupboard Pies, Houston, Tex. Filed Sept. 24, 1965.

COUNTRY CUPBOARD

For Cream, Fruit, and Nut Pies, Pie Crusts and Ice Cream, Fruit and Nut Pie Fillings.
First use June 21, 1951.

SN 234,445. Lowe's, Inc., Cassopolis, Mich. Filed Dec. 13, 1965.

Red Barn

For Animal Feed for Small Pets Such as Hamsters, Rabbits, Guinea Pigs, White Rats, Mice, and the Like.
First use July 16, 1965.
Subj. to Intf. with SN 232,092.

SN 235,685. Malt Village Franchising Inc., Clayton, Mo. Filed Jan. 3, 1966.

MALT VILLAGE

The word "Malt" is disclaimed apart from the mark as shown.
For Flavoring for Use in Making Milk Shakes.
First use Dec. 23, 1965.

SN 236,402. Molinos Azteca, S.A., Monterrey, Mexico. Filed Jan. 13, 1966.

MASECA

The drawing is lined for red.
For Corn Flour.
First use July 25, 1955; in commerce May 1965.

SN 241,164. W. R. Grace & Co., New York, N.Y., assignee of Nalley's, Inc., Tacoma, Wash. Filed Mar. 16, 1966.

Champion

For Salad Dressing, Relish Spread, Mayonnaise, Mustard, Jellies, Macaroni, Noodles, Spaghetti, Catsup, and Tomato Puree.
First use Sept. 26, 1939.

SN 242,649. Philadelphia Chewing Gum Corporation, Havertown, Pa. Filed Apr. 4, 1966.

BUBBLE GUM FUN

No claim is made to the words "Bubble Gum" apart from the entire mark.
For Chewing Gum.
First use Mar. 27, 1963.

SN 242,896. M. & S. Gordon Co., Inc., New York, N.Y. Filed Apr. 7, 1966.

DON MANUEL

The name "Don Manuel" does not represent a particular living individual.
For Coffee.
First use Feb. 23, 1966.

SN 243,871. J. S. Hoffman Company, Chicago, Ill. Filed Apr. 20, 1966.

DELICIA

Owner of Reg. No. 737,981.
For Cheese.
First use May 5, 1920.

SN 244,163. Voelker Fruit & Cold Storage, Inc., d.b.a. Voelker Fruit & Cold Storage Co., Yakima, Wash. Filed Apr. 22, 1966.

Emperor

Owner of Reg. No. 703,623.
For Fresh Apples.
First use Jan. 12, 1966; Oct. 1, 1958, as to "Emperor."

SN 246,588. The Nestlé Company, Inc., White Plains, N.Y. Filed May 25, 1966.

REWARD

For Coffee.
First use May 9, 1966.

SN 246,590. The Nestlé Company, Inc., White Plains, N.Y. Filed May 25, 1966.

GOLD SERVICE

For Coffee.
First use May 9, 1966.

SN 246,593. The Nestlé Company, Inc., White Plains, N.Y. Filed May 25, 1966.

DARBREW

For Coffee.
First use Mar. 30, 1966.

SN 247,362. Honeggers' & Co., Inc., Fairbury, Ill. Filed June 6, 1966.



The drawing is lined for gold. The word "Fortifier" is disclaimed apart from the mark as shown.
For Premixes for Livestock and Poultry.
First use Mar. 9, 1966.

SN 248,442. Delicious Foods, Inc., San Leandro, Calif. Filed June 20, 1966.

ITALIAN STAR

The word "Italian" is disclaimed apart from the mark as shown.
For Frozen Pizza.
First use June 3, 1966.

SN 249,626. DCA Food Industries Inc., New York, N.Y. Filed July 6, 1966.

TWO-FER

For Stick-Mounted, Flavored Frozen Confections.
First use June 1, 1964.

SN 249,860. Jenny Lee, Incorporated, St. Paul, Minn. Filed July 8, 1966.

JENNY LEE

The name "Jenny Lee" is fanciful.
Owner of Reg. No. 536,595.
For Macaroni; Spaghetti; Egg Noodles; Frozen Macaroni, Spaghetti and Egg Noodle Preparations; and Seasoning Salt.
First use Apr. 15, 1931.

SN 254,418. Mars Limited, Slough, Bucks, England. Filed Sept. 6, 1966.

BOUNTY

Owner of British Reg. No. 720,659, dated Aug. 7, 1953.
For Chocolate Covered Coconut Candy Bars.

SN 258,142. Packers Provision Co., Inc., Chicago, Ill. Filed Nov. 7, 1966.

EL TORERO

The Spanish words "El Torero" mean "the bullfighter."
For Processed Meats and Meat Products—Namely, Spanish-Style Sausage and Jerked Beef.
First use March 1963.
Subj. to Intf. with SN 247,382 and SN 256,044.

SN 259,203. The Quaker Oats Company, Chicago, Ill. Filed Nov. 22, 1966.

CINNAMON BEAR

For Ready-To-Eat Cereal.
First use Oct. 1, 1966.

SN 262,301. Wometco Blue Circle, Inc., Knoxville, Tenn. Filed Jan. 11, 1967.

BLUE CIRCLE

Owner of Reg. No. 738,022.
For Bakery Products—Namely, Cake, Doughnuts, Pies, and Sweet Rolls; Food Beverages in Containers—Namely, Coffee, Milk Shakes, Hot Chocolate, Milk, and Buttermilk; Sandwiches; and Food Products in Prepared Ready-To-Eat Form—Namely, Cheeseburgers, Hamburgers, and Frankfurters in Sandwich Form, Sausages, French Fried Potatoes, and Onion Rings.
First use during 1932.

SN 263,327. Tasty Baking Company, Philadelphia, Pa. Filed Jan. 26, 1967.

TASTYKAKE

Owner of Reg. Nos. 101,657, 652,148, and 696,852.
For Potato Chips and Cookies.
First use Apr. 1, 1963.

SN 267,217. Pan-O-Gold Baking Co., Minneapolis, Minn. Filed Mar. 24, 1967.

PAN-O-GOLD

For Bread; and Bread Products—Namely, Dinner Rolls, Breakfast Rolls, Finger Rolls, Parker House Rolls, Clover Leaf Rolls, Brown and Serve Rolls, and Hot Dog and Hamburger Buns; and Doughnuts.
First use during August 1935.
Subj. to Intf. with SN 237,950.

Class 47 — Wines

SN 239,434. Christian Maurice de Navacelle, Denee, France. Filed Feb. 23, 1966.

"NAVAROSE"

For Wines.
First use May 5, 1965; in commerce May 5, 1965.

SN 264,178. C. Mondavi & Sons, St. Helena, Calif. Filed Feb. 8, 1967.

No claim is made to the word "Vintage" apart from the mark as shown. Owner of Reg. Nos. 707,883 and 709,432.
For Wines.
First use Jan. 17, 1967; August 1955 as to "Mondavi."

Class 48 — Malt Beverages and Liquors

SN 182,859. Brauerei Dinkelacker, Stuttgart, Germany. Filed Sept. 29, 1964.



The drawing is lined for red. Owner of German Reg. No. 486,474, dated Apr. 8, 1936.
For Beer.

SN 246,529. P. Ballantine & Sons, Newark, N.J. Filed May 25, 1966.



TRIPLE CROWN

For Malt Liquor.
First use Apr. 21, 1966.

Class 49 — Distilled Alcoholic Liquors

SN 244,825. John Gross & Co., d.b.a. The Carlton Co., Baltimore, Md. Filed May 3, 1966.

THE HIGHLAND SKIRL
OF THE PIPES

For Scotch Whisky.
First use Jan. 12, 1948.

SN 244,994. H. C. Macpherson, d.b.a. Macpherson & Company, and A. & B. Mackay, Ltd., San Francisco, Calif. Filed May 5, 1966.

Salmon Pool

For Scotch Whisky.
First use 1935.

SN 249,681. Schenley Industries, Inc., New York, N.Y. Filed July 6, 1966.

MR. SCHENLEY

Owner of Reg. Nos. 443,119, 770,479, and others.
For Blended Whiskey.
First use May 13, 1966.

SN 263,680. Mohr International, Ltd., New York, N.Y. Filed Jan. 31, 1967.



The portrait shown on the drawing is fanciful.
For Vodka.
First use Jan. 13, 1967.

Class 50 — Merchandise Not Otherwise Classified

SN 236,721. Dexion Inc., Woodside, N.Y. Filed Jan. 18, 1966.

DEXION *formula*

Owner of Reg. No. 580,676.
For Pallet Racks.
First use June 1965.

SN 239,250. Fleming-Potter Company, Inc., Peoria, Ill. Filed Feb. 21, 1966.

ALUMICEAL

For Secondary Caps and Bands To Be Applied to Liquid-Containing Bottles Having Separate Primary Closures.
First use 1948.

SN 243,248. Alfred Kissileff, d.b.a. Breeders Equipment Co., Flourtown, Pa. Filed Apr. 12, 1966.

FLEAMASTER

For Flea Comb and Flea Trap.
First use Jan. 1, 1965.

SN 243,800. PM & E Electronics, Inc., East Providence, R.I. Filed Apr. 19, 1966.

TRAVELAB

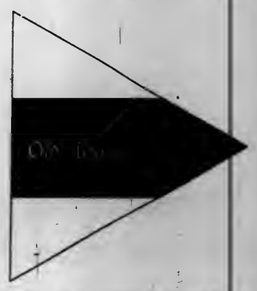
Owner of Reg. No. 656,799.
For Educational Laboratory on Wheels, Consisting Essentially of an Audio-Visual Curriculum Classroom.
First use Feb. 22, 1966.

SN 250,672. Nesbit Industries, Incorporated, Chicago, Ill. Filed July 20, 1966.

MERRI-CRAFT

For Non-Electrical Christmas Ornaments and Decorations; Anniversary, Holiday and Party Decorations and Favors; Parts and Hobby Kits Containing Parts for Making Such Ornaments, Decorations and Favors.
First use February 1964.

SN 257,127. Halo Sales Corporation, d.b.a. Olde Tower Sealing Wax, San Francisco, Calif. Filed Oct. 25, 1966.



For Sealing Wax Sets Comprising Three Sticks of Sealing Wax and a Metal Seal.
First use Sept. 1, 1966.

Class 51 — Cosmetics and Toilet Preparations

SN 219,094. Yardley of London, Inc., Totowa, N.J. Filed May 17, 1965.

Oh! de

For Perfume, Cologne, Powder, Bath Oil, and Sachet.
First use Apr. 23, 1965.

SN 235,884. John H. Breck, Inc., Springfield, Mass. Filed Jan. 6, 1966.

SILVERENE

For Hair Coloring Preparation.
First use Dec. 14, 1965.

SN 235,887. John H. Breck, Inc., Springfield, Mass. Filed Jan. 6, 1966.

SILVERIFIC

For Hair Coloring Preparation.
First use Dec. 14, 1965.

SN 241,057. Jean Eymond, Inc., Miami, Fla. Filed Mar. 15, 1966.

FEU SAUVAGE

For Perfume.
First use May 5, 1965.
Subj. to Intf. with SN 253,096.

SN 246,373. Sarong, Inc., Dover, Del. Filed May 23, 1966.

BODY GLOW

For Body Powder, Talcum Powder, Deodorant, Body Moisturizer, Body Refresher, and Body Lotion.
First use May 4, 1966.

SN 246,999. Samuel Bonat & Bro., Inc., West Paterson, N.J. Filed June 1, 1966.

TAKE NOTICE

For Hair Coloring Preparation.
First use May 5, 1966.

SN 249,163. A. C. Johnson, d.b.a. Johnson's Enterprises, San Francisco, Calif. Filed June 28, 1966.

J-11

For Liquid Hair Softener.
First use June 16, 1966.

SN 249,246. Daniel A. Naeve, d.b.a. D. A. Naeve Co., La Canada, Calif. Filed June 29, 1966.

WHIMSY

For Cosmetic Face Lotion.
First use Mar. 18, 1966.

SN 249,250. Chas. Pfizer & Co., Inc., New York, N.Y. Filed June 29, 1966.



For After Shave Lotion.
First use June 23, 1966.

SN 250,605. Abram Tenenbaum, d.b.a. Marc Tenens, Boulogne-sur-Seine, France. Filed July 19, 1966.

CHIENCHA

Priority claimed under Sec. 44(d) on French Reg. No. 706,370, dated Jan. 24, 1966.
For Perfumes, Beauty Creams and Lotions, Hair Lotions, and Talcum Powder.

SN 251,323. Chas. Pfizer & Co., Inc., New York, N.Y. Filed July 29, 1966.

NEW WOMAN

For Bath Oil and Dusting Powder.
First use June 24, 1966.

SN 252,212. Philip M. Scaglia, d.b.a. P. M. Scaglia Company, Kansas City, Mo. Filed Aug. 11, 1966.

DESERT PINE

The word "Pine" is disclaimed apart from the mark as shown.
For Cologne and Shaving Lotion.
First use Aug. 3, 1966.

SN 253,096. S.A.R.L. Parfums Christian Dior, Paris, France. Filed Aug. 25, 1966.

EAU SAUVAGE

The words "Eau Sauvage" can be translated from French into English as meaning "savage water" or "wild water." Owner of French Reg. No. 705,324, dated Feb. 17, 1966; Natl. Inst. No. 8,181.
For Men's Eau de Cologne.
Subj. to Intf. with SN 241,057.

SN 253,563. Irving J. Ruben, d.b.a. Maxim, New York, N.Y. Filed Aug. 31, 1966.

PARK EAST

For Skin Moisturizers, After Shaving Lotions, Beard Softeners, Hair Tonics, Personal Deodorants, Talcum Powders, Hair Dressings, Shaving Creams, Colognes, and Toilet Waters.
First use May 6, 1966.

SN 253,622. Beauty Counselors, Inc., Grosse Pointe, Mich. Filed Sept. 1, 1966.

SHAVE PRETTY

Applicant disclaims the word "Shave" apart from the mark as shown.
For Ladies' Shave Cream.
First use July 27, 1966.

SN 253,624. Beauty Counselors, Inc., Grosse Pointe, Mich. Filed Sept. 1, 1966.

RESTLESS

For Cologne.
First use June 13, 1966.

SN 254,089. Cosmetically Yours, Inc., Yonkers, N.Y. Filed Sept. 9, 1966.

GIBSON GIRL

For Liquid Make-Up.
First use June 17, 1966.

SN 254,120. Clairol Incorporated, New York, N.Y. Filed Sept. 9, 1966.

SUN GUNNER

For Cosmetics and Toilet Preparations—Namely, a Hair Lightener.
First use July 8, 1966.

SN 254,248. Clairol Incorporated, New York, N.Y. Filed Sept. 12, 1966.

GUNNER

For Cosmetics and Toilet Preparations—Namely, a Hair Lightener.
First use July 8, 1966.

SN 259,059. Lentheric Inc., New York, N.Y. Filed Nov. 21, 1966.

WHIPPED CREAM

Owner of Reg. Nos. 317,298, 334,333, and 379,206.
For Foaming Bath Powder.
First use on or about Nov. 15, 1966.

SN 264,371. Leon Products, Inc., Jacksonville, Fla. Filed Feb. 10, 1967.

SHAMROCK

For Deodorant.
First use Nov. 21, 1966.

Class 52 — Detergents and Soaps

SN 246,665. Divapharma Aktiengesellschaft, Zurich, Switzerland. Filed May 26, 1966.

TROT

Priority claimed under Sec. 44(d) on Swiss Reg. No. 214,679, dated Dec. 10, 1965.
For Preparation for the Care of Dogs—Namely, a Shampoo.

SN 247,761. A to Z Rental, Inc., Chicago, Ill. Filed June 10, 1966.

BRIGHT TONE

For Shampoo for Carpets, Rugs and Upholstery.
First use on or about Jan. 26, 1966.

SN 249,657. The Mennen Company, Morristown, N.J. Filed July 6, 1966.

MATING SEASON

For Men's Soap.
First use June 14, 1966.

SN 251,393. DBA Products Co., Inc., Deerfield, Ill. Filed Aug. 1, 1966.

KWIK-KLEEN

For Preparation for Cleaning Rollers on Printing Presses.
First use October 1945.

SN 252,601. Todd Chemical Company, Inc., Great Neck, N.Y. Filed Aug. 17, 1966.

SHAKEY POO

For Children's Hair Shampoo.
First use May 24, 1966.

SN 252,841. Foremost Supply Co., Kalamazoo, Mich. Filed Aug. 22, 1966.

SANI-JAN

Owner of Reg. No. 719,089.
For Floor Cleaner.
First use June 6, 1958.

SN 261,631. Clairol Incorporated, New York, N.Y. Filed Dec. 29, 1966.

BARE HAIR

Applicant disclaims the word "Hair" apart from the mark as shown.
For Hair Shampoo.
First use Sept. 26, 1966.

SN 262,461. C. J. Webb, Inc., Dresher, Pa. Filed Jan. 13, 1967.

CRC LECTRA-CLEAN

Owner of Reg. Nos. 696,251, 814,678, and others.
For Cleaner for Electrical Motors and Equipment.
First use Aug. 23, 1966; Feb. 10, 1965, as to "Lectra-Clean."

SN 263,506. Clack Corporation, Madison, Wis. Filed Jan. 30, 1967.

RES-UP

For Cleaner and Sanitizer for Water Conditioner Resin Beds.
First use Jan. 4, 1967.

SN 263,800. Stonetree Corp., Chicago, Ill. Filed Feb. 2, 1967.

Little Eva

For Liquid Detergent for Washing Dishes and Fine Fabrics.
First use Jan. 19, 1967.

SN 266,291. The Procter & Gamble Company, Cincinnati, Ohio. Filed Mar. 9, 1967.

BORAXIN

Owner of Reg. No. 71,384.
For Combination of Borax, Cleaning Agents, and Builders in a Laundry Detergent.
First use Oct. 6, 1966.

SERVICE MARKS

Class 100 — Miscellaneous

SN 223,766. Henry's Drive-In, Inc., Chicago, Ill. Filed Aug. 16, 1965.



Owner of Reg. No. 756,232.
For Drive-In Restaurant Services.
First use July 23, 1965.

SN 231,563. Gerig, Inc., Kansas City, Mo. Filed Oct. 24, 1965.

RED ONION

For Operation of Establishment Which Features Food and Drink.
First use during May 1964.

SN 242,286. Ramada Inns, Inc., Phoenix, Ariz. Filed Mar. 30, 1966.



Owner of Reg. No. 741,047.
For Hotel and Inn Services and Providing Travel and Tour Information.
First use Feb. 10, 1961.

SN 256,405. Char-Steak House, Inc., Washington, D.C. Filed Oct. 11, 1966.

CHAR-STEAK HOUSE

Owner of Reg. No. 813,180.
For Restaurant Services.
First use January 1965.

Class 101 — Advertising and Business

SN 232,687. Facts Consolidated, Inc., Los Angeles, Calif. Filed Nov. 15, 1965.

FACTS CONSOLIDATED

For Marketing and Consumer Research Services.
First use 1935.
Subj. to Intf. with SN 210,064.

SN 233,702. Erickson Brothers, Minneapolis, Minn. Filed Dec. 1, 1965.

Holiday Village

The drawing is lined for the colors red and blue. Owner of Reg. No. 745,976.
For Retail Department Store Services Rendered in Connection With the Sale of General Merchandise.
First use Oct. 4, 1965.

SN 238,830. Bradfute Corporation, Eastchester, N.Y. Filed Feb. 15, 1966.

HIT THE DECK

For Promoting the Sale of Goods and Services of Others by Means of a Game.
First use December 1965.

SN 238,831. Bradfute Corporation, Eastchester, N.Y. Filed Feb. 15, 1966.

5 RING CIRCUS

For Promoting the Sale of Goods and Services of Others by Means of a Game.
First use December 1965.

SN 240,453. Brian & Associates, Inc., Spokane, Wash., assignee of L.B. Inc., Spokane, Wash. Filed Mar. 8, 1966.

NOAH'S ARK

For Promoting the Sale of Goods and Services of Others by Means of Consumer Participating Contests.
First use Mar. 31, 1964.
Subj. to Intf. with SN 235,667.

SN 242,365. Jay Kashuk and Associates, Miami Beach, Fla. Filed Mar. 31, 1966.

SHOPO

For Services of Promoting and Advertising Businesses of Retail Stores, Restaurants, and Other Merchants by Means of Games Utilizing Numbers and Cards, and by Distribution of Printed Advertising.
First use Feb. 11, 1966 .

SN 247,259. Saxon Paint Stores, Inc., Chicago, Ill. Filed June 3, 1966.

SAXON

For Retail Discount Store Services Specializing in Housewares Items.
First use on or about Feb. 10, 1961.

SN 261,129. Media Information Bureau, New York, N.Y. Filed Dec. 20, 1966.

MIB

For Supplying Clients With Detailed Information on the Advertising and Marketing Methods Used by Their Competitors.
First use Nov. 7, 1964.

Class 102 — Insurance and Financial

SN 222,467. Central Bureau Inc., Salt Lake City, Utah. Filed July 1, 1965.

CHECK CARD

For Services Rendered to Merchants in Guarding and Insuring Against Bad Checks and to Individuals for Verifying Responsibility.
First use on or about Nov. 1, 1962.

SN 239,073. Old Reliance Agency, Inc., Des Moines, Iowa. Filed Feb. 17, 1966.

Old Reliance

For Insurance Brokerage.
First use Nov. 1, 1957.

SN 242,285. Ramada Inns, Inc., Phoenix, Ariz. Filed Mar. 30, 1966.



Owner of Reg. No. 741,047.
For Extending Credit for Hotel, Inn, Restaurant, and Lounge Services.
First use Feb. 10, 1961.

SN 248,177. Telmark, Inc., Syracuse, N.Y. Filed June 15, 1966.

TELMARK

For Consumer Credit Services.
First use Oct. 19, 1964.

SN 248,297. Central States Health & Life Co. of Omaha, Omaha, Nebr. Filed June 17, 1966.

BANK-CARE

For Underwriting of Health Insurance.
First use Apr. 1, 1966.

SN 255,590. Avco Finance Company, Omaha, Nebr. Filed Oct. 3, 1966.

AVCO

For Financial Services, Including Consumer Loans, Retail Installment Financing, Capital Equipment Loans, and Insurance Coverage.
First use May 12, 1966.

Class 103 — Construction and Repair

SN 236,429. Toledo Scale Corporation, Toledo, Ohio. Filed Jan. 13, 1966.



The mark consists of a fanciful letter "H." Owner of Reg. No. 671,637.
For Elevator and Moving Stairway Design, Custom Manufacture, Installation, Repair, and Maintenance.
First use July 1964.

SN 253,922. Sunset International Petroleum Corporation, Beverly Hills, Calif. Filed Sept. 6, 1966.

SUNASCO

For Home Construction.
First use Apr. 22, 1966.

Class 104 — Communication

SN 235,310. K. & M. Management Company, Philadelphia, Pa. Filed Dec. 27, 1965.

TELE-CARE

For Emergency Telephone Calling and Answering Service for Persons Living Alone, by Which Needed Medical or Other Emergency Assistance Is Rushed to the Afflicted Caller, Vital Medical Information Is Relayed, and the Fact of Such Emergency Is Communicated to Relatives.
First use Dec. 7, 1965.

SN 262,468. WDIA, Inc., d.b.a. WDIA, Memphis, Tenn. Filed Jan. 13, 1967.

MEMPHIS SOUND

Applicant disclaims the word "Memphis" apart from the mark as shown.
For Radio Broadcasting Services.
First use Sept. 1, 1964.

Class 105 — Transportation and Storage

SN 238,975. Ryder Truck Lines, Inc., Jacksonville, Fla. Filed Feb. 16, 1966.

RTL

For Motor Common Carrier Services, Particularly Trucking Services.
First use Dec. 22, 1965.

SN 239,464. Trans-Air System Inc., Jamaica, N.Y. Filed Feb. 23, 1966.

LIFCO

For Freight-Forwarding Services.
First use Nov. 6, 1958.

SN 243,402. Blits World Wide Travel Service, Inc., Clayton, Mo. Filed Apr. 14, 1966.

PIED PIPER TOURS

The word "Tours" is disclaimed except when used as a part of the mark "Pied Piper Tours." This disclaimer is not a waiver of any of the common law rights of the applicant in the mark.
For Tour Conducting Services.
First use Mar. 25, 1966.

SN 244,541. Travel Unlimited, Inc., Medford, Mass. Filed Apr. 28, 1966.



The mark includes a fanciful showing of the letters "GFT."
For Operating a Travel Plan by Which a Trip Is Pre-Paid in Installments Before It Is Taken.
First use May 1, 1961.

SN 255,761. American International Travel Service, Inc., Chestnut Hill, Mass. Filed Oct. 5, 1966.

HAWAIIAN CARNIVAL

The word "Hawaiian" is disclaimed apart from the mark as shown.
For Arranging and Conducting Tours.
First use at least as early as Jan. 20, 1966.
Subj. to Intf. with SN 246,207.

Class 106 — Material Treatment

SN 244,427. Rykon Specialized Plating, Inc., Avon Lake, Ohio. Filed Apr. 27, 1966.

RyKon

The lining on the drawing is a part of the mark and does not represent color.
For Commercial and Custom Metal Plating (Especially Gold, Silver and Precious Metals), on Surfaces of Material.
First use at least as early as July 9, 1948.

SN 247,021. A. Hollander & Son Limited, Montreal, Quebec, Canada. Filed June 1, 1966.

BEAVER ROYALE

No rights to registration of the word "Beaver" are claimed apart from the mark as shown. Owner of Canadian Reg. No. 139,508, dated Mar. 12, 1965.
For Dressing, Dyeing, and Processing of Beaver Fur Skins.

Class 107 — Education and Entertainment

SN 231,386. The Chase School Inc., New York, N.Y. Filed Oct. 23, 1965.

Chase

For Conducting Secretarial Training Courses.
First use during August 1965.

SN 234,481. Fred T. Taylor, Holland, Ohio. Filed Dec. 13, 1965.

COUNTRY PARSON

For Conducting Gospel Sing Programs Which Are Broadcast Over the Radio.
First use August 1964.

SN 239,985. Marion Eskay and Richard Eskay (joint owners), Scarsdale, N.Y. Filed Mar. 2, 1966.

PATHWAYS TO CHILDREN'S LITERATURE

For Radio Entertainment Services in the Form of a Program Devoted to Children's Literature.
First use Feb. 6, 1966.

SN 242,683. Teen America Associates, Inc., Dallas, Tex. Filed Apr. 4, 1966.

MISS TEENAGE AMERICA

Owner of Reg. No. 712,636.
For Entertainment Services in the Form of Beauty and Talent Contests for Teen-Age Contestants and the Promotion of Education by the Granting of Scholarships to Selected Contestants.
First use Oct. 20, 1961.

SN 245,513. Ronby Corporation, Coral Gables, Fla. Filed May 12, 1966.

FRED ASTAIRE DANCE STUDIOS

The name "Fred Astaire" identifies a living person whose consent is of record. The term "Dance Studios" is disclaimed apart from the mark as shown.
For Dance Instruction.
First use Jan. 1, 1965.

SN 246,204. The Stephan Co., Fort Lauderdale, Fla. Filed May 20, 1966.

BARBERAMA

For Educational Services in the Field of Barbering by Means of One-Day Workshops Held Throughout the Country.
First use Apr. 18, 1956.

CERTIFICATION MARKS

Class B — Services

SN 250,022. Pan-American Coffee Bureau, New York, N.Y. Filed July 11, 1966.

GOLDEN CUP

The mark certifies that the coffee served has been brewed according to the procedures and under conditions prescribed by the applicant, and that the resulting quality of the coffee meets the standards controlled by the applicant. Owner of Reg. No. 716,273.
For Services Performed by Restaurants and Other Eating and Drinking Establishments in the Brewing and Serving of Fine Beverage Coffee.
First use on or about Jan. 15, 1959.

TRADEMARK REGISTRATIONS ISSUED

PRINCIPAL REGISTER

Class 5 — Adhesives

828,708. ZIP-GRIP. Chemical Development Corporation. SN 240,412. Pub. 2-28-67. Filed 3-8-66.

Class 6 — Chemicals and Chemical Compositions

828,709. SANDROL. Sandos, Inc., assignee of Clintwood Chemical Co. SN 213,845. Pub. 4-26-66. Filed 3-11-65.

828,710. BEST IN THE LONG RUN AND DESIGN. Western Litho Plate & Supply Co. MULTIPLE CLASS (Classes 6, 50, and 52). SN 222,794. Pub. 2-28-67. Filed 7-6-65.

828,711. MICROB MONITOR. Boron Oil Company. SN 232,447. Pub. 2-28-67. Filed 11-10-65.

828,712. LIGCON. Milchem Incorporated. SN 235,008. Pub. 2-28-67. Filed 12-21-65.

828,713. ZECOL AND DESIGN. Zecol, Inc. SN 236,587. Pub. 2-28-67. Filed 1-14-66.

828,714. DESSIN. Union Carbide Corporation. SN 237,181. Pub. 10-11-66. Filed 1-24-66.

828,715. RENCOA. Rendering Corporation of America. SN 240,023. Pub. 2-28-67. Filed 3-2-66.

828,716. ADSEE. Retzloff Chemical Company. SN 240,786. Pub. 2-28-67. Filed 3-11-66.

828,717. WILKERSON CORPORATION DES-A-DRY AND DESIGN. Wilkerson Corporation. SN 241,563. Pub. 2-28-67. Filed 3-21-66.

828,718. STAYPRO AND DESIGN. The F. & M. Schaefer Brewing Co. SN 241,771. Pub. 2-28-67. Filed 3-24-66.

828,719. AIR WASH. Chemical Service of Baltimore, Inc. SN 243,775. Pub. 2-28-67. Filed 4-19-66.

828,720. COMFY-PET ETC. AND DESIGN. F. W. Woolworth Co. SN 248,690. Pub. 2-28-67. Filed 6-22-66.

828,721. FORSWONIC. Foremost Dairies, Inc., d.b.a. Foremost Chemical Products Company. SN 250,469. Pub. 2-28-67. Filed 7-18-66.

828,722. TETRATHAL. Monsanto Company. SN 250,503. Pub. 2-28-67. Filed 7-18-66.

828,723. COPASLIP. Slip Products Company Limited. SN 250,599. Pub. 2-28-67. Filed 7-19-66.

828,724. ODORQUELL. Ciba Corporation, d.b.a. The Gland-O-Lac Company. SN 251,887. Pub. 2-28-67. Filed 8-8-66.

828,725. BANLATE. E. I. du Pont de Nemours and Company. SN 257,334. Pub. 2-28-67. Filed 10-27-66.

828,726. SUTAN. Stauffer Chemical Company. SN 257,341. Pub. 2-28-67. Filed 10-27-66.

828,727. LANNATE. E. I. du Pont de Nemours and Company. SN 258,342. Pub. 2-28-67. Filed 11-10-66.

Class 7 — Cordage

828,728. TASCO. Tanganyika Sisal Spinning Company, Ltd. SN 232,636. Pub. 1-10-67. Filed 10-29-65.

Class 8 — Smokers' Articles, Not Including Tobacco Products

828,729. TUPPER! Rexall Drug and Chemical Company, d.b.a. Tupperware. SN 240,202. Pub. 2-28-67. Filed 3-4-66.

Class 9 — Explosives, Firearms, Equipments, and Projectiles

828,730. BLACK CAT AND DESIGN. Li & Fung, Ltd. SN 158,634. Pub. 8-6-63. Filed 12-6-62.

828,731. TRIEX. Explosives Engineering Corporation. SN 244,981. Pub. 2-28-67. Filed 5-5-66.

Class 11 — Inks and Inking Materials

828,732. CRYSTA-PLEX. Martin-Marietta Corporation, assignee of Pope & Gray, Inc. SN 222,507. Pub. 2-28-67. Filed 7-1-65.

Class 12 — Construction Materials

828,733. H IN DIAMOND DESIGN. General Refractories Company. SN 259,282. Pub. 2-28-67. Filed 11-23-66.

Class 13 — Hardware and Plumbing and Steam-Fitting Supplies

828,734. MISCELLANEOUS DESIGN. Wm. H. Brewster, Jr., Inc. MULTIPLE CLASS (Classes 13 and 35). SN 227,644. Pub. 2-28-67. Filed 9-13-65.

828,735. CORROCAST. Bartlett-Snow-Pacific Inc. MULTIPLE CLASS (Classes 13 and 32). SN 232,514. Pub. 2-28-67. Filed 11-12-65.

828,736. SERV-O-MITE. Worthington Corporation. SN 232,754. Pub. 2-28-67. Filed 11-15-65.

828,737. WEATHERHEAD. The Weatherhead Company. SN 245,636. Pub. 2-28-67. Filed 5-13-66.

Class 14 — Metals and Metal Castings and Forgings

828,738. GEDOL. Compagnie Generale du Duralumin et du Cuivre, Cegedur. SN 210,278. Pub. 2-28-67. Filed 1-21-65.

Class 15 — Oils and Greases

828,739. ICC CHEMICALS AND GLOBE DESIGN. Inter-Continental Chemical Corporation. SN 237,703. Pub. 2-28-67. Filed 2-1-66.

828,740. SHELLDYNE. Shell Oil Company. SN 243,589. Pub. 2-28-67. Filed 4-15-66.

828,741. FULL BORE. Cemoto East Importing Company, Inc. SN 244,189. Pub. 2-28-67. Filed 4-25-66.

828,742. COOL-TOOL. Monroe Chemical Co., Inc. SN 244,509. Pub. 2-28-67. Filed 4-28-66.

Class 16—Protective and Decorative Coatings

828,743. WEATHERBEST. Weatherbest Corporation. SN 222,793. Pub. 2-28-67. Filed 7-6-65.

828,744. MISCELLANEOUS DESIGN. M. Grumbacher, Inc. SN 259,283. Pub. 2-28-67. Filed 11-23-66.

Class 17—Tobacco Products

828,745. IMMUNITY. John J. Fitzgerald, d.b.a. J. J. Fitzgerald Co. SN 232,910. Pub. 2-28-67. Filed 11-18-65.

828,746. LA FLOR DE BRAMANTE AND DESIGN. Corral, Wodiska y Ca. SN 233,467. Pub. 2-28-67. Filed 11-29-65.

828,747. AMERICAN TOBACCO CO. AND DESIGN. The American Tobacco Company. SN 239,698. Pub. 2-28-67. Filed 2-28-66.

828,748. YELLOW ROSE. Villiger Sohne GmbH. SN 241,205. Pub. 2-28-67. Filed 3-16-66.

828,749. SAVORY'S. H. L. Savory & Company Limited. SN 242,748. Pub. 2-28-67. Filed 4-5-66.

828,750. BRINKMANN. Martin Brinkmann Aktiengesellschaft. SN 242,796. Pub. 2-28-67. Filed 4-6-66.

828,751. SHERIFF. Svenska Tobaks Aktiebolaget. SN 243,190. Pub. 2-28-67. Filed 4-11-66.

828,752. SEEMAN'S PRIVATE BLEND. Standard Cigar Company, Inc., d.b.a. J. E. Seeman Company. SN 259,997. Pub. 2-28-67. Filed 12-5-66.

Class 18—Medicines and Pharmaceutical Preparations

828,753. 'SEBUMSOL.' Ormont Drug & Chemical Co. Inc., by merger from Parlam Corporation. SN 168,435. Pub. 2-28-67. Filed 5-8-63.

828,754. DEHYDROBENZPERIDOL. Janssen Pharmaceutica NV. SN 235,458. Pub. 2-28-67. Filed 12-23-65.

828,755. GAVISCON. Ferring AB. SN 235,754. Pub. 2-28-67. Filed 11-3-65.

828,756. UNIDROP. The Upjohn Company. SN 236,675. Pub. 2-28-67. Filed 1-17-66.

828,757. UNIDROP B. The Upjohn Company. SN 236,676. Pub. 2-28-67. Filed 1-17-66.

828,758. NEW ERA AND DESIGN. New Era Laboratories Limited. SN 250,171. Pub. 2-28-67. Filed 7-11-66.

828,759. NOBEX. The Dietene Company. SN 250,256. Pub. 2-28-67. Filed 7-14-66.

828,760. FERRO-MIX. Philips Roxane, Inc. SN 250,994. Pub. 2-28-67. Filed 7-25-66.

Class 19—Vehicles

828,761. THERMO-PANEL. Winnebago Industries, Inc. SN 230,988. Pub. 2-28-67. Filed 10-21-65.

828,762. ALLCAR AND DESIGN. Allcar Motor Parts Corp. SN 231,361. Pub. 2-28-67. Filed 10-23-65.

828,763. FLIPPER. Newport Boats. SN 242,908. Pub. 2-28-67. Filed 4-7-66.

828,764. MISCELLANEOUS DESIGN. Helio Aircraft Corporation. SN 242,977. Pub. 2-28-67. Filed 4-8-66.

828,765. HELIO. Helio Aircraft Corporation. SN 242,978. Pub. 2-28-67. Filed 4-8-66.

828,766. HELIO COURIER. Helio Aircraft Corporation. SN 242,979. Pub. 2-28-67. Filed 4-8-66.

828,767. S AND DESIGN. Standard Auto Body Company. SN 243,595. Pub. 2-28-67. Filed 4-15-66.

828,768. TAYLOR-TOT. The Frank F. Taylor Company. MULTIPLE CLASS (Classes 19 and 32). SN 243,938. Pub. 2-28-67. Filed 4-21-66.

828,769. WEATHERHEAD. The Weatherhead Company. SN 245,637. Pub. 2-28-67. Filed 5-13-66.

Class 21—Electrical Apparatus, Machines, and Supplies

828,770. SPECTROMAGNETIC. Spectromagnetic Industries. SN 220,795. Pub. 2-28-67. Filed 6-9-65.

828,771. THREE TREES (DESIGN). Tri-Lite Industries, Inc. SN 236,788. Pub. 2-28-67. Filed 1-18-66.

828,772. PLIOTHERM. The Goodyear Tire & Rubber Company. SN 240,172. Pub. 2-28-67. Filed 3-4-66.

828,773. SPANGLEAM. Armco Steel Corporation. SN 240,239. Pub. 2-28-67. Filed 3-7-66.

828,774. K AND DESIGN. Keller Industries, Inc. SN 258,198. Pub. 2-28-67. Filed 11-8-66.

Class 22—Games, Toys, and Sporting Goods

828,775. MAJOR MARK I AND DESIGN. Major Mark Inc. SN 221,507. Pub. 2-28-67. Filed 6-18-65.

828,776. TEKNO. Tekno, Dansk Legetoje-Industri A/S. SN 222,524. Pub. 2-28-67. Filed 7-1-65.

828,777. AER-O-BUOY. Monsanto Canada Limited. SN 231,623. Pub. 2-28-67. Filed 10-25-65.

828,778. JOLLY. Jolly Toys, Inc. SN 234,753. Pub. 2-28-67. Filed 12-16-65.

828,779. MR. BOWLER. Dynaball Company. SN 239,755. Pub. 2-28-67. Filed 2-28-66.

828,780. CAMPAIGN. Paul J. Milazzo, d.b.a. Campaign Game Company. SN 242,468. Pub. 2-28-67. Filed 4-1-66.

828,781. ELMER'S TOYS. Elmer's Toys. SN 242,602. Pub. 2-28-67. Filed 4-4-66.

828,782. ON THE LEFT BANK AND DESIGN. On the Left Bank. MULTIPLE CLASS (Classes 22 and 39). SN 242,870. Pub. 2-28-67. Filed 4-7-66.

828,783. STRINGDING. Block Engineering, Inc. SN 252,987. Pub. 2-28-67. Filed 8-24-66.

828,784. MATTEL-O-TYPER. Mattel, Inc. SN 255,575. Pub. 2-28-67. Filed 10-3-66.

828,785. "KOOKIE" THE KOPY-KAT. Toni Lynn Enterprises. SN 255,993. Pub. 2-28-67. Filed 10-7-66.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

828,786. SCHICK QUICK GRIP. Schick Products, Inc. SN 196,813. Pub. 3-16-65. Filed 6-30-64.

828,787. VARIOMATIC. Van Doorne's Automobielfabriek N.V. SN 205,212. Pub. 2-28-67. Filed 10-30-64.

828,788. STOCSAVER. The Bauer Bros. Co. SN 224,153. Pub. 2-28-67. Filed 7-26-65.

828,789. STEELCRAFT. N. Marshall Seeburg & Sons Inc. SN 229,553. Pub. 2-28-67. Filed 10-7-65.

828,790. POWER SHOWER AND DESIGN. George R. Adams, d.b.a. Adams Equipment Company. MULTIPLE CLASS (Classes 23 and 52). SN 230,115. Pub. 2-28-67. Filed 10-14-65.

828,791. APEX. Gardner-Denver Company, d.b.a. The Apex Machine & Tool Company. SN 235,662. Pub. 2-28-67. Filed 1-3-66.

828,792. DOUGLASS. Howard W. Douglass, Jr., d.b.a. Douglass Muffler Manufacturing Co. SN 238,938. Pub. 2-28-67. Filed 2-16-66.

828,793. MULCHIVATOR. International Harvester Company, assignee of Western Bye-Hoe, Incorporated. SN 241,560. Pub. 2-28-67. Filed 3-21-66.

828,794. MASTER FLEX. Cole-Parmer Instrument & Equipment Co. SN 242,217. Pub. 2-28-67. Filed 3-30-66.

828,795. INA. Industriewerk Schaeffler, o.H.G. MULTIPLE CLASS (Classes 23 and 26). SN 246,518. Pub. 2-28-67. Filed 5-25-66.

828,796. INA AND DESIGN. Industriewerk Schaeffler, o.H.G. MULTIPLE CLASS (Classes 23 and 26). SN 246,519. Pub. 2-28-67. Filed 5-25-66.

828,797. SHEAR-VEYOR. Industrial Specialties. SN 255,753. Pub. 2-28-67. Filed 10-5-66.

828,798. REVCO. Revco Products. SN 259,508. Pub. 2-28-67. Filed 11-28-66.

Class 24—Laundry Appliances and Machines

828,799. IRONEES LAUNDRYWARE. The Ironees Company. SN 207,213. Pub. 2-28-67. Filed 12-1-64.

Class 26—Measuring and Scientific Appliances

828,795. (See Class 23 for this trademark.)

828,796. (See Class 23 for this trademark.)

828,800. NI. Northern Instrument Corporation. SN 231,471. Pub. 2-28-67. Filed 10-23-65.

828,801. SCA AND DESIGN. Servo Corporation of America. SN 242,752. Pub. 2-28-67. Filed 4-5-66.

828,802. TELEDRIFT. Borg-Warner Corporation. SN 243,082. Pub. 2-28-67. Filed 4-11-66.

Class 30—Crockery, Earthenware, and Porcelain

828,803. AMWAY. Amway Corporation. SN 243,295. Pub. 2-28-67. Filed 4-13-66.

Class 31—Filters and Refrigerators

828,804. ALLCAR AND DESIGN. Allcar Motor Parts Corp. SN 231,363. Pub. 2-28-67. Filed 10-23-65.

Class 32—Furniture and Upholstery

828,735. (See Class 13 for this trademark.)

828,768. (See Class 19 for this trademark.)

828,805. POSTURE POISE. Sealy, Incorporated. SN 226,168. Pub. 2-21-67. Filed 8-20-65.

828,806. PERMA-EZE. Flex-O-Lators, Inc. SN 232,457. Pub. 2-28-67. Filed 11-10-65.

828,807. SLIDE-N-LOCK. Lear Siegler, Inc., assignee of American Metal Products Company. SN 233,766. Pub. 2-28-67. Filed 12-2-65.

828,808. SYROCOCRAFT. Rexall Drug and Chemical Company, d.b.a. Syroco. SN 241,803. Pub. 2-28-67. Filed 3-24-66.

828,809. ZENITH. Zenith Radio Corporation. SN 245,038. Pub. 2-28-67. Filed 5-5-66.

828,810. MAGI KWIK. Decar Plastic Corporation. SN 259,413. Pub. 2-28-67. Filed 11-25-66.

828,811. SPACECRAFT. International Paper Company. SN 259,429. Pub. 2-28-67. Filed 11-25-66.

Class 34—Heating, Lighting, and Ventilating Apparatus

828,812. HOT ROCK. Robert Clayton Bryant and Richard A. Innes (joint owners). SN 217,982. Pub. 2-28-67. Filed 5-4-65.

828,813. S AND DESIGN. Soudometal. SN 236,931. Pub. 2-28-67. Filed 1-20-66.

828,814. HIDE-AWAY. Robbins & Myers, Inc. SN 237,591. Pub. 2-28-67. Filed 1-28-66.

Class 35—Belting, Hose, Machinery Packing, and Nonmetallic Tires

828,734. (See Class 13 for this trademark.)

828,815. ALLCAR AND DESIGN. Allcar Motor Parts Corp. SN 231,364. Pub. 2-28-67. Filed 10-23-65.

828,816. BILT-MOR. Rott-Keller Supply Co. SN 242,667. Pub. 2-28-67. Filed 4-4-66.

Class 36—Musical Instruments and Supplies

828,817. RIVERMONT. Berl Olswanger, d.b.a. Berl Olswanger Music. SN 235,582. Pub. 2-28-67. Filed 12-30-65.

Class 38—Prints and Publications

828,818. STAINLESS STEEL STAR. Louis Usdin Co., Inc. SN 244,160. Pub. 2-28-67. Filed 4-22-66.

828,819. EVERYMAN'S LIBRARY. E. P. Dutton & Co., Inc. SN 254,264. Pub. 2-28-67. Filed 9-12-66.

828,820. TEK CHEK. McGraw-Hill, Inc. SN 259,285. Pub. 2-28-67. Filed 11-23-66.

828,821. PRESTYPE. Prestype, Inc. SN 259,674. Pub. 2-28-67. Filed 11-29-66.

Class 39—Clothing

828,782. (See Class 22 for this trademark.)

828,822. TIGER BRITCHES. Barrow Manufacturing Company. SN 239,704. Pub. 2-28-67. Filed 2-28-66.

828,823. EDUARDO NERO. Fashion Shoe Co. SN 244,314. Pub. 2-28-67. Filed S.R. 4-26-66; Am. P.R. 12-28-66.

828,824. WONDERBRUSH. Kayser-Roth Corporation. SN 244,829. Pub. 2-28-67. Filed 5-3-66.

828,825. ARCHER MCKAE AND DESIGN. Sichel's, Inc. SN 245,247. Pub. 2-28-67. Filed 5-9-66.

828,826. RIP VAN WINKLE. Host Pajamas, Inc. SN 245,313. Pub. 2-28-67. Filed 5-10-66.

828,827. WALTER JEROME. Tidykins, Inc. SN 246,403. Pub. 2-28-67. Filed 5-23-66.

828,828. KNITTICISM. Irwill Knitwear Corp. SN 248,623. Pub. 2-28-67. Filed 6-21-66.

828,829. BENNY. Benn Enterprises, Inc. SN 254,017. Pub. 2-28-67. Filed 9-8-66.

Class 40 — Fancy Goods, Furnishings, and Notions

828,830. TAFFY. Sun Chemical Corporation. SN 254,736. Pub. 2-28-67. Filed 9-19-66.

Class 42 — Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

828,831. WINKIE. Cone Mills Corporation, d.b.a. Houston Textile Co., assignee of Anderson, Clayton & Co. SN 211,238. Pub. 2-28-67. Filed 2-3-65.

828,832. COZY COVERS. Novel Ideas, Inc. SN 233,933. Pub. 2-28-67. Filed 12-3-65.

828,833. POLLY PLUSH. Novel Ideas, Inc. SN 233,934. Pub. 2-28-67. Filed 12-3-65.

828,834. SHANNON. Duplex International, Ltd. SN 234,740. Pub. 2-28-67. Filed 12-16-65.

828,835. GOLDEN CROWN. Mehdi Dilmaghani & Co., Inc. SN 235,005. Pub. 2-28-67. Filed 12-21-65.

828,836. SILVER CROWN. Mehdi Dilmaghani & Co., Inc. SN 235,006. Pub. 2-28-67. Filed 12-21-65.

828,837. PLATINUM CROWN. Mehdi Dilmaghani & Co., Inc. SN 235,007. Pub. 2-28-67. Filed 12-21-65.

828,838. HENKEL-PLUSCH. Glen Raven Knitting Mills, Inc. SN 245,305. Pub. 2-28-67. Filed 5-10-66.

828,839. SAG-NO-MOR-PLUS. Ames Textile Corporation. SN 249,292. Pub. 2-28-67. Filed 6-30-66.

828,840. LINDAWOOL. Anglo Fabrics Company, Inc. SN 249,483. Pub. 2-28-67. Filed 7-5-66.

828,841. TEACH ME—READ ME. Fieldcrest Mills, Inc. SN 249,854. Pub. 2-28-67. Filed 7-8-66.

Class 43 — Thread and Yarn

828,842. CROWN, SHIP AND CREST (DESIGN). N.V. Koninklijke Veenendaalsche Sajet- en Vijfschacht-Fabriek Voorheen Weduwe D. S. Van Schuppen en Zoon. SN 250,491. Pub. 2-28-67. Filed 7-18-66.

Class 44 — Dental, Medical, and Surgical Appliances

828,843. PADCO. Powers and Anderson Dental Co., Inc. SN 183,921. Pub. 2-28-67. Filed 1-2-64.

828,844. DE CAST. Depuy Manufacturing Co., Inc. SN 241,875. Pub. 2-28-67. Filed 3-25-66.

828,845. CAST-O-VAC. Depuy Manufacturing Co., Inc. SN 241,876. Pub. 2-28-67. Filed 3-25-66.

828,846. NUTRINAIL. Foster-McClellan Products Limited. SN 243,119. Pub. 2-28-67. Filed 4-11-66.

828,847. VA AND DESIGN. Varian Associates. SN 257,444. Pub. 2-28-67. Filed 10-28-66.

828,848. VARIAN. Varian Associates. SN 257,445. Pub. 2-28-67. Filed 10-28-66.

Class 45 — Soft Drinks and Carbonated Waters

828,849. GOLD-EN SUN-DROP GOODNESS AND DESIGN. Sun Drop Sales Corporation of America. SN 231,282. Pub. 8-30-66. Filed 10-22-65.

Class 46 — Foods and Ingredients of Foods

828,850. FARMERS MARKET. Marker's Inc., assignee of Richard B. Sawtelle, d.b.a. Farmers Market Preserving Kitchen. SN 180,611. Pub. 2-28-67. Filed 11-6-63.

828,851. LAURELEAF AND DESIGN. John Lecroy & Son, Inc., SN 198,854. Pub. 2-28-67. Filed 7-30-64.

828,852. CHICKEN UNLIMITED AND DESIGN. Chicken Unlimited Inc. SN 225,109. Pub. 2-28-67. Filed 8-6-65.

828,853. COLEECO. Collins, Lee Company. SN 228,885. Pub. 2-28-67. Filed 9-29-65.

828,854. EL ZARAPE AND DESIGN. El Zarape Tortilla Factory, Inc. SN 231,404. Pub. 2-28-67. Filed 10-23-65.

828,855. COFFEX. Coffex AG. SN 235,890. Pub. 2-28-67. Filed 1-6-66.

828,856. PROCESS 40. 40-Fathom Seafoods, Inc. SN 235,969. Pub. 2-28-67. Filed 1-7-66.

828,857. HUNT'S STEAK HOUSE AND DESIGN. Hunt-Wesson Foods, Inc., assignee of Hunt Foods and Industries, Inc., d.b.a. Hunt Foods, Inc. SN 238,739. Pub. 2-28-67. Filed 2-14-66.

828,858. MRS. SIMMS. Castle Products Company. SN 238,927. Pub. 2-28-67. Filed 2-16-66.

828,859. MALABAR. Malabar Dietaries. SN 239,059. Pub. 2-28-67. Filed 2-17-66.

828,860. KELLOGG'S. Kellogg Company. SN 239,155. Pub. 2-28-67. Filed 2-18-66.

828,861. F.T.D. Corn Products Company. SN 239,601. Pub. 2-28-67. Filed 2-25-66.

828,862. GOOD NA-BOR. Plee-Zing, Inc., d.b.a. Household Products Co. SN 239,794. Pub. 2-28-67. Filed 2-28-66.

828,863. GOLD CUP. Redlands Heights Citrus Co. SN 239,800. Pub. 2-28-67. Filed 2-28-66.

828,864. GOLD-RUSH. Anderson, Clayton & Co. SN 239,865. Pub. 2-28-67. Filed 3-1-66.

828,865. GOLD VELVET. Anderson, Clayton & Co. SN 239,866. Pub. 2-28-67. Filed 3-1-66.

828,866. GANG SIZE. General Mills, Inc. SN 240,727. Pub. 2-28-67. Filed 3-11-66.

828,867. BRIQUETTES. Philip Morris Incorporated, d.b.a. Clark Gum Co. SN 245,849. Pub. 2-28-67. Filed 5-17-66.

828,868. HARVEY GIRL (DESIGN). Fred Harvey. SN 253,260. Pub. 2-28-67. Filed 8-29-66.

828,869. MEFALAC. Mead Johnson & Company. SN 257,229. Pub. 2-28-67. Filed 10-26-66.

828,870. PORTAMIL. Mead Johnson & Company. SN 257,233. Pub. 2-28-67. Filed 10-26-66.

828,871. TRIGLYDE. Mead Johnson & Company. SN 257,234. Pub. 2-28-67. Filed 10-26-66.

828,872. UNICORNS. General Mills, Inc. SN 257,561. Pub. 2-28-67. Filed 10-31-66.

Class 49 — Distilled Alcoholic Liquors

828,873. BLACK OPAL. Foreign Vintages, Inc. SN 237,325. Pub. 2-28-67. Filed 1-26-66.

828,874. MARK TWAIN. Heaven Hill Distilleries, Inc., d.b.a. Mark Twain Distilling Co. SN 241,460. Pub. 2-28-67. Filed 3-21-66.

Class 50 — Merchandise Not Otherwise Classified

828,710. (See Class 6 for this trademark.)

828,875. CUSHIONGARD. American Allsafe Company, Inc. SN 228,485. Pub. 1-10-67. Filed 7-16-65.

828,876. DRAPE-A-SHOULDER. Precision Papers, Inc. SN 237,739. Pub. 2-28-67. Filed 2-1-66.

828,877. GUIDE-RIGHT. The Hopp Press, Inc. SN 252,577. Pub. 2-28-67. Filed 8-17-66.

828,878. SEALMASTER. Bonny Products, Inc. SN 255,411. Pub. 2-28-67. Filed 9-29-66.

Class 51 — Cosmetics and Toilet Preparations

828,879. STERLE. Les Parfums Sterle. SN 234,440. Pub. 2-28-67. Filed 12-13-65.

828,880. SLEEPING BABY (DESIGN). The Mennen Company. SN 238,262. Pub. 2-28-67. Filed 2-7-66.

828,881. BRIGHT NOTE. Bristol-Myers Company. SN 240,851. Pub. 10-11-66. Filed 3-14-66.

828,882. SOFT SOFT. Rexall Drug and Chemical Company, d.b.a. Vanda Cosmetics. SN 241,682. Pub. 1-3-67. Filed 3-23-66.

828,883. DEFENDEX. Colgate-Palmolive Company. SN 244,302. Pub. 2-28-67. Filed 4-26-66.

828,884. DR. FRED PALMER'S AND DESIGN. Carson Chemical Company, d.b.a. Carson Chemical Co. MULTIPLE CLASS (Classes 51 and 52). SN 245,532. Pub. 2-28-67. Filed 5-13-66.

828,885. FIDJI. Parfums Guy Laroche. SN 249,566. Pub. 2-28-67. Filed 7-5-66.

828,886. A COIF OF ARPEGE. Lanvin-Charles of the Ritz, Inc. SN 256,906. Pub. 2-28-67. Filed 10-21-66.

828,887. A COIF OF MY SIN. Lanvin-Charles of the Ritz, Inc. SN 256,907. Pub. 2-28-67. Filed 10-21-66.

Class 52 — Detergents and Soaps

828,710. (See Class 6 for this trademark.)

828,790. (See Class 23 for this trademark.)

828,884. (See Class 51 for this trademark.)

828,888. WHITFIELD. Chester Whitfield Smith, d.b.a. Whitfield Chemical Company. SN 232,374. Pub. 2-28-67. Filed 11-8-65.

828,889. BRIGHT NOW. Bristol-Myers Company. SN 240,850. Pub. 10-11-66. Filed 3-14-66.

828,890. COMPLY. Bristol-Myers Company. SN 246,645. Pub. 2-28-67. Filed 5-26-66.

828,891. PATCLIN. Patclin Chemical Co., Inc. SN 247,051. Pub. 2-28-67. Filed 6-1-66.

828,892. MOON. The Procter & Gamble Company. SN 247,148. Pub. 2-28-67. Filed 6-2-66.

Service Marks

Class 100 — Miscellaneous

828,893. ABBEY RENTS ETC. AND DESIGN. Abbey Rents. SN 228,867. Pub. 2-28-67. Filed 9-29-65.

828,894. ABBEY RENTS AND DESIGN. Abbey Rents. SN 228,868. Pub. 2-28-67. Filed 9-29-65.

828,895. NEMLAB. Teledyne, Inc., assignee of Vasco Metals Corporation. SN 236,326. Pub. 2-28-67. Filed 1-10-66.

828,896. TOTAL COMMUNICATIONS AND ARROW DESIGN. Anaconda Wire and Cable Company. MULTIPLE CLASS (Classes 100 and 103). SN 238,382. Pub. 2-28-67. Filed 2-9-66.

828,897. STOP 127. The Standard Oil Company. MULTIPLE CLASS (Classes 100 and 103). SN 241,279. Pub. 2-28-67. Filed 3-17-66.

828,898. STOP 250. The Standard Oil Company. MULTIPLE CLASS (Clases 100 and 103). SN 241,280. Pub. 2-28-67. Filed 3-17-66.

828,899. TELENEWS AND DESIGN. Hearst Metrotone News, Inc. SN 241,459. Pub. 2-28-67. Filed 3-21-66.

828,900. REPRESENTATION OF A WOMAN WITH TRAY. Fred Harvey. SN 253,265. Pub. 2-28-67. Filed 8-29-66.

Class 101 — Advertising and Business

828,901. SPORTIQUE. Allied Stores Corporation. SN 232,502. Pub. 2-28-67. Filed 11-12-65.

Class 102 — Insurance and Financial

828,902. HOUSEHOLD FINANCE. Household Finance Corporation. SN 242,985. Pub. 2-28-67. Filed 4-8-66.

Class 103 — Construction and Repair

828,896. (See Class 100 for this trademark.)

828,897. (See Class 100 for this trademark.)

828,898. (See Class 100 for this trademark.)

828,903. DURASHIELD. Duraclean Company. SN 234,596. Pub. 2-28-67. Filed 12-13-65.

828,904. SANITONE. Emery Industries, Inc. SN 243,432. Pub. 2-28-67. Filed 4-14-66.

Class 107 — Education and Entertainment

828,905. THE ACCENTS. The Accents. SN 254,847. Pub. 2-28-67. Filed 9-21-66.

Certification Mark

Class A — Goods

828,906. NAKED WOOL. The Wool Bureau, Inc. SN 242,080. Pub. 2-28-67. Filed 3-28-66.

SUPPLEMENTAL REGISTER

These registrations are not subject to opposition.

Class 1—Raw or Partly Prepared Materials

828,907. Jack William Fleck, d.b.a. Emerald Christmas Tree Company, Bellevue, Wash. SN 212,875. Filed P.R. 2-26-65; Am. S.R. 8-10-66.

Double Douglas

For Douglas Fir Christmas Trees Enhanced for Business by Joining Together Portions of More Than One Tree, Usually Two Trees With Trunks Bound Together.
First use Nov. 10, 1964.

828,908. Shellbuilder Company, Houston, Tex. SN 266,286. Filed 3-9-67.

CATTLE FLAKE

For Oyster Shell Supplement for Livestock Feeds.
First use Mar. 1, 1966.

Class 2—Receptacles

828,909. Burroughs Wellcome & Co. (U.S.A.) Inc., Tuckahoe, N.Y. SN 223,528. Filed P.R. 7-16-65; Am. S.R. 3-24-67.

DISPENSERPAK

For Cartons or Containers Containing a Continuous Length or Strip of Individually Sealed Envelope-Like Containers or Packages for Pills, Tablets, Powders and the Like.
First use June 30, 1965.

Class 3—Baggage, Animal Equipments, Portfolios, and Pocketbooks

828,910. Superior Pet Products, Inc., Boston, Mass. SN 236,525. Filed P.R. 1-14-66; Am. S.R. 2-3-67.

BON-BONE

For Rolled Beefhide Product Resembling a Dog Bone, Packaged for Distribution by Others.
First use Nov. 8, 1965.

Class 6—Chemicals and Chemical Compositions

828,911. Spartan Chemical Corp., Paterson, N.J. SN 239,082. Filed P.R. 2-17-66; Am. S.R. 3-14-67.

EDGEBIND

For Chemical Composition To Be Applied to the Edges of Textile Fabrics To Eliminate Raveling.
First use Nov. 12, 1965.

Class 12—Construction Materials

828,912. Owens-Corning Fiberglas Corporation, Toledo, Ohio. SN 193,035. Filed P.R. 5-8-64; Am. S.R. 3-6-67.

THE HOME OF TOTAL COMFORT

The drawing is lined for the colors grey and gold.
For Mats, Batts, Boards, Panels, and Packs of Fibrous Glass for Acoustical and Thermal Insulation and for Ceiling Panels.
First use October 1963.

Class 18—Medicines and Pharmaceutical Preparations

828,913. Progressive Drugs of America, Inc., d.b.a. Progressive Drugs, Chattanooga, Tenn. SN 240,393. Filed 3-7-66.

EASY TABS

For Proprietary Medicine for Easing Tension (Tablet).
First use Jan. 27, 1965.

Class 22—Games, Toys, and Sporting Goods

828,914. Oliver C. Wolf, De Witt, N.Y. SN 218,511. Filed P.R. 5-10-65; Am. S.R. 3-20-67.

KLUBKARE

For Kit for Polishing and Maintaining Golf Equipment.
First use May 4, 1965.

828,915. James Johnstone, Jr., Pitman, N.J. SN 236,387. Filed P.R. 1-13-66; Am. S.R. 1-23-67.

STOCK CAR SPEEDWAY

For Apparatus Sold as a Unit for Playing a Racing-Type Board Game.
First use June 21, 1965.

828,916. Renwal Products, Inc., Mineola, N.Y. SN 241,275. Filed P.R. 3-17-66; Am. S.R. 3-16-67.

COLLECTORS SHOWCASE SERIES

For Model Car Assembly Kits.
First use Mar. 3, 1966.

828,917. Western Import, Inc., Portland, Oreg. SN 243,051. Filed P.R. 4-8-66; Am. S.R. 3-23-67.

Toy Mark

For Toy Vehicles—Namely, Toy Cement Mixers, Dump Trucks, Bulldozers, Power Shovels, Fire Engines, Road Graders; and Toy Firearms—Namely, Toy Rifles, Pistols, Carbines, Machine Guns, and Cork Guns.
First use Dec. 22, 1965.

828,918. Western Import, Inc., Portland, Oreg. SN 243,052. Filed P.R. 4-8-66; Am. S.R. 3-23-67.

APPROVED

For Toy Vehicles—Namely, Friction Cars, Tanks and Jets; Cork Guns; Children's Tea Sets and Kitchen Utensils; Dolls; Toy Furniture; Toy Magnets and Telescopes; Toy Flying Saucers and Gliders; Rubber Swords; Toy Handcuffs; Sling Shots; Toy Musical Instruments; Bubble Pipes; Games, Puzzles and Novelties; Toy Rings (Jewelry); and Balls.
First use Feb. 5, 1966.

828,919. Browning Arms Company, Mountain Green, Utah. SN 261,127. Filed 12-20-66.

BROWNING

For Vaulting Poles, Fishing Rods, Fishing Rod Cases.
First use on or about Nov. 15, 1962.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

828,920. Societe Francaise d'Etiquetage Virey & Garnier, Nogent sur Marne, France. SN 242,672. Filed P.R. 4-4-66; Am. S.R. 3-13-67.

VIREY

Priority claimed under Sec. 44(d) on French Reg. No. 2,014, dated Oct. 6, 1965.
For Labelling Machines and Parts Thereof.

828,921. Societe Francaise d'Etiquetage Virey & Garnier, Nogent sur Marne, France. SN 242,674. Filed P.R. 4-4-66; Am. S.R. 3-13-67.

GARNIER

Priority claimed under Sec. 44(d) on French Reg. No. 2,015, dated Oct. 6, 1965.
For Labelling Machines and Parts Thereof.

Class 26—Measuring and Scientific Appliances

828,922. C. G. Conn, Ltd., Elkhart, Ind. SN 201,927. Filed P.R. 9-15-64; Am. S.R. 3-23-67.

STROBOTUNER

For Electronic Instruments for Indicating the Frequency of Sound
First use February 1954.

Class 32—Furniture and Upholstery

828,923. Barry Wright Corporation, Watertown, Mass. SN 244,051. Filed P.R. 4-21-66; Am. S.R. 3-20-67.

TAPE-SEAL

For Cabinets, Stands, Racks, and Carriers for the Storage and Transportation of Reels of Magnetic Tape.
First use Mar. 14, 1966.

Class 38—Prints and Publications

828,924. Animation Productions Limited, Toronto, Ontario, Canada. SN 192,659. Filed P.R. 5-5-64; Am. S.R. 4-19-65.

ANIMATION PRODUCTIONS
INSTANT COMMERCIALS
INSTANT ANIMATION

Priority claimed under Sec. 44(d) on Canadian application filed Dec. 28, 1963; Reg. No. 149,231, dated Feb. 10, 1967.
For Motion Picture Story Boards of Animated Commercials for Television, Films for Advertising Purposes and a Library of Animated Television Commercials and Story Boards for Use by Television Stations.

828,925. Gospel Light Publications, Glendale, Calif. SN 236,091. Filed P.R. 1-10-66; Am. S.R. 3-20-67.

LESSON STRIPS

For Packets of Bible Teaching Materials, Containing Film Strips, Lesson Books, Pictures, Maps, and Related Visual Aid Materials.
First use Aug. 1, 1965.

828,926. John D. Davis, London, England. SN 238,932. Filed P.R. 2-16-66; Am. S.R. 4-3-67.

KEY FACTS

For Printed Summaries, in the Form of Packs of Cards, of Courses of Study for Use by Students.
First use Feb. 1, 1966; in commerce Feb. 1, 1966.

828,927. Foto Features, Inc., Woodland, Calif., by change of name from Foto Fillers, Inc., Woodland, Calif. SN 242,582. Filed P.R. 4-4-66; Am. S.R. 3-23-67.

FOTO FILLERS

For Photographs for Offset Newspapers and Publications for Filling Space in Publications.
First use Dec. 1, 1965.

828,928. Tower Press, Inc., Lynn, Mass. SN 244,156. Filed P.R. 4-22-66; Am. S.R. 3-27-67.

POPULAR HANDICRAFT

For Monthly Magazine.
First use in or about January 1965.

828,929. American Business Press, Inc., New York, N.Y. SN 246,431. Filed P.R. 5-24-66; Am. S.R. 3-20-67.

BETTER EDITING

For Magazine.
First use Oct. 20, 1965.

Class 39—Clothing

828,930. Wembley, Inc., New Orleans, La. SN 216,032. Filed P.R. 4-7-65; Am. S.R. 5-2-66.

BARRETT

For Men's Neckwear.
First use Feb. 1, 1965.

Class 45—Soft Drinks and Carbonated Waters

828,931. Jean Allary, Brive, Correze, France. SN 238,146. Filed P.R. 2-7-66; Am. S.R. 3-13-67.

BELORANGE

Owner of French Reg. No. 542, dated May 31, 1954 (Brive); Natl. Inst. No. 36,958.
For Carbonated Soft Drinks.

Class 46—Foods and Ingredients of Foods

828,932. Quality Grated Cheese Co., Inc., Medford, Mass. SN 205,963. Filed P.R. 11-10-64; Am. S.R. 11-16-66.

Quality
BRAND

For Grated Cheese and Spices.
First use Mar. 15, 1945.

828,933. Fisher Cheese Company, Wapakoneta, Ohio. SN 221,712. Filed P.R. 6-22-65; Am. S.R. 3-7-67.

NIBBLIN' CHEESE

For Cheese.
First use Feb. 25, 1955.

828,934. Ramsey Laboratories, Inc., Cleveland, Ohio, by merger from McCadam Dairy Products Corp., Cleveland, Ohio. SN 230,061. Filed P.R. 10-13-65; Am. S.R. 9-28-66.

McCADAM FOODS

The drawing is lined for red and blue.
For Prepared Foods—Namely, Cottage Cheese and Sour Cream Dressing, Chicken Pot Pie, Macaroni Salad, Bar-B-Q Chicken, Shrimp Croquettes, and Cod Fish Cakes.
First use Aug. 15, 1965.

828,935. Martha White, Inc., d.b.a. Martha White Mills Inc., Nashville, Tenn. SN 235,448. Filed P.R. 12-28-65; Am. S.R. 1-31-67.

OLD FASHIONED GOOD
SPUDFLAKES
NEW FANGLED EASY

For Instant Potatoes.
First use Nov. 16, 1965.

828,936. Pierce Pre-Cooked Foods, Inc., Moorefield, W. Va. SN 236,282. Filed P.R. 1-12-66; Am. S.R. 3-20-67.

TRU-DANISH

For Edible Breading and Batter Mix Applied as a Coating by Applicant to Frozen Precooked Poultry Parts Which It Prepares for Sale and Sells.
First use Mar. 1, 1965.

828,937. Beatrice Foods Co., d.b.a. Mrs. Leland's Kitchen, Chicago, Ill. SN 243,396. Filed P.R. 4-14-66; Am. S.R. 2-9-67.

TOFFEE-ETTES

For Candy.
First use Jan. 24, 1966.

Class 47—Wines

828,938. Francesco Bertelli S.p.A., Lucca, Italy. SN 223,630. Filed 7-19-65.



Owner of Italian Reg. Nos. 129,349, dated Mar. 10, 1955, and 155,610, dated Apr. 14, 1961; and U.S. Reg. No. 628,036.
For Rose Wines.

828,939. Ottavio Riccadonna S.p.A., Turin, Italy. SN 249,064. Filed P.R. 6-27-66; Am. S.R. 3-13-67.



The mark consists of the configuration of a bottle together with the labels, wording and designs thereon. Priority claimed under Sec. 44(d) on Italian application filed Feb. 19, 1966; Reg. No. 179,321, dated June 30, 1966. Owner of U.S. Reg. No. 825,410.
For Sparkling Wines.

Class 49—Distilled Alcoholic Liquors

828,940. David Sherman Corporation, d.b.a. Scotch Importers, Ltd., St. Louis, Mo. SN 231,858. Filed P.R. 10-29-65; Am. S.R. 3-27-67.

HIGHLAND LIGHT

For Scotch Whisky.
First use Oct. 15, 1965.

Class 50—Merchandise Not Otherwise Classified

828,941. Ralph Kuehnel, d.b.a. Kuehnel Originals, Denver, Colo. SN 235,834. Filed P.R. 1-5-66; Am. S.R. 3-13-67.

KUEHNEL ORIGINAL

For Wedding Display Ornaments, Christmas Decorations.
First use 1963.

828,942. Sweetheart Plastics, Inc., Wilmington, Mass. SN 239,336. Filed P.R. 2-21-66; Am. S.R. 3-13-67.

BEND A STRAW

The portion "Straw" is disclaimed apart from the mark "Bend a Straw" as a whole.
For Plastic Drinking Straws.
First use Feb. 14, 1966.

828,943. Barrack Industries, Inc., Springdale, Ark. SN 242,322. Filed P.R. 3-31-66; Am. S.R. 3-29-67.

Guld-in Glaze

For Antiquing Kits Comprising Gilding Liquid, Antiquing Liquid, Application Brush, Wiping Cloth and Sandpaper.
First use Mar. 14, 1966.

828,944. Robert F. Kenny, d.b.a. Eastern Sales Company, Basking Ridge, N.J. SN 248,916. Filed P.R. 6-24-66; Am S.R. 4-3-67.

SHRUB-BAGS

For Plastic Bags Used To Cover and Protect Plants and Shrubs in Winter as Protection Against Wind, Ice, and Snow.
First use June 10, 1965.

Class 51—Cosmetics and Toilet Preparations

828,945. Beauty Counselors, Inc., Grosse Pointe, Mich. SN 232,656. Filed P.R. 11-15-65; Am. S.R. 3-27-67.

PASTEL BLUSH

For Facial Makeup in Powder-Cake Form With Applicator Brush.
First use Jan. 15, 1965.

Service Marks

Class 101—Advertising and Business

828,946. The Type House, Inc., Minneapolis, Minn. SN 226,493. Filed P.R. 8-2-65; Am. S.R. 3-28-67.



TYPE HOUSE

For Printing Services, Including Make-Up Composition and Furnishing All Types of Printing Surfaces for Others.
First use on or about Jan. 12, 1965.

828,947. Campbell Associates, Inc., Washington, D.C. SN 228,005. Filed P.R. 9–17–65; Am. S.R. 1–10–67.

WASHINGTON INTERNATIONAL BOAT AND SPORT SHOW

For Staging Trade Shows for Manufacturers in the Boat and Sports Equipment Industries.
First use March 1962.

828,948. Partime, Inc., Radnor, Pa. SN 239,076. Filed P.R. 2–17–66; Am. S.R. 3–22–67.

partime

For Temporary Office Help Services.
First use September 1963.

Class 103 — Construction and Repair

828,949. The Goodyear Tire & Rubber Company, Akron, Ohio. SN 239,514. Filed P.R. 2–24–66; Am. S.R. 3–6–67.

CAR CARE CLINIC

For Automotive Analysis and Repair Services.
First use Aug. 26, 1965.

Class 105 — Transportation and Storage

828,950. Trailer Train Company, Haverford, Pa. SN 221,765. Filed P.R. 6–22–65; Am. S.R. 1–11–67.

TRAILER TRAIN

For Making Available a Controlled National Pool of Specialized Yet Interchangeable Railroad Flat Cars for Use by Contracting Railroads in Their Respective Trailer-on-Flat-Car and Automobile Rack Carriage Services and Similar Services.
First use November 1955.

Class 106 — Material Treatment

828,951. Fox-Stanley Photo Products, Inc., San Antonio, Tex. SN 212,668. Filed P.R. 2–24–65; Am. S.R. 10–20–66.



For Development and Process Printing of Both Movie and Still Film.
First use Jan. 15, 1965.

TRADEMARK REGISTRATIONS RENEWED

61,437. CONFECTIONERS JOURNAL AND DESIGN. Cl. 38. 3–19–07.
61,497. THE RISING HOPE. Cl. 17. 3–26–07.
61,620. PERFECTION. Cl. 37. 3–26–07.
62,560. S.S.P. CO. PURITAS ETCURA AND DESIGN. Cl. 46. 5–14–07.
64,221. SANDEMAN. Cl. 47. 7–30–07.
64,351. STEWART. Cl. 23. 8–6–07.
65,028. STRONG HOLD AND DESIGN. Cl. 35. 9–3–07.
223,069. WHITE ROSE. Cl. 46. 1–18–27.
223,589. TRIBOUT. Cl. 41. 2–8–27.
224,220. TRIBOUT. Cl. 39. 2–22–27.
224,948. ANKORITE. Cl. 35. 3–8–27.
225,427. BAYER. Cl. 6. 3–15–27.
225,572. TRIBOUT. Cl. 39. 3–22–27.
225,652. BAKWEL. Cl. 46. 3–22–27.
225,885. THE JUNKET FOLKS. Cl. 46. 3–29–27.
226,181. HOME MAKERS. Cl. 16. 4–5–27.
226,288. NYKO AND DESIGN. Cl. 51. 4–5–27.
226,686. PARABASE. Cl. 15. 4–19–27.
226,707. MOBILGAS. Cl. 15. 4–19–27.
227,244. CUBER. Cl. 23. 5–3–27.
227,292. POUR LE SPORT. Cl. 51. 5–3–27.
228,083. BABY RUTH. Cl. 46. 5–24–27.
228,233. BABY RUTH. Cl. 46. 5–24–27.
228,387. NU-TRIX AND DESIGN. Cl. 23. 5–31–27.
228,566. POWERITE. Cl. 35. 6–7–27.
228,609. PURE MILK BETTER HEALTH AND DESIGN. Cl. 46. 6–7–27.
228,947. DUOFLEX. Cl. 35. 6–14–27.
228,970. PETER PAN. Cl. 29. 6–14–27.
229,920. LIGHT GLOW. Cl. 51. 7–12–27.
230,737. SPEEDOLITE AND DESIGN. Cl. 35. 8–2–27.
230,873. PRIDE OF ILLINOIS. Cl. 46. 8–9–27.
230,890. JOAN OF ARC. Cl. 46. 8–9–27.
231,194. BROOKFORD. Cl. 39. 8–16–27.
231,208. SELBY. Cl. 14. 8–16–27.
231,618. QUIKARD. Cl. 12. 8–23–27.
232,096. ALPHADEN. Cl. 18. 8–30–27.
425,728. CHARVET & FILS, INC. Cl. 39. 12–3–46.
425,729. CHARVET ET FILS, INC. Cl. 39. 12–3–46.
426,987. STORECASTING. Cl. 21. 1–21–47.
427,094. STYNAMITE. Cl. 52. 1–28–47.
427,412. ORATOR. Cl. 27. 2–11–47.
427,698. L. C. SMITH. Cl. 9. 2–18–47.
427,699. HUNTER. Cl. 9. 2–18–47.
428,276. CROWN. Cl. 9. 3–18–47.
428,381. SPHEREKOTE. Cl. 50. 3–25–47.
428,386. FRUEN'S. Cl. 46. 3–25–47.
428,429. FEMCO. Cl. 21. 3–25–47.
428,516. CRITERION. Cl. 42. 3–25–47.
428,517. DANCRAFT. Cl. 42. 3–25–47.
428,518. DREAMHOUSE. Cl. 42. 3–25–47.
428,629. P-A-C. Cl. 18. 4–1–47.
428,646. EPHEDRATE. Cl. 18. 4–1–47.
428,750. OPALATE. Cl. 6. 4–1–47.
428,773. ATOMIC. Cl. 6. 4–1–47.
428,808. OLAG. Cl. 51. 4–1–47.
429,036. DURIDINE. Cl. 4. 4–15–47.
429,052. BEAVER AND EAGLE DESIGN. Cl. 39. 4–15–47.
429,268. GELFOAM. Cl. 44. 4–29–47.
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429,906. MIRACLE AND DESIGN. Cl. 5. 5–20–47.
430,127. CLIMAX. Cl. 46. 6–10–47.
430,136. RECTOCILLIN. Cl. 18. 6–10–47.
430,266. BEE BRAND. Cl. 52. 6–10–47.
430,329. GLOBAL. Cl. 46. 6–10–47.
430,414. NOVOCOL. Cl. 18. 6–10–47.
430,571. SUNBEAM. Cl. 33. 6–17–47.

430,633. PANOLENE. Cl. 39. 6–17–47.
430,828. F-3. Cl. 21. 6–24–47.
430,888. STAPHENE. Cl. 6. 7–1–47.
431,282. RANCHO. Cl. 7. 7–15–47.
431,380. WALTHAM AND DESIGN. Cl. 27. 7–22–47.
431,414. 5 STAR DESIGN. Cl. 38. 7–22–47.
431,492. LADY EXCELLENCY. Cl. 27. 7–22–47.
431,493. MISS EXCELLENCY. Cl. 27. 7–22–47.
431,844. POLYAC. Cl. 6. 8–12–47.
431,953. G WASHINGTON'S. Cl. 46. 8–12–47.
432,059. SUNBEAM. Cl. 13. 8–19–47.
432,455. SERVITOR AND DESIGN. Cl. 39. 9–2–47.
432,577. PAY WAY FEEDS AND DESIGN. Cl. 46. 9–9–47.

Erratum

In the OFFICIAL GAZETTE of March 28, 1967, at page TM 188, under Trademark Registrations Renewed, "225,245. CRYTAL BAY. Cl. 46. 6–8–26." should be deleted and *215,995. CRYSTAL BAY. Cl. 46. 6–8–26.* should be inserted.

TRADEMARK REGISTRATIONS CANCELED

Section 7(d)

95,894. HUM RENO. Cl. 46. 8–24–14.
143,687. PRESTIGE. Cl. 46. 6–7–21.
549,593. PUFFIN. Cl. 46. 10–16–51.
576,984. TOLAMIC. Cl. 18. 7–7–53.
632,129. ACCELERINE. Cl. 18. 8–7–56.
680,880. CAROLINA MAID. Cl. 46. 6–23–59.
683,750. VISKING AND DESIGN. Cl. 6. 8–25–59.
712,945. FIRST CHOICE. Cl. 46. 3–21–61.
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738,766. OLE MISS. Cl. 46. 10–2–62.
747,257. ESCAP. Cl. 27. 3–26–63.
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777,122. BONNIE MAY. Cl. 46. 9–15–64.
777,124. SOUTHERN DELIGHT. Cl. 46. 9–15–64.
777,125. HARVEST MAID. Cl. 46. 9–15–64.
793,846. ORBAY & CERRATO. Cl. 32. 8–3–65.
794,540. FLEXI-PACK. Cl. 46. 8–17–65.
799,874. MANAGEMENT COLLECTION. Cl. 32. 12–7–65.

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712,989. VANITI-MIST. Cl. 2.
712,993. CONGRESSIONAL. Cl. 3.
712,996. STRIKE. Cl. 4.
713,001. CINNARYL. Cl. 6.
713,005. OLD SETTLER. Cl. 6.
713,006. TILT-O-PANE. Cl. 12.
713,016. MAGILOK. Cl. 13.
713,019. KWIK KLEET. Cl. 13.
713,022. SHALCO. Cl. 14.
713,023. REYNOLDS WRAP JR. Cl. 14.
713,024. STRATMETAL. Cl. 14.
713,025. SOUTHERN AND DESIGN. Cl. 13.
713,029. ESCORT. Cl. 15.
713,030. EL PASO AND DESIGN. Cl. 15.
713,031. EL PASO TRANSPOWER AND DESIGN. Cl. 15.
713,032. EP EL PASO AND DESIGN. Cl. 15.
713,033. EL PASO AND DESIGN. Cl. 15.
713,034. EL PASO RED FLAME AND DESIGN. Cl. 15.
713,043. MAGI-FOAM PAINTS. Cl. 16.
713,047. ROYALON. Cl. 16.
713,050. CAVENDISH IMPERIAL. Cl. 16.
713,060. ROVASONE. Cl. 18.
713,062. PLEIN-CIEL. Cl. 19.
713,063. GRAND LARGE. Cl. 19.
713,064. CHATELAINE. Cl. 19.
713,065. MESSAGERE. Cl. 19.
713,066. BEAULIEU. Cl. 19.
713,067. CHAMBORD. Cl. 19.
713,068. CORVAN. Cl. 19.
713,070. ARIANE. Cl. 19.
713,072. CAMP CAR. Cl. 19.
713,073. SNUG-ON. Cl. 19.
713,074. OSPRAY. Cl. 19.
713,075. HACIENDA. Cl. 19.
713,076. LARK. Cl. 19.
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713,080. ELECTRO-PLEX. Cl. 21.
713,081. DIGITRON. Cl. 21.
713,082. ADLER AND DESIGN. Cl. 21.
713,085. POWER SPAN. Cl. 21.
713,086. LITEALL. Cl. 21.
713,088. COMMAIRE. Cl. 21.
713,096. TENO. Cl. 22.
713,097. SUPER CORONA AND DESIGN. Cl. 22.
713,098. RITE-DEPTH. Cl. 22.
713,099. PANTHER PISTOL. Cl. 22.
713,106. GEOMETRIC DESIGN. Cl. 23.
713,107. PDQ PLOW DOWN QUICK AND DESIGN. Cl. 23.
713,112. TECUMSEH POWER PRODUCTS AND DESIGN. Cl. 23.
713,113. CELTO FORM. Cl. 23.
713,114. THERM-O-RITE. Cl. 23.
713,115. GLU-LOK AND DESIGN. Cl. 23.
713,118. TORK-SEL. Cl. 23.
713,119. THERMINJECTOR. Cl. 23.
713,121. ROTA-BUCK. Cl. 23.
713,122. SAANSAW. Cl. 23.
713,124. DOFF-RITE. Cl. 23.
713,133. STEP-UP. Cl. 24.
713,136. LEVELITE. Cl. 26.
713,137. ROBIN. Cl. 26.
713,138. SCRATCHOMETER. Cl. 26.
713,139. CARTACH. Cl. 26.
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713,178. TRABLE. Cl. 32.
713,194. SIX-O-MATIC. Cl. 38.
713,201. JPN SHOW DAILY. Cl. 38.
713,208. YOUR ROSE MARIE ETC. AND DESIGN. Cl. 39.
713,209. REPRESENTATION OF CROWN. Cl. 39.
713,210. DEB-U-FORM. Cl. 39.
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713,214. PRO GARD. Cl. 39.
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713,225. SNAP-A-MATIC. Cl. 39.
713,226. GOLDEN-EASE AND DESIGN. Cl. 39.
713,229. PATCH-NICKS. Cl. 39.
713,231. AN-A-TUK ETC. AND DESIGN. Cl. 39.
713,237. EDBROWN TERRY MONOGRAMS. Cl. 42.
713,243. FURLON. Cl. 42.
713,245. STARLINER. Cl. 42.
713,247. SOUTHERN AND DESIGN. Cl. 44.
713,250. CHEMOCIDE. Cl. 46.
713,254. MF DAIRY DIP AND DESIGN. Cl. 46.
713,259. SMITH'S TREAT. Cl. 46.
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713,271. FLO-MATIC. Cl. 50.
713,276. NORTHERN LIGHTS. Cl. 50.
713,282. SANICUTAN. Cl. 51.
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674,865. PERSANTIN. Cl. 18. 3-3-59.

713,380. GERMAN CA AND DESIGN. Cl. 15. 4-4-61.
725,350. AW AND DESIGN. Cl. 33. 12-19-61.
743,456. DOVER. Cl. 36. 1-8-63.
745,070. BANDRUFF. Cl. 18. 2-12-63.
757,893. SPEED QUEEN AND DESIGN. Cl. 52. 10-1-63.
786,449. GIRL TALK. Cl. 39. 3-9-65.

TRADEMARK REGISTRATIONS AMENDED, DISCLAIMED, CORRECTED, ETC.

224,976. THE GENTLEMAN'S QUARTERLY. Cl. 38. 3-8-27. Men's Wear Service Corporation. Esquire, Inc., New York, N.Y. Amended to appear:

GENTLEMEN'S QUARTERLY

726,143. NELSON. Cl. 12. 1-9-62. Gregory Industries, Inc., Lorain, Ohio. Amended: In the statement, column 2, line 3, "expansion shell anchors," is deleted.

733,947. TEMPORARY TALENT AND DESIGN. Cl. 101. 7-3-62. James H. Pair, doing business as Temporary Talent. Temporary Talent, Inc., Atlanta, Ga. Amended to appear:

TEMPORARY TALENT

762,722. VELVETIP. Cl. 29. 1-7-64. Phillips Brush Corporation, Cleveland, Ohio. Amended: In the statement, column 2, line 1, "hairbrushes" is deleted and *women's hairbrushes distributed solely through wholesale beauty supply dealers for use in beauty salons* is inserted.

775,433. FLUSH-A-BYES. Cl. 39. 8-18-64. Facelle Company Limited, Toronto, Ontario, Canada. Amended to appear:

FLUSHABYES

811,363. STROMBERG. Cl. 37. 7-19-66. General Time Corporation. Mite Corporation, New Haven, Conn. Corrected: In the statement, column 1, before line 1, *Mite Corporation (Delaware corporation), 446 Blake St., New Haven, Conn., assignee of* should be inserted.

811,702. STROMBERG. Cl. 32. 7-26-66. General Time Corporation. Mite Corporation, New Haven, Conn. Corrected: In the statement, column 1, before line 1, *Mite Corporation (Delaware corporation), 446 Blake St., New Haven, Conn., assignee of* should be inserted.

813,364. STROMBERG. Cl. 21. 8-23-66. General Time Corporation. Mite Corporation, New Haven, Conn. Corrected: In the statement, column 1, before line 1, *Mite Corporation (Delaware corporation), 446 Blake St., New Haven, Conn., assignee of* should be inserted.

813,365. STROMBERG. Cl. 21. 8-23-66. General Time Corporation. Mite Corporation, New Haven, Conn. Corrected: In the statement, column 1, before line 1, *Mite Corporation (Delaware corporation), 446 Blake St., New Haven, Conn., assignee of* should be inserted.

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MAY 16, 1967

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Adams Equipment Co.: *See*—
Adams, George R.
Adams, George R., d.b.a. Adams Equipment Co., Berkeley, Mo. 828,790, pub. 2-28-67. Multiple Class (Classes 23 and 52).
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Alchester Mfg. Co., Inc., Magnolia, N.J. 713,211, canc. Cl. 39.
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Allcar Motor Parts Corp., New York, N.Y. 828,804, pub. 2-28-67. Cl. 31.
Allcar Motor Parts Corp., New York, N.Y. 828,815, pub. 2-28-67. Cl. 35.
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Angle Fabrics Co., Inc., New York, N.Y. 828,840, pub. 2-28-67. Cl. 42.
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Brown, Edward D., New York, N.Y. 713,237, canc. Cl. 42.
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Bryant, Robert Clayton, and Richard A. Innes, Warrensburg, Mo. 828,812, pub. 2-28-67. Cl. 34.
Bulova Watch Co., Inc., Flushing, N.Y. 431,492-3, ren. 5-16-67. Cl. 27.
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Carson Chemical Co., d.b.a. Carson Chemical Co., Savannah, Ga. 828,884, pub. 2-28-67. Multiple Class (Classes 51 and 52).
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Cone Mills Corp., d.b.a. Houston Textile Co., Greensboro, N.C., from Anderson, Clayton, & Co., Houston, Tex. 828,831, pub. 2–28–67. Cl. 42.
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Corn Products Co., New York, N.Y. 828,861, pub. 2–28–67. Cl. 46.
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Douglass, Howard W., Jr., d.b.a. Douglass Muffler Mfg. Co., Bell Gardens, Calif. 828,792, pub. 2–28–67. Cl. 23.
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Emery Industries, Inc., Cincinnati, Ohio. 828,904, pub. 2–28–67. Cl. 103.
Ericsson Telephones Ltd., Beeston, Nottingham, England. 713,081, canc. Cl. 21.
Explosives Engineering Corp., Pomona, Calif. 828,731, pub. 2–28–67. Cl. 9.
Facelle Co., Ltd., Toronto, Ontario, Canada. 775,433. Am. 7(d). Cl. 39.
Fairmont Converting Co., Inc., New York, N.Y. 713,245, canc. Cl. 42.
Farmers Engineering & Mfg. Co., Pittsburgh, to Femco, Inc., Irwin, Pa. 428,429, ren. 5–16–67. Cl. 21.
Farmers Market Preserving Kitchen: *See*— Marker's Inc.
Fashion Shoe Co., Boston, Mass. 828,823, pub. 2–28–67. Cl. 39.
Feature Ring Co., Inc., New York, N.Y. 713,155–8, canc. Cl. 28.
Federal Paint Co., Inc., New York, N.Y. 713,050, canc. Cl. 16.
Femco, Inc.: *See*— Farmers Engineering & Mfg. Co.
Ferring AB, Malmo, Sweden. 828,755, pub. 2–28–67. Cl. 18.
Fieldcrest Mills, Inc., Spray, N.C. 828,841, pub. 2–28–67. Cl. 42.
Firestone Tire & Rubber Co., The, Akron, Ohio. 429,801, ren. 5–16–67. Cl. 1.
Fisher Cheese Co., Wapakoneta, Ohio. 828,933. Cl. 40.
Fitzgerald, John J., d.b.a. J. J. Fitzgerald Co., Port Washington, N.Y. 828,745, pub. 2–28–67. Cl. 17.
Fleck, Jack W., d.b.a. Emerald Christmas Tree Co., Bellevue, Wash. 828,907. Cl. 1.
Flex-O-Lators, Inc., Carthage, Mo. 828,806, pub. 2–28–67. Cl. 32.
Flo-Matic Corp., Miami, Fla. 713,271, canc. Cl. 50.
Flud-O-Lite, Inc., Hialeah, Fla. 713,085, canc. Cl. 21.
Folkenflik, Florence, Elizabeth, N.J. 713,161, canc. Cl. 29.
Foreign Vintages, Inc., New York, N.Y. 828,873, pub. 2–28–67. Cl. 49.
Foremost Chemical Products Co.: *See*— Foremost Dairies, Inc.
Foremost Dairies, Inc., d.b.a. Foremost Chemical Products Co., San Francisco, Calif. 828,721, pub. 2–28–67. Cl. 6.
40-Fathom Seafoods, Inc., Chestnut Hill, Mass. 828,856, pub. 2–28–67. Cl. 46.
Foster-McClellan Products, Ltd., Toronto, Ontario, Canada. 828,846, pub. 2–28–67. Cl. 44.
Foto Features, Inc., from Foto Fillers, Inc., Woodland, Calif. 828,927. Cl. 38.
Foto Fillers, Inc.: *See*— Foto Features, Inc.
Fox-Stanley Photo Products, Inc., San Antonio, Tex. 828,951. Cl. 106.
Fruen Milling Co., Minneapolis, Minn. 428,386, ren. 5–16–67. Cl. 46.
Gardner-Denver Co., d.b.a. The Apex Machine & Tool Co., Dayton, Ohio. 828,791, pub. 2–28–67. Cl. 23.
General Mills, Inc., Minneapolis, Minn. 95,894, canc. Cl. 46.
General Mills, Inc., Minneapolis, Minn. 143,697, canc. Cl. 46.
General Mills, Inc., Minneapolis, Minn. 549,593, canc. Cl. 46.
General Mills, Inc., Minneapolis, Minn. 680,850, canc. Cl. 46.
General Mills, Inc., Minneapolis, Minn. 683,150, canc. Cl. 6.
General Mills, Inc., Minneapolis, Minn. 712,915, canc. Cl. 46.
General Mills, Inc., Minneapolis, Minn. 713,006, canc. Cl. 6.
General Mills, Inc., Minneapolis, Minn. 727,206, canc. Cl. 46.
General Mills, Inc., Minneapolis, Minn. 734,751, canc. Cl. 46.
General Mills, Inc., Minneapolis, Minn. 736,766, canc. Cl. 46.
General Mills, Inc., Minneapolis, Minn. 777,121–2, canc. Cl. 46.
General Mills, Inc., Minneapolis, Minn. 777,124–5, canc. Cl. 46.
General Mills, Inc., Minneapolis, Minn. 828,866, pub. 2–28–67. Cl. 46.
General Mills, Inc., Minneapolis, Minn. 828,872, pub. 2–28–67. Cl. 46.
General Motors Corp., Detroit, Mich. 713,008, canc. Cl. 19.
General Motors Corp., Detroit, Mich. 713,149, canc. Cl. 26.
General Petroleum Corp., San Francisco, Calif., to Mobil Oil Corp., New York, N.Y. 226,686, ren. 5–16–67. Cl. 15.
General Refractories Co., Philadelphia, Pa. 828,733, pub. 2–28–67. Cl. 12.
General Time Corp., to Mite Corp., New Haven, Conn. 811,363–5, cor. Cl. 37.
General Time Corp., to Mite Corp., New Haven, Conn. 811,702, cor. Cl. 32.
Gland-O-Lac Co., The: *See*— Ciba Corp.
Glen Raven Knitting Mills, Inc., Glen Raven, N.C. 828,838, pub. 2–28–67. Cl. 42.
Goodyear Tire & Rubber Co., The, Akron, Ohio. 828,772, pub. 2–28–67. Cl. 21.
Goodyear Tire & Rubber Co., The, Akron, Ohio. 828,949. Cl. 103.
Gospel Light Publications, Glendale, Calif. 828,925. Cl. 38.
Gould-National Batteries, Inc.: *See*— Wilkening Mfg. Co.
Governor Fastener Co., The, New York, N.Y. 713,311, canc. Cl. 40.
Grace, W. R., & Co.: *See*— Vestal Chemical Co.
Gregory Industries, Inc., Lorain, Ohio. 720,143. Am. 7(d). Cl. 12.
Greystone, Inc., Altona, Ill. 713,107, canc. Cl. 23.
Grumbacher, M., Inc., New York, N.Y. 828,794, pub. 2–28–67. Cl. 16.
Hansen's, Chr., Laboratory, Inc., Little Falls, N.Y., to Salada Foods Ltd., Don Mills, Ontario, Canada. 225,835, ren. 5–16–67. Cl. 46.
Harvey, Fred, Chicago, Ill. 828,868, pub. 2–28–67. Cl. 46.
Harvey, Fred, Chicago, Ill. 828,900, pub. 2–28–67. Cl. 100.
Harvey, John, & Sons Ltd., Bristol, England. 824,556, cor. Cl. 47.
Hat Corp. of America: *See*— Crofut & Knapp Co.
Haueisen, Batist R., New Augusta, Ind. 713,138, canc. Cl. 26.
Hawkins, W. T., Ltd., Chicago, Ill. 713,261, canc. Cl. 46.
Hearst Metrotone News, Inc., New York, N.Y. 828,899, pub. 2–28–67. Cl. 100.
Heather Co., to American Home Products Corp., New York, N.Y. 229,920, ren. 5–16–67. Cl. 51.
Heaven Hill Distilleries, Inc., d.b.a. Mark Twain Distilling Co., Bardstown, Ky. 828,874, pub. 2–28–67. Cl. 49.
Helio Aircraft Corp., Bedford, Mass. 828,784–6, pub. 2–28–67. Cl. 19.
Holt Hosiery Corp., New York, N.Y. 713,220, canc. Cl. 39.
Hol-Tite Products Inc., Lyndhurst, N.J. 712,996, canc. Cl. 4.
Hopp Press, Inc., The, New York, N.Y. 828,877, pub. 2–28–67. Cl. 50.
Host Pajamas, Inc., New York, N.Y. 828,826, pub. 2–28–67. Cl. 39.
Household Finance Corp., Chicago, Ill. 828,902, pub. 2–28–67. Cl. 102.
Household Products Co.: *See*— Plee-Zing, Inc.
Houston Textile Co.: *See*— Cone Mills Corp.
Howard, John E., Baltimore, Md. 713,113, canc. Cl. 23.
Hunley Mfg. Co., The, Lancaster, Pa. 713,099, canc. Cl. 22.
Hunt Foods, Inc.: *See*— Hunt-Wesson Foods, Inc.

Hunt Foods and Industries, Inc.: *See*— Hunt-Wesson Foods, Inc.
Hunt-Wesson Foods, Inc., from Hunt Foods and Industries, Inc., d.b.a. Hunt Foods, Inc., Fullerton, Calif. 828,857, pub. 2–28–67. Cl. 46.
Hygienol Co., Inc.: *See*— Maurice Levy Co., Inc., The.
Illinois Canning Co., The, Hoopeston, Ill. 230,873, ren. 5–16–67. Cl. 46.
Illinois Canning Co., The, Hoopeston, Ill. 230,890, ren. 5–16–67. Cl. 46.
Industrial Specialties, Barrington, Ill. 828,797, pub. 2–28–67. Cl. 23.
Industriewerk Schaeffler, O.H.G., Herzogenaurach/Nurnberg, Germany. 828,795–6, pub. 2–28–67. Multiple Class (Classes 23 and 26).
Inter-Continental Chemical Corp., Cincinnati, Ohio. 828,739, pub. 2–28–67. Cl. 15.
International Harvester Co., Chicago, Ill., from Western Bye-Hoe, Inc., San Martin, Calif. 828,793, pub. 2–28–67. Cl. 23.
International Milling Co., Inc.: *See*— Commercial Milling Co.
International Paper Co., New York, N.Y. 828,811, pub. 2–28–67. Cl. 32.
Ironees Co., The, Philadelphia, Pa. 828,799, pub. 2–28–67. Cl. 24.
Irwill Knitwear Corp., New York, N.Y. 828,828, pub. 2–28–67. Cl. 39.
Ives-Cameron Co.: *See*— American Home Products Corp.
Jakosky, John J., Newport Beach, Calif. 713,077, canc. Cl. 21.
Janssen Pharmaceutica NV., Beerse, Belgium. 828,754, pub. 2–28–67. Cl. 18.
Jobber Product Publishing Corp., Chicago, Ill. 713,201, canc. Cl. 38.
Johnstone, James, Jr., Pitman, N.J. 828,915. Cl. 22.
Jolly Toys, Inc., New York, N.Y. 828,778, pub. 2–28–67. Cl. 22.
Kayser-Roth Corp.: *See*— Roth, Chester H., Co., Inc.
Kayser-Roth Corp., New York, N.Y. 828,824, pub. 2–28–67. Cl. 39.
Keller Industries, Inc., Miami, Fla. 828,774, pub. 2–28–67. Cl. 21.
Kellogg Co., Battle Creek, Mich. 828,860, pub. 2–28–67. Cl. 46.
Kenny, Robert F., d.b.a. Eastern Sales Co., Basking Ridge, N.J. 828,944. Cl. 50.
Koppers Co., Inc., Pittsburgh, Pa. 713,115, canc. Cl. 23.
Kramer, Jack, Sportswear, Inc., Los Angeles, Calif. 713,209, canc. Cl. 39.
Kremers-Urban Co. 570,984, canc. Cl. 18.
Kuehnel Originals: *See*— Kuehnel, Ralph.
Kuehnel, Ralph, d.b.a. Kuehnel Originals, Denver, Colo. 828,941. Cl. 50.
Kute Kiddies Coats, Inc., New York, N.Y. 713,231, canc. Cl. 39.
Lanolin Plus, Inc., to Hazel Bishop Inc., Newark, N.J. 720,760. Am. 7(d). Cl. 52.
Lanvin-Charles of The Ritz, Inc., New York, N.Y. 828,886–7, pub. 2–28–67. Cl. 51.
Last Six, Inc., Littleton, Colo. 713,194, canc. Cl. 38.
Laudermilk and Yoder, Long Beach, Calif. 713,303, canc. Cl. 107.
Le Porte-Echappement Universel S.A. (The Universal Escapement Ltd.). 747,257, canc. Cl. 27.
Leroy, John, & Son, Inc., Camden, N.J. 828,851, pub. 2–28–67. Cl. 46.
Les Parfums Chypron S.A., Bois-Colombes, Seine, France. 713,282, canc. Cl. 51.
Les Parfums Sterle, Paris, France. 828,879, pub. 2–28–67. Cl. 51.
Levelite, Inc., New Rochelle, N.Y. 713,136, canc. Cl. 26.
Levine, Bennett, Baltimore, Md. 713,301, canc. Cl. 107.
Levinsohn Bros. & Co., Inc., New York, N.Y. 218,052. Am. 7(d). Cl. 39.
Levy, Maurice, Co., Inc., The, to Hygienol Co., Inc., New Rochelle, N.Y. 228,970, ren. 5–16–67. Cl. 29.
Li & Fung, Ltd., Hong Kong. 828,730, pub. 8–6–63. Cl. 9.
Lilley, Henry E., d.b.a. Yorktowne Optical Co., York, Pa. 713,150, canc. Cl. 26.
Ling Research Corp., Beverly Hills, Calif. 713,043, canc. Cl. 16.
Lion Dry Goods Co., The, Toledo, Ohio, to Mercantile Stores Co., Inc., Wilmington, Del. 231,194, ren. 5–16–67. Cl. 39.
Livermore, H. F., Corp., Boston, Mass. 713,124, canc. Cl. 23.
London, Aaron: *See*— Cellofex Corp.
Lynn, Toni, Enterprises, Graham, N.C. 828,785, pub. 2–28–67. Cl. 22.
Magazines For Industry, Inc.: *See*— Confectioner's Journal Publishing Co., The.
Major Mark, Inc., Belleville, Ill. 828,775, pub. 2–28–67. Cl. 22.
Malabar Dietaries, Los Angeles, Calif. 828,859, pub. 2–28–67. Cl. 46.
Mark Twain Distilling Co.: *See*— Heaven Hill Distilleries, Inc.
Marker's Inc., Downey, Calif., from R. B. Sawtelle, d.b.a. Farmers Market Preserving Kitchen. 828,850, pub. 2–28–67. Cl. 46.
Marlin Firearms Co., The: *See*— Smith, L. C., Gun Co., Inc., The.
Mattel, Inc., Hawthorne, Calif. 828,784, pub. 2–28–67. Cl. 22.
May Way Feed Mills, Inc., to Pay Way Feed Mills, Inc., Kansas City, Mo. 432,577, ren. 5–16–67. Cl. 46.
Mayes, V., & Co. (Australia) Proprietary Ltd., Moorabbin, near Melbourne, Australia. 713,210, canc. Cl. 39.
McCadam Dairy Products Corp.: *See*— Ramsey Laboratories, Inc.
McCormick & Co., Inc., Baltimore, Md. 430,266, ren. 5–16–67. Cl. 52.
McGraw-Hill, Inc., New York, N.Y. 828,820, pub. 2–28–67. Cl. 38.
Mead Johnson & Co., Evansville, Ind. 828,869–71, pub. 2–28–67. Cl. 46.
Mendelson, Palmer C., Co., to Mendelson-Zeller Co., Inc., San Francisco, Calif. 430,329, ren. 5–16–67. Cl. 46.
Mendelson-Zeller Co., Inc.: *See*— Mendelson, Palmer C., Co.
Mennen Co., The, Morristown, N.J. 828,880, pub. 2–28–67. Cl. 51.
Men's Wear Service Corp., Esquire, Inc., New York, N.Y. 224,976. Am. 7(d). Cl. 38.
Mercantile Stores Co., Inc.: *See*— Lion Dry Goods Co., The.
Meredith Publishing Co., Des Moines, Iowa. 431,414, ren. 5–16–67. Cl. 38.
Meyer, Charles A., d.b.a. The Alphaden Co., to The Alphaden Co., Chicago, Ill. 232,096, ren. 5–16–67. Cl. 18.
Milazzo, Paul J., d.b.a. Campaign Game Co., Garden City, N.Y. 828,780, pub. 2–28–67. Cl. 22.
Milchem Inc., Houston, Tex. 828,712, pub. 2–28–67. Cl. 6.
Milk Foods, Inc., d.b.a. Milk Foods, Inc., Modesto, Calif. 713,254, canc. Cl. 46.
Minnesota Mining and Mfg. Co., St. Paul, Minn. 428,881, ren. 5–16–67. Cl. 50.
Miracle Adhesives Corp., Newark, N.J., to Miracle Adhesives Corp., Bellmore, N.Y. 429,906, ren. 5–16–67. Cl. 5.
Mrs. Leland's Kitchen: *See*— Beatrice Foods Co.
Mister Ease, Inc., New York, N.Y. 713,226, canc. Cl. 39.
Mite Corp.: *See*— General Time Corp.
Mobil Oil Corp.: *See*— General Petroleum Corp. Vacuum Oil Co.
Modern Upholstered Chair Co., Inc., Morristown, Tenn. 713,016, canc. Cl. 13.
Mol-la Laboratories, New York, N.Y., to The Denver Chemical Mfg. Co., d.b.a. Wampole Laboratories, Stamford, Conn. 430,136, ren. 5–16–67. Cl. 18.
Monique Saytenberg, Paris (Seine), France. 713,223, canc. Cl. 39.
Monroe Chemical Co., Inc., Hilton, N.Y. 828,742, pub. 2–28–67. Cl. 15.
Monsanto Canada Ltd., La Salle, Quebec, Canada. 828,777, pub. 2–28–67. Cl. 22.
Monsanto Co., St. Louis, Mo. 828,722, pub. 2–28–67. Cl. 6.
Montclair Mobile Homes, Inc., Montclair, Calif. 713,075, canc. Cl. 19.
Morris, Philip, Inc., d.b.a. Clark Gum Co., New York, N.Y. 828,867, pub. 2–28–67. Cl. 46.
Morrison-International Corp., Buffalo, N.Y. 713,072, canc. Cl. 19.
Morton Pottery Co., The, Morton, Ill. 713,307, canc. Cl. 12.
Mountain States Wholesale Co.: *See*— Oakley, Richard H.
Muehleisen Mfg. Co., San Diego, Calif. 713,073, canc. Cl. 19.
Murphy, Brill, and Sahner, Inc., New York, N.Y. 432,455, ren. 5–16–67. Cl. 39.
N.V. Koninklijke Veenendaalsche Sajet-en Vijfschacht-Fabriek Voorheen Weduwe D. S. Van Schuppen En Zoon, Zandstraat, Veenendaal, Netherlands. 828,842, pub. 2–28–67. Cl. 43.
National Filter Media Corp., The, New Haven, Conn. 713,170, canc. Cl. 31.
New England Confectionery Co., Cambridge, Mass. 430,127, ren. 5–16–67. Cl. 46.
New Era Laboratories, Ltd., London, England. 828,758, pub. 2–28–67. Cl. 18.
Newport Boats, Costa Mesa, Calif. 828,763, pub. 2–28–67. Cl. 19.
Nopco Chemical Co.: *See*— Stabelan Chemical Co.
Northern Instrument Corp., Bayshore, N.Y. 828,800, pub. 2–28–67. Cl. 26.
Novel Ideas, Inc., Oklahoma City, Okla. 828,832–3, pub. 2–28–67. Cl. 42.
Novocol Chemical Mfg. Co., Inc., Brooklyn, N.Y. 430,414, ren. 5–16–67. Cl. 18.
Nuclear Electronics Corp., Philadelphia, Pa. 713,080, canc. Cl. 21.
Nyko, Inc.: *See*— Nyko Laboratories.
Nyko Laboratories, to Nyko, Inc., Chicago, Ill. 226,288, ren. 5–16–67. Cl. 51.
Oakley Paint Mfg. Co.: *See*— Oakley, Richard H.
Oakley, Richard H., d.b.a. Oakley Paint Mfg. Co., Los Angeles, Calif., to Mountain States Wholesale Co., Boise, Idaho. 226,181, ren. 5–16–67. Cl. 16.
O'Day Corp., The, Boston, Mass. 713,074, canc. Cl. 19.
Olswanger, Berl, d.b.a. Berl Olswanger Music, Memphis, Tenn. 828,817, pub. 2–28–67. Cl. 36.
Olswanger, Berl, Music: *See*— Olswanger, Berl.
On The Left Bank, Potomac, Md. 828,782, pub. 2–28–67. Multiple Class (Classes 22 and 39).

Orbey Cerrato Furniture Inc., West New York, N.J. 793,846, canc. Cl. 32.
Ormont Drug & Chemical Co., Inc., from Parlam Corp., Englewood, N.J. 828,753, pub. 2–28–67. Cl. 18.
Owens-Corning Fiberglas Corp., Toledo, Ohio. 828,912. Cl. 12.
Pacific Alaska Fisheries, Inc.: *See*—
Pacific American Fisheries, Inc.
Pacific American Fisheries, Inc., to Pacific Alaska Fisheries, Inc., Seattle, Wash. 379,913. Am. 7(d). Cl. 46.
Pair, James H., d.b.a. Temporary Talent, Inc., Atlanta, Ga. 733,947. Am. 7(d). Cl. 101.
Panther-Panco Rubber Co., Inc., to American Biltrite Rubber Co., Inc., Chelsea, Mass. 430,633, ren. 5–16–67. Cl. 39.
Parfums Guy Laroche, Paris, France. 828,885, pub. 2–28–67. Cl. 51.
Parlam Corp.: *See*—
Ormont Drug & Chemical Co., Inc.
Partime, Inc., Radnor, Pa. 828,948. Cl. 101.
Patelin Chemical Co., Inc., Yonkers, N.Y. 828,891, pub. 2–28–67. Cl. 52.
Patterson-Sargent Co., The, Cleveland, Ohio. 713,047, canc. Cl. 16.
Pay Way Feed Mills, Inc.: *See*—
May Way Feed Mills, Inc.
Peck & Peck, New York, N.Y., to Shulton, Inc., Clifton, N.J. 227,292. ren. 5–16–67. Cl. 51.
Peerless Camera Stores Corp., New York, N.Y. 713,137, canc. Cl. 26.
Phillips Brush Corp., Cleveland, Ohio. 762,722. Am. 7(d). Cl. 29.
Pierce Pre-Cooked Foods, Inc., Moorefield, W. Va. 828,936. Cl. 46.
Pierce, S. S., Co., Boston, Mass. 62,560, ren. 5–16–67. Cl. 46.
Pillsbury Co., The: *See*—
Pillsbury Flour Mills Co.
Pillsbury Flour Mills Co., to The Pillsbury Co., Minneapolis, Minn. 225,652, ren. 5–16–67. Cl. 46.
Pioneer Industries, Inc., Darby, Pa. 712,993, canc. Cl. 3.
Plee-Zing, Inc., d.b.a. Household Products Co., Evanston, Ill. 828,862, pub. 2–28–67. Cl. 46.
Pope & Gray, Inc., Clifton, N.J. 828,732, pub. 2–28–67. Cl. 11.
Powers & Anderson Dental Co., Inc., Richmond, Va. 828,843, pub. 2–28–67. Cl. 44.
Precision Papers, Inc., Brooklyn, N.Y. 828,876, pub. 2–28–67. Cl. 50.
Prestype, Inc., New York, N.Y. 828,821, pub. 2–28–67. Cl. 38.
Procter & Gamble Co., The, Cincinnati, Ohio. 828,892, pub. 2–28–67. Cl. 52.
Progressive Drugs: *See*—
Progressive Drugs of America, Inc.
Progressive Drugs of America, Inc., d.b.a. Progressive Drugs, Chattanooga, Tenn. 828,913. Cl. 18.
Quality Grated Cheese Co., Medford, Mass. 828,932. Cl. 46.
Ramsey Laboratories, Inc., from McCadam Dairy Products Corp., Cleveland, Ohio. 828,934. Cl. 46.
Redlands Heights Citrus Co., Redlands, Calif. 828,863, pub. 2–28–67. Cl. 46.
Reid Metal Products, Inc., Burbank, Calif. 713,106, canc. Cl. 23.
Reid, Rose M., Los Angeles, Calif. 713,208, canc. Cl. 39.
Reiff & Nestor Co., Lykens, Pa. 228,387, ren. 5–16–67. Cl. 23.
Rendering Corp. of America, Brooklyn, N.Y. 828,715, pub. 2–28–67. Cl. 6.
Renwal Products, Inc., Mineola, N.Y. 828,916. Cl. 22.
Retsloff Chemical Co., Almeda, Tex. 828,716, pub. 2–28–67. Cl. 6.
Revco Products, Whittier, Calif. 828,798, pub. 2–28–67. Cl. 23.
Rexall Drug and Chemical Co., d.b.a. Tupperware, Los Angeles, Calif. 828,729, pub. 2–28–67. Cl. 8.
Rexall Drug and Chemical Co., d.b.a. Syroco, Los Angeles, Calif. 828,808, pub. 2–28–67. Cl. 32.
Rexall Drug and Chemical Co., d.b.a. Vanda Cosmetics, Los Angeles, Calif. 828,882, pub. 1–3–67. Cl. 51.
Reynolds Metals Co., Richmond, Va. 713,023, canc. Cl. 14.
Rhoads, J. E., & Sons, Philadelphia, Pa., to J. E. Rhoads & Sons, Inc., Wilmington, Del. 65,028, ren. 5–16–67. Cl. 35.
Rhoads, J. E., & Sons, Philadelphia, Pa., to J. E. Rhoads & Sons, Inc., Wilmington, Del. 230,737, ren. 5–16–67. Cl. 35.
Rhoads, J. E., & Sons, Inc.: *See*—
Rhoads, J. E., & Sons.
Riccadonna, Ottavio, Turin, Italy. 828,939. Cl. 47.
Risdon Mfg. Co., The, Naugatuck, Conn. 712,989, canc. Cl. 2.
Rite-Depth: *See*—
Briney, Slaude R.
Riverside & Dan River Cotton Mills, Inc., now by change of name Dan River Mills, Inc., to Dan River Mills, Inc., Danville, Va. 428,516–18, ren. 5–16–67. Cl. 42.
Robbins & Myers, Inc., Springfield, Ohio. 828,814, pub. 2–28–67. Cl. 34.
Rosevear, William B., Jr., Edenton, N.C. 428,808, ren. 5–16–67. Cl. 51.
Roth, Chester H., Co., Inc., to Kayser-Roth Corp., New York, N.Y. 429,881, ren. 5–16–67. Cl. 39.
Rott-Keller Supply Co., Fargo, N. Dak. 828,816, pub. 2–28–67. Cl. 35.
Roxane, Philips, Inc., New York, N.Y. 828,760, pub. 2–28–67. Cl. 18.
Safe-In-Suds, Inc., New York, N.Y. 713,309, canc. Cl. 39.
St. Croix Sales Corp., Park Falls, Wis. 713,097, canc. Cl. 22.
Salada Foods Ltd.: *See*—
Hansen's, Chr., Laboratory, Inc.
Sandeman, Geo. G., Sons & Co., Ltd., London, England. 64,221, ren. 5–16–67. Cl. 47.
Sandoz, Inc., Hanover, N.J., from Clintwood Chemical Co., Chicago, Ill. 828,709, pub. 4–26–66. Cl. 6.
Savory, H. L., & Co., Ltd., London, England. 828,749, pub. 2–28–67. Cl. 17.
Sawtelle, Richard B.: *See*—
Marker's Inc.
Schaefer, F. & M., Brewing Co., The, Brooklyn, N.Y. 828,718, pub. 2–28–67. Cl. 6.
Schick Products, Inc., Belmont, Calif. 828,780, pub. 3–16–65. Cl. 23.
Schild & Co. SA., La Chaux-de-Fonds, Switzerland. 427,412, ren. 5–16–67. Cl. 27.
Schneider, Fred M., Cincinnati, Ohio. 712,988, canc. Cl. 2.
Scotch Importers, Ltd.: *See*—
Sherman, David, Corp.
Scott, Eben L., Kansas City, Mo. 576,876, canc. Cl. 22.
Sealy, Inc., Chicago, Ill. 828,805, pub. 2–21–67. Cl. 32.
Seatronics-Cartronics, Inc., Towson, Md. 713,139–40, canc. Cl. 26.
Seeburg, N. Marshall, & Sons, Inc., Chicago, Ill. 828,789, pub. 2–28–67. Cl. 23.
Seeman Bros. Inc., New York, to White Rose Foods Corp., Syosset, N.Y. 223,069, ren. 5–16–67. Cl. 46.
Seeman, J. E., Co.: *See*—
Standard Cigar Co., Inc.
Servo Corp. of America, Hicksville, N.Y. 828,801, pub. 2–28–67. Cl. 26.
Sheet Aluminum Corp., Port Huron, Mich. 713,022, canc. Cl. 14.
Shell Oil Co., New York, N.Y. 828,740, pub. 2–28–67. Cl. 15.
Shellbuilder Co., Houston, Tex. 828,908. Cl. 1.
Sherman, David, Corp., d.b.a. Scotch Importers, Ltd., St. Louis, Mo. 828,940. Cl. 49.
Shulton, Inc.: *See*—
Peck & Peck.
Sichel's, Inc., Portland, Oreg. 828,825, pub. 2–28–67. Cl. 39.
Siegler, Lear, Inc., Santa Monica, Calif., from American Metal Products Co., Detroit, Mich. 828,807, pub. 2–28–67. Cl. 32.
Simca, Paris, France. 713,062–67, canc. Cl. 19.
Simca, Paris, France. 713,070, canc. Cl. 19.
Sizer, Richard, Ltd., Wilmington, Hull, England. 227,244, ren. 5–16–67. Cl. 23.
Slip Products Co., Ltd., St. Albans, England. 828,723, pub. 2–28–67. Cl. 6.
Smith, Chester W., d.b.a. Whitfield Chemical Co., Detroit, Mich. 828,888, pub. 2–28–67. Cl. 52.
Smith, L. C., Gun Co., Inc., The, Fulton, N.Y. to The Marlin Firearms Co., New Haven, Conn. 427,698–9, ren. 5–16–67. Cl. 9.
Smith, L. C., Gun Co., Inc., The, Fulton, N.Y. to The Marlin Firearms Co., New Haven, Conn. 428,276, ren. 5–16–67. Cl. 9.
Smith Orchards: *See*—
Smith Orchards, Inc.
Smith Orchards, Inc., from Smith Orchards, Peteros, Wash. 713,259, canc. Cl. 46.
Societe Francaise d'Etiquetage Virey & Garnier, Nogent Sur Marne, France. 828,920–1. Cl. 23.
Soudometal, Herbette, Andrelecht-Brussels, Belgium. 828,813, pub. 2–28–67. Cl. 34.
South African Associated Newspapers Ltd., Johannesburg, Transvaal, Union of South Africa. 713,122, canc. Cl. 23.
Southern Oxygen Co., Bladensburg, Md. 713,025, canc. Cl. 13.
Southern Oxygen Co., Bladensburg, Md. 713,247, canc. Cl. 44.
Spartan Chemical Corp., Paterson, N.J. 828,911. Cl. 6.
Spectromagnetic Industries, Hayward, Calif. 828,770, pub. 2–28–67. Cl. 21.
Stabelan Chemical Co., to Nopco Chemical Co., Newark, N.J. 432,431. Am. 7(d). Cl. 6.
Standard Auto Body Co., Los Angeles, Calif. 828,767, pub. 2–28–67. Cl. 19.
Standard Cigar Co., Inc., d.b.a. J. E. Seeman Co., Los Angeles, Calif. 828,752, pub. 2–28–67. Cl. 17.
Standard Oil Co, The, Cleveland, Ohio. 828,897–8, pub. 2–28–67. Multiple Class (Classes 100 and 103).
Stauffer Chemical Co., New York, N.Y. 828,726, pub. 2–28–67. Cl. 6.
Stein, Samuel, d.b.a. Chemical Industries and Stynamite Co., to Jack M. Sprague, R. Katherine Sprague, J. H. Herring, d.b.a. Stynamite Co., San Francisco, Calif. 427,094, ren. 5–16–67. Cl. 52.
Sterling Drug, Inc.: *See*—
Bayer Co., Inc., The.
Stern, Yermie, to Storecast Corp. of America, New York, N.Y. 426,987, ren. 5–16–67. Cl. 21.
Sternau, S., & Co., from Sterno, Inc., New York, N.Y. 105,-426. Am. 7(d). Cl. 6.
Sterno, Inc.: *See*—
Sternau, S., & Co.
Stetson, John B., Co., to John B. Stetson Co., Philadelphia, Pa. 429,052, ren. 5–16–67. Cl. 39.
Storecase Corp. of America: *See*—
Stern, Yermie.
Strategic Materials Corp., New York, N.Y. 713,024, canc. Cl. 14.
Studebaker-Packard Corp., South Bend, Ind. 713,076, canc. Cl. 19.
Stynamite Co.: *See*—
Stein, Samuel.
Sun Chemical Corp., New York, N.Y. 828,830, pub. 2–28–67. Cl. 40.
Sun Drop Sales Corp. of America, St. Louis, Mo. 828,849, pub. 8–30–66. Cl. 45.

Sunbeam Corp.: *See*—
Chicago Flexible Shaft Co.
Superior Pet Products, Inc., Boston, Mass. 828,910. Cl. 8.
Svenska Tobaks Aktiebolaget, Stockholm, Sweden. 828,751, pub. 2–28–67. Cl. 17.
Sweetheart Plastics, Inc., Wilmington, Mass. 828,942. Cl. 50.
Syroco: *See*—
Rexall Drug & Chemical Co.
T.N.T. Corp., Los Angeles, Calif. 713,019, canc. Cl. 13.
Tanganyika Sisal Spinning Co., Ltd., Dar Es Salaam, Tansania. 828,726, pub. 1–10–67. Cl. 7.
Taylor, Frank F., The, Frankfort, Ky. 828,768, pub. 2–28–67. Multiple Class (Classes 19 and 32).
Tecumseh Products Co., Tecumseh, Mich. 713,112, canc. Cl. 23.
Tekno, Dansk Legetoje-Industri A/S, Gopenhagen, Denmark. 828,776, pub. 2–28–67. Cl. 22.
Teledyne, Inc., Hawthorne, Calif., from Vasco Metals Corp., Latrobe, Pa. 828,895, pub. 2–28–67. Cl. 100.
Temporary Talent, Inc.: *See*—
Pair, James H.
Textile Marking Machine Co., Inc., Syracuse, N.Y. 713,114, canc. Cl. 22.
Thompson Ramo Wooldridge, Inc., Cleveland, Ohio. 713,118, canc. Cl. 23.
Tidykins, Inc., New York, N.Y. 828,827, pub. 2–28–67. Cl. 39.
Tilt-O-Pane Distributing Corp., The, Pittsburgh, Pa. 713,006, canc. Cl. 12.
Tower Press, Inc., Lynn, Mass. 828,928. Cl. 38.
Trailer Train Co., Haverford, Pa. 828,950. Cl. 105.
Tri-Lite Industries, Inc., Addison, Ill. 828,771, pub. 2–28–67. Cl. 21.
Tubbs Cordage Co., San Francisco, Calif. 431,282, ren. 5–16–67. Cl. 7.
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Rexall Drug & Chemical Co.
Tyer Rubber Co., Andover, Mass. 713,214, canc. Cl. 39.
Type House, Inc., The, Minneapolis, Minn. 828,946. Cl. 101.
Union Carbide Corp., New York, N.Y. 828,714, pub. 10–11–66. Cl. 6.
United Shoe Machinery Corp., Boston, Mass. 428,773, ren. 5–16–67. Cl. 6.
Upjohn Co., The, to The Upjohn Co., Kalamazoo, Mich. 428,-629, ren. 5–16–67. Cl. 18.
Upjohn Co., The, to The Upjohn Co., Kalamazoo, Mich. 428,-646, ren. 5–16–67. Cl. 18.
Upjohn Co., The, to The Upjohn Co., Kalamazoo, Mich. 429,-268, ren. 5–16–67. Cl. 44.
Upjohn Co., The, Kalamazoo, Mich. 828,756–7, pub. 2–28–67. Cl. 18.
Usdin, Louis, Co., Inc., Newark, N.J. 828,818, pub. 2–28–67. Cl. 38.
Vacuum Oil Co., to Mobil Oil Corp., New York, N.Y. 226,707, ren. 5–16–67. Cl. 15.
Van Doorne's Automobielfabriek N.V., Geldropseweg, Eindhoven, Netherlands. 828,787, pub. 2–28–67. Cl. 23.
Vanda Cosmetics: *See*—
Rexall Drug and Chemical Co.
Varian Associates, Palo Alto, Calif. 828,847–8, pub. 2–28–67. Cl. 44.
Vasco Metals Corp.: *See*—
Teledyne, Inc.
Vestal Chemical Co., St. Louis, Mo., to W. R. Grace & Co., New York, N.Y. 430,888, ren. 5–16–67. Cl. 6.
Vick Chemical Co., New York, N.Y. 632,129, canc. Cl. 18.
Villiger Sohne G.m.b.H., Tiengen, Oberrhein, Germany. 828,748, pub. 2–28–67. Cl. 17.
Vocaline Co. of America, Inc., Old Saybrook, Conn. 713,088, canc. Cl. 21.
Waltham Watch Co., Waltham, Mass., to Waltham Watch Co., Chicago, Ill. 431,380, ren. 5–16–67. Cl. 27.
Wampole Laboratories: *See*—
Mol-La Laboratories.
Wanamaker, John, Philadelphia, Philadelphia, Pa. 224,220, ren. 5–16–67. Cl. 39.
Wanamaker, John, Philadelphia, Philadelphia, Pa. 223,589, ren. 5–16–67. Cl. 41.
Wanamaker, John, Philadelphia, Philadelphia, Pa. 225,572, ren. 5–16–67. Cl. 39.
Warner & Swasey Co., The, Cleveland, Ohio. 713,086, canc. Cl. 21.
Wayne Creamery, Detroit, Mich. 228,609, ren. 5–16–67. Cl. 46.
Weatherbest Corp., North Tonawanda, N.Y. 828,743, pub. 2–28–67. Cl. 16.
Weatherhead Co., The, Cleveland, Ohio. 828,737, pub. 2–28–67. Cl. 13.
Weatherhead Co., The, Cleveland, Ohio. 828,769, pub. 2–28–67. Cl. 19.
Wembley, Inc., New Orleans, La. 828,930. Cl. 39.
Western Bye-Hoe, Inc.: *See*—
International Harvester Co.
Western Import, Inc., Portland, Oreg. 828,917–18. Cl. 22.
Western Litho Plate Supply Co., St. Louis, Mo. 828,710, pub. 2–28–67. Multiple Class (Classes 6, 50, and 52).
White, Martha, Inc., d.b.a. Martha White Mills, Inc., Nashville, Tenn. 828,935. Cl. 46.
White, Martha, Mills, Inc.: *See*—
White, Martha, Inc.
White Rose Foods Corp.: *See*—
Seeman Bros. Inc.
Whitfield Chemical Co.: *See*—
Smith, Chester W.
Wilkening Mfg. Co., Philadelphia, Pa., to Gould-National Batteries, Inc., St. Paul, Minn. 228,947, ren. 5–16–67. Cl. 35.
Wilkerson Corp., Englewood, Colo. 828,717, pub. 2–28–67. Cl. 6.
Winnebago Industries, Inc., Forest City, Iowa. 828,761, pub. 2–28–67. Cl. 19.
Wolf Drug Co., Newark, N.J. 443,526, canc. Cl. 6.
Wolf, Oliver C., Dewitt, N.Y. 828,914. Cl. 22.
Wool Bureau, Inc., The, New York, N.Y. 828,906, pub. 2–28–67. Cl. A.
Woolworth, F. W., Co., New York, N.Y. 828,720, pub. 2–28–67. Cl. 6.
Worldsbest Industries, Inc., Cudahy, Wis. 713,174, canc. Cl. 32.
Worthington Corp., Harrison, N.J. 828,736, pub. 2–28–67. Cl. 13.
Wright, Barry, Corp., Watertown, Mass. 828,923. Cl. 32.
Wrisley, Allen B., Co., Chicago, Ill. 713,286, canc. Cl. 51.
Zecol, Inc., Milwaukee, Wis. 828,713, pub. 2–28–67. Cl. 6.
Zenith Radio Corp., Chicago, Ill. 828,809, pub. 2–28–67. Cl. 32.

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U.S. DEPARTMENT OF COMMERCE

OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE

May 23, 1967 Volume 838 Number 4

PATENTS

NOTICES

Board of Appeals Decisions Rendered in the Month of April 1967

Examiner affirmed	230
Examiner affirmed in part	41
Examiner reversed	65
Total	336

Adjudicated Patents

(C.A.N.Y.) Kerr Patent No. 2,557,875 (282—22), for TRANSFER ASSEMBLY. Claims 1 and 4 *Held* invalid. *Kerr* v. *State Farm Life Ins. Company,* 373 F.2d 62; 152 USPQ 573.

(Ct. Cl.) Stukenborg Patent No. 2,580,482 (287—60), for TURNBUCKLE LOCK. Claims 3 and 5 *Held* invalid and claims 1, 2, 4, 6, 8, 9, and 14–16 *Held* valid and infringed. *Stukenborg* v. *United States,* 372 F.2d 498; — USPQ —.

(C.A.N.Y.) Fenske, Fredrick and Miller (33—20), for DATA PLOTTING AND INDICATING DEVICE, *Held* valid but not infringed. *Ling-Temco-Vought Corp.* v. *Kollsman Instrument Corp.*, 372 F.2d 263; 152 USPQ 446.

(Ct. Cl.) Stukenborg Patent No. 2,843,408 (287—60), for LOCK FOR TURNBUCKLE. Claims 5, 6 and 7 *Held* valid and infringed. *Stukenborg* v. *United States,* 272 F.2d 498; — USPQ —.

Election of Species

Effective June 1, 1967, the following practice will be instituted on a trial basis for 6 months.

In cases involving Markush claims or generic claims of the formula type including such a number and diversity of members as to require an unduly extensive and burdensome search for the embodiments encompassed, the Examiner may require election of species without a search on the merits (Rule 105).

The election requirement may be made in the same manner as that described in the Change Notice 12–6 of Feb. 28, 1967, with a 30 day shortened statutory period which will not be an "action on the merits" for the purpose of second action final program. If a telephone requirement, made by the Examiner, is complied with the first written action will be a complete action on the merits and the usual 3 months shortened statutory period will be set.

As pointed out in Change Notice 12–6, the use of the telephone to make an initial requirement will be continued and is encouraged.

EDWARD J. BRENNER,
Commissioner.

May 4, 1967.

Classification Order No. 387

Classification Order No. 387, dated April 27, 1967, incorporates changes in the following classes:

22, METAL FOUNDING (Abolished)
102, AMMUNITION AND EXPLOSIVE DEVICES
164, METAL FOUNDING (Established)
180, MOTOR VEHICLES

All of the above changes will be incorporated in the Manual of Classification replacement pages dated July 1967.

C. D. ANGEL,
Acting Director, Office of Patent Classification.

Apr. 25, 1967.

Disclaimer

3,041,280.—*Robert K. Smith,* Springfield Township, and *Charlotte S. Popoff,* Ambler, Pa. LUBRICATING COMPOSITION CONTAINING CHLORINATED SULFUR COMPOUNDS. Patent dated June 26, 1962. Disclaimer filed Apr. 10, 1967, by the assignee, *E. F. Houghton and Company.*

Hereby enters this disclaimer to claims 1, 2, 3, 19, 20, 21 and 22 of said patent.

Patents Available for Licensing or Sale

3,310,025. AUTOMOBILE MILEAGE REMINDER METER. Russell F. Egner, 621 Sheridan St., #21, Chillum, Md., 20783.

3,315,545. GEAR DRIVEN SCREWDRIVER. Earl L. Schnoebelen, P.O. Box 8471, Allandale, Fla., 32023.

3,316,923. AEROSOL FOUNTAIN TOOTH PASTE BRUSH. Jacob Wagner. 1120 N. Main St., Apt. 5, Jacksonville, Fla., 32206.

The following 3 design patents are offered by: John T. LeRose, 1244 Maryland Ave., NE., Washington, D.C., 20002.

D. 199,562. HANDLED STEERING WHEEL.

D. 200,402. HANDLED STEERING WHEEL.

D. 207,002. FOLDABLE STEERING ASSEMBLY.

The Gillette Company is prepared to grant non-exclusive licenses on reasonable terms and conditions under the following 2 patents.

Applications for license may be addressed to: The Gillette Company, Patent Counsel, Gillette Park, Boston, Mass., 02106.

2,793,432. SAFETY RAZOR.

2,795,846. SAFETY RAZOR HAVING A SECTIONAL CAP AND OPERATING MEANS FOR SAID CAP.

New Applications Received During March 1967

Patents	8024
Designs	478
Plant Patents	9
Reissues	25
Total	8536

Issue—May 23, 1967

Patents	1152	No. 3,320,619 to No. 3,321,770, incl.
Designs	71	No. 207,697 to No. 207,767, incl.
Reissues	6	No. 26,206 to No. 26,211, incl.
Total	1229	

Honeywell Inc. is prepared to grant non-exclusive licenses under the following patents upon reasonable terms to domestic manufacturers.

Applications for license should be addressed to: ADG Patent Department, Honeywell, Inc., 2600 Ridgway Road, Minneapolis, Minn., 55413.

2,756,011. CONTROL APPARATUS.

2,780,426. AIRCRAFT CONTROL APPARATUS.

2,836,783. AIRCRAFT CONTROL SERVOSYSTEM.

2,993,664. AUTOMATIC INSTRUMENT LANDING SYSTEMS FOR AIR-BORNE CRAFT.

2,993,665. AUTOMATIC INSTRUMENT LANDING SYSTEMS FOR AIR-BORNE CRAFT.

3,031,158. AIRCRAFT CONTROL APPARATUS.

The General Electric Company is prepared to grant non-exclusive licenses under the following 20 patents upon reasonable terms to domestic manufacturers.

Applications for license under the following 4 patents may be addressed to: Manager—Patent and Technology Marketing, Advanced Technology Services, General Electric Company, 1 River Road, Schnectady, N.Y., 12305.

3,208,940. LUBRICATING COMPOSITIONS AND METHODS OF LUBRICATING.

3,208,941. OLEFIN-UNSATURATED ESTER LUBRICANTS.

3,280,027. LUBRICANTS AND LUBRICATED STRUCTURES.

3,288,715. FABRICATING ALUMINUM PRODUCTS WITH OLEFIN LUBRICANTS.

Applications for license under the following 16 patents may be addressed to: Patent Counsel, Major Appliance & Hotpoint Division, General Electric Company, Appliance Park, Louisville, Ky., 40225.

2,988,267. ROTARY COMPRESSOR LUBRICATING ARRANGEMENT.

3,142,165. DOMESTIC APPLIANCE.

3,145,289. COOKING OVENS PROVIDED WITH REMOVABLE WALL PANELS.

3,145,552. WATER CONDITIONER DISPENSER FOR CLOTHES WASHING MACHINE.

3,176,914. HERMETICALLY SEALED COMPRESSOR UNIT.

3,229,381. CONTROL SYSTEM HAVING A MAGNETIC SWITCH LATCHING ARRANGEMENT.

3,241,545. POLYTETRAFLUORETHYLENE COATED COOKING DEVICES.

3,242,585. AUTOMATIC DRYER CONTROL SYSTEM.

3,271,932. ELECTROSTATIC PRECIPITATOR.

3,278,037. CLOTHES WASHING MACHINE INCORPORATING AN IMPROVED COMBINATION BALANCE RING AND CLOTHES GUARD DEVICE.

3,286,445. RECIRCULATING AIR CLEANER.

3,309,783. CLOTHES DRYING MACHINE HAVING REVERSING DRUM DRIVE MEANS.

3,309,918. TEST SAMPLE HOLDING AND ALIGNMENT MEANS FOR TENSILE TESTING MACHINES.

3,311,494. PROCESSES OF PRODUCING SMOOTH ADHERENT COATINGS OF POLYTETRAFLUOROETHYLENE.

3,312,088. FILTERING MECHANISM FOR CLOTHES WASHING MACHINE.

3,312,234. WASHING MACHINE.

Patents Withdrawn From Register

General Electric Company hereby withdraws the following 2 patents from the Register of Patents Available for Licensing or Sale. The patents were listed as being available, in the OFFICIAL GAZETTE as indicated below:

2,566,907. MIXER BEATER EJECTOR. Feb. 4, 1958.

2,737,371. COMBINED BEATER EJECTOR AND SPEED CONTROL FOR FOOD MIXER. Jan. 3, 1961.

JOINT REPORT ON U.S.-GERMAN SEARCH EXCHANGE

The following is a report on the experiment of exchanging the results of searches in companion patent applications conducted by the German and U.S. Patent Offices in 1965–66. The report was prepared jointly by officials of both offices in two versions, one in German for publication in Germany and one in English for publication here. The two versions are not reciprocal translations, but differ somewhat in the manner of presentation in view of the different readers.

EDWARD J. BRENNER,
Commissioner of Patents.

I

On June 7, 1965, the heads of the German Patent Office and the U.S. Patent Office agreed to conduct a joint experiment in the exchange of the results of the searches made by the respective examiners in the examination of applications for patents for the same invention filed in both countries. The procedure to be followed was developed in discussions between officials of the two offices.

One question had to be settled before any agreement could be reached and operations commenced. In both countries applications for patent are secret until published or patented and no information concerning them is given out except with the consent of the applicant, with certain limited exceptions. It was concluded, however, in each country, that there was sufficient justification for exchanging the limited amount of information which would be required, considering the facts that the office in each country was already in possession of the corresponding application by the same applicant and that the information supplied would have the same secret status as the application.

The exchange was conducted as an experiment for a limited period of time and involved only a limited number of applications. In general, the plan was that in the case of an application first filed in Germany, the results of the search made by the German examiner, consisting simply of a list of the prior patent specifications and other publications cited, would be sent to the U.S. Patent Office where the U.S. examiner would utilize these results in the examination of the later filed corresponding U.S. application. Similarly, in the case of an application first filed in the United States, the U.S. examiner would make his search first and the results, by a simple list, be sent to the German office. In both cases, the second examiner was to proceed with his own search and examination of the application in the usual manner, but taking advantage of any assistance furnished by the references supplied, and then make a short report for his own office.

In accordance with the plan, the U.S. Patent Office selected 1000 applications of German origin which identified a prior German application filed during the preceding year, and a prepared sheet identifying both applications was filled out for each case. These sheets were forwarded to the German office, and after the search on the German application was concluded, the list of references cited was typed on the same sheet which was then returned to the U.S. office. Similarly, the German office selected 1000 applications of U.S. origin which identified a previously filed U.S. application and the same procedure followed with these, but in the reverse direction. Copies of the references were included with the lists only in those instances in which they were not conveniently available to the other office. In both instances the applications were filed in the last part of 1964 and were selected without regard to subject matter but only on the basis of the period covered.

The work involved in the project on the part of the examiners was brought to a close early in 1966 and thereafter the reports of the examiners were studied in the respective offices.

II

In evaluating the results of the experiment certain points must be kept in mind, aside from the fact that the present instance appears to be the first time that an attempt of this kind has ever been made. These relate to differences in the materials searched, differences in the patent laws of the two countries, and possible differences in the traditional views and approach to common problems.

The first basic step in the examination of patent applications is the search of the prior published technical literature to discover whether material exists which anticipates (shows lack of novelty) the asserted invention in question and, failing this, whether material exists on the basis of which the asserted invention in question would be regarded as being obvious (lacking inventive level). The primary source of published technical information used is the published specifications of patents (including applications) of the home country and of other countries as well. Both countries have developed search files of such material, including also non-patent literature to some extent. The two search files to a substantial extent contain the same materials, at least with regard to the major patent granting countries, but each contains material not in the other. This may be particularly the case with respect to non-patent literature which has been integrated into the respective search files, with respect to which there may obviously be considerable variation as to sources and amounts.

An important difference is in the classification systems used, which have developed along different lines. The German system includes 89 classes which are subdivided into about 21,000 ultimate subdivisions whereas the U.S. system contains 314 classes (which, however, do not have the same significance as the German classes) subdivided into about 65,000 ultimate subdivisions. The basic principles of classifying differ: the main subdivisions of the German system are based on special fields of technology whereas the primary basis for subdivision in the U.S. system is function in the sense of the direct, proximate, or necessary effect, rather than special application.

The differences in the classification of the materials searched would be expected to be reflected in some differences in results of searches made under the two systems, and may also reflect to some extent some differences in the approach to the questions presented in searching.

On the question of novelty and what constitutes prior art, the period of one year permissible publication and public use before applying for a patent in the United States plays no part in the first search of the examiner and hence does not affect the search exchange. In general the printed publications which can be utilized are the same in both countries. However, there is a difference in the utilization of patents issued by the country itself. In each country a domestic patent (or published application) which was issued (or published) after the filing date of a domestic application being examined, but which itself has an earlier filing date, may be used against the application in question, although on a broader basis in the United States than in Germany. These particular references, useable in one country, cannot legally be used in the other.

In both countries the examination is conducted for the purpose of determining the presence of novelty and inventive merit (inventive level, unobviousness), although the viewpoints on the latter question might be somewhat different. The concept of "technical progress" (technischer Fortschritt) does not exist in U.S. practice as a separate question but is considered when relevant to the question of inventive merit.

As is well known, an important difference in the laws of the two countries is in the treatment of chemical inventions. In Germany medicines and substances produced by chemical action are not patentable as such but only the processes for preparing them, whereas in the United States these substances are patentable. This difference leads to variations in nature and number of the references cited in either country.

III

Despite the known differences in the laws and practices of the two countries and the possible differences in viewpoints, the experiment was initiated for the purpose of ascertaining to what extent the results of the search made in one country would be useful to the examiner in the other.

In general the results in the two offices were parallel although on various factors differing in degree.

In 60.1% of the applications the references cited in the U.S. office were used by the German examiner in the evaluation of the patentability of the subject matter. On the other hand, the U.S. examiners cited references cited by the German office in 56.5% of their applications. But this latter figure is incomplete because it does not include the cases in which equivalent references were substituted for convenience. If these were added the result would be pratically the same as the 60.1% mentioned above. This usefulness of the references cited by the other office included a substantial proportion of cases in which the search of the other office was entirely sufficient and cases in which some supplementation was considered either necessary or desirable. On both sides there were numerous instances of one examiner citing references useful to the other which either would not have been found at all, or probably might not have been found, by the latter; this amounted to 23.4% of the cases in the United States; on the German side this figure was not ascertained.

The search conducted by the German examiners was considered by them to yield more suitable results than that received from the other office in 59.8% of the cases. Perhaps reflecting the practice in the United States of going to a wider range of related technical fields, the U.S. examiners found it necessary or desirable to supplement the search in a somewhat higher percentage of cases. This supplementation ranged from the citation of decisive references in some cases to those of minor importance in others.

The German examiners found, in 52.3% of the cases, that references cited by the U.S. office were useful in building up the contents of their search files, whether or not they were used in the particular case. The exact figure in the other direction was not ascertained but would be of the same order. This building up of the search files was done of course so that the same references would be available for use if applicable to cases by other applicants.

IV

The conclusions which can be drawn are as follows:

(1) Receipt of the search results from the other office was of material assistance in a substantial proportion of the cases; in many instances this assistance was indispensable.

(2) In general, considerable improvement in the average quality of the results of the examination of the applications involved was effected.

(3) The search files were supplemented by placing in the appropriate subdivisions of the classification copies of the references received from the other country.

(4) While actual saving in examination time could not be ascertained in view of the extra work required solely for purpose of the experiment, it is evident that saving in such time would be effected on an increasing level by a search exchange. An exchange cannot, however, completely replace the necessity for each office to conduct its own search, at least for the present.

It would be expected that the results will improve with further experience, with greater knowledge of each other's working methods, and coordination with each other.

Aside from other results, a general improvement in the quality of the resultant patents may result. This would be particularly the case with German origin patents in the United States, where the same general non-technical courts which consider infringement also determine validity, and the fact of whether the Patent Office, had, or had not, already considered a reference raised by the defendant against a patent in suit often plays a decisive part.

Accordingly, it is contemplated that the exchange of search results will be placed on a continuing basis in the near future, in such a manner that the normal routine of the examiner will not be disturbed.

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF APRIL 10, 1967

PATENT EXAMINING OPERATIONS AND GROUPS	Actual Filing Date of Oldest Case Awaiting Action: New	Amended
CHEMICAL EXAMINING OPERATION—I. MARCUS, Director.		
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—R. L. CAMPBELL, Manager. Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	10-21-63	4-27-62
GENERAL ORGANIC CHEMISTRY, GROUP 120—G. D. MITCHELL, Manager. Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	8-21-63	9-12-61
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING; GROUP 140—M. STERMAN, Manager. Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping and Treating Processes.	1-24-64	1-16-62
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—J. R. LIBERMAN, Manager. Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	12-23-63	3-28-62
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Manager. Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	9-6-63	12-12-61
ELECTRICAL EXAMINING OPERATION—N. H. EVANS, Director.		
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—M. L. LEVY, Manager. Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	2-24-64	9-21-62
SECURITY, GROUP 220—S. BOYD, Manager. Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedos, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	3-17-65	9-9-63
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—E. J. SAX, Manager. Communications; Multiplexing Techniques; Facsimile; Date Processing, Computation and Conversion; Storage Devices and Related Arts.	9-3-63	5-25-61
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—F. M. STRADER, Manager. Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	10-11-63	11-3-61
PHYSICS, GROUP 280—R. L. EVANS, Manager. Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	3-18-64	6-24-63
DESIGNS, GROUP 290—S. BOYD, Manager. Industrial Arts; Household, Personal and Fine Arts.	10-22-65	8-3-65

Total number of pending applications (excluding Designs)	189,043
Total number of Design applications pending	4,127
Total number of applications awaiting action (excluding Designs)	138,888
Total number of Design applications awaiting action	2,319
Date of oldest new application awaiting action	August 21,1963
Date of oldest amended application awaiting action	May 25, 1961

EXPIRATION OF PATENTS

The patents within the range of numbers indicated below expire during May 1967, except those which may have been extended under the provisions of the Veterans Patent Extension Act (64 Stat. 316 as amended by 66 Stat. 321) and those which may have expired earlier due to shortened terms under the provisions of Public Law 600. A list of Veterans' patents which have been extended appears in the *Annual Index of Patents—1963*.

Patents	Numbers 2,505,748 to 2,510,050, inclusive
Plant Patents	Numbers 938 to 945, inclusive

PATENT EXAMINING OPERATIONS AND GROUPS (Continued)	Actual Filing Date of Oldest Case Awaiting Action	
	New	Amended
MECHANICAL EXAMINING OPERATION—F. H. BRONAUGH, Director.		
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Manager Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid, Flexible and Special Receptacles and Packages.	4-28-65	12-26-63
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—N. BERGER, Manager Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders; Woodworking; Tools; Cutlery; Jacks; Fasteners.	1-15-65	10-25-62
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Manager Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, Etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	1-11-65	7-17-62
HEAT AND POWER ENGINEERING, GROUP 340—C. F. GAREAU, Manager Power Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission.	9-2-65	7-31-64
FIXED CONSTRUCTIONS, SUPPORTS, AND HARDWARE, GROUP 350—T. J. HICKEY, Manager Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures.	5-24-65	4-29-63
TEXTILES, CLEANING AND FLUID HANDLING, GROUP 360—W. S. COLE, Manager Fluid Handling, including Valves; Conduits; Filling Receptacles; Lubrication; Joint Packing; Bathroom Fixtures; Centrifugal Separators; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes and their Manufacture; Sewing Machines; Winding and Reeling.	2-16-65	7-25-62

DECISIONS IN PATENT AND TRADEMARK CASES

U.S. Court of Customs and Patent Appeals

IN RE JAMES M. GILCHRIST, JR.

No. 7519. Decided October 6, 1966

[— CCPA —; 366 F.2d 493; 151 USPQ 191]

1. APPLICATION—DISCLOSURE—NEW MATTER—35 U.S.C. 132.

On the question whether "new matter" was introduced into an application by "an amendment which added references to the literature," *Held* that "Since we do not see that it adds anything to the description of the claimed method and in no way changes the invention described, we do not regard it as 'new matter' within the prohibition of 35 U.S.C. 132."

2. PATENTABILITY—PARTICULAR SUBJECT MATTER—"METHOD AND APPARATUS FOR STAMPING OR OTHERWISE MARKING."

The refusal of certain claims in an application entitled "Method and Apparatus for Stamping or Otherwise Marking," as unpatentable over the prior art and on the ground of insufficient disclosure, is affirmed.

APPEAL from the Patent Office. Serial No. 836,391.

AFFIRMED.

K. Wilson Corder for appellant.

Clarence W. Moore (*J. F. Nakamura*, of counsel) for the Commissioner of Patents.

Before WORLEY, *Chief Judge*, and RICH, MARTIN, SMITH, and ALMOND, JR., *Associate Judges*

RICH, *J.*, delivered the opinion of the court.

This appeal is from the decision of the Patent Office Board of Appeals[1] affirming the rejection of claims 1–3 and 5–10 of application Serial No. 836,391, filed August 27, 1959, for "Method and Apparatus for Stamping or Otherwise Marking." All claims are to method. Claims 4 and 11 were allowed by the Board.

The method of the appealed claims is one for stamping cigarette or other packages with tax stamps or the like. It appears that cigarette manufacturers deliver cigarette packages in cartons without tax stamps which must be affixed according to the laws of the various states before sale. This has involved removal of the packages from their cartons. One stated object of the invention is to stamp the individual packages while in the carton, without removing them. To this end the carton is formed with cut-out windows of suitable size and placement, giving access to a face of each individual package, such as the bottom. The main object is to print the tax stamps on the packages by the application of suitable radiant energy to a previously sensitized surface of the package responsive thereto.

The application describes apparatus by which the claimed method may be carried out having a passage to receive a carton of cigarettes, triggering switches, timer, counter mechanism, and a stencil or "press-plate" having suitable indicia through which the radiant energy passes to print the desired information simultaneously on each of the packages after the manner of exposing photographic prints through a negative. Irradiating mechanism is contained in a compartment 11 and is thus described:

> In 11 there is contained a *conventional* irradiating mechanism capable of generating by way of split-second exposure, heat, infra-red, ultra-violet, UHF, micro,

[1] Consisting of Examiners-in-Chief Manian and Dracopoulos, the latter writing the opinion, and Acting Examiner-in-Chief Angel.

or other rays or vibrations; which will change immediately, permanently, and visibly, according to a pre-determined pattern, and without subsequent "fix," the coated bottom of a package of cigarettes. *Well-known* copying machines such as the "Thermofax" equipment manufactured by the Minnesota Mining and Manufacturing Company, are typical of and contain such irradiating devices. [Emphasis ours.]

To sensitize the cigarette packages for such marking by radiant energy, an appropriate part of the package is coated with a material which is stated to be

a matter of choice and mechanical skill dictated by the particular type of irradiation contemplated in a given application. For example, if heat is used, a solution such as that taught by Patents Nos. 2,663,654, 5, 6, 7; 2,710,263, 2,880,110, or Re. 24,554, taken singly or in combination, may be used; while if light (ultra violet), sound (including HF, UHF, or ultra-sonic) or like or related or other vibrations are used, vehicles suitable to their irradiation or development on the bottoms or other selected portions of cigarette packages will be employed in appropriate solutions.

The specification points out, and appellant's brief makes much of the fact, that the inner wrapper of the cigarette package may carry the sensitive coating and that it may be exposed or developed or activated through the outer cellophane wrapper. The only appealed claim mentioning this feature, however, is claim 1 and this limitation has no bearing on the ground on which it stands rejected. As illustrative, we quote claim 1:

1. The method of stamping the bottoms of cigarette packages or the like, which consists of first coating the bottoms of such packs with a solution color responsive to heat, light, or other vibratory stimuli, wrapping the packs with cellophane in a conventional manner, placing the packs in cartons having windows registering with said coatings, and then subjected the sensitized portions thereof to split-second irradiation to which the coating is sensitive, in the face of a fixed pattern, whereby the image of a revenue stamp or other designation is permanently affixed to the packages and without the employment of additional stabilizing factors.

There is some confusion in the briefs as to the grounds of rejection but the record makes it clear that the Patent Office is correct in its view that claim 1 is rejected only on the ground of insufficient supporting disclosure for the inclusion of "other vibratory stimuli * * *." Claims 2, 3, and 5–10 stand rejected as obvious (under 35 U.S.C. 103) in view of the following references:

Malocsay, 2,129,701, September 13, 1938.
Stallmann, 2,755,203, July 17, 1956.

Claims 7–9 are further rejected, with claim 1, on the ground of insufficient disclosure to support, in claim 7, the italicized words in the limitation "heat, light, *or vibratory stimuli*," in claim 8, "heat, light, *vibratory or other stimuli*," and in claim 9 the same (both emphases ours).

Malocsay discloses a conventional 10-pack carton of cigarettes modified by the addition of five cut-out oval windows through which are exposed the central bottom portions of all ten cigarette packages for the purpose of making it possible to affix tax stamps thereto without opening the carton. This aspect of appellant's invention is therefore old, leaving for consideration whether the claimed invention as a whole is patentable by reason of the manner of marking the packages which are exposed through the windows in the carton. Malocsay contemplates primarily the use of conventional adhesive stamps or decalcomanias. He also says, however, that "printing methods" may be used.

The Patent Office position is, in the words of the Examiner's answer, in turn adopted by the Board:

Malocsay discloses placing cigarette packs into an apertured carton and printing a tax stamp on the packs through the apertures. Obviously, any conventional printing process could be employed in the teaching of Malocsay. To use a printing process such as disclosed in Example IV of Stallmann would therefore be an obvious selection. Heat-produced color reaction printing processes were in common use as illustrated by appellant's reference to several patents disclosing such processes.

In discussing Stallmann we bear in mind that appellant's method involves the use of any suitable coating material which is initially colorless but which develops into his printed stamp when exposed to suitable irradiation. He does not concern himself, as the above quotations from his specification show, with the particular composition of the coating or with the particular kind of irradiation, regarding these as "a matter of choice and mechanical skill * * *."

While Stallmann is concerned with making hectograph sheets for use in spirit hectographs, his disclosures are not limited thereto but are concerned broadly with converting "certain colorless leuco triarylmethanes into their colored forms * * *." Example IV, relied on for the rejection, is not concerned with hectographs or with subsequent chemical development of leuco (colorless) materials, as appellant would perhaps like us to believe. Since it speaks for itself, we quote it in full:

One part by weight of the dry stabilized leuco crystal violet of Example III was thoroughly mixed with 0.5 part of triphenylchloromethane to give a colorless powder with which the surface of a paper sheet was coated by working some of the powder with a spatula into the pores of the paper surface. The excess powder was then removed by turning the paper upside down and a metal stencil was placed over the coated paper. Exposure of this system to a source of radiant heat (holding it over an electrically heated hot plate or under an infrared heating bulb) produced instantaneously a permanently fixed, very strong and sharp pattern in which the shielded areas (underneath the metal) had remained white while all the directly exposed area showed a deep violet-blue coloration.

The powders mentioned in Example IV may be incorporated in a binder such as gelatin, casein, albumin, starch, and dextrin.

It seems to us that this is a clear description of a stencil printing method, such as appellant proposes to use, wherein a colorless (leuco) coating composition is coated on paper and turned into a readable pattern by exposure to radiant heat through a stencil. Thus the method of printing called for by the appealed claims, at least with respect to sensitizing the paper and producing a visible image, is shown to have been known to those skilled in the art. Indeed, the specification appears to assume this fact.

We see no error in the Patent Office view that it would be obvious to use such a printing method to mark packages in the windowed carton shown by Malocsay, and accordingly affirm the decision of the Board that claims 2, 3, and 5–10 are unpatentable in view of the prior art.

The remaining issue is the correctness of the rejection of claim 1 for insufficient support in the specification, it being unnecessary, by reason of the foregoing, to review the correctness of this rejection as applied also to claims 7, 8, and 9. As we view this rejection, it really amounts to saying that since the claim clearly calls for the use of vibratory stimuli *other than* heat and light, which are also specified, there must be support for such *other* stimuli. The objection is that

there is no disclosure of any operable coatings suitable for development by *such* "vibratory stimuli."

When faced with this objection, appellant submitted an amendment which added references to the literature describing, in patents and publications, color-sensitive materials responsive to light, ultraviolet, sound, and ultrasound.[2] The most relevant reference indicates that some color changes may be produced in *solutions* by "ultrasound." We note, however, that there is no disclosure of what frequencies may be included in "ultrasound." Moreover, the Patent Office says there is no disclosure of a "coating" which will change color. As pointed out by the Examiner:

> The fact that a solution may change color when subjected to ultra-sonic vibration is a far cry from disclosing a coating suitable for producing a pattern on a sheet with sound.

We agree with this position, as did the Board, and conclude that there is no disclosure adequate, under 35 U.S.C. 112, to support the expression "other vibratory stimuli" set forth in claim 1.

[2] The decision of the Board is affirmed.

AFFIRMED.

[2] A question was raised on appeal as to whether "new matter" was introduced by this amendment. [1] Since we do not see that it adds anything to the description of the claimed method and in no way changes the invention described, we do not regard it as "new matter" within the prohibition of 35 U.S.C. 132. Its admission was found below not to be critical with respect to the issue of supporting disclosure in any event, however, and we agree with that finding.

U.S. Court of Customs and Patent Appeals

IN RE SANFORD C. LYONS

No. 7609. Decided August 25, 1966

[53 CCPA —; 364 F.2d 1005; 150 USPQ 741]

1. PATENTABILITY—COMBINING REFERENCES.

"Although we appreciate that individual defects of the reference or patent claims can defeat the rejection, we do not find the rejection overcome by pointing out that one reference does not contain a particular teaching, when the reliance for that teaching was on another 'reference.'"

2. SAME—REFERENCE—PROCESS—DIFFERENT CHARACTERIZATIONS OF SAME PROCEDURE.

"Nor do we think it material that the Lyons patent refers to 'reducing the average particle size' rather than 'delamination' of stacks as referred to in the appealed application. As noted above, both the appealed application and the affidavit show that *in fact* what happens during the extrusion is the same regardless of whether or not the reduction in average particle size is termed 'delamination.' That after-developed term is at best only somewhat more accurately descriptive of a state of fact of the earlier patented process."

3. SAME—CRITICALITY.

"A conclusion of criticality simply cannot be reached on * * * clearly arguable and equivocal data."

4. SAME—COMBINING REFERENCES—OBVIOUSNESS—ADDITIONAL ADVANTAGE.

"We think it evident that the Billue [secondary] reference would direct one in this art to the claimed process because of the advantage of brightness alone. That expected advantage is indeed achieved. Appellant is left to argue that it is unexpected that whiteness *in addition to* brightness is improved. That there is an *additional* advantage, an increase in whiteness, accruing therefrom, is not * * * persuasive of non-obviousness of a process of applying the Lyons patented process, unlimited as to fraction, to a coarse clay fraction [a coarse fraction being disclosed by Billue]. The improvement in brightness neither teaches away from, nor is it inconsistent with an improvement in whiteness."

5. SAME—DOUBLE PATENTING—OBVIOUSNESS.

"We noted in *In re Graf*, * * * that obviousness is not to be determined on the basis of purpose alone. * * * The same weighing of *all the facts* is required where the rejection is founded on double patenting rather than on section 103."

6. SAME—OBVIOUSNESS—ASSERTED ADVANTAGE DISCLOSED AS "OF COLLATERAL IMPORTANCE."

"We think also that it is significant to note that a fair reading of the application does not attach such significance to whiteness as compared to brightness as appellant urges before us. After a discussion of 'commercial efforts' to improve brightness, the application notes that the matter of whiteness is 'of collateral importance * * *.'"

7. SAME—OBVIOUSNESS—EVIDENCE—UNSUPPORTED ALLEGATIONS IN BRIEF.

"Unsupported allegations in briefs on appeal of * * * differences are hardly persuasive of non-obviousness."

8. SAME—PARTICULAR SUBJECT MATTER—"KAOLIN PRODUCT AND PROCESS FOR MAKING SAME."

The refusal of certain claims in an application entitled "Kaolin Product and Process for Making Same," on the ground of double patenting, is affirmed.

APPEAL from the Patent Office. Serial No. 764,395.

AFFIRMED.

Eugene F. Buell for appellant.

Joseph Schimmel (*Jere W. Sears* of counsel) for the Commissioner of Patents.

Before RICH, *Acting Chief Judge*, and MARTIN, SMITH, and ALMOND, Jr., *Associate Judges*, and Judge WILLIAM H. KIRKPATRICK, *United States Senior District Judge for the Eastern District of Pennsylvania*

MARTIN, *J.*, delivered the opinion of the court.

This is an appeal from a decision of the Board of Appeals affirming a double patenting rejection of claims 29–33, the only remaining claims in Lyons' application Serial No. 764,395, filed September 30, 1958 for "Kaolin Product and Process for Making Same."

From the context of the rejection and decision it is clear that the double patenting rejection is of the obviousness type, being based on the claims of appellant's prior patent:

> Lyons, 2,904,267, September 15, 1959 (filed Sept. 16, 1957).

in view of a patent to

> Billue, 3,058,671, October 16, 1962 (filed May 18, 1959 as a continuation-in-part of Serial No. 61,757, filed Sept. 24, 1956, now abandoned).

Claims 29–32 are drawn to a process and claim 33 is to the product of process claim 30. In addition to the double patenting rejection of the product claim 33, rejections on other references were made.[1] Since we affirm the double patenting rejection, we do not reach the additional rejections. Also, we think it advisable to note that, since there is no terminal disclaimer of record in this case, we do not have before us the *separate and distinct issue* of whether or not the relationship between appellant's prior patent claims and the instant claimed invention is such that a terminal disclaimer would permit issuance of the latter in a patent.

The invention here relates to the production of a kaolin[2] product,

[1] The other references are:
Brown, 2,305,404, December 15, 1942.
Duke, 2,920,632, January 12, 1960.
Mellor, Comprehensive Treatise on Inorganic and Theoretical Chemistry, vol. 6 (1925), p. 476.

[2] Kaolin is defined in Webster's New International Dictionary (1932), p. 1177, in part as:
* * * A very pure white clay, ordinarily in the form of an impalpable powder, used to form the paste of porcelain * * *. It is a hydrous silicate of aluminum, $H_4Al_2Si_2O_9$ * * *.
Kaolinite is defined therein as "pure kaolin, occurring in white crystalline scales."

for use inter alia as a paper coating pigment, of a higher order of whiteness and brightness than has previously been attainable from secondary kaolin deposits,[3] such as are found in central Georgia. Whiteness refers to the uniformity of reflectance throughout the visible spectrum and is determined by a comparison of the percent reflectance at 400 to that at 700 millimicrons wavelength. The whiteness of a kaolin is also expressed in terms of a point scale called the "Whiteness Index," the lower values indicating whiter kaolin. A publication[4] submitted by applicant on request for reconsideration indicates the following comparative values for English and a representative Georgia (domestic) kaolin:

Whiteness index (diff. refl. at 700 mμ–400 mμ):

Domestic (lower value indicates whiter)	20–16.1
English (lower value indicates whiter)	13.9–9.5

In contrast, brightness is the relative percent reflectance at 457 millimicrons, in the short wavelength (violet) end of the spectrum. The instant application states:

* * * It is unfortunately true that the kaolins from central Georgia are characterized by a deficiency of reflectance at the short wavelength (i.e., the violet) end of the spectrum. This fact causes them to appear "cream colored" by comparison with some other whiter pigments, such as precipitated calcium carbonate, blanc fixe, and certain high-grade imported kaolins, e.g., those from England. * * *

By appellant's method a Georgia kaolin can be upgraded to a whiteness index of 11.1, which will be recognized to be midway in the range of English clays. This improvement was stated before the Board on reconsideration to be "almost 70% of the difference between what were the best and poorest clays at the time the invention was made."

Appellant set out in the specification two prior methods of improving whiteness and brightness: chemical bleaching treatments, and selection (classification) of the very *small* particles of clay:

* * * Various and extensive research efforts have resulted in process refinements so that some of the naturally discolored kaolins can be whitened and brightened by various processings, including chemical treatments. It has been repeatedly found, over the years, that while known chemical bleaching treatments can produce improvements in whiteness, up to a point, there is definite limitation to the extent to which this color improvement can be carried, regardless of intensity of treatment.

* * * * * * *

It has been already shown, as for example in U.S. Patent #2,524,816, that kaolins of improved brightness can usually be attained by the classification of the crude clays into finer and finer particle size fractions up to a certain point, viz, less than 0.25μ. The brightest clays attainable have usually been obtained by selecting that fraction of particles between diameters 0.25μ and 2.0μ. On the other hand, particles coarser than about 2μ generally yield a product of inferior color. This relationship, while not invariably true, is generally so.

In contrast to those prior methods, appellant's invention is disclosed as follows:

I have now discovered that if instead of selecting the fine particles from a classifying operation, I select the coarse particles—that is, those coarser than about 2μ diameter—and subject them to a process of delamination by extrusion under controlled critical conditions of moisture content and pressure, I obtain a product from these delaminated coarse kaolin particles which is surprisingly brighter and whiter than I can obtain from the naturally fine particles themselves.

In addition, while the mere mechanical disintegration of the large kaolin particles produces, by itself, an exceptionally bright product, this product is susceptible to further chemical color improvement, and the combination yields a product of unique brightness and whiteness.

[3] Appellant's brief explains that: "* * * Pure kaolin is white, and 'primary' kaolin which has not moved from the original location of the feldspar from which it degenerated sometimes has a high degree of whiteness. The English china clays are primary kaolins (T.R. 59). 'Secondary' kaolin is that which has been washed away from its place of origin and has collected at some other location. Such kaolin is invariably stained by surface coatings of colored compounds, usually oxides of iron and titanium. American clays, particularly Georgia kaolins, are secondary kaolins (T.R. 55). The discoloration can usually be partly reduced by chemical bleaching, but the titanium stains cannot be removed by chemical means without damaging the kaolin itself (T.R. 4, 63). * * *"

[4] TAPPI Monograph Series, No. 20. Paper Coating Pigments, Ch. V, Clay (Kaolin) (195), p. 69, published by the Technical Association of the Pulp and Paper Industry.

The "coarse" particles of larger than 2 microns diameter were previously known to be vermicular stacks of plates.[5] The individual plates of the stacks are separated, in appellant's own terms, or "delaminated," by the plastic shearing pressure in the extrusion step to expose the unstained interior faces of the individual plates.[6]

Representative claims 30 and 33 on appeal read:

30. A method of improving the whiteness of washed kaolin comprising the steps of:

(1) forming a slurry of said kaolin,

(2) fractionating the kaolin to obtain a coarse particle fraction having at least about 80% kaolin stacks of greater than two microns equivalent spherical diameter,

(3) adjusting the moisture content of this coarse particle fraction to a percentage low enough to require at least about 350 p.s.i. pressure to extrude the mass through a $\frac{1}{16}$'' hole in a non-powdery form,

(4) subjecting the fraction to plastic shearing equivalent to that achieved by extruding the fraction at 350 p.s.i. pressure through a $\frac{1}{16}$'' hole, and

(5) fractionating the resulting mass following plastic shearing to recover therefrom particles of less than two microns equivalent spherical diameter characterized by a predominance of plate-like particles of increased whiteness as compared with the original clay.

33. As a new article of manufacture, a kaolin product resulting from the practice of the method of claim 30 and characterized by being whiter by at least two points in whiteness than a fraction of comparable fineness of natural clay, said whiteness being measured by the difference between percentage of reflectance at 400 millimicrons and at 700 millimicrons as compared with the original clay.

The remaining appealed claims are process claims generally similar to claim 30.

The Lyons patent relates to a method of treating kaolin to increase the percentage suitable for use in paper coating and other uses requiring particles of small size such as 2 microns or less in equivalent spherical diameter (e.s.d.). It states that, although "probably every known device for the communication of solid particles" has been tried at one time or another for that purpose, they have been so inefficient as to be impractical. It discloses that "surprising increases in particle fineness and decreases in the viscosity of kaolins" can be achieved by "extruding them under very high pressures and within very narrow and closely controlled limits of moisture content during the extrusion process."

[5] Appellant's application states:

> Finer than 2μ, the particles are basically hexagonal crystal-plates roughly one-tenth as thick as they are long, or else thin, face-to-face aggregations thereof. Larger than the 2μ dimension, they are stacked aggregations of these component plates, usually in a sort of superposed configuration of mosaic sheets of the tiny plates. These are the particles which are referred to as "stacks." This discovery, while relatively recent, is amply documented and illustrated in the literature pertaining to clay technology; for example, "The Mechanism of Gloss Development in Clay Coated Sheets" by Woodward and Lyons, TAPPI, vol. 34, #10, October 1951, pages 348 through 442; also Koenig and Lyons, "Correlation of Kaolinite Crystal Shape With Particle Size and Some Effects on Ceramic Behavior," Ceramic Age, July 1955.

To the same effect are parts of the Billue patent, and the TAPPI monograph, supra, note 4.

[6] Mellor, supra, note 1, states in this connection: "* * * The [kaolinite] crystals may occur in aggregates of plates piled one above the other so that by screwing the cover-glass under slight press., it is possible to spread out the plates much as if a pack of cards were spread out fan-wise by pressing and screwing with the thumb at the other end. Curious vermicular—*vermis*, a worm—aggregates or rouleaux of plates, FIG. 109, have been found in many clays."

Since the double patenting rejection was based on claims of the co-pending Lyons patent, representative claims thereof are reproduced below:

1. A method of materially reducing the average particle size of finely divided calcined kaolinitic clay which comprises making a clay-water mixture having a solids content in excess of about 65% and a moisture content sufficient to permit extrusion of the mixture through a $\frac{1}{8}$" die aperture, and forcing said mixture through die apertures of approximately $\frac{1}{8}$" at pressures of at least 350 pounds per square inch.

5. A method of materially reducing the average particle size of washed kaolinitic clay, which consists of making a clay-water mixture having a sufficient percentage of kaolinitic clay to require at least 350 p.s.i. to force it through a $\frac{1}{8}$" aperture and a sufficient percentage of moisture to permit the mixture to be extruded through a $\frac{1}{8}$" die aperture in a non-crumbly and non-powdery form, and subjecting said mixture to internal plastic shearing forces sufficient to increase by about 6% the percentage by weight of the particles in the mixture of a size not greater than 2μ equivalent spherical diameter by extruding the mixture under pressures of at least 350 p.s.i.

It is clear from the record that the step of "delamination by extrusion under controlled critical conditions of moisture content and pressure * * *" is attained by the patented Lyons process defined in the above-quoted representative claims. The instant specification states in this regard:

As is described in my co-pending application #684,253, filed September 16, 1957, pursuant to which application Patent No. 2,904,267 was granted September 15, 1959, the only known practical and economic way whereby these plates can be split up is by extrusion of the stacks under extreme plastic-shearing pressure while the stacks are moistened by a percentage of water within a critical narrow limit.

Further, an affidavit submitted under Rule 132 during prosecution, to which we shall advert in more detail later, indicates specimens of clays prepared according to the appealed invention for comparison with prior art clays were "delaminated" according to the Lyons patented process. Thus the affidavit states:

The Superstrusion

The clay, thus moisture-conditioned, was extruded through a multi-apertured die-plate by a screw-type power extruder, under conditions taught in U.S. Patent #2,904,267.

The same extrusion treatment was given to each specimen.

The Billue patent, filed after the appealed application, is a continuation-in-part of an abandoned application filed September 24, 1956, which date is prior to the instant application. Billue relates to increasing brightness and gloss of clay used for coating paper. This is done by first separating (classifying) the coarse from the fine clay, and then "fracturing," by means of a "Rafton" or "pug" mill, the coarse clay fraction to produce finer particles within the desired particle size range. Finally, the desired fine fraction is separated from the mass of "fractured" clay.

Before further detailing the Billue teachings, it is necessary to clarify a preliminary issue. The Billue patent nowhere mentions whiteness, although it does refer to beneficial properties of clay used for coating paper to be brightness, gloss and an "opacity-creating ability." However, the parent application does refer in one place to the whiteness property as follows:

Although in the above examples a Rafton mill was used to fracture the clay particles, somewhat analogous results may be obtained with a Waring Blendor. The particles fractured by a Waring Blendor are whiter than the original clay of corresponding particle size range. However, the relative proportion of clay that may be fractured is substantially less than that obtained with a Rafton mill; for example, the percent of clay recovered as 78% finer than 2 microns is relatively smaller with a Waring Blendor.

That teaching in the parent was not carried forward to the continuation-in-part which issued as the Billue patent here involved. Since we find it unnecessary to rely on that teaching, we thus do not reach the issue whether such a teaching, contained only in an abandoned parent *and* referred to in a patent, may be relied on as a prior art disclosure as of the filing date of the parent.

As will appear in more detail below, the amount of "fines," particles of clay smaller than the well-recognized figure of 2 microns referred to above, that may be present in the coarse fraction to be treated, is said to be critical in the claimed process. Appellant limits the process to not more than 20% fines by such claim limitations as: * * * fractionating the kaolin to obtain a coarse particle fraction having at least about 80% kaolin stacks of greater than two microns equivalent spherical diameter * * *.

The Billue patent states:

* * * In my process, I may use either coarse clay after removing the fines so that there are substantially no particles finer than 2 microns, or, with a little less brightening improvement, mined, coarse crude clay. However, the coarse clays that I use, irrespective of whether they are coarse crude clays or coarse clays obtained from classification, must have not more than 35% by weight particles below two microns.

The abandoned copending parent Billue application states in this regard that the "coarse clays may have as little as 18% of their material below 2 microns, or even less, and rarely have more than 35% by weight below 2 microns." That precise reference to an 18% figure does not appear in the patent, and appellant alleges that in the parent case the maximum was 50%[7] rather than 35%. As above with regard to whiteness, we do not find it necessary to rely on statements not carried forward to the patent; of course we do not rely on teachings having no support in the parent. We rely on the patent teachings having adequate foundation in the parent application, and agree with the Board that:

* * * As pointed out by the Examiner, there is clear basis, and a specific disclosure, in the Billue parent case for milling coarse kaolin particles of a size which meets the 20% limitation with respect to "particles of less than 2 microns in diameter," * * *. We therefore consider the effective filing date of the Billue patent, with respect to the subject matter relied on by the Examiner, to be the filing date of the parent case, viz, September 24, 1956, under 35 U.S.C. 120.

Other teachings of Billue will appear in the context of the discussion of the rejection and the answer to appellant's contentions.

The Examiner, in a statement reiterated by the Board, accurately summarized the differences between the patented and appealed processes:

* * * The present claims only differ from the claims of appellant's patent in fractionating the kaolin to obtain a coarse fraction of which 80% of the kaolin particles are greater than 2 microns in diameter prior to extrusion thereof and fractionating the extruded mass. * * *

We agree with that characterization. In substance, the process of the appealed claims is the patented process practiced on a coarse fraction of clay, the coarseness (no more than 20% fines) being alleged criti-

[7] That appears inaccurate, since the 50% figure noted in the Billue parent was with reference to the percent solids in the slurry, not the percent fines in the starting fraction. Billue also refers in parent claims to 50% of fractured material in the *resulting* clay.

cal to the production of unexpected brighter and whiter fines. We observe that the patented process is *not* restricted to employment on any particular clay fraction. Thus, the question resolves itself into whether or not the process of classifying clay and using the coarse fraction of the classified clay in the patented process would be, in view of Billue, an obvious variation of the patented process which is not restricted to employment of an unclassified clay.

The Examiner was of the opinion that:

> * * * It is considered to involve an obvious choice to one skilled in the art to apply the fractionating steps of Billue to the analogous milling process claimed in the Lyons patent. Therefore, the present claims are considered to be an unpatentable variation or modification of the claims of appellant's patent. *In re Kiekhaefer* [49 CCPA 943, 299 F.2d 866], 779 O.G. 902, 132 USPQ 636. As to claim 32, Billue shows that it is old to chemically bleach kaolin.

The Board agreed, stating:

> In our opinion, it would be obvious to prefractionate the coarse particles of Lyons in accordance with the teaching of Billue, both in his patent and in the parent case, to fractionate those coarse clays which have been previously discarded, and then to mill the coarse particles and recovering, by fractionating, kaolin particles of less than 2 microns in diameter.
>
> * * * * * * *
>
> We therefore, consider the combination of the Lyons patent with the Billue disclosure in the parent case, as proper in order to show that the subject matter claimed herein is merely an unpatentable improvement over the subject matter already patented by appellant, in the light of the teaching of the prior art, i.e., Billue. *In re Ockert*, 44 CCPA 1024; 1957 C.D. 404; 722 O.G. 222; 245 F.2d 467; 114 USPQ 330, *In re Ward et al.*, 43 CCPA 1007; 1956 C.D. 387; 711 O.G. 426; 236 F.2d 428;; 111 USPQ 101.

Appellant's primary contention is that "there is no suggestion in either the claims or specification of the Lyons patent of the critical nature of the limitation of a maximum of 20% of particles below two microns requisite to produce high whiteness," and that absent the first step of prefractionation "there is little or no whiteness improvement produced by the process." It is also urged as significant that the Lyons patent does not use the term "delamination," and that it claims only a method of reducing particle size of kaolin and not a method for increasing the whiteness claimed here. Appellant contends further that Billue is directed to "increasing the brightness of clay, *not* the whiteness," and "to *fracturing* the clay not to delamination."

It is our view that those objections treat the Billue reference and the Lyons patent claims independently, whereas the rejection is based on the combination. [1] Although we appreciate that individual defects of the reference or patent claims can defeat the rejection, we do not find the rejection overcome by pointing out that one reference does not contain a particular teaching, when the reliance for that teaching was on another "reference." We find ample support for the conclusion that one skilled in the art would find it obvious to combine classification steps, as in Billue, with the patented process steps to produce improved fines. Billue's discovery is the *selection of a coarse fraction alone, rather than a fines fraction* as previously done, for processing to cause a reduction in size, by means conventionally used with unclassified clays ("Rafton" or "pug" mills). As with the patented Lyons' process, the percentage of fines is increased and gloss improved. We find nothing in Billue, nor does appellant so argue, indicating *the means* by which the stacks or vermicules are

"fractured," as Billue descriptively terms it, is important. It is clear that Billue could utilize any means that increases the percentage of fines.

The key concept of Billue, the selection of a coarse fraction, is thus disclosed:

> I have found how a clay of intermediate particle size range—that is, around 70–80% below 2 microns—may be greatly increased in brightness without in any way necessitating sacrificing softness. This is done by separating coarse clay from the natural or crude clay, and then fracturing this coarse clay to produce particles within the desired particle size range, and separating the desired fractured particles from the mass produced from the fracturing step.

Likewise that is the key concept that distinguishes the appealed process from the patented process. Thus, appellant's application states:

> I have now discovered that if instead of selecting the fine particles from a classifying operation, I select the coarse particles—that is, those coarser than about 2μ diameter—and subject them to a process of delamination by extrusion under controlled critical conditions of moisture content and pressure, I obtain a product from these delaminated coarse kaolin particles which is surprisingly brighter and whiter than I can obtain from the naturally fine particles themselves.

We do not find it fatal to the combination that Billue refers to what happens during the production of the brightened fines as "fracturing." The term "fracturing" in Billue is with reference not to the relied-on teaching of selection of coarse particles, but to what happens to the coarse particles during their reduction to fines. Billue gives a picture that "fracturing" is meant only as general shorthand and not as bindingly descriptive of what happens in producing from a coarse clay fraction an increase in particles finer than 2 microns with increased brightness as compared to unprocessed clay of the same size. Billue's description of the process in terms of result and his reference to the 2μ size, below which one in this art refers to plates and above which one refers to stacks, also fits that general picture. Nor is there any evidence that the Billue process actually breaks either the stacks or the individual plates along their axis rather than separating the stacks into individual plates. We do not find in that context the term "fracturing" to prevent one of ordinary skill from applying the key Billue teaching of selection of a coarse fraction to the Lyons process, or using the Lyons process on a coarse fraction of clay.

[2] Nor do we think it material that the Lyons patent refers to "reducing the average particle size" rather than "delamination" of stacks as referred to in the appealed application. As noted above, both the appealed application and the affidavit show that *in fact* what happens during the extrusion is the same regardless of whether or not the reduction in average particle size is termed "delamination."[5] That after-developed term is at best only somewhat more accurately descriptive of a state of fact of the earlier patented process. Cf. *In re Wilson*, 50 CCPA 773, 311 F.2d 266, 135 USPQ 442.

We turn now to the allegation that the condition that not more than 20% fines be present in the coarse fraction is critical to the production of the improved whiteness and brightness. We think that criticality has not been demonstrated, and that the Billue reference directs one in this art to such a condition for the specific purpose and with the expected result of increased brightness.

[5] In fact, appellant's brief at one point refers to the Lyons patent as "a secondary reference disclosing delamination of a non-fractionated clay."

Regarding the percentage of fines, the Solicitor has summarized the Billue examples as follows:

> * * * The eight examples of the abandoned parent application reappear as correspondingly numbered examples in the patent.[9] Several of the tables associated with these examples indicate percentages of fines in the clays before fracturing, which information can be summarized as follows:
>
> | Table: | Proportion of fines before fracturing |
> |---|---|
> | *I | (a) 17% under 10 microns. (b) 8% under 5 microns. |
> | III | 3% under 2 microns. |
> | V | 25% under 2 microns. |
> | VII | 4% under 2 microns. |
> | IX | 12% under 2 microns. |
> | XI | 14% under 2 microns. |
> | XIV | 4% under 2 microns. |
>
> It is evident that all but one of the coarse clays, viz, that of Table V, contained at least 80% kaolin stacks greater than two microns equivalent spherical diameter. * * *
>
> * [Table I (a) and (b), both show "% finer than 2 microns 0."]

Appellant has not pointed to any error in that table, and indeed ignores all but the 35% upper limit of Billue. Billue also notes that the coarse fraction may be selected to have "substantially no * * *" particles finer than 2 microns.

During prosecution appellant submitted an affidavit that detailed measurements made of the brightness and whiteness of clay having various percentages of fines both above and below the "critical" 20% figure that was treated according to the claimed process. The results were as follows:

	BR.	W.I.
From feed with negligible fines	90.7	9.9
From feed with 10% fines	89.4	11.1
From feed with 20% fines	88.4	19.8
From feed with 30% fines	87.8	14.8
From feed with 45% fines	86.9	15.5

"BR." is the brightness value in percent reflectance at 457 millimicrons wavelength, and "W.I." is the whiteness index. The measurements were recorded by a G.E. recording spectrophotometer, and the resultant graph shows five lines, separate at the short wavelength end (400 millimicrons) gradually merging into a single line at the long wavelength end (700 millimicrons). On petition for reconsideration, appellant submitted the appended graph of the results as showing the criticality of the 20% figure. The graph also contains two values of whiteness for Billue's *maximum values* that were apparently calculated, by an undisclosed method, from the comparable Billue brightness figures; no whiteness figures are calculated for the Billue examples above-noted that start with a coarse fraction having below 20% fines.

Appellant states in connection with the graph (references to the record omitted):

> This graph simply charts the figures which are already in Exhibit A [the affidavit values quoted above] * * *. It will be seen from the graph that there is a sharp change in the slope of whiteness index at about 20% showing a clear change in kind and not merely a change in degree. We have indicated on the graph the significant points of Billue Patent 3,028,671 (35% fines) and Billue parent application Serial No. 611,757 (50% fines).[10] The tremendous significance of this change in kind is apparent from the comparison of whiteness indices which appear on page 69 of monograph 20 of the Technical Association of the Pulp and Paper Industry [TAPPI] * * * where the Whiteness Index for both domestic and English clays is given. It will be noted that the whiteness for domestic clays is from the best at 16.1 to the poorest at 20.1 a range of only 3.9 points of whiteness index. When this is compared with the added improvement of 2.7 points between 20% to 10% fines achieved by the Lyons invention it is at once evidence that a very significant contribution has been made. This improvement in whiteness is almost 70% of the difference between what were the best and poorest clays at the time the invention was made. A 70% improvement is certainly a significant improvement. * * *

[9] The Billue patent contains additional examples on which we do not rely.

[10] Referring to footnote 7, supra, there is only one maximum value at 35% fines; the point, □, at 50% should not appear on appellant's graph. It is not clear to us where either a whiteness or brightness figure for "50%" is found in the Billue parent.

The Solicitor points out that the affidavit values (dots in appellant's appended graph) at each end of the curve are subject to question, and on recalculation arrives at a graph having no sharp break at the 20% fines point. That graph is also appended.

The Solicitor then comments as follows (the computation in the Solicitor's footnote 3 being omitted):

> From the outset, it is apparent that the assumed "20% fines" was really some value within a range of "about 20%–23%" * * *, that the larger 30% and "45%" blendings consequently also represented about a two percent spread each * * *, that the coarsest fraction "devoid" of fines was inherently vague for quantitative purposes, and that there are entirely too few empirical points to establish any criticality with reasonable certitude. More abstruse is appellant's error in concluding that a blending of 38 parts of the "20% fines" fraction with 20 parts of clay containing about 78% of fines yields a feed material containing about "45% of fines" * * *. Such blending actually yields a feed material containing 40% of fines, as can be verified by simple computation. * * * Correction of appellant's graph for that point alone will take considerable kink out of the curve, inasmuch as the 20, 30 and 40% points then tend to line up, relegating a more gradual bend in the curve to some zone below 20% (upper portion of curve as shown). One should also note that appellant has conveniently chosen 5% as "negligible" fines, thereby avoiding any negative gradient in the curve in its upper reach. Of course, such a gradient would be hard to explain physically. But then, it is just as likely that the 10% point should be off, to the same end. * * *

We are constrained to agree with that unrebutted commentary and graph of the Solicitor as showing the 20% figure to be not persuasive of a criticality probative of non-obviousness of the entire claimed process in view of the Lyons patent claims and the teachings and examples of Billue. [3] A conclusion of criticality simply cannot be reached on such clearly arguable and equivocal data.

The other major difference urged as an unexpected result probative of non-obviousness is the matter of whiteness and brightness. Both the Lyons patent and Billue are silent as to whiteness, and Billue alone refers to brightness. It is argued that the improvement in whiteness is unexpected and so significant as to permit issuance of a patent. We think not.

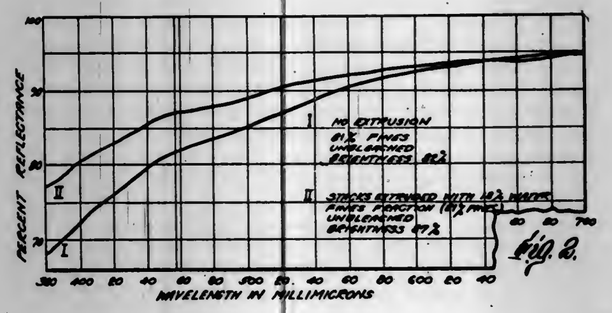
[4] We think it evident that the Billue reference would direct one in this art to the claimed process because of the advantage of brightness alone. That expected advantage is indeed achieved. Appellant is left to argue that it is unexpected that whiteness *in addition to* brightness is improved. That there is an *additional* advantage, an increase in whiteness, accruing therefrom, is not on the facts here persuasive of non-obviousness of a process of applying the Lyons patented process, unlimited as to fraction, to a coarse clay fraction. The improvement in brightness neither teaches away from, nor is it inconsistent with an improvement in whiteness.

[5] We noted in *In re Graf*, 52 CCPA 1206, 343 F.2d 774, 145 USPQ 197, 199, that obviousness is not to be determined on the basis of purpose alone. In *Graf* we held that (145 USPQ at 199):

> While a selection of certain facts in this case tend to a conclusion of non-obviousness and others taken alone may show obviousness, the conclusion required under section 103 must be grounded on a weighing of all the facts.

The same weighing of *all the facts* is required where the rejection is founded on double patenting rather than on section 103. In view of the relationship between brightness and whiteness appearing from the record, we do not think this case to be so close on its facts as either the *Graf* case, or *In re de Montmollin*, 52 CCPA 1287, 344 F.2d 976, 145 USPQ 416.

Further, it is apparent from the record that the increase in whiteness here obtained is due entirely to the increase in reflectance at the shorter wavelength end of the wavelength curve. As an example is appellant's FIG. 2:



Similarly, the affidavit in measuring the brightness and whiteness for feed having respectively "negligible," 10%, 20%, 30% and "45%" fines indicates that the value at the longer wavelength end (700 millimicrons) of the curve is the same (95±.5%) for all the feeds. Only the shorter wavelength end of the curve is displaced upward as the percentage of fines in the starting material decreases. The TAPPI monograph also indicates the known general nature of the reflectance curve to be upward from the short to long end of the spectrum. Thus it seems reasonable that an increase in brightness would be expected by one of ordinary skill in this art to be accompanied by some increase in whiteness, particularly where the starting clay has nearly the maximum reflectance at the long wavelength end of the spectrum. As appellant puts it, the kaolins from central Georgia appear cream colored since they "are characterized by a deficiency of reflectance at the short wavelength (i.e., the violet) end of the spectrum." Although whiteness and brightness are not the same property, the increase in whiteness here does not appear to be so unrelated to an increase in brightness as to tip the scales of patentability in the face of the entirely expected increase in the properties of brightness and gloss.

[6] We think also that it is significant to note that a fair reading of the application does not attach such significance to whiteness as compared to brightness as appellant urges before us. After a discussion of "commercial efforts" to improve brightness, the application notes that the matter of whiteness is "of collateral importance * * *."

The product-by-process claim 33 was also rejected on grounds of double patenting and that rejection was affirmed by the Board. Appellant treats all the claims together. As this court recently held in *In re Taylor*, 53 CCPA —, — F.2d —, 149 USPQ 615, 617, relying on *In re Bridgeford*, 53 CCPA —, — F.2d —, 149 USPQ 55, a product-by-process claim is a product, not a process. Thus we shall treat claim 33 here separately, although for much the same reasons as given above we think the product of claim 33, as claimed to be produced by the process of claim 30, to be obvious from a consideration of the Lyons patent claims and Billue.[11] The only feature by which the product is said in fact to distinguish from Billue's lies in the use of the patented Lyons extrusion method on the selected coarse fraction. For reasons similar to those given above, we do not see that practice of the patented Lyons process on a coarse fraction to result in a non-obvious product. Although the product has improved brightness and results in a paper having improved gloss, as expected from both Billue and the Lyons patent, only the whiteness improvement is mentioned in the claim, and this property we have adverted to above. Of the improvement in the three properties, two are entirely expected, the other only somewhat less so. Even assuming the improvement in whiteness to be unexpected, we are not convinced the product is non-obvious upon weighing *all the properties*. *In re Graf*, supra; *In re de Montmollin*, supra.

In this connection appellant urges:

> * * * Billue's practice, as stated in column 5, lines 15–18 (T.R. 191), results in "a higher viscosity than unfractured clay having the same particle size distribution from the same source. In addition, the fractured clay particles will require more casein adhesive for coating paper." The practice of the present invention results in a reduction in viscosity when the extrusion is carried out within the proper moisture limits and the requirement of casein or other adhesive is not increased, but on the contrary, usually reduced. * * *

However, we fail to find reference to the viscosity property in the application. Similarly there is no mention of it in the affidavit, much less an actual comparison with products of Billue. [7] Unsupported allegations in briefs on appeal of such differences are hardly persuasive of non-obviousness.

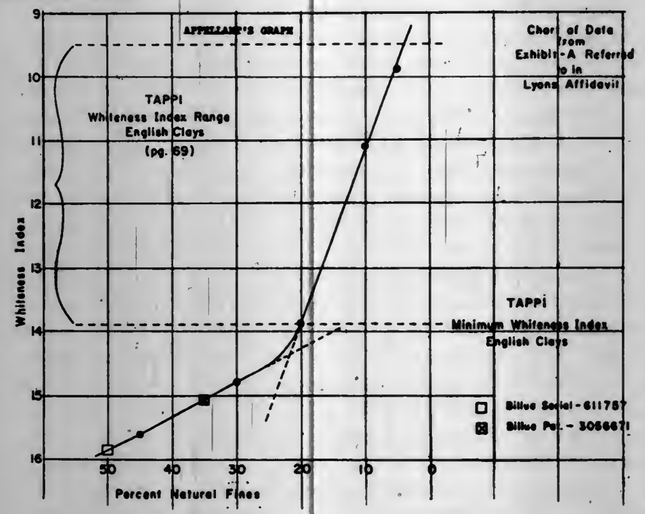
But assuming arguendo that undisclosed and unclaimed difference to be in fact true, we are again of the view that appellant misconceives the rejection as one looking to Billue as the source of the steps of reducing the particle size. That is not the case. The reference in Billue to higher viscosity appears to be with reference to the property of dilatency of the clay *after* treatment.[12] On the other hand, there is some discussion in the Lyons patent disclosure with reference to viscosity control of the clay *prior to* the extrusion by the addition of deflocculating agents. The viscosities noted do not refer to clay at the same stage of processing. Thus, those teachings are neither comparable nor inconsistent.

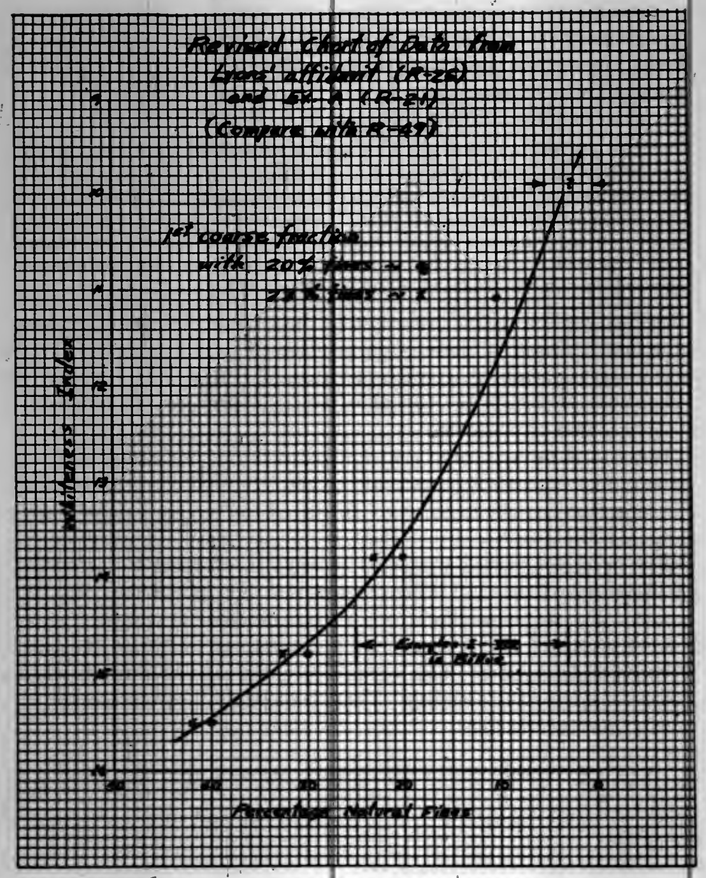
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[11] In view of our affirmance of double patenting rejection of claim 33, we need not pass on the contention of the Solicitor that the reasons of appeal are insufficient to warrant review of the rejection of claim 33 as unpatentable over Billue, Duke, Brown and Mellor. The Solicitor notes that *In re Baird*, 52 CCPA 1747, 348 F.2d 974, 146 USPQ 579, prompts raising the matter, and he relies on *In re Gruschwitz*, 50 CCPA 1498, 320 F.2d 401, 138 USPQ 451.

[12] We assume arguendo that disclosure is available to appellant although it appears only in the patent. See *In re Wilson*, supra.

[8] For the foregoing reasons the decision of the Board is affirmed.
AFFIRMED.





Solicitor's Graph

SMITH, *J.*, dissenting.

Both references of record teach that the finer particle sizes produced the greater brightness in the coating. Appellant's prior Patent No. 2,904,267, reduced the particle sizes of clay by extruding a plasticized clay through an extruder to shear the particles. The Billue Patent No. 3,058,671, reduced the particle sizes of clay by "fracturing" the coarse clay to produce the smaller particle sizes desired. I agree with the majority that Billue discloses the selection of coarse particles. As stated by Billue:

> I have found how a clay of intermediate particle size range—that is, around 70–80% below 2 microns—may be greatly increased in *brightness* without in any way necessitating sacrificing softness. This is done by separating coarse clay from the natural or crude clay, and then *fracturing* this coarse clay to produce *particles within the desired particle size range*, and separating the desired fractured particles from the mass produced from the fracturing step. [Emphasis added.]

I have emphasized in the above quotation the words "brightness," "fracturing" and "particles within the desired particle size range" because these terms have a meaning which it seems to me are misapprehended by the majority.

Certainly "brightness" and "whiteness" are quite different concepts in the pigmentation industries. One has but to observe the gloss (brightness) of a good grade of a black enamel surface and compare it with the dullness (lack of brightness) of a good grade of a "flat" white painted surface to appreciate the entirely different properties with which we are here concerned. The majority apparently chooses to disregard the foregoing observation for it states:

> The other major difference urged as an unexpected result probative of nonobviousness is the matter of whiteness and brightness. Both the Lyons patent and Billue are silent as to whiteness, and Billue alone refers to brightness. It is argued that the improvement in whiteness is unexpected and so significant as to permit issuance of a patent. We think not.

The foregoing seems to me to state both an unwarranted and an unsupportable proposition in view of the facts of record.

Before discussing what it seems to me is a proper finding concerning the rejection in this case, it is desirable to state what it seems to me are the basic scientific concepts involved in this invention.

It is well known that as the sizes of particles are reduced, the specific surfaces in the resultant mass are increased. This was recognized and stated as long ago as 1934, by Professor Harry N. Holmes in his "Introductory Colloid Chemistry." In the ensuing 32 years, the art and science of colloidal chemistry has advanced so greatly that the current tendency is to forget the simple and elemental propositions which underlie it. I know of no area in which this is more true than in the art in question. While the use of clays was among mankind's earliest achievements, the recognition of the relationship of particle size to specific surfaces is relatively recent. The increase of total surface area is a basic fact and becomes an impressive factor when stated as Professor Holmes does at page 4 of the above referred to book.

"Surface increases enormously with subdivision," said Professor Holmes,

> and all surface phenomena become greatly magnified. A cube, 1 cm. on edge, when subdivided into cubes 10 mμ on edge would possess a total surface of 6,000,000 sq. cm., and the number of particles would be 10^{21}. The surface has been multiplied one million times. If the subdivision is carried to the lower

limit of 5 mμ the free surface becomes almost one acre in extent. Consequently the importance of surface energy and of all surface properties becomes overwhelming. * * *

The importance of this fundamental observation seems to me to have been lost by the majority. If not lost, the majority has failed to appreciate its significance in the present setting.

The problem to which appellant addressed himself was how to *whiten* domestic clays. As pointed out in the specification in issue:

The secondary kaolin deposits of central Georgia, U.S.A., are the basis of an extensive kaolin processing industry. Some millions of tons of kaolin are there produced annually and are refined by elaborate and modern processing techniques. One of the principal objects of these processes is to produce a kaolin pigment of a high order of whiteness and brightness. Various and extensive research efforts have resulted in process refinements so that some of the naturally discolored kaolins can be whitened and brightened by various processings, including chemical treatments. It has been repeatedly found, over the years, that while known chemical bleaching treatments can produce improvements in whiteness, up to a point, there is definite limitation to the extent to which this color improvement can be carried, regardless of intensity of treatment.

Appellant further points out that:

* * * Briefly, it might be pointed out that in speaking of whiteness, reference is had to the matter of uniformity of reflectance throughout the visible spectrum. It is unfortunately true that the kaolins from central Georgia are characterized by a deficiency of reflectance at the short wavelength (i.e., the violet) end of the spectrum. This fact causes them to appear "cream colored" by comparison with some other whiter pigments, such as precipitated calcium carbonate, blanc fixe, and certain high-grade imported kaolins, e.g., those from England. This fact sometimes puts them to a marked disadvantage, and it would be extremely desirable if some way could be found whereby these Georgia clays could be made to be of equal or superior whiteness and brightness to the best of the imported clays as well as the other competing pigments above mentioned.

While appellant's earlier patent and Billue are concerned with increasing the "brightness" of clays, I find it most significant that improvement in "whiteness" of the treated clays is at best an unrecognized factor—both are concerned with particle size reduction of the clay to achieve improved "brightness." Neither teaches, nor appears to recognize the significance of other colors on the surfaces of the clay particles which each proposed to treat.

Thus appellant's prior patent utilizes all particle sizes of clays which he forms into a plastic mass by the addition of water and then "delaminates" by pressure extrusion processing. In fact, the fundamental purpose of the invention of this patent is to utilize *all* of the crude clay particle sizes and thus to increase the total yield of processed clays over that achieved by sedimentation classification and separation of the particle sizes greater than 2 microns in diameter.

Billue differs from the prior Lyons patent in two principal respects: (1) Billue processes the particles larger than 2 microns in diameter and (2) does so by "fracturing" them.

Billue describes what he means by the term "fracturing by milling." He states:

The phrase "fracturing by milling" in the claims refers to the fracturing of kaolinitic clay particles by milling, such as is effected, for example, by the use of pug mills (kneading) and Rafton mills (impact and/or shear) of the type shown in U.S. Patents 2,535,647 and 2,448,049, respectively, wherein the particles are subjected to rupturing or shearing forces which cause the kaolinitic clay particles that are treated (i.e. not more than 35% by weight finer than 2 microns) to have an increase of particles finer than 2 microns and greater brightness on the brightness scale as compared to unfractured clay of substantially the same particle size.

Thus, we see that the common concern stated in appellant's prior patent and in the Billue patent is the reduction in size of the clay particles larger than 2 microns in diameter, and by so doing to improve the "brightness" of a coating in which they were used. It seems to me, and here I disagree with the majority, that there is no fair teaching in either prior process that it could be expected to increase the *whiteness* of the processed clay.

Here we are dealing with a color phenomenon. The least skilled of week-end painters has observed how little color, how very little indeed, is required to "tint" a pure white pigment (usually an oxide of Zinc or Titanium) dispersed in oil. Here, it seems to me, we must consider appellant's statement in the specification in issue that:

Much still remains unknown regarding the difference between these new "plates" and their corresponding natural "plates," and it is not certain why these new type "plates" are whiter. However, it is known that these sedimentary kaolins were deposited in prehistoric coastal lagoons some 50 million years ago. It is entirely probable that they have, therefore, been immersed in ferruginous and other potential discoloring solutions for millions of years. It is, therefore, probable that the faces of the natural fine kaolinite plates have long since become coated with thin, but tenacious, deposits of ions of a nature which would detract from the native whiteness thereof. Probably some of these surfacial contaminations do yield to the chemical bleaching treatment while others are not respondent thereto.

To the extent that a discoloration is present on the surfaces of the clay particles, to this extent it should be considered as a "tinting" pigment. The process of appellant's prior process retains *all* of this discoloration, and recalling the increased total surface phenomena referred to by Holmes, above quoted, the gross amount of surface discoloration would be related to the total area of surface involved. Thus, Lyons' prior patent by failing to recognize the importance of applying the process to material having less than 20% of particles below 2 microns did not achieve increased whiteness which appellant achieves by the invention here in issue.

But what of Billue who admittedly processes Clay particles of greater than 2 microns in diameter? Here it becomes necessary to consider what occurs in "fracturing" vis-a-vis "delamination." In "fracturing" by the processes disclosed by Billue, all surface discoloration is broken up as the clay particles are reduced in size. More importantly, however, those discolored surfaces become tinting pigments which are dispersed throughout the "fractured" mass and act as a color toner.

Here and in appellant's earlier patent the "delamination" of the clay particles produced what appellant has described in the instant application as "different" plates. This is stated in the specification in issue as follows:

The delaminated "plates" are different from the natural plates found in the original kaolin. They are whiter and brighter in the unbleached form and they, furthermore, bleach to values of brightness and whiteness unattainable by similar treatment of the naturally occurring "plates." Electron-micrographic studies indicate that the delaminated plates and/or sheets (i.e., mosaics of edge-to-edge plates) tend to be longer and wider than are the corresponding naturally occurring ones.

Perhaps we can gain a clearer understanding of the technical problem here involved by considering that Lyons' prior patent retains a larger amount of the discolored surface materials than does Billue but he does not break it up and disperse it as completely as Billue necessarily does by his "fracturing by milling" process. Billue, on

the other hand, by selecting clay of over 2 micron particle sizes incorporates less of the discolored surface materials but by thoroughly dispersing them in the mass achieves the maximum tinting effect.

The invention of the appealed claims perceptively avoids the shortcomings inherent in both appellant's prior patent and in Billue. The former by reducing the amount of discoloration resulting from the larger total surface area of the fines and the latter by retaining the discoloring materials on the edges of the individual delaminated clay plates so that it is found chiefly at the edges of the individual clay platelets which electron microscopic studies show are joined edgewise in the form of a "mosaic." Thus, the color impression is one of increased "whiteness" as the discoloring or tinting particles probably remain on the edges of the plates, and are joined with similar edges on adjacent plates so that only a small proportion of the total discoloring materials is to be seen.

Relatively simple though this concept is, I do not find it in appellant's prior patent either alone or when considered with Billue.

Thus, in short, the invention of the appealed claims is a different invention and achieves different results from either Lyons' prior patent or the Billue patent. The difference between Lyons' prior patent and the present invention is not found in Billue. I find no basis in the record for finding appellant here seeks to claim but an obvious variation on the invention claimed in his prior patent.

I therefore must disagree with the majority's treatment of this appeal.

PATENT SUITS

Notices under 35 U.S.C. 290; Patent Act of 1952

2,503,143, W. K. Wasdell, SHOCK ABSORBERS, **filed** Nov. 16, 1962, D.C., N.D. Ill. (Chicago), Doc. 62c2112, *Stewart-Warner Corp.* v. *American Seating Co.* Judgment holding claim 1 of patent invalid and not infringed, Feb. 23, 1967.

2,538,122, J. T. Potter, COUNTERS, **filed** Mar. 29, 1962, D.C., S.D. Calif. (Los Angeles), Doc. 62–468–WB, *Potter Instrument Company, Inc.* v. *Computer-Measurements Company.* Stipulation and order dismissing this action without prejudice, Aug. 9, 1962.

2,546,354, Bacon & Kent, NAILING MACHINE, **filed** Dec. 15, 1966, D.C., C.D. Calif. (Los Angeles), Doc. 66–2019–CC, *GBC Designs* v. *Edward W. Nacey.* Consent judgment favoring plaintiff and against defendant for permanent injunction enjoining defendant in claims 1–5 to plaintiff's patent, valid, Dec. 16, 1966, issued writ of permanent injunction. **Same**, **filed** June 9, 1961, same, Doc. 738–61–WB, *Nu-Matic Nailer International Corp.* v. *James W. Fullerton and Edward W. Nacey.* Order setting aside default judgment against defendant Edward W. Nacey and dismissing this action with prejudice as to defendant Nacey, Dec. 14, 1966. **Same**, **filed** Jan. 27, 1965, same, Doc. 65–136–FW, *Mag Nu-Matic Nailer, Inc., et al.* v. *Peter Dodge.* Dismissed on order of the Court, Dec. 1, 1966.

2,571,435, A. L. Flamm, GAS FUELED CIGAR LIGHTER, **filed** Nov. 19, 1962, D.C., S.D.N.Y., Doc. 62–C–3808, *Ronson Corporation* v. *Mark 69 Ltd.* Stipulation and order dismissing complaint and counterclaim, Dec. 6, 1966. **Same**, **filed** May 21, 1965, same, Doc. 65–C–1567, *Rowenta Metallwarenfabrik G.m.b.H.* v. *Ronson Corp.* Order dismissing action, Dec. 19, 1966.

2,583,034, S. E. Wibling, CAN OPENER, **filed** Sept. 16, 1966, D.C. Conn., Doc. 11593, *Strong Appliance Industries, Inc.* v. *General Electric Co., Inc., Allied Stores Corp., and Allied Purchasing Corporation.* Consent judgment of dismissal, Dec. 19, 1966.

2,589,136, G. S. Ralston, APPARATUS FOR WATER TREATMENT, **filed** Mar. 26, 1965, D.C., S.D. Calif. (Los Angeles), Doc. 65–484–S, *Water Treatment Corp.* v. *California Manufacturing & Equipment Co.* Judgment that patent to Glenn S. Ralston and claims 1 and 2 thereof are invalid and void, Nov. 14, 1966.

2,607,840, J. R. Hollins, EMERGENCY STOP FLASHER SIGNAL SYSTEM, **2,652,553**, same, DIRECTIONAL SIGNAL SYSTEM, **filed** Apr. 2, 1965, D.C., S.D.N.Y., Doc. 65–C–987, *Lehigh Valley Industries, Inc. et al.* v. *Bobro Products, Inc.* Stipulation and order dismissing action, Feb. 17, 1967.

2,652,553. (See 2,607,840.)

2,699,054, L. H. Conover, TETRACYCLINE, **filed** Aug. 11, 1964, D.C. Conn. (New Haven), Doc. 10600, *Chas. Pfizer & Co., Inc.* v. *McKesson & Robbins, Inc.* Stipulation for dismissal filed Jan. 18, 1967. **Same**, **filed** Oct. 2, 1962, D.C., C.D. Calif. (Los Angeles), Doc. 62–1350–CC, *Chas. Pfizer & Co., Inc.* v. *International Rectifier Corporation and Rachel Laboratories, Inc.* Stipulation and order dismissing complaint and dismissing counterclaim with prejudice, Dec. 2, 1966.

2,868,200, T. H. Gewecke, FLASH-BACK INDICATOR; **3,056,403**, same, PARENTERAL SOLUTION EQUIPMENT AND METHOD OF USING SAME; **3,079,920**, D. Bellamy, Jr., FLEXIBLE CONTAINER WITH INTEGRAL PILOT TUBE HOLDER, **filed** May 20, 1965, D.C., N.D. Ill. (Chicago), Doc. 65c783, *Baxter Laboratories, Inc.* v. *Cutter Laboratories, Inc.* Stipulation, order dismissal of complaint and counterclaims, Dec. 15, 1966.

2,941,785, A. W. Kammerer, EXPANSIBLE ROTARY DRILL BIT, **filed** Feb. 6, 1967, D.C., C.D. Calif. (Los Angeles), Doc. 67–169–EC, *Rotary Oil Tool Company* v. *Oteco Inc., doing business as Oil Tool Engineering Co. and Ben H. Fuchs.*

3,056,403. (See 2,868,200.)

3,079,920. (See 2,868,200.)

3,142,458. (See Re. 25,406.)

3,147,175, T. Gonzalez, ORNAMENTAL TREE, **filed** Mar. 10, 1967, D.C., S.D.N.Y., Doc. 67–C–1004, *Snow Tree Corporation* v. *Bradford Novelty Company, Inc.*

3,154,362, Blonder and Sampson, TRANSMISSION-LINE CONNECTOR, **filed** Mar. 26, 1965, D.C., S.D.N.Y., Doc. 65–C–903, *Blonder Tongue Electronics* v. *Channel Master Corp.* Order dismissing action for lack of prosecution, Feb. 23, 1967.

3,155,373, O. S. Rae, TRUCK CAMPER BODY JACK, **filed** Nov. 23, 1964, D.C., S.D. Calif. (Los Angeles), Doc. 64–1612–EC, *Orville S. Rae, and La Jaga, Inc.* v. *Consolidated Stamping and Screw Machines, Inc. et al.* Consent judgment, defendant enjoined, Jan. 31, 1967.

3,157,311, B. Bronfman, MEANS FOR SUPPLYING BUTTONS TO A SEWING POINT, **filed** Dec. 22, 1964, D.C., S.D.N.Y., Doc. 64–C–3934, *Rent-Aid Systems, Inc.* v. *Trio Button Co., Inc. et al.* Dismissed on stipulation, Jan. 20, 1967.

3,160,171, R. F. Klein, PORTABLE STORAGE TANK, **filed** Feb. 4, 1965, D.C., S.D. Calif. (San Diego), Doc. 3235–SD–C, *Richard F. Klein and Klein Products, Inc.* v. *Einer Bros. Inc., Palomar Enterprises Corp., Inc., et al.* Final consent decree, Nov. 17, 1966.

3,161,051, J. A. Perry, Jr., LEVEL INDICATING DEVICE AND SYSTEM, **filed** Jan. 5, 1967, D.C., W.D. Mich. (Grand Rapids), Doc. 5518, *Charles A. Cooper* v. *Cherry-Burrell Corporation and King Engineering Corporation.* Stipulation and order of dismissal, Mar. 15, 1967.

3,168,311, F. W. Sinden, GAME, **filed** Mar. 22, 1965, D.C., S.D.N.Y., Doc. 65–C–847, *Parker Brothers, Inc.* v. *Jilmar Company, Inc.* Consent judgment, defendants are permanently enjoined and restrained, Feb. 19, 1967.

3,176,747, J. F. Nensell, SELF-SEALING NUT ASSEMBLY, **filed** Dec. 21, 1966, D.C., C.D. Calif. (Los Angeles), Doc. 66–2042–FW, *Florence D. Wolfe et al.* v. *Standard Pressed Steel Co. et al.* Dismissed on plaintiff's motion, Feb. 3, 1967.

3,199,196, Lieb and Turchi, DENTAL HANDPIECE, **filed** Oct. 14, 1965, D.C., E.D.N.Y. (Brooklyn), Doc. 65C–1060, *Star Dental Mfg. Co.* v. *Union Broach Co., Inc.* Consent judgment for injunction, Mar. 6, 1967.

3,202,574, J. F. T. Berliner, GUAR SEED-BORIC ACID OR -BORAX EMBALMING COMPOSITION AND METHOD, **filed** Oct. 21, 1965, D.C., N.D. Ill. (Chicago), Doc. 65c1751, *Moser Paper Company* v. *Frigid Fluid Company et al.* Defendants permanently enjoined, Jan. 13, 1967.

3,209,946, J. E. Kalista, VENDING APPARATUS, **filed** May 27, 1966, D.C., N.D. Ill. (Chicago), Doc. 66c953, *Westinghouse Electric Corporation* v. *The Vendo Company.* Dismissed on stipulation, Jan. 5, 1967.

3,212,212, H. Miller, WHEELED STUFFED TOY, **filed** Jan. 19, 1967, D.C., E.D.N.Y. (Brooklyn), Doc. 66C–92, *My-Toy Company, Inc.* v. *Esther Miller Doll Creations, Inc.* Order dismissing complaint, Jan. 18, 1967.

3,220,316. (See Re. 25,406.)

3,220,368, E. S. Gandrud, METHOD AND APPARATUS FOR PLANTING AND TREATING A SEED BED, **filed** Mar. 6, 1967, D.C. Minn. (St. Paul), Doc. 2–67–68C, *Ebenhard S. Gandrud and Gandy Company* v. *Valley Manufacturing, Inc. and Ver-Dik Inc.*

3,221,685, N. Greenberg, CARPET BINDING MACHINE, **filed** Apr. 1, 1966, D.C.N.J. (Trenton), Doc. 337–66, *Broadloom Speedbinder, Inc.* v. *Hightstown Rug Co., Inc.* Stipulation and order of dismissal, Jan. 23, 1967.

3,223,070, Gribble and Bennett, DAIRY ESTABLISHMENT, **filed** Aug. 26, 1966, D.C., S.D. Calif. (Los Angeles), Doc. 66–1394WPG, *AG PRO, Inc.* v. *Charles Vander Kooi.* Consent judgment in favor of plaintiff and order for perpetual injunction restraining defendant from further infringement on plaintiff's patent, Jan. 26, 1967.

3,228,423, W. C. Moog, FLUID CONTROL VALVE IN WHICH A MECHANICAL MOTION IS TRANSMITTED FROM A DRY REGION TO A PRESSURIZED FLUID FILLED REGION, **filed** Mar. 16, 1967, D.C., W.D.N.Y. (Buffalo), Doc. C–1967–111, *Abex Corporation* v. *Moog, Inc.*

3,243,214, D. B. Poynter, ELECTRICALLY OPERATED COIN BOX DEVICE, **filed** Mar. 10, 1967, D.C., S.D.N.Y., Doc. 67–C–1002, *Poynter Products, Inc. et ano.* v. *Bengor Products Co., Inc.*

3,256,606, L. C. Horta, DIDACTIC DRAWING APPARATUS, **filed** Feb. 21, 1967, D.C., E.D.N.Y. (Brooklyn), Doc. 67C–167, *Luig Congost Horta* v. *Plastic Toy & Novelty Corp.*

3,267,347, Gogshalk and Medlar, BATTERY CHARGERS, **filed** Oct. 3, 1966, D.C., N.D. Ill. (Chicago), Doc. 66c1772, *Fox Products Company* v. *Blitz Electric Company, Inc.* Consent decree, patent valid and infringed, defendant licensed, Jan. 3, 1967.

3,273,632, F. J. McCabe, FIRE DAMPER, **filed** Feb. 17, 1967, D.C., Ariz. (Phoenix), Doc. C–6266 Phx. *Air Balance, Inc.* v. *Hennesy Equipment Sales Company.*

3,275,724, J. B. Klingel, METHOD OF AUTOCLAVING CONCRETE BLOCKS, **filed** Feb. 20, 1967, D.C., W.D.N.Y. (Buffalo), Doc. C–1967–76, *Struthers Scientific and International Corporation* v. *John A. LoBuglio, doing business as LoBuglio Block Company.*

3,283,419, H. A. Tytel, PAINTING PANEL FOR A PAINT-BY-NUMBER KIT, **filed** Feb. 15, 1967, D.C., E.D.N.Y. (Brooklyn), Doc. 67C–143, *The Art Award Co., Inc.* v. *Standard Toycraft, Inc.*

3,293,405, R. J. Costanzo, ELECTRICALLY HEATED FOOTWEAR, **filed** Mar. 16, 1967, D.C. Conn. (New Haven), Doc. 11864, *Timely Products Corporation and Raphael J. Costanzo* v. *Stanley Arron et al. and Visa-Therm Products, Inc.*

3,296,692, Glass and Barlow, GAME WITH ACTION PRODUCING COMPONENTS, **filed** Feb. 20, 1967, D.C., S.D.N.Y., Doc. 67–C–722, *Marvin Glass & Associates et ano* v. *De Luxe Topper Corporation et ano.*

D. 202,919, M. Gindoff, PORTABLE INCANDESCENT LAMP, **filed** Feb. 3, 1966, D.C., N.D. Ill. (Chicago), Doc. 66c215, *Tensor Corporation* v. *Dur-O-Peg, Inc.* Dismissed on stipulation without prejudice, Feb. 3, 1967.

Re. 25,406, Byrne and Cruger, AIRCRAFT ARRESTING SYSTEM; **3,142,458**, same, AIRCRAFT LAUNCHING AND ARRESTING DEVICE; **3,220,316**, H. Kummerman, SLOW-RUNNING REVERSIBLE PISTON-ENGINES OPERATING ON COMPRESSED FLUID OR THE LIKE, **filed** Jan. 9, 1967, D.C. Del. (Wilmington), Doc. 3300, *E. W. Bliss Company* v. *All American Engineering Company.*

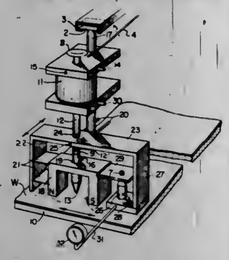
REISSUES

MAY 23, 1967

Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

26,206
APPARATUS FOR GAGING WIDE SHEET-FORM WORK

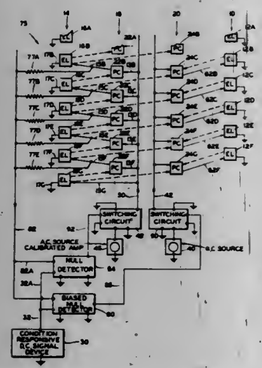
Max Knobel, 453 Beacon St., Boston, Mass. 02115
Original No. 3,164,981, dated Jan. 12, 1965, Ser. No. 292,864, July 5, 1963. Application for reissue Jan. 10, 1966, Ser. No. 523,835
7 Claims. (Cl. 73—37.5)



1. Apparatus for gaging wide sheet-form work comprising: follower means adapted for positioning at a determined distance from one face of such work; magnetically responsive means carried by and resiliently suspended from said follower means for independent movement relative thereto toward and away from the work; position sensing means carried by said follower means for sensing said relative movement between said magnetically responsive means and said follower means; and means located adjacent the other wide face of the work and opposite said magnetically responsive means for magnetically interacting with the latter whereby said magnetically responsive means assumes a position relative to said follower means indicative of the thickness of said work.

26,207
ELECTROLUMINESCENT-PHOTOCONDUCTOR MEANS FOR LIGHTED COLUMN DISPLAY

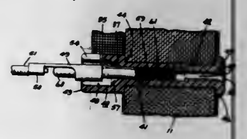
Frederick Blancke Sylvander, Rutherford, N.J., assignor to The Bendix Corporation, a corporation of Delaware
Original No. 3,221,170, dated Nov. 30, 1965, Ser. No. 254,373, Jan. 28, 1963. Application for reissue May 16, 1966, Ser. No. 559,367
9 Claims. (Cl. 250—209)



7. An indicator device comprising in combination; indicator scale means, a variable length light column co-operating with said indicator scale means to provide an indicator function, means to effect said variable length light column including electroluminescent-photoconductor means, means to periodically interrupt the operation of said electroluminescent-photoconductor means, and condition sensing means to effect operation of the electroluminescent-photoconductor means in response to a sensed condition.

26,208
CONTACT TERMINAL AND LAMINATION SECURING ARRANGEMENT FOR ELECTRIC DEVICES AND METHOD OF ASSEMBLING SAME

Myron D. Tupper, Portland, Oreg., assignor to General Electric Company, a corporation of New York
Continuation of application Ser. No. 295,291, July 11, 1963, which is an application for reissue of Ser. No. 802,764, Mar. 30, 1959, now Patent No. 3,014,140, dated Dec. 19, 1961. This application for reissue Sept. 2, 1966, Ser. No. 586,902
11 Claims. (Cl. 310—71)

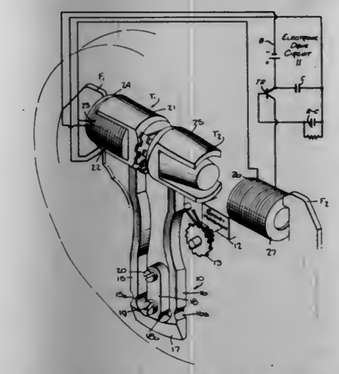


1. A terminal arrangement for a lead-in wire comprising a longitudinally extending mounting sheath formed of insulating material, said sheath having a longitudinally extending inner passageway for accommodating said wire, and a longitudinally extending male quick connect terminal member composed of conducting material, said member having a terminal end portion and an anchoring end portion spaced from said terminal end portion, said anchoring end portion having projecting means for engaging the inner walls of said passageway and for contacting said lead-in wire, said projecting means contacting said wire during the insertion of said anchoring end portion within said passageway and engaging the walls of said passageway to produce an intimate electrical connection between said wire and said terminal member and to anchor firmly said wire and said terminal member in said passageway.

26,209
TUNING FORK FREQUENCY ADJUSTER

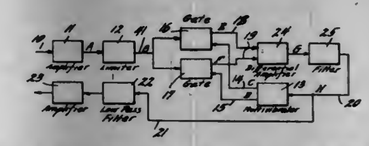
William O. Bennett, Bayside, N.Y., and William W. Mutter, Paramus, and Egbert Van Haaften, Closter, N.J., assignors to Bulova Watch Company, Inc., New York, N.Y., a corporation of New York
Original No. 3,202,848, dated Aug. 24, 1965, Ser. No. 302,955, Aug. 19, 1963, which is a division of Ser. No. 89,896, Jan. 19, 1961. Application for reissue Aug. 19, 1966, Ser. No. 582,176
7 Claims. (Cl. 310—25)

7. A calibrated adjustment means for finely regulating the frequency of a tuning fork (10) having a pair of vibrating tines (15, 16) comprising, respective small loading masses (31, 32) eccentrically supported and pivotally secured to and near the free end of each of said tines of said tuning fork, whereby rotational displacement of a respective loading mass about its pivot serves to shift the center of gravity of its corresponding tine, and spaced indicia (t_1, t_2, t_3, t_4) associated with each of said respective loading masses for indicating the amount of rotational displacement afforded said respective loading masses relative to its corresponding tine, whereby the angular positioning of said respective loading mass relative to its tine, as defined by said associated indicia, provides a calibrated means for altering the operating frequency of said tuning fork in small predetermined amounts.



26,210
FREQUENCY OR PHASE SHIFT DEMODULATOR

James E. Russell, Tulsa, Okla., assignor to United Aircraft Corporation, a corporation of Delaware
Original No. 3,044,020, dated July 10, 1962, Ser. No. 825,586, July 7, 1959. Application for reissue June 30, 1964, Ser. No. 392,983
17 Claims. (Cl. 329—103)



2. In a demodulator for frequency or phase shiftable signals, means for amplifying the signal and limiting its amplitude, to produce a series of variable frequency unidirectional intelligence pulses of substantially square wave shape, means for dividing each said intelligence pulse into two half pulses with the first pulse equalling substantially the first half of each said intelligence pulse and the second pulse equalling substantially the second half thereof, means for inverting each second half pulse and combining it with the first half pulse to produce an alternating pulse intelligence waveform, and means for integrating the alternating intelligence waveform to eliminate the noise components therein and demodulate the signal to obtain the desired intelligence therefrom.

26,211
CLAMP STRUCTURE FOR METAL BANDS

Raymond L. Thurston, Detroit, and Howard M. Smith, Holly, Mich., assignors to Republic Industrial Corporation, Newark, N.J., a corporation of Delaware
Original No. 3,106,757, dated Oct. 15, 1963, Ser. No. 142,971, Oct. 4, 1961. Reissue No. 25,769, dated Apr. 27, 1965, Ser. No. 377,797, May 15, 1964. This application for reissue Oct. 12, 1965, Ser. No. 497,599
1 Claim. (Cl. 24—20)



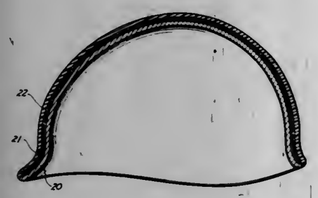
7. A clamping band of ductile material having a band portion that is clampable under tension and an integral clamping and tensioning loop formed on the band portion, said clamping and tensioning loop being of keystone shape defined by two straight sides of substantially equal length folded back relative to their adjacent band portions so as to define inner fold junctions, respectively, said inner fold junctions extending parallel to one another transversely over the width of the band in spaced apart relation, a substantially flat connecting bridge portion extending between parallel outer ends of said straight sides and defining outer fold junctions therewith, respectively, said bridge portion having a length between the outer ends of said straight sides that is at least approximately twice the length of said straight sides, the inner ends of said side portions being movable toward one another and said bridge portion being movable toward said band portion to effect tensioning of said band portion, said inner and outer fold junctions being abrupt, acute angle folds of relatively small fillet radii when said clamping band is in the tensioned condition.

PATENTS

GRANTED MAY 23, 1967

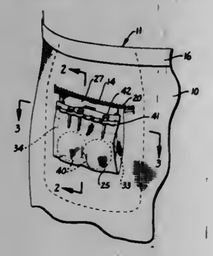
GENERAL AND MECHANICAL

3,320,619
LIGHTWEIGHT BALLISTIC HELMET
Abraham L. Lastnik, 575 Potter Road, and Edward R. Barron, 20 Ruth Drive, both of Framingham, Mass. 01701
Filed June 30, 1965, Ser. No. 468,656
10 Claims. (Cl. 2—6)



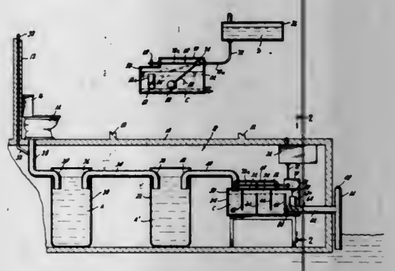
1. A ballistic helmet including in combination:
(a) an inner shell having the shape of a helmet and formed of a resin-bonded woven fabric laminate,
(b) an intermediate layer of needle-punched nylon felt superimposed over said inner shell,
(c) a hard outer covering formed from a shatter- and penetration-resistant material, and means retaining said shell, intermediate layer and outer covering in assembled relationship.

3,320,620
AUXILIARY POCKET FOR GOLFER'S SLACKS
Julian Weidler and Leonard J. Lo Monaco, Napa, Calif., assignors to Rough Rider, Inc., Napa, Calif., a corporation of California
Filed Oct. 5, 1964, Ser. No. 401,307
5 Claims. (Cl. 2—250)



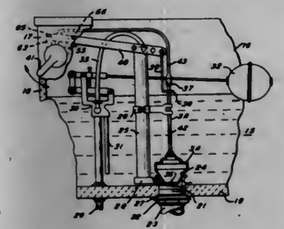
1. In a garment having a pocket with inner and outer side walls defining at the upper ends thereof an opening, an auxiliary pocket for carrying bulky articles, comprising:
(A) a first sheet having upper and lower portions;
(B) a second sheet secured in opposed facing relationship to said lower portion by bottom and side edge connections therewith to define a bag-like receptacle having a closed bottom and open top, said side edge connections comprising:
(1) first pleat panels extending, respectively, from and over the length of the side edges of said second sheet in folded relationship towards the surface of said second sheet facing said lower portion;
(2) second pleat panels extending, respectively, from and over the length of the side edges of said lower portion in folded relationship towards the surface of said lower portion facing said second sheet so as to be disposed, respectively, in opposed relationship to said first pleat panels;
(3) first means securing the free edges of said opposed first and second panels together over the length thereof; and,
(4) second means securing the free edges of said first pleat panels directly to the surface of said lower portion at an area immediately adjacent said open top;
(C) a connection between said upper portion and one of said side walls; and wherein:
(1) said upper portion is flexible to facilitate swinging of said lower portion between positions disposed inside or outside of said pocket; and,
(2) said open top is so orientated as to be exposed to the exterior side of said first sheet when said lower portion is disposed outside of said pocket.

3,320,621
SEWAGE DISPOSAL SYSTEM FOR FLOATING VESSELS
Lawrence Vita, Fort Lauderdale, Fla., assignor to Surfside 6 Floating Homes, Inc., Fort Lauderdale, Fla., a corporation of Delaware
Filed Apr. 21, 1965, Ser. No. 449,774
16 Claims. (Cl. 4—10)



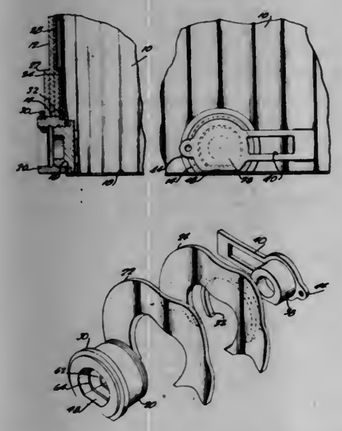
1. A sewage disposal system for floating vessels having toilet means, comprising at least one septic tank, a conduit connecting said toilet means to said septic tank whereby sewage from said toilet means may be flushed into said tank, a retention tank, conduit means connecting said septic tank to said retention tank, said retention tank having a sufficient capacity to store a relatively large volume of liquid received from said septic tank, an outlet conduit communicating with said retention tank and discharging at the exterior of said vessel, a bactericide reservoir, and a metering assembly for automatically feeding a measured amount of said bactericide to said retention tank in response to liquid flowing through said retention tank upon flushing of said toilet means.

3,320,622
TOILET TANK FLUSH VALVE
William E. Wustner, 421 Sylvania Ave., Glenside, Pa. 19038
Filed Nov. 18, 1964, Ser. No. 412,040
7 Claims. (Cl. 4—67)



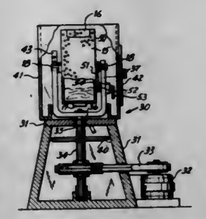
1. A toilet flush valve construction comprising
a discharge valve fitting having a seat,
a valve member for engagement with said seat and having a hollow interior portion and an opening in the bottom thereof,
manually operable actuating members for moving said valve member from its seat for flushing,
said actuating members including a handle and a linkage controlled by said handle interposed between said handle and said valve and moving said valve upon movement of said handle in opposite directions, and
means for controlling the buoyancy of said valve member,
said means including a vent connection to the interior of said valve member and a vent connection control member controlled by the movement of said linkage and effecting venting of said vent connection in one handle determined position of said linkage and nonventing of said vent connection in the opposite handle determined position of said linkage.

3,320,623
DRAIN PLUG FOR PLASTIC SWIMMING POOLS
Joseph J. D'Antonio, Sr., 2709 Athania Parkway, Metairie, La. 70002
Filed Feb. 1, 1965, Ser. No. 429,387
4 Claims. (Cl. 4—172)



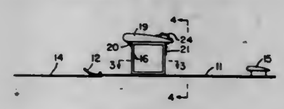
1. A drain for a plastic swimming pool comprising a circular corrugated steel frame with an aperture at the bottom thereof, said aperture being generally circularly contoured but flat on the bottom thereof, a pair of C-shaped collars for being disposed on the inner and outer sides of the aperture and contoured to fit the shape of the aperture, a liner for said aperture fitting within the collars and being retained in place by said collars, a plastic sheet lining for said frame and engaging with the edge portions of the aperture and secured to the end of the liner, and a plastic plug for the aperture of said liner and having an engaging strap secured to the plastic inner lining at one end thereof, and wherein the other end of said strap is secured to said plug.

3,320,624
METHOD OF WASHING AND CENTRIFUGING
Leo M. Kahn, 8646 Fort Hamilton Parkway, Brooklyn, N.Y. 11209
Continuation of application Ser. No. 86,249, Jan. 26, 1961. This application July 24, 1964, Ser. No. 385,835
2 Claims. (Cl. 8—159)



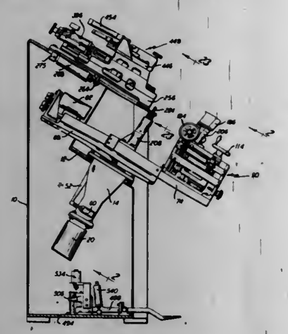
1. A method of extracting liquid from clothes which comprises: permitting a perforated disc-like horizontal cylinder containing said clothes to swing freely about its horizontal axis so as to achieve a static balance, said cylinder having a diameter at least twice its altitude; locking said cylinder to prevent further swinging about said axis; rotating said cylinder at an intermediate speed about a vertical axis, said vertical axis being normal to said horizontal axis and between the bases of said cylinder; said intermediate speed being sufficient to move at least a portion of said clothing away from said vertical axis; discontinuing said rotation; unlocking of said cylinder so as to permit further swinging about said horizontal axis, so as to achieve a static balance; again locking said cylinder to prevent further rotation about said axis; and again rotating said cylinder about said vertical axis at a speed greater than said intermediate speed, thereby extracting said liquid from said clothing.

3,320,625
WINGED SURFBOARDS
Robert E. Schlueter, 5557 Attica Place, Cincinnati, Ohio 45212
Filed Oct. 11, 1965, Ser. No. 494,750
2 Claims. (Cl. 9—310)



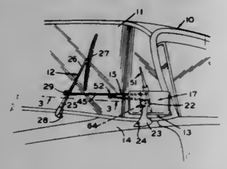
1. A winged surfboard comprising:
(a) a surfboard,
(b) a box like structure bolted to said surfboard and extending upwardly therefrom,
(c) a wing normally extending transverse of said surfboard and hinged to said structure at the forward edge thereof and provided with adjusting means between the wing and structure at the rear edge of said wing to raise or lower the rear of said wing relative to the surfboard,
(d) handles on said wing, and
(e) means for attaching said surfboard to a motor boat.

3,320,626
HEEL SEAT LASTING
Jacob S. Kamborian, 70 Crestwood Road, West Newton, Mass. 02165, and Michael M. Becka, Cambridge, Mass.; said Becka assignor to said Kamborian
Filed Mar. 20, 1964, Ser. No. 353,462
84 Claims. (Cl. 12—145)



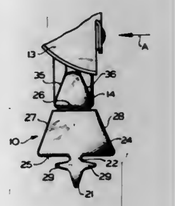
58. A method of heel seat lasting by wiping the margin of the heel portion of a shoe upper, that extends from the vicinity of its breastlines rearwardly to its heel end, against the corresponding portion of a shoe insole comprising: providing a last having the upper mounted thereon and the insole located on its bottom; gripping the upper margin on each side of the last forwardly of said heel portion; applying a pulling force to the gripped margin portions to stretch the upper tightly about the heel of the last with the margin of said heel portion of the upper extending away from the insole; moving wiping means inwardly of the last, against the margin of said heel portion of the upper and across the insole to wipe the margin of said heel portion of the upper against the insole with the wiping means in the vicinity of the breastlines of the upper having components of movement that are at right angles to the longitudinal center line of the last; and releasing the gripped margin portions concomitantly with the application of the wiping means to the vicinity of the breast line portions of the upper margin.

3,320,627
REAR VIEW MIRROR WIPER
Otto A. Engel, 8086 Westwood St., Detroit, Mich. 48228
Filed May 13, 1965, Ser. No. 455,461
6 Claims. (Cl. 15—250.29)



1. In a wiper apparatus for a vehicle rear view mirror mounted on a vehicle fender, for attachment to the arm of the vehicle windshield wiper adjacent said fender, the combination comprising:
(a) a first rear view mirror wiper arm;
(b) means hingedly connecting one end of said first rear view mirror wiper arm to the arm of a vehicle windshield wiper for movement therewith;
(c) a second rear view mirror wiper arm;
(d) means hingedly connecting one end of said second rear view mirror wiper arm to said first rear view mirror wiper arm for movement therewith; and,
(e) a rear view mirror wiper attached to the other end of said second rear view mirror wiper arm, whereby when the arm of the vehicle windshield wiper is actuated the rear view mirror wiper will be actuated over the rear view mirror in a back and forth cleaning movement.

3,320,628
WINDSHIELD WIPER FOR VEHICLES
Gottlob Bacher, Stuttgart-Weilimdorf, and Robert Barth, Waldstetten, Germany, assignors to Robert Bosch G.m.b.H., Stuttgart, Germany
Filed June 1, 1965, Ser. No. 460,439
Claims priority, application Germany, June 13, 1964, B 77,248
7 Claims. (Cl. 15—250.36)



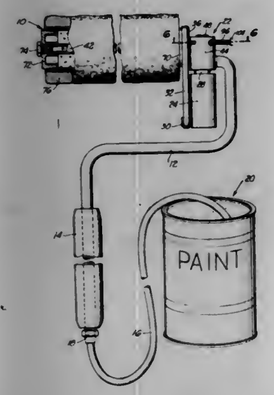
1. A windshield wiper for a vehicle comprising, in combination, a wiper blade including a front strip portion of resilient material having in a cross section transverse to its longitudinal direction a substantially trapezoidal configuration continuously increasing in width towards the windshield so as to have a wide base portion facing the windshield, a single strip-shaped flexible lip portion integrally connected along one edge thereof to said wide base portion of said trapezoidally shaped front strip portion and adapted to engage with the other edge thereof the windshield, and a flexible metal strip embedded in and reinforcing said front strip portion, the distance of said metal strip from said wide base portion being smaller than the height of said single lip portion;
and means operatively connected to said wiper blade and supporting the same for reciprocating movement along the windshield, whereby air streams flowing on the windshield during travel of the vehicle will act on the inclined side faces of said front strip portion to produce a force component pressing said lip portion against the windshield.

3,320,629
VACUUM CLEANER NOZZLE
Joseph P. Zaidan, 1234 S. Broad St., Philadelphia, Pa. 19146
Filed Mar. 23, 1965, Ser. No. 442,071
6 Claims. (Cl. 15—400)



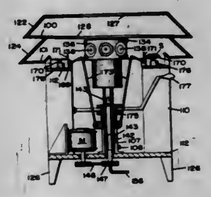
1. A vacuum cleaner attachment comprising a nozzle having an inlet section and an outlet section, means for attaching said outlet section to the suction hose of a vacuum cleaner, said inlet section comprising a pair of spaced apart inner walls, a pair of outer walls one on each side of the outer side of said pair of inner walls, and side walls connecting an inner wall with its adjacent outer wall defining two spaced apart vacuum passages, said inner walls being so related to said outer walls as to define air passages of substantially uniform cross sectional area throughout their full extent, each passage having a suction opening at its end, an elongated brush support extending between said inner walls adjacent and between the suction openings, and an elongated brush carried by said brush support.

3,320,630
SELF-FEEDING PAINT ROLLER
John J. Furlong, 3954 Leigh St., Riverside, Calif. 92509
Filed Sept. 11, 1964, Ser. No. 395,731
5 Claims. (Cl. 15—548)



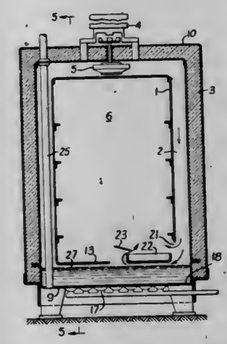
5. A self-feeding roller for applying paint and the like, comprising:
a tubular holder having a handle at one end;
a hollow cylindrical roller rotatably supported at the other end of said holder, said roller being closed at both ends thereof;
a perforated pipe extending longitudinally through said roller at the center thereof, said pipe projecting through one end of the roller;
a pump mounted externally of said roller at said one end thereof, said pump comprising a stationary member and a movable member, one of said members being a cylinder, and the other a piston slidable therein;
said projecting end of said pipe and said other end of said tubular holder both being connected to said stationary pump member, whereby there is communication between them;
the common axis of said stationary and movable pump members being disposed perpendicular to the axis of said roller;
a flexible tube connecting said one end of said tubular holder to a container of paint;
valve means controlling the flow of paint from said tubular bolder into said stationary pump member and out through said perforated pipe into the interior of said roller;
a connecting rod connected at one end to said movable pump member and at the other end to said one end of said roller, said other end of said connecting rod being connected eccentrically to said one end of said roller whereby said movable pump member is reciprocated when said roller rotates; and
means for adjusting the eccentricity of said connecting rod to said roller with respect to the axis of rotation thereof, whereby the amount of paint delivered by said pump with each turn of said roller may be varied.

3,320,631
APPARATUS FOR REMOVING SCALLOPS FROM THEIR SHELLS
Coley T. Brown, 62 N. Woodland St., Englewood, N.J. 07631
Filed June 24, 1965, Ser. No. 466,648
16 Claims. (Cl. 17—2)



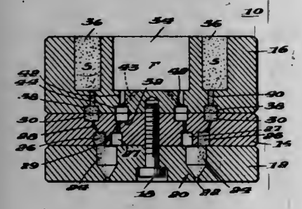
1. An apparatus for removing scallops from their shells comprising, in combination, a rotatable head having a plurality of scallop seating apertured, peripheral recesses, vacuum means connected with said head and intermittently operable to retain scallops in said recesses and to release them, means adjacent said head for heating one shell of a scallop to release it from the scallop muscle and for moving the other shell thereof into one of said recesses, means for rotating said head to remove the heated shell and inedibles of the scallop by centrifugal force, and means for removing the scallops from the unheated shell.

3,320,632
PROCESS OF SCALDING CARCASSES
Otto Oehring, 26 Siemensstrasse, Goslar, Germany
Original application Mar. 25, 1963, Ser. No. 267,758, now Patent No. 3,279,451, dated Oct. 18, 1966. Divided and this application Oct. 8, 1965, Ser. No. 509,664
3 Claims. (Cl. 17—45)



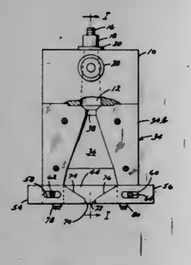
1. A process of scalding carcasses comprising the steps of placing the carcass at a location where it is to be treated, continuously and rapidly circulating air at a temperature of about 60° C. in a closed circuit around the carcass, saturating the air with water vapor as it continuously and rapidly circulates, and continuing said treatment with rapidly circulating water vapor saturated air at about 60° C. for a predetermined time.

3,320,633
APPARATUS FOR FORMING TWO COMPONENT YARNS
Leopoldo Vicente Cancio and Robert Douglas Soutter, both of Chattanooga, Tenn., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Aug. 25, 1965, Ser. No. 482,412
3 Claims. (Cl. 18—8)



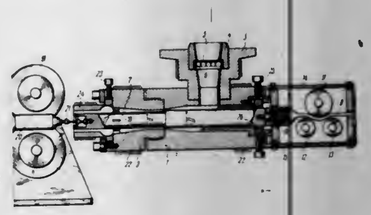
1. A spinneret assembly for producing composite filaments from two or more polymers comprising: a spinneret plate having a downstream face and an upstream face, said spinneret plate having one or more nozzles located therein, each of said nozzles having an orifice at the downstream face of said spinneret plate and a large entrance hole at the upstream face of said spinneret plate; a meter plate having a downstream face and an upstream face, the downstream face of said meter plate being juxtaposed to the upstream face of said spinneret plate; a plurality of expansion chambers located in the downstream face of said meter plate, two or more of said expansion chambers being positioned above and opening directly into each of said entrance holes; a plurality of supply sources located upstream of said expansion chambers; a metering jet connecting each expansion chamber to a supply source; and means for supplying polymer to each of said supply sources.

3,320,634
DIE ASSEMBLY
Daniel J. Ryan and Alfonso W. Simaska, Chester, Pa., assignors to FMC Corporation, Philadelphia, Pa., a corporation of Delaware
Filed Aug. 10, 1965, Ser. No. 478,696
1 Claim. (Cl. 18—12)



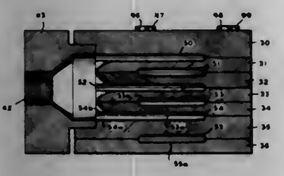
A die assembly for extruding a plastic material to form a relatively narrow strip of substantially uniform thickness comprising a pressure head having a pressure chamber therein, said pressure head having a flat face, a restricted passageway in said head leading from said pressure chamber and having a substantially rectangular opening through substantially the center of the flat face thereof, a first shaping plate fixedly secured to the flat face of said pressure head, said shaping plate having a flat edge aligned with one of the long sides of the rectangular opening of said passageway, a second shaping plate having a flat edge extending parallel to the flat edge of said first shaping plate, means adjustably securing said second shaping plate to the flat face of said pressure head, said last named means permitting the second shaping plate to be moved toward and away from the flat edge of the first shaping plate, a pair of deckle plates sandwiched between said shaping plates, said deckle plates having planar sides juxtaposed the flat faces of said shaping plates, said deckle plates having spaced apart inner ends which determine the width of the extruded strip, said deckle plates forming a continuous surface with the pressure head so as to lead the plastic material to the die exit without producing dye spots, an opening through each of said deckle plates, said openings being elongated longitudinally of the deckle plates, a bolt extending through each of said openings, said bolts extending through said first shaping plate and being screwed into said second shaping plate whereby the shaping plates are squeezed against the flat sides of the deckle plates to prevent leakage of the plastic material, and means secured to one of said shaping plates and overlying the deckle plates inwardly of said bolts to prevent the deckle plates from being pivoted about the bolts due to the pressure of the extruded plastic.

3,320,635
EXTRUSION HEAD
Jakov Julievich Zolotarevsky, Moscow, U.S.S.R., assignor to Gosudarstvenny Nauchno-Issledovatelsky Institute Plasticheskikh Mass, Moscow, U.S.S.R.
Filed Jan. 4, 1965, Ser. No. 423,266
2 Claims. (Cl. 18—13)



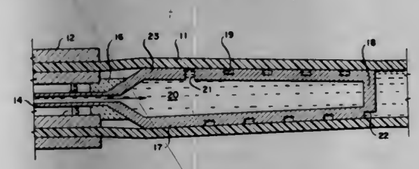
1. Apparatus for extruding shaped tubular members of thermoplastic material having a reinforcing sleeve embedded in such thermoplastic material comprising a casing means having a longitudinal bore, a mandrel mounted within said bore in clearance relation with respect to the bore for reception of said sleeve, means detachably securing said mandrel within the bore and holding the same against axial displacement therein, said casing having die means at the end thereof remote from said securing means, superposed grooved drawing rollers mounted in front of said die, a gauge between said rolls for receiving said sleeve whereby movement of the rolls draws said sleeve taut, means for feeding thermoplastic material into said bore to flow over and through said sleeve as the latter is pulled by said rolls whereby the extruded thermoplastic material is likewise pulled through said rolls over said gauge, means connecting said gauge with said mandrel, a portion of said bore having projections thereon extending toward said mandrel and said mandrel having projections thereon adapted to underlie said first-mentioned projections, the length of said respective projections being such as to provide a clearance space between the projections for accommodating said sleeve whereby said projections space said sleeve from said mandrel to ensure the proper positioning of the sleeve within said thermoplastic material being extruded thereover.

3,320,636
MULTI-PLY FLOW DIVERTER FOR THERMOPLASTIC MATERIALS
Herbert A. Corbett, Auburn, N.Y., assignor to National Distillers and Chemical Corporation, New York, N.Y., a corporation of Virginia
Filed Sept. 20, 1965, Ser. No. 488,408
3 Claims. (Cl. 18—13)



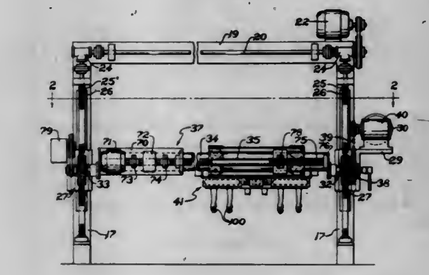
1. In combination: an extrusion die comprising a pair of elongated die lips defining an elongated extrusion exit orifice and an input channel extending from one surface of said die to said exit orifice, a first and second extruder, and a flow diverter connected between said first and second extruders and said input channel of said extrusion die for forming the flow of material from said first and second extruders into said input channel into a plurality of alternate layers of material from said first and second extruders, respectively; said flow diverter including first and second inlet orifices for communication with said first and second extruders; a first plurality of flow channels extending from said first inlet orifice to the input channel of said extrusion die and a second plurality of flow channels interleaved with said first plurality of flow channels and isolated therefrom and extending from said second inlet orifice of said flow diverter to said input channel, one of said pluralities of flow channels being constituted by straight channel sections while the other of said pluralities of flow channels is constituted by L-shaped channel sections.

3,320,637
APPARATUS FOR MANUFACTURING THERMOPLASTIC PIPES
Jan C. van Dijk, Delft, Netherlands, assignor to Shell Oil Company, a Delaware corporation
Filed Apr. 27, 1964, Ser. No. 362,807
Claims priority, application Netherlands, May 2, 1963, 292,212
5 Claims. (Cl. 18—14)



1. Apparatus for extruding thermoplastic pipe, said apparatus comprising:
annular discharge orifice means of an extrusion means;
elongated sizing means coaxially disposed adjacent said discharge orifice means;
said sizing means having a leading end and a trailing end, said leading end having a greater circumference than said trailing end, a tapering outer surface interconnecting said ends, groove means formed in said tapering surface and extending from a point intermediate said ends along said surface to said trailing end, said surface between said groove means and said leading end being substantially smooth, fluid duct means axially extending through said leading end and fluid conduit means communicating said duct means with said groove means, and a means for supplying coolant material to said duct means for flow therefrom into said groove means.

3,320,638
GLOVE MACHINE
Anton G. Selfried, Akron, and Donald B. Ruppel and Norman E. Reinhart, Cuyahoga Falls, Ohio, assignors to The B. F. Goodrich Company, New York, N.Y., a corporation of New York
Filed June 2, 1965, Ser. No. 460,726
7 Claims. (Cl. 18—24)

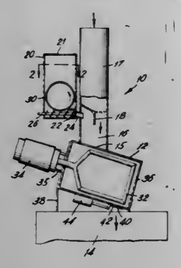


1. In a dipping machine, a pair of dip tanks, a dipping apparatus straddling said tanks, conveyor means mounted adjacent said tanks for conveying pallets with glove forms thereon for movement to and from said dipping apparatus, said dipping apparatus having a vertically movable support member mounted thereon, said support member being rotatably mounted thereon for movement about a horizontal axis, means connected to said support member for moving said support member in a vertical direction, means connected to said support member for moving said support member in a vertical direction, a carriage mounted on said support member for reciprocable movement thereon and operative to receive and secure pallets from said conveyor means, said carriage movable with said support member upwardly from said tanks and downward toward said tanks for dipping the glove forms on a pallet located on said carriage into said tanks, means operatively connected to said support member on said dipping apparatus for rotating said support member and said carriage about said horizontal axis to provide a drying action for coagulant and latex deposited on the forms held by said carriage.

3,320,639
APPARATUS FOR BLENDING POWDERS
Harry J. Harp, Jenkintown, Pa., assignor to Union Carbide Corporation, a corporation of New York
Filed Oct. 1, 1965, Ser. No. 491,970
7 Claims. (Cl. 18—30)

1. In a system for supplying colored resinous material to a plastic molding machine for forming colored plastic objects comprising, in combination, first hopper means for natural plastic material having butterfly valve means for opening and closing the discharge opening thereof, second hopper means for a colorant having inlet and outlet ports disposed adjacent said first hopper means and communicating with said first hopper means below said valve means, an inclined mixing chamber having a beater removably connected to a drive shaft of means for driving said beater, said mixing chamber inlet and outlet ports

diagonally disposed from each other, said inlet port of said mixing chamber being in communication with said discharge opening of said first hopper means and said outlet port being in communication with the feed hopper of said plastic molding machine, means for dispensing said colorant from said second hopper means to



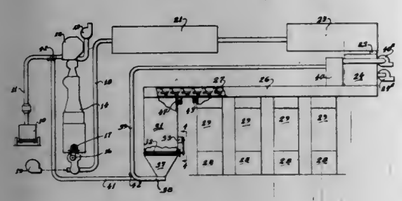
said first hopper means below said valve means, and a framework tieing said components together as a unit and sealing same to said plastic molding machine and said beater cooperating with the inner walls of said mixing chamber for uniformly coloring said natural plastic material.

3,320,640

SYSTEM FOR SUPPLYING SEED COTTON TO GINS

Donald W. Van Doorn, Columbus, Ga., assignor to Lummus Cotton Gin Company, a corporation of Georgia

Filed July 23, 1965, Ser. No. 474,330
9 Claims. (Cl. 19—64.5)



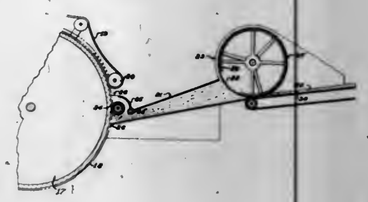
7. In a cotton ginning system,
(a) a plurality of cotton gins,
(b) cotton conditioning mechanism,
(c) means to deliver seed cotton to said cotton conditioning mechanism,
(d) feed mechanism for passing a stream of cotton from said conditioning mechanism to and in series over said gins thus to supply cotton to the gins,
(e) an overflow hopper for receiving cotton passed from said conditioning mechanism in excess to that required to supply the gins,
(f) normally energized means for discharging cotton from the overflow hopper for delivery to the feed mechanism, and
(g) means associated with the feed mechanism for the gin last receiving cotton from said feed mechanism and effective upon the presence thereat of more than a predetermined amount of cotton to deenergize the overflow discharge means and effective upon the presence therein of less than said predetermined amount of cotton to reactivate said overflow discharge means.

3,320,641

METHOD FOR CONTINUOUS, HIGH-SPEED PROCESSING AND CLEANING OF FIBERS

Morris M. Bryan, Jr., Jefferson, Ga., assignor to The Jefferson Mills, Inc., Jefferson, Ga., a corporation of Georgia

Filed Jan. 10, 1966, Ser. No. 519,579
4 Claims. (Cl. 19—156.1)



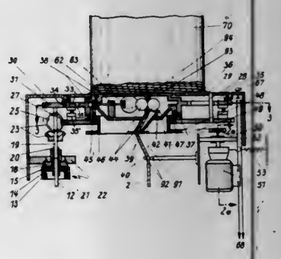
1. A method for continuously processing and cleaning masses of fibers at high-speed comprising the steps of carding the fibers into a first web, pneumatically and mechanically directing the carded first web of fibers into an angularly upwardly inclined air stream, substantially separating and partially parallelizing the fibers as they pass through the upwardly inclined air stream while simultaneously permitting heavy particles of trash to separate from the fibers and fall downwardly out of the upwardly inclined air stream, directing the thus separated and fallen heavy particles of trash in a direction different from that of the fibers in the upwardly inclined air stream and collecting the fibers into a second web while allowing the air stream and small particles of trash to pass thereon through the second web.

3,320,642

APPARATUS FOR STORING AN ELONGATED FLEXIBLE ELEMENT

Fritz Fronza, Kongen, and Ulrich Platzenhardt, Ebersbach (Fils), Germany, assignors to Zinser-Textilmaschinen GmbH, Ebersbach (Fils), Germany

Filed Apr. 26, 1965, Ser. No. 450,747
Claims priority, application Germany, Apr. 28, 1964, Z 10,804
27 Claims. (Cl. 19—159)



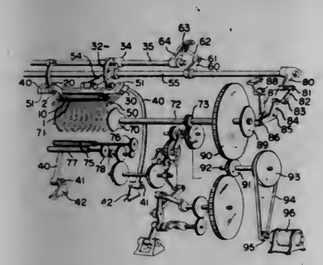
1. In a storing device for a transported elongated flexible element, in combination, rotary support means having guide means for the elongated element; a hollow storing member for the elongated element having an open end located adjacent said rotary support means; rotary transporting means mounted on said rotary support means; drive means for rotating said rotary support means; and for rotating said transporting means in one direction for transporting the elongated element from a position below said rotary support means to a position located on said rotary support means in said storing member; means for stopping said drive means; and means for rotating said transporting means in a direction opposite to said direction of rotation whereby a broken end of the elongated element stored in said storing member can be moved by said transporting means to an accessible position located below said rotary support means while said drive means and rotary support means are stopped so that said broken end can be attached to the other broken end of the elongated element.

3,320,643

INDEPENDENT SWING MOTION APPARATUS FOR FEED ROLLER IN RECTILINEAR COMBER

Mutsuhiko Katori, Nagoya-shi, Japan, assignor to Howa Kogyo Kabushiki Kaisha, Nagoya-shi, Japan

Filed Oct. 18, 1965, Ser. No. 497,402
Claims priority, application Japan, May 7, 1962, 37/17,692
3 Claims. (Cl. 19—225)



1. An independent swing motion mechanism for cushion plate and feed rollers of a cotton combing machine of a type having a combing cylinder, comprising a nipper body, a nipper actuating shaft, means for oscillating said nipper actuating shaft, means for connecting the nipper actuating shaft and the nipper body, a feed roller actuating shaft, a feed roller bracket unit, means for connecting the nipper actuating shaft to the feed roller actuating shaft for oscillating said feed roller actuating shaft, means for connecting the feed roller actuating shaft and the feed roller bracket unit, a nipper swing arm, and means for holding the feed roller bracket unit, swing arm and nipper body including a common pin and providing a common center for pivotal movement of the nipper body, swing arm and feed roller about the common center and for swinging the same over the combing cylinder.

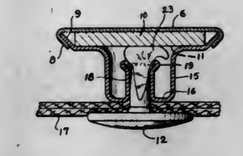
3,320,644

TACK-FASTENED BUTTON

Domenic J. Daddona, Jr., Waterbury, Conn., assignor to Scovill Manufacturing Company, Waterbury, Conn., a corporation of Connecticut

Filed Apr. 9, 1965, Ser. No. 446,824
2 Claims. (Cl. 24—95)

1. A tack button having a face structure providing a downwardly facing anvil surface for upsetting a tack point, a back to which said face structure is secured, a hub having an introverted bottom extending up into the hub a substantial distance to provide a tack anchor integral with said hub and back, said tack anchor having a cylindrical portion adapted to confine the tack shank and an outwardly flared portion around the top of said cylindrical portion, said introverted bottom having a hole through its upper end, the material around the edges of said hole being folded inwardly and downwardly to lie against said



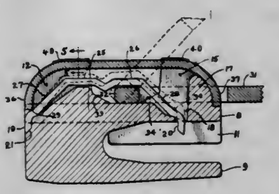
outwardly flared portion to provide a seat for the upset end of the tack.

3,320,645

LOCK SLIDER FOR ZIPPER FASTENERS

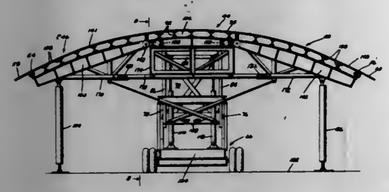
John E. Burbank, Middlebury, Conn., assignor to Scovill Manufacturing Company, Waterbury, Conn., a corporation of Connecticut

Filed Jan. 6, 1966, Ser. No. 519,090
6 Claims. (Cl. 24—205.14)



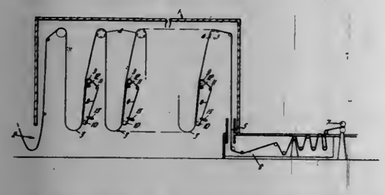
1. A slider for zipper fasteners comprising
(a) a rigid body member having front and back wings joined by a neck at one end and providing a Y-shaped channel, that end of the slider having the neck being herein called the upper end;
(b) a pair of laterally spaced lugs projecting forwardly from the upper end portion of the slider;
(c) a locking member fitting loosely between said lugs and extending lengthwise over said front wing, said locking member having like-shaped inturned end portions, the upper one of which rests in a recess in said slider neck to provide a fulcrum for the locking member, while the lower inturned end portion extends through a hole in said front wing near the lower end of the slider and moves in and out of said channel as the locking member is tilted inwardly or outwardly about said fulcrum, said locking member being symmetrical about a plane extending at right angles through the locking member midway between its ends and also about a plane extending at right angles to said first plane and through the longitudinal center line of said locking member, said locking member having an arched portion intermediate said ends;
(d) a pull member having a pintle portion extending through said arched portion; and
(e) a cap extending over said locking member, said cap being anchored to said lugs and also to the lower end portion of said front wing, said cap having springy tongues at opposite ends, the upper one of which bears against said locking member at a point spaced from said fulcrum to urge said locking member to locking position, said pull member serving to tilt said locking member forwardly to unlocked position.

3,320,646
PORTABLE FORM FOR MONOLITHIC CONCRETE ROOF
Arnold H. Wilkins, 2002 Kem Road, Marion, Ind. 46952
Filed July 5, 1966, Ser. No. 562,549
7 Claims. (Cl. 25—131.6)



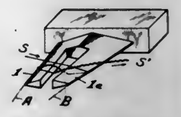
1. A form for casting a monolithic concrete roof structure comprising: a center form section; means for supporting such center section at a predetermined height above the ground and including a lower frame, ground wheels on said lower frame for transporting said form, an upper vertically movable frame on said lower frame and supporting said center form section whereby said center section may be raised and lowered thereby to vary said height, means on said lower frame and acting upon said upper frame for selectively vertically moving the same, and means for securing said upper frame to said lower frame at said predetermined height; a pair of side form sections respectively pivotally connected to said center section and movable from a first position extending downwardly from said center section to a second position extending outwardly from said center section and forming a complete extended area form therewith; and means on said supporting means for respectively retaining said side sections in said second positions thereof and including a truss structure removably secured to said upper frame and side sections.

3,320,647
APPARATUS FOR CONVEYING CARPETS
Ernest Wilford, Crossflatts, Bingley, England, assignor to The Bradford Dyers' Association Limited, Bradford, England, a British company
Filed July 20, 1964, Ser. No. 383,776
Claims priority, application Great Britain, July 19, 1963, 28,726/63
8 Claims. (Cl. 26—2)



1. An apparatus for conveying carpets or other pile fabrics through a treatment chamber without contacting the front surface of the fabric, comprising chamber means, a plurality of horizontal spaced parallel rollers journaled in said chamber and driven to support and convey a fabric through said chamber with said fabric depending between adjacent rollers to form deep loops having the front surface of the fabric uppermost and each loop having a downward run and an upward run, auxiliary conveyor means mounted in said chamber exterior of said downwardly extending loops and adjacent the lower half of each upward run of a fabric loop in frictional contact with the back face of said fabric and driven to aid in lifting and spreading the upward run of each carpet loop.

3,320,648
APPARATUS FOR MAKING STRETCH AND BULKED YARN
Shigero Kaneko, 2–18 Aioidori, Abeno-ku, Osaka, Japan; Ryosaku Kaneko, 8–57 Tanabe-Honmachi, Higashisumiyoshi-ku, Osaka, Japan; and Kentaro Kawasaki, 393 Sakurai, Minoo-shi, Osaka-fu, Japan
Filed Jan. 6, 1965, Ser. No. 423,778
6 Claims. (Cl. 28—1)



1. An apparatus for making crimped yarn comprising two edged blades each of triangular cross section, the apexes of the triangular sections defining crimping edges inclined out of parallel and at an angle to each other, said edged blades being solidly fixed as a cantilever, and means to draw yarn wound about the blades under tension in a continuous manner so as to vibrate the blades under the yarn tension and friction against the blades.

3,320,649
METHODS OF MAKING SEPARABLE FASTENING FABRICS
Jack Naimer, 40 Inglewood Lane, Matawan, N.J. 07747
Continuation of application Ser. No. 349,509, Mar. 4, 1964, which is a division of application Ser. No. 232,410, Oct. 23, 1962, now Patent No. 3,138,841. This application Mar. 21, 1966, Ser. No. 538,469
6 Claims. (Cl. 28—72)

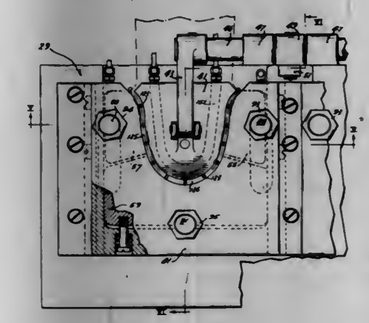


1. A method of making a separable fastener from fabric having a plurality of pile elements made of thermoplastic material formed with upstanding terminal ends, including the steps of: heating said ends of the pile elements to a temperature exceeding the flow point of the thermoplastic material whereby said ends melt and enlarge; and maintaining said enlarged ends of the pile elements at said temperature for a formation period of predetermined duration during which the enlarged terminal ends drawback into a mushroom-shaped configuration having an upper, substantially spherical surface and an annular, non-spherical undersurface.

3,320,650
METHOD OF CUTTER BAR MANUFACTURE
James Anderson, Beaconsfield, Quebec, Canada, assignor to Outboard Marine Corporation, Waukegan, Ill., a corporation of Delaware
Filed Mar. 13, 1964, Ser. No. 351,755
6 Claims. (Cl. 29—471.7)

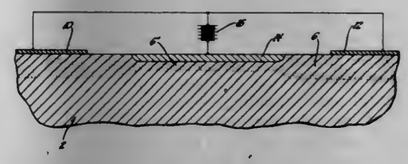
1. A method of manufacturing a chain saw bar comprising a pair of spaced, opposed plates each having a rounded end with a marginal strip of wear-resistant non-ferrous material, said method comprising the steps of fabricating each of the pair of opposed plates with the rounded end, fabricating each of the strips of wear-resistant, non-ferrous material in a generally U-shape with end portions spaced from each other at a distance slightly

less than the distance across a corresponding part of the rounded ends of the plates, securing the pair of plates to each other in spaced, apart, opposed relation with the rounded ends thereof in registry with each other, releasably spreading the end portions of one of the strips, placing the one strip, while maintaining the end portions thereof in spaced condition, around the rounded end of one of the plates, releasing the end portions of the one



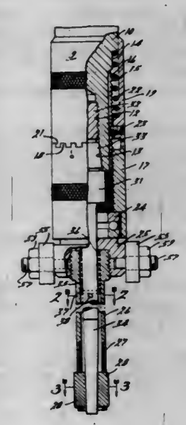
strip to frictionally assemble the one strip to the one plate, fusing the one strip to the one plate, releasably spreading the end portions of the other of the strips, placing the other strip, while maintaining the end portions thereof in spaced condition, around the rounded end of the other plate, releasing the end portions of the other strip to frictionally assemble the other strip to the other plate, and fusing the other strip to the other plate.

3,320,651
METHOD FOR MAKING CADMIUM SULPHIDE FIELD EFFECT TRANSISTOR
James E. Kaupplia, Royal Oak, and Robert R. Bockemuehl, Bloomfield Hills, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Apr. 3, 1963, Ser. No. 270,285
3 Claims. (Cl. 29—25.3)



1. In a method of fabricating a semiconductor device, the steps of obtaining a wafer of high energy gap material which is normally considered to be an insulator, diffusing into at least one surface of said wafer an impurity to vary the conductivity of a thin layer thereof, producing a conductive surface and convert the same to a usable value, applying spaced ohmic metallic electrodes to said conductive surface by which the device may be connected into an electrical circuit, applying a rectifying barrier electrode to the conductive surface between the spaced ohmic metallic electrodes to act as a control electrode and simultaneously applying heat and a voltage across the rectifying barrier electrode and the ohmic metallic electrodes to increase ionic drift velocity, depleting the charged electrons under the rectifying barrier electrode to, in effect, cause that conductive region of the wafer thereunder to become thinner and improve the control characteristics.

3,320,652
BURNISHING TOOL
Walter G. Huber and George C. Peterson, Grosse Pointe, Mich., assignors to Cogsdill Tool Products, Inc.
Filed Oct. 23, 1965, Ser. No. 503,619
6 Claims. (Cl. 29—90)



1. In a tool for burnishing the inner surface of a hollow cylindrical workpiece, a spindle having a tapered end, an adjustable sleeve on said spindle, a bearing on the end of said sleeve, a collar engaging said bearing, a cage supported by the collar having recesses therein, means for retaining said cage from rotating, truncated conical rollers in said recesses which are radially adjustable by the tapered end of the spindle in engagement therewith, and means for rotating said spindle for driving said rollers by said tapered end.

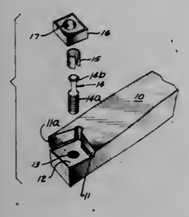
3,320,653
CUT-OFF BLADE
Donald L. Shephard, 11500 Lambs Road, Memphis, Mich. 48041
Filed May 23, 1966, Ser. No. 552,185
4 Claims. (Cl. 29—95)



1. A cutting-off blade comprising an elongated body of uniform cross-section;
a head of uniform cross-section extending along one side of the body throughout its length;
said head being of greater width than said body;
the forward end of said body from said head being cut away rearwardly and downwardly defining a leading

transverse cutting edge across its forward extremity;
and a pre-formed cutting surface formed in the outer edge face of said head of uniform shape throughout its length;
the cross-sectional form of said cutting surface including a pair of opposed outer hollow ground portions of gradually increasing depth towards the head axis defining a pair of outer cutting corners;
and an upright center section including a concave, hollow ground top surface which extends downwardly into the head at a gradually increasing depth to the center portion;
to a depth less than the maximum depth of said outer portion;
the center section including a pair of radial side walls substantially parallel to the body axis defining in said head at the end of said center section an additional pair of cutting points substantially coplanar with said first pair of cutting points.

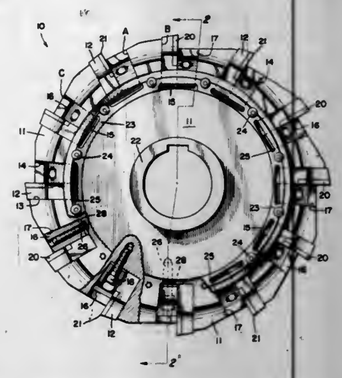
3,320,654
TOOL HOLDER ARRANGEMENT
Norman H. Lovendahl, Elmwood Park, Ill., assignor to Futurmill, Inc., Farmington, Mich., a corporation of Michigan
Filed Feb. 8, 1965, Ser. No. 430,875
11 Claims. (Cl. 29—96)



1. A device for holding and automatically positioning a tool element having an aperture therein, comprising holding means having shoulder means thereon and having a threaded aperture therein whose axis is parallel to the axis of the said aperture of said tool element when said tool element is positioned on said holding means, screw means extending into said tool element aperture and threaded into the said threaded aperture, washer means at least partially surrounding said screw means in said tool element aperture, and said washer means having an outer peripheral wall shaped to exert a force within the confines of said tool element aperture urging said tool element into abutting relation with said shoulder means when said screw is threaded into said threaded aperture.

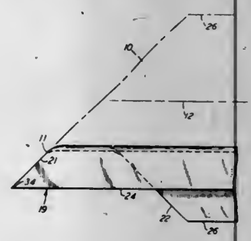
3,320,655
ROTARY MILLING CUTTER AND METHOD OF RESTORING THE SAME
Charles N. Schweitzer, Sr., Painted Post, and Albert W. Cronin and Samuel B. Harlan, Corning, N.Y., assignors to Ingersoll-Rand Company, New York, N.Y., a corporation of New Jersey
Filed June 15, 1964, Ser. No. 374,931
6 Claims. (Cl. 29—105)

1. A rotary milling cutter comprising
(a) a body,
(b) a plurality of spaced, circumferentially arranged, cutting blade-receiving slots,
(c) cutting blades of successively longer length disposed in each of said slots with the cutting edge of each blade lying on the same imaginary circle from the center of said body, and
(d) an annular ring secured to said body for partially closing an end of said blade receiving slots, said



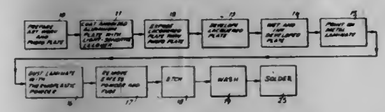
ring being provided with clean out slots registering with said blade receiving slots.

3,320,656
METHOD OF MAKING A STRUCTURAL MEMBER
Alfred L. Neuhoff, Dubuque, and Claude M. Frisbee, Burlington, Iowa, assignors to J. I. Case Company, Racine, Wis., a corporation of Wisconsin
Original application Dec. 18, 1963, Ser. No. 331,586, now Patent No. 3,293,822, dated Dec. 27, 1966. Divided and this application Oct. 12, 1966, Ser. No. 586,104
6 Claims. (Cl. 29—155)



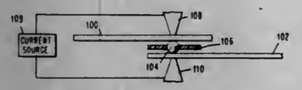
1. A method of making a structural member of two pieces of metal mated and welded together, comprising the steps of forming a first planar metal piece with a diagonally disposed edge extending along a plane oblique to a central axis extending along one face of said first piece, bending said first piece along two lines parallel to and on opposite sides of said axis into two side portions of unequal lengths extending in the direction of the other face of said first piece with respect to the unbent plane of said first piece, forming a second planar metal piece with a diagonally disposed edge extending along a plane oblique to a central axis extending along one face of said second piece, bending said second piece along two lines parallel to and on opposite sides of said axis into two side portions of unequal lengths extending in the direction of the other face of said second piece with respect to the unbent plane of said second piece and with the latter said side portions being respectively aligned with corresponding ones of said side portions of said first piece and disposed to mate therewith, mating and welding said two pieces together along the corresponding mating ones of said side portions with the foremost point of each of said edges being aligned together, and mating and welding an additional piece to said two pieces along said edges.

3,320,657
METHODS FOR PRODUCING PRINTED CIRCUITS
John S. Strobel, Nashua, N.H., assignor to Sanders Associates, Inc., Nashua, N.H., a corporation of Delaware
Filed Nov. 27, 1963, Ser. No. 326,627
4 Claims. (Cl. 29—155.5)



2. The method of producing a printed circuit which includes the steps of:
(a) printing a representation of a circuit to be produced upon the etchable metallic surface of a laminate in a medium absorbent to a thermoplastic powder forming a soldering flux resist after firing by means of an offset printing plate carrying said representation,
(b) dusting the printed surface with a rosin-based thermoplastic powder forming, after firing, a resist which will also function as a soldering flux,
(c) removing the powder not adhering to the absorbent medium,
(d) heat fusing the adherent powder to form a soldering resist pattern,
(e) hot etching the exposed metallic surface with an etchant having a sufficient temperature to cause the exposed metallic surface to be removed and to soften the resist such that it will extrude around the circuit to be produced, thus preventing undercutting of the remaining metallic surface of the circuit, and
(f) soldering components to said remaining metal while said resist is still in place.

3,320,658
METHOD OF MAKING ELECTRICAL CONNECTORS AND CONNECTIONS
Frank J. Bolda, Poughkeepsie, John T. Gulliksen, Peekskill, and Herbert K. Hazel, Poughkeepsie, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed June 26, 1964, Ser. No. 378,128
4 Claims. (Cl. 29—155.5)



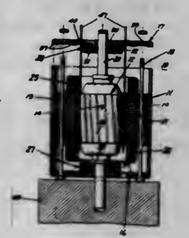
1. A method of forming a miniaturized electrical connector for joining miniaturized electrical conductors comprising the steps of:
positioning a miniaturized spherical conductive member within an aperture in a polyethylene coated polyethylene terephthalate carrier, by means of a vacuum feeder arm;
heating said spherical conductive member and said insulative material to a point below the deformation temperature of said spherical conductive member causing
said spherical conductive member to seat within said insulative material; and
cooling said spherical conductive member and said insulative material so as to rigidly position said conductive member within said insulative material.

3,320,659
METHOD OF CONNECTING CABLE ENDS
Jack Jerome, 453 Roslyn Road, East Williston, N.Y.
Filed July 2, 1964, Ser. No. 379,810
7 Claims. (Cl. 29—155.5)



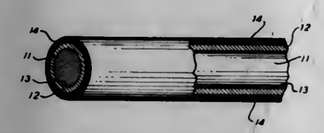
1. The method of connecting two cable ends which comprises disposing the cable ends in adjacent alignment with each other within a metal connector sleeve, compressing the connector sleeve onto the aligned ends of the cables by circumferential compression zones spaced from each other, and machining the compressed sleeve to final desired shape.

3,320,660
METHODS FOR ASSEMBLING END SHIELD MEMBERS IN DYNAMOELECTRIC MACHINES
Charles W. Otto, De Kalb, Ill., assignor to General Electric Company, a corporation of New York
Original application Dec. 11, 1962, Ser. No. 243,903. Divided and this application May 24, 1965, Ser. No. 458,188
4 Claims. (Cl. 29—155.5)



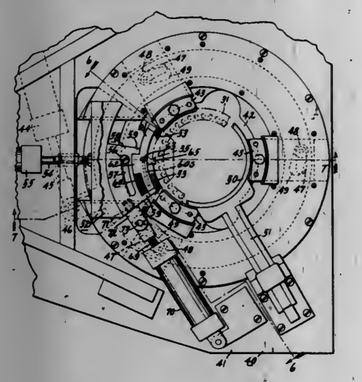
1. A method of assembling an end shield member on a dynamoelectric machine having a stator member supported in a stationary frame member, said stator member having a stator formed with a cylindrical bore adapted to receive a rotor having a shaft, said method comprising the steps of: assembling the rotor and stator member in a predetermined coaxial relationship with a means for temporarily maintaining said rotor and stator member in the predetermined coaxial relationship, placing the end shield member on the rotor shaft in position for assembly with respect to the stationary frame member, said end shield member including a bearing means for rotatably supporting the rotor and said end shield member being formed with a plurality of axially extending projections of a material deformable relative to the frame member, the projections being circumferentially spaced around the outer periphery of said end shield member to be joined with said frame member, and extending inwardly beyond the radial face of said frame member pressing said end shield member against the radial face of said stationary frame member to join said end shield member in axial contact with said frame member and thereby simultaneously deforming a portion of each of said projections to define tangs to maintain the radial alignment of said end shield member with respect to said stationary frame member, and removing said means for temporarily maintaining the coaxial relationship between said rotor and said stator to thereby release the stator and rotor for relative rotation.

3,320,661
METHOD OF FORMING AND ATTACHING AN ALUMINUM CONDUCTOR
Howard Manko, Teaneck, N.J., assignor to Alpha Metals, Inc., Jersey City, N.J., a corporation of New Jersey
Filed May 19, 1966, Ser. No. 551,447
3 Claims. (Cl. 29—155.5)



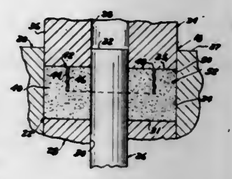
1. The method for non-galvanic attachment of aluminum conductors to copper circuit boards comprising
(a) forming a conductive member of material selected from the group consisting of magnesium, aluminum, or their alloys;
(b) applying a continuous, complete, solderable cover on the member comprising essentially at least one low melting point metal of solderable quality having a galvanic potential generally equal to copper with an interface metallic bond between the member and the cover;
(c) soldering the cover to a copper circuit board.

3,320,662
APPARATUS FOR ROTOR LAMINATION SKEW CHANGE
James A. Partlow, Vandalia, and Albert B. Mewhinney and Raymond C. Hoefling, Dayton, Ohio, assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Original application May 22, 1963, Ser. No. 282,335. Divided and this application Apr. 5, 1966, Ser. No. 540,419
6 Claims. (Cl. 29—205)



1. A stacked lamination slot skewing apparatus, comprising, a shiftable shim stack formed by a plurality of arcuate shims each having a body portion and a corresponding slot extending at least partially therealong, a tab-like projection located intermediate opposite ends of each body portion and engageable in a corresponding lamination notch, means extending through said slots for holding said shim stack together, said shims having differing arcuate lengths, peripheral shoulder-forming means of the shims being alignable on opposite ends thereof corresponding to notch positioning initially engageable in a straight edge manner, and a member shiftable to and fro against the shoulder-forming means for effecting movement of said shim stack between axial alignment of said tab-like projections and a predetermined skew position.

3,320,663
METHOD OF JOINING SINTERED BODIES BY DEFORMABLE COUPLINGS
John Haller, Northville, Mich., assignor, by mesne assignments, to Federal-Mogul-Bower Bearings, Inc., Detroit, Mich., a corporation of Michigan
Filed Apr. 24, 1964, Ser. No. 362,317
7 Claims. (Cl. 29—420)

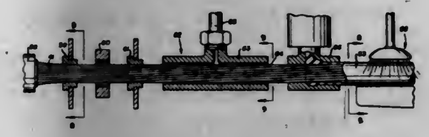


1. A method of making a composite sintered powdered material workpiece composed of a pair of mechanically-coupled component parts, said method comprising
forming a pair of briquettes corresponding in shapes to those component parts by compressing sinterable powdered material into said shapes with mating faces of corresponding configurations and containing alignable inserts of lower melting temperatures and of longitudinally-zigzag configurations embedded therein substantially flush with said mating faces,
converting said briquettes into component workpiece parts by applying thereto a sintering heat melting and infiltrating said inserts into the pores thereof leaving alignable recesses of corresponding longitudinally-zigzag configurations,
positioning said parts with their recessed mating faces disposed in opposing spaced relationship with their respective recesses in alignment with one another,
interposing therebetween a deformable coupling member with its opposite ends disposed in alignment with said respective recesses,
and applying pressure to said parts to force said parts substantially into face-to-face engagement with one another while effecting entry and deformation of said coupling member into said recesses.

3,320,664
PROCESS FOR THE PRODUCTION OF DISPERSION STRENGTHENED LEAD
Tibor Krantz, Fort Saskatchewan, Alberta, David John Ivor Evans, Edmonton, Alberta, and John Alfred Heath Lund, Vancouver, British Columbia, Canada, assignors, by mesne assignments, to St. Joseph Lead Company, a company of New York
No Drawing. Filed Apr. 19, 1965, Ser. No. 449,275
Claims priority, application Canada, Apr. 26, 1962, 847,599
12 Claims. (Cl. 29—420.5)

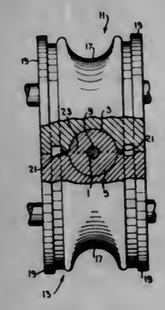
1. A method of making a high tensile strength lead product which comprises subjecting particles of metallic lead not exceeding about 150 microns in particle size to oxidizing conditions in the presence of controlled amounts of moisture to produce a coating of lead oxide thereon amounting to from about 1% to about 16% by weight calculated as PbO and thereafter subjecting a plurality of said particles to plastic deformation to comminute the so-formed lead oxide and disperse the comminuted lead oxide in the lead matrix formed by the adhesion of the oxide free surfaces of the particles.

3,320,665
METHOD OF MAKING PUSH-PULL CABLE CASINGS
John F. Morse, 21 Clinton St., Hudson, Ohio 44216
Filed Oct. 2, 1962, Ser. No. 227,889
8 Claims. (Cl. 29—460)



1. The method of manufacturing a push-pull control cable casing comprising the steps of, stranding a plurality of wires onto the radially outer surface of an inner flexible thermoplastic tube, heating said wires to melt and conform the radially outer surface of said tube with the inner surfaces of said wires, cooling said wire and inner tube, and applying a radial restraining means to said coiled wire and tube.

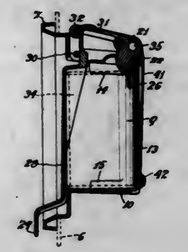
3,320,666
CLADDING OF CORE MATERIALS
Paul A. Dion, North Attleboro, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Filed Feb. 26, 1964, Ser. No. 347,606
6 Claims. (Cl. 29—473.3)



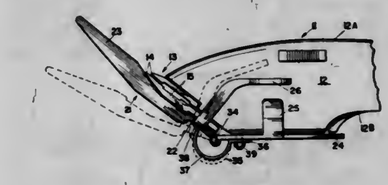
1. The process of cladding elongate circular metal core material having a comparatively small cross-sectional area, comprising preforming elongate metal strips of a comparatively large total cross-sectional area, each with a central groove conjugately to accept the circular metal core material between them and provided with marginal radially directed portions formed to be located conjugately to one another, directing the strips together and around the core material, and then in one compression step between rolls sufficiently squeezing the core material and the strips when so located for solid-phase bonding of the strips to the core material and to one another across said radially directed portions.

3,320,667
CAN OPENER
Jerome Nathan, Manchester, and Frank G. Champ, Wethersfield, Conn., assignors to The Seeburg Corporation, Chicago, Ill., a corporation of Delaware
Filed Sept. 10, 1965, Ser. No. 486,335
2 Claims. (Cl. 30—10)

1. A can opening device including a casing having a chamber therein with top and bottom walls and a rear wall, a pivotally mounted cutter member projecting downwardly into said chamber from said top wall, pairs of parallel spaced bosses at the top and bottom of said chamber for positioning a can in said chamber and against said rear wall a pivotally mounted cover for closing said chamber, and means operatively connecting said cover to said cutter member for raising said cutter member upon movement of the cover to open position and lowering said cutter member into engagement with the top of a can placed in said chamber to open said can upon movement of the cover to closed position.

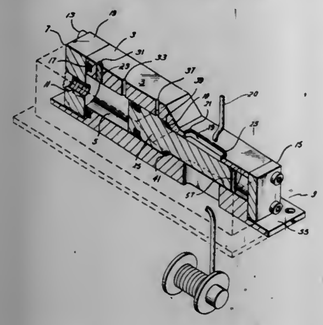


3,320,668
HAIR CLIPPER HAVING MECHANICAL CREWCUT MEANS
Vito W. Pucino, Beacon, N.Y., assignor of one-half to T. Donald Conklin, Beacon, N.Y.
Filed Mar. 12, 1965, Ser. No. 439,483
2 Claims. (Cl. 30—201)



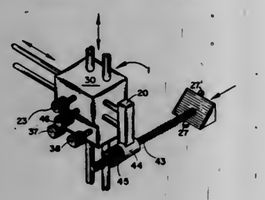
1. In an improved hair clipper adapted for providing crewcuts, the improvement comprising a crewcut attachment including
(a) a flat spacing member positioned to rest upon the scalp in an underlying relationship with the cutting element of said hair clipper during operation, said spacing member having a base with a leading edge and a trailing edge and having, further a plurality of parallel flat long comb-like teeth extending forwardly from said leading edge substantially beyond said cutting element a distance corresponding approximately to one-half the entire length of said spacing member
(b) a spacer supporting member releasably secured to said hair clipper
(c) a hinge member pivotally joining said spacing member to its said supporting member rearwardly of said cutting element
(d) a spring member bridging said hinge member and urging said spacing member to rotate towards said cutting element and into supporting engagement therewith and
(e) a finger-operated lever member secured to said spacing member for manually overcoming the force exerted by said spring member and selectively rotating said hair clipper and cutting element away from said spacing member while the latter is maintained against the scalp.

3,320,669
LINE CUTTER
Joseph A. Chandler, Dickinson, and Thomas M. Grubbs, Houston, Tex., assignors to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Sept. 8, 1965, Ser. No. 485,960
14 Claims. (Cl. 30—228)



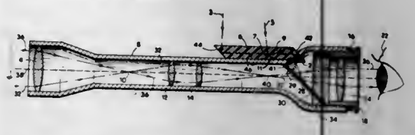
1. In an explosive line cutter:
a barrel having a pair of holes disposed in the barrel bore and forming therewith a transverse eye to receive a line;
a piston in the bore forward of the eye and adapted to be impelled rearward by an explosive charge;
a viscous insulative substance in said bore rearward of the eye; and
an end plate on the rear of the barrel closing the bore so that ignition of the explosive charge drives said piston into said substance thereby compressing it around said piston adjacent said transverse eye.

3,320,670
BOWSIGHT
William A. Ambraziatis, 15350 Carfax, Bellflower, Calif. 90706
Filed June 28, 1965, Ser. No. 467,479
3 Claims. (Cl. 33—46)



1. In combination,
a bow and bowsight secured to said bow, said bowsight comprising reflection means for reflecting the image of an arrow tip for viewing by an archer, including means for aligning said tip on a target, said means for alignnig being connected to said reflection means, and
longitudinally movable and rotatable rod means for adjusting said reflection means and said means for alignment along a Z axis and 360° about said Z axis, said rod means being, connected to said reflection means, and sleeve means for receiving said rod means, said rod means being rotatably engaged with said sleeve means and,
means for holding said rod means at a selected location along said Z axis whereby said reflecting means is held at a selected angle about said Z axis, and means for adjusting said reflection means along an X axis and means for adjusting said reflection means along a Y axis, said X axis adjusting means including a bar member connected to said sleeve means.

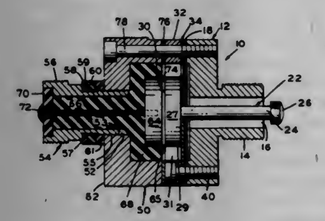
3,320,671
LUMINOUS RETICLE FOR A SIGHTING TELESCOPE
Glenn E. Rickert, Community State Bank Bldg., Huntington, Ind. 46750, and Roger M. Rickert, Huntington, Ind.; said Roger M. Rickert assignor to said Glenn E. Rickert
Filed Sept. 26, 1963, Ser. No. 311,790
5 Claims. (Cl. 33—50)



1. A luminous reticle system for a sighting telescope comprising:
(a) an opaque reticle having light transmitting indicia,
(b) a reticle illuminator means adapted to be energized by available incident light and to emit fluorescent light,
(c) means for directing said fluorescent light to said reticle indicia for illuminating the reticle indicia, and
(d) a beam splitter means adapted to direct uncollimated light in an uncollimated manner from said reticle indicia to a focal plane of the sighting telescope for purposes of aligning the distant images with said reticle indicia.

3,320,672
ELECTRONIC GAGE
Robert C. Engle, Livonia, Mich., assignor to Micromatic Hone Corporation
Filed Mar. 3, 1965, Ser. No. 436,850
2 Claims. (Cl. 33—172)

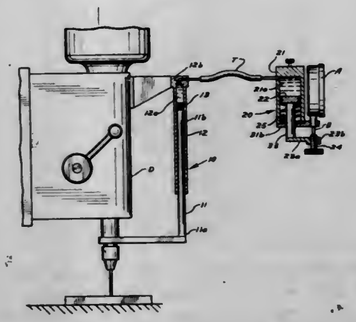
1. A gage head for use in an electrical circuit means for producing a direct voltage output comprising:
a cylindrical body separable into two portions along a longitudinal axis, consisting of a positive gage portion and a negative gage portion;
(1) said positive gage portion comprising:
(a) a cylindrical housing having at least one opened end and a closed end, said opened end forming a recess;
(b) said closed end having an electrical connecting means;
(c) insulating means extending through said electrical connecting means and filling said recess;
(d) a gage pole forming a fixed capacitance plate embedded in said insulator means in said recess and having a flat planar surface normal to said axis and terminating in the same plane as the terminal end of said opened end of said cylindrical housing;
(e) a wire extending through said insulating means and connecting said electrical connecting means to said gage pole;
(f) said insulating means surrounding said gage pole and having the surface of said insulating means terminating in said plane of said gage pole and said opened end of said cylindrical housing;
(2) said negative gage portion comprising:
(a) a cylindrical gage mounting plate having a larger portion and a narrow threaded end portion, the circumference of said larger portion being in alignment with the circumference of said cylindrical housing of said positive gage portion; and having
(b) a bore extending axially through said gage mounting plate;
(c) a gage gasket mounted coaxially adjacent to said larger portion of said gage mounting plate;
(d) a gage spring mounted coaxially adjacent to said gage gasket, said gage spring having a circular configuration coincident with said circular configuration of said gage head and including a slot of horseshoe configuration medially between said axis and said circumference and defining a central leaf portion whereby said central leaf portion of said gage spring is adapted to pivot;
(e) a gage pole forming a movable capacitance plate connected to said central leaf portion and adapted for pivotal movement therewith, the surface of said gage pole having a flat planar surface normal to said axis and in substantially parallel relationship to said fixed capacitance gage pole;



(f) a gage shaft extending axially through said bore of said negative gage portion having a bearing point at one end to be engageable with an object to be gaged and the other end connected to said movable capacitance gage pole, whereby linear movement of said gage shaft in response to variations in size of an object to be gaged causes movement of said movable capacitance gage pole toward said fixed capacitance gage pole;
(g) a gage pole spacer mounted adjacent to said gage spring and having the same thickness as said movable capacitance gage pole;
(h) means for fastening said gage pole spacer, said gage spring, said gage gasket and said gage mounting plate together to form a unitary sub-assembly structure;
(3) a shim interposed between said negative gage portion and said positive gage portion; and
(4) means for securing said positive gage portion to said negative gage portion to form a unitary structure.

3,320,673
HYDRAULIC MEASURING DEVICE
Harvey D. Larson, Minneapolis, Minn., assignor to Nedmac, Inc., Minneapolis, Minn., a corporation of Minnesota
Filed Oct. 14, 1965, Ser. No. 495,971
6 Claims. (Cl. 33—172)

1. A hydraulic linear measuring device including:
(a) a first hydraulic assembly including a cylinder with a fluid contained therein and having a first positive fluid displacement element operable therein said element arranged for attachment to a movable apparatus whereby movement of the apparatus will produce a variation of the fluid within the cylinder;
(b) a second hydraulic assembly including a cylinder with a fluid confined therein and having a second positive fluid displacement element therewithin;
(c) a pair of spring members in said second assembly in actuating relation to said second fluid displacement element, one of said spring members arranged for movement with said second fluid displacement element;



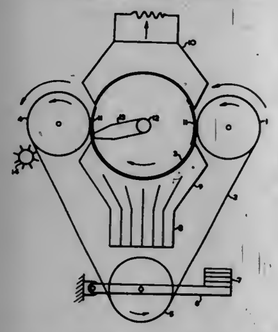
(d) means providing communication between said first and second assembly to transfer fluid from said first to said second assembly; and
(e) a gauge member connected with said second assembly for actuation thereby whereby the increments of movement are indicated thereon.

3,320,674
SIGHT GAGE FOR A VERTICAL POLE
Mills C. Tourtellotte, 1114 Inwood Drive, Richmond, Tex. 77469
Filed Sept. 7, 1965, Ser. No. 485,170
7 Claims. (Cl. 33—209)



1. The combination with an elongated and generally vertical pole of a sight gage for checking the plumbness of the pole, said gage comprising a tubular collar having means to mount the same on the pole coaxially of the latter, a plurality of elongated tubular arms fixedly connected to said collar outside of the periphery of the latter and in a plane normal to the axis of the collar, said arms being provided with relatively short tubular upright elements arranged substantially perpendicular thereto and parallel to the collar axis, said elements being open at the upper ends thereof and in liquid communication at the bottom thereof with said arms, said arms being in liquid communication with one another, and a liquid in said sight gage which is introduced therein and into said arms through one of said elements, said gage having a sufficient quantity of said liquid therein to fill said arms and portions of said elements.

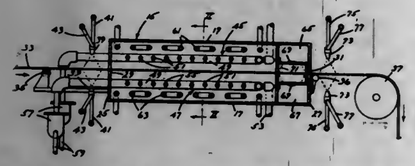
3,320,675
CONTINUOUS METHOD FOR THE TREATMENT OF COMPRESSED FIBROUS MATERIAL WITH GASEOUS SUBSTANCES
Malcolm Chaikin, 23 Mermaid Ave., Maroubra, New South Wales, Australia, and Alexander Samson, Wisdom Road, Greenwich, New South Wales, Australia
Filed Mar. 27, 1964, Ser. No. 355,506
Claims priority, application Australia, Apr. 5, 1963, 29,256/63
5 Claims. (Cl. 34—16)



1. A method of treating a mass of loose fibers with a gaseous fluid employing means for compressing the fibers which means permit passage of fluid through the fibers comprising, prior to the fluid treatment, forming the fibers into a layer and compressing the layer with the compressing means to a controlled, positive, predetermined and uniform degree of compression to an extent such that the fibers are freely exposed to the treatment fluid and relative movement between individual fibers is substantially prevented during treatment, maintaining the fibers in compression while applying the treatment by directing the gaseous fluid through said layer of compressed fibers, said gaseous fluid acting freely on all of the fibers, and after treatment releasing the pressure from the fibers.

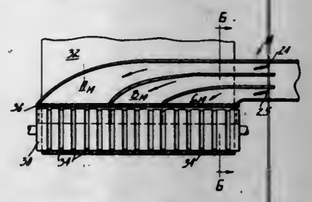
3. A method, according to claim 1, wherein the fibers are conveyed in a compressed state and the gaseous fluid constitutes atmospheric and conditioned air directed transversely to the direction of movement of the fibrous layers, the degree of compression of the fibres being such as to reduce the relative movement of the fibers to a practical minimum whereby the tendency of the fibers to entangle is substantially reduced.

3,320,676
METHOD AND APPARATUS FOR HUMIDIFYING HYDROPHILIC MATERIALS
Stewart W. Speers, Upper Darby, Pa., assignor to FMC Corporation, Philadelphia, Pa., a corporation of Delaware
Filed Dec. 9, 1964, Ser. No. 417,007
13 Claims. (Cl. 34—23)



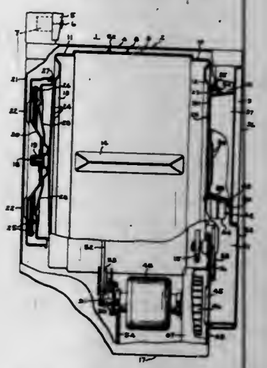
7. A method of humidifying a hydrophilic material including the steps of passing the material into a confined humid vaporous atmosphere at one location, removing the material from the confined humid vaporous atmosphere at a location which is separate and spaced from said one location, disposing a fine mist of water on and adjacent to the material outwardly of said confined humid vaporous atmosphere at least at one of said locations, and separating the humid vaporous atmosphere from the material as the material approaches said separate location.

3,320,677
WEB DRYING APPARATUS
Nicolas M. Reitzel, Boylston, Mass., assignor to Rice Barton Corporation, Worcester, Mass., a corporation of Massachusetts
Filed Feb. 12, 1965, Ser. No. 432,103
12 Claims. (Cl. 34—54)



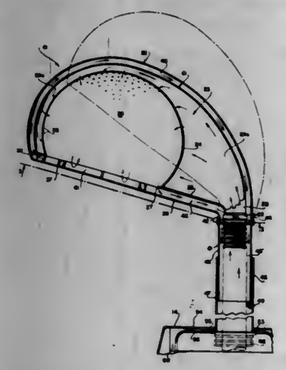
1. Web drying apparatus for profile control of a web by blowing air through a felt into a plurality of longitudinally successive pockets defined by said felt, one row of dryer rolls, and said web running between dryer rolls of said one row of dryer rolls and dryer rolls of another row of dryer rolls, said apparatus comprising in combination with said felt a plurality of longitudinally successive plenums, each of said plenums including at least three compartments with transversely consecutive outlet portions adjacent said felt having widths in a transverse direction, certain of said widths being different from certain others thereof, and flow control elements in both those compartments transversely extreme at their outlet portions at least one of said plenums including a said width different from a correspondingly positioned said width in another said plenum.

3,320,678
EASY CLEAN LINT FILTER
Howard L. Berke, Louisville, Ky., assignor to General Electric Company, a corporation of New York
Filed Jan. 27, 1965, Ser. No. 428,412
3 Claims. (Cl. 34—82)



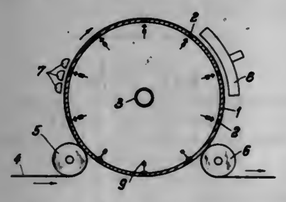
1. For use in a fabric drying machine including a chamber to receive fabrics to be dried, means for providing heat to the chamber to evaporate moisture from the fabrics, tumbling means to tumble fabrics in the chamber, and exhaust means including a duct for directing vitiated air from the chamber, a filter for removing lint from the vitiated air, said filter including a rigid frame for mounting in the duct and defining an inlet to said filter, a filtering member attached to said frame and having planar side walls and a curved end wall, said walls having a plurality of small, closely spaced openings for straining lint from the vitiated air, said trap further including a narrow, elongated imperforate rib extending in juxtaposition to said end wall to facilitate removal of accumulated lint from said filter.

3,320,679
HAIR DRYING DEVICE
George W. Collins, 5624 Whitsett Ave., North Hollywood, Calif. 91607
Filed Jan. 8, 1964, Ser. No. 336,413
10 Claims. (Cl. 34—99)



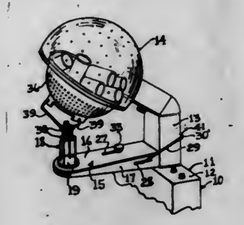
1. A hair drying device utilizing conditioned air from an air conditioning unit comprising:
a hood support including a horizontal slide plate mounted for edgewise movement;
a hood having a cavity for receiving a head of hair;
means mounting said hood on said support above said slide plate for horizontal movement with said plate;
a flexible conduit secured to the underside and extending downwardly from said slide plate; and
there being passage means communicating said hood cavity and conduit through an opening in said slide plate.

3,320,680
DEVICES FOR THE CONTINUOUS TREATMENT OF MATERIAL WEBS
Heinrich Paschke, Dusseldorf, and Günther Missbach, Berlin-Charlottenburg, Germany, assignors to Firma Rheinmetall G.m.b.H., Dusseldorf, Germany
Filed Jan. 23, 1962, Ser. No. 168,080
Claims priority, application Germany, Feb. 3, 1961, R 29,587
5 Claims. (Cl. 34—122)



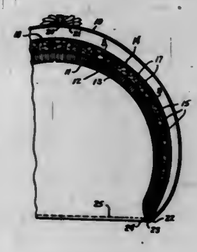
1. A device for the continuous treatment of material in web form, comprising an evacuable and rotatable drum for supporting the web to be treated, said drum having suction apertures in its periphery, means for shutting off the suction apertures which are not covered by the web by means of a valve for each suction aperture and controlled from the interior of the drum, said valves being controlled within the drum and each valve being magnetically actuated and being insertable into a jacket of the drum.

3,320,681
ADAPTOR FOR A HAIR DRIER APPARATUS
Lee S. Watlington, 1204 N. Linden St., Bloomington, Ill. 61701
Filed Nov. 26, 1965, Ser. No. 509,996
6 Claims. (Cl. 34—90)



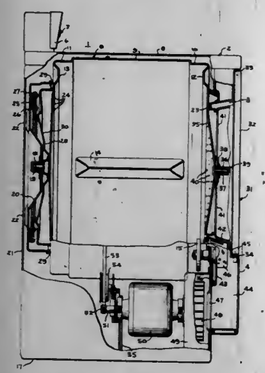
1. In combination with a hair drier apparatus, which apparatus includes an air stack and a hood at the outer end of the stack, an adaptor for said apparatus for supporting a wig within the area of said hood, said adaptor comprising:
(a) a base plate supported on a wall of said apparatus with one end portion abutting said stack,
(b) means for removably connecting the base plate to said stack in position upon said wall, and
(c) a post at the end portion of said plate opposite said stack for removably supporting a wig block within said hood.

3,320,682
CURLER BONNET
Michael T. Sliman, 826 W. Capitol Ave., West Sacramento, Calif. 95691
Filed Mar. 2, 1965, Ser. No. 436,484
5 Claims. (Cl. 34—95)



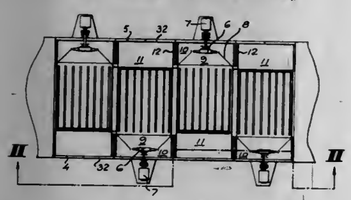
1. A curler bonnet comprising in combination spaced inner and outer layers of fluid tight material connected along the edges thereof in airtight relation to form a shaped double layered bonnet which is contoured loosely to fit the head of a wearer and so dimensioned as to fit over curlers in the hair, and valve means in the outer layer thereof to permit the filling of the space between the layers with air to serve as an air cushion to cushion the effect of the curlers on the head of a wearer while sleeping wherein an inner foraminous bag is positioned interiorly of and secured to said inner layer and heat-generating chemical constituents are positioned in said bag.

3,320,683
AUTOMATIC CLOTHES DRYER
Joseph C. Worst, Louisville, Ky., assignor to General Electric Company, a corporation of New York
Filed Aug. 9, 1965, Ser. No. 478,221
4 Claims. (Cl. 34—139)



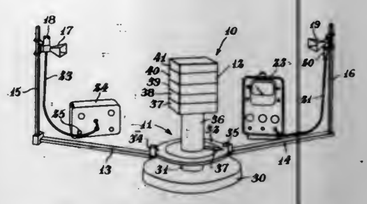
1. A clothes dryer including:
(a) a container to receive fabrics to be dried, said container being mounted for rotation about a generally horizontal axis;
(b) means for rotating said container to tumble fabrics therein;
(c) said container defining a generally vertical opening through one wall thereof for loading and unloading fabrics;
(d) and a door for closing said opening during operation of said dryer, said door being rotatably mounted and spaced from said drum to revolve independently of said drum when impinged upon by tumbling fabrics.

3,320,684
DRIERS FOR TREATMENT OF A WEB BY A GASEOUS MEDIUM
Börje Valentin Leckner, Linnegatan 20, Jonkoping, Sweden
Filed Jan. 22, 1965, Ser. No. 427,375
Claims priority, application Sweden, Feb. 3, 1964, 1,280/64; Jan. 9, 1965, 260/65
10 Claims. (Cl. 34—156)



2. In a conditioning apparatus for the treatment of a movable web by means of a gaseous treatment medium blown towards the web; at least one treatment zone having a substantial extension in the direction of travel of said web and through which said web is positively advanced, said treatment zone comprising a plurality of sections, located adjacent to each other in a file extending in the direction of travel of said web; at least one substantially flat and horizontal pocket-like blowing box having its principal extension substantially parallel to said web and an upper wall facing the underneath surface thereof in each treatment section; at least one pressure chamber, into which said pocket-like blowing box opens, in each treatment section; at least one blower for creating an overpressure in each of said pressure chambers and blowing boxes; a plurality of openings in the upper wall of each of said blowing boxes for directing medium jets from below against the underneath surface of said web; and narrow slots extending along those of the edges of the upper wall of said pocket-like blowing box, which do not define its opening, for creating a substantially continuous gas curtain confining a horizontal gas cushion in which an overpressure exists and on which the web floats.

3,320,685
DIFFRACTION APPARATUS
Harry F. Meiners, Latham, N.Y., assignor to The Welch Scientific Company, Chicago, Ill., a corporation of Illinois
Filed Apr. 29, 1964, Ser. No. 363,409
1 Claim. (Cl. 35—19)

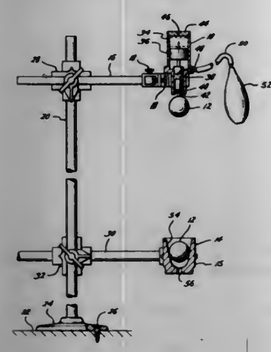


The method of demonstrating Bragg's Law on a macroscopic scale comprising the steps of positioning a microwave transmitter on a first spectrometer boom, said microwave transmitter being adapted to emit microwave energy, positioning a microwave receiver on a second spectrometer boom to receive said energy, each of said booms being movable relative to the other about an axis, positioning a simulated crystal on said axis substantially above the level of said first and second booms thereby to avoid reflections therefrom, said simulated crystal being formed by a plurality of metal spheres held in oriented spaced relation a distance greater than the wave length of said microwave energy by a plurality of separable layers of material, each of which is transparent to said microwave energy but opaque to human vision, thereby precluding visual detection of the location of said spheres, radiating said simulated crystal with said microwave energy, moving said first and second booms angularly about said axis toward each other in equal angular increments, measuring and recording the intensity of radiation reflected from said crystal at said angular increments during movement of said first and second booms, recording data of said intensity versus the angle to permit plotting a curve, calculating the spacing of said spheres from the application of Bragg's Law and separating said layers of said simulated crystal to permit direct measurement of the spacing of said spheres to check said calculations.

3,320,686
BALL DROP
Walter L. Blackburn, 6105 England St., Houston, Tex. 77021
Filed Dec. 4, 1964, Ser. No. 415,890
8 Claims. (Cl. 35—19)

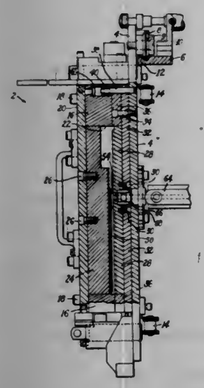
1. A ball drop instrument comprising:
a magnetizable ball,
a releasable securing means for holding and releasing the ball, and
a catcher vertically spaced beneath the releasable securing means for receiving the ball when released,
the releasable securing means including:
an elongate body,

a stationary means connected to the lower end of the body,
a magnet slidably supported by the body, holding the ball against the stationary means when the magnet is positioned adjacent the stationary means, and releasing the ball when the magnet is moved away from the stationary means, and



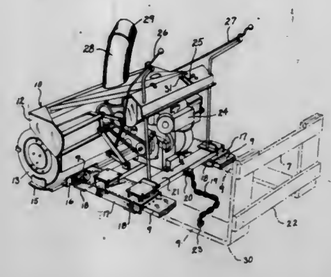
means to move the magnet away from the stationary means;
the catcher including:
a cup, and
a tapered bore within the cup sized to engage the ball when dropped therein.

3,320,687
SHOE BOTTOM UNITS
Raymond P. Leveque, Georgetown, Mass., assignor to United Shoe Machinery Corporation, Flemington, N.J., a corporation of New Jersey
Filed Feb. 3, 1965, Ser. No. 430,138
8 Claims. (Cl. 36—34)



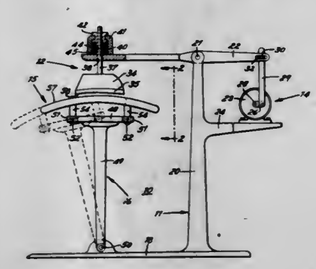
1. A preformed tread piece adapted for incorporation into a premolded sole and heel unit by positioning in the cavity of a mold having heel and forepart portions into which fluid injection material is injected through an opening located opposite the foot facing side of the tread piece, said tread piece having means for retarding the flow of injected material into one of said portions of said cavity and promoting complete filling of the second of said portions of said cavity.

3,320,688
SNOW THROWER AND FORK LIFT TRUCK ASSEMBLAGES
Joseph Haban, Mound and Marquette Sts., Racine, Wis. 53404
Filed Nov. 29, 1963, Ser. No. 326,888
7 Claims. (Cl. 37—43)



1. In a snow thrower attachment for a fork lift truck wherein said attachment has an auger housing and has an auger rotatably mounted therein, elongated connection members connected to and projecting rearwardly from a lower portion of said auger housing adjacent the ground and having means for telescopically receiving the forks of a fork lift truck, said elongated connection members being so positioned as to be aligned with the forks of a lift truck when the latter are in a lowered position adjacent the ground, transverse frame means connecting said elongated connection members behind the auger housing, and means including a motor supported on said transverse frame means for driving said auger.

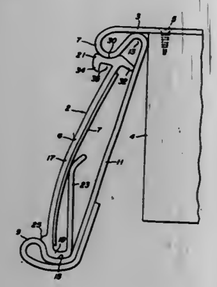
3,320,689
PRESSING AND IRONING APPARATUS
Joseph O. Huebsch, Jr., Milwaukee, Wis., assignor to McGraw-Edison Company, Milwaukee, Wis., a corporation of Delaware
Filed Sept. 29, 1965, Ser. No. 491,249
10 Claims. (Cl. 38—25)



1. An ironing device comprising a base, an ironing member having longitudinal and transverse axes, a pad member disposed below said ironing member, means for imparting vibratory motion to said ironing member for rapid movement thereof into and out of ironing contact with said pad member, support means for said pad member, said support means being movably mounted on said

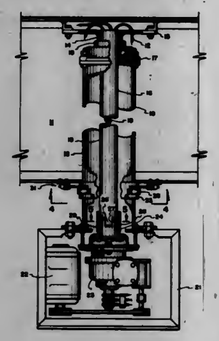
base for moving said pad member in a direction generally parallel to at least one of the longitudinal and transverse axes of said ironing member.

3,320,690
PRICE-TICKET HOLDER
Robert E. Forsburg, Monroeville Borough, Pa., assignor to United States Steel Corporation, a corporation of Delaware
Filed June 14, 1965, Ser. No. 463,708
5 Claims. (Cl. 40—10)



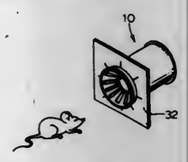
1. A ticket holder comprising a molding, upper and lower lips on said molding extending outwardly and toward each other and forming upper and lower pockets, said upper lip having a depending edge surface facing toward said lower lip, a ticket supporting member having a base portion inserted in said lower pocket and an upper portion with a concave surface in engagement with said depending edge surface of said upper lip of the molding, and means on said ticket supporting member for holding a ticket.

3,320,691
ROTATING SIGN CONSTRUCTION
Edwin R. Harmon, 2193 Bendamere Circle, Salt Lake City, Utah 84109
Filed Jan. 7, 1965, Ser. No. 423,921
3 Claims. (Cl. 40—33)



1. A rotating sign comprising a base housing including an elongated hollow support column, a shaft journalled for rotation inside said column and extending axially from inside said column to terminate outside said column, a sign fixedly connected to said shaft for rotation therewith said connection being intermediate the top and bottom of said sign, guide means adjacent the bottom of said sign and encircling said column, and a collar detachably mounted on said column providing a surface for engagement by said guide means.

3,320,692
LETHAL TRAPPING DEVICE
James S. Hellen, 47 Sunset Terrace, Packanack Lake, Wayne, N.J. 07471
Filed Nov. 14, 1963, Ser. No. 323,855
2 Claims. (Cl. 43—65)

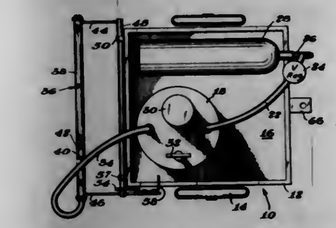


1. A lethal trapping device for rodents, comprising:
a hollow hermetically sealed cylinder providing a closed container having a removable closure at one end;
a quantity of bait secured in said container adjacent its other end;
a non-return entrance member within said container adjacent said one end; and
a cardboard carton for containing a plurality of said containers, said carton being perforated to define separable portions, each portion having an aperture adapting it to slide coaxially over one of the cylinders, collar-fashion, the external bounding configuration of said portions being non-circular to prevent rolling of the cylinder.

3,320,693
METHOD OF INDUSTRIAL CULTIVATION OF UNICELLULAR GREEN ALGAE SUCH AS CHLORELLA
Minoru Shirota, Kyoto, Hiroshi Endo, Hirakata, Osaka, and Kei Nakajima, Kyoto, Japan, assignors to Kabushiki Kaisha, Yakult Honsha, Tokyo, Japan
No Drawing. Filed Aug. 16, 1965, Ser. No. 480,157
Claims priority, application Japan, Sept. 11, 1964, 39/51,387
1 Claim. (Cl. 47—1.4)

A method for the industrial cultivation of unicellular green algae which comprises
(a) inoculating unicellular green algae from the group of Chlorella and Scenedesmus to a sterilized medium comprising (1) a carbon source selected from the group of sugars and organic acids, (2) a nitrogen source, (3) inorganic salts, and (4) at least one amino acid selected from the group of cystine, cysteine, methionine, serine, glycine, lysine, tryptophane and natural materials containing the said amino acids,
(b) cultivating for several days with shaking or stirring under aeration in the dark at optimum temperatures in the absence of externally introduced carbon dioxide,
(c) selectively isolating strains showing the greatest multiplication,
(d) repeating the cultivation of the selected strains in the manner previously conducted to select a strain showing the largest multiplication as the seed strain,
(e) inoculating the said strain to a culture medium having the previously indicated composition, and
(f) cultivating aseptically at suitable temperatures with shaking or stirring under aeration in the absence of light and in the absence of externally introduced carbon dioxide.

3,320,694
HERBICIDE DISPENSER
Raphael A. Biron, Sanford, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
Filed Dec. 3, 1965, Ser. No. 511,423
2 Claims. (Cl. 47—1.5)



1. Apparatus for chemically treating plants of predetermined height, comprising
(A) an elongated hollow perforated chemical dispensing bar having a porous outer sleeve disposed thereon;
(B) lever controlled adjustable means for maintaining said dispensing bar at a predetermined height above the ground;
(C) an enclosed pressurizable chemicals container;
(D) tubular means coupling said chemicals tank to said dispensing bar;
(E) means including a tank of pressurized gas coupled by hose to said container for pressurizing said chemicals, and
(F) wheeled means for drawing said bar through a planted area and for transporting said container and gas tank.

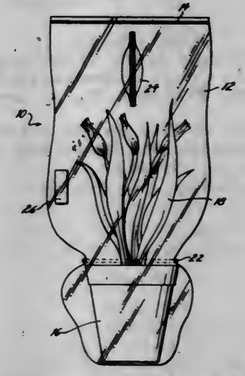
3,320,695
DEGRADABLE POLYOLEFIN MULCHING FILM
Edward P. Moore, Jr., Wilmington, Del., assignor to Hercules Incorporated, a corporation of Delaware
No Drawing. Filed June 25, 1964, Ser. No. 378,060
6 Claims. (Cl. 47—9)

1. A degradable agricultural mulching film having a thickness of about 0.3 to about 5 mils and consisting of a polymer of a mono-olefin having 2 to 3 carbon atoms and, based on the weight of the polymer, from about 1 to about 5% of a pigment to render the film opaque and from about 2 to about 50% of an additive capable of degrading said film at a controllable rate within one growing season upon exposure to outdoor weathering, said additive being a resinous material selected from the group consisting of nonhydrogenated polyterpenes, coumarone-indene resins and rosin.

3,320,696
METHOD AND COMPOSITION FOR SOIL STABILIZATION
Kenneth N. Wright and Raymond R. Reschetz, Decatur, Ill., assignors to A. E. Staley Manufacturing Company, Decatur, Ill., a corporation of Delaware
No Drawing. Filed Mar. 10, 1966, Ser. No. 533,253
16 Claims. (Cl. 47—9)

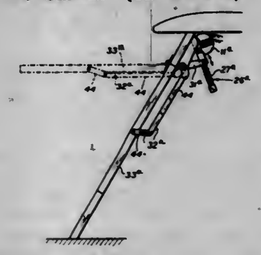
1. A method of treating soil to increase its resistance to erosion comprising supplying to said soil non-phytotoxic metal compound and a mixture comprising corn steep liquor solids and a minor proportion of a source of higher fatty acids, said metal compound being one that reacts in the presence of water with said mixture to form a water-insoluble reaction product including insoluble salts of said fatty acids, sufficient of said metal compound and mixture being supplied to yield, by reaction on the soil, a soil-stabilizing amount of said reaction product whereby said mixture is set to increase erosion resistance, sufficient moisture being present to permit reaction to take place.

3,320,697
PLANT PROTECTOR
Norman B. Larsen, Collegeville, Pa., assignor to Matrix Laboratories, Inc., Collegeville, Pa., a corporation of Pennsylvania
Filed Apr. 19, 1965, Ser. No. 449,213
5 Claims. (Cl. 47—34.11)



1. A plant protector comprising a flexible transparent impervious outer wrap for embracing a plant, said outer wrap being capable of being closed to form a gas-tight enclosure for the plant, a semi-permeable envelope containing reactant, said envelope being disposed within the overwrap, said reactant being capable of forming carbon dioxide when water vapor diffuses through the envelope in order to enable the plant to perform its major metabolic function in the light phase.

3,320,698
APPARATUS FOR OPENING AND CLOSING, RESPECTIVELY, WINDOWS AND HATCHES ON BOATS
Max Hummel, 164—30 95th St., Howard Beach, N.Y. 10031
Filed July 9, 1965, Ser. No. 470,833
6 Claims. (Cl. 49—340)



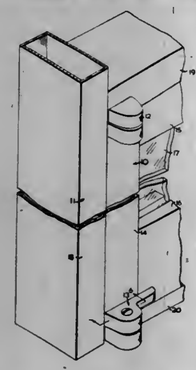
1. An apparatus for opening and closing, respectively, windows on boats, comprising:
a housing,
an electric motor disposed in said housing and having a drive shaft,
a threaded shaft rotatably and pivotally, but axially immovably mounted at one end of said drive shaft in said housing,
means for operatively connecting said drive shaft with said threaded shaft,
an operating nut axially movable along, but non-rotatably engaging said threaded shaft,

a linkage pivotally connected with said nut at one end and pivotally mounted to said housing at the other end,

at least one lever means pivotally connected at one end thereof to a window and operatively connected at the other end thereof to said other end of said linkage, and;

a double switch in the circuit of said electric motor and turning said motor in any of two directions, depending upon the operative position of said switch.

3,320,699
DOOR PIVOTS
Laurence F. Carson and Murray H. McGregor, both of London, Ontario, Canada, assignors to Pittsburgh Plate Glass Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Dec. 21, 1964, Ser. No. 419,698
Claims priority, application Canada, June 1, 1964, 904,083
7 Claims. (Cl. 49—388)

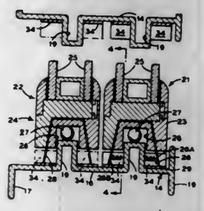


1. A frame comprising a rigid vertical member, and an upper and lower pair of vertically spaced horizontal members and an assembly pivotally secured to said frame by at least an upper and lower pair of hinges where said frame and assembly in one position have one face thereof in a common plane, said upper hinge comprising a first and second hinge plate secured respectively to the upper horizontal member and said assembly, the first hinge plate comprising a first portion abutting said one face and projecting therefrom, said first hinge plate including a second portion comprising spaced parallel pins lying in a substantially horizontal plane and projecting into correspondingly spaced apertures in said upper horizontal member, and screw means disposed between opposed faces of said assembly and projecting through a wall of said upper horizontal member into engagement with each of said spaced pins thereby to secure said plate to the assembly and prevent access to said means when said members have their said one face in a common plane, and bearing means interposed between the projecting portion of said first plate and said second plate for pivotally interconnecting said plates.

3,320,700
SLIDING CLOSURE ASSEMBLY HAVING WEDGE-TYPE SEALS
Samuel Bohn, 285 Aycrigg Ave., Passaic, N.J. 07055
Filed July 21, 1965, Ser. No. 473,621
9 Claims. (Cl. 49—404)

1. In a closure assembly having a frame outlining an opening, and a sliding closure section for sealing said opening defined by said frame wherein the opening has a length greater that that of the closure section so that said closure is slidably mounted within said frame between open and closed postions, the improvement of said frame having a straight rail of uniform cross-section forming a guide along which said closure slides,

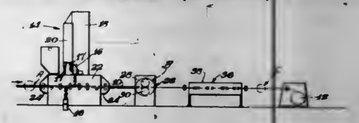
means for effecting sealing of said closure section in the closed position thereof by sliding said closure along said rail without effecting lateral displacement of said closure relative to said frame,



said sealing means including a sealing strip carried on said closure section and a complementary means fixed to said frame along said rail,

said sealing strip and complementary member having cooperating complementary inclined surfaces to form a seal therebetween in the closed position of said closure section.

3,320,701
METAL CLEANING
Louis V. Abrams and Ralph M. Trent, Hagerstown, Md., assignors to The Pangborn Corporation, Hagerstown, Md., a corporation of Delaware
Filed Nov. 13, 1963, Ser. No. 323,381
4 Claims. (Cl. 51—5)

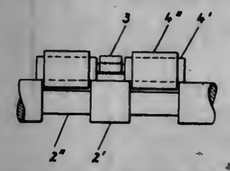


1. An assembly for providing surface-clean cold rolled sheet metal workpieces comprising abrasive blasting means for first removing exposed surface contaminant from said sheet metal workpieces, cold rolling means for reducing the thickness of said surface cleaned sheet metal workpieces and which mechanically upsets the surface layers of said sheet metal workpieces during said rolling to alter the grain structure thereof exposing sub-surface contaminant, ultrasonic cleaning means for removing said exposed sub-surface contaminant from the workpieces, and means for moving said workpieces through each of said above means in the order presented.

3,320,702
MECHANISM FOR GRINDING THE COVERING ON PRESSURE ROLLS MOUNTED ON ANTI-FRICTION BEARINGS
Fritz Stahlecker, Bad Uberkingen, Wurttemberg, and Bruno Schäfer, Suessen, Wurttemberg, Germany, assignors to Spindelfabrik Sussen, Schurr, Stahlecker & Grill G.m.b.H., Sussen, Wurttemberg, Germany
Filed Dec. 20, 1963, Ser. No. 335,709
Claims priority, application Germany, Dec. 22, 1962, S 83,062
(Filed under Rule 47(a) and 35 U.S.C. 116)
16 Claims. (Cl. 51—103)

1. A grinding mechanism for pressure rolls of a drawing mechanism of a spinning machine, said pressure rolls having cover means and being rotatably mounted, the opposite end portions of said pressure rolls being free of said cover means and comprising outer surfaces, said grinding

mechanism for said cover means comprising a grinding wheel, said wheel engaging and grinding said cover means, and a drive roll for driving said pressure roll and having



an axis of rotation parallel to the axis of said pressure roll, and bracing means engaging under pressure with said outer surfaces for bracing said pressure roll.

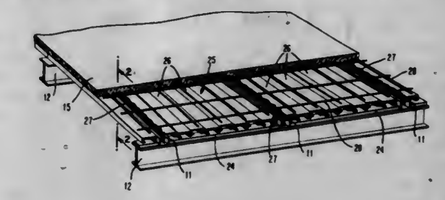
3,320,703
DEVICE FOR RAISING OR LOWERING ANTENNA MAST
Robert Hawthorn, Cedar Rapids, Iowa, and John F. Hiatt, Scarborough, Ontario, Canada, assignors to Collins Radio Company, Cedar Rapids, Iowa, a corporation of Iowa
Filed Aug. 26, 1964, Ser. No. 392,113
3 Claims. (Cl. 52—123)



2. An antenna mast structure comprising a base member, a pair of locking collars attached to the base member and formed with a central bore through which a mast extends, said locking collars locking to the mast to prevent downward movement of the mast but releasable from the surface of the mast when the mast is moved upwardly to allow it to move upwardly therethrough; a sleeve mounted between said locking collars, a lifting collar receivable on the mast and movable relative to the base member to lift the mast through the pair of locking collars, means for moving said lifting collar, and said lifting collar being locked to the mast when lifting said shaft through the locking collars but slidable relative to the mast when the locking collars are supporting the mast, said means for moving the lifting collar comprising a lever pivotally supported by the base member and formed with a bifurcated end which is engageable with the lifting collar to move it relative to the locking collars.

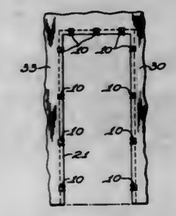
3,320,704
ROOF DECK AND METHOD OF CONSTRUCTION
Salem A. Forsythe, Gladwyne, and John J. Roache, Exton, Pa., assignors to National Rolling Mills Co., Malvern, Pa., a corporation of Pennsylvania
Filed May 21, 1964, Ser. No. 369,153
9 Claims. (Cl. 52—127)

7. A roof deck and form assembly comprising a series of box section sub-purlins welded to the top of a series of purlins to form a grid, said sub-purlins having a pair of inwardly facing top flanges forming a slot therebetween, removable form supports positioned on said purlins, demountable forms on top of said supports and extending between said sub-purlins and in snug contact therewith, cradles of expanded metal lath strips which are corrugated and vertically positioned in the box sections and extend through said slots, wire mesh supported on said cradles,



and gypsum concrete filling the sub-purlins and extending through said slots and between said sub-purlins and on top of the demountable forms and surrounding said wire mesh and said expanded metal lath strips to form a monolithic structure, said form supports and demountable forms being removable after the gypsum concrete hardens.

3,320,705
DOOR FRAME FASTENER
Lucien R. Downing, Jr., Avon Lake, Ohio, assignor to Donn Products, Inc., a corporation of Ohio
Filed June 15, 1965, Ser. No. 464,065
5 Claims. (Cl. 52—214)



1. In an opening in a partition wall having a pair of oppositely disposed spaced apart planar wall surfaces, a door frame and means for securing it in the opening, comprising:

(a) a door jamb in the opening having a pair of spaced apart, parallel, marginal edges adjacent the wall surfaces;

(b) a casing resiliently secured to each marginal edge of the jamb and having its free marginal edge overlapping the wall surface adjacent the opening;

(c) abutments disposed at the marginal edges of each casing;

(d) a plurality of spaced fastening devices secured on each wall surface adjacent the opening for engaging and holding the adjacent casing, each device comprising:

(1) a sloped wedging surface diverging from the wall surface and opening, and having opposing marginal edges, the wedging surfaces engaging the free marginal edges of the casings and forcing them from the wall surfaces as the casings are forced over the fastening devices; and

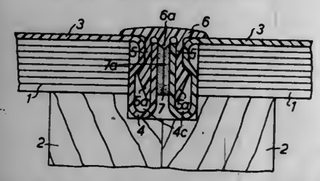
(2) a mating abutment at each marginal edge of the wedging surface for interlockingly engaging the abutments at the marginal edges of the casings to hold the door frame in the opening; and

(e) means coacting with the fastening devices for securing them to the wall surfaces.

3,320,706
PANEL JOINT WITH SEALING STRIPS

Norman Barton Elliott, 25 Blenheim Road, London, and Robert Henry Greensmith, 17 Amberley Road, Buckhurst Hill, England

Filed Mar. 15, 1965, Ser. No. 439,613
Claims priority, application Great Britain, Mar. 19, 1964, 11,661/64
2 Claims. (Cl. 52—393)

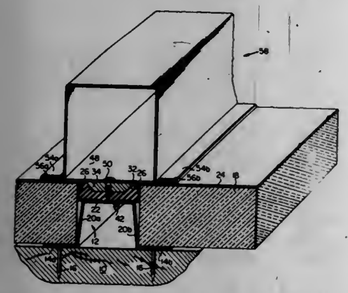


1. A roof, wall or the like structure, comprising prefabricated building panels assembled in a common plane in edge to edge relation, outwardly opening channels formed on said panels at their abutting edges, a U-section sealing strip having the parallel side limbs thereof fitted one in each of the two channels at the abutting edges of two adjacent panels with the closed end of the U covering the outer edges of the outer walls of said channels, and a compressible covering of water impervious material applied to the outer faces of the outer walls of the channels, the compressible covering of the channels of two adjacent panels being urged tightly into face to face contact to provide a waterproof seal by fitment of the side limbs of the U section sealing strip in said channels.

3,320,707
METAL COVERED ROOF WITH DEFORMABLE SEALING PADS

Edward T. Berg, 187 Fremont St., San Francisco, Calif. 94105

Filed Mar. 10, 1965, Ser. No. 438,530
9 Claims. (Cl. 52—395)

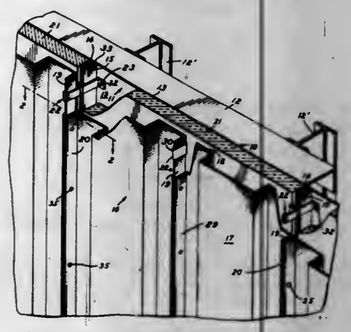


9. Arrangement for covering a roof comprising an inverted channel having outwardly directed flanges formed along the edges thereof for placement upon the outer surface of the roof, blocks of insulating material having dished metal panels engaged over their top surfaces and having their bottom surfaces supported upon said flanges, said dished metal panels having side walls possessing outwardly turned lips located above said channel and being of such width as to leave a gap between their confronting edges, a pad of a sealing material in the space defined by the confronting side walls and lips of said panels, a plate of lesser width than the distance between the confronting side walls of said panels placed upon said pad, means for securing said plate to said channel, an inverted channel of a size adapted to span the space between the adjacent panels, and means for securing said channel to said plate.

3,320,708
WALL CONSTRUCTION

John A. Bard, Dearborn, Mich., assignor to The R. C. Mahon Company, Warren, Mich., a corporation of Michigan

Filed May 8, 1964, Ser. No. 365,970
1 Claim. (Cl. 52—478)

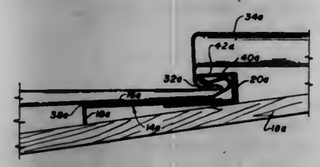


In a wall construction, the combination comprising
a first wall of channel sections of sheet metal,
each of said channel sections having a base portion with a plain flange on one edge and doubled back flange on the other edge,
said sections being hooked together with said plain flanges engaged within said doubled back flanges to form vertical ribs,
a sheet metal mounting clip comprising
a base section engaging the base portion of said channels,
a first straight section bent at a right angle to said base section,
a second section bent at a right angle from the other edge of said first section and generally parallel to said base portion of said channels,
and a third straight section extending substantially in the plane of said first section,
said second section comprising a first wall portion connected at one end to said first section and extending at a right angle thereto and a second wall portion extending generally parallel to said first wall portion and connected at one end to said first wall by a curved part and connected at the other end to said third section,
the free end of said third section being bent toward the second section to form a lip,
and a second wall comprising a plurality of panels each having a base portion,
a plain flange on one edge and a doubled back flange on the other edge,
said plain flange of said panel of said second wall being hooked beneath the lip portion of said clip,
said doubled back flange of the adjacent panel of said second wall being engaged over said lip portion said third section of said clip and said plain flange of said first-mentioned panel of said second wall, said second wall portion of said clip extending along the base portion of a panel of said second wall,
said first straight section of said clip extending along the doubled back flange of the first wall of panel sections and said first wall portion of said clip extending over the doubled back flange,
the length of said first section of said clip being so related to the height of said doubled back flange of said first wall that the first wall portion of said clip is substantially adjacent to and over the doubled back flange.

3,320,709
DEFORMABLE TIE CLIP FOR ROOFING

Richard C. Schroter, Orinda, and Robert J. W. Paulson, Sacramento, Calif.; said Schroter assignor to Kaiser Aluminum & Chemical Corporation, Oakland, Calif., a corporation of Delaware

Filed July 20, 1964, Ser. No. 383,615
3 Claims. (Cl. 52—478)

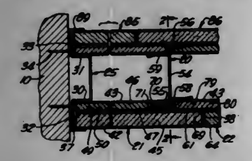


1. A roof structure and the like comprising the combination with a roof supporting structure of a series of sheet metal panels adapted to extend parallel to the roof edge and each formed with a downturned, inwardly facing hook of sinuous configuration along its lower margin and an upturned, inwardly facing hook of sinuous configuration along its upper margin, interlocked with said first hook of an adjacent panel through which hooks the adjacent panels are interlocked with one another, a series of longitudinally extending metallic purlins fixed at panel width intervals to the supporting structure, each purlin having a base portion which directly supports the upper margin of one of said panels, and an upstanding flange at its upper extremity in proximity to the upper extremity of the panel whose upper margin it supports, and stiff but permanently deformable sheet metal clips tying the upper margin of each panel to the purlin upon which it is supported while leaving the mouth of the panel hook at such margin substantially unobstructed, the clips constituting the sole means of positive attachment between the purlin and the panel margin, each clip being partially sandwiched between the interlocked hooks of the panels and extending from within the hook disposed at the upper margin of the supported panel, around the upper extremity of the panel defined by the upper side of such hook, thence down around the outer face of the flange of the supporting purlin and finally underneath said purlin for a substantial distance, the clip, though deformable, being strong enough to maintain the shape and the position described.

3,320,710
PARTITION WITH SUPPORTING SHAFT SECTION IN RABBET OF FACER PANELS

George J. Byssing, Los Angeles, Calif., assignor to Kaiser Gypsum Company, Inc., Oakland, Calif., a corporation of Washington

Filed Nov. 15, 1963, Ser. No. 324,105
2 Claims. (Cl. 52—481)

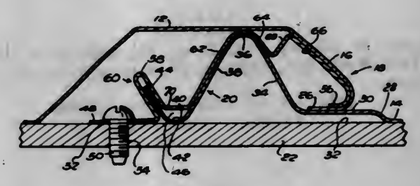


1. In a hollow wall structure the combination of a first series of wallboard units and a second series of wallboard units spaced from said first series of wallboard units, the wallboard units of each of said series including side edges having recessed edge portions whereby the side edges of adjoining pairs of wallboard units in each of said first and second series are disposed in side edge to side edge abutment and overlapped relationship, one wallboard unit of each pair of adjoining wallboard units in said first and second series of units having a rabbet groove extending inwardly between the side edge of the one wallboard unit and its recessed edge portion, a stud element anchored to opposite pairs of adjoining wallboard units in said first and second series, said stud element comprising an elongated generally Z-shaped member provided with a pair of parallel side flanges extending in diametrically opposite directions, said stud element being further provided with a web portion and at least one pair of spaced flange elements of smaller length than said web portion, each flange element of said pair of spaced flange elements being disposed adjacent to one of the side flanges of said pair of side flanges while projecting in a direction from said web portion which is diametrically opposite to that of the side flange with which it is associated, each flange element lying flush against the inside surface of one of the wallboard units in one of the pairs of adjoining units in said first and second series of units, while the side flange associated with such flange element is inserted in the rabbet groove in the other one of said wallboard units in said one of the pairs of adjoining units of said first and second series of units, when the joinable edge of the one wallboard unit and the recessed edge portion of the other wallboard unit in each pair of units of said first and second series of units are brought into abutting contact with the opposite sides of the web portion of said stud element and when the recessed edge portion of the wallboard unit from which the inwardly extending rabbet groove is absent is brought into abutting contact with the joinable edge of the other wallboard unit in each pair of units in said first and second series of units such that the overlapped and abutting edges of adjoining pairs of units in said first and second series of units lie on opposite sides of the web portion of said stud element.

3,320,711
CONSTRUCTION SHEET AND FASTENING MEANS

Thomas B. Johnson, Droz Ave., Ambridge, Pa. 15003

Filed Feb. 16, 1965, Ser. No. 433,139
5 Claims. (Cl. 52—483)



4. A joint for connecting a pair of construction sheets in overlapped relation comprising,
a pair of corrugated construction sheets each having a body portion with a front lateral side edge portion and a rear lateral side edge portion,
said body having V beam corrugations with a substantially flat horizontal top wall, a substantially flat horizontal bottom wall and inclined side walls joining said flat top wall and said flat bottom wall,
said rear lateral side edge portions having an upturned end portion extending throughout the length of said sheet,
said body portion having an upwardly inclined portion adjacent to and diverging from said upturned end portion and forming an upwardly facing trough therebetween,
said body portion having a downwardly inclined portion adjacent to and diverging from said upwardly inclined portion and forming an upwardly facing curved portion therebetween,
said front lateral side edge portion terminating in an

inclined side wall extending downwardly from an adjacent flat top wall and having an inturned end portion,

said sheets positioned with said front lateral side edge portion of one of said sheets overlapping the rear lateral side edge portion of said other sheet with said rear lateral side edge upwardly facing trough and upwardly facing curved portion positioned beneath said adjacent overlying top wall of said overlying sheet,

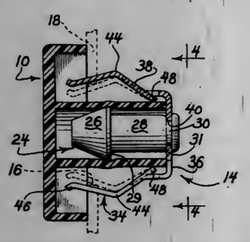
fastening means having a portion positioned between said front lateral side edge portion of one sheet and said rear lateral side edge portion of said other sheet to secure said sheets to each other and to a building structure beam,

said fastening means including a leg portion angularly disposed relative to the upper surface of said beam, a rebent portion extending from said leg portion and forming a receiver for said rear lateral side edge portion upturned end portion, a curved portion extending from said receiver and having substantially the same configuration as said rear lateral side edge upwardly facing curved portion and positioned in overlying relation therewith, a downwardly sloping leg portion extending from said curved portion and terminating in an inturned end portion,

said downwardly sloping leg portion positioned in abutting relation with the underside of said overlying front lateral side edge inclined side wall and said inturned end portion in overlying relation with said front lateral side edge inturned end portion, and

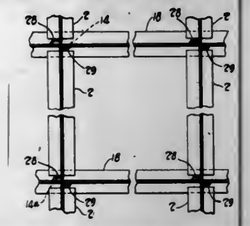
means to secure said fastening means leg portion to said beam to urge said leg portion into substantially parallel relation with said beam upper surface and thereby urge the underside of said rear lateral side edge portion upwardly facing trough into abutting relation with said beam and said lateral front side edge inturned end portion into abutting frictional engagement with the upper surface of said underlying construction sheet.

3,320,712
FASTENER
George M. Rapata, Park Ridge, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill., a corporation of Delaware
Filed July 28, 1964, Ser. No. 385,589
9 Claims. (Cl. 52—511)



7. A fastener installation including an apertured panel, a workpiece and a fastener, said workpiece having one or more deformable sleeve type stud members extending rearwardly therefrom, a fastener for each of said sleeves, each of said fasteners including a stud portion and a retaining portion, said stud portion being complementally accepted within one of said sleeves and having laterally extending means adapted to engage the interior wall of said sleeve, said retaining portion attached to said stud portion and including means to engage said panel aperture and retain the workpiece in mounted relation to said panel.

3,320,713
BEAM CONNECTOR
Lucien R. Downing, Jr., Avon Lake, Ohio, assignor to Donn Products, Inc., a corporation of Ohio
Filed Dec. 7, 1964, Ser. No. 416,440
14 Claims. (Cl. 52—666)

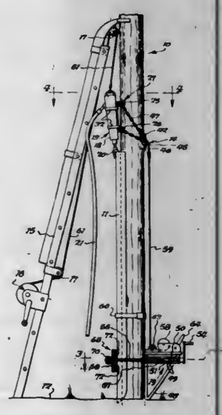


13. A connector for a pair of intersecting beams, each of said beams having a web with parallel marginal edges and a flange along at least one of said marginal edges, said connector comprising:

(a) a tongue tip portion on at least one end of the first of said pair of beams, said tip portion being angularly disposed to the plane of the web of said first beam; and

(b) means disposed in the web of the second of said pair of beams for receiving at least a portion of said tip portion to hold said tip portion adjacent the web of said second beam, said means including a hook portion projecting from the plane of the web of said second beam and disposed parallel to the longitudinal axis of said second beam, said hook portion being open along at least one end and along its bottom marginal edge for slidably receiving said tip portion as it moves adjacent the web portion of said second beam and in a direction parallel to the longitudinal axis of said second beam, said hook portion designed to overlap at least a portion of said tip portion.

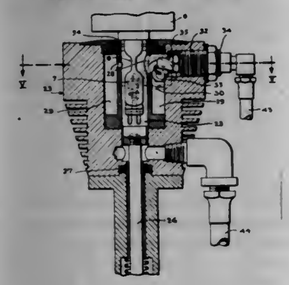
3,320,714
METHOD OF AND APPARATUS FOR POLE REINFORCING
George F. Barrett, Littleton, Colo., assignor to The Kamphausen Company, Englewood, Colo.
Filed June 10, 1966, Ser. No. 556,737
10 Claims. (Cl. 52—742)



1. The method of reinforcing poles by driving a reinforcing member into the ground adjacent the base of the pole comprising the steps of positioning an elongated reinforcing member against a pole adjacent the base thereof, mounting a driving element on the pole for movement

therealong, positioning the driving element in driving relation to the upper end portion of the reinforcing member, actuating the driving element to drive the reinforcing member downwardly, maintaining the driving element in driving relation to the upper end portion of the reinforcing member during downward movement of the latter, exerting a continual force on the driving element for moving it downwardly along the pole in following relation to the reinforcing member, and securing the reinforcing member to the pole in reinforcing relation thereto.

3,320,715
APPARATUS FOR SEALING OFF VESSELS
Bernard Chauvin, Cedar Grove, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed July 14, 1964, Ser. No. 382,478
10 Claims. (Cl. 53—7)



1. The method of sealing off a device such as a photoflash lamp having an internal pressure above atmospheric, said method comprising:

(a) indexing said device into a sealing-off station adjacent an exhaust machine turret,

(b) hermetically sealing a pressure chamber around said device,

(c) supplying illuminating gas and air under pressure to a burner within said pressure chamber adjacent said device,

(d) introducing a gaseous atmosphere under pressure into said device and simultaneously admitting fluid pressure into said chamber at a pressure higher than that of the gaseous atmosphere within said device,

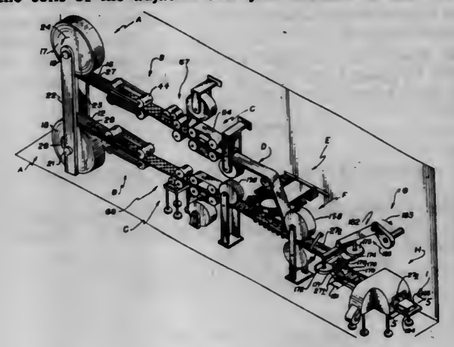
(e) producing and maintaining a spark within the pressurized chamber for a short interval to assure ignition of the burner therein whereby such burner will heat the exhaust tubulation of said pressurized device to a softening temperature and cause closure thereof with sealing off of said device,

(f) cutting off the supply of illuminating gas to said burner to cause extinguishment thereof, and

(g) simultaneously discontinuing the supply of a gaseous atmosphere to said device along with decompressing said pressure chamber and removing the latter from around said sealed-off device.

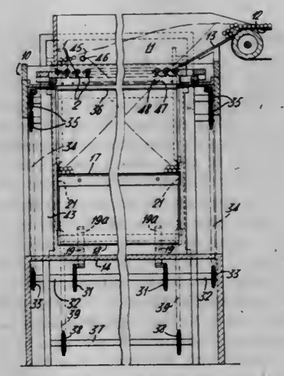
3,320,716
METHOD AND APPARATUS FOR CONTINUOUS PACKAGING OF FRAGILE ITEMS
John P. Schafer, Orinda, Calif., assignor to Hexcel Products, Inc., Berkeley, Calif.
Filed July 31, 1964, Ser. No. 386,539
14 Claims. (Cl. 53—27)

5. A method for making energy-absorbent packages confining contents therein comprising the steps of: providing a pair of expanded honeycomb material sections of substantially the same size and having the longitudinal axes of the cells substantially normal to the median faces of the section, depositing contents to be packaged on one median face of one of the honeycomb sections, placing the other honeycomb section with the median face of the latter adjacent the face of the section having the contents placed thereon, pressing together the adjacent honeycomb sections and crushing by said pressing the edges of the cells of the adjacent honeycomb sections around the



contents placed thereon until the median faces of the honeycomb sections define a gap between each other, binding together the sandwich formed by said pressing and crushing to form a relatively permanent honeycomb sandwich and energy-absorbent package confining the contents therein.

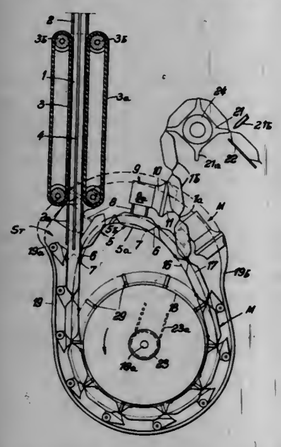
3,320,717
APPARATUS FOR FILLING BOXES, TRAYS OR THE LIKE AND FEEDING DEVICES THEREFOR
Desmond Walter Molins and James George Edward Hillman, London, England, assignors to The Molins Organisation Limited, a British company
Filed May 15, 1964, Ser. No. 367,826
Claims priority, application Great Britain, May 21, 1963, 20,195/63
10 Claims. (Cl. 53—151)



1. A feeding device for rod-like articles such as cigarettes, comprising a supply hopper for said articles, an outlet in said hopper, a plurality of shafts of polygonal cross-section rotatably mounted below said hopper outlet for assisting discharge of said articles, said outlet being common to each of said shafts, said shafts having their axes disposed parallel to one another in a common, substantially horizontal plane and being spaced apart to allow said articles to pass through spaces therebetween, driving means connected to each of said shafts for ro-

tation thereof, a separate blocking member for each of said spaces, each of said blocking members comprising a rotatable member, a bar carried eccentrically by said rotatable member, and means connected to each of said rotatable members for effecting rotation thereof, whereupon said bar moves from a withdrawn position below one of said shafts into a blocking position in one of said spaces alongside one of said shafts wherein said bar and said articles are in direct contact, said spaces being capable of passing said articles at all times when said bars are in said withdrawn position.

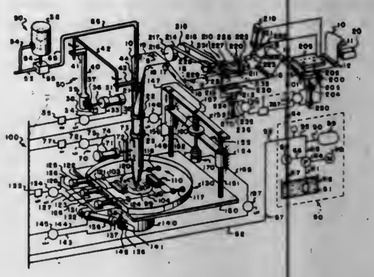
3,320,718
APPARATUS FOR FILLING AND SEALING CONTAINERS
Georg Thesing, Dortmund-Schonau, Germany, assignor to Holstein & Kappert Maschinenfabrik "Phonix" GmbH, Dortmund, Germany
Filed June 1, 1964, Ser. No. 371,275
13 Claims. (Cl. 53—180)



1. An apparatus for filling a heat-sealable tube with flowable material and for heat-sealing the tube transversely at spaced intervals to form a row of filled containers, comprising guide means arranged to direct the tube endwise toward a sealing station; filling means arranged to admit into the tube a flowable material so that consecutive lengths of tube which enter said station are filled with such material; deforming means comprising a series of normally open molds arranged to travel past said station so that each consecutive mold receives a length of tube, each mold comprising only two sections and each section including at least two portions articulately connected to each other; means for closing said molds seriatim at a point past said station so that the molds flatten portions of the tube to form transverse webs which separate consecutive lengths of tube from each other; and heat-sealing means comprising welding jaws arranged to travel past said station and to weld each consecutively formed web whereby the lengths of tube between such webs form a row of sealed containers.

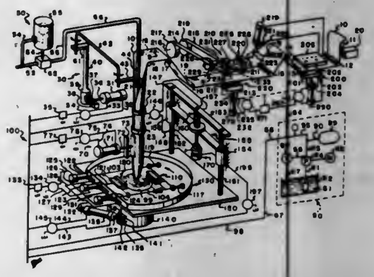
3,320,719
PACKAGING APPARATUS
John H. Murray, Spartanburg, S.C., assignor to Clemson Industries, Inc., White Stone, S.C., a corporation of Delaware
Filed Apr. 20, 1964, Ser. No. 360,909
3 Claims. (Cl. 53—182)

1. In a machine for forming filled packages from a filling material and a continuous flat flexible web having indicia thereon wherein is included means for guiding the flat flexible web along a path, a forming mandrel for shaping the web into tubular form while advancing same downwardly along the longitudinal axis of the mandrel, means for longitudinally sealing together the edges of the web to form a tube, a reciprocating carriage, a pair of clamping jaws in said carriage for grasping and moving said web in the downward movement of said carriage, means for supply the filling material to said tubular blank, means inspecting said web to determine the position of said indicia, the improvement comprising: a first piston slidable in a first cylinder, said



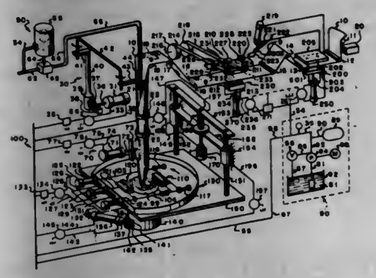
first piston having a piston rod connected to said carriage, a second piston, said second piston having a second piston rod thereon slidably projecting into said first cylinder and forming an end thereof, means supplying fluid through said second piston rod into said first cylinder, means connected to said first cylinder to move said first cylinder relative to said second piston to adjust the normal stroke of said first piston, and control means responsive to said web inspection means to supply fluid to said second piston to cause said second piston rod to slide upwardly in said first cylinder to change an individual stroke of said first piston.

3,320,720
PACKAGING APPARATUS
John H. Murray, Spartanburg, S.C., assignor to Clemson Industries, Inc., White Stone, S.C., a corporation of Delaware
Filed Apr. 20, 1964, Ser. No. 361,137
5 Claims. (Cl. 53—182)



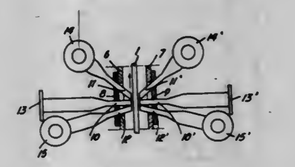
1. In a machine for forming liquid filled packages from a supplied liquid and a continuous flat flexible web wherein is included
means for guiding the flat flexible web along a path, a forming mandrel for shaping the web in tubular form while advancing same downwardly along the longitudinal axis of the mandrel,
means for longitudinally sealing together the edges of the web to form a tube,
a vertically reciprocable carriage carrying a pair of clamping jaws for grasping and moving said web on the downward movement of the carriage and for forming a completed liquid filled package and tubular blank upon closure of the jaws on the tube in transversely sealing,
the improved liquid supply and metering apparatus comprising in combination:
a liquid level control chamber having float valve mechanism for throttling liquid from supply into the chamber to provide a substantially constant level of liquid at constant pressure to a valved fill tube connected therewith which tube extends downwardly into the tubular blank,
said fill tube being provided with openings and being rotationally fitted within a fixed nozzle opening so that rotational movement of said fill tube about its longitudinally axis aligns the openings, and on continued rotational movement in the same direction moves the openings out of alignment,
a metering system including a fluid actuated cylinder-piston unit, the piston of which is pivotally affixed through its rod to linking means for producing rotational movement of the fill tube of the liquid supply mechanism about its longitudinal axis to align the openings of the fill tube and outlet nozzle,
said cylinder-piston unit being operatively associated with a directional flow valve for initiating and reversing fluid therethrough for reciprocation of the piston to open and close the valved fill tube in timed sequence with other machine functions whereby a measured portion of liquid is provided to the tubular blank for forming a package.

3,320,721
PACKAGING APPARATUS
John H. Murray, Spartanburg, S.C., assignor to Clemson Industries, Inc., White Stone, S.C., a corporation of Delaware
Filed Apr. 20, 1964, Ser. No. 361,138
4 Claims. (Cl. 53—182)



1. In a machine for forming packages from a fluent substance and a continuous flat flexible web wherein is included means for providing several sequences of operations including forming a tube from the web by shaping it about a mandrel, longitudinally and transversely sealing the tube to form a blank, filling the blank with the fluent substance to be packaged and again transversely sealing the tube to enclose the package and then severing the package from the web, the combination comprising:
a carriage carrying a rotatable platform upon which is mounted a pair of hydraulically actuatable clamping jaws,
said carriage being mounted by connections at one side thereof to the terminal ends of a pair of posts, the opposite ends of said posts being affixed to a yoke assembly which is in turn mounted via a piston rod upon the piston of a hydraulic cylinder-piston unit operatively associated with a solenoid actuated directional flow valve for initiating and reversing a flow of hydraulic fluid to and from said cylinder-piston unit to produce projection and retraction of the piston and vertical reciprocation of the carriage,
said clamping jaws being operatively associated with pistons of hydraulic cylinder-piston units in turn operatively associated with solenoid actuated directional flow valves for initiating and reversing the flow of hydraulic fluid to and from said cylinder-piston units; to close said jaws upon the tube for transversely sealing same and for moving the tube downwardly upon the forming mandrel as the carriage descends; and to open said jaws at the termination of the carriage downstroke after the tube has been progressed through the machine and the carriage is ready to ascend.
said rotatable platform being operatively affixed to the piston of a cylinder-piston unit in turn operatively associated with a solenoid actuated directional flow valve for initiating and reversing the flow of hydraulic fluid to and from said cylinder-piston unit to produce movement of said piston so that the platform and consequently the clamping jaws mounted thereupon can be rotated through an angle on the upward movement of said carriage,
a hydraulic supply system including a hydraulic fluid reservoir, a pump having an intake side from the reservoir and an exhaust side to manifold lines connecting said hydraulic fluid supply with the aforesaid solenoid actuated directional flow valves, and
an automatic timer device operatively associated through electrical circuits with said solenoid actuated directional flow valves to coordinate the machine functions in predetermined sequence by providing hydraulic fluid to the respective cylinder-piston units for conversion of the hydraulic power into mechanical movement at the appropriate time for providing the several operating functions of the machine.

3,320,722
MOLECULAR FRACTIONATION OF GASEOUS MIXTURES
René Lucas, Paris, France, assignor to Etablissement Public: Centre National de la Recherche Scientifique, Paris, France, a corporation of France
Filed Mar. 11, 1964, Ser. No. 351,007
Claims priority, application France, Mar. 3, 1964, 965,899
14 Claims. (Cl. 55—17)

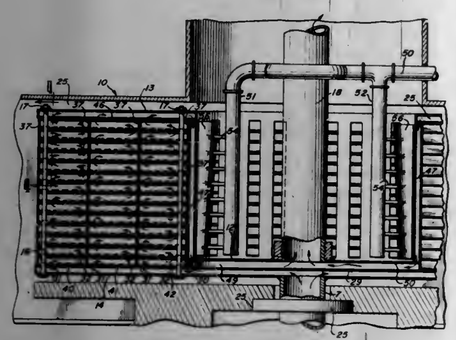


1. A process for the separation of a gaseous mixture in a state of thermodynamic equilibrium, wherein the gaseous constituents possess different molecular weights and translation speeds, comprising the steps of directing said gaseous mixture through a conduit in the form of a jet at high velocities and in a substantially direct path against a highly mobile surface, said conduit outlet being located in close proximity to said surface to cause deflection thereof into enriched fractions, and separately trapping and removing said fractions of the mixture near the jet source.

3,320,723
GAS CONDITIONING UNIT AND METHOD FOR DRYING GAS

John S. Hickman, Shorewood, Wis., assignor, by mesne assignments, to Airtex Corp., Chicago, Ill., a corporation of Illinois

Filed June 9, 1964, Ser. No. 373,622
12 Claims. (Cl. 55—32)



11. A method for conditioning gas in accordance with the steps of:

centripetally urging said gas to be conditioned along a plurality of gas-hygroscopic solution passages in a gas conditioning unit;

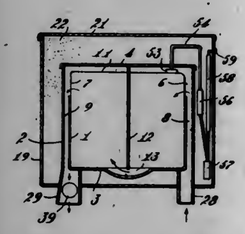
centrifugally forcing hygroscopic solution along said gas-solution passages in interface contact with said gas; and,

simultaneously passing a liquid in a plurality of separate liquid passages disposed in indirect heat exchange relationship with said gas-solution passages so that liquid in each of said liquid passages is in heat exchange relationship with said gas and solution.

3,320,724
HEAT-STORAGE BREATHER SYSTEM

Richard E. Rice, Arlington, Mass., assignor to Comstock & Wescott, Inc., Cambridge, Mass., a corporation of Massachusetts

Filed Aug. 24, 1964, Ser. No. 391,564
6 Claims. (Cl. 55—269)

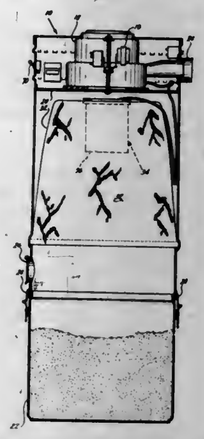


1. In a heat-storage system of the type employing heat-absorptive material which has affinity for water when cool, the combination of a container for said material, means for circulating fluid along a passageway past said container to draw heat from the material, a wall of insulation around said container, and a breather tube leading from the interior of said container outside said wall, said tube including a desiccant chamber disposed in said wall.

3,320,725
BAG VIBRATOR

James R. Foster, Webster City, Iowa, assignor to Robert L. Sampson, Webster City, Iowa

Filed Aug. 17, 1965, Ser. No. 480,282
4 Claims. (Cl. 55—283)



1. In a fixedly positioned vacuum cleaning apparatus adapted to be connected to conduits to different areas of a building and said apparatus including a vacuum pressure mechanism for drawing dirt and dust into a receptacle and a filter bag associated with said receptacle, the combination therewith of:

an electric circuit,

an electric motor in said circuit to operate said vacuum pressure mechanism,

an electrically operable vibrator attached solely to said bag, the actuation and deactuation of said vacuum pressure mechanism acting respectively to inflate and deflate said bag whereby said vibrator moves with said bag during inflation and deflation,

a first switch for opening and closing said circuit to said electric motor,

a time switch connected to said vibrator,

a second switch in said circuit operatively connected to said time switch and said first switch,

means causing the opening of said first switch to act on said second switch for closing said circuit to said vibrator through said time switch, and

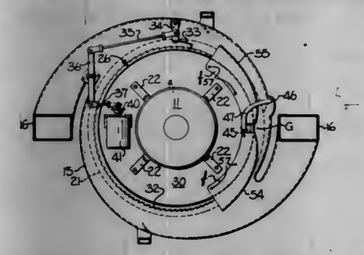
said time switch acting after a selected predetermined time interval to open the circuit to said vibrator.

3,320,726
TRAVELING TEXTILE CLEANER WITH FORCED AIR FILTER CLEANING MEANS

Robert L. Black, Jr., Charlotte, N.C., assignor to Parks-Cramer Company, Fitchburg, Mass., a corporation of Massachusetts

Filed Apr. 18, 1966, Ser. No. 543,197
1 Claim. (Cl. 55—294)

In a pneumatic traveling cleaner having a blower fan housing adapted for travel along a track above textile machines, said housing having an air inlet and an air outlet, a driven blower fan in said housing, and duct means connected to the outlet of said housing for directing blowing air streams toward the machines above which the housing travels for blowing lint and the like from such machines; the combination therewith of an annular rotary screen filter associated with the air inlet of said housing for filtering ambient lint and the like from air entering said air inlet, a blowing nozzle positioned within, and adjacent the inner surface of, said filter for blowing an air stream outwardly through the filter, means for imparting rotary movement to said filter during travel of the housing along said track, stationary shielding means substantially closing substantial portions of but substantially less than all of said filter, said shielding means comprising a pair of impervious arcuate shield members positioned closely adjacent the outer surface of said filter and defining a gap therebetween open to the atmosphere and aligned with said blowing nozzle and through which the air stream from said blowing nozzle flows, said shield members being flared outwardly in diverging relationship from the proximal ends thereof and away from said filter and also being of such length as

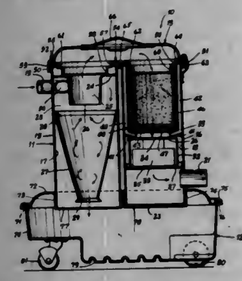


to substantially prevent lint and the like blown off said filter by the air stream from said blowing nozzle from being immediately drawn back against said filter by air entering the air inlet of said housing, said shield members also being provided with upper and lower walls so the shield members are substantially channel-shaped in cross section, and said upper and lower walls projecting inwardly from said shield members and terminating in close proximity to said filter so air may flow inwardly between each shield member and said filter to permit air to flow inwardly through said filter in the radial planes of said shield members.

3,320,727
PORTABLE VACUUM CLEANING MACHINE

Forney E. Farley, Dallas, and Harold W. McCulloch, Mesquite, Tex., assignors to John E. Mitchell Company, Dallas, Tex., a corporation of Missouri

Filed Aug. 2, 1965, Ser. No. 476,570
1 Claim. (Cl. 55—337)

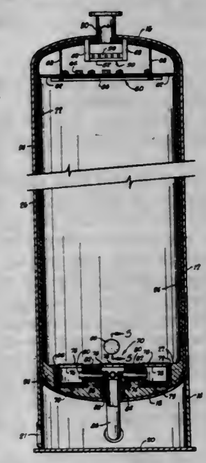


A portable vacuum cleaning machine comprising a housing, side wall means defining first and second chambers within the housing, an inlet port opening tangentially to the upper end of the first chamber, an annular channel confining incoming air at the inlet port to an annular path, the annular channel terminating at a plane spaced vertically below the inlet port, an inverted frusto-conical member mounted in the first chamber below the channel for receiving the swirling air and for permitting foreign matter to fall downwardly while permitting the air to be drawn upwardly through the center of the element defining the annular channel, a cover removably mounted on the housing, means on the cover defining a passage for air, the passage having an inlet above and in communication with the center of the element defining the annular channel and an outlet above and in communication with the second chamber, a foam filter element in the second chamber, the filter element being cup-shaped with a generally cylindrical side wall surrounding and defining a central space and a bottom wall in contact with the lower edges of the side wall, the upper end of the filter element being open to provide direct communication between the central space and the outlet from the air passage in the cover, means between the filter element and the side wall means of the second chamber to support the filter element in the second chamber and hold the side wall means of the filter element in spaced relation to the side wall means of the second chamber, the filter supporting means comprising a plurality of spaced ribs between the side wall of the filter element and the side wall means of the second chamber and extending below the bottom wall of the filter element, means to support the ribs within the second chamber, air passages through the filter supporting means, a pump in the second chamber positioned below the bottom wall of the filter element to draw air serially through the inlet port, the annular channel, the passage in the cover, and filter element, the passage defining means also providing an annular stop for bearing against the upper end of the filter and blocking the flow of air from the air passage in the cover to all portions of the second chamber which are radially beyond the side wall of the filter element to cause the air to flow through the filter rather than around it, and an outlet port below the pump for discharging clean air from the housing, a dirt receptacle, the dirt receptacle having side and bottom wall means and upper edges defining an open upper end, the housing having lower edges complementary with the upper edges of the dirt receptacle to provide interfitting engagement therebetween while permitting the housing to be lifted free of the dirt receptacle, and an opening from the first chamber below the inverted frusto-conical member and communicating with the dirt receptacle, the receptacle being supported on wheels.

3,320,728
ADSORPTION COLUMN

John R. Spencer, James H. Cheek, and Walton D. Greathouse, Houston, Tex., assignors to Continental Oil Company, Ponca City, Okla., a corporation of Delaware

Filed Nov. 19, 1964, Ser. No. 412,543
15 Claims. (Cl. 55—387)



1. In an adsorption column of the type having an elongated container for enclosing a solid adsorbent material, an improved adsorbent bed support structure comprising

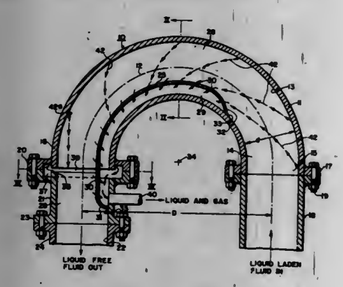
a plurality of gas-receiving receptacles positioned in one end of the column, having open, gas-receiving upper ends positioned in a common horizontal plane extending transversely through the column and having a layer of compressible, thermally insulating material around the sides and bottom of each of said gas-receiving receptacles;

perforate closure means extending across the open, upper ends of each of said gas-receiving receptacles for supporting the solid adsorbent material thereabove;

gas removal conduit means interconnecting said gas-receiving receptacles and extending out of said one end of the column, said gas removal conduit means including pipes interconnecting said receptacles and slidably extending into each of said receptacles to facilitate movement of the receptacles and pipes relative to each other as a result of thermal changes; and

a solidified, castable material positioned in said one end of the column around said pipes, receptacles and thermally insulating material and having a horizontal upper surface generally coplanar with the upper ends of said receptacles for supporting the said adsorbent material thereabove.

3,320,729
APPARATUS FOR REMOVING LIQUID FROM A LIQUID LADEN GAS STREAM
William F. Stahl, Middletown Township, Delaware County, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed May 17, 1963, Ser. No. 281,266
5 Claims. (Cl. 55—461)



1. Apparatus for removing liquid from a liquid laden pressurized gas stream comprising

a substantially imperforate tubular duct structure defining a liquid flow passage having a curvilinear central axis,

a partition disposed in said duct structure and dividing at least a portion of said passage into axially elongated primary and secondary passageways,

said secondary passageway being disposed radially inwardly of said primary passageway,

said duct having an inlet portion for admitting a liquid laden gas stream into said passage,

said partition having opposed end portions in abutment with said duct structure and having a plurality of apertures providing restricted fluid flow communication between said first and second passageways,

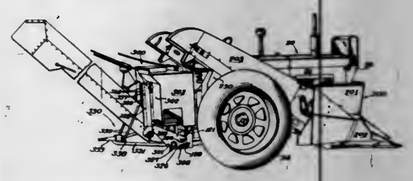
said primary passageway having the characteristics of inducing a spiral secondary flow pattern in said gas stream,

whereby liquid separated from the gas stream in said primary passageway by centrifugal force is directed through said apertures into said secondary passageway by said secondary flow effects,

means communicating with said secondary passageway for removing the liquid from said secondary passageway, and

said duct having an outlet for discharging the substantially liquid-free gas stream from said primary passageway.

3,320,730
CORN PICKER
Reynold Barkstrom, Moline, Ralph L. Sutton, Rock Island, and T. Gary Drayer, East Moline, Ill., assignors to International Harvester Company, Chicago, Ill., a corporation of New Jersey
Filed Feb. 24, 1965, Ser. No. 434,972
29 Claims. (Cl. 56—15)

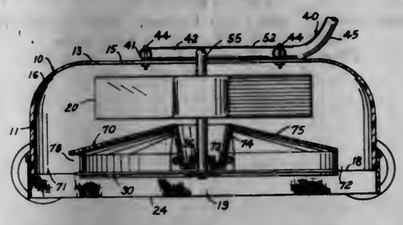


1. A tractor mounted corn picker and processing unit comprising: a tractor of the type having a longitudinally extending chassis, a rear wheel axle unit, a dirigible front wheel support, a hitch rockshaft having a lever arm secured thereto, a front support carried by said chassis between the rear wheel axle unit and the front wheel support, and a rear support carried by said rear wheel axle unit, said front and rear supports accessible and unobstructed from below the tractor; a longitudinally extending implement main frame having front and rear portions, front guides mounted on the top of said front portion adapted to engage the front support when the longitudinally extending implement main frame is elevated, coupling means for automatically pivotally connecting said front guide to said front support, lifting links secured at one end to said rear portion and adapted to be connected at the other end to the lever arm of said hitch rockshaft, interengaging latch means on said rear support and said rear portion for locking the rear portion of said longitudinally extending implement main frame in an elevated position; means on said longitudinally extending implement main frame for supporting a corn picking unit; a corn processing unit adapted to be secured to the rear portion of said longitudinally extending implement main frame; coupling means on the rear portion of said longitudinally extending main frame and on said corn processing unit for releasably connecting these units, such that the center of gravity of the longitudinally extending main frame including the corn processing unit is rearwardly of the point where the lifting links are connected to the main frame so that when the hitch rockshaft is actuated the front portion of the main frame is elevated and pivotally connected to said front support and upon further actuation of the hitch rockshaft the rear portion of the main frame is elevated to a position where said interengaging latch means can be engaged to connect the main frame to the tractor in an elevated position.

3,320,731
AIR SUPPORTED MOWING MACHINE
John F. Cody and George W. Sites, Quincy, Fla., assignors, by direct and mesne assignments, of nine-twentieths to Walter S. McNeilly and one-twentieth to Gerald D. Bryant, both of Tallahassee, Fla.
Filed Mar. 11, 1964, Ser. No. 351,055
9 Claims. (Cl. 56—25.4)

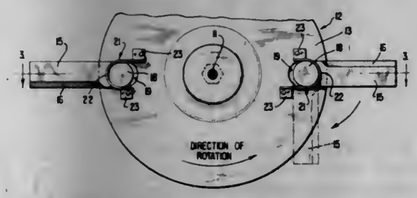
1. In a mowing machine of the class wherein a housing carries a prime mover which drives, in a predetermined path of travel, a blade which engages vegetation

to be severed from the ground, the combination therewith of means for directing sufficiently strong separate streams



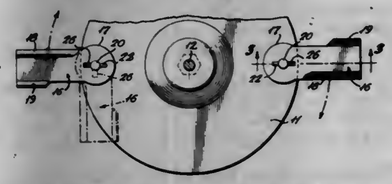
of air against the ground on diametrically opposite sides of said housing to raise said housing from the ground.

3,320,732
CUTTING BLADE ASSEMBLY FOR ROTARY LAWN MOWERS AND THE LIKE
Ralph D. Kirk, Rte. 4, Easley, S.C. 29640
Filed Feb. 17, 1965, Ser. No. 433,405
8 Claims. (Cl. 56—295)



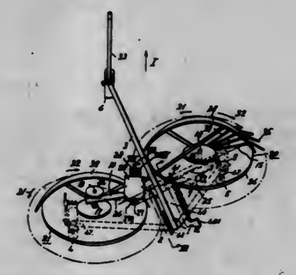
1. A rotary mower cutter blade assembly comprising in combination a substantially circular disc adapted to turn with the driven shaft of said mower and having at least a pair of diametrically opposed openings, blade anchoring brackets secured to said disc adjacent said openings and including U-shaped portions elevated from one face of the disc and substantially aligned with outer curved edges of the openings, and blades having body portions extending between the disc and said elevated U-shaped portions and heads at the inner ends of the blades rotatably engaging the openings and the elevated U-shaped portions, whereby the blades are free to pivot upon the disc and are anchored firmly thereto for rotation therewith.

3,320,733
ROTARY LAWN MOWER BLADE MOUNTING STRUCTURE
Ralph D. Kirk, Rte. 4, Easley, S.C. 29640
Filed Sept. 9, 1965, Ser. No. 486,031
4 Claims. (Cl. 56—295)



1. A rotary lawn mower cutter blade assembly comprising a carrier disc which revolves in a substantially horizontal plane during operation of the lawn mower, diametrically opposed cutter blades mounted on said disc to travel therewith and maintained radially extended from said disc during rotation by centrifugal force, said blades having keyhole openings near their inner ends including reduced width slots which extend radially outwardly during rotation, studs on said disc engageable through said openings to form pivotal connections with said blades, and retaining pins on said studs spaced from said discs and receiving the blades between said disc and pins and extending substantially at right angles to the studs and projecting radially inwardly thereof and diametrically opposite to the reduced width slots while said blades are held radially extended by centrifugal force, said pins then positively retaining the blades on said studs, the blades being readily detachable from the studs by turning the blades around the studs until said slots of the keyhole openings become aligned with said pins.

3,320,734
HAYMAKING MACHINES
Cornelis van der Lely, Zug, Switzerland, assignor to Patent Concern N.V., Curacao, Netherlands Antilles, a limited-liability company
Original application May 6, 1959, Ser. No. 811,445, now Patent No. 3,120,092, dated Feb. 4, 1964. Divided and this application Dec. 12, 1963, Ser. No. 330,082
Claims priority, application Netherlands, May 27, 1958, 228,135; May 28, 1958, 228,169
15 Claims. (Cl. 56—366)

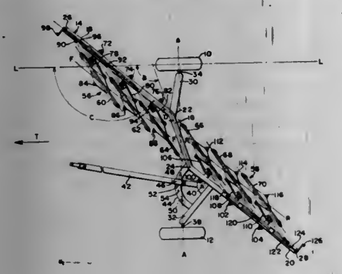


1. An implement adapted to be pulled by a tractor and comprising frame means including hitch means to couple the implement to said tractor and ground wheels supporting said frame means, a frame beam adjacent said frame means and pivotally connected thereto, shafts disposed adjacent the ends of said beam and inclined upwardly and forwardly at an acute angle relative to the ground, raking members having tines thereon rotatably mounted on said shafts such that the tines in the forward area of the raking members are substantially vertical when in contact with ground and/or crop, such raking members each being disposed in a plane extending at an acute angle relative to the ground with one of said ground wheels therebeneath, a gear-box mounted on said beam and means connecting said gear-box to each raking member to rotate same in one direction so that the implement constitutes a side delivery rake, or in a reverse direction so that the implement constitutes a tedder.

3,320,735
ROTARY SIDE-DELIVERY RAKE
Gail R. Sutherland, Des Moines, and Arie E. Breed, Ottumwa, Iowa, assignors to Deere & Company, Moline, Ill., a corporation of Delaware
Filed Dec. 11, 1964, Ser. No. 417,633
14 Claims. (Cl. 56—377)

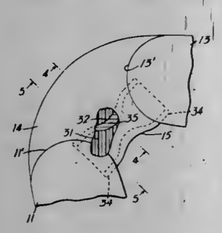
1. A side-delivery rake of the rotary-raking-wheel type adapted to advance over a field, comprising: right- and left-hand support wheels spaced apart transversely to the line of advance; a frame including a fore-and-aft elongated, generally horizontal, substantially Z-shaped element having a relatively short section diagonal to the line of advance and disposed intermediate and in substantial

transverse alinement with the wheels and having right- and left-hand portions spaced respectively laterally inwardly of the wheels, an elongated right-hand forward leg rigid with and extending forwardly and rightwardly from said right-hand portion, at an obtuse angle to said intermediate section, to a terminal front end ahead of and rightwardly of the right-hand wheel, and an elongated left-hand rearward leg rigid with and extending rearwardly and leftwardly from said left-hand portion, at a like obtuse angle to said section, to a terminal rear end leftwardly and to the rear of the left-hand wheel; front and rear echelons of obliquely disposed rotary raking



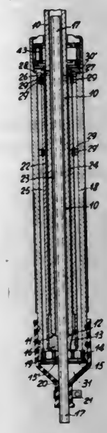
wheels arranged respectively along the left and right sides of the forward and rearward legs and respectively ahead of and behind the intermediate section so that the rearwardmost front echelon wheel and the forwardmost rear echelon wheel lie in overlapping relation with said section between them; a plurality of individual means rotatably supporting the raking wheels on said element; and transverse support means rigid with said element and extending respectively to and carrying the support wheels.

3,320,736
TRAVELER WITH WEAR RESISTANT INSERT
Louis H. Morin, Bronx, N.Y., assignor to Coats & Clark Inc., New York, N.Y., a corporation of Delaware
Filed June 30, 1964, Ser. No. 379,271
2 Claims. (Cl. 57—125)



1. A molded plastic traveler having a hook part and a shank part, said parts being joined in a thin wall rounded part, a tubular metallic insert arranged in adjacent ends of the hook part and shank part and upon the inner surface of said thin wall part, said tubular insert having a reduced diameter rounded central portion, the greater part of the circumference of which is exposed between adjacent ends of the hook part and the shank part and the inner surface of said thin wall part, the molded material of said traveler being arranged in and filling the bore of the insert forming thereof a member bridging the hook part and shank part and the smallest diameter of said insert is greater than the width of the adjacent portion of said thin wall part of the traveler.

3,320,737
ANTIVIBRATING SPINDLE FOR SPINNING AND TWISTING
Andrea Ferrario and Luigi Ferrario, both of Via Dante Alighieri 19, Mandello Lario, Italy
Filed Sept. 15, 1964, Ser. No. 396,646
7 Claims. (Cl. 57—129)

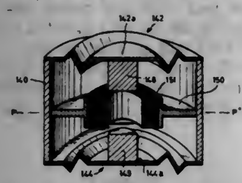


1. A spinning and twisting damping spindle, comprising; an axially bored cylindrical rotating body, a small pipe extending axially through the bore in the rotating body, a base member at the bottom end of the rotating body sealingly fixedly engaging said small pipe, said rotating body having at its lower end a truncated-cone surface and a correspondingly shaped seat on said base member, said base member having at least one hole therein having one end terminating at said surface on the said rotating body, a first inner stationary cylindrical casing surrounding said rotating body and supported by said base member, a second outer stationary cylindrical casing surrounding said first casing, centering elements disposed between said inner and outer casings, said small pipe and said rotating body and said inner and outer casings forming three coaxial cylindrical interspaces therebetween, first means providing communication between said spaces at the upper end thereof, and second means providing communication between at least the outermost one of said spaces at the bottom thereof, and the other end of said hole in said base member.

3,320,738
VIBRATORY FREQUENCY STANDARD FOR A TIMEKEEPING DEVICE
Klaus Sparing, Pforzheim, and Wilhelm Tilse, Pforzheim-Birkenfeld, Germany, assignors to the United States Time Corporation, Waterbury, Conn., a corporation of Connecticut
Original application July 10, 1964, Ser. No. 382,440, now Patent No. 3,201,932, dated Aug. 24, 1965. Divided and this application June 24, 1965, Ser. No. 476,776
Claims priority, application Germany, Mar. 16, 1963, U 9,647
The portion of the term of the patent subsequent to Aug. 24, 1982, has been disclaimed
3 Claims. (Cl. 58—23)

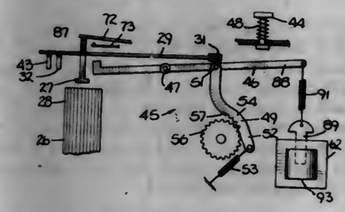
1. A timekeeping device including a base,
two mechanical oscillators attached to the base,
means to impulse the oscillators to oscillate uniformly and at the same frequency,
in which the oscillators compensate each other by having their products Aw equal, where
A is the moment of inertia of the oscillator, and
w is its amplitude of oscillation,

and the reaction moments of the oscillators in-phase are in opposite directions,



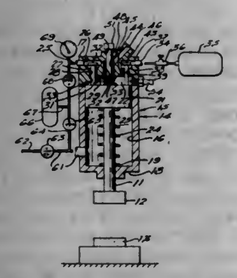
characterized in that both oscillators are diaphragms clamped at their periphery.

3,320,739
ALARM CLOCK
Ben Kleinerman, New Hyde Park, N.Y., assignor to Jerry G. Bechhofer, New York, N.Y.
Filed May 13, 1965, Ser. No. 455,434
7 Claims. (Cl. 58—38)



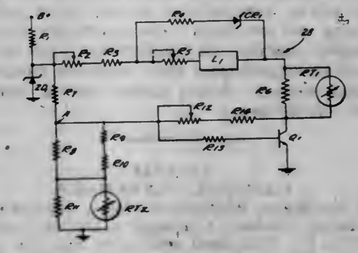
1. An electric clock having alarm means and having an alternating current motor, connections for said motor to an alternating current supply line that characteristically has a "hot" side and a grounded side, normally passive means including a control electrode responsive to activating signals for deactivating said alarm means, and means including an impedance connected in a circuit between said control electrode and said "hot" side of the alternating supply line via one of said connections of said motor for developing activating signals for said normally passive means, said last-named means including a capacitive element physically connected to said clock and coupled to said control electrode for coupling said impedance to the grounded side of the alternating current supply line via human body capacitance upon approach of a human hand to the clock.

3,320,740
PRESS
Clark J. Hamkins, Racine, Wis., assignor to Walker Manufacturing Company, a corporation of Delaware
Filed July 2, 1965, Ser. No. 469,086
1 Claim. (Cl. 60—26.1)



An explosively actuated press or the like comprising a power ram adapted to carry a tool, a work supporting base for supporting a workpiece adapted to be engaged by the tool, a cylinder, a piston supported for reciprocation within said cylinder and dividing said cylinder into two chambers on opposite sides of said piston, means affixing said cylinder with respect to said work supporting base, means affixing said piston to said ram for driving said ram, means for charging one of said chambers with a stoichiometric fuel-air mixture, said means comprising inlet passage means formed in said cylinder and opening into said one chamber and inlet valve means supported for reciprocation by said cylinder having an enlarged head portion adapted to control the flow through said inlet passage means, said inlet valve means having an integral portion extending from said head portion into said one chamber and adapted to be engaged by said piston when said piston is in a first position for opening said inlet valve means, exhaust passage means extending through said cylinder from said one chamber to the atmosphere for discharging a burnt charge from said one chamber, exhaust valve means supported for reciprocation by said cylinder for controlling the flow through said exhaust passage means, said exhaust valve means having an enlarged head portion exposed to the pressure within said one chamber and adapted to control the passage of exhaust gases through said exhaust gas passage means, biasing means cooperating with said enlarged head portion of said exhaust valve means for urging said exhaust valve means to an open position, spring means carried by said piston and adapted to engage said exhaust valve head portion and urge said exhaust valve to its closed position when said piston is in its first position, biasing means disposed in the other chamber of said cylinder and engaging said piston for urging said pitson to said first position, means for firing the stoichiometric fuel-air mixture in said one chamber for urging said piston from said first position to a second position wherein the tool carried by said ram is adapted to engage a workpiece supported upon said work supporting base, an air accumulator, conduit means interconnecting said air accumulator to said inlet passage means for delivering air under pressure to said inlet passage means, and valved passage means interconnecting said other chamber with the atmosphere and with said accumulator for drawing air from the atmosphere into said other chamber upon movement of said piston from its first position to its second position and for delivering air under pressure to said accumulator upon movement of said piston from its first position to its second position.

3,320,741
ELECTRONIC FUEL CONTROL SYSTEM FOR GAS TURBINE ENGINES
Edward M. Glista, East Longmeadow, Mass., assignor to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
Filed Aug. 29, 1963, Ser. No. 305,298
11 Claims. (Cl. 60—39.28)



3. In a fuel control system for a gas turbine engine having a compressor, the combination comprising,
a source of D.C. voltage,

a semiconductor having a control terminal and output terminals,

a load circuit including a first temperature sensitive element, a control element, and said output terminals connected across said source,

a bias circuit including a second temperature sensitive element connecting said source and said semiconductor control terminal to provide a bias to said semiconductor normally rendering said semiconductor conductive,

said first element positioned to respond to the temperature of said compressor and producing an increase in current through said control element in response to increasing temperature,

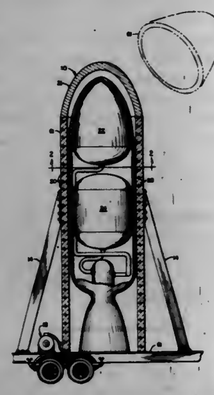
and said second element positioned to respond to the temperature of said compressor and varying the bias on said control terminal to reduce the conduction of said semiconductor in response to further temperature increases to thereby reduce the current through said control element.

3,320,742

PRESSURIZATION SYSTEM AND METHOD FOR EFFECTING PROPELLANT FLOW IN A LIQUID PROPELLANT ROCKET

Robert C. Truax, Shingle Springs, Calif., assignor to Aerojet-General Corporation, Azusa, Calif., a corporation of Ohio

Filed Dec. 4, 1962, Ser. No. 242,257
8 Claims. (Cl. 60—39.48)



1. A pressurization system for a liquid propellant rocket having a combustion chamber to effect propellant flow into the combustion chamber, comprising a pair of closed containers each substantially filled with, respectively, a liquid oxidizer and a liquid fuel, means for controllably heating said containers so that the vapor pressure therein will be increased to a selected value, and means connecting said containers to the combustion chamber of said rocket whereby said liquid oxidizer and said liquid fuel will be ejected from their respective containers by the vapor pressures present therein into the combustion chamber of said rocket.

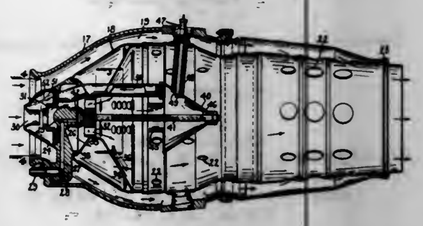
3,320,743

GASIFIER AND BURNER

Robert Reichhelm, Wallingford, Conn., assignor to Combustion Efficiency Corporation, Darien, Conn.

Substituted for abandoned application Ser. No. 188,365, Oct. 4, 1950. This application Sept. 1, 1965, Ser. No. 496,215
8 Claims. (Cl. 60—39.71)

1. A gasifier and burner comprising a housing providing a combustion chamber, said chamber having air inlet means adjacent one end and outlet means adjacent the other end, a gasifying chamber in said combustion chamber between said inlet and outlet means, said gasifying chamber having an opening directed toward and in communication with said air inlet means to receive therefrom only a small fraction of the air, means for delivering liquid fuel to said gasifying chamber wherein only a portion of the fuel is consumed, and flame choking means



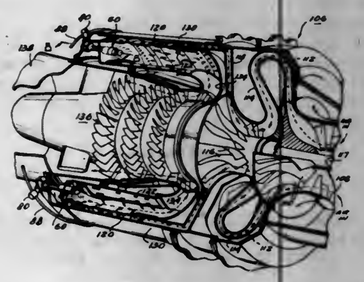
to conduct such gasified fuel from the gasifying chamber to said air inlet means forwardly of the combustion chamber for delivery as a flameless mixture composed of products of combustion and unburned gasified fuel to the combustion chamber with the air passing thereinto, said conducting means comprising a tubular member having a length many times its widest cross-section dimension, said tubular member passing through the combustion chamber to the forward end thereof.

3,320,744

GAS TURBINE ENGINE BURNER

James M. Blakely, Thousand Oaks, Calif., and Robert E. Schurig, Hasbrouck Heights, N.J., assignors to Sonic Development Corporation of America, Yonkers, N.Y.

Filed Nov. 15, 1965, Ser. No. 507,807
8 Claims. (Cl. 60—39.74)



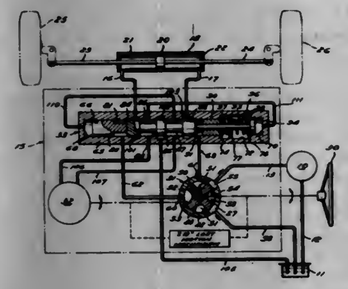
1. In a gas turbine engine, fuel burning apparatus comprising, in combination, a gas-operated pressure wave generator comprising a housing forming a gas flow passageway having inlet and outlet openings, first and second spaced positions in said passageway, restrictor means at said first position for reducing the cross-sectional area of said passageway, expansion means for increasing the cross-sectional area of said passageway between said first and second positions in the direction of gas flow through said passageway and expanding and accelerating a gas to supersonic velocities, resonator means positioned adjacent said outlet opening, means for subjecting fluid fuels to the pressure waves produced by said generator and atomizing said fuels, air compression means, at least one combustion chamber providing a combustion area in said engine, means for conducting compressed air from said air compression means to said combustion chamber and to the inlet of said gas flow passageway to operate said pressure wave generator, said pressure wave generator being mounted in a wall of said combustion chamber with its inlet communicating with said conducting means and its outlet opening exiting into said chamber, said combustion chamber having at least one inlet opening communicating with said conducting means.

3,320,745

HYDRAULIC STEERING CONTROL

Eugene Bahniuk, Gates Mills, Tadeusz Budzich, Moreland Hills, and Jack L. Thompson, South Euclid, Ohio, assignors to The Weatherhead Company, Cleveland, Ohio, a corporation of Ohio

Filed Oct. 4, 1965, Ser. No. 492,819
16 Claims. (Cl. 60—52)



1. A hydraulic system comprising an actuator motor adapted to be selectively connected to a source of fluid pressure for reversible actuation, a rotatable input shaft, a source of fluid pressure, a reservoir, a metering valve operable by said input shaft having first and second outlet ports and operable to selectively connect said fluid pressure source to said first and second outlet ports, a reversible positive displacement feedback motor operable to provide follow-up rotation for said input shaft, and a condition selector valve interconnecting said metering valve and said actuator motor and said feedback motor, said selector valve being selectively operable responsive to fluid pressure from said metering valve to direct fluid from said metering valve to said actuator motor and from said actuator motor to said feedback motor and from said feedback motor to said reservoir.

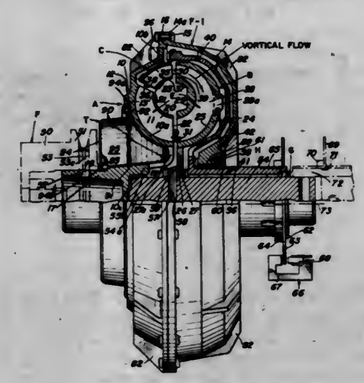
3,320,746

FORWARD/REVERSE DRIVE

Robert Denes, Rockford, Ill., and Herbert A. McAninch, Auburn, Ind., assignors to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois

Filed Sept. 10, 1965, Ser. No. 486,269
10 Claims. (Cl. 60—54)

1. A hydrokinetic transmission device comprising: a plurality of rotatable semi-toroidal shaped elements related together about a common axis to define a closed toroidal chamber for circulating fluid therein, said elements defining at least one impeller, at least one turbine, and at least one reactor, each of said elements having fluid guidance means and each having a fluid entrance and exit with the respective entrances and exits of each of the elements being arranged closely adjacent whereby the guidance means may influence fluid flow substantially throughout the entire chamber, said toroidal chamber being substantially filled with fluid during all conditions of the operation, the guidance means of said reactor being disposed between the fluid exit of said impeller and the fluid entrance of said turbine, and means for selectively permitting said reactor to rotate freely for effecting a fluid coupling between said impeller and turbine in one rotative direction and to be held against rotation for effecting a reverse rotation of said turbine relative to



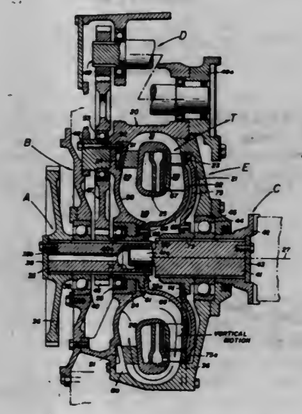
the rotation of said impeller, said fluid guidance means being adapted so that the torque absorption capacity of the device (K-factor) does not vary more than 20% in either direction of rotation of said turbine.

3,320,747

HYDROKINETIC DRIVE

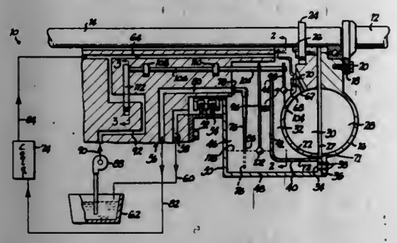
Robert Denes, Rockford, Ill., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois

Filed Sept. 10, 1965, Ser. No. 486,500
4 Claims. (Cl. 60—54)



1. A hydrodynamic device, comprising: a fixed housing carrying a vaned stator element, rotatable bladed pump and turbine elements cooperating with said housing and stator element to define a toroidal chamber with the vanes and blades disposed therein, said pump element being effective to promote fluid flow therein, having both a circulatory motion about the toroidal axis and a vortical motion about the path of the circulatory flow, said pump and turbine blades lying in the radially outward vortical flow and the stator vanes lying in the radially inward vortical flow, the housing and stator vanes cooperating to provide restriction to the vortical flow which is greater than in any other portion of said chamber, and at least 45% of the meridional vortical flow is obstructed at said restriction.

3,320,748
FLUID COUPLING CONTROL MEANS
Richard M. Nelden, Southfield, Mich., assignor to American Radiator & Standard Sanitary Corporation, New York, N.Y., a corporation of Delaware
Filed Oct. 1, 1965, Ser. No. 492,009
15 Claims. (Cl. 60—54)

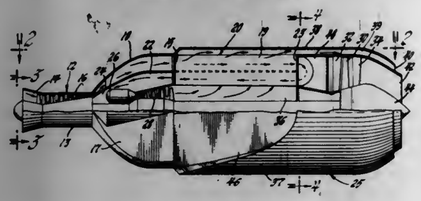


1. Fluid level control means for a fluid coupling comprising a working chamber including driving and driven vaned elements, a chamber for fluid adjacent said vaned elements for rotation therewith, fluid in said chamber maintained as a fluid ring at the outer periphery of the chamber by a centrifugal force during rotation of the chamber, an arm pivotally mounted in said chamber and having a free end extending radially outwardly toward and terminating short of the outer periphery of the chamber, means urging said arm to a normal position, said fluid ring contacting the outer end of the arm and pivoting the arm away from its normal position when the thickness of the ring exceeds the distance between the end of the arm and the outer periphery of the chamber, and control means operatively connected to the arm and actuated thereby when the arm is pivoted.

ERRATUM

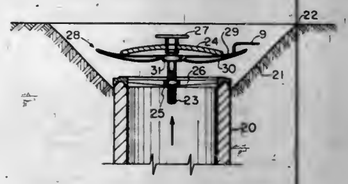
For Class 60—102 see:
Patent No. 3,320,752

3,320,749
REGENERATIVE FAN ENGINE
William S. Castle, Douglas K. Thompson, and Henry M. Mar, Indianapolis, Ind., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Oct. 4, 1965, Ser. No. 492,558
7 Claims. (Cl. 60—226)



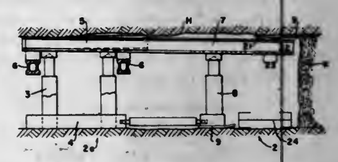
1. A regenerative ducted fan gas turbine engine comprising, in combination, a gas turbine power unit including a compressor inlet and a generally cylindrical casing, a fan concentric with said casing and projecting outwardly of the casing, a shroud mounted concentrically on said casing and enclosing said fan to provide an annular bypass passage, said power unit including regenerator means transferring heat to its inlet air, a regenerator housing extending outwardly from the casing generally to the radius of the shroud and blocking a portion of the annular outline of said bypass passage ahead of said fan and an inlet to the bypass passage occupying the remaining portion of the bypass passage outline, said bypass inlet being aft of said compressor inlet.

3,320,750
REMOTE CONTROL IRRIGATION SYSTEM
Howard R. Haise and Ernest G. Kruse, Fort Collins, Colo., assignors to the United States of America as represented by the Secretary of Agriculture
Filed Dec. 8, 1964, Ser. No. 416,939
2 Claims. (Cl. 61—12)



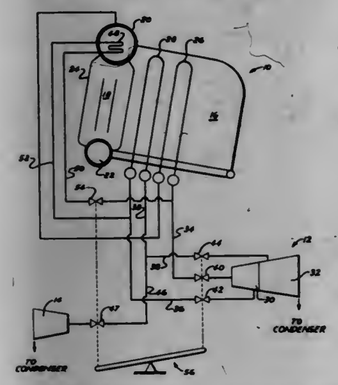
1. An irrigation system comprising, in combination, a pipe having an open end and providing the means for conducting water, a lid positioned outwardly from the open end of said pipe, support means secured to the pipe and supporting the lid for adjusting the clearance between said lid and said open pipe end, a normally-flat hollow inflatable member of annular configuration positioned by the said support means intermediate of said open end and said lid in outwardly spaced relation to said open end to permit water to flow therepast, said inflatable member when inflated being of a size to overlap and engage the entire periphery of said open end and to be engaged by the peripheral portion of the lid, a tube communicating with the interior of said member, and means for connecting said tube with a source of fluid under predetermined pressure to inflate said member into contact with the open end and said lid and thereby stop the water flow.

3,320,751
SUPPORT
Karl Maria Groetschel, Stolzestrasse 44, Bochum, Germany
Filed Jan. 29, 1963, Ser. No. 254,713
Claims priority, application Germany, Jan. 29, 1962, G 34,128
37 Claims. (Cl. 61—45)



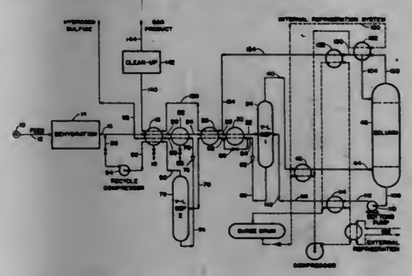
1. An advancing mine supporting arrangement for bracing the roof of a mine, comprising, in combination:
(a) a rear assembly having at least two struts;
(b) a forward assembly associated therewith and having only one prop and a cap thereon defining a lever having a longer and a shorter lever arm, said cap extending rearwardly past the forward-most portion of the rear assembly; and
(c) load transfer means positioned on and extending upwardly from at least one end portion of said cap and supported on at least said shorter lever arm of the cap for transferring to the end portion of the cap at least the major portion of the supporting effect of the prop, for correspondingly decreasing the supporting effect of the cap upon the roof in the vicinity where the prop supports the cap and for engaging the longer lever arm against the roof.

3,320,752
MARINE REHEATER CYCLE
David Tawse, Thompsonville, Conn., assignor to Combustion Engineering, Inc., Windsor, Conn., a corporation of Delaware
Filed June 17, 1965, Ser. No. 464,787
12 Claims. (Cl. 60—102)



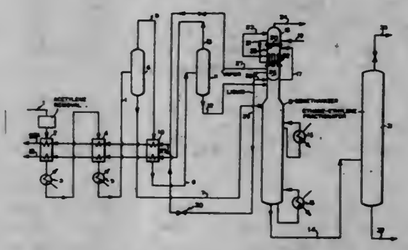
1. A method of operating a marine power plant installation comprising a two-stage ahead turbine, an astern turbine, a steam generator including a superheater, a desuperheater and a reheater, the steps comprising sequentially flowing steam from said superheater to the first stage of said ahead turbine, to the reheater and to the second stage of said ahead turbine during ahead operation of said power plant installation; discontinuing steam flow to said ahead turbine and sequentially flowing steam from said superheater to said desuperheater, to said reheater to said astern turbine during astern operation of said power plant installation.

3,320,753
SEPARATION OF HYDROGEN SULFIDE FROM ADMIXTURE WITH HYDROCARBON GAS
Bruce G. Bray, Ponca City, Okla., and George W. Swift, Lawrence, Kans., assignors to Continental Oil Company, Ponca City, Okla., a corporation of Delaware
Filed Mar. 27, 1964, Ser. No. 355,223
12 Claims. (Cl. 62—28)



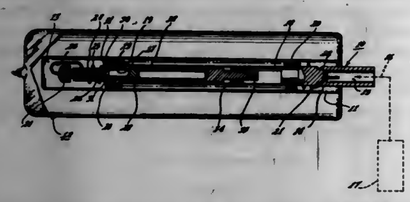
1. A low temperature process for separating hydrogen sulfide from a normally gaseous hydrocarbon which process comprises:
cooling a feed gas mixture of hydrogen sulfide and at least one normally gaseous hydrocarbon, said mixture containing at least about 5 mole percent of hydrogen sulfide and being essentially free from water vapor, to a temperature in the range of about —40° F. and —120° F. at an elevated pressure such that a system consisting of gaseous hydrocarbon phase and liquid hydrogen sulfide phase is produced;
separating said gaseous hydrocarbon phase, which has a hydrogen sulfide content lower than said feed gas, from said liquid hydrogen sulfide phase, which contains some dissolved hydrocarbon;
cooling and partially condensing said gaseous hydrocarbon phase; and
charging said cooled and partially condensed gaseous hydrocarbon phase to a distillation operation to produce a gaseous hydrocarbon overhead fraction of substantially lower hydrogen sulfide content than said gaseous hydrocarbon phase and a liquid bottoms fraction having a hydrogen sulfide content greater than said gaseous hydrocarbon phase; and
withdrawing said liquid bottoms fraction and passing it to said separation operation.

3,320,754
DEMETHANIZATION IN ETHYLENE RECOVERY WITH CONDENSED METHANE USED AS REFLUX AND HEAT EXCHANGE MEDIUM
William Tucker, Great Neck, N.Y., and Howard B. Zasloff, Rockaway, N.J., assignors to The Lummus Company, New York, N.Y., a corporation of Delaware
Filed Sept. 25, 1964, Ser. No. 399,201
7 Claims. (Cl. 62—28)



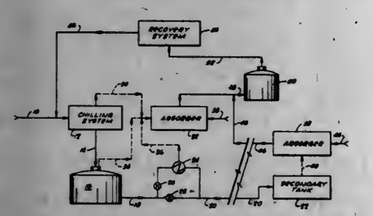
1. A process for recovering ethylene from a gaseous mixture containing: hydrogen, methane ethylene, and ethane comprising:
(a) passing said mixture through a first heat exchange zone wherein said mixture is cooled by indirect heat transfer to condense a portion thereof;
(b) separating said condensed portion obtained in step (a) and introducing said condensed portion into a demethanization fractionation zone;
(c) passing the uncondensed portion from step (a) through a second heat exchange zone wherein said uncondensed portion is cooled by indirect heat transfer to condense another portion;
(d) passing the condensed portion from step (c) to the demethanization fractionation zone;
(e) passing the uncondensed portion from step (c) through said first and second heat exchange zones to effect cooling by indirect heat transfer;
(f) recovering a methane rich overhead from said fractionation zone;
(g) cooling the methane rich overhead to condense a portion thereof;
(h) returning a portion of the condensed methane rich overhead to the demethanization fractionation zone as reflux;
(i) passing the remaining portion of the condensed methane rich portion and the uncondensed methane rich overhead through the first and second heat exchange zones to effect cooling by indirect heat transfer;
(j) recovering the bottoms from said demethanization fractionation zone and introducing said bottoms into a second fractionation zone; and
(k) recovering an ethylene rich overhead from the second fractionation zone.

3,320,755
CRYOGENIC REFRIGERATION SYSTEM
Robert E. Jepsen and Henry F. Villaume, Emmaus, Arthur R. Winters, Allentown, and Frank J. Zimmerman, Easton, Pa., assignors to Air Products and Chemicals, Inc., Philadelphia, Pa., a corporation of Delaware
Filed Nov. 8, 1965, Ser. No. 506,730
7 Claims. (Cl. 62—45)



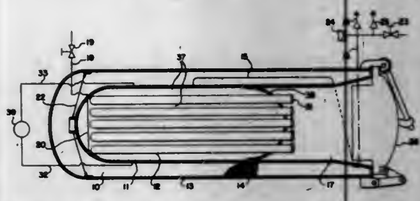
1. An automatically self-regulating cryostat comprising:
(a) means forming an insulated coolant chamber;
(b) means for supplying a refrigerant to said coolant chamber;
(c) means forming a Joule-Thomson expansion orifice within said coolant chamber;
(d) means connecting the refrigerant supply means to said orifice to effect the discharge therefrom and cooling of an expanding stream of refrigerant;
(e) valve means for controlling the flow of refrigerant through said orifice;
(f) means for discharging the cooled refrigerant from said coolant chamber; and
(g) separate mounting means for said orifice means and said valve means, composed of materials having different coefficients of expansion, the arrangement of said orifice and valve means being such that the differential expansion of said separate mounting means with reduction in temperature effects a throttling movement between orifice and valve, whereby the flow of refrigerant into said coolant chamber is automatically controlled as a function of temperature.

3,320,756
METHOD OF STORAGE AND TRANSPORTATION OF LIQUIFIED GAS
Hadi Tafreshi Hashemi, Norman, Okla., assignor to University Engineers Inc., Norman, Okla., a corporation of Oklahoma
Filed Dec. 6, 1965, Ser. No. 512,276
12 Claims. (Cl. 62—45)



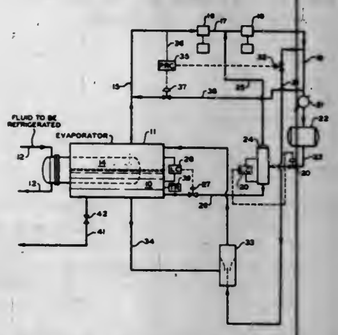
1. A method of storing and handling liquified gas at a storage tank transportation terminal facility, comprising the steps of:
receiving the liquid gas through a main supply line at ambient temperature and chilling the liquified gas to its atmospheric boiling point;
storing said atmospheric boiling liquified gas in an insulated container;
pumping the liquified gas from the storage tank to a transportation or secondary storage facility;
absorbing the boil-off gas from the chilling system, the storage tank, and the transportation or secondary storage facility, and storing the total volume of absorbent in an absorbent tank; and
recovering the liquified gas at ambient temperature from said stored absorbent liquid for addition back into the received main supply line of liquified gas for rechilling and storage.

3,320,757
CRYOGENIC PRESERVER
Richard S. Pauliukonis, Cleveland, Ohio, assignor to Cryobank, Inc., Cleveland, Ohio, a corporation of Delaware
Filed Apr. 15, 1966, Ser. No. 542,883
6 Claims. (Cl. 62—45)



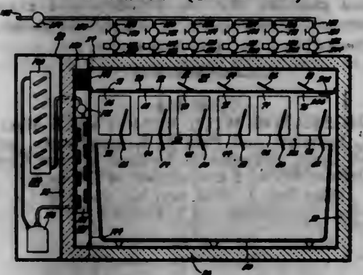
1. Cryogenic storage means comprising a vacuum jacket having an outer wall and having an inner wall defining a jacketed chamber, a transverse wall within the jacketed chamber dividing it into a liquid cell and an access cell, fluid line means for filling and venting the liquid cell, a portal opening from the exterior of said vacuum jacket into said access cell at a location spaced from said transverse wall, closure means for said portal, a plurality of hollow storage members having open or openable ends in communication with the access cell and extending through the transverse wall and into the liquid cell in sealed relationship therewith.

3,320,758
METHOD AND MEANS FOR COOLING COMPRESSOR RECYCLE GAS
Ernest A. Harper, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed June 21, 1965, Ser. No. 468,582
5 Claims. (Cl. 62—117)



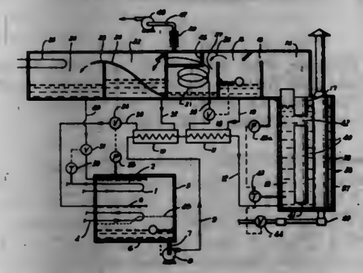
1. The method of maintaining a predetermined, substantially constant pressure on the suction of a compressor in a refrigeration apparatus comprising a compressor, condenser and evaporator which method comprises passing a portion of hot compressed gas from the compressor to the suction of the compressor in an amount sufficient to maintain a predetermined suction pressure on said compressor; and contacting said hot compressed gas with a sufficient amount of liquid withdrawn from said evaporator to cool said gas.

3,320,759
ICE MAKER WITH A PLURALITY OF UNITS
Thomas O. Mathews and Walter G. Kniffin, both of Dayton, Ohio, assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Nov. 26, 1965, Ser. No. 509,913
9 Claims. (Cl. 62—137)



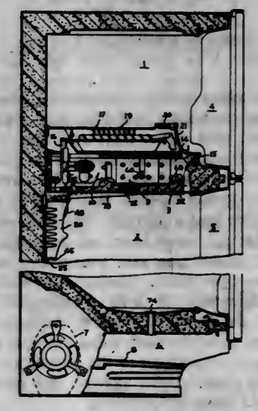
1. A multiple liquid freezer including an insulated cabinet provided with a storage bin, a plurality of automatic liquid freezing machines in said cabinet, each of said freezing machines comprising a mold and means for supplying liquid to be frozen to said mold and means for ejecting frozen liquid from said mold for delivery to said storage bin, a common refrigerating means for freezing said liquid in the molds of all of said machines, said refrigerating means comprising liquefying and evaporating means and means for circulating a gas into heat transfer with said evaporating means and said molds of said freezing machines to freeze the liquid, individual selective control means for individually controlling each of said freezing machines independently of said common refrigerating means, said control means having operating and off positions, and means responsive to the movement of one of said individual control means to the off position for substantially reducing the circulation of said gas only to the mold controlled by the same control means.

3,320,760
RAPIDLY VARIABLE CAPACITY ABSORPTION REFRIGERATION SYSTEM
Judson S. Swearingen, 2235 Carmelina Ave., Los Angeles, Calif. 90064
Filed Apr. 19, 1966, Ser. No. 543,749
10 Claims. (Cl. 62—141)



1. In an absorption refrigeration system which comprises a regenerated absorbent reservoir, a regenerated liquid refrigerant reservoir, an evaporator and absorber in open communication with one another, first and second conduit means connecting said refrigerant reservoir to said evaporator and said absorbent reservoir to said absorber, respectively, a regenerator, third conduit means connecting said absorber to said regenerator to conduct spent absorbent to said regenerator, and means connected to said regenerator for receiving absorbent and refrigerant from said regenerator and separating and cooling same and delivering them to said reservoirs respectively, the improvement which comprises an automatic flow controller in one of said first and second conduit means having a sensing control element exposed to a portion of the interior of the system affected by the refrigeration produced in the evaporator for sensing a condition in said portion significant of the refrigeration produced in said evaporator, whereby flow of one of said absorbent and refrigerant to said intercommunicating evaporator and absorber may be controlled by said condition to thereby control the refrigeration produced in said evaporator and maintain said condition within predetermined desired values.

3,320,761
SINGLE EVAPORATOR, SINGLE FAN COMBINATION REFRIGERATOR
Robert B. Gelbard, Louisville, Ky., assignor to General Electric Company, a corporation of New York
Filed May 12, 1965, Ser. No. 455,227
7 Claims. (Cl. 62—180)

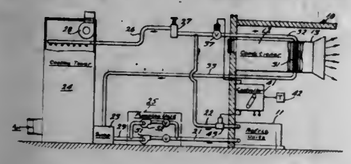


1. A refrigerator comprising:
a freezer compartment,
a fresh food compartment,
an evaporator chamber and an evaporator in said chamber,
refrigerant condensing means for supplying condensed refrigerant to said evaporator,
air circulating means including a single fan for circulating air from both of said compartments through said evaporator chamber and conducting a first stream of air from said chamber to said freezer compartment and a second stream of air from said chamber to said fresh food compartment,
means for mixing said second stream of air with air from said fresh food compartment prior to introduction thereof into said fresh food compartment,
and control means responsive to the temperature of the mixed air prior to the introduction thereof into said fresh food compartment for controlling said refrigerant condensing means.

3,320,762
AIR CONDITIONING SYSTEM WITH HEATING MEANS
John P. Murdoch, 3630 Haverford Ave., Philadelphia, Pa. 19104
Filed Dec. 8, 1965, Ser. No. 512,362
8 Claims. (Cl. 62—183)

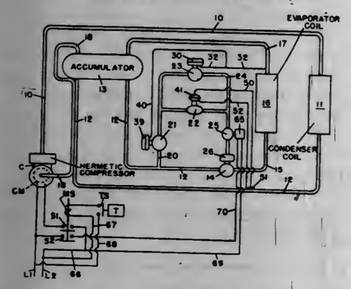
1. In a coolant system for an air conditioning system for use in buildings having refrigerated compartments, equipment, and the like therein, said air conditioning system comprising a conditioner for the air in said building and a blower for discharging the conditioned air into

said building, said refrigerated compartments, equipment, and the like having at least one refrigerating unit embodying a condenser operable to be cooled by a liquid coolant, an inlet line to supply liquid coolant to said unit, and an outlet line to discharge the liquid coolant from said unit; said coolant system including a discharge line, a valve intermediate said outlet line and said discharge line, pressure control means to maintain pressure in said liquid coolant in said inlet line to cause flow of coolant through said condenser, a first branch line connected to said outlet line, a second branch line connected to said inlet line, a reclaimed heat coil in said air conditioning system adjacent said blower in the path of the air being discharged into the building by said blower, said coil being connected at one end of said first branch line and



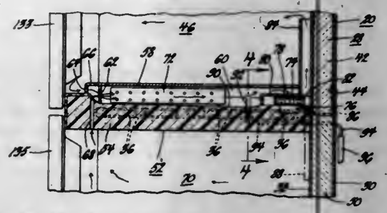
connected at the other end to said second branch line to form a reclaimed heat loop including said inlet line, said refrigeration unit, said outlet line, said first branch line, said coil, and said second branch line; energizable means in said loop downstream of said outlet line and upstream of said inlet line operable when energized to afford flow through said loop and operable when de-energized to prevent flow through said loop, a controller operable to energize and de-energize said energizable means, and thermostat means operatively connected to said controller to control energization of said energizable means to thereby control the flow of coolant through said loop, the improvement wherein said valve is biased toward a closed position and responsive to the pressure of the coolant in said outlet line to open against said bias when the flow through said loop is restricted.

3,320,763
CONTROLS FOR REFRIGERATION SYSTEMS
James R. Harnish, Staunton, Va., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Nov. 19, 1965, Ser. No. 508,736
9 Claims. (Cl. 62—197)



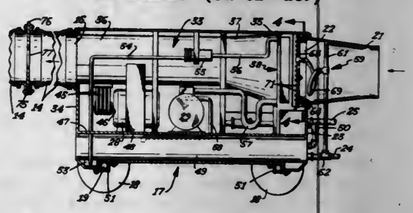
1. In a refrigeration system having a compressor, a condenser, an expansion valve and an evaporator connected in series in a refrigeration circuit; a pilot valve having an inlet connected to said circuit between said condenser and said expansion valve to receive refrigerant liquid from said circuit, said pilot valve having an outlet, said pilot valve having means including means responsive to the pressure and the temperature of the refrigerant liquid leaving said condenser for opening and closing said pilot valve, said expansion valve having a chamber connected to said outlet of said pilot valve for receiving refrigerant liquid from said pilot valve when said pilot valve is open, and means including means responsive to the pressure of the liquid entering said chamber for adjusting said expansion valve towards open position on an increase in the pressure of the liquid entering said chamber and for adjusting said expansion valve towards closed position on a decrease in the pressure of the liquid entering said chamber.

3,320,764
REFRIGERATOR WITH REMOVABLE WALL
Orson V. Saunders and Paul E. Kronenberger, both of Dayton, Ohio, assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Feb. 1, 1966, Ser. No. 524,014
4 Claims. (Cl. 62—419)



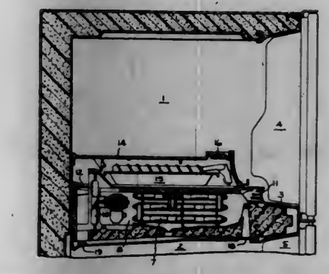
1. A refrigerator including a cabinet having top and bottom and side and rear insulated walls enclosing a compartment, a removable dividing means supported intermediate the top and bottom walls within said compartment extending to the rear wall and from one side wall to the other, said side walls having sheet metal forming their inwardly facing surfaces, said sheet metal having a series of apertures extending horizontally along said removable dividing means for reducing heat transfer between the portions of the sheet metal above and below the dividing means, said sheet metal being provided with projecting flanges bordering said apertures for removably supporting said dividing means, said removable dividing means comprising duct means extending within said dividing means and air cooling refrigerant evaporating means located within said duct means, and fan means for circulating air from said compartment through said duct means and said evaporating means and returning the air to said compartment.

3,320,765
MINE COOLING UNIT
Rollin S. Chapple, 6705 West Trail, and John F. Siegel, 4008 Wood End Drive, both of Edina, Minn. 55424
Filed Feb. 18, 1966, Ser. No. 528,492
11 Claims. (Cl. 62—239)



1. A mine cooling unit comprising a carriage; a housing carried by said carriage; said carriage and housing being of a size capable of being positioned in and moved along a mine passage; said housing including an air intake, an air outlet and an air passageway extending between said air intake and said air outlet; a fan positioned in said air passageway for drawing air therethrough; a motor located adjacent said air passageway and operatively connected with said fan; refrigeration apparatus located substantially in said housing, said refrigeration apparatus comprising a compressor, a condenser and an evaporator coil; said coil being located within said air passageway between said air intake and said fan and having sufficiently small air passages therethrough to prevent debris of any substantial size from engaging said fan; said condenser being located adjacent to the bottom of said housing and said motor and said compressor being located below said air passageway and adjacent said condenser.

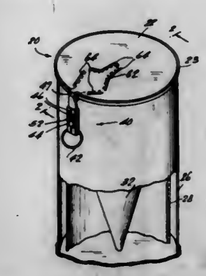
3,320,766
HOUSEHOLD REFRIGERATOR INCLUDING IMPROVED DEFROSTABLE EVAPORATOR CONSTRUCTION
Ralph E. King, Louisville, Ky., assignor to General Electric Company, a corporation of New York
Filed Sept. 27, 1965, Ser. No. 490,226
2 Claims. (Cl. 62—276)



1. A refrigerator comprising a storage compartment and an evaporator chamber separate from said compartment and containing an evaporator normally operating at frost collecting temperatures,
means for circulating air from said compartment through said evaporator chamber in heat exchange relationship with said evaporator,
said evaporator comprising a plurality of spaced sections,
each of said sections including a plurality of spaced transverse tubular refrigerant conduits and a plurality of spaced longitudinally extending wires connected to said conduits, and in which the ratio of conduit surface to wire surface is from 1:2 to 1:4,
a radiant heater for periodically warming said evaporator to defrost temperatures comprising a tube of insulating heat transmitting material, and a radiant heater coil in said tube extending substantially the full length thereof,
and means for mounting said heater between and spaced from adjacent sections of said evaporator with said tube extending transversely thereof,
the length of said tube being substantially equal to the width of said evaporator whereby substantially all portions of said conduits and wires are directly exposed to radiant heat from said heater.

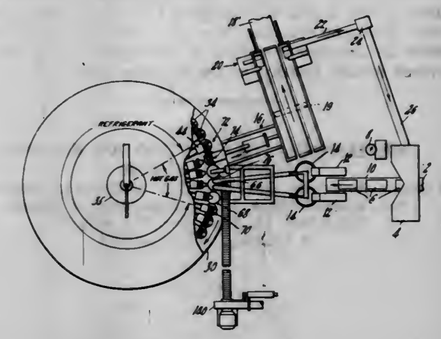
3,320,767
SELF-CHILLING DISPOSABLE CONTAINER
George J. Whalen, 95—34 117th St., Richmond Hill, N.Y. 11418
Filed Sept. 23, 1965, Ser. No. 489,623
5 Claims. (Cl. 62—294)

1. A self-chilling disposable refrigerating container comprising a top, a bottom, and side walls, said top having a vent therein, vent closure means for closing said vent integrally formed with said top, said top having an access hole therein extending inwardly from the peripheral edge thereof, a frangible access closure for closing said access hole integrally formed with said top, and opening means connected to said vent closure and said access closure for successively opening said vent and then said access hole upon removal of said opening means from said



container, a concave downwardly depressed central liner secured to said top surrounding said vent and spaced therefrom, said central liner having a central aperture therein spaced from and in alignment with said vent, and porous foam material disposed between said top and said central liner.

3,320,768
REFRIGERATION APPARATUS FOR FREEZING A PRODUCT UNDER PRESSURE
La Vern H. Barrett, Gloucester, Mass., assignor to The Gorton Corporation, Gloucester, Mass., a corporation of Massachusetts
Filed Aug. 11, 1965, Ser. No. 478,794
30 Claims. (Cl. 62—303)

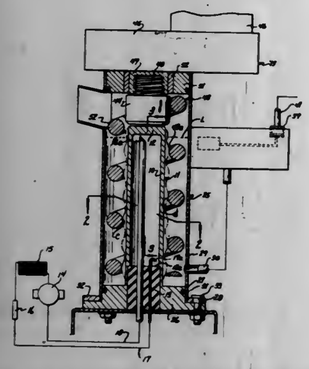


1. Freezing apparatus comprising a plurality of freezing tubes adapted to receive material to be frozen, a filling mechanism by which the tubes are successively filled and an unloading mechanism for unloading frozen material from said tubes in succession, said tubes being relatively movable with respect to said filling mechanism and said unloading mechanism, driving mechanism to produce such relative movement so that said tubes in succession and said filling mechanism are positioned with respect to each other for filling of said tubes successively by said filling mechanism and so that said tubes in succession and said unloading mechanism are positioned with respect to each other for unloading of the filled tubes successively by said unloading mechanism, mechanism for refrigerating the contents of the tubes during said movement, and mechanism for producing a condition of lowered air pressure within the freezing tube during filling thereof.

3,320,769
AUGER ICE MAKING MACHINE

Anthony J. Ross, 528 74th St., Holmes Beach, Fla. 33510

Filed May 24, 1966, Ser. No. 552,458
18 Claims. (Cl. 62—354)

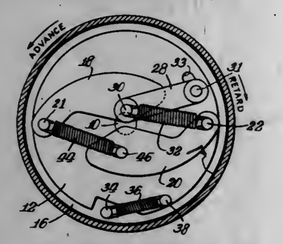


1. In an apparatus for producing flake ice including an evaporator having a cylindrical freezing wall and means for refrigerating the same sufficient to freeze water thereon, means for supplying water to be frozen to said freezing wall, a rotary ice remover supported for axial rotation relative to said cylindrical freezing wall and having a helical ice engaging surface, and means for rotatably driving said ice remover, characterized in that the cylindrical freezing wall has a circular configuration as viewed in axial direction and the helical ice engaging surface has a noncircular configuration as viewed in a direction axially of the ice remover whereby different portions of the helical ice engaging surface are spaced relatively different distances from the freezing wall and generate an undulated surface of revolution as the ice remover rotates relative to the freezing wall.

3,320,770
MECHANICAL DEVICE FOR AN ENGINE IGNITION TIMER

Louis A. Bevacqua, Des Plaines, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois

Filed July 12, 1965, Ser. No. 470,994
7 Claims. (Cl. 64—25)

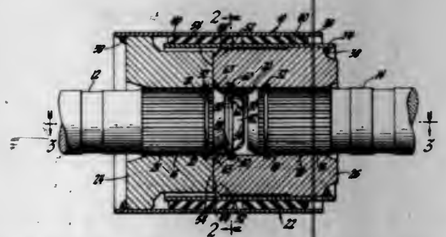


1. A centrifugal mechanism including in combination, a first shaft with a first plate fixedly mounted thereto, a second shaft with a second plate fixedly mounted thereto, said second shaft being coaxial with and rotatably mounted with respect to said first shaft, and coupling means for rotating said second plate relative to said first plate including centrifugal weights at least one of which is pivotally mounted to said first plate, first spring means connecting said weights to said first plate, a spring post mounted to said second plate, second spring means connecting said post to said first plate, and linking means coupled to said weights and to said second plate and responsive to initial movement of said weights in an outwardly direction for moving said second plate in one direction relative to said first plate, said first spring means resisting said outward movement of said weights, said linking means being responsive to continued outward movement of said weights for moving said second plate relative to said first plate in the direction opposite to said one direction, and said second spring means resisting said relative movement of said second plate in the direction opposite to said one direction.

3,320,771
DRIVE SHAFT WITH LIMITED TORSIONAL RESILIENCE

Jerry M. Roethlisberger, Bridgeport, and Elmer R. Wagner, Bay City, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Sept. 20, 1965, Ser. No. 488,379
8 Claims. (Cl. 64—27)



1. A drive shaft assembly of limited torsional resilience comprising

first and second shaft members coaxially disposed and having opposed ends in abutting relationship,

torsionally resilient means connecting said shaft members to absorb torsional vibrations and transmit torque between said members in proportion to their relative angular displacement from a nominal position, said means being radially stiff to hold said hub members in coaxial alignment,

interlocking means on said first and second shaft members to limit the relative angular displacement of said members and form a solid driving connection between them when said limit is reached, said interlocking means having internal arcuate groove portions located so as to form a substantially annular internal groove and

retaining ring means received in said arcuate groove portions to retain said shaft members in abutting and driving relationship upon failure of said resilient means.

3,320,772
CLUTCH DEVICE

John W. Saxton, Fort Dodge, Iowa, assignor to The Standard Engineering Company, Fort Dodge, Iowa

Filed Nov. 12, 1964, Ser. No. 410,677
7 Claims. (Cl. 64—30)

1. In a clutch device,

a hub means having a cylindrical portion, a groove formed in said cylindrical portion adjacent to one end of said hub means, a disc shaped backing plate operatively secured at its center to the other end of said hub means,

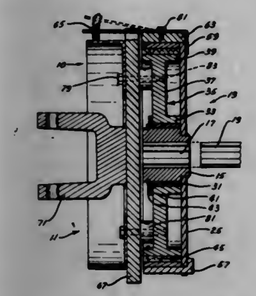
a cylindrical bushing rotatably embracing said hub means between said backing plate and said groove,

a wheel means having a central portion embracing said bushing and a flange portion extending radially outwardly therefrom which terminates in a rim portion disposed at a right angle thereto,

a snap ring in said groove to maintain said bushing and said wheel means on said hub means,

a lining means yieldably rotatably embracing said rim portion,

an adjustable split band means yieldably rotatably embracing said lining means,



means rigidly connecting said split band and said backing plate,

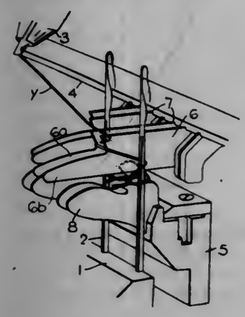
said hub means being adapted to be operatively connected to an output drive means,

said wheel means being adapted to be operatively connected to an input drive means.

3,320,773
STRAIGHT BAR KNITTING MACHINES

Ernest Start, Ruddington, and Raymond Blood, Shepshed, Loughborough, England, assignors to William Cotton Limited

Filed Dec. 22, 1964, Ser. No. 420,311
Claims priority, application Great Britain, Dec. 27, 1963, 51,073/63
6 Claims. (Cl. 66—109)

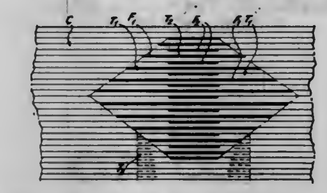


1. In a straight bar knitting machine having a predetermined coarse gauge, in combination, a single row of needles extending parallel to each other in a first direction and consisting of all the needles of the machine extending in said first direction, said needles being spaced predetermined equal pitch distances from each other according to said coarse gauge; and a row of yarn controlling means spaced predetermined equal distances from each other, consecutive yarn controlling means being located between consecutive adjacent needles and each including at least one pair of like yarn controlling elements extending parallel to each other in a second direction transverse to said first direction; and means for operating said row of yarn controlling means and said row of needles in timed relation, said operating means operating all the needles extending in said first direction to cooperate with the respective yarn controlling means.

3,320,774
CIRCULAR-KNITTED STOCKINGS AND METHOD

Giorgio Billi, Viale Torricelli 23, Florence, Italy

Filed Feb. 24, 1965, Ser. No. 434,899
Claims priority, application Italy, Mar. 18, 1964, 1,622/64
7 Claims. (Cl. 66—182)

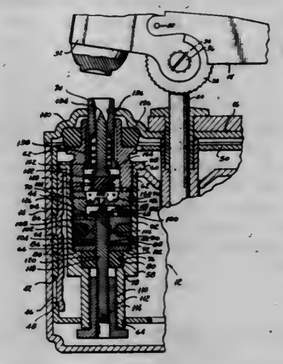


1. A stocking formed from tubular fabric which has been produced by the continuous rotation of the needle cylinder of a circular knitting hosiery machine and having reinforcement or splicing at the heel, the reinforcement extending over a central zone flanked by two lateral zones of substantially triangular shape, the reinforcement on said lateral zones being formed by a splicing yarn which has been introduced into spaced-apart courses of stitches, and the reinforcement of said central zone being formed both by the extension thereacross of the reinforcement of the lateral zones and by the introduction of a splicing yarn into intermediate courses of stitches in said central zone.

3,320,775
TEMPERATURE COMPENSATED GAS CONTROL VALVE

Ivan A. Wright, Pearl River, N.Y., assignor to Jacques Kreisler Manufacturing Corporation, North Bergen, N.J., a corporation of New Jersey

Filed July 16, 1965, Ser. No. 472,616
7 Claims. (Cl. 67—7.1)

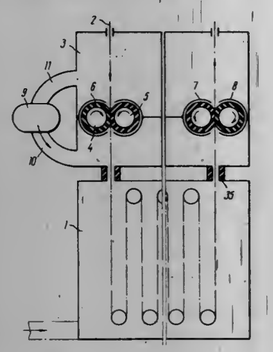


1. In a gas fueled lighter having a reservoir holding a supply of normally gaseous liquefied fuel, said reservoir having opposed walls, a valve assembly including a valve housing providing a fuel passage, means mounting said housing between said walls, a burner, means supporting said burner in said passage adjacent one of said walls, an element forming a valve seat, means positioning said element in said passage between said walls, a valve adapted to cooperate with said seat to form a flow control opening for fuel flowing between said reservoir and said burner, means mounting said valve for movement away from said burner and toward said seat to reduce said opening and for movement away from said seat and toward said burner to enlarge said opening, and means accessible from outside the other wall for moving said valve.

3,320,776
APPARATUS FOR PRESSURE TREATING OF TEXTILES

Leonid Grigorjevich Gorodissky and Nickolai Tikhonovich Romanov, both of Moscow, U.S.S.R., assignors to Tsentralny Nauchno-Issledovatelsky Institute Shelkovoi Promyshlennosti, Moscow, U.S.S.R.

Filed July 27, 1964, Ser. No. 385,355
4 Claims. (Cl. 68—5)



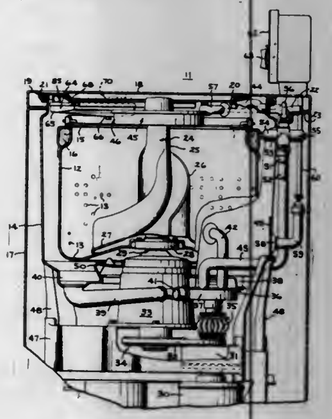
1. Apparatus for treating fabric under pressure comprising: a pressure chamber provided with two holes for fabric inlet and outlet; two housings arranged respectively at the inlet and the outlet of said chamber; a pair of rolls mounted in each of said housings for relative movement towards and away from each other, the rolls being adapted to rotate in opposite directions to pass the fabric through said pressure chamber for treatment; a ring for each roll mounted in an associated housing in spaced relation therewith, each of said rings enveloping the respective roll in close fitting relation; means supporting said rings for conjoint movement with their respective rolls and for adjusting the relative position between each of said rolls and its respective ring; means for sealing the spaces between said rings and the respective housing, and effective to maintain such seal upon conjoint movement of said rolls and their respective rings, as well as during adjustment of the relative position of each roll and its associated ring; and means for supplying a working medium under pressure into said housings and pressure chamber, and due to which pressure said rolls are urged agaist one another, the movable support of the rolls and rings enabling their conjoint movement in the event of variation of thickness of the fabric.

3,320,777
AUTOMATIC WASHING MACHINE INCLUDING DISPENSING MEANS

Everett D. Morey, Louisville, Ky., assignor to General Electric Company, a corporation of New York

Filed Aug. 9, 1965, Ser. No. 478,266
5 Claims. (Cl. 68—12)

1. A washing machine including:
(a) container means to receive water and clothes to be washed in the water;
(b) flexing means to flex the clothes in said container means;
(c) water supply mechanism to supply water to said container means;
(d) drain means to effect discharge of water from said container means;
(e) first storage means for bleach to be added to said container means, a first valve associated with said first storage means operative to effect transfer of bleach from said first storage means to said container means;
(f) second storage means for rinse agent to be added to said container means, said second storage means being formed as an open-top receptacle;
(g) water diversion means for causing a portion of the water supplied to said container means to flow through said second storage means and transfer rinse agent from said second storage means by overflow through the open top of said second storage means to said container means; said diversion means including second valve means normally blocking flow of the diverted water to said second storage means and operative to allow flow of the diverted water through said second storage means;

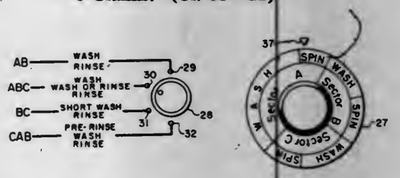


(h) and sequence control means for causing operation in sequence of said water supply mechanism, said flexing means and said drain means, said sequence control means providing said sequence at least twice during a cycle of operation to provide a wash sequence followed by a rinse sequence;
(i) said sequence control means being effective to operate said first and said second valves concurrently during at least a portion of the wash sequence in which said flexing means is operated and during at least a portion of the rinse sequence in which said water supply mechanism is operated.

3,320,778
WASHING MACHINE HAVING MULTIPLE ELECTIVE CYCLES

Frank D. Low, La Grange Park, Ill., assignor to General Electric Company, a corporation of New York

Filed Feb. 1, 1966, Ser. No. 524,293
6 Claims. (Cl. 68—12)



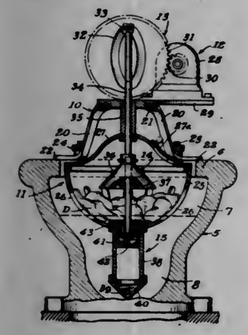
1. In a fabric washing machine incorporating components for providing fabric-washing and liquid-extraction operations, sequence control means comprising:
(a) means for providing at least three distinct sectors, each sector including a washing operation followed by an extraction operation, the first of said sectors having at least one operation of different length from the second and third sectors;

(b) first means for terminating operation of said machine at the end of said second sector;
(c) second means for terminating operation of said machine at the end of said third sector;
(d) bridging means having first and second positions for selectively and alternatively rendering said first or second terminating means inoperative; and
(e) manual means for selectively starting operation of said machine at the desired one of said sectors.

3,320,779
DIAPER WASHER

Samuel J. Kent, 6432 Sunnyslope Ave., Van Nuys, Calif. 91401

Filed July 16, 1965, Ser. No. 472,481
2 Claims. (Cl. 68—51)



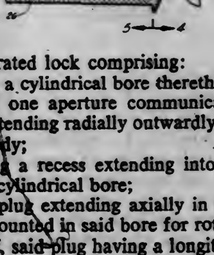
1. A diaper washer for mounting on the top rim of a toilet bowl so as to wash with the water residual in the bowl after the same has been flushed, said washer comprising:
(a) a mounting frame with portions adapted for demountable engagement with said bowl rim,
(b) a washer bowl having water-passing openings and fixedly carried by said frame to extend into the toilet bowl and partly into the water therein,
(c) a pump cylinder extending from the bottom of the washer bowl and provided with a foot check valve that opens to flow of water from the toilet bowl from beneath only,
(d) a rod extending through the washer bowl and into the pump cylinder,
(e) a plunger on said rod end operating in said cylinder and opening to flow from beneath only to displace water from said cylinder into the washer bowl, and
(f) means to reciprocate said rod to establish water circulation upwardly through said valve and outwardly through the holes in the washer bowl.

3,320,780
APPARATUS FOR CLEANING OF SPOTTED FABRICS

Richard O. Frahm, 2480 16th St. NW., Washington, D.C. 20009

Filed Nov. 16, 1964, Ser. No. 411,220
7 Claims. (Cl. 68—240)

1. A spotting apparatus comprising, in combination:
(a) a cabinet having a hollow base section provided with an upper surface for supporting the fabric to be cleaned,
(b) said cabinet having a hollow column section extending upwardly from and communicating with said hollow base section, and
(c) said cabinet having a hollow head section communicating with said column section and extending therefrom over the said upper surface of said base section in spaced relation thereto,
(d) said cabinet comprising means for illuminating said upper surface of said base section, said means being mounted in the under-side of said hollow head section,
(e) a plurality of pressure receptacles for spotting fluids housed in said base section,

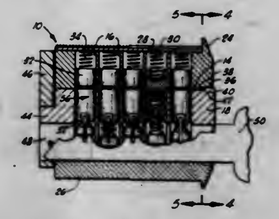


(f) delivery conduit means for said receptacles communicating therewith adjacent the bottoms thereof, said delivery conduit means having retractable portions and extending upwardly through said column section and being guided for longitudinal movement in said head section and extending through apertures in the lower portion of said head section and being extensible and retractable through said apertures,
(g) a spray gun at the free end of each of said conduit means adapted to be operated to effect spraying of the spotting fluid contained in the receptacle associated therewith onto a selected portion of a fabric displayed on said upper surface of said base portion of said cabinet, and
(h) means within said cabinet for retracting each of said conduits to dispose its spray gun in a position close to the underside of said head section when not in use.

3,320,781
KEY OPERATED LOCKS

Lewis J. Hill, 1121 Linwood, Oklahoma City, Okla. 73106

Filed Aug. 28, 1964, Ser. No. 393,493
7 Claims. (Cl. 70—384)



1. A key operated lock comprising:
a body having a cylindrical bore therethrough and having at least one aperture communicating with said bore and extending radially outwardly from said bore into said body;
means forming a recess extending into said body adjacent said cylindrical bore;
an elongated plug extending axially in said cylindrical bore and mounted in said bore for rotation about the axis thereof, said plug having a longitudinaly extending key slot therein for receiving a main key;
means in said lock forming a change key passageway in said plug, said change key passageway extending in substantially the same direction as said cylindrical bore and adapted for receiving a change key therein;

a plate pivotally mounted on said plug closing said change key passageway, said plate being constructed to be moved into said recess and open said passageway upon insertion of said change key when said plug is in a second rotational position relative to said body wherein said plate and recess are radially aligned;

tumbler means carried by said plug and movable radially in said cylindrical bore, said tumbler means registering with the apertures in said body in one rotational position of said plug relative to said body and adapted to engage the milled edge of a main key inserted in said key slot, said tumbler means including:

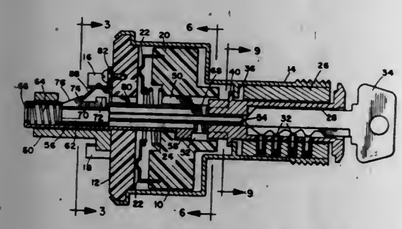
a plunger positioned for radial movement in said plug,

main key-following extensible means adjustably attached to said plunger for varying the dimension of said tumbler means as measured in a radial direction relative to said cylindrical bore, and

latch means releasably and adjustably securing said extensible means to said plunger to prevent relative movement in a radial direction therebetween, said latch means extending into said change key passageway for cooperation with a change key inserted into said change key passageway to release said extensible means from said plunger, whereby the extensible means cam move relative to said plunger to change the dimension of said tumbler means; and

a driver member movably disposed in each of said apertures in said body adapted to coact with said tumbler means to lock said plug against rotational movement in said bore when said plug is in said one rotation position relative to said body and when the main key is removed from said main key slot.

3,320,782
IGNITION SWITCH WITH KEY EJECTOR
Thomas B. Turman, Spring Valley, Calif., assignor of twenty percent to Arthur S. Schafer
Filed Jan. 10, 1966, Ser. No. 519,754
5 Claims. (Cl. 70—388)



1. In combination with a lock having a body structure, a barrel mounted in one end of said body structure and being rotatable between a locked position and at least one unlocked position, a longitudinal key receiving keyway in said barrel, and key released locking means holding said barrel against rotation within the body structure, the improvement of key ejecting means comprising:

a key ejecting pin longitudinaly slidably mounted in said barrel and extending along said keyway;

said ejection pin being coupled to said barrel to rotate therewith;

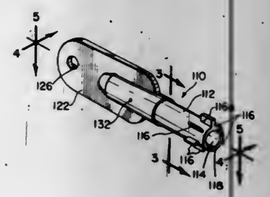
ejection spring means biasing said ejection pin into said keyway;

detent means mounted on the other end of said body structure;

said ejection pin having a retaining portion engageable with said detent means when the pin is fully retracted by insertion of a key into said keyway with said barrel in locked position, and disengaging therefrom when the barrel is rotated to an unlocked position;

said ejection pin having a latching portion engageable with said detent in unlocked position of said barrel, and disengaging therefrom to release the ejection pin when the barrel is returned to locked position, whereby the key is ejected.

3,320,783
KEY FOR AN AXIAL TUMBLER TYPE LOCK
William J. Kerr, Glenview, Ill., assignor to Chicago Lock Co., Chicago, Ill., a corporation of Illinois
Filed Dec. 9, 1966, Ser. No. 600,551
3 Claims. (Cl. 70—401)

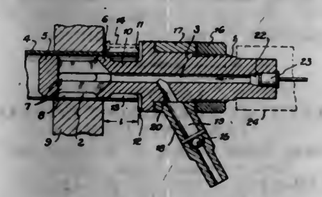


1. A key for an axial tumbler type lock, said key comprising a cylindrical shank adapted to be projected forwardly endwise into the lock opening the forward end of the shank being formed with a thin-walled pilot socket therein presenting a circular rim opening for reception over the lock center post, an annular series of fins formed integrally on the forward end region of said shank in the vicinity of said socket, said fins being seven in number and being circumferentially spaced around the cylindrical surface of the shank and projecting raidally outwardly from the wall of the socket, six of said fins constituting tumbler-engaging fins in the form of relatively thin plate-like protuberances which lie in longitudinally extending radial planes with respect to the longitudinal axis of the shank and present radially extending forward edges variously spaced rearwardly from said circular rim of the socket and designed for engagement with the front ends of respective split tumblers associated with the lock, said six fins being of equal radial extent, the seventh fin constituting a torque-applying fin designed for sidewise engagement with a torque-receiving shoulder associated with a rotatable portion of the lock, said latter fin being of greater radial extent than the radial extent of the tumbler-engaging fins, and a torque-applying handle on the rear end region of said shank.

3,320,784
TOOL FOR SECURING THIN-WALLED TUBES IN TUBE PLATES
Hermann Heeren, Wolfgang Pohl, and Bernhard Dege, Nurnberg, Germany, assignors to Maschinenfabrik Augsburg-Nurnberg AG., Nurnberg, Germany
Filed Jan. 22, 1965, Ser. No. 427,265
7 Claims. (Cl. 72—56)

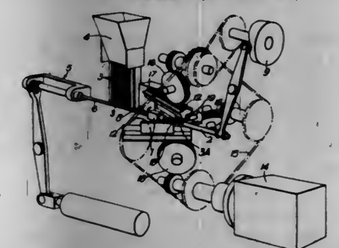
1. A tool for securing a tube end to a tube plate by expanding the tube end in a hole in the tube plate comprising a tool body insertable within the tube, a longitudinally extending passageway in said body, a pair of spaced lands smaller than the interior of the tube at one end of said body, a reduced body portion between said lands for forming a pressure chamber betwen the reduced body portion and the inner wall of the tube, holes through said reduced body portion for establishing communication between said passageway and said chamber,

pipe means including a check valve means attached to said body for supplying a fluid pressure medium into said passageway and said chamber, and explosive replaceable



cartridge means joined to said body for applying an explosive pressure force to said fluid medium to expand that part of the tube exposed to said chamber.

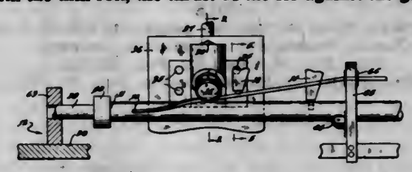
3,320,785
MACHINE FOR FORMING HELICALLY FLUTED ROD-LIKE ARTICLES
Alan Manson Mooney, Kiveton Park, England, assignor, by mesne assignments, to Arnold Gascoigne, Sheffield, England
Filed Apr. 29, 1964, Ser. No. 363,543
Claims priority, application Great Britain, May 2, 1963, 17,431/63
7 Claims. (Cl. 72—95)



1. A machine for forming flutes in a rod blank and comprising means for supporting and guiding the blank for lengthwise movement in the axial direction of the blank, a plurality of forming bars, means for supporting and guiding the bars for rectilinear lengthwise movement of the bars in planes parallel to the said direction of movement with their lengths oblique to said direction, said bars co-operating to form a flute forming die-ring perpendicular to said direction and around the axis of the supported blank, and means for advancing the bars in the lengthwise directions thereof in pressure engagement with the blank to form flutes in the blank to effect lengthwise movement of the blank through the said die-ring and to rotate the blank.

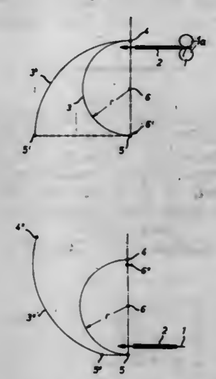
3,320,786
APPARATUS FOR WELDING A SPIRAL RIB TO A BODY
Leonard R. Vancott, San Jose, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed July 9, 1964, Ser. No. 381,602
1 Claim. (Cl. 72—95)

Apparatus for wrapping a rib about a circular cylindrical object and welding the base of the rib to the object, said apparatus comprising means for rotating the object about its axis while shifting it therealong, a support body having a narrow flat slot, a short bore intersecting the slot perpendicularly thereto, and a long bore extending at an angle appreciably less than 90° with respect to the slot, a short thin roll fitting the slot and protruding from the body so as to be engageable with one side of the rib, a short pin located in the short bore and extending through the thin roll so as to retain it in the slot and provide it with an axis of rotation, a long bushing positioned in the long bore and fixed against rotation and axial movement with respect to the body, a long shaft journaled in the bushing, a grooved roll fixed to one end of the shaft and being engageable with the top of the rib and with the side of the rib opposite that engageable with the thin roll, the thrust of the rib against the grooved



roll being transmitted by the latter against the adjacent end of the bushing and by the shaft against the interior of the bushing, a thrust washer mounted on the shaft and acting against the end of the bushing remote from the grooved roll, and a nut threaded to the end of the shaft remote from the grooved roll and tightened against the thrust washer to keep the grooved roll in contact with the bushing.

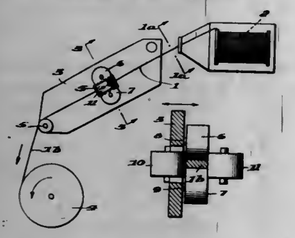
3,320,787
APPARATUS FOR PRODUCING HELICAL SEAM PIPES
Vilem Eckhardt, 7 Rue l'Arcade, Paris, France
Filed Nov. 4, 1963, Ser. No. 321,082
Claims priority, application Germany, Nov. 7, 1962, E 23,815
4 Claims. (Cl. 72—135)



1. An apparatus for producing helical seam pipes of different diameters from flat metal strip material, comprising a forming tool consisting of an elastically deformable plate adapted to be bent to different concave shapes and having substantially parallel inlet and outlet edges, feeding means for feeding a flat metal strip toward and against said concave plate near said inlet edge thereof in a direction at an angle differing from a right angle to the surface of said plate and then along said plate toward and beyond said outlet edge, whereby said strip is bent on the concave surface of said plate continuously into a helical shape, said forming tool and said feeding means being adjustable relative to each other to vary said angle, said apparatus further comprising means for guiding at least one of said edges of said plate to different points between one position in which said plate is bent so as to have a minimum radius of curvature and a maximum sector angle limited by said inlet and outlet edges and another position

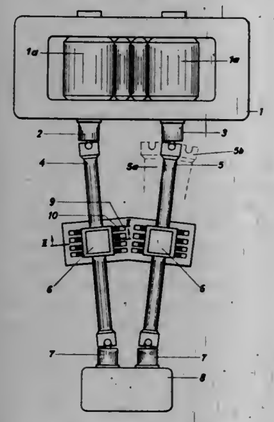
in which said plate is bent so as to have a maximum radius and a minimum sector angle between said edges, and means for securing at least one of said edges in the adjusted positions at said points.

3,320,788
APPARATUS FOR WINDING ELECTRICAL COILS
Hans Meier, Muri, Switzerland, assignor to Micafil A.-G., Zurich, Switzerland, a joint-stock company
Filed Oct. 20, 1964, Ser. No. 405,222
Claims priority, application Austria, Dec. 19, 1963, A 10,251/63
2 Claims. (Cl. 72—224)



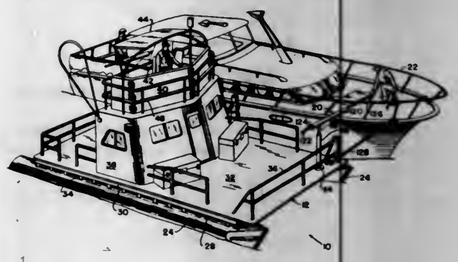
1. In a coil winding machine wherein an electrical coil is wound in a layer-by-layer manner onto a rotating coil form from wire drawn from a supply spool and wherein a reciprocating guide is interposed between the supply spool and coil form for guiding the wire onto the latter, the improvement wherein at least one set of spaced flattening rolls is mounted on said wire guide and between which the wire initially in round form on said supply spool is pulled and deformed into a calibrated flattened cross-section having at least two oppositely disposed parallel flattened sides.

3,320,789
SUPPORT MEANS FOR THE DRIVE SHAFTS OF HORIZONTAL ROLL STANDS
Werner Marx, Dusseldorf, Germany, assignor to Schloemann Aktiengesellschaft, Dusseldorf, Germany
Filed Sept. 22, 1964, Ser. No. 398,336
Claims priority, application Germany, Oct. 17, 1963, Sch 34,005
8 Claims. (Cl. 72—249)



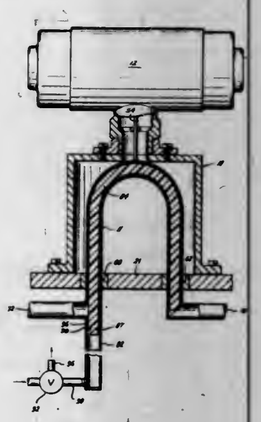
1. Means for supporting the drive shafts of rolling-mill rolls mounted side by side in a horizontal plane in a horizontal roll stand, comprising: a stationary bed fixed in the roll stand for each drive shaft, a base-plate horizontally movable upon the said bed, and rolling bearing elements interposed between the bed and the base-plate, so arranged as to permit horizontal movement of the base-plate in the direction of roll adjustment, the effort required for moving the base-plate being transmitted thereto exclusively by the drive shaft itself.

3,320,790
STRUCTURE FOR AIDING COMPASS COMPENSATION
Oscar James Gagne, 90 N. Deeplands, Grosse Pointe, Mich. 48236
Filed Feb. 1, 1965, Ser. No. 429,263
9 Claims. (Cl. 73—1)



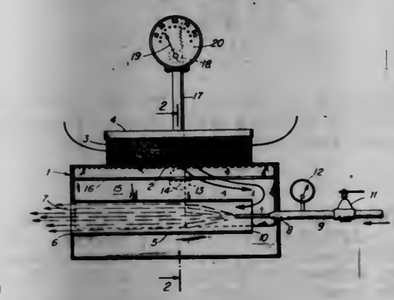
9. The method of verifying the reading of a magnetic compass on a boat comprising securing the boat to a floating platform, rotating the boat and platform into alignment with predetermined directions and checking the magnetic compass readings with the boat aligned in the different directions with the readings of a gyrocompass positioned on said floating platform.

3,320,791
APPARATUS FOR MEASURING DENSITY
William B. Banks, Houston, Tex., assignor to Automation Products, Inc., Houston, Tex., a corporation of Texas
Filed Sept. 24, 1964, Ser. No. 398,980
11 Claims. (Cl. 73—32)



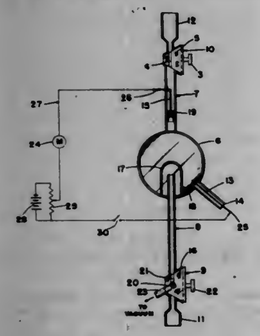
3. A calibration apparatus for calibrating a density measuring apparatus which has a hollow body for conducting and measuring the density of flowing material, comprising,
a housing in communication with the body and having an internal diameter substantially equal to that of the body,
a calibration rod slidable in and normally positioned in said housing,
fluid means connected to said housing for moving the calibration rod into and out of the body.

3,320,792
AIR FILTER TESTER
Anthony Peranio, Brooklyn, N.Y., assignor to Mobil Oil Corporation, a corporation of New York
Filed Sept. 16, 1964, Ser. No. 396,976
7 Claims. (Cl. 73—38)



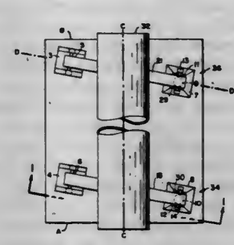
1. A filter tester comprising:
(a) a chamber,
(b) a first opening in said chamber adapted to receive the filter thereover,
(c) means to reduce the pressure in said chamber relative to ambient pressure,
(d) means to monitor a variable which is a function of the pressure in said chamber,
(e) a second opening in said chamber,
(f) cover means to adjustably restrict the area of said second opening, and
(g) means to monitor the magnitude of the air flow through said second opening,
wherein air is drawn into said chamber through said first and second openings, the flow of said air entering through said second opening being in proportion to the restrictions placed across said first opening due to the limited porosity of a filter placed thereover.

3,320,793
LIQUID PROPELLANT PIEZOMETER
James F. Kowalick, Southampton, Pa., assignor to the United States of America as represented by the Secretary of the Army
Filed Apr. 5, 1965, Ser. No. 445,805
5 Claims. (Cl. 73—53)



1. A liquid propellant piezometer comprising in combination, a central hollow body portion having two tubular conduit arms extending therefrom in substantially opposite directions and communicating with the interior thereof, an inner casing providing a liquid trap enclosure within said body portion for the inner end of a first of said conduit arms and having an opening in a wall thereof communicating with the interior of said body portion, means providing a capillary restriction in the second and opposite conduit arm, a pointed contact wire extending into said capillary restriction and having a sealed external terminal, a tubular filling reservoir connected with said second conduit arm and capillary element, two-way control valve means connected in said second conduit arm between said reservoir and said restriction means, a second tubular filling reservoir connected with the first conduit arm and communicating therewith, three-way valve means in said connection providing selective flow control therefor, said valve means having an outlet port provided with a conduit for connection with a vacuum source and a rotatable valve element providing said port and having a second radial conduit element adapted for rotation into connection with said last named tubular conduit or said last named filling reservoir selectively, and a second contact wire extending to the interior of the body portion and having an external seal and terminal, said terminals providing connections for electrical resistance measurements in determining a liquid level in the capillary element.

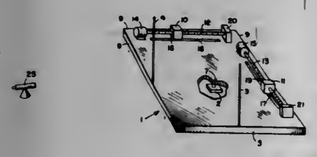
3,320,794
POSITIONING DEVICE FOR CENTER OF GRAVITY LOCATING APPARATUS
Joseph W. Monroe, Garland K. Grace, and Richard O. Hessler, Huntsville, Ala., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Army
Filed Oct. 20, 1964, Ser. No. 405,304
1 Claim. (Cl. 73—65)



A positioning device for a center of gravity locating apparatus comprising: a rectangular balance platform disposed horizontally and having a longitudinal center axis and fore and aft ends; a pair of elevated roller mounts mounted on said platform adjacent one side edge thereof and spaced apart longitudinally thereof, each roller mount having a rotatably driven roller mounted on the upper portion thereof; a pair of elevated piston mounts mounted on the balance platform adjacent the opposite side edge and spaced apart longitudinally thereof, each said piston mount having a vertically movable piston mounted therein, each said piston having a rotatable roller mounted on the upper portion thereof; each of the respective piston mounts being disposed relative to the respective roller mounts on opposite sides of said longitudinal platform axis in diagonally opposite relationship therewith, wherein the pair of mounts on one side of said longitudinal axis are disposed forwardly of the pair of mounts on the opposite side thereof; a pair of center mounts mounted on the longitudinal axis of said platform, one intermediate each of said diagonally opposed roller and piston mounts, each of said center mounts having a vertically adjustable roller carried by the upper end thereof; and,

a pair of continuous belts, one belt extending between the respective rollers of each pair of oppositely mounted roller and piston mounts and forming a cradle therebetween, the lower portion of each belt extending beneath one of said intermediate rollers.

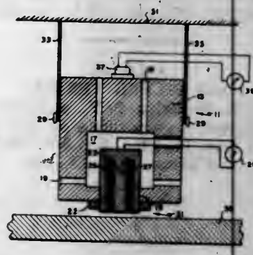
3,320,795
CENTER OF GRAVITY LOCATING DEVICE
Joseph W. Monroe, Garland K. Grace, and Richard O. Hessler, Huntsville, Ala., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Army
Filed Oct. 20, 1964, Ser. No. 405,308
2 Claims. (Cl. 73—65)



1. A center of gravity locating device comprising a horizontally disposed balance platform, said platform having a pair of elongated slots formed in adjacent perpendicular side edges thereof, a pair of counterweights, each of said counterweights being movably mounted adjacent said platform side edges and having a portion thereof received within one of said slots so as to be guided thereby, means for moving each of said counterweights in a vertical plane parallel to its respective platform edge, said means including a pair of motors and a threaded shaft operably connecting a respective motor with a respective counterweight, pivot means contacting the underside of said platform at the normal center of gravity thereof and forming the sole pivotal mounting means for said platform, and visual aligning means including a pair of vertically extending sight bars attached to perpendicular edges of said platform, said sight bars being located on said edges in such a manner that a straight line formed between the point of contact of either of said sight bars with said platform and the center of gravity of said valance platform will be parallel to the line along which one of said counterweights move and perpendicular to the line along which the other counterweight moves, said visual aligning means further including a pair of fixed scopes, each of said scopes being arranged such that a line passing through the center of gravity of said balance platform and said scopes will be parallel with one or the other of said paths of movement of said counterweights.

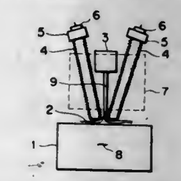
3,320,796
VIBRATION GENERATION AND MEASUREMENT
Ronald A. Darby, Bay Ridge, Md., assignor to the United States of America as represented by the Secretary of the Navy
Filed Oct. 29, 1963, Ser. No. 319,895
6 Claims. (Cl. 73—67.1)

1. Apparatus for producing vibrations in a magnetic flux-responsive specimen and for measuring said vibrations comprising:
electromagnetic drive means;
reaction mass means rigidly coupled to said electromagnetic drive unit means;
resilient vibration isolation means for suspending said drive unit and reaction mass near at least one portion of the specimen thereby providing magnetic flux coupling between said drive means and the specimen; and



accelerometer means located on said reaction mass means for providing output signals representing vibratory forces enforced on the specimen.

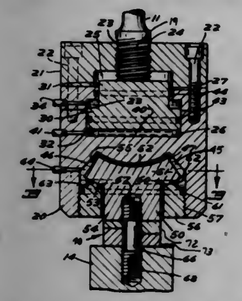
3,320,797
ULTRASONIC INTERNAL FLAW DETECTING APPARATUS FOR HOT METAL
Iichi Tajiri, Shozo Sekino, and Yukito Sasaki, Kitakyushu, Japan, assignors to Yawata Iron & Steel Co., Ltd., Tokyo, Japan, a corporation of Japan
Filed Aug. 5, 1963, Ser. No. 300,019
Claims priority, application Japan, Aug. 13, 1962, 37/34,810
3 Claims. (Cl. 73—67.7)



1. An improved ultrasonic internal flaw detecting apparatus for use in non-destructive testing of a piece of metal heated to very high temperatures, comprising a transmitting probe, a receiving probe, an intermediate signal conveying bar for each probe with the respective probes each being attached to one end of a bar, the bars being symmetrically positioned with respect to a position occupied by the piece of metal to be tested, a melting tank, conduit means from said melting tank to the positions of the other ends of the signal transmitting bars where they are adjacent the position of the piece of metal to be tested, a molten metallic coupling salt in said tank and flowing past the said other ends of said signal transmitting bars for coupling the bars to the piece of metal to be tested, said metallic salt being a salt taken from the group consisting of KNO_3, KNO_2, $NaNO_2$, $NaNO_3$, $LiNO_3$, NaCl, $BaCl_2$, $CaCl_2$, $Na_2B_4O_7$ (sodium borate) and KCl and mixtures thereof, said metallic salt having a melting point of from 150° C. to 1,000° C., being difficult to evaporate, and having high wettability properties, and heating means for heating said melting tank and the other ends of the signal transmitting bars and the molten metallic couplant salt therearound.

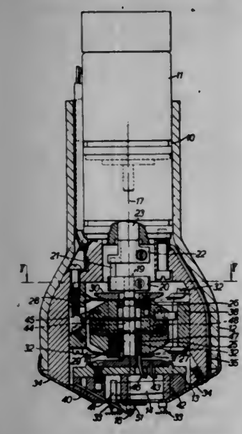
3,320,798
HYDRAULIC ALIGNMENT HEAD FOR SPECIMEN TESTING
Martin M. Gram, St. Paul, Minn., assignor to MTS Systems Corporation, a corporation of Minnesota
Filed Oct. 12, 1964, Ser. No. 403,213
13 Claims. (Cl. 73—103)

1. An alignment head for holding a specimen in a testing machine having a frame, said alignment head having first means at a first portion thereof for holding a specimen to be tested, and second means at a second end of said alignment head for connecting said head to the frame of the machine, said second means comprising a receptacle in said head having a part spherical seat surface facing in direction opposite from a predetermined direction of loading of said specimen, and a member positioned in said receptacle, said member having a part spherical



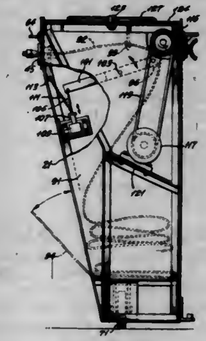
surface mating the part spherical surface of the receptacle when said specimen is loaded in its predetermined direction of loading, and hydraulic pressure means having hydraulic fluid in contact with said member to lock said member and said receptacle relative to each other, with an axial force greater than the force exerted on the specimen during operation of the machine.

3,320,799
SURFACE TESTING APPARATUS
David Charles Goodey, Hampton Hill, Middlesex, England, assignor to Wilmot-Breeden Limited, Birmingham, England
Filed Jan. 20, 1964, Ser. No. 338,665
Claims priority, application Great Britain, Jan. 18, 1963, 2,401/63
11 Claims. (Cl. 73—105)



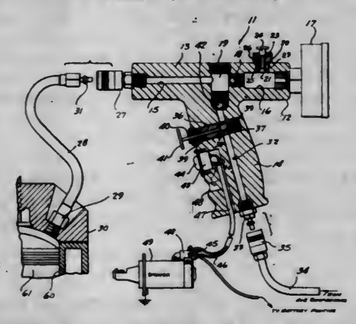
4. Surface testing apparatus comprising a head including a rotatable carrier member, a transducer carried by the carrier member and arranged to engage the surface under test at a position offset from the axis of rotation of the carrier member, a registration member on the carrier member arranged to engage the surface and determine the position of the carrier member with respect thereto, driving means for rotating the carrier member so that the transducer traverses the surface, three spaced registration members for engagement with the surface to define a registration triangle within which is positioned the registration member on the carrier member and the transducer, and indicating means responsive to the output of the transducer for indicating the degree of smoothness of the surface.

3,320,800
MOBILE INSTRUMENT CARRIAGE
Robert B. Harvey, Rosemont, Pa., assignor to Mobil Oil Corporation, a corporation of New York
Filed May 18, 1964, Ser. No. 368,075
7 Claims. (Cl. 73—116)



1. A testing apparatus comprising: cabinet means having upper and lower portions; a plurality of testing instruments in said upper portion and including means providing a visual indication of the respective test instrument functions; a plurality of conduits stored in said lower portion and extensible therefrom for connection to a remotely positioned device to be tested; means mounting said upper portion on said lower portion for combined swiveling and lateral movement with respect to said lower portion; and means to connect the conduits in said lower portion to the test instruments in said upper portion.

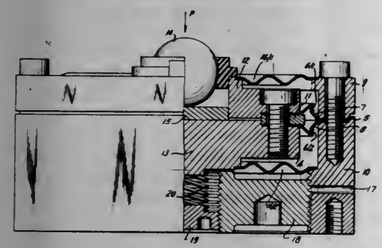
3,320,801
COMPRESSION AND LEAKAGE TESTER
George D. Rhindress, Jr., 330 SW. 65th Ave., West Hollywood, Fla. 33023
Filed Nov. 13, 1964, Ser. No. 410,930
5 Claims. (Cl. 73—116)



1. A compression tester for an internal combustion engine having a cylinder with a spark plug opening and having a starting solenoid, said tester comprising a main body having a barrel portion and a depending handle portion, said barrel portion being formed with a longitudinal passage extending from end to end thereof, the rear end of said passage being enlarged to define a fluid pressure chamber, a pressure gauge mounted on the rear end of said barrel portion in communication with said pres-

sure chamber, normally closed vent valve means in a wall of the pressure chamber, means to at times open said vent valve means, a check valve in the forward end of said pressure chamber opening only to allow entry of fluid into the pressure chamber, a flexible conduit having a fitting on one end engageable in the spark plug opening, means to detachably connect the other end of said conduit to the forward end of the barrel portion and in communication with said passage, said handle portion being formed with a fluid supply passage communicating with said barrel passage, a check valve between said supply passage and said barrel passage allowing fluid to flow only from the supply passage to the barrel passage, a manually operated control valve in said handle passage, a source of fluid under pressure connected to said supply passage, a starter switch mounted on said handle portion, and a pair of flexible conductors connected to the terminals of said starter switch and adapted to be connected to the starter switch terminals of the starting solenoid of the internal combustion engine.

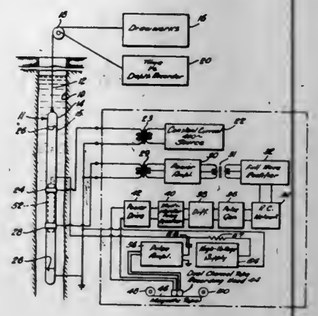
3,320,802
DEVICE FOR MEASURING FORCE
Gottfried Birkholtz, Welterstadt, Germany, assignor to Carl Schenck Maschinenfabrik GmbH, Darmstadt, Germany, a corporation of Germany
Filed Sept. 3, 1964, Ser. No. 394,248
Claims priority, application Germany, Sept. 5, 1963, Sch 33,830
13 Claims. (Cl. 73—141)



1. In a force gage, a rotationally symmetrical hollow gage member of material elastically deformable by an applied force to be measured and having a center axis in the direction of the applied force, said gage member being provided at both axial ends with respective force-transmitting structures extending away from said member with mutually opposed inclinations relative to said axis, one of said structures being inside and the other outside of the geometric space defined by said gage member, said two structures having respective force-receiving extremities of which at least one is displaceable in said axial direction, the applied force to be measured being transmitted through said force-transmitting structures to said gage member to change the diameter thereof, the resulting change in the diameter of said gage member being proportional to the magnitude of said applied force.

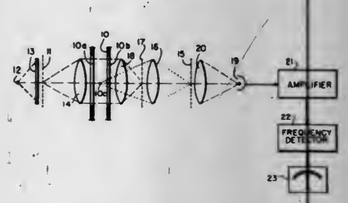
3,320,803
SELF-CONTAINED WELL LOGGING APPARATUS WITH MAGNETIC STORAGE OF INFORMATION
Arthur H. Lord, Bellaire, Tex., assignor to Texaco Inc., New York, N.Y., a corporation of Delaware
Filed Jan. 15, 1962, Ser. No. 166,232
2 Claims. (Cl. 73—152)

1. In the method of logging a borehole penetrating the earth wherein self-contained logging apparatus is caused to be moved continuously therethrough at a predetermined uniform speed to obtain an analog type electrical signal indicative of a characteristic of earth formation surrounding said borehole as a function of depth of said apparatus in said borehole and simultaneously making a time-depth record of the location of said apparatus in said borehole as a function of time, the improvement comprising converting said analog type electrical signal to a digital type electrical signal, recording said digital signal on magnetic tape at a predetermined uniform tape transport speed, subsequently playing back said magnetic



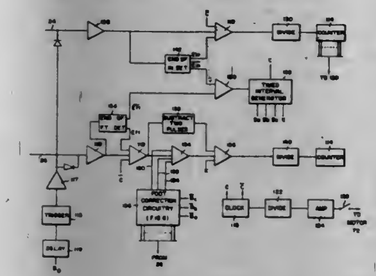
tape at a predetermined faster tape transport speed than said recording tape transport speed, reconverting said recorded digital signal to an analog type electrical signal, and recording said analog signal on a chart recorder at a predetermined chart speed, said chart speed being controlled by said time-depth record made during the logging operation to produce a chart record of said earth characteristic as a linear function of depth of said logging apparatus in said borehole.

3,320,804
OPTICAL FLUID FLOWMETER
Mendel M. Halberstam, Brooklyn, N.Y., assignor to Newtek, Inc., a corporation of New York
Filed Nov. 6, 1964, Ser. No. 409,440
9 Claims. (Cl. 73—194)



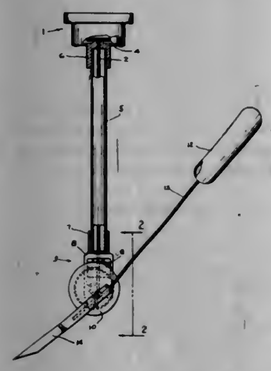
1. An optical fluid flowmeter comprising:
a fluid conduit including opposed aligned transparent portions;
a mask including a pattern of areas of different optical density adjacent one of said portions;
means for illuminating the side of said mask remote from said conduit approximately uniformly;
a first optical system for translating the light passed by said mask through said portions;
a light-chopping device;
a second optical system for collecting light deflected by irregularities within said conduit arising from fluid turbulence or inhomogeneities and focusing it upon said device;
means for shielding said device from undeflected light passing through said portions;
and photosensitive means responsive to the light passing through said device for developing an effect representative of fluid velocity.

3,320,805
DATA COLLECTION SYSTEM
Rolf D. Kahle, Chicago, Ill., assignor to GPE Controls, Inc., Morton Grove, Ill., a corporation of Illinois
Filed Feb. 5, 1964, Ser. No. 342,761
10 Claims. (Cl. 73—313)



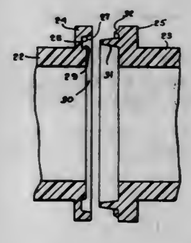
3. The method of translating an analog quantity commensurate with the sum of the distances of a first movable element and a second movable element from reference positions to provide an output digital quantity commensurate with said analog quantity, said digital quantity comprising a most significant portion and a least significant portion, comprising the steps of:
(a) measuring said first and second distances to provide respective first and second pulse counts, said first pulse count comprising said least significant portion of said output digital quantity;
(b) adding to or subtracting from said second pulse count a first predetermined value depending upon the range within which said first pulse count falls, thereby to provide an altered pulse count; and
(c) dividing said altered pulse count by a second predetermined value and rounding off the quotient to provide the most significant portion of said output digital quantity.

3,320,806
LIQUID LEVEL GAUGE
Paul B. Johnson and Eugene D. Huskey, Garland, Tex., assignors to J. Y. Taylor Mfg. Company, a corporation of Texas
Filed Mar. 27, 1964, Ser. No. 355,295
1 Claim. (Cl. 73—317)



In a device of the character described, a dial and associated indicating means, means for causing movement of said indicating means relative to said dial, a rotatable shaft opertively connected to said means for causing movement, a first gear member adjacent one end of said shaft, a fork member adjacent said first gear member, an arm angularly disposed relative to said shaft, a float member on said arm adjacent one end thereof, a counterweight on said arm adjacent the opposite end thereof, a second gear member on said arm and adapted to operatively engage said first gear member, a shaft pivotally mounting said second gear member relative to said fork, and means for limiting the pivotal movement of said second gear member relative to said fork, said limiting means comprising cooperating stop means on said second gear member and said fork, said stop means comprising a recess in said fork member and an insert in said recess, said insert having stops and a cooperating stop on said second gear member.

3,320,807
FLOAT FOR LIQUID LEVEL GAUGE AND PROCESS OF MAKING SAME
Leta S. Taylor, Paul B. Johnson, and Eugene D. Huskey, Garland, Tex., assignors to J. Y. Taylor Mfg. Company, a corporation of Texas
Filed Sept. 28, 1965, Ser. No. 490,812
5 Claims. (Cl. 73—322.5)

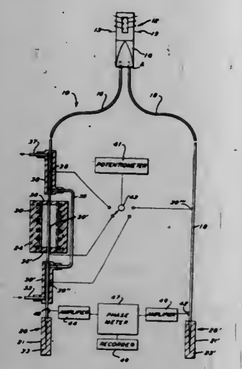


1. The process of making a float for a liquid level gauge comprising, forming a pair of open end float sections with each section having an external peripheral flange adjacent its free end, forming an annular groove in the end surface of the flange on one of said float sections, forming a first annular projection on the end surface of the flange of the other of said float sections longer than the depth of said annular groove, forming a second, smaller annular projection outside of said first projection, and securing said sections in effectively unitary relation with said first annular projection in said annular groove by welding to form a unitary construction.

3,320,808
APPARATUS AND METHOD FOR ACOUSTIC INSTRUMENTATION
Charles A. Boyd, Dunn Loring, Va., and Herbert Kartluke, West Chester, Pa., assignors, by mesne assignments, to the United States of America as represented by the United States Atomic Energy Commission
Filed May 12, 1964, Ser. No. 366,874
20 Claims. (Cl. 73—339)

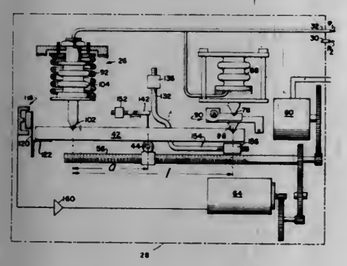
1. Measuring apparatus comprising an acoustical generator means, an elongated coupling member having one end portion coupled to said means for transmitting acoustical waves from said means, another end portion of said member being coupled to an acoustical absorber for absorbing the acoustical waves in said member, an intermediate portion of said member being adapted to be subjected to an environment whose characteristic is to be measured and which causes a phase change of the acoustic wave transmitted through said member, and

means for detecting phase changes in the waves travelling through said member, said detecting means including a



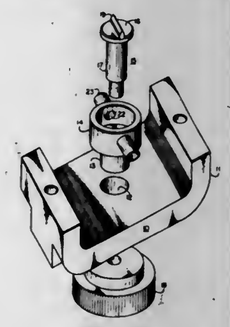
sensing device coupled to said member between said intermediate portion and said absorber.

3,320,809
LINEAR SERVO ABSOLUTE TRANSDUCER
Fritz L. Andrae, Torrance, Calif., assignor to The Garrett Corporation, Los Angeles, Calif., a corporation of California
Filed Nov. 14, 1962, Ser. No. 237,565
13 Claims. (Cl. 73—407)



8. In a force-balance transducer, the combination comprising:
a balance beam;
a fulcrum rockably supporting said beam intermediate its ends, whereby said beam has a first arm at one side of said fulcrum and a second arm at the opposite side of said fulcrum;
said beam being rockable on said fulcrum through a given neutral position;
a first fluid pressure responsive force exerting means to be exposed to a fluid pressure differential and acting on said first beam arm for producing a first effective force proportional to said fluid pressure differential on said beam in one direction about said fulcrum and along a direction line approximately normal to the beam when the latter occupies said neutral position;
a second force exerting means acting on said second beam arm for producing a second substantially constant effective force on said beam in the opposite direction about said fulcrum and along a direction line approximately normal to the beam when the latter occupies said neutral position;
a third pressure responsive force exerting means to be exposed to a fluid pressure differential and acting on said second beam arm for producing a third effective force proportional to said latter fluid pressure differtial on said beam in said one direction about said fulcrum and along a direction line approximately normal to the beam when the latter occupies said neutral position, whereby said first and third effective forces produce a combined effective moment on said beam opposing the moment produced on said beam by said second effective force;
said fulcrum being movable lengthwise of said beam to balance the beam in said neutral position; and
means associated with said first and third force exerting means for maintaining substantially equal said first and third effective forces, whereby the distance along said beam between said fulcrum and a given reference position on the beam is approximately a linear function of each of said first and third effective forces and said second effective force when said beam is balanced in said neutral position.

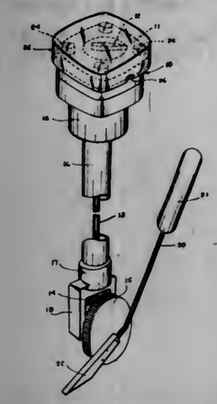
3,320,810
PAINT SAMPLER DEVICE
Aristides Stamulis, Washington, D.C., and Frank J. Lagana, Laurel, Md., assignors to the United States of America as represented by the Secretary of the Navy
Filed Jan. 22, 1965, Ser. No. 427,520
6 Claims. (Cl. 73—424)



1. A paint sampling device which comprises:
a base member,
said base member including a substantially straight portion with a leg portion at each end of said substantially straight portion,
a housing secured to said base member between said leg portions of said base member, and
a cutter blade secured within said housing and movable relative to said housing along a line perpendicular to said housing and rotatable about said line.

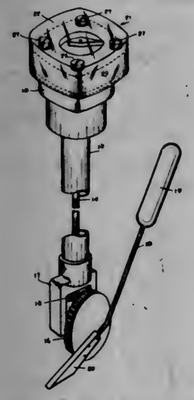
3,320,811
GAUGE HEAD COVER AND BOLT RETAINER
Paul B. Johnson and Eugene D. Huskey, Garland, and Cecil E. Squibb, Dallas, Tex., assignors to J. Y. Taylor Mfg. Co., Inc., a corporation of Texas
Filed May 7, 1964, Ser. No. 365,646
5 Claims. (Cl. 73—431)

1. A protective cover for the gauge head of a liquid level gauge, which gauge head includes a plurality of openings for a series of mounting bolts to be positioned through said openings, said cover having a portion extending over said gauge head, which portion is provided with a plurality of openings corresponding to said openings in said gauge head such that said mounting bolts may simultaneously be positioned through said openings in said cover and said gauge head, said openings in said cover



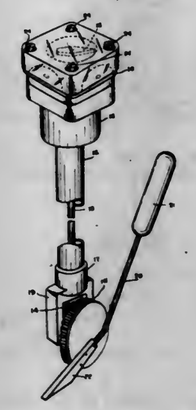
being formed with a plurality of projections extending into the opening to retain said bolts by spring-back action against the threads of said bolts, and means for maintaining said cover upon said gauge head.

3,320,812
GAUGE HEAD COVER
Leta S. Taylor, Paul B. Johnson, and Eugene D. Huskey, Garland, Tex., assignors to J. Y. Taylor Mfg. Company, a corporation of Texas
Filed July 6, 1965, Ser. No. 469,721
3 Claims. (Cl. 73—431)



1. A head cover for a liquid level gauge or the like comprising, a formed member of resilient material, said member having a cover portion overlying the upper surface of the gauge head and said cover portion overlying the retaining screws in said gauge head for retaining said gauge head in operative position on a storage tank and said member having side walls depending from said cover portion, said side walls being urged toward said gauge head to retain said cover portion in position on the gauge head, said cover portion having openings over the head of each of said retaining bolts for the insertion of a screwdriver to connect said bolts to the storage tanks, said openings being of smaller size than the bolt head whereby said bolts may be tightened without removal of said head cover and prevent said bolts from dropping out of said gauge head.

3,320,813
REMOVABLE GAUGE HEAD COVER
Leta S. Taylor, Paul B. Johnson, and Eugene D. Huskey, all of Garland, Tex., assignors to J. Y. Taylor Mfg. Company, a corporation of Texas
Filed July 6, 1965, Ser. No. 469,723
2 Claims. (Cl. 73—431)

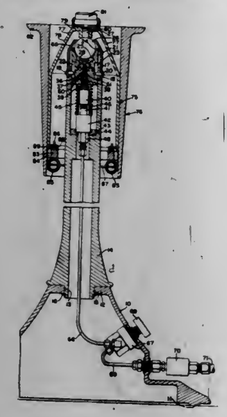


1. A protective cover for the gauge head of a liquid level gauge or the like, said cover having a central portion adapted to be positioned over the gauge dial and having side portions inclined relative to said central portion and adapted to overlie side portions of said gauge head to retain said protective cover on said gauge head, said cover having a scored removable portion which is removable by tearing away, and fastening means on certain of said side portions to connect said cover to the gauge head and carried by scored removable portions on said side portions whereby said cover may be disconnected from said gauge head by tearing away said scored removable sections on said side portions.

3,320,814
DEVICE FOR INDICATING WHEEL IMBALANCE
Harold E. Krause, Milan, Ill., and Harvey W. Rasmussen, Tampa, Fla., assignors to K & R Engineering Company, Inc., Milan, Ill., a corporation of Illinois
Filed Feb. 24, 1964, Ser. No. 346,935
6 Claims. (Cl. 73—484)

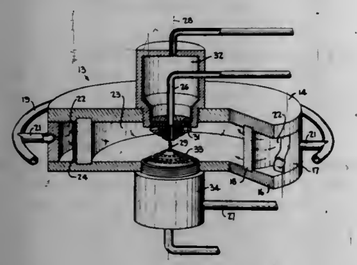
1. A device for indicating the location of imbalance in a wheel comprising: an upright pedestal; a member slidably carried on the pedestal for vertical movement, having an inverted upwardly opening conical cavity and an air passage extending through the member and opening into the base of the cavity; means between the member and pedestal biasing the member to an upper position; air conduit means connected with the passage and extending therefrom downwardly to a lower end connected with a pressurized source of air; a first valve in the conduit means operatively connected with the member to effect opening of the conduit means in response to downward movement of the member from its upper position; a valve ball means in the conduit means above the first valve and including a seat, a ball member upstream of the seat for substantially closing the conduit means, an element in the conduit means effecting a force directed against the seating of the ball, and an air bleeding passage in the valve ball means for permitting a small movement of air irrespective of the ball being seated; telescoping inner and outer wheel supporting members having inner and outer engaging cylindrical surfaces re-

spectively, the inner member having an upper and outer conical shaped portion for receiving the inner annular edge of a wheel, and the outer member having an upper radial surface for receiving the underface of a wheel; and spring means between the inner and outer members normally biasing the outer member to an upper position



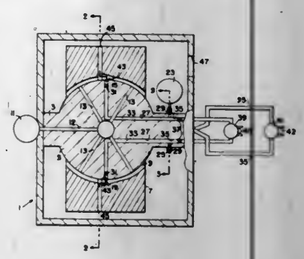
in which the conical portion of the inner member is recessed in the outer member and yieldable upon weight being applied to the outer member to permit the conical portion to be exposed; and a bearing member supported on the inner member and having a lower spherical surface adapted to seat in the upwardly opening conical cavity.

3,320,815
FLUID-OPERATED ROTATION-SENSING DEVICE
Romald E. Bowles, Silver Spring, Md., assignor to the United States of America as represented by the Secretary of the Army
Filed Feb. 6, 1962, Ser. No. 171,538
27 Claims. (Cl. 73—505)



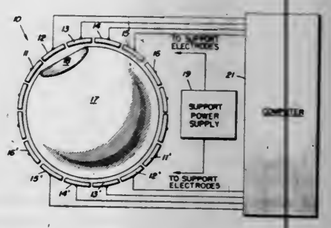
2. A device for measuring the rate of rotation of a body, comprising means defining a region having included therein a generally circular cross-sectional area, said cross-sectional area having an axis which passes through the center of and is perpendicular to said area, said device being positioned such that the axis of the generally circular cross-sectional area has a component parallel to an axis of rotation of the body, means for introducing into said region adjacent its circumference fluid having substantially only a radial velocity, at least one outlet passage for said fluid located substantially coaxial with the axis of said area, and sensing means for developing a fluid signal proportional to the rate of rotation of the fluid in a portion of said region generally defined by said outlet passage.

3,320,816
PNEUMATIC PICKOFF FOR TWO DEGREE OF FREEDOM GYRO
James V. Johnston, Huntsville, Ala., assignor to the United States of America as represented by the Secretary of the Army
Filed Feb. 3, 1965, Ser. No. 430,223
8 Claims. (Cl. 74—5.6)



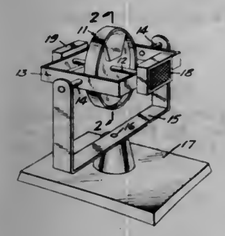
1. A two degree of freedom pneumatic gyro including: a rotor member; a stator member; air bearing means between mating surfaces of said rotor and stator members and supporting said rotor member for rotation relative to said stator member; and pneumatic pickoff control means disposed relative to said rotor and stator members and connected to fluid amplifier means for control thereof, said pneumatic pickoff control means including means in said stator member mating surface and coacting with means on said rotor member mating surface to establish flow rates to said fluid amplifier means that are proportional to the movement of said rotor member from a predetermined position, and means in said rotor member for exhausting fluid from said means on said stator member mating surface.

3,320,817
ELECTROSTATICALLY SUSPENDED GYROSCOPE SIGNAL PICKOFF
Lloyd A. Iddings, Arlington, Va., assignor to the United States of America as represented by the Secretary of the Navy
Filed Feb. 25, 1965, Ser. No. 435,384
5 Claims. (Cl. 74—5.6)



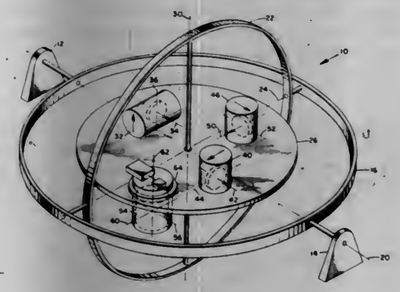
1. A free gyroscopic apparatus for providing a reference orthogonal coordinate system in inertial space, comprising:
- plurality of support electrodes,
- spherically shaped rotor centrally supported by said support electrodes for providing a substantially frictionless environment for said rotor,
- said rotor adapted to be rotated about a spin axis,
- said rotor having a discontinuity on the peripheral surface, and
- means for measuring the position of said rotor spin axis with respect to the position of said support housing.

3,320,818
PATTERN GENERATING DEVICE
Kurt Magnus, Lawrence, Kans., assignor to The Kansas University Endowment Association, Lawrence, Kans., a non-profit corporation of Kansas
Filed June 25, 1963, Ser. No. 290,409
6 Claims. (Cl. 74—5.22)



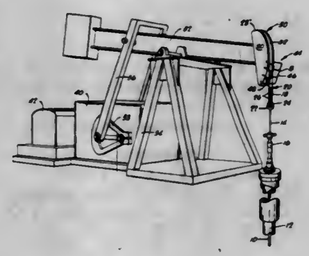
1. A pattern generating device comprising in combination a gyro wheel, a wheel axis passing through the center of gravity of said gyro wheel, means for providing a predetermined amount of dynamical unbalance of said gyro wheel, support means for providing two degrees of freedom with respect to inertial space for said wheel axis, and a working element associated with said support means, whereby the nutational motion of the running gyro wheel generates a pattern of said working element.

3,320,819
GYRO INDEXING MECHANISM
Hugh E. Riordan, Wyckoff, Vincent R. Vento, Morris Plains, and Richard C. Ostrowe, Wayne, N.J., assignors to General Precision Inc., Little Falls, N.J., a corporation of Delaware
Filed Dec. 26, 1963, Ser. No. 333,346
5 Claims. (Cl. 74—5.34)



1. In combination with a stable platform, a gyro indexing system for determining gyro drift errors including a rate integrating gyro unit having its precession axis substantially at right angles to said stable platform and an indexing mechanism for mounting said gyro unit and for rotating said gyro unit so that its input axis can be reoriented comprising:
- an outer body having an axis and being mounted with its axis at right angles to said stable platform;
- an inner body having an axis and being surrounded by and rotatably supported by said outer body for rotation relative thereto and surrounding, being coaxial with, and supporting said gyro unit for joint rotation therewith;
- positioning means between said inner body and said outer body to accurately align said inner body axis on said outer body axis at prescribed angular positions of said inner body relative to the outer body; and
- driving means engaging said outer body and said inner body to rotate said inner body relative to said outer body between said prescribed angular positions.

3,320,820
BRIDLE GUARD FOR USE IN OIL WELL PUMPING EQUIPMENT
Charles K. Banks, Glenrock, Wyo., assignor to Continental Oil Company, Ponca City, Okla., a corporation of Delaware
Filed May 17, 1965, Ser. No. 456,299
2 Claims. (Cl. 74—108)

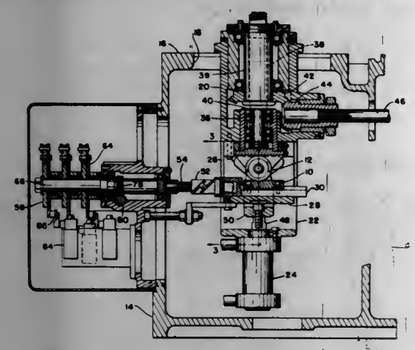


1. The combination of:
- a horse head having an arcuate quadrant surface, said quadrant surface having a central, longitudinal axis lying in a vertical plane;
- a bridle extending over said surface; and
- a pair of horizontally spaced bridle guide brackets mounted on said horse head on opposite sides of said arcuate surfaces, each of which comprises:
  - a generally U-shaped member having a bight portion and a pair of legs extending from said bight portion and secured to the horse head at a point horizontally spaced from the vertical plane occupied by the central, longitudinal axis of the arcuate quadrant surface of the horse head and extending at an angle with said surfaces in a direction away from said horse head, the legs of each of said generally U-shaped members being secured to said horse head on the opposite side of said vertical plane from the legs of the other generally U-shaped member, said legs and bight portions of each of said U-shaped members forming a cable guiding portion whereby said guide brackets define therebetween a channel for confining said bridle and limiting the movement thereof to said arcuate quadrant surface.

3,320,821
FEED MECHANISM
Arthur B. Bassoff, Oak Park, Mich., assignor to National Broach & Machine Company, Detroit, Mich., a corporation of Michigan
Filed July 12, 1965, Ser. No. 471,059
9 Claims. (Cl. 74—110)

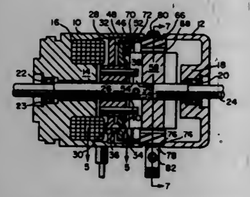
1. Feed mechanism for a machine tool comprising a fixed support, a cam movable horizontally on said support, a slidable member movable vertically toward and away from said support, roller means on said member engaging said cam, and power means for moving said cam, said power means comprising a ball screw and nut device and a plurality of pawl and ratchet devices connected to said ball screw and nut device for selective op-

eration to effect different increments of feed, a single shaft to which all of the ratchet discs of said pawl and ratchet devices are connected, a pinion on said shaft, a



rack connected to said pinion, and power means connected to said rack to return said ratchet discs to starting position.

3,320,822
ROTARY ACTUATOR
James W. Tatom, Brookville, Ohio, assignor to Ledex, Inc., Dayton, Ohio, a corporation of Ohio
Filed Apr. 12, 1965, Ser. No. 447,455
13 Claims. (Cl. 74—126)



1. A rotary actuator for imparting rotary movement to a load including holding means to normally resist rotary movement of said load except by said actuator comprising, in combination,

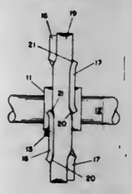
a primary axial to limited rotary motion conversion mechanism including first and second members relatively rotatable about a rotary axis, said members having relative movement along said axis and having axially facing surfaces, means including said axially facing surfaces to rotate one of said members relative to the other through a limited primary stroke upon application of an axial compressive thrust to said members, and yielding means fixed with respect to one of said members and engaging the other of said members to yieldingly resist said relative rotation and after said relative rotation to bias said members to an initial position of relative rotation, the bias exerted by said yielding means being ineffective to overcome the resistance of said holding means,

a secondary axial to limited rotary motion conversion means including a third member normally spaced axially from said second member, and means including cooperating axially facing portions of said second and third members operable upon application of an axial compressive thrust to said second and third members to rotate one of said second and third members relative to another through a secondary rotary stroke about said rotary axis,

means to attach said load to one of said first and third members, means to engage said holding means with the other of said first and third members,

and motive means to apply an axial compressive thrust simultaneously to said primary and secondary conversion means and effective to overpower said holding means to produce a net relative rotation between said first and third members equal to the algebraic sum of said primary and secondary strokes, said yielding means acting upon relaxation of said axial thrust to return said one of said first and second members to said initial position relative to the other of said first and second members.

3,320,823
GRIP PULLEY
Elving J. Kjellstrom, 458 Oak St., Oregon, Wis. 53575
Filed July 20, 1965, Ser. No. 473,285
1 Claim. (Cl. 74—230.5)



A pulley for a flexible drive belt such as a conventional V-belt, said pulley comprising:

(a) a hub for receiving a shaft,

(b) a generally cylindrical web attached to said hub,

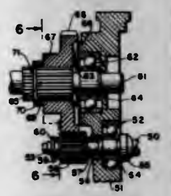
(c) said web having a first series of circumferentially spaced and radially extending integral sections curved outwardly from the plane of said web,

(d) said web having a second series of circumferentially spaced and radially extending integral sections circumferentially alternately arranged with respect to said first series of sections and curved outwardly from the plane of said web oppositely from said first series of sections,

(e) said sections having outwardly flared leading and trailing edges, and

(f) said first and second series of sections forming an undulating peripheral groove therebetween for gripping said belt.

3,320,824
NOISE-SUPPRESSED GEARS AND THE LIKE
Robert H. Riley, Jr., and William W. Chambers, Towson, Md., assignors to The Black and Decker Manufacturing Company, Towson, Md., a corporation of Maryland
Filed Aug. 19, 1964, Ser. No. 390,557
8 Claims. (Cl. 74—443)



1. In a sound and vibration suppressing rotary mechanism, the combination of

a straight rigid rotary shaft;

a rotary member mounted on said shaft for rotation therewith and for axial movement,

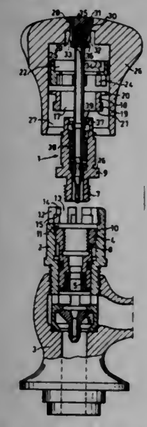
said rotary member having opposite side surfaces extending transversely of said shaft adjacent thereto;

means rotatable with said shaft and presenting two opposing spaced abutment faces disposed each on a different side of said rotary member; and

two resiliently compressible means disposed each on a different side of said rotary member and each held in axial compression between one of said abutment faces and one of said side surfaces;

said resiliently compressible means permitting resiliently limited axial movement of said rotary member whereby sound and vibration are suppressed.

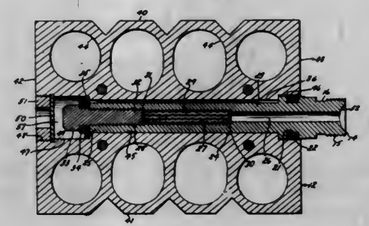
3,320,825
VALVE ACTUATOR AND RETAINING MEANS
Gunnar Arne Gillberg, Herserudsvagen 14, Lidingo, Sweden
Filed May 24, 1965, Ser. No. 458,231
Claims priority, application Sweden, June 5, 1964, 6,904/64
6 Claims. (Cl. 74—548)



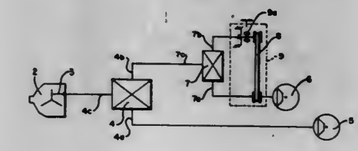
1. A device comprising an axially undisplaceable but turnable connection between a first member and a second member, said first member having a radial flange, one end surface of which abuts against a radial shoulder of said second member which second member is provided with spaced, axial projections extending past the other end surface of said radial flange and being provided with radially extending lugs; a detention ring having radial lugs extending below the radial lugs of said second member and meshing between said lugs of said second member and said other end surface of said radial flange; a locking ring having axial dogs inserted between the projections and lugs of said second member and between teeth on said detention ring to prevent turning movement of said member relative to said detention ring, and means for preventing axial movement of said locking ring.

3,320,826
BICYCLE PEDAL HAVING SEALED LUBRICATION MEANS
Milton Morse, 1 Horizon Road, Fort Lee, N.J. 07024
Filed Aug. 5, 1965, Ser. No. 477,430
6 Claims. (Cl. 74—594.4)

1. In a bicycle pedal having a relatively fixed shaft element and a freely rotating pedal element, the improvement comprising: said shaft element having an axially disposed cylindrical bearing surface thereon, thrust bearing members extending radially from said cylindrical surface at either end thereof, said pedal element having a corresponding cylindrical surface supported by said cylindrical surface of said shaft element for coaxial motion thereon, one of said surfaces having a substantially longitudinally extending groove therein communicating with at least one of said thrust bearing members, and sealed reservoir means disposed adjacent said thrust bearing member for retaining a fluid lubricant and having communication with said groove along the surface of said thrust bearing member; said fixed shaft element having a continuous bore therein, and filter means disposed within said bore and communicating with said reservoir for equalizing pressure within said sealed reservoir with the ambient atmosphere.



3,320,827
DRIVE FOR A MULTIPLE STAND ROLLING MILL
Roland F. Rumrich, Bethel Park, Pa., assignor to Kocks Pittsburgh Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Apr. 26, 1965, Ser. No. 450,771
6 Claims. (Cl. 74—665)

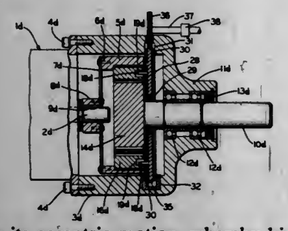


1. A drive for a multiple stand rolling mill comprising two driven gear trains for driving the mill, at least one of which is operable at variable speed, a first differential at each stand, a driving connection from each first differential to the corresponding stand for driving at least one roll of the stand, connections from each of the driven gear trains to each first differential for driving the differential at a speed determined by the speeds of the driven gear trains and a second differential and variable speed transmission at each stand interposed in the drive whereby the speed at which such roll is driven by the driven gear trains may be independently controlled.

3,320,828
SPEED REDUCER OR INCREASER
Arthur F. Grant, Shaker Heights, Ohio, assignor to Allied Machine & Engineering Corporation, Cleveland, Ohio, a corporation of Ohio
Filed July 14, 1964, Ser. No. 382,543
5 Claims. (Cl. 74—675)

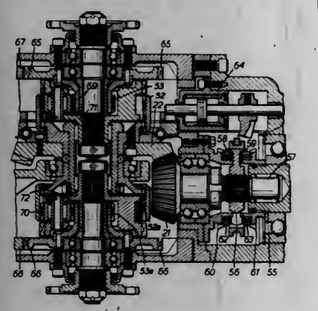
1. A speed reducer comprising an input shaft, an output shaft journalled in alignment with the input shaft, a pinion gear fixed upon the output shaft, a ring gear meshing with the pinion gear, said ring gear having a greater number of teeth than the pinion gear, means operatively connected to the input shaft for moving the ring gear eccentrically, a rotatable braking means, pin and socket means between the ring gear and said braking means per-

mitting free rotation of the ring gear, and brake means for holding said rotatable braking means against rotation for preventing the ring gear from turning on its axis while



permitting its eccentric motion, whereby high speed, low torque rotation of the input shaft results in low speed, high torque rotation of the output shaft.

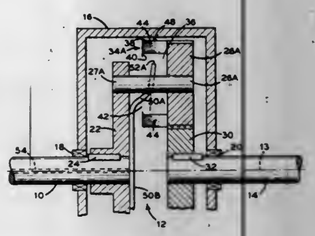
3,320,829
TRANSMISSION SYSTEMS
William Cull, Hest Bank, near Lancaster, England, assignor of one-half to Cull Development Limited, London, England
Filed Dec. 31, 1963, Ser. No. 334,874
Claims priority, application Great Britain, Jan. 2, 1963, 184/63
3 Claims. (Cl. 74—720.5)



1. A hydrostatic shunt transmission system between an input shaft and two output shafts, comprising a mechanical drive in combination with a hydrostatic drive, the mechanical drive including a reduction gear connected to the input shaft, and arranged to drive the input members of two differential gear units the output member of each differential gear unit being connected to one of the output shafts with a reaction member of each differential gear unit connected to a separate hydraulic motor, the hydrostatic drive including a hydraulic pump driven from the input shaft, and connected in two parallel hydraulic circuits with the hydraulic motors, and means responsive to a substantial pressure drop in either of said parallel hydraulic circuits to throttle the circuit in which said pressure drop occurs.

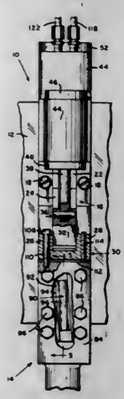
3,320,830
COUPLING
Andrew J. Fowell, South Bound Brook, N.J., assignor to American Radiator & Standard Sanitary Corporation, New York, N.Y., a corporation of Delaware
Filed Sept. 30, 1964, Ser. No. 400,347
7 Claims. (Cl. 74—773)

1. Apparatus for coupling a rotatable drive shaft to a rotatable driven shaft comprising a support member fixed to said drive shaft and rotatable therewith, a plurality of axle means rotatably journaled in said support member at regions radially displaced from said drive shaft, a plurality of planet gears, each of said planet gears being fixedly mounted on one of said axle means, a plurality of fluid container means, each of said fluid container means including a cylindrical peripheral wall member, a first end wall member, an annular second end wall member provided with an opening and a plurality of vanes connected to and extending inward from said cylindrical wall member and in contact with said first and second end wall members for providing a plurality of circularly arrayed fluid compartments, means for coaxially



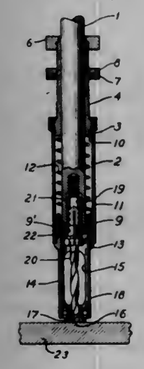
connecting each of said fluid container means to one of said axle means respectively so that a torque is exertable on the associated planet gear about its axle means, said torque being related to the centrifugal force resulting from the mass of the fluid in said fluid compartment revolving about the axis of said drive shaft, means for delivering fluid via the openings of said annular second wall members to said fluid compartments and a sun gear connected to said driven shaft for meshing with said planet gears.

3,320,831
RETRACTABLE TOOL SUPPORT
Edward P. Bullard III, Fairfield, Conn., assignor to The Bullard Company, Bridgeport, Conn., a corporation of Connecticut
Filed June 6, 1966, Ser. No. 555,515
14 Claims. (Cl. 77—1)



1. Retractable tool supporting apparatus for a machine tool, comprising a base member adapted to be secured to a machine tool; a tool support movably mounted on the base member for limited movement between retracted and operative positions; a locking member movably mounted on the base member for limited movement between unlock and lock positions; means on said tool support engageable by said locking member for locking said tool support in the operative position when said locking member is in the lock position; means for normally urging said tool support to the retracted position and said locking member to the unlock position; fluid-operated means for intermittently moving said tool support to the operative position and said locking member to the lock position when said fluid-operated means is connected to a source of pressurized fluid; and means for intermittently connecting said fluid-operated means to a source of pressurized fluid, said fluid-operated means including means rendered effective solely by the flow of said pressurized fluid to said fluid-operated means for initially moving said tool support from the retracted to the operative position while maintaining said locking member in the unlock position and thereafter moving said locking member to the lock position.

3,320,832
DRILL GUIDING TOOLS
Howard M. Jensen, East Huntington, N.Y., assignor to Ritmar Corporation, Huntington, N.Y., a corporation of New York
Filed Nov. 19, 1964, Ser. No. 412,412
1 Claim. (Cl. 77—55)



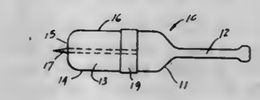
A drilling tool comprising a tubular housing, an actuating spindle including portions positioned coaxially in said housing, spring means operatively interposed between the spindle and the housing and arranged and adapted to bias said housing toward extended position in relation to the spindle, a bit holding collet operatively mounted at the lower end of the spindle, a collar mounted coaxially on said spindle and operatively engaging inner surface portions of the housing to provide a slidable upper guide for said spindle, a bearing mounted in fixed coaxial position in the housing and arranged and adapted to operatively embrace and provide a fixed lower guide for said spindle, a ball bearing assembly mounted coaxially in the lower end of said housing, and a bushing mounted in a portion of said assembly coaxially with the longitudinal axis of the collet and arranged and adapted for guiding engagement with free end portions of a bit operatively engaged in said collet, said bushing including a portion extending coaxialy through said ball bearing assembly and a terminal peripheral flange extending laterally from the lower end thereof and providing a foot plate overlapping downwardly exposed surface portions of said ball bearing assembly, whereby, in operation, when operating pressure is exerted through the spindle, through said spring means, and through the housing, said foot plate is pressed against the work piece being drilled and by frictional engagement therewith and unaided by extraneous bit guiding means effectively retains said bushing and the bit end against lateral displacement when the bit end is brought into drilling contact with the work piece.

3,320,833
DEEP-HOLE DRILL AND REAMER
Donald C. Andreasson, Birmingham, Mich., assignor to Detroit Reamer & Tool Company, Birmingham, Mich., a corporation of Michigan
Filed Nov. 23, 1964, Ser. No. 412,953
4 Claims. (Cl. 77—68)



1. In a rotary tool of the type utilizing a hollow shank tube and a bit at the working end thereof composed of a different material than the shank,
(a) a hollow shank tube having an opening at the bit end to receive one end of a bit, the walls of said tube at said bit end having spaced axial recesses,
(b) means forming a threaded recess within said opening comprising a plug having a threaded axial opening therein, means interengaging said plug and said tube, said plug having axial openings therein to permit the passage of coolant from the interior of said tube to the bit end,
(c) a bit having an end to be received in said opening and spaced lands to engage said axial recesses, said bit having an axial opening, and
(d) means in said axial opening of said bit threadably engaged with said means forming a threaded recess, and having a portion to exert an axial thrust on said bit toward said tube to lock the bit and the tube together,
(e) said engagement of said lands and said axial recesses forming the sole torque drive connection between said parts, and said tube having skirt portions axially overlying flutes formed between said lands to direct coolant from said tube axially into said flutes.

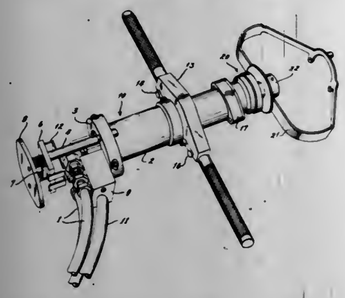
3,320,834
DEVICE FOR MAKING DOUBLE GUMMED TABS FROM SINGLE COATED CELLOPHANE TAPE
Paul Smith, 29 Whitcomb Drive, Grosse Pointe Farm, Mich. 48236
Filed Mar. 3, 1966, Ser. No. 531,487
3 Claims. (Cl. 81—3)



1. A tool for making double-gummed tabs from tape coated with an adhesive on one side, comprising:
a thin flat blade portion having a generally rectangular outline in plan view;
an elongated thin pin of small width on the blade portion and spaced downwardly from the underside thereof, said pin projecting frontwardly beyond the front edge of said blade portion, said pin and said

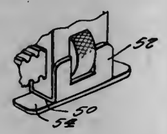
blade portion forming a slot of small thickness which is open at the frontward end thereof and into which a tape can be received.

3,320,835
BEARING ADJUSTER TOOL
Leonard H. Flory and Harry L. Noll, both of Canton, Ohio, assignors to The Timken Roller Bearing Company, Canton, Ohio, a corporation of Ohio
Filed Oct. 19, 1964, Ser. No. 404,774
5 Claims. (Cl. 81—54)



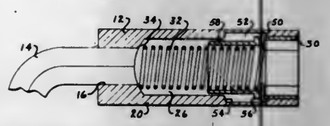
1. In an air operated manually controlled wrench for tightening an adjustable element to a predetermined torque and for thereafter loosening the element a predetermined amount, the combination which includes: a wrench and wrench drive shaft, an air driven motor reversibly operable; said wrench drive shaft being driven by said motor in a first direction to tighten an adjustable element and driven by said motor in a second direction reverse to said first direction; and coil spring clutch means operably connected between said air motor and drive shaft, said clutch means being constructed to allow freedom of rotation of said drive shaft in the first direction so that the tightening of the adjustable element will stall said motor, and said clutch means having means for limiting drive shaft rotation in the second direction to a predetermined amount and for stopping shaft rotation after the predetermined amount of rotation in said second direction is accomplished.

3,320,836
PIPE WRENCH WITH STEADY REST
Wray D. Hagerman, P.O. Box 56, Rocky Point, N.Y. 11778
Filed Sept. 27, 1965, Ser. No. 490,464
1 Claim. (Cl. 81—180)



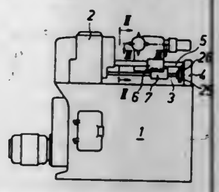
A pipe wrench comprising an elongated handle having a jaw at one end, a sleeve pivotally secured to said handle adjacent the jaw thereof, said sleeve having a bore extending parallel to the direction of elongation of said handle and a slot having therein a rotatable cylinder having an internal threaded bore parallel to the sleeve, said sleeve having a rectangular flat rear surface spaced apart from said handle, an L shaped jaw having a peripheral thread and extending through the sleeve and cylinder bores with the cylinder bore engaging said peripheral thread, a supporting cradle having a flat elongated bottom plate extending in another direction perpendicular to said direction of elongation and two oppositely disposed parallel vertical U-shaped plates extending in said other direction whereby said sleeve is supported detachably in said vertical plates and spans said horizontal bottom plate, an additional flat plate parallel to the bottom plate and disposed therebelow, and a transverse elongated member extending between the bottom plate and said another plate whereby said another plate can be rotated about said member in a horizontal plate.

3,320,837
MULTIPLE SOCKET WRENCH
Edward J. Alm, 104 W. Summit St., Durand, Mich. 48429
Filed Oct. 1, 1965, Ser. No. 491,931
6 Claims. (Cl. 81—185)



6. In a multiple socket wrench, comprising a body having a chamber therein and an operating open end, a shoulder spaced inwardly from the operating end and facing away from said operating end, walls forming a hollow inner socket disposed in said open end, a transverse slot disposed in the wall of said socket, and a spring disposed in said chamber extending into said socket and having at its outer end a protrusion extending through said slot and seating on said shoulder.

3,320,838
TURRET LATHE
Erich Jäggle, Hochdorf uber Plochingen, Germany, assignor to Firma Hermann Traub, Reichenbach (Fils), Germany
Filed Sept. 24, 1964, Ser. No. 399,009
Claims priority, application Germany, Feb. 25, 1964, T 17,214
1 Claim. (Cl. 82—21)



A lathe comprising in combination a bed, a pair of parallel guide rods laterally spaced from each other secured to and extending above and longitudinally along said bed, a turret slidably mounted on said guide rods, means for positively sliding said turret along said guide rods, said turret comprising a housing, a tool support for a plurality of tools rotatably mounted on said housing, a motor mounted on said housing and having a drive shaft for turning said tool support from one operating position to another, switch means for starting and stopping said motor, periodically, brake means for quickly stopping the rotation of said drive shaft when said switch means are actuated to stop said motor, said switch means comprising two separate switches for starting and stopping said motor, said sliding means comprising a control shaft and means for driving said shaft, a driving wheel adapted to be driven by said motor for turning said tool support, means on said control shaft for actuating one of said switches, means on said driving wheel for actuating the other switch, transmitting means connecting said motor shaft with said tool support, said transmitting means comprising a Maltese-cross transmission within said

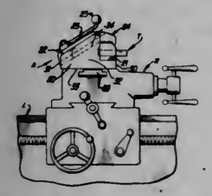
housing including a driving wheel having a driving pin eccentrically thereon, and bevel gears connecting said motor shaft to said driving wheel for driving the same, said means on said control shaft adapted to actuate said starting switch and said means on said driving wheel adapted to actuate said stopping switch, means for locking said tool support in each of its operating positions comprising a locking bolt adapted alternately to engage into one of a plurality of locking recesses in said tool support corresponding to the number of tool-mounting positions thereon, and a lever for reciprocating said locking bolt so as to engage into and disengage from said locking recesses, and means on said driving wheel for pivoting said lever.

3,320,839
STEADY REST
Arthur S. Dinsmore, Seneca Falls, N.Y., assignor to Seneca Falls Machine Co., Seneca Falls, N.Y.
Original application Apr. 11, 1963, Ser. No. 272,278, now Patent No. 3,234,829, dated Feb. 15, 1966. Divided and this application Feb. 11, 1966, Ser. No. 526,780
1 Claim. (Cl. 82—21)



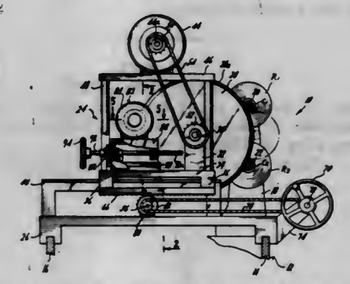
In combination with a machine having a tool carriage and feed means for moving it along a workpiece, first and second workpiece steady rests arranged in mutually spaced relation in the direction of carriage movement and respectively initially disengaged from and engaged with the workpiece; operating means for engaging and disengaging said steady rests with respect to the workpiece; control means responsive to the movement of said carriage for actuating said operating means sequentially to engage the first steady rest after the passage of the tool carriage and to disengage the second steady rest prior to arrival of the tool carriage thereat; and safety switch means responsive to the positions of said steady rests and operative to interrupt the carriage feed means when a steady rest is engaging the workpiece and preventing passage of the tool carriage.

3,320,840
TOOL HOLDER BLOCK
Peter Brekke, Mill City, Oreg. (10311 Lev Ave., Pacoima, Calif. 91331)
Substituted for abandoned application Ser. No. 108,665, May 8, 1961. This application Apr. 1, 1966, Ser. No. 539,527
12 Claims. (Cl. 82—37)



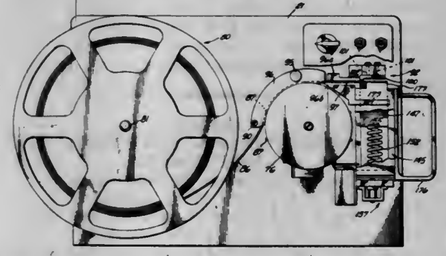
1. A tool holder block of the character referred to including, an elongate horizontally disposed body having front and rear ends, a forwardly and upwardly opening tool bar seat at its front end and an elongate forwardly and upwardly inclined ways at its top, an elongate slide slidably engaged in the ways with a forwardly projecting head to overlie the seat and having a downwardly projecting tool bar engaging lip at its forward terminal end, manually operable actuating means to shift the slide longitudinally relative to the body and the lip into and out of engagement with a tool bar engaged in the seat and including an elongate shaft having one end portion engaged in a slot-like bearing socket in the rear portion of the body on an axis normal to the longitudinal axis of the ways, a central portion rotatably engaged in a bearing opening in the slide, the other end portion projecting from the slide and an elongate lever arm fixed to the said other end portion of the shaft to project radially therefrom, the central axis of said one end portion of the shaft being axially offset from the axes of said intermediate portion.

3,320,841
ROTARY KNIFE MACHINE FOR CUTTING SINGLE OR MULTIPLE ROLLS
David N. Judelson, New York, N.Y., assignor to Oscar I. Judelshon Inc., Jersey City, N.J., a corporation of New York
Filed Apr. 26, 1965, Ser. No. 450,813
11 Claims. (Cl. 82—49)



1. In a rotary knife cutting machine, a frame, roll-supporting means mounted on said frame and adapted to receive at least one roll of material to be slit, a cutting mechanism including a rotary knife mounted on said frame for movement through a cutting cycle relative to said roll-supporting means, grinding mechanisms mounted on said cutting mechanisms in operative relation to said rotary knife such that said grinding mechanisms will move with said rotary knife and sharpen the same, and means for periodically moving said grinding mechanisms out of operative relation to said rotary knife such that said grinding mechanisms will continue to move with said rotary knife but will be ineffective to sharpen the same.

3,320,842
FILM CUTTER
David C. Bailey, Champaign, Leroy C. Kleist, Ogden, and Kenneth H. Love, Urbana, Ill., assignors to The Magnavox Company, Fort Wayne, Ind., a corporation of Delaware
Filed Nov. 5, 1963, Ser. No. 322,277
29 Claims. (Cl. 83—61)



1. In combination for cutting a strip of film into a plurality of film cards and for storing the cards in a stacked relationship,

means for advancing the film strip,

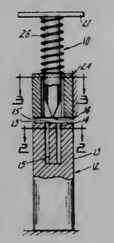
means for receiving the film cards after they are cut from the film strip, the receiving means being constructed to store a particular number of cards in stacked relationship,

means operatively coupled to the advancing means for obtaining an interruption in the advance of the film strip after the film strip has been advanced through each successive increment,

cutting means operatively coupled to the film strip and responsive to each interruption in the advance of the film and disposed in contiguous relationship to the receiving means for engaging and cutting the film into film cards and for simultaneously inserting the resultant cards into the receiving means during the engagement of the film by the cutting means for the purpose of performing the cutting operation,

and means operatively coupled to the advancing means, the cutting means and the receiving means for disabling the advancing means and the cutting means upon the storage of the particular number of cards in the receiving means.

3,320,843
PUNCHING DEVICE
Charles M. Schott, Jr., Gloucester, Mass., assignor to Gloucester Engineering Co., Inc., Gloucester, Mass., a corporation of Massachusetts
Filed Feb. 19, 1965, Ser. No. 433,964
12 Claims. (Cl. 83—620)



1. A hole punching device for use with web materials comprising a punch member and a die member, said punch member comprising, at its cutting end, a hollow tubular member having at least one web-piercing point and a blade edge extending substantially throughout the remainder of the periphery of the tubular member, the blade edge, at least in the region of said point, on both sides thereof, extending, as developed, at a substantially acute angle, relative to the axis of said tubular member away from said point, said die member defining an annular wall and a pin member located therewithin, said pin member and said wall defining an annular passage having a substantially larger radial dimension than the wall thickness of said tubular punch, adapted to permit axial misalignment between said punch member and said die member, the outer surfaces of said wall and said pin providing web-engaging surfaces.

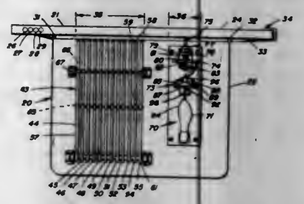
3,320,844
FOOT OPERATED BASS STRINGED MUSICAL INSTRUMENT
Joseph Lostimolo, 89 Hillcrest Ave., Methuen, Mass. 01844
Filed Aug. 20, 1965, Ser. No. 481,333
12 Claims. (Cl. 84—173)

1. A foot operated stringed musical instrument comprising

an instrument frame;

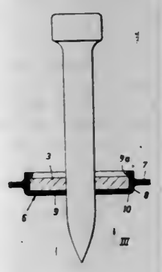
a plurality of tense bass strings mounted on said frame to extend through a chord zone and a sounding zone;

a plurality of chord forming foot pedals movably mounted on said frame, in said chord zone, each pedal having a face extending transversely of said strings at a spaced distance therealong for forming a chord when the pedal is depressed;



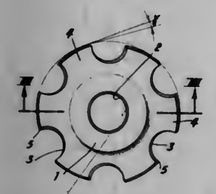
and string plucking means mounted on said frame in said sounding zone, said means including a plucking element arranged to individually and successively pick said strings, and a foot pedal for actuating said element.

3,320,845
PIN FOR DRIVING INTO STONE OR METAL BUILDING ELEMENTS
Peter Eschweiler, 19 Mauerstrasse, Dusseldorf, Germany
Filed Aug. 24, 1965, Ser. No. 482,076
Claims priority, application Germany, Aug. 26, 1964, E 27,671
7 Claims. (Cl. 85—10)



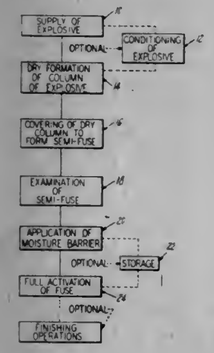
1. A pin adapted to be driven into a structural part by means of a firing tool, said pin including an elongated stem portion having a penetrating point at one end thereof and a radially enlarged head portion at its opposite end, the said pin being connected to a plastic disc of resiliently yieldable plastic material, which is intended to guide the pin in the barrel of the firing apparatus, characterised in that the disc of resilient material is associated with a relatively non-yieldable metallic disc so that a portion of the resiliently yieldable disc bears against the non-yieldable disc, and the edge of the yieldable disc projects radially beyond the outer edge of the non-yieldable disc, both of said discs being friction fit on said stem portion by central apertures and being positioned thereon adjacent said penetrating point with said resiliently yieldable plastic disc being located axially closer to said point than is said non-yieldable metallic disc, whereby said resiliently yieldable plastic disc is adapted to provide a sealing means and said non-yieldable metallic disc is adapted to limit penetration of the pin by engaging said enlarged head portion when the pin is driven into said structural part.

3,320,846
RETENTION DEVICE
Michel Orain, Courbevoie, France, assignor to Glaenzer Spicer Societe Anonyme, Poissy, Seine-et-Oise, France, a corporation of France
Filed Feb. 10, 1965, Ser. No. 431,562
Claims priority, application France, Feb. 19, 1964, 964,359
5 Claims. (Cl. 85—36)



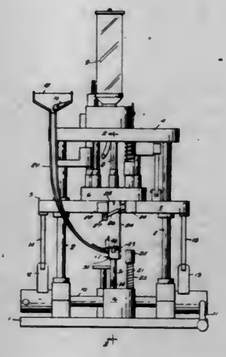
1. A device for axial retention of a mechanical part in engagement with a locking surface internally of a circular section upon partial relative rotation between said part and said section comprising a circular sheet material member having a central portion joined by a radius portion to a terminal peripheral portion, a plurality of recesses in said terminal peripheral portion defining a plurality of radially outwardly directed arms, said member being of a generally W-shaped configuration as defined by an axial plane passing through the central portion, the radius portion and any one of said arms, each arm terminating in a cutting edge, and each arm being inclined in a circumferential direction to a plane normal to the axis of said member to impart a backing-off angle to each cutting edge thereby increasing the cutting power of the cutting edges.

3,320,847
METHOD FOR MANUFACTURING EXPLOSIVE DEVICES
Stanley R. Kelly and John M. Smith, Simsbury, Conn., assignors to The Ensign-Bickford Company, Simsbury, Conn., a corporation of Connecticut
Filed Mar. 7, 1966, Ser. No. 532,285
9 Claims. (Cl. 86—1)



1. A method of producing a consistently reliable, fully active explosive device possessing both sensitivity and explosive strength comprising the steps of providing high explosive material in solid particulate form; forming the explosive material into a core possessing less than the full actvity required for reliable operation of the device; circumscribing the core with a covering; and subsequently fully activating the explosive material while confined within the covering by increasing the surface area of the explosive material without substantially altering the weight per unit of length and cross-sectional area of the explosive material to thereby produce a device having both sensitivity and explosive strength.

3,320,848
PRIMER CAP FEEDER FOR SHELL RELOADER
Lloyd E. Ponsness, Box 186, Rathdrum, Idaho 83858
Filed Aug. 23, 1965, Ser. No. 481,833
5 Claims. (Cl. 86—38)



1. A primer cap feeder for shot shell reloaders having a frame, a shell holder mounted for vertical reciprocation on said frame and having a primer cap punch over the shell holder operable when the shell holder is raised to punch out the primer cap said feeder comprising:

a cap holder on said frame;

a chute leading from said holder having an open side defined by inturned flanges, which flanges confine the flanges of flanged primer caps in said chute so as to guide the flanged primer caps in a single line from said holder to a point below said shell holder;

a cap feeder block positioned on said frame with one end beneath the shell holder and provided with a slot of a cross-sectional shape conforming to the shape of a flanged primer cap, said slot meeting and aligned with said chute to receive a cap therefrom;

said block having a passage leading from said slot to the end thereof for carrying a cap from the slot to a position vertically beneath the shell holder;

an anvil in said end vertically aligned with the center of the shell holder;

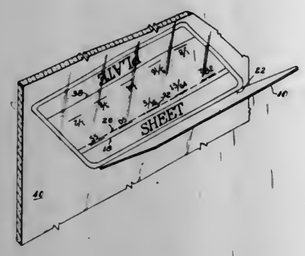
pusher means on the block operable to move a cap along said passage from the slot to the anvil, and

means on the shell holder operable by downward movement of the shell holder to retract said last named means as the shell holder is lowered to the anvil.

3,320,849
GLASS THICKNESS GAUGE
Joseph R. Cumberland, 5416 24th Ave. SE., Washington, D.C. 20031
Filed Apr. 3, 1963, Ser. No. 270,399
1 Claim. (Cl. 88—14)

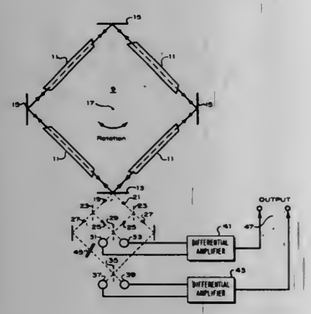
An optical thickness gauge for transparent sheets, consisting of a thin rigid substantially rectangular light-reflective card having a visible line extending lengthwise thereof and parallel to one longitudinal edge of the card, and a plurality of laterally spaced shorter visible lines parallel to and individually spaced from said first visible

line by distances corresponding to the thicknesses of commercial varieties of such transparent sheets; all of said lines being disposed within one longitudinal half-area of



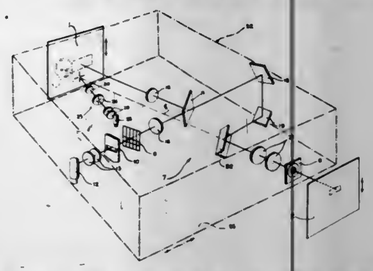
said card, and the other longitudinal half-area of said card carrying additional similar sets of lines corresponding to the thickness of other transparent sheets.

3,320,850
ROTATION DIRECTION DETECTOR
Bernard M. Oliver, Los Altos Hills, Calif., assignor to Hewlett-Packard Company, Palo Alto, Calif., a corporation of California
Filed May 20, 1963, Ser. No. 281,544
2 Claims. (Cl. 88—14)



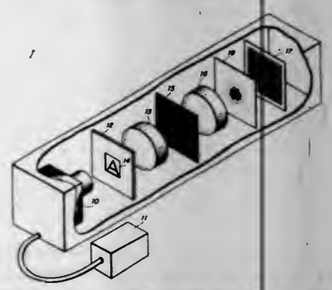
1. In a ring-laser rotation-rate sensing device having laser beams counter rotating about said ring, a rotation direction detector comprising:
means for deriving first and second output beams from each of the laser beams counter rotating about said ring, each of said first and second output beams having a frequency related to the effective length of the path about said ring traversed by its respective laser beam;
means disposed along the paths of said first output beams for combining said first output beams to form a first beat signal having a frequency related to the difference between the frequencies of said laser beams;
means disposed along the paths of said second output beams for combining said second output beams to form a second beat signal having the frequency of said first resultant signal; and
means disposed within the path of one of said output beams for shifting the phase thereof;
the relative plase relationship between said first and second beat signals being indicative of the direction of rotation of said ring laser.

3,320,851
PHOTOGRAPHIC TYPE PLACEMENT SYSTEM
Franz Fischer, Port Chester, N.Y., assignor to Eltra Corporation, a corporation of New York
Filed Oct. 8, 1964, Ser. No. 402,486
3 Claims. (Cl. 88—24)



1. A photographic apparatus for preparing a film bearing sounding data imaged thereon in random positions but relative to each other in accordance with the desired positions of the data on an associated oceanographic map which film may then be overlayed on the associated map and the two photographed to provide a map with sounding data thereon, said apparatus comprising, in combination, a viewing screen to which a manuscript may be attached, an output film sheet holder, a data forming member including a plurality of individual slides each of which is positionable to bring a unit number into photographic position, means for positioning the individual slides so that a composite number representing a sounding datum is brought into photographic position, optical means for projecting an image of a composite number simultaneously onto a manuscript map mounted on said viewing screen and towards an output film sheet held on said sheet holder, means for moving said map and viewing screen and said output sheet holder in unison vertically whereby a desired portion of the manuscript map mounted on the viewing screen can be brought to a predetermined level, means for moving said data forming member and said projecting means horizontally whereby the selected numbers can be horizontally located in alignment with the corresponding manuscript notation on the map mounted on the viewing screen, and shutter means for exposing the output film to the projected composite number representing the sounding datum.

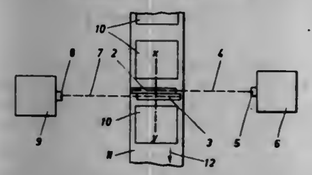
3,320,852
OPTICAL PATTERN REPETITION
George B. Parrent, Jr., Carlisle, and Brian J. Thompson, Chelmsford, Mass., assignors to Technical Operations, Incorporated, Burlington, Mass., a corporation of Massachusetts
Filed Dec. 28, 1964, Ser. No. 421,176
14 Claims. (Cl. 88—24)



1. Optical apparatus for producing a plurality of images of a single object comprising:
(a) means to support an object to receive illumination from a quasi-monochromatic radiation source;

(b) a first optical system for collecting radiation from an object supported by said means to support;
(c) a diffraction grating comprising periodic dimensionally-dissimilar optical variations positioned in the optical path following said first optical system for preventing the formation of a diffraction pattern due to repeated optical variations of substantially the same dimensions; and
(d) a second optical system for forming in an image plane a real image of said object for each of a plurality of the diffraction maxima of said diffraction grating.

3,320,853
MICROFILM FLOW TYPE CAMERA FOR MAKING TWO REPRODUCTIONS FROM ONE OBJECT
Herbert Froese, Berlin, Germany, assignor, by mesne assignments, to Agfa-Gevaert Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
Filed Mar. 24, 1965, Ser. No. 442,348
5 Claims. (Cl. 88—24)



1. An apparatus for making photographic reproductions of sheets of material introduced therein, comprising in combination, sheet transport means for operatively moving said sheets of material through said apparatus, illuminating means operatively mounted in said apparatus for illuminating said sheets of material, first and second microfilm cameras respectively mounted on opposite sides of said apparatus, each of said two microfilm cameras including microfilm mounting means for respectively moving microfilms through said first and second microfilm cameras at synchronous but reduced speeds with respect to the rate of movement of said sheets of material, first and second light reflecting means mounted in said apparatus at an angle of 90° with respect to each other, said first and second light reflecting means are arranged in said apparatus so as to respectively direct light images emanating from said sheets of material first into said first microfilm camera and then into said second microfilm camera.

3,320,854
OPTICAL APPARATUS
Joseph H. Wally, Jr., Shawnee Mission, Kans., assignor to Opti-Copy, Inc., Kansas City, Mo., a corporation of Missouri
Filed May 4, 1965, Ser. No. 453,169
17 Claims. (Cl. 88—24)

2. A projection viewer comprising, in combination, a stage having an aperture, a condenser lens assembly and a light source mounted on the underside of said stage disposed to illuminate said aperture, a first slide member mounted on said stage including a light transmitting portion aligned with said aperture, means confining said first slide member for movement in a direction paralleling the extent of said light transmitting portion, a second slide member slidably supported on said first slide member and confined for sliding movement thereon at right angles to the direction of movement of the first slide member, said second slide member including a light transmitting bottom wall on which to rest a film jacket containing a plurality of film images, and stop means which hold the film jacket against lateral displacement thereon, said movements of the slide members permitting each said film images to be selectively centered over the condenser lens assembly, an objective adjustably supported over said aperture in the stage and including means for engaging a film jacket supported on the second slide member at a location immediately outside the film image when centered over the condenser lens assembly, said means holding said aligned film

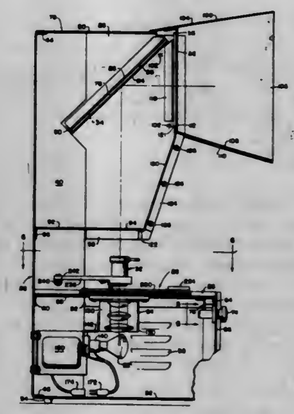
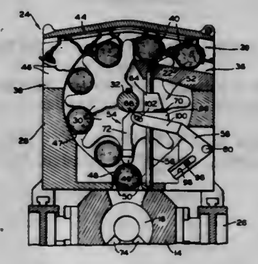


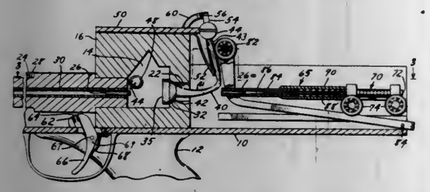
image in a plane essentially at right angles to the optical axis of the objective and at a fixed distance from the objective, said viewer further including a viewing screen spaced from the objective on which an enlarged image of the centering film image is focused by the objective for viewing.

3,320,855
EXTERIOR FEED MECHANISM FOR AUTOMATIC GUNS
Frederick P. Reed, Ludlow, and Albert J. Lizza, Wilbraham, Mass., assignors to the United States of America as represented by the Secretary of the Army
Filed Mar. 24, 1966, Ser. No. 538,186
8 Claims. (Cl. 89—11)



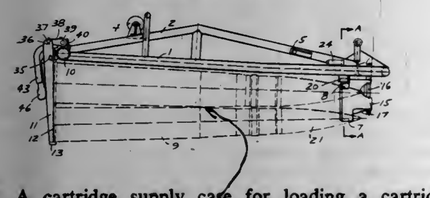
1. In combination with a machine gun having a receiver and a drive motor for operating the machine gun, a separate feeding mechanism for feeding cartridges successively to a battery position in the receiver including a housing replaceably mounted on the receiver, a mouth located in said housing for passage of the cartridge therefrom to the battery position, means for delivering the cartridges successively to said mouth, a feed pawl device arranged for pressing the cartridges in said mouth therethrough to the battery position, a bell crank for actuating said feed pawl device and a Geneva mechanism and a cooperating crank disposed between the drive motor and said bell crank for intermittently displacing said feed pawl in synchronization with the operation of the machine gun.

3,320,856
FIREARM HAVING INTERNALLY SEALED BREECH BLOCK
William A. Robinson, P.O. Box 242, Towaco, N.J. 07082
Filed Oct. 19, 1965, Ser. No. 497,862
7 Claims. (Cl. 89—17)



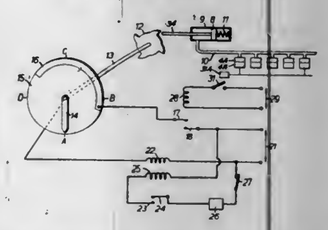
1. An explosive-operated firearm comprising a rifled barrel open at its discharge end and sealed at its loading end by means defining a firing chamber, means defining a breech opening adapted to admit through said breech opening and into said barrel at its loading end a projectile to be fired from said firearm, a valve seat disposed on an internal wall of said firing chamber around said breech opening between said breech opening and said firing chamber, a movable breech-block adapted to mate with and seal against said valve seat from inside the firing chamber, an operating member of cross-sectional area smaller than said breech opening carrying said breech block and extending therefrom through said breech opening to a mount disposed externally of said firing chamber, driving means normally disposed externally of said firing chamber for reciprocating said operating member on said mount to carry said breech block away from said valve seat and into said firing chamber in order to open said breech opening to permit loading of a projectile therethrough into the loading end of said barrel, means normally urging said breech block against said seat, and means for firing an explosive charge within said firing chamber, whereby on explosion of an explosive charge within said firing chamber, said breech block is further urged against said seat by the pressure of the explosion, thereby utilizing the firing chamber pressure to cooperate in maintaining a gas-tight seal of the breech opening.

3,320,857
SUPPLY CASE FOR A CARTRIDGE MAGAZINE OF A GUN
Arent Gustav Carlsson, Karlskoga, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden, a corporation of Sweden
Filed June 9, 1965, Ser. No. 462,495
Claims priority, application Sweden, June 15, 1964, 7,284/64
8 Claims. (Cl. 89—34)



1. A cartridge supply case for loading a cartridge magazine of an automatic gun, said supply case comprising, in combination, a frame structure for stacking cartridges therein, rear cartridge suspension means mounted on the frame structure for releasably supporting the rear portion of a cartridge in said frame structure, said rear suspension means including movable abutment means underlying the rear portion of the cartridge and abutting against the bottom thereof to support said rear portion and to prevent rearward movement of the cartridge in the frame structure, forward cartridge suspension means mounted on the frame structure for releasably supporting the forward portion of the cartridge, said forward suspension means including two gripping members movable relative to each other into and out of a gripping engagement with side wall portions of the forward portion of the cartridge, one of said gripping members being fixedly secured on the frame structure and the other being pivotally supported by the frame structure, actuating means connected to said pivotal gripping member for moving the same into or out of said gripping engagement with the forward portion of the cartridge, and release means coacting with said actuating means to actuate the same for moving the gripping members out of said gripping engagement, said release means being operable by engagement with the magazine when the frame structure and the magazine are moved toward each other during loading of the magazine from the supply case, said gripping members when in the disengaged position opening a passage therebetween for downward movement of the front portion of the cartridge.

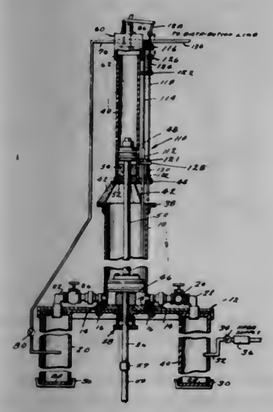
3,320,858
ROOF SUPPORT ASSEMBLIES
Douglas Herbert Hewlett Bolton, Winchcombe, Michael Charles Potts, Prestbury, and Frank Fawling, Charlton Kings, England, assignors to Dowty Mining Equipment Limited, a British company
Filed June 17, 1964, Ser. No. 375,750
Claims priority, application Great Britain, June 21, 1963, 24,829/63
10 Claims. (Cl. 91—1)



1. A proof support assembly including a series of roof supports advanceable in a predetermined sequence, a first signalling means associated with at least some of the roof supports in the sequence to produce a signal of one type as each of these roof supports undergoes an advancing operation, a second signalling means associated with at least some of the roof supports in the sequence to produce a signal of another type as each of these roof supports undergoes an advancing operation, the first and second signalling means being associated with the roof supports in such a manner that, when the roof supports advance in the predetermined sequence, the two types of signals are produced in a predetermined intermingled order, and checking means responsive to the signals of both types and arranged to indicate the occurrence of an incorrect order of receipt of the two types of signals.

3,320,859
HYDRAULIC ACTUATOR
Perry S. Poffenbarger, 1808 Louden Heights Road, Charleston, W. Va. 25314
Filed Oct. 4, 1965, Ser. No. 492,612
2 Claims. (Cl. 91—273)

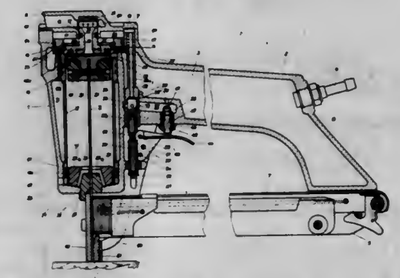
1. A hydraulic motor for reciprocating a sucker rod in an oil well comprising a pair of non-coextensive coaxially aligned cylinders, a first reciprocating piston located within the first of said cylinders to define a first expansible chamber, a second reciprocating piston located within the second of said cylinders to define a second expansible chamber, a first rod means rigidly connecting said first piston and said second piston, a second rod means connected to said first piston and extending without the first expansible chamber for connection with the sucker rod, said respective cylinders and pistons being so dimensioned that the effective area of said first piston is greater than the effective area of said second piston, a capacitor chamber, means for supplying a source of fluid under pressure to said capacitor chamber, communication means between said capacitor chamber and said first expansible chamber, communication means between said capacitor chamber and said second expansible chamber, a first valve interposed in said last mentioned communication means, a second valve connecting said second expansible chamber with the exterior thereof, valve actuating means connected to said



pistons to reciprocate therewith, valve closure means urging each of said valves to a closed position, a valve operating rocker arm mounted juxtaposed said valves to alternately open and shut said valves by alternately impinging thereupon, lost motion means connecting said rocker arm to said valve actuating means whereby the first valve is open and the second valve is closed upon the approach of the pistons to a one extreme position, and whereby the first valve is closed and the second valve is open upon the approach of the pistons to the other extreme position, said rocker arm being so positioned that during one period of its movement it does not impinge upon either valve whereby both valves remain closed to provide snubbing of the movement of the second piston when the same is moving toward said second valve.

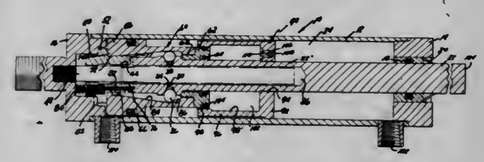
3,320,860
STAPLE DRIVING APPARATUS
Heinz Emil Bade, Hamburg-Garstedt, Germany, assignor to Joh. Friedrich Behrens Maschinenfabrik, Ahrensburg, Holstein, Germany
Filed June 3, 1965, Ser. No. 461,070
Claims priority, application Germany, Dec. 28, 1964, B 79,920
12 Claims. (Cl. 91—461)

1. In a pneumatically operable driving device having a reciprocable driving piston with a driving side adapted when subjected to pneumatic pressure to perform a working stroke, which comprises: a housing having a head portion and a handle portion and including a reservoir adapted to receive air under pressure, said head portion being provided with venting means and including a tubular wall having one end provided with an annular end face, a cylinder body reciprocably receiving said piston and being reciprocable in said tubular wall and having a radially outwardly extending flange portion at that end thereof which is adjacent said end face, the outer diameter of said flange portion being in excess of the outer diameter of said end face, said cylinder body also being provided with passage means therethrough adjacent said flange portion for communication with the driving side of said piston, a cover member arranged inside said flange portion and firmly connected to said cylinder body so as to be movable therewith, said cover member being provided with means for controlling said venting means, said flange portion together with said cover member forming a pneumatically operable differential piston for moving said cylinder body into a first position in which a portion of



said flange portion engages said end face while said passage means is closed by said tubular wall and said venting means is open and into a second position in which said flange portion disengages said end face and said passage means communicates with said driving side and said reservoir while said cover member closes said venting means, and vice versa, that flange side facing said end face forming a portion of the smaller surface of said differential piston and being in continuous communication with said reservoir, and control means for controlling communication of the larger surface of said differential piston with said reservoir and with the atmosphere.

3,320,861
LOCKING FLUID CYLINDER
Harry J. Johnson, Kalamazoo, and Marvin J. Hiemstra, Grand Rapids, Mich., assignors to Mechanical Power Corporation, Grandville, Mich., a corporation of Michigan
Filed Dec. 22, 1965, Ser. No. 515,656
6 Claims. (Cl. 92—14)



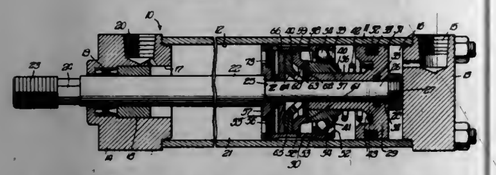
2. A fluid cylinder assembly comprising: a cylinder housing having end closure means and fluid porting means to opposite ends of said cylinder; a fluid responsive piston assembly in said housing; a shaft operably engaged with said piston assembly and extending through an end closure to be operative on an external object; locking means operative by said piston assembly to lock said shaft against reverse movement by reverse force applied to the shaft; fluid cushion connecting means between said shaft and said piston assembly, forming a closed fluid chamber therebetween, normally allowing advancing movement of said piston assembly with said shaft and preventing movement of said piston assembly with respect to said shaft until a predetermined force is applied from said piston assembly to said shaft through said cushion;

and fluid release venting means associated with said fluid cushion, operable upon the occurrence of said predetermined force to vent said cushion; said cushion, when vented, releasing said connection to enable piston assembly movement with respect to said shaft.

3,320,862
FORCE MULTIPLYING AND SAFETY POWER CYLINDER

Lee A. Wright, Kettering, Ohio, assignor to Compressed Air Service Co., Moraine, Ohio, a corporation of Ohio

Filed Mar. 23, 1965, Ser. No. 442,120
11 Claims. (Cl. 92—25)

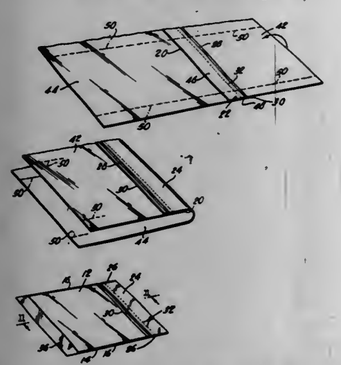


1. Locking means for frictionally locking a piston rod to a cylinder bore when said rod encounters a resisting force of predetermined magnitude, said locking means including a locking bushing adapted to engage a cylinder bore, expansion means carried on said piston rod, said expansion means being adapted for axial movement relative to said rod thereby to expand said locking bushing carried on said piston rod into engagement with said bore, means co-operating with said expansion means to move the same in a direction opposite to the movement of said piston rod for effecting said engagement, said last named means being actuated by a piston head floatingly carried on said piston rod when said piston head moves relative to said rod.

3,320,863
METHOD OF MAKING FLEXIBLE BAG-LIKE CONTAINERS

Myron B. Ells, Somerville, and Frederic W. Bollenbach, Westfield, N.J., assignors to Johnson & Johnson, a corporation of New Jersey

Original application June 12, 1963, Ser. No. 287,371. Divided and this application Dec. 8, 1964, Ser. No. 416,806
14 Claims. (Cl. 93—35)

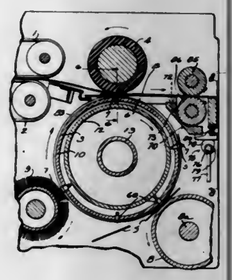


1. The method of making a flat bag which has an integral, secured closure flap comprising overlapping edge portions of sheets of heat-fusible material, one of said sheets being rupturable in its overlapped portion along a line paralleling its edge, securing said sheets in said overlapped portions between said rupturable line and said edge of said one sheet, folding said sheets into superposed relationship about the edge of the other sheet to form the closure flap, and securing the superposed sheets transversely along their side edges and the end edges of said closure flap.

3,320,864
SELF-COMBING PIN TYPE STRIPPER FOR BLANK FORMING APPARATUS

Peter Zernov, Milwaukee, Wis., assignor to Zerand Corporation, Menomonee Falls, Wis., a corporation of Wisconsin

Filed Oct. 30, 1964, Ser. No. 407,817
10 Claims. (Cl. 93—36)

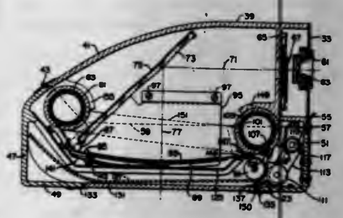


1. In blank forming apparatus the combination with feeding means for advancing a blank having a scrap portion thereon, a rotatable cylinder, stripper pins reciprocally mounted on said cylinder for sliding between positions in which they are extended and withdrawn in respect to the periphery of said cylinder, rotatable means located adjacent said cylinder for cooperation therewith as said blank passes therebetween, said rotatable means being engaged by said pins when extended to facilitate impaling said scrap portion thereon, means within siad cylinder to cause said pins to extend outwardly during a portion of the rotation of said cylinder, and means to cause said pins to retract and thereby withdraw from said impaled scrap portion.

3,320,865
SELF-DEVELOPING PHOTOGRAPHIC CAMERA

Paul J. Good, Springwater, N.Y., assignor, by mesne assignments, to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

Filed June 30, 1964, Ser. No. 379,159
6 Claims. (Cl. 95—13)

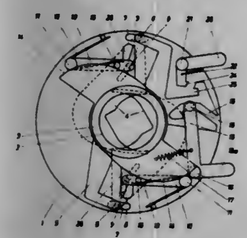


1. A photographic camera adapted for taking pictures while held in the hand and comprising means for holding a portion of a web of sensitized sheet material in exposure position within an exposure area, a first substantially light tight container beyond one edge of said area for containing a rolled web of sensitized sheet material in position so that successive portions thereof may be withdrawn from said first container and moved to said exposure area, a second container beyond the opposite edge of said area for containing a rolled web of processing sheet material imbibed with processing fluid, in position so that successive portions thereof may be withdrawn from said second container and moved into contact with an exposed portion of the sensitized material, said second container enclosing said rolled web of processing sheet material in a sufficiently moisture-tight manner to impede detrimental evaporation of the processing fluid imbibed in the processing sheet material during a normal life interval, a pair of struts spaced from each other on opposite sides of said exposure area and rigidly connecting said two containers to each other for handling as a unit when inserting them in and removing them from said camera, and means for pressing an advancing portion of said processing sheet material into contact with a portion of said sensitized sheet material as the latter is advanced from said exposure position toward a processing position, so that processing fluid imbibed in said processing sheet material may react with the exposed sensitized sheet material in contact therewith.

3,320,866
PHOTOGRAPHIC DIAPHRAGM SHUTTER

Wilhelm Bertram, Sr., Munich-Grafelfing, Germany, assignor to Ernst & Wilhelm Bertram, Munich-Pasing, Germany

Filed June 8, 1965, Ser. No. 462,210
Claims priority, application Germany, June 11, 1964, B 77,207
6 Claims. (Cl. 95—63)



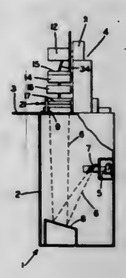
1. Photographic diaphragm shutter in which the shutter lamellae are pivoted around pivot pins, located in spaced relationship to a driving link pin, by means of lamellae operating means driven by a drive lever and by means of a link pin connected and oscillatable with said lamellae for opening and closing of the shutter wherein the lamella opening width is alterable, characterized in that for the altering of the aperture determined by the shutter lamellae, the spacing between the pivot pin and the link pin of each shutter lamellae is changed through changing of one of the two pins in a slot of the lamella by means of appropriate adjustment apparatus.

3,320,867
REPETITIVE CONTACT PRINTER

William E. Miller, Salem, Ohio, assignor to Miller-Holzwarth, Inc., Salem, Ohio, a corporation of Ohio

Filed Sept. 1, 1964, Ser. No. 393,593
9 Claims. (Cl. 95—75)

1. In a contact printer having a light-excluding cabinet with a top surface, the surface having a contact printing opening, means for mounting negative film and raw stock over the opening, a stationary platen mounted over and spaced above the opening, a normally deflated air bag mounted on the platen and facing the opening, the air bag providing a clearance space between the bag and the contact printing opening when the bag is in a deflated position, means for inflating the air bag to occupy the clearance space and cover the contact printing opening, whereby the inflated bag holds a negative film and raw stock in surface-to-surface contact for exposure over the opening.



3,320,868
OUTLET GRILL FOR AIR DUCTS

Dimitri Apouchtine, 45 7th Ave., Roxboro, Quebec, Canada

Filed May 17, 1965, Ser. No. 456,176
6 Claims. (Cl. 98—40)



1. A distribution grill for air ducts comprising a housing defining an air outlet to said duct, the said housing having a front U shaped frame, an inner louvred core and an outer louvred core, the louvres of one core being disposed in planes at right angles to the plane of the louvres in the other of said cores, the said inner and outer cores have lower side portions thereof cut at an angle and the said U shaped frame has upper side portions cut at an angle complementary to the angle cut of the said cores permitting the said cores to be withdrawn from the said U shaped frame at approximately half the vertical height thereof, the said cores adapted to be positioned in face to face relationship within the said housing and being individually insertable and withdrawable from the said housing through the open end portion of the said U shaped frame.

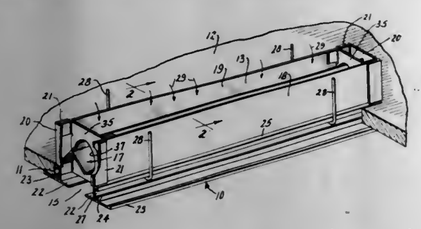
3,320,869
AIR DISTRIBUTOR

Albert W. Schach, Rockford, Ill., assignor to Barber-Colman Company, Rockford, Ill., a corporation of Illinois

Filed Sept. 26, 1966, Ser. No. 582,032
13 Claims. (Cl. 98—40)

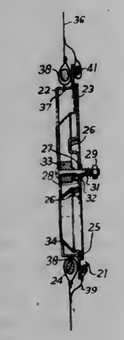
10. An air distributor having, in combination, spaced sidewalls defining the sides of an air passage having an elongated outlet end, means at said outlet end reducing

the width of said passage and forming an elongated discharge slot between said sidewalls, an elongated vane assembly overlying said discharge slot within said passage and rotatable about a longitudinal axis generally parallel to the slot, support plates spaced apart within said passage longitudinally of said vane assembly and having



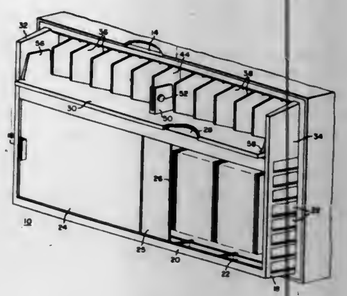
alined holes through which said assembly extends, said assembly comprising a plurality of elongated vanes having outer longitudinal edges each spaced radially from said axis, and said holes having arcuate walls engaging said edges and mounting said assembly for rotation in said passage between different angular positions.

3,320,870
VENTILATORS FOR INFLATABLE BUILDINGS
Brian Richard Arnold Reffell, Southall, Middlesex, England, assignor to Specialties Development Corporation, Belleville, N.J., a corporation of New Jersey
Filed Mar. 11, 1965, Ser. No. 438,906
Claims priority, application Great Britain, Mar. 13, 1964, 10,857/64
5 Claims. (Cl. 98—41)



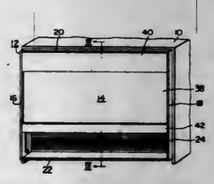
1. A ventilator comprising a stationary part having a plurality of circumferentially spaced apertures therein, a rotatable part on said stationary part and having as many circumferentially spaced projections thereon as there are apertures which projections register with and extend into said apertures when said parts are in a first position, and centrally located means for rotatably mounting said rotatable part on said stationary part, said projections having a cam surface on the side thereof for engaging a portion of said stationary part between said apertures to lift said projections out of said apertures upon rotation of said rotatably mounted part to a second position, said parts being constructed and arranged to yield with respect to each other when in the second position, said parts having cooperating annular sealing surface means adapted to engage and form a seal when said rotatably mounted part is in the first position.

3,320,871
ROOM AIR CONDITIONER FRONT
Evert S. Wegman, Columbus, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed July 26, 1965, Ser. No. 474,615
8 Claims. (Cl. 98—94)



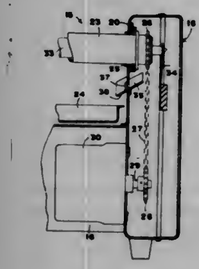
1. In a room air conditioner:
means defining an upper conditioned air outlet including opposite end walls and a bottom wall;
a unitary vertical air deflector including a main deflecting portion, and right angle end portions nested within said opposite end walls of said outlet in facing relation; and
means pivotally connecting said deflector ends to said outlet end walls for adjusting said deflector in tiltable fashion between a horizontal position overlying said bottom wall and an upright position, said connecting means biasing said deflector toward said bottom wall and being yieldable in an opposite direction to accommodate said tiltable adjustment with said deflector frictionally engaging said bottom wall.

3,320,872
AIR CONDITIONER
Evert S. Wegman, Upper Arlington, Ohio, assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Jan. 10, 1966, Ser. No. 519,608
7 Claims. (Cl. 98—94)



1. A front assembly in combination with the room face of a room air conditioner having an upper conditioned air outlet and a lower room air inlet, comprising:
unitary panel means having an upper closed position covering said outlet and the upper portion of said inlet, and a lower open position exposing said outlet and extending outwardly in canopy fashion from said inlet; and
means mounting said unitary panel means for movement between said positions, said mounting means including first connecting means connecting the upper portion of said unitary panel means for substantially vertical sliding movement and concurrent pivotal movement, and second connecting link means connecting the lower portion of said unitary panel means for movement toward and away from said inlet and vertically relative to said inlet in accordance with said vertical movement of said upper portion.

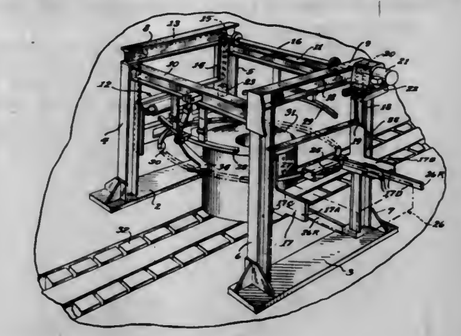
3,320,873
HEATING AND ROASTING DEVICES, WITH SYSTEM FOR COLLECTION OF GREASE DRIPPINGS
Hans G. Nissen and Alexander I. Martin, both of 35 Reida St., Plainview, N.Y. 11803
Filed Dec. 6, 1965, Ser. No. 511,839
12 Claims. (Cl. 99—423)



1. In a heating and roasting device of the type having a plurality of horizontally positioned, slightly spaced parallel rollers housing heating elements and spanning opposite, spaced, upright first and second walls supporting said rollers in holes therethrough, for rotation over a drip pan extending between said walls; the improvement being means for guiding into the drip pan, grease dripping from said rollers onto and near both surfaces of both said walls, comprising first, second, third and fourth members to receive grease dripping from said rollers and wall surfaces; the first member being on that surface of the first wall which faces the second wall, and arranged to lead grease coming thereon, to fall into said drip pan; the second member being a gutter on the other surface of the first wall; said first wall having a first opening through which grease coming into said gutter, will drain out of, means leading from said first hole, to guide the discharge from said first hole, to drop into said drip pan; the third member being on that surface of the second wall which faces the first wall, and arranged to lead grease coming thereon, to fall into said drip pan; the fourth member being a gutter on the other surface of the second wall; said second wall having a second opening through which grease coming into said gutter which is the fourth member, will drain out of, and means leading from said second hole, to drop into said drip pan; all said members being under the rollers, extending from a wall surface respectively, and positioned above the plane of the mouth of the drip pan, into which all drippings eventually enter, when said rollers, walls and members are in hot condition sufficient to maintain the grease in molten state.

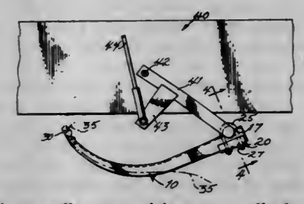
3,320,874
STRAPPING MACHINE
Ralph L. Gasper, Lansing, Robert A. Johnson, Flossmoor, and Robert G. Treptow, Park Forest, Ill., assignors to Interlake Steel, Chicago, Ill., a corporation of New York
Filed Sept. 27, 1965, Ser. No. 490,566
19 Claims. (Cl. 100—3)

1. The method of wrapping a spiral coil comprising, providing a strap loop in encircling relation to the coil, shrinking the strap loop into contact with the outer wrap of the coil, maintaining such contact of the strap loop



while rotating the entire loop in a direction to wrap the coil tight.

3,320,875
AGRICULTURAL APPARATUS
Clyde G. Vidrine, Memphis, Tenn., assignor to International Harvester Company, a corporation of Delaware
Filed Mar. 15, 1965, Ser. No. 439,587
3 Claims. (Cl. 100—24)



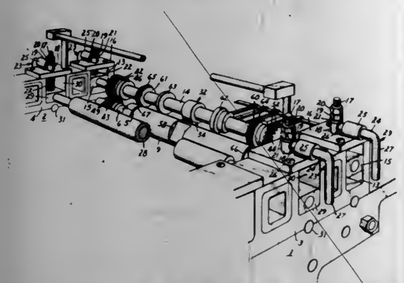
1. A baler needle, comprising: a needle body including an elongated spine portion and a pair of walls projecting from said spine portion, said walls facing each other to form a U-shaped passage therebetween; a seat for mounting said needle body on a baler needle tie pipe formed in said spine portion and said walls; a needle cap on said needle body, said cap bearing against the outer ends of said walls and extending across said passage; and fastening means for holding said needle cap on said needle body and said needle body on a baler needle tie pipe.

3,320,876
EMBOSSING APPARATUS FOR ENVELOPE MACHINES
Joseph J. Salvatore, Minneapolis, Minn., assignor to Heinrich Envelope Co., Minneapolis, Minn., a corporation of Minnesota
Filed Nov. 6, 1963, Ser. No. 321,837
4 Claims. (Cl. 101—23)

1. In an envelope-making machine having a frame structure comprising opposed end frame members:
(a) a lower roller journalled in said end frame members, said lower roller comprising:
(1) an elongated central shaft,
(2) an elongated sleeve secured on said shaft, and
(3) said sleeve having a female recess in the outer surface thereof,
(b) an upper shaft journalled in said end frame members in general parallelism with said lower roller,
(c) an embossing member on said upper shaft and having a male boss for cooperation with the recess of said lower roller for embossing envelopes passing between said lower roller and said upper shaft, and

(d) drive means for imparting rotation to said lower roller and said upper shaft and causing alignment between said male boss and said female recess as the envelope material passes therebetween, said drive means comprising:

(1) a first pair of cooperating spur gears disposed adjacent one end portion of said lower roller and one thereof being secured on the shaft of said lower roller and the other thereof being secured on said upper shaft, said gears having teeth with leading and trailing faces relative to their respective directions of rotation,



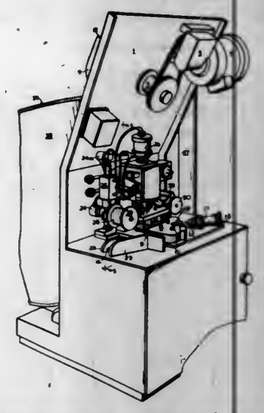
(2) a second pair of cooperating spur gears disposed adjacent the other end portion of said lower roller and one thereof being secured on the shaft of said lower roller and the other thereof being secured on said upper shaft, said gears having teeth with leading and trailing faces relative to their respective directions of rotation,

(3) said first pair of gears being disposed relative to one another with the leading faces of the teeth of said one of said first pair of gears engaging the trailing faces of the teeth of said other thereof and said second pair of gears being disposed relative to one another and relative to said first pair of gears with the trailing faces of the teeth of said one of said second pair of gears engaging the leading faces of the teeth of said other gear of said second pair of gears,

(4) whereby backlash between the gears and play between the shafts is reduced.

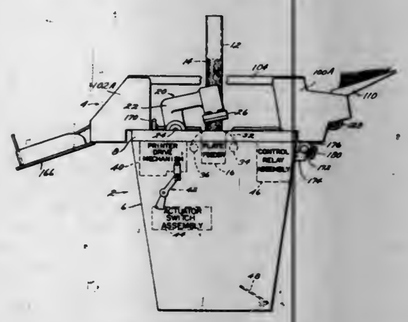
3,320,877
SHIVE BRANDING MACHINE
Jack W. Bell, Ashfield, New South Wales, Australia, assignor to Ceeco Products Pty. Limited, New South Wales, Australia, a company of New South Wales
Filed Nov. 10, 1965, Ser. No. 507,157
2 Claims. (Cl. 101—44)

1. A shive branding machine comprising in combination on a frame, a shive positioner in the form of a shallow cylindrical tumbler drum mounted for rotation at an acute angle and means to rotate said drum, said drum having an inlet opening in its top and slots on a common pitch circle through its wall adjacent its bottom, said slots being so shaped that shives can only pass through them in a position in which said shives are to be printed, a shive receiving duct located to receive shives passed through said slots and to direct them to fall to a printing station, said duct being shaped to maintain the shives passing through it in the printing position, a shive receiver comprising a quadrant plate having a part circular through slot in its periphery to receive and support one shive at a time at the printing station with part of said shive projecting out of said slot, said projecting part forming with the periphery of the quadrant plate a barrier against movement of the next shive out of the shive receiving duct, pneumatic means pivoted to the frame and to the quadrant plate to oscillate said quadrant plate to and fro horizontally between the printing station and a shive ejecting position, a reciprocatable printing head, a hot plate and a hot stamping foil tape, means to reciprocate the printing head and to move the foil tape across



the printing station and to operate the shive receiver all in a timed sequence, said means including a micro-switch located to be actuated by the entry of a shive into said slot to initiate the printing operation.

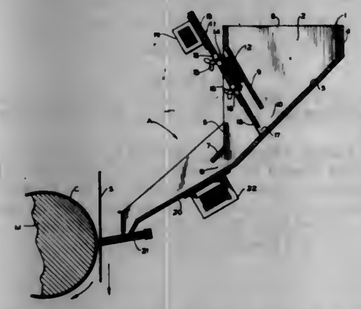
3,320,878
SHEET FEEDER INTERRUPTER CONTROL FOR ADDRESS PRINTING MACHINE
Thomas J. Mitchell, Darien, Conn., assignor to Pitney-Bowes, Inc., Stamford, Conn., a corporation of Delaware
Filed Jan. 14, 1966, Ser. No. 520,622
10 Claims. (Cl. 101—57)



1. In combination: (1) a printing machine comprising a table top with a printing position thereon to which printing plates are fed, a printing mechanism with impression means for making printed impressions from said printing plates at said printing position, a first electric motor, and a drive mechanism, powered by said first motor for cyclically operating said printing mechanism: and (2) an automatic sheet feeder comprising a frame having a bridging structure that extends across said table top over said printing position, said frame being separable from said machine, means moveably supporting said frame so that it can move sidewise relative to said table top, a supply hopper on said frame for holding a supply of sheets to be printed, a second electric motor supported by said frame, feeder means for separating said sheets and feeding them one at a time to said bridging structure, electrically controlled feeder drive means for driving said feeder means from said second motor, sheet

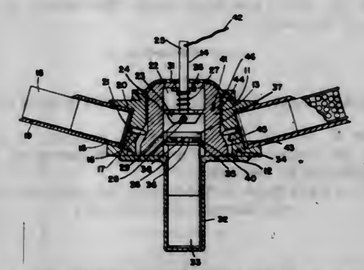
transporting means for advancing separated sheets along said bridging structure to an operating position over said printing position and thereafter out of said operating position, means for driving said sheet transporting means from said second motor, electrically operated stop means for adjustably stopping each sheet at said operating position, said stop means mounted on said frame, a first control circuit for said electrically controlled feeder drive means including switch means actuated by said drive mechanisms for cyclically operating said feeder drive means so that sheets are separated and fed from said supply hopper at spaced intervals, a second control circuit for said electrically operated stop means including switch means actuated by said drive mechanism for cyclically operating said stop means so that each sheet is stopped at said printing position for a predetermined time during which said printing mechanism is operated to produce an iimpression on the stopped sheet from a printing plate at the printing position and thereafter is released for movement away from printing position by said sheet transporting means, means for sensing an interruption in the normal one at a time movement of sheets, and electrical control means responsive to said sensing means for deactivating at least one of the following: said drive mechanism and said feeder drive means.

3,320,879
INK DELIVERY SYSTEM EMPLOYING VIBRATING WIRES
James W. Edwards, Creve Coeur, and Rodney W. Stout, Webster Groves, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Filed Oct. 8, 1965, Ser. No. 494,165
10 Claims. (Cl. 101—335)



1. A feeding mechanism for electrostatic printing systems and the like which include a counter-electrode and an electrostatic printing screen with an electrostatic field established therebetween; said feeding mechanism comprising a container having a lower wall and a side wall, said container also having an interior chamber for housing electroscopic ink, said side wall being spaced from said lower wall thereby forming a discharge slot therebetween, a plate operatively mounted on said side wall and extending toward said lower wall, resilient means operatively interposed between said side wall and said plate, a plurality of wires having one end rigidly mounted on said plate and extending toward said lower wall, said wires being disposed across the entire length of said discharge slot and terminating at their lower ends in close proximity to said lower wall for selective metering of electroscopic ink, the spacing between each of said wires being sufficiently small to prevent flow of ink particles therethrough when said wires are in a static state, and vibratory means operatively mounted on said plate for virbating said wires to an extent sufficient to permit ink particles to pass through the spacings between each of the wires.

3,320,880
ANTIPERSONNEL MINE
Robert J. Carlson, Somerville, N.J., assignor to the United States of America as represented by the Secretary of the Army
Filed Nov. 25, 1964, Ser. No. 413,757
4 Claims. (Cl. 102—8)



1. In an antipersonnel mine having a substantially cylindrical main body, said body having

a plurality of equiangularly spaced radial bores and an axial bore therethrough,

a housing having an upper end and a lower end in said axial bore in slidable relation with said main body and having an axial bore therein, a peripheral cam on the lower end of said housing,

pressure producing means fixed to said main body and disposed in said housing axial bore at the lower end thereof for providing a moving force to said housing to move said housing vertically upwardly,

a triggering mechanism disposed in said housing axial bore above said pressure producing means and axially aligned therewith,

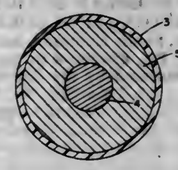
means providing a downwardly directed moving force on said triggering mechanism,

means holding said triggering mechanism at stationary relation with said main body, said holding means being adapted to release when a predetermined force is applied to said triggering mechanism both when directed horizontally therethrough and when directed vertically downward therethrough,

a plurality of shotgun shells inserted in said main body radial bores positioned to fire outwardly therefrom,

primer means in said main body radial bores for firing said shotgun shells, and a firing pin aligned with each of said primer means and having a rearward portion positioned in the upward path of said housing cam, so constructed and arranged that said primer means are actuated to fire said shotgun shells substantially simultaneously by the upward movement of said housing cam.

3,320,881
CABLE MUNITION
Nicholas W. Brett, Baltimore, and Royale R. Crabtree, Towson, Md., assignors to the United States of America as represented by the Secretary of the Army
Filed Jan. 19, 1965, Ser. No. 426,698
3 Claims. (Cl. 102—23)



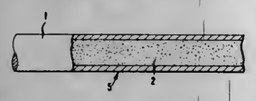
1. A cable of indeterminate length comprising a line with a flexible covering adapted to be coiled on a reel and rupturable on detonation, a Prima Cord within said flexible cover extending the full length thereof, a chemical

agent with a lethal capability filling the remaining space within the cable, self-detonating fuzes attached to both ends of said Prima Cord to insure complete detonation upon a break in the cable, said cable adapted to be placed in operative position by unreeling from an air or land conveyance and on detonation rupturing the flexible cover to release the lethal chemical agent throughout the entire length of the cable.

3,320,882
HIGH VELOCITY IGNITION-PROPAGATING CORD

William E. Schulz, Wenonah, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Sept. 1, 1964, Ser. No. 393,561
8 Claims. (Cl. 102—27)

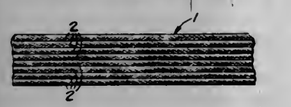


1. A high velocity ignition-propagating cord consisting of, by weight, a continuous column of a mixture of from about 50 to 95 percent lead azide and from about 5 to 50 percent particulate metal confined in a metal sheath at a distribution of from about 0.5 to 200 grains of said mixture per foot of length of said sheath, said lead azide being present in an amount of at least about 0.25 grain per foot of length of said sheath.

3,320,883
EXPLOSIVE TAPE

David Martin Welsh, Brownsburg, Quebec, Canada, assignor to Canadian Safety Fuse Company Limited, Montreal, Quebec, Canada, a corporation of Canada

Filed Oct. 18, 1965, Ser. No. 496,928
Claims priority, application Canada, Sept. 3, 1965, 939,889
6 Claims. (Cl. 102—27)



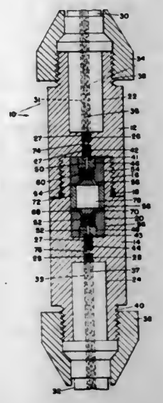
1. A weftless explosive tape comprising essentially more than two flexible strands of substantially the same cross section bonded together by means of an adhesive in parallel, co-planar longitudinal relationship when in the flat condition, at least one of said strands being an elongated cord-like material having a core of high explosive confined within a textile sheath, said tape being further characterized by complete flexibility across its width and length.

3,320,884
PYROTECHNIC DELAY DEVICE FOR MILD DETONATING CORD

James F. Kowalick, South Hampton, and George F. Hare, Jr., Feasterville, Pa., assignors to the United States of America as represented by the Secretary of the Army

Filed Jan. 12, 1966, Ser. No. 520,832
8 Claims. (Cl. 102—27)

1. A pyrotechnic delay comprising a male member and a female member, said male member including a mild detonating fuze housing, said housing terminating at a first end in an external booster cap, and at a second end in a mild detonating cord having a fabric covering, said female member being threaded to receive said male member, said female member including a mild detonating fuze housing, said housing terminating at a first end in an external booster cap and at a second end in a mild detonating cord having a fabric covering, said male member being threaded to be inserted inside of said female member, a seal between said male and female members, a delay housing provided in said male member, said delay

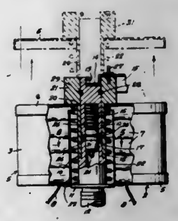


housing separated from said external booster caps by webs, said delay housing including a metallic cylinder, a large metallic cup, having a plurality of vent holes therein, located on either side of said cylinder, said large metallic cups having smaller metallic cups therein, said smaller metallic cups having vent holes therein, and an internal booster cap located in each smaller metallic cup.

3,320,885
PARACHUTE RELEASE AND FIRING PIN ARRANGEMENT FOR SMOKE MARKER OR THE LIKE

John E. Foster, Timonium, Mitchell G. Angelos, Cockeysville, and Henry M. Stromberg, Jr., Ellicott City, Md., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Army

Filed Sept. 15, 1965, Ser. No. 487,644
4 Claims. (Cl. 102—35.6)

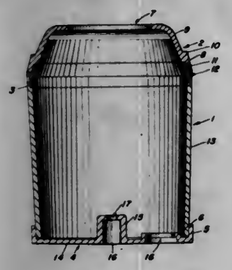


1. A parachute release and firing pin arrangement for attachment to a smoke marker comprising in combination, a collapsible container, a parachute in said container, a spring loaded telescoping means disposed centrally in said container, a releasable handle normally holding said telescoping means in closed position and a spring biased firing pin slidably mounted in said telescoping means and being held in a cocked position when said telescoping means is closed, said container to collapse when said handle is released and said telescopic means are separated to free said parachute to open and said firing pin is freed to initiate firing of said smoke marker.

3,320,886
CARTRIDGE CASE AND METHOD FOR THE MANUFACTURE THEREOF

Peter L. De Luca, Elgin, Ill., assignor to Hawley Products Company, St. Charles, Ill., a corporation of Delaware

Filed Aug. 31, 1965, Ser. No. 483,988
10 Claims. (Cl. 102—43)

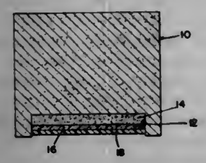


1. A combustible cartridge case comprising as components a tubular body, a top cap, an annular joining band positioned within said cartridge case and secured to the upper part of said tubular body and the lower part of said top cap, and a base having upwardly extending peripheral walls engaging the lower part of said tubular body, all of said components of said cartridge case being fully combustible.

3,320,887
COMBUSTIBLE PRIMER PLUG

Joseph B. Quinlan, Philadelphia, Pa., and John J. Scanlon, Jr., Willingboro, N.J., assignors to the United States of America as represented by the Secretary of the Army

Filed Aug. 3, 1965, Ser. No. 477,046
3 Claims. (Cl. 102—45)



1. A combustible primer plug for caseless ammunition comprising a molded propellant, a pocket in said molded propellant, a primer mix secured in said pocket for initiating said molded propellant, a combustible means for holding said primer mix in said pocket, and a thermal seal secured on top of said combustible means.

3,320,888
CONTINUOUS ROD WARHEAD

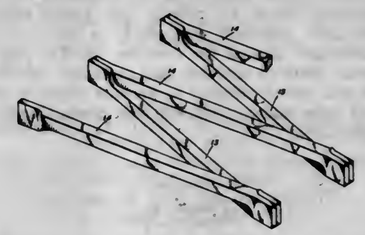
Frank F. Churchill, Dahlgren, Va., assignor to the United States of America as represented by the Secretary of the Navy

Filed Mar. 31, 1965, Ser. No. 444,471
5 Claims. (Cl. 102—67)

1. A continuous rod warhead for an ordnance device, the outer periphery of which is defined by a surface of revolution, comprising:

a plurality of rods substantially aligned with the longitudinal axis of the device and disposed around the outer periphery of the warhead in a plurality of layers;

the ends of each respective rod being characterized by an enlarged tab-like planar portion, which plane is defined by the axis of the respective rod and an intersecting radial of the warhead;

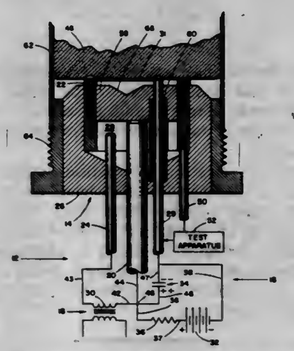


each tabbed end of the respective rods being securely joined in the form of a lap joint to the corresponding tabbed end of a rod of an adjacent layer.

3,320,889
DETONATION INITIATOR

Charles E. Holtz, Lakewood, Calif., assignor to Aerojet-General Corporation, Azusa, Calif., a corporation of Ohio

Filed Feb. 12, 1965, Ser. No. 432,325
6 Claims. (Cl. 102—70.2)



4. Igniter apparatus for being received within a chamber containing an explosive charge to be detonated, comprising:

a tube-like electrode having its ends closed by insulative material to define a sealed chamber within;

a pair of elongated electrodes extending through the insulative material with one end of each disposed within the sealed chamber and the other ends lying outwardly of the insulative material;

an ionizable gas disposed within the sealed chamber;

vaporizable resistance means having a pair of terminals, one of which terminals is affixed to and electrically related with the tube-like electrode;

a selectively switchable remotely located source of electric power; and

interconnecting lead wires relating the source of power to the tube-like and elongated electrodes and the other terminal of the vaporizable resistance means.

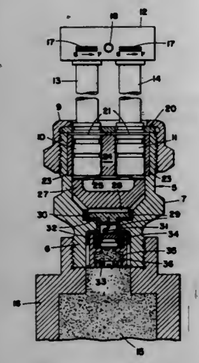
3,320,890
PIEZO-ELECTRIC DETONATION INITIATOR SYSTEM

Thomas Q. Ciccone, Langhorne, Pa., and William E. Perkins, Runnemede, N.J., assignors to the United States of America as represented by the Secretary of the Army

Filed May 6, 1965, Ser. No. 453,845
5 Claims. (Cl. 102—70.2)

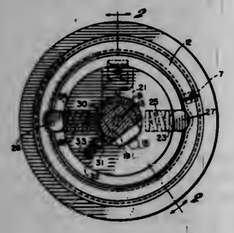
2. A unitary piezo-electric detonator apparatus for controlled firing of explosive charges and the like comprising in combination,

an elongated hollow casing,
a movable piston element mounted therein,
detonating means for driving said piston element in an axial direction comprising a pair of booster cartridges adapted for fuse-line ignition and a disc spring element between said cartridges and one end of said piston element to provide pressure distribution from said cartridges to said piston element upon detonation,



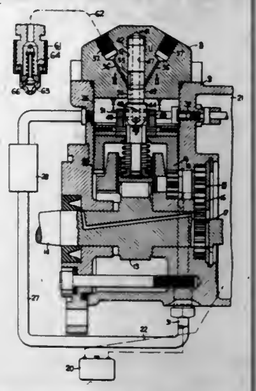
a piezo-electric disc, one face engaging the opposite end of said piston element for which it provides an electrode element and a second electrode element on the opposite face thereof and insulated from the casing,
an insulated electric detonation initiator element flexible connected with said second electrode element for receiving a high-voltage firing charge therefrom in response to detonation pressure on said disc, and
a detonator cartridge mounted in alignment with said initiator element for receiving a firing charge therefrom in response to ignition of either booster cartridge in operation.

3,320,891
DELAYED ACTION FUZE
Donald E. Holmes, Greenville, Ohio, assignor to Avco Corporation, Richmond, Ind., a corporation of Delaware
Filed Oct. 4, 1965, Ser. No. 492,683
5 Claims. (Cl. 102—82)



1. In a fuze of the type comprising a striker and relatively angularly movable rotor and stator members for bringing the striker into alignment with a firing train, the combination of:
a flexible tube containing a hydraulic fluid carried by one of said members,
said members defining a raceway, and roller means disposed in said raceway and urged from the other member to constrict said tube to propel fluid through an orifice in order to regulate rotation between said members.

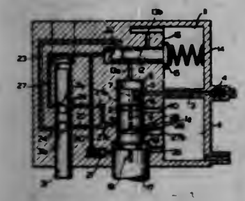
3,320,892
FUEL INJECTION SYSTEM
George D. Wolff, Hazel Crest, Ill., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Filed Dec. 20, 1965, Ser. No. 522,907
8 Claims. (Cl. 103—2)



1. In a distributor type fuel injection pump the combination comprising:
a pump housing including
a bore,
a plurality of valveless delivery passages adapted to connection to fuel delivery lines, respectively,
an injection pressure chamber, and
a supply chamber,
means supplying fuel to said supply chamber and maintaining the latter at a pressure substantially above atmospheric pressure,
means for cyclically transferring fuel from said supply chamber to said injection pressure chamber and for pressurizing it to an injection pressure including a reciprocable pump plunger in said bore, and
rotating valve means in said housing between said injection pressure chamber and said delivery passages cyclically and individually connecting said delivery passages to said injection pressure chamber during the pumping stroke of said plunger and passage means in said valve means independent of said second named means cyclically connecting said delivery passages in continuous free flow fluid communication with said supply chamber during a major portion of the time they are disconnected from said injection pressure chamber.

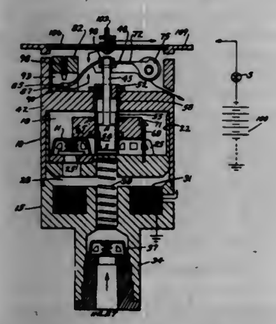
3,320,893
REGULATED INJECTION PUMP
Claus Köster, Unterweissach, and Gerald Höfer, Stuttgart, Germany, assignors to Robert Bosch G.m.b.H., Stuttgart, Germany,
Filed May 11, 1966, Ser. No. 549,228
Claims priority, application France, May 14, 1965, 17,104
11 Claims. (Cl. 103—41)

1. Regulated injection pump comprising, in combination, main pump means having an inlet, at least one delivery conduit, and a relief conduit, and including a reciprocable main piston; a control cylinder member located in said relief conduit and having a throttling conduit and an outlet conduit opening into said throttling conduit; a control piston member located in said control cylinder member, one of said members being biassed to move in one direction to a position closing said outlet and relief conduits; auxiliary pump means operating in synchronism with said main pump means and having an inlet for a fluid; supply conduit means connecting said auxiliary pump means with said control cylinder member so that said auxiliary pump means pumps the fluid through said supply conduit means into said cylinder member for moving said biassed member opposite to said one direction for first opening said relief conduit and for then connecting said supply conduit means with said outlet conduit, said supply conduit means having a check valve blocking flow into said auxiliary pump means so that the fluid is pressed through said throttling conduit by said biassed member returning in said one direction whereby at high speeds the



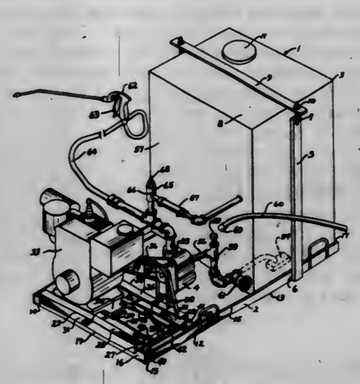
output of said main pump means is reduced; and control valve means operating in timed relation with said main piston, and being located in said throttling conduit downstream of said outlet conduit for opening said outlet and throttling conduits during the suction strokes of said main piston for the same time periods which are shorter than the intervals between successive pump strokes of said main piston whereby said biassed member returns in said one direction only during said shorter time periods.

3,320,894
ELECTRIC FUEL PUMP
John E. Feldman, Fairfield, Ill., assignor to Airtex Products Division of United Industrial Syndicate, a corporation of New York
Filed Aug. 3, 1965, Ser. No. 476,903
4 Claims. (Cl. 103—53)



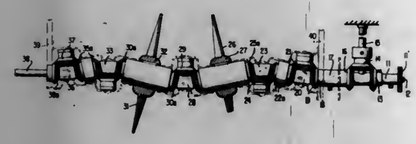
1. An electric pump comprising a housing having an intake chamber and an outlet chamber and valves for respective chambers, a solenoid in said housing, a piston comprised of magnetic material so as to be attracted to said solenoid when energized, a spring for normally biasing said piston away from said solenoid, a first magnet carried by said piston and polarized in a direction axially of said piston, a second magnet carried by said housing, and contact means actuatable by said second magnet, said second magnet being polarized in a direction axially of said piston, like poles of said magnets being at the same ends thereof, whereby movement of said first magnet effects repulsion in an opposite direction of said second magnet for effecting snap opening and closing of said contacts, said contacts being operative to energize said solenoid when engaged and to deenergize said solenoid when disengaged whereby repetitive reciprocation of said piston is effected.

3,320,895
SPRAYING APPARATUS WITH PUMP AND MOTOR ADJUSTMENT
Richard A. Peterson and Garland R. Peterson, both of 3316 Denver, Muskogee, Okla. 74401
Filed Jan. 14, 1965, Ser. No. 425,477
2 Claims. (Cl. 103—57)



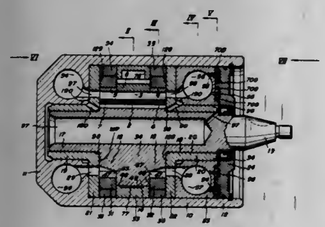
1. In portable pressure spray apparatus:
(a) a frame and a pump, means securing said pump to said frame, said pump having a driving pulley,
(b) said frame including structure forming guide means, a mounting member engaged with said guide means for moving with respect to said frame, a prime mover fixed to said mounting member and having an output pulley transversely aligned with and spaced from said pump pulley, a flexible power transmission belt engaging said pulley,
(c) means mounted between said mounting member and said frame for selectively moving said mounting member to produce movement of said pulleys toward and away from each other resulting in a loosening and tightening respectively of said belt on said pulleys,
(d) said means for moving said mounting member including a pair of coaxially aligned bearing members extending longitudinally of said frame and secured to said frame in spaced apart relation respectively adjacent said guide means,
(e) an axle member rotatably mounted at opposite ends thereof in said bearing members and having a pair of parallel spaced apart radially extending lever arms fixed thereto, means for rotating said axle member,
(f) a pair of anchor members fixed to said mounting member and respectively aligned with said lever arms, a pair of elongated rigid links pivotally connected at opposite ends thereof to said respective aligned anchor members and lever arms whereby rotation of said axle member produces movement of said mounting member, and
(g) a stop member secured to said frame and positioned to engage said lever arms to prevent further rotation of said axle member in one direction beyond a few degrees past the point of maximum separation between said plate and said axle member.

3,320,896
NUTATING PROPELLER PUMP
Robert Roy, Jr., 257 Langmaid Lane, Bradford, Pa. 16701
Filed Oct. 5, 1965, Ser. No. 493,040
10 Claims. (Cl. 103—94)



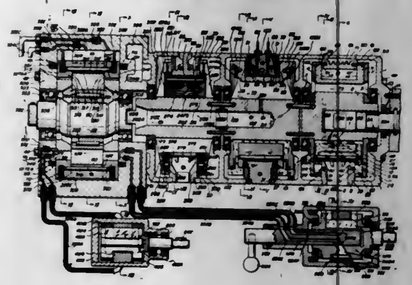
1. In a device of the type described, a first rotatable member mounted for rotation about a first axis, a second rotatable member mounted for rotation about a second axis forming a predetermined angle with said first axis, a third rotatable member mounted for rotation about a third axis forming a predetermnied angle with both said axes, a fourth rotatable member mounted for rotation about a fourth axis parallel to that of said second member, a fifth rotatable member mounted for rotation about a fifth axis parallel to said third member, a sixth rotatable member mounted for rotation about the same axis as said first member, propeller means mounted on said third and fourth members, and means coupling said members whereby there may be imparted to said propellers both a rotating and a nutating motion.

3,320,897
FLUID HANDLING ROTARY VANE MACHINE
Karl Eickmann, 2420 Isshiki, Hayama-machi, Kanagawa-ken, Japan
Filed Dec. 24, 1964, Ser. No. 420,993
Claims priority, application Germany, Jan. 2, 1964, E 26,148
37 Claims. (Cl. 103—120)



1. A fluid handling device comprising a housing; a rotor rotatably mounted in said housing and containing vanes, each with a radially extending medial vane portion and end portions extending axially therefrom, in slots of said rotor, which move substantially radially upwards and outwards in said slots; a radially enlarged medial rotor part and end portions axially disposed on said medial rotor part provided on said rotor; slot portions located in said medial rotor part, for guiding the medial portions of said vanes on walls of said slots in said medial rotor part; shaft portions extending axially from said rotor; cover means provided on said housing engaging each one rotor end; each one casing member enclosing each a part of the rotor end portions axially of said medial rotor part; each one working chamber formed between an end portion of the rotor, the medial rotor part, a casing member and a cover means and separated from each other by said radially enlarged rotor part, said working chambers being divided by said axially extending end portions of said vanes into a plurality of intervane spaces which periodically increase and decrease their volume and intake and expel fluid when the inner faces of said casing members at different angular locations are differently distanced from the axis of the rotor, while said rotor revolves respectively to said housing; and passage means for passing fluid into and out of said intervane spaces of said working chambers.

3,320,898
POWER PRODUCING, POWER TRANSFORMING, POWER TRANSMITTING AND/OR FLUID MACHINE
Karl Eickmann, 2420 Isshiki, Kanagawa-ken, Japan
Filed Dec. 5, 1963, Ser. No. 328,395
3 Claims. (Cl. 103—130)

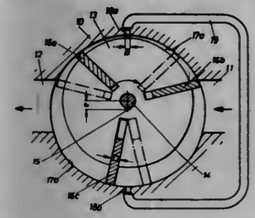


1. A vane-type fluid machine, comprising a stationary casing defining a working chamber therein, a crank shaft rotatably mounted in said casing, a closure member freely rotatable on said crank shaft and spaced inwardly from the interior of said casing, the space between said casing and said closure member defining an annular working chamber, said casing having side walls extending radially inwardly on each side of said closure member, a plurality of slots defined at spaced peripheral locations on the interior of said casing and extending into said side walls beyond the side edges of said closure member, vanes slidably movable in said slots and extending beyond each side of said closure member into said side walls and being guided on walls of said slots in said side walls, each vane having an end in sliding engagement with the periphery of said closure member and dividing said working chamber into a plurality of inter-vane spaces, and inlet and outlet conduit means communicating with said working chamber, said vane spaces increasing and decreasing in volume in said working chamber periodically around the periphery of said closure member and thereby intaking and expelling fluid when the crank shaft revolves, said vanes being movable into and out of said slots, said slots defining inter slot chamber on the sides of said vanes, said inlet and outlet conduit means including a separate inlet and outlet for each of said inter slot chambers.

3,320,899
VANE PUMPS AND MOTORS
Hubert Freiherr von Thuengen, Friedrichshafen, and Otto Doleschalek, Tettnang, Germany, assignors to Zahnradfabrik Friedrichshafen Aktiengesellschaft, Friedrichshafen am Bodensee, Germany
Filed Aug. 10, 1965, Ser. No. 478,552
Claims priority, application Germany, Aug. 17, 1964, Z 11,034
2 Claims. (Cl. 103—136)

1. In a rotary vane type pump comprising a casing having an inlet and an outlet duct, a rotor in said casing comprising angularly spaced vanes effecting cells for pumping fluid from said inlet duct to said outlet duct, wherein the disposition of said rotor and said vanes in said casing effects clearance spaces in said casing at generally opposite sides of said casing, said clearance spaces being intermediate said inlet and outlet ducts and being subjected to oppositely varying pressures as said rotor rotates, the improvement which comprises a flow bypass means between said clearance spaces for effecting communications of fluid therebetween to equalize pressures in said clearance spaces,

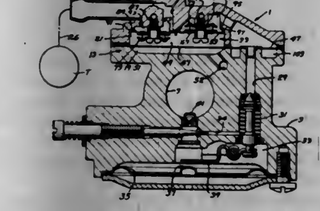
said bypass means comprising ports in said casing opening into respective clearance spaces, and a bypass tube means connecting the ports,



said vanes having a thickness larger than the dimension of said ports so as to cut off flow therethrough in sweeping therepast whereby pressure is maintained at said outlet duct without bypass flow loss,

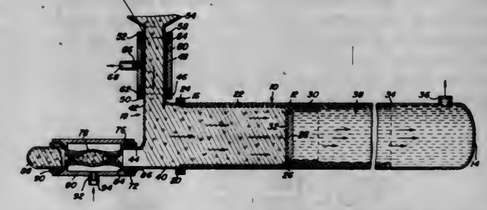
wherein said bypass tube means comprises a tube exteriorally of said casing and of a diameter sufficiently large relative said ports to effect relatively low velocity of fluid intermediate said clearance spaces.

3,320,900
FUEL PUMP
Eldon A. Johnson, deceased, late of St. Louis County, Mo., by Dolores Johnson, administratrix, St. Louis County, Mo., assignor to ACF Industries, Incorporated, New York, N.Y., a corporation of New Jersey
Filed Jan. 11, 1965, Ser. No. 424,859
1 Claim. (Cl. 103—150)



A fuel pump having a pump body, the body having a chamber and an intake-cavity and a discharge cavity in communication with the chamber the, pump body having a first annular shoulder surrounding the intake cavity and a second annular shoulder surrounding the discharge cavity said shoulders having substantially equal diameters, an intake check valve, said check valve comprising a valve seat having a tubular boss with a shoulder therein and an annular rim at the outer periphery of the periphery of the seat, said valve seat having a port therein between said boss and said rim, said valve having a valve stop member having a stem positioned in said boss, said valve having a flexible valve-closing member positioned around said stem and positionable on said seat to close said port, said valve having a spring engaging said flexible member to urge said flexible members to a position to close said port, said intake valve being mounted on said pump body with said boss engaging said pump body and with said seat having a sealing connection with said first annular shoulder around said intake cavity, said valve being opened by suction in said chamber and closed by pressure in said chamber, a discharge check valve having the same construction as said intake check valve, said discharge check valve being mounted on said pump body with its stem engaging said pump body and with the rim of its seat having a sealing connection with the other of said annular shoulders surrounding said discharge cavity, said discharge check valve being opened by pressure in said chamber and closed by suction in said chamber, and a flexible diaphragm in said chamber operable to alternatively create a suction and pressure in said chamber whereby said valves are alternately opened and closed to thereby transfer fuel through said chamber from said intake cavity to said outlet cavity, said sealing connection between said respective inlet and discharge valves and said first and second annular shoulders being provided by angular sealing gaskets positioned between said respective shoulders and said valves, and said fuel pump includes two mounting screws passing through said tubular stems of said respective valves and mounted in said pump body to position said valves body with said valves seats in engagement with said gaskets.

3,320,901
CONCRETE PUMP
Milton P. Koy, Houston, Tex., assignor of seventy-five percent to F. W. Gartner Company, a corporation of Texas
Filed Sept. 15, 1965, Ser. No. 487,370
6 Claims. (Cl. 103—152)

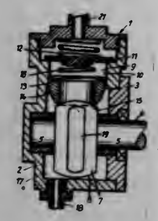


1. A pump for concrete or similar materials comprising an elongated generally cylindrical casing having an inlet valve and an outlet valve adjacent one end of the casing, the other end of said casing being closed and having a fitting for connection with a source of hydraulic fluid under pressure and vacuum selectively, a piston freely movable in said cylindrical casing, and an everting flexible diaphragm of cylindrical construction having one end sealed to the casing remote from the closed end thereof and the other end sealed to the piston, said piston forcing the diaphragm into tight sealing engagement with the interior of the casing, said diaphragm having an intermediate portion being folded so that selective opening of the inlet, closing of the outlet and evacuating the hydraulic fluid under pressure will cause the piston to move in an intake stroke and closing of the intake, opening of the exhaust and admitting hydraulic fluid under pressure will cause the piston to move towards the end of the cylinder having the inlets and outlets therein for forming a working stroke for the pump.

3,320,902
ROTARY PISTON MACHINE
Hanns-Dieter Paschke, 1 Wilhelm-Leuschner Weg, Neckarsulm, Germany
Filed May 5, 1964, Ser. No. 365,103
Claims priority, application Germany, May 9, 1963, P 31,878
7 Claims. (Cl. 103—178)

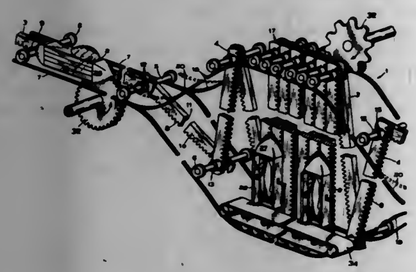
1. A rotary mechanism comprising: an outer body having a cavity, a rotary inner body having an outer peripheral spherical surface and being formed as a spherical eccentric and mounted eccentrically on a drive shaft within the cavity for rotation with respect to the outer body, the outer body comprising at least one working

chamber with a cylindrical peripheral wall and openings towards the inner body for a working medium which working chamber varies in volume during rotation of the inner body relative to the outer body, a reciprocal annular seal element in sealing arrangement with both said inner and outer bodies and comprising a spherical outer peripheral surface for sealing cooperation with said cylindrical peripheral wall and an annular end face for sealing engagement with the outer peripheral spherical surface



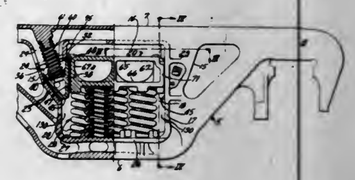
of said inner body, said annular seal element being reciprocal along an axis at an angle to the axis of rotation of the rotary inner body, spring means for urging said annular seal element against said outer surface of the inner body and cooperating to maintain the sealing cooperation of the annular seal element with the cylindrical peripheral wall and the sealing engagement of the annular seal element with the outer peripheral spherical surface of the inner body, and ports for the working medium in at least one of said bodies.

3,320,903
ARTICULATED TRAIN SYSTEMS
Ernst G. Knolle, Colma, Calif.
(2691 Sean Court, South San Francisco, Calif. 94080)
Filed Aug. 10, 1965, Ser. No. 478,586
2 Claims. (Cl. 104—20)



1. An articulated train system comprising a multitude of stations, single passenger compartments attached to the sides of an endless chain, an endless chain of a first series of links alternating with a second series of links and connected for articulation and vertical foldability by laterally extending axles, a wheel journalled on each end of the axles for cooperation with dual tracks, a dual track between stations branching vertically into an upper and a lower track at stations, alternating switches at branch points for channelling alternate axles onto the same lower or upper dual track to vertically fold the links at stations, a cam means engaged between adjacent links for lateral disengagement of the links' halved-jointed overlapping end-to-end relationship between stations concurrent with folding the links into two rows in side-to-side relationship at stations, moving platforms at stations juxtaposed with passenger compartments, and means for moving the chain longitudinally at low speed at stations and at high speed between stations.

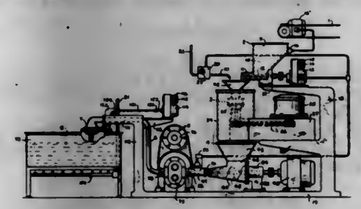
3,320,904
SPRING DAMPENED BOLSTER
Hans B. Weber, Bedford, Ohio, assignor, by mesne assignments, to Midland-Ross Corporation, Cleveland, Ohio, a corporation of Ohio
Filed Dec. 28, 1964, Ser. No. 421,214
6 Claims. (Cl. 105—197)



1. In a railway car truck:
(A) a side frame and a bolster, said frame having a compression member and a tension member joined by a pair of spaced vertical columns defining therebetween a bolster-receiving opening, said bolster having an end portion disposed within said opening for guided vertical movement with respect to the side frame, and each column having a pair of side walls spaced transversely relative to the length of the side frame and a rear wall between the side walls sloping away from said opening and defining a pocket for receiving a friction wedge;
(B) a wedge disposed within each of said pockets comprising a pair of transversely spaced side members united by a rear inclined wall and a front vertical wall, said inclined wall having a surface engaging in rockable relation said rear sloping wall, and said front wall having a vertical surface in frictional engagement with an opposing wear face of the bolster, said vertical surface having a transverse dimension substantially equal to the distance between the outer surfaces of said side members, said wear face being horizontally recessed to dispose a portion of said wedge within said opening, said bolster having a pair of guide means flanking said portion of the wedge thereby enabling said wedge to interlock said frame and bolster and limit relative displacement of the bolster transversely of said frame;
(C) spring means urging said wedge into engagement with said wear face and the rear wall;
(D) detent means on each of said columns projecting into said opening to limit both retraction and vertical movement of said wedge relative to said face a predetermined amount and to define the upper limit of a range of movement of the wedge away from said wear face within said opening to maintain said interlocking relationship between said guide means and wedge portion; and
(E) stop means within said pocket adapted to engage the wedge at said upper limit to prevent the tilting of the wedge within the pocket.

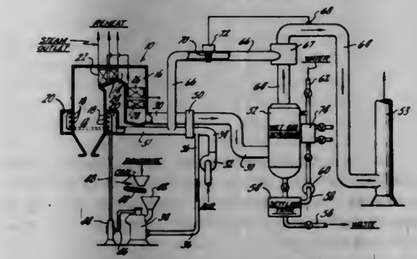
3,320,905
SYSTEM FOR PROCESSING A PRODUCT
Gerald W. Urschel, 1614 Napoleon, Valparaiso, Ind. 46383
Filed June 1, 1964, Ser. No. 371,422
14 Claims. (Cl. 107—14)

1. A system for processing a product, said system comprising means for comminuting the product, means for applying liquid to the product while it is being comminuted, means for feeding the product to said comminuting means, means for conveying the product to said feeding means, means for severing the comminuted product into pieces, pressure producing means for forcing the comminuted product through said severing means, means



for receiving the comminuted product from said comminuting means, and means associated with said receiving means for compacting and conveying the comminuted product to said pressure producing means.

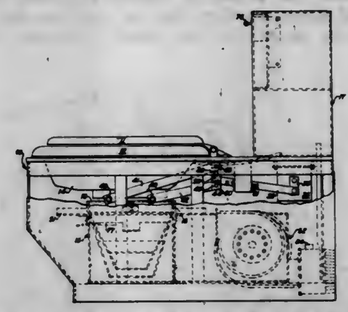
3,320,906
FUEL BURNING PROCESS AND APPARATUS
George Domahidy, Southwick, Mass., assignor to Combustion Engineering, Inc., Windsor, Conn., a corporation of Delaware
Filed Apr. 20, 1966, Ser. No. 543,900
7 Claims. (Cl. 110—1)



1. A fuel burning system comprising a furnace wherein combustion takes place to produce flue gas, means for feeding fuel to said furnace, an air preheater, means for conducting air through said air preheater wherein said air becomes heated, means for feeding at least a portion of said heated air from said air preheater to said furnace for combustion air, a wet scrubber, means for feeding said flue gas from said furnace to said wet scrubber wherein said flue gas is scrubbed with water, means for conducting said flue gas from said wet scrubber to the atmosphere, means for feeding a portion of said heated air from said air preheater to said means for conducting said flue gas to the atmosphere whereby said flue gas and heated air become mixed.

3,320,907
DISPOSAL UNIT AND METHOD
Leon L. Duncan, Rainbow Drive, Washington, Mo. 63090
Filed Sept. 15, 1964, Ser. No. 396,543
20 Claims. (Cl. 110—9)

1. A unit for disposal of excrement which comprises a bowl, liquid cleansing means selectively rinsing said bowl with a predetermined amount of liquid, a combustion chamber underlying said bowl, closure means for said combustion chamber disposed between the lower part of said bowl and said combustion chamber, said closure means selectively opened to permit passage of said liquid and excrement, a grate in said combustion chamber disposed above the bottom thereof to receive solid excrement with said liquid and liquid excrement being received on said bottom, heat producing means directing flame towards the bottom of said combustion chamber and thence through said grate to effect the combustion of said excrement and the evaporation of said liquid, temperature sensing means associated with said combustion chamber adapted to close off said heat producing means when the



temperature of the products of combustion from said grate rises to a predetermined level, and outlet means from said combustion chamber for the evacuation of the products of combustion and evaporation from said combustion chamber.

3,320,908
ROTARY INCINERATOR
Albert Ostrin, 1658 Xerxes Ave. N., Minneapolis, Minn. 55411
Filed Aug. 2, 1965, Ser. No. 476,335
5 Claims. (Cl. 110—14)

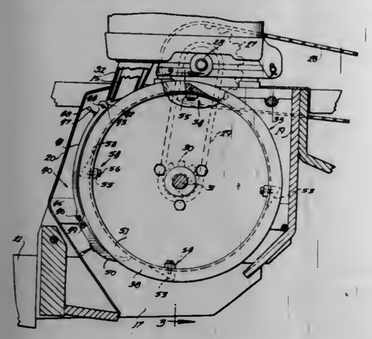


1. Incinerator apparatus for incinerating scrap and the like, said apparatus comprising,
a frame,
a drum supporting carriage,
means on the frame revolvably mounting said carriage for rotary movement and horizontally orienting said carriage thereon only,
drive means drivingly engaging said carriage for revolving the same in a predetermined direction,
an elongate burning drum positioned concentrically within said carriage and having a material ingress and a material egress end,
cooperating spline elements on said drum and carriage respectively interengaging each other whereby said drum will be revolved with said carriage when the latter is revolved in a predetermined direction, but permitting the drum to be removed axially from the carriage without necessitating removal of the carriage from the frame.

3,320,909
PLANTER
Marvin D. Jennings, Naperville, Benjamin A. Shader, Hinsdale, and Roland J. Frase, Palatine, Ill., assignors to International Harvester Company, a corporation of Delaware
Continuation of application Ser. No. 226,397, Sept. 26, 1962. This application Nov. 9, 1964, Ser. No. 411,180
6 Claims. (Cl. 111—51)

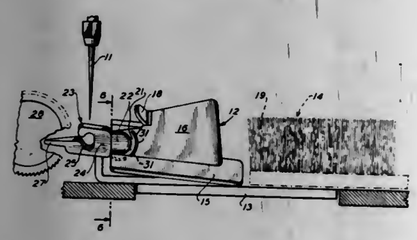
1. In a planter having a mobile frame, a seed container and a furrow opener mounted on the frame and a boot structure mounted on the frame between the furrow opener and the container including spaced plates be-

tween which seed from the container passes from the container to the furrow opener, a wheel rotatably mounted between said plates, a plurality of circumferentially spaced lugs affixed to the periphery of the wheel and projecting radially outwardly therefrom in the path of seed falling from the container, radially projecting annular peripheral flange members flanking said lugs and forming with the periphery of the wheel a U-shaped channel



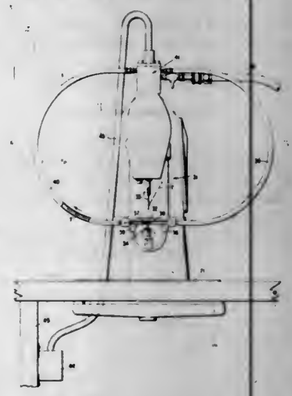
for the seed, and a member yieldably mounted between said plates and extending toward the periphery of said wheel radially inwardly of said lugs and forming with the wheel a pocket for the accumulation of seed discharged from said container, said pocket forming member being in the path of and engageable by said lugs and yieldable radially outwardly upon engagement therewith to eject the accumulated seed from said pocket.

3,320,910
BINDER FOR HIGH PILED FABRICS
Morley Tevyaw, West Orange, N.J., assignor to N-C Carpet Binding & Equipment Corp., Newark, N.J., a corporation of New Jersey
Filed Jan. 7, 1965, Ser. No. 423,977
5 Claims. (Cl. 112—138)



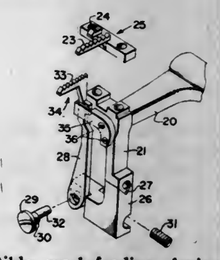
1. A binder for high-pile fabrics comprising:
(a) a generally horizontal fabric support,
(b) a generally vertical guide-wall for fabric above the support,
(c) a tape folder,
(d) said tape folder having a tape-feed slot intersecting with the guide wall,
(e) a pile deflector bar on the guide-wall forwardly of said slot extending upwardly and outwardly from the guide-wall at the feed slot at a distance above the fabric support sufficient to deflect outwardly away from the guide-wall the high-pile of fabric passing under the deflector with the fabric edge against the guide wall,
(f) said guide wall having a concavity rearwardly of the feed slot for tape emerging from said feed slot,
(g) a needle-guide adjacent to the concavity,
(h) said needle guide having a concavity matching in vertical plan and being aligned with the concavity on said guide wall, and
(i) the concavity on the needle guide extending in an upward and outward direction at the top.

3,320,911
PNEUMATIC CONCATENATION OF UNDER THREAD WITH NEEDLE THREAD TO FORM LOCK STITCHES
Stanley J. Ketterer, Morris Plains, N.J., assignor to The Singer Company, New York, N.Y., a corporation of New Jersey
Filed July 9, 1964, Ser. No. 381,358
25 Claims. (Cl. 112—154)



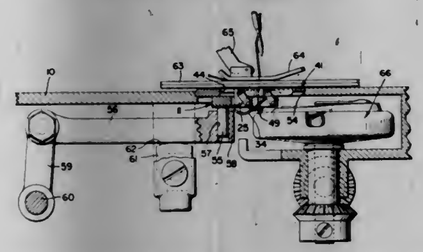
1. A a sewing machine comprising an endwise reciprocatory needle adapted to form a loop in a first thread limb through a work piece, pneumatic means for passing a second thread limb through said loop formed by said needle through said work piece, and actuating means for operating said reciprocatory needle and said pneumatic means in timed relation.

3,320,912
CONVERTIBLE WORK-FEEDING DEVICES FOR SEWING MACHINES
Stanley J. Ketterer, Morris Plains, and Manfred R. Laidig, Whippany, N.J., assignors to The Singer Company, New York, N.Y., a corporation of New Jersey
Filed Feb. 18, 1965, Ser. No. 433,680
10 Claims. (Cl. 112—210)



1. A convertible work-feeding device for a sewing machine having a frame including a work-supporting bed and a sewing head, a thread-carrying needle mounted in the sewing head for endwise reciprocation with respect to the work-supporting bed, stitch-forming mechanism complemental to said thread-carrying needle mounted in the work-supporting bed, and a work-feeding actuating mechanism mounted on said frame and connected to said convertible work-feeding device, said convertible work-feeding device comprising a pair of work-gripping means having work-gripping surfaces located substantially laterally opposite and substantially parallel to each other, and means for adjusting the lateral distance between the work-gripping surfaces of said work-gripping means.

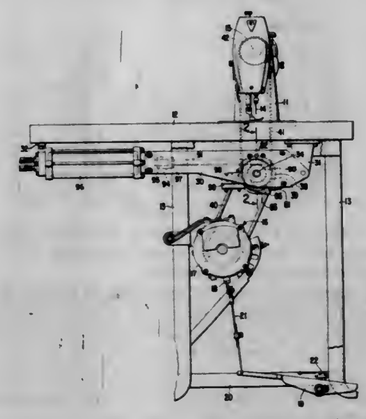
3,320,913
WORK FEEDING MECHANISMS FOR SEWING MACHINES
Manfred R. Laidig, Whippany, N.J., assignor to The Singer Company, New York, N.Y., a corporation of New Jersey
Filed Jan. 4, 1965, Ser. No. 423,181
4 Claims. (Cl. 112—215)



1. A four-motion work feeding mechanism for a sewing machine for work fabric having a frame including a work-supporting bed having at least one slot therein, a presser foot having a sole plate and mounted on said frame with the sole plate opposing the slot in the work-supporting bed, and a work feed-advance driving mechanism mounted in the work-supporting bed, said work feeding mechanism comprising a feed plate slidably mounted in the work-supporting bed for rectilinear reciprocating movement and connected to the work feed-advance driving mechanism to receive reciprocating movement, a plurality of links pivotally connected in tandem to the feed plate, a feed dog having at least one row of feed teeth and pivotally connected to said links with the feed teeth in line with the slot in the work-supporting bed, means for moving the feed dog up on said links through the slot in the work-supporting bed and slightly above the top surface of the work-supporting bed to initiate the gripping of an article of work fabric in opposition to said presser foot, and means for limiting said upward pivotal movement of said links.

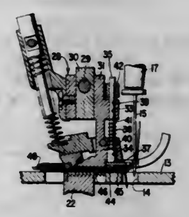
3,320,914
AIR OPERATED NEEDLE POSITIONERS
Kenneth D. Adams, Long Valley, N.J., assignor to The Singer Company, New York, N.Y., a corporation of New Jersey
Filed Oct. 7, 1964, Ser. No. 402,234
3 Claims. (Cl. 112—219)

1. A needle positioning device for a sewing machine having a needle, a rotatable shaft operatively connected to reciprocate said needle, and a primary drive means operatively connected to rotate said shaft, said needle positioning device comprising; secondary driver and driven members, means operatively connecting said secondary driven member for rotation in timed relation with said sewing machine shaft, and said secondary driven member being formed with a radial abutment, means supporting said secondary driver member for oscillation relatively to said secondary driven member, means defining an at-rest position of oscillation of said secondary driver member, a drive element shiftably supported on said secondary driver member, means urging said shiftable drive element relatively to said secondary driver member into a position engageable with said radial abutment on said secondary driven member during oscillation of said secondary driver member, means effective in the at-rest position of said secondary driver member for retracting and holding said drive element completely out of said engageable position, a secondary drive means operatively connected to impart



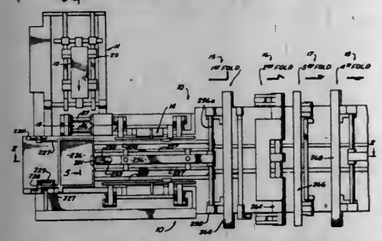
oscillation to said secondary driver member of predetermined angular amplitude from and back into said at-rest position, and means operable upon a substantially stopped condition of said sewing machine shaft for rendering effective said secondary drive means.

3,320,915
THREAD-CHAIN HOLDING DEVICES FOR SEWING MACHINES
Adam P. Steiner, Union, N.J., assignor to The Singer Company, New York, N.Y., a corporation of New Jersey
Filed Jan. 6, 1965, Ser. No. 423,781
16 Claims. (Cl. 112—253)



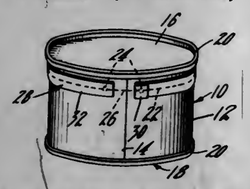
1. A thread-chain holding device in combination with a sewing apparatus which includes a frame, a work supporting surface on the frame having a needle aperture, a pressure device having a first sole plate mounted on the frame in opposition to the work supporting surface, and first means for biasing the sole plate of the presser device toward the work supporting surface of the frame; said thread-chain holding device comprising a second sole plate mounted on the frame of the sewing apparatus in opposition to the work supporting surface of the frame, second means for biasing said second sole plate toward the work supporting surface, and a step on said second sole plate downstream in the normal line of work feed from the needle aperture for holding a thread chain against the work supporting surface after work to which the thread chain is attached has passed from between said step and the work supporting surface.

3,320,916
CAN BODY MAKING MACHINE
Thomas C. Werge, 1441 N. Kirby Drive, La Habra, Calif. 90631
Filed June 26, 1964, Ser. No. 378,195
17 Claims. (Cl. 113—7)



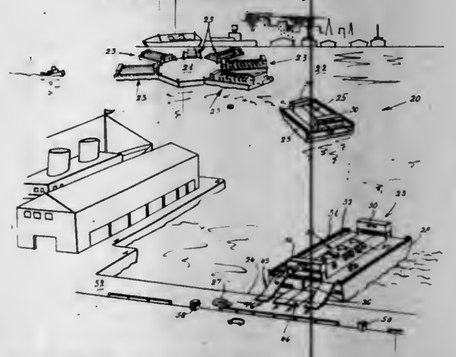
1. A collar fold machine of the character described comprising four stations for folding an edge of a body blank in four operations as follows:
(1) a marginal portion of the blank is folded up substantially perpendicularly to the plane of the blank,
(2) the resulting perpendicular marginal portion is then folded about a medial line parallel to the plane of the blank to form a double angle marginal portion,
(3) said double angle marginal portion is then partially flattened upon the body blank, and
(4) said partially flattened portion is then further flattened to form a complete collar fold,
said machine comprising:
(a) a pair of cooperating movable tools at each of the first three of said stations to perform the respective operations and a single movable tool at the fourth station for performing the fourth operation,
(b) an automatic feed and stop means for feeding body blanks in sequence and in increments and for stopping each blank in turn at each of said stations in registry with the tools or tool at said station;
(c) a main rotary drive element, and
(d) means connecting said rotary drive element to each of the seven movable tool members at said stations to operate the same in timed relationship to the feed and registration of the body blanks.

3,320,917
METHOD OF MAKING A CONTAINER BODY BLANK
Edward Reinhold Siegle, Newark, N.J., assignor to American Can Company, New York, N.Y., a corporation of New Jersey
Filed June 19, 1964, Ser. No. 376,405
2 Claims. (Cl. 113—120)



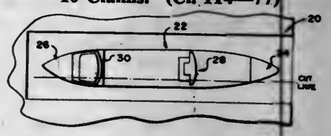
2. A method of makng a blank for a container body having a circumferential slit extending through the major portion thereof and a score line extending between the ends of the slit and across the side seam of the body, said method comprising the steps of:
forming a pair of apertures in predetermined alignment in said blank, said apertuers being disposed adjacent to the opposite side edge portions of said blank,
supporting said blank only at its side edge portions, while simultaneously forming a slit in said blank extending between and in registration with said apertures by passing a cutting tool in a direction perpendicular to and through the portion of said blank between said apertures, and
cutting score lines in said blank extending from each of said apertures to the adjacent side edge of said blank,
said apertures being of a size which is greater than the height of said slit to insure that the ends of said slit will be in registration with said score line.

3,320,918
PARKING STRUCTURE FOR AUTOMOTIVE VEHICLES
Edward Zalejski, 92—28 54th Ave., Elmhurst, N.Y. 11373
Filed Oct. 24, 1965, Ser. No. 504,864
8 Claims. (Cl. 114—70)



1. In an offshore automobile parking system, the combination of a floating dock and a plurality of motorized barges, said floating dock having means for being moored away from shore in a body of water and said barges having means for movement between said dock and said shore, each of said barges having means for receiving and supporting a quantity of automobile vehicles for parking thereupon, each barge comprising a hull, a mechanism carried by said hull for propelling said barges between said dock and said shore, an upper deck and a lower deck, each of said decks providing a space for parking of automotive vehicles and access means between each of said decks and said shore, the upper deck of said barge comprising an elevated bridge over each end of said deck for housing controls for operation of engines within said hull, a peripheral railing around said deck, a longitudinal walkway adjacent each railing for pedestrians and motorists afoot, a longitudinally extending central railing across said deck providing a means for dividing cars on each side of said deck, a parking area adjacent each side of said central railing, and a longitudinal driveway between said parking area and said walkway on each side of said upper deck.

3,320,919
SHIP AND METHOD OF MAKING SAME
Joseph D. Deal, Jr., Newport News, Va., assignor to Newport News Shipbuilding and Dry Dock Company, Newport News, Va., a corporation of Virginia
Filed July 14, 1965, Ser. No. 471,867
10 Claims. (Cl. 114—77)



2. The method of making a ship comprising providing a pair of conventional ships, cutting each of said ships longitudinally thereof and removing the cut portions, and then rigidly securing the remaining portions of said ships together along said cut portions thereof to provide a stable seagoing construction.

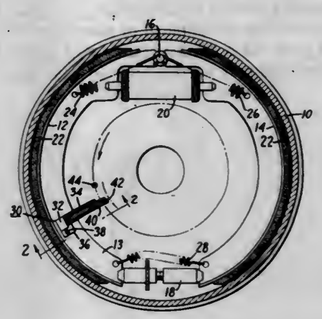
3,320,920
LIGHT REFLECTING VEHICLE MOUNTED SPOTTING SIGNAL
Walter D. Lusebrink, 20024 Edmunton Drive, St. Clair Shores, Mich. 48080
Filed Mar. 25, 1966, Ser. No. 543,451
5 Claims. (Cl. 116—28)



1. An identification and warning device for use on moving and stationary vehicles of the type having a mount such as a suction cup for attachment to a surface, that improvement which comprises:
(a) a flexible shaft affixed at one end to said mount,
(b) an attention attracting indicator in the form of a spherical object attached to the top of said shaft having a surface covered with an attention attracting color whereby when said vehicle is stationary, said spherical object will be stationary and when said vehicle is moving, said spherical object will aerodynamically create a flexing motion of said shaft to cause a random swaying motion of said spherical object, thereby increasing its effectiveness as an indicator,
(c) said spherical object being mounted for rotation on a diameter between a pair of poles of said sphere and the equatorial surface of said sphere between the poles being provided with a plurality of circumferentially spaced notches shaped to impart a wind wheel motion to said object when a vehicle carrying said device is in motion whereby to rotate said spherical object and increase its effectiveness as an indicator.

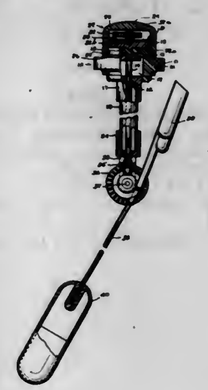
3,320,921
BRAKE LINING WEAR INDICATOR
Gilbert H. Wolf, Milford, and Marvin W. Weathers, Warren, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Sept. 22, 1966, Ser. No. 581,333
6 Claims. (Cl. 116—67)

1. A brake lining wear indicating device comprising a clapper plate secured to a brake shoe disposed within a wheel brake drum, a spring member having a free end and having the other end secured to the brake shoe adjacent said clapper plate, cam means secured to the wheel drum in a predetermined position relative to the free end of said spring member, a predetermined amount of brake shoe lining wear causing said cam to intermittently engage and release the free end of said spring member as



the drum rotates whereby the spring member strikes said clapper member and produces an audible signal.

3,320,922
INDICATOR HEAD FOR LIQUID LEVEL GAUGE AND PROCESS OF MAKING SAME
Leta S. Taylor, Paul B. Johnson, and Eugene D. Huskey, Garland, Tex., assignors to J. Y. Taylor Mfg. Company, a corporation of Texas
Filed Mar. 15, 1965, Ser. No. 439,843
5 Claims. (Cl. 116—118)

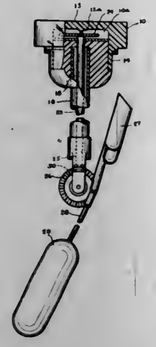


1. An indicator head for a liquid level gauge comprising a unitary, substantially cup shaped crystal cast of non-metallic material, said crystal having a substantially transparent viewing portion and an internal flange, a dial plate in said crystal adjacent said internal flange, a dial carried by said dial plate and an indicator pivotally mounted on said dial plate relative to said dial, said crystal having a peripheral portion secured to a rim portion on the gauge head.

3,320,923
LIQUID LEVEL GAGE
Leta S. Taylor, Paul B. Johnson, and Eugene D. Huskey, all of Garland, Tex., assignors to J. Y. Taylor Mfg. Company, a corporation of Texas
Filed Mar. 24, 1965, Ser. No. 442,300
1 Claim. (Cl. 116—118)

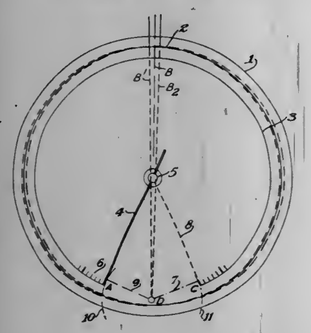
In a gage head for a liquid level gage, said gage head having a cast head portion having an upper end portion of reduced size and having a shoulder, said head portion

having an opening therethrough and having indicia on its upper side, a movable indicator positioned relative to said indica and actuated by a drive shaft extending through said opening in said head portion, an upper head portion having openings for passage of mounting bolts for mounting the gage on a storage tank, said upper head portion enclosing said end portion of said cast head portion and



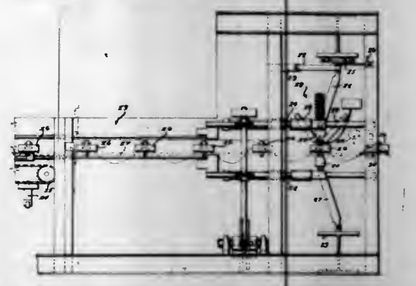
having a viewing portion through which the indicia and indicator may be viewed, and having a depending flange forming a central aperture for receiving the reduced portion of the head, said depending flange being secured to the adjacent wall of said reduced portion with said depending flange engaging said shoulder on said cast head portion.

3,320,924
MEASURING INSTRUMENT
Thomas William Hurst, Aylesbury, England, assignor to Negretti & Zambra Limited, Aylesbury, England, a corporation of the United Kingdom
Filed May 10, 1965, Ser. No. 454,532
Claims priority, application Great Britain, May 15, 1964, 20,345/64
2 Claims. (Cl. 116—129)



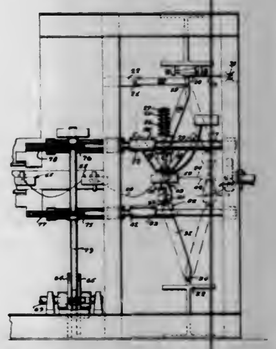
1. A measuring instrument including a dial face, an arcuate arithmetic scale on said dial face, a pointer mounted for approximately linear, angular movement past said scale, means mounting said dial face for pivotal movement in its own plane about an axis situated on a diametral line through the midway point of said scale, whereby a true measurement is obtainable at zero, midpoint and full reading on said scale.

3,320,925
MECHANISM FOR AUTOMATICALLY CUTTING AND PROCESSING A TEXTILE WEB
Robert G. Dexter, Harvard, and Robert P. Blake, Winchester, Mass., assignors, by mesne assignments, to Riegel Textile Corporation, New York, N.Y., a corporation of New York
Filed Dec. 31, 1963, Ser. No. 334,780
7 Claims. (Cl. 118—6)



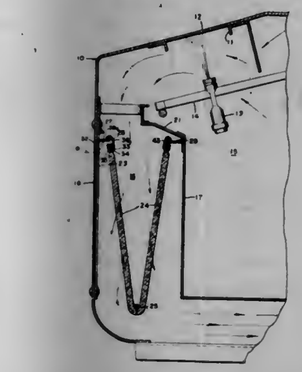
1. A mechanism for automatically cutting and processing a textile web comprising input means for feeding a continuous web of material having a cutting bar therein from a source of supply, means for sensing the cutting bar in the traveling web of material, means actuated by said sensing means for gripping the traveling web of material at the cutting bar, for straightening the cutting bar, and for feeding the web forward, means for cutting the traveling web of material at the cutting bar as the bar is being fed by said gripping means, and means for applying anti-ravel chemical along the cut edge of the textile web to prevent raveling therein.

3,320,926
CUTTING AND ANTI-RAVEL CHEMICAL APPLICATOR MECHANISMS
Robert G. Dexter, Harvard, and Robert P. Blake, Winchester, Mass., assignors, by mesne assignments, to Riegel Textile Corporation, New York, N.Y., a corporation of New York
Filed Dec. 31, 1963, Ser. No. 339,836
8 Claims. (Cl. 118—40)



1. A cutting an anti-ravel chemical applicator mechanism comprising a reciprocating cutting means, a reciprocating anvil means cooperating with said cutting means to cut a web of material, an anti-ravel chemical applicator means secured to and reciprocating with said cutting means and adapted to deposit anti-ravel chemical on the reciprocating coating means whereby said chemical is applied along the cut edge of the web simultaneously with the cutting thereof to prevent raveling along said cut edges; means by which said cutting means and said anvil means reciprocate along arcuate paths which intersect each other on the forward stroke to enable cutting of the web on the forward stroke of each at said intersection of paths; and further means for raising the arcuate path of said cutting means on the return stroke to prevent cutting of the web on the return stroke; which comprise a spring mechanism biasing said cutter means in a direction away from the web and, in which, a spacer block is provided for spacing said cutting means in a lower arcuate path during the forward cutting stroke, and a pneumatic piston and cylinder connected to said spacer block for removing said spacer block from said cutting means and thereby allowing the cutting means to be biased upwardly by said spring mechanism in a higher path during the return non-cutting stroke to prevent cutting of the web.

3,320,927
FILTER SYSTEM FOR A PAINT-SPRAYING MACHINE
Harry Szczepanski, 755 Oakleigh NW., Grand Rapids, Mich. 49504
Filed Aug. 9, 1963, Ser. No. 301,148
3 Claims. (Cl. 118—326)



3. In combination with a spraying machine having a cabinet, a spray chamber, and an exhaust means including a substantially vertical down-draft duct in said cabinet, a filter system for removing particles from the draft in said duct, said filter system comprising:

filter means interposed in said duct, and including

a flexible filter pad removably suspended at the opposite ends thereof from the opposite sides of said duct, and occupying substantially the entire cross-section of said duct,

said cabinet having a removable access panel opposite said filter means,

said cabinet having anchor means at the opposite sides of said duct, and said filter means including clip means engaging the ends of said filter pad and having suspension terminals for engaging said anchor means.

3,320,928
APPARATUS AND METHODS FOR AERATING A BODY OF WATER
Oscar Cornelius Smith, Box 207, Newton, N.C. 28658
Filed Oct. 23, 1965, Ser. No. 503,827
15 Claims. (Cl. 119—3)

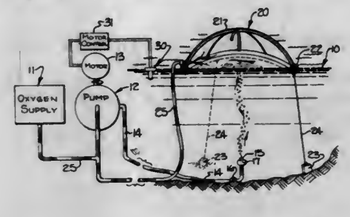
10. A method of aerating a body of water serving as a habitat for aquatic life comprising the steps of:

(a) providing a supply of air;

(b) pumping the air from the air supply by a pumping means;

(c) conveying the pumped air from the pumping means to generally the bottom of the body of water;

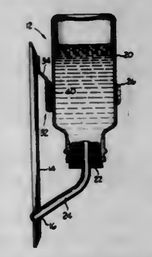
(d) expelling the conveyed air into the body of water so that the air will bubble up through the body of water to the surface thereof for aerating the body of water;



(e) collecting the expelled air in a collecting means on the surface of the body of water as the air bubbles up through the water; and

(f) conveying the collected air from the collecting means to the pumping means for recirculating the air through the body of water.

3,320,929
ANIMAL-CAGE DRINKING-BOTTLE ASSEMBLY
Harry H. Kay, % Acme Metal Products, Inc., 7757 S. Chicago Ave., Chicago, Ill. 60619
Filed Mar. 24, 1966, Ser. No. 537,216
7 Claims. (Cl. 119—18)



1. An animal cage drinking-bottle asembly comprising:

(a) a wall portion having an aperture,

(b) an inverted water-bottle having a rigid drinking tube with its lower end seating in the aperture,

(c) a water-bottle holder engaging the water bottle and having a vertically extending support plate portion at the rear thereof,

(d) and a self-locking support bracket above the aperture engaging the support-plate portion of the holder,

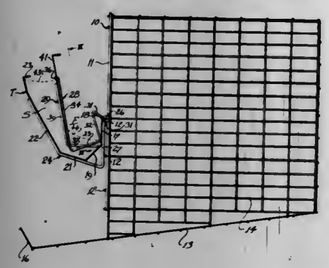
(e) the bracket comprising a generally flat vertical backing member and a generally flat holder-engaging member of thickness greater than the plate portion facing the backing member and attached thereto and spaced therefrom at the lower end to form therebetween a slot receiving the plate portion of the holder,

(f) the upper end portion of the holder-engaging member sloping upwardly and rearwardly toward the backing member and having the upper edge thereof tapered in width to provide a progressively increasing gap between portions of said edge and the backing member, the gap passing the thickness of the support-plate portion of the holder at an end of said upper edge,

(g) the holder-engaging member being forced away from the backing member by wedging action of the lower edge of the plate portion of the holder against the upper edge of the holder-engaging member in inserting the holder and by wedging action of the

upper edge of the plate portion of the holder against the sloping inner surface of the holder-engaging member in removing the holder.

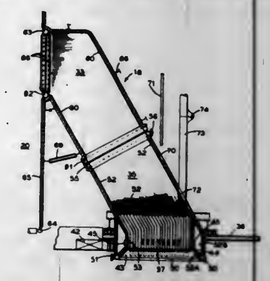
3,320,930
ADJUSTABLE FEEDING TROUGH FOR POULTRY LAYING CAGES
William W. Pockman and Leonard M. Skinner, Decatur, Ala., assignors to Montgomery & Crawford, Inc., a corporation of Delaware
Filed Apr. 14, 1966, Ser. No. 542,621
3 Claims. (Cl. 119—18)



1. In an adjustable feed trough for attachment to poultry laying cages,
(a) a trough proper comprising
(1) a generally vertically disposed back wall with a forwardly directed lip at the upper edge thereof,
(2) a forwardly directed bottom wall joined to the lower edge of the back wall, and
(3) an upwardly and forwardly directed front wall joined to the forward edge of the bottom wall,
(b) a plate-like feed regulating baffle disposed to divide the trough longitudinally into a feeding portion and a storage portion,
(c) support means adapted to hold said baffle with its lower edge at selected distances above the bottom of the trough and comprising
(1) a first wire-like member embodying a rear hook part fitting over said lip and behind the top edge of the back wall and a vertically directed portion having a forwardly directed end at its top, and
(2) a second wire-like member secured to said first wire-like member and having a vertical portion spaced from the vertical portion of said first wire-like member a distance sufficient to receive the plate-like baffle, and,
(d) said baffle being provided with vertically spaced openings adapted selectively to receive the forwardly directed end of the first wire-like member whereby the baffle is held with its lower edge at selected distances above the bottom of the trough, thereby regulating the flow of feed from the storage portion of the trough to the feeding portion thereof.

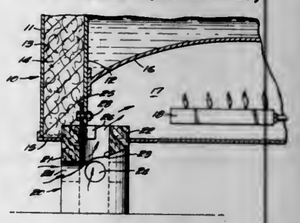
3,320,931
VAPOR GENERATING APPARATUS
Edwin Durham, Wadsworth, Ohio, assignor to The Babcock & Wilcox Company, New York, N.Y., a corporation of New Jersey
Filed Feb. 2, 1961, Ser. No. 86,741
2 Claims. (Cl. 122—7)

1. Apparatus for confining the flow of high temperature gases said apparatus including an oxygen-steel converter vessel having a gas discharge opening in its upper end, walls including fluid cooled tubes forming a flow passageway for said gases having a gas inlet at one end and a gas outlet at its other end, fluid inlet header means positioned super-adjacent the gas discharge opening of said vessel and connected with the lower ends of said tubes and defining the gas inlet end of said passageway, fluid outlet header means connected with the upper ends of said tubes and defihing the gas outlet end of said passageway, and means for providing free access from the exterior of the



apparatus and to the gas discharge opening of said converter including means defining an access opening in one of the side walls of said passageway directly to the atmosphere and in general alignment with the gas discharge opening of said converter when the converter is in its gas discharge position, a movable panel arranged to normally close said access opening, and means for fluid cooling said panel.

3,320,932
HEATER LEG CONSTRUCTION
Irvin D. Jacobson, 10 Bryn Mawr Drive, Painesville, Ohio 44077
Filed Oct. 1, 1965, Ser. No. 492,129
4 Claims. (Cl. 122—13)

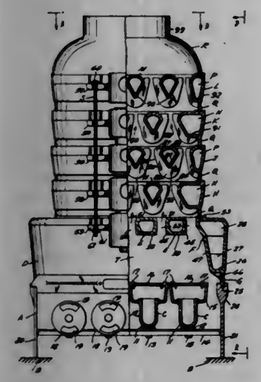


1. In a hot water heater having an outer tank shell, a bottom closure, an inner shell adapted to contain water having a floor spaced above said closure and defining a fire box therebetween, the improvement comprising:
a plurality of separate leg supports for said heater;
each of said legs comprising a body member fabricated from a material having a low coefficient of thermal conductivity;
a central passage in said body member opening upwardly of one end;
a plurality of radial ports in said body member communicating with said central passage;
said one end of said body member being received in an aperture in said bottom closure of said heater with said passage in communication with said fire box; and
means securing said body member to said heater.

3,320,933
GAS FIRED HOT WATER BOILER
John F. Baier, 44 Gramercy Park S., New York, N.Y. 10010
Filed Feb. 15, 1965, Ser. No. 432,539
2 Claims. (Cl. 122—218)

1. A cast-iron gas-fired hot-water boiler comprising a wide base burner unit, with an intermediate wide combustion chamber unit superimposed on said base unit,

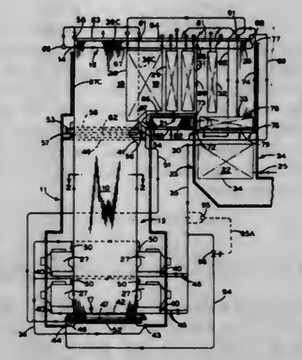
and a plurality of relatively narrow parallel tube units superimposed on said intermediate unit, said tube units having upper and lower faces and having cast-iron, hot-water tube sections with outside water legs, each tube unit including parallel horizontal tubular elements between the outside water legs and said tubular elements having sloping sides and outstanding and downwardly extending fins, said tubular elements of each tube unit being in staggered relationship relative to the tubular elements of the next adjacent tube unit, said base burner unit having a plurality of gas burners extending parallelly to each other and to the water legs, a plurality of outstanding projecting water connections on the ends of the tube units, each tube unit having a recess extending entirely around the periphery thereof on the upper



face thereof and along the top surfaces of the outside water legs and depending legs extending downwardly from the outside water legs of each tube unit around the entire periphery thereof, having their lower ends fitting into said recesses extending around the periphery of the tube units, said intermediate unit having outside water legs between the lowermost tube unit and the base burner unit and forming a chamber above the gas burners to complete combustion and said intermediate unit having a plurality of parallel tubes positioned below the lowermost tube unit, said fins terminating substantially inside of the upper and lower faces of each tube unit and having upper ears extending beyond the widest dimensions of each tubular element but below the top of each tubular element.

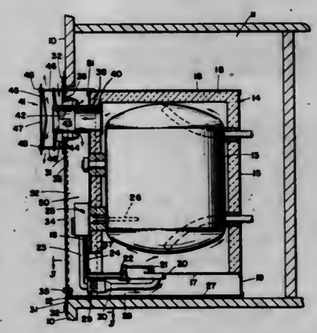
3,320,934
VAPOR GENERATOR
Philip M. Doell, Wadsworth, and David E. James, Barberton, Ohio, assignors to The Babcock & Wilcox Company, New York, N.Y., a corporation of New Jersey
Filed Apr. 5, 1965, Ser. No. 445,658
6 Claims. (Cl. 122—406)

1. In a forced circulation fluid heating unit, walls including fluid heating tubes forming a furnace chamber having a gas outlet, walls including fluid heating tubes forming a combustion chamber of circular cross-section having a gas outlet opening to said furnace chamber, means for burning fuel at high rates of heat release in said combustion chamber, means for supplying a vaporizable fluid to said combustion chamber wall tubes, means connecting said combustion chamber wall tubes for serial flow of fluid to said furnace chamber wall tubes, and means for maintaining the pressure drop of the fluid due to flow through said combustion chamber wall tubes substantially constant from full load to a predetermined partial load, said last named means including means for by-passing a portion of the fluid inflow to said combustion chamber wall tubes to said furnace wall tubes, and means responsive to variations in total rate of fluid flow to said combustion chamber wall tubes for increas-



ing the rate of flow of fluid by-passing said combustion chamber wall tubes as the load increases beyond said predetermined partial load.

3,320,935
WATER HEATER WITH SIDE WALL AIR SUPPLY AND VENTING MEANS
Alan B. McCorquodale, 907 7th St., Orange, Tex. 77630
Filed Mar. 29, 1965, Ser. No. 443,440
1 Claim. (Cl. 122—494)



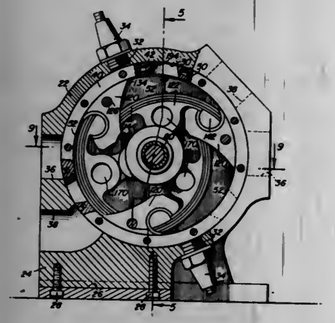
A water heater assembly adapted for positioning in a cabinet in an automotive trailer through an opening in a wall of the trailer which comprises:
(a) a container having a convex bottom and adapted to hold a body of water,
(b) a jacket around the container spaced therefrom and having a side opening adjacent the top of the tank and a bottom opening beneath the tank, said container and jacket providing therebetween an annular space for flow of flue gas from said convex bottom to said side opening,
(c) a burner positioned beneath the tank at said bottom opening,
(d) a panel adapted for closing the opening in the trailer wall, said panel having a removable door for access to the burner and an opening in lateral alignment with said side opening,

(e) means forming an enclosed fresh air flow channel between said panel opening and the burner, whereby the sole supply of air for the burner is through the panel,

(f) flue gas venting means comprising an outlet conduit extending laterally from said side opening through and beyond said panel opening and spaced apart transverse slightly conical baffles parallel to each other beyond the panel opening for diverting the flow of flue gas substantially radially from the conduit but slightly outwardly from said panel, and

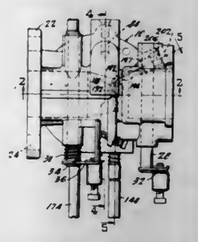
(g) flanged conduit means adapted to fit within the panel opening and flatly against the panel and forming with the innermost of said conical baffles and with said outlet conduit an inlet path for fresh air to said flow channel.

3,320,936
BI-ROTARY ENGINE WITH OSCILLATING VANES
Edward R. Phalen, R.F.D. 3, Cortland, N.Y. 13045, and James R. Moe, Jacksonville, N.Y. 14854
Filed Dec. 23, 1964, Ser. No. 420,713
10 Claims. (Cl. 123—43)



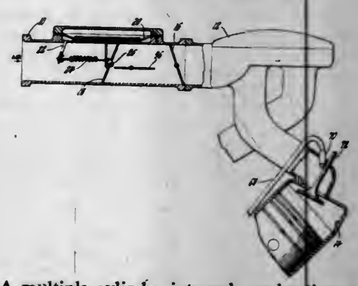
1. A rotary internal combustion engine comprising a support structure, a drive shaft rotatably mounted in said support structure, a rotor mounted for rotation about the axis of said drive shaft, a gearing assembly connecting said rotor and drive shaft for relative rotation, said rotor having a working chamber therein and an oscillating piston blade in said working chamber operable to expand and contract the volume of the latter, means mounting said piston blade on said rotor for pivotal swinging movement, means connecting said piston to said drive shaft for transfer of movement therebetween, means supplying a combustible mixture to said working chamber, means igniting said combustible mixture within said working chamber, means exhausting combustion products from said working chamber, said support structure including a base, a pair of standards mounted on and rising from said base, bearings in said standards journalling said drive shaft therebetween, said rotor being disposed between said standards and supported thereby, a housing enclosing said gearing assembly and mounted upon the outer side of said one of said standards, a stator, means individually mounting the stator upon said base between said standards, said stator having a central opening therein rotatably receiving said rotor, said stator and rotor having complementary, slidably engaging cylindrical walls, said supplying, igniting and exhausting means being disposed upon said stator and extending therethrough, said working chamber being open and exposed to said stator cylindrical wall.

3,320,937
CHARGE FORMING AND FUEL FEEDING METHOD AND APPARATUS FOR INTERNAL COMBUSTION ENGINES
James R. Meininger, Fond du Lac, Wis., assignor to The Tillotson Manufacturing Company, Toledo, Ohio, a corporation of Ohio
Original application Feb. 14, 1963, Ser. No. 258,511. Divided and this application June 1, 1966, Ser. No. 554,488
1 Claim. (Cl. 123—97)



A method of controlling fuel and air mixture in a charge forming apparatus for an internal combustion engine wherein the charge forming apparatus has a throttle-controlled fuel and air mixing passage and a fuel chamber, controlling fuel flow from a supply into the fuel chamber by a diaphragm-operated fuel inlet valve wherein the diaphragm is responsive to differential pressures, creating by separate means in the charge forming apparatus a pressure drop proportional to increasing flow velocity in the fuel and air mixing passage, metering fuel flow by a restriction between the chamber and mixing passage, the differential in pressure created by the separate means being between the mixing passage and the fuel chamber and forms a full power mixture in the mixing passage by delivering fuel through an outlet at flow velocities within a predetermined range of engine speeds and at any throttle setting, and increasing the rate of fuel flow from the fuel chamber into the mixing passage in a disproportionate degree at full open throttle as differential pressures increase in the separate means creating said pressure drop when the engine exceeds said predetermined speed range to provide an overrich slow burning mixture for the engine to reduce the speed of the engine.

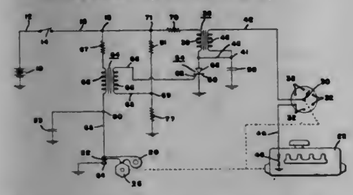
3,320,938
FUEL SYSTEM
Max F. Homfeld, Royal Oak, and Stanley H. Mick, St. Clair Shores, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Jan. 8, 1965, Ser. No. 424,354
7 Claims. (Cl. 123—139)



1. A multiple cylinder internal combustion engine fuel injection system comprising an air inlet having an air valve to measure air flow, a pressurized fuel supply having orifice means to meter fuel flow and having metering rod means controlled by said air valve to variably restrict fuel flow through said orifice means and having

an outlet for fuel flow in a predetermined pressure range, and a fuel distributor including a stator and an engine driven rotor, said stator having a plurality of outlet passages to supply fuel to one of the engine cylinders at a predetermined pressure slightly lower than the pressure of said fuel supply outlet and having a cylindrical cavity, said fuel distributor further including a reciprocable shuttle piston dividing said cavity axially into two chambers, said stator additionally having two passages each extending to one of said chambers, passage means in said rotor to supply fuel from said fuel supply outlet to one of said chambers and to distribute the fuel from the other of said chambers to one of said outlets whereby said shuttle piston is reciprocated to pump fuel from said other chamber as fuel is supplied to said one chamber, said passage means being adapted upon rotation of said rotor to supply fuel to said chambers in sequence and to sequentially distribute fuel to each of said outlets.

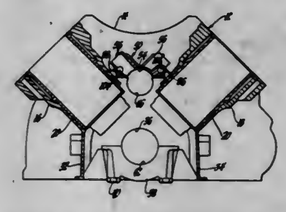
3,320,939
IGNITION SYSTEM
Gerald O. Huntzinger and Ralph E. Tarter, Anderson, Ind., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Oct. 17, 1963, Ser. No. 316,815
5 Claims. (Cl. 123—148)



1. An ignition system for an internal combustion engine comprising, a three terminal semiconductor having a pair of current carrying terminals and a control terminal, said semiconductor being of a type which can be switched on and off in a circuit connecting its current carrying terminals by varying the relative potential of its control terminal with respect to one of the current carrying terminals, inductor means having first and second windings, a control circuit connected across said source of direct current including a resistor and a first winding of said inductor means, said resistor and first winding of said inductor means having a common junction, a second circuit connecting said junction on said control circuit with one side of said source of direct current, said second circuit having a reference potential point providing a reference potential less than said source, switching means operated in synchronism with said engine connected in said control circuit for opening and closing said control circuit, means connecting said second inductor winding in series between reference potential point and the control electrode of said three terminal semiconductor, and means connecting the primary winding of said ignition coil and the current carrying terminals of said three terminal semiconductor in series with said source of direct current.

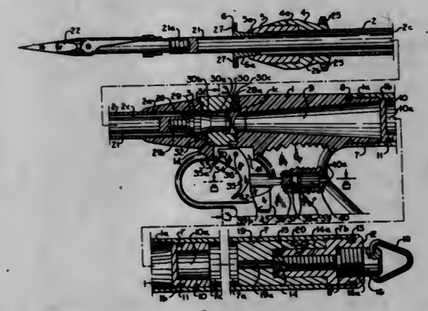
3,320,940
ENGINE CYLINDER BLOCK
Boris John Mitchell, Beverly Hills, Harry W. Bielicki, Detroit, and Maurice P. Roche, Warren, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed June 16, 1965, Ser. No. 464,486
8 Claims. (Cl. 123—195)

1. A cylinder block for a V-type internal combustion engine, said cylinder block having two banks of cylinders connected by a plurality of longitudinally spaced transverse bulkheads, camshaft receiving means in at least one of said transverse bulkheads for carrying a camshaft intermediate the cylinder banks and longitudinally aligned therewith, said camshaft receiving means comprising an



arcuate recess in the upper edge of said one transverse bulkhead, said recess being open at the top and subtending an arc of more than 180° to positively limit vertical movement of said camshaft.

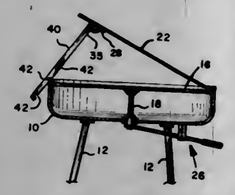
3,320,941
COMPRESSED GAS OPERATED HARPOON GUN
John George Houghton, 245 Camden Road, Parsippany, N.J. 07054
Filed Sept. 27, 1965, Ser. No. 495,020
17 Claims. (Cl. 124—15)



1. A hydro-pneumatic spear gun adapted for use in underwater sports and the like, said gun comprising (1) a handgrip having a communicating through passageway and a latchbore transversely disposed to the communicating passageway, (2) a firing tube mounted on said handgrip and connecting with the communicating passageway, the tube adapted to be filled with liquid, (3) a spear of conventional shape and having a piston means at its rear end adapted to slide in and seal the bore of the firing tube as the spear is inserted in the tube, the spear also having a latch engaging means provided in its rear portion, (4) a chamber means for compressed air and the like and connected to the communicating passageway and a piston movable in the chamber and responsive to the insertion of the spear in the firing tube to move the piston and to compress further the air in the chamber, (5) a latch means carried in a latch bore and having piston portions of differing diameters and movable by one of the diameter portions of said piston in response to the fluid pressure thereon developed in the barrel by the insertion of the spear in the barrel to move the latch means into spear engaging position, and (6) a trigger means carried by the handgrip and adapted to move the latch member to a disengaging position, whereby when the piston end of the spear is mounted in the firing tube submerged in fluid and is pushed into the tube the fluid in the tube further compresses the air in the compression chamber and urges the latch into the engaging position and when the spear is fully inserted the pressure-actuated latch will engage the latch engaging means on the spear to

retain the gun in armed position until the trigger means is activated to move the latch member to release the spear.

3,320,942
BARBECUE GRILL
Gordon R. Christensen, 6014 N. Kent, Milwaukee, Wis. 53217
Filed May 18, 1965, Ser. No. 456,796
1 Claim. (Cl. 126—25)



The combination of a barbecue grill having a dish-like fire pan of a predetermined outer circumference and

an auxiliary device for cooking food, snuffing charcoal or reflecting heat, comprising

a heat conductive metallic plate having an outer periphery slightly smaller and substantially conforming to the inner circumference of the fire pan,

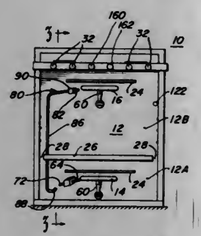
handle means on one surface of said plate in close proximity to the edge of the plate, and

an extension bar pivotally connected to the handle means,

said extension bar having a number of notches positioned for selective engagement with said grill,

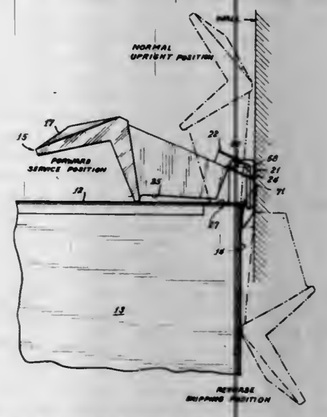
whereby said plate can be selectively placed on the fire pan to cut off air flow to the charcoal, on the grill for cooking or raised at an angle to said grill to reflect radiant heat onto the grill.

3,320,943
PILOT BURNERS
Brian G. Crannell, Riverdale, and Norman R. Shelton, Evergreen Park, Ill., assignors to Harper-Wyman Company, Chicago, Ill., a corporation of Illinois
Filed Sept. 30, 1964, Ser. No. 400,525
9 Claims. (Cl. 126—39)



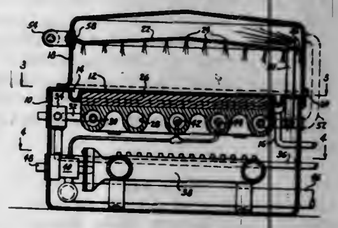
1. In a gas range, a compartment having a door, a lower bake burner and a higher broiler burner wherein combustion products from the bake burner rise at least to the level of the broiler burner, a region of substantially uncontaminated fresh air spaced from the products of combustion from the bake burner communicating with and subject to pressure fluctuations in the compartment, a primary aerated continuous gas pilot burner in the compartment in ignition relation to the broiler burner, and conduit means communicating with the pilot burner and having an air inlet at said region of fresh air for supplying substantially uncontaminated primary air to said pilot burner.

3,320,944
APPLIANCE WITH PIVOTABLE BACKGUARD OR THE LIKE
Walter F. Hoppe, Effingham, Ill., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois
Filed Sept. 23, 1965, Ser. No. 489,650
5 Claims. (Cl. 126—214)



1. In a home appliance having a backguard of sufficient thickness to cover associated controls carried on a cabinet frame, the latter including at least a top surface and a side surface, the combination comprising a first member carried by the backguard, a second member carried by the frame, a first coupling means carried by one of said members, a second coupling means carried by the other of said members, said respective first and second coupling means interfitting to permit slidable and pivotal movement between said respective first and second members while remaining intact so that said backguard is not separated from said appliance during movement, said respective coupling means providing three support positions for the backguard, a normal upright position, a forward pivoted position and a rearward pivoted position, wherein the backguard having said thickness to cover controls hangs juxtaposed a side surface and means for selectively fastening said backguard in said normal upright position.

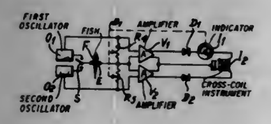
3,320,945
STEAM CABINET FOR FOOD PRODUCTS
Robert L. Dunkelman, P.O. Box 7065, Shreveport, La. 71107
Filed Nov. 12, 1964, Ser. No. 410,621
6 Claims. (Cl. 126—369)



1. An apparatus for heating food product articles with steam comprising a tray for supporting food product articles to be heated, a removable hood extending over said tray enclosing said articles when on said tray, steam distributing means within said hood, a steam generating chamber beneath said tray, said steam generating chamber including a labyrinth tunnel having first and second parallel passages communicating in said tunnel at one

end, two nozzles for admission of water independently into said first and second parallel passages and an outlet for steam, a conduit connecting said outlet to said steam distributing means, means connecting said nozzles to a source of water, and means for heating said chamber to vaporize said water when admitted to said chamber through said nozzles.

3,320,946
METHOD AND MEANS FOR TESTING CELLULAR TISSUES
Jürgen Dethloff, Marienhohe 5, Hamburg-Blankenese, Germany, and Christian Hennings, Hamburg, and Carl Heinz Ulrichs, Hamburg-Blankenese, Germany; said Hennings and said Ulrichs assignors to said Dethloff
Filed July 29, 1963, Ser. No. 298,498
Claims priority, application Germany, July 30, 1962, D 39,497
17 Claims. (Cl. 128—2.1)



1. A method for testing the physiological condition of vegetable and animal cellular tissues having a cell wall and a cell content and having an equivalent circuit comprising the resistance of the intercellular liquid connected in series to a closed loop comprising the series connection of the resistance of the cell content, the resistance of the cell wall and the capacitance produced by current flow due to charge blockage on the cell wall, comprising the steps of

measuring the impedance of an object comprising cellular tissues to be tested at an A.C. having a first frequency applied to said object;

measuring the impedance of said object at an A.C. having a second frequency different from said first frequency applied to said object;

dividing the impedance measurement at the first frequency by the impedance measurement at the second frequency to provide a ratio which is proportional to the cellular condition of said object and thus indicates the suitability of said object for human consumption;

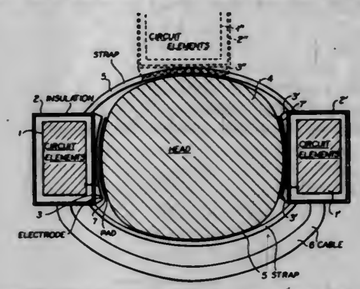
measuring a first voltage equivalent to said first frequency A.C.;

measuring a second voltage equivalent to said second frequency A.C.; and

maintaining constant one of said first and second voltages.

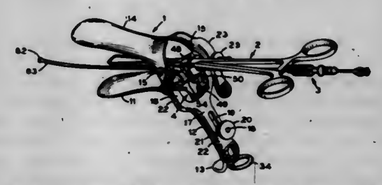
3,320,947
DEVICE FOR THE EXCITATION OF NERVE NETWORKS
Max Hans Knoll, Bocklinstrasse 36, Munich, Germany
Filed Oct. 22, 1964, Ser. No. 405,680
Claims priority, application Germany, Oct. 25, 1963, K 51,180
1 Claim. (Cl. 128—2.1)

Apparatus for the excitation of the nerve networks of the human head, comprising a pair of boxes both together containing complementary electronic pulse generating means, each box having one side wall forming an electrode for contact with one side of the head, and both boxes being electronically interconnected; said pulse generating means including a transistor circuit having a collector emitter connection to its corresponding electrode, adjustable condenser means, a battery for charging said condenser means through said collector emitter connection, thereby forming one side of the pulse of the pulse generating means, and an emitter base connection for discharging said condenser means after the voltage thereon has reached a predetermined value, thereby forming



the other side of the pulse of the pulse generating means, and means supported on the head for holding said boxes in contact with opposite sides of the head.

3,320,948
POSITIONING INSTRUMENT CLAMP FOR USE WITH SPECULUM
Richard D. Martin, Houston, Tex. (% Dept. of Obstetrics and Gynecology, School of Medicine, Emory University, Atlanta, Ga. 30303)
Filed June 24, 1964, Ser. No. 377,689
10 Claims. (Cl. 128—17)



1. In a speculum of the type having a pair of blades elongated along a longitudinal axis and a pair of legs secured to and depending from the rearward ends of said blades in one-to-one relationship, said legs being adjustably secured together to define a space between said blades for the insertion of various elongated instruments used in genito-uterine investigations and procedures, said instruments being inserted between said blades generally parallel to their longitudinal axis, said instruments including a tenaculum, surgical needles and cannulae, the improvement comprising a positioning device for securing at least one of said instruments to said speculum, said device comprising:

(1) a leg member secured to said speculum, said leg member having at the top thereof a rocker housing transverse to the longitudinal axis of said speculum and generally between the rearward ends of the speculum blades,

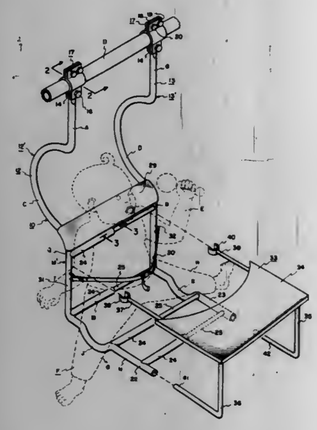
(2) a rocker member secured in said housing, said rocker member having one or more grooves extending axially therethrough to receive one or more of said surgical needles and cannulae, and

(3) means for removably securing such instruments in said grooves in fixed axial positions.

3,320,949
ORTHOPEDIC CHAIR CONSTRUCTION
Carl J. Hatfield, 7830 South 2200 West, West Jordan, Utah 84084
Filed May 22, 1963, Ser. No. 282,275
6 Claims. (Cl. 128—70)

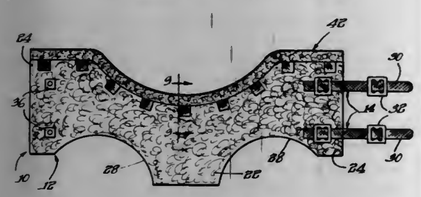
1. An orthopedic chair construction for supporting a patient having a cast holding the patient's legs vertically and spread apart, said chair construction including, in

combination, a pair of mutually spaced, vertically oriented, side frame members, said side frame members including forwardly-oriented, horizontally-disposed, substantially parallel support bars having corresponding, upwardly facing, concave means for detent-positioning the leg casts of a child patient seated in said chair construction, each of said side frame members having intercooperating, mutually engaged, transverse means for connecting said side frame members together and for permitting the widthwise adjustment of the spacing between said side frame



members and, consequently, the width of said chair construction, means for releasably securing said side frame members and said transverse means together to effect desired width of said chair construction, means affixed to said side frame members for supporting said chair construction above floor level, and releasable restraining means for retaining a patient in said chair construction, said side frame members and said releasable means mutually cooperating to maintain the trunk of a child patient in upright position in said chair construction.

3,320,950
NECK BRACE
Robert T. McElvenny, 720 N. Michigan Ave., Chicago, Ill. 60611
Filed Apr. 25, 1963, Ser. No. 275,562
2 Claims. (Cl. 128—75)



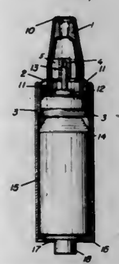
1. A neck brace comprising a collar member of relatively stiff material but circumferentially bendable for contouring; height extension means including a strip of resilient material disposed in edgewise contact with said collar member and further including a plurality of flexible tabs secured to said strip in longitudinally spaced relationship and having adhesive means thereon for attaching said strip to said collar member; interconnectable coupling means at the opposite ends with said collar member for securing said brace about a person's neck.

3,320,951
INTRAMEDULLARY PROSTHESES
Paul Wittebol, Dijsselhofplantsoen 4, Amsterdam, Netherlands
Filed Dec. 7, 1964, Ser. No. 416,282
Claims priority, application Great Britain, Apr. 21, 1964, 16,504/64
5 Claims. (Cl. 128—92)



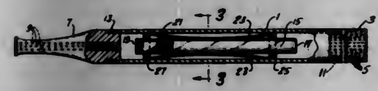
1. A metal intramedullary prosthesis for a fracture of the femoral neck in the hip joint, comprising a widely-extending, upright, flat stem and a prosthetic globular head connected thereto by a neck portion having a supporting face at the upper end of the stem, said supporting face being positioned substantially perpendicularly to the direction of pressure to be applied by it during use, the center of the globular head being positioned outside the longitudinal axis of the stem, the connecting neck portion between the head and the stem having such a length that the center of the globular head lies in a plane perpendicular to said supporting face at the upper end of the stem that encloses an angle with the longitudinal medial plane of the flat stem.

3,320,952
NASAL APPLICATORS
Frank Wright, Rudheath, Northwich, England, assignor to Fisons Pharmaceuticals Limited, Loughborough, Leicestershire, England
Filed Nov. 13, 1964, Ser. No. 410,917
Claims priority, application Great Britain, Nov. 22, 1963, 46,123/63
3 Claims. (Cl. 128—173)



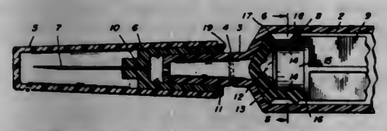
1. A nasal applicator, for the application of a medicament contained in a pressurised container having a stem for dispensing the medicament, which comprises a pressurised container, a rigid tube the lower end of which has a hollow frusto-conical member thereon, a skirt on the lower end of said frusto-conical member and surrounding the upper portion of the pressurised container, said rigid tube having mounted in the lower part thereof and coaxial therewith a spray button engaging with the stem of the pressurised container and adapted to spray the medicament along the length of the tube, struts mounting said spray button in said rigid tube so as to provide air passages between the outside of said button and the inside of said rigid tube, a cap having slotted lugs dependent from the lower portion thereof and passing through slots in said hollow frusto-conical member and resting on the pressurised container, said slotted lugs locking the cap in position and preventing relative movement between said pressurised container and said hollow frusto-conical member in the direction of movement of said tube toward and away from said container.

3,320,953
MOUTH INHALER SIMULATING SMOKING DEVICE
Sheperd Rindner, 1704 N. 36th St., Milwaukee, Wis. 53208
Filed Aug. 6, 1964, Ser. No. 387,883
2 Claims. (Cl. 128—201)



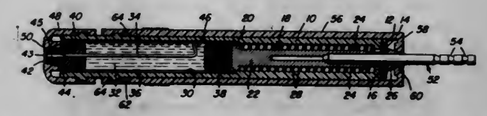
1. An inhaler comprising:
a tubular barrel resembling on its outer surface the outer surface of a rolled tobacco product;
a removable plug enclosing one end of the tubular barrel simulative of the fire and ash of a lighted cigarette, said plug containing a plurality of small holes opening into the barrel;
a plug enclosing the other end of said tubular barrel, said plug containing a plurality of small holes opening into the barrel;
the above mentioned pluralities of small holes restricting the passage of air through the inhaler; and
a tube in said barrel perforated at the ends and containing a volatile compound,
said tube being removably positioned in said barrel by a plurality of leaf springs mounted at either end on rings on the inner surface of said barrel and flexed inwardly from the inner surface of said barrel engaging said tube.

3,320,954
HYPODERMIC SYRINGE WITH BREAKABLE POLYPROPYLENE NEEDLE ADAPTOR
Calvin C. Cowley, La Canada, Calif., assignor to Pharmaseal Laboratories, Glendale, Calif., a corporation of California
Filed Dec. 30, 1963, Ser. No. 334,338
3 Claims. (Cl. 128—218)



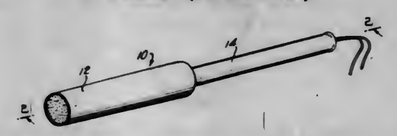
1. A hypodermic syringe comprising: a polypropylene barrel with a transverse partially closed end wall at one end and an open opposite end; a plunger axially slideable within the barrel; a polypropylene tubular adapter connected to and extending longitudinally outwardly from the partially closed end wall of the barrel to a hub receiving forward section of the adapter; said tubular adapter having a breakable section between the hub receiving section and the partially closed end wall of the barrel; said breakable section including a score extending radially inwardly from the adapter's outer surface through a skin of the polypropylene adapter to insure the adapter will break apart and not hinge at the breakable section, said skin of the adapter having an abrupt discontinuity at the score with opposed edges of the skin spaced apart across the score; a needle assembly including a cannula and hub joined together, said hub connected to the adapter's hub receiving section to join the needle assembly and the barrel whereby longitudinal piercing force applied by pushing the barrel can be transmitted across the adapter's breakable section to the cannula; and a protector encasing said cannula, said protector connected to the needle assembly and barrel combination, said protector, needle and hub receiving section of the adapter capable of being laterally cocked relative to the barrel to break apart the adapter at its score, thus separating the hub receiving section of the adapter from the syringe barrel.

3,320,955
AUTOMATIC INJECTION HYPODERMIC SYRINGE
Stanley Jay Sarnoff, McLean, Va. (7507 Hampden Lane, Bethesda, Md. 20014)
Filed Oct. 9, 1963, Ser. No. 315,048
8 Claims. (Cl. 128—218)



1. In a hypodermic syringe, an inner cylinder having an annular flange forming an axial opening in one end thereof, a plunger slidable in the timer cylinder, said plunger having a seat, a spring under compression between the seat of the plunger and the annular flange, said plunger having a group of resilient tines and a multi-part conical head larger in diameter at the base than the axial opening, one part on the end of each tine, the base portions of the parts of the head bearing against the exterior of the annular flange, a medicament containing vial in said inner cylinder, a piston at the end of the vial adjacent the plunger and movable longitudinally of the vial, a stopper at the other end of the vial, and a hollow needle held in the vial in position to penetrate the stopper, the needle having a stopper penetrating end, the upper end of the hollow needle being adapted to be driven by the piston when the piston is thrust through the vial toward the stopper, and a removable headless locking pin engaged snugly between the parts of the conical head and of a substantially uniform diameter throughout its length to prevent the freeing of the plunger by attempted movement of the parts of the head toward each other.

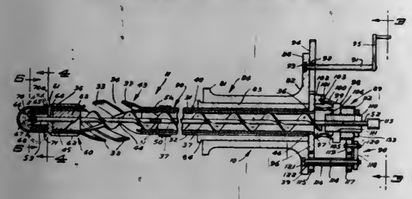
3,320,956
CATAMENIAL TAMPON AND METHOD OF MAKING
Fred H. Steiger, East Brunswick, N.J., assignor to Johnson & Johnson, a corporation of New Jersey
Filed Nov. 24, 1964, Ser. No. 413,443
27 Claims. (Cl. 128—263)



10. A catamenial device comprising an outer tube, an inner tube slideably positioned therein, a catamenial tampon positioned within said outer tube and being ejectable therefrom by moving said inner tube towards said tampon, said tampon comprising an uncompressed bundle of

fibrous, false crimped funicular elements substantially all of which have a length approximately twice the length of the tampon and which extend from one first end of the tampon to the other end thereof and back again to said first end by being folded at their approximate midpoints and being substantially straight throughout the length of said tampon and in contact with each other along substantially their entire lengths in a dry state, a withdrawal string binding substantially all of said funicular elements at their folded midpoints, said tampon being positioned in said outer tube with the folded and bound end in the interior thereof adjacent an end of said inner tube through which said withdrawal string extends, said false crimped funicular elements having the latent ability to become bulked upon being wetted with catamenial fluids.

3,320,957
SURGICAL INSTRUMENT
Edward Sokolik, 5601 Dupont Ave. N., Minneapolis, Minn. 55430
Filed May 21, 1964, Ser. No. 369,141
23 Claims. (Cl. 128—311)



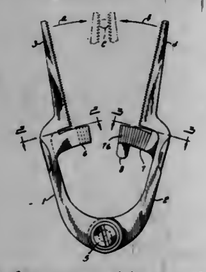
13. Surgical resecting apparatus of the character described comprising

an elongate tube having an opening formed in the wall thereof for feeding tissue into said tube, said tube including internal and external end portions, and including an elastic pneumatic member connected with the internal end protion of said tube,

a conduit mounted in said tube adapted to convey fluid to said pneumatic member,

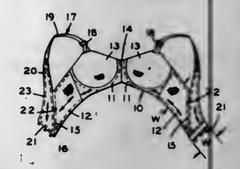
and cutting means mounted in said tube and movable relative thereto and adapted to resect tissue fed into said tube through said opening.

3,320,958
SURGICAL CLAMP
Thomas R. Nolan, 45 Rumson Way NE., Atlanta, Ga. 30305
Filed Feb. 25, 1964, Ser. No. 347,204
2 Claims. (Cl. 128—346)



1. A surgical clamp comprising a pair of arms hingedly connected together adjacent one end of each thereof for pivoting of the free ends of said arms into and out of proximate relation for releasably clamping objects therebetween, said arms being provided intermediate their respective ends with inwardly directed projection means having opposed serrations thereon which are adapted to be interengaged along their overlapped lengths for adjusting the spacing between said free ends, said arms being flexible toward and away from each other to permit engagement and disengagement of said serrations, and an extension on one of said projection means for the application of pressure to effect such disengagement of said serrations, the free ends of said arms being substantially straight and the intermediate portions of said arms from which said projection means are inwardly directed being outwardly bowed so as to confine said projection means between said arms when said free ends are in proximate relation as aforesaid.

3,320,959
BRASSIERE
Maude Constance Fridolph, 269 Crescent Bay Drive, Laguna Beach, Calif. 92651
Filed Feb. 17, 1965, Ser. No. 433,369
9 Claims. (Cl. 128—451)



1. A brassiere comprising

a front section including a pair of spaced apart cup portions,

side bands connected to the outer edge of each cup portion at least at the lower edge thereof, and terminating in bias cut portions,

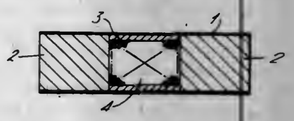
the bottom edge of each band extending downwardly and outwardly when in generally flat condition and extending downwardly across the rib cage at an angle when on the wearer,

straps each having one end connected to each cup portion adjacent the top and adapted to extend over the shoulder of the wearer,

the other end portion of each strap diverging downwardly and outwardly and merging with the outer end of each side band and secured thereto, said strap and side band together forming the outer free ends of the brassiere,

the free ends of said straps being considerably below the bottom of cup portions when in the flat condition and being connected together at the small of the back when on the wearer.

3,320,960
FILTER TIPS FOR CIGARETTES
Desmond Walter Molins, Deptford, London, England, assignor to The Molins Organisation Limited, London, England, a corporation of Great Britain
Filed Jan. 19, 1965, Ser. No. 426,582
Claims priority, application Great Britain, Feb. 7, 1964, 5,370/64
8 Claims. (Cl. 131—265)

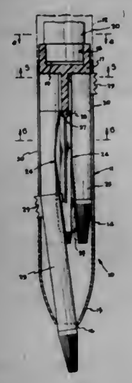


1. A composite filter tip for cigarettes, comprising two filter plugs, a wrapper forming a tube enclosing both plugs to hold the latter in axially aligned but spaced relation to one another, comminuted filter material retained within said wrapper in the space between said plugs, and a facing of deformable material attached to and covering at least part of the inner face of the wrapper, the thickness of said facing being such in relation to the quantity of filter material that the facing is at least slightly compressed so that said facing is pressed against said part of the inner face of the wrapper to oppose passage of smoke therebetween.

3,320,961
CIGARETTE FILTERS
Ivor Wallace Hughes, Fareham, Henry George Horsewell, Totton, and Donal Michael Carroll, Southampton, England, assignors to Brown and Williamson Tobacco Corporation, Louisville, Ky., a corporation of Delaware
No Drawing. Filed July 7, 1964, Ser. No. 380,929
Claims priority, application Great Britain, July 22, 1963, 29,004/63
3 Claims. (Cl. 131—267)

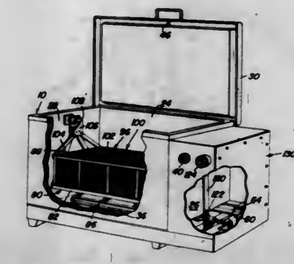
1. A tobacco-smoke filter comprising fibrous tobacco-smoke filter material treated with a water soluble alkaline sodium salt of orthophosphoric acid whereby a substantial proportion of acidic compounds are removed from the smoke of burning tobacco without adversely affecting the organoleptic properties of the tobacco after the smoke passes through the filter.

3,320,962
COSMETIC HOLDER AND APPLICATOR
Fae Moriber and Leonard Moriber, both of 2077 NE. 120th Road, North Miami, Fla. 33161
Filed May 22, 1962, Ser. No. 196,739
4 Claims. (Cl. 132—79)



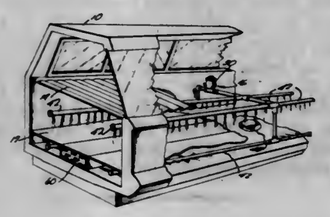
1. In a cosmetics holder and applicator, the combination comprising, an elongated hollow housing member having an opening at one end, a plurality of elongated tubular carrier members in said housing, mechanism for guiding each of said carrier members, selectively, between a position fully within said housing and a position whereat one end of the carrier member projects through said housing opening, a cosmetic support unit having a tubular outer shell telescopingly received within each of said tubular carrier members, said cosmetic support units being closely embraced within their respective tubular carrier members for frictional retention therein and operative to be manually withdrawn outwardly of said housing member opening, and means for dispensing for application the cosmetic in a support unit either when retained in its carrier member in projecting position or when withdrawn from its carrier member.

3,320,963
PARTS CLEANING TANK WITH AGITATING PARTS RACK
Buna L. Walker, 105 Stone Creek Road, Smyrna, Ga. 30080
Filed July 6, 1965, Ser. No. 469,609
10 Claims. (Cl. 134—57)



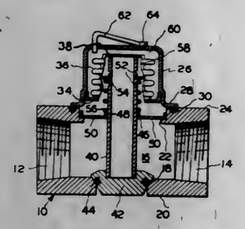
1. A parts cleaning tank comprising an open top reservoir including a bottom wall and upstanding opposite side walls, a parts basket support rack including bottom means and upstanding support means projecting upwardly from remote portions of said bottom means, oppositely projecting stub axle means fixed to the upper ends of said support means and journalled through said side walls for rotation about aligned axes, a drive shaft extending beneath said bottom wall between said side walls and journalled for rotation about an axis generally paralleling said axes, a pair of upstanding torque arms secured, at their upper ends, to the portions of said stub axle means projecting through said side walls, said drive shaft including crank means operatively connected to the lower ends of said torque arms for oscillating the latter about the axes of rotation of said stub axle portions in response to rotation of said crank shaft.

3,320,964
CHEMICAL FLUSH SYSTEM
Lewis H. Tripp, 3468 Bonita Ave., Riverside, Calif. 92506
Filed June 21, 1965, Ser. No. 465,634
3 Claims. (Cl. 134—100)



1. A chemical flush system for refrigerated food cases comprising a detergent supply container having a gravity discharge line extending therefrom and a detachable cover thereover for adding detergent thereto and for preventing a vacuum therein on the discharge of detergent from said discharge line, and water supply line passing beneath said container, said discharge line emptying into said supply line through a nozzle in communication with said discharge line and directed down-stream of said flow of water in said supply line for forming a mixing chamber, a control lever to meter the amount of detergent to be drawn by said supply line, spray lines terminating the flow of said supply line, said spray lines laterally disposed over a refrigerating food supporting surface, said supporting surface having disposed at a lower portion thereof a drain to run off water from said spray lines that collects thereon.

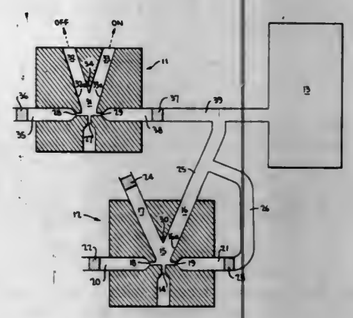
3,320,965
FREEZE PROTECTION DUMP VALVE
David L. Morgan, Shelton, Conn., assignor to Robertshaw Controls Company, Richmond, Va., a corporation of Delaware
Filed May 18, 1964, Ser. No. 367,990
5 Claims. (Cl. 137—62)



1. In a fluid line conducting a fluid under pressure, a dump valve adapted to drain the fluid therefrom for freeze protection comprising
a valve body having a fluid chamber receiving the fluid in said line,
drain port means for said chamber,
valve means controlling said drain port means,
biasing means exerting a biasing force on said valve means to move the same to an open position,
temperature responsive bellows means responsive to ambient temperature variations exterior of said fluid chamber and exerting a bellows force on said valve means in opposition to said biasing force,
said bellows force being variable in response to ambient temperature variations and being lesser than said biasing force when ambient temperature is below a predetermined value, and being greater than said biasing force to maintain said valve means in a closed position when ambient temperature is above the predetermined value,
means defining a pressure responsive area on said valve means exposed to the fluid in said chamber so that a pressure force is exerted on said valve means in opposition to said biasing force,
said pressure force being variable in response to line pressure variations and being greater than said biasing force when line pressure is above a predetermined pressure to maintain said valve means in its closed position independently of ambient temperature variations, and being lesser than said biasing force when line pressure is below the predetermined pressure, said biasing force being sufficient to open said valve against said bellows and pressure forces when said ambient temperature and line pressure are both below their respective predetermined values.

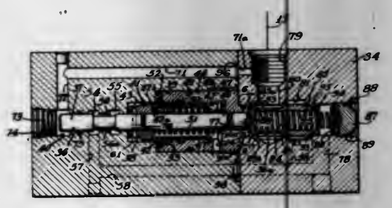
3,320,966
FLUID OSCILLATOR
Elmer L. Swartz, Falls Church, Va., assignor to the United States of America as represented by the Secretary of the Army
Filed Dec. 31, 1964, Ser. No. 422,866
1 Claim. (Cl. 137—81.5)

A fluid system comprising:
(a) a first bistable fluid amplifier having a power nozzle and first and second control conduits adjacent thereto, a first output conduit adjacent said first control conduit and a second output conduit adjacent said second control conduit,
(b) a second bistable fluid amplifier having a power nozzle and first and second control conduits adjacent thereto, a first output conduit adjacent said first control conduit and a second output conduit adjacent said second control conduit,
(c) said first output conduit of said first fluid amplifier being in communication with said first control conduit of said second fluid amplifier,
(d) said first output conduit of said first fluid amplifier and said first control conduit of said second fluid amplifier in communication with a fluid capacitance,



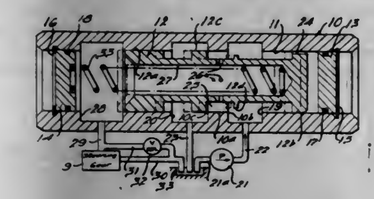
(e) conduit means communicating said first output conduit of said fluid amplifier with said first control conduit of said first fluid amplifier,
(f) said second control conduit and said second output conduit of said first fluid amplifier communicated to ambient by flow restricting means, and
(g) said second control conduit of said second amplifier communicated to ambient through flow restricting means.

3,320,967
ACTUATOR VALVE MECHANISM
George T. Fiala, Downers Grove, and Donald W. Moyer, Chicago, Ill., assignors to International Harvester Company, Chicago, Ill., a corporation of Delaware
Filed May 21, 1964, Ser. No. 369,148
9 Claims. (Cl. 137—101)



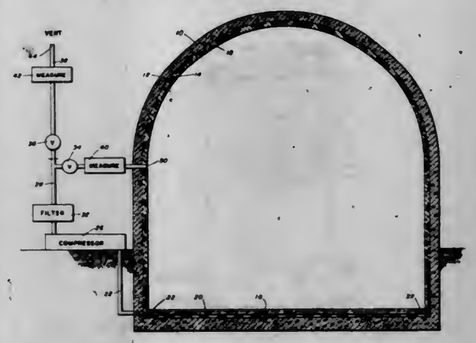
3. A flow divider valve mechanism comprising: a housing structure having one inlet port opening and a plurality of outlet port openings therein; said inlet port being adapted for fluid communication with a source of fluid pressure, a first one of said outlet port openings being adapted for fluid communication with a primary hydraulic circuit, a second one of said outlet port openings being adapted for fluid communication with a secondary hydraulic circuit and a third one of said outlet port openings being adapted for fluid communication with a fluid reservoir; first valve means in said housing structure; means providing fluid passage between said first valve means and each of said inlet and first port openings; means normally urging said first valve means to a closing position whereat fluid flow between said inlet and first port openings is interrupted, but being operative responsive to fluid pressure in said inlet port for opening said first valve means and establishing fluid flow communication between said inlet and first port openings; second valve means in said housing structure; means forming passages communicatively connecting said second valving means with said second outlet port and with said inlet port and including a passage formed in part through said first valving means; additional means forming a passage interconnecting said inlet port with said second valving means; actuator means connected to said second valving means; means forming a passage communicatively connecting said actuator means to said second outlet port; resilient means urging said actuator means to position such that when the pressure in said second outlet port falls below a predetermined minimum said second valving means is opened to establish limited fluid flow from said inlet port to said second outlet port while continuing fluid communication between said inlet port and said first outlet port; said actuator means being arranged so that fluid pressure in said additional passage means is cooperative with fluid pressure in said second outlet port when pressure in said latter port is above a predetermined amount for overriding the resistance of said resilient means and operating said actuator means for closing said second valving means and interrupting fluid communication between said inlet port and said second outlet port.

3,320,968
FLOW CONTROL DEVICE
Christopher Nuss, Roseville, Mich., assignor to Chrysler Corporation, Highland Park, Mich., a corporation of Delaware
Filed May 4, 1964, Ser. No. 364,458
11 Claims. (Cl. 137—117)



1. Flow control valve means comprising relatively shiftable parts shiftable to and from a closed position and providing an inlet for pressurized fluid, an outlet, bypass conduit means connecting said inlet and outlet, a restricted metering orifice in communication with said bypass conduit means to receive metered fluid therefrom, means for appling fluid pressure from said inlet to said parts to urge relative shifting thereof in a bypass direction from said closed position, means for applying fluid pressure from the low pressure side of said metering orifice to said parts to oppose said relative shifting and urge said parts to said close position, reaction means also opposing said relative shifting to urge said parts to said closed position, and flow restricting means on said parts for adjustably restricting the connection between said conduit means and inlet and outlet respectively at locations upstream and downstream of said metering orifice upon said relative shifting, said flow restricting means including means for progessively increasing the restriction in the connection between said inlet and conduit means to a predetermined maximum partial restriction capable of passing a comparatively high rate of by-pass flow into said conduit means from said inlet upon said relative shifting progessively from said closed position only to an intermediate bypass position within the operating limits of said valve means and for thereafter maintaining said partial restriction at not greater than said maximum restriction upon said continued relative shifting of said parts from said closed position beyond said intermediate bypass position to the operating limit of said valve means.

3,320,969
NUCLEAR CONTAINMENT VESSELS
Clarence T. Gordon, Lynn, Mass., assignor to Stone & Webster Engineering Corporation, Boston, Mass., a corporation of Massachusetts
Filed July 27, 1962, Ser. No. 212,864
7 Claims. (Cl. 137—312)

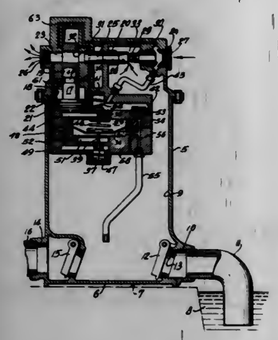


1. Containment vessels for nuclear reactors for containment and control of all leakage from the interior of the containment vessel and physically attained by a containment vessel and containment system for nuclear reactors comprising an outer pressure-containing reinforced concrete shell, a continuous steel outer liner within and adjacent to the outer shell, a continuous steel inner liner within and inwardly spaced from the outer liner to create an annular space having sidewall, dome and floor portions between the two liners and to provide an interior compartment for the vessel, porous "popcorn" concrete positioned between said liners and substantially filling the sidewall and dome portions of the annular space and forming an annular wall between said liners, said "popcorn" concrete wall providing interconnected voids throughout the sidewall and dome portions of the annular space whereby the porous "popcorn" concrete reinforces and supports the inner liner and transfers pressures from the inner liner to the outer liner but permits diffusion of gases and vapors within the annular space; spaced apart floor-supporting means between said liners in the floor portion of said annular space providing inter-connecting passages communicating with said voids; means for evacuating and compressing gas from the annular space; a first conduit means for conducting gases and vapors from the annular space to the evacuating and compressing means; a second conduit means for conducting the compressed gases and vapors to the interior compartment, whereby any gas and vapor leakage from the interior compartment to the annular space is returned to the interior compartment.

3,320,970
LIQUID LEVEL RESPONSIVE CONTROL VALVE PRESSURE ACTUATOR
Kenneth A. McHenry, Clinton, N.Y., assignor to Chicago Pneumatic Tool Company, New York, N.Y., a corporation of New Jersey
Filed Aug. 5, 1965, Ser. No. 477,419
2 Claims. (Cl. 137—403)

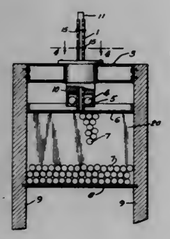
1. In apparatus including a main control valve chamber, and a main control valve operable in the chamber having a normal position at one end of the chamber and being pneumatically shiftable to a reverse position, a liquid level responsive pressure actuator for the control valve comprising: a liquid accumulating tank, a vent control slide valve for connecting the main control valve chamber below the main control valve to vent, a live air supply control slide valve for connecting the main con-

trol valve chamber below the main control valve with live air to shift the main control valve to its reverse position, a separate spring biasing each slide valve to closed condition, a pressure responsive diaphragm controlling opening and closing of said slide valves, a spring normally biasing the diaphragm against the vent con-



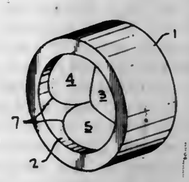
trol slide valve so as to hold the latter open, and means for developing a back pressure over the non-biased area of the diaphragm as a consequence of a predetermined rise of liquid in the tank to shift the diaphragm against the resistance of its spring clear of the vent control slide valve and into abutment with the live air supply control slide valve to open the latter.

3,320,971
MULTIPLE BALL CHECK VALVE
Philip Hemenway, 12625 42nd Ave. S., Seattle, Wash. 98168
Filed Aug. 5, 1963, Ser. No. 300,115
3 Claims. (Cl. 137—512.1)



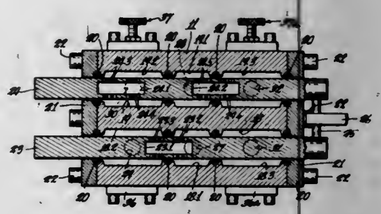
1. A multiple ball check valve means comprising an air duct means, a perforated ball retaining grill means secured across the air flow within said duct means, a cooperating ball rebound grill means including variable releasable holding means comprising a rotatable bar of elongated transverse cross-section, cooperating with a guide yoke mounted in said duct means for movement with and in the direction of movement of said rebound grill, and connected thereto, said rebound grill means being positioned in substantially parallel relationship to said retaining grill means in said duct means, and a plurality of elastic rebound ball members variably positioned at random between the two grill means to rebound on sudden impact with said rebound grill means to dampen, dissipate and cut off air flow during sudden pressure increases without said duct means.

3,320,972
PROSTHETIC TRICUSPID VALVE AND METHOD OF AND DEVICE FOR FABRICATING SAME
Roy F. High, Washington, D.C., and Kenneth E. Woodward, McLean, Va., assignors to the United States of America as represented by the Secretary of the Army
Filed Apr. 16, 1964, Ser. No. 360,459
4 Claims. (Cl. 137—525.1)



1. A prosthetic tricuspid valve comprising
(a) a valve housing of flexible material having a cylindrical bore therethrough, and
(b) three leaflets of a thin, pliable and elastic material, each leaflet having two straight edges intersecting at a large obtuse interior angle and two arcuate edges intersecting at a large obtuse interior angle with one of said arcuate edges intersecting one of said straight edges at approximately a right interior angle and the other of said arcuate edges intersecting the other of said straight edges at approximately a right interior angle, each leaflet further having a spheroidal shape, the straight edges of each leaflet making a mating contact with one straight edge of another leaflet, and the arcuate edges of each leaflet integrally joined to said housing in said cylindrical bore.

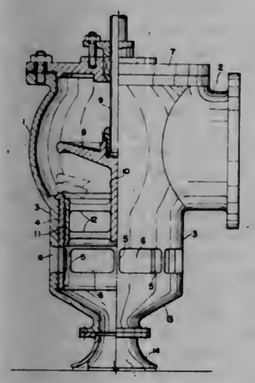
3,320,973
APPARATUS FOR CONTROLLING FLUID FLOW
Andrew V. Ney, Alliance, Ohio, assignor to Salem Valve Company, Salem, Ohio
Filed Dec. 31, 1964, Ser. No. 422,712
6 Claims. (Cl. 137—596)



1. A valve assembly for use in a fluid pressure system which includes a fluid motor, comprising
(A) a valve housing having
(a) an inlet port connectable to a source of fluid pressure,
(b) an operating port connectable to said fluid motor and through which fluid may flow toward and away from said motor,
(c) an outlet port through which fluid may be discharged from said motor,
(d) a first chamber means in communication with said inlet and outlet ports,
(e) spaced inlet and outlet passages co-extending from said first chamber means,

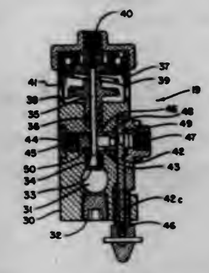
(f) an elongated second chamber extending transversely of said passages and having axially spaced portions intersecting the latter and a portion intermediate said axially spaced portions in communication with said operating port,
(B) valve means within said first chamber means and in one position providing for fluid flow between said inlet port and said inlet passage and preventing fluid flow between said outlet port and said outlet passage, and in another position preventing fluid flow between said inlet port and said inlet passage and providing for fluid flow between said outlet port and said outlet passage,
(C) and flow control means disposed in said second chamber between one of said axially spaced second chamber portions and said intermediate second chamber portion to limit flow of fluid through such one of said axially spaced second chamber portions without affecting fluid flow through the other of said axially spaced second chamber portions.

3,320,974
ANGLE-VALVE WITH VARIABLE INTAKE PORT AREA
Masao Nakasu, Kita-ku, Osaka-shi, and Hiroto Shimonaka and Kazuhiko Shimoda, Innoshima-shi, Hiroshima-ken, Japan, assignors to Hitachi Zosen Kabushiki Kaisha, Osaka-shi, Japan
Filed Jan. 27, 1964, Ser. No. 340,230
Claims priority, application Japan, June 22, 1963, 38/33,243
2 Claims. (Cl. 137—605)



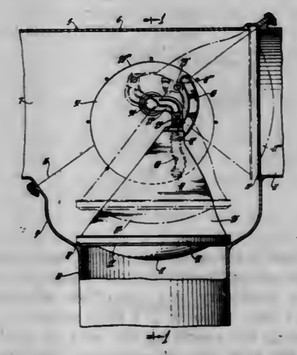
2. An angle valve with variable intake ports which comprises a hollow main body having a cylindrical intake port with a hopper-shaped part and bellmouth formed at one end, an outlet port, a plurality of inlet ports in said cylindrical intake port between said body and hopper-shaped part, a liner inside said cylindrical port positioned in close engagement with the inner walls thereof, a valve seat in said body between said intake and outlet ports, a valve disc in said body adapted to cooperate with said seat to prevent flow therethrough, means connected to one side of said disc for operating the same, a valve stem connected at one end to the other side of said valve disc and extending through said seat toward said liner, a tubular sleeve-like member connected to the other end of said stem and having at least a portion thereof in sliding engagement with said liner at all times, said sleeve-like member being spaced from said disc by said stem a distance such that when said disc is moved toward said seat said sleeve-like member extends across said inlet parts to thereby change the opening height and area of the inlet ports.

3,320,975
SERIALLY ARRANGED VALVES
James W. Juvinall, Indianapolis, Ind., and Chester A. Purdy, Belmont, Wis., assignors to Ransburg Electro-Coating Corp., a corporation of Indiana
Continuation of application Ser. No. 14,752, Mar. 14, 1960. This application June 10, 1966, Ser. No. 556,779
5 Claims. (Cl. 137—613)



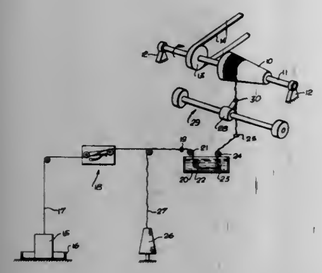
1. Apparatus for controlling flow of a liquid, comprising a housing having a bore, a plate-like valve member extending across said bore, a second valve member slidable in said bore, said second valve member being hollow and having a thin end wall engaging said plate-like valve member, said end wall and plate-like valve member being provided with valving openings, means urging said second valve member longitudinally of said bore toward the plate-like valve member, and means for moving said plate-like valve member transversely of said bore to vary the registry of said openings, said housing having a passage communicating with the interior of the second valve member.

3,320,976
TWO-WAY VALVE
Charles H. Smale, Indianapolis, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Feb. 18, 1965, Ser. No. 433,562
4 Claims. (Cl. 137—625.44)



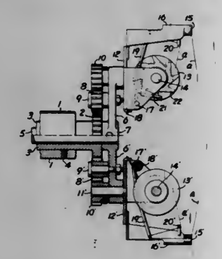
1. A two-way valve comprising, in combination,
a body having an inlet and two outlets;
a valve seat at each outlet;
a valve disk movable to cooperate alternatively with the seats;
and means for moving the disk so as to move axially as a poppet valve to and from engagement with one of the seats and to move transversely as a gate valve to and from engagement with the other seat.

3,320,977
METHOD OF MAKING HOLLOW SHAPES OF RESIN-IMPREGNATED GLASS FIBER, AND HOLLOW SHAPE RESULTING THEREFROM
Walter G. Well, 12 Stoneledge Road, Upper Saddle River, N.J. 07458
Filed Sept. 22, 1964, Ser. No. 398,357
2 Claims. (Cl. 138—129)



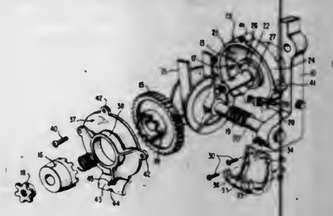
1. A hollow shape comprising a first glass fiber strand and a second glass fiber strand spirally wound to form a hollow shape, said strands being disposed together in a continuous series of closely-spaced, abutting loops, one of said glass fiber strands having laterally-extending portions along its length to overlie portions of the other of said strands, and a bonding material fixing the junctures between said strands at said overlying portions.

3,320,978
SELVAGE BRAIDING MEANS FOR A SHUTTLELESS LOOM
Yasushi Kobayashi, 311 Kokubunji, Kitatama-gun, Tokyo, Japan
Filed Apr. 27, 1965, Ser. No. 451,251
6 Claims. (Cl. 139—54)



1. A selvage braiding means for a loom wherein the warp extends along the longitudinal axis of the loom, comprising a stationary sun gear, two planetary gears, each having a gear ratio of 2:1 with respect to said sun gear, and means for revolving the axes of said planetary gears about the axis of said sun gear; said sun gear being mounted with its axis perpendicular to the longitudinal axis of said loom, and said planetary gears being coupled to said sun gear to rotate about their individual axes in reverse direction relative to the direction of revolution about the axis of said sun gear; bobbin holders for supporting bobbins of thread mounted to be rotatably driven by each of said planetary gears; and thread guide means affixed to each said bobbin holder; whereby each said thread guide means moves with symmetrical relation in non-interfering paths about the axis of said sun gear.

3,320,979
HOUSING AND OIL RESERVOIR KIT FOR GEARING OF LOOM LET-OFF
Carlos Lee Owens, Greenville, S.C., assignor to Southern Machinery Company, Greer, S.C., a corporation of South Carolina
Filed July 30, 1965, Ser. No. 475,963
1 Claim. (Cl. 139—110)

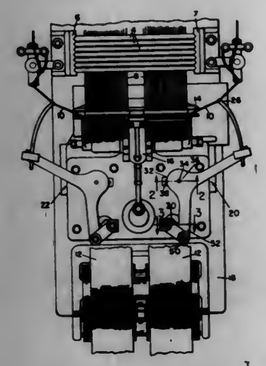


In a loom let-off mechanism, a rotary let-off shaft, a worn wheel on the let-off shaft to drive the same, a worm and worm shaft beneath the worm wheel and let-off shaft and extending at right angles thereto, the worm meshing with the worm wheel to drive the same, the improvement comprising an attachment kit housing and oil reservoir for the worm wheel and worn adapted to be readily mounted in the field, said attachment kit consisting of a generally cylindrical housing section which is cup-like and having an open side, one end wall and an annular wall, the annular wall having a bottom opening, the end wall of the housing section having a depending apertured mounting flange integral therewith, the housing section engaging over the worm wheel covering the top of the inner side thereof, the end wall having a central hub receiving the let-off shaft and serving to suspend the attachment kit bodily therefrom, a cylindrically curved oil reservoir member arranged below the lower side of the worm and worm shaft and having arcuate side flanges adapted to contact the worm shaft to resist rotation of the attachment kit with the let-off shaft, the reservoir member having an apertured vertical wall for registry with the depending apertured mounting flange, fastener elements detachably connecting the mounting flange and vertical wall rigidly, the reservoir member having an inclined and forwardly projecting lip extending from its cylindrically curved portion and terminating near the elevation of the axis of the worm shaft, and a front generally flat cover plate detachably secured to the open side of the housing section and covering the outer side of the worm wheel and having a central clearance opening to receive a hub portion of the worm wheel rotatably, the front cover plate having an integral depending arcuate extension thereon surrounding an upper quadrant of said worm and being of approximately the same width as said reservoir member, the last-named extension being spaced from the top of said lip and defining therewith a gap to facilitate the introduction of oil into the reservoir member, the reservoir member being substantially narrower along the axis of the worm shaft than the diameter of said housing section and cover plate.

3,320,980
WEFT LAYING MECHANISM FOR NEEDLE LOOMS
Roger W. Gustavson, Auburn, Mass., assignor to Crompton & Knowles Corporation, Worcester, Mass., a corporation of Massachusetts
Filed June 7, 1965, Ser. No. 461,685
5 Claims. (Cl. 139—124)

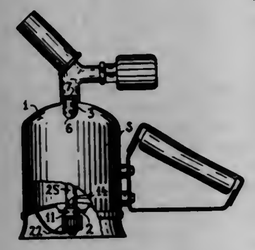
1. In a needle loom having means for forming a warp shed, weft inserting means comprising:
(a) weft needle member having a weft eye at the rear end thereof;

(b) a primary continuously rotating actuator pivotally connected to said needle member at a point spaced from the center of rotation of said primary actuator and said weft eye, and being effective to drive said point in a circle;
(c) a secondary continuously rotating actuator turning once for every rotation of said primary actuator; and



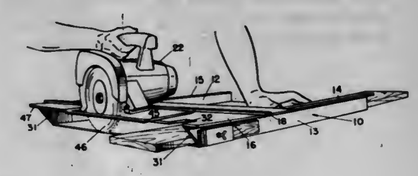
(d) a crank arm pivotally connected at one of its ends to said secondary actuator at a point spaced from the center of rotation of said secondary actuator and being pivotally connected at its other end to said needle member at a greater distance from said weft eye than said primary actuator, whereby said primary and secondary actuators cooperate to move said weft through one complete weft inserting cycle for each rotation of said actuators.

3,320,981
FILLING DEVICE FOR LIQUEFIED GAS CONTAINERS
Enrico Loewenthal, Elto-28 Via Nazario Sauro, Regina Margherita, Turin, Piedmont, Italy
Filed Jan. 15, 1965, Ser. No. 425,797
Claims priority, application Italy, Jan. 28, 1964, Patent 714,111
3 Claims. (Cl. 141—302)



1. A filling device for a liquefied gas chamber, comprising a hollow body connected to a bottom wall of said container, first radial bores in said hollow body connecting the interior of said hollow body with the interior of said container, a plunger slidable within said hollow body to admit a supply of liquefied gas into said container, a spring urging said plunger towards a lower position, an axial blind bore in said plunger, second radial bores in said plunger connecting said axial blind bore with said interior of the hollow body, sealing means between said plunger and said hollow body, said sealing means closing said second radial bores when said plunger is in said lower position, a vent valve connected to a top wall of said container, and a connecting shaft between said plunger and said vent valve, whereby said vent valve is actuated by said connecting shaft to allow release of vapors from said container each time said plunger is displaced for introducing a supply of liquefied gas into said container.

3,320,982
STRAIGHT BOARD AND SIDING GUIDE CUTTER
Rudolph J. Kwiatkowski, 816 W. 3rd St., Erie, Pa. 16507
Filed Sept. 25, 1964, Ser. No. 399,308
4 Claims. (Cl. 143—6)



1. A saw guide and work holder comprising
a sheet-like member bent upwardly at its side edges thereby forming an intermediate part and two spaced flanges extending generally parallel to each other and at right angles to the intermediate part,
the distal ends of said flanges being bent outwardly from said flanges, the upper part of said ends forming supporting surfaces,
a plate-like member supported on said supporting surfaces,
said plate-like member being disposed generally parallel to said intermediate part and defining a work receiving space therebetween adapted to receive a board to be cut,
an adjustable guide bar disposed on said plate-like member,
the ends of said plate-like member projecting laterally from the said flanges and extending longitudinally over said flanges and terminating at one end of said flanges,
a slot in each said end of said plate-like member, said slots being generally parallel to said flanges,
a guide lock extending through each end of said guide bar and through each said slot,
said plate-like member being adapted to support an electric saw having a base with said base slidably engaging said guide bar and the blade of said saw overhanging an end of said plate-like member.

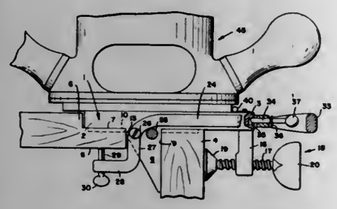
3,320,983
DEVICE FOR USE IN ROUTING HINGE SEATS
Jack D. Adams, 1228 Chestnut Drive, Chico, Calif. 95926
Filed Aug. 17, 1965, Ser. No. 480,392
4 Claims. (Cl. 144—27)

1. A portable device for use in routing out recesses respectively in the inner edge surface of a door and in the surface of a jamb from which the door is to be hung to provide seats for the leaves of a butt hinge to connect said door and jamb comprising:
(a) a horizontal base member;

(b) a jamb-clamp and a door-clamp respectively carried by said base member in a jamb-clamping position, and in a door-clamping position for releasably holding a horizontally disposed jamb and a door below and against said base member and stationary relative to said member in a routing position in side-by-side parallel relation with said surfaces respectively on said jamb and door coplanar facing upwardly and spaced apart the same distance as when said leaves are seated in the recesses to be formed in said surfaces;

(c) said door-clamp being supported on said base member at one lateral side of said door when in said door-clamping position for movement away from said one side to free said base member for lifting from said door when said door-clamp is so moved away from said one side;

(d) said jamb-clamp including a jamb-clamp support supporting said jamb-clamp below said jamb for upward movement against the underside of said jamb when in said jamb-clamping position and for downward movement to a jamb-releasing position;

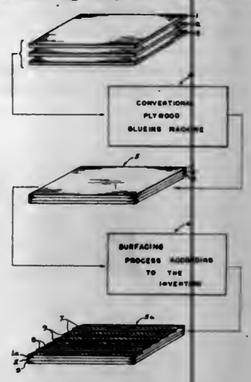


(e) said jamb-clamp support supporting said jamb-clamp for movement relative to said base member and said jamb and door to a position below the space between said surfaces on said jamb and door when said jamb-clamp is moved from the jamb-clamping position to said jamb-releasing position for upward movement of said jamb-clamp through said space when said door clamp is released from said door to enable said base member to be lifted from said door after said door clamp is released from said door;

(f) and a horizontal template on said base member extending over said surfaces when said base member is clamped to said jamb and door, said template being formed with an opening through which said surfaces are exposed and through which a router bit is adapted to extend to said surfaces to rout out said recesses, and the edges of said opening defining the outer limits of movement of such bit for forming hinge receiving recesses corresponding in outline to the outlines of the leaves of said butt hinge.

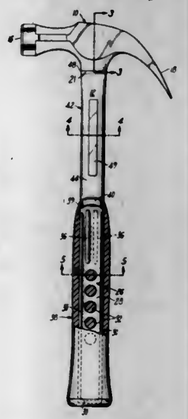
3,320,984
METHOD OF MAKING BUILDING PANELS
Trygve Stolesen, 771 S. Spring St., Ukiah, Calif. 95482; Rolf Stolesen, 525 Jackson Drive, Palo Alto, Calif. 94303; and Edward Stolesen, Rte. 1, Box 258, Lake Port, Calif. 95453
Original application July 25, 1962, Ser. No. 212,333, now Patent No. 3,234,978, dated Feb. 15, 1966. Divided and this application Aug. 12, 1965, Ser. No. 479,257
10 Claims. (Cl. 144—326)

2. Method of making a plywood building panel comprising the steps of first forming a multi-ply panel having a one-piece top ply with a face surface of substantially uniform elevation, and then cutting said surface to form substantially straight lines extending between two edges of said panel and parallel to the other two edges to form rows between said lines and other two edges, and simultaneously with the cutting of said substantially straight lines cutting spaced curved grooves in said rows, said curved grooves each being shaped to form less than a full



circle and being shaped so that its ends terminate adjacent the opposite straight line sides of its respective row.

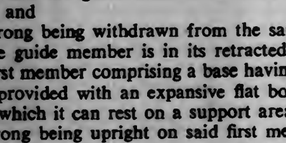
3,320,985
HAMMER WITH SOLID STEEL HANDLE
Charles W. Maguire, Belleville, N.J., and George W. Merrow, Bloomfield, and Robert F. West, Simsbury, Conn., assignors to The Stanley Works, New Britain, Conn., a corporation of Connecticut
Filed Oct. 7, 1965, Ser. No. 493,711
9 Claims. (Cl. 145—29)



1. A hammer and the like comprising an impact head having an eye extending into the head, the eye having an entrance intermediate the ends of the head, and an elongated solid steel handle having a hole extending axially into one end thereof and forming a resilient inwardly compressible end portion of the handle fitted into the eye of the head with an interference fit.

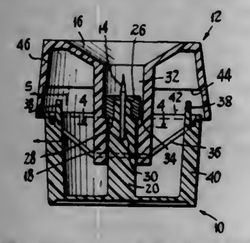
3,320,986
CHISELS
Winston E. P. Jeffery, Birmingham, and Walter R. Stephens, Lapworth, England, assignors, by mesne assignments, to Thor Hammer Company Limited, a company of Great Britain
Filed Apr. 9, 1965, Ser. No. 446,841
1 Claim. (Cl. 145—61)

A chisel comprising a shank having an impact end and a working end, the impact end including a head, said head being initially of smaller cross-section than the end of said shank adjacent said head and has a tapered, conical projection on its underside, said shank having a recess disposed in the end thereof with a communicating tapered conical hole located centrally thereof, said recess and



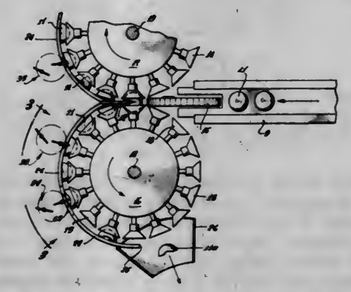
said hole being dimensioned to respectively receive therein said head and said projection, said head being formed of a soft metal so as to mushroom out when struck and form a domed-shaped head extending across the whole of said end of the shank.

3,320,987
EGG SHELL PIERCER
Paul Pelzel, 74 Quarry St., Apt. 6, Bridgeport, Conn. 06606
Filed Jan. 25, 1966, Ser. No. 522,954
7 Claims. (Cl. 146—2)



1. An egg shell piercer comprising, in combination:
(a) a first rigid member including a projecting prong,
(b) a rigid guide member having a hollow adapted for engagement by the round end of an egg to position the same thereon,
(c) means mounting the guide member on the first member for reciprocative movement thereon between advanced and retracted positions,
(d) means acting on said first member and guide member, biasing the latter to its retracted position,
(e) said guide member having a passage communicating with the hollow thereof and receiving the prong of the first member,
(f) said prong extending into said hollow to pierce the round end of an egg which is positioned in the hollow when the guide member is in its advanced position, and
(g) said prong being withdrawn from the said hollow when the guide member is in its retracted position,
(h) said first member comprising a base having a lower portion provided with an expansive flat bottom surface by which it can rest on a support area,
(i) said prong being upright on said first member,
(j) said guide member comprising a rigid inverted cup disposed over and extending around the outside of the first member, and vertically movable thereon,
(k) the retracted position of the guide member being its raised position on the first member,
(l) said first member comprising a rigid upright cup telescoping with the inverted cup and forming therewith an enclosed inside space,
(m) said mounting means comprising a central upstanding post on the first member and a depending hollow boss on the guide member, telescoping and slidably engaging the post, said boss and post being located in said enclosed space and being concealed by said cups,
(n) the rim portion of said inverted cup extending around the rim portion of the upright cup for the raised position of the inverted cup whereby both the cups cooperate to present the appearance of a closed circular housing the upper portion of which is movable downward and upward with respect to the lower portion.

3,320,988
APPARATUS FOR CORING FRUIT HAVING SEED CELLS
Theodore H. Armstrong, Torrance, Herbert M. Gierth, Gardena, and Frank C. Livoti, Torrance, Calif., assignors to Pacific Preserving Company, Gardena, Calif., a corporation of California
Filed Nov. 9, 1964, Ser. No. 409,784
7 Claims. (Cl. 146—52)

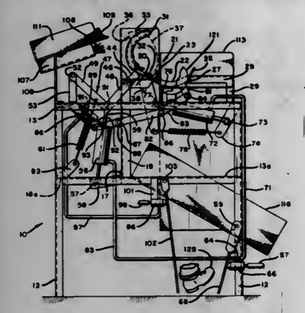


1. In apparatus for coring fruit having a seed cell at the axis of the fruit core: a set of fruit cups; means mounting the fruit cups for movement in a circuitous path; said cups being equally spaced along said mounting means; said cups each having inwardly converging surfaces; said cups opening at one side of said path for receiving fruit halves; means for successively depositing axially cut fruit halves in the cups with the fruit axis perpendicular to said path; a guide rail on said one path side and retaining said fruit halves in said cups throughout a length of said path; a first support located on said one path side; a first cutter mounted for rotation about its axis on said first support; means for moving the support synchronously with said cup mounting means for movement of said cutter axis toward and away from the cup for removal of the seed cell of the fruit half; said guide rail having an aperture for passage of part of said cutter through said guide rail, said guide rail being continuous above and below the said aperture for retaining the fruit half in the corresponding cup; a second support located on said one path side at a place spaced from said first support; a second cutter mounted for rotation about its axis on said second support; means for moving said second support synchronously with said cup mounting means for movement of the axis of said second cutter toward and away from the cup for removal of the stem and blossom ends of the core of the fruit half; said guide rail having apertures for passage of part of said second cutter through the guide rail, said guide rail being continuous along the area between the said apertures for retaining the fruit half in the corresponding cup.

3,320,989
BROCCOLI BUNCHING AND TRIMMING APPARATUS
Riccardo Verardo, Castroville, Calif., assignor to D'Arrigo Bros. Co. of California, Salinas, Calif., a corporation of California
Filed Aug. 19, 1963, Ser. No. 302,948
9 Claims. (Cl. 146—82)

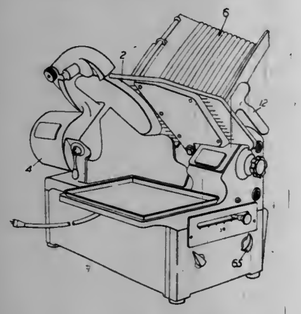
1. A vegetable bunching machine for bunching stalks of vegetables, which machine comprises a trough movable

between a normal vegetable supporting position and a vegetable dumping position, the stalks of vegetables to be bunched being placed upon the trough in the vegetable supporting position thereof, a gripper member movable between an open position and vegetable clamping position for bunching the stalks of vegetables on the trough in the vegetable supporting position of the trough and clamping position of the gripper member, means for actuating the gripper member between its open and clamp-



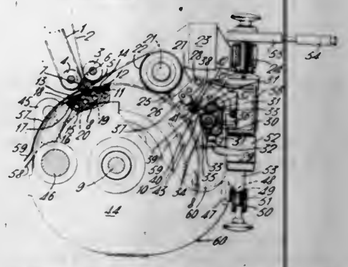
ing positions, means for actuating the trough between its vegetable supporting and dumping positions, and means under control of an operator of the machine for controlling said actuating means whereby the machine may be stopped in either one of two conditions, one condition being wherein the trough is in a vegetable supporting position and the gripper member is in an open position, and another condition being wherein the trough is in a vegetable supporting position and the gripper member is in a vegetable clamping position.

3,320,990
AUTOMATIC FOOD-SLICING MACHINE
Jozef Longin Anecki, Taplow, England, assignor to Lan-Elec Limited, Slough, England, a British company
Filed May 26, 1964, Ser. No. 370,287
5 Claims. (Cl. 146—102)



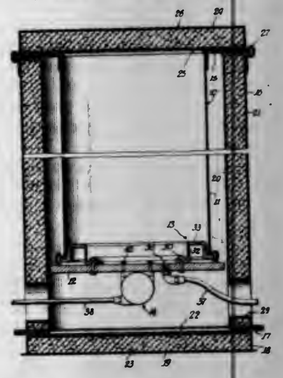
1. An automatic food slicing machine comprising a rotatable cutter blade, a motor to drive said blade, a hopper to receive food mounted for reciprocation past said blade, a hopper motor to drive said hopper past said cutter blade, a switch controlling the power supplied to the hopper motor, an operating device for said switch and a lever pivotally connected to said operating device, said operating device comprising a disc so arranged that when moved angularly to the position in which the power supplied to the hopper motor is cut-off by the switch, it also moves said lever to break the mechanical connection between the hopper motor and the hopper whereby the food hopper can be reciprocated manually.

3,320,991
TOBACCO CUTTING MACHINES
Desmond Walter Molins, London, England, assignor to The Molins Organisation Limited, London, England, a corporation of Great Britain
Filed Feb. 16, 1965, Ser. No. 432,973
Claims priority, application Great Britain, Feb. 18, 1964, 6,733/64
7 Claims. (Cl. 146—119)



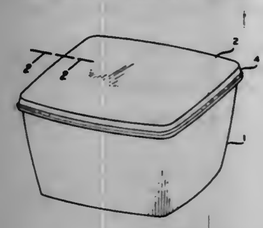
1. A tobacco cutting machine for shredding tobacco comprising: a mouthpiece through which tobacco is fed; a member rotatable about an axis parallel to the longitudinal axis of the mouthpiece and having a plurality of knives peripherally disposed with the edges of the knives passing across the mouthpiece; a trueing diamond movable along a fixed path parallel to the said longitudinal axis; a rotatable grinding cylinder having its axis parallel to said path; and a common mechanism for raising the axis of the member and lowering the axis of the grinding cylinder in general directions towards the mouthpiece and said path respectively.

3,320,992
JUICE EXTRACTING METHOD UTILIZING SONIC WAVES
Albert G. Bodine, Los Angeles, Calif. (7877 Woodley Ave., Van Nuys, Calif. 91406)
Filed Feb. 10, 1964, Ser. No. 343,852
3 Claims. (Cl. 146—227)



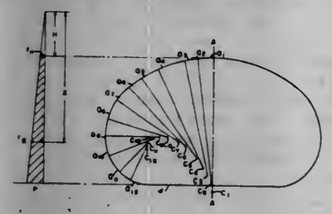
1. The method of extracting juices from pieces of raw vegetable material comprised of fibrous substance with juices bound therein, that includes: generating high-amplitude sonic waves, of low frequency relative to the audible spectrum, by driving an inertia rotor repeatedly in an orbital path around the surface of a bearing, subjecting the pieces of vegetable material to said high-amplitude sonic waves by coupling said bearing to said material, whereby the juice is extracted from the fibrous substance, and the vegetable material gradually reduced to a residue of fibrous pulp and a body of extracted juice, and separating the juice from the pulp.

3,320,993
CONTAINER AND COVER THEREFOR
James O. Motsenbocker, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Aug. 11, 1965, Ser. No. 478,862
8 Claims. (Cl. 150—.5)



1. A container and cover therefor for use in packaging or storing foods, said container having at the top portion thereof a resilient depending flange extending downwardly and outwardly with an outwardly extending lip, said cover having a downwardly flared flange with an indentation adapted to engage said container lip so that a snap-on arrangement is provided between said cover and said container.

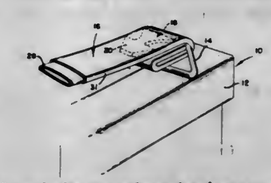
3,320,994
SPHEROIDAL TANK
Kenyon M. Craig, 51 Windermere Ave., Landsdowne, Pa. 19050
Filed Dec. 29, 1965, Ser. No. 517,211
10 Claims. (Cl. 150—.5)



1. A closed tank having walls made of a stretchable, flexible material which has a substantially uniform thickness and is capable of at least 100% elongation without rupture, said tank having a shape of a solid of revolution about a central vertical axis, every central cross-section of which is an area bounded by a substantially linear bottom portion lying transversely to said central vertical axis and curved side and top portions, the arcs of which have different radii of curvature, the radii of curvature at successive points from the uppermost point of the tank toward said bottom portion being successively shorter.

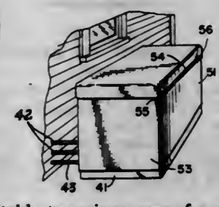
3,320,995
HANDLE ASSEMBLIES FOR HANDBAGS OR THE LIKE AND METHOD FOR MAKING THE SAME
Daniel I. Reiter, 11 E. 31st St., New York, N.Y. 10016
Filed Jan. 5, 1965, Ser. No. 423,505
8 Claims. (Cl. 150—33)

1. An attachment member for a handle, comprising an elongated, flat strip of stiff, bendable material, said strip having an elongated, generally rectangular major portion of predetermined width with an arrow head at each end thereof directed away from that end, each arrow head having a pair of trailing vertices laterally projecting slightly beyond the adjacent lateral edges of said major portion, said strip having an undercut lateral edge portion between each of said vertices and the corresponding lateral edge of said major portion, whereby when the ends of said strip are inserted into correspond-



ing flexible tubular members having a passage substantially the same width as said major portion, the vertices bite into the wall of the passage and the material of the wall may protrude into the undercut portions in order to fix the attachment member to said tubular members.

3,320,996
ADJUSTABLE COVER
Isadore Singer, Chicago, Ill., assignor to Singer Safety Products, Inc., Chicago, Ill., a corporation of Illinois
Filed Oct. 11, 1965, Ser. No. 494,847
3 Claims. (Cl. 150—52)

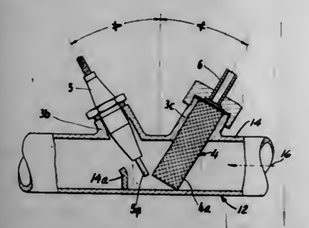


1. An adjustable two-piece cover for central air conditioner cabinets and the like, said cover comprising an elongated strip of material of generally rectangular configuration having first and second ends joining parallel top and bottom edges, at least one fold in said strip spaced from and generally parallel to each of said first and second ends, each of said folds having a plurality of grommets therein, said elongated strip of material being adapted for disposition around the vertically disposed surfaces of said air conditioner cabinet with the grommeted folds adjacent said first and second ends being in closely spaced relation to each other, an adjustable elastic cord means hooked to said grommets and urging said folds adjacent said first and second end portions toward each other to tighten said strip of material about said air conditioner cabinet, a top cover disposed transversely of said elongated strip and covering at least the top edge thereof, second elastic means adapted to be disposed at opposite ends of said cabinet and joined to said top cover to pull parallel side portions thereof towards each other, and third elastic means pulling opposite end portions of said top cover towards each other whereby the side and end portions of said top cover will overlie the top edge of said elongated strip forming the side cover.

3,320,997
COMBUSTION DEVICE WITH PRE-COMBUSTION CHAMBER
Siegfried Kofink, Zell (Neckar), Germany, assignor to J. Eberspacher, Esslingen (Neckar), Germany
Filed Nov. 17, 1965, Ser. No. 508,279
Claims priority, application Germany, Nov. 18, 1964, E 28,160
9 Claims. (Cl. 158—28)

1. A combustion device comprising a tubular conduit for the flow of a combustion air stream therethrough and defining a precombustion chamber, a cylindrical

porous body fuel vaporizer of a cross-section smaller than said conduit disposed across said conduit with its axis at an acute angle to the flow axis of the air stream, means for admitting fuel into the porous body for passage through the pores of said body and for vaporizing and mixing with the air stream, means for directing a

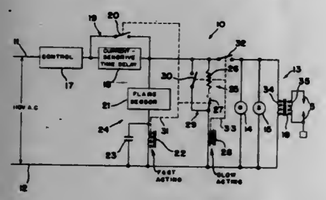


combustion air stream through said conduit from one side of said porous body, and ignition means for igniting the fuel and air mixture disposed directly adjacent said porous body on an opposite side thereof from the oncoming combustion air stream so as to be shielded by said porous body from the flow of the air stream laterally of said porous body.

3,320,998
ELECTRIC CONTROL OF FUEL-BURNING DEVICES

Milan Momchilovich, Akron, Ohio, assignor to The Falls Stamping and Welding Company, Cuyahoga Falls, Ohio, a corporation of Ohio

Continuation of application Ser. No. 287,911, June 14, 1963. This application Apr. 25, 1966, Ser. No. 545,163
10 Claims. (Cl. 158—28)

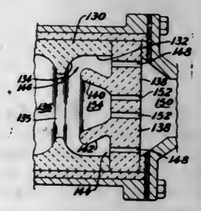


1. In a control circuit for controlling a fuel-burning device, first and second lines adapted to be connected to a voltage source, a load across said lines, an adjustable control means responsive to changes in heat conditions in one of said lines, a time-delay means connected in series with said control means, shunt circuit means around said time-delay means, said shunt circuit having a first switch therein which is normally open when said fuel-burning device is in the cold condition, flame sensor means having a first relay in series therewith across said first and second lines intermediate said load and said time-delay means, said first relay operating said first switch to the closed position when said first relay is energized, second relay means having a second switch means and resistor means in series therewith across said lines, said resistor rendering said second relay means slower acting than said first relay, said second switch means being operatively connected to said first relay so as to be opened upon energization thereof, shunt circuit means around said resistor means and said second switch means, said shunt circuit means having third switch means therein, said third switch means being operatively connected to said second relay means so as to be closed when said relay is energized, fourth switch means in one of said lines between said load and said second relay means, said fourth switch means being actuated to the closed position when said second relay is energized thereby placing a potential across said load.

3,320,999
INTERNAL COMBUSTION BURNER

Charles J. Stalego, Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation, a corporation of Delaware

Application June 21, 1961, Ser. No. 118,635, which is a division of application Ser. No. 401,250, Dec. 30, 1953. Divided and this application Mar. 15, 1965, Ser. No. 439,894
8 Claims. (Cl. 158—99)

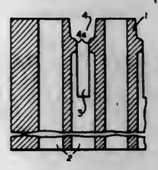


1. A burner of the character disclosed including, in combination, an elongated burner casing, a lining of refractory material in said casing defining the lateral surface of a combustion zone, a member disposed at the rear of the burner and forming a rear wall of the combustion zone, said member being formed of refractory and having an annular projection extending into the combustion zone, said annular projection forming with the lateral surface an annular ignition chamber, a mixture supply manifold disposed at the opposite side of the member, said member having a plurality of passages formed therein for conveying combustible mixture from said manifold to the annular ignition chamber, said mixture adapted to be ignited at the zone of entrance of the mixture into the ignition chamber, said refractory lining having an inwardly extending circular portion defining a passage of reduced cross-sectional area centrally in said combustion zone and through which the burning gases flow from the annular ignition chamber, and a restricted orifice in the forward end of the burner through which products of combustion are discharged from the combustion zone.

3,321,000
DEEP COMBUSTION RADIANT SURFACES WITH SPECIAL SLOTTING

Maurice Partiot, 12 Rue du Plateau Saint-Antoine, Le Chesnay, France

Original application June 17, 1960, Ser. No. 36,767, now Patent No. 3,179,155, dated Apr. 20, 1965. Divided and this application Mar. 17, 1965, Ser. No. 440,465
22 Claims. (Cl. 158—116)

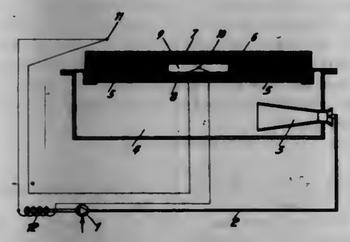


1. A radiant grid element for a gas burner comprising, a unitary block of refractory heat insulating material having a myriad of continuous, straight minute-bore passages which extend from an inlet end at a first boundary surface of said block toward the opposite surface of said block for conducting from said first surface a myriad of streams of a combustible gas mixture for combustion adjacent said opposite surface, said block having formed in its said opposite surface a repeat pattern of indentations each of which intersects at least two of said passages, each said intersected passage together with the respective intersecting indentation forming a restriction in the flow path of said gas mixture prior to its emergence into the associated indentation to thereby increase the velocity of said gas mixture in said restriction and impart to said gas mixture a turbulence adjacent the outlet end of said restriction, the arrangement of said passages and their dimensions together with the shape and size of said indentations comprising a means which is jointly operable to cause at least some of the gas mixture to burn at substantially the outlet ends of the respective restrictions, the thickness of said block at its minimum within said indentations and the nature of the refractory material of said block comprising a means which is jointly operable to prevent said first surface from reaching the ignition temperature of said gas mixture, and each said passage being many times longer than its width and sufficiently narrow to prevent the flame from back-propagating therethrough to said first surface.

3,321,001
RADIANT HEATING DEVICES

Louis Alix Vezzoli, Milan, Italy, assignor to Societe Antargaz Societe Anonyme de Distribution de Gaz Liquides de Petrole, Paris, France, a corporation of France

Filed July 12, 1965, Ser. No. 471,039
Claims priority, application France, July 11, 1964, 981,618
5 Claims. (Cl. 158—130)

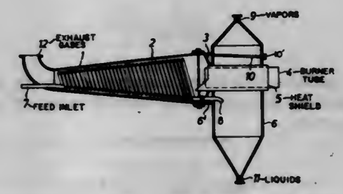


1. In a gas radiant burner comprising a radiant burner plate having a multiplicity of narrow passages extending therethrough from a rear surface of said block to a front surface thereof for conducting from said rear surface to said front surface streams of a flammable gas mixture for combustion adjacent said front surface, and means for feeding said flammable gas mixture to said rear surface of said plate, including a fuel feed duct: a detecting chamber provided behind said front surface and separated therefrom by a perforated radiant plate element which is more sensitive to back-firing than said radiant burner plate, anti-back-firing means for feeding said flammable gas mixture to said detecting chamber, a self closing electrovalve on said fuel feed duct, a solenoid for controlling said electrovalve to an open position when energized, said solenoid having two terminals, a first thermocouple arranged in front of and adjacent to said front surface of said radiant burner plate, a second thermocouple arranged within said detection chamber, said first and second thermocouples being coupled in opposition to one another and in series with said terminals of said solenoid, whereby said first thermocouple generates a first current for energizing said solenoid to open said electrovalve upon said combustion of said flammable gas mixture adjacent said front surface of said radiant burner plate and said second thermocouple generates a second current which annuls said first current when back-firing occurs in said detection chamber.

3,321,002
SEPARATOR

Alfred Winkler, Dusseldorf, Germany, assignor to Cwielong and Winkler Ingenierburo, Dusseldorf, Germany

Filed Oct. 19, 1965, Ser. No. 498,042
Claims priority, application Germany, Oct. 20, 1964, C 34,145; Aug. 21, 1965, C 36,704
12 Claims. (Cl. 159—3)



1. Apparatus for separating liquids which comprise two fractions, of which one is evaporable and constitutes the carrier for the other, comprising an elongated spirally wound, divergent tubing coil having a series of convolutions of increasing, encompassed, transverse area in the direction from one toward the other axial end of said coil and further having a feed inlet opening at said one end and a discharge opening at said other end; means for admitting a liquid to be separated into said feed inlet opening in pressurized state for advancement to said discharge opening; a separating chamber having a lower portion communicating with said discharge opening, and an upper portion, the upper of said portions having a vapor outlet and the lower portion having a liquid outlet; and heating means for heating said coil to such temperature that at least a major part of the evaporable carrier is evaporated during advancement thereof through said coil, so that the resulting steam issues from said outlet of the upper portion of said separating chamber whereas the other fraction of the thus-treated liquid accumulates in said lower portion of the separating chamber and leaves said chamber through the outlet of said lower portion, said heating means being substantially received within said chamber to heat the same without communicating therewith and having an outlet for hot gas communicating only with the space defined by the convolutions of said coil adjacent said other axial end thereof so that said coil is directly heated by said hot gas while said chamber is indirectly heated as a result of arrangement of said heating means therewithin.

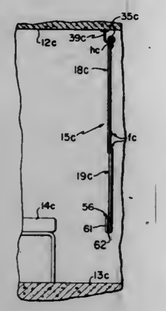
3,321,003
HANGING DRAPERY ASSEMBLY

Oscar F. Boerner, Doylestown, Pa., assignor to Chemetron Corporation, Chicago, Ill., a corporation of Delaware

Continuation of application Ser. No. 301,717, Aug. 13, 1963. This application July 18, 1966, Ser. No. 570,117
2 Claims. (Cl. 160—237)

1. In a hanging drapery assembly: a flexible drape having a clear vision upper drape portion and a vision preventing lower drape portion, said lower drape portion having an upper end and a lower marginal end terminating at a lower end, means for detachably connecting said lower end of said upper drape portion and said upper end of said lower drape portion, said lower marginal end capable of

being in an inversely folded position, and means for detachably connecting said lower marginal end in the inversely

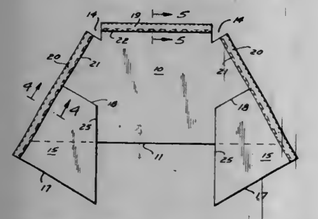


folded position, said lower marginal end being detachable for unfolding to increase the vertical extent of said lower drape portion.

3,321,004
DRAPERY DEVICE

John Lopes, Jr., New Bedford, Mass., assignor to Cameo Curtains, Inc., New York, N.Y., a corporation of New York

Filed July 20, 1965, Ser. No. 473,371
3 Claims. (Cl. 160—330)



1. A drapery device for providing a swag valance and pendent side draperties, comprising
a flat central panel having the shape of an isosceles trapezoid and notched at its upper corners,
a pair of symmetrically opposed flat side panels each having the shape of a polygon with an attachment edge lying between two adjacent 90° corners,
each side panel partially overlying the central panel with said attachment edge secured to and aligned with the corresponding side edge of the central panel,
each attachment edge extending beyond the outer end of the side edge with which it is aligned,
a rod tunnel along the top edge of the central panel, and a rod tunnel along each side edge of the central panel and extending for the full length of said attachment edge,
whereby the threading of a rod through said tunnels will bring them into horizontal alignment and automatically produce the desired drapery.

3,321,005
METHOD OF MAKING SHELL MOLDS FOR CASTING REACTIVE METALS

Nick G. Lirones, North Muskegon, Mich., assignor to Howmet Corporation, a corporation of Delaware

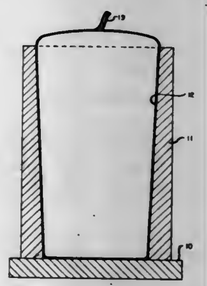
No Drawing. Filed Apr. 19, 1965, Ser. No. 449,294
20 Claims. (Cl. 164—26)

13. In the method of producing a mold for use in casting shaped products of refractory metals, heavy reactive metals, metals of group IV–*b* of the periodic system, and alloys thereof in which the mold is formed of a composite of a dip coat composition the solids of which consist essentially of a ceramic flour and a ceramic binder and a stucco of ceramic particles, the steps of impregnating the mold with a dilute fluid composition containing an organic compound which is easily thermally decomposable to a stable carbonaceous decomposition product, firing the impregnated mold in a non-oxidizing atmosphere to a temperature above the thermal decomposition temperature for the organic material thermally to decompose the organic material in situ in the impregnated mold.

3,321,006
METHODS OF TREATING METAL

William E. Knapp, Allison Park, and Wilbur T. Bolkcom, Pittsburgh, Pa., assignors to American Metallurgical Products Company, a corporation of Delaware

Filed Nov. 13, 1963, Ser. No. 323,343
2 Claims. (Cl. 164—56)

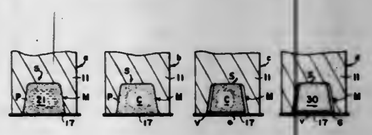


1. The method of treating molten metal which comprises the steps of expanding a bag made of a material containing releasable fluorine into contact with the mold walls, pouring molten metal into the interior of the bag to fill the mold while the action of molten metal causes release of said fluorine in amounts providing surface protection and conditioning during said pouring and solidify the metal therein.

3,321,007
METHOD OF COOLING CONTINUOUS CAST METAL IN THE MOLD

Daniel B. Cofer, Carrollton, Ga., and Thomas L. Bray, Birmingham, Ala., assignors to Southwire Company, Carrollton, Ga., a corporation of Georgia

Filed Apr. 19, 1966, Ser. No. 543,644
10 Claims. (Cl. 164—87)



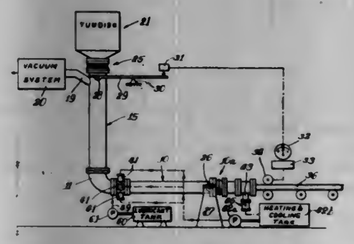
1. In a method of continuously casting a molten metal in a mold defined by the peripheral groove of a casting wheel, the steps of pouring molten metal at a first temperature into a mold having a second temperature substantially less than said first temperature, initially cooling said molten metal by a transfer of heat from said molten metal to said mold while substantially simultaneously increasing the temperature of said mold to a third temperature which is greater than said second temperature but less than said first temperature by retaining in said mold

adjacent said molten metal substantially all of the heat transferred from said molten metal to said mold during initial cooling of said molten metal and so as to retard initial cooling of said molten metal, subsequently cooling said molten metal until it is substantially solidified into a cast metal, removing said cast metal from said mold, and cooling said mold to said second temperature, all of said steps being cyclic and being repeated a plurality of times during the continuous casting of a molten metal.

3,321,008
APPARATUS FOR THE CONTINUOUS CASTING OF METAL

Samuel H. Jones, Flossmoor, Ill. (% M.E.A. Inc., 4020 W. 111th St., Oaklawn, Ill. 60453)

Filed Oct. 18, 1963, Ser. No. 317,278
9 Claims. (Cl. 164—155)



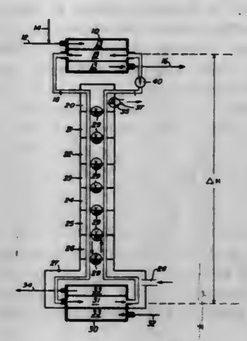
9. An apparatus for the continuous horizontal casting of steel into a continuous solid steel slab comprising: a housing; a substantially horizontally disposed, elongate, tubular copper mold having open-flanged entry and exit ends, said mold being rigidly supported at said flanged ends in said housing and having a cross-sectional dimension substantially equal to the size of the slab desired to cast; a substantially vertically disposed casting riser adjacent the entry end of said mold to provide a head of molten metal for continuous gravity feed of a stream of molten metal into the entry end of said mold; vacuum means for degassing said stream of molten metal in said riser; weight responsive means for indicating the head of molten metal in said riser; means for circulating a fluid coolant between said housing and said copper mold for freezing the molten steel in the mold into a solid slab, said fluid coolant comprising a molten mixture of lead and tin having a specific gravity substantially equal to the specific gravity of the steel being cast for supporting said mold intermediate its ends; means for intermittently interrupting the circulation of said fluid coolant for imparting a vibration to said mold transversely of its length; means for continuously withdrawing said slab from the exit end of the mold; and means for controlling the rate of withdrawal of the slab to maintain a desired head of molten metal in the casting riser as indicated by said weight responsive means.

3,321,009
HIGH TEMPERATURE HEAT EXCHANGE USING LIQUID METAL

James P. McGee and Neil H. Coates, Morgantown, W. Va., assignors to the United States of America as represented by the Secretary of the Interior

Filed June 1, 1965, Ser. No. 460,605
6 Claims. (Cl. 165—1)

1. A heat transfer method comprising the steps of
(a) circulating liquid metal in a heating zone maintained at a temperature above 1600° F. and at ambient pressure,
(b) passing the heated liquid metal to a heat exchanger at a lower elevation,

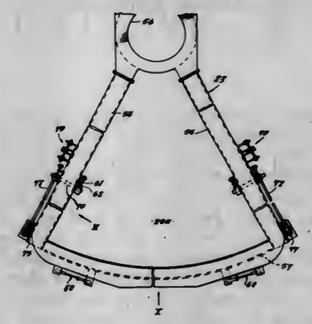


(c) introducing a process stream to be heated into the heat exchanger at a pressure substantially equal to the internal pressure of the liquid metal in the heat exchanger, and
(d) recirculating the liquid metal to the heating zone.

3,321,010
ROTARY VALVE REGENERATIVE HEAT EXCHANGER SEAL

Herbert Brandt, 5961 Rothemuhle uber Olpe, Westphalia, Germany, and Herbert Sandmann, Hubertusweg, 596 Olpe, Westphalia, Germany

Filed July 8, 1965, Ser. No. 470,376
Claims priority, application Germany, July 30, 1964, A 46,730; Nov. 10, 1964, A 22,734
10 Claims. (Cl. 165—4)



1. A rotary regenerative heat exchanger comprising a casing, a hot gas inlet chamber at one end of the casing, a gas outlet chamber at the other end of the casing, a stationary regenerator within said casing between said chambers, a mass of plates in said regenerator providing a multiplicity of axial passages therethrough, an outlet air duct one open end of which is disposed within said gas inlet chamber, an inlet air duct one open end of which is disposed within said gas outlet chamber, rotatable air duct members at each axial end of said regenerator and having necks disposed in rotatable air and gas tight engagement with the open ends of the inlet and outlet air ducts, each air duct member having ducts with openings at the ends adjacent the axial ends of said regenerator whereby air

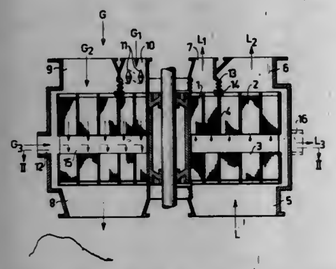
emitted from said inlet air duct passes through said regenerator into said outlet air duct, and sealing assemblies disposed around the peripheries of the openings of said air duct members, said sealing assemblies comprising a sealing member, a frame attached to said sealing member, an expansion member between said air duct member and said sealing member frame, swivel joint means between said air duct member and said sealing member frame for transmitting the rotational movement of said air duct member to said sealing member, and resilient means urging said sealing member frame from said air duct member toward said regenerator, wherein the sealing member frame has arms which extend substantially radially from the axis of rotation of the air duct member which arms are divided substantially medially of their ends to provide two parts which are connected together flexibly, said flexible connection comprising flanges on the adjacent ends of said two parts, a flat steel plate between said flanges, a screw bolt passing through said parts and said plate and resilient means disposed on said bolt.

3,321,011

ROTARY REGENERATOR WITH SEPARATING ZONE

Georg Kalbfleisch, Eppelheim, near Heidelberg, and Alfred Kaltschmitt, Leimen, Germany, assignors to Svenska Rotor Maskiner Aktiebolag, Nacka, Sweden, a corporation of Sweden

Filed Mar. 16, 1965, Ser. No. 440,148
3 Claims. (Cl. 165—7)



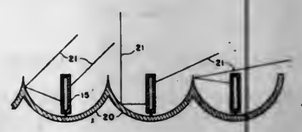
1. A rotary regenerative air preheater comprising a casing, a regenerator body in said casing having coaxial outer and inner cylindrical shells defining an annular space, a regenerative mass in said annular space forming axial passages for the flow of heat-exchanging media therethrough, means providing at least one separating zone in said regenerator body dividing said regenerator body and said axial passages into axially spaced heating stages and providing radial and axial flow therethrough, at least two radially spaced ducts at one end of the casing for supplying hot flue gases to a portion of said axial passages and at least two radially spaced ducts adjacent thereto forming outlets for heated air from another portion of said axial passages, a plurality of ducts at the opposite end of the casing for withdrawing cooled flue gases from and supplying cold air to the other end of said axial passages, respectively, with said ducts and said regenerator body being rotatable relative to each other, at least one cylindrical partition in the heating stage adjacent said gas supply and air outlet ducts for dividing said stage into coaxial annular sections for registering sequentially with the radially spaced openings of said gas supply and air outlet ducts during said rotation, means in said regeneratory body for preventing peripheral flow therethrough, and adjustable means in at least one of said gas supply ducts for controlling the gas flow therethrough.

3,321,012

SOLAR HEAT EXCHANGER

David E. Hervey, Elm City, N.C., assignor to Industrial Institution International, Ltd., Elm City, N.C.

Original application May 20, 1963, Ser. No. 281,629, now Patent No. 3,262,493, dated July 26, 1966. Divided and this application Apr. 4, 1966, Ser. No. 539,948
2 Claims. (Cl. 165—40)



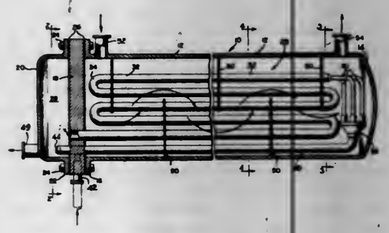
1. An improved heat-exchange means comprising at least one fixed semi-cylindrical reflector, at least one flattened fluid-bearing tube any lateral cross-section of which has a major and minor axis, said tube being longitudinally mounted within said reflector and disposed so that the major axes of said tube cross-section lie within the radial plane perpendicular to the chord of the extremities of the arc formed by a lateral cross-section of said reflector, and means for passing a temperature-conducting fluid through said tube whereby heat and cold alternately may be collected and transferred.

3,321,013

SHELL AND TUBE HEAT EXCHANGER

Richard H. Babylon, Hagerstown, Md., assignor to Frick Company, Waynesboro, Pa., a corporation of Pennsylvania

Filed July 12, 1965, Ser. No. 471,001
3 Claims. (Cl. 165—158)



1. A heat exchanger of the shell and tube type comprising

(a) an elongated shell open at one end and closed at the opposite end thereof,

(b) a tube bundle consisting of a plurality of spaced parallel tubes disposed within said shell,

(c) each tube of said tube bundle consisting of spaced parallel straight portions inter-connected by return bends to provide for series fluid flow through said tubes,

(d) a tube sheet disposed adjacent the open end of said shell,

(e) a header disposed adjacent the tube sheet and secured to the open end of said shell to clamp the tube sheet to the shell in a fluid tight manner,

(f) each of said tubes of said tube bundle being secured to said tube sheet to communicate with said heater,

(g) a manifold disposed in the shell remote from the tube sheet,

(h) a plurality of second tubes, each of which tubes has smaller cross-sectional flow area than the tubes of said tube bundle and is connected at one end to said manifold and at the opposite end to a tube of said tube bundle to communicate said manifold with the tubes of said tube bundle,

(i) a passageway in said tube sheet communicating with a source of first fluid,

(j) a delivery conduit connected to said tube sheet and said manifold so as to communicate the latter with the passageway, and provide flow of first fluid from the passageway to the manifold and thence to the second tubes, and

(k) means in said shell for providing flow of a second fluid through the shell and in indirect heat exchange relationship with the fluid flowing through the tubes.

3,321,014

HEAT EXCHANGER

Desmond M. Donaldson, Oakville, Ontario, Canada, assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois

Original application Dec. 20, 1962, Ser. No. 246,070, now Patent No. 3,228,367, dated Jan. 11, 1966. Divided and this application Sept. 17, 1965, Ser. No. 506,140
3 Claims. (Cl. 165—185)



1. An integral fin structure comprising a plurality of spaced, parallel fin sections in superposed relation joined at alternately opposite edges by tie elements struck from the edges of said fin sections, each tie element being particularly characterized as having opposite end portions integral with their respective fin sections said tie elements extending generally perpendicular to each said fin section and spacing the edges of said fin sections at substantially the same distance as the distance between the intermediate portions of said fin sections, said tie elements being further characterized as being staggered with respect to each other whereby the heat load across said structure is substantially balanced.

3,321,015

RECOVERABLE GUIDE MEANS BASE

William W. Word, Jr., Houston, Tex., assignor to Armco Steel Corporation, Middletown, Ohio, a corporation of Ohio

Filed July 2, 1964, Ser. No. 379,783
16 Claims. (Cl. 166—.5)

1. In an underwater well installation including an upwardly extending fixed well member, the combination of

flange means carried by the upwardly extending well member,

said flange means presenting opposed outwardly projecting shoulders spaced apart axially relative to the upwardly extending well member;

at least two clamp structures each dimensioned for engagement between said shoulders;

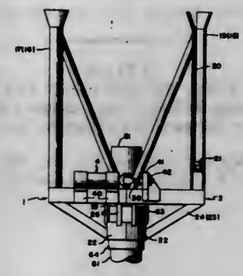
at least two rigid base structures each provided with at least one device for attachment to an elongated guide element,

each of said clamp structures being mounted on a different one of said base structures;

releasable connector means operatively arranged on said base structures for connecting said base structures rigidly together to form a base assembly,

said clamp structures being forced into locking engagement with the upwardly extending well member between said shoulders by the action of said connector means,

said shoulders preventing movement of said base assembly axially relative to the upwardly extending well member,



said base assembly extending at least generally at right angles to the axis of the upwardly extending well member; and

remotely operable means for releasing said connector means and moving said base structures relative to each other to withdraw said clamp structures from the upwardly extending well member and thereby free said base structures for recovery.

3,321,016

WELL TOOL RETRIEVING APPARATUS

Leonard D. Lance, Pauls Valley, Okla., assignor, by mesne assignments, to Schlumberger Technology Corporation, Houston, Tex., a corporation of Texas

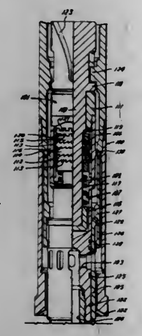
Filed Oct. 7, 1964, Ser. No. 402,103
10 Claims. (Cl. 166—123)



1. In apparatus for retrieving a well tool having an upright body and releasably secured in a well bore: a cylindrical member adapted for connection to an upright well-tool body; a rotatable tubular member adapted for connection to a tubing string and having means thereon adapted for removing debris around an upright well-tool body, said tubular member being sized and arranged to receive said cylindrical member; a rotatable coupling

member carried by one of said aforementioned two members and arranged for cooperation with the other one of said two members; first means releasably securing said coupling member co-rotatively to said other member; and second means selectively operable by movement of said tubular member for co-rotatively securing said coupling member to said one member when said tubular member is in one position relative to an upright well-tool body and releasable upon movement of said tubular member from said one position relative to an upright well tool body.

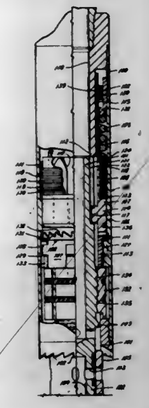
3,321,017
WELL TOOL RETRIEVING APPARATUS
David E. Young, Bellaire, Tex., assignor to Schlumberger Technology Corporation, Houston, Tex., a corporation of Texas
Filed Oct. 7, 1964, Ser. No. 402,101
9 Claims. (Cl. 166—135)



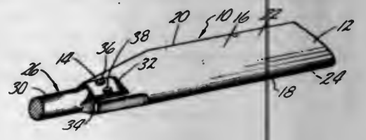
2. In apparatus for retrieving a well-tool having an upright body and releasably secured in a well bore: a rotatable tubular member adapted for connection to a tubing string and having cutting means thereon adapted for rotatively cutting away debris around an upright well-tool body; first and second relatively rotatable and slidably telescoped members adapted for reception by said tubular member, said first member being adapted for connection to an upright well-tool body, said second member being arranged to shift longitudinally in relation to said first member between spaced-apart positions; first means releasably securing said second member co-rotatively within said tubular member; and second means selectively operable by shifting of said tubular member for co-rotatively securing said telescoped members to one another whenever said second member is in one of said positions and co-rotatively securing said telescoped members against relative rotation in only one rotative direction whenever said second member is in the other of said positions.

3,321,018
WELL TOOL RETRIEVING APPARATUS
Howard L. McGill, Houston, Tex., assignor by mesne assignments, to Schlumberger Technology Corporation, Houston, Tex., a corporation of Texas
Filed Oct. 7, 1964, Ser. No. 402,102
9 Claims. (Cl. 166—135)

1. In apparatus for retrieving a well tool having an upright body and releasably secured in a well bore: a tubular member adapted for connection to a tubing string and having means thereon adapted for removing debris around an upright well-tool body; a coupling member carried by said tubular member and adapted for connection to an upright tool body; first means selectively operable for co-rotatively securing said members upon rotation of said tubular member in one rotative direction and releasable upon rotation of said tubular member in the opposite rotative direction; and second means co-rotatively securing said members upon rotation of said tubular member in said opposite direction and releasable at a torque in excess of a predetermined magnitude, whereby said tubular member can be rotated relative to an upright well-tool body.



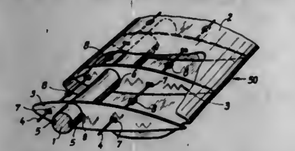
3,321,019
FIBERGLASS BLADE
George A. Dmitroff and Alden E. Fox, both of Trumbull, Conn., assignors to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
Filed Oct. 22, 1965, Ser. No. 512,256
20 Claims. (Cl. 170—159)



15. A helicopter blade made of plastic reinforced with fiberglass cloth and including a root section built up of alternate bonded, substantially equal thickness layers of thin metal plates and plastic impregnated fiberglass cloth and wherein said plates are of varying size and shapes to form a smoothly tapered plate pattern conforming to blade shape, and a blade retaining bolt hole passing through said root section and transversely through said layers.

3,321,020
HELICOPTER ROTOR
Kurt Pfleiderer, Munich, and Alois Schwarz, Ottobrunn, Germany, assignors to Bolkow Gesellschaft mit beschrankter Haftung, Ottobrunn, near Munich, Germany
Filed Mar. 25, 1965, Ser. No. 442,735
Claims priority, application Germany, Mar. 28, 1964, B 76,105
25 Claims. (Cl. 170—160.11)

1. A blade construction for a rotary wing aircraft comprising a spar, and lift-producing profile means carried by said spar and forming a blade profile, and control means connected to said lift-producing profile means to



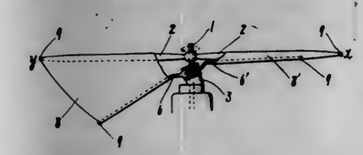
shift said lift-producing profile means inwardly along the spar for retracting said lift-producing profile means.

3,321,021
LIGHTWEIGHT FOLDING ROTOR
Peter F. Girard, La Mesa, Calif., assignor to The Ryan Aeronautical Co., San Diego, Calif.
Filed July 19, 1966, Ser. No. 566,316
15 Claims. (Cl. 170—160.12)



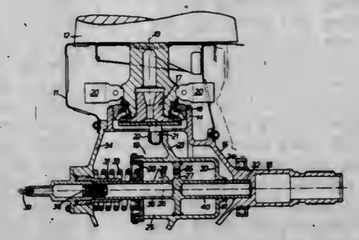
1. A helicopter rotor, comprising:
a shaft having a hub mounted thereon;
a plurality of rotor blades attached to said hub, each of said blades including an inner blade and an outer blade pivotally interconnected to fold alongside each other in generally parallel relation;
each inner blade having a root end fitting pivotally attached to said hub for the blade to swing upwardly;
retraction means coupled between said blades and said hub to fold the blades;
and pitch control means connected to said outer blades to vary the pitch angle thereof relative to said inner blades.

3,321,022
ROTARY WING ASSEMBLY
Yoshiyuki Oguri, 7 gou, 9 banchi, 7-chome Minami Aoyama, Minato-ku, Tokyo-to, Japan
Filed Oct. 14, 1964, Ser. No. 403,771
Claims priority, application Japan, Oct. 25, 1963, 38/57,039
11 Claims. (Cl. 170—160.25)



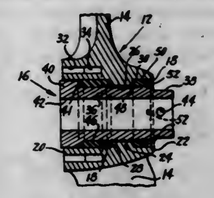
8. A rotary wing assembly, in which a principal rotary shaft (1) having a center portion of a rotary tractive rod (2) fixedly secured to its tip portion, is rotatably mounted in a penetrating bore (4) of an annularly recessed tilted bearing body (3) having a perfect circular periphery rather than being a cam; in which fitting rings (7), (7') having idle following rods (6), (6') formed at a certain angle of sweepback with respect to the center line of said annularly recessed tilted bearing body (3), are rotatably fitted around the annular recess portion (5) of said annularly recessed tilted bearing body so as to freely idle; and in which tent-like wing surfaces (8), (8') are stretched between the rotary tractive rods (2) and the idle following rods (6), (6').

3,321,023
VARIABLE PITCH PROPELLERS
John G. Russell, Cheltenham, Robert M. Bass, Cranham, and Ernest J. Hellier, Cheltenham, England, assignors to Dowty Rotol Limited, Gloucester, England, a British company
Filed Feb. 3, 1966, Ser. No. 524,914
Claims priority, application Great Britain, Feb. 23, 1965, 7,778/65
6 Claims. (Cl. 170—160.51)



1. A variable-pitch propeller comprising:
(a) a hub rotatable about a relatively fixed axis,
(b) blades on the hub capable of pitch changing movement about their longitudinal axes,
(c) counterweights arranged on the root portions of the blades, externally of the hub, to oppose the centrifugal twisting moments inherent in the blades during the operation of the propeller,
(d) a sealed fluid damper unit housed in the hub and having telescopic piston and cylinder components disposed on the rotational axis of the hub, the cylinder component of which has the blades connected therewith and is movable along the axis in the direction of coarser pitch, at a predetermined rate dictated by fluid flow in the unit, and
(e) spring biasing means mounted on the rotational axis of the hub, in series with the damper components, to bias the cylinder component in the direction of finer pitch, said counterweights being effective at a particular propeller speed to overcome the bias of the spring means, and to produce movement of the cylinder component in the direction of coarser pitch, at the rate dictated by the unit,
(f) the piston component of the damper unit having a hollow portion which communicates with the interior of the cylinder component, and valve means associated therewith for charging damper fluid into the unit, through the hollow portion.

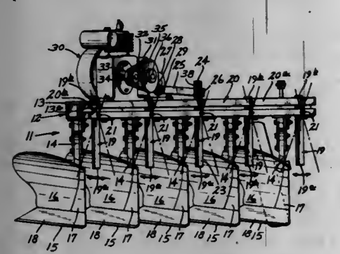
3,321,024
FRICTION DRIVE FOR OUTBOARD MOTORS
Caesar Marconi, Jr., 2724 Sarah St., Franklin Park, Ill. 60131
Filed Feb. 23, 1966, Ser. No. 529,566
1 Claim. (Cl. 170—160.54)



An outboard motor propeller and clutch therefor comprising an elongated propeller hub for a plurality of propeller blades, said hub having opposed forward and rearward ends and a central aperture extending between said

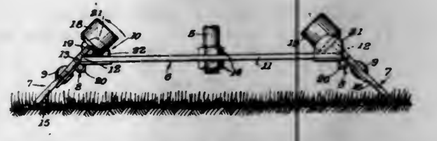
ends, a peripheral ledge formed by said hub extending into said aperture intermediate the ends thereof and forming a smaller opening, said ledge including a rearwardly facing end and a forwardly tapered abutment having a forwardly extending knife edge thereon, and means for connecting said hub to a drive shaft, said means including a hollow shank to releasably receive said drive shaft therethrough, said shank being of lesser size than said aperture and being positioned in said aperture to extend through said opening, said shank being closely received within said opening, said shank carrying a threaded end and an opposite end forming a peripheral shoulder of substantially the same size as said aperture, said shoulder including a rearwardly extending beveled edge, means on said shank for connection to a rotatable drive shaft, a deformable annular bushing having opposed front and rear ends, said bushing being received on and peripherally engaging said shank, said bushing being disposed within said aperture and extending between said shoulder and said ledge with said front end of said bushing engaging said beveled edge and its rear end being engaged by said forwardly extending knife edge, and a threaded nut received on said threaded end of said shank and engaging said rearwardly facing end of said ledge, whereby tightening of said nut compresses said bushing in said aperture and controls the torque delivered by said shaft to said propeller.

3,321,025
TRASH REMOVER FOR PLOWS
Henry A. Ellefson and Gordon H. Ellefson, both of 403 Grant St., Jackson, Minn. 56143
Filed Sept. 8, 1964, Ser. No. 394,937
2 Claims. (Cl. 172—39)



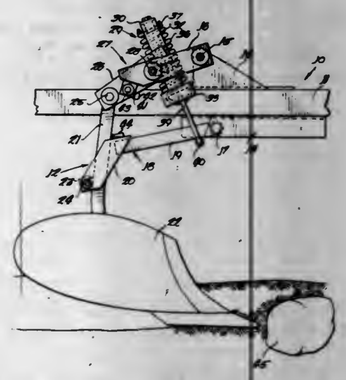
1. In a device of the class described:
(a) frame structure including a backbone member extending diagonally in the direction of travel,
(b) a plurality of beams carried by and depending from said backbone in longitudinally spaced relationship therealong,
(c) a plow bottom secured to and carried by the lower end of each of said beams,
(d) a plurality of trash-removing members, one each generally forwardly of one of said beams,
(e) said members being in the nature of generally vertically disposed arms operatively secured to said frame structure for reciprocating movements in a common plane generally parallel to the longitudinal axis of said backbone and in overlying relationship one each to the forwardly disposed portion of one of said plow bottoms,
(f) said members being relatively rigid and defining straight opposite self-cleaning edge portions,
(g) said arms being pivotally secured intermediate their ends to said frame structure for pivotal swinging movements of the lower ends thereof, and power means for simultaneously imparting said movements to said trash-removing members, and including:
(1) a rotary member,
(2) a tie bar pivotally connected to each of said trash-removing members in radially offset relationship to the pivotal connection of each thereof, and
(3) a pitman arm pivotally secured at one end to said rotary member and operatively secured at its opposite end to said trash-removing members.

3,321,026
LAWN RENOVATOR
Albert L. Hubbard, 4721 Clover Drive, Apt. 2, Oxnard, Calif. 93030
Filed Dec. 7, 1964, Ser. No. 416,487
6 Claims. (Cl. 172—45)



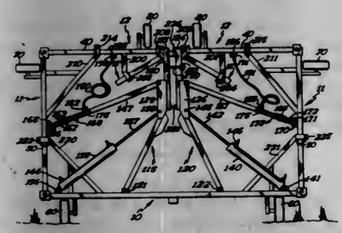
1. A lawn renovator comprising:
(a) an elongated rotary blade horizontally disposed and rotatable around a vertical axis at the middle thereof,
(b) a downwardly and outwardly angled cutter extension on each end of the blade and provided with a renovator edge,
(c) a horizontal hinge connecting each cutter extension to its respective blade end,
(d) said edge being on one side of said hinge, and
(e) a counterweight mounted on said cutter extension on the opposite side of the hinge.

3,321,027
SELF-RESTORING PLOW TRIP
Otto E. Johnson, Hinsdale, Roland J. Frase, Palatine, and James Morkoski, Clarendon Hills, Ill., assignors to International Harvester Company, Chicago, Ill., a corporation of Delaware
Filed Aug. 26, 1965, Ser. No. 482,704
11 Claims. (Cl. 172—266)



1. In an implement having a supporting frame, an earth working tool, means mounting the earth working tool on the frame accommodating tripping of the tool from an operating position below the ground when abnormal draft forces are encountered to a tripped position above the ground and return of the tool to its operating position, the mounting of said tool on the frame including link means having collapsible elements movable from an uncollapsed condition in the operating position of the tool to a collapsed condition in the tripped position of the tool, and means effective to return said collapsible elements to their uncollapsed condition prior to re-entry of the tool into the ground.

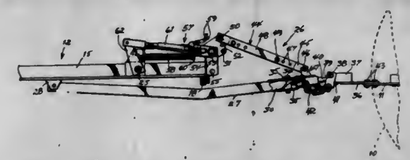
3,321,028
FOLDABLE IMPLEMENT MOUNTING FOR TRANSPORTING THE SAME
Merlin A. Groenke, Glencoe, Minn., assignor to Portable Elevator Manufacturing Company, Bloomington, Ill., a corporation of Illinois
Filed Jan. 22, 1965, Ser. No. 427,336
14 Claims. (Cl. 172—311)



1. A foldable multiple sectioned farm implement, comprising:
(a) a fixed center section and a plurality of foldable side sections positioned on either side of said center section;
(b) means pivotally connecting the side sections at their extremities to adjacent sections to provide for folding the side sections on adjacent side sections and on the center section;
(c) a pair of posts each pivotally mounted at one extremity on the center section in spaced relationship, said posts being pivotable between operating positions in which the posts are in adjacent contacting relationship to a position where the free extremities of the posts are separated and positioned toward the extremities of the center section;
(d) lever means pivotally mounted at one extremity of each to the posts and at the other extremity to the side sections adjacent said center section;
(e) motive means mounted on the center section and having an operating shaft connected to the posts to pivot the posts between operating positions;
(f) means included intermediate the extremities of each of said lever means adapted to cooperate with separate means on said foldable side sections outwardly of said adjacent sections for pivoting selectively the respective side sections on the next adjacent side section and toward the center section with movement of the posts from one operating position to the other operating position through operation of the motive means; and
(g) drawbar means connected to at least the fixed center section adapted to provide connection of said implement and movement of said implement by a draft means.

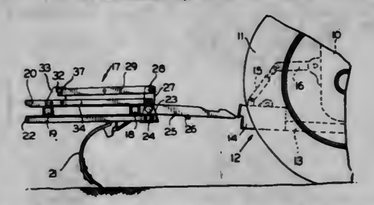
3,321,029
HYDRAULICALLY CONTROLLED PLOW
James Morkoski, Clarendon Hills, and Gerald G. Ward, Naperville, Ill., assignors to International Harvester Company, Chicago, Ill., a corporation of Delaware
Filed Sept. 10, 1964, Ser. No. 395,426
8 Claims. (Cl. 172—328)

1. The combination with a tractor having a drawbar adapted to be held in a vertically fixed position, of a multi-bottom plow having a generally triangularly shaped plow-carrying main frame, wherein two apices of the triangle are spaced apart generally transversely of the direction of travel, wheel means supporting the plow at one of said apices and vertically movable relative to said main frame, and means supporting the plow at the other of said apices on the tractor drawbar, comprising a hitch frame pivotally connected at its rear end to said main frame for vertical swinging relative thereto, means connecting the forward end of said hitch frame to said drawbar in fixed vertical relation thereto to support the plow



at said other apex of said triangle, and means for holding said main frame and said hitch frame in fixed vertical relation including means for vertically adjusting the main frame relative to the hitch frame, comprising a lever mounted on said main frame and linkage connecting said lever to said hitch frame, and a hydraulic jack mounted on said main frame operatively connected to said lever for rocking the latter to vertically adjust said hitch frame relative to said main frame.

3,321,030
SELF-ADJUSTING IMPLEMENT HITCH FOR TRACTORS
John A. Thachuk, Dundas, Ontario, Canada, assignor to International Harvester Company, Chicago, Ill., a corporation of New Jersey
Filed Oct. 20, 1965, Ser. No. 498,797
6 Claims. (Cl. 172—452)

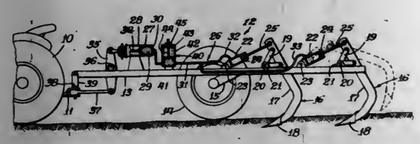


1. In an implement attachment for a tractor having a draw frame and lift means for raising and lowering the draw frame and holding it in a selected adjusted position, a tool-carrying frame, a hitch structure including a shaft pivotally mounted on the tool-carrying frame, hitch means carried by the shaft arranged for integral connection with said draw frame to be raised and lowered therewith and including an arm affixed to said shaft, the pivotal mounting of said shaft on the tool-carrying frame accommodating tilting of the latter when said draw frame and said hitch structure are lifted, and connecting means between said arm and said tool-carrying frame for lifting the latter in response to lifting the draw frame and said hitch structure, said connecting means including lost motion accommodating limited free pivotal movement of the hitch structure relative to the tool-carrying frame.

3,321,031
EARTH WORKING IMPLEMENT CONTROL APPARATUS
Kenneth Evans, Highton, via Geelong, Victoria, Australia, assignor to International Harvester Company, Chicago, Ill., a corporation of Delaware
Filed July 9, 1964, Ser. No. 381,350
3 Claims. (Cl. 172—605)

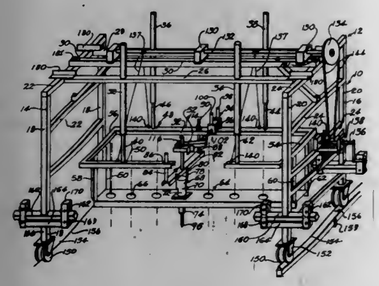
2. In an earth-working implement having a supporting frame and a connection to a tractive vehicle, an earth-penetrating tool mounted on the frame for tripping in

response to abnormal draft load on the tool and a closed hydraulic fluid circuit carried by the frame including means serving as a slave cylinder mounted on the frame and operatively connected to said tool so as to place the fluid in said cylinder under pressure in one direction when draft load is applied to the tool, means serving as a master cylinder in said circuit having a piston slidable therein operatively connected to said vehicle in draft-receiving relation to place the fluid in said circuit under pressure



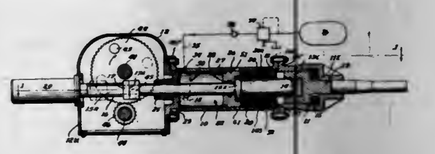
and having a fluid connection with said slave cylinder for moving said piston in the other direction in response to abnormal draft load on the tool to oppose tripping of the tool, a shock absorber in said circuit between said master cylinder and said slave cylinder in communication with the fluid in said circuit for absorbing excess pressure in said circuit when said tool trips, and means for adjusting said shock absorber to vary the pressure in said slave cylinder and therefore the draft load required to trip said tool.

3,321,032
GANG DRILL, TRACING AND RIVING MACHINE
Ladell R. Jensen, De Kalb County, Ga. (Box 104, Lithonia, Ga. 30058), and William T. Abbott, De Kalb County, Ga. (2374 S. Stone Mountain-Lithonia Road, Rte. 3, Lithonia, Ga. 30058)
Filed Oct. 16, 1963, Ser. No. 316,751
1 Claim. (Cl. 173—52)



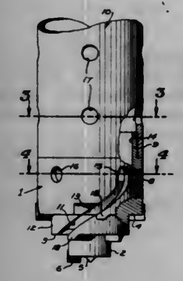
In a stone drilling machine:
(a) a machine frame comprising a pair of side frames,
(b) at least one longitudinal transverse frame member pivotally connected to said side frames whereby said side frames may be displaced relative to each other,
(c) a drill frame supported for movement on said transverse members toward and away from the stone, and supporting a plurality of individual drills mounted thereon for individual movement with respect to the stone surface,
(d) individual drill clamping means mounted on said frame and operable to clamp each individual drill separately from the others,
(e) said drill head clamping means comprising a fixed block and an arm movable to contact a part of said drill head to clamp same, and
(f) a pneumatic cylinder and piston arrangement on said frame for each clamping means, and having the piston thereof connected to the movable arm,
(g) a control air supply and control means thereon for controlling said pneumatic cylinders,
(h) said drill frame supporting all of said drills as a unit for simultaneous movement thereon in clamped position whereby all of said drills adjust individually to the stone surface prior to drilling,
(i) power means on said frame operable manually to bring said drills into engagement with said stone, and for removal therefrom,
(j) means on said machine for moving said drill frame forwardly and rearwardly with respect to the width of the stone,
(k) other means on said machine for moving said drill frame transversely with respect to the length of the stone, and
(l) said side frames being mounted for adjustment relative to each other to change the angle of said drills with respect to the length of the stone surface.

3,321,033
MOTOR POWERED AIR HAMMER
George J. Benuska, Dolton, and Ted Henry, Downers Grove, Ill., assignors, by mesne assignments, to Standard Alliance Industries, Inc., Chicago, Ill., a corporation of Illinois
Filed Feb. 3, 1965, Ser. No. 429,968
7 Claims. (Cl. 173—119)



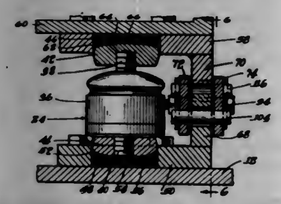
1. A motor powered pneumatic impact tool comprising a main slide barrel having anvil guide housing structure at one end, an anvil shaft carried in said anvil guide housing structure and projecting therethrough, a hammer shaft reciprocably slidable through said barrel to apply endwise impacts to said anvil shaft, means defining a compression chamber within said barrel and including a piston fixedly mounted on said hammer shaft to operate in sealing slidable relation in said barrel and means completing an air seal at the other end of the barrel, means for supplying air to said compression chamber to maintain a predetermined minimum pressure therein, a motor mounted in fixed relation to said barrel, and mechanical means connecting said motor and operable repeatedly first to shift said hammer shaft to move said piston towards said other end of the barrel for multiplying pressure in said compression chamber and thereafter to release said hammer shaft to enable expansion of said chamber to drive the hammer shaft against the anvil shaft, said means for supplying air comprising an air accumulator for storing air at a predetermined pressure level above atmospheric pressure, adjustable pressure reducing means interconnected between said air accumulator and said compression chamber for supplying air to said compression chamber at a selected pressure level below said predetermined air accumulator pressure level, and a one way valve interconnected between said adjustable means and said compression chamber to permit flow of air into said compression chamber while preventing increased pressure in said compression chamber during compression from influencing said adjustable means.

3,321,034
SAMPLE COLLECTING IMPACT BIT
James E. Webb, Administrator of the National Aeronautics and Space Administration, with respect to an invention of Victor A. Peckham, Jr., Manhattan Beach, Calif.
Filed Jan. 19, 1965, Ser. No. 426,702
5 Claims. (Cl. 175—310)



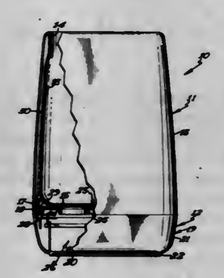
1. A sample collecting impact bit adapted to form a bore in rock formation, said bit comprising:
(a) a tubbular sample collecting member having a plurality of openings confronting the walls of said bore thereby to receive cuttings which may work upwardly between said collecting member and said bore;
(b) and a cutting head closing the lower end of said collecting member and including at least one annular land, an axially directed impact cutting tooth in said land for producing cuttings and a guide channel having one end communicating with said land and another end communicating with said collecting member for conveying cuttings thereto.

3,321,035
VEHICLE ELECTRONIC SCALES MOUNT
Raymond M. Tarpley, Garden City, Kans., assignor to Oswalt Industries, Incorporated, Garden City, Kans., a corporation of Kansas
Filed July 23, 1965, Ser. No. 474,365
11 Claims. (Cl. 177—136)



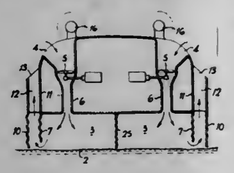
1. A mobile scale of the type described comprising mobile frame means, a load supporting structure above said frame means, a weight-sensing device between said frame means and said structure, and mounting means connecting said structure and said frame means for limited relative up and down movement, said mounting means comprising upper and lower pocket means respectively associated with said structure and said frame means, said sensing device having upper and lower ends respectively retained by said upper and lower pocket means, depending and upstanding elements respectively fixed with respect to said upper and lower pocket means, link means extending between and along sides of said elements, and pivot means connecting opposite end portions of said link means respectively with said depending and upstanding elements.

3,321,036
COMBINATION BATHROOM SCALE AND WASTEBASKET
Joseph J. Keenan, Anoka, Minn., and Bertrand N. Trombley, Bloomfield Hills, Mich., assignors to West Bend Thermo-Serv, Inc., Anoka, Minn., a corporation of Minnesota
Filed Oct. 3, 1966, Ser. No. 583,744
4 Claims. (Cl. 177—245)



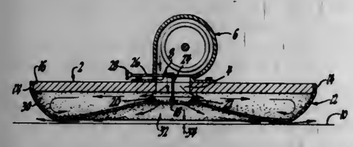
1. A combination wastebasket and bathroom scale device, comprising
a wastebasket including an imperforate tubular outer shell having open upper and lower ends,
an imperforate tubular inner shell having open upper and lower ends, means sealingly joining the upper peripheral edges of the inner and outer shells so that said inner shell is spaced symmetrically inwardly of the outer shell,
a concavo-convex lower wall member having its concave surface facing upwardly and having an annular flange integrally formed with the peripheral portion and extending downwardly and outwardly therefrom,
means securing the upper peripheral edge of the lower wall member with the lower peripheral edge of the inner shell member,
means for securing the lower edge of said outer shell and said last-mentioned flange,
the lower edge of said outer shell and said flange on said lower wall member projecting downwardly beyond said lower wall member, said inner shell, outer shell and bottom wall member being formed of a plastic material,
a scale device including a scale housing having a bottom wall with an upstanding peripheral wall secured thereto and being formed of a plastic material,
a weighing platform positioned interiorly of the upstanding peripheral wall of said scale,
weighing mechanism in said housing and supporting said weighing platform,
an annular retaining and supporting member secured to the upper peripheral edge of said scale housing and projecting interiorly thereof, whereby the lower peripheral edge of said wastebasket, defined by the interengaging portions of said outer shell and lower wall member flange, engages and is supported by said annular retaining and supporting member,
said wastebasket when in supported relation on said scale housing having the lower wall member thereof spaced above the scale platform and having its outer shell disposed in substantially co-extensive relation with respect to the peripheral wall of the scale housing.

3,321,037
GAS-CUSHION VEHICLES
Christopher Sydney Cockerell, Southampton, England, assignor to Hovercraft Development Limited, London, England, a British company
Filed May 24, 1965, Ser. No. 458,305
Claims priority, application Great Britain, May 28, 1964, 22,203/64
6 Claims. (Cl. 180—7)



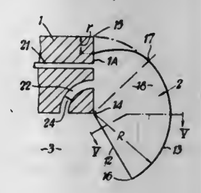
1. A gas-cushion vehicle comprising a vehicle body adapted to be supported above a surface by a cushion of gas formed and contained in a space beneath the vehicle, a flexible wall structure having an upper portion fixed to, and a lower portion depending freely from, the vehicle body and bounding at least the upper part of the cushion periphery, wall means spaced outwardly from said flexible wall structure bounding the periphery of the cushion space and extending for at least part of said periphery to form with adjacent parts of the vehicle body a vertically extending chamber having an outlet at the upper part thereof open directly to the surrounding atmosphere, and means for supplying gas under pressure directly into the space beneath the vehicle body peripherally bounded by said flexible wall structure to form therein a cushion of pressurised gas, said wall means including a freely depending flexible portion extending downwardly substantially parallel to, and at least to substantially the same level as the bottom of, said flexible wall structure, whereby a flow of fluid outwardly from said cushion space beneath said flexible wall structure is caused to pass upwardly through said chamber and foreign matter present in said flow can separate therefrom in said chamber.

3,321,038
AIR CUSHION DEVICE
Harry A. Mackie and Robert W. Veryzer, both of Birmingham, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Continuation of application Ser. No. 4,465, Jan. 25, 1960. This application Jan. 19, 1966, Ser. No. 526,943
5 Claims. (Cl. 180—7)



1. A ground proximate air cushion device comprising, a platform, a diaphragm underlying said platform and fixed thereto at its outer and inner margins defining an annular depending convolution approaching contact with the ground at a narrow annular zone between the margins, means for supplying air at superatmospheric pressure within the convolution, means for establishing and maintaining corresponding pressure in the space between the diaphragm and the ground surface radially within the narrow annular zone and flowing with throttling through the said zone whereby the diaphragm is subject to a first significant pressure differential between supplied air pressure and atmospheric pressure radially outwardly of the zone and a second negligible pressure differential between supplied air pressure at opposite sides thereof radially inwardly of the zone, said first pressure differential acting to induce a substantially circular cross-sectional curvature in said convolution from the outer margin to said narrow annular zone, and said first and second pressure differentials coacting to permit the former to radially tension the portion of said convolution within said zone into a substantially conical cross-section.

3,321,039
AIR CUSHION BORNE VEHICLES WITH HOLLOW INFLATABLE SKIRTS
Gordon Victor Watts, Swindon, England, assignor to Vickers-Armstrongs (Engineers) Limited, London, England, a British company
Filed July 21, 1964, Ser. No. 384,089
Claims priority, application Great Britain, July 23, 1963, 29,210/63
8 Claims. (Cl. 180—7)

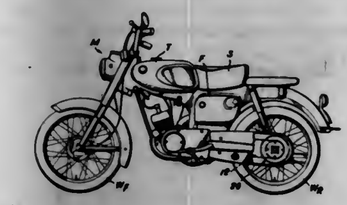


1. An air cushion vehicle including a vehicle body arranged for receiving support from an air cushion when formed in a space beneath the vehicle body, a flexible skirt attached to and depending from the vehicle body in a position to minimize leakage of air laterally from said space after the air cushion is formed, the skirt being of the hollow inflatable type and, when inflated, projects laterally from the periphery of the vehicle to form a fender; wherein the improvement comprises said skirt including a wall of flexible sheet material extending outwardly and then downwardly from at least one position of attachment to the vehicle gody when the skirt is inflated, the bottom of the wall, when the skirt is fully extended and lowered, terminating at a lowermost position which is below the vehicle body, a tension means connecting the bottom of said hollow skirt to the vehicle body at a second position of attachment below said first position of attachment whereby the bottom of the skirt rotates about the position of attachment of the tension means to the vehicle body when the skirt is raised or lowered, means for supplying air to said space for forming the air cushion, and means for effecting the retraction and lowering respectively of the skirt so that the bottom of the skirt is raised and lowered respectively relative to the vehicle body.

3,321,040
CHAIN SPROCKET CHANGING MEANS FOR MOTORCYCLES
Tadao Kouzuki, Kobe-shi, Hyogo-ken, Japan
Filed Oct. 6, 1965, Ser. No. 493,367
Claims priority, application Japan, June 8, 1965, 40/45,670
7 Claims. (Cl. 180—33)

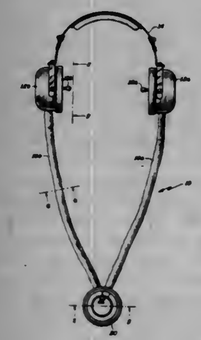
1. A sprocket changing means for a chain drive means in a motorcycle comprising a first sprocket fixed on the wheel hub, an axially movable second sprocket having diameter different from that of said first sprocket and disposed in parallel relation to the first sprocket, said second sprocket having such a shape that its teeth plane coincides with that of the first sprocket when it is in contact with said first sprocket, said first and second sprockets are

interconnected by means of a plurality of bolts threadably inserted through the bolt holes formed in one of said sprockets into the threaded holes formed in the other of



said sprockets, and a resilient means interposed between the first and the second sprocket so as to urge them to get apart from each other, whereby the axial movement of said second sprocket is effected by rotating said bolt.

3,321,041
NOISE ATTENUATING STETHOSCOPE
Frank R. Bowen, Jr., Charlotte, N.C., assignor to John M. Medlin, Charlotte, N.C.
Filed Apr. 22, 1966, Ser. No. 544,527
4 Claims. (Cl. 181—24)



1. A stethoscope comprising sound pick-up means, sound delivery means for engaging the ear and means to transport sound from the pick-up means to the delivery means, said delivery means comprising a cup to cover at least the major portion of the ear, a tube to extend into the cavity of the ear located in said cup and extending through a wall thereof, and a sound attenuating material substantially filling said cup and supporting said tube therein in a position so that the tube extends beyond the edge of the cup and the attenuating material so that when the tube is in the ear cavity the said material will cover the ear and exclude sound thereto.

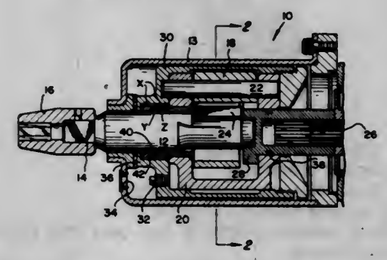
3,321,042
FRONT LOADING EXTENSION LADDERS
Lawrence A. Kocina, Simsbury, Conn., assignor to R. D. Werner Co., Inc., Greenville, Pa., a corporation of Pennsylvania
Filed June 23, 1965, Ser. No. 466,241
5 Claims. (Cl. 182—209)

1. In a device of the class described, a pair of ladder sections, one a fly section and one a base section, said sections including channel-shaped side rails and connecting rungs, said channel-shaped side rails having substantially parallel flanges, said flanges having inturned end portions, means for guiding said sections mounted internally of the channel of the rails of each section for parallel sliding and longitudinal movement with respect to the other section, said guide means having an outwardly projecting side portion having hooked ends, said ends hooking over the inturned ends of the rail flange of the opposite ladder section, the guide means on the fly section extending later-



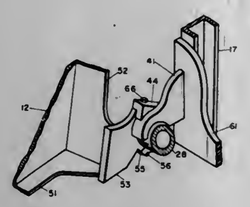
ally of the channel-shaped rail of said fly section engaging the channel-shaped rail of the base section, the flanges of the channel of the fly section being disposed outwardly of the web thereof and the flanges of the channel of the base section being disposed inwardly of the web thereof facing the flanges of the fly section and spaced therefrom by the said guide means.

3,321,043
OIL BATH LUBRICATION FOR MECHANISM
Jack S. Vaughn, Sayre, Pa., assignor to Ingersoll-Rand Company, New York, N.Y., a corporation of New Jersey
Filed Mar. 24, 1964, Ser. No. 354,241
5 Claims. (Cl. 184—1)



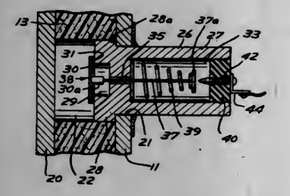
1. An impact mechanism comprising:
a reservoir containing lubricating fluid;
a hammer mounted within said reservoir;
means for rotating said hammer and reservoir;
an anvil extending into said reservoir and surrounded by said hammer for continuous rotation with said hammer and reservoir when a load below a predetermined minimum is applied to said anvil and for intermittent rotation with said hammer and reservoir when a load above said minimum is applied to said anvil whereby said lubricating fluid lubricates the contacting surfaces between said anvil and said hammer; and
first seal means between said reservoir and said anvil for preventing loss of lubricating fluid from said reservoir.

3,321,044
LIFT TRUCK MAST MOUNTING
Michael Linsay, South Euclid, Ohio, assignor to Otis Elevator Company, New York, N.Y., a corporation of New Jersey
Filed Apr. 23, 1964, Ser. No. 362,023
11 Claims. (Cl. 187—9)



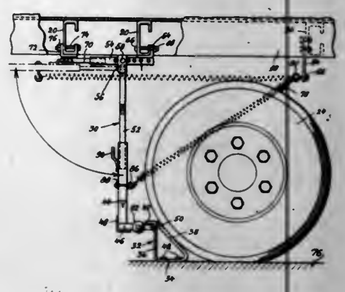
1. A lift truck, comprising,
an axle,
a mast assembly,
said mast assembly being formed with a concave cylindrical bearing surface resting on the upper surface of said axle, and
means positioned above said axle for retaining said bearing surface in engagement with said axle.

3,321,045
BRAKE LINING SENSING DEVICE
Bernard J. Veilleux, 6608 Penn Ave. S., Minneapolis, Minn. 55423
Filed Apr. 11, 1966, Ser. No. 541,643
3 Claims. (Cl. 188—1)



1. A brake lining sensing device having in combination,
a cartridge comprising
an electrically conductive housing,
said housing having a chamber therein,
a plate member overlying the upper end portion of said housing,
said housing having a passage running from said plate member to said chamber,
a rod extending from said plate member into said chamber,
heat releasable means securing one end of said rod to said plate member,
an electrically conductive member carried at the other end of said rod,
an electrical contact member insulated from said housing extending from within said chamber to the outer side of said housing, and
electrically conductive resilient means engaging said housing and said conductive member and urging said conductive member in the direction of said electrical contact member whereby when said rod is released from said plate member, said conductive member engages said contact member.

3,321,046
WHEEL BLOCKING SYSTEM
Arley E. Cooper, R.R. 1, Morton, Ill. 61550
Filed May 2, 1966, Ser. No. 547,012
3 Claims. (Cl. 188—4)



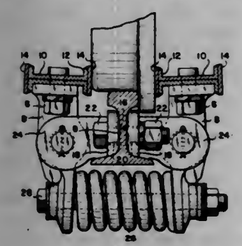
1. In combination with a vehicle including a chaissis having a tubular member, wheel-blocking apparatus comprising a tubular bar, means mounting said tubular bar from said tubular member for pivotal movement relative to the tubular member, a wedge-shaped shoe device, means rigidly and adjustably connecting said shoe device to the tubular bar, said shoe device including bottom end flat bars adapted to engage the supporting surface for said vehicle and slanting bars adapted to engage a portion of the periphery of a support wheel of said vehicle, adjacent said supporting surface, and means in common for moving the bars of said shoe device into engagement with the vehicle wheel and with the supporting surface, and for effecting pivotal movement of said shoe device to raise and lower said shoe device relative to said supporting surface, the means for rigidly and adjustably connecting the shoe device to the tubular bar including a sleeve slidably mounted on one end of the tubular bar and a bar radiating from the bottom end of the sleeve fastened to the shoe device, and means for holding the shoe device in inoperative position remote from the vehicle wheel and wheel supporting surface including a tubular member telescoped in the first-named tubular member and a finger on the sleeve, said second-named tubular member disposed in the path of movement of said finger when said sleeve is moved along the tubular bar.

3,321,047
VEHICLE CONTROL APPARATUS
John W. Ryan, Bel Air, and Warren Dale Kabot, Manhattan Beach, Calif., assignors to Mattel, Inc., Hawthorne, Calif., a corporation of California
Filed Dec. 16, 1965, Ser. No. 514,302
3 Claims. (Cl. 188—24)

1. A vehicle comprising:
front wheel means having a ground-engaging portion;
rear wheel means having a ground-engaging portion for moving said vehicle on a surface, said rear wheel means including means for forming bulged portions therein adjacent said ground-engaging portion thereof when said front wheel means is elevated while said rear wheel means remains in contact with said surface;
frame means rotatably mounting said front and rear wheel means; and
safety brake means for braking said rear wheel means when the plane between the ground-engaging portions of said front and rear wheel means departs from the plane of said surface a predetermined amount, said safety brake means comprising bracket means connected to said frame means adjacent said rear wheel means, friction surface means engageable by said bulged portions and arm means connecting said friction surface means to said bracket means and said frame means in such a manner that said friction surface means is held immediately adjacent the side of said rear wheel means at a point below the axis of rotation of said rear wheel means and to the rear of said ground-engaging portion of said rear wheel means when said front wheel means is on said surface, said arm means and said bracket means positioning said friction surface means immediately adjacent said ground engaging portion of said rear wheel means when said frame means tilts sufficiently that the plane betwen the ground-engaging portions of said front and rear wheel means departs from the plane of said surface a predetermined amount, whereby said friction surface means is engaged by said bulged portions.



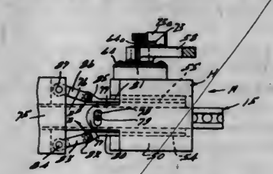
3,321,048
ABRASION RAILS FOR CAR RETARDER
Theron Wayne Wigton and Stark Elbridge Tracy, both of Aurora, Ill., assignors to Chicago, Burlington & Quincy Railroad Company, Chicago, Ill., a corporation of Illinois
Filed Mar. 29, 1965, Ser. No. 443,422
2 Claims. (Cl. 188—62)



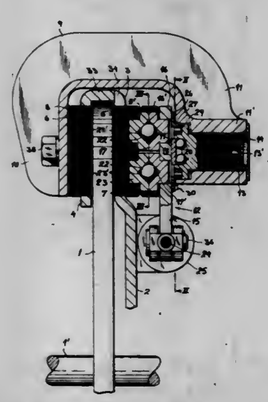
2. The combination with a rail mounted car retarder comprising a pair of abrasion beams on opposite sides of a track rail, and means for urging said beams toward each other to squeeze and thereby retard the wheels of a car traversing said rail between said beams, of wheel contact portions longitudinally along said beams consisting of ductile cast iron which are adapted to bear against the rim and flange of said wheels.

3,321,049
MECHANICAL FLOATING HEAD BRAKE
Harvey C. Swift, Birmingham, Mich., assignor to Kelsey-Hayes Company, Romulus, Mich., a corporation of Michigan
Filed May 12, 1965, Ser. No. 455,279
1 Claim. (Cl. 188—73)

In a mechanical floating head type brake for wheels having a brake disk rotatable with the wheel and a fixed support, that improvement which comprises a caliper-like member straddling a portion of the brake disk, means supporting said caliper on the fixed support for axial movement relative to the brake disk, a pair of pivoted links pivotally connected to the fixed support on opposite sides of the disk and projecting in a generally circumferential direction, a pair of brake shoes, each of said brake shoes being supported by one of said links within said caliper, actuating means carried by said caliper for directly motivating one of said shoes against the disk and through reaction on said caliper producing movement of the other brake shoe against the disk, and automatically adjustable means between said caliper and said actuating means for taking up clearance between said brake shoes and the disk, said brake shoes being unconnected to the caliper and said actuating means to permit said caliper and actuating means to engage said shoes in varying locations depending upon the wear of said shoes.



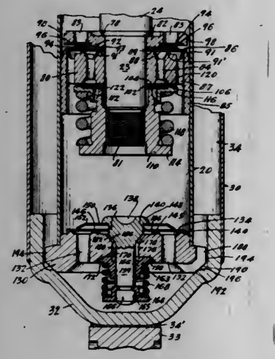
3,321,050
CALIPER TYPE DISK BRAKE
Carl Press, Offenbach am Main, Germany, assignor to Alfred Teves Maschinen- und Armaturenfabrik K.G., Frankfurt am Main, Germany
Filed Oct. 23, 1964, Ser. No. 406,034
Claims priority, application Germany, Nov. 7, 1963, T 25,028
3 Claims. (Cl. 188—73)



1. In combination with a rotatable brake disk, a brake assembly comprising first and second friction elements frictionally engageable with the opposite sides of said disk which respectively confront said first and second friction elements, a nonrotatable substantially U-shaped guide member straddling a portion of the periphery of said disk and having formed therein two opposed apertures disposed one on each side of said disk, adjacent the disk periphery and proportioned to receive said friction elements in slidable and nonrotatable relation therein, expander means comprised of first and second separable members arranged to be forced apart when one of such members executes angular movement with respect to the other member, means forming an operative engagement

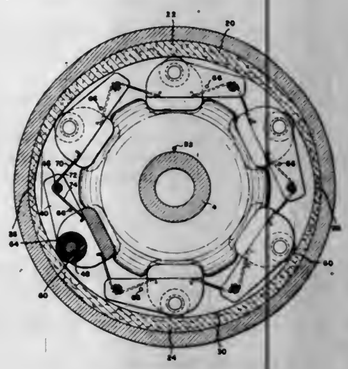
between one of said separable members and said first friction element to impart biasing effort theron, operating means attached to the other said members and angularly movable to effect rotation thereof, rigid caliper means straddling said disk and having one limb rigidly attached to one of said friction elements and having formed in the other limb thereof an axially-extending bore, said bore being internally screw threaded and disposed with the axis of such bore extending through substantially the center of each of said friction elements, threaded adjustment means positioned within said bore in screw threaded engagement therewith, said operating means being disposed between said threaded adjustment means and said expander means, thrust connection means between said adjustment means and one of said separable members to transmit brake-applying force to both said caliper and its attached second friction element and said first friction element thereby effecting engagement of both said friction elements against their respectively confronting surfaces of said disk, a pawl-and-ratchet device associated with said operating means for rotating said adjustment means relatively to said friction element means, said adjuster means being adapted to position both said separable members and said caliper means whereby the positions of said friction elements are defined by operation of said adjuster means in response to wear of said friction elements.

3,321,051
SHOCK ABSORBER
John E. Heckethorn, Dyersburg, Tenn., assignor, by mesne assignments, to Oldberg Manufacturing Company, Toledo, Ohio, a corporation of Michigan
Continuation of application Ser. No. 265,403, Mar. 15, 1963. This application June 24, 1966, Ser. No. 560,351
9 Claims. (Cl. 188—88)



1. A hydraulic shock absorber including a working cylinder and a reserve chamber, a piston assembly reciprocable in the working cylinder, closure means for one end of the working cylinder and reserve chamber, a piston rod connected with the piston assembly and extending through the closure means, a base valve assembly at the opposite end of the working cylinder, a cap member for an end of the reserve chamber adjacent the base valve assembly, said piston assembly including a body mounted on the piston rod and formed with passageways therethrough, an abutment plate mounted on said rod, a first disc valve between the piston and plate and normally engaging a circular seat on the piston, resilient means biasing said first disc valve toward the seat, a second disc valve adjacent the opposite side of the piston body, means providing a permanent restricted bypass channel adjacent the second disc valve whereby to provide limited flow of fluid through the piston independently of the valves, said base valve assembly at the end of the working cylinder including a base plate of sintered iron with channels extending through the plate, inlet and exhaust valves arranged to control fluid flow through the channels in the plate, said cap member having a frusto-conically shaped surface, said base plate being provided with peripherally-spaced radially-extending projections arranged to engage the frusto-conically shaped surface of the cap member for centering the base valve assembly and working cylinder with respect to the cap member, the spaces between adjacent projections on the valve body providing passages for flow of liquid into and out of the reserve chamber.

3,321,052
BRAKING SYSTEM
Louis V. Ramoneda, 2116 St. Denis, and Richard F. Mestayer, Jr., 1533 Lafitte Ave., both of New Orleans, La. 70112
Filed June 13, 1966, Ser. No. 557,196
1 Claim. (Cl. 188—152)



A braking device for a rotating body, comprising an annular member connected to the body for rotation therewith and having a continuous inner surface of varying distance from the axis of rotation of the body, a plurality of hinge members each pivotally mounted within said annular member and each having a part movable toward and away from said annular member about its pivotal support, a shoe member carried by each hinge member and movable toward and away from said annular member as the hinge member moves about its pivotal support, a roller carried by each shoe member and positioned adjacent the inner surface of said annular member on an axis parallel to that of the annular member, means normally urging each hinge member and its associated shoe and roller to a position in which the roller is out of contact with the inner surface of said annular member, and an inflatable toroidal shaped member having its peripheral wall in engagement with said shoe members whereby upon inflation thereof the shoe and hinge members will be moved about their pivotal supports to move the rollers into the path of movement of the inner surface of said annular member, and means for inflating said toroidal shaped member.

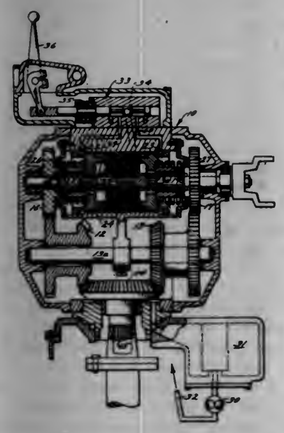
3,321,053
CARRYING CASES
Charles Doppelt, 601 10th Ave., Hollywood, Fla. 33020
Filed Oct. 21, 1965, Ser. No. 500,011
9 Claims. (Cl. 190—45)

5. A carrying case comprising a pair of frame members hingedly joined together at the bottom so that they may be hinged relative to each other, cooperating locking means on said frame members to lock said frame members together in a closed position, at least one of said frame members having an open side, a movable member supported by said open side frame member, said movable member having a tray-like shape provided with a side wall, spaced top and bottom walls and spaced end walls all formed of substantially rigid and non-collapsible material, said movable member bodily movable relative to



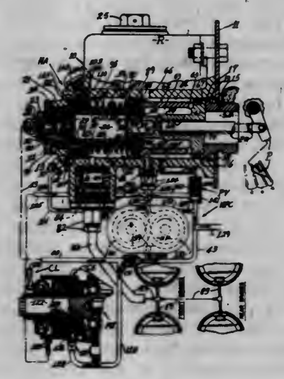
its frame member so that the top, bottom and end walls of the movable member telescopes into its frame member when moved inwardly, said movable member forming with its respective frame member a compartment, said movable member being movable inwardly and outwardly with respect to its frame to vary the width of the case, said frame and movable member having cooperating means to limit the outward movement of the movable member relative to its respective frame member.

3,321,054
TRANSMISSION LOCK
Howard L. Johnson and Frank H. Winters, Joliet, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill., a corporation of California
Filed Feb. 3, 1965, Ser. No. 430,064
3 Claims. (Cl. 192—4)



1. A forward reverse transmission comprising an output shaft, two gears coaxial with and rotatable in opposite directions relative to the output shaft, means to rotate the gears, a clutch face on each gear, an opposed clutch face element slidable on the shaft and splined thereto between the gears for cooperation with the clutch faces on the gears to drive the shaft, a nonrotatable cylinder surrounding the shaft, a piston in the cylinder for engaging each of the clutch face elements to effect clutch engagement, and means to direct fluid under pressure selectively to said pistons.

3,321,055
DUAL-CYLINDER HYDRAULIC ACTUATOR FOR AUTOMOTIVE CLUTCH AND BRAKE CONTROL
Glenn T. Randol, 3 E. 2nd Ave., Loch Lynn, Mountain Lake Park, Md. 21550
Filed Aug. 20, 1964, Ser. No. 390,937
20 Claims. (Cl. 192—13)



1. In a dual-cylinder hydraulic actuator having a body characterized by an inner and an outer cylindrically walled cylinder in telescopic concentric overlapping relationship, a fluid supply reservoir for said cylinders, separate pressure output lines from said cylinders, respectively, connected to convey actuating fluid to operate the main vehicle clutch and service brakes of a motor vehicle and the like, a pair of piston units operably disposed in said cylinders, respectively, for working the fluid in their respective working chambers therebetween, a pair of discharge ports for said working chambers connected to their respective pressure output lines, a compensating port normally interconnecting said reservoir with the working chamber of the outer cylinder when said piston units are fully retracted into normal position, a common intake port between said reservoir and both of said piston units, a one-way mechanical connection between said piston units, and which is operative to move both piston units simultaneously in a fluid-pressurizing direction, a fixed wall closing the ends of said working chambers opposite said piston units, a pair of concentric annular static fluid chambers between circularly aligned portions of said piston units, a passageway interconnecting said last-named chambers, the latter being in continuous communication with said reservoir fluid via said common intake port, the improvement which comprises: an annular fixed wall spaced from the first-named fixed wall defining an annular valve chamber between the outer working chamber and annular fixed wall; shut-off valve means including a complemental valve-forming element reciprocable in said valve chamber and serving to divide the same into two fluid pressure chambers; spring means including a normally compressed spring operably positioned within one of said fluid pressure chambers for biasing said valve-forming element toward normal position; a pressure input line communicating with the other fluid pressure

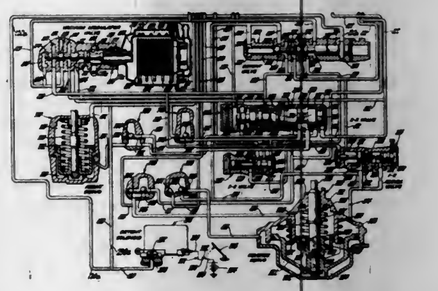
chamber; a pair of fluid passages normally interconnecting the working chamber of said outer cylinder with said one fluid pressure chamber when said valve-forming element is in normal position; a longitudinal passage provided in the cylindrical wall of the inner cylinder and which is closed at both ends; a port in the cylindrical wall of the inner cylinder interconnecting said other fluid pressure chamber with said longitudinal passage when said valve-forming element is in normal position; another port through a different portion of the cylindrical wall of said inner cylinder for interconnecting said longitudinal passage with the working chamber of said inner cylinder when both piston units are in normal position; a fluid-retaining piston slidably disposed in the outer cylinder, and which defines the rear closed ends of the pair of static fluid chambers aforesaid; a cylindrical extension projecting from said fluid-retaining piston into said inner cylinder; a pair of longitudinally spaced fore and aft annular working lands defining a portion of the outer surface of said extension with the forward land having front and rear leading edges, and which normally projects into said inner cylinder with its front leading edge spaced from said last-named port, said rear working land having a front leading edge only; an external annular chamber defined by the space between said working lands; an axial bore processed in the inner end portion of the said extension; a port through the cylindrical wall of said axial bore communicating with said last-named chamber; a hydraulic pressure-producing system including a pump communicating with said pressure input line to move said valve-forming element to a position against its spring bias to block communication between said first-named port in the cylindrical wall of the inner cylinder and said pair of interconnecting fluid passages and thereby isolating the working chambers of said outer and inner cylinders, to enable the former cylinder to operate the vehicle service brakes, and the latter cylinder to control hydraulic-disengagement of said vehicle clutch; another spring means including a normally compressed spring operatively positioned within the outer working chamber of the outer cylinder to react between said annular fixed wall and said outer piston unit to bias both piston units toward normal position; and an operator-operated member operable from normal released position through first, second and third ranges of movement whereby first range of movement is effective to initially move both piston units simultaneously in their respective outer and inner cylinders to first close the aforesaid port in a different portion of the cylindrical wall of said inner cylinder to block non-activating fluid-flow from said pump via the pressure output line aforesaid communicating with the working chamber of said inner cylinder back to said reservoir and thereby inducing pressurization of the fluid displaced by said pump; another pressure output line leading from said last-named pressure output line to the working chamber of said inner cylinder; a hydraulic clutch-servo for activating the piston thereof to disengage the vehicle clutch in response to said fluid pressurization; said second range of movement of said operator member being effective to close the aforesaid compensating port to condition the working chamber of said outer cylinder to apply the vehicle service brakes, and sequentially dispose the rear leading edge of the forward working land on said extension to place said port in a different position of the cylindrical wall of said inner cylinder in communication with the annular fluid chamber disposed between said working lands, and thereby releasing said pressurized fluid into said reservoir to accommodate automatic re-engagement of said vehicle clutch while said outer piston unit maintains the vehicle service brakes applied; and said third range of movement of said operator member being effective to project the front leading edge of said rear working land on said extension into the open end of said inner cylinder to isolate said annular fluid chamber between said working lands from said reservoir fluid whereby fluid displaced by the working chamber of said inner cylinder cooperates with that being displaced by the working chamber of said outer cylinder when the said valve-forming element is in normal position interconnecting said pair of fluid passages with the first-named port in the cylindrical wall of said inner cylinder, to apply the vehicle service brakes and actuate the hydraulic clutch-servo aforesaid to disengage said vehicle clutch in response to operator-operation of said operator member.

3,321,056

TRANSMISSION AND CONTROL SYSTEM

Frank J. Winchell, Bloomfield Hills, Jerry R. Mrlik, Birmingham, John E. Mahoney, Royal Oak, Jack W. Qualman, Ann Arbor, Thomas R. Zimmer, Livonia, and August H. Borman, Detroit, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Dec. 12, 1963, Ser. No. 330,105
6 Claims. (Cl. 192—85)



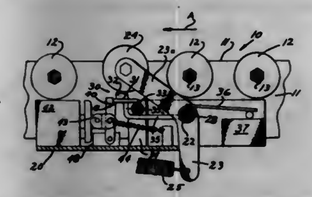
1. In a transmission of the type having friction gripping elements adapted to be engaged and released to establish changes of transmission drive ratio, a servo having a piston and a servo chamber adapted to receive fluid pressure for engaging said friction gripping elements, a fluid pressure source providing line pressure, a drive range selector valve, a shift valve, an accumulator, an accumulator control valve, said accumulator including an accumulator piston having first and second chambers at opposite sides of said piston adapted to receive fluid pressure, a stem extending through said piston, a third chamber, a passage in said stem connected to said third chamber and controlled by said piston, a passage through said piston for at times connecting said third chamber to said second chamber through said stem passage, said piston being movable with respect to said stem to block off fluid flow between said first and third accumulator chambers, a passage connecting said drive range selector valve to said fluid pressure source, a passage for supplying line pressure to said shift valve and to said accumulator control valve controlled by said drive range selector valve and supplied with line pressure when said drive range selector valve is positioned for drive range operation, a passage connecting said accumulator control valve to said first accumulator chamber, said accumulator control valve being effective to deliver fluid pressure to said last-mentioned passage at a fixed differential pressure less than line pressure, passage means connecting said shift valve to the servo chamber of said friction gripping elements and to said second accumulator chamber, said shift valve being effective in one position to connect said last-mentioned passage means to exhaust and being movable to a second position to connect said last-mentioned passage means to said fluid pressure source when said drive range selector valve is positioned for drive range operation.

3,321,057

RETARDER FOR GRAVITY CONVEYOR

Maynard J. De Good, Grand Rapids, Mich., assignor to The Rapids-Standard Company, Inc., Grand Rapids, Mich., a corporation of Michigan

Filed Apr. 25, 1966, Ser. No. 545,037
5 Claims. (Cl. 193—35)



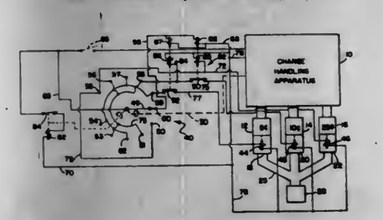
1. In combination with a gravity conveyor having a plurality of freely rotatable article transporting elements arranged to form a conveying surface along which the articles travel, an article brake comprising: one of said elements being movably supported to shift from a raised position above said conveying surface to a lowered position generally flush therewith and means resiliently urging said one element into said raised position; a brake member movably mounted to shift between extended and retracted positions, said brake member having a surface characterized by a high co-efficient of friction engaging said one element when said brake member is extended and said one element is in said lowered position; an actuator; said brake member upon activation of said actuator shifting to retracted position to disengage said one element; a signal generating sensor tripped by said one element when said one element shifts to its lowered position, said sensor being operatively connected to said actuator by a signal conducting member; said signal conducting member having a timer for delaying the transmission of the sensor's signal to the actuator for a predetermined interval.

3,321,058

CHANGE RETURN APPARATUS

Robert B. Brooks, Golden Valley, Minn., assignor to Advance Engineering Company, Minneapolis, Minn., a corporation of Minnesota

Filed June 7, 1965, Ser. No. 461,986
13 Claims. (Cl. 194—2)



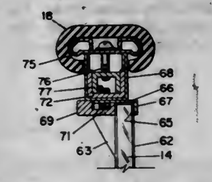
1. A coin change return apparatus comprising, a rotary selector switch having a plurality of switch contacts defining a plurality of switch positions and a rotary wiper contact associated with the stationary contacts to complete a control circuit sequentially for each of the switch positions, said rotary switch contact being adapted to be connected to and initially positioned to various switch positions by a means which determine the total amount of change to be returned, motive means for moving the rotary switch contact in pulsed steps between the switch positions, a plurality of coin return solenoids each adapted to be connected to and operate a coin holding mechanism for a coin of different denomination, a plurality of separate circuit means connecting respectively selected and different switch contacts representing the different switch positions to each of the coin return solenoids, a plurality of additional circuit means connected respectively to each of the separate circuit means, each of said additional circuit means including a relay having a controlling contact positioned in one of the separate circuit means of the next lower denomination coin return solenoids, each switch contact of the plurality of the switch positions representing the total amount of change to be returned being connected to the coin return solenoid representing the lowest denomination coin making up the total amount of the change to be returned.

3,321,059

PASSENGER CONVEYOR BALUSTRADE

Carl John Kroepel, Manhasset, N.Y., assignor to Otis Elevator Company, New York, N.Y., a corporation of New Jersey

Filed Sept. 10, 1965, Ser. No. 486,276
22 Claims. (Cl. 198—16)



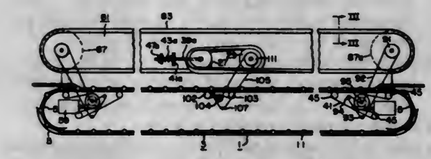
1. A passenger conveyor balustrade, comprising,
a plurality of structural panels supported on edge in a substantially vertical plane adjacent to one side of said conveyor,
a resilient, U-shaped nosing over the top edge of said panels,
a two piece handrail molding structure supported by said panels,
said structure including juxtaposed faces engaging said nosing on opposite sides of said panels,
a handrail guiding structure including a track and an elongated channel shaped member supporting said track, and
releasable means for holding said two pieces of said molding structure in engagement with each other and for holding each in engagement with said channel shaped member.

3,321,060

PASSENGER CONVEYORS EMPLOYING HANDRAILS

Clyde M. Mullis, Glen Rock, and Larry P. Tossto, Millburn, N.J., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

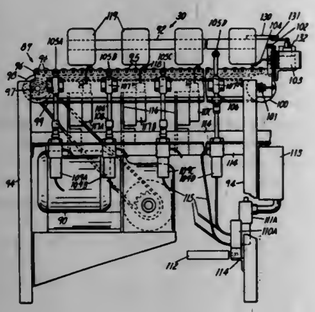
Filed Oct. 29, 1965, Ser. No. 505,717
2 Claims. (Cl. 198—16)



1. In a passenger conveyor having a moving treadway and a moving endless handrail, said moving treadway comprising a plurality of pallets hinged together to form an endless loop, each of said pallets having a rack extending in the direction of motion of the pallet, propulsion means for imparting movement to the handrail comprising

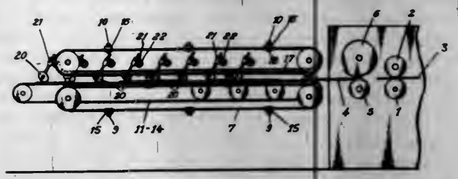
a toothed endless flexible belt having teeth simultaneously meshing with plural teeth of at least one of the racks, a driven gear coupled to said flexible belt whereby said driven gear is operated in accordance with motion of the flexible belt, second means in driving relation to said handrail, and means for driving said second means from said driven gear, said propulsion means comprising pulley means having a pair of spaced pulleys located within said endless belt for guiding said belt with the teeth of said belt engaging at least one of the racks, said driven gear having teeth meshing with the teeth of the belt, said pulley means guiding said belt arcuately about the driven gear to effect simultaneously meshing engagement of a plurality of the teeth of the gear with teeth of the belt.

3,321,061
BREAD COOLING APPARATUS
Clayton D. Huffman, Albion, and Robert W. Hartung, Clarence Township, Calhoun County, Mich., assignors to Union Steel Products Company, Albion, Mich.
Original application Mar. 20, 1964, Ser. No. 353,463, now Patent No. 3,240,316, dated Mar. 15, 1966. Divided and this application Feb. 9, 1966, Ser. No. 538,883
3 Claims. (Cl. 198—31)



1. A transfer conveyor for loaves of bread advanced in spaced side by side single file comprising
a frame rotatably supporting a plurality of rollers extending transversely of said file to receive said loaves,
other rollers positioned at intervals along said frame and spaced by a distance somewhat greater than the width of a loaf of bread,
a stop bar at the front end of said plurality of rollers and spaced above the plane of the rollers,
slides supporting said other rollers,
slideways on said frame vertically guiding said slides,
pneumatic cylinders connected to said slides to raise said other rollers above and lower said other rollers to the level of said plurality of rollers,
a trip switch associated with each cylinder and having an actuating finger projecting above one of said plurality of rollers behind the slide with which the cylinder is connected and curved over a radially reduced portion formed in the roller over which it projects,
a drive belt supported on said frame in frictional driving engagement with said plurality of rollers and said other rollers in the lowered position of the latter,
a motor connected to drive said belt,
a stop switch having an actuating element positioned to be actuated by a loaf at the front of said plurality of rollers,
a pusher reciprocably mounted alongside said plurality of rollers,
a pneumatic cylinder connected to reciprocate said pusher across said plurality of rollers and between said other rollers,
limit switches positioned to be actuated by said pusher,
electrically operated valves connected to actuate said cylinder connected to said pusher,
and wiring connecting said switches to actuate valves associated with said slides to successively raise the slides from front to rear after a loaf is advanced to each space between said other rollers and reciprocate said pusher and lower said slides.

3,321,062
APPARATUS FOR SHIFTING BAG OR SACK WORKPIECES DURING HORIZONTAL CONVEYANCE FROM LONGITUDINAL TO TRANSVERSE
Friedrich Franz Brockmüller and Winfried Hedrich, Lengerich, Germany, assignors to Windmoller & Holscher
Filed Sept. 21, 1965, Ser. No. 488,950
Claims priority, application Germany, Oct. 1, 1964, W 37,652
7 Claims. (Cl. 198—33)



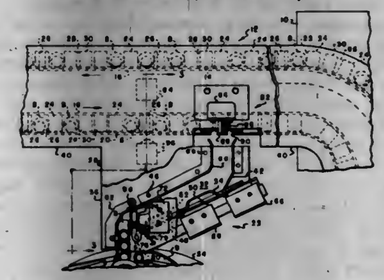
1. Apparatus for moving a workpiece along a fixed plane while shifting the position of said workpiece in said plane, said apparatus comprising a first conveying means for conveying said workpiece along said plane, at least one additional workpiece conveying means moving parallel to said first conveying means, means for driving said first conveying means and said additional conveying means at different velocities corresponding to the degrees of said shifting, and pressure rollers adjustably mounted above said additional conveying means and adapted to engage said workpiece to increase the frictional engagement between said additional conveying means and said workpiece.

3,321,063
MATERIAL DISPATCHING SYSTEM
William E. Blume, 126—13 101st Ave., Richmond Hill, N.Y. 11419
Filed Dec. 8, 1965, Ser. No. 512,305
2 Claims. (Cl. 198—38)



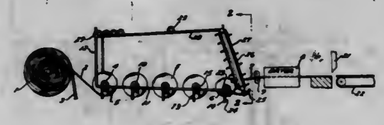
1. A conveyor system for heavy containers, comprising a framework, a plurality of rotatable rollers supported by said framework in an elongated horizontal array defining a main conveyor line, said rollers being axially horizontal and spaced apart along said conveyor line, a drive belt supported under the rollers in frictional contact therewith to rotate the rollers and advance containers riding on the rollers along said conveyor line, a plurality of framework extensions opening laterally from said framework at spaced positions along said conveyor line, other rollers rotatably supported by said framework extensions to define a plurality of branch conveyor lines, electrically operable transfer means for moving designated containers laterally into selected branch conveyor lines, photoelectric means located along the main line in advance of the respective branch lines for sensing the presence of designated containers assigned to selected ones of the branch lines, and circuit means interconnecting said photoelectric means and the container transfer means for selectively and automatically transferring the designated containers into the respective selected branch conveyor lines when each designated container arrives at an entrance to a corresponding selected branch conveyor line, stationary electromagnet means for braking movement, of a designated container when it arrives at the photoelectric means of a corresponding selected branch conveyor line, other circuit means interconnecting the photoelectric means and electromagnet means for energizing the electromagnet to magnetically engage the designated container, solenoid operated bumper means for stopping movement of each container along the main line when the container arrives at the entrance to a selected branch conveyor line, further circuit means interconnecting said photoelectric means and the solenoid operated bumper means to actuate the same when a designated container arrives at the entrance to a corresponding selected branch conveyor line, each of said circuit means comprising a different time delay relay, a power supply connected in circuit with each time delay relay, with said transfer means, with said solenoid operated bumper means and with said electromagnet means, the several time delay relays having different operative times, so that the electromagnet is deenergized before a designated container is moved laterally into a selected branch line by the transfer means, and so that the bumper means is actuated when the electromagnet is energized and remains energized until the designated container is transferred into the selected branch conveyor line, said photoelectric means comprising a lamp and photoelectric cell array supported at opposite sides of the main conveyor line at each branch conveyor line in a horizontal line of sight, the arrays of lamps and cells being disposed at successively lower heights along the main line, a branch conveyor line selector carried by each container at a certain height for interrupting the line of sight of a lamp and cell array at only a certain selected branch convevor line, and means for adjusting the height of each selector on each container.

3,321,064
AUTOMATIC BOBBIN SUPPLY SYSTEM
Grady H. Sanders and Weir E. Wharton, Spartanburg, S.C., assignors to Deering Milliken Research Corporation, Spartanburg, S.C., a corporation of Delaware
Filed June 17, 1964, Ser. No. 375,822
5 Claims. (Cl. 198—45)



1. A bobbin transfer mechanism comprising an endless belt, means forming pockets in the outer surface of said endless belt, means supplying bobbins to said pockets, said belt having at least one run in which said pockets open downwardly, belt guiding means operably associated with said one run and preventing said bobbins from dropping out of said downwardly opening pockets, means forming an opening in said belt guiding means of sufficient size to allow a bobbin to fall through, gate means operably associated with said opening to prevent bobbins from falling through said opening from said one run, bobbin receiving and guiding means located below said opening, means operably associated with said one run, said gate means, and said bobbin receiving and guiding means to periodically open and close said gate means to allow bobbins to be supplied to said bobbin receiving and guiding means, said means operably associated with said one run, said gate means, and said bobbin receiving and guiding means including a detecting means in operative relationship with said bobbin receiving and guiding means to detect the absence of bobbins in a certain predetermined area of said bobbin receiving and guiding means, and further including a photocell and light source to actuate said gate means when said detecting means has detected the absence of bobbins to open said gate means to drop bobbins into said bobbin receiving and guiding means, said pockets being formed by cleat members spaced from one another on said endless belt and means forming apertures through certain preselected cleat members, said photocell being mounted on one side of said cleat members and said light source being mounted on the other side of said cleat members in line with said photocell whereby a light beam from said light source will hit said photocell when said apertures in said cleat members pass therebetween.

3,321,065
AUTOMATIC CONVEYER FOR VENEER SHEETS
Yasuo Imazu, Osaka-shi, Japan, assignor to Eidai Sangyo Kabushiki Kaisha, Osaka, Japan
Filed Sept. 27, 1965, Ser. No. 490,258
2 Claims. (Cl. 198—50)

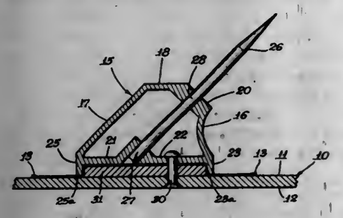


1. A conveyer for veneer sheets comprising, a frame including an inclined rail sloping continuously from one end to the other, a plurality of stop means spaced throughout the length of said rail, a spool on which the veneer is wound, said spool being slidably mounted on said rail to move by gravity from one end of the rail to the other, said spool being engageable with the stop means to interrupt the movement of said spool along the rail, a second rail on the frame inclined in the opposite direction to the first named rail, a vertically extending elevator positioned between one end of the first named rail and one end of the second rail, to elevate the spool from the first named rail to the second rail, and a second vertically extending elevator positioned adjacent the first named elevator, said second elevator selectively elevating the spools from the first named rail to the second rail, and a belt conveyer positioned below the first and second elevators to receive veneer sheets thereon from spools positioned on the first named rail.

3,321,066
TEXTILE MILL CONVEYOR BELTS
Lynn M. Christianson, 7 Elaine Circle E., Prospect Heights, Ill. 60070
Filed Dec. 16, 1965, Ser. No. 514,301
8 Claims. (Cl. 198—178)

1. In a conveyor belt assembly for conveying fibrous material in a textile mill, said assembly including a flexible endless belt and a plurality of transversally oriented

solid slats connected thereto, each slat having leading inner edge portions and trailing inner edge portions, the improvement comprising: a continuous flexible sheet of fireproof material covering said belt and connected thereto for movement therewith; said slats being formed of a



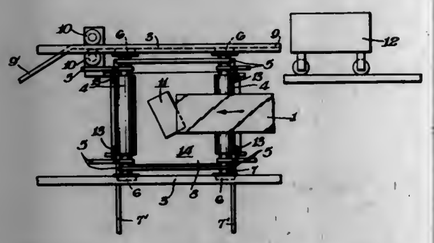
hollow, extruded metal section; and means for maintaining continuous contact between said material and one of said edges to thereby prevent said fibrous material from becoming trapped between the slats and the belt during conveyance thereof.

3,321,067

DEVICE FOR THE REMOVAL OF CUT-OFF WORK PIECES IN CONTINUOUS CASTING INSTALLATIONS

Horst K. Lotz, Hanauer Landstrasse 505A, Frankfurt am Main, Germany

Filed Nov. 8, 1966, Ser. No. 592,790
Claims priority, application Germany, Aug. 19, 1964, M 62,147
4 Claims. (Cl. 198—78)



1. A device for the removal of work piece segments cut off in continuous casting installations having means for transporting and cutting the cast work piece, said device comprising a take-up table for receiving the segments, means for moving said table along a predetermined path under the work piece, first guiding means fixedly mounted with respect to said moving means for said take-up table, second guiding means attached to said take-up table, said second guiding means guiding said take-up table along said first guiding means, and said first guiding means effecting a lateral movement of said take-up table relative to the movement of the work piece before the end of said predetermined path and also limiting said lateral movement.

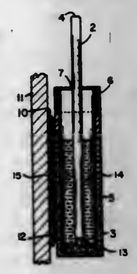
3,321,068

THERMOMETER SET

Janet L. Beach, % Clinical Products Inc., 318 Freeport Road, Pittsburgh, Pa. 15238

Filed Oct. 22, 1965, Ser. No. 501,787
3 Claims. (Cl. 206—16.6)

1. A thermometer set comprising a clinical thermometer and a receptacle for the thermometer, the receptacle comprising an elongated body portion of less length than the thermometer having an open upper end and a closed lower end, the receptacle also comprising a cap portion appliable to the open upper end of the body portion to close such upper end except that the cap portion has therethrough an opening of sufficient size to receive the thermometer so that the thermometer may be introduced and withdrawn through the opening in the cap portion and



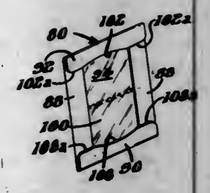
will have its upper end projecting through the opening and above the top of the cap portion when the thermometer is disposed in the receptacle, the body portion of the receptacle having attaching means for securing the receptacle to a generally upright surface, said means being appliable on the surface and removable therefrom for cleansing of the surface.

3,321,069

ENVELOPE FOR PACKAGING LADIES' STOCKINGS

Perry G. Harmon, Winston-Salem, N.C., assignor to Hanes Corporation, Winston-Salem, N.C., a corporation of North Carolina

Filed Oct. 22, 1965, Ser. No. 501,892
6 Claims. (Cl. 206—45.31)



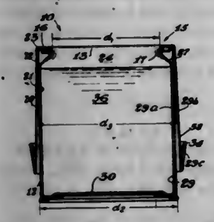
1. In an envelope for packaging shallow-depth articles such as ladies' stockings, the combination comprising a heavy flexible paper blank having a substantially rectangular front panel, a pair of flaps extending from said panel and folded back respectively under opposite sides of said panel, a pair of flaps extending from said panel and folded back respectively under the top and bottom of said panel and over said side flaps, the mutually overlying portions of said flaps being adhesively secured together, the portions of said top and bottom flaps extending between said side flaps being smoothly, gradually varied in width, and being of maximum width at the inner edge of at least one of said side flaps and of less than maximum width at all points between said side flaps, a shallow-depth article within said folded blank, and a sheet of transparent material within said folded blank extending across a large opening defined by said flaps and interposed between said flaps and shallow-depth article, the inner marginal portion of at least one of said top and bottom flaps between said side flaps being free of attachment to said transparent sheet material to facilitate opening said envelope.

3,321,070

PACKAGE FOR LIQUID COATING MATERIAL

Clifford F. Childs, Rte. 1, Wheeler, Mich. 48662

Filed May 13, 1964, Ser. No. 367,111
5 Claims. (Cl. 206—46)



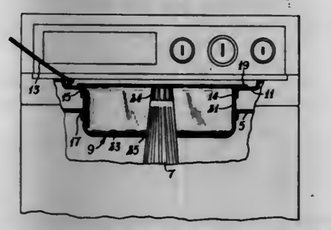
1. An improved package for liquid coating material comprising a container and a liner, the container having an opening, the opening having a dimension approaching the diameter of the container, a closure adapted to seal the opening in a manner to protect the contents from an atmosphere surrounding the container, the improvement which comprises a liner in the form of a bag formed of a plastic film which is impermeable to the coating liquid, the bag having a general form of a tube closed at one end; the tube having a circumferential diameter greater than the circumferential diameter of the container in a plane generally parallel to the opening of the container, the tube being of sufficient length so that the closed end of the tube is positioned against an inner wall of the container remote from the opening, the bag contains a quantity of coating liquid which on exposure to air forms a continuous protective film, said liquid approximates the volume of the container and provides a gas space sufficient to permit therein expansion of the liquid without rupture of the bag or container or displacement of the closure, the tube having sufficient length that the open end thereof may be folded outwardly and downwardly about the major surface of the container, the tube being releasably sealed about the coating liquid at a location generally adjacent the upper surface of the liquid when the opening is uppermost and the remaining portion of the tube being folded over the releasably sealed portion of the tube and maintained in position by the closure and the plastic film bag has a stiffened portion disposed adjacent to its open end, the stiffened portion adapted to be folded upon itself and form an upwardly facing cuff disposed externally to the container when the package is open and the contents are being removed therefrom.

3,321,071

WASHING MACHINE SERVICE UNIT

Maurice W. Elwell, Hawthorne, Calif., assignor to Iden Manufacturing Co., Inc., Chicago, Ill., a corporation of Illinois

Filed Jan. 21, 1965, Ser. No. 426,874
4 Claims. (Cl. 206—46)



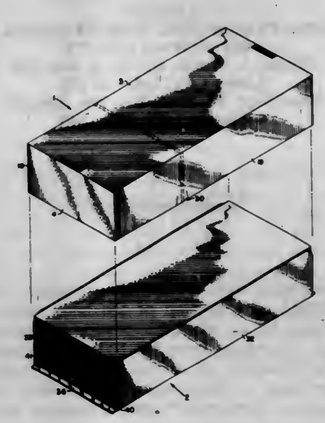
1. In combination with an automatic washing machine including an outer housing, a drum resiliently mounted within said housing and movable relative to said housing, an agitator vertically disposed within said drum and movable relative to said drum and said housing, and a loading opening bounded by edges of said housing and said drum for providing access to the interior of said drum and to said agitator of said automatic washing machine, a service unit, said service unit being a one-piece plastic insert having a depressed central portion surrounded by rising side portions, said side portions having a flared edge extending away therefrom with its bottom surface positioned on said housing contiguous to the loading opening to support said service unit, the central portion of said insert having an aperture therein loosely receiving the agitator of said automatic washing machine, and said side portions being positioned against the surfaces of said drum and said housing.

3,321,072

DISPENSING CARTON OF SHIRRED SAUSAGE CASINGS

Clarence M. Alsys, Danville, Ill., assignor to Tee-Pak, Inc., Chicago, Ill., a corporation of Illinois

Filed May 11, 1964, Ser. No. 366,380
13 Claims. (Cl. 206—46)



1. A dispensing package comprising a carton having an open ended tray portion with unsupported side flaps, and a cover portion with side and end flaps secured together and having a tear strip extending from side to side intermediate its ends, a plurality of strands of shirred synthetic sausage casings positioned side by side in layers, a plurality of moistened sheets of absorbent pulp positioned between successive layers of shirred casings to maintain a predetermined moisture content therein, and said tear strip being operable to sever said cover portion for removal of a portion thereof for dispensing shirred casings therefrom.

3,321,073

COP PACKAGE

Fritz Werner, Wuppertal-Elberfeld, Karl Grassmann, Wuppertal-Barmen, and Peter Berger, Wassenberg, Germany, assignors to J. P. Bemberg Aktiengesellschaft, Wuppertal-Barmen, Germany

Filed Sept. 13, 1965, Ser. No. 486,715
Claims priority, application Germany, Sept. 12, 1964, B 58,985
3 Claims. (Cl. 206—46)

1. A cop package comprising a thread-wound hollow spool as the cop enclosed by a seamless tubular synthetic thermoplastic foil open at both ends, said tubular foil having a double pleat along each longitudinal side thereof with the inner folds of said double pleats being spaced outwardly from the longitudinal center line of the flattened

tube, a plurality of oppositely disposed heat-sealed pleats being formed in said foil such that said heat-seal tapers conically inwardly from the sides of the foil to an opening therein in the form of a truncated apex at one end of the cop so as to fit over and cover the outer thread surface on



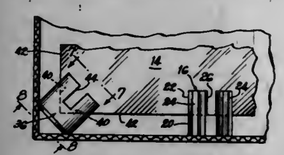
said sides and said end of the cop, the tubular foil at the opposite end of the cop having a much larger opening sufficient to fit over the maximum diameter of the cop and said tubular foil having a length sufficient to be folded over said opposite end of the cop and to be tucked into the axial opening of the hollow spool.

3,321,074
SCREW PACKAGING AND VENDING OR DISPENSING DEVICE
Myron A. Marsh, R.F.D. 2, Box 143, Union City, Ind. 47390
Filed Sept. 13, 1965, Ser. No. 486,905
4 Claims. (Cl. 206—56)



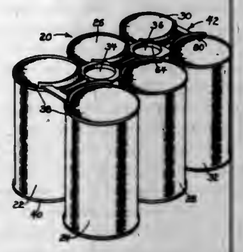
1. A packaging device comprising a body member, a tongue formed of a portion of the body with one end thereof being loose, with the portion remaining after forming of the tongue from the body providing a channel for the reception of screws, with the tongue lying against the heads of the screws and preventing accidental dislodgement of the screws from the channel, and with a removable means traversing the loose end of the tongue.

3,321,075
SPACER MEANS FOR PACKAGING OF MIRRORS AND THE LIKE
Arthur Waller, Highland Park, Ill., assignor to Bull Dog Lock Company, Chicago, Ill., a corporation of Illinois
Filed Jan. 21, 1965, Ser. No. 426,726
5 Claims. (Cl. 206—62)



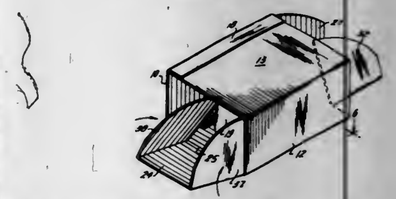
1. Means for use in the packaging of frangible objects such as mirrors and glass whereby the objects will be protected against breakage when packages containing the objects are subjected to impact, said means comprising a body structure formed of plastic material, said body structure including side walls extending completely around the structure, an inner end wall, and an outer end wall, at least two slots defined by said side wall, said slots being situated in opposed relationship and extending from said inner end wall to a point intermediate the length of the body structure, and wherein the end walls of said body structure are each relieved by a plurality of openings extending inwardly of the body structure from the respective end walls, the openings in the respective end walls being separated by web means, said body structure having a substantial thickness in all cross-sectional directions whereby the body structure can be secured to an edge portion of one of said objects with the object being held in spaced apart substantial relationship with respect to the walls of the package containing the object.

3,321,076
CONTAINER CARRIER
Ouglesa Jules Poupitch, Itasca, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill., a corporation of Delaware
Filed Dec. 23, 1963, Ser. No. 332,730
16 Claims. (Cl. 206—65)



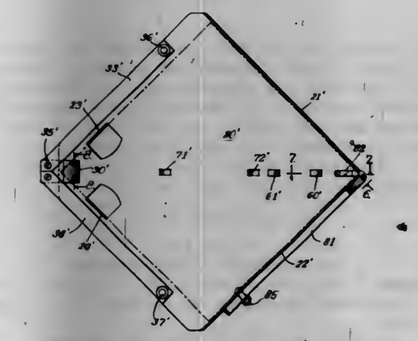
1. A one piece molded clip for securely connecting at least a pair of generally cylindrical cans or the like having annular end rims which radially and axially project beyond the can and which have a predetermined thickness and height, said clip including flexible web means projecting between and overlying the rims of adjacent cans but terminating substantially at the inner radial measurement of said rims, first locking means integral with said web means and disposed between said cans and engaging beneath the rims of said cans, and a plurality of second locking means which cooperate with said first locking means and are integral with said web and engage inner surfaces of said can rims, each of said second locking means being curvilinear throughout their extent and adapted to engage a circular inner surface of a can rim with broad surface contact and adapted to extend for substantially the full depth of said can rim, each cooperable pair of said first and second locking means having margins spaced apart and defining a throat narrower than said can rim thickness for grippingly engaging and removably locking cans with respect to said clip.

3,321,077
CONTAINER FOR ELECTRIC LIGHT BULBS AND LAMP PACK RESULTING FROM ITS USE
Richard E. Paige, 411 E. 57th St., New York, N.Y. 10022
Filed Oct. 21, 1965, Ser. No. 499,806
7 Claims. (Cl. 206—65)



6. A lamp pack comprising a four-sided sleeve composed of paper and having a corrugated surface on the inside, the corrugations extending perpendicular to the sleeve axis, a pair of electric light bulbs of equal size snugly accommodated within said sleeve in side-by-side oppositely-facing relation, their axes lying generally in the direction of the sleeve axis, each bulb having a globular part and a narrower base, covers at opposite sleeve ends, respectively, hinged to one of the longer sleeve sides, each cover having a length in the direction of its hinge axis which is shorter than the sleeve side to which it is hinged, said covers being oppositely offset from the central axis of the sleeve so that each cover is centered over the globular part of one of said bulbs and leaves the base of the other bulb uncovered, lateral tuck-in flaps hinged to each cover and embracing the globular part of the bulb beneath said cover, each outer flap being frictionally held between said globular part and the adjacent short side of the sleeve, each inner flap being frictionally interposed between said globular part and the base of the other bulb, said inner flaps conjointly defining an oblique protective partition in frictionally held disposition between said bulbs.

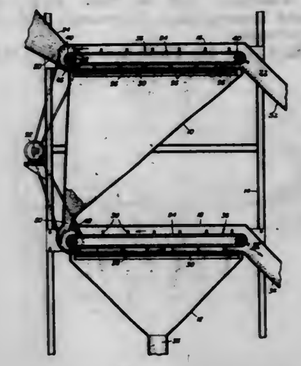
3,321,078
FILM TRAY
Fritz F. Treiber, Niles, Ill., assignor to Corley-Miller, Inc., a corporation of Ohio
Filed Dec. 13, 1965, Ser. No. 513,166
9 Claims. (Cl. 206—74)



1. A film tray for soft relatively non-slippery films comprising a bottom with upstanding surfaces for aligning a stack of soft film sheets on the tray, impaling means at one corner of the tray piercing the stack of sheets to hold the sheets in association with the tray while permitting removal of successive sheets from the tray, and needle means at a corner of the tray opposite said first mentioned corner for piercing the sheets of the stack to hold sheets in position as an operator initially lifts the uppermost sheet from the stack by tearing thereof from said needle means while the uppermost sheet is still held by the impaling means.

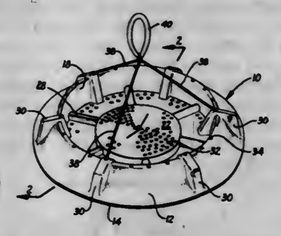
3,321,079
APPARATUS FOR CLASSIFYING DRY SOLIDS
Walter J. Sackett, Sr., 3700 Echodale Ave., Baltimore, Md. 21206
Continuation of application Ser. No. 304,805, Aug. 27, 1963. This application June 21, 1966, Ser. No. 563,013
2 Claims. (Cl. 209—38)

1. Apparatus for classifying particulate material, comprising structure defining a frame, a first screen panel mounted within said frame for receiving said particulate material, a second screen panel of smaller mesh than said first screen panel mounted within said frame beneath first screen panel, a hopper receiving the undersize of said particulate material from said first screen panel and directing said undersize to one end of the upper surface of said second screen panel, a pair of rotatably mounted sprockets mounted above each end of each said screen panel and adjacent to the longitudinal sides thereof, roller chains operatively connected with pairs of longitudinally aligned sprockets, spaced bars positioned across the upper surface of each said screen panel and secured to their respective roller chains, means rotating said sprockets whereby said spaced bars traverse the upper surface of each said screen panel, each said screen panel having rectangular mesh, with the long dimension of said mesh extending in the direction of traversal of said spaced bars,



bristle brushes mounted on some of said spaced bars and having the tips of said brushes arranged to bear against said mesh of its respective panel for clearing each said screen panel of particulate material and for conveying oversize particulate material from one end to the opposite end of each said screen panel, magnetized faces mounted on the remaining of said spaced bars and spaced above said panels for extracting magnetic material from the mesh of each said screen panel, and means for receiving the oversize of said particulate material from said second screen panel.

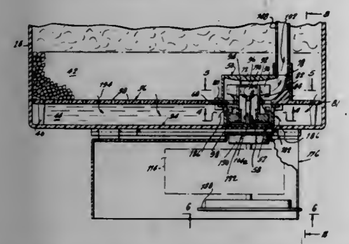
3,321,080
LEAF RECEIVER FOR SWIMMING POOLS
Andrew L. Pansini, Greenbrae, Calif. (180 Los Cerros Drive, San Rafael, Calif. 94904), and Howard M. Arneson, 2 Thomas Court, San Rafael, Calif. 94901
Filed Oct. 14, 1963, Ser. No. 315,914
2 Claims. (Cl. 210—163)



1. A leaf receiver for use in swimming pools comprising a receptacle portion defined by a bottom wall and an upstanding side wall, a feed portion for said receptacle portion defined by a substantially imperforate ramp-like peripheral wall extending outwardly and downwardly from the top of said side wall to at least about the level of the lowest portion of said bottom wall, said receptacle portion being provided with a plurality of apertures adapted to permit the passage therethrough of swimming pool water and to prevent the passage therethrough of

leaves and other swimming pool debris of relatively large size, and means connected to said device whereby the same may be positioned on the bottom of a swimming pool, said means comprising a bail-like element, and means on said bail-like element for maintaining the same in an upstanding position whereby said device may be removed from the bottom of a swimming pool without a spilling of its contents.

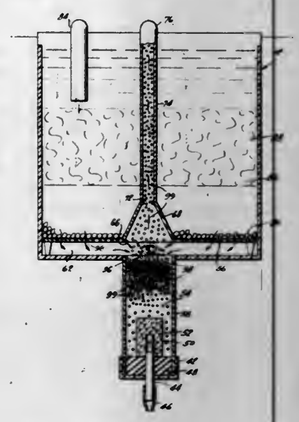
3,321,081
AQUARIUM FILTER APPARATUS
Allan H. Willinger, New Rochelle, N.Y., assignor to Aquariums Incorporated, Maywood, N.J., a corporation of Delaware
Filed June 18, 1964, Ser. No. 376,105
6 Claims. (Cl. 210—169)



5. An aquarium filtration apparatus comprising a filter receptacle adapted to be supported on an aquarium tank, a removable platform disposed within said receptacle spaced upwardly from the bottom of said receptacle to define a filtration chamber above said platform and a clean-water chamber below said platform, means for siphoning water extending from the tank into said filter chamber, said siphoning means including a siphon tube the ends of which extend below the level of the aquarium water, said platform being apertured to provide for the flow of water from said filtration chamber into said clean-water chamber, centrifugal pump means supported within said receptacle, said pump means comprising a casing having water inlet means and water outlet means, a rotary shaft disposed within said casing, said rotary shaft being provided with outwardly extending impeller blades at one end thereof and polarized magnet means at the other end thereof, means for rotatably mounting said shaft within said casing, said means including a ball, said casing being provided with a member having a ball mounting portion extending into the interior thereof, said ball being disposed between said member and a portion of said one end of said shaft, an electric motor disposed externally of said receptacle for operating said pump, said motor being supported by said receptacle and being provided with a shaft having polarized magnet means, said motor being magnetically coupled to said pump magnet means through a wall of said receptacle for driving said pump to thereby pump water from said clean-water chamber into said aquarium tank.

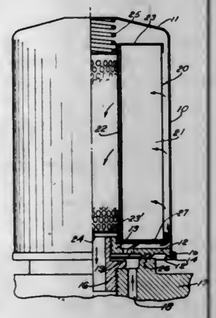
3,321,082
AQUARIUM FILTER
Allan H. Willinger, New Rochelle, N.Y., assignor to Aquariums Incorporated, Maywood, N.J., a corporation of Delaware
Filed June 26, 1964, Ser. No. 378,184
3 Claims. (Cl. 210—169)

1. An aquarium filter assembly comprising a filter receptacle adapted to be suspended on the exterior of an aquarium tank, said filter receptacle having a bottom wall and a platform spaced above said bottom wall to define in said receptacle a filter chamber above said platform and a clean water chamber below said platform, said chambers being in fluid flow relation through said platform, said bottom wall having an aperture defined therein and being provided with a clean water reservoir in registry with said aperture for the flow of clean water from said clean water chamber into said reservoir, said platform having an aperture defined therein in registry with said wall aperture, conduit means extending from



said platform through said filter chamber and terminating outwardly of said receptacle for supplying clean water to the aquarium tank, means for supplying compressed air to said reservoir to air lift the water in said reservoir through said wall aperture, said clean water chamber and said conduit means and a siphon tube extending into said filter chamber for the siphoned flow of water from the aquarium tank into said filter chamber.

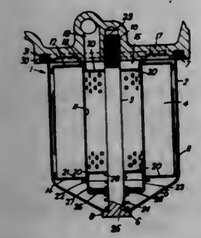
3,321,083
RADIATOR WATER FILTER
Donald I. Thornton, Warwick, R.I., assignor to Fram Corporation, Providence, R.I., a corporation of Rhode Island
Filed Aug. 8, 1963, Ser. No. 300,826
4 Claims. (Cl. 210—198)



2. A screw-on throw-away type of water filter and water conditioner for the water in the cooling system of an internal combustion engine, comprising a screw-on type of filter housing connected in the cooling system so that at least part of the circulating water will pass through the housing, a pleated paper filter cartridge permanently mounted in said housing, said paper having absorbed therein, in an amount close to its liquid-retaining capacity,

a water soluble or dispersible liquid corrosion inhibitor so that this inhibitor will be picked up by the water passing through the cartridge and deposited as a protective film on the walls of the radiator and cooling passages of the engine.

3,321,084
LIQUID FILTER ASSEMBLIES
Derrick Percival Tuffnell, North Baddesley, and Kenneth Ernest Buckman, Winsor, near Woodlands, England, assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Feb. 7, 1963, Ser. No. 257,029
Claims priority, application Great Britain, Feb. 14, 1962, 5,651/62
1 Claim. (Cl. 210—232)



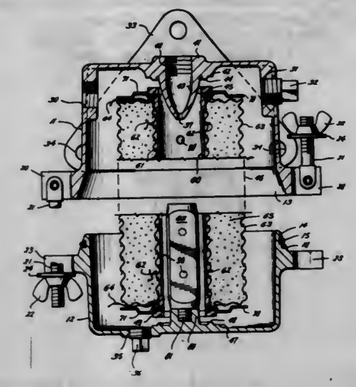
A liquid filter assembly comprising a mount face, a stud and a cup-shaped shell coaxially arranged and forming with said mount face a filter casing, one end of said shell being closed and nonrotatably fixed with relation to one end of said stud to form a unitary structure, the other end of said shell having an open end defined by an annular flange on the shell, an annular filter element coaxial with said stud and having an outside diameter less than the inside diameter of said annular flange, means resiliently urging said filter element away from said closed end of said shell, the other end of said stud extending from said filter element, said mount face having a tapped hole therein, thread means on said other end of said stud for engagement with said tapped hole whereby said annular flange and filter element may be urged into and away from sealing relation with said mount face by rotation of said shell and stud, means on said shell for effecting said rotation of the latter with said stud by hand, and said shell being of sufficient wall thickness to withstand the torque applied thereto by said hand rotation.

3,321,085
WATER CONDITIONER
Charles O. Moorhead, Oklahoma City, Okla., assignor to M-C-M Machine Works, Oklahoma City, Okla., a partnership
Filed June 10, 1965, Ser. No. 462,986
1 Claim. (Cl. 210—232)

A water conditioning unit comprising a housing including a lower cup and an upper inverted cup, said upper cup including an inlet opening in the side thereof and an outlet opening in the center thereof and including also a means for mounting the unit in its intended place of use,

means for releasably connecting said cups with their rims in sealing engagement, said means for connecting the cups including a conical face on the rim of the upper cup, a conical seal on the rim of the lower cup correlative to said conical face and having the lower cup correlative to said conical face and having a groove therein, an O-ring in said groove, and quickly attachable and detachable stud means for holding said cups together and putting pressure on said O-ring,

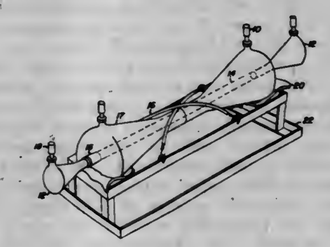
a tubular filter-softener cartridge concentrically disposed in said housing, said cartridge including a perforated tube having flanges secured to its ends forming a spool, a filter cloth wrapped on said tube, a filter tube secured at its ends to said tube around said cloth, and a granular mixture of water softening agent and rust inhibitor in the space between said filter cloth and filter tube,



a conical upwardly flaring tubular member extending down from the center of the upper cup around the outlet passage into the tubular cartridge, the apex of said conical member forming a flow restriction providing a choke, the exterior of said tubular member providing a means to position the tubular cartridge concentrically with respect to the outlet passage and also a means to guide the cartridge into centered position, and

a sacrificial metal bar replaceably mounted in the lower cup extending concentrically inside the cartridge.

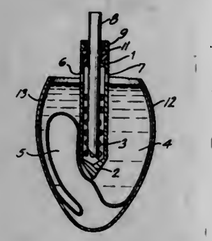
3,321,086
WASP-WAIST HOURGLASS-SHAPED DIALYSIS FERMENTOR FLASK
Jule N. Dews, Sylvan Heights, George W. Schmersahl, Frederick, and William C. Patrick III, Rockville, Md., assignors to the United States of America as represented by the Secretary of the Army
Filed Oct. 29, 1965, Ser. No. 505,763
5 Claims. (Cl. 210—321)



5. A system comprising a wasp-waist hourglass-shaped vessel having a semipermeable tubular membrane extending horizontally and longitudinally throughout the entire center thereof, outboard compartment means attached to both ends of the membrane and extending beyond the ends

of the vessel, ingress and egress means located on the periphery of the vessel and outboard compartments, support means, fastening means securing the vessel in a horizontal position to the frame of the support means and additional fastening means securing the outboard compartments to the vessel.

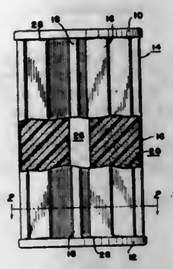
3,321,087
PIPETTE
Ferdinand T. Fuge, Winsted, Conn., and John K. Garber, Lansdale, Pa., assignors to Richardson-Merrell Inc., New York, N.Y., a corporation of Delaware
Filed May 1, 1964, Ser. No. 364,203
2 Claims. (Cl. 210—459)



1. A pipette for harvesting allantoic fluid from partially incubated eggs which consists of a slender tubular pipette member being closed at the lower end by a smoothly faced conical point, said tubular pipette member having a plurality of small openings in the section adjacent the conical end adapted to permit entry of allantoic fluid without permitting simultaneous entry of tissue particles, an opening in the upper section of said tubular pipette member permitting entry of air, a smaller tubular member extending along the axis substantially the full length of the tubular pipette member and means for detachably securing said smaller tubular member within said tubular pipette member whereby suction may be applied to withdraw allantoic fluid entering the interior of the pipette the said smaller tubular member terminating in an open end cut at an angle.

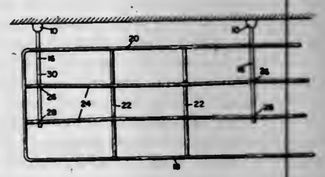
3,321,088
FILTER CARTRIDGE
Victor A. Williamitis, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Continuation of application Ser. No. 273,117, Apr. 15, 1963. This application May 16, 1966, Ser. No. 550,565
1 Claim. (Cl. 210—489)

A filter cartridge unit comprising, a hollow open-ended cylindrical filter paper element having a plurality of accordion pleats directed longitudinally thereof for increasing the effective filtering surface area of said cylindrical element, a reinforcing core of rigid open cell plastic foam material located interiorly of said cylindrical filter paper element having radially outwardly directed ridges on the outer surface thereof, each of said ridges having side surfaces located in juxtaposition with one of the pleats in said cylindrical filter paper element for supporting said filter paper against the passage of fluid thereacross and for spacing and supporting each of said pleats against collapsing on itself or an adjacent pleat, said ridges constituting the sole support for preventing collapse of said pleats, said paper element being the outermost portion of the filter cartridge unit exposed to unfiltered fluid directed thereacross and serving to remove most of the suspended particulate matter in the fluid stream prior to its passage through said open cell reinforcing element whereby said paper element determines the life of the cartridge unit, an end plate covering one open end of said cylindrical filter paper element and having a surface thereon bonded by said core directly to said core, a portion of said core



being directed against the end of said cylindrical filter paper element for bondingly securing the end of said cylindrical element to said end plate.

3,321,089
BRACKET CONSTRUCTION FOR SHELF DISPLAYS
George Krikorian, Worcester, Mass. (% Spencer Products Inc., 64 Main St., Spencer, Mass. 01562)
Filed Oct. 5, 1965, Ser. No. 493,126
5 Claims. (Cl. 211—134)

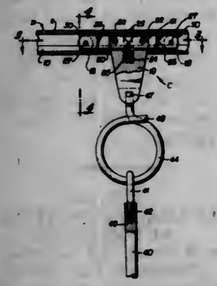


1. A shelf and bracket therefor comprising an open wire frame including at least one pair of generally parallel longitudinal springy wires, cross wires connected thereto and spacing them apart a predetermined distance, the bracket comprising a rigid member including a pair of notches, the notches being spaced apart a distance different from the spacing of said longitudinal wire members, whereby said wire members can be sprung to be positioned in said notches, the wire shelf being held by its own inherent resilience with respect to said bracket in said notches, and said shelf being positioned with the cross wires adjacent the brackets where the springiness of the longitudinal wires is less and the grip on them greater.

3,321,090
SUPPORTING APPARATUS FOR MEDICAL BOTTLES AND THE LIKE
Joseph C. Greenstadt, Los Angeles, Calif., assignor to Manufacturing Specialties Co., Inc., Gardena, Calif., a corporation of California
Filed June 1, 1965, Ser. No. 460,245
20 Claims. (Cl. 211—162)

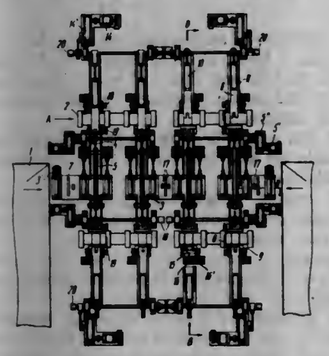
10. A carrier structure adapted to be carried by and shiftable along an overhead track, comprising a carrier body, oppositely directed levers pivoted on said body, each lever having an inner arm and an outer arm, means on said outer arms adapted to engage the track to support said levers and body for movement along the track, said outer arms having outer portions shiftable upwardly into

locking engagement with the track upon downward movement of said body, and spring means engaging said body



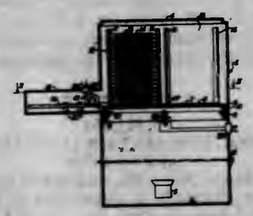
and inner arms for yieldably retaining said body upwardly and said outer arm portions downwardly from locking engagement with the track.

3,321,091
ROLLED STOCK PILING DEVICE
Viktor Georgievich Mednitsky, Kolpino, U.S.S.R., assignor to Yzhorsky zavod imeni A.A. Zhdanova, Kolpino, U.S.S.R.
Filed July 16, 1964, Ser. No. 383,196
4 Claims. (Cl. 214—6)



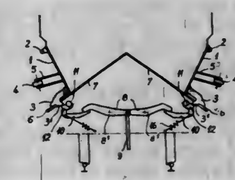
1. Apparatus for stacking piles of rolled shapes which are advanced along a longitudinal conveyor, said apparatus comprising: conveyor means for transversely feeding successive of rolled stock from said conveyor, means in the form of horizontal support plates spaced along the conveyor means; elevating tables for the stacking of piles of rolled stock arranged adjacent the conveyor means, means adjacent said elevating tables in the shape of at least two movable elongated sheets, one for each elevating table, driven in horizontal reciprocal movement to transport the piles on said tables and deposit the same in prescribed position thereon, the tables being lowered after each pile is deposited thereon, said sheets having free ends closer to the conveyor means, and opposite remote ends pivotably mounted to move vertically and horizontally relative to the elevating tables, said free ends of the sheets resting on the upper surface of said tables or on the stack of rolled shapes already thereon as horizontal guides during horizontal reciprocation of the elongated sheets, at least two stationary stops and two telescopic stops arranged adjacent each elevating table for engaging each of the piles of rolled stock as the sheets are being displaced away from the conveyor means during the reciprocation stroke to allow the sheets to be removed from beneath the piles and the same deposited onto the tables in prescribed positions as established by the stops and at least two lifting rollers located underneath the elongated sheets near each elevating table for lifting the sheets as they return to their initial positions above the tables during the completion of each reciprocating stroke.

3,321,092
VACUUM METALLISATION ARRANGEMENT FOR MATERIALS IN SHEET FORM
Edgard Brichard, Jumet, Belgium, assignor to Glaverbel, Brussels, Belgium, a Belgian company
Filed Apr. 21, 1964, Ser. No. 361,454
Claims priority, application Luxembourg, May 9, 1963, 43,713
16 Claims. (Cl. 214—6)



4. In a device for successively metallising under vacuum the surfaces of materials in sheet form, a vacuum metallisation tank, a first magazine contained in said tank for holding the sheets to be treated, a second magazine contained in said tank for holding the treated sheets, a plurality of frames each capable of holding at least one sheet to be treated receivable in said magazines, and means for transferring said frames from said first magazine to said second magazine, said magazines each comprising vertical guides between which said frames are disposed horizontally one above the other and enabling said frames to be displaced vertically, said guides comprising lateral members on which said frames are positioned at a small distance from each other, said members being capable of being displaced vertically by steps corresponding to the distance separating one member from the other.

3,321,093
DEVICE FOR AUTOMATICALLY OPENING CAR DOOR LOCKING SYSTEM
Pierre Arbel, Paris, France, assignor to Etablissements Arbel, Paris, France, a corporation of France
Filed Nov. 5, 1964, Ser. No. 409,057
Claims priority, application France, Feb. 12, 1964, 963,481, Patent 1,397,259
1 Claim. (Cl. 214—63)



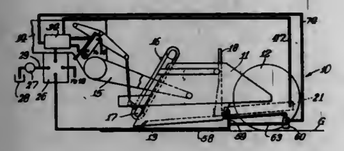
A device for automatically opening locking systems on side discharge hopper cars comprising in combination, a stationary stop retractably mounted between the rails,

said hopper car having a plurality of lateral discharge doors with a locking system means comprising a rod depending from substantially the center of said car, said rod being mounted at its upper end for movement only in the longitudinal direction of said car, at least one transversely mounted double-armed lever pivotally mounted on said car body and engaging with the upper end of said depending rod, an unlocking shaft rotatably and longitudinally mounted beneath each said discharge door, a spring-biased lever fixedly mounted on each said shaft, a cam surface on one end of said lever, the other end of said lever engaging with said double-armed lever, each said door having a pivotally mounted latch having a downwardly directed heel portion, an opening adjacent the lower end of each hopper, said heel normally engaging said opening in the door closed and locked position, upon engagement of said depending rod with said stop, said double-armed lever being pivoted to in turn rotate said lever against said spring bias about said shaft to engage said cam with said heel moving the latter from said opening whereby said doors will automatically open under the influence of the material therein.

3,321,094
CONTROL FOR MATERIALS HANDLING APPARATUS

Daniel B. Shore, Niles, Ill., assignor to International Harvester Company, a corporation of Delaware

Filed June 11, 1965, Ser. No. 463,216
8 Claims. (Cl. 214—82)



1. In a materials handling apparatus including conveyor means for moving materials, first hydraulic means for selectively disposing at least a portion of said conveyor means at a first, materials moving position and a second, retracted elevated position, ejector means for moving materials, second hydraulic means for selectively moving at least a portion of said ejector means between a third, retracted position and a fourth, eject position, and a source of pressurized hydraulic fluid, means for controlling operation of said apparatus by said pressurized fluid comprising:

first control means for conducting pressurized fluid from said source to said first hydraulic means to move said conveyor means from said first position to said second position;

second cam operated hydraulic control means for sensing the disposition of said conveyor means;

third control means for conducting pressurized fluid from said source to said second hydraulic means to move said ejector means to said fourth position, said third control means permitting movement of said ejector means to said fourth position only in the event that said second cam operated hydraulic control means senses disposition of said conveyor means at said second position;

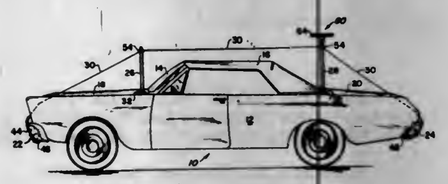
fourth cam operated hydraulic control means for sensing the disposition of said ejector means; and

fifth control means for releasing said first hydraulic means to permit said conveyor means to move from said second, elevated position to said first position, said fifth control means permitting movement of said conveyor means to said first position only in the event that said fourth cam operated hydraulic control means senses disposition of said ejector means at said third position.

3,321,095
REMOVABLE LOAD SUPPORTING RACK FOR AUTOMOBILES

Walter H. Groll, 522 Parkwood Road, Pittsburgh, Pa. 15210

Filed May 3, 1966, Ser. No. 547,279
10 Claims. (Cl. 214—450)



1. A removable, load-supporting rack for an automobile having a body, a windshield, a roof, a front deck lid, a rear deck lid and front and rear bumpers wherein no portion of said rack is supported by said automobile roof, said rack comprising:

(a) a first weight-bearing frame removably positioned upright on said automobile body forwardly of said windshield;

(b) a second weight-bearing frame removably positioned upright on said automobile body rearwardly of said automobile roof;

(c) means to removably fix said first and second weight-bearing frames in position on said automobile body; and

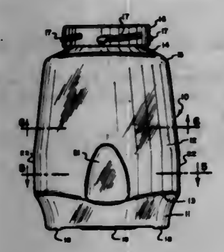
(d) a plurality of tension members removably connecting said first and second weight-bearing frames to each other and to the front and rear bumpers of said automobile to maintain said frames in an upright position under variable conditions of automobile movement, acceleration and deceleration.

3,321,096
OVAL CONTAINERS

Carl G. Hebel, Haworth, N.J., assignor to General Foods Corporation, White Plains, N.Y., a corporation of Delaware

Filed May 5, 1965, Ser. No. 453,266
12 Claims. (Cl. 215—1)

1. A rigid container of which the largest dimension in horizontal cross section are in the main body portion and present a generally oval shape and which is adapted for mutual compacting interaction with other such containers when being transported serially by frictional engagement with a conveyor mechanism, the entire main body portion tapering upwardly and inwardly on all sides and said container being formed with two pairs of opposed flats each representing a chordal segment of said generally oval shape and spaced about the peripheral surface of said horizontal cross section of largest dimensions in alternate series with arcuate segments of said generally oval shape, said pairs of flats being centered relative to the major and minor axis, respectively, of said horizontal cross section, said flats each lying in a respective substantially vertical plane, the planes of each flat of a respective pair being



parallel to each other, the planes of one pair being perpendicular to the planes of the other pair.

3,321,097
BOTTLE WITH TWO OR MORE SEPARATE COMPARTMENTS

Ida Solowey, P.O. Box 34, Fresh Meadows Station, Flushing, N.Y. 11365

Filed May 13, 1966, Ser. No. 549,914
3 Claims. (Cl. 215—6)

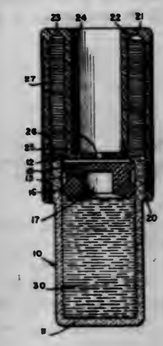


1. A container for keeping separated at least two portions of different ingredients, comprising an upper chamber, and at least one lower chamber, communication between said chambers being provided by an orifice intervening between the two said chambers, said orifice being formed by an annular rib projecting inwardly from the inside wall of the container, wherein said upper chamber has a neck portion of greater diameter than the said orifice, in combination with a hollow, concave stopper having a sealing surface at one end, and a handle at the opposite end thereof, wherein said sealing surface is of a smaller diameter than the neck portion, and of greater diameter than the orifice, said rib having an upwardly extending abutting surface adapted to coact with an intermediate portion of the concave surface of the said sealing surface of the stopper to prevent communication between the said chambers when the stopper is in a lower position in abutment with the said rib, and will permit communication between the said chambers when the said stopper is raised by the handle to an upper position; and wherein the said stopper is contoured in a streamlined fashion, flaring outwardly from its center to the terminal end thereof in a downward direction, the hollow concavity of the stopper being adjacent and in communication with the lower chamber, and presenting a streamlined upwardly converging surface within the upper chamber, whereby the stopper can be more easily moved from the lower to the upper position because of its streamlined contour.

3,321,098
VIAL

Robert W. Ogle, Phoenix, Ariz., assignor to Safti-Vial Corporation, Wilmington, Del., a corporation of Delaware

Filed June 29, 1965, Ser. No. 467,858
3 Claims. (Cl. 215—37)



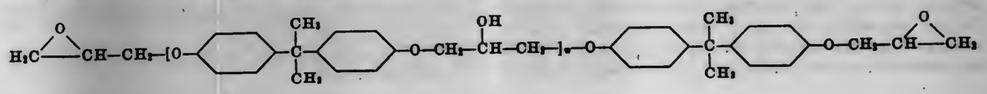
3. A single compartment medicament vial comprising a cylindrical container of substantially uniform diameter having a closed end and an open end, said container being adapted to contain an injectable medicament; a resilient stopper in said open end having ridges forming a sealing engagement with the inner walls of said container and a relatively thin portion adapted to be pierced by a syringe needle, the ridges on said stopper exerting a friction force against the inner walls of said container less than normal atmospheric force on the top of said stopper, said stopper being slidable downwardly in said container upon withdrawal of a portion of said medicament under the influence of normal vacuum; and said cylindrical container having male threads formed on its outer wall adjacent the open end thereof and a cap thereover having female threads engageable with said male threads and another portion engageable with said stopper to exert downward pressure on said stopper upon turning of said cap to thread said cap downwardly over said vial.

3,321,099
COMPOSITION FOR THE LAMINATION OF GLASS BY MEANS OF EPOXY RESINOUS MATERIALS

Robert L. Carlyle, Lake Jackson, Tex., and Wilbur E. Johnson, deceased, late of Lake Jackson, Tex., by Marjorie S. Johnson, independent executrix, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

Filed Feb. 4, 1963, Ser. No. 256,499
19 Claims. (Cl. 220—2.1)

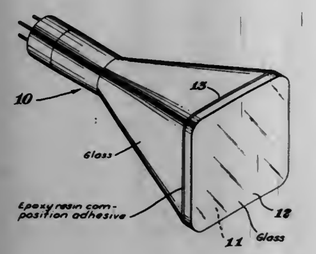
19. A laminated structure comprising the viewing surface of the cathode ray tube and a transparent glass safety cap, the cathode ray tube surface and safety cap being adhered to each other by a cured layer at least 30 mils thick of a composition comprising (a) from 15 to 45% by weight of an epoxy resin having an average molecular weight between 350 and 440 which resin is a bisphenol-A-epichlorohydrin reaction product having the general formula:



wherein w is an average value between .035 and 0.35 and said epoxy resin has an average epoxy equivalent weight of from 175 to 220, (b) from 20 to 85% by weight of a polyglycol ether of from 1000 to 3000 average molecular weight and having the general formula:

$$R[(OC_nH_{2n})_x(OC_2H_4)_y—OH]_m$$

wherein R is a polyvalent aliphatic hydrocarbon radical containing from 3 to 12 carbon atoms, x is a whole number from 1 to 17, y is an integer from 0 to 4, n is an integer from 3 to 4 and m is an integer from 3 to 8 and (c) from 5 to 15% by weight of a glycol of from

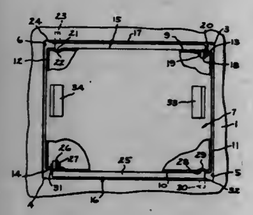


about 250 to 3000 molecular weight and having the formula:

$$H(OC_nH_{2n})_x(OC_2H_4)_y—OH$$

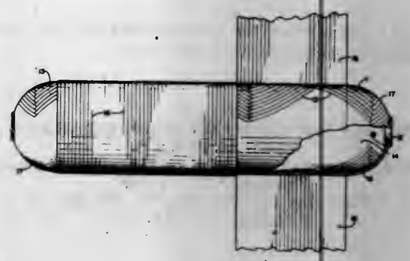
wherein x is an integer from 4 to 52, y is an integer from 0 to 13 and n is an integer from 2 to 4, and containing from 0.05 to 0.15% by weight of a boron trifluoride hardening catalyst and from 1 to 5% by weight of an aryl phosphite stabilizer based on the total of (a), (b) and (c).

3,321,100
REVERSIBLE OPENING DOOR
Daniel N. Toma, Louisville, Ky., assignor to General Electric Company, a corporation of New York
Filed Apr. 2, 1965, Ser. No. 444,995
5 Claims. (Cl. 220—34)



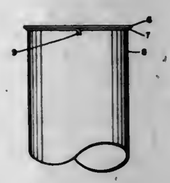
1. A support structure including a pair of spaced walls, a closure member receivable between said walls, a pair of elongated mounting members, each of said mounting members being reecived between one of said walls and a corresponding side of said closure member, said mounting members being rotatably connected to said closure member adjacent first diagonally opposite corners of said closure member, said mounting members including projections releasably received in detents provided adjacent second diagonally opposite corners of said closure member, and each of said mounting members being rotatably connected to a corresponding one of said walls at a position in alignment with its projection.

3,321,101
FILAMENT-WOUND HOLLOW CYLINDRICAL ARTICLES
James R. Griffith, Riverdale Heights, Md., assignor to the United States of America as represented by the Secretary of the Navy
Filed Aug. 13, 1964, Ser. No. 389,505
5 Claims. (Cl. 220—3)



1. A filament-wound hollow article having a curved wall formed substantially of fiber windings and an epoxide resin which is the fully cured reaction product of equivalent amounts of the diglycidyl ether in bisphenol A and meta-aminobenzylamine, said epoxide resin being coated on and bonding said fiber windings together.

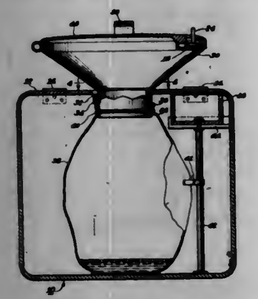
3,321,102
CONTAINER SEAL WITH INTEGRAL MEANS FOR UNSEALING
William H. Simmons, 7511 Glenheath, Houston, Tex. 77017
Filed Nov. 4, 1964, Ser. No. 409,034
3 Claims. (Cl. 220—47)



1. A sealed container comprising
a container having an open end,
a sealant strip wrapped around the outside of said container at said open end, said strip having a core of exothermic conducting wire embedded in a thermoplastic sealant material, said material having a fuzing point lower than the ignition point of said core, and
a lid positioned against said container at said open end and against said sealant strip,
said lid being adhesively sealed to said container by said sealant strip.

3,321,103
WASTE DISPOSAL DEVICE
Henry E. Phillips, 5415 W. Holsey St., Pine Bluff, Ark. 71601
Filed Apr. 27, 1965, Ser. No. 451,139
5 Claims. (Cl. 220—63)

1. A waste disposal device comprising a hollow chamber having a top lid with a first open position and a second closed position, said lid having a central orifice; a truncated cone open at both ends; a hollow cylinder secured to the smaller end of the cone and projecting downward therefrom, said cylinder being open at both ends, said cylinder being adapted for removable insertion in



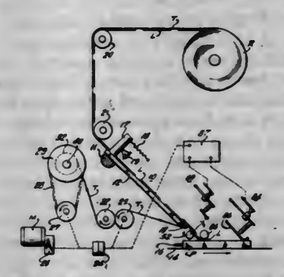
said orifice whereby when the cylinder is inserted in the orifice, the cone rests on top of said lid; and a circular plate secured to the top and larger end of said cone, said plate having a first open position and a second closed position.

3,321,104
COIN FED LID
Bryant Edwards, Clarendon Hills, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill., a corporation of Delaware
Filed July 28, 1965, Ser. No. 475,485
7 Claims. (Cl. 220—97)



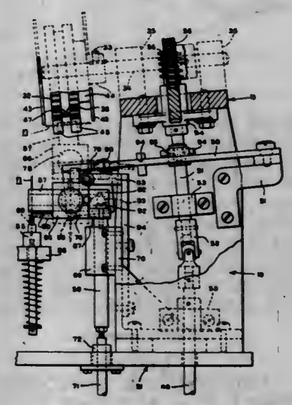
1. A stackable non-nesting one-piece thermoplastic closure comprising, a covering wall for the open mouth of a complementary container, a depending skirt portion extending downwardly from the periphery of said covering wall and terminating at its lower end in a stacking abutment adapted to support said closure in stacked relationship upon the covering wall of a similarly configured closure, and circumferentially extending groove means disposed radially inwardly of said depending skirt portion with the bottom wall surface thereof generally aligned with said stacking abutment, the internal dimension of said groove means in the vicinity of the plane of said covering wall being less than the external dimension of said groove means in the area of its bottom wall to present a restricted throat at the upper end of said groove means smaller than said bottom wall surface, and the distance between said stacking abutment and the bottom wall surface in said groove means being less than the upper wall surface of said covering wall intermediate said depending skirt portion and said groove means to present a second restricted throat between said stacking abutment and bottom wall surface which is smaller than said upper wall surface whereby to permit sliding removal of adjacent stacked closures from each other without tilting thereof.

3,321,105
LABEL DISPENSER
Herbert W. Marano, Summit, N.J., assignor to Flinchbaugh Products, Inc., Red Lion, Pa., a corporation of Pennsylvania
Filed Feb. 4, 1964, Ser. No. 342,349
15 Claims. (Cl. 221—22)



1. An apparatus for dispensing pressure-sensitive labels from a band carrying said labels comprising a guide arm having a transversely extending leading separating edge, intermittently motivated means for longitudinally advancing a label carrying band in a predetermined path along said arm and around said separating edge to sepa- separating edge, means including a rotatable switch for controlling said band advancing means, and a switch-motivating label-sensing element disposed proximate to and forwardly of said leading separating edge for engaging a pressure sensitive surface of a leading label forward of said separating edge for rotation of said element with the advance of said leading label.

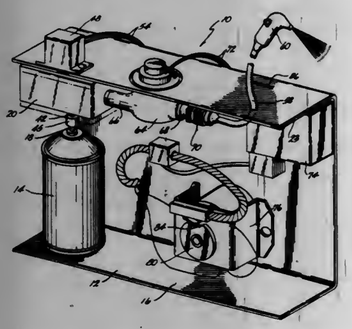
3,321,106
APPARATUS FOR FEEDING HYPODERMIC NEEDLES
Walter A. Shields, Jamaica, N.Y. (38—09 24th St., Long Island City, N.Y. 11101)
Filed Sept. 7, 1965, Ser. No. 485,507
10 Claims. (Cl. 221—210)



1. In apparatus for feeding hypodermic needles, a hopper having a discharge opening, a feeding wheel rotatably mounted with the periphery of the wheel traveling past said discharge opening and said periphery arranged to successively receive and move the needles from the hopper in a substantially horizontal position, guides extended

around the wheel to retain the needles in said substantially horizontal position on the periphery of the wheel and arranged with an exit, transferring means reciprocally mounted to move toward and away from the exit and rotatably mounted on an axis extending transversely of the reciprocal movement and arranged to receive a needle in a horizontal position from the exit, and means to rotate the transferring means during the reciprocal movement of said transferring means and transfer said needle from the exit in an arcuate path to a vertical position, wherein the transferring means includes a pair of clamping jaws, the first jaw being pivotally supported by the second jaw to have movement toward and away from the second jaw and yieldingly urged toward said second jaw, a lever pivotally mounted at one end on an axis extending substantially parallel to the reciprocal movements of the jaws and the opposite end of the lever arranged to engage and pivot the first jaw from the second jaw in all of the reciprocal positions of the jaws and yieldingly urged from the first jaw, and means to intermittently actuate said lever and move the opposite end of the lever into engagement with the first jaw to open said jaws at the termini of the reciprocal movements of the jaws.

3,321,107
DISPENSING DEVICE
Charles T. Govin, Wauwatosa, and Erhardt C. Koerper, Delafield, Wis., assignors to Koerper Engineering Associates, Inc., Milwaukee, Wis., a corporation of Wisconsin
Filed Aug. 19, 1965, Ser. No. 480,971
10 Claims. (Cl. 222—2)



7. A device for dispensing an agent contained in a liquified gas propellant stored in a container, said device comprising means defining a measuring chamber, normally closed first valve means controlling flow to said measuring chamber, a dispensing hose, normally closed second valve means communicating between said measuring chamber and said dispensing hose, and means for sequentially opening said first and second valve means to respectively afford filling of said measuring chamber and discharge of the contents of said measuring chamber.

3,321,108
PRINTING INK DISPENSER
William E. Bowe, 4510 Green Tree Drive, Sacramento, Calif. 95823
Filed Nov. 26, 1965, Ser. No. 509,826
3 Claims. (Cl. 222—49)

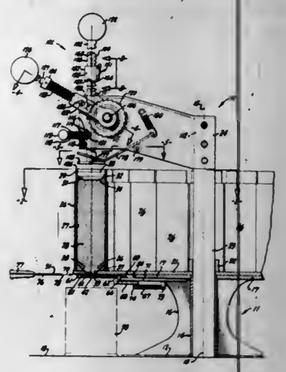
1. A printing ink dispenser comprising:

a. a frame including a horizontal base plate and a vertical post;

b. a vertical plunger translatably mounted on said post;

c. a turntable rotatably mounted on said base plate, said turntable including a plurality of openings around the turntable periphery and having mounted thereon, below each of said openings, means for selectively covering and uncovering said openings, said means comprising,

(1) a spring-biased cut-off plate slidably mounted on said turntable for movement between a first location covering said opening and a second location removed therefrom, and,

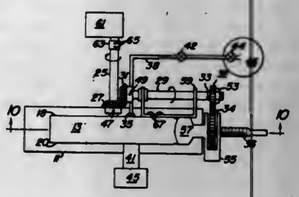


(2) a blade having an orifice substantially equal in area to the area of said opening, said orifice being disposed in substantial registry with said opening as said blade is urged against said cut-off plate and biases said cut-off plate from said first location to said second location;

d. a plurality of vertical collars mounted around the periphery of said turntable, each of said collars having a diameter sufficient to receive a tube containing printing ink, each of the tubes having an outlet on the lower end in registry with a corresponding one of said openings; and,

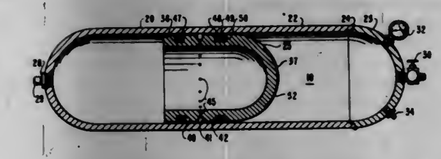
e. means for translating said plunger between a first position removed from a subjacent one of said ink tubes and a second position wherein said plunger enters said tube and ejects the printing ink therefrom through a registering one of said openings and through said orifice as said cut-off plate is biased to said second location.

3,321,109
DISSEMINATOR INCLUDING A ROTATABLE METERING WHEEL WITH FLUID EJECTOR MEANS
James M. Beebe, Frederick, Md., assignor to the United States of America as represented by the Secretary of the Army
Filed June 28, 1966, Ser. No. 562,432
5 Claims. (Cl. 22—194)



1. An aerosol producing apparatus comprising a housing having a cylindrical hollow section and a top section, a partially threaded passageway protruding from the surface of the top section and communicating with cylindrical hollow section, a main shaft extending through the housing, means engaging the shaft, a metering wheel rotatably mounted in said cylindrical hollow section and fixed on the main shaft, gas intake means positioned near the top portion of the housing and adjacent to the rim of the metering wheel, exhaust means positioned directly opposite the gas intake means, a bevel gear positioned circumferentially on the main shaft, a second bevel gear positioned immediately adjacent thereto so that the working surfaces of the toothed wheel of the bevel gears are inclined to intersecting axis, the second bevel gear being fixed to one end of a piston drive shaft, which is positioned in a direction transverse to the main shaft, a spur gear fixed to other end of a piston drive shaft, said spur gear externally contacting a second spur gear, the working surfaces of the pair of spur gears being inclined to parallel axis, said second spur gear adapted to receive the threaded portion of an elongated screw at the center position thereof, the threaded section of said elongated screw being compatible with the partially threaded passageway of the housing, a cylindrical cap fixed to the end of the elongated screw protruding into the threaded passageway.

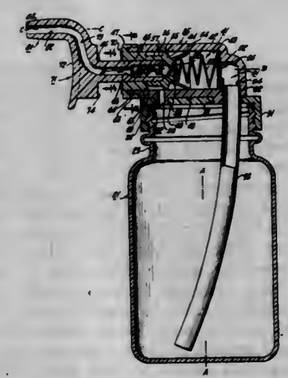
3,321,110
LIQUID SPRAYER
James C. Price, 733 S. Taylor Ave., Montebello, Calif. 90640
Filed May 14, 1965, Ser. No. 455,803
7 Claims. (Cl. 222—389)



1. A high pressure airless liquid sprayer system comprising a hollow generally cylindrical tank having generally hemispherical hollow end portions and a substantially smooth inner surface of like configuration; a free floating piston inside the tank, and having a hollow cylindrical skirt portion and a hemispherical end portion facing a first interior end of the tank and closely conforming in size and configuration thereto, the skirt portion including circumferentially spaced grooves, at least one of said grooves providing communication to the interior of said piston; means seated within the remaining grooves of the piston including a groove nearer said first end of the tank than said communicating groove, for engaging the inner surface of the cylindrical tank; means comprising a pressurizing gas which includes a lubricating oil disposed in the second interior end of the tank and in the interior of said piston; a liquid medium to be sprayed disposed in the first interior end of the tank; and spray means coupled into and communicating with the first interior end of the tank.

3,321,111
PISTOL GRIP PUMP-TYPE DISPENSER
George Jellinek, Plainfield, N.J., assignor to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey
Filed Dec. 28, 1965, Ser. No. 516,933
4 Claims. (Cl. 222—321)

1. In a manually-operated pistol-grip, pump-type dispenser for dispensing liquid from a substantially cylindrical, open-top container, the pump (a) being affixed to and positioned just above a closure for the container, (b) having a cylindrical pump chamber, the axis of which is substantially at right angles to the longitudinal axis of the container, (c) having a cylindrical piston within the pump chamber and (d) having a tubular reciprocating piston rod at the axis of the pump chamber and piston through which the liquid being pumped from the container flows to the discharge nozzle when the piston rod, and the piston connected thereto, are manually moved from their extended, forward position (to which they are biased by a spring) to their depressed, operated, rearward position, the pump (e) also having a discharge valve within the piston for releasing the liquid in the chamber of the pump into the bore of the piston rod when the rod and piston are moved from their extended, forward position to their depressed, operated, rearward position, and (f) having an intake valve controlling the flow of liquid between a dip tube extending down into the container and the pump cylinder, and with the dispenser having a member (i) secured to the piston rod externally of the pump cylinder, (ii) with one part of such member serving as a discharge nozzle and having its axis of discharge oriented substantially parallel to the longitudinal axis of the pump chamber and piston rod but displaced above such axis when the dispenser is in condition for operation, (iii) with another part of such member serving as a finger pressure area so that pressure upon such area moves the piston from its extended, state-of-



rest, forward position to its depressed, operated, rearward position and (iv) with a passageway connecting the piston rod with the discharge nozzle so that liquid flows from the exterior end of the piston rod up to the discharge nozzle when the piston is moved from its extended, state-of-rest, forward position to its depressed, operated rearward position, the improvement in said dispenser in which:

(A) the chamber in which the pump piston reciprocates is closed by a closure ring through which the piston rod passes and extends forwardly therefrom;

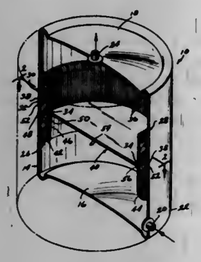
(B) the piston rod has at least one lug extending radially beyond the exterior surface of the rod, the position of the lug axially on the piston rod being such that it is just inside an adjacent inner wall of the closure ring when the piston rod and piston are in their depressed, operated, rearward position; and

(C) the closure ring has a longitudinal slot for each such lug, each lug moving in its corresponding slot when the piston rod and piston reciprocate between their extended, forward position and their depressed, operated, rearward position;

whereby, when the piston rod and piston are in their depressed, operated, rearward position, they may be rotated about their longitudinal axis, by rotating the member having the finger pressure area, to position each

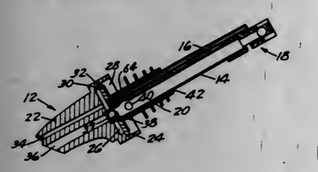
lug behind a part of the adjacent inner wall of the closure, ring that has no slot therein, and thereby lock the piston rod and piston in their depressed, operated, rearward position.

3,321,112
ROLLING CYLINDRICAL DIAPHRAGM MEANS
Patrick J. Cunningham, Fullerton, Daniel H. Platus, Playa Del Rey, Frank A. Marovich, Hacienda Heights, and George Epstein, Los Angeles, Calif., assignors to ARA, Inc. (Aerospace Research Associates), West Covina, Calif., a corporation of California
Filed Oct. 18, 1965, Ser. No. 497,134
10 Claims. (Cl. 222—386.5)



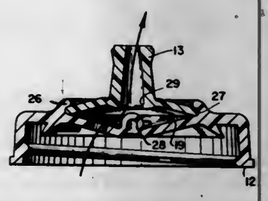
1. In combination: means defining a substantially rigid hollow first cylinder and rolling diaphragm means within said hollow cylinder intermediate the ends thereof, said rolling diaphragm means comprising; a second cylinder of thin sheet metal having one end thereof sealingly secured to the inner face of said first cylinder, said second cylinder being corrugated throughout its periphery with the corrugations extending axially substantially from end to end thereof, a first end portion of said second cylinder adjacent said one end lying against the wall of said first cylinder and extending axially therealong in one axial direction then being reversely folded inwardly to extend in the opposite axial direction in inwardly spaced relation to said first end portion; and closure means closing the other end of said second cylinder whereby said closure means may be moved axially of said first cylinder and thereby roll the folded portion of said second cylinder along the inner face of said first cylinder.

3,321,113
ADJUSTABLE CONTROLLED VOLUME LIQUID POURING DEVICE
Charles R. Conry, Joliet, Ill.
(468 Wabasha, St. Paul, Minn. 55101)
Filed Dec. 7, 1965, Ser. No. 512,601
7 Claims. (Cl. 222—477)



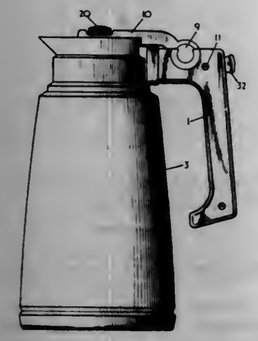
1. A measuring pourer for dispensing liquid from a bottle in a predetermined quantity for each pouring operation, said pourer comprising a pourer body having vent and pouring passages therethrough, vent and pouring tubes depending from said pourer and respectively communicating with said vent and pouring passages, a first ball slidably disposed in said pouring tube and a first valve seat at the upper end of said tube against which said first ball is adapted to seat to prevent further passage of liquid from said pourer while said pourer is in tilted pouring position, the lower end of said pouring tube being substantially open to permit unrestricted free-flow of unpoured liquid from said pouring tube upon returning the pourer to an upright non-pouring position, said pouring tube having at least one liquid entrance opening in the wall thereof said entrance opening being above the lower end portion of said pouring tube and means for controlling the amount of liquid to flow from said pourer during each pouring operation comprising a liquid control opening through the wall of said pouring tube adjacent the lower end thereof, stop means for said first ball above said control opening and a second valve seat at the lower end of said pouring tube below said liquid control opening, and a ball cage mounted on the lower end of said pouring tube in which a second ball is loosely confined and which maintains the said lower end of said tube substantially open when said pourer is in an upright non-pouring position, said second ball seating against said second valve seat as said pourer is tilted to pouring position to close off said lower end of said pouring tube and leave only said control opening in said tube in communication with the exterior of said first ball and the lower end of said pouring tube when said pourer is tilted to pouring position.

3,321,114
POP-UP DIAPHRAGM CLOSURE
Jack V. Croyle, Woonsocket, R.I., assignor to Rexall Drug and Chemical Company, Los Angeles, Calif., a corporation of Delaware
Filed Mar. 4, 1966, Ser. No. 531,824
2 Claims. (Cl. 222—499)



1. A two-piece fluid dispensing closure for a container comprising: a fixed part having means for fluid sealing attachment to said container and a movable part operable with said fixed part to open dispensing and closed sealing positions therewith, said fixed part having a valve seat, attachment means adjacent to said valve seat for positioning said movable part in operable association therewith, said valve seat being in communication with the interior of said container and having a valve opening, said movable part having a closure flange positioned above said valve opening and a dispensing opening offset from said valve opening, said closure flange snappable between a first stable position of sealing contact with said valve seat in said closed sealing position and a second stable position in spaced relation to said valve seat in said open dispensing position, and wherein peripheral portions of said closure flange contact said fixed part attachment means and are held thereby in fixed lateral relation with said valve seat and wherein buckle type hinge means are employed, said buckle hinge means permitting longitudinal movement stress upon said movable part in all positions thereof except said stable closed sealing and open dispensing positions, said hinge means comprises a substantially continuous grooved portion within said closure flange adjacent to and surrounding said dispensing opening.

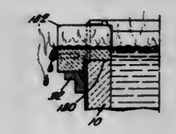
3,321,115
OPERATING MEMBER FOR A STOPPER FOR CLOSING VACUUM FLASKS AND SIMILAR CONTAINERS
Sten Rendahl, Jonkoping, Sweden, assignor to Aktiebolaget Termoverken, Jonkoping, Sweden, a company of Sweden
Filed July 20, 1965, Ser. No. 473,293
Claims priority, application Sweden, July 24, 1964, 8,999/64
1 Claim. (Cl. 222—505)



In an operating arrangement for a stopper for closing vacuum and other containers, said stopper being fixed on a closure arm that is carried on the container so as to be tiltable upwardly about a tilt bearing, the improvement consisting in an operating member which is carried tiltably about a pivot bearing disposed adjacent to the tilt bearing, the bearing part of the said closure arm being equipped with a surface element concentric with the tilt bearing, which element is adapted to engage, in the open position of the operating member, in a corresponding concave recess in the bearing part of the operating member; further, that the bearing part of the operating member is provided, above, with a surface element concentric with the pivot bearing, for engagement, in the locking position of the stopper, in a corresponding concave recess in the bearing part of the closure arm, so as thereby to lock the said closure arm; and furthermore that the bearing part of the operating member has a lift projection disposed underneath the recess, which is adapted to engage, on the tilting of the operating member out of the locking position towards the open position, an opening projection disposed in the path of the lift projection on the bearing part of the closure arm and to tilt the closure arm upwardly, together with the stopper.

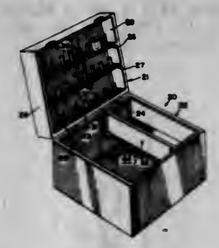
3,321,116
DISPENSING LADLE WITH REMOVABLE FRANGIBLE DRAIN TROUGH
Gordy E. Loftin, Lebanon, Pa., assignor to Lebanon Steel Foundry, Lebanon, Pa., a corporation of Pennsylvania
Filed Apr. 28, 1964, Ser. No. 363,184
2 Claims. (Cl. 222—564)

1. A dispensing ladle for molten metal comprising a receptacle having a main chamber for molten metal and adapted to receive a cover having a sealing surface detachably securable in position over the top of the main chamber to provide a gas pressurized seal therebetween during dispensing of molten metal from the ladle, said receptacle comprising a dispensing outlet for said molten metal, a conduit for molten metal communicating at one of its ends with said outlet and at its other end with said storage chamber below the top thereof and extending upwardly from said other end to said one end thereof, a drain outlet in a side wall of said main chamber, an outwardly extending flange on said side wall of said main chamber below said drain outlet for providing a surface for receiving the sealing surface of the pressurized cover for said chamber and a removable trough made of a



frangible material on the outside of said main chamber contiguous to said drain outlet for conducting away from said side wall the portion of said liquid removed by way of said drain outlet, said trough extending outwardly from said side wall beyond the outer edge of said flange to protect said flange from said removed liquid.

3,321,117
SEWING BOX
Daniel G. Hedin, 141 Ingraham St. NE., Washington, D.C. 20011
Filed Apr. 27, 1965, Ser. No. 451,217
1 Claim. (Cl. 223—107)



A sewing box comprising rectangular main box portion, a rectangular cover pivotally mounted to said main box, a plurality of rigid plates secured in said cover, a row of rigid pins mounted on each of said plates and on one wall of said cover, the rows of said pins being parallel to one another and parallel to the top of said cover, said pins being recessed within said cover and adapted to receive and carry spools of thread by sliding the spools over the pins, said main box having a narrow box of reduced width and height with respect to said main box, and with its ends abutting the front and rear walls of said main box, L-shaped projecting ridges mounted to said front and rear walls of said main box adjacent the upper edge, said narrow box adapted to be slidably filled with said L-shaped ridges, with one side of said narrow box flush with one side wall of said main box.

3,321,118
GUN HOLSTER
Henry F. Neusel, 5419 Hipp Ave., Dearborn Heights, Mich. 48127
Filed Dec. 13, 1965, Ser. No. 513,341
6 Claims. (Cl. 224—1)

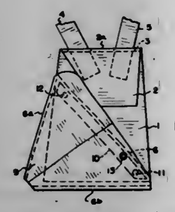
1. A gun holster to receive the butt end of a gunstock, and comprising,

an inner, substantially vertical wall having its upper end portion formed as a flap, and return bent to abut said inner wall,

means to secure said flap to said inner wall to form a suspension loop,

an outer wall, spaced from and approximately parallel to said inner wall and having

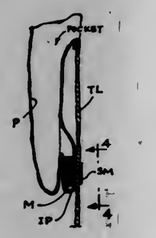
a lower end portion bent inwardly and upwardly to abut said inner wall, and said outer wall having an upper end portion bent inwardly and downwardly to abut said inner wall;



said lower end portion and said upper end portion of said outer wall being continuous with said outer wall to form an open mouthed receptacle for the butt end of a gunstock,

means to secure said last mentioned end portions to said inner wall.

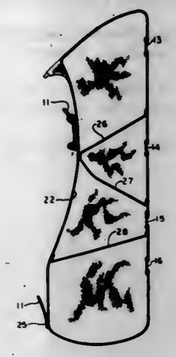
3,321,119
GOLF EQUIPMENT
Maurice J. D'Andrea, 9101 S. Bell, Chicago, Ill. 60620
Filed Apr. 11, 1966, Ser. No. 541,709
2 Claims. (Cl. 224—5)



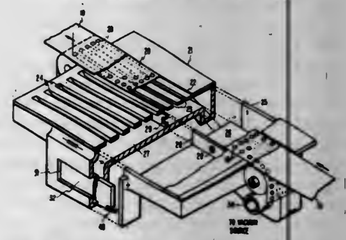
1. In a golfing garment including a pocket which will be adjacent the thigh of the player, a magnet disposed in said pocket, and a ball position marker possessing ferromagnetic properties located on the exterior of the garment at the level of the magnet in the pocket and which is held in place by the magnetic field of the magnet, the level of the location for the marker being substantially at fingertip level in the normal attitude of the arm, whereby the marker is readily available on the outside of the pocket.

3,321,120
NON-SAGGING PACK
Gerald A. Cunningham, Boulder, Colo., assignor to Colorado Outdoor Sports Corporation, Boulder, Colo., a corporation of Colorado
Filed Apr. 28, 1966, Ser. No. 545,928
5 Claims. (Cl. 224—8)

1. A compartmented pack for carrying loads on the back comprising a fabric enclosure having front and rear walls connecting side and end walls, means including a plurality of partitions for dividing the interior of the pack into a plurality of compartments extending across the pack between the side walls thereof, said partitions being securely attached to said front and rear walls and one of said partitions located centrally of said enclosure sloping downwardly and rearwardly from said front wall toward said rear wall and constituting a tension member for effectively maintaining the position of loads located in said enclosure below said one partition.



3,321,121
FEEDING APPARATUS FOR MULTI-WIDTH TAPES
Marvin E. Nyberg and Delbert D. Towne, Rochester, Minn., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Oct. 22, 1965, Ser. No. 501,356
6 Claims. (Cl. 226—95)



5. Tape feeding apparatus comprising:

a vacuum chamber provided with a partition having a series of longitudinally spaced orifices dividing said chamber into first and second sections, a top plate provided with a series of openings overlying both said first and second sections, said first section being connected to a vacuum source;

a perforated drive belt disposed to overlie said openings in said top plate disposed above said first section;

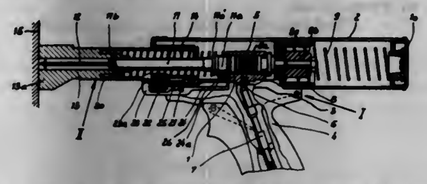
means for controlling the vacuum force in said second section according to the amount of vacuum force in said second section; and

means for driving said belt with the tapes to be fed forced thereagainst by the vacuum force in said first section and tapes wider than said belt are held flat by the vacuum force in said second section.

3,321,122
STUD DRIVER
Hans-Dieter Seghezzi, Vaduz, Liechtenstein, and Herbert Rangger, Vorarlberg, Austria, assignors to Anstalt für Montage-Technik, Vaduz, Liechtenstein
Filed Aug. 26, 1965, Ser. No. 482,736
Claims priority, application Germany, Sept. 3, 1964, A 47,000
9 Claims. (Cl. 227—10)

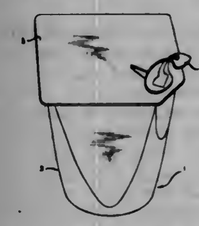
1. In a gas-operated stud driving tool having a supporting member, a barrel for receiving a stud to be driven telescopically mounted on said supporting member and

adapted to be telescoped thereon to a firing position, a thrust piston extending into said barrel to drive a stud therein and adapted to be moved to a firing position and firing means on said supporting member to drive said thrust piston when said piston and said barrel are in their



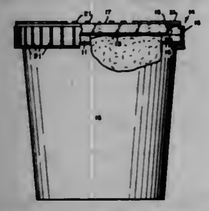
firing positions, the improvement which comprises interlocking means between said barrel and said supporting member to lock said barrel in said firing position, and actuating means adapted to actuate said interlocking means by the movement of said piston to its firing position.

3,321,123
HEAT SEALED PULL TAB
Stafford Denzil Collie, Orangeburg, N.Y., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Nov. 2, 1964, Ser. No. 408,281
2 Claims. (Cl. 229—7)



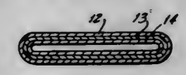
1. The combination with a sealed container having at least a lid consisting of thermoplastic material, of a pull tab detachable container opening member, also consisting of thermoplastic material, said member being attached to a portion of the top surface of said lid, said portion having been sufficiently structurally weakened to produce an opening in the lid when the tab is removed therefrom.

3,321,124
CONTAINER LID
Herbert M. Bank, Baltimore, Md., assignor to Maryland Cup Corporation, Owings Mills, Md., a corporation of Maryland
Filed Dec. 29, 1964, Ser. No. 421,851
7 Claims. (Cl. 229—43)



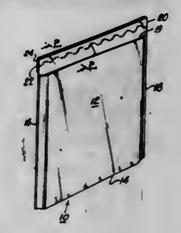
1. A lid comprising a panel adapted to conform generally to the shape of a container opening to be closed, said panel having a radial extension in the general cross-sectional shape of an inverted U, providing an inner wall encircling the panel adjacent to its periphery and an outer wall spaced from and encircling the inner wall, a top interconnecting wall, and ribs below the top interconnecting wall bridging the space between the inner and outer walls, the bottom of the inner wall being joined to the periphery of the panel, said inner wall extending upwardly and outwardly to the top interconnecting wall.

3,321,125
HEAVY DUTY 3-LAYER THERMOPLASTIC SHIPPING BAG
John Joseph Quackenbush, Monroe, and Herbert Oliver Corbett, Bridgeport, Conn., assignors to National Distillers and Chemical Corporation, New York, N.Y., a corporation of Virginia
Filed Jan. 3, 1966, Ser. No. 518,284
6 Claims. (Cl. 229—55)



1. A bag of multilayer thermoplastic material and comprising opposing front and rear panels defining closed bottom and side portions and an open end; said multilayer material comprising an inner layer of a high density copolymer, a central layer of low density and low stiffness polyethylene and an outer layer of polypropylene and a low stiffness vinyl acetate copolymer.

3,321,126
RECLOSEABLE CONTAINER
Samuel J. Rivnay, White Plains, N.Y., and Henry Alan Carysforth, Wyckoff, N.J., assignors to Gulf Oil Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Sept. 7, 1965, Ser. No. 485,262
5 Claims. (Cl. 229—65)

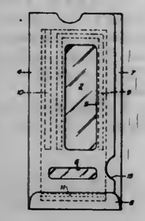


5. An easily-reclosable container made of flexible plastic material, said container including a pair of opposed side walls, said side walls being joined together at their edges to form a polyethylene bag with an opening with an edge of each of said side wall adjacent said opening, one of said edges of one of said side walls extending outwardly from said container to form a flap at said opening, a plastic-encapsulated corrugated wire secured to said flap and extending transversely across said container at said opening, the plastic encapsulating said wire forming a laterally-extending support platform for said wire.

3,321,127
POLICY JACKET TYPE ENVELOPE
Thomas D. Miller, Louisville, Ky., assignor to Double Envelope Corporation, Roanoke, Va., a corporation of Virginia
Filed Dec. 21, 1964, Ser. No. 420,063
4 Claims. (Cl. 229—71)

1. An envelope having a back panel and a front panel having a window, a sheet of substantially transparent material lying between said back panel and said front panel and adhesively secured to said front panel along at least two sides of and coextensive with the length of said window, said sheet of transpartent material extending a substantial distance in one direction beyond the adhesive se-

curement adjacent said window to provide an end of said transparent material extending to a position remote from said window, the said end remote from said window being also adhesively secured at its extremity to said front panel



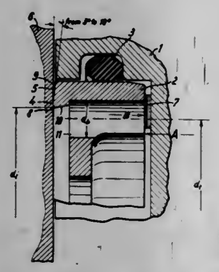
remote from said window to provide a pocket between said front panel and said transparent material remote from said window, said pocket being open along an edge of said front panel.

3,321,128

CIRCULAR PISTON MACHINE

Eberhard Fezer, Essen-Bredeney, and Oskar Simon, Essen, Germany, assignors to Beteiligungs- und Patentverwaltungsgesellschaft mit beschrankter Haftung, Essen, Germany

Filed Dec. 16, 1965, Ser. No. 514,317
Claims priority, application Germany, Dec. 19, 1964, B 79,811
8 Claims. (Cl. 230—145)



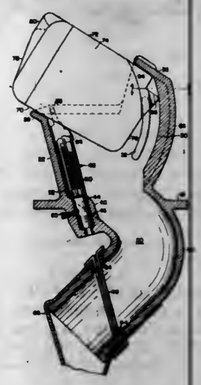
1. A circular piston machine, especially internal combustion engine having housing means including side wall means, an eccentric shaft rotatably supported by said housing means, and a multi-corner piston rotatably supported by said eccentric shaft, which comprises: annular oil-sealing means respectively arranged between said side wall means and the respective adjacent end faces of said piston and having one end face in sealing engagement with the respective adjacent end face of said piston, annular spring means interposed between each of said side wall means and the respective adjacent other end face of said sealing means while continuously urging said one end face of said sealing means into sealing engagement with the respective adjacent end face of said piston, said oil-sealing means being provided with a plurality of bores having their axes parallel to the longitudinal extension of said annular oil-sealing means, the position and the magnitude and the number of said bores being such that the inner edge of that portion of said one end face of said annular oil-sealing means at best touches the outer tangent on two adjacent bores.

3,321,129

COIN COLLECTION SYSTEM

William C. Hutton, Denton, Tex., Robert G. Donkin, Tulsa, Okla., Davies Allport, Denton, Tex., and William H. Shenkle, Pittsburgh, Pa., assignors to Rockwell Manufacturing Company, Pittsburgh, Pa., a corporation of Pennsylvania

Filed June 16, 1965, Ser. No. 464,390
6 Claims. (Cl. 232—16)



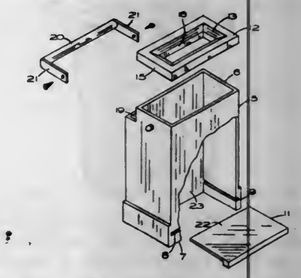
1. A coin collection system comprising a portable coin box having a coin discharge opening therein, a door pivotally mounted on said box for normally closing said opening to prevent removal of coins from said box, a lock for locking said door in closed position and a key receiving opening in said door, a hollow coin collecting member having a front wall against which said door is adapted to be disposed, side walls closely confining the side walls of said box and a rear wall, the spacing between said front and rear walls of said member being sufficient to permit said coin box to swing therin about its pivotal connection with said door; means within said member for unlocking said lock solely in response to the insertion of said coin box into said member and co-operating rib and groove formations on said coin box and said coin collecting member for preventing withdrawal of said coin box while said door is unlocked and said coin discharge opening is open, and a closed coin receiving container communicating with said recess.

3,321,130

PORTABLE REFUSE CONTAINER

John Cleghorn, Los Angeles, Calif., assignor of one-third to Roman A. Di Meo, Alhambra, Calif.

Filed Jan. 21, 1965, Ser. No. 426,839
3 Claims. (Cl. 232—43.2)



1. In a portable refuse container, the combination comprising: a vertical hollow body, said body being initially open at both its top and bottom; a base in disengageable

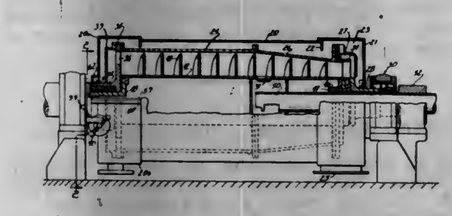
attachment with said body, said base restricting the bottom opening of said body; a removable chute funnel positioned on the top of said body, the axial dimension of said chute funnel being substantially less than the axial dimension of said body; a bag liner having an open end seated on said base, said open end adjacent, and receptive, said chute funnel; a bag storage compartment in integral association with said body; and a handle pivotally connected to said body wherein the dimension of the handle is such that the maximum radial arc thereof when the same is pivoted will position the handle over the opening of the bag storage compartment so as to form a cover therefor.

3,321,131

CENTRIFUGE

Horace F. Cook, Foxboro, Mass., assignor to Bird Machine Company, South Walpole, Mass., a corporation of Massachusetts

Filed Oct. 21, 1964, Ser. No. 405,406
10 Claims. (Cl. 233—7)



1. A centrifugal separator comprising a rotatable bowl for receiving a mixture of liquid and finely divided solid particles,

a solids discharge chamber adjacent one end of the bowl in communication with the interior thereof through a solids discharge opening,

inlet means communicating with said bowl for introducing said mixture into said bowl,

a rotatable conveyor mounted within the bowl coaxially therewith,

means coupled to said bowl and conveyer for rotating the bowl and conveyer at different speeds to cause the solid particles to move along the inner face of the bowl to the solids discharge chamber, while a layer of liquid is retained in the bowl radially adjacent and in contact with the moving solids,

at least one liquid discharge conduit having a skimming opening,

and means coupled to said discharge conduit and operable while the separator is running for adjusting said skimming opening through a range of radial positions including a position radially inwardly of the bowl wall and a position sufficiently far from the axis of rotation of said bowl to skim dry the entirety of said bowl while said separator is running, said bowl being so shaped and said conduit being so located along the axial extent thereof, that said conduit is adapted to so skim dry said bowl when said conduit is in said last mentioned position.

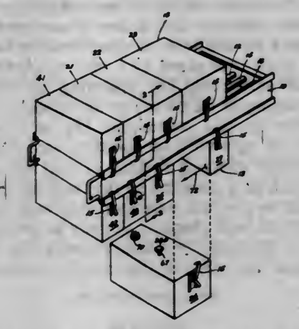
3,321,132

MODULAR AIR DATA COMPUTER

Donald F. Hastings, Mahwah, N.J., assignor to The Bendix Corporation, a corporation of Delaware

Filed Sept. 29, 1965, Ser. No. 491,142
7 Claims. (Cl. 235—1)

7. A mechanical interconnection for an air data computer comprising a frame, shafts rotatably mounted on said frame, a plurality of gears adjustably positioned longitudinally along each of said shafts and including means to fixedly attach said gears thereto, basic air flight variable condition responsive means including an output shaft and gear rotatable in accordance with an air flight condition sensed by the air flight variable condition responsive means, each air flight variable condition responsive means to operably rotate one of said shafts in response to a change in the sensed condition, a plurality of flight modules having uniform height and depth including shafts terminating in a bevel gear, said shafts and



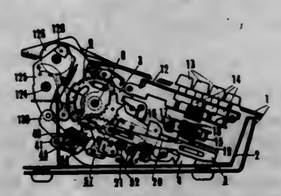
gears being rotated in accordance with the output shaft and gear of the air flight variable condition responsive means, said modules being operably connected on to said frame, the gears on the frame shafts and the modules being positioned with respect to each other so as to mesh, and fastening means for securing said modules on to said frame upon said modules being properly adjusted on said frame.

3,321,133

CALCULATING MACHINE

Makoto Okuda, Osaka, Japan, assignor to Maruzen Sewing Machine Co. Ltd., Osaka, Japan

Filed Mar. 29, 1965, Ser. No. 443,564
Claims priority, application Japan, Mar. 30, 1964, 39/17,869; Apr. 7, 1964, 39/19,623
8 Claims. (Cl. 235—60)



8. In a calculating machine having a frame and a plurality of rotatable type sectors each including a gear sector and means for operating each type sector, an accumulator assembly comprising a plurality of accumulator pinions and a plurality of subtracting pinions, means for rotatably supporting said assembly so as to effect selective engagement of said accumulator pinions or subtracting pinions with respective gear sectors to effect an adding or subtracting operation, a depressible subtracting key and a depressible repeating key arranged in spaced longitudinal alignment on said frame, means for releasably retaining said keys in depressed position, means responsive to the depressing of said subtracting key to effect rotation of said assembly so as to effect engagement of said subtracting pinions with said gear sectors thereby to effect an operation of subtraction, each of said keys having a depending stem having a lateral projection and being supported for vertical rockable movement, a V-shaped lever pivotally supported on said frame and having one leg thereof adapted to be engaged by the projection on said

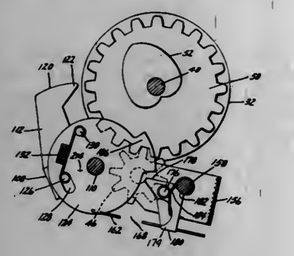
subtracting key stem, the other leg of said lever having a pin extending laterally thereof, a first operating bar pivotally mounted on said frame and having at its upper end a slot in which is received said pin and having a hook at its lower end, a second operating bar arranged in spaced parallel relationship to said first operating bar and having a camming surface at its upper end engageable with said projection on said repeating key stem, said first operating bar being locked to said second operating bar for pivotal movement therewith but being longitudinally moveable relative thereto, said subtracting key when depressed effecting a rocking of said lever in one direction to a position where the hook is engaged by a moving part of said machine which moves said first operating bar longitudinally to effect rocking of said lever in an opposite direction to effect release of said subtracting key to re-set said assembly for an operation of addition, said repeating key when depressed effecting rocking of said first and second operating bars in a direction so that said hook is disposed in a position to preclude engagement of said hook by said moving part of said machine thereby to retain said subtract key in depressed position whereby the mechanism is conditioned for repeating subtracting operations.

3,321,134
GEAR TRAIN RESETTING MECHANISM

Edward D. Sigl, Fort Wayne, Ind., assignor to Bowmar Instrument Corporation, Fort Wayne, Ind., a corporation of Indiana

Continuation of abandoned application Ser. No. 309,719, Sept. 18, 1963. This application June 4, 1965, Ser. No. 477,057

20 Claims. (Cl. 235—144)

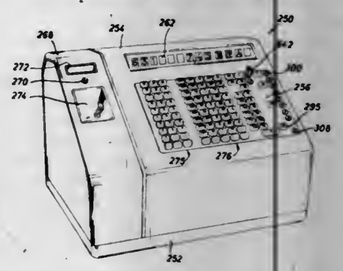


1. In a revolution counter of the reset type including a number wheel having a gear connected thereto and rotatable therewith and a pinion normally in mesh with said gear, mechanism for returning said number wheel to a predetermined rotational position from another position rotationally spaced therefrom, said mechanism comprising: first cam means connected to said number wheel and rotatable therewith, said first cam means having high and dwell portions and having a normal position when said number wheel is in said predetermined position; an operating member movable between said first and second positions, said operating member in said first position being out of engagement with said first cam means, said operating member being adapted to engage said first cam means when the same is rotated away from said normal position thereof and to move the same to said normal position thereof responsive to movement of said operating member from said first to said second positions thereof, said operating member in said second position thereof engaging said dwell portion of said first cam means; a member rotatably mounting said pinion and movable between a first position with said pinion in mesh with said gear and a second position with said pinion out of mesh with said gear; means for normally biasing said mounting member to said first portion thereof; selectively actuable means connected to said operating member for moving the same between said first and second positions thereof; second cam means on said actuable means and cooperating cam follower means on said mounting member, said second cam means and said cam follower means being proportioned and arranged to move said mounting member from said first position toward said second position thereof responsive to movement of said operating member toward said second position thereof with said pinion moving out of mesh with said first gear in advance of engagement of said operating member with said first cam means, said second cam means and cam follower means being proportioned and arranged to permit said mounting member to move to said first position thereof under the influence of said biasing means when said operating member reaches said second position thereof, said second cam means and cam follower means being proportioned and arranged to retain said mounting member in said first position thereof during movement of said operating member from said second position to said first position thereof whereby said pinion is moved into mesh with said gear prior to movement of said operating member out of engagement with said dwell portion of said first cam means.

3,321,135
KEYBOARD ASSEMBLY FOR ACCOUNTING MACHINE

Gosta R. Englund, Stockholm, and Mats E. Mattsson, Sollentuna, Sweden, assignors to Svenska Dataregister AB, Stockholm, Sweden, a corporation of Sweden

Original application Mar. 14, 1962, Ser. No. 179,595, now Patent No. 3,263,915, dated Aug. 2, 1966. Divided and this application Sept. 23, 1965, Ser. No. 489,472
Claims priority, application Sweden, Mar. 17, 1961, 2,839/61
19 Claims. (Cl. 235—145)

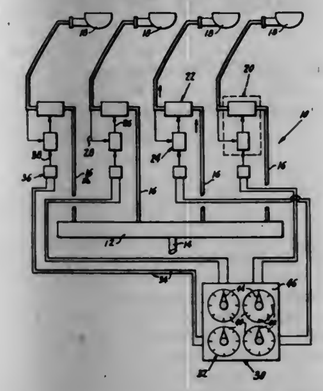


1. In an accounting machine, differential means operable to spaced settings, a bank of keys operable from normal positions to actuated positions to control the setting of said differential means, zero stop means controlled by said keys and operable between an ineffective position and an effective position in which the operation of said differential means is arrested, mode of operation means operable to a plurality of settings to condition said machine for different modes of operation, drive means for operating said machine through a cycle of operation, means operated by said drive means during one portion of each cycle of operation for controlling the movement of said zero stop means to an effective position, testing means operated by said drive means during a cycle of operation of said machine for detecting the setting of said mode of operation means, and means coupled to and controlled by the testing means and actuated by the drive means for selectively operating said zero stop means from an effective position to an ineffective position during different portions of a cycle of operation subsequent to said one portion in accordance with the setting of the mode of operation means detected by the testing means.

3,321,136
TEMPERATURE REGULATING PROCESS AND SYSTEM

Walter W. Trevillian and Roland J. Dotterweich, both of Baltimore, Md., assignors to B. H. Hubbert & Sons, Inc., a corporation of Maryland

Filed Apr. 25, 1966, Ser. No. 545,063
3 Claims. (Cl. 237—9)



1. In a system for controlling the temperature of heated fluid supplied from a main line to a plurality of individual units to thereby control the temperature at said individual units and to assure that such temperature remains substantially constant, the improvement comprising:

a separate flow line coupling each unit to said main line;

a main valve interposed in each separate flow line for controlling the flow of heated fluid therethrough;

said main valve including a movable valve member whose position determines the quantity of flow of said heated fluid through said main valve and hence controls the pressure of the heated fluid delivered from said main valve to its associated unit;

a regulating valve coupled to each main valve to regulate the position of said movable valve member;

said regulating valve including an axially elongated valve member and a pressure responsive diaphragm reacting against said axially elongated valve member to adjust the position thereof; and,

electro-mechanical adjustment means coupled with said regulating valve;

said electro-mechanical adjustment means including a linearly movable portion juxtaposed to said pressure responsive diaphragm on the side opposite to said axially elongated valve member;

said linearly movable portion reacting against said pressure responsive diaphragm and being axially aligned with said axially elongated valve member so that each incremental movement of said linearly movable portion causes a responsive movement of said axially elongated valve member by the same incremental amount;

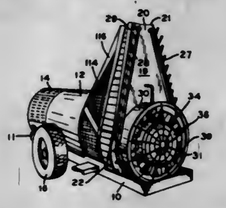
said electro-mechanical adjustment means further including dial means calibrated in temperature and variable transformer means whose power output is varied in accordance with the setting of said dial means;

said variable transformer means controlling the amount of movement of said linearly movable portion whereby an attendant can set said dial means on the temperature desired at said unit and such setting will cause said variable transformer to move said linearly movable portion a prescribed incremental distance and such movement of said linearly movable portion will move said axially elongated valve member by said prescribed incremental distance to thus regulate the position of said main valve movable member until the main valve adjusts the pressure of said heated fluid being delivered to said unit to an amount which will produce said desired temperature at said unit.

3,321,137
AGRICULTURAL SPRAYER

Thomas M. Carter, Glenside, Pa., assignor to Universal American Corporation, New York, N.Y., a corporation of Delaware

Filed Sept. 9, 1965, Ser. No. 486,172
7 Claims. (Cl. 239—78)



1. An air blast sprayer including a mobile unit, a tower carried thereon and formed from a pair of generally rectangular upright plates whose opposed vertical edges are spaced apart and form elongated air discharge areas, nozzles for directing jets of spray material into said areas, a blower section at the base of the tower comprising a shaft, means for generating a blast of air directed upwardly of the tower, a deflector assembly in the blower section including a transverse divider plate, a pair of oppositely curved volutes at the lower end of the plate, blades extending from the volutes and into the blower section, and lower and upper concavely curved deflector plates fixed on the divider plate for directing the air upwardly of the tower.

3,321,138
SPRINKLER CONTROL MEANS AND COMBINATION

Walter A. Curry, 1680 Fresno Ave., Oroville, Calif. 95965

Filed Sept. 16, 1965, Ser. No. 487,847
6 Claims. (Cl. 239—99)

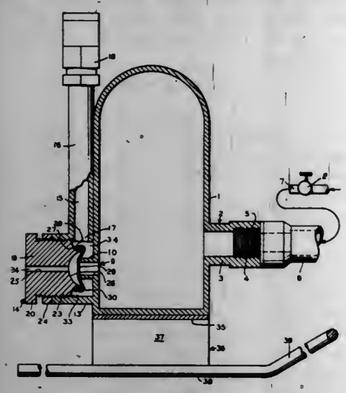
1. A liquid control system for effecting intermittent discharge of liquid from a conduit connected with a source of liquid under pressure, comprising:

(a) a conduit for liquid, having an inlet at one end for connection with said source and a discharge outlet at its other end for discharge of said liquid from said conduit;

(b) said conduit including an upwardly projecting enlarged portion between said inlet and said outlet for air and through the lower part of which said liquid is adapted to flow from said inlet to said outlet in unobstructed direct communication with the air in said enlarged portion thereabove, whereby said enlarged portion will provide an air dome for compression of air therein when said outlet is closed and during flow of liquid from said source into said enlarged portion;

(c) an elastic diaphragm supported under tension within said conduit at a point between said enlarged portion and said outlet for movement from a closed position closing said conduit at said point to flow of liquid in said conduit therepast to said outlet to an open position under the force of air compressed within said enlarged portion during flow of liquid

from said source into said enlarged chamber when said force exceeds the tension of said diaphragm for holding said diaphragm in said closed position;

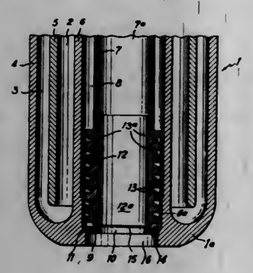


(d) diaphragm supporting-means supporting said diaphragm under said tension in said closed position for said movement to said open position.

3,321,139
APPARATUS FOR TREATING MOLTEN METALS

Lucien de Saint Martin, Saint-Germain-en-Laye, France, assignor to Institut de Recherches de la Siderurgie Francaise, Saint-Germain-en-Laye, France, a professional institution of France

Filed Nov. 17, 1964, Ser. No. 411,792
Claims priority, application France, Nov. 25, 1963, 954,884
10 Claims. (Cl. 239—132.3)

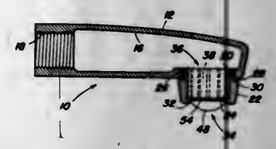


2. A lance for admitting fluids into steel furnaces and the like, said lance having a front end face and comprising a first fluid-conveying channel having a large discharge opening in said front end face of said lance of a diameter at least equal to the diameter of said first channel, a second fluid-conveying channel surrounding said first fluid-conveying channel, and an annular transverse gap communicating with said second channel and opening into said first channel and extending substantially normal to both said channels at a short distance inwardly of said large discharge opening of said first channel; and spinning means arranged for spinning fluid passing through said second channel so that such fluid is in circulatory motion when it enters said first channel through said annular transverse gap of said lance in a direction transverse to the flow of fluid through said first channel, so that said fluids are thoroughly mixed and will issue from said large discharge opening in divergent flow.

3,321,140
FLUID FLOW DEVICE INCLUDING A PARALLEL PASSAGEWAY FLOW STRAIGHTENER

Richard G. Parkison and Gilbert McMurtrie, Louisville, Ky., assignors to American Radiator & Standard Sanitary Corporation, New York, N.Y., a corporation of Delaware

Filed Nov. 18, 1964, Ser. No. 412,030
4 Claims. (Cl. 239—428.5)

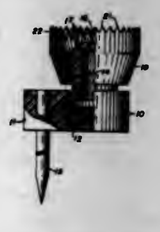


1. A filling spout for silently discharging liquid into a receptacle to fill the same comprising:
(a) means defining a relatively low velocity discharge nozzle discharging to a receptacle,
(b) means disposed in said nozzle to absorb the turbulence in a flow of liquid therethrough and to straighten and direct said liquid flow therethrough into one smooth stream at full flow motion,
(c) said latter means including a plurality of parallel passageways extending longitudinally of said nozzle,
(d) said passageways being radially disposed within the circumference of said nozzle,
(e) and a concavo-convex pervious means extending across the discharge end of said nozzle downstream of said passageways to insure a smooth, uninterrupted stream during low flow rates,
(f) said pervious means being concaved in the direction of liquid flow therethrough whereby the stream originates at the lowermost point of said pervious means upon the initiation of the liquid flow, and which stream merely becomes larger as flow is increased, said stream forming a clear symmetrical column extending between the spout end and the pool collecting in the receptacle so that the liquid falling in said column silently flows into said pool.

3,321,141
ADJUSTABLE LAWN SPRINKLER

Blaine B. Gemeny, 1009 W. 25th St., Apt. A, Austin, Tex. 78705

Filed Oct. 22, 1965, Ser. No. 500,502
3 Claims. (Cl. 239—515)



1. A lawn sprinkler comprised of a base, a threaded opening in said base, a cylindrical nozzle member on said base in communication with said threaded opening, the end of said nozzle member opposite said threaded opening being closed, outwardly and angularly disposed radial ports in said nozzle member around said closed end, a cup shaped collar threadedly mounted on said nozzle member, and teeth around the periphery of said cup shaped collar.

3,321,142
METHOD FOR THE PRODUCTION OF AN ABRASION-RESISTANT DISCOLORATION-FREE CAFFEINE GRANULATE

Helmut Krahnefeld, Radebeul, Germany, assignor to Veb Arzneimittelwerk Dresden, Radebeul, Germany

No Drawing. Filed Aug. 19, 1965, Ser. No. 481,113
7 Claims. (Cl. 241—16)

1. A method for the production of an abrasion-resistant discoloration-free caffeine granulate from caffeine, which comprises heating the caffeine above its melting point in the presence of a reducing agent which is chemically inert to caffeine, and subsequently grinding the caffeine product obtained, after cooling, to the desired grain size by mechanical means.

3,321,143
METHOD OF PRODUCING GRANULATED ALUMINUM

Vernon D. Claiborne, Leawood, Kans., assignor to U.S. By-Products Corporation, Kansas City, Mo., a corporation of Missouri

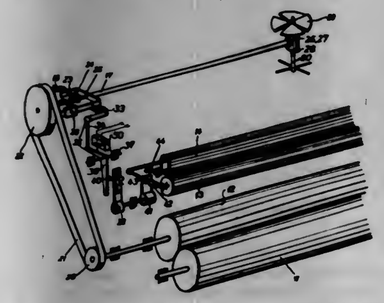
No Drawing. Filed Nov. 16, 1964, Ser. No. 411,612
7 Claims. (Cl. 241—23)

1. The method of producing granulated aluminum comprising the steps of:
drying aluminum bulk;
introducing the dried aluminum bulk into a first grinding mill;
pre-grinding said aluminum to a reduced particle size;
passing said reduced aluminum particles out of said first grinding mill;
transferring said reduced aluminum particles to a second grinding mill;
grinding said reduced aluminum particles to further reduce the size thereof; and
passing said further reduced aluminum particles out of said second grinding mill.

3,321,144
METERING AND CONTROL DEVICES FOR FEEDER APPLIANCES

Paul Eppenberger, Amriswil, Thurgau, Switzerland, assignor to Gebruder Buhler Oberuzwil, Switzerland, a company of Switzerland

Filed Jan. 6, 1964, Ser. No. 335,990
8 Claims. (Cl. 241—34)



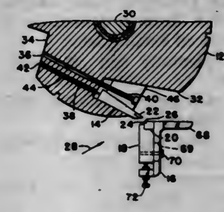
1. In combination with a hopper for flowable granular or pulverulent material and variable flow outlet valving means controlling flow of material from the hopper: a flow control device comprising, in combination, a rotatable vane in said hopper as a sensing device for the level of material in said hopper; a lever having one end supporting said rotatable vane; mounting means outside said hopper pivotally mounting said lever at a point thereon spaced from said one end; driving means for said rotatable vane operable to rotate the vane to work its way to the surface of the material in the hopper, whereby said lever is pivoted about its mounting means so that the angular position of said lever follows the level of material in said hopper; said driving means including a drive shaft connected to said rotatable vane and extending, in totally enclosed relation, to said rotatable vane from a point exteriorly of said hopper; and control elements operatively connected between said lever and said valving means and controlling the flow cross sectional area of said valving means in accordance with the level of material in said hopper.

8. A control as claimed in claim 1, including a treatment device downstream of said valving means and fed with material through said valving means, and a limit switch cooperating with said lever carrying said vane wheel, said limit switch being operated by said lever when the material in said hopper decreases to a predetermined level, and said limit switch, when operated, interrupting operation of said treatment device.

3,321,145
CARBIDE TIPPED CHIPPER

Raymond J. Gorman, Birmingham, Mich., assignor to H & G Tool Co., Warren, Mich., a corporation of Michigan

Filed Oct. 21, 1965, Ser. No. 499,746
13 Claims. (Cl. 241—189)

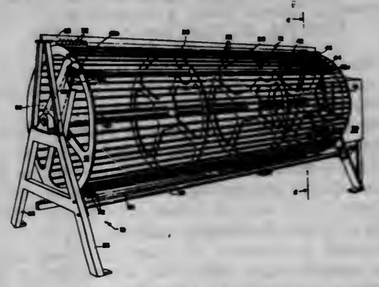


1. A chipper for chipping brush and the like, including a rotatable cylinder, a cutter blade secured to said cylinder for rotation therewith, a pressure bar assembly positioned adjacent said cylinder including a pressure bar having a carbide insert in the edge thereof and a cutter bar positioned adjacent said pressure bar whereby material positioned between the rotatable cylinder and pressure bar assembly is cut into chips on rotation of said cylinder.

3,321,146
FOOD PROCESSING APPARATUS AND PROCESS

Mark Hasten and John T. Haub, both of Minneapolis, Minn., assignors to General Mills, Inc., a corporation of Delaware

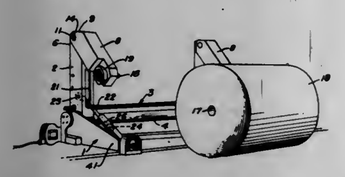
Filed Jan. 2, 1964, Ser. No. 335,223
12 Claims. (Cl. 242—47.13)



12. In an apparatus for handling an elongate material, said apparatus including a mounting structure, a material carrying reel having a lonigtudinal axis and mounted to

said structure for rotary motion generally about said axis, means for rotating said reel, the improved combination comprising a threading device which is mounted on said reel so that it is rotatable therewith, said threading device comprising a traverse piece which travels with said reel and describes a generally helical threading path as said reel rotates.

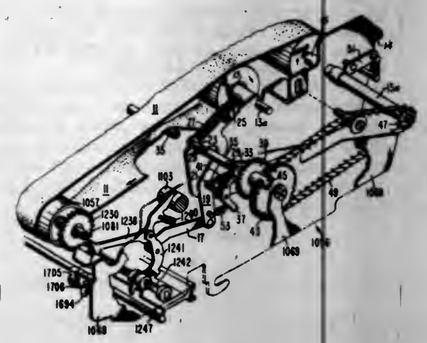
3,321,147
PICK-UP ROLL STAND
Merrill D. Martin, 2 Mall Court, Oakland, Calif. 94611
Filed Aug. 24, 1965, Ser. No. 482,121
4 Claims. (Cl. 242—58.6)



1. In a web roll stand,
(a) a generally U-shaped stand adapted to receive a web roll within the area defined by the stand,
(b) a pair of spaced loading arms,
(c) means to pivotally and adjustably support said loading arms,
(d) means to raise and lower said loading arms about a common fulcrum,
(e) means to adjust the spacing between said folding arms to accommodate a web roll,
(f) hydraulic control means for said raising and lowering and for said adjustment;
the improvements of:
(g) an extension arm pivoted on the end of each loading arm,
(h) power means connecting each loading arm to its extension arm for turning said extension arm into extended position and for folding said extension arm,
(i) engagement chucks on the extension arms for engaging the core of the web roll,
(j) means to control said power means for folding said extension arms thereby to roll a web roll engaged by said chucks into the area defined by said stand as the extension arms are folded and thereafter for lifting said web roll by the raising of said loading arms with the extension arms in folded attitude.

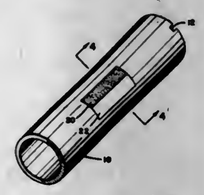
3,321,148
WEB TAKE-UP MECHANISM
Ronald H. Mack, Plymouth, Mich., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan
Filed Oct. 21, 1965, Ser. No. 499,885
10 Claims. (Cl. 242—67.2)

1. Drive means for controlling the amount of slack in the portion of a web lying between a web feeding station and a web rewind station comprising:
power means coupled to the web feeding and rewind stations and actuating the rewind station in unison with the feeding of the web from the feeding station,
rewind station pre-starting means coupling the power means to the rewind station prior to the feeding of the web from the feeding station,
differential feed means coupling the power means to the rewind station and urging that station to rewind more of the web than is being fed, and
disconnecting linkage means intercoupling the power means, the pre-starting means, the differential feed means and the rewind station and interrupting the power transmission from the power means to the



rewind station whenever the slack is reduced beyond a safe limit.

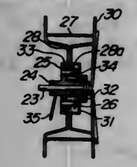
3,321,149
CHART ROLL SPINDLE
Peter M. Andersen and Frits Kuyt, Rochester, N.Y., assignors to Bausch & Lomb Incorporated, Rochester, N.Y., a corporation of New York
Filed Mar. 24, 1966, Ser. No. 537,082
3 Claims. (Cl. 242—74)



1. A chart roll spindle for a drum-type chart playout and take-up chart drive comprising
a cylindrical spindle tube having means for connection to a rotary drive means, said spindle tube having disposed on an outer surface means for adhesively attaching a first chart including a thin layer of tacky adhesive material, and a thin removable non-adhesive layer overlying portions of the adhesive material, whereby a first chart may be held adhesively to the spindle tube during playout of the chart and a second chart may be attached to the spindle tube during take-up by removing the non-adhesive layer and securing the chart to the spindle tube by light pressure.

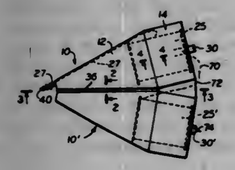
3,321,150
HANK SWIFT
Harumi Hosotani, Nobeoka-shi, Japan, assignor to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan, a corporation of Japan
Filed July 14, 1964, Ser. No. 382,550
Claims priority, application Japan, July 16, 1963, 38/36,169; Aug. 6, 1963, 38/57,588; Sept. 6, 1963, 38/46,697
6 Claims. (Cl. 242—110.1)

1. A hank swift for use in rewinding hank yarn comprising a spoke body, an operating handle secured to said spoke body, and spoke members secured to said spoke body for pivotal movement relative thereto, each of said spoke members including a hank yarn retaining portion and arcuate portions extending therefrom, said arcuate portions of the spoke members overlapping and cooperatively defining an annular peripheral guide ring, a cap encircling the spoke body and having slots for the passage of said spoke members, said operating handle being oper-



able to rotate the spoke body relative to the cap to pivot the spoke members relative to the spoke body and vary the diameter of said hank yarn retaining portions and said arcuate portions.

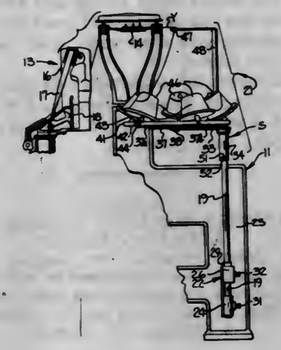
3,321,151
FLIP CONE FOR CONTINUOUS HIGH SPEED UNWINDING WIRE
Charles V. Maguire, Tampa, Fla., assignor to General Cable Corporation, New York, N.Y., a corporation of New Jersey
Filed Sept. 15, 1965, Ser. No. 487,507
13 Claims. (Cl. 242—128)



1. Wire supply apparatus including two housings, each of which holds a different spool of wire with the inner end of the wire of one spool connected with the outer end of the wire of the other spool, each of the housings being a truncated cone for a portion of the length of the housing and extending beyond the larger end of the conical portion to form a cylindrical portion of the housing, a spool located in each housing with a part of the width of the spool located within the truncated conical portion whereby the loop of wire unwrapping from the spool contacts with the conical surface of the housing and the acute angle of that surface throws the loop back in a curved path that causes the wire to clear the flange at the end of the spool toward which the wire moves as it unwraps, and a greater part of the width of the spool located within the cylindrical portion of its housing, portable supporting means for holding spools in said position in each housing, and a slot through which the interior of the housings, connect with one another throughout the length of the housings.

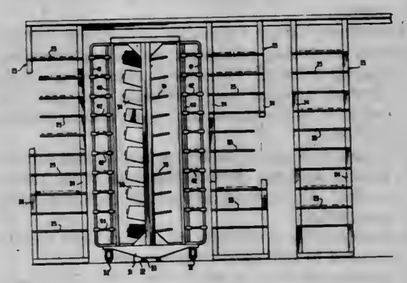
3,321,152
YARN PACKAGE STAND
John J. Poore, Sycamore Drive, and Oma H. Campbell, 417 N. Fant St., both of Anderson, S.C. 29621
Filed Mar. 11, 1966, Ser. No. 533,497
6 Claims. (Cl. 242—130)

1. A stand for packages of textile material comprising, in combination, an upstanding post, means for supporting said post in association with a textile machine, a package supporting assembly supported on said post including a base member, a sleeve secured to one end of said base member for removably and rotatably receiving the upper end of said post in telescoping relationship to support said base member in a substantially horizontal plane, an annular member, means for supporting said annular member on said base member, a guide for textile material supported on said base member in vertically spaced, centrally arranged relationship with said annular member, a plurality of spindles supported in uniform, circumferentially spaced relationship on said annular



member in substantially axial alignment with said guide for unwinding of textile material from the packages on said spindles through said guide, releasable means for locking said sleeve to said post in a predetermined rotary position, said locking means being released by rotation of said sleeve on said post through rotation of said assembly to permit said assembly to be swung freely to any selected position for access to said textile machine, said assembly being freely removable from said post by vertical withdrawal of said sleeve from said post upper end.

3,321,153
CREEL
Morris M. Bryan, Jr., Jefferson, Ga., assignor to The Jefferson Mills, Inc., Jefferson, Ga., a corporation of Georgia
Filed Jan. 18, 1966, Ser. No. 521,369
8 Claims. (Cl. 242—131)



1. A creel for supplying a plurality of warp yarns comprising, in combination;
(A) a stationary frame having one end from which a plurality of warp yarns are withdrawn, said frame having a plurality of stationary yarns guides for assisting the withdrawal of said warp yarns,

(B) a plurality of movable creel trucks associated with said stationary frame, each of said creel trucks comprising;

(1) a base mounted on a plurality of wheels,

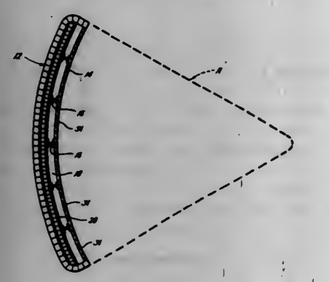
(2) at least one support extending upward from said base and having a plurality of spindles for mounting individual yarn packages,

(3) a first set of yarn guides arranged axially outward from said spindles for initially receving and guiding said warp yarns axially outward from said yarn packages, and

(4) a second set of yarn guides fixedly positioned on one end of said creel truck for receiving and guiding said warp yarns from said first set of yarn guides,

(C) and means for positioning said creel trucks within said stationary frame whereby said warp yarns may be led from said second set of yarn guides to said stationary yarn guides.

3,321,154
TRANSPIRATIONALLY COOLED HEAT ABLATION SYSTEM
William R. Downs, Houston, Tex., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed July 14, 1965, Ser. No. 472,066
8 Claims. (Cl. 244—1)



8. A transpirationally cooled, heat insulating and ablative system for a reentry spacecraft comprising:

a bulk head adapted to be secured at the leading edge of the spacecraft and having openings therethrough adapted to be connected to a cooling fluid supply source;

a substrate having a plurality of openings therethrough;

means mounting said substrate on said bulkhead at a spaced interval therefrom whereby a chamber is formed between said substrate and said bulkhead which is in communication with said openings in said bulkhead;

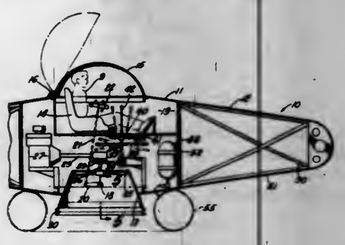
a honeycomb spacer means secured to said substrate and having openings through the walls of the cells thereof so that all adjacent cells are in communication with each other;

a plate having a plurality of perforations therethrough secured to said spacer means; and

a honeycomb matrix filled with ablative material and having passages between the cells thereof, said matrix secured to said plate so that each of said passages therein is in communication with some of the perforations in said plate whereby fluid supplied through said openings in said bulkhead will pass through said chamber, through said spacer and said plate, and out the passages in said honeycomb matrix onto the surface of the ablative material to cool same.

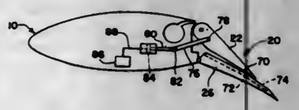
3,321,155
WITHDRAWN

3,321,156
UNIVERSALLY MANEUVERABLE AIRCRAFT
Douglas Q. McMasters, 2594 2nd Ave., Muscoy, Calif.
Filed Mar. 18, 1965, Ser. No. 440,708
12 Claims. (Cl. 244—5)



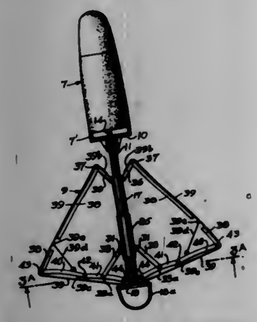
2. In an aircraft, the combination of; a compartment, a power-driven fan rotatably mounted in the compartment for drawing air from above the compartment, and forcing air out the bottom of the compartment to produce an upward thrust on the aircraft, means for selectively causing tilting of said compartment, an inflated envelope mounted on said compartment and encircling said compartment in the horizontal plane, said envelope having a relatively flat circular shape with said compartment at the center and tapering upper and lower surfaces converging outwardly into a bluntly rounded circular periphery, and a gas of less density than air filling said envelope for buoyantly supporting a portion of the aircraft weight.

3,321,157
DOUBLE HINGED FLAP
Thomas R. Turner, Newport News, Va., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Aug. 31, 1964, Ser. No. 393,451
8 Claims. (Cl. 244—42)



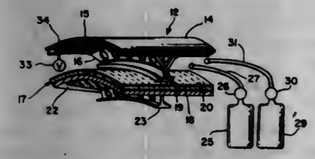
1. In a boundary layer control system for an aircraft having wings with relatively large chords, the combination comprising: flap means extending substantially the length of the wing and having complementary upper and lower flap segments; said flap segments pivoted to said wing adjacent the upper and lower surfaces respectively at fixed points thereof; linkage means pivotally interconnected to said flap segments and actuator means; compressor means for a supply of high-pressure fluid; nozzle means between the upper surface of said wing and said upper flap segment; and conduit means extending between said compressor means and said nozzle means whereby high-pressure fluid from the compressor is exhausted over the upper flap segment to effectively control the boundary layer along the upper surface of the wing and thereby impart high-lift characteristics to the wing regardless of the orientation of the aircraft.

3,321,158
RETRACTILE AND COLLAPSIBLE FLOATS FOR AIRCRAFT
Arthur J. Di Stasi, Brookside, N.J., assignor to Curtiss-Wright Corporation, a corporation of Delaware
Filed July 26, 1965, Ser. No. 474,772
12 Claims. (Cl. 244—106)



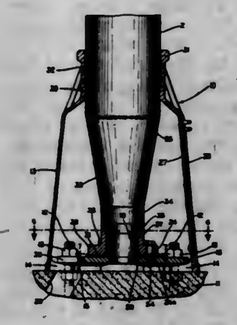
1. In VTOL aircraft capable of landing on water and having at least two nacelles mounted respectively at opposite sides and laterally of the fuselage of said aircraft, the attitude of each nacelle being adjustable with respect to the fuselage for aligning the longitudinal axis of the nacelle with the desired flight direction whereby said axis extends in generally vertical direction during landing and take-off, an expansible and collapsible float carried at the aft end of laterally positioned nacelles comprising a flexible waterproof skin forming the outer surface of the float, and means subject to pilot control for expanding said skin to form a buoyant compartment and for extending the float downward from its supporting nacelle incident to a landing on water, said means also being subject to pilot control for retracting the float incident to take-off and for collapsing said compartment into a compact streamlined configuration substantially continuous with the nacelle and forming its trailing end during flight conditions.

3,321,159
TECHNIQUES FOR INSULATING CRYOGENIC FUEL CONTAINERS
Liam R. Jackson, Newport News, Va., assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed May 21, 1965, Ser. No. 457,875
34 Claims. (Cl. 244—135)



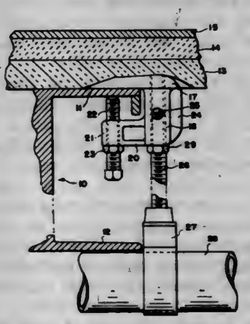
1. An arrangement for carrying cryogenic fuels in a hypersonic vehicle or the like comprising: a vehicle; a sealed tank for containing cryogenic fuels supported within said vehicle; porous insulation means surrounding said tank; vehicle skin structure surrounding and being spaced from said tank; carbon dioxide frost impregnating said porous material and forming a layer of frost on said tank; and gaseous carbon dioxide occupying the space between said skin and tank at a pressure greater than the local external vehicle skin pressure.

3,321,160
ROTATABLE POLE BASE CONSTRUCTION
David R. Turnbull, Canton, Ohio, assignor to The Union Metal Manufacturing Company, Canton, Ohio, a corporation of Ohio
Filed Feb. 23, 1965, Ser. No. 434,451
6 Claims. (Cl. 248—45)



1. Rotatable pole constructions including, a base housing, an adapter plate, lower radial support bearing means on the plate, thrust ring bearing means on the plate below and surrounding said lower radial support bearing means, upper radial support bearing means on the housing spaced above said plate, means for clamping the housing and plate together to hold the upper and lower radial support bearing means in axial alignment, a pole having a flanged lower end formed with lower sleeve and flange portions, the pole having a cylindrical portion spaced above said lower flanged end, the lower end of the pole being telescoped within said housing with the cylindrical pole portion journaled in said base housing upper radial support bearing means, and with the pole end sleeve portion telescoped over said lower radial support bearing means and said pole flange portion resting on said thrust ring bearing means, and releasable means engaged between the flange portion and plate for locking the pole to the plate in various selected positions of rotatable adjustment of the pole with respect to the plate.

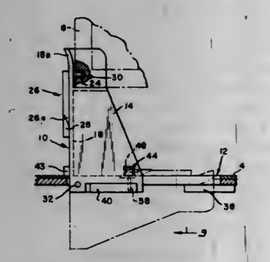
3,321,161
HANGER CLAMP
Andrew J. Hirt, Youngstown, Ohio, assignor to Metelco, Inc., Struthers, Ohio, a corporation of Ohio
Filed June 29, 1966, Ser. No. 561,593
1 Claim. (Cl. 248—72)



A hanger clamp for supporting a pipe from a building beam having a horizontally extending flange, comprising a body having a threaded bore extending therethrough, first and second jaws extending generally at right angles

from said body and being spaced apart, said second jaw having a longitudinally extending threaded bore, said body being adapted to be positioned just beyond a free edge of said horizontal flange with its bore vertical and with said first and second jaws disposed on opposite sides of said flange, the spacing between the jaws being greater than the thickness of said flange to permit free disposition of the jaws around the flange, a hanger screw threaded into the bore of said body and extending vertically and downwardly therefrom, a pipe hanger strap having a swivel connection with the lower end of said hanger screw, the connection permitting rotating of the screw relative to the strap so that the screw may be rotated while the strap is supporting a pipe to effect vertical adjustment of said pipe, a clamp-screw threaded through the bore of said second jaw and having an end movable toward said first clamp by proper threading action of said clamp-screw to tightly engage said end and said first jaw against upper and lower surfaces of said flange, and an inspection opening in said body about midway of its ends and extending into said bore to permit view of said hanger screw and thereby permit determination of whether or not it is threaded far enough in the bore of said tubular body to support the load on said hanger screw.

3,321,162
CORNER SUPPORT FOR CONTAINERS
Edwin B. Connerat, 6122 Woodmont Road, Alexandria, Va. 22307
Filed Oct. 8, 1965, Ser. No. 494,207
11 Claims. (Cl. 248—119)



1. A corner support for supporting at least one corner of a container at a level above the horizontal platform of a cargo carrying vehicle, comprising

a housing including parallel spaced first and second side walls, a third transverse wall normal to and connected between corresponding edge portions of said first and second side walls, and a fourth load-supporting wall connected between said first and second side walls, said fourth wall being normal to said first, second and third walls;

means mounting said housing for pivotal movement within an opening contained within said platform, said opening having a configuration corresponding generally with that of said third wall, said mounting means including a horizontal pivot axis normal to said first and second walls and so arranged relative to said platform to permit pivotal movement of said housing between a first position in which said third wall is horizontal and coplanar with the upper surface of said platform and said first, second and fourth walls extend downwardly from said third wall, to a second position in which said first, second and third walls are vertical and extend upwardly from the upper surface of said platform and said fourth wall is horizontal and is elevated above said platform upper surface; and

means carried by at least one of said walls for releasably locking said housing in said second position.

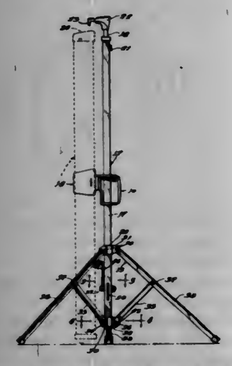
3,321,163
PORTABLE MOVIE SCREEN DEVICE
Edward J. Petrick, Park Ridge, Ill., assignor to Knox Manufacturing Co., a corporation of Illinois
Filed Jan. 29, 1965, Ser. No. 428,899
2 Claims. (Cl. 248—171)



1. A stand adapted to be maintained in upright position upon a supporting surface, comprising: an elongated standard; a pair of compression springs positioned at the lower end of the standard, one of the springs being positioned above the other; a plurality of leg members swingably mounted on the lower end portion of the standard for movement together between a closed position adjacent the standard and a spread supporting position in which the standard is maintained uprightly; a bracing link extending between each leg member and the lower end portion of the standard, each bracing link having one end pivotally secured to the lower end portion of the standard and the other end pivotally secured to one of the leg members; a plurality of lever members pivotally secured to the lower end portion of the standard, one lever member being provided adjacent the one end of each bracing link, each including an outer arm pivoted to its adjacent bracing link at a point spaced from the pivotal securement of the lever to the lower end portion of the standard for conjoint movement with the bracing link and an inner arm positioned between said compression springs, each inner arm of the lever members receiving thrust from the one spring when compressed and transmitting that thrust to its respective outer arm and bracing link in a direction tending to swing its bracing link toward the standard and thereby fold the leg members and the bracing links adjacent to the standard when the stand is lifted from the supporting surface, the thrust of said one spring being of sufficient magnitude to compress the other spring and create an opposing thrust in said other spring as said leg members are moved toward closed position; and control means selectively actuatable for releasing and for maintaining compression in said one compression spring, the release of thrust in said one compression spring causing the opposing thrust in said other compression spring to act on each inner arm of the lever members and to transmit said opposing thrust through each outer arm of the lever members to the bracing links so as to force the bracing links and leg members to swing outwardly toward supporting position.

3,321,164
PORTABLE MOVIE SCREEN DEVICE
Russell E. Petrick, Park Ridge, Ill., assignor to Knox Manufacturing Co., a corporation of Illinois
Filed Oct. 15, 1965, Ser. No. 496,379
11 Claims. (Cl. 248—171)

1. A stand adapted to be maintained in an upright position upon a supporting surface, comprising: an elongated standard; a plurality of leg members swingably mounted on the lower end portion of the standard for movement together between a closed position adjacent the standard and a spread supporting position in which the standard is maintained uprightly; a bracing link extending between each leg member and the lower end portion of the standard, each bracing link having one end pivotally secured to the lower end portion of the standard and the other end pivotally secured to one of the leg members; a plurality of lever members pivotally secured to the lower end portion of the standard, one lever member being provided adjacent the one end of each bracing link, each including an outer arm pivoted to its adjacent bracing link at a point spaced from the pivotal securement of the lever to the lower end portion of the standard for conjoint movement with the bracing link and an inner arm positioned between said compression springs, each inner arm of the lever members receiving thrust from the one spring when compressed and transmitting that thrust to its respective outer arm and bracing link in a direction tending to swing its bracing link toward the standard and thereby fold the leg members and the bracing link adjacent to



the standard; means intermediate the ends of the standard for imparting stress to the spring means when the legs are in supporting position so as to provide thrust upon the lever means, said means including a cam mounted on the standard for movement between a spring release position and a spring cocking position to deform and impart stress to the spring means; and means for holding the stress imparting means in spring cocking position in opposition to the stress in the spring means so as to maintain the thrust against the lever means when the leg members are in supporting position, whereby when the stand is removed from the supporting surface the lever means and said bracing link will be rotated by the thrust of the spring means to pivot the bracing link and leg members inwardly to closed position adjacent the standard.

3,321,165
TV TABLE MOUNT
Richard H. Wann, Barrington, Ill., assignor to Sylvania Electric Products Inc., New York, N.Y., a corporation of Delaware
Filed Aug. 6, 1965, Ser. No. 477,716
6 Claims. (Cl. 248—203)



1. A turntable type of television mount adapted to be locked to a mobile over-bed type of hospital table comprising:

a horizontal base plate spanning a table top;

table engaging clamps slidably mounted on the underside of said base plate;

linkage means mounted on the underside of said base plate and connected to said clamps for selectively moving said clamps to either a first position wherein said base plate is secured to a table, or a second position wherein said base plate is freely removable from a table;

lock means mounted on said base plate for selectively fixing said linkage and said clamps in said first position;

a turntable rotatably mounted on the upper face of said base plate;

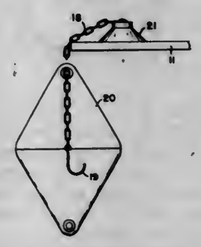
a plurality of screw holes located on a common circle in said turntable, the center of said circle corresponding with the pivot axis of said turntable;

said screw holes accommodating screws passing upwardly therethrough for securing a television set to said turntable;

access to said screws being blocked by said base plate except for a single access hole located in said base plate directly beneath said common circle, which access hole provides access to said screw holes one at a time as said turntable is rotated relative to said base plate, and which access hole is inaccessible when the mount is secured to a table;

whereby a television set may be removed from the mount only when the mount is detached from a table.

3,321,166
PURSE HOLDER
Alexander M. Gordon, 500 Coconut Isle, Broward County, Fla. 33301
Filed July 12, 1965, Ser. No. 471,093
1 Claim. (Cl. 248—206)



A purse holder comprising

(a) a container for holding a purse support chain,

(b) a suction cup located on one side of said container,

(c) a support chain attached to the inside of said container,

(d) said container having fastening means thereon for opening and closing said container,

(e) said chain being retractable within said container and extendable to its full length outside said container,

(f) an open hook member on the end of said chain, and

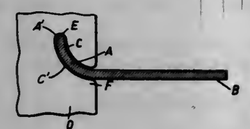
(g) said hook member being engageable with the links of said chain so as to provide a chain support of varying lengths.

3,321,167
MOUNTING OF SHELF BOARDS, RECEPTACLES, CABINETS, AND THE LIKE
Hermann Doerr, 83 Lange Strasse, Baden-Baden, Germany
Filed June 4, 1965, Ser. No. 461,484
Claims priority, application Germany, June 5, 1964, D 44,611
9 Claims. (Cl. 248—243)

1. A mounting arrangement comprising:

(a) a support member,

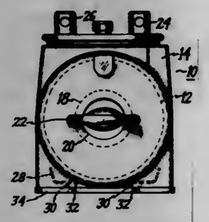
(b) a shelf member being of substantially uniform cross-section and having a forward portion and a rearward portion,



(c) said rearward portion being turned out of the plane of said forward portion along a substantially uniform arcuate curve encompassing approximately 90° of a circle,

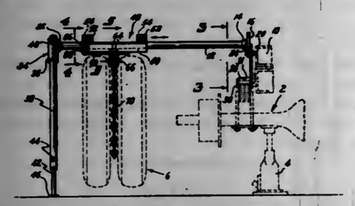
(d) said support member having a recess conforming to said rearward portion whereby said shelf member may be inserted into said support recess.

3,321,168
INTERNAL BASE PLATE FOR INSTRUMENT TRANSFORMERS
Franklin R. D'Entremont, Dover, N.H., assignor to General Electric Company, a corporation of New York
Filed July 12, 1965, Ser. No. 471,161
3 Claims. (Cl. 248—346)



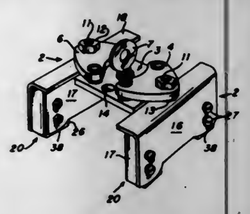
1. A base plate for an instrument transformer comprising: a substantially rectangular metallic plate member, a pair of upturned flanges on opposite sides of said plate member, said upturned flanges provided with a plurality of holes therethrough, and a plurality of bosses on said plate member, said bosses extending from said plate member in a direction opposite to said upturned flanges, said bosses having tapped holes therein.

3,321,169
WHEEL HANDLING DEVICE
Hazel B. Fowler, Box 74, Hillsboro, W. Va. 24946
Filed Aug. 13, 1965, Ser. No. 479,557
11 Claims. (Cl. 248—352)



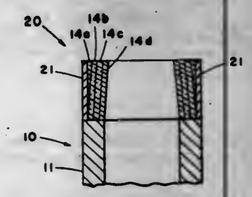
1. A vehicle wheel handling device comprising: an elongated rail; bracket means secured to one end of said rail and removably engageable with a portion of a vehicle for supporting said one end of said rail over an axle of said vehicle; ground engaging support means at the other end of said rail to support said rail to extend generally horizontally and laterally from said vehicle above a wheel thereon; a carriage supported by and movable along said rail; and wheel elevating and supporting means depending from said carriage whereby a heavy wheel of said vehicle may be engaged and supported thereby for movement toward or from said axle; said bracket means comprising relatively adjustable members for adjusting said one end of said rail vertically relative to said vehicle.

3,321,170
MAGNETIC ADJUSTABLE POLE PIECE STRIP HEATER CLAMP
Earl F. Vye, 437 El Cajon Drive, San Jose, Calif. 95111
Filed Sept. 21, 1965, Ser. No. 489,087
7 Claims. (Cl. 248—361)



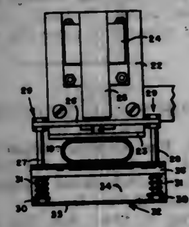
1. Clamping apparatus for holding a strip heater on a ferrous metal surface, comprising;
a horizontally-disposed plate,
spaced leg members carried by and extending outwardly of said plate,
a load arm adjustably carried by said plate and extending outwardly between said spaced leg member,
said leg members each including:
a box-like frame formed of non-ferrous material and provided at its outer end with an opening,
a pair of soft magnetic material pole pieces, and
a section of hard magnetic material,
one of said pole pieces having a flat outer surface projecting outwardly through said frame opening and also having its inner end contacting said other pole piece in a ball and socket fitting,
said section of hard magnetic material flushly engaging said other pole piece,
said leg members being spaced for straddling said strip heater and securely holding the apparatus against said ferrous metal surface and said load arm being adjustably extendable into clamping engagement with said strip heater, and
said ball and socket fitting permitting said one pole piece to rotatably conform to curvatures of said metal surface.

3,321,171
HEAT INSULATION BOARDS
Edward R. Gorka and Norbert W. Kaleta, Tonawanda, N.Y., assignors to National Gypsum Company, Buffalo, N.Y., a corporation of Delaware
Filed Apr. 26, 1965, Ser. No. 450,778
8 Claims. (Cl. 249—201)



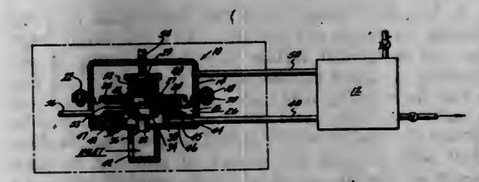
1. A heat-insulating composition comprising from about 30% to about 45% by weight of mineral wool, from about 40% to about 55% by weight of finely divided silica, from about 1% to about 4% by weight of cellulose fibers, from about 3% to about 6% by weight of starch, and from about 3% to about 6% by weight of finely divided clay.

3,321,172
LAUNDRY MACHINE DUMP VALVE
Benjamin Alvin Buss, East Moline, Ill., assignor to Ametek, Inc., New York, N.Y., a corporation of Delaware
Filed Nov. 9, 1962, Ser. No. 236,643
2 Claims. (Cl. 251—7)



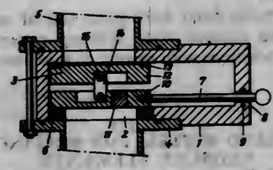
1. In a dump valve for the drain line of a washer-extractor, a section of flexible tubing; a fixed anvil member carried by a support member and arranged transversely of and in contact with said tubing; a solenoid mounted on said anvil member and including an armature; a plate connected to said armature for movement therewith and extending in parallel relation to said anvil member and beyond its extremities; parallel rods connected to said plate for movement therewith and straddling said tubing; a jaw slidably mounted on said rods and adapted to contact said tubing at a point opposite the contact between said tubing and anvil member; and resilient means between the ends of said rods and jaw for allowing overtravel of said armature to ensure said jaw completely collapsing said tubing and holding it resiliently against said anvil member when said solenoid is energized.

3,321,173
LOW FLOW VALVE
Charles C. Segur, Windsor Locks, Conn., assignor to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware
Filed Feb. 27, 1964, Ser. No. 347,798
3 Claims. (Cl. 251—61)



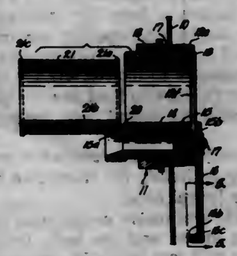
1. For a fluid metering device adapted to meter small quantities of flow, comprising a hollow valve housing, a diaphragm supported in said housing, a closure element having a sleeve secured to said diaphragm and extending toward an opening formed in said housing, an element made from a flexible and resilient material secured to and movable with said sleeve, a porous plug inserted in said opening and projecting into said hollow valve housing, a nonporous surface surrounding the outer periphery of said plug, said porous plug allowing fluid to flow axially from the bottom surface to the top surface of said plug and means for imparting movement to said sleeve so as to permit said resilient material to engage the top surface of said plug which is projecting into said hollow valve housing to progressively deform about said top surface to encircle the same so as to progressively block off the pores of said plug to permit a small flow for a relatively large displacement of said sleeve.

3,321,174
GATE SLIDE VALVE
Siegfried Schertler, 9 Untergasse, Flawil, Saint Gall, Switzerland
Filed Apr. 1, 1964, Ser. No. 356,376
Claims priority, application Austria, Apr. 2, 1963, A 2,653/63
6 Claims. (Cl. 251—65)



1. A gate slide valve, comprising in combination, a valve housing, a gate slide assembly slidably mounted in said housing, said assembly comprising two slide elements, means operatively connected to said two slide elements and adapted to selectively spread said two elements apart, an actuator member connected to said gate slide assembly and adapted to operatively move the same between a closed position and an open position in said housing, said housing having inlet and outlet ports at opposite sides thereof, a valve seat surrounding one of said ports inside said housing, the other one of said ports having at least a portion which is internally threaded, an annular valve seat having an external screw thread being threadably axially mounted in said threaded portion and being adapted to adjust the closing position of said gate slide assembly with respect to the other valve seat by being threadably axially positioned more or less deeply into said valve housing.

3,321,175
IRRIGATION PIPE GATE
David A. Epp, Henderson, Nebr., assignor to Henderson Manufacturing Co., Inc., a corporation of Nebraska
Filed Nov. 23, 1964, Ser. No. 413,222
5 Claims. (Cl. 251—145)



1. A gate structure for controlling flow through an opening in the wall of a pipe comprising
an open ended tubular body having an inner end insertable in said opening and an outer end, the inner end of said body having substantially the same outline as said opening,

said body having an external wall surface portion which is tapered in the direction away from said inner end toward the outer end,

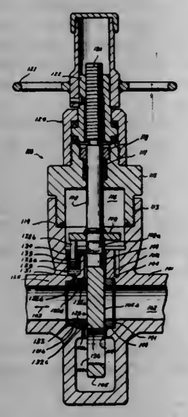
a resiliently radially expansible sleeve surrounding said body between said outer end and said tapered portion and having a projected inside cross sectional area, when unstressed, less than the projected outside cross sectional area of the largest end of said tapered portion,

thrust means interconnecting said sleeve and body and operable to displace said sleeve relative said tapered portion toward said inner end and to radially expand said sleeve and tightly engage it between the edge of said opening and said tapered portion,

a closure plate covering the inner end opening of said body, and

means operable from said outer end of said body to pivot said closure plate between covered and uncovered positions with respect to said inner end opening.

3,321,176
CLOSED FLUID SYSTEM FOR SEALING VALVE CLOSURE ELEMENTS
Thomas J. Bolling, Jr., 4189 Bellaire Blvd., Suite 266, Houston, Tex. 77025
Filed Aug. 2, 1965, Ser. No. 479,035
7 Claims. (Cl. 251—172)



1. In a valve including a body having a transverse bore for fluid flow therethrough and having a lateral bore intersecting the transverse bore for receiving therein a gate element for closing and opening the transverse bore to fluid flow and a movable valve stem extending into the body and connected to the element for opening and closing the transverse bore to fluid flow on relative movement of the element in the lateral bore, the improvement comprising:

(a) seal receiving means received in an enlargement in the body encircling the transverse bore and spaced from the lateral bore;

(b) slidable seal means cooperating between said seal receiving means and the body for sealing therebetween as said seal receiving means slides relative to the lateral bore and element therein;

(c) a seal member carried in said seal receiving means;

(d) fluid passage means communicating with said seal member through said seal receiving means;

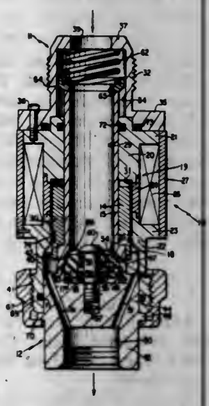
(e) shoulder area means formed on said seal receiving means and facing from the lateral opening, said means being communicated with said fluid passage means;

(f) piston means received in one end of said fluid passage means to close off same and form a closed fluid receiving and retaining system, said system receiving and retaining fluid therein for compression by said piston means;

(g) means carried on the stem for actuating and moving said piston means on moving the element in the lateral bore toward a closed position, said piston means compressing fluid in said closed fluid receiving and retaining system to act on said shoulder area means and move said seal receiving means into contact with the element in the closed position; and

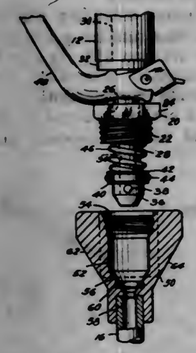
(h) said piston means also compressing fluid in said closed fluid receiving and retaining system to act on said seal member and sealingly urge same into contact with the element to close the valve.

3,321,177
VALVE FOR FLUID MEDIUM UNDER PRESSURE
Edwin B. Fendel, East Orange, Eduard Treirat, Nutley, and William M. Weibel, Pompton Lakes, N.J., assignors to Specialties Development Corporation, Belleville, N.J., a corporation of New Jersey
Filed Aug. 6, 1964, Ser. No. 387,889
10 Claims. (Cl. 251—210)



1. In a fluid control valve, the combination of a first member having an end provided with a cylindrical chamber and an annular surface disposed outwardly of said chamber, a second member having an end provided with a bore for receiving fluid under pressure and formed with a valve seat facing said chamber and with an annular surface disposed outwardly of said valve seat and in alignment with said annular surface of said first member, means for moving one of said body members between a closed position whereat said annular surfaces are abutting and an open position whereas said annular surfaces are separated, a resilient cylindrical valve sealing member slidably mounted in said chamber for cooperating with said valve seat to provide a fluid tight seal when said members are in said closed position, said valve sealing member being movable into said chamber to allow said annular surfaces to absorb the energy of said moving member during the closing of the valve, spring means for urging the valve sealing member toward said valve seat, and structural means carried by one of said members providing a fluid passageway positioned outwardly of said chamber in fluid flow communication with said bore only when the valve is open.

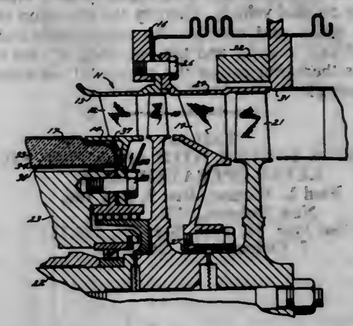
3,321,178
CONTROL VALVE FOR SPRAYERS
August H. Pinke and Walter Eugene Petersen, both of Hastings, Minn., assignors to H. D. Hudson Manufacturing Company, Chicago, Ill., a corporation of Illinois
Filed May 15, 1964, Ser. No. 367,788
2 Claims. (Cl. 251—347)



1. In a sprayer of the type having a container of liquid under pressure to be sprayed, a flexible conduit leading from the container and communicating with the interior thereof for passage therethrough of the liquid under pressure, and a tube extension extending from the conduit and having a nozzle controlling the spray pattern of the liquid at the discharge end thereof, and a spray control valve interposed between the conduit and the tube extension, an improved spray control valve comprising: an adapter having a longitudinally extending central bore, a stem extending through the adapter bore being coupled with the flexible conduit and having a longitudinally extending passageway communicating with the flexible conduit and interior of the container, a ferrule fitting extending from the tube extension and having a central passage for communicating with the tube extension and receiving the forward end of the stem, said adapter being provided with external threads and the ferrule fitting being provided with internal threads meshed with the external threads of the adapter, and laterally extending finger engaging wing elements on the exterior of the ferrule fitting to provide a wing-nut to facilitate manual assembly and disassembly of the ferrule fitting, said ferrule fitting being coupled directly with the adapter whereby the stem is adapted to be shifted between a rear valve open position at which the liquid under pressure is permitted to pass from the conduit through the control valve to the tube extension and forward valve closed position at which the forward end of the stem cooperates with surfaces of the ferrule fitting to stop passage of the liquid under pressure through the control valve from the conduit to the tube extension, a spring biased between the stem and the adapter whereby the stem is urged towards the valve closed position, and manual means for shifting the stem to a retracted position at which the valve is open.

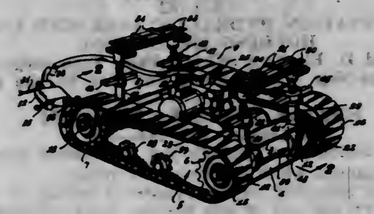
3,321,179
GAS TURBINE ENGINES
Lloyd E. Johnson, East Peoria, Kenneth D. Probert, Peoria, and Franklin E. Zimmerman, Pekin, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill., a corporation of California
Filed Sept. 13, 1965, Ser. No. 486,689
3 Claims. (Cl. 253—39.1)

1. An annular nozzle assembly for the turbine inlet of a gas turbine engine comprising, a plurality of circumferentially spaced radially extending nozzles and inner and outer hoops attached to the ends of the nozzles, mounting means providing a flexible mounting for the nozzle assembly to accommodate differential thermal expansion of the nozzle assembly components produced by temperature changes during operation of the engine, said mounting means including a generally cylindrically-shaped member integral with the inner hoop at one end and connected to the engine frame at the other end to provide a primary support which is effective to permit relative thermal expansion of nozzle assembly components and to prevent restraining stresses that could cause cracking, a stop fixed to the outer shell of the engine and located to permit a limited axial movement of the nozzle assembly before the outer hoop engages the stop to thereby permit



some part relocation in an axial direction as a result of thermal expansion and aerodynamic loads, a blocking ring connected to the stop and encircling a turbine wheel associated with the nozzle, said nozzle assembly including an engine frame mounting a turbine shaft bearing inward of the nozzle assembly and having an annular recess beneath the cylindrically-shaped member and a ring of insulation mounted in the recess beneath the cylindrically-shaped member between the nozzle assembly and the bearing, and a plurality of circumferentially spaced bolts connecting the ring of insulation and the cylindrically-shaped member and drilled to provide passageways for directing cooling air through the bolts and to the base of the adjacent turbine wheel.

3,321,180
VEHICLE-MOVING DEVICE HAVING FOUR-POSTER-TYPE SCREW JACK LIFTING MEANS
Elmer R. Hutchinson, 11616 Burbank Blvd., North Hollywood, Calif. 91601
Filed Mar. 18, 1965, Ser. No. 440,723
2 Claims. (Cl. 254—7)



1. A self propelled device for supporting and moving a vehicle, which includes:

a generally rectangular frame;

an endless belt track on each side of said frame;

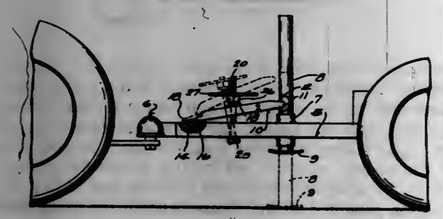
means supporting said belt tracks for independent movement along said sides of said frame;

separate motor means driving each of said belt tracks;

controller means for independently controlling the operation of said motor means, remotely located with respect to said frame and connected thereto by flexible means:

a plurality of screw type jacks located adjacent the corners of said frame, said jacks being supported by said frame and being vertically extensible and retractible;
interconnecting means extending transversely between the upper ends of each end pair of said jacks and movable therewith;
positioning strips centrally located at the top of said interconnecting means;
and a beam-type member carried by said interconnecting means between said positioning strips and movable therewith, said member extending beyond the boundaries of said frame to engage widely separated points on said vehicle, whereby the extension of said jacks raises said member for engagement and lifting of said vehicle, and the operation of said motor means thereafter causes the horizontal movement of said vehicle.

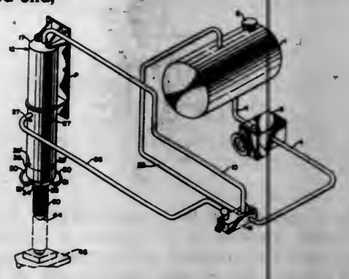
3,321,181
VEHICLE TONGUE WITH AN IMPROVED, LEVER-OPERATED JACK
Paul L. Wagner, Rte. 2, Box 106, New Holstein, Wis. 53061
Filed Mar. 30, 1966, Ser. No. 538,752
5 Claims. (Cl. 254—86)



1. A jack comprising
a jack post bearing,
a jack post slideable in the bearing and having multiple lateral openings and a ground engageable foot,
a jack lever having one end adapted to be selectively engaged in a lateral opening of said jack post,
means pivotally positioning its other end,
and means acting on an intermediate portion of the lever for controlling movement of the post through said bearing.

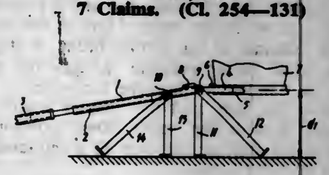
3,321,182
COMBINATION HYDRAULIC JACK AND LOAD HOLDING MECHANISM
Wayland D. Eleuburg, Wichita Falls, Tex., assignor to Walker-Neer Manufacturing Co., Inc., Wichita Falls, Tex.
Filed Mar. 26, 1965, Ser. No. 442,996
4 Claims. (Cl. 254—93)

2. A combination hydraulic jack and positive supporting mechanism, which mechanism comprises;
(a) an elongated, unitary cylindrical housing,
(1) one end of said housing being substantially closed,
(2) a removable, apertured head fitted within said cylindrical housing intermediate the ends thereof,
(3) said elongated cylindrical housing having a counterbore formed therein to complementally receive said removable, apertured head therein,
(4) said removable, apertured head having a sealing element therearound to form a positive fluid seal with the counterbore of said cylindrical housing,
(5) removable fastening means extending through said cylindrical housing and engaging said removable head to removably secure said head in secure relation within said cylinder,
(b) a hydraulic plunger mounted within said housing,
(1) a portion of said plunger extending out of an end of said housing,
(2) said plunger extending axially through said apertured head and being sealed in substantially fluid tight relation with respect thereto,
(3) the outwardly extending portion of said plunger being screw threaded,
(c) an apertured bushing secured in the outer end of said cylindrical housing opposite said substantially closed end,



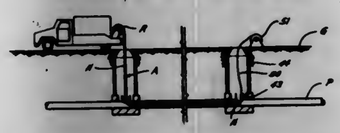
(1) said bushing having an inwardly extending conical recess formed therein,
(d) a screw threaded conical nut complementally engaging the screw threaded portion of said plunger and being adapted to complementally seat in said conical recess,
(1) said screw-threaded conical nut having a longitudinal slit extending through one side thereof to enable the conical nut to be pressed inward in tight relation with said screw-threads of said plunger, when said conical nut is seated within said conical recess in said apertured bushing, and
(e) bracket means associated with said housing to connect said housing to a member to be supported.

3,321,183
LEVER ACTUATED LIFTING INSTRUMENT, MORE PARTICULARLY INTENDED FOR AUTOMOBILES
Victor L. Risetto, 54 Blvd. de Belleville, Paris, France
Filed Sept. 29, 1965, Ser. No. 491,090
Claims priority, application France, Sept. 29, 1964, 989,750
7 Claims. (Cl. 254—131)



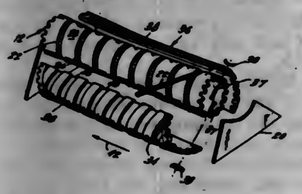
1. A lifting instrument comprising a main lever member, a plurality of first leg members of mutually different lengths and each pivotably secured to the main lever member, adjacent one end thereof, for mutually-independent pivotal movement relative to the main lever member about a first axis perpendicular thereto, and a plurality of second leg members of mutually-different lengths and each pivotably secured to the main lever member for mutually-independent pivotal movement relative to the main lever about a second axis parallel to the said first axis.

3,321,184
SELF-PROPELLING HOSE-NOZZLE ASSEMBLY AND METHOD OF USING SAME
John B. Goss, 2606 Knoblock St., Houston, Tex. 77026
Filed Jan. 3, 1966, Ser. No. 518,231
10 Claims. (Cl. 254—134.4)



1. A self-propelling hose-nozzle assembly, comprising:
(a) a flexible hose having a fluid inlet end and a fluid discharge end,
(b) a nozzle mounted on the fluid discharge end of said hose,
(c) said nozzle having rearwardly and outwardly directed openings for discharging therefrom at least a portion of the fluid introduced into said hose to thereby propel the nozzle and the hose therewith forwardly, and
(d) a cable mounted in said hose for preventing a rupture of said hose when a pull is exerted thereon in retrieving the hose and nozzle.

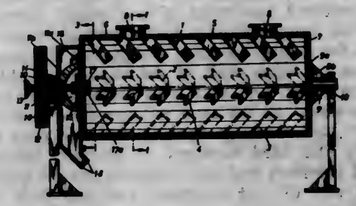
3,321,185
CABLE DRUM SYSTEM WITH INTER-LAYER SHELLS
Howard W. Zenke, Brooklyn, N.Y., assignor to Letco Engineering and Tool Company, Inc., Brooklyn, N.Y., a corporation of New York
Filed Oct. 19, 1965, Ser. No. 497,827
13 Claims. (Cl. 254—184)



1. A cable drum system comprising:
a rotatable cable take-up drum having a core for the reception of one layer of a cable which is to be wound on said drum in response to rotation thereof; and
a shell removably secured to said core, said shell receiving said cable when said core is substantially filled with said one layer of said cable, said shell remaining stationary relative to said core when it is secured thereto.

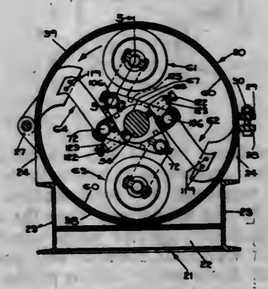
3,321,186
MIXING MACHINE FOR FLOWABLE AND PULVERULENT, GRANULAR OR FIBROUS MATERIALS
Wilhelm Lödige and Fritz Lödige, both of Elsener Strasse 9c, and Josef Lücke, Im Lohfeld 13, all of Paderborn, Germany
Filed Apr. 21, 1964, Ser. No. 361,326
Claims priority, application Germany, Apr. 26, 1963, L 44,741
6 Claims. (Cl. 259—3)

1. A mixing machine for flowable and pulverulent, granular or fibrous materials comprising, in combination, a horizontal rotatable mixing vessel having a length substantially greater than its diameter, means for charging and discharging said mixing vessel with the materials to be mixed, and at least one pair of rows of axially spaced trough-like lifting and mixing means, said rows being arranged on substantially opposite sides of the inner wall of the mixing vessel in relation to the circumference thereof and each of said trough-like lifting and mixing means extending from said vessel wall and being arranged in such a manner that the longitudinal axes of said trough-like lifting and mixing means each form an acute angle with a line intersecting each of them and



being parallel to the axis of rotation of said mixing vessel, that said longitudinal axes are parallel to a radial plane passing through the axis of rotation of said mixing vessel, that said longitudinal axes of each row of said trough are at said acute angle in direction opposite to the direction of said longitudinal axes of the neighbouring rows of said trough-like lifting and mixing means, and that the inner faces of said trough-like lifting and mixing means each face away from the axis of rotation of said mixing vessel.

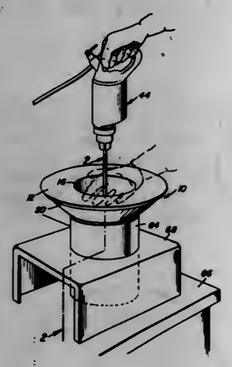
3,321,187
CONTINUOUS MULLER WITH ADJUSTABLE MULLING WHEELS AND PLOW MEANS
Cecil E. Simmons, Durham County, Ontario, Canada, assignor, by mesne assignments, to Jeffrey Galion Manufacturing Company, a corporation of Ohio
Filed Dec. 27, 1963, Ser. No. 333,937
2 Claims. (Cl. 259—112)



2. Mulling apparatus for continuously mulling sand comprising: a substantially horizontal normally closed cylindrical receptacle having two ends including, at least one intake opening located at one end of said receptacle, at least one discharge opening located at the other end of said receptacle below the level of the intake opening, movable closure means intermediate the ends for permitting access to the interior of said receptacle; a rotatable shaft extending longitudinally within said receptacle from end to end substantially coincident with the axis of said cylindrical receptacle, a plurality of fixed members joined to said shaft at predetermined intervals and extending outwardly from said shaft at substantially right angles

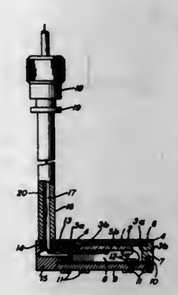
thereto, each of said members having a pivotable connection at a distance from said axis, a wheel arm pivotally joined to at least one of said connections and extending rearwardly from the direction of rotation of said shaft in a plane substantially at right angles to said shaft, at least one free-wheeling mulling wheel carried by each wheel arm at its outer end for progressively mulling a sand mixture as it passes through the receptacle, said wheel arms and said wheels being swingable toward and away from the wall of said receptacle, means associated with each said wheel arm and adjustably abutting said shaft for limiting outward movement of said wheels toward the wall of said receptacle, plow means carried by said fixed members for mixing, agitating and moving the sand mixture about the inner wall of the receptacle, additional means associated with said fixed members for limiting axial movement of the sand mixture from said intake opening to said discharge opening, and said plow means carried by said fixed members are pivotally fastened to said fixed members and are swingable toward and away from the wall of said receptacle and said plow means have abutment means associated therewith for adjustably abutting said shaft to limit outward movement of said plow means.

3,321,188
PAINT MIXING DEVICE
Cecil C. Unger, Harrods Creek, Ky. (% Broadway Imports, 2nd and Broadway, Louisville, Ky. 40202)
Filed Oct. 4, 1965, Ser. No. 492,662
7 Claims. (Cl. 259—118)



1. A mixing device for use with fluid-filled containers of varying sizes comprising a substantially cup-shaped semi-spherical supporting and cover member adapted to be positioned on and temporarily close the open top of a fluid-filled container, agitator means attached to and carried by said supporting member and adapted to be supported in the container for mixing of the fluid therein, and means carried by said supporting member for rotating said agitator means whereby the fluid contents of said container will be mixed, said supporting member including a generally centrally located recess portion defining a side wall and a bottom wall, said bottom wall being substantially thinner than said side wall, said agitator rotating means comprising an actuator rod, said bottom wall having an opening therein, journal means mounted in said opening, said rod being mounted for rotation in said journal means, said supporting member being composed of a substantially rigid material, said bottom wall being relatively flexible and said side wall being relatively inflexible whereby lateral movement of said rod in said journal means will cause flexure of said bottom wall and lateral movement of said agitator means.

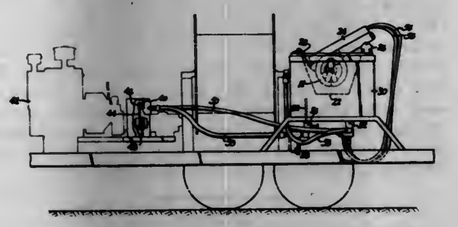
3,321,189
HIGH-FREQUENCY ULTRASONIC GENERATORS
Thomas J. Scarpa, Metuchen, N.J., assignor, by mesne assignments, to Edison Instruments, Inc.
Filed Sept. 10, 1964, Ser. No. 395,475
8 Claims. (Cl. 259—144)



8. A piezoelectric generator comprising in combination:
a piezoelectric crystal element having a circular cross sectional dimension poled to vibrate in a thickness mode of vibrations,
said element having a thickness which is substantially a half-wavelength in the frequency of said vibrations,
a mounting disk having a thickness substantially equal to a half-wavelength in said frequency and a diameter which exceeds the diameter of said crystal element,
means for bonding a major surface of said crystal element in axially concentric relation to a major surface of said disk and in acoustic coupling contact therewith,
said disk having in the upper and lower faces thereof a pair of annular grooves between the periphery of said disk and the periphery of said element,
said grooves each having a substantially rectangular cross-section and forming between their bases a thin annular ring contacting the inner portion of said mounting disk at a nodal plane in said vibrations,
a shallow cylindrical cup having a bottom wall,
the peripheral portion of said disk beyond said grooves disposed to close said cup in a liquid-tight seal,
said crystal element being directed inwardly and having its inner face spaced from the bottom wall of the cup to define an air chamber between the inner face of the crystal element and the bottom wall, whereby the inner face vibrates freely in said air chamber,
electrode means applied to opposing surfaces of said crystal element,
and means comprising lead wires connected to said electrode means and adapted for connection through a liquid-tight seal to an external source of electrical oscillations.

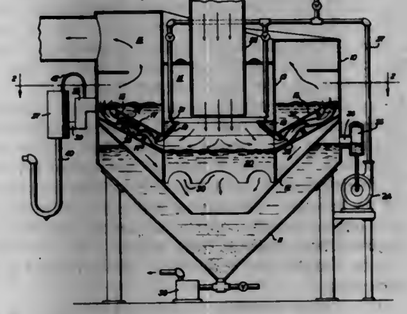
3,321,190
RE-MIXER FOR CONCRETE PLACER
Richard H. Mott, 1604 W. 39th St., Sioux Falls, S. Dak. 57105
Filed June 8, 1966, Ser. No. 556,203
8 Claims. (Cl. 259—178)

1. A mixer attachment for a concrete placer having a hopper in which concrete mix is received and having a reservoir for operating fluid and an engine powering the placer, said mixer attachment comprising rotary mixing blades, motor means coupled to said rotary mixing blades for rotating said blades to mix concrete in said hopper, means for supporting the combination of said rotary mixing blades and said motor means at said hopper with said mixing blades in said hopper to extend into concrete mix



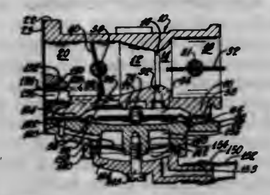
when provided in said hopper, fluid pressure means operated by said placer engine for driving said motor means and conduit means for connecting said fluid pressure means to said motor means and to said reservoir and providing an operative circuit for operating said motor means.

3,321,191
GAS AND LIQUID CONTACT APPARATUS
Herand K. Najarian, 1400 River Road, Beaver, Pa. 15009
Continuation of application Ser. No. 122,578, July 7, 1961. This application Feb. 11, 1966, Ser. No. 538,477
4 Claims. (Cl. 261—29)



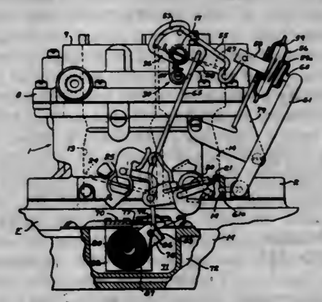
3. Gas and liquid contact apparatus comprising a liquid-holding vessel, a gas inlet, a gas outlet, means providing an inverted open-bottomed gas chamber in the upper portion of said vessel, the walls of said gas chamber being spaced at least in part from the walls of the vessel to provide passage for liquid therebetween, means providing passages inclined upwardly from the upper portion of the gas chamber into the upper portion of the vessel, a plurality of baffles in each of said passages to thereby define hurdles for gas and liquid flowing therethrough, said baffles extending inwardly of said passages and positioned crosswise of the flow path through said passages, means for maintaining a pressure differential between said gas inlet and gas outlet to cause the level of a liquid in the liquid holding vessel to stay a distance above the baffled, inclined passages, means for supplying liquid to said vessel and means for supplying a gas under pressure to the top portion of the gas chamber including means for supplying gas to the gas chamber below the surface of the liquid therein.

3,321,192
FUEL FEED AND CHARGE FORMING APPARATUS
Bernard C. Phillips, Toledo, Ohio, assignor to The Tillotson Manufacturing Company, Toledo, Ohio, a corporation of Ohio
Filed May 3, 1965, Ser. No. 452,830
3 Claims. (Cl. 261—35)



1. A fuel feed system for an internal combustion engine including, in combination, a first member having a fuel and air mixing passage and an unvented fuel compartment, a throttle valve in the mixing passage, a fuel inlet duct for said fuel compartment, valve means for said duct, passage means in communication with the fuel compartment for conveying fuel into the mixing passage, means including a diaphragm influenced by aspiration in the mixing passage operable during delivery of fuel from the fuel compartment into the mixing passage for controling said valve means to regulate fuel flow into the fuel compartment, a cavity in the first member providing a first chamber, a tubular sac-like element of flexible material in said cavity having parallely arranged fluted regions providing a second chamber, a second member secured to the first member, a body of flexible material disposed between said first and second members, inlet and outlet flap valves integrally formed on said body, fuel inlet and outlet ports controlled by said flap valves, the inlet port being adapted to be connected with a supply of liquid fuel, passage means establishing communication with one of said chambers and the fuel inlet duct in the first member, the other of the chambers being in communication with a source of varying fluid for flexing the tubular element to pump fuel from the supply to the region of the fuel inlet duct in the first member.

3,321,193
CARBURETOR
Wenford E. Highley, St. Louis, Mo., assignor to ACF Industries, Incorporated, New York, N.Y., a corporation of New Jersey
Filed Mar. 26, 1964, Ser. No. 354,969
4 Claims. (Cl. 261—39)



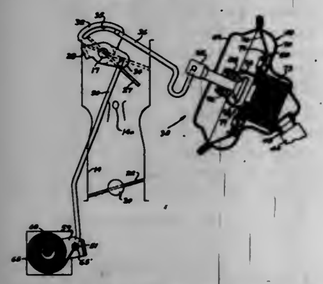
1. A carburetor device having a body, a mixture conduit extending through said body, a moveable throttle valve in said mixture conduit, a choke valve shaft journaled for rotation in said body and extending across said mixture conduit upstream of said throttle valve, a choke valve in said mixture conduit and fixed for rotation on

said choke valve shaft from an open to a closed position, a suction motor, means including a suction passage extending from said motor to an opening in said mixture conduit posterior of said throttle, a mechanical connection between said suction motor and said choke valve to move said choke valve to a partially open position in response to engine suction posterior of said throttle, a temperature responsive spring connected to said choke valve for biasing said choke valve closed at temperatures below a predetermined value, said mechanical connection including a first lever connected for rotation with said choke valve shaft and a second lever freely mounted for rotation on said carburetor body, a second spring having one end fixed to said first lever and the other end fixed to said second lever to resiliently hold said first and second levers together against the bais of said temperature responsive spring, said second spring having a resistance to expansion less than the bias of said temperature responsive spring below said predetermined temperature value and greater than the bias of said temperature responsive spring above said predetermined temperature value, and stop means cooperative with said first and second levers for limiting relative movement of said respective levers against the bias of said second spring when said choke valve is partially opened by said suction motor.

3,321,194
CARBURETOR

Harold A. Carlson, Brentwood, Mo., assignor to ACF Industries, Incorporated, New York, N.Y., a corporation of New Jersey

Filed Apr. 10, 1964, Ser. No. 358,754
3 Claims. (Cl. 261—39)

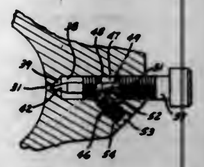


1. A carburetor device for an internal combustion engine and having a body adapted to be mounted to the intake manifold of said engine, a mixture conduit extending through said body, a movable throttle valve in said mixture conduit, a choke valve in said mixture conduit upstream of said throttle valve and mounted for movement from an open to a closed position, a vacuum motor, means forming a vacuum passage extending from said motor to said mixture conduit posterior of said throttle for providing a source of engine manifold vacuum to said suction motor, a mechanical connection between said vacuum motor and said choke valve to move said choke valve to a partially open position in response to engine vacuum posterior of said throttle, a temperature responsive spring connected to said choke valve for biasing said choke valve enclosed at temperatures below a predetermined value, said mechanical connection including an expandable link having a resistance to expansion less than the bias of said temperature responsive spring below said predetermined temperature value, and a lost motion connection between said expandable link and said choke valve to allow said choke valve to open independently of said suction motor, said expandable link including a pair of telescoping parts, one of said telescoping parts including an open tubular member (88) having one end joined to said diaphragm and movable therewith, and the other one of said telescoping parts including a shaft (38) extending therough the opening in said tubular member with one end movably positioned within said tubular member, a spring (96) having a substantially fixed resistance to expansion mounted within said tubular member and connecting said telescoping parts together for relative movement against the bias of said spring, and stop means (94) to limit relative movement of said telescoping parts to an amount less than said fixed amount of movement of said diaphragm, said shaft one end including a shaft head (95), said spring (96) being mounted between said shaft head and the other end of said tubular member, and said stop means including a portion of said tubular member intermediate said ends thereof and extending into the path of movement of said shaft head.

3,321,195
CARBURETOR IDLE ADJUST NEEDLE VALVE LOCKING DEVICE

Alfred C. Korte, St. Louis, Mo., assignor to ACF Industries, Incorporated, New York, N.Y., a corporation of New Jersey

Filed Oct. 15, 1965, Ser. No. 496,335
9 Claims. (Cl. 261—41)



1. In a charge forming device for an internal combustion engine having a body, a mixture conduit in said body for forming an air/fuel mixture, a nozzle in said mixture conduit communicated with a source of fuel to form a main fuel system, a throttle operably positioned in said mixture conduit to regulate passage of said air/fuel mixture therethrough, the improvement therein of;

(A) an idle fuel system adapted to meter a predetermined amount of fuel to said mixture conduit under engine idle conditions, said idle fuel system being adjustable to alter said metered amount of fuel within predetermined limitations to prohibit introduction of an excessive amount of said air/fuel mixture to said engine thereby avoiding the creation of unburned hydrocarbon products from said internal combustion engine during idle conditions, said idle fuel system including;

(1) means forming a cavity in the body of said carburetor communicated with a source of fuel,

(2) an idle port opening into said mixture conduit, and communicated with said means forming a cavity,

(3) valve means operably carried in said means forming a cavity and being adjustable to regulate the flow of fuel passing through said idle port and into said mixture conduit, said valve means including;

(a) a needle valve element having a shank with a tip formed on the end thereof, the latter being cooperatively disposed in said idle port opening, thereby defining a variable flow passage, said needle valve element being rotatably moveable through said means forming a cavity to alter said fuel flow,

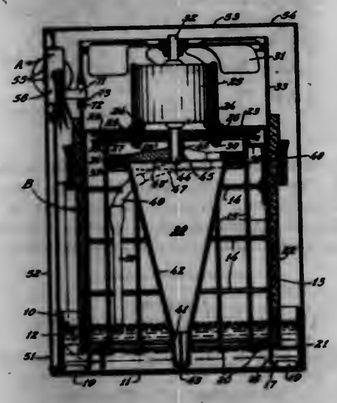
(b) a first peripheral shoulder on said valve element shank outward of said tip,

(c) locking means carried in said body and being so disposed that the longitudinal axis thereof intersects said cavity, said locking means being adjustable to engage said first peripheral shoulder on said valve element to define a contact area and thereby prevent further axial movement of said needle valve element in a direction away from said idle port opening after said needle has been withdrawn from said idle port opening a sufficient distance to provide the maximum desired amount of fuel to said mixture conduit under engine idle conditions.

3,321,196
HUMIDIFIER CONTROL

Richard W. Weatherston and George S. Marshall, St. Paul, Minn., assignors, by mesne assignments, to Fram Corporation, Providence, R.I., a corporation of Rhode Island

Filed Jan. 28, 1963, Ser. No. 254,265
1 Claim. (Cl. 261—130)



In combination with a humidifier having an inner enclosure with an air inlet thereto and an air outlet therefrom remote from said inlet, an electric motor carried by said enclosure, a fan driven by said motor for drawing air into said inlet, into said enclosure and toward said outlet, a porous blanket adjoining said outlet and through which air must pass from said inner enclosure and from said outlet, means for supplying water to said blanket, and an outer cabinet enclosing and surrounding said inner enclosure in spaced relation thereto, said cabinet having an inlet and an outlet communicating with the said inlet and outlet of the said inner enclosure, a control for the humidifier including,

a humidistat enclosed within a perforated housing,

an expansible and contractible element in said humidistat housing, responsive to variations in humidity,

switching means in said housing operable in one condition of said element to energize said electric motor and drive said fan when the moisture content of air adjacent said element falls to a predetermined minimum,

said switching means being operable in a second condition of said element to de-energize said motor and stop said fan when the moisture content of the adjacent air rises to a predetermined maximum,

means supporting said humidistat housing in said outer cabinet in the space between said cabinet and inner enclosure and adjacent said inlets of said cabinet and of said inner enclosure,

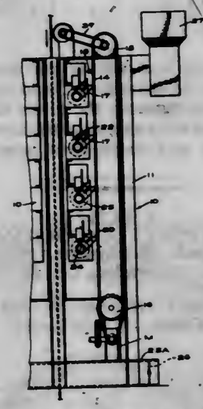
means providing an air passage between said humidistat housing and said inner enclosure adjacent its air inlet, whereby when said fan is in operation air will be forced from said cabinet inlet through said humidistat housing, and

an electrical heater supported in said humidistat housing adjacent to said humidity-responsive expansible and contractible element, energized to evaporate moisture in the air adjacent to said humidity-responsive element when said switching means is operated in its said second condition to de-energize said motor and stop said fan.

3,321,197
WEB HEATING APPARATUS

Harold W. Parslow, Utica, Mich., assignor to The R. C. Mahon Company, Warren, Mich., a corporation of Michigan

Filed June 16, 1964, Ser. No. 375,619
12 Claims. (Cl. 263—3)



1. In an apparatus for heating a web as it is moved continuously, the combination comprising

a plurality of radiant heating units mounted on opposite sides of said web,

means for mounting each heating unit for movement from a heating position adjacent the web to a non-heating position,

means responsive to the movement of the web for successively and selectively engaging said heating units and moving said heating units out of heating relation with the web as the speed of the web lessens and for successively and selectively engaging and moving said heating units to return them to heating position as the speed of the web increases,

said last-mentioned means including endless flexible means,

and interengaging means on said endless flexible means for successively engaging portions of said heating units.

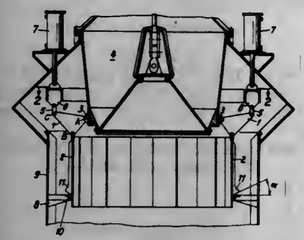
3,321,198
THROAT ARMOUR, ADJUSTABLE AS TO ITS DIAMETER, FOR SHAFT FURNACES, PARTICULARLY FOR BLAST FURNACES

Artur Otto, Duisburg-Buchholz, Hans-Jürgen Mischke, Essen, and Franz Lippeck, Essen-Borbeck, Germany, assignors to Beteiligungs- und Patentverwaltungs-Gesellschaft mit beschränkter Haftung, Essen, Germany, a corporation of Germany

Filed Nov. 17, 1964, Ser. No. 411,840
Claims priority, application Germany, Nov. 27, 1963, B 74,429
6 Claims. (Cl. 266—27)

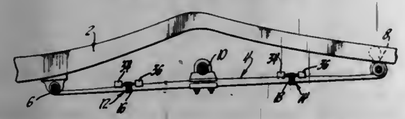
1. In a shaft furnace, in particular a blast furnace, a plurality of cylindrically arranged overlapping segments of a throat armour axially suspended in said furnace and surrounding the axis of said furnace, suspension means pivotally affixed to said furnace, each of said segments being mounted solely from a single pivot point at the top

thereof for freely suspending said overlapping segments from one point on said suspension means for permitting a pendulum movement of said overlapping segments during the operation of said furnace, moving means operatively connected to said suspension means for pivoting said suspension means about its support on the furnace



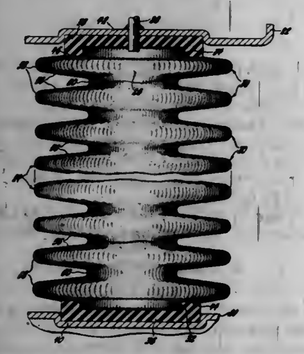
to radially move said one point of said suspension means to thereby adjust the diameter of said cylindrically arranged overlapping segments, the forces effective for adjustment the diameter of said throat armour thereby acting exclusively on said single pivot points of said segments.

3,321,199
LEAF SPRING FLUTTER DAMPER
Lothrop M. Forbush, Birmingham, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed June 3, 1965, Ser. No. 460,914
9 Claims. (Cl. 267—36)



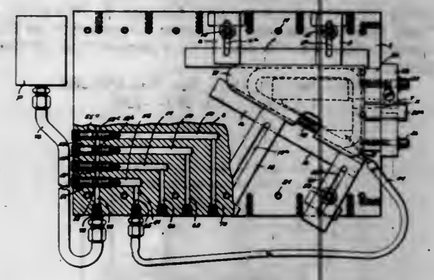
1. In a motor vehicle, the combination of a sprung mass, a leaf spring pivotally connected at its opposite ends to said sprung mass, an axle extending beneath said sprung mass and connected to said spring between said opposite ends, and torsionally active tuned damper means mounted on said leaf spring at the anti-node thereof.

3,321,200
REINFORCED PLASTIC BELLOWS SPRING
Von D. Polhemus, Pontiac, and Ming-Chih Yew, Utica, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Jan. 13, 1965, Ser. No. 425,182
8 Claims. (Cl. 267—65)



1. A compression spring comprising a bellows structure formed of glass fiber reinforced plastic, said glass fibers being oriented in said plastic so as to exhibit essentially bending deflection during compression and expansion of said bellows.

3,321,201
VACUUM CHUCK MEANS AND METHOD OF HOLDING MATERIAL
George F. Brewster, 30 Rogers Road, Kittery, Maine 03904
Filed Feb. 10, 1965, Ser. No. 431,652
6 Claims. (Cl. 269—21)

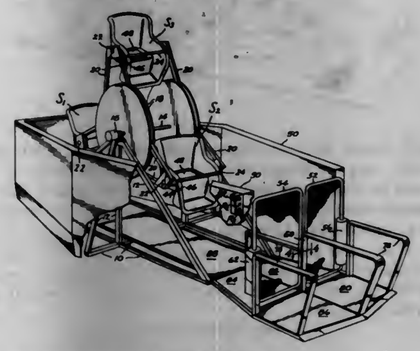


1. A vacuum chuck apparatus comprising a base, spacing block means adjustably mounted on the base, an endless elastomeric ring arranged on the base in abutting relationship to the spacing block means, and means for evacuating air through the endless ring member.

3,321,202
AUTOMATIC SHEET STACKERS
Merrill D. Martin, Oakland, Calif. (1250 67th St., Emeryville, Calif. 94608)
Filed May 3, 1965, Ser. No. 452,483
39 Claims. (Cl. 271—68)

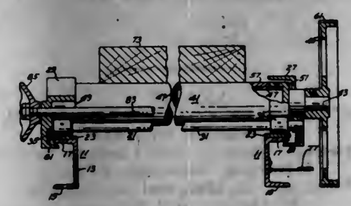
1. A machine for stacking sheets comprising
(a) a base,
(b) a stacker conveyor frame having an intake end and a stacking end,
(c) means to swivably support said stacker frame on said base so that the stacking end of said stacker frame when elevated moves on a generally perpendicular plane relatively to said base,
(d) conveyors on said stacker frame to convey sheets from the intake end to the stacking end of said stacker frame,
(e) means connected to said support means to raise the stacking end of said stacker frame for stacking the sheets conveyed to said stacking end and to lower said stacker frame after a stack is completed,
(f) means to control said raising and lowering means,
(g) tubular side and end members integrally united to form said base in a generally U-shape, with a transverse member of said base being adjacent to the intake end of said stacker frame,
(h) tubular transverse braces on said stacker frame to resist torsional distortion of said stacker frame.

3,321,203
AUTOMATICALLY CONTROLLED AMUSEMENT RIDE
James Howard Hansen, Gladstone, Oreg. (503 Palo Alto Ave., Mountain View, Calif. 94040)
Filed Nov. 12, 1963, Ser. No. 322,896
7 Claims. (Cl. 272—38)



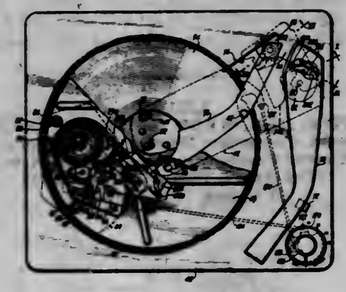
1. An amusement ride comprising:
(a) a plurality of carriers,
(b) driven means interconnecting the carriers for moving the latter through a circuitous path past a landing station,
(c) electrically actuated motor means having an electric circuit and operatively connected to the driven means for moving the latter,
(d) stop switch means associated with each carrier and operatively associated with said electric circuit and operable by an entering participant normally to stop an approaching carrier at the landing station,
(e) occupancy sensing switch means on each carrier operatively associated with the stop switch means and operable by the occupancy of a carrier to prevent stopping of that carrier at the landing station by an entering participant, and
(f) cycle switch means for each carrier operatively associated with said electric circuit and operable upon completion of a predetermined movement in said circuitous path of the associated occupied carrier to stop the said carrier at the landing station.

3,321,204
ADJUSTABLE FULCRUM ASSEMBLY FOR DIVING BOARDS AND THE LIKE
Eugene D. Pretti, Berkeley, Calif., assignor to Jacuzzi Bros., Incorporated, a corporation of California
Filed July 18, 1963, Ser. No. 296,027
2 Claims. (Cl. 272—66)



2. An adjustable fulcrum assembly for a diving board comprising
a pair of spaced parallel rails,
each of said rails being formed of an outwardly facing channel beam
a fulcrum roller carriage assembly including
a pair of bearing rollers at each end and adapted to ride on said rails,
a fulcrum roller assembly cradled in said carriage assembly and resting on said bearing rollers, with one end of said fulcrum roller assembly journalled in one end of said carriage assembly and the other end of said fulcrum roller assembly terminating in a stub shaft extending beyond the other end of said carriage assembly,
adjusting means mounted on said stub shaft to permit of rotation of said fulcrum roller assembly to cause movement of said carriage assembly with said fulcrum roller assembly along said rails,
and means for locking said carriage assembly in any desired position along said rails, said means including
a locking spindle having a handle on one end and being threaded at its other end,
said locking spindle passing through one end of said carriage assembly and being threaded into the other end thereof whereby said ends of said carriage assembly may be drawn toward each other into clamping engagement with said rails.

3,321,205
AUTOMATIC RECORD CHANGER
James T. Dennis, 812 American National Bldg., Oklahoma City, Okla. 73102
Filed Mar. 15, 1963, Ser. No. 265,421
28 Claims. (Cl. 274—10)



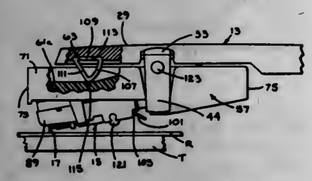
24. In an automatic record changer, a rotatable turntable, a tone arm provided with a stylus adapted to engage the grooves of a record on said turntable, automatic record changing means for supporting a stack of records above said turntable and successively releasing individual records of the stack onto said turntable during successive record changing cycles, said automatic record changing means including a cycling member movable over a longitudinal path during the record changing cycle and means responsive to said longitudinal movement of said cycling member for positioning said tone arm for engagement with the released record after it has been deposited on said turntable, means providing a normal tracking force for said stylus when in engagement with the grooves of a record positioned on said turntable, means for producing a frictional drag on said tone arm during the period said stylus engages the spiral lead in groove portion of a record on said turntable which is sufficient to prevent said stylus from skipping inwardly over the slick surface of the spiral lead-in groove portion of the record but is slight enough to be overcome when the stylus engages the lead-in groove and is led thereby to the initial recorded groove of the record, and means responsive to movement of said cycling member at substantially the end of the record changing cycle for removing said frictional drag and restoring said tracking force to normal.

3,321,206
TONE ARM REST FOR PHONOGRAPHS
William H. Wells, Woodland Hills, Calif., assignor to Newcomb Electronics Corp., Los Angeles, Calif., a corporation of California
Filed July 13, 1965, Ser. No. 471,563
3 Claims. (Cl. 274—23)



1. In a phonograph having a support, a turntable mounted on the support for rotation about an axis, a post, a tone arm having a skirt at one end having edges terminating at opposite sides in inclined portions, the tone arm being mounted on the post for angular movement about an axis substantially parallel to the axis of the turntable, and for limited tilting movement to lower and elevate the tone arm relative to the turntable, the combination therewith of: a unitary bracket of substantially U-shape immovably secured to the support adjacent the post, said bracket having a connecting portion and arms extending from said connecting portion, said bracket having an upper edge lying substantially entirely in a plane substantially perpendicular to said axes, said bracket edge extending with clearance about said skirt when said tone arm is in record playing position, said inclined portions riding up on said edge automatically to lift said tone arm when said tone arm is angularly moved beyond said playing position.

3,321,207
DAMPING MEANS FOR A PICKUP CARTRIDGE
William A. Cavagnaro, Decatur, Ill., assignor to General Electric Company, a corporation of New York
Filed Apr. 2, 1964, Ser. No. 356,815
7 Claims. (Cl. 274—24)



1. A tone arm and cartridge assembly comprising an elongated tone arm, pickup cartridge means including a record-tracking stylus pivotally supported by said tone arm near the free end thereof, said cartridge means being arranged to pivot relative to said tone arm upon engagement of said stylus with a record to be played, and a resilient damping member arranged between adjacent surfaces of said cartridge means and tone arm to cushion relative movement of said cartridge means with respect to said tone arm upon engagement of said stylus with said record, said damping member having a triangular configuration.

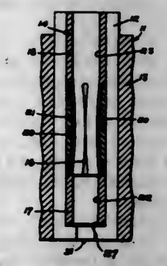
3,321,208
PHONOGRAPH BOOK WITH INDEXING MEANS
Patricia Coyle Nicholson, Washington, D.C., assignor to National Geographic Society, a corporation of the District of Columbia
Filed Feb. 8, 1965, Ser. No. 430,862
8 Claims. (Cl. 274—42)

7. A combined visual and aural information record book comprising one or more visual indicia leaves of sheet material having indicia on both sides thereof, one or more aural leaves of transparent sheet material containing helical disc recorded sound information on both sides thereof, means binding said leaves in interleaving relation with respective ones of said aural leaves adjacent respective ones of said visual leaves, said binding means being sufficiently flexible to permit any one of said leaves to be moved from an overlying position to an underlying position to thereby position of selected side of one of said



aural leaves over a selected side of one of said visual leaves, and an aperture extending through each of said leaves in alignment and centrally of said helical disc recorded sound information to enable the record to be placed on a reproducing turntable whereby the recorded sound on a selected side of a transparent aural leaf may be reproduced while said aural leaf is in a position overlying the indicia on the selected side of the visual leaf therebeneath.

3,321,209
DENTAL HANDPIECE CHUCK
Ronald D. Sanders, 232 Saddle Road, Trinidad, Colo. 81082
Filed Aug. 20, 1964, Ser. No. 390,943
18 Claims. (Cl. 279—23)



2. A chuck device adapted to hold for rotation the shaft of a work tool and comprising a hollow cylindrical chuck body positioned within and adapted for rotation with a hollow cylindrical drive shaft, said hollow cylindrical chuck body having a central body portion straddled by a front end body portion and a rear end body portion, a plurality of slots entirely defined by the surface of said central body portion, said central body portion being inwardly collapsed along said slots to provide a resilient inner chuck portion of reduced diameter, and a resilient binding material positioned between the external surface of said central body portion and the internal surface of said hollow cylindrical drive shaft.

3,321,210
ELECTRICALLY CONTROLLED SHOCK ABSORBER SYSTEM
Nedelko Delchev, Glendale, Calif., assignor to Frederick J. Harding, Northridge, Calif.
Filed Apr. 12, 1966, Ser. No. 542,076
10 Claims. (Cl. 280—6)

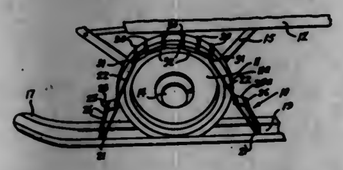
1. A shock absorber system for a vehicle having front and rear wheels comprising;
(a) one shock absorber, having an inner cylinder with plural apertures, operatively attached to the structure of each said wheel,

(b) solenoidal electrical control means within each said shock absorber and surrounding said inner cylinder,
(c) magnetic aperture-adjusting means within each said shock absorber and surrounding said inner cylinder to alter the resistance of said shock absorber to shock, when said electrical control means is electrically energized by constricting said plural apertures,



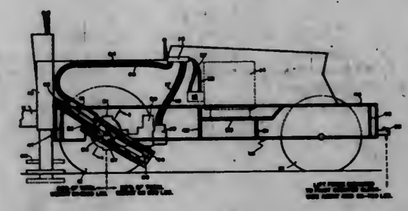
(d) a driver-operated control for said vehicle,
(e) electrical circuit means operatively connected to said driver-operated control and to said shock absorber system to selectively energize said electrical control means of selected said shock absorbers,
whereby a change in attitude of said vehicle is minimized upon said driver-operated control being actuated.

3,321,211
RUNNER ATTACHMENT
Floyd C. Bryant, 4842 Gilmore Drive, and James R. Smith, 4885 Oglethorpe Place, both of Charlotte, N.C. 28209
Filed Sept. 22, 1965, Ser. No. 489,135
4 Claims. (Cl. 280—13)



1. A device for converting a wheeled vehicle into a sled comprising a plurality of runners, one adapted to be appplied to each wheel of the vehicle, each runner comprising an elongated body having an upturned forward end, a groove extending longitudinally of the body, a pair of spaced transverse pins extending across said groove and spaced from the bottom thereof, a pair of runner securing cords each cord having one end looped around each pin, an apertured securing plate adjacent each pin, each cord extending through an aperture in said plate before looping around the adjacent pin, the looped end of each cord then being extended through another opening in said plate, means at the end of each cord for securing the looped end thereof against withdrawal from its associated aperture, and chain links extending transversely between the pair of cords adapted to engage closely over the rim of the adjacent wheel.

3,321,212
HEAVY SELF-PROPELLED WORK PERFORMING VEHICLE
Charles J. Davis, 22 Colonial, Wichita, Kans. 67207
Filed Aug. 23, 1965, Ser. No. 481,603
6 Claims. (Cl. 280—43.23)



1. Mechanism for movably connecting a wheel and axle assembly to the rigid frame of a heavy work performing vehicle to afford selective movement of the transverse wheel axis between points near and remote from the vehicle center of gravity, said assembly including a rigid transverse axle housing, said mechanism comprising:
a pair of elongated fore and aft disposed, oppositely positioned and identically oriented guide tracks, one rigidly secured to the vehicle frame at each of its sides and extending from a point adjacent a transverse vertical plane passing through the vehicle center of gravity to a remote point adjacent an end of the vehicle frame;
a pair of slide blocks, one slidable in each of said guide tracks, and rigidly secured to the axle housing near the respective opposite ends thereof; and
power means for selectively moving the wheel and axle assembly and the slide blocks in either direction along said guide tracks.

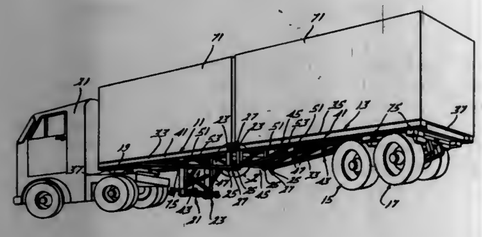
3,321,213
MERCHANDISE CART
Willie M. Shoffner, 318 S. Lutheran Church Road, New Lebanon, Ohio 45445
Filed Oct. 21, 1965, Ser. No. 500,027
5 Claims. (Cl. 280—47.34)



2. In a merchandise cart; a frame having basket means thereon to receive merchandise to be moved about in the cart, said frame having a handle at the top for manipulation of the cart and having a pair of front wheels and a pair of back wheels at the bottom, said front wheels and one of said back wheels being of swivelling caster type and the other said back wheel being a non-swivelling type wheel, the bottom of said non-swivelling type back wheel normally being slightly higher than the bottom of the other back wheel, and said frame being at least slightly flexible so that when the cart is loaded and is moved in the normal manner by said handle, both back wheels will assume their proper share of the load of the cart whereas upon movement of the cart laterally toward the swivelling type back wheel by use of the said handle, a

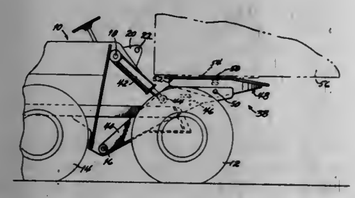
substantial portion of the load will be removed from the non-swivelling type rear wheel and the cart will therefore move readily in the lateral direction toward the swivelling type back wheel even when the cart is carrying a substantial load.

3,321,214
COUPLED TRAILER CHASSIS
Keith W. Tantlinger, Grosse Pointe Shores, Mich., assignor to Fruehauf Corporation, Detroit, Mich., a corporation of Michigan
Filed Nov. 22, 1965, Ser. No. 508,892
5 Claims. (Cl. 280—415)



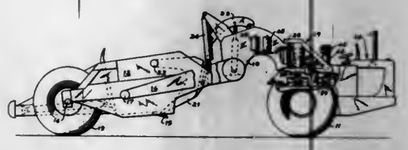
1. In combination with a pair of aligned end-to-end abutted trailer chassis, each having a depending truss means on each side thereof extending to said rear ends, a coupling device for said chassis comprising a first pair of parallel pins on each side edge of each said chassis adjacent said rear ends thereof, a second pair of parallel pins on the bottom of each said truss means adjacent the rear ends of said chassis, a loop engaging each pair of pins on opposite faces thereof for securing said chasis together, two pairs of cooperating male and female members on opposite sides of each said chassis at the rear ends thereof interengaging when said chassis are in aligned abutting relation, said chassis adapted to adjustably receive suspension means along their length.

3,321,215
ATTACHMENT FOR TRACTOR LOADER
Keith W. Kampert, Libertyville, Ill., assignor to International Harvester Company, a corporation of Delaware
Filed May 6, 1965, Ser. No. 453,743
8 Claims. (Cl. 280—425)



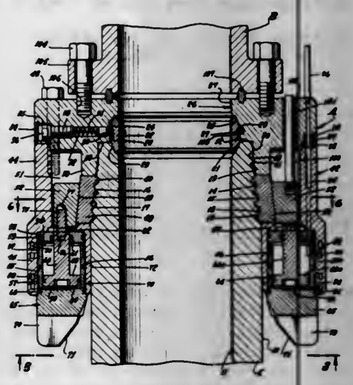
2. A trailer spotter attachment for a four wheel vehicle having first pin means positioned between the forward and rearward wheels and second pin means positioned substantially above the first pin means, the improvement comprising: a boom pivotally mounted at one end thereof to the first pin means; motor means connected between the second pin means and the boom to pivot the boom relative to the vehicle; and fifth-wheel means mounted on the free end of the boom to engage the trailer for a spotting movement thereof.

3,321,216
METHOD AND APPARATUS FOR CONTROLLING BOUNCE IN TRACTOR-TRAILER COMBINATIONS
John W. Carter, Peoria, Ill., assignor to Caterpillar Tractor Co., Peoria, Ill., a corporation of California
Continuation of application Ser. No. 332,370, Dec. 23, 1963. This application Apr. 14, 1966, Ser. No. 549,102
11 Claims. (Cl. 280—489)



6. In combination with a tractor-trailer unit wherein the trailer is supported adjacent its rear end by wheels and adjacent its forward end by a hitch assembly with the tractor, means for controlling vertical bounce of the tractor which comprises an extensible jack containing hydraulic fluid connected between the tractor and trailer unit, two gas-type accumulators both communicating operable to limit vertical movement of the forward end of the trailer, and means to vary the pressure of gas in with the interior of said jack, said accumulators being said accumulators selectively, whereby one of said accumulators tunes the natural frequency of said movement when the trailer is empty and the other of said accumulators tunes the frequency of said movement when the trailer is loaded.

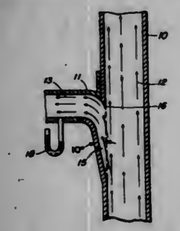
3,321,217
COUPLING APPARATUS FOR WELL HEADS AND THE LIKE
Arthur G. Ahlstone, Ventura, Calif., assignor to Ventura Tool Company, Ventura, Calif., a corporation of California
Filed Aug. 2, 1965, Ser. No. 476,417
4 Claims. (Cl. 285—18)



1. In coupling apparatus: an inner device having coupling means thereon; an outer device adapted to be inserted over said inner device; laterally shiftable means on said outer device adapted for coupling to said coupling means, said laterally shiftable means having an external tapered surface; wedge means on said outer device having an inner tapered surface complementary to and engageable with said external tapered surface of said laterally shiftable means for shifting said laterally shiftable means laterally inwardly into coupling relation to said coupling means upon axial movement of said wedge

means in one direction along said laterally shiftable means; the angle of said tapered surfaces being self-locking to retain said laterally shiftable means in coupling relation to said coupling means; cylinder means on said outer device having a head end and a rod end; piston means in said cylinder means including piston rod means extending through said rod end and connected to said wedge means and providing an effective area on the rod side of said piston means subject to fluid pressure that is substantially less than the effective area of the cylinder head side of said piston means, means for feeding fluid pressure to the rod end of said cylinder means for moving said piston means and wedge means axially in one direction to shift said laterally shiftable means inwardly to locking position, means for feeding fluid pressure to the head end of said cylinder means for moving said piston means and wedge means axially in the opposite direction to enable said laterally shiftable means to be uncoupled from said inner device, said self-locking angle being so constructed and arranged that a given radial pressure exerted by said complementary surfaces is maintained within limits such that under normal operating limits the same fluid pressure exerted in the head end of said cylinder means as is exerted in the rod end will cause release of said wedge means.

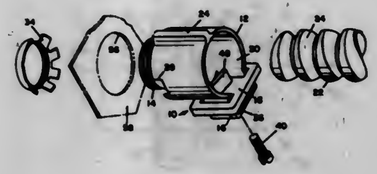
3,321,218
BRANCH DUCT CONFIGURATION OF A FLUID SYSTEM
Frederick W. Johnson, Cedar Rapids, Iowa, assignor to Collins Radio Company, Cedar Rapids, Iowa, a corporation of Iowa
Filed Oct. 27, 1964, Ser. No. 406,700
4 Claims. (Cl. 285—155)



1. A fluid duct system for circulating an expansible fluid comprising: a main duct and a branch duct mounted at an angle on said main duct, an expansion region in said main duct contiguous with said branch duct, and a fluid director forming a portion of the inner surfaces of said main duct and said branch duct to provide a smooth transitional surface extending from the inner surface of said main duct into said branch duct, said fluid director extending into the entrance of said branch duct to provide a continuous fluid path in conjunction with said expansion region, said fluid director portion of said main duct being parallel to and in alignment with the downstream portion of said main duct to provide a substantially turbulent-free duct system.

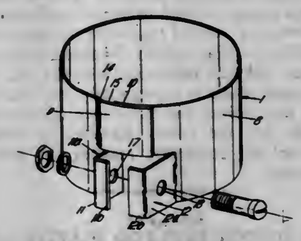
3,321,219
FLEXIBLE CONDUIT CONNECTOR
Carl J. Sebo, Clarks Summit, Pa., assignor to Atlas Electrical Fittings Co., Scranton, Pa., a corporation of Pennsylvania
Filed Aug. 3, 1966, Ser. No. 570,043
3 Claims. (Cl. 285—161)

1. A connecting member for a flexible conduit comprising a substantially cylindrical housing for receiving the end of said conduit, said housing having an integral U-shaped boss, said boss having a planar web and a pair of upstanding planar legs, said web including a threaded opening, a threaded member, said member extending through said opening substantially transversely to the axis of said housing, a planar securement member having an integral projection, said planar member adapted to be slid along said legs, said planar member being comprised of three legs which are secured together by an



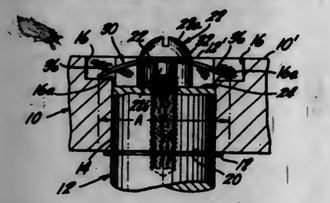
integral bridging member, said legs forming a pair of openings for receiving said upstanding planar legs, said threaded member adapted to urge said planar member against said conduit so that said projection engages said conduit for a tight securement thereof, whereby said planar member acts to isolate forces in said conduit from said threaded member.

3,321,220
TUBE INTERCONNECTION DEVICES
Kenneth Ernest Buckman, Southampton, England, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Nov. 3, 1964, Ser. No. 408,542
Claims priority, application Great Britain, Nov. 16, 1963, 45,327/63
1 Claim. (Cl. 285—419)



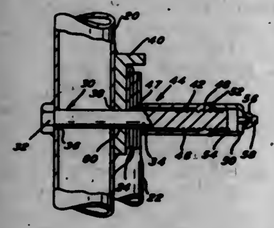
A combined connector and clamp device for interconnecting an outlet tube member on an air cleaner and an inlet tube member on a carburetter to which the air cleaner is to be connected, in which said outlet tube member comprises a sheet metal strip which has a longitudinal slit in each end thereof and is curved to form a substantially cylindrical tube at one end of which two of the slit end portions of the strip overlap each other and at the other end of which the other two of the slit end portions of the strip are formed as outwardly extending arms spaced from each other, the over-all longitudinal length of said outlet tube member being less than the diameter thereof, the outer of the overlapped end portions of the strip being radially offset at its junction with the strip so that the inner periphery of the tube presents a cylindrical surface interrupted only at said junction, each arm having an opening therein and a screw extending through the openings in said arms and carrying a nut which when tightened on the screw draws said arms together to reduce the internal diameter of said tube, and said junction being out of alignment, longitudinally of the tube, with the space between said arms.

3,321,221
FASTENER
Dwight E. Harris, Woodstock, and Gunther Zoehfeld, West Hurley, N.Y., assignors to Rotron Manufacturing Company, Inc., Woodstock, N.Y., a corporation of New York
Filed Jan. 13, 1965, Ser. No. 425,193
4 Claims. (Cl. 287—53)



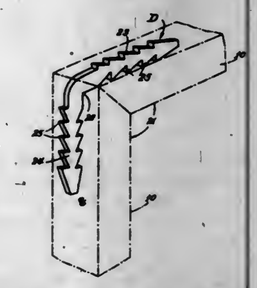
3. The combination comprising a rotary member and a driven member concentric thereto, the rotary member having at least one slot therein and the driven member having at least one slot therein shallower than the slot in the rotary member and disposed radially outwardly of the slot in the rotary member, a connector carried by and movable into a predetermined secured position on the rotary member, and a resilient washer element having a portion receivable in the slots in the members to couple them together for conjoint rotation and a portion received under and engaged by a part of the connector, the washer element having an initial arched shape relative to the shape of the adjacent surfaces of the members such that it is supported by the members at at least two first support points thereon by respective first parts on the driven member spaced at respective first distances from the said connector part and such that upon movement of the connector toward the rotary member into the said predetermined secured position, at least two second points thereon engage second parts of the driven member spaced at substantial second respective distances from the said connector part, the second distances being substantially less than the first distances, whereby the span between the second points is substantially less than the span between the first points and resistance to movement of the connector into the rotary member is substantially increased after the connector reaches the said predetermined position.

3,321,222
BRACE CONNECTION FOR SCAFFOLDING STRUCTURES
Howard Buncher, Adamson and Lehigh Drive, Easton, Pa. 18042
Filed Dec. 14, 1964, Ser. No. 417,934
5 Claims. (Cl. 287—53.5)



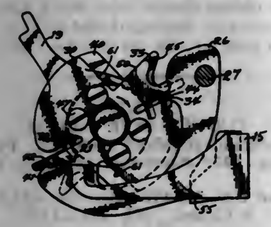
1. Apparatus comprising a brace, a structural member, and an exposed shank coupled to said structural member and extending substantially perpendicular thereto, a threaded end portion on said shank, said shank having an outer dimension approximating the outer diameter of said threaded end portion, an end portion on said brace having a slot, said slot having a width approximating the outer diameter of said shank but large enough to permit said shank to be disposed in said slot when said brace and said structural member are in connected relation, a reciprocable nut assembly threadedly connected to the threaded end of said shank, means on said shank for limiting the movement of said nut assembly away from said structural member and retaining said nut assembly in captive relationship upon said shank, said means including an enlarged head on the end of said exposed shank remote from said structural member, said head having a greater diameter than a threaded portion of said nut assembly, said nut assembly being of sufficient length to overlie the threads on said threaded end portion of said shank and prevent exposure thereof at all times during its limited reciprocal travel, said nut assembly including a nut having an axially extending portion having an end for abutment with said end portion of said brace, said axially extending portion having an end for abutment with said end portion of said brace, said axially extending portion overlying and enclosing the threads on the threaded end portion when said axially extending portion end is in abutment with said end portion of said brace, said axially extending portion overlying and enclosing the threads on the threaded end portion when said nut assembly threaded portion is abutting said shank head, and said nut assembly further including a hollow cup-shaped cap axially connected to said nut, said cap having a chamber within said cap between said wall and the end of said brace end portion and a fixed end wall, thereby defining threads on said nut.

3,321,223
CABINET CONSTRUCTION
Dwight L. Snow, Homewood, and Clifford W. Nelson, South Holland, Ill., assignors to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois
Filed Nov. 30, 1964, Ser. No. 414,766
1 Claim. (Cl. 287—189.36)



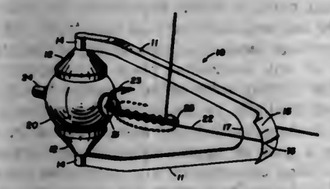
A cabinet construction comprising the combination of two elements having mitered end surfaces adapted to be placed in complemental engagement having interior walls defining rectangular interconnecting receptacles when the elements are placed in engagement with each other, and a locking member of harder and more resilient material than said elements with thin and flexible resilient leg portions respectively adapted to extend within the receptacles of the elements in a manner substantially parallel with the respective general axes of the receptacles thereof, said leg extensions having a plurality of teeth serrations formed on opposite sides thereof having a mean line extending in a direction towards an apex from which said legs extend, and with the included width between the outer extremities of opposite serrations being slightly greater than the sides between said opposite interior walls of the respective receptacles to interfere with the opposite interior walls of said receptacles to maintain a locked assemblage of said combination, said oppositely positioned teeth of each of said leg extensions being staggered with respect to said teeth of the opposite sides thereof, whereby the pressure exerted by said locking member against the interior walls of said receptacles tends to alternately deflect the resilient body portion of each of said leg extensions to increase the resilient locking pressure of each of said leg extensions.

3,321,224
TWIN DISK CORD HOLDER UNIT
Bobby Lynn Bledsoe, Stillwater, Okla., assignor to International Harvester Company, Chicago, Ill., a corporation of Delaware
Filed Apr. 14, 1965, Ser. No. 448,122
5 Claims. (Cl. 289—14)



5. A cord holder disk particularly characterized as having a peripheral slot projecting radially inwardly, a peripheral recess circumferentially removed from said slot and projecting generally inwardly, said recess and said slot segregating a cantilevered portion of the disk therebetween, the said cantilevered portion having a slot formed in its distended end.

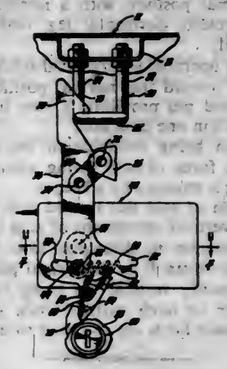
3,321,225
FISHERMAN'S TOOL
Evelyn M. Miller, 1404 1st Ave. NE., Cedar Rapids, Iowa 52401
Filed Sept. 13, 1965, Ser. No. 486,871
5 Claims. (Cl. 289—17)



1. A fishing tool comprising; a plurality of elongated members, said members being resiliently connected at one end, a plurality of smooth surfaced cup-shaped holding means so that a spherical member can be rotatably held by said holding means, each of said holding means being rigidly attached to one of said elongated members.

3,321,226
CLOSURE LATCH
James H. De Claire, East Detroit, and Akira Tanaka, Southfield, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed July 23, 1964, Ser. No. 384,715
6 Claims. (Cl. 292—65)

1. In a vehicle body, a support, striker means, a latch member, a mounting member, means pivotally connecting the mounting member on the support member, means pivotally interconnecting the latch member and the mounting member, the latch member and the mounting member being movable relative to each other and to the support, first operating means including a crank arm rotatable through a 360° cycle, pin and slot means interconnecting the crank arm and the latch member, the crank arm effecting movement of the latch member from latched to unlatched positions during rotation of the crank arm through a first half of the 360° cycle, the crank arm effecting



movement of the latch member from unlatched to latched positions during rotation of the crank arm through a second half of the 360° cycle, and second operating means cooperable with the pin and slot means for moving the latch member relative to the operating member to permit engagement and disengagement of the latch member and the striker means.

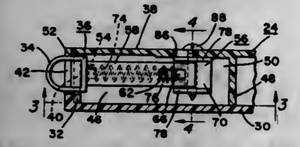
3,321,227
LATCH FOR SLIDING DOOR
Edward J. Wyrick, North Miami, Fla., assignor to Look Products, Inc., Hialeah, Fla., a corporation of New York
Filed Jan. 19, 1965, Ser. No. 426,581
8 Claims. (Cl. 292—65)



1. A latch for a sliding door comprising,
(a) a housing adapted to be secured in a transverse opening in a vertical panel stile and having a vertical wall with inner and outer sides for closing the opening,
(b) said wall having an elongated vertical slot therethrough,
(c) a finger operated latch slide on the outer side of said wall, having a portion protruding through said slot,
(d) said protruding portion being of lesser height than said slot, whereby it is vertically slidable therein,

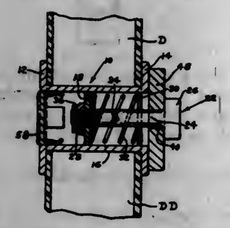
(e) a latch slide plate affixed to said protruding portion and positioned adjacent the inner side of said wall,
(f) first and second parallel pins projecting laterally from said latch slide plate in the same horizontal plane,
(g) a latch pivotally mounted upon said first pin, having a normal position with a normally vertical leg and a normally horizontal leg, both perpendicular to said wall,
(h) a spring operable to urge said latch and said latch slide plate toward this normal position,
(i) said second pin providing a stop limiting rotation of said latch in one direction,
(j) said latch being rotatable in the other direction against the force of said spring when said normally vertical leg is engaged by a keeper,
(k) the length of said slot in said wall being sufficient to permit vertical movement of said latch slide plate in one direction to disengage said latch from the keeper and return it to its normal position,
(l) said normally vertical leg being engageable with said keeper to latch with it when said latch slide plate and said latch are returned to normal position.

3,321,228
LATCH
Robert L. Sidle and Earl Reid, Dayton, Ohio, assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Dec. 28, 1964, Ser. No. 421,404
3 Claims. (Cl. 292—74)



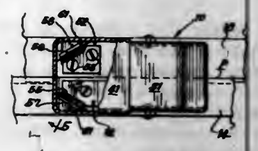
1. A latch assembly including a bolt member having a head and two arms extending in the same general direction from the head, said arms having parallel longitudinally extending slots, a second member having projections extending into said slots wherein the improvement comprises having said second member generally in the form of a rectangular block with said projections extending outwardly in opposite directions therefrom, said second member also having guide flanges extending along and parallel to the opposite edges of said two arms.

3,321,229
LOCKING MECHANISM
Oliver C. Eckel, Carlisle, Mass.
(P.O. Box 226, Cambridge, Mass. 02138)
Filed Sept. 28, 1964, Ser. No. 399,526
7 Claims. (Cl. 292—108)



1. Locking mechanism in combination with a locking bar having an oblong-shaped slot, said mechanism comprising a hollow housing, a locking wall within and fixed to an intermediate portion of said housing and having an elongate slot therethrough, an actuating member extending into and movable in said housing and extending through said latter slot embodying a stop member and an oblong-shaped head at opposite ends respectively thereof, a bearing member fixed to and movable with said locking member intermediate said stop member and head, a coil spring in said housing having opposite ends bearing respectively against said bearing member and said locking wall, a pin member within the interior of said spring when in locked position and movable therethrough and fixed in said actuating member at an intermediate portion thereof and extending laterally beyond the periphery thereof and adapted to pass through the larger portion of said slot and unadapted to pass through the smaller portion thereof, said oblong-shaped head being adapted to pass through the elongate portion of said locking bar slot and unadapted to pass through the narrower portion thereof.

3,321,230
TOGGLE-TYPE LATCH
Oscar S. Stollman, Highland Park, Ill. (% Seasontite Engineering, 5475 Northwest Highway, Chicago, Ill. 60630)
Filed Dec. 30, 1964, Ser. No. 422,335
9 Claims. (Cl. 292—113)

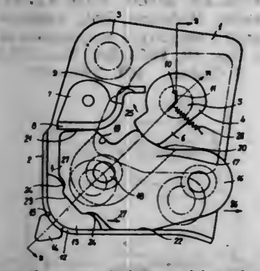


1. A toggle-type latch comprising a base secured to one of the parts to be latched, an actuator mounted at one end on a pivotal axis on said base for movement between latched and unlatched positions, a toggle mounted at one end on a parallel pivotal axis on said actuator, whereby pivotal movement of said actuator between said positions imparts a substantially translational movement to said toggle, said axes being perpendicular to the plane of separation of said parts, a strike secured to the other of the parts to be latched, each of said base and strike having opposite portions having surfaces which, at the intersection therewith of any horizontal plane, correspond substantially to the sloping sides of an isosceles triangle having its apex substantially in the plane of separation of said parts and its base toward said first pivotal axis, said toggle having a pair of oppositely-positioned, inclined surfaces for sliding engagement with respective ones of said base- and strike-surfaces when the actuator is moved to latching position, whereby translational movement of the toggle pursuant to pivotal movement of the actuator draws said surfaces into abutment to force said parts into latched relation.

3,321,231
DOOR LOCKS, NOTABLY FOR VEHICLES
Gaetan de Coye de Castelet, Billancourt, France, assignor to Regie Nationale des Usines Renault, Billancourt, France
Filed May 3, 1965, Ser. No. 452,474
Claims priority, application France, May 9, 1964, 973,896, Patent 1,403,097; Aug. 19, 1964, 985,591, Patent 86,339
5 Claims. (Cl. 292—198)

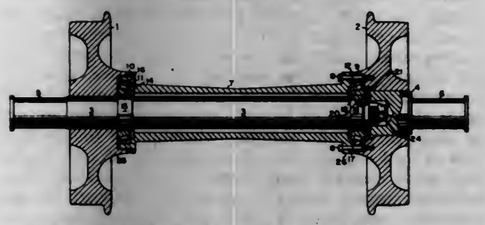
1. A door lock, notably for the doors of automobile vehicles, comprising a lock plate, a bolt, a bolt pivot means and keeper centering and guide means all of which are mounted on said lock plate, and a keeper, said bolt and said keeper being mounted one on the doorframe and the other on the door proper, said lock plate comprising first and second abutment members, said first abutment

member consisting of resilient material, said second abutment member consisting of a pair of spaced opposing flanges, said keeper being formed with surfaces for engaging between the flanges of said second abutment member and with said first abutment member, said bolt and



said lock plate the parts being positioned and formed so that when said keeper is engaged by said bolt and said bolt pivot means, the interengaging portions of said bolt and keeper, and the interengaging portions of said first abutment member and keeper lie substantially along a straight line.

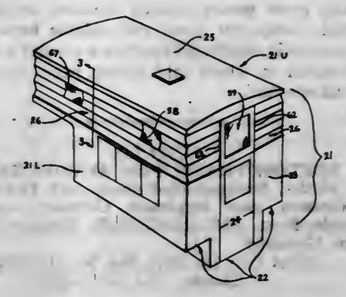
3,321,232
VEHICLE AXLE-WHEEL ASSEMBLY
Seymour F. Johnson, % Seymour F. Johnson Enterprises, 4748 Vieja Drive, Santa Barbara, Calif. 93105
Filed July 15, 1965, Ser. No. 472,087
9 Claims. (Cl. 295—37)



1. An axle and wheel assembly comprising;
(a) a first axle having a first journal, a first wheel, and a first bearing forming an integral structure in the order stated,
(b) a second axle surrounding said first axle and having a second journal, a second wheel, and a second bearing forming an integral structure in the reverse order with respect to the order of these elements on said first axle,
(c) first thrust-resisting means to cause said second bearing to bear upon said first axle, and to resist thrust inwardly between said wheels, and
(d) second thrust-resisting means to cause said first bearing to bear upon said second axle, and to resist thrust outwardly between said wheels,
whereby a differential force exerted between said first and second wheels causes rotation of said first axle with respect to said second axle at said second and said first bearings.

3,321,233
VERTICALLY COLLAPSIBLE AND FOLDABLE CAMPER APPARATUS
Robert E. Davis, 570 Barnett St., Anaheim, Calif. 92805
Filed Feb. 17, 1965, Ser. No. 433,281
12 Claims. (Cl. 296—23)

1. A vertically collapsible and foldable camper apparatus adapted for connection to a motor vehicle, comprising: a room-defining room structure having a lower room portion and an upper vertically collapsible and vertically foldable room portion carried over said lower room portion and effectively comprising an upper extension thereof, said vertically collapsible and foldable upper room portion having a base part therearound at the bottom thereof and having a top part therearound at the top thereof, said vertically collapsible and foldable upper room portion being provided with vertically collapsible and foldable side wall means connected vertically between said base part and said top part thereof; and linear motor means vertically interconnected between said lower room portion and said top part of said upper room portion for forcible vertical extension of said linear motor means and for corresponding vertical expansion and unfolding of said vertically collapsible and foldable side wall means of

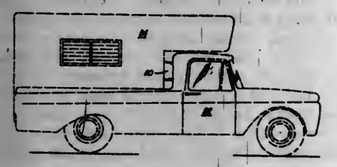


said upper room portion between a lower vertically collapsed position and an upper vertically extended and expanded position of said top part of said upper room portion with respect to said lower room portion; said linear motor means being provided with controllably disengageable and inactivatable locking means cooperable for effectively locking said linear motor means in fully vertically retracted relationship with said upper room portion in fully vertically collapsed and folded relationship with respect to said lower room portion; and indicator means cooperable with said linear motor means for perceptibly indicating to a driver of a motor vehicle, when an ignition switch thereof is in "on" position, that said linear motor means has not been locked by said locking means in said fully vertically retracted relationship.

3,321,234
SLIDABLE WINDOW CLOSURE AND BOOT COMBINATION
Wilson L. Harrell, Oklahoma City, Okla., Don E. Rowlan, 1311 SE. 41st St., Oklahoma City, Okla. 73129, and Hugh E. Harrell, Jr., Oklahoma City, Okla.; said Wilson L. Harrell and said Hugh E. Harrell, Jr., assignors to said Rowlan
Filed May 12, 1965, Ser. No. 455,209
9 Claims. (Cl. 296—23)

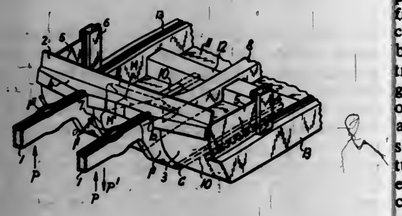
1. In combination:
a truck including a cab having a window opening in the rear wall thereof;
an enclosed housing mounted on the bed of said truck and positioned to the rear of said cab, said housing having a forward wall facing the rear wall of said cab and having an opening in said forward wall aligned with the window opening in the rear wall of said cab;
a transparent panel positioned in said window opening and having an aperture therein in alignment with the opening in the forward wall of said enclosed housing;

a tubular boot interconnecting the opening in the forward wall of said enclosed housing and the aperture in said transparent panel and forming a communicating passageway between the interior of the cab and the interior of the enclosed housing; and



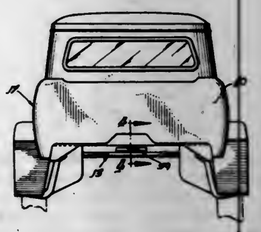
sliding panel means slidably mounted on the face of said transparent panel and slidable between a first position in which said aperture is opened and a second position in which said sliding panel means covers said aperture.

3,321,235
BOTTOM FRAME FOR AUTOMOBILES
Josef Müller, Stuttgart-Riedenberg, and Ludwig Kraus, Wettstetten, near Ingolstadt, Germany, assignors to Daimler-Benz Aktiengesellschaft, Stuttgart-Unterturkheim, Germany
Filed Oct. 19, 1964, Ser. No. 404,892
3 Claims. (Cl. 296—28)



1. A bottom frame structure for an automobile comprising a floorboard, a tunnel-shaped central longitudinal frame member and outer longitudinal frame members extending along the upper side of said floorboard, a dashboard, a pedal wall connected to the lower part of said dashboard, a pair of front posts for supporting the car body, a pair of side wall parts connected to said front posts, said side wall parts and said posts being secured to said outer longitudinal frame members, a pair of forward extensions operatively connected to said central longitudinal frame member and forming a supporting fork for the front axle suspension and having an elongated rectangular cross section comprising walls of different widths, the walls of greater width of said extensions extending substantially vertically and increasing immediately in front of said pedal wall to a height substantially equal to that of said pedal wall, a first cross member, the upper rear ends of said extensions being supported on said first cross member, said first cross member together with said pedal wall being secured to said two side wall parts and centrally to said central longitudinal frame member which is conically tapered relative to said floorboard, a second cross member on the upper side of said floorboard behind said front posts for supporting the front-seat of the automobile, and a pair of auxiliary longitudinal frame members between said central and outer longitudinal frame members and extending along the upper side of said floorboard up to said second cross member.

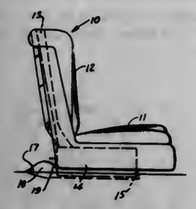
3,321,236
MOTOR VEHICLE BODY MOUNTING MEANS
Ernest R. Sewelin, Waterloo, Ind., assignor to International Harvester Company, a corporation of Delaware
Filed Dec. 10, 1964, Ser. No. 417,418
5 Claims. (Cl. 296—35)



1. In a motor vehicle having a longitudinal frame comprising a pair of longitudinally extending, transversely spaced side sill members and a transversely extending frame cross member interconnecting said side sill members and a vehicle body including a vehicle cab, a transversely extending cab cross member secured to the underside of the rearward end of said vehicle cab, the combination including said frame and vehicle body comprising, means for supporting said vehicle body upon said frame for controlled relative movement therebetween including single means for connecting said cab cross member to said frame cross member for relative, generally transverse movement therebetween including an elongated guide element carried by and arranged on a mid portion of said frame cross member whereby the longitudinal axis of said element extends transversely of said frame, said guide element being formed with a pair of longitudinally spaced, generally horizontally disposed flanges extending transversely of said frame, said single means for connecting said cab cross member to said frame cross member further including an elongated retainer member carried by a mid portion of said cab cross member, said retainer member being provided with a pair of longitudinally spaced, generally horizontally disposed flanges, a top surface each of said retainer member flanges engaging the lowermost surface of a respective guide element flange for relative sliding movement along the longitudinal axes of said guide element and said retainer member, said engaging surfaces of said flanges being effective to prevent relative vertical movement between said guide element and retainer member in one direction, and biasing means yieldably urging said slidably engaging surfaces of said guide element and retainer member flanges into frictional engagement with each other, said biasing means carried by one of said guide element and retainer member and slidably engaging the other of said guide element and retainer member, said biasing means reacting against said guide element and retainer member.

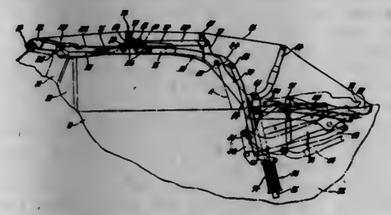
3,321,237
AUTOMOBILE WASTE RECEPTACLE
Lawrence J. Gangell, 32 Wintonbury Ave., Bloomfield, Conn. 06002
Filed Dec. 13, 1965, Ser. No. 513,919
4 Claims. (Cl. 296—63)

1. An automobile receptacle located within the seat of an automobile comprising a vertical tube disposed within the back rest of said seat, a waste receptacle positioned beneath said seat, a cut-out in the floor of said automobile for the bottom portion of said receptacle, securing means for the front portion of said receptacle to



prevent said receptacle from sliding within said cut-out when the automobile is traveling on rough roads.

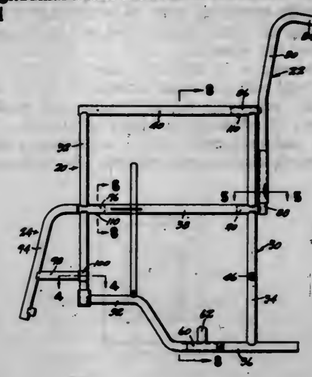
3,321,238
CONVERTIBLE VEHICLE BODY
Gerald E. Bryan, Farmington, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Aug. 23, 1965, Ser. No. 481,645
6 Claims. (Cl. 296—117)



1. In combination with a convertible vehicle body, folding top frame structure comprising, a foldable side rail disposed to a respective side of said body and being movable between raised and lowered positions, said side rail including a pair of rail sections, first means mounting one of said rail sections on said body for movement in a generally vertically disposed plane directed longitudinally of said body, and second means mounting the other rail section on said one rail section for movement therewith and movement relative thereto, said other rail section being located in said plane in the raised position of said side rail, said second mounting means moving said other rail section relative to said one rail section and generally outboard of said plane as said side rail moves to the lowered position thereof.

3,321,239
CONVERTIBLE WHEEL CHAIR
Dale L. Cosper, 1603 E. Hoover Ave., South Bend, Ind. 46615
Filed Oct. 22, 1965, Ser. No. 500,573
10 Claims. (Cl. 297—45)

1. A convertible wheel chair comprising
a wheeled main frame unit mounting a seat and having a pair of vertically spaced substantially parallel and longitudinal frame members at each side thereof, and
a backrest unit having a pair of frame parts carrying a backrest member extending therebetween,
a pair of connector members carried by each backrest frame part in spaced relation and each adapted to have an elongated releasable sliding interfit with a longitudinal frame member at either end of the latter, and



manually manipulable lock means releasably interlocking one of said connector members of each backrest frame part with a longitudinal frame member.

3,321,240
PROTECTIVE COVERING FOR OUTDOOR FURNITURE
Vera D. Lilienstern, 2 Brookside Way, Port Chester, N.Y. 10573, and Dean L. Feinberg, New Haven, Conn. (380 Wildwood Drive, Orange, Conn. 06477)
Filed May 20, 1964, Ser. No. 368,898
14 Claims. (Cl. 297—184)

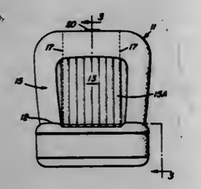


1. A protective covering for furniture comprising panel means for positive engagement with the outside surface of a piece of furniture, said panel means having front, side and back portions adapted for positive, relatively tight engagement with at least a portion of the outside surface of the corresponding parts of a piece of furniture for providing an outside cover for each corresponding part thereof, and covering means secured to at least a portion of said panel means for covering said furniture, said covering means including at least one covering portion hingedly secured along a fold line to the top edge of at least the back portion of said panel means, said covering means being normally foldable outwardly and downwardly against the outside surface of said panel means when the article of furniture is to be used by a person, said covering means being foldable along said fold line and forming a downwardly inclined covering means in non-contoured relationship with the piece of furniture for protecting same against the elements when the furniture is not in use, said inclined covering means causing rain and the like to run off when contacting said covering means.

3,321,241
ORTHOPEDIC SEAT SUPPORT
Edward Froelich, 5408 Eastview Park, Chicago, Ill. 60615
Filed June 20, 1966, Ser. No. 558,719
3 Claims. (Cl. 297—284)

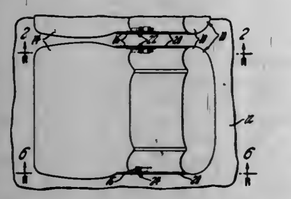
1. A seat back comprising an inner central core and exterior upholstery cover surrounding said central core with an opening provided transversely of said seat back

in the region of the top thereof; an interior fabric portion between upholstery and core; paired, spaced and longitudinally extending rows of stitching provided vertically along the front face of said seat back and securing together the upholstery cover and the fabric portion in such manner as to define an interior pocket therebetween; a rigid and contoured orthopedic device disposed in vertically adjustable manner within said pocket, said paired rows of stitching combining to provide a vertical guide for said orthopedic device, constraining the latter against lateral displacement whereby the orthopedic de-



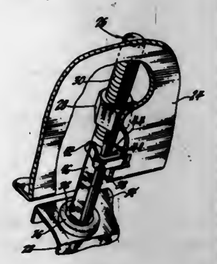
vice is adjustable in a vertical and longitudinal direction only to accommodate to the individual requirements and comfort of each user; a single strap extending through said transverse opening and attached to said orthopedic device centrally of its lateral extent; a plurality of securing means disposed along the length of a selected one of said strap and the back of said seat; and a single cooperating securing means disposed on the other one of said strap and the back of said seat, the said several securing means cooperating to make the orthopedic device precisely, positively and removably fast in selected adjustment vertically within said pocket.

3,321,242
SINGLE PIVOT SEAT BACK
Rudolph A. Ferrara, Warren, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Aug. 2, 1965, Ser. No. 476,314
4 Claims. (Cl. 297—353)



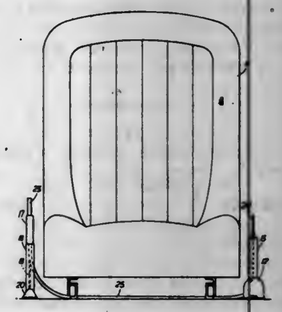
1. In combination in a vehicle body having a door on one side, front and rear seat units, a front seat unit mounted therein adjacent said door and having a seat-forming position and an easy entrance position, said front seat unit including a seat portion mounted in said vehicle body and a seat back portion pivotally secured to said seat portion, the rear edge of said seat portion being adjacent the bottom edge of said seat back portion in said seat forming position, a single hinge pivotally connecting the bottom edge of said seat back portion most remote from said door and the adjacent rear edge of said seat, said hinge having an inclined pintle secured to one of said seat unit portions, a hinge sleeve pivotably mounted on said pintle and secured to the other of said seat unit portions, a torsion spring having one end secured to said pintle and the other end bearing against the other of said seat unit portions for biasing said seat back portion toward said easy entrance position, and means for limiting pivotal movement of said seat back portion about said hinge.

3,321,243
SEAT BACK ANGLE ADJUSTMENT MEANS
Rudolph A. Ferrara, Warren, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Oct. 24, 1965, Ser. No. 504,955
5 Claims. (Cl. 297—378)



1. In combination in a vehicle body, a seating unit having a seat secured to said body, a seat back, a pivotal connection connecting said seat back to said seat, said seat back having a folded position pivoted forwardly about said pivotal connection over said seat and a plurality of generally upright seat forming positions, adjustable stop means for limiting rearwardly pivotal movement of said seat back at one of said preselected seat forming positions, preselection of said seat forming position of said seat back being accomplished by adjustment of said stop means, said adjustable stop means including a nut member fixedly secured to said seat back, a bolt member threadably engaging said nut member for longitudinal movement relative thereto by rotational movement of said bolt member, a bumper tab secured to said seat for contacting said bolt member and limiting rotation of said seat back at the preselected seat forming positions, said bolt member having a pair of parallel flat surfaces extending longitudinally thereof and a head portion for contacting said bumper tab, and spring means secured to said seat back and contacting said bolt member for coacting with said flat surfaces for holding said bolt member in the adjusted position.

3,321,244
SAFETY HARNESSES
Ivor John Davies, Thorpe Bay, and John Edward Humby, Rayleigh, England, assignors to Teleflex Products Limited, Basildon, England, a British company
Filed July 22, 1965, Ser. No. 473,978
12 Claims. (Cl. 297—388)



1. A seat safety harness comprising first anchorage means clear of the seat at one side thereof, second anchorage means clear of the seat at the other side thereof, a

single harness lap strap having an end permanently connected to said first anchorage and a portion portable across the seat, a harness retraction reel whereon said harness lap strap is reeled up at said first anchorage clear of the seat when not in use, said harness retraction reel including a retraction spring acting to reel in slack strap and a normally inoperative reel lock operable to lock the reel against turning in the direction to pay out strap but not to prevent reeling in of strap under the action of said retraction spring, a two-part manually releasable latch device a first part of which is mounted on said second anchorage while the second part is carried on the portable portion of said strap whereby when the strap has been drawn across the seat the two parts of the latch device can be mated to releasably secure said strap to said second anchorage, and reel-lock-operating means associated with said two-part latch device whereby mating of said two latch device parts automatically operates said reel lock.

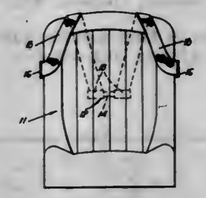
3,321,245
SELF-RETRACTING SEAT BELT
Eugene W. Christen, Birmingham, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Nov. 12, 1965, Ser. No. 507,273
1 Claim. (Cl. 297—388)



A self-retracting seat belt comprising, in combination, a strap of nonelastic material, means adjacent one end of the strap for securing the strap to anchor means, means adjacent the other end of the strap for releasably securing the strap to a member to provide a seat belt assembly for encircling a person, a pair of elastic members extending longitudinally of the strap and having adjacent ends located in spaced relationship to each other and separated by a portion of the strap, said elastic members being disposed within the strap and adjacent opposite sides thereof, means securing the elastic members to the parts of the strap located to each side of the separating portion thereof, the elastic members being oppositely prestressed and folding the strap upon itself into spiral form when the other end of the strap is released, the portion of the strap separating the elastic members being located at the core of the spiral form and the parts of the strap to which the elastic members are secured providing the coils of the spiral form.

3,321,246
SAFETY HARNESSES
Ivor John Davies, Thorpe Bay, Essex, England, assignor to Teleflex Products Limited, Essex, England, a British company
Filed June 14, 1965, Ser. No. 463,745
Claims priority, application Great Britain, June 11, 1964, 24,370/64
8 Claims. (Cl. 297—389)

1. A seat safety harness, comprising retraction reel means of the inertia type mounted centrally at the back of a seat, said retraction reel means comprising rotatable strap-receiving spool means to receive a strap and reel it automatically on to said spool means under spring action, two strap anchorage points disposed at opposite sides of the seat below the level of the shoulders of an occupant



of the seat, and two shoulder straps arranged to pass respectively over the two shoulders of a seat occupant and each having a first end secured to the strap anchorage point at its own side of the seat and a second end adapted to be reeled onto said strap-receiving spool means.

3,321,247
CHILD'S SAFETY HARNESS
Karl E. Dillender, Lexington, Ky., assignor to Irving Air Chute Company, Inc., Lexington, Ky., a corporation of New York
Filed Oct. 11, 1965, Ser. No. 494,672
11 Claims. (Cl. 297—389)



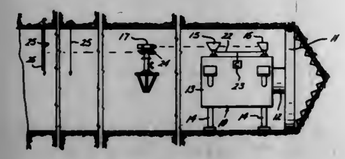
1. A child's safety harness adapted to be used in a vehicle having a generally vertically disposed seat back, comprising an upright flexible restraining anchor strap adapted to be mounted on the seat structure so as to provide a strap portion lying at the front of the seat back, a flexible waist strap slidably mounted on the restraining strap for adjustable movement in an upright and downright direction and for lateral adjustment with respect thereto, an adjustable coupling means for the waist strap whereby to vary the size thereof, right and left flexible front straps secured to the waist strap at each side of the coupling means terminating at their upper ends in shoulder straps and having strap means connected thereto which is adjustably secured for lateral adjustment to the waist strap upon the rearward portion of the waist strap, a crotch strap secured to the rear of the waist strap and adapted to extend between the legs of the wearer and upwardly in front of the wearer, and coupling means for adjustably and detachably connecting said crotch strap to the front of the harness.

3,321,248

TUNNELING MACHINE GUIDANCE BY IMPINGEMENT OF LASER BEAM ON PAIR OF MACHINE CARRIED TARGETS

Thomas N. Williamson and John M. Mullins, Houston, and Calvin D. Sholtess, Dallas, Tex., assignors to Hughes Tool Company, Houston, Tex., a corporation of Delaware

Filed Mar. 9, 1965, Ser. No. 438,280
10 Claims. (Cl. 299—1)



1. In a guidance system for a machine whose work travel direction is to be controlled, a pair of targets arranged to be carried by the machine in spaced apart alignment with one another on an axis parallel with the line of machine working travel, a signal directing device located rearwardly of the targets and arranged to project a target impinging signal beam on a forward line and of a transverse dimension which is smaller than the target area exposed thereto, preset alignment marker means fixed in rearwardly spaced relation with said machine and a direction-setting member fixedly secured with the signal directing device as a unit therewith for alignment co-action with the alignment marker means so as to aim the beam projection path of said device in selected relation with the alignment marker means for the indication by comparative locations of beam impingement on the two targets of machine position relative to said alignment marker means.

8. The method for maintaining a tunnelling machine on a prescribed course comprising presetting the location of marker means to coincide with a prescribed direction training the telescope of a combined telescope and beam projector unit toward the marker means, adjusting the position of the unit into alignment with the marker means as the latter is viewed by the telescope, then observing on a pair of longitudinally spaced apart and machine-carried targets, the beam images thereon as projected by the projector, adjusting machine position until beam images are centered on both targets, then operating the tunnelling machine while comparing beam images on the targets for determining machine positioning readjustments needed to steer the machine in the prescribed direction.

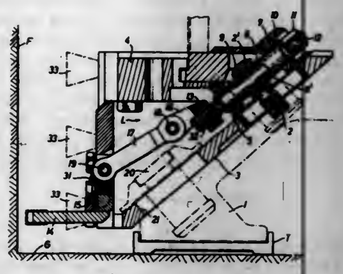
3,321,249

COAL PLANER HAVING ADJUSTABLE AND RELATIVELY ADJUSTABLE CUTTERS

Armin Löbbe, Oberaden, Germany, assignor to Gewerkschaft Eisenhutte Westfalia, Wethmar, near Lunen, Westphalia, Germany, a corporation

Filed May 7, 1965, Ser. No. 453,903
10 Claims. (Cl. 299—34)

1. A coal planer arrangement which comprises a carriage means disposed for movement along a predetermined path situated in a given relation to a mine face, said carriage means having a guide surface, a first cutter bearing element disposed for movement relative to said carriage means in a first path along the guide surface thereof, a second cutter bearing element pivotally connected to said first cutter bearing element and movable therewith along said first path, said second cutter bearing element being also movable relative to said first cutter bearing element along a second path, a first means operatively connected to said first cutter bearing element and in operative engagement with said carriage means for moving said first cutter bearing element relative thereto along said first path, a second means operatively connected to said first cutter bearing element and to said second cutter bearing element for moving same relative to said first cutter bearing element along said second path, whereby said first and second cutter bearing elements can be selectively positioned relative to each other and relative to said carriage means by said first and second movement means and thereby positioned for operative engagement with the mine face.
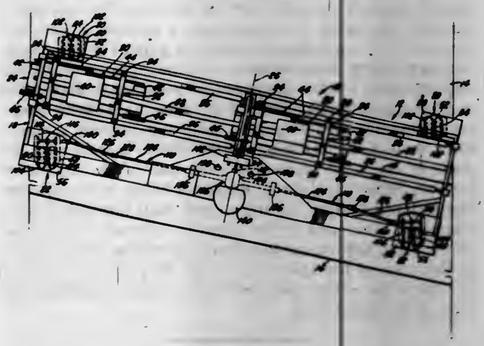


3,321,250

MACHINE FOR TRANSVERSELY SLOTTING A STRIP OF CONCRETE PAVEMENT AT DIFFERENT ANGLES

Elmer M. Truelock, Albuquerque, N. Mex., assignor to Concut, Inc., El Monte, Calif., a corporation of California

Filed Feb. 4, 1965, Ser. No. 430,353
1 Claim. (Cl. 299—39)



In a machine for transversely slotting a strip of pavement, the combination of:

(a) a wheeled vehicle movable longitudinally of the strip of pavement and including a frame supported by at least three wheel assemblies two of which are spaced apart laterally of said vehicle and are spaced longitudinally of said vehicle from the third wheel assembly;

(b) pavement slotting means, carried by said frame between said front and rear wheel assemblies and movable laterally of said frame along a transverse slotting path, for transversely slotting the strip of pavement while said vehicle is stationary;

(c) said wheel assemblies being pivotable relative to said frame about upright axes to vary the angle of said transverse slotting path relative to the path of said vehicle;

(d) said laterally spaced wheel assemblies including driving wheels;

(e) means for driving said driving wheels, including a differential on said frame between said laterally spaced wheel assemblies, and including driving connections between said differential and said driving wheels; and

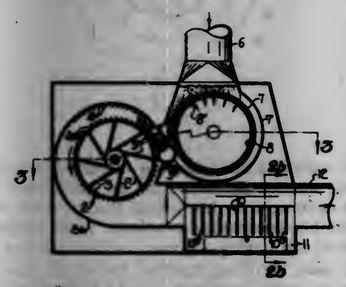
(f) said driving connections including universal and slip joints to permit pivoting of said laterally spaced wheel assemblies relative to said frame.

3,321,251

APPARATUS FOR PNEUMATICALLY CONVEYING FIBROUS MATERIAL

Ferdinand Reiterer, Rueil-Malmaison, France, assignor, by direct and mesne assignments, to Etablissements Neu, Lille, France, a French company

Filed June 11, 1964, Ser. No. 374,415
Claims priority, application France, June 11, 1963, 937,673
11 Claims. (Cl. 302—23)



1. Apparatus for pneumatically conveying fibrous material without abruptly changing the direction of flow of the material comprising a centrifugal blower including housing means forming a volute and a rotary air impeller within and surrounded by said volute and arranged to draw air into said volute axially of said impeller and to direct air centrifugally therefrom into the surrounding volute, said impeller comprising a plurality of circularly arranged spaced blades and a perforated drum encircling and rotatable with said blades, said volute having a material inlet closely adjacent the periphery of said impeller and adapted for the feeding of fibrous material into said volute toward the periphery of said drum, and said volute having a delivery outlet duct spaced from said material inlet and through which the material is conveyed by the air being centrifugally directed into said volute by said impeller whereby the material is conveyed in the volute from the material inlet to the outlet under the impetus of air currents without abrupt changes in the direction of flow of the material to minimize entanglement of the fibrous material.

3,321,252

DISTRIBUTOR SPOUT FOR SILAGE

Melvin E. Dreier, Dumont, Iowa 50625

Filed Oct. 5, 1965, Ser. No. 493,659
5 Claims. (Cl. 302—60)

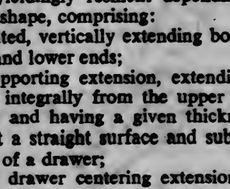
1. A distributor spout for use in directing material such as silage or the like into a storage container, comprising:

a gooseneck shaped conduit having

a base section for attachment to material moving apparatus and exteriorly of said container, and

a distributor spout adapted to extend over the top of a container to be filled and having a discharge end oriented relative to the interior of the container,

a pair of spaced parallel partitions within said distributor spout to divide it into thre parallel material flow channels for intercepting material moving through said base section,



an arcuate plate defining the end of said center channel at a point inwardly from said discharge end so as to direct material in said center channel downwardly into the container in a direction toward a selected point at the perimeter of said container,

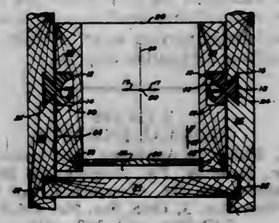
respective deflector members in said outer channels at said discharge end for respectively directing material toward different spaced points within said container so that the target points of said channels are substantially equidistant on the perimeter of said container and equidistant from each other.

3,321,253

DRAWER SLIDES

Donald E. Everburg, Southbridge, Mass., assignor to American Optical Company, Southbridge, Mass., a voluntary association of Massachusetts

Filed June 4, 1964, Ser. No. 372,526
2 Claims. (Cl. 308—3.6)



1. A drawer slide for engagement to a drawer and a drawer cabinet, formed from a material that is both stiffly and yieldingly resilient depending upon its cross section and shape, comprising:

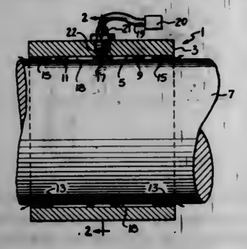
an elongated, vertically extending body portion having upper and lower ends;

a first supporting extension, extending perpendicularly and integrally from the upper end of said body portion and having a given thickness and shape to support a straight surface and substantially half the weight of a drawer;

a second drawer centering extension, curving toward said supporting extension and extending from the lower end of said body portion, said second extension being of a thickness substantially less than said given thickness and of a curved shape to flex resiliently in a perpendicular direction relative to said body portion and to hold a drawer in a centered position relative to a drawer cabinet; and

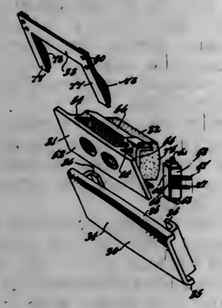
a third securing extension from said body portion for engagement with a drawer cabinet, said first and second extensions extending in one direction relative to said body portion, and said third extension extending in the opposite direction.

3,321,254
BEARING
Sydney Dock, Niles, Ill. (9057 Emerson, Des Plaines, Ill. 60018)
Filed Jan. 2, 1964, Ser. No. 335,164
12 Claims. (Cl. 308—9)



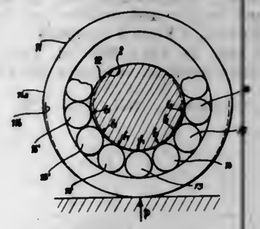
1. In combination, a bearing sleeve member, a shaft member in said sleeve, one of the members being movable relative to the other, the shaft and sleeve having sufficiently small clearance between them to provide cooperating supporting bearing surfaces, one of said members having port means at its bearing surface for delivering gas under pressure to the region between the bearing surfaces to provide thereat a supporting film of gaseous lubricant, and cooperating means on the shaft and sleeve that form restrictions at the axially opposite ends of the supporting bearing surfaces to retard the escape of gas from between the bearing surfaces, said cooperating means including rings of material deposited on one of said surfaces that prevent surface-to-surface contact of the bearing surfaces in the absence of gas under pressure therebetween, said cooperating supporting bearing surfaces extending axially and circumferentially uninterruptedly from one restriction to the other except for the port means, the area occupied by said port means being small as compared to the total areas of the bearing surface so as to utilize substantially all of said surfaces for bearing support.

3,321,255
JOURNAL END STOP
Franklin G. Fisher, Wyomissing, and Luther Lewis Bollinger, Sr., Reading, Pa., assignors to Reading Company, Philadelphia, Pa., a corporation of Pennsylvania
Filed Mar. 3, 1965, Ser. No. 436,891
5 Claims. (Cl. 308—41)



1. In a stop for a railroad car axle intended to be removably mounted in a car journal box, anchor means for attachment to a car journal box including parallel guideways at opposite sides, and an intermediate projecting block, holder means having side extensions in interfitting engagement with the guideways, having an intermediate opening receiving and engaging the projecting block and having means for mounting a bearing block, retainer means having prongs extending into the guideways and locking the holder means in the anchor means and a resilient bearing block secured within the holder means and adapted to engage and stop the end of the axle.

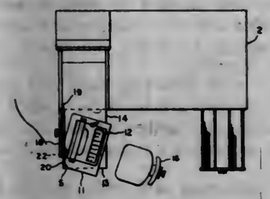
3,321,256
BEARING TRUNNIONS
Michel Orain, Courbevoie, France, assignor to Glaenzer Spicer Société Anonyme, Poissy, France, a corporation of France
Filed Sept. 28, 1964, Ser. No. 399,661
Claims priority, application France, Oct. 2, 1963, 949,339/63
3 Claims. (Cl. 308—190)



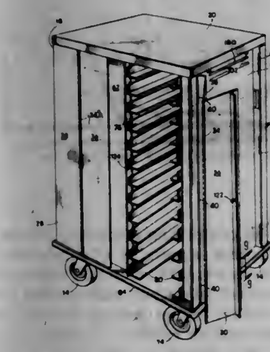
1. A radially loaded bearing assembly having a loading force applied thereon from an established direction thereby defining a predetermined loading zone, said bearing assembly comprising a spindle fixed against rotary movement and having an outer surface defining an inner bearing race, a rolling member having an inner surface defining an outer bearing race, and a plurality of rolling bearing elements disposed between said inner and outer bearing races and mounting said rolling member on said spindle for rotation thereabout, said rolling member inner surface being normally of a circular section and being elastically deformed under said loading force to a generally elliptical section having a major axis normal to the direction of said loading force, and said spindle outer surface also being of a generally elliptical section uniformly spaced from said rolling member inner surface throughout said loading zone thereby eliminating the usual undesirable constriction of the loading zone due to the deformation of said rolling member and formation of tapering throats at entrance and exit ends of said loading zone.

3,321,257
TYPEWRITER DESKS
Raymond T. Carlson, Lookout Mountain, Ga. (P.O. Box 82, Lookout Mountain, Tenn. 37350)
Filed Oct. 21, 1965, Ser. No. 499,907
6 Claims. (Cl. 312—196)

1. In a desk having a pullout typewriter shelf disposed within one side thereof the combination of a turntable vertically spaced from the shelf but pivotally mounted thereon for horizontal movement about said mounting pivot, the pivot being positioned off center, the turntable being substantially rectangular or square except for a short fifth side formed by a cutoff corner, with a vertical upright restraining strip disposed on said shelf and so attached to the shelf as to permit abutment of the fifth side thereagainst during pivoting to stop the turntable, the fifth side and the strip determining the ultimate turntable position, and means opposing movement of the turntable away from said restraining member during typing.



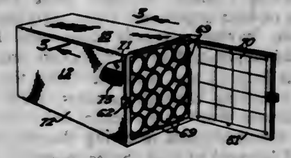
3,321,258
CART FOR TRANSPORTING FOOD TRAYS AND THE LIKE
Robert H. MacKay, Fort Wayne, Ind., assignor to Lincoln Manufacturing Co., Inc., Fort Wayne, Ind., a corporation of Indiana
Filed Aug. 17, 1965, Ser. No. 480,299
5 Claims. (Cl. 312—250)



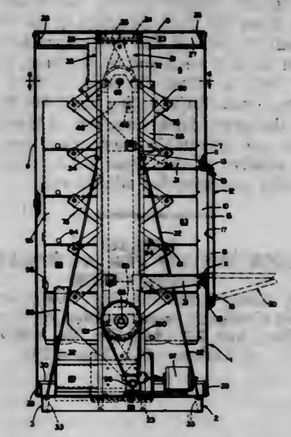
1. A storage cabinet comprising two end walls, two pairs of doors hingedly mounted on said end walls at respective corners of said cabinet and proportioned to extend between said corners and form closures at the sides of said cabinet, vertical mounting members positioned within said cabinet and providing rack supports, cushioning means surrounding said cabinet to provide protection against impacts, latching means for holding said doors in a closed position, and a rack removably supported on said rack supports within said cabinet and having vertical supports providing spaced ledges for a plurality of trays received for storage and transportation in said cabinet.

3,321,259
MULTI-COMPARTMENT ROLL FILE
Benjamin Fiterman and Leonard M. Paletz, both of Minneapolis, Minn., assignors to Fidelity File Box, Inc., a corporation of Minnesota
Filed Aug. 9, 1965, Ser. No. 478,110
4 Claims. (Cl. 312—259)

3. In a container having opposed, parallel top and bottom walls and opposed, parallel side walls of predetermined length and width hingedly connected in series and having a rectangular cross-section, and having a reinforcing ring of rectangular cross-section substantially the same as the cross-section of said container said reinforcing ring affixed to said container, the improvement which comprises: a door having inner and outer panels hingedly connected and folded around said reinforcing ring along one side thereof and secured in face contact whereby said door is hingedly connected along said reinforcing ring, said door having means securing said door to said container in closed position.



3,321,260
MECHANIZED POWER FILE CONSTRUCTION
Walter G. Anders, Canton, Ohio, assignor to Diebold, Incorporated, Canton, Ohio, a corporation of Ohio
Filed May 31, 1966, Ser. No. 553,818
7 Claims. (Cl. 312—268)



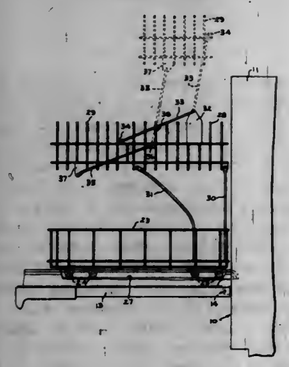
1. In mechanized power file construction of the type in which a plurality of pans are mounted on an endless conveyor carried by support means for movement in either direction in a continuous orbit of travel and any selected pan is delivered by power means to a work station location; a base, a support unit mounted on and extending upward from each end of the base; each support unit comprising a column member, an upper track assembly mounted on the column member, and a lower track assembly adjustably mounted on the column member; the track assemblies each including spaced upwardly extending channel track members each forming a chain-receiving channel portion and an adjacent roller-receiving channel portion, means adjustably connecting the lower ends of the upper track members and the upper ends of the lower track members together; an upper drive sprocket, means mounting the upper drive sprocket on and between the support unit column and upper track

assembly; a lower drive sprocket, means mounting the lower drive sprocket on the column adjacent the lower end of the lower track assembly; the upper and lower ends of the upper and lower track members terminating respectively at spaced upper and lower horizontal planes passing respectively through the axes of the upper and lower sprockets; the center lines of the track member roller-receiving channel portions being tangent to the pitch lines of said upper and lower sprockets; an endless drive chain having pivotally connected links trained around said upper and lower sprockets and having vertical flights located and movable along the track member chain-receiving channel portions; pivot pins extending at intervals from drive chain link connections into said track member roller-receiving channel portions, rollers located inboard of said chains mounted on said pivot pins movable along and trapped in said track member roller-receiving channel portions; a series of pans, scissors arms having their inner ends pivotally mounted on said roller pivot pins; each pan having end walls and a hanger shaft extending through said end walls, the ends of said hanger shafts outside said end walls being pivotally mounted and supported on the outer ends of said scissors arms; stabilizing track segments mounted on said upper and lower track assemblies inboard of said channel track members, stabilizing rollers mounted on the pan end walls engageable and traveling in said stabilizing tracks during rotary pan movement around said upper and lower sprockets; means including compressible members on the hanger shaft of one pan adjacent the pan end walls and ear means extending from the end walls of the pan next above interengageable between such pans to interlock the pans against relative lateral movement during pan movement along the track members in the orbit of travel; a drive shaft connecting the lower sprocket members of the support units at each end of the base, means driving said drive shaft in either direction to drive said endless drive chains; means for adjusting the lower drive sprockets relative to the upper drive sprockets to tension said drive chains, and said adjustable lower track assemblies being adjustable relative to the upper track assemblies in accordance with said sprocket adjustment.

3,321,261
RACK SYSTEM FOR AUTOMATIC DISHWASHER

Lauren W. Guth, Louisville, Ky., assignor to General Electric Company, a corporation of New York

Filed Apr. 22, 1965, Ser. No. 449,959
6 Claims. (Cl. 312—269)

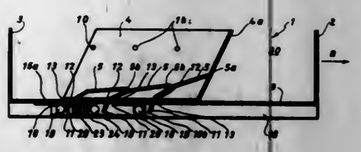


1. An automatic dishwasher comprising:
(a) an outer cabinet,
(b) a wash chamber within said cabinet,
(c) an access opening in the front wall of said cabinet to provide access to said wash chamber,
(d) a door for said access opening pivotally secured to said cabinet,
(e) a lower rack adapted to support articles to be washed within said wash chamber and further adapted for substantially horizontal movement out through said access opening,
(f) an upper rack including front and rear sections adapted to support articles to be washed within said wash chamber and further adapted for substantially horizontal movement out through said access opening, and
(g) means supporting said front section for pivotal movement between a first position wherein it is adjacent to and at substantially the same level as said rear section and a second position wherein it is spaced above said rear section.

3,321,262
MONEY TILL FOR BILLS

Emil Mogler, Rontgenstr. 11, Heilbronn (Neckar), Germany

Filed Apr. 29, 1966, Ser. No. 546,281
Claims priority, application Germany, Mar. 31, 1966, K 55,990
6 Claims. (Cl. 312—294)



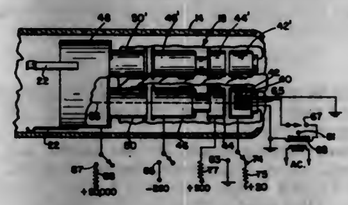
1. A money till comprising a drawer, having a bottom with apertures therein, a plurality of substantially parallel transverse partitions pivotably mounted within said drawer and spaced from each other and each having a tonguelike extension on its lower end projecting through one of said apertures, a slide member slidably mounted on the bottom of said drawer and adapted to engage upon said tonguelike extensions, and a stationary guide member adapted to engage with said slide member so as to move the same and thereby to act upon said tongues so as to pivot said partitions from a substantially prone position to an erect position when said drawer is opened.

3,321,263
CATHODE RAY TUBE MANUFACTURE

Richard G. O'Fallon, Westchester, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois

Filed Dec. 4, 1964, Ser. No. 415,977
4 Claims. (Cl. 316—18)

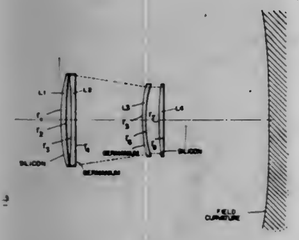
1. A process for treating a cathode ray tube to reduce the tendency for arcing among the parts thereof, including the steps of, providing a cathode ray tube having an electron gun structure including a plurality of grids subject to contamination by trace impurities capable of undesired emission of electrons, and a final anode structure to be established at an operating potential of the order of 20,000 volts during operation of said tube, getter flashing said tube after evacuation thereof whereby traces of residual gas may remain therein, and applying a high voltage aging potential of the order of 50% greater than said operating potential between said final anode structure and said grids from a current limited power supply, said high voltage aging potential and the limited current therefrom having values to cause trace impurities on said grids to produce field emission of electrons and ionization thereby of said residual gas so that such ionized gas renders said trace impurities ineffectual to cause arcing within said tube during operation thereof with the operating potential applied to said final anode structure, and said high voltage aging potential and the limited current therefrom having values less than that which will cause thermionic emission by said grids.



3,321,264
FOUR ELEMENT INFRARED OBJECTIVE

Hendrik K. Sijgers, Billerica, and Adriaan Walther, Waltham, Mass., assignors to Diffraction Limited Corporation, Inc., Bedford, Mass., a corporation of Massachusetts

Filed June 5, 1963, Ser. No. 285,687
2 Claims. (Cl. 350—2)



1. An infrared lens system comprising a forward assemblage and a rearward assemblage, said forward assemblage including a lens L_1 composed of silicon and a lens L_2 composed of germanium, said rearward assemblage including a lens L_3 composed of germanium and a lens L_4 composed of silicon, said lens L_1 having forward and rearward radii r_1 and r_2, respectively, said lens L_2 having forward and rearward radii r_3 and r_4, respectively, said lens L_3 having forward and rearward radii r_5 and r_6, respectively, said lens L_4 having forward and rearward radii r_7 and r_8 respectively, the thickness of said lenses L_1, L_2, L_3, and L_4 being designated by t_1, t_2, t_3 and t_4, respectively, the distances between said lenses L_1 and L_2 being designated d_1, the distance between said lenses L_2 and L_3 being designated by d_2, the distance between said lenses L_3 and L_4 being designated by d_3, the relationships among said lenses being approximately such that, considering the focal length f as being equal to 1, r_1, r_2, r_5, r_6, r_7, r_8, as being positive, and r_3 and r_4 as being negative:

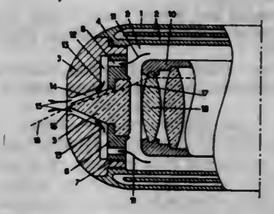
Lens Element	Radius	Thickness and Spacing
L_1	$r_1=1.087$	$t_1=0.030$ (Si)
	$r_2=1.703$	$d_1=0.087$ (Air)
L_2	$r_3=4.81$	$t_2=0.024$ (Ge)
	$r_4=10.6$	$d_2=0.438$ (Air)
L_3	$r_5=0.970$	$t_3=0.021$ (Ge)
	$r_6=0.803$ [1]	$d_3=0.088$ (Air)
L_4	$r_7=1.700$	$t_4=0.030$ (Si)
	$r_8=13.5$	

[1] Approximately.

3,321,265
OPTICAL VIEWING DEVICE PROTECTED AGAINST HEAT AND IMPACT OF MOVING PARTICLES

Serge Clave and Marcel Clave, both of 9 Rue Olivier Metra, Paris, France

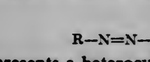
Filed June 20, 1963, Ser. No. 289,373
Claims priority, application France, June 27, 1962, 902,088, Patent 1,335,031
4 Claims. (Cl. 350—63)



1. An optical viewing device for introduction into high temperature environments containing moving particles capable of damaging glass surfaces by impact thereagainst, said device comprising an elongated hollow cooling jacket defining a central passage, lens mounting means mounted within said passage, and an optical system including an objective carried by said lens mounting means near one end of said jacket, wherein the improvement comprises a transparent protective shield included as a component of said optical system and mounted in said one end of said jacket in optical alignment with but spaced from said objective, and mounting means for holding said shield in said jacket end, said mounting means being provided with passageways for admitting cooling air from said central passage to the periphery of said shield, and said shield comprising a solid frusto-conical portion having its largest diameter nearest said objective and its axis of symmetry in alignment with the optical axis of the objective, said frusto-conical portion cooperating with said jacket end to define an annular passageway adapted to form air received from said central passage through the passageways in said mounting means into a protective current which inhibits the impact of said particles against the end of said shield remote from said objective, the ends of said shield being flat parallel surfaces at which light passing through said shield is refracted and said remote end of said shield being positioned toward the front of said jacket end at the front principal focus of said optical system and constituting the entrance pupil of said device.

3,321,266
PROCESS FOR THE DYEING AND PRINTING OF POLYPROPYLENE FIBERS
Hermann Wunderlich, Cologne-Mulheim, and Max Schwarz, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
No Drawing. Filed Jan. 9, 1964, Ser. No. 336,616
Claims priority, application Germany, Jan. 11, 1963, F 38,745
14 Claims. (Cl. 8—42)

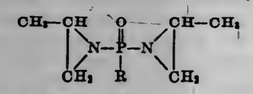
1. A process for the dyeing and printing of polypropylene fibers which comprises, dyeing the fibers with an aqueous dispersion of a monazo dyestuff free of sulfonic acid groups and characterized by the formula:



wherein R represents a heterocyclic nucleus selected from the group consisting of a thiadiazolyl radical and a triazolyl radical, and R_1 represents the residue of an azo coupling component wherein the hydroxyl substituent is in an ortho-position with respect to the azo bridge.

3,321,267
TREATMENT OF POLYOLEFIN-NITROGENOUS RESIN FIBER WITH METHYL AZIRIDINYL PHOSPHOXIDES
Alberto Bonvicini and Ennio Ildos, Terni, Italy, assignors to Montecatini Edison S.p.A., Milan, Italy, a corporation of Italy
No Drawing. Filed May 20, 1963, Ser. No. 281,830
Claims priority, application Italy, May 24, 1962, 10,341/62
14 Claims. (Cl. 8—100)

1. In a method of preparing dyeable textile fibers by molten mass extrusion of a mixture of a polyolefin consisting essentially of isotactic macromolecules and a basic resinous nitrogen compound selected from the group consisting of polyalkylene imines, polyvinylpyridines, and polycondensates of epichlorohydrin with aliphatic amines, the improvement comprising contacting said fibers at a temperature of from about room temperature to 150° C. with a solution of a phosphorus compound of the formula



wherein R is selected from the group consisting of alkyl, aryl, and imino radicals, to thereby improve the dyeability and the color fastness of said fibers.

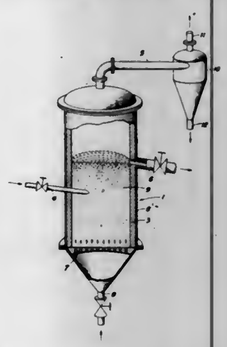
3,321,268
CONVERSION OF CAUSTIC SODA TO SODA ASH
Raymond L. Copson, Syracuse, Carlton J. Howard, Salina, and Clarence F. Hecklinger, Camillus, N.Y., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York
Filed Sept. 25, 1963, Ser. No. 311,411
6 Claims. (Cl. 23—63)

1. A process of converting aqueous sodium hydroxide solutions to anhydrous sodium carbonate of high bulk density, which process comprises establishing a moving bed of finely divided particles of soda ash flowing from the inlet to the exit end of a confined zone, maintaining said moving bed at a temperature within the range of from 90° C. to 135° C., continuously feeding onto the inlet end of said moving bed the solution of sodium hydroxide while continuously passing over said moving bed a stream of carbon dioxide in amount at least equal to the stoichiometric amount required to convert the sodium hydroxide introduced onto said moving bed to sodium carbonate, and continuously removing the sodium carbonate thus produced from said confined zone at the exit end thereof.

3,321,269
PROCESS FOR THE PRODUCTION OF CRYSTALLINE CALCIUM CARBONATE OF VATERITE TYPE
Eizo Yasui, Shichiro Shoda, Hiroshi Suzuki, and Hiroshi Yamada, all of Nagoya-shi, Japan, assignors to Toa Gosei Kagaku Kogyo Kabushiki Kaisha, Tokyo, Japan
Filed July 7, 1964, Ser. No. 380,751
3 Claims. (Cl. 23—66)

1. The process for the production of crystalline calcium carbonate of the vaterite type having a maximum grain size of 5 microns which comprises the steps of: (a) vigorously agitating an aqueous solution of calcium chloride; (b) reacting said solution with gaseous carbon dioxide during the course of said agitating step; (c) maintaining the pH of said solution at a minimum value of 8 said reacting step by the addition of ammonium hydroxide; and (d) maintaining the reaction temperture in the range from 11° to 20° C.

3,321,270
PROCESS FOR MANUFACTURE OF CYANATES
Kenneth E. Davis, Taylor, Charles F. Deck, Trenton, and Arnold L. McMaster, Lincoln Park, Mich., assignors to Wyandotte Chemicals Corporation, Wyandotte, Mich., a corporation of Michigan
Filed Nov. 18, 1963, Ser. No. 324,504
13 Claims. (Cl. 23—75)



1. A prpcess for preparing alkali metal cyanates comprising contacting a solution of urea and alkali metal hydroxide with at least one heated surface at a temperature of from about 250 to 600° C. and recovering the resulting alkali metal cyanate product.

3,321,271
SYNTHESIS OF ALUMINUM SILICATE WHISKERS
Robert C. Johnson, Norris, and Wilbur H. Warwick, Andersonville, Tenn., assignors to the United States of America as represented by the Secretary of the Interior
No Drawing. Filed Feb. 2, 1965, Ser. No. 429,930
4 Claims. (Cl. 23—110)

1. A process for preparation of aluminum silicate whiskers comprising reacting an aluminum halide in the vapor state with water vapor and a silica material from the group consisting of silica and aluminum silicate, the reaction being carried out at a temperaure of from about 1000° C. to about 1400° C.

3,321,272
PROCESS FOR MAKING CRYSTALLINE ZEOLITES
George T. Kerr, Cherry Hill Township, Camden County, N.J., assignor to Mobil Oil Corporation, a corporation of New York
Filed Dec. 27, 1962, Ser. No. 247,572
4 Claims. (Cl. 23—113)

1. In a method for synthesizing a solid crystalline aluminosilicate molecular sieve having the crystal structure of faujasite, the improvement comprising seeding the reaction mixture utilized to form said molecular sieve with seed crystals having the crystal structure of faujasite and which have been made from a reaction mixture used to prepare said crystalline aluminosilicate molecular sieve prior to completing crystallization of said last mentioned reaction mixture and before such time as crystals other than those having the crystal structure of faujasite are formed.

3,321,273
PROCESS FOR THE PREPARATION OF METAL SULFAMATES
Alfred Fischer, Bronx, N.Y., assignor, by mesne assignments, to Tenneco Chemicals Inc., a corporation of Delaware
No Drawing. Filed Aug. 14, 1963, Ser. No. 301,984
14 Claims. (Cl. 23—114)

1. The process for the production of metal sulfamates which comprises introducing a gas selected from the group consisting of oxygen and an oxygen-containing gas into a suspension of a finely-divided metal selected from the group consisting of nickel, cobalt, iron, lead, copper, cadmium, zinc, aluminum, and mixtures thereof in an aqueous solution of sulfamic acid, said suspension containing an amount of the metal that is at least equivalent to the amount of sulfamic acid that is present and containing an amount of water sufficient to dissolve the metal sulfamate that is formed at a temperature in the range of approximately 15° C. to 65° C., thereby forming an aqueous solution of said metal sulfamate.

3,321,274
PROCESS FOR REDUCING NITRIC OXIDE TO NITROUS OXIDE
Lynn H. Slaugh, Pleasant Hill, Calif., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed Dec. 13, 1963, Ser. No. 330,228
1 Claim. (Cl. 23—157)

The process for reducing nitric oxide to nitrous oxide which comprises reacting nitric oxide with hydrogen in the presence of rhenium heptasulfide at a temperature of from about 20° C. to about 150° C.

3,321,275
PROCESS FOR RECOVERING SULFUR DIOXIDE AND AMMONIA FROM AQUEOUS SCRUBBING SOLUTION OBTAINED FROM AMMONIA SCRUBBING OF GASES CONTAINING SULFUR OXIDES
Herbert Furkert, Junkersdorf, near Cologne, and Hans Mühlenbein, Cologne-Lindenthal, Germany, assignors to Chemiebau Dr. A. Zieren G.m.b.H., Cologne-Braunsfeld, Germany, a corporation of Germany
Filed Dec. 1, 1964, Ser. No. 415,095
Claims priority, application Germany, Dec. 3, 1963, C 31,573
11 Claims. (Cl. 23—178)

1. A process for recovering sulfur dioxide and ammonia from aqueous scrubbing solution obtained from ammonia scrubbing of gases containing sulfur oxides, comprising

(i) acidifying said scrubbing solution by adding a mixture of compounds having the formula M_2SO_4 and $MHSO_4$ wherein M is at least one cation selected from the group consisting of the alkali metals and ammonium cations, whereby sulfur dioxide is formed and removed,

(ii) (a) precipitating a solid salt containing ammonium cations from the solution remaining after the formation of sulfur dioxide, (b) separating said solid salt,

(iii) decomposing said salt by heating to between 200° C. and 400° C. to form ammonia and a salt having the formula $MHSO_4$,

(iv) reducing a part of said $MHSO_4$ to form a mixture of compounds having the formulae $MHSO_4$ and M_2SO_4 which is useful as the mixture of compounds in step (i) of this process and which is recycled to step (i).

2. The process of claim 1 wherein in said step (iv), said compound $MHSO_4$ is reduced with an agent selected from the group consisting of hydrogen, sulfur, carbon, and sulfur and carbon-containing reducing compounds.

3,321,276
PREPARATION OF SILICA GEL
Alfred J. Burzynski and Robert E. Martin, Toledo, Ohio, assignors to Owens-Illinois, Inc., a corporation of Ohio
No Drawing. Filed Oct. 23, 1965, Ser. No. 504,202
6 Claims. (Cl. 23—182)

1. A method of preparing solid, hard, substantially spherical beads comprising a gel of silica which consists essentially of the steps of:

(1) forming a mixture consisting essentially of ethyl orthosilicate, water in a volume ratio of water to ethyl orthosilicate of at least 2, a strong mineral acid, other than such acid that is reactive with said silica, in said water in an amount sufficient to provide said water with a maximum pH of 1, and a sufficient amount of a material capable of functioning as an emulsifying agent in the presence of water having said pH value;

(2) agitating the mixture at suitable time and temperature until the mixture becomes a single clear phase as a solution;

(3) adding to the solution a water-soluble inorganic metal salt capable in sufficient amount of increasing the ionic strength of said water;

(4) continuing the agitation until dispersed oily droplets separate from the solution;

(5) providing further agitation of the mixture until said droplets harden to form said solid beads; and

(6) separating said solid beads from said mixture, said addition of the ionizable salt being made in an amount sufficient to provide hardening of said droplets between the time of formation of the clear solution and the completion of said further agitation whereby the presence of said salt during said further agitation assists in the hardening of the droplets to form said solid beads.

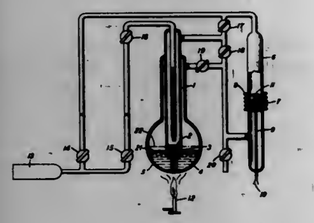
3,321,277
LITHIUM OXIDE HAVING ACTIVE ABSORPTION CAPACITY FOR CARBON DIOXIDE AND METHOD OF PREPARING SAME
Ricardo O. Bach, Gastonia, N.C., assignor to Lithium Corporation of America, Inc., New York, N.Y., a corporation of Minnesota
No Drawing. Filed Jan. 15, 1964, Ser. No. 337,754
8 Claims. (Cl. 23—184)

1. A method of preparing lithium oxide having active absorption capacity for carbon dioxide comprising the

steps of providing substantially pure anhydrous lithium peroxide in the form of granules having a connected porous structure, and thermally converting said peroxide to lithium oxide under conditions to substantially maintain the connected porous structure of the granules by slowly heating it at a temperature of from 225 degrees C. to 450 degrees C. under reduced pressure in an inlet atmosphere.

8. A porous lithium oxide structure having high absorptive capacity for carbon dioxide, comprising substantially dust-free, coarse granules of intimately interconnected particles of lithium oxide of at least 90% purity, said granules having a size ranging from about 1/16 inch to 5/6 inch and a molar-volume ratio of about 15/20.

3,321,278
PROCESS FOR CONTROLLING GAS PHASE COMPOSITION
Henry C. Theuerer, New York, N.Y., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Dec. 11, 1961, Ser. No. 158,246
15 Claims. (Cl. 23—204)

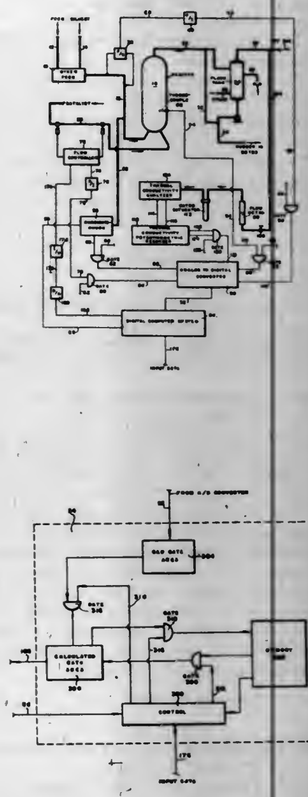


1. Method for producing a solid containing at least two components which in the liquid state have different vapor pressures from a body of liquid solution comprising contacting a capillary flow path to the said body under conditions such that liquid in the said body flows through the said path by capillarity, transforming the said liquid of said components to a vapor at the end of the path removed from the said body at a rate substantially equal to the rate of liquid flow through the said path, and transforming at least a portion of the said vapor to a solid.

3,321,279
HYDROGEN PEROXIDE
Selwyn Donald Williams, Luton, England, assignor to Laporte Chemicals Limited, Luton, England, a British company
No Drawing. Filed Oct. 26, 1964, Ser. No. 406,592
Claims priority, application Great Britain, Oct. 30, 1963, 42,902/63
8 Claims. (Cl. 23—207)

1. In a process for producing hydrogen peroxide in which organic intermediate is subjected to hydrogenation in a solvent system in the presence of a catalyst, the organic intermediate is separated from the catalyst after hydrogenation and subsequently oxidized with oxygen to produce hydrogen peroxide and said hydrogen peroxide is then removed from said solvent system by aqueous extraction, the improvement comprising treating the hydrogen peroxide after that said removal with at least one organic solvent mixture which contains at least one hydrocarbon solvent constituent and at least one polar solvent constituent, subequntly separating solvent mixture and hydrogen peroxide to thereby obtain hydrogen peroxide having reduced impurities.

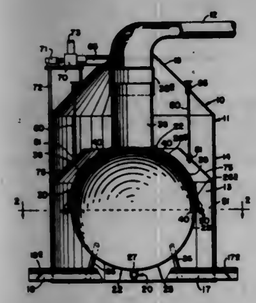
3,321,280
COMPUTER CONTROL METHOD FOR PRODUCTION OF BUTYL RUBBER
Ide P. Trotter, Jr., Robert P. Larkins, and William O. Webber, Baytown, Tex., assignors, by mesne assignments, to Esso Research and Engineering Company, Elizabeth, N.J., a corporation of Delaware
Filed June 26, 1964, Ser. No. 378,202
1 Claim. (Cl. 23—230)



In an improved method of controlling a Butyl rubber making system, said system including a reactor, a flash tank, a feed line connected to the reactor, a catalyst line connected to the reactor, a line interconnecting the reactor and the flash tank, and a vaporized hydrocarbons line extending from the flash tank, the improved method comprising the steps of: continuously analyzing the composition of the feed to the reactor, analyzing the amount of unreacted hydrocarbons and diluent from the flash tank, measuring the temperature in the reactor, measuring the feed flow rate, and measuring the catalyst flow rate; producing electrical analog signals with an analog signal being representative of each of said feed composition, said unreacted hydrocarbons and diluent, said temperature, said feed flow rate, and said catalyst flow rate; sampling by means of gate circuits the feed flow rate, the catalyst flow rate, the feed composition, the unreacted hydrocarbons and diluent, and the temperature in the reactor; feeding said samples to an analog-to-digital converter and converting said samples into digital signals; feeding said digital signals to a raw data area; starting a calculating cycle when the composition of the feed

analysis has been completed, said calculating cycle including feeding previously stored temperature data from a memory to a calculated data area, feeding temperature data from the raw data area to the calculated data area, predicting in the calculating data area the temperatures at future times for the reactor, feeding corrected temperature data from the calculated data area to the memory, feeding previously stored feed composition data from the memory to the calculated data area, feeding feed composition data from the raw data area to the calculated data area, predicting in the calculated data area the feed composition, feeding corrected feed composition data from the calculated data area to the memory, feeding the catalyst and feed flow rate data from the raw data area to the calculated data area, and calculating in the calculated data area the percentage of unreacted hydrocarbons required in the reactor to make the desired quality of rubber during the interval before the next calculating cycle; feeding the actual unreacted hydrocarbons data from the raw data area to the calculated data area and comparing this data with the predicted amount of unreacted hydrocarbons data; and, if the predicted amount of unreacted hydrocarbons varies from the actual amount by a predetermined quantity, feeding a digital signal from the calculated data area to a digital-to-analog converter and then to a current-to-pressure transducer, and using the pressure to adjust the catalyst flow rate.

3,321,281
APPARATUS FOR PRODUCING CARBON BLACK
Rice P. Lynn, P.O. Box 2, San Angelo, Tex. 76901
Filed Feb. 15, 1966, Ser. No. 527,614
7 Claims. (Cl. 23—259.5)



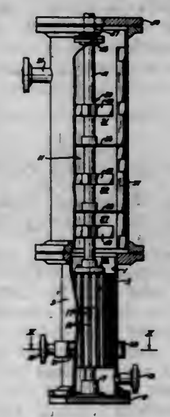
1. An apparatus for producing carbon black including: a furnace; a discharge flue at the upper end portion of said furnace; a burner in said furnace; means for introducing gas having hydrocarbons into the lower portion of said burner; a hood disposed above and about the upper portion of said burner and spaced therefrom to provide a passage therebetween; a stack extending from the hood to the discharge flue at the upper end portion of the furnace and providing closed communication between the underside of the hood and the discharge flue; means for introducing oxygen bearing gases into said furnace below said burner whereby a portion of said oxygen bearing gases enter the passage between the burner and the hood and the remainder of said oxygen bearing gases pass over the hood to the upper portion of the furnace; a draft vent at the upper portion of the furnace communicating with the interior of the furnace exteriorly of the hood and stack; means for drawing gases out of said furnace through said draft vent to control flow of oxygen bearing gases through the furnace.

3,321,282
VESSEL SUBDIVIDED BY PARTITIONS INTO SEVERAL CELLS TRANSVERSELY TO ITS LONGITUDINAL AXIS
Rudolf Schneider, Krefeld-Bockum, and Otto Court, Neuss, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
Filed May 11, 1965, Ser. No. 454,845
Claims priority, application Germany, May 12, 1964, F 42,854
1 Claim. (Cl. 23—273)



Vessel subdivided by partitions into several cells transversely to its longitudinal axis and externally tempered, said vessel having an inlet and an outlet in which a liquid only partly filling the vessel is introduced at one end and conducted away at the other end, said vessel being equipped with a stirring mechanism to which rotating stirrer means having eccentrically mounted blades are attached in the individual cells, said partitions being constructed in the form of rings which are attached with their outer surfaces to the inner wall of said vessel and provided with an opening having an adjustable overflow dam therein arranged to control the depth of a ring of liquid which forms on the inner wall of said vessel between the rings when said stirring mechanism rotates.

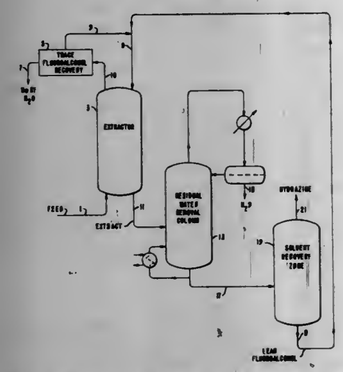
3,321,283
APPARATUS FOR CONDUCTING RAPID CHEMICAL REACTIONS
Raymond M. Ewald, New Martinsville, W. Va., assignor to Mobay Chemical Company, Pittsburgh, Pa., a corporation of Delaware
Filed Dec. 23, 1963, Ser. No. 332,416
2 Claims. (Cl. 23—283)



1. An apparatus for rapidly mixing two liquid streams together which comprises a chamber having walls defined by a surface of rotation, a rotor rotatably disposed and closely fitting within said walls, said rotor having a plurality of lands and grooves, said grooves being substantially separated from each other by said lands and juxtaposed portions of said walls, said lands and said grooves extending the entire longitudinal length of said

rotor, a first inlet means for continuously introducing a first solution into said grooves, said first inlet means including an opening in said wall of said chamber below said rotor, a second inlet means for intermittently introducing a second solution into said grooves, said second inlet means including a plurality of openings in the wall of said chamber adjacent to said rotor, said lands of said rotor operating in conjunction with said plurality of openings to interrupt the introduction of said second solution into said grooves as said rotor is rotated about its axis, and a means for discharging the mixtures of said first and second solutions from said chamber.

3,321,284
EXTRACTION OF HYDRAZINE FROM AQUEOUS SOLUTION USING A FLUORINATED ALCOHOL
Arthur K. Dunlop, Berkeley, Calif., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware
Filed Aug. 23, 1963, Ser. No. 304,060
4 Claims. (Cl. 23—312)



1. An extraction process for separating hydrazine from aqueous solutions thereof which comprises:
(a) mixing a water immiscible C_{5-21} fluoroalcohol containing at least five substituted fluorine atoms with the aqueous hydrazine feed solution,
(b) allowing the mixture to settle and decanting off a hydrazine-fluoroalcohol layer and
(c) distilling the hydrazine-fluoroalcohol layer to separate and recover the hydrazine as a product.

3,321,285
MOLYBDENUM FIBER REINFORCED ALUMINA
Harold G. Sowman, Maplewood, Minn., assignor to Minnesota Mining & Manufacturing Company, St. Paul, Minn., a corporation of Delaware
Continuation of application Ser. No. 25,900, May 2, 1960. This application Nov. 12, 1964, Ser. No. 410,773
1 Claim. (Cl. 29—182.5)

A sintered ceramic structure consisting essentially of alumina and containing a multiplicity of elongated, discrete, independent wire-like sintered molybdenum reinforcement means of predetermined size and of relatively elongated shape about 5 mils to 60 mils in smallest dimension and about 50 mils to 1 inch in length, randomly dispersed and embedded throughout the said structure, and having random grain orientation characteristic of sintered molybdenum powder, and the surface of said reinforcement means conforming to and being in continuous contact with the irregular, random alumina grain structure in contact therewith to positively interlock mechanically each of the said molybdenum reinforcement means with the alumina over the entire surface of each of said reinforcement means.

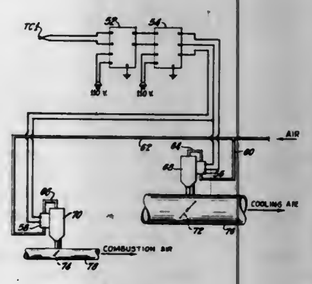
3,321,286
SINTERED FUEL CELL ELECTRODES OF METAL AND ACTIVATED CARBON
Milton B. Clark, North Royalton, and William G. Darland, Jr., Parma, Ohio, assignors to Union Carbide Corporation, a corporation of New York
Filed Jan. 11, 1963, Ser. No. 250,939
10 Claims. (Cl. 29—182.5)

1. A fuel cell electrode comprising a discontinuous phase of activated carbon powders distributed among and throughout a sintered supporting metallic matrix of substantially inert and conductive powders selected from the group consisting of nickel, iron, cobalt, titanium and silver; said carbon powder being present in an amount by weight of the mixture of from about 5.0% to 50%, and said metallic powders having an average particle size of between 0.1 and 40 microns.

3,321,287
METHOD OF IMPREGNATING LUBRICANT INTO ABRASIVE WHEELS
Jesse F. Hunsberger, Pottstown, and Donald J. Tucker, Huntingdon Valley, Pa., assignors to A. P. de Sanno & Son, Inc., Phoenixville, Pa., a corporation of Pennsylvania
No Drawing. Filed July 20, 1964, Ser. No. 383,926
1 Claim. (Cl. 51—295)

The process of improving the cooling capability of a vitrified bonded abrasive wheel which comprises the steps of preparing a dispersion of graphite powder in isopropyly alcohol wherein the graphite forms about 7% of the dispersion, forming a mixture of the dispersion of graphite powder and isopropyl alcohol with a liquid phenol-formaldehyde resin wherein the phenol-formaldehyde resin comprises about 15% of the mixture, dipping the vitrified bonded abrasive wheel into the mixture and impregnating the mixture within the pores of the wheel, removing the wheel from the mixture and allowing it to drain, and curing the mixture.

3,321,288
METHOD FOR CONTROLLING THE TEMPERATURE OF HEAT-SOFTENABLE MATERIAL
Paul D. Griem, Jr., Newark, Ohio, assignor to Owens-Corning Fiberglas Corporation, a corporation of Delaware
Filed Feb. 28, 1964, Ser. No. 348,203
2 Claims. (Cl. 65—17)



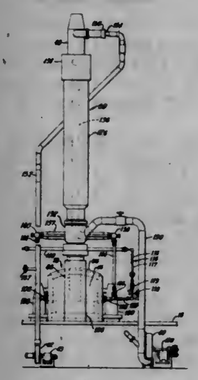
1. In a method for delivering molten glass to a glass working operation through a temperature control zone at rates of flow according to the rate of withdrawal of the glass at the glass working operation, including the steps of supplying cooling air over the molten glass flowing through the zone, and supplying hot combustion gases over the glass flowing through the zone, the improvement comprising simultaneously and continuously supplying both cooling air and hot gases over the molten glass in the zone and varying at least one of the volumes of said cooling air and hot gases to maintain the temperature of the glass downstream of the zone substantially constant.

3,321,289
ROTATABLE CURRENT BAFFLE IN GLASS FLOW FURNACE
Robert Touvay, Paris, France, assignor to Compagnie de Saint-Gobain, Neuilly-sur-Seine, France
Filed Nov. 5, 1962, Ser. No. 235,451
Claims priority, application France, Nov. 17, 1961, 879,310
10 Claims. (Cl. 65—340)



1. A glass furnace of continuous flow type in which the currents tend to form and to move out of the working zone, having a current controlling baffle extending into the path of the currents, the baffle being composed of a rotor having a plurality of faces of different shape which act differently when opposed to the flow of a glass current, and means to rotate said baffle.

3,321,290
APPARATUS FOR PROCESSING FILAMENT-FORMING MINERAL MATERIALS
Frank Day, Granville, and Magnus L. Froberg, Newark, Ohio, and Jerry B. Holschlag, Greenwood, S.C., assignors to Owens-Corning Fiberglas Corporation, a corporation of Delaware
Original application May 29, 1961, Ser. No. 113,526. Divided and this application June 11, 1965, Ser. No. 463,203
3 Claims. (Cl. 65—346)



1. Apparatus for processing heat-softenable material including; in combination, a furnace formed with a melting and refining chamber, a stack construction at one end of the furnace, means adjacent the stack end of the furnace for feeding raw batch material into the chamber, means associated with the furnace walls for heating the chamber, said means including a plurality of combustion burners, means for conveying fuel and air to said combustion burners, means for controlling the burners to establish temperature gradients in the chamber, means for transferring heat from the gases of combustion to the air delivered to the combustion burners, and air injector means delivering air into the stack for controlling the internal pressure in the chamber.

3,321,291
METHOD FOR THE CONTROL OF UNDESIRABLE PLANT GROWTH
Edward D. Weil, Lewiston, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York
No Drawing. Filed Aug. 2, 1965, Ser. No. 476,681
6 Claims. (Cl. 71—2.3)

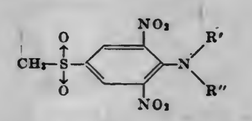
1. A method for the control of undesirable plant growth comprising contacting said plant with a herbicidally effective amount of a composition selected from the group consisting of



and herbicidal esters thereof of a carbon chain length of up to about 20 carbon atoms.

3,321,292
4-METHYLSULFONYL-2,6-DINITRO-N,N-SUBSTITUTED ANILINES AS HERBICIDES
Samuel B. Soloway, Sittingbourne, England, and Kenneth D. Zwahlen, Modesto, Calif., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed Oct. 8, 1965, Ser. No. 494,268
13 Claims. (Cl. 71—2.3)

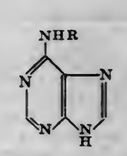
1. A herbicidal composition comprising from about 1 percent to about 75 percent by weight of the total composition of a compound of the formula:



wherein
R′ and R″ each is a member of the group consisting of alkenyl of at least two carbon atoms and alkyl of at least two carbon atoms, R′ and R″ together containing a total of no more than eight carbon atoms, and with the proviso that R′ and R″ together can represent unsubstituted alkylene of six to seven carbon atoms, and an inert horticultural diluent therefor.

3,321,293
METHOD OF DEFOLIATING COTTON PLANTS
Anthony A. Sousa, Raleigh, N.C., assignor to Union Carbide Corporation, a corporation of New York
No Drawing. Filed Apr. 29, 1964, Ser. No. 363,591
3 Claims. (Cl. 71—2.5)

1. Method of selectively defoliating cotton plants without inducing substantial ancillary herbicidal effects, which comprises applying to the plants a defoliatingly effective amount of a purine derivative represented by the formula



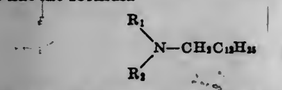
where R is a member chosen from the group consisting of phenyl, alkyl-substituted phenyl of from 7 to 10 carbon atoms, benzyl, and alkyl-substituted benzyl of from 8 to 11 carbon atoms.

3,321,294
HERBICIDAL METHOD

Harold Miller, Newtown Square, Pa., and Russell Nelson, Tacoma, Wash., assignors to Pennsalt Chemicals Corporation, Philadelphia, Pa., a corporation of Pennsylvania

No Drawing. Filed Oct. 1, 1965, Ser. No. 492,331
6 Claims. (Cl. 71—2.5)

1. The process of contacting terrestrial plant life with a herbicidal effecting amount of a water soluble amine salt of 3, 6-endoxohexahydrophthalic acid wherein said amine has the formula



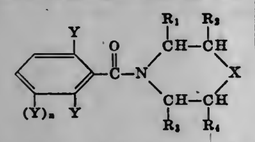
said R_1 and R_2 groups being lower alkyl radicals and wherein the $—C_{12}H_{25}$ moiety is branched.

3,321,295
METHOD OF CONTROLLING UNDESIRED PLANTS

Peter E. Newallis, Morris Plains, N.J., and John P. Chupp and Joseph W. Baker, Kirkwood, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed Nov. 4, 1965, Ser. No. 506,411
12 Claims. (Cl. 71—2.5)

1. A method of controlling undesired plants which comprises applying to the locus to be protected a growth altering amount of a compound of the structure



wherein n is an integer of from 0 to 1; X is a radical selected from the group consisting of $—CH_2—$, —NH—, —O— and —S—; Y is a halogen atom and R_1, R_2, R_3 and R_4 are each selected from the group consisting of hydrogen, halogen, lower alkyl radicals and hydroxy substituted lower alkyl radicals.

3,321,296
METHOD FOR THE PREPARATION OF AN ORGANIC SOIL CONDITIONER FROM PEAT-MOSS

Ryonosuke Abbe, 36 Ikebukuro, Naka-ku, Yokohama, Kanagawa Prefecture, Japan

No Drawing. Filed Mar. 12, 1964, Ser. No. 351,546
4 Claims. (Cl. 71—24)

1. A method for the preparation of an organic soil conditioner from peat-moss which comprises treating the peat-moss with an aqueous solution of at least one member selected from the group consisting of calcium hydroxide and magnesium hydroxide to form a past mixture and then heating the resulting paste mixture at an elevated temperature under pressure of at least two atmospheres.

3,321,297
HOMOGENEOUS COMPOSITIONS OF AMMONIUM NITRATE, MONOAMMONIUM PHOSPHATE, AND DIAMMONIUM PHOSPHATE

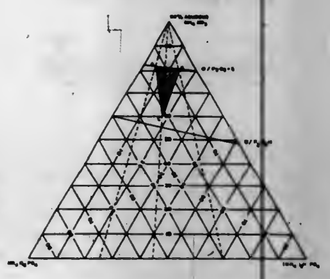
James G. MacArthur, Mission, Kans., Billy W. Threadgill, Parkville, Mo., and Glenn A. Terry and Willard C. Ball, Prairie Village, Kans., assignors to Gulf Oil Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Aug. 10, 1966, Ser. No. 571,553
1 Claim. (Cl. 71—50)

A clear, homogeneous liquid composition having a freezing point within the range of 120° C. to 145° C. consisting of aqueous ammonium nitrate of at least 95 percent concentration and a mixture of monoammonium phosphate and diammonium phosphate, the proportions of the components of said composition being limited to those represented by points lying within a triangular area defined by straight lines connecting the points,

(A) representing a composition consisting of about 83 percent by weight of 95 percent ammonium nitrate, the balance consisting of a mixture of 75 weight percent monoammonium phosphate and 25 weight percent diammonium phosphate,

(B) representing a composition consisting of about 81 percent by weight of 95 percent ammonium nitrate,



the balance consisting of a mixture of 70 weight percent diammonium phosphate and 30 weight percent monoammonium phosphate, and

(C) representing a composition consisting of about 60 percent by weight of 95 percent ammonium nitrate, the balance consisting of a mixture of 55 weight percent monoammonium phosphate and 45 weight percent diammonium phosphate,

said points being plotted on a triangular composition diagram of the system 95 percent ammonium nitrate-monoammonium phosphate-diammonium phosphate.

3,321,298
TUNG OIL ENCAPSULATED CONTROLLED RELEASE WATER-SOLUBLE FERTILIZER

Verne C. Bidlack, Sr., 407 Cheltena Ave., and Verne C. Bidlack, Jr., 237 Summit Ave., both of Jenkintown, Pa. 19046

Filed Mar. 20, 1964, Ser. No. 353,536
3 Claims. (Cl. 71—64)

1. A capsule for the controlled release of fertilizer comprising an inner core of water-soluble fertilizer and an outer coating consisting essentially of tung oil.

3. The process for the production of a capsule for the controlled release of fertilizer comprising the steps of

(1) admixing tung oil with a water-soluble fertilizer in particulate form in the absence of a solvent, and

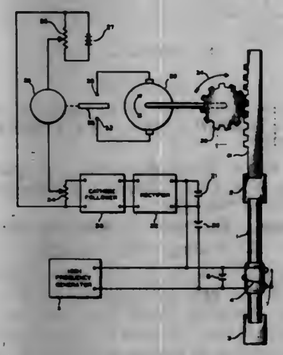
(2) agitating said admixture in the presence of air until the tung oil forms a dry coating around an amount of said particulate fertilizer.

3,321,299
APPARATUS AND PROCESS FOR PREPARING SEMICONDUCTOR RODS

Richard J. Binder, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

Filed Oct. 13, 1964, Ser. No. 403,490
15 Claims. (Cl. 75—10)

1. In a method of zone melting a rod of semiconductor material in which the rod is vertically supported at both ends and a molten zone, produced by inductive heating through the medium of a high frequency work coil surrounding said rod, is formed in said rod intermediate the two ends thereof, said molten zone being caused to move relative to said rod along the longitudinal axis thereof to establish an interface of resolidification between said molten zone and the rod formed therefrom, the improvement which comprises utilizing the voltage of said work coil, which voltage changes with a change in the diameter of the interface of resolidification, for controlling means to effect a change in the diameter of the inter-

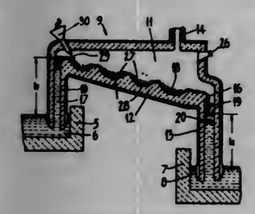


face of resolidification which restores said voltage to a predetermined voltage when said voltage changes therefrom thereby maintaining said interface of resolidification with a substantially uniform diameter and thus forming said semiconductor rod with a substantially uniform diameter.

3,321,300
DEGASSING OF METALS OR ALLOYS

Howard Knox Worner, New Lambton, New South Wales, Australia, assignor, by mesne assignments, to Conzinc Riotinto of Australia Limited, Melbourne, Victoria, Australia, a corporation of Victoria

Filed Aug. 7, 1964, Ser. No. 388,203
Claims priority, application Australia, Aug. 13, 1963, 34,188/63
10 Claims. (Cl. 75—49)



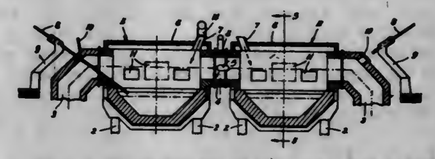
1. A method for degassing molten metallic material which comprises elevating the molten metallic material under reduced pressure up a barometric inlet leg into a reduced pressure degassing chamber, subjecting the molten metallic material to turbulence and cascading action for exposing a large surface area to the reduced pressure in the degassing chamber by flowing it under gravity in a relatively thin film over at least one ridge in the surface of the bottom of the degassing chamber, holding the thus exposed molten material for a relatively long time in said degassing chamber by flowing it into at least one recess therein which has an appreciable total volume to form a pool of molten metallic material for permitting greater time for gas bubble nucleation and gas bubble removal, the molten metallic material being caused to flow through the said pool, and causing the degassed molten metallic material to flow out of the recess over a further ridge and out of the degassing chamber through the barometric outlet leg.

3. Apparatus for degassing molten metallic material which comprises a first vessel containing molten metallic material to be degassed, a syphon unit having an inlet leg dipping into the said molten metallic material, a second vessel containing degassed molten metallic material, the syphon unit having an outlet leg dipping into the degassed molten metallic material in the second vessel, said syphon unit having an intermediate member disposed between and communicating with the inlet leg and outlet leg, a degassing zone in the intermediate member, means on said intermediate member for connecting the degassing zone to a source of reduced pressure, an extended generally sloping surface in the intermediate member over which the molten metal or alloy is flowed under gravity, said intermediate member having at least two ridges thereon and at least one recess of appreciable total volume in the extended generally sloping surface between said ridges in which a pool of molten metallic material is contained.

3,321,301
PROCESS OF REFINING IRON AND HEARTH FURNACE FOR CARRYING OUT THIS PROCESS

Franz Bartu and Alfred Slesaczek, Knmacht-Zurich, Switzerland, assignors to Maerz Ofenbau AG, a corporation

Filed June 30, 1964, Ser. No. 379,283
Claims priority, application Austria, July 22, 1963, A 5,826/63; May 15, 1964, A 4,267/64
8 Claims. (Cl. 75—60)



1. A process of producing refined iron, which comprises contacting a first quantity of iron in the form of a melt at a refining temperature in a first hearth with an oxidizing gas to refine said first quantity of iron and produce carbon monoxide-containing exhaust gases, providing a second quantity of iron at a temperature below said refining temperature in a second hearth, which is connected by a transfer duct to said first hearth, sucking exhaust gases from said first hearth through said duct and introducing said exhaust gases into said second hearth to form a stream of carbon monoxide-containing exhaust gases in said second hearth, admitting to said stream a combustion-supporting agent in at least one jet from at least one nozzle, burning said exhaust gases with the aid of said combustion-supporting agent, and passing said burned exhaust gases out through a gas outlet, in which process said at least one jet is formed by said at least one nozzle positioned in the roof of said second hearth and opening into said second hearth outside, adjacent to and above said transfer duct at the inlet end of said second hearth, with an inclination to the bath surface of said second hearth, and said at least one nozzle being the nearest to the gas outlet of any nozzle positioned in the roof of said second hearth.

2. A hearth furnace consisting of two hearths, one a refining hearth and the other a preheating hearth at a given time, a transfer duct connecting the hearths in series, a gas outlet for each hearth at the opposite end from the transfer duct, at least one nozzle in each hearth for admitting a combustion-supporting agent to each hearth, said at least one nozzle being positioned in the roof of each of the hearths, opening within the hearth outside, adjacent to and above said transfer duct at the inlet end of each said hearth, with an inclination to the bath surface of each of said hearths, said at least one

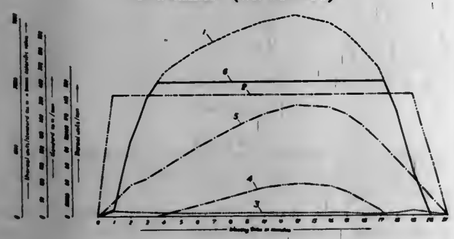
nozzle being the nearest to the gas outlet of any nozzle positioned in the roof of each of said hearths.

3,321,302

METHOD OF UTILIZING THE HEAT CONTENT OF A COMBUSTIBLE GAS DURING REFINING PIG IRON

Karl Rieder, Linz, Austria, assignor to Vereinigte Osterreichische Eisen- und Stahlwerke Aktiengesellschaft, Linz, Austria, a company of Austria

Filed Dec. 18, 1964, Ser. No. 419,449
Claims priority, application Austria, Dec. 23, 1963, A 10,376/63
3 Claims. (Cl. 75—60)



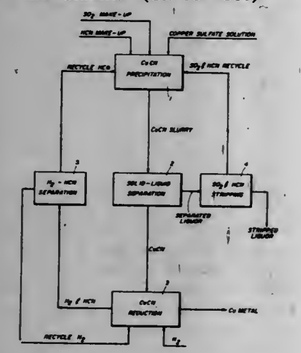
1. In a method for utilizing the heat content of a combustible gas during refining crude iron by means of oxygen blown from above onto the crude iron bath and evolving waste gases during the combustion of carbon, said waste gases escaping from the converter and passing through a chimney including a waste heat boiler system and subsequently being stored, the steps comprising adding an oxygen-containing gas to the waste gases before they enter the chimney, the oxygen content of said gases being controlled during the blowing period to vary between about 100% and about 7% by volume in such manner that the oxygen content is continually decreased during the first part of the blowing period and continually increased during the second part of the blowing period to enable a partial combustion of the carbon monoxide contained in the waste gases in the chimney so that the total of sensible heat of the waste gases produced and the heat of combustion generated during the major part of the blowing period is maintained substantially constant.

3,321,303

RECOVERY OF COPPER

Edward S. Roberts, Ridgewood, N.Y., assignor to The Treadwell Corporation, New York, N.Y., a corporation of New York

Filed Sept. 6, 1966, Ser. No. 577,502
25 Claims. (Cl. 75—106)



15. A process for producing essentially pure cuprous cyanide from an acid aqueous copper salt solution containing significant amounts of impurities in the form of soluble salts of polyvalent metals, the anion of the copper salt being substantially non-reactive and also does not substantially solubilize CuCN, which comprises reacting the acid solution with hydrogen cyanide and a reducing agent capable of reducing cupric salts to cuprous salts, to precipitate a major portion of the copper present as essentially pure cuprous cyanide and separating the cuprous cyanide thus precipitated.

3,321,304

MATERIALS FOR AND METHODS OF TREATING MOLTEN FERROUS METALS TO PRODUCE NODULAR IRON

William E. Snow, Birmingham, Ala., assignor to American Cast Iron Pipe Company, Birmingham, Ala., a corporation of Georgia

No Drawing. Filed Dec. 23, 1963, Ser. No. 332,902
21 Claims. (Cl. 75—130)

1. An agent for use in the treatment of molten metals and alloys of the iron group to effect the formation of nodular iron consisting solely of at least one piece of a porous carbonaceous refractory material selected from the group consisting of porous metallurgical coke in lump form and porous graphite in preshaped form having a porosity of approximately 50% and an average pore diameter of less than about .020 inch, the pores of said refractory material being filled with a reactive metal selected from the group consisting of magnesium, sodium, potassium, rubidium and cesium.

14. A method of treating molten metals and alloys of the iron group to effect the formation of nodular iron by submerging in a bath of the molten iron metal a body of refractory material containing a reactive metal selected from the group consisting of magnesium, sodium, potassium, rubidium and cesium, the temperature of the molten iron bath being greater than the boiling point of the reactive metal, and maintaining said body submerged in the bath beneath the surface thereof while the latent heat of the molten iron metal vaporizes the reactive metal and causes the latter to enter the iron metal and produce nodularization of the graphite therein, wherein the improvement resides in the use of a body of refractory material which consists solely of porous metallurgical coke in lump form having a porosity of approximately 50% and an average pore diameter of less than .020 inch, the pores of said coke being filled with the reactive metal when the coke is initially submerged in the molten iron metal, whereupon the reactive metal is expelled from the pores of the coke as a vapor and enters the iron metal in a controlled manner without violent reaction, leaving the spent coke intact in porous lump form.

3,321,305

CATHODIC PROTECTION ALLOYS

Roy A. Hine, Banbury, England, assignor to Aluminium Laboratories Limited, Montreal, Quebec, Canada, a company of Canada

No Drawing. Filed May 1, 1962, Ser. No. 191,430
Claims priority, application Great Britain, May 11, 1961, 17,277/61
3 Claims. (Cl. 75—146)

1. An aluminium alloy for use as sacrificial anode material consisting essentially of tin, 0.01–2%, zinc, 0.5–10%, and the balance being aluminium and incidental impurities of copper up to 0.15%, magnesium up to 0.05%, silicon up to 0.25%, iron up to 0.35%, titanium up to 0.01% and manganese up to 0.1%, said tin being dispersed throughout the alloy matrix as a fine precipitate rather than at the grain boundaries.

3,321,306

GALVANIC ANODE ALLOY AND PRODUCTS PRODUCED THEREFROM

John T. Reding, Freeport, and John J. Newport III, and James R. Minderhout, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed July 23, 1964, Ser. No. 384,775
5 Claims. (Cl. 75—146)

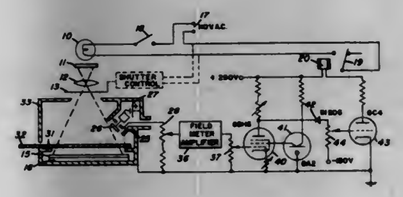
1. An aluminium alloy consisting essentially of;
from about 0.01 to about 1 weight percent zinc,
from about 0.002 to about 0.2 weight percent mercury, and
balance aluminum.

3,321,307

EXPOSURE CONTROL IN XEROGRAPHIC PRINTING

Franz Urbach, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Filed July 15, 1963, Ser. No. 295,143
10 Claims. (Cl. 96—1)



1. In a xerographic process for controlling the exposure of a substantially uniformly charged photoconductor, the steps which comprise: exposing said photoconductor imagewise while simultaneously measuring the changes in the electric field as charges are effectively removed in exposed areas, and terminating said exposing when the measured change in the electric field reaches a predetermined value.

4. A projection printer for imagewise exposing a substantially uniformly charged surface of a photoconductor sheet comprising
means for projecting a light beam onto said surface with an image in focus,
a field meter with its sensing electrode facing said surface but not obscuring said beam for measuring the average electric field adjacent to the surface, and means controlled by said field meter for terminating said projecting means when the field decreases to a value equal to that of an electrostatic image of approximately optimum quality.

3,321,308

XEROGRAPHIC INDUCTION RECORDING

Lewis E. Walkup, Columbus, Ohio, assignor, by mesne assignments, to Xerox Corporation, Rochester, N.Y., a corporation of New York

Filed May 17, 1963, Ser. No. 281,181
1 Claim. (Cl. 96—1.1)

A method of deformation recording by induction comprising:
(a) coating a deformable layer of conductive material over a dimensionally stable conductive support layer;
(b) coating a softenable layer of insulating material having a thickness range of 5 microns to 5 mils over a dimensionally stable insulating support layer;
(c) positioning said softenable layer in uniform contact against said deformable layer;
(d) connecting said conductive support layer to an electrical reference in common with a cathode ray tube of a type designed to pass electrical charges from the cathode ray beam through the face of the tube;
(e) selectively charging said insulating support layer by said cathode ray tube to form a latent electrostatic image corresponding to modulations of said cathode ray beam; and,
(f) softening said softenable layer to compliancy so that charges induced between the interface of said softenable layer and said deformable layer produce a relief image at said interface in the pattern of said latent electrostatic image.

3,321,309

PROCESS FOR THE PRODUCTION OF PRINTING PLATES

Maximilian Karl Reichel, Wiesbaden-Biebrich, Germany, assignor, by mesne assignments, to Azoplate Corporation, Murray Hill, N.J.

No Drawing. Filed Oct. 23, 1964, Ser. No. 406,163
Claims priority, application Germany, Oct. 26, 1963, K 51,191
9 Claims. (Cl. 96—36)

1. A process for developing light-sensitive material which comprises exposing a coated metallic base material to light under a master, the coating comprising a light-sensitive compound capable of rendering the coating insoluble in aqueous alcohol upon exposure to light and at least one compound selected from the group consisting of an N-alkoxymethylated poly-ε-caprolactam and an N-alkoxymethylation product of a partially depolymerized polycondensate consisting of the monomeric units of a ω,ω'-diamine condensed with a ω,ω'-dicarboxylic acid, removing the non-light struck portions of the coating by treatment with a solvent, hardening the remainder of the coating by treatment with a dilute aqueous solution of a compound selected from the group consisting of a non-oxidizing acid and a salt which liberates such acid by hydrolysis, and etching the metallic base material.

3,321,310

DIAZOTYPE REPRODUCTION MATERIAL

Charles J. Fox, Charlotte, N.C., assignor to Hercules Incorporated, a corporation of Delaware

No Drawing. Filed Jan. 7, 1964, Ser. No. 336,109
4 Claims. (Cl. 96—75)

1. Diazotype reproduction material comprising a base sheet coated with (1) ungelatinized wheat starch having a granule size of at least 2 but not greater than 10 microns and (2) a sensitizing composition containing a light-sensitive diazo compound.

3,321,311

PHOTOGRAPHIC MATERIAL

Johan Lodewijk Verelst, Kontich, Belgium, assignor to Gevaert Photo-Producten N.V., Mortsel-Antwerp, Belgium

No Drawing. Filed July 29, 1963, Ser. No. 298,411
Claims priority, application Netherlands, July 30, 1962, 281,535
10 Claims. (Cl. 96—83)

1. A photographic light-sensitive element comprising in the indicated sequence (1) a polyester film base, (2) a stripping layer containing a copolymerization product comprising recurring units of a diolefine and a compound selected from the group consisting of acrylonitrile and methacrylonitrile, the amount of recurring units of said compound selected from the group consisting of acrylonitrile and methacrylonitrile being comprised between 5 and 60% by number of the total amount of recurring units of said copolymerization product, (3) a hydrophobic

flexible membrane and (4) a light-sensitive silver halide emulsion layer.

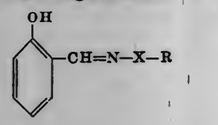
3,321,312
STABILIZED POLYALKYLENE OXIDE SENSITIZED EMULSIONS

Wolfgang Muller-Bardorff, Cologne, Wilhelm Saleck, Schildgen, Bergisch-Gladbach, and Hans Ulrich, Leverkusen, Germany, assignors to Agfa Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

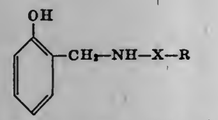
No Drawing. Filed Dec. 19, 1963, Ser. No. 331,937
Claims priority, application Germany, Jan. 5, 1963, A 42,031
7 Claims. (Cl. 96—109)

1. A photographic silver halide emulsion, wherein the vehicle for the silver halide is a water-permeable hydro philic colloid and wherein said emulsion contains

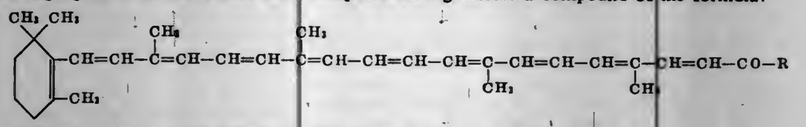
(1) an effective amount of a basic stabilizer;
(2) a sensitizing amount of a polyalkylene oxide and
(3) an effective amount of a compound selected from those having the following formulae:



and



wherein X is a divalent radical of the group consisting of alkylene, having up to 5 carbon atoms and



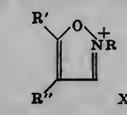
arylene and wherein R represents an acid radical of the group consisting of sulfo carboxylic —OSO_3H and a salt of the said acid radicals and both the benzene ring and X can be substituted by halogen, hydroxyl, lower alkyl, lower alkoxy, sulfo or carboxyl.

3,321,313
OXAZOLIUM SALTS AS HARDENERS FOR GELATIN

Donald M. Burness, Irondequoit, and Burton D. Wilson, Greece, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed Nov. 3, 1965, Ser. No. 506,276
12 Claims. (Cl. 96—111)

1. A composition comprising gelatin containing therein in hardening amount a compound having the formula



in which R is selected from the group consisting of aliphatic hydrocarbon groups of 1–4 carbon atoms and aliphatic hydrocarbon groups of 1–4 carbon atoms containing a sulfonate anion thereon, R′ and R″ are selected from the group of hydrogen, unsubstituted alkyl, unsubstituted aryl, alkyl and aryl substituted with halogen, hydroxyl, alkyl, alkoxy and/or sulfonate anion, simple heterocyclic rings and those groups in which R′ and R″ together form an alicyclic ring and X^- is an anion when sulfonate anion does not constitute a part of R, R′ or R″.

3,321,314
PROCESS FOR COOKING BACON WITH MICROWAVE ENERGY

Morris R. Jeppson, Danville, Calif., assignor to Cryodry Corporation, San Ramon, Calif., a corporation of California

Filed Sept. 20, 1965, Ser. No. 488,353
2 Claims. (Cl. 99—107)

1. In a process for cooking bacon slices to produce fully-cooked lean portions and crisp fat portions which may be packaged without material fragmentation, the steps of maintaining an elongated, continuous, confined cooking zone, passing openly-exposed bacon slices through the length of said zone on a perforated continuous belt of electrically non-conductive material permeable to microwave energy, passing microwave energy into said zone at a level for cooking said bacon while rendering fat therefrom, evolving vapors and concentrating moisture near the surface of the slices, continuously removing the fat through the perforations of said belt as the fat is rendered from said openly-exposed slices and as the slices move through said elongated zone under exposure to said microwave energy, and passing an air current at a temperature in excess of 80° F. over said slices to remove said surface moisture and evolved vapors.

3,321,315
CAROTENE DERIVATIVE AND USE THEREOF

Henry Yokoyama, Pasadena, Calif., assignor to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed Aug. 5, 1965, Ser. No. 477,622
3 Claims. (Cl. 99—148)

1. A method for coloring an edible material, which comprises adding thereto a compound of the formula:

wherein R represents a methyl radical.

3,321,316
METHOD OF PACKAGING AND TREATING EGGS

Potito de Paolis and Frank V. Kosikowski, Ithaca, N.Y., assignors to Cornell Research Foundation, Inc., Ithaca, N.Y., a corporation of New York

Filed Aug. 3, 1964, Ser. No. 386,898
6 Claims. (Cl. 99—177)

1. The method of packaging plural eggs comprising the placing of plural eggs within a bag of flexible material which is non-permeable to air, placing a separator means on the outside of said bag between said eggs for physically preventing any of said plural eggs from coming into physical contact with another of said plural eggs, quickly evacuating the air from said bag to the degree of a substantial vacuum of about 29.5 inches of mercury so that said flexible material is stressed into close physical hugging relationship around each of said eggs, with said separator means preventing each egg from being forced against another during the evacuation step.

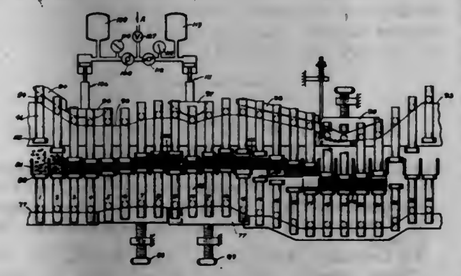
3,321,317
METHOD AND MACHINE FOR PACKING FOOD PRODUCTS

Eben H. Carruthers, Warrenton, Oreg. 97146

Filed Nov. 29, 1965, Ser. No. 515,290
6 Claims. (Cl. 99—188)

1. A method of packing fish in containers which comprises the steps of:

(a) flowing a volume of fish to a rotatable basin having filling chambers, said basin always carrying an excess of fish to insure that the chambers will be filled with more fish than is to be packed in each of the containers;
(b) guiding the pieces of fish into said chambers;
(c) precompressing the fish in each of said chambers and then moving the fish upward so that some excess fish lies above the tops of said chambers;
(d) trimming off said excess;
(e) compressing the fish in each of the chambers again and moving the fish upward so that at least some excess fish lies above the tops of each of said chambers;
(f) trimming off said excess to obtain a substantially constant volume of fish in each of said chambers of substantially constant density; and
(g) transferring the fish in each of the chambers to each of a series of containers presented at a filling station.



2. A machine for packing a food product in containers wherein a basin having measuring chambers is driven, comprising in combination:

(a) means for urging the product into the chambers in a quantity in excess of that to be placed in the containers;
(b) means for precompressing the product in the chambers and thereafter allowing it to expand to overflow the chambers;
(c) means for cutting off the overflow to a volume approximating that to be placed in the containers;
(d) means for again compressing the product in the chambers and allowing it to expand to slightly overflow the chambers;
(e) means for cutting off said second overflow to bring the product into successive cakes of product of substantially uniform volume and weight; and
(f) means for transferring the product from the chambers successively into a series of containers presented at a container filling station.

3,321,318
PROCESS FOR THE PREPARATION OF MILK-POWDER

Claude Giddey, Geneva, Switzerland, assignor to Koopmans Meelfabrieken N.V., Leeuwarden, Netherlands, a corporation of Dutch law

No Drawing. Filed Nov. 13, 1963, Ser. No. 323,269
Claims priority, application Great Britain, Nov. 13, 1962, 42,942/62
3 Claims. (Cl. 99—201)

1. A process for preparing a milk powder which comprises heating for a period of about 1 to about 30 seconds at a temperature of about 150° C. to about 110° C., a member selected from the group consisting of (a) skim milk which has been concentrated to a total milk solids of about 27 to about 45% by weight; (b) whole milk which has been concentrated to a total milk solids of about 30 to about 48% by weight; and (c) milk with an increased cream content which has been concentrated to a total milk solids of about 30 to about 48% by weight, said member having a pH of at least 6.4, obtained if the pH after concentration is below 6.4, by the addition of an alkaline agent selected from the group consisting of sodium carbonate, sodium bicarbonate and sodium hydroxide and subsequently drying.

3,321,319
METHOD OF FREEZE-DRYING LIQUID DAIRY PRODUCTS

Ulrich Hackenberg, Bensberg, Refrath, and Kurt Kautz, Dahlenberg, Germany, assignors to Leybold Hochvakuum Anlagen G.m.b.H., Cologne-Bayenthal, Germany

No Drawing. Filed Apr. 20, 1964, Ser. No. 361,213
Claims priority, application Germany, Apr. 20, 1963, L 44,685
11 Claims. (Cl. 99—201)

1. Process for the preparation of dry products from dairy product starting materials which are capable of separation into an aqueous serum portion and a coagulated residue, comprising the steps of

(a) converting said dairy product into an aqueous serum portion and a coagulated residue;
(b) mechanically separating said coagulated residue and serum portion;
(c) cooling said coagulated residue to about 4° C.;
(d) freeze-drying said cooled coagulated residue;
(e) drying said serum portion, and
(f) admixing the dried serum and residue to form a dry product.

3,321,320
IRON BUTOXIDE IMPROVED POLYHYDRIC PHENOL MODIFIED ALKYD COMPOSITIONS

Raymond Noel Faulkner, Hanworth, Middlesex, and Leonard Alfred O'Neill, Hampton Hill, Middlesex, England, assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed Mar. 25, 1965, Ser. No. 442,831
10 Claims. (Cl. 106—14)

1. A process for improving the in situ formation per se of a diffusible, film-curing iron complex that results from the chemical reaction of a rust-free mild steel surface with a glycol ether solution selected from the group consisting of (a) ethylene glycol monoethyl ether and (b) substantially equal volume mixtures of said ether with high boiling naphtha said solution having dissolved therein as the iron complex-forming and film-forming component and constituting about 20–30 percent of the total weight of said solution a polyhydric phenol modified vegetable oil-based resin selected from the group consisting of (1) a gallate modified linseed/tung/phthalic glycerol alkyd, (2) gallate modified castor oil, (3) a gallate modified dehydrated castor bisphenol epichlorohydrin epoxy, (4) gallate modified polyethylene sebacate, (5) pyrogallol modified linseed oil, (6) a gallate-modified linseed/tung/phthalic glycerol polyamide, and (7) gallate modified decamethylene phthalate, said process comprising adding to a said glycol ether solution prior to applying the solution to said surface at least 1 percent to not more than 13 percent of iron butoxide based on the weight of the resin component.

3,321,321
FIRED REFRACTORY SHAPE AND PROCESS FOR ITS MANUFACTURE

Hans Abrecht, Basel, Switzerland, and Janos Lukacs, Tiengen, Baden, Germany, assignors to Lonza-Werke Elektrochemische Fabriken GmbH, Weil am Rhine, Germany

Filed Feb. 5, 1965, Ser. No. 430,605
Claims priority, application Switzerland, Feb. 13, 1964, 1,717/64; Nov. 4, 1964, 14,260/64
9 Claims. (Cl. 106—57)

1. A fired, ceramically bonded refractory shape obtained by firing in an inert atmosphere a mixture of

(a) 50–95 percent by weight of ceramic material selected from the group consisting of silicon carbide, mullite, fine clay, sillimanite, cyanite, zirconium dioxide, zirconium silicate and corundum; and

(b) 5–50 percent by weight of a binder essentially consisting of refractory clay containing at least 20 percent by weight of aluminum oxide and metallic silicon,

the amount of metallic silicon in the binder being about 1–30 percent by weight calculated on the amount of binder.

3,321,322

REFRACTORY COMPOSITION AND BODY

Harry M. Mikami, Norristown, Pa., assignor, by mesne assignments, to International Minerals & Chemical Corporation, Skokie, Ill., a corporation of New York

Filed Mar. 6, 1964, Ser. No. 350,067
16 Claims. (Cl. 106—59)

14. A fired refractory body comprising chromite spinel and periclase wherein the chromite and periclase are in the ratios of from 60:40 to 20:80 percent by weight and the chromite spinel is present in a host matrix periclase phase as exsolved crystallites, dendrites and irregular masses from solid solution in the periclase phase and wherein there is a minor content of an oxide selected from the group consisting of chromium oxide, aluminum oxide, iron oxide, titanium oxide, manganese oxide, nickel oxide, cobalt oxide, tin oxide, and vanadium oxide.

3,321,323

DEGREE OF DIRECT BONDING IN BRICK OF MAGNESIA AND CHROME ORE

Ben Davies, Pittsburgh, Pa., assignor to Harbison-Walker Refractories Company, Pittsburgh, Pa., a corporation of Pennsylvania

No Drawing. Filed Jan. 27, 1966, Ser. No. 523,281
3 Claims. (Cl. 106—59)

1. In methods of the manufacture of fired, direct bonded brick from size graded mixtures of about 20 to 60% chrome ore and 80 to 40% magnesia, the improvement comprising controlling the chemical makeup of the size graded mixture of chrome ore and magnesia so that in the fired brick the silica content expressed as SiO_2 is between about 1.2 and 2% of the total brick and the boron expressed as B_2O_3 is between about 0.1 and 0.25% of the total brick.

3,321,324

METHYLOL AMIDE ADDUCT SIZING COMPOSITION

Roy H. Boggs, Greenville, S.C., and George W. Cogswell, Decatur, Ill., assignors to A. E. Staley Manufacturing Company, Decatur, Ill., a corporation of Delaware

No Drawing. Filed June 20, 1963, Ser. No. 289,386
13 Claims. (Cl. 106—211)

12. A composition comprising 2 to 25 parts by weight starch and 0.1 to 10 parts by weight methylol amide of an adduct formed between a maleyl compound and an ester of an ethylenically unsaturated fatty acid of from 10 to 24 carbon atoms with a polyhydric alcohol having from 2 to 6 hydroxyl groups, said adduct having on an average at least 3 potentially reactive carboxy groups per molecule.

3,321,325

LIQUID ROSIN SIZE CONTAINING FORTIFYING HYDROCARBONS

Rufus Noel Wisenbaker, Valdosta, Ga., and Lucius Havington Wilson, Westfield, N.J., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Nov. 9, 1966, Ser. No. 592,993
10 Claims. (Cl. 106—239)

1. A process of treating a liquid rosin size consisting essentially of an aqueous dispersion more than 60% by weight whereof is a rosin which is more than 75% saponified with an alkali metal alkali, said size having substantially no content of organic matter volatile at 200° C., which comprises incorporating in said size a small but effective amount, less than 15% based on the weight of rosin size solids in said size, of a normally liquid, steam-distillable cyclic hydrocarbon as agent improving the efficiency of said size.

3,321,326

TETRAGONAL SILICON AND GERMANIUM DISULFIDES AND THEIR PREPARATION

Howard Sargent Young, Chadds Ford, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Aug. 20, 1964, Ser. No. 391,043
11 Claims. (Cl. 106—288)

1. A composition of matter selected from the class consisting of tetragonal silicon disulfide, tetragonal germanium disulfide, and a tetragonal solid solution of silicon disulfide and germanium disulfide.

3,321,327

PROCESS FOR THE DENSIFICATION OF CARBONACEOUS BODIES

René Blanchard, Saint-Martin-le-Vinoux, Louis Bochirol, Grenoble, Claude Moreau, Seyssinet-Pariset, and Joseph Philippot and Pierre Blum, Grenoble, France, assignors to Commissariat à l'Energie Atomique, Paris, Seine, France

No Drawing. Filed May 20, 1963, Ser. No. 283,659
Claims priority, application France, May 22, 1962, 898,360; May 28, 1962, 898,979; Dec. 5, 1962, 917,577
(Filed under Rule 47(a) and 35 U.S.C. 116)
4 Claims. (Cl. 117—46)

1. A process for the densification of carbonaceous bodies consisting of the steps of preparing porous carbonaceous bodies in which the proportion of pores having a diameter of less than 0.1 micron is at most equal to 10% and the proportion of pores having a diameter between 1 and 100 microns is at least equal to 50% and then densifying said carbonaceous bodies by thermal cracking of a gaseous hydrocarbon selected from the group consisting of methane and cleaned natural gas at a temperature between 800 and 1000° C.

2. A process for the densification of carbonaceous bodies consisting of the steps of preparing porous carbonaceous bodies in which the proportion of pores having a diameter less than 0.1 micron is at most equal to 10% and containing pores of diameter greater than 100 microns and up to 500 microns and then densifying the carbonaceous bodies by thermal cracking of an uncleaned natural gas at a temperature between 800 and 1000° C.

3,321,328

COATING OF ALUMINUM SUBSTRATES WITH A MAGNETIC MATERIAL

Herman Koretzky, Poughkeepsie, N.Y., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Nov. 15, 1962, Ser. No. 238,024
1 Claim. (Cl. 117—71)

A method of coating an aluminum bearing substrate with a magnetic material incompatible with an aluminum oxide formed on the surface of said aluminum bearing substrate, said method comprising the steps of:

immersing said substrate in a copper-tin bath containing about 13 gm./l. to about 35 gm./l. Cu^+ and having a Cu/Sn ratio of about 0.5 to about 10 so as to protectively coat the substrate by displacement with a compatible, highly adherent, non-blistering layer consisting essentially of between 90% and 99.9% copper and between 10% and 0.1% tin, said bath also containing a polyhydric type alcohol so as to cause the precipitation of an easily filterable alumina from the bath and prevent the formation of alumina scale, and wherein said immersion step includes the step of filtering said bath so as to remove said alumina from the bath; and thereafter plating a magnetic material on said layer.

3,321,329

METHOD OF FORMING A TRAFFIC LINE

Eduard R. de Vries, Flemington, N.J., assignor to Prismo Safety Corporation, Huntingdon, Pa., a corporation of Pennsylvania

No Drawing. Filed Nov. 26, 1963, Ser. No. 326,264
6 Claims. (Cl. 117—105.2)

1. A method of forming a highway traffic line comprising (a) forming a traffic line paint mixture comprising a solid curable thermosetting resin, a catalyst, a pigment, and a volatile and non-flammable organic diluent and (b) spraying said mixture through a flame and onto the surface of a highway, said flame effecting evaporation of the major portion of said organic diluent prior to coating and initiating curing of said resin.

3,321,330

TEXTILE MATERIALS AND METHOD OF MAKING THE SAME

William K. Mohney, Meadville, Pa., assignor to FMC Corporation, Philadelphia, Pa., a corporation of Delaware

No Drawing. Filed Mar. 3, 1964, Ser. No. 349,163
9 Claims. (Cl. 117—136)

1. A flame retardant filament formed from a composition consisting of a cellulose organic acid ester and a flame-retardant component consisting essentially of from 0.5% to 8.0% by weight of the ester of a phosphonate selected from the group consisting of (1) bis(bromohalopropyl) bromohalopropylphosphonates in which the bromohalopropyl radicals are each selected from the group consisting of dibromopropyl and bromochloropropyl, and (2) polyphosphonates formed by intermolecular reaction of the corresponding phosphites.

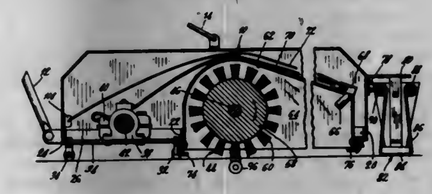
7. Process for rendering textile materials formed from organic esters of cellulose flame retardant, said process comprising impregnating said materials with bis-(bromochloropropyl) bromochloropropylphosphonate dissolved in a solvent which is a non-solvent for the material being treated, the amount of bis-(bromochloropropyl) bromochloropropylphosphonate added to said textile materials being about 2 to 50% by weight based on the weight of the textile material being treated and thereafter drying the textile materials.

3,321,331

BOWLING-LANE MAINTENANCE MACHINE AND METHOD

Forest D. McNeely, 2601 NE. 8th St., Pompano Beach, Fla. 33062

Filed Oct. 15, 1962, Ser. No. 230,599
10 Claims. (Cl. 134—6)



1. A bowling lane maintenance machine, comprising a frame,

means for supporting the frame for forward and reverse movement lengthwise of the lane,

a brush of sufficient length to extend substantially the entire width across a bowling lane and comprising a plurality of circumferentially spaced and staggered rows of longitudinally spaced tufts of bristles, the brush being mounted to be disposed transversely of the bowling lane and to make sweeping contact with the surface of the bowling lane over substantially the entire transverse width of the lane, and being rotatable in rearward-sweeping direction,

hood-forming means including a rear wall lying in close-clearance relation with the upward-moving periphery of the brush and an upper wall extending over the brush and a substantial distance forwardly of the brush, said means providing relatively small clearance from the brush at the rearward portion of the brush periphery, and defining in front of the brush a mist chamber which has a cross-sectional area normal to the axis of the brush of the same order as that of the brush, which extends transversely substantially the full width of the lane, which is closed at the front and opens downward to the underlying surface of the lane, and to which the brush is openly exposed in air circulating relation,

power means mounted on the machine for rotatably driving the brush in said rearward-sweeping direction,

a plurality of spray nozzles disposed in spaced relation longitudinally of the mist chamber and inward from the ends thereof, said nozzles being limited-capacity, finely-atomizing nozzles for discharging a limited quantity of finely atomized lane dressing liquid into the mist chamber, and being constructed, positioned and directed to discharge such finely atomized liquid into the air circulating in the mist chamber while substantially avoiding direct impingement of the liquid either on to the brush or on to the underlying lane surface, and thereby to form a fine mist of atomized liquid in such air to be deposited therefrom on to the lane surface,

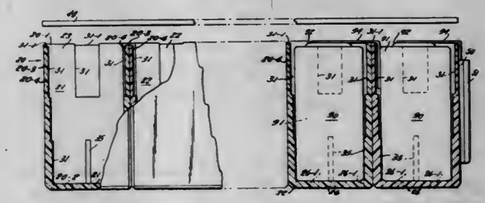
and means to control the period during which such nozzles are effective.

3,321,332

BATTERY HOUSINGS

Walter R. Vignini, Peekskill, N.Y., assignor to Sonotone Corporation, Elmsford, N.Y., a corporation of New York

Filed Oct. 28, 1963, Ser. No. 319,129
4 Claims. (Cl. 136—166)



1. In a multiple-battery-cell housing consisting of a plurality of alike insulating housing modules and adapted to fit different irregularly shaped remaining enclosure spaces left in the enlosure of an electrical apparatus supplied by a plurality of alike sealed battery cells,

each cell having a tubular metallic cell casing constituting one cell terminal with side walls extending parallel to the cell axis and an open end sealed by a casing end wall having an opposite polarity cell terminal,

each housing module having tubular side walls with a set of four mutually perpendicular exterior wall surfaces extending parallel to a module axis and affixed to a similar surface of an adjacent module into said multiple cell housing,

each housing module having an axially extending tubular interior chamber with an entrance opening at one end of its axis for insertion and coaxially holding between said module side walls one of said cells with said opposite cell terminal held along said module opening,

a connecting conductor affixed to the cell of one cell held in one module and having a remote conductor portion affixed to the cell terminal exposed at the open end portion of an adjacent module for connecting the cells of said housing modules into a common circuit,

an external flat terminal support of insulating substance having a rear surface attached to an exterior side wall surface of one of said modules,

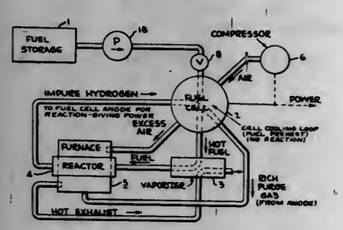
said support having first and second parallel slots therein, and first and second raised rear surface seating portions spaced from each other by an elongated recess channel and extending transversely across the end regions of said two slots below its exterior support surface, and

a metallic terminal conductor strip passing through said two slots and having an intermediate strip length held exposed along the intermediate exterior support surface between said two slots

with one adjoining strip length extending through said support channel and below the level of said intermediate strip length and

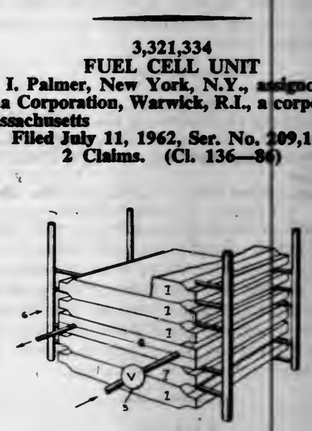
with the opposite adjoining strip length extending through a length of said support channel from its slot to beyond the nearby edge region of said support and connected to one terminal of the cell housed in said module.

3,321,333
FUEL CELL SYSTEM
Nigel I. Palmer, New York, N.Y., assignor to Leesona Corporation, Warwick, R.I., a corporation of Massachusetts
Filed July 11, 1962, Ser. No. 209,079
8 Claims. (Cl. 136—86)



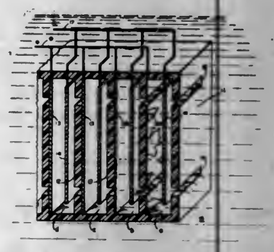
1. A hydrogen-oxidant fuel cell system for the indirect consumption of gaseous and liquid fuels, comprising in combination, a fuel storage unit for storage of said fuels, a reactor unit for converting said fuels into impure hydrogen and a fuel cell unit for converting impure hydrogen and an oxidant into electricity, means interconnecting said fuel storage unit to said reactor unit through said fuel cell unit, whereby fuel from said storage unit is transported to said reactor unit, said fuel cell unit comprising a non-porous palladium-silver alloy hydrogen diffusion anode, a porous cathode, an electrolyte, fuel means for feeding hydrogen, and oxidant means for feeding oxidant to said anode and cathode respectively, means interconnecting said reactor unit with the fuel means of said fuel cell unit, whereby impure hydrogen produced in said reactor unit is transported directly to the anode of said fuel cell unit, energy for heating said reactor unit being provided directly from the fuel cell system.

3,321,334
FUEL CELL UNIT
Nigel I. Palmer, New York, N.Y., assignor to Leesona Corporation, Warwick, R.I., a corporation of Massachusetts
Filed July 11, 1962, Ser. No. 209,165
2 Claims. (Cl. 136—86)



1. A fuel cell unit for the direct generation of electricity from a liquid fuel and an oxidant comprising a series of active modules interspersed intermittently with inactive modules, said inactive modules having channels for circulating fuel and absorbing the waste heat of the active modules, causing vaporization of the circulating liquid fuel, thereby cooling the fuel cell unit and rendering the fuel more reactive.

3,321,335
SEA WATER BATTERY
Burton James Wilson, Bethesda, Md., assignor to the United States of America as represented by the Secretary of the Navy
Filed Feb. 5, 1964, Ser. No. 342,834
3 Claims. (Cl. 136—100)



1. A sea water battery comprising:

a substantially enclosed casing of insulating material,

a plurality of insulating partitions dividing said casing internally into individual sections,

openings in each of said partitions,

openings communicating one of said sections in the interior of said casing with the exterior thereof for passage of electrolyte therethrough,

an electrode of magnesium sheet and an electrode of nickel-coated steel in each section of said casing,

each of said magnesium sheets abutting its respective insulating partition sealing the respective openings in each of said partitions, and

electrical leads connecting said electrode of magnesium and said electrode of steel to external battery terminals.

3,321,336
$Pb_xTe_{1-x}Cr$ THERMOELECTRIC MATERIAL AND THERMOELECTRIC DEVICE
Abner B. Turner, Greensburg, and Richard D. Lamb, Lycippus, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Feb. 28, 1963, Ser. No. 261,780
8 Claims. (Cl. 136—238)

6. A thermoelectric generator apparatus comprising an insulating wall, a thermoelectric device passing through the wall, the apparatus comprising at least one thermoelectric element comprised of a chemically reacted solid having the formula $Pb_xTe_{1-x}Cr$ wherein X varies from 0.60 to 0.63 and the chromium doping agent is present in an amount ranging from 0.1% to 1% by weight of the lead and tellurium.

7. A thermoelectric material having the formula $Pb_xTe_{1-x}Cr$ wherein X varies from 0.60 to 0.63.

3,321,337
PROCESS FOR PREPARING BORON NITRIDE COATINGS
Robert J. Patterson, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
No Drawing. Filed Dec. 12, 1963, Ser. No. 329,980
7 Claims. (Cl. 148—6.3)

1. A process for applying at substantially atmospheric pressure a dense, adherent boron nitride coating to the surface of a refractory metal object stable in hydrogen at elevated temperatures comprising the steps of:

(a) heating the refractory metal object to a temperature in the range of from 700° to 1300° C. in a hydrogen ambient,

(b) passing a stream of hydrogen containing a small amount of trichloroborazole vapor over the refractory metal object until a film of refractory metal boride has formed on the exposed surface of the metal object, and

(c) passing trichloroborazole in a carrier gas stream over the refractory metal object until a boron nitride coating of the desired thickness is deposited on the refractory metal boride film.

3,321,338
FRICTION ELEMENTS ESPECIALLY RESISTANT TO WEAR BY ABRASION
Jacques Caubet, Saint-Etienne, France, assignor to Automobiles M. Berliet, Lyon, France, and Hydromecanique et Frottement, Saint-Etienne, France, both French corporations
No Drawing. Filed Dec. 10, 1964, Ser. No. 417,495
Claims priority, application France, Dec. 11, 1963, 956,874, Patent 1,386,446; Feb. 27, 1964, 965,390, Patent 85,297; Feb. 28, 1964, 965,616, Patent 85,370; June 22, 1964, 979,152, Patent 85,994; June 23, 1964, 979,316, Patent 86,012
7 Claims. (Cl. 148—11.5)

1. A method for producing metallic parts having a high resistance to seizure and to wear by friction, wherein parts made from a metallic material chosen from the group of metals capable of hardening by cold-hammering while exhibiting in its superficial crystalline structure a high density of planes of shear, and consisting of austenitic stainless steels, hyper-eutectoid alloy steels containing at least 11% by weight of manganese, titanium, and titanium alloys containing a major part of titanium, are subjected to a deep cold-hardening executed in such manner that it produces, on the surface of the part, striations substantially perpendicular to the direction of the friction, following which the part is subjected to the superficial incorporation of at least one element chosen from the group of the metalloids and transition metals, which metalloids and transition metals possess one of the two properties consisting firstly in the capacity of depositing at the surface of the parts an ionic compound by reaction with the underlying metal, and secondly of the capacity of inserting its atoms into the structure of the underlying metal while forming a solid insertion solution, the metalloid group consisting of nitrogen, carbon and sulphur and the transition metal group of selenium and tellurium, the superficial incorporation being obtained by maintaining a contact during a period comprised between 1 and 6 hours at a temperature from 400 to 590° C. between said part and a fluid such as a salt bath or a gaseous atmosphere, which contains the element to be incorporated.

3,321,339
GALVANIZING FLUX
William A. Schulze, Parma Heights, Ohio, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed May 7, 1965, Ser. No. 454,211
6 Claims. (Cl. 148—23)

1. A galvanizing flux consisting essentially of a fluxing material selected from the group consisting of ammonium chloride, zinc chloride, and znc ammonium chloride and 0.04 to 0.4 gram, computed as sodium salt of an alkyl sulfonate per 100 grams of said fluxing material and the condensation product of oleyl alcohol with about 10 mols of ethylene oxide the ratio of said sulfonate to said oleyl alcohol condensation product being from 0.2:1 to 4:1.

3,321,340
METHODS FOR FORMING MONOLITHIC SEMICONDUCTOR DEVICES
Bernard T. Murphy, Greensburg, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Original application Oct. 20, 1961, Ser. No. 146,624, now Patent No. 3,237,062, dated Feb. 22, 1966. Divided and this application Nov. 17, 1965, Ser. No. 508,225
9 Claims. (Cl. 148—175)

1. A method of making a monolithic semiconductor device including the steps of: diffusing, into at least one select portion of a first major surface of a body of semiconductive material of a first type of semiconductivity, a first pattern of at least one region of a second type of semiconductivity, while limiting the extent of said surface that is exposed to dopant during the diffusing of said first pattern so said at least one region is of small area compared with said surface; growing epitaxially a layer of second type semiconductivity material over said first major surface and said first pattern of regions; diffusing a second pattern of a plurality of spaced regions of said first type semiconductivity into a surface of said epitaxially grown layer remote from said first pattern, said second pattern including a region opposite said at least one region of said first pattern of regions; diffusing a third pattern of regions of said second type semiconductivity in select regions of said second pattern of regions, including said region opposite said at least one region of said first pattern, to form a plurality of electronic functional elements.

3,321,341
PLASTIC EXPLOSIVE COMPOSITIONS
Karl G. Ottoson, Dover, N.J., assignor to the United States of America as represented by the Secretary of the Army
No Drawing. Filed Oct. 5, 1961, Ser. No. 143,254
1 Claim. (Cl. 149—19)

A plastic explosive composition consisting essentially of about:

(a) 15 to 91 percent by weight of a granular explosive selected from the group:

cyclotetramethylenetetranitramine

cyclotrimethylenetrinitramine
ammonium picrate
tetryl
ethylene dinitramine

(b) 5 to 16 percent by weight of plasticized polyisobutylene having a molecular weight of about 100,000 to 140,000 and plasticized with a member of the group consisting of:
di-ethyl hexyl sebacate
di-ethyl hexyl adipate

(c) the balance including an oxidizer selected from the group consisting of:
alkali metal nitrate
mannitol hexanitrate.

3,321,342
RE-IGNITABLE MATCH
John Burton Tigrett, Tigrett Place, Jackson, Tenn. 38301, and Voorhis F. Wigal, Jackson, Tenn.; said Wigal assignor to said Tigrett
No Drawing. Filed Mar. 15, 1965, Ser. No. 439,947
5 Claims. (Cl. 149—19)

1. A re-ignitable match consisting essentially of an oxygen supplying substance from the class consisting of chlorates, perchlorates, mixtures of chlorates and perchlorates, nitrates, bromates, and bichromates, an oxygen release catalyst from the class consisting of manganese dioxide, calcium plumbate, antimony trisulfide, lead dioxide, and copper chromite, an agent having low burning velocity and binding characteristics from the class consisting of acrylic resins, an activator from the class consisting of ammonium dichromate, finely divided silica, and inorganic carbonates, a reducing agent from the class consisting of powdered carbon, polysaccharides, and benzoates, and a quenching agent from the class consisting of ammonium salts of organic acids.

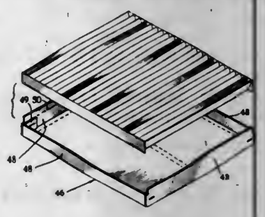
3,321,343
PRIMING COMPOSITION CONTAINING CARBON WHICH EXHIBITS CONCHOIDAL FRACTURE
Edward A. Staba, Higganum, Conn., assignor to Olin Mathieson Chemical Corporation, a corporation of Virginia
No Drawing. Filed Mar. 28, 1966, Ser. No. 537,699
7 Claims. (Cl. 149—24)

1. A priming mixture for ammunition comprising: from 4 to 40% by weight granulated amorphous carbon which exhibits conchoidal fracture; from 5 to 60% by weight of an oxidizing agent which liberates oxygen selected from the group consisting of inorganic salts and metal oxides; and from 5 to 80% by weight of a percussion sensitive, solid, substantially insoluble primary explosive.

3,321,344
EXPLOSIVE GEL COMPOSITION CONTAINING UREA AND SODIUM CHLORIDE
John Anthony Arbie, Poland, Ohio, assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Filed Aug. 24, 1964, Ser. No. 391,753
10 Claims. (Cl. 149—56)

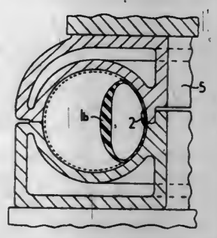
1. A stable, soft, non-separating explosive gel composition of improved anti-freeze properties comprising on a weight basis (a) from about 15 to about 80 percent of ammonium nitrate, (b) from 0 to about 25 percent of an alkali metal nitrate, (c) from about 2 to about 50 percent of a nitrated organic sensitizer, (d) from about 5 to about 25 percent of water, (e) from about 0.05 to about 2 percent of a polyacrylamide having an apparent molecular weight of from about 1 million to about 25 million and a hydrolyzed free acid content of from about 0.1 to about 8 weight percent, (f) from about 0.01 to about 0.5 percent of an inorganic polyvalent metal salt cross-linking agent, (g) from about 1 to about 15 percent of urea, and (h) from about 1 to about 15 percent of sodium chloride.

3,321,345
METHOD FOR MANUFACTURING A PLEATED AIR FILTER CARTRIDGE
Sydney F. Duncan, Torrance, Calif., assignor to Farr Company, El Segundo, Calif., a corporation of California
Filed Apr. 13, 1962, Ser. No. 187,264
7 Claims. (Cl. 156—91)



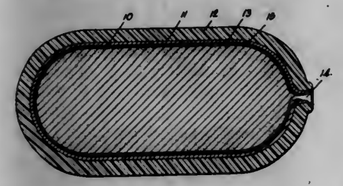
1. A method for constructing a pleated filter of apertured cardboard support strips, a sheet of filter media, and tape comprising the steps of: applying glue to at least portions of one side of the support strips, positioning a plurality of support strips side by side and securing the filter media to the glued side of the strips; longitudinally folding each of the strips and physically-constraining the strips in that folded relation; and gluing the tape along the ends of the constrained strips for maintaining said strips in folded relationship upon release.

3,321,346
INNER TUBES FOR PNEUMATIC TYRES
Ernest Frederick Powell, Wylde Green, Sutton Coldfield, England, assignor to Dunlop Rubber Company Limited, London, England, a British company
Filed Jan. 6, 1965, Ser. No. 423,735
Claims priority, application Great Britain, Jan. 21, 1964, 2,517/64
4 Claims. (Cl. 156—122)



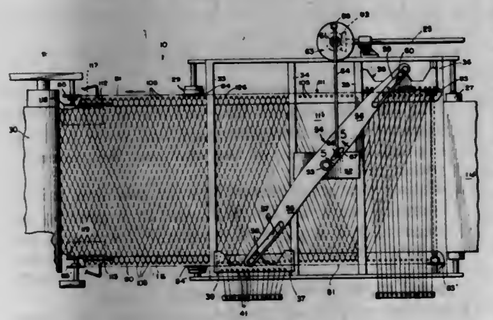
1. A method of manufacturing an inner tube for a pneumatic type having a single joint extending circumferentially around the tube comprising the steps of extruding a tubular length of rubber-like plastic material, the wall thickness of said length increasing over at least a portion of the length between each end and a region intermediate the ends, the diameter of said tubular length being less than the diameter of the radially outermost surface of the inner tube to be formed, turning at least one of the ends in a radial direction relative to the axis of said length, moving said turned end axially towards the other end, joining said ends together to form an endless tube having a circumferentially extending joint, expanding the wall portion of increasing thickness to an outer diameter at which the tube is to be molded, thereby thinning this wall portion to a uniform thickness and vulcanising the tube, the tube in its vulcanised, shaped, and moulded, state having a wall thickness which is substantially constant.

3,321,347
METHOD OF MAKING A METALLIC-LINED PRESSURE VESSEL
James W. Price, Pasadena, and Joseph M. Toth, Jr., Los Angeles, Calif., assignors to Douglas Aircraft Company, Inc., Santa Monica, Calif.
Filed Aug. 10, 1964, Ser. No. 388,385
5 Claims. (Cl. 156—151)



1. A method for constructing a vessel having a continuous joint-free metallic inner-lining impermeable to cryogenic fluids and an outer structural material having a high strength-to-weight ratio, and having approximately the same coefficient of expansion, said method consisting of the following steps:
forming a removable water soluble mandrel of a non-conductive material to the desired shape of the fluid holding cavity of said vessel;
apply an epoxy spray to form a coating of a plastic material on said mandrel;
spraying a coating of a conductive material over said coating of a plastic material;
electrodepositing a layer of metal on said sprayed coating of plastic material;
applying a covering of structural material over said electrodeposited layer;
removing said mandrel; and
removing said coating of plastic material from the inside surface of said electrodeposited layer.

3,321,348
APPARATUS AND METHOD FOR DEPOSITING REINFORCEMENT MATERIAL ON A CONTINUOUSLY MOVING WEB
Richard O. Rupp, Oak Lawn, Ill., assignor to The Cromwell Paper Company, Chicago, Ill., a corporation of Illinois
Filed May 20, 1963, Ser. No. 281,610
10 Claims. (Cl. 156—177)



9. The method of applying a pattern of reinforcing strands onto a continuous web of sheet material coated with adhesive substance which comprises the steps of traversing a plurality of continuous length reinforcing strands back and forth across the web during travel thereof, said strands reversing after passing beyond the edges of said web to form a continuous sinuous pattern of the strands running lengthwise of the web in a plane above and substantially parallel with the web, lowering said strand pattern onto the adhesive coated surface of the web, and then turning the strand loops rearwardly relative to the web travel and along the edges of the web to provide a reinforced selvage thereon.

3,321,349
PROCESS FOR THE MANUFACTURE OF ADHESIVE SHEETS, PARTICULARLY FOR PURPOSES OF DECORATION
Jean Niviere, Paris, France, assignor, by mesne assignments, to Ets. Morechal Company, Paris, France, a corporation of France
No Drawing. Filed Mar. 26, 1963, Ser. No. 267,955
Claims priority, application France, Apr. 9, 1962, 893,802
1 Claim. (Cl. 156—230)

An improved process for the manufacture of adhesive sheets suitable for decoration of walls, panels and the like, which comprises applying a solution of a pressure-sensitive adhesive consisting essentially of a homopolymer of an acrylate of an alcohol of from 3 to 5 carbon atoms, said homopolymer being polymerized in a solvent mixture devoid of aromatic components, and said homopolymer having a viscosity of at least 10,000 centipoises in a 30% solution of the solvent, on a temporary support coated with a silicone-base, non-adhesive sizing and transferring said adhesive from said temporary support to a relatively permanent base, said solvent mixture devoid of aromatic components thereby in no way affecting the silicone-base sizing of the temporary support.

3,321,350
ORGANOFUNCTIONAL SILANE-HYDROLYZABLE TITANATE PRIMER COMPOSITIONS
Frank Fekete, Monroeville, Pa., assignor to Union Carbide Corporation, a corporation of New York
No Drawing. Filed Feb. 19, 1962, Ser. No. 174,274
16 Claims. (Cl. 156—329)

1. A primer composition which comprises from 25 to 90 volume percent of at least one silane represented by the formulas:

(a) $H_2NC_bH_{2b}Si(OR')_{3-n}$ (R on Si)

wherein R is a monovalent hydrocarbon group containing from one to about twelve carbon atoms, R' is an alkyl group containing from one to about four carbon atoms, *b* is an integer having a value from three to six, *n* is an integer having a value from zero to one, and the amino group is separated from the silicon atom by at least three carbon atoms of the C_bH_{2b} group;

(b) $NCC_dH_{2d}Si(OR')_{3-n}$ (R on Si)

wherein R, R' and *n* have the meanings defined with reference to formula (a) hereinabove, *d* is an integer having a value from 2 to 5, and the cyano group is separated from the silicon atom by at least two carbon atoms of the C_dH_{2d} group;

(c) $R'OC(=O)-C_dH_{2d}Si(OR')_{3-n}$ (R on Si)

wherein R, R' and *n* have the meanings defined with reference to formula (a) hereinabove, *d* is an integer having a value from 2 to 5, and the carboalkoxy group

$R'OC(=O)-$

is separated from the silicon atom by at least two carbon atoms of the C_dH_{2d} group; and

(d)
$$H_2NC_fH_{2f}NC_bH_{2b}Si(OR')_{3-n}R_n$$

wherein R, R', *b* and *n* have the meanings defined with reference to formula (a) hereinabove, *f* is an integer having a value from 2 to 6 and the secondary amine group is separated from the silicon atom by at least three carbon atoms of the C_bH_{2b} group, and from 75 to 10 volume percent of at least one hydrolyzable titanium compound represented by the formula $R_mTi(OR^*)_{4-m}$, wherein R has the meaning defined with reference to formula (a) hereinabove, R* is selected from the class consisting of a hydrogen atom, an R group and an

$$RC{=}O$$

group, and *m* is an integer having a value from 0 to 3.

3,321,351
METHOD OF ADHESIVELY JOINING SURFACES

Erich Bäder, Hanau am Main, Germany, assignor to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany

No Drawing. Filed Nov. 14, 1960, Ser. No. 68,586
Claims priority, application Germany, Dec. 31, 1955, D 22,026
5 Claims. (Cl. 156—332)

1. A method of adhesively joining surfaces of metals which comprises applying an adhesive composition formed of at least one polymerizable liquid ethylenically unsaturated compound containing a single terminal $>C{=}CH_2$ group and a catalytic amount of a redox system as a curing catalyst and containing 0.1 to 1% by weight of a waxy material selected from the group consisting of paraffin, ceresine, animal waxes and vegetable waxes between the surfaces to be joined and curing such adhesive composition in contact with and between such surfaces to be joined.

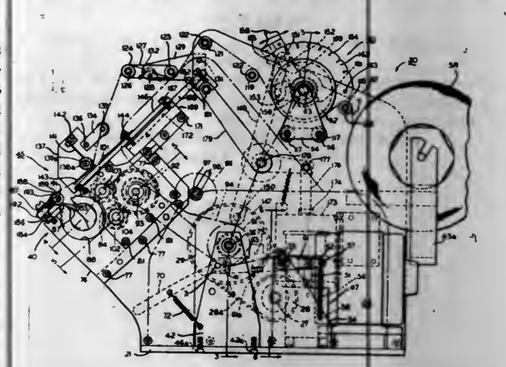
2. The method of claim 1 in which said adhesive composition also contains an unsaturated polyester resin produced from at least one short chained aliphatic polyhydric alcohol and at least one polycarboxylic acid, at least one short chained aliphatic of the alcohol and acid components of such polyester resin containing at least one aliphatic $>C{=}C<$ bond.

3,321,352
APPARATUS FOR WRAPPING TAPE ABOUT AN ELONGATE ARTICLE

Henry J. Sejda, Munster, Ind., assignor to Cee-Kay Industries, Inc., Chicago, Ill., a corporation of Illinois

Filed Apr. 5, 1963, Ser. No. 270,992
16 Claims. (Cl. 156—468)

1. In apparatus for wrapping a length of pressure sensitive tape about an elongate article, a rotatable wrapping chuck having a radially extending jaw adapted to receive said elongate article, means for feeding a length of said tape across said jaw, means for varying the amount of feed movement of said feeding means, drive means for rotating said wrapping chuck, and constraining means disposed within said jaw to receive said article with an initial bight of said length of tape thereon, said constraining means maintaining said initial bight on said tape while said chuck is rotating thereby enabling said tape to be wrapped around said article, stationary knife means spaced from the axis of rotation of said chuck, a slitter bar spaced from the axis of rotation of said chuck including means for moving said slitter member in timed relationship to said chuck, and movable with respect to said stationary knife means and into contact therewith to sever said tape while the same is wrapped as a bight about said elongate article, tape slack take-up means interposed between said chuck and said feeding means and adapted to yield as said bight is formed in said tape, a stationary

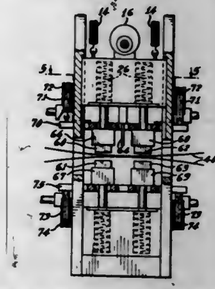


roller member disposed in relationship to said stationary knife means and said slitter member and adapted to hold the pressure sensitive tape thereto by the "tack" thereof upon return movement of said slitter bar.

3,321,353
FILM SEALING AND CUTTING APPARATUS

Seymour Zelnick, Toms River, N.J., assignor to Weldotron Corporation, Newark, N.J., a corporation of New Jersey

Filed Dec. 10, 1963, Ser. No. 329,499
5 Claims. (Cl. 156—499)



1. Apparatus for heat sealing and cutting an assembly of superposed plies of thermoplastic film along a predetermined line, the apparatus comprising:

a first pair of elongate laterally spaced clamping members,

and a second pair of elongate laterally spaced clamping members;

said first pair being movable to releasably clamp the film assembly against said second pair along both sides of a zone including said line so as to leave exposed both faces of the clamped film assembly within said zone;

a heating member mounted between said first pair of clamping members for movement to a position adjacent to said clamped film assembly for cutting and sealing said clamped film assembly by melting a gap therein along said line and fusing together the superposed edges of the plies bounding the gap;

a first pair of pressing members mounted in the space between said first pair of clamping members;

a second pair of pressing members mounted in the space between said second pair of clamping members, opposed to and in register with said first pair of clamping members;

means for moving said opposed pairs of pressing members relatively towards one another for pressing therebetween the fused edges of the plies bounding the gap melted into the assembly; and

control means for moving said pressing members into their pressing disposition after said clamping members and heating members have been moved into their clamping and cutting positions respectively.

3,321,354
APPARATUS FOR MAKING GUSSETED PLASTIC BAGS

Douglas McCutcheon Sloan, St. Hilaire, Quebec, and Alex Tunner, Montreal, Quebec, Canada, assignors to Canadian Industries Limited, Montreal, Quebec, Canada, a corporation of Canada

Filed Aug. 11, 1964, Ser. No. 388,906
Claims priority, application Great Britain, Oct. 7, 1963, 39,406/63
2 Claims. (Cl. 156—499)



1. An apparatus for making gusseted plastic bags which comprises, in combination, means for advancing lengthwise a length of flattened gusseted flexible plastic tube by intermittent motion in increments equivalent to one bag length; preheating members adapted to fit into the re-entrant folds of said tube at transversely opposite positions; upper and lower transverse members adapted in cooperation to press the tube gussets against said preheating members during a predetermined time interval; means for transversely heat sealing said tube at a position including the preheated portion of the tube; and means for cutting said tube at a position adjacent to said transverse seal, said preheating, sealing and cutting means being adapted to operate when the tube is stationary.

3,321,355
FABRIC REINFORCED PLASTIC PRODUCT AND METHOD OF MAKING SAME

Kenneth M. Holland, Orinda, Calif., assignor to Hexcel Products, Inc., Berkeley, Calif.

Filed Apr. 20, 1964, Ser. No. 360,955
7 Claims. (Cl. 161—68)



1. A fabric reinforced plastic cellular honeycomb structure in which the warp and woof of the reinforcing fabric are disposed perpendicular to each other and at approximately 45° angles relative to the axes of cell openings of the structure.

3,321,356
PRODUCTION OF FLEXIBLE SHEET MATERIALS

Peter Merriman, Edgbaston, and Dennis Ivor Clarke, Birmingham, England, assignors to Dunlop Rubber Company Limited, London, England, a British company

Filed July 10, 1964, Ser. No. 381,876
Claims priority, application Great Britain, July 31, 1963, 30,289/63
20 Claims. (Cl. 161—81)

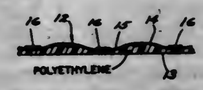


16. Flexible sheet material which comprises a layer of matted fibrous material and a flexible binder for said fibres differentially distributed throughout said layer, the concentration of said binder being greater adjacent to one surface of said layer than adjacent the other surface of said layer.

3,321,357
REINFORCED COVERING FOR PIPES AND METHOD OF MAKING THE SAME

Ted Kennedy, Ann Arbor, Mich., assignor to The Trenton Corporation, Ann Arbor, Mich., a corporation of Michigan

Filed Mar. 5, 1962, Ser. No. 177,507
6 Claims. (Cl. 161—93)



5. An elongated, flexible, laminated strip adapted to be wrapped around a length of underground pipe to provide a reinforced covering therefor, said strip having a first lamina in the form of a film of polyethylene constituting an exposed side of said strip, and a second lamina constituting the opposite exposed side of said strip, said second lamina comprising first and second series of flexible reinforcing strands of glass fibers saturated with asphalt which is compatible with and has a high affinity for polyethylene, said first series of strands extending lengthwise of said strip in laterally spaced, substantially parallel relation, said second series of strands extending crosswise of said strip in laterally spaced, parallel relation, the asphalt saturant and polyethylene being integrally fused together permanently securing each of said strands to said film.

6. The laminated strip defined in claim 5, wherein the strands of said first series are interwoven with the strands of said second series and the strands of each series are arranged approximately twenty strands per inch.

3,321,358
PLYWOOD BONDED WITH A RESINOUS COMPOSITION COMPRISING A KETONE-ALDEHYDE RESIN AND A CHEMICALLY BASIC CLAY

Craig C. Campbell, John W. Schick, and John H. Stockinger, all of Cherry Hill, N.J., assignors to Mobil Oil Corp., a corporation of New York

No Drawing. Filed Dec. 20, 1965, Ser. No. 515,147
5 Claims. (Cl. 161—261)

1. Exterior grade plywood bonded with a binder composition that consists essentially of an aqueous solution of a water-soluble thermosettable resin selected from the group consisting of saturated alkyl ketone-aldehyde resins, and saturated alkyl ketone-phenol-aldehyde resins, and

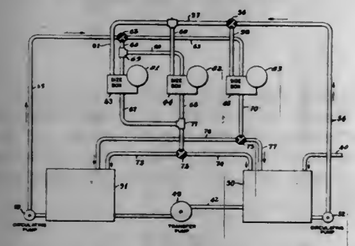
between about 25 percent and about 75 percent, by weight of the binder composition, of a chemically basic clay filler.

3,321,359

CONTINUOUS STARCH COOKING METHOD FOR CALENDER STACK SIZING OF PAPER AND APPARATUS THEREFOR

William James Shaughnessy, Albany, N.Y., assignor to A. E. Staley Manufacturing Company, Decatur, Ill., a corporation of Delaware

Filed Aug. 27, 1962, Ser. No. 219,502
6 Claims. (Cl. 162—175)



1. In the manufacture of heavy papers and paperboard the improvement in introducing cooked starch in a calender stack sizing operation, which starch is applied to paper or paperboard which comprises, preparing and maintaining a body of concentrated uncooked starch slurry, continuously blending a stream of water with a stream of said concentrated starch slurry to produce a stream of dilute uncooked starch slurry, continuously pasting said stream of dilute starch slurry with a jet of steam in a uniform immediate manner continuously, introducing the resulting stream of hot cooked starch without quenching into a body of cooked starch having a temperature of at least about 180° F. said body of cooked starch being substantially smaller than said body of uncooked starch, and feeding size boxes of a calender stack with the cooked starch from said body of cooked starch for use in said calender stack sizing operation.

6. Apparatus for supplying cooked starch to a calender stack of a paper machine for use in a calender stack sizing operation which comprises in combination: a vessel equipped with agitator means and water supply means for forming and maintaining a body of concentrated starch slurry; a means for withdrawing and feeding said starch slurry from said vessel to a continuously operated, automatically controlled starch diluting and cooking means, said diluting and cooking means having connected thereto water inlet means for first diluting said concentrated starch slurry, steam inlet means for then cooking said diluted starch slurry, and means for discharging said cooked starch slurry from said diluting and cooking means into at least one cooked starch holding tank; conduit means for interconnecting said holding tank with at least one size box of a calender stack; and pumping means connected to said conduit means for continuously supplying said size box with said cooked starch for use in said sizing operation.

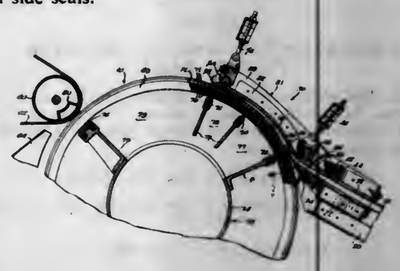
3,321,360

METHOD AND APPARATUS FOR SUPPLYING STOCK TO PAPERMAKING MACHINE

Sherwood G. Holt, Wisconsin Rapids, Wis., assignor to Consolidated Papers, Inc., Wisconsin Rapids, Wis., a corporation of Wisconsin

Filed Oct. 9, 1963, Ser. No. 315,033
9 Claims. (Cl. 162—214)

1. In a papermaking machine of the forming roll type, a stock nozzle juxtaposed to a forming surface on the roll and having a throat, an outlet tip and side seals, said throat having a bottom lip and a top lip, and a stock inlet having an approach channel communicating with said throat, said approach channel carrying said bottom lip and being pivotally mounted on an axis parallel to the axis of the roll for adjusting said bottom lip relative to the forming surface, said side seals being slidably connected to said approach channel along an arc the axis of which coincides with the pivot axis of said channel, whereby said channel may be adjusted without affecting said side seals.



3. A method of forming on a suction forming roll printing papers and the like having a mineral content of not less than 3%, said method comprising the steps of physically confining a stock suspension against a forming surface on the roll, maintaining the pressure in the area of confinement so that said stock suspension is under positive pressure throughout the area of confinement, and progressively decreasing the pressure on said stock suspension from the inlet end to the outlet end of said area by regulating the following variables, (1) the convergence of a stock nozzle member which confines the suspension, (2) the rate at which the stock suspension is supplied, (3) the drainage resistance of the stock suspension, (4) the vacuum within the forming roll, and (5) the speed of the forming roll.

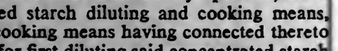
3,321,361

ACARICIDAL METHOD

Julius J. Menn, San Jose, Calif., and Walter A. Stamm, Tarrytown, N.Y., assignors to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Apr. 6, 1964, Ser. No. 357,821
6 Claims. (Cl. 167—22)

1. The method of controlling acarids comprising applying thereto an effective amount of a compound of the formula



wherein the lower alkyl groups contain from 1 to 6 carbon atoms, inclusive, X and Y are selected from the group consisting of oxygen and sulfur, R' is a methylene radical with *n* from 0 to 5, inclusive, and R is selected from the group consisting of alkyl, alkenyl, phenyl and substituted alkyl, alkenyl and phenyl groups, wherein the substituents are halogen, alkyl, hydroxyl, amino and nitro groups.

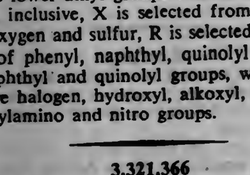
3,321,362

INSECT CHEMOSTERILANT 3-SUBSTITUTED-2-OXOBUTYRALDEHYDE BIS(THIOSEMICARBAZONES), THEIR ALKALI METAL SALTS, AND THEIR METAL CHELATES

Alan J. Lemin, Richland Township, Kalamazoo County, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Filed Feb. 15, 1965, Ser. No. 432,824
12 Claims. (Cl. 167—22)

1. The process which comprises poisoning insects with a member selected from the group consisting of: (1) 3-substituted-2-oxobutyraldehyde bis(thiosemicarbazones) of the formula:



wherein R is selected from the group consisting of hydrogen and methyl, and R' is selected from the group consisting of hydrogen, methyl, ethyl, propyl, isopropyl, acetyl, propionyl, butyryl, and isobutyryl; (2) alkali metal salts thereof; and (3) metal chelates thereof.

3,321,363

MICROBICIDAL METHODS AND COMPOSITIONS CONTAINING IODOCYANOACETYLENE

Anthony A. Sousa, Raleigh, N.C., assignor to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Feb. 2, 1966, Ser. No. 524,458
4 Claims. (Cl. 167—22)

1. A method of combating microorganisms which comprises applying an effective amount of iodocyanoacetylene thereto.

3,321,364

INSECTICIDAL COMPOSITION CONTAINING GROUND RYANIA AND DIMETHYL SULFOXIDE

Kenneth L. Kessler, La Habra, Calif., assignor to Leffingwell Chemical Company, Whittier, Calif., a corporation of California

No Drawing. Filed Oct. 5, 1964, Ser. No. 401,678
8 Claims. (Cl. 167—24)

4. The method of killing foliage insect infestations that includes applying to the foliage an aqueous uniform dispersion of ground Ryania, dimethyl sulfoxide, sugar, and a surfactant.

3,321,365

ACARICIDAL METHOD

Julius J. Menn, San Jose, Calif., and Walter A. Stamm, Tarrytown, N.Y., assignors to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Apr. 6, 1964, Ser. No. 357,750
6 Claims. (Cl. 167—30)

1. The method of controlling acarids comprising applying thereto an effective amount of a compound of the formula

$$(\text{lower alkyl})_3\text{—Sn—X—R}$$

wherein the lower alkyl groups contain from 1 to 6 carbon atoms, inclusive, X is selected from the group consisting of oxygen and sulfur, R is selected from the group consisting of phenyl, naphthyl, quinolyl and substituted phenyl, naphthyl and quinolyl groups, wherein said substituents are halogen, hydroxyl, alkoxyl, alkyl, haloalkyl, amino, alkylamino and nitro groups.

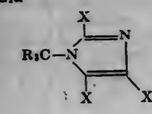
3,321,366

FUNGICIDAL METHODS AND COMPOSITIONS

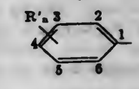
Dorsey R. Mussell, Clare, and Henry Tolkmith, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Michigan

No Drawing. Filed Nov. 15, 1965, Ser. No. 507,691
8 Claims. (Cl. 167—33)

1. Method which comprises contacting a fungal organism with a fungicidal amount of a tritylimidazole compound of the formula



wherein each R independently represents aryl of the formula



wherein each R' independently represents halo or lower-alkyl and *n* represents an integer of from 0 to 2, both inclusive, further limited in that one of the 2 and 6 positions is unsubstituted; and each X independently represents hydrogen, loweralkyl, or phenyl, the total number of carbon atoms in all X substituents being an integer of from 0 to 15, both inclusive.

3,321,367

PARENTERAL COMPOSITIONS CONTAINING ANTIMONY (III) COMPLEX OF 2,3-DIMERCAPTO-SUCCINIC ACID

Walter Fuller, Neuallschwil, and Harro Stohler, Binningen, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey

No Drawing. Filed June 11, 1965, Ser. No. 463,361
Claims priority, application Switzerland, June 24, 1964, 8,269/64
3 Claims. (Cl. 167—55)

1. A parenterally acceptable composition comprising a suspension of from about 1 to about 25 percent by weight, based on said composition, of the antimony (III) complex compound of 2,3-dimercapto-succinic acid in a vegetable oil.

3,321,368

PRODUCTION OF ANTIBIOTIC AM-684 FROM TYLOSIN

Howard Arnold Whaley, Monsey, and Ernest Leonard Patterson, Pearl River, N.Y., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Sept. 13, 1963, Ser. No. 308,669
2 Claims. (Cl. 167—65)

1. A process for the preparation of antibiotic AM-684 which comprises reacting the antibiotic tylosin with sodium borohydride at room temperature and for a sufficient length of time to convert tylosin to antibiotic AM-684.

3,321,369

METHOD OF ENHANCING LEARNING RATE AND RETENTION LEVEL IN WARM BLOODED ANIMALS

Alvin J. Glasky, Lincolnwood, and Nicholas P. Plotnikoff, Lake Bluff, Ill., assignors to Abbott Laboratories, North Chicago, Ill., a corporation of Illinois

No Drawing. Filed May 26, 1965, Ser. No. 459,103
3 Claims. (Cl. 167—65)

1. The method of enhancing learning rate and retention level impairment in warm-blooded animals which comprises administering to a warm-blooded animal having said impairment from about 10 to 300 milligrams daily of an active ingredient selected from the group consisting of p-amino-N-(2-diethylaminoethyl) benzamide and its neutral or acid addition salt.

3,321,370

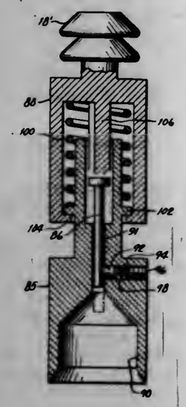
METHOD AND APPARATUS FOR REMOTE TEMPERATURE MEASUREMENT IN A NUCLEAR REACTOR INSTALLATION

Edgar D. Oppenheimer, Mamaroneck, N.Y., assignor to Atomic Power Development Associates, Inc., Detroit, Mich., a corporation of New York

Filed Sept. 3, 1964, Ser. No. 394,081
4 Claims. (Cl. 176—19)

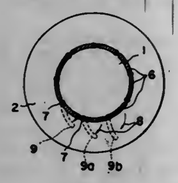
1. In a nuclear reactor, apparatus for obtaining a remote indication of the temperature at selected points in the vicinity of the reactor core, said apparatus compris-

ing a housing located at each of said selected points, temperature responsive mechanical elements mounted to produce displacements on each housing in response to temperature variations, a displacement sensitive device, said displacement sensitive device including two relatively movable portions arranged to be relatively positioned to



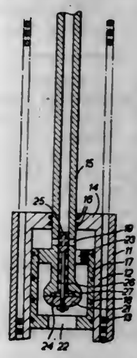
conform to the displacement occurring at each housing upon being pressed thereagainst and means associated with said displacement sensitive device for maintaining said two relatively movable portions in fixed positional relationship upon movement of said device to a point external to said reactor.

3,321,371
NUCLEAR REACTOR WITH PIVOTAL REFLECTOR CONTROL ARRANGEMENT
Toyozo Kambara, Mitaka-shi, and Shoichi Terasawa and Kimio Arai, Tokyo-to, Japan, assignors to Kabushiki Kaisha Hitachi Seisakusho, Tokyo-to, Japan, a joint-stock company of Japan
Filed June 23, 1964, Ser. No. 377,187
Claims priority, application Japan, June 24, 1963, 38/32,670
2 Claims. (Cl. 176—33)



1. A thermal neutron reactor comprising a reactor core; a neutron reflector fixedly disposed about said core and in close proximity thereto; flat, elongated, pivoting control elements disposed within said reflector and forming a continuous ring therewithin thus enclosing a region formed by said core and a portion of said reflector; said control elements consisting essentially of neutron-absorbing fertile materials; and controlling means to vary the effective surface area of the control elements projectionally facing the core thereby to vary the effective absorption due to the control elements with respect to the neutron current leaking out from the core toward the reflector, and thereby varying the neutron reflection effect of the reflector, to accomplish control of the reactivity of the reactor; said control elements controlling the quantity of neutrons which are reflected back to said core by said reflector.

3,321,372
NUCLEAR REACTOR CONTROL MECHANISM
Ronald Scott Challender, Appleton, Warrington, England, assignor to Societe Anglo-Belge Vulcain, S.A., Brussels, Belgium
Filed Dec. 23, 1964, Ser. No. 420,702
Claims priority, application Great Britain, Jan. 17, 1964, 2,264/64
4 Claims. (Cl. 176—36)

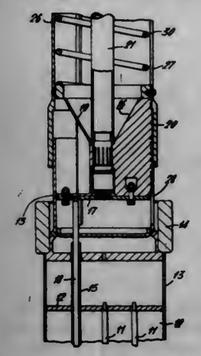


1. In a nuclear reactor control mechanism having a movable reactivity control element and a fluid-operated piston and cylinder device for movement of said element, the improvement wherein said device comprises: a stationary hollow piston rod; a stationary piston mounted on said piston rod; a drive cylinder connected to said control element and movably mounted on said piston; said piston rod having apertures which communicate between the hollow interior of said piston rod and the inside of said drive cylinder so that fluid pressure within said cylinder can be adjusted through said hollow piston rod; a relief valve located in said stationary piston and having an open and closed position, said valve having means normally biassing it into said open position; and a pilot piston movably mounted within said hollow piston rod so as to be responsive to pressures therein and linked to said relief valve for moving under the action of fluid pressure within said piston rod and blocking said apertures when said relief valve moves to said open position and unblocking said apertures when said relief valve moves to said closed position.

3,321,373
NUCLEAR REACTOR CONTROL MECHANISMS
Ronald Scott Challender, Appleton, Warrington, England, assignor to United Kingdom Atomic Energy Authority, London, England
Filed Dec. 16, 1965, Ser. No. 514,327
Claims priority, application Great Britain, Mar. 17, 1965, 11,313/65
6 Claims. (Cl. 176—36)

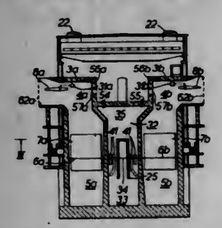
1. A nuclear reactor control mechanism for normal control movement of a control rod relative to a reactor core and releasable to allow for rapid movement of the rod in a direction to reduce reactivity of the core, the mechanism comprising a drive member engaging a driven member, first means for restraining the driven member against rotation during normal control movement, a releasable mechanical coupling between the driven member and a control rod carrier, and second means for effecting limited rotation of the driven member to release the coupling so as to allow for rapid

movement of the carrier in the direction to reduce reactivity of the core, one of said means utilising spring



loading and the other utilising fluid pressure opposing the spring loading.

3,321,374
CONTAINMENT SYSTEM FOR PRESSURIZED NUCLEAR REACTOR INSTALLATION
Geoffrey Vincent Windle, Bolton, Norman Bradley, Culcheth, Warrington, and Frank Geoffrey Johnson, Hale Barns, England, assignors to United Kingdom Atomic Energy Authority, London, England
Filed Dec. 16, 1964, Ser. No. 418,785
Claims priority, application Great Britain, Dec. 16, 1963, 49,660/63
4 Claims. (Cl. 176—37)

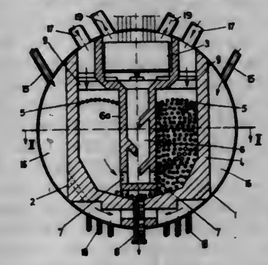


1. A nuclear reactor installation comprising, a pressurised nuclear reactor, a sealed containment structure spaced from and enclosing said nuclear reactor, means defining a chamber outside of said containment structure, a pool of liquid contained within said chamber, means defining a vent duct extending from the interior of said containment structure to below the surface of said pool of liquid, means defining a port for communicating the interior regions of the chamber above the surface of the pool of liquid with the atmosphere, valve means for said port normally held in an open position, means for biassing said valve towards a closed position and pressure sensitive means for effecting release of said valve means when the pressure within the chamber exceeds a predetermined value.

3,321,375
SUBSTANTIALLY ISOTROPIC GRAPHITIZED BODIES USED IN NUCLEAR REACTORS
Samuel W. Martin, deceased, late of Oak Park, Ill., by Beverly Martin, executrix, Oak Park, Ill., and Frederick L. Shea, Jr., Johnson City, Tenn., and Leslie H. Juel, Lewiston, N.Y., assignors to Great Lakes Carbon Corporation, New York, N.Y., a corporation of Delaware
No Drawing. Filed Mar. 3, 1964, Ser. No. 349,794
5 Claims. (Cl. 176—41)

1. In the process of operating a nuclear reactor, the steps comprising creating a nuclear reaction and thereby effecting a neutron flux, and moderating or reflecting the neutrons by placing in the path of said neutrons formed and graphitized bodies derived mainly from cokes produced from gilsonite.

3,321,376
HIGH TEMPERATURE NUCLEAR REACTOR
Oskar Machnig and Walter Stürmer, Mannheim, Germany, assignors to Brown Boveri/Krupp Reaktorbau G.m.b.H., Dusseldorf, Germany
Filed Apr. 29, 1965, Ser. No. 451,949
Claims priority, application Germany, Apr. 28, 1964, B 76,547
18 Claims. (Cl. 176—59)

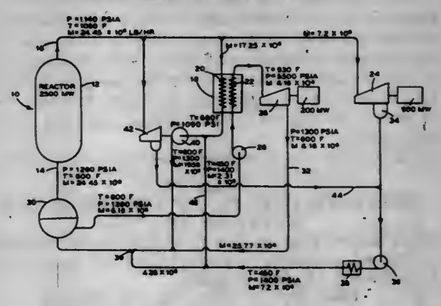


1. A high temperature nuclear reactor utilizing fuel in the form of a loosely packed column of particulate fuel elements and in which a coolant gas is conducted through the column of fuel elements and then gives up its heat in heat exchangers, said reactor comprising, in combination:

means including an outer and an inner wall forming an annular chamber between said outer and inner walls for containing the fuel elements and a longitudinally extending hollow passage enclosed by said inner wall and free of any fuel elements; and

means defining a gas flow path in said reactor, one section of said path extending from the top portion to the bottom portion of said annular chamber and another section of said path extending through said hollow passage, for passage of gas downwardly through the fuel elements and then upwardly through said hollow passage from the bottom portion to the top portion thereof.

3,321,377
NUCLEAR REACTOR POWER PLANT ARRANGEMENT
Donald C. Schluderberg, Lynchburg, Va., assignor to The Babcock & Wilcox Company, New York, N.Y., a corporation of New Jersey
Filed Sept. 8, 1965, Ser. No. 485,849
14 Claims. (Cl. 176—60)

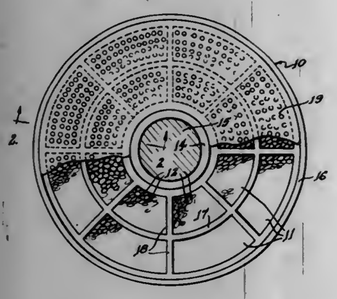


1. A nuclear reactor system comprising a nuclear reactor, means for circulating a coolant fluid through

said reactor at a first pressure, a first turbine operating at said first pressure, a second turbine operating at a pressure higher than said first turbine, heat transfer means arranged to transfer heat from a portion of the heated reactor coolant fluid to a second fluid at a pressure higher than the pressure of the reactor coolant fluid, means connecting said reactor outlet to the inlet of said first turbine for passing the remaining portion of the heated reactor coolant therethrough, means for passing said second heated fluid to said second turbine, said circulating means arranged to return the coolant fluid from said heat transfer means to said reactor, and means connecting the outlets of said turbines to said reactor.

10. The method of operating a nuclear reactor system having a nuclear reactor, a first turbine operating at a first pressure, a second turbine operating at a pressure higher than said first turbine, and heat transfer means, comprising the steps of circulating a coolant fluid at a first pressure through said reactor to remove heat therefrom, passing a portion of said heated reactor coolant fluid through said heat transfer means and transferring heat to a second fluid at a pressure higher than the pressure of the reactor coolant fluid, passing the remaining portion of the heated reactor coolant through said first turbine, passing said second heated fluid through said second turbine, returning the coolant fluid from said heat transfer means to said reactor, and returning the fluid from said second turbine to said reactor.

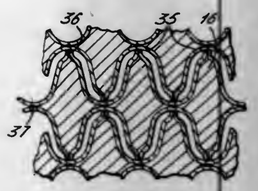
3,321,378
FUEL ELEMENT FOR A NUCLEAR REACTOR
Wallace B. Thomson, Northridge, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed Nov. 22, 1966, Ser. No. 596,341
5 Claims. (Cl. 176—73)



1. A rotating disk fuel assembly for a compact, air-cooled nuclear reactor comprising a disk formed of a moderating material having a plurality of recesses therein, a large number of small fuel pebbles disposed in each of said recesses, and means for retaining said fuel pebbles in said recesses, said disk having perforations therein to permit cooling air to pass through said disk over said fuel pebbles.

3,321,379
SHEATHED FUEL PLATE ASSEMBLIES FOR A NUCLEAR REACTOR
Allan Barker, Chester, and John Alan Dodd, Warrington, England, assignors to United Kingdom Atomic Energy Authority, London, England
Filed Sept. 3, 1965, Ser. No. 484,910
5 Claims. (Cl. 176—75)

1. An assembly of sheathed fuel plates for a nuclear reactor comprising plates whereof the sheathing is constituted by corrugated halves of uniform thickness sheet united at the concavities of the corrugations to form longitudinally extending pockets, a discrete mass of nuclear

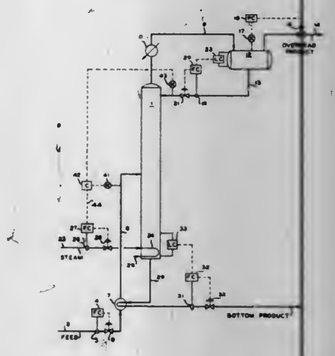


fuel being contained in each pocket and the convexities of the corrugations of adjacent plates being introduced to leave between the plates a gap of constant width for coolant flow.

ERRATUM

For Class 202—185 see:
Patent No. 3,321,381

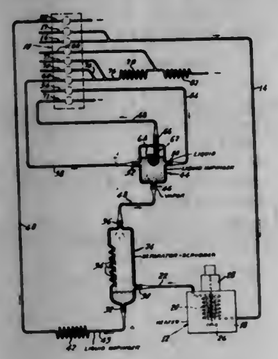
3,321,380
CONTROLLING THE HEAT INPUT TO A DISTILLATION COLUMN IN RESPONSE TO TEMPERATURES IN THE SYSTEM
Thell L. Hillburn, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Aug. 29, 1963, Ser. No. 305,406
3 Claims. (Cl. 203—2)



1. A process for operation of a distillation column which comprises the steps of:
(a) supplying a liquid feed to said column at a relatively constant flow rate;
(b) supplying heat to said column to vaporize a portion of said feed;
(c) withdrawing overhead vapor from said column, condensing a portion thereof, and passing resulting condensate to said column as reflux;
(d) withdrawing a liquid bottoms product;
(e) separately measuring the temperature of the reflux of step (c);
(f) separately measuring the temperature of the feed of step (a);
(g) summing the sensed temperatures of steps (e) and (f); and

(h) varying the heat supplying in step (b) inversely as the sum in step (g) varies only to maintain a predetermined specification for said bottoms product.

3,321,381
DISTILLATION AND ANALYSIS APPARATUS
Dennis Robert Grady, Yonkers, N.Y., assignor to Technicon Instruments Corporation, Chauncey, N.Y., a corporation of New York
Filed Aug. 27, 1963, Ser. No. 304,934
4 Claims. (Cl. 202—185)



1. Apparatus for quantitatively analyzing a liquid with respect to a vaporizable substance contained therein wherein said apparatus includes:
a heater for heating a stream of said liquid as it flows therethrough and having an inlet and an outlet;
a gas and liquid separator having an inlet for connecting said separator to said outlet of said heater, having a first outlet for the discharge of liquid from said separator, and having a second outlet for the flow of vapor out of said separator; and
chamber means having a first inlet for connecting said chamber means to said second outlet of said separator for the introduction of the vapor, having a second inlet and a first outlet for the flow of a liquid stream therethrough for receiving said vapor into said liquid stream in said chamber means, and having a second outlet above said first outlet for limiting the maximum level of liquid in said chamber means comprising a U-shaped tube having its inlet disposed within said chamber means at the level which is to be established as the maximum level for liquid and its outlet coupled to a pump.

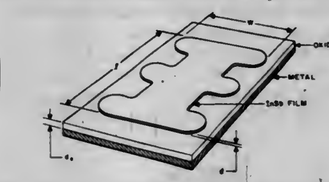
3,321,382
PROCESS OF DISTILLING BENZOIC ACID WITH STEAM ABOVE 200° C.
Jacob O. Ashcraft, Jr., Hamburg, Leon O. Winstrom, East Aurora, Raymond J. Duggan, West Seneca, and Jong C. Park, Williamsville, N.Y., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York
No Drawing. Filed Apr. 3, 1964, Ser. No. 357,306
8 Claims. (Cl. 203—34)

1. A process for distilling benzoic acid to recover purified benzoic acid as a product and to minimize formation of high-boiling distillation residue, which comprises distilling the benzoic acid at a temperature above about 200° C. in the presence of about 0.22 to 0.01 parts by weight of steam per part by weight of distilling benzoic acid.

3,321,383
PROCESS FOR ELIMINATING FLUORINATED HALOGEN BUTENES FROM 2,2,2-TRIFLUORO-1-CHLORO-1-BROMO-ETHANE
Otto Scherer, Bad Soden, Taunus, and Heinrich Kühn, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany
No Drawing. Filed Nov. 2, 1964, Ser. No. 408,387
Claims priority, application Germany, Nov. 7, 1963, F 41,210
9 Claims. (Cl. 203—37)

1. A process for the purification of 2,2,2-trifluoro-1-chloro-1-bromo-ethane contaminated with 1,1,1,4,4,4-hexafluoro-2,3-dichloro-butene-2, 1,1,1,4,4,4-hexafluoro-2-chloro-butene-2, 1,1,1,4,4,4-hexafluoro-2-bromo-butene-2, or a mixture thereof which comprises adding thereto a solution of an alkali metal hydroxide or alkali metal lower alcoholate in a lower alkanol, diluting the resulting mixture with water to form an aqueous phase and an organic phase, and separating pure 2,2,2-trifluoro-1-chloro-1-bromo-ethane from the organic phase by distillation.

3,321,384
PROCESS FOR PRODUCING SEMICONDUCTOR-FILM HALL DEVICES ON OXIDE-METAL SUBSTRATE
Harry H. Wieder and Arthur R. Clawson, Riverside, Calif., assignors to the United States of America as represented by the Secretary of the Navy
Filed Oct. 27, 1964, Ser. No. 406,943
7 Claims. (Cl. 204—38)



1. The process of fabricating improved semiconductor devices for Hall generators, and magneto-resistive devices, comprising:
(a) anodizing a refractory metal substrate to form an insulating surface which has a thermal expansion compatible with a semiconductor film to be deposited thereon,
(b) vacuum depositing a film selected from the group consisting of InSb and InAs onto the insulating anodized surface of said metal substrate,
(c) overcoating said semiconductor film in a vacuum with a layer of indium of from 100 A. to 200 A. thickness,
(d) radiant heating the composite film to cause recrystallization thereof of said film into large crystal grains and fusing of the semiconductor film to the anodized surface without chemical interaction between the anodized surface and the film.

3,321,385
METHOD OF MANUFACTURING AN ALUMINUM BASE PHOTOGRAPHIC SURFACE
Frank Charles Fazzari, 1111 Army Navy Drive, Arlington, Va. 22202
No Drawing. Filed Apr. 9, 1963, Ser. No. 271,569
4 Claims. (Cl. 204—42)

1. A method of producing an aluminum photographic sheet which comprises the step of subjecting a sheet of pure aluminum to anodic treatment in a solution of oxalic acid and oxalates made by dissolving 250 grams of potassium oxalate in 10 liters of distilled water with added

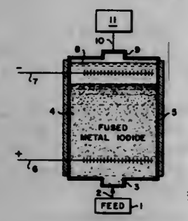
oxalic acid to a hydrogen exponent of pH 1–6 with a current density of .080 ampere per square inch for 45 to 60 minutes at a temperature of approximately 45° C., agitating the electrolyte during such treatment by passing air therethrough, additionally agitating the electrolyte by ultrasonic vibration of approximately .75 watt per square inch at 25 to 40 kc., rinsing the sheet in distilled water, further anodically treating the sheet in an electrolyte solution of 5 percent boric acid of pH 1–6 for a period of 15 to 20 minutes at a current density of .100 ampere per square inch at a temperature of approximately 50° C. while agitating the electrolyte by the passage of air therethrough and additionally by ultrasonic agitation, rinsing the sheet, immersing the sheet in a 5 percent solution of bicarbonate of soda to neutralize any residual acid, again rinsing the sheet in distilled water, drying the sheet at a temperature of approximately 50° C., immersing the sheet in an aqueous solution of 5 percent 2,4-dichlorol-1-napthol adjusted to a pH of 6.8, at a temperature of approximately 45° C. for a period of approximately fifteen minutes, again rinsing the sheet, immersing the sheet while still wet in a 5 percent solution of silver nitrate having a slight excess of ammonia added for approximately sixty minutes, rinsing the sheet in distilled water and drying the same at a temperature of approximately 50° C., immersing the sheet in a solution of 3 grams of potassium permanganate and 6.25 grams of potassium ferricyanide dissolved in 500 ccs. of distilled water for a period of five minutes at a temperature of from 18° C. to 20° C. to oxidize the precipitated metallic silver, rinsing the plate and immersing the same in a ripening solution comprised of 10 grams of oxalic acid, 6.25 grams of potassium bromide, 3 grams of sodium chloride and .025 gram of ammonium iodide dissolved in 500 ccs. of distilled water, to form light-sensitive halides, rinsing in distilled water and immersing the sheet in a solution of 9 grams of potassium ferricyanide and 3.5 grams of potassium bromide per liter of distilled water, and finally force drying the plate at approximately 60° C.

3,321,386

ELECTROLYTIC DEHYDROGENATION OF HYDROCARBONS

George Stewart Mill, Pasadena, Tex., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

Filed July 30, 1964, Ser. No. 386,309
6 Claims. (Cl. 204—62)



1. A process for conversion of a first hydrocarbon to a second hydrocarbon having a higher carbon-to-hydrogen ratio which comprises passing a current between spaced electrodes immersed in a fused salt electrolyte comprising a fused metallic iodide thereby forming elemental iodine at one electrode while introducing the first hydrocarbon into the electrolyte adjacent the electrode where elemental iodine is formed while maintaining the electrolyte at a temperature in excess of 300° C., and withdrawing the resulting second hydrocarbon.

3,321,387

ELECTROCHEMICAL SYNTHESIS OF CYCLOPROPANE RING COMPOUNDS

William J. Koehl, Jr., Yardley, Pa., assignor to Mobil Oil Corporation, a corporation of New York

No Drawing. Filed July 25, 1963, Ser. No. 297,661
12 Claims. (Cl. 204—72)

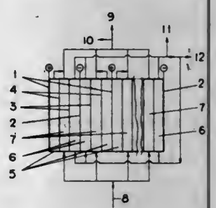
1. Method of electrochemically synthesizing a cyclopropane ring compound which comprises electrolyzing an aqueous solution of an aliphatic carboxylic acid selected from the group consisting of n-butanoic acid, 2-methylbutanoic acid, 3-methylbutanoic acid, and n-pentanoic acid by passing current from an anode to a cathode immersed in said solution at a current density of 0.01 to 0.5 amp./sq. cm. to produce at the anode a gaseous product containing said cyclopropane ring compound, and recovering the same.

3,321,388

PROCESS FOR COORDINATED OPERATION OF DIAPHRAGM AND MERCURY CATHODE ELECTROLYTIC CELLS

Tadao Ueda and Motonobu Minagawa, Tokyo, Japan, assignors to Asahidenka Kogyo Kabushiki Kaisha, Tokyo, Japan, a corporation of Japan

Filed Aug. 7, 1963, Ser. No. 300,519
Claims priority, application Japan, Aug. 9, 1962, 37/32,953
8 Claims. (Cl. 204—98)



1. A process for the coordinated operation of diaphragm and mercury cathode electrolytic cells for the electrolysis of alkali metal chloride solutions to produce alkali metal hydroxide solutions, chlorine and hydrogen, the diaphragm cell having at least one cathode compartment separated from an anode compartment by means including a cation permselective membrane, which process comprises: supplying an alkali metal chloride solution both to the mercury cathode cell and to the anode compartment of the diaphragm cell; electrolyzing the solutions flowing through both cells to produce an alkali metal amalgam from the mercury cathode cell and to produce chlorine, hydrogen and a relatively low concentration alkali metal hydroxide solution free of chloride ions from the diaphragm cell; contacting said alkali metal amalgam with said alkali metal hydroxide solution in a decomposer to deamaglamate the amalgam in order to regenerate the mercury and to form a more concentrated alkali metal hydroxide solution, and separating the mercury from the more concentrated alkali metal hydroxide solution.

3,321,389

METHOD OF ANODICALLY ETCHING ALUMINUM FOILS AT ELEVATED TEMPERATURES IN AN ELECTROLYTE INCLUDING CHLORIDE AND SULFATE IONS

Daniel J. Anderson, Indianapolis, Ind., assignor to P. R. Mallory & Co., Inc., Indianapolis, Ind., a corporation of Delaware

No Drawing. Filed July 20, 1964, Ser. No. 383,960
3 Claims. (Cl. 204—141)

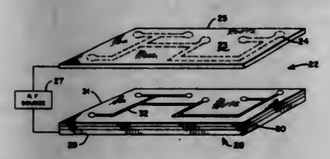
1. The method of treating the surfaces of substantially oxide free aluminum foil having a purity of at least 99.93 percent used in a capacitor electro-formed at up to 100 volts to increase the effective surface thereof by etching thereon a fine etch pattern comprising the steps of immersing a substantially oxide free aluminum foil having a purity of at least 99.93 percent in an aqueous bath containing about 16 to 24 percent by weight of an alkali metal chloride and about 0.1 to 10 percent by weight of a soluble alkali metal sulfate, maintaining said aqueous etching bath at a temperature of about 70 to 100° C., conducting between said substantially oxide free aluminum foil which is made anodic and a cooperating cathode a unidirectional current having a density of about one ampere per square inch of said metal surface and having a time cycle duration of about 4 to 15 ampere minutes per square inch of said metal surface thereby causing etching of said metal surface of said aluminum foil by a combined chemical and electrolytic action, continuing said etching of said metal surfaces until the capacity value of said metal surfaces is effectively increased by the formation of a fine etch pattern therein, and cleansing said aluminum foil of said aqueous etch bath.

3,321,390

MICROCIRCUITS FORMED BY RADIO-FREQUENCY BRUSH DISCHARGES

Erwin G. Weber, Bad Homburg vor der Hohe, Germany, assignor to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware

Filed Oct. 17, 1963, Ser. No. 316,984
6 Claims. (Cl. 204—164)



1. The method of preparing a metallic layer on the surface of an insulating film which method comprises the steps of placing a continuous layer of a solid compound selected from the group consisting of reducible silver compounds and reducible copper compounds on the surface of an insulating film to form a working blank, placing the working blank between a pattern electrode and a base electrode, the pattern electrode being disposed adjacent to and uniformly spaced from the reducible metal compound and thence passing an RF discharge consisting essentially of a brush discharge between said electrodes.

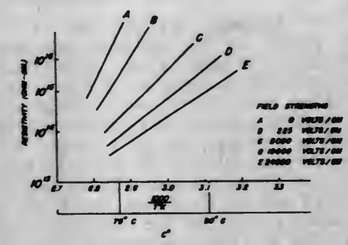
3,321,391

METHOD FOR STUDYING EFFECTS OF POLYMERIZATION IN D.C. ELECTRIC FIELD

Robert W. Warfield, Germantown, and Marcella C. Petree, Silver Spring, Md., assignors tothe United States of America as represented by the Secretary of the Navy

Filed Dec. 4, 1963, Ser. No. 328,138
4 Claims. (Cl. 204—165)

1. A method of determining the extent of orientation of a polymer which has been polymerized in a strong electric field comprising the steps of:
carrying out said polymerization with the polymer contained between a pair of electrodes,
after polymerization is complete, applying a relatively low voltage across said electrodes to establish an electric field in said polymer,
measuuring the current through said polymer as a measure of the resistivity thereof,



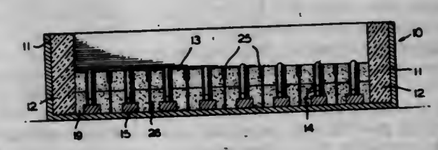
varying the temperature of said polymer and measuring the resistivity thereof at a plurality of temperatures, plotting the resistivity values against the reciprocal temperature to obtain a straight line, the slope of which will be less for an oriented than for an unoriented polymer.

3,321,392

ALUMINA REDUCTION CELL AND METHOD FOR MAKING REFRACTORY LINING THEREFOR

Curtis J. McMinn and John L. Dewey, Florence, Ala., assignors to Reynolds Metals Company, Richmond, Va., a corporation of Delaware

Filed Sept. 7, 1962, Ser. No. 222,079
8 Claims. (Cl. 204—243)



1. An alumina reduction cell having a chamber to hold the molten contents of the cell, a refractory lining having a surface underlying said chamber, and a refractory divider element subdividing said lining into segments along said surface and providing parting planes between adjacent segments thereof, said divider element having a fusion point above that of said lining.

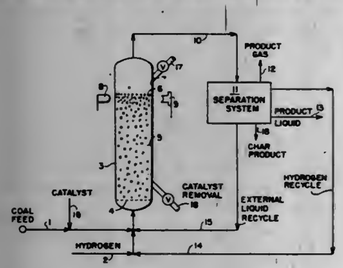
6. Method of constructing an alumina reduction cell, having an interior lining which defines a chamber to hold the molten contents of the cell and includes a layer of fused refractory material underlying said chamber and disposed in contact with said molten contents, with provision for controlled shrinkage of said lining upon cooling from an elevated temperature, which method comprises installing a layer of unfused refractory material and a divider element separating such material into laterally adjacent segments, said divider element having a fusion point above that of said refractory material, thereby providing a transverse parting plane in the body of said refractory material to isolate the movement of that portion of the refractory bounded by said parting plane, and to prevent the transmission of strain from said portion to the remainder of the refractory of layer, and then heating said refractory material to form said fused layer.

3,321,393
HYDROGENATION OF COAL

Seymour C. Schuman, Princeton, Ronald H. Wolk, Lawrence Township, Mercer County, and Michael C. Chervenak, Pennington, N.J., assignors to Hydrocarbon Research, Inc., New York, N.Y., a corporation of New Jersey

Filed May 10, 1965, Ser. No. 454,357
The portion of the term of the patent subsequent to May 11, 1982, has been disclaimed and dedicated to the Public
3 Claims. (Cl. 208—10)

1. The process of hydrogenating pulverized coal ground to pass an 80 mesh (Tyler) screen to make synthetic petroleum hydrocarbons which have a substantial fraction boiling below 900° F. which comprises flowing said coal particles suspended in a hydrocarbon liquid together with a hydrogen rich gas upwardly through a contact zone containing a bed of a particulate hydrogenation catalyst of 20 to 200 mesh (Tyler) and in which the pulverized coal has an average particle size at least three diameters smaller than the catalyst size, said contact zone being at a hydrogen pressure in the order of from 1000 to 4000 pounds per square inch, and a temperature in the range of 800–900° F., maintaining the liquid and gas velocities within the contact zone so that the bed of catalyst is in a state of random motion and



expanded to occupy at least 10% greater volume than the settled state of the bed, maintaining in said contact zone an interface below which the bed of catalyst exists at a concentration greater than 5 pounds per cubic foot and above which said catalytic solids are at a concentration of less than 0.10 pound per cubic foot without employing a settling zone or other disengagement device withdrawing product and suspended coal ash above said interface, operating the hydrogenation system to consume at least 10,000 standard cubic feet of hydrogen for each ton of moisture ash free coal, and maintaining a liquid velocity in the hydrogenation reactor so as to not exceed 0.4 times the gas velocity.

3,321,394
METHOD FOR RENDERING AN ASPHALT OR ASPHALTENE PRODUCT COLLECTED IN THE SEPARATION ZONE OF A SOLVENT EXTRACTION APPARATUS FREE FLOWING BY DISPERSING AN IMMISCIBLE LIQUID THEREWITH

King L. Mills, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

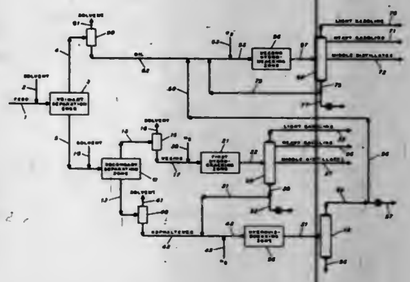
Filed Oct. 5, 1964, Ser. No. 401,426
7 Claims. (Cl. 208—45)

1. A method of producing an asphaltic product comprising separating at least one material selected from the group consisting of asphalt and asphaltenes from a feed containing same by contacting said feed in an upper portion of a separation zone with a solvent which forces said asphaltic product out of said feed, collecting said asphaltic product in the bottom portion of said zone, mixing with said collected asphaltic product a dispersing liquid which is immiscible with said asphaltic product and said solvent and being of a density substantially the same as said asphaltic product to render same substantially free-flowing, said density being in the range of from about 20 weight percent less to about 20 weight percent more than the density of said asphalt, and removing said substantially free-flowing mixture of liquid and asphaltic product from said zone.

3,321,395
HYDROPROCESSING OF METAL-CONTAINING ASPHALTIC HYDROCARBONS

Norman J. Paterson, San Rafael, Calif., assignor to Chevron Research Company, a corporation of Delaware

Filed June 3, 1965, Ser. No. 461,082
13 Claims. (Cl. 208—78)



1. A process for converting a hydrocarbon feed boiling at least partly above 900° F. and containing at least 2 weight percent asphaltenes and at least 25 p.p.m. metalliferous contaminants expressed as metals, said contaminants being selected from the group consisting of nickel, vanadium, compounds thereof and mixtures thereof, which comprises separating said feed in a solvent separation zone into an oil fraction containing less than 25 p.p.m. of said contaminants expressed as metals, a resin fraction containing between 10 and 50 weight percent of said contaminants in said feed, and an asphaltene fraction containing at least 50 weight percent of said contaminants in said feed, removing from said resin fraction at least 50 weight percent of said contaminants in said resin fraction in a hydrocracking zone in the presence of hydrogen with a catalyst comprising at least one hydrogenating component and a cracking component having no more than weak acidity, said hydrocracking zone being operated on a once-through basis at conditions to convert no more than 50 volume percent of the portion of said resin fraction boiling above 900° F. to materials boiling below 900° F., recovering from the effluent from said hydrocracking zone products, including gasoline and middle distillates boiling below about 650° F., and a hydrocracking zone bottoms fraction boiling above 650° F. having a UOP "K" Characterization Factor below 11.25 and containing greater than 25 volume percent cyclic hydrocarbons selected from the group consisting of aromatics, naphthenes, and mixtures thereof, converting in a thermal cracking zone in the presence of hydrogen between 10–50 volume percent of the portion of the thermal cracking zone feed boiling above 900° F. to materials boiling below 900° F., said thermal cracking zone feed comprising said asphaltene fraction and at least a portion of said hydrocracking zone bottoms fraction, said thermal cracking zone being operated at conditions to convert no more than 10 volume percent of said thermal cracking zone feed to products boiling below 400° F., and recovering from the effluent from said thermal cracking zone as a product at least one fraction boiling below 900° F. substantially free of asphaltenes and said contaminants.

3,321,396
PURIFICATION OF NORMAL HYDROCARBONS BY ADSORPTION

Stanley Raymond Collins Dryer, Feltham, John Edward Adams, Wokingham, and John Neil Turnbull, Twickenham, England, assignors to The British Petroleum Company Limited, London, England, a corporation of England

No Drawing. Filed Aug. 5, 1964, Ser. No. 388,982
Claims priority, application Great Britain, Aug. 16, 1963, 32,461/63
8 Claims. (Cl. 208—310)

1. A process for the preparation of n-paraffin fractions from petroleum fractions comprising subjecting the petroleum fractions to extraction with a 5 A. molecular sieve to separate a n-paraffinic fraction, treating the n-paraffinic fraction with silica gel to adsorb aromatic hydrocarbons, displacing n-paraffins held up in the silica gel using liquid pentane at ambient temperature, desorbing aromatics from the silica gel using butane or pentane at elevated temperature in either the liquid or vapour phase, and re-using the silica gel to treat more n-paraffinic material.

3,321,397
CRUDE OIL DEVAPORIZING PROCESS

Douglas C. Meyers, Connersville, Ind., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

Filed Nov. 25, 1964, Ser. No. 413,787
2 Claims. (Cl. 208—351)

1. A process for separating the vaporous components contained in a multiphase petroleum fluid obtained from a high pressure well, comprising:

(a) subjecting said petroleum fluid to a temperature to produce the vapor-liquid equilibrium which would be present, were said petroleum fluid at atmospheric pressure and ambient temperature while retaining it at the wellhead pressure, thereby releasing volatile hydrocarbons;

(b) separating said volatile hydrocarbons from the remaining devaporized petroleum fluid while maintaining said remaining devaporized petroleum fluid at the wellhead pressure;

(c) cooling said remaining devaporized petroleum fluid to ambient temperature while maintaining said remaining devaporized petroleum fluid at the wellhead pressure; and

(d) thereafter venting said remaining devaporized petroleum fluid to an atmospheric pressure storage facility.

ERRATUM

For Class 210—54 see:
Patent No. 3,321,649

3,321,398
MANUFACTURE OF CLAY-THICKENED GREASES

Gerard P. Caruso, New Orleans, La., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Mar. 12, 1965, Ser. No. 439,471
9 Claims. (Cl. 252—28)

1. An improved grease composition consisting essentially of (1) a lubricating base oil containing (2) a minor stabilizing amount of a mixture of (a) a hydrocarbyl-substituted imidazoline and (b) a 1,3-dioxolane-2-one substituted with from 0 to 4 C_{1-4} alkyl groups, the total number of substituent carbon atoms being no more than 10, in which mixture the ratio of (a) to (b) is from about 0.75 to 1 to about 3.5 to 1, the lubricating oil being thickened to grease consistency with from 3 to 25% by weight, basis total composition, of a pulverulent waterproofed clay thickening agent, the clay being waterproofed by means of 40–100% by weight, based on the clay, of oleophilic nitrogen compounds selected from the group consisting of imidazolines, amino amides which are formed between C_{10-20} fatty acids and a mixture of polyethylene polyamines, and mixtures of such imidazolines, and amino amides, said pulverulent product having dispersed therethrough 0.5–5% by weight of water.

3,321,399
PREPARATION OF OIL DISPERSIONS OF METAL CARBONATES

Joseph Versteeg, Roselle, and Max W. Hill, Westfield, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Filed Oct. 20, 1961, Ser. No. 146,418
5 Claims. (Cl. 252—32.7)

1. An improved process for preparing a colloidal dispersion of a metal carbonate in a mineral oil which comprises:

(1) preparing a blend of from 14 to 24 parts by weight of an oleophilic surfactant, from 5 to 12 parts by weight of an alkyl phenol of from 200 to 700 molecular weight, and from 25 to 45 parts by weight of mineral oil;

(2) dispersing in said blend, at a temperature in the range of from about 60° to about 160° F., from 0 to 8 parts by weight of water, from 5 to 25 parts by weight of dry urea and from 8 to 30 parts by weight of a metal compound selected from the group consisting of the oxides and hydroxides of alkali metals and of alkaline earth metals, the quantity of urea thereupon being present being in the range of from 0.5 to 1.5 chemical equivalents per chemical equivalent of said metal;

(3) heating said mixture to a temperature in the range of about 150° to about 300° F.;

(4) adding to the heated mixture at said last named temperature gradually over a period of from 2 to 6 hours a hydrolyzing agent, selected from the group consisting of water and steam, in the proportion of at least 80 parts of hydrolyzing agent per 100 parts of the other components of the reaction mixture;

(5) and thereafter dehydrating said mixture at a temperature in the range of about 150° to 400° F.,

said surfactant consisting of at least one material selected from the group consisting of phosphosulfurized hydrocarbons, metal salts of hydrocarbon sulfonic acids of 300 to 700 molecular weight, metal salts of C_5 to C_{20} alkyl phenols, metal salts of C_5 to C_{20} alkyl phenol sulfides, C_{12} to C_{20} alkyl amines, C_6 to C_{16}

alcohol phosphates, alkyl fumarate-vinyl acetate-maleic acid copolymers, fumarate-vinyl acetate-vinyl pyrrolidone copolymers, and alkyl methacrylate-vinyl pyrrolidone copolymers.

3,321,400
LUBRICANT CONTAINING PHOSPHOSULFURIZED HYDROCARBON DERIVATIVE

Alexander von Hoyningen-Huene, Buchholz i. d. Nordheide, and Siegfried Siabon, Hamburg-Neugraben, Germany, assignors to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Filed May 25, 1965, Ser. No. 458,755
Claims priority, application Germany, July 4, 1964, E 27,339
6 Claims. (Cl. 252—46.7)

1. A lubricating oil composition comprising a major proportion of a mineral lubricating oil to which has been added in the range of from 1 to 20 wt. percent of a polyfunctional additive obtained by first treating polybutene of molecular weight in the range of 500 to 2000 with P_2S_5 to prepare phosphosulfurized polybutene of phosphorus content in the range of 2 to 8 wt. percent and sulfur content in the range of 4 to 16 wt. percent, thereafter reacting the phosphosulfurized polybutene with from 15 to 50 wt. percent, based on said phosphosulfurized polybutene, of a monovalent unsaturated fatty alcohol of from 12 to 22 carbon atoms, and subsequently treating the product of the last recited reaction with from 1 to 20 wt. percent (based on said last recited product) of an alkylene polyamine having from 3 to 5 amino groups, said polyfunctional additive imparting to said composition corrosion inhibiting, detergent, dispersant, and extreme pressure properties.

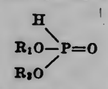
3,321,401
LUBRICATING COMPOSITIONS

John Frederick Ford, Camberley, and Peter Michael Blanchard, West Molesey, England, assignors to The British Petroleum Company Limited, London, England, a company of England

No Drawing. Filed Sept. 8, 1965, Ser. No. 485,949
Claims priority, application Great Britain, Sept. 18, 1964, 38,165/64
26 Claims. (Cl. 252—46.7)

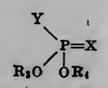
1. A lubricating composition comprising a lubricating base oil having dissolved therein

(a) from about 0.001 to 0.5% by weight of the composition of an organic phosphite having the formula

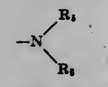


wherein R_1 and R_2 are each selected from the group consisting of alkyl and cycloalkyl having from 1 to about 10 carbon atoms, and

(b) from about 0.01 to 10% by weight of the composition of an organic phosphorus compound having the formula



in which X is oxygen or sulfur, Y is an amino group of the formula



or a hydrocarbonoxy group of the formula R_7O— and wherein each of R_3, R_4, and R_7 is selected from the group consisting of alkyl, cycloalkyl, aryl and aralkyl and each of R_5 and R_6 is selected from the group consisting of hydrogen, alkyl, cycloalkyl and aralkyl, the molecule of the said organic phosphorus compound containing a total of up to 30 carbon atoms.

3,321,402
LUBRICATING COMPOSITION

James G. Dadura, Fishkill, Jackson W. Wisner, Jr., Wappingers Falls, and Morris A. Wiley, Fishkill, N.Y., assignors to Texaco Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed June 8, 1965, Ser. No. 462,435
14 Claims. (Cl. 252—47.5)

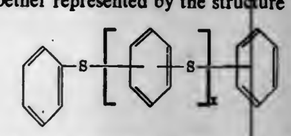
1. A synthetic lubricating oil composition comprising a major portion of an aliphatic carboxylic acid ester having lubricating properties and a monoamide of an heterocyclic aromatic amine selected from the group consisting of aminopyridines, dipyridylamines and phenothiazines and a material consisting essentially of trimer acids produced by the condensation of unsaturated monocarboxylic acids having between 12 and 22 carbon atoms per molecule in an amount sufficient to impart extreme pressure properties to said lubricating oil composition.

3,321,403
POLYPHENYL THIOETHERS

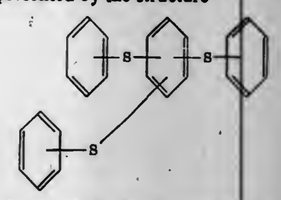
John Robert Campbell, Tarkio, and Roger E. Hatton, Kirkwood, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Original application Feb. 26, 1963, Ser. No. 261,470. Divided and this application Oct. 8, 1965, Ser. No. 494,244
11 Claims. (Cl. 252—48.2)

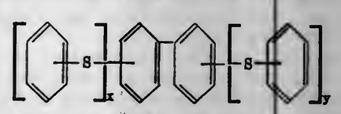
1. A composition comprising a major amount of a material selected from the group consisting of a polyphenyl ether and a phenoxybiphenyl and from about 0.01% to about 10% by weight of said material of an additive selected from the group consisting of a polyphenyl thioether represented by the structure



where x is a whole number from 1 to 3, a polyphenyl thioether represented by the structure



and a phenylmercaptobiphenyl represented by the structure



where x and y are whole numbers from 0 to 3 and the sum of $x+y$ is from 1 to 6.

3,321,404
REACTION PRODUCTS OF POLYAMINES AND POLYBASIC ACID ESTERS AS ANTISCUFF ADDITIVES

Michael J. Furey, Latham, and Harvey J. Schugar, New York, N.Y., assignors to Esso Research and Engineering Company, a corporation of Delaware

Filed Oct. 1, 1965, Ser. No. 495,024
8 Claims. (Cl. 252—51.5)

1. An oleophilic liquid composition of improved lubricity which comprises a major amount of an oleophilic liquid selected from the group consisting of lubricating oils and normally liquid hydrocarbon fuels and containing dissolved therein from about 0.001 to about 4.9% by weight of an additive which comprises an amido-ester reaction product formed by reacting a hydrocarbon polyamine containing from 3 to 36 carbon atoms with a di-(C_1–C_8 alkyl) ester of a dicarboxylic acid having a bivalent hydrocarbon radical of 1 to 42 carbon atoms between the carboxyl groups.

3,321,405
FUNCTIONAL FLUID COMPOSITIONS CONTAINING TETRAHYDROFURFURYL METHACRYLATE

Edward H. Mottus and Joseph E. Fields, St. Louis, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Original application Nov. 19, 1962, Ser. No. 238,706. Divided and this application Jan. 21, 1966, Ser. No. 522,025
9 Claims. (Cl. 252—51.5)

1. A composition having good high temperature and dispersant characteristics comprising in major amount a mineral oil and a minor amount of an oil-soluble tetrahydrofurfuryl methacrylate and alkyl methacrylate copolymer mixture having viscosity index improving properties, dispersant characteristics and stability in the presence of a barium detergent wherein said copolymer is made by the process of heating at polymerizing temperatures in the presence of a free radical catalyst a major amount of an alkyl methacrylate monomer having not less than 6 and not more than 20 carbon atoms in the alkyl group for a time sufficient to polymerize at least a portion of said alkyl methacrylate to provide said stability, and then adding to the polymerizing alkyl methacrylate under polymerizing conditions a minor amount of tetrahydrofurfuryl methacrylate monomer based on said alkyl methacrylate in a manner to produce a mixture of copolymer species and continuing the polymerization until substantially all of the monomer content is incorporated in the polymer.

6. A composition of claim 1 wherein the copolymer mixture has a minor amount of t-butylaminoethyl methacrylate.

3,321,406
ALKALI METAL CONDENSED PHOSPHATE MATERIALS, PROCESSES FOR PREPARING SAME AND RESULTING COMPOSITIONS

Chung Yu Shen, Olivette, Mo., assignor to Monsanto Company, a corporation of Delaware

No Drawing. Filed Aug. 14, 1963, Ser. No. 301,965
15 Claims. (Cl. 252—137)

14. A detergent composition comprising a water soluble organic active detergent component selected from the group consisting of alkali metal salts of alkyl benzene sulfonates and sulfates of primary alcohols and polyoxyethylene oxide condensates of alkyl phenols, fatty acids, alcohols, amides and amines, and a free-flowing effervescent builder component comprising alkali metal condensed phosphate material, free alkali metal carbonate material, free condensed phosphoric acid and an inorganic alkaline material selected from the group consisting of hydroxides, sulfates, phosphates, silicates and mixtures thereof, said builder component having an alkali metal to phosphorus molar ratio of between about .5:1 to about 5:1 and the ability to sequester in an aqueous solution at least 1 gram of calcium to 100 grams of said builder component.

3,321,407
ETHYLENEDIAMINE-TETRAHYDROFURAN PAINT-STRIPPING COMPOSITIONS

Myer Rosenfeld, Baltimore, Md., assignor to the United States of America as represented by the Secretary of the Army

No Drawing. Filed July 2, 1964, Ser. No. 380,100
6 Claims. (Cl. 252—153)

1. A paint-stripping composition consisting essentially of ethylenediamine and tetrahydrofuran in a volume ratio in the range of about 30:70–70:30, respectively.

3,321,408
STABLE OPACIFIED EMULSION

Benjamin R. Briggs, Los Alamitos, Calif., assignor to Purex Corporation, Ltd., Lakewood, Calif., a corporation of California

No Drawing. Filed Feb. 28, 1966, Ser. No. 530,401
15 Claims. (Cl. 252—161)

1. Composition consisting essentially of an aqueous alkaline solution of a terpolymer of from 55 to 94 parts of a lower vinyl ester of a saturated aliphatic acid having from 2 to 4 carbon atoms inclusive, 3 to 35 parts of a higher vinyl ester of a saturated aliphatic acid having from 12 to 22 carbon atoms inclusive, and 3 to 10 parts of crotonic acid per 100 parts by weight of the terpolymer and dispersed in said solution a solid polymer selected from the group consisting of ethylene polymers and polymers of vinyl monomers which can be normally polymerized without hydrolysis; the amount of terpolymer present being between 1 part per 1 to 20 parts by weight of solid polymer and sufficient to maintain the solid polymer dispersed.

3,321,409
PRODUCTION OF RADIOACTIVE FUSED GLASS BODIES

John Roger Grover, Tilehurst, near Reading, and Malcolm MacKenzie, Derby, England, assignors to United Kingdom Atomic Energy Authority, London, England

Filed Aug. 31, 1964, Ser. No. 393,102
Claims priority, application Great Britain, Sept. 17, 1963, 36,569/63
14 Claims. (Cl. 252—301.1)

1. A method for the production of a radioactive fused glass containing inactive glass forming oxides and radioactive waste oxides arising from the processing of an irradiated nuclear fuel, said method comprising the steps of passing a radioactive waste oxide containing aqueous solution arising from the processing of an irradiated nuclear fuel into a container, separately feeding into said container unslurried, solid, substantially dry particles consisting of a mixture of inactive glass-forming compounds, heating said container to effect removal of the water content of the said aqueous solution and continuing heating to effect complete fusion of the inactive glass-forming compounds and waste oxides to form a radioactive fused glass.

3,321,410
EXPANDED PERLITE AND METHOD FOR THE FORMATION THEREOF

Roger A. MacArthur, Hinsdale, and Anthony L. Garnero, Wheaton, Ill., assignors, by mesne assignments, to Central Manufacturing District, Chicago, Ill., a trust of Massachusetts

No Drawing. Filed Feb. 17, 1965, Ser. No. 433,448
11 Claims. (Cl. 252—378)

1. In a process for treating perlite wherein the perlite is heated to a temperature which causes the perlite to expand and causing surface portions of the expanded perlite to fuse to result in sintering of the perlite into an agglomerated mass, the improvement comprising including from 0.5 to 5 parts by weight of a flux per 100 parts by weight of said perlite and from 1 to 10 parts by weight clay per 100 parts of said perlite in admixture with said

perlite, said flux being selected from the group consisting of the alkali metal silicates, and heating to raise the temperature of the mixture to the pyroplastic state for the perlite for expansion of the perlite in the presence of the clay and flux and for concurrent agglomeration of the mixture to achieve said agglomerated mass.

3,321,411

NOVEL CATALYST SYSTEM FOR THE SYNTHESIS OF UNSATURATED NITRILES

Howard S. Young and Edgar L. McDaniel, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed May 4, 1964, Ser. No. 364,834

9 Claims. (Cl. 252—437)

1. A catalyst consisting essentially of a calcined mixture of (1) 5 to 60% by weight of a heteropoly acid of molybdenum containing phosphorus as the central atom, (2) 1 to 20% by weight of an oxide of arsenic calculated as As_2O_5, (3) 2 to 10% by weight of a compound selected from the group consisting of an oxide of chromium and an oxide of manganese, and (4) 30 to 93.9% by weight carrier, wherein (1), (2) and (3) are supported on said carrier and wherein said heteropoly acid is present in greater percent by weight than any metal oxide present in the catalyst.

3,321,412

POLYMERIZATION OF ALKYLENE OXIDES IN THE PRESENCE OF ALUMINOSILICATE CATALYSTS

Paul A. Naro, Woodbury, N.J., assignor to Mobil Oil Corporation, a corporation of New York

No Drawing. Filed Mar. 29, 1963, Ser. No. 269,163

18 Claims. (Cl. 260—2)

1. A process for polymerizing alkylene oxides which comprises effecting polymerization of an alkylene oxide containing from 2 to 8 carbon atoms and having an oxygen bridge between immedately adjacent carbon atoms under reaction conditions in the presence of from 1 to 15 percent by weight of a catalyst, based on the weight of the alkylene oxide, said catalyst consisting essentially of a crystalline aluminosilicate having active cation sites within its ordered internal structure, said ordered internal structure having a defined pore size of at least 6 A.

3,321,413

ACTIVATED AZODICARBONAMIDE BLOWING AGENT COMPOSITIONS

Charles P. Riley, Jr., Lowell, Richard Strauss, Lexington, and Henry R. Lasman, Wilmington, Mass., assignors, by mesne assignments, to National Polychemicals, Inc., Wilmington, Mass., a corporation of Massachusetts

Filed Feb. 21, 1964, Ser. No. 346,492

21 Claims. (Cl. 260—2.5)

1. An activated blowing agent composition which composition comprises: azodicarbonamide, a heavy polyvalent metal salt which reduces the decomposition temperature of the azodicarbonamide, an alkali metal salt, and a sufficient amount of an aliphatic hydroxy amine to reduce the initial decomposition temperature of the azodicarbonamide below about 140° C.; the ratio of heavy metal to alkali metal ranging from about 5 to 1 to 1 to 5 and the ratio of the heavy metal and the alkali metal to azodicarbonamide ranging from about 1 to 10 to about 4 to 1.

3,321,414

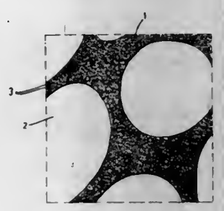
CELLULAR GLASS AND METHOD OF MAKING SAME

Otto Anton Vieli, Rhazuns, Graubunden, Switzerland, assignor to Werner H. Kreidl, Vaduz, Liechtenstein

Filed July 20, 1964, Ser. No. 383,998

Claims priority, application Austria, May 18, 1961, A 3,916/61; Jan. 10, 1962, A 176/62; Oct. 1, 1962, A 7,737/62; July 19, 1963, A 5,810/63

17 Claims. (Cl. 260—2.5)



1. A cellular, macroporous glass of uniform structure in which the cellular walls surrounding the macropores contain evenly distributed micropores, the average diameter of the micropores being less than about one tenth of the average diameter of the macropores.

5. In a method of making cellular glass, the steps comprising

thoroughly mixing finely ground glass powder with an aqueous solution containing an alkali-metal silicate and an organic substance selected from the group consisting of polyhydric alcohols, carbohydrates, precondensates of urea-formaldehyde and phenol-formaldehyde and bituminous emulsions;

submitting the resulting mixture to a preliminary roasting process at temperatures between about 200° C. to 300° C. for a period of time necessary to cover said ground glass particles with a solid vitreous crust of alkali-metal silicate having embedded therein particles of said organic substance, said covered ground glass particles remaining substantially unsintered and therefore freely movable;

rapidly heating said roasted material to its softening temperature to inflate the mass; and

allowing the inflated mass to cool.

3,321,415

POLYURETHANES PREPARED FROM POLYHYDROXYUREA POLYAMINES

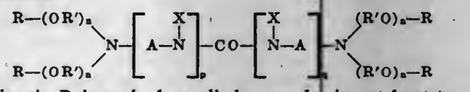
Hans Joachim Hennig, Cologne-Stammheim, and Günther Braun, Cologne-Flittard, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a German corporation

No Drawing. Filed Aug. 12, 1964, Ser. No. 389,207

Claims priority, application Germany, Aug. 28, 1963, F 40,604

7 Claims. (Cl. 260—2.5)

1. A polyurethane foam prepared by reacting an organic polyisocyanate, an organic compound containing at least two reactive hydrogen containing groups as determined by the Zerewitinoff method, and a blowing agent wherein at least a part of the active hydrogen containing compound is replaced by a compound having the generic formula



wherein R is an hydroxyalkyl group having at least two carbon atoms; R′ is an alkylene group having at least two carbon atoms; A is a bivalent radical selected from

the group consisting of aliphatic radicals, cycloaliphatic radicals, and aromatic hydrocarbon radicals; X is selected from the group consisting of hydrogen and the grouping $-(R'O)_n-R$ wherein n is an integer between 0 and 50; and p and q are integers between 1 and 5.

3,321,416

SELF-EXTINGUISHING PLASTIC COMPOSITIONS

Rolf Dieter Rauschenbach, Ludwigshafen (Rhine), Ferdinand Meyer, Ziegelhausen, Karl Wintersberger, Ludwigshafen (Rhine), and Guenther Daumiller, Ziegelhausen, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Oct. 21, 1964, Ser. No. 405,565

Claims priority, application Germany, Oct. 17, 1961, B 64,406

5 Claims. (Cl. 260—2.5)

1. A self-extinguishing plastic composition containing:

(a) a polymer containing at least 60% by weight of polymerized units selected from the group consisting of styrene, α-methylstyrene, and mixtures thereof;

(b) an organic chlorine compound containing at least 4 carbon atoms and between 40 and 75% by weight of chlorine, the chlorine atoms being attached to carbon chains selected from the group consisting of aliphatic and cycloaliphatic carbon chains in an amount sufficient to provide a chlorine content of between 2 and 7% by weight of the plastic composition;

(c) 0.05 to 5% by weight of the plastic composition of a complex of the general formula

$$Me_xAr_{y-1}(CO)_{z-1}$$

in which x is one of the whole numbers from 1 to 3, y is one of the whole numbers from 1 to 3, z is one of the whole numbers from 1 to 13 and

$$(y-1)+(z-1)$$

is one of the whole numbers from 2 to 12, Me denotes a transition metal of groups VIB, VIIB and VIII of the Periodic Chart and Ar denotes an aromatic system being a member selected from the group consisting of substituted and unsubstituted cyclopentadienyl and substituted and unsubstituted benzene, said substituents being selected from the group consisting of alkyl, alkoxy, aryl, acyl, and halogen.

3,321,417

METHOD OF PREPARING A FOAMED LACTONE POLYMER

Nathan L. Zutty and Frank J. Welch, Charleston, W. Va., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Continuation of application Ser. No. 156,994, Dec. 4, 1961, now Patent No. 3,224,982, dated Dec. 21, 1965. This application June 22, 1965, Ser. No. 466,077

7 Claims. (Cl. 260—2.5)

1. A process for producing a lactone-containing foam which comprises heating at from 100° C. to 250° C. and at a superatmospheric pressure up to 7,500 p.s.i.g. a uniform copolymer selected from the group consisting of:

(a) vinyl chloride/methyl methacrylate,

(b) vinyl chloride/methyl methacrylate in homogeneous admixture with poly(vinyl chloride),

(c) vinyl chloride/methyl methacrylate in homogeneous admixture with a vinyl chloride/ethylene copolymer,

(d) vinyl chloride/dimethyl itaconate,

(e) vinyl chloride/methyl methacrylate/tetrahydrofurfuryl methacrylate, and

(f) vinyl bromide/methyl methacrylate

so as to produce the lactone polymer thereof together with the corresponding methyl halide, and then releasing the pressure at from about 50° C. to 200° C.

3,321,418

AMINO FORMALDEHYDE RESIN SOLUTIONS OF DECREASED REACTIVITY, AND SAID SOLUTIONS ADMIXED WITH FILM FORMING PROTEINS

Daniel Dickerson Ritson, Riverside, Conn., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Apr. 21, 1965, Ser. No. 449,884

5 Claims. (Cl. 260—7)

1. A process for diminishing the capacity of an aqueous alkaline solution consisting essentially of a thermosetting amino-formaldehyde resin, more than 3% by weight of free formaldehyde, and a non-volatile base to form high viscosity producing complexes with film-forming proteins in aqueous alkaline solution, which consists in reacting at least ⅓ of said free formaldehyde with ammonium hydroxide.

4. In the formation of a fluid aqueous coating composition wherein an aqueous alkaline solution consisting essentially of a thermosetting amino-formaldehyde resin, more than 3% by weight of free formaldehyde, and a non-volatile base is mixed with an aqueous alkaline solution of a film-forming protein, the method of diminishing the amount of high viscosity producing complexes thereby formed, which consists in reacting at least ⅓ of said free formaldehyde with ammonium hydroxide before said resin solution is mixed with said protein solution.

3,321,419

STABILIZATION OF OIL-MODIFIED URETHANE COATING VEHICLES MADE WITH METHYL GLUCOSIDE

Harry M. Kennedy, Park Forest, Ill., assignor to Corn Products Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed May 7, 1964, Ser. No. 365,795

5 Claims. (Cl. 260—9)

1. The process of preparing an oil-modified urethane coating composition stabilized against viscosity increase which comprises reacting a drying oil triglyceride with methyl glucoside, and reacting the resultant product with toluene diisocyanate in the presence of a dibutyltin dilaurate catalyst at a temperature above about 90° C. to 130° C.

2. The process of claim 1 in which the drying oil triglyceride is linseed oil.

3,321,420

NITROCELLULOSE LACQUERS ADMIXED WITH COPOLYMERS OF ETHYLENE AND UNSATURATED ESTERS OF FATTY ACIDS

James G. Unger, Wilmington, Del., assignor to Hercules Incorporated, a corporation of Delaware

No Drawing. Filed Jan. 7, 1964, Ser. No. 336,123

4 Claims. (Cl. 260—17)

1. A lacquer comprising an organic solvent solution of nitrocellulose and a copolymer of ethylene and an ethylenically unsaturated ester of a fatty acid, said copolymer comprising at least about 36% by weight of said ester and being present in the amount of about 20% to 80% by weight, based on the combined weight of said nitrocellulose and said copolymer.

4. Aluminum foil having an adherent coating thereon, said coating consisting essentially of nitrocellulose and a copolymer of ethylene and an ethylenically unsaturated ester of saturated fatty acid, said copolymer comprising from about 20 to 80% by weight of said coating, and said copolymer comprising at least about 36% by weight of said ester.

3,321,421

FLAME RETARDANT PARTICLE BOARD CONTAINING ACIDIFIED BORATE AND PROCESS FOR MAKING THE SAME

Antal (Anthony) Pataki, Shafi Ul Hossain, and William Patrick Johnson, all of Sault Sainte Marie, Ontario, Canada, assignors to Abitibi Power & Paper Company Limited, Sault Sainte Marie, Ontario, Canada, a corporation of Canada

No Drawing. Filed Dec. 2, 1963, Ser. No. 327,544

Claims priority, application Canada, Sept. 11, 1963, 884,275

12 Claims. (Cl. 260—17.3)

12. A flame retardant particle board comprising particles coated with a composition consisting essentially of a borate selected from the group consisting of alkali and alkaline earth metal borates acidified with an inorganic acid the mol ratio of acid to borate being 0.5 to 2.5, and a synthetic resin binder.

3,321,422

PROCESS FOR CONVERTING WATER SOLUBLE STARCH PRODUCTS TO WATER RESISTANT MATERIALS

William H. Houff, Walnut Creek, and Alan C. Nixon, Berkeley, Calif., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed May 11, 1962, Ser. No. 194,160

17 Claims. (Cl. 260—17.4)

1. The process for converting water-soluble starch materials to water resistant materials which comprises mixing and reacting water soluble starch materials with a water-soluble addition polymer of an alpha,beta-ethylenically unsaturated aldehyde containing a plurality of a member of the group consisting of sulfonic acid, sulfonate and carboxyl groups.

3,321,423

HALOGENATED POLYOLEFIN COMPOSITIONS STABILIZED WITH (A) HYDROLYZED MIXTURES OF A BARIUM ALKYLPHENOL, A CADMIUM MONOCARBOXYLATE AND AN ORGANIC PHOSPHITE AND (B) A POLYHYDRIC ALCOHOL

James P. Scullin, Pompton Lakes, and Arthur F. Fletcher, Elizabeth, N.J., assignors, by mesne assignments, to Tenneco Chemicals, Inc., a corporation of Delaware

No Drawing. Filed Aug. 1, 1962, Ser. No. 213,850

4 Claims. (Cl. 260—23)

1. A thermally stabilized resinous composition comprising chlorinated polyethylene containing approximately 20% to 70% by weight of chlorine and approximately 1.5% to 5% based on the weight of said chlorinated polyethylene of a stabilizer, said stabilizer comprising (a) a polyhydric alcohol and (b) the hydrolyzed product that is obtained by forming a mixture comprising approximately 20% to 30% by weight of a barium alkylphenate, 5% to 20% by weight of a cadmium salt of a monocarboxylic acid selected from the group consisting of alkanoic acids containing from 4 to 18 carbon atoms and benzoic acid, alkylbenzoic acids, chlorobenzoic acids, and hydroxybenzoic acids, and 50% to 60% by weight of an organic phosphite selected from the group consisting of secondary and tertiary alkyl, aryl, and alkyl aryl phosphites and treating said mixture at a temperature between approximately 110° F. to 190° F. with approximately 0.2% to 1% based on the weight of said mixture of water, said stabilizer mixture containing approximately 0.3 part to 3 parts by weight of said polyhydric alcohol per part by weight of said hydrolyzed product.

3,321,424

COATING COMPOSITIONS COMPRISING STYRENE-MALEIC ANHYDRIDE COPOLYMER AND POLYEPOXIDE

Paul L. Imes and Philip H. Rhodes, Cincinnati, Ohio, assignors to Swift & Company, Chicago, Ill., a corporation of Illinois

No Drawing. Filed Jan. 6, 1964, Ser. No. 336,017

15 Claims. (Cl. 260—23)

1. A reactive coating composition comprising a mixture of a low-molecular weight copolymer of styrene and a maleic anhydride copolymerized in molar proportions of about 1:2 to about 2:1 and a reactive polyfunctional substantially hydroxyl-free epoxy ester of an aliphatic polyhydroxy compound containing about 2–8 carbon atoms and fatty acids containing about 10–30 carbon atoms, said ester having an oxirane oxygen content above about 8.5%.

3,321,425

VINYL CHLORIDE POLYMERS CONTAINING FATTY ACID AND FATTY ACID SALTS

Karl-Ludwig Blau, Ettlingen, and Alfons Herr, Karlsruhe, Germany, Josef Lintner, La Garenne-Colombes, France, and Otto Wilhelm, Karlsruhe, Germany, assignors to Vinypal S.A., Luxembourg, Luxembourg, a corporation of Luxembourg

No Drawing. Filed July 21, 1965, Ser. No. 473,859

Claims priority, application Germany, May 23, 1959, B 53,340

12 Claims. (Cl. 260—23)

1. Granules of synthetic resin which are readily dispersed in water comprising particles of a vinyl chloride polymer selected from the group consisting of polyvinyl chloride and copolymers of at least 80% vinyl chloride with a monoethylenically unsaturated comonomer less than 1 micron in size admixed with between 1 and 5% by weight of said polymer of a free monocarboxylic acid having 12 to 20 carbon atoms in the chain, and an alkali metal salt of a monocarboxylic acid having 12 to 20 carbon atoms in the chain, the ratio of said salt to said acid being between 1:9 and 1:1, said free acid bonding the mixture together in the form of granules which are readily dispersed in water.

3,321,426

WAX PRODUCTS AND METHOD OF MAKING THE SAME

William Smith Dorsey, Fullerton, Calif., assignor to Union Oil Company of California, Los Angeles, Calif., a corporation of California

No Drawing. Filed June 18, 1962, Ser. No. 203,019

17 Claims. (Cl. 260—28.5)

1. The process for treating a material selected from the class consisting of wax and mixtures of wax and synthetic resins, said material being meltable and of such nature that particles thereof normally adhere to each other and agglomerate upon storage at atmospheric temperatures, which process comprises subjecting said material in the molten state to agitation while contained in a body of a non-solvent liquid maintained at a temperature above the melting point of said material and containing a finely-divided solid which is insoluble in said liquid and in said material, said agitation being effected in the substantial absence of any agent capable of colloidally dispersing said material and said solid in said liquid, whereby said material becomes subdivided into discrete particles having said solid substantially uniformly distributed on the surface thereof; cooling said liquid and said particles to a temperature below the melting point of said material; and separating the solidified material from said liquid as solid particles having said finely-divided solid substantially uniformly distributed over the surface thereof and having improved resistance to agglomeration at atmospheric temperature.

3,321,427

COMPOSITION CONTAINING WAX, ETHYLENE-VINYL ACETATE COPOLYMER, AND POLYISOBUTYLENE

Leo W. Tyran, Lewiston, N.Y., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Sept. 4, 1963, Ser. No. 306,614

2 Claims. (Cl. 260—28.5)

1. A heat-sealable adhesive composition comprising, by weight, (1) about 90% petroleum wax, and (2) about 10% of polymeric additives, said polymeric additives comprising (A) about 90 to 97.5% of an ethylene/vinyl acetate copolymer having a copolymerized vinyl acetate content of 15 to 35% and a melt index of 0.1 to 500, and (B) about 2.5 to 10% of polyisobutylene having a molecular weight of 1000 to 250,000.

3,321,428

COMPOSITION CONTAINING WAX AND AN ETHYLENE-UNCONJUGATED DIOLEFIN INTERPOLYMER

John P. Tordella, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Nov. 4, 1963, Ser. No. 321,343

16 Claims. (Cl. 260—28.5)

1. The composition comprising a blend of 50–98% by weight of petroleum wax and 2–50% by weight of an interpolymer of 0.5 to 30 mole percent of a copolymerized unconjugated diolefin and at least 50 mole percent copolymerized ethylene, said interpolymer having an inherent viscosity of 0.8 to 5.

3,321,429

REACTION PRODUCT OF HYDROXY-CONTAINING POLYMER AND POLYCARBOXYLIC ACID ANHYDRIDE, AND WATER SOLUBLE SALTS THEREOF

Joachim Thörmer, Dusseldorf, Hans Zoebelein, Monheim, Rhineland, and Manfred Dohr, Dusseldorf-Holthausen, Germany, assignors to Henkel & Cie. G.m.b.H., Dusseldorf-Holthausen, Germany, a corporation of Germany

No Drawing. Filed Nov. 10, 1964, Ser. No. 410,261

Claims priority, application Germany, Nov. 29, 1963, H 50,986, H 50,987

16 Claims. (Cl. 260—29.4)

14. A coating composition for baked enamels comprising an aqueous solution of a water-soluble binder formed by reacting a water-insoluble polymer having primary hydroxyl groups and a hydroxyl number of at least 100 with an anhydride selected from the group consisting of 0.2 to 0.75 mole per hydroxyl equivalent of a dicarboxylic acid anhydride and 0.1 to 0.375 mole per hydroxyl equivalent of a mono anhydride of a tricarboxylic acid to form the corresponding partial acid esters and at least partially converting the latter into a salt selected from the group consisting of the ammonium salt and an amine salt and a water-soluble aminoplast precondensate, said dicarboxylic and tricarboxylic acids being selected from the group consisting of hydrocarbon carboxylic acids, chlorine substituted hydrocarbon carboxylic acids and oxo substituted hydrocarbon carboxylic acids.

3,321,430

GRAFT POLYMERS AND A PROCESS FOR THE PRODUCTION OF AQUEOUS DISPERSIONS THEREOF

Karl-Heinz Ott and Karl Dinges, Cologne-Stammheim, and Karl-Heinrich Knapp, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a German corporation

No Drawing. Filed May 1, 1962, Ser. No. 191,437

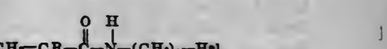
Claims priority, application Germany, May 5, 1961, F 33,854

11 Claims. (Cl. 260—29.6)

1. A process for the preparation of a stable latex of a graft copolymer which comprises copolymerizing at least one olefinically unsaturated monomer with a copolymer of (a) an alkylene oxide from the group consisting of ethylene oxide, propylene oxide, and styrene oxide and (b) at least one epoxide compound containing carbon-to-carbon double bonds, which copolymer has a molecular weight of at least 400, the aforesaid polymerization being conducted in an aqueous dispersion at a temperature between 0–100 C. in the presence of non-ionic emulsifier and a radical-forming activator, said olefinically unsaturated monomer being selected from the group consisting of styrene, acrylonitrile, acrylamide, methacrylamide, an ester of acrylic acid with a saturated monohydric aliphatic alcohol having from 1–8 carbon atoms, an ester of methacrylic acid with a saturated monohydric aliphatic alcohol having from 1–8 carbon atoms, an ester of vinyl-alcohol with an organic acid, an aliphatic conjugated diolefine having from 4 to 6 carbon atoms, an aromatic polyvinyl compound, a N-methylolalkylether of acrylic acid amide, a N-methylolalkylether of methacrylic acid amide, a Mannich base of N-methylol acrylic acid amide and a Mannich base of N-methylol methacrylic acid amide, an acrylamide derivative containing sulfate groups and having the formula



wherein R represents a member selected from the group consisting of hydrogen and methyl, and n represents a whole number from 2–4, and an acrylamide derivative of the formula



wherein R represents a member selected from the group consisting of hydrogen and methyl, Hal represents a halogen atom, and *n* stands for a whole number from 2–4; said latex being stable and re-emulsifiable.

3,321,431

AQUEOUS RESIN EMULSIONS

John McNab Cruden, 20 Edmunds Tower, and Clemens Bondy, "Southdown," Tye Green Village, both of Harlow, Essex, England

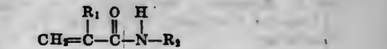
No Drawing. Filed Oct. 5, 1964, Ser. No. 401,673

Claims priority, application Great Britain, Oct. 3, 1963, 39,053/63

28 Claims. (Cl. 260—29.6)

1. A process for preparing an aqueous copolymer emulsion, which comprises subjecting to aqueous emulsion polymerisation at temperatures varying from ambient to 100° C. in the presence of a radical-producing initiator and an emulsion stabiliser a mixture comprising

(I) an ethylenically unsaturated amide of the general formula



where R_1 is selected from the group consisting of hydrogen and methyl and R_2 is selected from the group consisting of hydrogen and hydroxymethyl,

(II) at least one itaconate monomer selected from the group consisting of itaconic acid, monomethyl itaconate, dimethyl itaconate and monoethyl itaconate,

(III) an at least partially water-soluble organic solvent, which is selected from the group consisting of monohydric alcohols containing up to 4 carbon atoms; water-soluble unsubstituted 5-membered heterocyclic organic compounds; water-soluble heterocyclic organic compounds having a 5-membered ring which is substituted with a substituent selected from the group consisting of oxygen, hydroxyl and alkyl containing up to 4 carbon atoms; acetone, methyl ethyl ketone, methyl vinyl ketone; acetonitrile, propionitrile; N,N-dimethyl formamide, N,N-diethyl formamide; dioxan; dimethyl sulphoxide; acrylonitrile and methacrylonitrile, and

(IV) at least one other ethylenically unsaturated monomer copolymerisable with said monomers (I) and (II), said unsaturated amide monomer (I) being present in an amount of up to 35 percent by weight of the polymerisable constituents of the mixture and said organic solvent being present in an amount between 1 and 10 percent by weight of the polymerisable constituents of the mixture.

3,321,432
TEXTILE BACKING AGENT COMPRISING AN AQUEOUS DISPERSION OF A CARBOXYL-CONTAINING COPOLYMER AND THE REACTION PRODUCT OF EPICHLOROHYDRIN WITH AN ALKYLENE POLYAMINE

Joseph P. Strasser, Melvin J. Hatch, and Frederick L. Knochel, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Oct. 4, 1963, Ser. No. 313,794
21 Claims. (Cl. 260—29.7)

1. An aqueous dispersion comprising a stable blend of

A. a latex comprising a copolymer of at least 2 polymerizable ethylenically unsaturated monomers selected from the group consisting of vinyl aromatic hydrocarbons, acrylic esters, acrylic nitriles, maleic and fumaric esters, unsaturated alcohol esters, unsaturated ketones, and conjugated diolefins, and from about 0.5 percent to about 10 percent by weight of at least one additional monomer containing a carboxyl group and

B. from about 0.1 part to about 5 parts, for each 100 parts of copolymer in the latex, of a water-soluble adduct of an epihalohydrin and an alkylene polyamine of the formula

$$H_2N—[(CH_2)_x—NH]_n—(CH_2)_x—NH_2$$

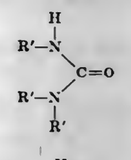
wherein x is an integer from 2 to 3 and n is a cardinal number from 0 to 4, said adduct having for each mole of primary amino groups in the alkylene polyamine from about 0.75 mole to about 1.8 moles of epihalohydrin and for each mole of secondary amino groups in the alkylene polyamine from about 0.3 mole to about 0.8 mole of epihalohydrin, and said adduct having an inherent viscosity of less than about 0.1 as determined at 25° C. in a solution of 1 gram of said adduct per 100 milliliters of water containing 5 percent by weight of hydrogen chloride.

3,321,433
METHOD OF IMPROVING THE PROCESSABILITY OF POLYURETHANE POLYMERS

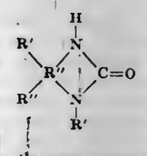
Gert F. Baumann, Bridgeville, Pa., assignor to Mobay Chemical Company, Pittsburgh, Pa., a corporation of Delaware

No Drawing. Filed June 2, 1964, Ser. No. 372,076
7 Claims. (Cl. 260—30.2)

1. A process for improving the processability of substantially linear polyurethane polymers having an NCO content less than one percent by weight and prepared by the process which comprises reacting an organic compound containing active hydrogen atoms which are reactive with NCO groups, and a chain extending agent with an organic diisocyanate which comprises adding to the polymer from about 0.0001 to about 0.05 mol per 100 parts of the polymer of a urea having a formula selected from the group consisting of



and



R′ is selected from the group consisting of hydrogen, aryl and alkyl having from 1–18 carbon atoms and R″ is a divalent radical having from 1–3 carbon atoms, wherein R′ in the first formula is a member selected from the group consisting of hydrogen and alkyl at least once in the molecule.

3,321,434
SATURATION OF POROUS MATERIAL WITH SOLUTION OF PHENOLIC COMPOUND AND HEXAMETHYLENETETRAMINE IN SOLVENT CONTAINING ACETIC ACID, PROPIONIC ACID OR MIXTURES THEREOF

Thomas J. Billings, Jr., St. Paul, Minn., and Albert L. Micchelli, Newark, N.J., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

No Drawing. Continuation of application Ser. No. 176,437, Feb. 28, 1962. This application June 16, 1966, Ser. No. 558,148
7 Claims. (Cl. 260—31.2)

1. A non-aqueous homogeneous, liquid, organic solution suitable for use as a saturant for the in situ formation of a thermoset phenolic resin in a porous material having a solute consisting of a water insoluble, formaldehyde reactable phenolic compound and at least 24 grams of hexamethylenetetramine per mole equivalent of phenolic nucleus in a water-soluble organic solvent which will dissolve at least 10 percent of said phenolic compound and which is acetic acid, propionic acid or a mixture thereof.

3,321,435
STABILIZATION OF HIGH MOLECULAR WEIGHT POLYCARBONATES WITH BORON COMPOUNDS

Gerhard Fritz, Ulrich Curtius, and Ludwig Bottenbruch, Krefeld-Bockum, Hermann Schnell, Krefeld-Urdingen, and Werner Göller, Krefeld-Bockum, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed Mar. 6, 1964, Ser. No. 350,117
Claims priority, application Germany, Mar. 9, 1963, F 39,209
5 Claims. (Cl. 260—45.7)

1. A polycarbonate stabilized against hydrolytic degradation which comprises a mixture of a high molecular weight polycarbonate and a stabilizer selected from the group consisting of orthoboric acid, metaboric acid, tetraboric acid, alkylboric acids having the formulae R_2BOH and $RB(OH)_2$, esters of boric acid having the formula $(RO)_3B$ and boron trioxide and boron phosphate wherein R in the foregoing formulae is selected from the group consisting of alkyl, aryl and aralkyl radicals.

3,321,436
STABILIZED LINEAR POLYAMIDES WITH SCHIFF'S BASE

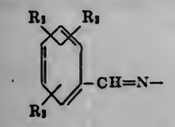
Walter Stilz, Horst Pommer, Hans Biczysko, and Heinz Fessmann, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed July 11, 1962, Ser. No. 209,261
Claims priority, application Germany, July 14, 1961, B 63,266
8 Claims. (Cl. 260—45.8)

1. A composition of matter comprising a mixture of 99.99 to 95% by weight of a linear fiber-forming polyamide and 0.01 to 5% by weight of a compound having the general formula

$$A—R_1—B$$

where R_1 is a bivalent member selected from the group consisting of aliphatic radicals with 2 to 12 carbon atoms and aromatic radicals; A has the meaning



R_3 being a member selected from the group consisting of hydrogen, methyl, ethyl, propyl, isobutyl, methoxy, ethoxy, propoxy, butoxy, and $—O—(CH_2)_m—O—$, where m is one of the integers 1 and 2 and the oxygen is attached directly in ortho-position to the benzene nucleus, B is a member selected from the group consisting of hydrogen, A, $—COOR_4$, where R_4 is alkyl with 1 to 8 carbon atoms, $—NHR_5$, where R_5 is a member selected from the group consisting of alkyl with 1 to 4 carbon atoms and aryl, $>NR_6$, where R_6 is alkyl with 1 to 4 carbon atoms, alkoxy with 1 to 4 carbon atoms, and aryloxy with 6 to 12 carbon atoms.

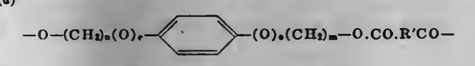
3,321,437
CRYSTALLISING LINEAR POLYESTERS FROM SYMMETRIC DICARBOXYLIC COMPOUNDS AND UNSYMMETRIC DIOLS

Isaac Goodman, James Eric McIntyre, and James Walter Stimpson, Harrogate, England, assignors to Imperial Chemical Industries Limited, London, England, a corporation of Great Britain

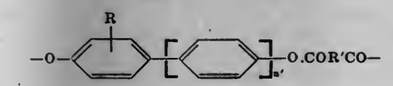
No Drawing. Filed Feb. 11, 1963, Ser. No. 257,768
Claims priority, application Great Britain, Feb. 19, 1962, 6,291/62
16 Claims. (Cl. 260—47)

16. Novel, linear, fiber-forming, crystalline polyesters containing repeating units of at least one of the formulae: *a*, *b*, *c* and *d* where *a*, *b*, *c* and *d* are defined as follows:

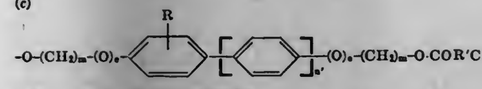
(*a*)



(*b*)



(*c*)



(*d*) $—O(C_{10}H_6)O.COR'CO—$

where

—$(C_{10}H_6)$ is the naphthylene group attached to the oxygen atoms shown in Formula *d* at a position selected from the group consisting of the 1:2, 1:3, 1:6 and 1:7 positions,

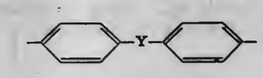
n and m are dissimilar integers up to 5,

n' is selected from the groups consisting of 0 and 1,

R is selected from the group consisting of methyl halogen and lower alkoxy groups,

R′ is selected from the group consisting of 1:3- and 1:4-phenylene, 2:6- and 2:7-naphthylene, $—(CH_2)_y—$

and



Y is selected from the group consisting of

$—O(CH_2)_y—O—$, $—SO_2—$, and $—(CH_2)_y—$,

y is an integer from 1 to 8,

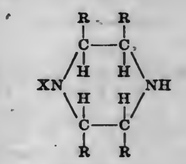
e is selected from the group consisting of 0 and 1.

3,321,438
PROCESS FOR PREPARING FLUIDIZED BED COATING COMPOSITIONS CONTAINING POLYEPOXIDES AND AMINE CURING AGENTS

David W. Brooker, Slough, William V. Wilkinson, Ashford, Middlesex, and Alexander McIntosh, Addlestone, near Weybridge, Surrey, England, assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed July 22, 1963, Ser. No. 296,492
Claims priority, application Great Britain, July 24, 1962, 28,440/62
5 Claims. (Cl. 260—47)

1. A process for preparing a low-temperature curable, solid polyepoxide composition suitable for use in fluidized bed processes which comprises partially reacting at a temperature between 5° and 25° C., a polyepoxide having a vic-epoxy equivalency greater than 1.0 and which is a liquid above 15° C. with at least 0.6 times the stoichiometric amount of a curing agent selected from the group consisting of di(3-methyl-4-aminocyclohexyl)methane, N-cyclohexyl 1,3-propane diamine and a piperazine having the formula:



wherein R is selected from the group consisting of hydrogen, alkyl radicals and alkoxy radicals and X is an amino-substituted alkyl radical containing from 2 to 4 carbon atoms under conditions so that the rise in temperature during the reaction is not more than 10° C.

3,321,439
PHOSPHORIC ACID DIARYL ESTERS AS CATALYSTS IN TRANSESTERIFICATION OF DIARYL-CARBONATES WITH DIHYDRIC PHENOLS

Volker Bollert, Hamburg, Ulrich Curtius and Gerhard Fritz, Krefeld-Bockum, and Hermann Schnell, Krefeld-Urdingen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a German corporation

No Drawing. Filed July 27, 1964, Ser. No. 385,486
Claims priority, application Germany, Aug. 1, 1963, F 40,389
9 Claims. (Cl. 260—47)

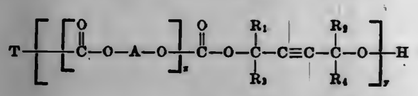
1. A method of catalyzing the reaction of a dihydric phenol with a diaryl carbonate which comprises carrying out the transesterification in the presence of a phosphoric acid diaryl ester or salt thereof.

3,321,440
ACETYLENIC POLYCARBONATE COPOLYMERS

Lieng-Huang Lee, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Aug. 29, 1966, Ser. No. 575,554
6 Claims. (Cl. 260—47)

1. A polycarbonate resin having a molecular weight in excess of about 2000 and the structural formula



in which —O—A—O— is the residue of the removal of hydroxy hydrogens from an aromatic dihydroxy compound, each of R_1, R_2, R_3 and R_4 is independently selected from the group consisting of hydrogen, methyl and ethyl, x and y are positive integers having a value of at least 1 and one of x and y is at least 2, and T is an end group selected from chloro, hydroxyl, and the residue of a monofunctional compound which has been reacted with a chloroformyloxy group to replace the chloro group thereof.

3,321,441
DIALKYL KETENE POLYMERS PREPARED WITH BUTYL LITHIUM CATALYST

George O. Cash, Jr., and James C. Martin, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed May 9, 1961, Ser. No. 108,741
3 Claims. (Cl. 260—63)

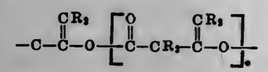
1. The method for preparing dialkyl ketene polymers which comprises contacting at least one dialkyl ketene in which the alkyl groups contain from 1–4 carbon atoms, at a temperature in the range of about —80° to about 50° C. with at least a catalytic amount of butyl lithium.

3,321,442
PROCESS FOR PREPARING KETENE POLYMERS EMPLOYING PALLADIUM CATALYSTS

Hermann Beecken, Bonn, Ernest Willi Müller, Saint Augustin, and Friedrich W. A. G. K. Korte, Hangelar, Germany, assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Sept. 20, 1963, Ser. No. 310,495
Claims priority, application Germany, Oct. 9, 1962, S 81,967
5 Claims. (Cl. 260—63)

1. A process for preparing polyketenes having a polyester structure



wherein R is selected from the group consisting of organic radicals and hydrogen and n is a positive integer, which comprises polymerizing at from 10° to 50° C. a ketoketene having the general formula $R_2C{=}C{=}O$ wherein R is selected from the group consisting of a phenyl group, an alkyl group having from 1 to 4 carbon atoms and hydrogen in the presence of from 0.05% to 5% by weight of the ketoketene of a palladium catalyst selected from the group consisting of $PdCl_2$ and complexes having the general formula $(Ar_3X)_2{\cdot}PdCl_2$ wherein Ar is phenyl and X is selected from the group consisting of phosphorus, antimony and arsenic.

3,321,443
STABILIZED POLYOXYMETHYLENE

Keith Clark Brinker and Carl Earle Schweitzer, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Oct. 16, 1963, Ser. No. 316,518
5 Claims. (Cl. 260—67)

1. A polyoxymethylene which is resistant to basic media having the formula

$$X{-}O{-}(CH_2O)_n{-}Y$$

wherein X is a member of the class consisting of groups having the formula



and alkyl groups of 1 to 10 carbon atoms, Y is a group having the formula



and n is a positive integer greater than 300.

4. A process for stabilizing a polyoxymethylene which comprises reacting in a mildly acidic reaction medium one part by weight of a polyoxymethylene starting material having a molecular weight of at least 10,000 and having 1 to 2 of its terminal valences satisfied by a hydroxyl group with 0.5 to 200 parts of a compound having the formula



at a temperature of 0 to 200° C., and thereafter recovering a polyoxymethylene having improved base stability as compared to said starting material and having a number average molecular weight of at least 10,000.

3,321,444
PROCESS FOR THE MANUFACTURE OF HIGH MOLECULAR WEIGHT LINEAR POLYESTERS

Hans Hoyer, Frankfurt am Main, Günter Keil, Lorsbach, Taunus, and Peter Kresse, Augsburg, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany

No Drawing. Filed Sept. 16, 1963, Ser. No. 309,336
Claims priority, application Germany, Sept. 22, 1962, F 37,865
3 Claims. (Cl. 260—75)

1. A process for the manufacture of high molecular weight linear polyesters by ester interchange reaction of dialkyl esters of dicarboxylic acids selected from the group consisting of terephthalic acid, isophthalic acid, 4,4'-diphenyldicarboxylic acid, naphthalenedicarboxylic acids, sulfonyldibenzoic acid, adipic acid, and sebacic acid, with dihydroxy compounds selected from the group consisting of ethylene glycol, propylene glycol, butylene glycol, pentylene glycol and 1,4-dimethylolcyclohexane, and subsequent polycondensation at a temperature in the range of from 250 to 278° C. under reduced pressure, which comprises using as a catalyst for the polycondensation a metal titanyl oxalate containing as cationically bound constituents a metal selected from the group consisting of alkali metals, alkaline earth metals, antimony, tin, zinc, lead, manganese, cobalt and cadmium.

3,321,445
POLYMERS OF FLUORINE-CONTAINING SULFONAMIDO POLYOLS

James D, Lazerte and Richard A. Guenthner, St. Paul, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

No Drawing. Original application Sept. 7, 1961, Ser. No. 136,458, now Patent No. 3,217,035, dated Nov. 9, 1965. Divided and this application Mar. 1, 1965, Ser. No. 452,955
5 Claims. (Cl. 260—75)

1. A condensation polymer of reactants consisting essentially of a fluorinated polyol of the formula

$$R_fSO_2N(R')CH_2(CHOH)_xCH_2OH$$

wherein R_f is a perfluoroalkane radical having from 4 to 12 carbon atoms, R' is an alkyl radical having from 1 to 8 carbon atoms, and x is an integer from 1 to 2, and a member of the group consisting of a polycarboxylic acid and N,N'-bis-ethylene-isosebacamide.

3,321,446
ISOCYANATE MODIFICATION OF AN OXIDIZED POLYOLEFIN WHICH HAS BEEN TREATED WITH A HYDRAZINIUM COMPOUND

Paul R. Steyermark, Silver Spring, Md., assignor to W. R. Grace & Co., New York, N.Y., a corporation of Connecticut

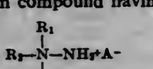
No Drawing. Filed Dec. 3, 1963, Ser. No. 327,797
6 Claims. (Cl. 260—77.5)

1. A modified polyolefin prepared by:

(1) Reacting in the presence of a solvent at a temperature of from about 70° C. to 150° C.

(a) an oxidized polyolefin containing from about 0.3 to about 3.0 milliequivalents of oxygen per gram of oxidized polyolefin, with

(b) a hydrazinium compound having the formula



wherein R_1, R_2 and R_3 are selected from the group consisting of alkyl groups containing from 1 to 24 carbon atoms, alkenyl groups containing from 2 to 24 carbon atoms, cycloalkyl groups having up to 6 carbon atoms, phenyl and alkylphenyl, wherein the alkyl portion of the alkylphenyl group contains from 1 to 12 carbon atoms; and wherein A is an anion selected from the group consisting of hydroxide, halogen and sulfate, and;

(2) Thereafter reacting at a temperature of from about 25° C. to 200° C.

(c) the product resulting from reaction (1) with

(d) an organic isocyanate having the formula

$$R'(NCO)_x$$

wherein R' is an organic radical containing atoms selected from the group consisting of carbon, hydrogen, phosphorus, silicon, and oxygen, and where R' contains from 1 to 12 carbon atoms; and wherein x represents an integer of from 1 to 3.

3,321,447
PRODUCTION OF POLYLAUROLACTAM

Joachim Kunde, Frankenthal, Pfalz, Hans Wilhelm and Friedrich Mertes, Ludwigshafen (Rhine), and Erich Schwartz, Mannheim, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Oct. 13, 1964, Ser. No. 403,637
Claims priority, application Germany, Oct. 18, 1963, B 73,923
1 Claim. (Cl. 260—78)

In a process for the production of high molecular weight polylaurolactam by polymerization of laurolactam at elevated temperatures in the presence of aliphatic carboxylic acid having more than 5 carbon atoms and having from 1 to 2 carboxy groups the improvement which comprises carrying out the polymerization at a temperature of from 290 to 325° C. in the presence of a mixture of 0.01 to 5 mol percent, based on the laurolactam, of said aliphatic carboxylic acid and 0.001 to 3 mol percent, based on the laurolactam, of a compound selected from the group consisting of phosphoric acid, phosphorous acid, hypophosphorous acid, and an ester of these oxo acids of phosphorus with an aliphatic alcohol having from 1 to 5 carbon atoms.

3,321,448
NYLON STAPLE FIBER FOR BLENDING WITH OTHER TEXTILE FIBERS

Harold H. Hebeler, Seaford, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Sept. 16, 1965, Ser. No. 491,500
2 Claims. (Cl. 260—78)

1. Nylon staple fiber of about 1 to 15 denier per filament for blending with other textile fibers to impart increased strength and abrasion resistance, particularly in blends with cellulosic staple fibers which have break elongations of about 7% to 14%, said nylon being selected from the group consisting of polyhexamethyleneadipamide and polycaprolactam and said nylon staple fiber being characterized by a birefringence of at least 0.0590, an average density of at least 1.140, a break elongation above 14%, a boil-off shrinkage below 6.0%, and a load-bearing capacity of at least 2.1 grams per denier at 7% elongation, measured after slack aging for nine days at 78° F. and 72% relative humidity.

3,321,449
POLYBICYCLOARYLSULFONES

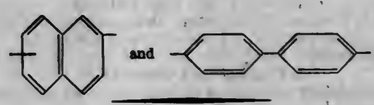
Herward A. Vogel, North St. Paul, Minn., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware

No Drawing. Filed May 13, 1963, Ser. No. 280,091
9 Claims. (Cl. 260—79.3)

1. A substantially linear, soluble, film-forming condensation polymer consisting essentially of repeating units of the formula:

$$\{SO_2{-}R{-}SO_2{-}R'\}$$

wherein R and R' are aromatic linking groups of the class consisting of



3,321,450
PROCESS FOR THE MANUFACTURE OF COPOLYMERS OF UNSATURATED NITRILES, SAID COPOLYMERS CONTAINING SULFO GROUPS

Adolf Hartmann, Gessertshausen, near Augsburg, Wolfgang Burghardt, Bergheim, near Augsburg, and Peter Kresse, Augsburg, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany

No Drawing. Filed Apr. 29, 1964, Ser. No. 363,597
Claims priority, application Germany, May 17, 1963, F 39,766
4 Claims. (Cl. 260—79.3)

1. Copolymers of unsaturated nitriles containing sulfo groups obtained by polymerizing, in the presence of a free radical catalyst, an unsaturated nitrile selected from the group consisting of acrylonitrile, methacrylonitrile and vinylidene cyanide with 0.1 to 20 mol percent,

calculated on the amount of the unsaturated nitrile, of sulfonated acenaphthylene.

3,321,451
ADHESIVE COMPOSITIONS
Robert J. Gander, Whitehouse, N.J., assignor to Johnson & Johnson, a corporation of New Jersey
No Drawing. Filed July 2, 1965, Ser. No. 469,334
20 Claims. (Cl. 260—79.3)

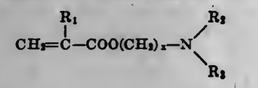
1. An adhesive composition comprising an adhesive acrylate linear polymer amine salt containing in interpolymerized form an acrylic ester of the group acrylate esters and methacrylate esters of the general structure:



wherein

R_1 is H or CH_3
R_2 is an alkyl chain of 4 to 12 carbons

and an acrylic amine of the general structure:



wherein

R_1 is H or CH_3
x is an integer of 2 to 12
R_2 is H or an alkyl group of 1 to 12 carbons
R_3 is an alkyl chain of 4 to 12 carbons

the acrylic amine derived component of said polymer containing 1.0 to 4.0% by weight of radical



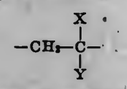
said radical being present in the salt form



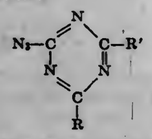
where X is an anion of an acid and said acrylic ester derived component of said polymer being present in an amount of at least 40% by weight of said acrylate linear polymer amine salt on a nonsalt basis the methacrylate derived portion of said polymer not exceeding 25% by weight of said polymer on a nonsalt basis and not exceeding one-half of the total acrylic ester derived portion.

3,321,452
MODIFYING POLYMERS
David S. Breslow, Wilmington, Del., assignor to Hercules Incorporated, a corporation of Delaware
No Drawing. Filed Mar. 24, 1964, Ser. No. 354,442
6 Claims. (Cl. 260—85.3)

1. A polymer containing at least about 80 mole percent of a component having the formula



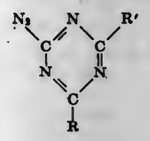
where Y is an alkyl radical and X is a radical selected from the group consisting of hydrogen and alkyl radicals modified a small amount of sulfur and with an azidotriazine having the formula



where R is a radical selected from the group consisting of hydrogen, azide and inert organic radicals and R′ is a radical selected from the group consisting of hydrogen and inert organic radicals.

3,321,453
MODIFYING POLYMERS
David S. Breslow, Wilmington, Del., assignor to Hercules Incorporated, a corporation of Delaware
No Drawing. Filed Mar. 24, 1964, Ser. No. 354,427
6 Claims. (Cl. 260—88.2)

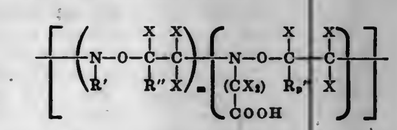
1. A polymer contaning at least about 30 mole percent of ethylene modified with an azidotriazine having the formula



where R is a radical selected from the group consisting of hydrogen, azide and inert organic radicals, and R′ is a radical selected from the group consisting of hydrogen and inert organic radicals.

3,321,454
HALOGENATED NITROSO TERPOLYMERS CONSISTING OF NITROSOALKANES, FLUORINE-CONTAINING MONOOLEFINS, AND ALIPHATIC NITROSO MONOCARBOXYLIC ACIDS
George H. Crawford, Jr., Dellwood, White Bear Lake, and David E. Rice, Minneapolis, Minn., assignors to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware
No Drawing. Filed May 3, 1963, Ser. No. 277,717
9 Claims. (Cl. 260—92.1)

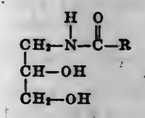
1. A halogenated linear carboxyl-containing terpolymer having a molecular weight above 100,000 represented by the following structural formula:



in which R′ is a halogenated alkyl group containing fluorine on the carbon atom adjacent the nitroso group, R″ is an alkyl group, halogen or hydrogen, X is halogen or hydrogen, m is 1 to 500 and p is 1 to 9.

3,321,455
FILM FORMING THERMOPLASTIC COMPOSITIONS OF IMPROVED MOISTURE FOGGING RESISTANCE
James E. Guillet, Don Mills, Ontario, Canada, and Robert L. Combs, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Filed Jan. 10, 1964, Ser. No. 336,860
10 Claims. (Cl. 260—94.9)

1. A composition comprising a film forming thermoplastic material and an N-2,3-dihydroxypropyl amide having the formula:



where

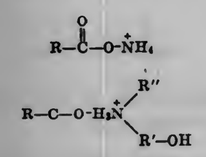


is the acyl moiety of a cis unsaturated higher fatty acid and R is an acyclic hydrocarbon radical.

5. A composition comprising a film forming polyethylene and the N-2,3-dihydroxypropyl amide of cis-9-octadecenoic acid.

3,321,456
POLYOLEFIN COMPOSITIONS
Harry Braus, Springdale, and Fred D. Waas, Columbus, Ohio, assignors to National Distillers and Chemical Corporation, New York, N.Y., a corporation of Virginia
No Drawing. Filed Dec. 5, 1963, Ser. No. 328,211
8 Claims. (Cl. 260—94.9)

1. A composition comprising a polyolefin and an anti-static agent, said anti-static agent being a member of the group consisting of compounds having the general structures

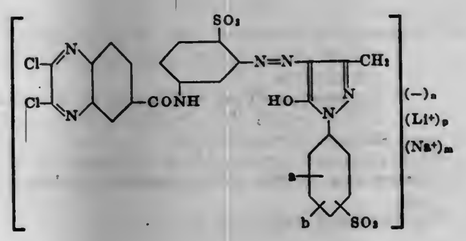


and

wherein R is an alkyl radical having from about 7 to about 23 carbon atoms; R is a saturated aliphatic hydrocarbon diradical having from about 2 to about 6 carbon atoms; and R″ is a member of the group consisting of hydrogen, an alkylol radical having from 2 to about 6 carbon atoms, and a saturated aliphatic hydrocarbon radical having from 1 to about 6 carbon atoms.

3,321,457
WATER SOLUBLE DYES OF THE PHENYLAZO-PYRAZOLONE SERIES CONTAINING A 2,3-DICHLORO - 6 - QUINOXALINYLCARBONYLAMINO SUBSTITUENT
Erik Kissa, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Apr. 15, 1964, Ser. No. 360,082
8 Claims. (Cl. 260—154)

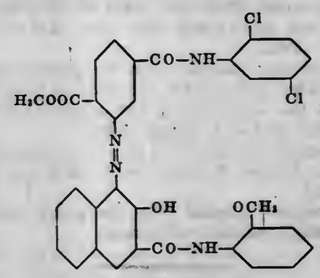
1. A fiber-reactive dye of the formula



wherein a is selected from the group consisting of H, CH_3, Cl and SO_3; b is selected from the group consisting of H and Cl; n is an integer equal to the total number of sulfo groups; p is an integer of from 1 to 3 with the proviso that p never exceeds the total number of sulfo groups; and m is an integer of from zero (0) to 3 inclusive, as determined by the result of n-p.

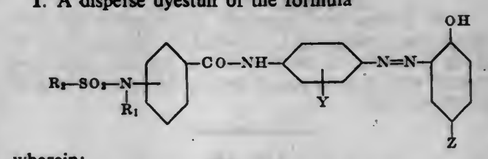
3,321,458
WATER-INSOLUBLE MONOAZO-DYESTUFFS
Konrad Löhe, Offenbach (Main), and Joachim Ribka, Offenbach-Burgel, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany
No Drawing. Filed Dec. 26, 1962, Ser. No. 247,298
Claims priority, application Germany, Dec. 29, 1961, F 35,682
4 Claims. (Cl. 260—203)

1. The water-insoluble monoazo-dyestuff having the formula



3,321,459
DISPERSE MONOAZO DYES
Jacques Voltz and Werner Bossard, Riehen, Switzerland, assignors to J. R. Geigy, A.-G., Basel, Switzerland
No Drawing. Filed Oct. 31, 1963, Ser. No. 320,530
Claims priority, application Switzerland, Oct. 31, 1962, 12,764/62
6 Claims. (Cl. 260—207)

1. A disperse dyestuff of the formula



wherein:

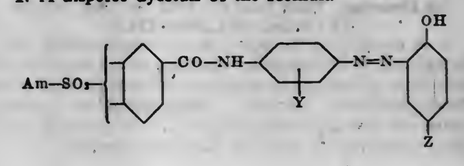
R_1 is a member selected from the group consisting of hydrogen, lower alkyl, halo-lower alkyl, cyano-lower alkyl, hydroxy-lower alkyl of at least 2 carbon atoms, lower alkoxy-lower alkyl wherein the "alkyl" moiety has at least two carbon atoms,

R_2 is a member selected from the group consisting of lower alkyl, halo-lower alkyl, lower alkoxy-alkyl wherein the "alkyl" moiety has at least two carbon atoms, phenyl, lower alkyl-phenyl, lower alkoxy-phenyl, chlorophenyl and bromophenyl,

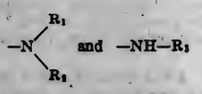
Y is a member selected from the group consisting of hydrogen, chlorine, bromine, lower alkyl and lower alkoxy, and Z is a member selected from the group consisting of lower alkyl, chlorine and bromine.

3,321,460
DISPERSE MONOAZO DYES
Jacques Voltz and Werner Bossard, Riehen, Switzerland, assignors to J. R. Geigy, A.-G., Basel, Switzerland
No Drawing. Filed Oct. 31, 1963, Ser. No. 320,531
Claims priority, application Switzerland, Oct. 31, 1962, 12,764/62
7 Claims. (Cl. 260—207)

1. A disperse dyestuff of the formula



wherein Am is a member selected from the group consisting of radicals of the formulas



each of R_1 and R_2 is a member selected from the group consisting of lower alkyl, lower alkoxy-lower alkyl wherein the "alkyl" moiety has at least 2 carbon atoms, hydroxy-lower alkyl with alkyl of at least 2 carbon atoms and cyano-lower alkyl with alkyl of at least 2 carbon atoms,

R_3 is a member selected from the group consisting of alkoxy-alkyl with a total of from 4 to 6 carbon atoms wherein the "alkyl" moiety has at least 2 carbon atoms, and alkyl of 4 to 6 carbon atoms,

Y is a member selected from the group consisting of hydrogen, chlorine, bromine, lower alkyl and lower alkoxy, and

Z is a member selected from the group consisting of lower alkyl, chlorine and bromine.

3,321,461
PROCESS FOR PREPARING O- AND N-SUBSTITUTED GLYCOSIDES

Konoshin Onodera and Shigehiro Hirano, Kyoto, Japan, assignors to Asaki Kasei Kogyo Kabushiki Kaisha, Osaka, Japan, a corporation of Japan

No Drawing. Filed Oct. 6, 1964, Ser. No. 401,988
Claims priority, application Japan, Oct. 7, 1963, 38/52,462
12 Claims. (Cl. 260—210)

1. A process for preparing O-substituted glucoside comprising condensing a carbohydrate selected from the group consisting of pentose, hexose and acyl derivatives thereof with an aromatic alcohol in the presence of polyphosphoric acid.

3,321,462
PROCESS FOR THE PREPARATION OF NUCLEOSIDE POLYPHOSPHATES

John G. Moffatt, Palo Alto, Calif., assignor to Syntex Corporation, Panama, Panama, a corporation of Panama

No Drawing. Filed July 15, 1963, Ser. No. 295,181
13 Claims. (Cl. 260—211.5)

1. A process for the preparation of nucleoside-5'-polyphosphates which comprises reacting, under substantially anhydrous conditions, in a hydrocarbon sulfoxide solvent selected from the group consisting of dialkyl sulfoxide and cycloalkyl sulfoxide:

(a) A carboxamidinium salt of a nucleoside-5'-phosphoramidate, with

(b) a tertiary amine salt of an inorganic phosphate containing at least one phosphoryl group.

3,321,463
PROCESS FOR THE PREPARATION OF NUCLEOSIDE-5'-POLYPHOSPHATES AND α,ω-BIS-(NUCLEOSIDE-5')POLYPHOSPHATES

John Gilbert Moffatt, Los Altos, Calif., assignor to Syntex Corporation, Panama, Panama, a corporation of Panama

No Drawing. Filed Mar. 17, 1965, Ser. No. 440,588
19 Claims. (Cl. 260—211.5)

1. A process for the preparation of nucleoside-5'-polyphosphates which comprises reacting, under substantially anhydrous conditions in a dialkyl sulfoxide, a nucleoside-5'-polyphosphate terminal phosphoramidate tertiary amine salt with a tertiary amine salt of an inorganic phosphate containing at least one phosphoryl group.

10. A salt selected from the group consisting of the alkali metal, alkaline earth metal, ammonium, trialkylammonium and carboxamidinium salt of a nucleoside-5'-polyphosphate terminal phosphoramidate containing from 2 to 7 phosphoryl groups, inclusive.

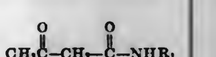
3,321,464
3-CARBO HYDROCARBONOXY AMINO CROTONAMIDES AND PROCESS FOR THE PREPARATION OF URACILS THEREFROM

Edward J. Soboczenski, Chadds Ford, Pa., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed July 22, 1965, Ser. No. 474,137
3 Claims. (Cl. 260—239)

1. A process for the preparation of 3-substituted-6-methyluracils, said process comprising

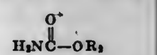
(a) reacting a substituted acetoacetamide of the formula



wherein:

R_1 is selected from the group consisting of alkyl of 3–8 carbon atoms,
phenyl,
substituted phenyl wherein said substituent is selected from the group consisting of alkyl of 1–4 carbon atoms, monohalo or dihalo,
benzyl,
substituted benzyl wherein said substituent is selected from the group consisting of monohalo or dihalo,
cycloalkyl of 3–12 carbon atoms,
substituted cycloalkyl of 3–12 carbon atoms wherein said substituent is selected from the group consisting of alkyl or methoxy,
cycloalkenyl of 4–12 carbon atoms,
cycloalkyl alkyl of 4–13 carbon atoms,
(substituted cycloalkyl) alkyl of 4–13 carbon atoms wherein said substituent is selected from the group consisting of alkyl or methoxy,
cycloalkenyl alkyl of 5–13 carbon atoms,
1-azepinyl,
4-morpholino,
1-piperidino,
2-methylpiperidino, and
2,5-dimethylmorpholino

with a carbamate of the formula

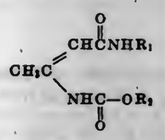


wherein R_2 is selected from the group consisting of alkyl of 1–6 carbon atoms and aryl of 6–8 carbon atoms,

in the presence of an acid having an ionization constant greater than 2×10^{-5}, to form a substituted crotonamide; and

(b) heating said crotonamide in the presence of a strong base to give a 3-substituted-6-methyluracil salt.

3. A compound of the formula



where:

R_1 is selected from the group consisting of alkyl of 3–8 carbon atoms,
phenyl,

substituted phenyl wherein said substitutent is selected from the group consisting of alkyl of 1–4 carbon atoms, monohalo or dihalo,
benzyl,
substituted benzyl wherein said substituent is selected from the group consisting of monohalo or dihalo,
cycloalkyl of 3–12 carbon atoms,
substituted cycloalkyl of 3–12 carbon atoms wherein said substituent is selected from the group consisting of alkyl or methoxy,
cycloalkenyl of 4–12 carbon atoms,
cycloalkyl alkyl of 4–13 carbon atoms,
(substituted cycloalkyl) alkyl of 4–13 carbon atoms wherein said substituent is selected from the group consisting of alkyl or methoxy,
cycloalkenyl alkyl of 5–13 carbon atoms,
1-azepinyl,
4-morpholino,
1-piperidino,
2-methylpiperidino, and
2,5-dimethylmorpholino, and

where:

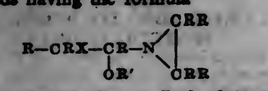
R_3 is alkyl of 1–6 carbon atoms and aryl of 6–8 carbon atoms.

3,321,465
AZIRIDINYL ETHERS AND THEIR PREPARATION

Warren J. Raboura, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Original application Mar. 20, 1963, Ser. No. 266,508, now Patent No. 3,247,185, dated Apr. 19, 1966. Divided and this application Sept. 30, 1965, Ser. No. 508,406
7 Claims. (Cl. 260—239)

1. Compounds having the formula



wherein R' is a hydrocarbon radical of 1 to 6 carbon atoms, each R is a radical independently selected from the group consisting of H and hydrocarbon radicals of 1 to 6 carbon atoms and X is a halogen having an atomic number from 17 to 35.

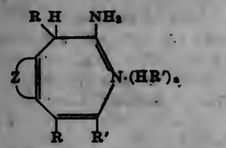
6. The process for making 1-(1-alkoxy-2-haloalkyl)-aziridine comprising reacting by contacting, in the presence of an acid acceptor, a 1,2-dihaloalkyl alkyl ether with at least about one molecular equivalent of an aziridine having a hydrogen atom on the nitrogen atom, any substituents on the carbon atoms of the aziridine ring being alkyl radicals, and wherein in said process each alkyl group in each reactant contains up to 6 carbon atoms.

3,321,466
2-AMINO-4-HALO-CYCLOALK(d) AZEPINE COMPOUNDS

Francis Johnson, Newton Lower Falls, and Wilmonte A. Nasutavicus, Framingham, Mass., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Dec. 30, 1965, Ser. No. 517,807
5 Claims. (Cl. 260—239)

1. Compound of the formula



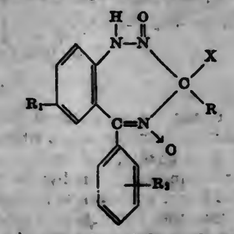
wherein Z represents a straight-chain alkylene radical being of from 2 to 8, both inclusive, carbon atoms; each R independently represents hydrogen, methyl, or halo; each R' represents the same halogen atom; and *n* represents an integer of from 0 to 1, both inclusive.

3,321,467
3-HALO-1,4-BENZODIAZEPIN-2-ONES

Arthur Stempel, Teaneck, and Leo Henryk Sternbach, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey

No Drawing. Filed Nov. 27, 1963, Ser. No. 326,372
8 Claims. (Cl. 260—239.3)

1. A compound having the formula of



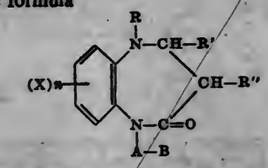
wherein R_1 and R_2 are selected from the group consisting of hydrogen, halogen, nitro, trifluoromethyl and lower alkyl; R is selected from the group consisting of hydrogen and lower alkyl; and X is halogen.

3,321,468
NOVEL 2H-1,5-BENZODIAZEPIN-2-ONES

John Krapcho, Somerset, and Chester Turk, Elizabeth, N.J., assignors, by mesne assignments, to E. R. Squibb & Sons Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Mar. 9, 1965, Ser. No. 438,420
11 Claims. (Cl. 260—239.3)

1. A compound selected from the group consisting of bases of the formula



and pharmaceutically-acceptable acid-addition salts thereof, wherein X is selected from the group consisting of hydrogen, lower alkyl, lower alkoxy, benzyloxy, lower alkylmercapto, nitro, di(lower alkyl)amino, halo and trifluoromethyl; *n* is a positive integer less than four; R is selected from the group consisting of the acyl radical of a hydrocarbon carboxylic acid of less than twelve carbon atoms, lower alkane sulfonyl and X-phenylsulfonyl; R' and R'' are each selected from the group consisting of hydrogen, lower alkyl, cycloalkyl of less than seven carbon atoms, X-substituted phenyl, furyl, thienyl and pyridyl; A is lower alkylene; and B is selected from the group consisting of amino, (lower alkyl)amino, di(lower alkyl)-amino, (hydroxy-lower alkyl) amino, di(hydroxy-lower alkyl)amino, phenyl(lower alkyl)amino, N-(lower alkyl)-N-phenyl(lower alkyl)amino, piperidino, (lower alkyl)-piperidino, di(lower alkyl)piperidino, (lower alkoxy)piperidino, homopiperidino, pyrrolidino, (lower alkyl)pyrrolidino, di(lower alkyl)pyrrolidino, (lower alkoxy)pyrrolidino, morpholino, (lower alkyl)morpholino, di(lower alkyl)morpholino, (lower alkoxy)morpholino, thiamorpholino, (lower alkyl)thiamorpholino, di(lower alkyl)-thiamorpholino, (lower alkoxy)thiamorpholino, piperazino, (lower alkyl)piperazino, di(lower alkyl)piperazino, (lower alkoxy)piperazino, lower alkanoyloxy-lower alkyl-piperazino, X-substituted phenyl piperazino, X-substituted phenyl(lower alkyl)piperazino, X-substituted cinnamyl piperazino and pyridyl piperazino.

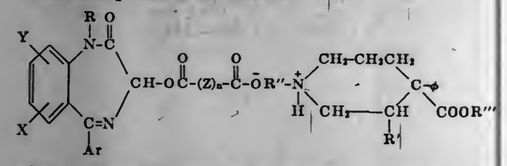
3,321,469

COMPOUNDS OF PHENYLAZEPINES AND BENZODIAZEPINE ESTERS OF POLYCARBOXYLIC ACIDS

Sidney S. Walkenstein, Newtown Square, Pa., assignor to American Home Products Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Aug. 13, 1965, Ser. No. 479,613
3 Claims. (Cl. 260—239.3)

1. A compound of the formula:



wherein X and Y may be the same or different and can be hydrogen; chlorine, bromine, nitro, trifluoromethyl and methylsulfonyl; Ar is phenyl, 2-thienyl or phenyl bearing a chlorine, fluorine, methoxy, methyl or trifluoromethyl substituent; R and R′ are hydrogen or methyl; Z is alkylene where *n* represents the number of carbon atoms and ranges from 1 to 8, or phenylene; R″ and R‴ are lower alkyl.

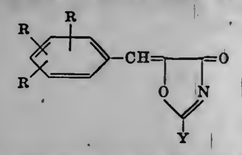
3,321,470

5-ARYLIDENE-2-AMINO-2-OXAZOLIN-4-ONES

Charles Frederick Howell, New City, N.Y., Robert Allis Hardy, Jr., Ridgewood, N.J., and Nicanor Quinones Quinones, New York, N.Y., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Apr. 27, 1964, Ser. No. 362,980
7 Claims. (Cl. 260—240)

1. A compound selected from the group consisting of 5-arylidene-2-amino-2-oxazoline-4-ones of the formula:



wherein R is a member of the group consisting of hydrogen, hydroxy, lower acyloxy, lower alkyl, lower alkoxy, halogen and trifluoromethyl; Y is a member of the group consisting of di-lower alkylamino, pyrrolidino, piperidino, morpholino and 4-lower alkyl-1-piperazino; and the non-toxic acid addition salts thereof.

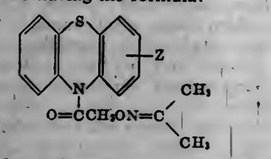
3,321,471

ORGANIC COMPOUNDS AND PROCESSES

Leo A. Paquette, Columbus, Ohio, assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Filed May 6, 1964, Ser. No. 365,514
6 Claims. (Cl. 260—243)

1. A compound having the formula:



wherein Z is selected from the group consisting of hydrogen, halogen, trifluoromehyl, alkylthio wherein the alkyl group contains from 1 through 5 carbon atoms, alkanoyl wherein the alkyl group contains from 1 through 5 carbon atoms, alkyl of from 1 through 5 carbon atoms, and alkoxy wherein the alkyl group contains from 1 through 5 carbon atoms.

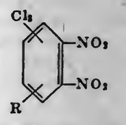
3,321,472

N-(TRICHLORO-O-DINITROPHENYL)-HETEROCYCLIC AMINES

Alan James Lamble and Geoffrey Tatersall Newbold, Saffron Walden, and Michael Barry Purdew, Cambridge, England, assignors to Fisons Pest Control Limited, Harston, England

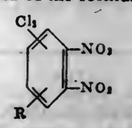
No Drawing. Filed Jan. 4, 1965, Ser. No. 423,303
Claims priority, application Great Britain, Jan. 11, 1964, 1,337/64
10 Claims. (Cl. 260—247)

1. A process for the preparation of a compound of the formula:



where R is a heterocyclic ring attached to the benzene ring through a nitrogen atom, which comprises reacting 1,2,3,4-tetrachloro-5,6-dinitrobenzene with a cyclic secondary amine, other than pyrrolidine and ethyleneimine.

6. A new compound of the formula:



where R is a heterocyclic ring attached to the benzene ring through a nitrogen atom, R being selected from the group consisting of morpholino, piperidino and piperazino.

7. 4-(trichloro-o-dinitrophenyl)-morpholine.

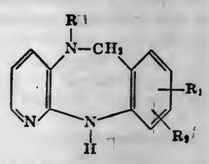
3,321,473

NOVEL 5,6-DIHYDRO-11H-PYRIDO[2,3-b][1,4] BENZODIAZEPINES

Günther Schmidt, Biberach an der Riss, Germany, assignor to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhine, Germany, a corporation of Germany

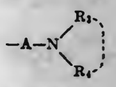
No Drawing. Filed July 22, 1964, Ser. No. 384,521
Claims priority, application Germany, Aug. 22, 1963, T 24,551
9 Claims. (Cl. 260—247.5)

1. A compound selected from the group consisting of 5,6 - dihydro - 11H - pyrido[2,3-b][1,4]benzodiazepine substitution products of the formula



wherein

R is selected from the group consisting of hydrogen, lower alkyl, lower alkoxy-lower alkyl, phenyl-lower alkyl and



where A is lower alkylene and

R_3 and R_4 are each selected from the group consisting of lower alkyl and, together with each other and the adjacent nitrogen atom, a basic heterocycle selected from the group consisting of morpholino, piperidino and N′-methyl-piperazino, and

R_1 and $_3R$ are each selected from the group consisting of hydrogen, chlorine and methyl,

and their non-toxic, pharmacologically acceptable acid addition salts.

9. 5 - (β - morpholino - ethyl) - 5,6 - dihydro-11H-pyrido[2,3-b][1,4]benzodiazepine.

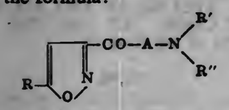
3,321,474

DISUBSTITUTED ISOXAZOLE COMPOUNDS AND NON-TOXIC SALTS THEREOF

Hideo Kano, Kyoto-shi, Ikuo Adachi and Ryonosuke Kido, Toyonaka-shi, and Katsumi Hirose, Nishinomiya-shi, Japan, assignors to Shionogi & Co., Ltd., Higashi-ku, Osaka, Japan

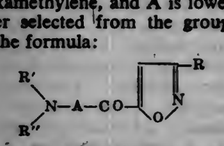
No Drawing. Filed Oct. 8, 1965, Ser. No. 494,254
Claims priority, application Japan, July 31, 1963, 38/41,224; Nov. 29, 1964, 39/61,521; Aug. 20, 1965, 40/50,957
16 Claims. (Cl. 260—247.5)

1. A member selected from the group consisting of compounds of the formula:



and pharmaceutically acceptable non-toxic salts thereof, wherein R is a member selected from the group consisting of phenyl, lower alkylphenyl, lower alkoxyphenyl and halophenyl, R′ and R″ each is a member selected from the group consisting of hydrogen and lower alkyl and R′ and R″ together represent a member selected from the group consisting of tetramethylene, pentamethylene, hexamethylene, oxatetramethylene, oxapentamethylene, oxahexamethylene, azatetramethylene, azapentamethylene, azahexamethylene, thiatetramethylene, thiapentamethylene and thiahexamethylene, and A is lower alkylene.

2. A member selected from the group consisting of compounds of the formula:



and pharmaceutically acceptable non-toxic salts thereof, wherein R is a member selected from the group consisting of phenyl, lower alkylphenyl, lower alkoxyphenyl and halophenyl, R′ and R″ each is a member selected from the group consisting of hydrogen and lower alkyl and R′ and R″ together represent a member selected from the group consisting of tetramethylene, pentamethylene, hexamethylene, oxatetramethylene, oxapentamethylene, oxahexamethylene, azatetramethylene, azapentamethylene, azahexamethylene, thiatetramethylene, thiapentamethylene, thiahexamethylene, and A is lower alkylene.

9. 3-morpholinoacetyl-5-phenylisoxazole.

13. 3-phenyl-5-morpholinoacetylisoxazole.

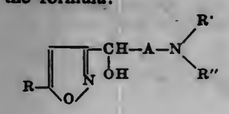
3,321,475

ISOXAZOLE COMPOUNDS AND NON-TOXIC SALTS THEREOF

Hideo Kano, Kyoto-shi, Ikuo Adachi and Ryonosuke Kido, Toyonaka-shi, and Katsumi Hirose, Nishinomiya-shi, Japan, assignors to Shionogi & Co., Ltd., Higashi-ku, Osaka, Japan

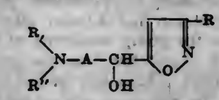
No Drawing. Filed Oct. 8, 1965, Ser. No. 494,266
Claims priority, application Japan, July 31, 1963, 38/41,225; Nov. 20, 1964, 39/65,650; Sept. 8, 1965, 40/55,252
16 Claims. (Cl. 260—247.5)

1. A member selected from the group consisting of compound of the formula:



and pharmaceutically acceptable non-toxic salts thereof, wherein R is a member selected from the group consisting of phenyl, lower alkylphenyl, lower alkoxyphenyl and halophenyl, R′ and R″ each is a member selected from the group consisting of hydrogen and lower alkyl and R′ and R″ together represent a member selected from the group consisting of tetramethylene, pentamethylene, hexamethylene, oxatetramethylene, oxapentamethylene, oxahexamethylene, azatetramethylene, azapentamethylene, azahexamethylene, thiatetramethylene, thiapentamethylene, thiahexamethylene, and A is a lower alkylene.

2. A member selected from the group consisting of compound of the formula:



and pharmaceutically acceptable non-toxic salts thereof, wherein R is a member selected from the group consisting of phenyl, lower alkylphenyl, lower alkoxyphenyl and halophenyl, R′ and R″ each is a member selected from the group consisting of hydrogen and lower alkyl and R′ and R″ together represent a member selected from the group consisting of tetramethylene, pentamethylene, hexamethylene, oxatetramethylene, oxapentamethylene, oxahexamethylene, azatetramethylene, azapentamethylene, azahexamethylene, thiatetramethylene, thiapentamethylene, thiahexamethylene, and A is a lower alkylene.

4. 3-(ω-morpholino-1-hydroxy(lower)alkyl)-5-alkyl)-isoxazole.

6. 3-phenyl-5-(ω-piperidino-1-hydroxy(lower)-alkyl)-isoxazole.

3,321,476

PROCESS FOR PREPARING 2,4-DIAMINO-s-TRIAZINE-2-YL GUANIDINE SALTS

Daniel Elmer Nagy, Stamford, Conn., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Jan. 28, 1965, Ser. No. 428,875
5 Claims. (Cl. 260—249.6)

2. A process for preparing 4,6-diamino-s-triazine-2-yl guanidine hydrohalide which comprises adding concentrated hydrogen halide to dicyandiamide and reacting at a temperature of from about 60° C. to 180° C.

3,321,477

PURIFICATION OF MELAMINE

Daniel Hyman, Greenwich, Conn., Samuel William Tribit, Hawthorne, N.Y., and John Maurice Witheford, Wyckoff, N.J., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Sept. 8, 1964, Ser. No. 395,023
6 Claims. (Cl. 260—249.7)

1. A method of purifying melamine which comprises establishing a 3 to 15% aqueous crude melamine solution having a temperature in the range of 80° C. to 160° C., and containing at least about 0.09% by weight of H_2O_2 and sufficient alkali to provide a solution pH in the range of about 9 to about 11.6, and crystallizing the resulting solution at a temperature in the range of 20° C. to 40° C.

3,321,478

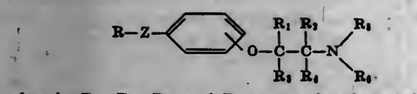
AMINOETHOXYPHENYL AMINE, ETHER, AND SULFIDE DERIVATIVES OF PYRIMIDINE

Jackson Pollard English, Princeton, and Frederick Louis Bach, Jr., Montvale, N.J., and Samuel Gordon, Pearl River, N.Y., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed July 13, 1964, Ser. No. 382,383
7 Claims. (Cl. 260—256.4)

1. N - (2,6 - dichloro-4-pyrimidyl) - p - (2-diethylaminoethoxy)aniline.

6. A member of the class consisting of compounds of the formula:



wherein R_1, R_2, R_3 and R_4 are each selected from the group consisting of hydrogen, methyl and ethyl with the proviso that the sum of the carbon atoms of

$$R_1+R_2+R_3+R_4$$

is less than 5; R_5 is lower alkyl; R_6 is lower alkyl; R_5 and R_6 taken together with the (Nitrogen) is selected from the group consisting of pyrrolidino, piperidino, morpholino, thiomorpholino and 4-lower alkyl-1-piperazino; Z is selected from the group consisting of imino, oxygen and sulfur; and R is selected from the group consisting of 5-halo-2-pyrimidyl, 2-halo-4-pyrimidyl and 2,6-dihalo-4-pyrimidyl; and the non-toxic acid-addition and quaternary ammonium salts thereof.

3,321,479

PREPARATION OF ORGANOLITHIUM AMINE COMPLEXES

Gert G. Eberhardt, Philadelphia, and Walter A. Butte, Jr., West Chester, Pa., assignors to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

No Drawing. Filed Mar. 14, 1966, Ser. No. 533,821
27 Claims. (Cl. 260—268)

1. Method of preparing an organolithium amine complex which comprises admixing in liquid phase at a temperature in the range of —20° C. to 180° C. a compound selected from the group consisting of (1) hydrocarbons, (2) N,N-dialkylamino-substituted hydrocarbons and (3) alkoxy-substituted hydrocarbons, said compound being in liquid phase and containing at least one hydrogen atom of the class consisting of allylic hydrogen, benzylic hydrogen and aromatic hydrogen but being free of any conjugated terminal double bond, acetylenic bond or allenic bond, with a non-aromatic tertiary amine which is a diamine or an amine containing bridgehead nitrogen in combination with LiR wherein R is selected from the class consisting of alkyl and cycloalkyl groups having 1–30 carbon atoms and phenyl, and recovering from the reaction mixture an organolithium amine complex in which the organo portion corresponds to said compound.

3,321,480

TRIPHENYL-TIN-[PYRIDYL-N-OXIDE-(2)]-SULFIDE

Ludwig Schroder, Klaus Thomas, and Dietrich Jerchel, Biberach an der Riss, Germany, assignors to C. H. Boehringer Sohn, Ingelheim am Rhine, Germany, a limited partnership of Germany

No Drawing. Filed Feb. 18, 1964, Ser. No. 345,567
Claims priority, application Germany, Feb. 21, 1963, B 70,838
1 Claim. (Cl. 260—270)

Triphenyl-tin-[pyridyl-N-oxide-(2)]-sulfide.

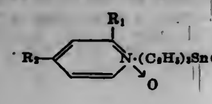
3,321,481

HETEROCYCLIC N-OXIDE-TRI-PHENYLCHLORO-TIN SALTS

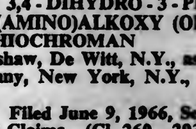
Ludwig Schröder, Klaus Thomas, and Dietrich Jerchel, Biberach an der Riss, Germany, assignors to C. H. Boehringer Sohn, Ingelheim am Rhine, Germany, a limited partnership of Germany

No Drawing. Filed Mar. 24, 1964, Ser. No. 354,454
Claims priority, application Germany, Mar. 25, 1963, B 71,288
9 Claims. (Cl. 260—270)

1. A compound of the formula



or



wherein

R_1 is alkyl of 1 to 9 carbon atoms,
R_2 is hydrogen or nitro, and
R_3 is hydrogen or methyl.

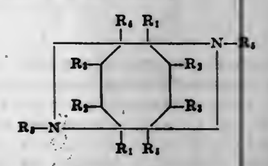
3,321,482

DIAZATRICYCLODODECANES AND THEIR PREPARATION

Leo A. Paquette, Kalamazoo County, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Filed July 16, 1962, Ser. No. 210,195
2 Claims. (Cl. 260—293)

1. A compound of the formula



(I)

wherein R_1, R_2, R_3, and R_4 are hydrogen, methyl, or ethyl; and R_5 is diloweralkylamino, piperidino, morpholino, thiamorpholino, piperazino, pyrrolidino, hexamethyleneimino, heptamethyleneimino, octamethyleneimino, homomorpholino, 2-methylhexamethyleneimino, 2,2-dibutylhexamethyleneimino, 3,6 - dimethylhexamethyleneimino, 2-ethylmorpholino, 2-ethyl-5-methylmorpholino, 3,3-dimethylmorpholino, 3-methylthiamorpholino, 2,3,5,6-tetramethylthiamorpholino, 2,3,6-trimethylthiamorpholino, 4-butylpiperazino, 4-isopropylpiperazino, 2,2,4,5,5-pentamethylpiperazino, 2,5-diisobutylpiperazino, 2,4,5-trimethylpiperazino, 2 - methylpiperidino, 3 - methylpiperidino, 4-methylpiperidino, 2-butylpiperidino, 2-propylpiperidino, 4-isopropylpiperidino, 3,4-diethylpiperidino, 2-sec-butylpyrrolidino, 2,2-dimethylpyrrolidino, 2-ethylpyrrolidino, 2,4-dimethylpyrrolidino, 2-isopropylpyrrolidino, or hexahydro-3-isopropylpyrimindo.

2. 3,7-bis(2-diethylaminoethyl)-3,7-diazatricyclo[4.2.2.$2^{2,5}$]dodecane tetrahydrochloride.

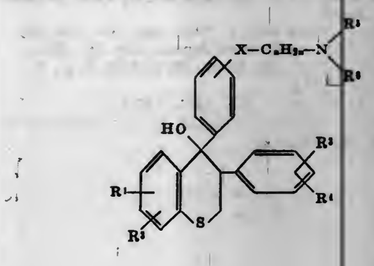
3,321,483

SUBSTITUTED 3,4 - DIHYDRO - 3 - PHENYL - 4 - HYDROXY - {[(AMINO)ALKOXY (OR ALKYLTHIO) PHENYL]}THIOCHROMAN

Ronnie R. Crenshaw, De Witt, N.Y., assignor to Bristol-Myers Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed June 9, 1966, Ser. No. 556,261
13 Claims. (Cl. 260—293.4)

1. A compound selected from the group consisting of compounds of the formula



wherein

n is a whole integer from 1 to 6 inclusive;

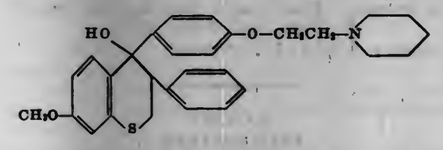
R^1, R^2, R^3 and R^4 each represent a member selected from the group consisting of hydrogen, chloro, bromo, iodo, fluoro, trifluoromethyl, (lower)alkyl, (lower)alkoxy, di(lower)alklamino, di(lower)alkylsulfamyl, (lower)alkanoyl, phenyl, phenoxy, benzyl and cycloalkyl radicals having from 5 to 7 carbon atoms inclusive;

R^5 and R^6 each represent a member selected from the group consisting of (lower)alkyl, (lower)alkenyl, (lower)alkynyl, phenyl, phenyl(lower)alkyl, cycloalkyl radicals having from 3 to 7 carbon atoms inclusive, and when taken together with —N<, constitute a heterocyclic ring selected from the group consisting of pyrrolidino, (lower)alkylpyrrolidino, di(lower)alkylpyrrolidino, piperidino, (lower)alkylpiperidino, di(lower)alkylpiperidino, morpholino, (lower)alkylmorpholino, di(lower)alkylmorpholino, tetrahydropyridino, (lower)alkyltetrahydropyridino, di(lower)alkyltetrahydropyridino, N'-(lower)alkylpiperazino, N'-(lower)alkyl(lower)alkylpiperazino, N' - (lower)alkyl - di(lower)alkylpiperazino, hexamethyleneimino, (lower)alkylhexamethyleneimino, di(lower)alkylhexamethyleneimino;

X is a member selected from the group consisting of oxygen and sulfur;

and the pharmaceutically acceptable nontoxic salts thereof.

9. The compound of claim 1 having the formula



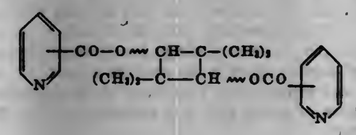
3,321,484

PYRIDINECARBOXYLIC ACID ESTERS OF CYCLOBUTANEDIOLS

Carl Peter Krimmel, Wauconda, Ill., assignor to G. D. Searle & Co., Chicago, Ill., a corporation of Delaware

No Drawing. Filed June 21, 1965. Ser. No. 465,704
5 Claims. (Cl. 260—295.5)

1. A compound of the formula



3,321,485

ORGANOMANGANESE INDOLE COMPOUNDS AND PROCESS FOR PREPARING SAME

John Kozikowski, Walled Lake, Mich., and Michael Cais, Haifa, Israel, assignors to Ethyl Corporation, New York, N.Y., a corporation of Virginia

No Drawing. Original application Dec. 28, 1960, Ser. No. 78,820. Divided and this application May 3, 1965, Ser. No. 463,426
2 Claims. (Cl. 260—319.1)

1. [(2 - indolyl)cyclopentadienyl]manganese tricarbonyl.

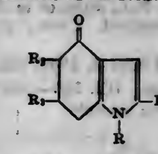
3,321,486

SUBSTITUTED 4-OXO-4,5,6,7-TETRAHYDROINDOLES

William Alan Remers, Suffern, N.Y., and Martin Joseph Weiss, Oradell, N.J., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Feb. 24, 1965, Ser. No. 435,073
9 Claims. (Cl. 260—326.16)

1. A tetrahydroindole of the formula:



wherein R is selected from the group consisting of lower alkyl and benzyl; R_1 is selected from the group consisting of hydrogen and lower alkyl; R_2 is selected from the group consisting of cyano, formyl and α-hydroxy(lower)alkylene and R_3 is selected from the group consisting of hydrogen and lower alkyl.

3,321,487

ORGANO ALUMINUM COMPOUNDS AND METHOD FOR OBTAINING THEM

Paolo Chini and Agostino Baradel, Milan, Italy, assignors to SNAM—Societa per Azioni

No Drawing. Filed Nov. 9, 1961, Ser. No. 151,177
Claims priority, application Italy, Nov. 16, 1960, 8,175/60, Patent 642,038
21 Claims. (Cl. 260—340.6)

1. An organo-aluminum compound having the general formula

$$M_p(C{\equiv}CH)_pAl(C{\equiv}CH)_{(3-q)}X_q{\cdot}Z_y$$

wherein M is an alkali metal selected from the group consisting of lithium, sodium and potassium, X is a member of the group consisting of hydrogen, halogen, alkyl, aryl and alkoxy, Z is a member of the group consisting of ethers and amines, p is an integer from 0 to 1, q is an integer from 0 to 2, and y is an integer from 0 to 2, y being an integer from 1 to 2 when p is 0 and q being 0 when p is 1.

2. An organo-aluminum compound as claimed in claim 1 wherein Z is dioxan, p is 0 and y is 1.

9. A process for preparing a compound having the general formula

$$Al(C{\equiv}CH)_{3-q}X_q{\cdot}Z_n$$

wherein X, Z, q and n are as defined in claim 5, which comprises reacting an alkali metal acetylide with an aluminum compound of the general formula $AlX_mX'_{(3-m)}$ wherein X is a member of the group consisting of hydrogen, halogen, alkyl, aryl and alkoxy, X' is a halogen atom and m is an integer from 1 to 2 in the presence of a compound selected from the group consisting of ethers and amines.

15. A process for preparing a compound of the general formula $MAl(C{\equiv}CH)_4{\cdot}Z_y$ wherein M is an alkali metal selected from the group consisting of lithium, sodium and potassium, Z is a member of the group consisting of ethers and amines and y is an integer from 0 to 2, which comprises reacting a compound selected from the group consisting of lithium acetylide, sodium acetylide and potassium acetylide with an aluminum acetylide.

16. A process for preparing a compound having the general formula $MAl(C{\equiv}CH)_4{\cdot}Z_y$ wherein M is an alkali metal selected from the group consisting of lithium, sodium and potassium, Z is a member of the group consisting of ethers and amines and y is an integer from 0 to 2, which comprises reacting an alkali metal aluminum

hydride with acetylene in the presence of a compound selected from the group consisting of ethers and amines.

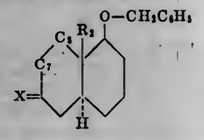
3,321,488

1 - BENZYLOXY - 6 - SUBSTITUTED - 9 - LOWER ALKYL-TRANS-DECALINS AND TRANS - OCTALINS

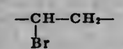
Marinus Los, Trenton, N.J., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed June 4, 1964, Ser. No. 372,716
13 Claims. (Cl. 260—340.9)

1. A compound of the formula:



wherein R_2 is lower alkyl, X is selected from the group consisting of oxygen and lower alkylenedioxy and $-C_7-C_8-$ is selected from the group consisting of $-CH_2CH_2-$, $-CH=CH-$ and



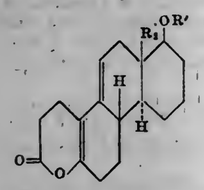
3,321,489

TETRACYCLIC COMPOUNDS AND METHODS OF PREPARING THE SAME

Marinus Los, Trenton, N.J., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed June 4, 1964, Ser. No. 372,665
17 Claims. (Cl. 260—343.2)

1. A compound of the formula:



wherin R_2 is selected from the group consisting of methyl and ethyl and R' is selected from the group consisting of t-butyl and benzyl.

3,321,490

PROCESS FOR PRODUCING PIVALOLACTONE

Peter Borner, Altlunen, Germany, assignor to Schering Aktiengesellschaft, Berlin, Germany

Filed July 12, 1965, Ser. No. 471,077
Claims priority, application Germany, July 22, 1964, Sch 35,508
8 Claims. (Cl. 260—343.9)

1. Process for producing pivalolactone by thermal decomposition of the lead^{II} salt of chloropivalic acid, comprising passing said salt in dry, finely distributed condition through a reaction space, from which free oxygen is excluded, under a reduced pressure of 1–100 torr, at a temperature in the range of 200–400° C., in a layer of 0.1–3 cm. thickness, until most of said salt is converted into solid lead^{II} chloride and gaseous pivalolactone, discharging said gaseous pivalolactone from said reaction space, and subjecting it to liquefying by cooling.

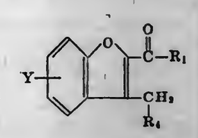
3,321,491

PHOTOCHROMIC BENZOFURAN COMPOUNDS

Kenneth Robert Huffman and Edwin Fisher Ullman, Stamford, Conn., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Dec. 14, 1964, Ser. No. 418,294
6 Claims. (Cl. 260—346.2)

1. Photochromic benzofuran compounds of the formula



wherein R_1 and R_4 are selected from the group consisting of phenyl and substituted phenyl, said substituents for phenyl being selected from the group consisting of hydroxy, lower alkyl, lower alkoxy, lower alkyl thio, cyano, nitro, di(lower alkyl)amino, halogen and trifluoromethyl, and Y is selected from the group consisting of hydrogen, hydroxy, lower alkyl, trifluoromethyl, lower alkoxy, lower alkyl thio, cyano, nitro, halogen, di(lower alkyl)amino, phenyl and lower alkyl-substituted phenyl.

3,321,492

2-OXABICYCLO(3.3.0)-3,7-OCTADIENE

John Edward Franz, Crestwood, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed Apr. 5, 1966, Ser. No. 540,199
1 Claim. (Cl. 260—346.2)

2-oxabicyclo(3.3.0)-3,7-octadiene.

3,321,493

EPOXIDATION

Stanley Beesley, Darley Abbey, Derby, and John Bernard Powner, Chaddesden, Derby, England, assignors to British Celanese Limited, County of London, England, a British company

Filed Dec. 3, 1963, Ser. No. 327,650
Claims priority, application Great Britain, Dec. 20, 1962, 48,074/62
7 Claims. (Cl. 260—348.5)

1. In a process for the production of epoxidized unsaturated oils by reacting an unsaturated oil, with peracetic acid, the steps of reacting oxygen with acetaldehyde in the vapor phase to produce a gaseous mixture consisting essentially of peracetic acid, acetic acid and acetaldehyde, passing said gaseous mixture, as it is produced, into a column, introducing into said column two components consisting essentially of said oil and a solvent selected from the group consisting of acetone, methyl acetate and ethyl acetate thereby to epoxidize said oil in said column, and withdrawing a solution of the epoxidized oil in a mixture of acetic acid and solvent from the base of the column.

3,321,494

PROCESS FOR PREPARING TRIAMINOQUANIDINIUM AZIDE

Earl Thomas Niles, Danville, Calif., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed May 24, 1963, Ser. No. 282,935
5 Claims. (Cl. 260—349)

1. A process for preparing triaminoguanidinium azide which comprises: (1) providing a reaction mixture of (a) a guanidine source material, (b) a hydrazine source material, at least one of the members (a) and (b) also providing a source of sulfate ion, and (c) an azide source material, said guanidine source material being a member selected from the group consisting of guanidine carbonate, guanidine sulfate, aminoguanidine sulfate, guanidine bisulfate, guanidine bicarbonate, aminoguanidine bisulfate and aminoguanidine bicarbonate, said hydrazine source material being a member selected from the group consisting of hydrazine sulfate, hydrazine bisulfate, hydrazine and hydrazine hydrate and said azide source material being a member selected from the group consisting of the alkali metal-, alkaline earth metal- and ammonium azides; (2) reacting said mixture for a period of time of from about 0.25 to about 4 hours over a temperature range of from about 60 to about 140° centigrade thereby to precipitate the corresponding inorganic sulfate salt wherein the cation of said sulfate salt is the cation member of said azide reactant; (3) separating the precipitated inorganic sulfate salt from the reaction medium, and (4) recovering the triaminoguanidinium azide product.

3,321,495

METHOD OF ENOL-ACETYLATING 3-KETO STEROIDS

Narasimha Rao Pemmaraju and Ben E. Edwards, San Antonio, Tex., assignors to Southwest Foundation for Research and Education, San Antonio, Tex., a corporation of Texas

No Drawing. Filed May 8, 1964, Ser. No. 366,168
20 Claims. (Cl. 260—397.2)

4. The method of enol-acetylating 3-keto steroids, comprising;

admixing a 3-keto steroid with a reagent comprising a major proportion of ethyl acetate, a minor proportion of acetic anhydride and a trace amount of perchloric acid;

standing said admixture at room temperature and atmospheric pressure for about five to fifteen minutes;

washing said admixture with a sodium bicarbonate solution;

phase separating said admixture and said solution;

and, isolating the enol-acetate reaction product from said admixture by recrystallization.

9. The method of claim 4, wherein:

said 3-keto steroid comprises 4-cholesten-3-one;

and, said reaction product comprises 3-acetoxycholesta-3,5-diene.

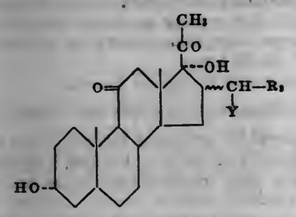
3,321,496

16α-HALO METHYL-SATURATED STEROIDS OF THE PREGNANE SERIES

David Taub, Metuchen, and Norman L. Wendler, Summit, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed Nov. 17, 1960, Ser. No. 69,794
6 Claims. (Cl. 260—397.45)

1. Compounds of the formula



in which R_3 is selected from the group consisting of hydrogen and alkyl and Y is halogen, the wavy line indicating a selection from the group consisting of alpha and beta substituents.

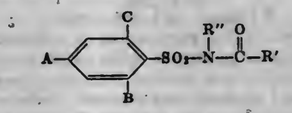
3,321,497

COMPOSITIONS OF MATTER

Edwin A. Matzner, St. Louis, Mo., assignor to Monsanto Company, a corporation of Delaware

No Drawing. Filed Oct. 7, 1963, Ser. No. 314,552
11 Claims. (Cl. 260—397.7)

1. A compound of the formula



where one of A and B is a nitro group and the other is hydrogen; where C is selected from the group consisting of NO_2 and H; where R' is selected from the group consisting of unsubstituted alkyl radical having from 1 to 10 carbon atoms and unsubstituted phenyl radical, and where R'' is an unsubstituted phenyl radical.

3,321,498

SULFONATION OF EPOXY ALKYL ESTERS OF TERTIARY MONOCARBOXYLIC ACIDS BY MEANS OF BISULFITE ADDUCTS OF ALKYL ALDEHYDES AND KETONES

Cornelis Kortland and Cornelis Borstlap, Amsterdam, Netherlands, assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Nov. 8, 1963, Ser. No. 322,539
Claims priority, application Netherlands, Nov. 28, 1962, 286,064
4 Claims. (Cl. 260—400)

1. A process for the preparation of aliphatic hydroxysulfonic acids and their salts which comprises reacting epoxyalkyl esters of saturated aliphatic tert. monocarboxylic acids containing from 8 to 30 carbon atoms with the preformed addition product of a bisulfite and an oxo compound selected from the group consisting of alkyl aldehydes and alkyl ketones containing between 1 and 7 carbon atoms, at a temperature of from about 40° to about 150° C. in the presence of an aqueous alkanol having from 1 to 4 carbon atoms.

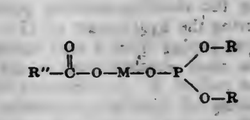
3,321,499

ALKALINE EARTH METAL CARBOXYLATE-PHOSPHITES

Gordon M. Juredine, Cleveland Heights, Ohio, assignor to Synthetic Products Company, Cleveland, Ohio, a corporation of Ohio

No Drawing. Original application Jan. 30, 1963, Ser. No. 255,071, now Patent No. 3,284,386. Divided and this application Oct. 18, 1965, Ser. No. 510,424
21 Claims. (Cl. 260—403)

1. A compound having the general formula



where R and R'' are selected from the group consisting of alkyl, cycloaliphatic, aryl, aralkyl, and alkaryl radicals and their halogen substituted derivatives,
where R has from 4 to 18 carbon atoms,
where R'' has from 3 to 17 carbon atoms, and
where M is selected from the group consisting of barium, calcium and strontium.

3,321,500

PROCESS FOR THE PREPARATION OF α-MONOCHLOROHYDRIN MONOESTERS OF CARBOXYLIC ACIDS

Ewald Katzschmann, Dortmund-Kruckel, Germany, assignor to Chemische Werke Witten G.m.b.H., Witten (Ruhr), Germany

No Drawing. Filed Oct. 20, 1964, Ser. No. 405,265
Claims priority, application Germany, Oct. 22, 1963, C 31,208
9 Claims. (Cl. 260—408)

1. A process for the preparation of α-monochlorohydrin monoesters of carboxylic acids which comprises reacting a carboxylic acid selected from the group consisting of saturated aliphatic and aromatic carboxylic acids with epichlorohydrin in the presence of water and an inorganic compound selected from the group consisting of neutral inorganic alkali metal salts and neutral water-soluble inorganic alkaline earth metal salts.

3,321,501

METALLOCENYL SUBSTITUTED ORGANOSILICON MATERIALS AND A METHOD FOR MAKING THEM

Edward V. Wilkus, Albany, and Abe Berger, Schenectady, N.Y., assignors to General Electric Company, a corporation of New York

No Drawing. Filed May 27, 1963, Ser. No. 283,525
17 Claims. (Cl. 260—429)

1. Metallocenyl-substituted organosilicon materials consisting of a metallocene substituted with at least one radical of the formula:



where said metallocene is a member selected from the class consisting of ferrocene, osmocene and ruthenocene substituted with radicals selected from the class consisting of hydrogen, and a mixture of hydrogen and monovalent hydrocarbon radicals selected from the class consisting of alkyl radicals, aryl radicals, and mixtures thereof, A is a member selected from the class consisting of an R radical and a hydroxy radical, R is a member selected from the class consisting of hydrogen, a halogen radical, an alkoxy radical, a monovalent hydrocarbon radical, a halogenated monovalent hydrocarbon radical, a cyanoalkyl radical, and a fluoroalkyl radical, R′ is a divalent radical of from 2 to 7 carbon atoms selected from the class consisting of an arylene radical, and an alkylene radical, and Y is a carbonyl radical.

14. A method which comprises (1) effecting reaction between a metallocene and a silylorganocarboxylic acid halide having the formula:



(2) hydrolyzing the resulting reaction product of (1), and (3) recovering the hydrolyzate of (2), where R′ is a divalent radical having from 2 to 7 carbon atoms selected from the class consisting of an arylene radical and an alkylene radical, R″ is a member selected from the class consisting of hydrogen, a halogen radical, a monovalent hydrocarbon radical, a halogenated monovalent hydrocarbon radical, a cyanoalkyl radical, a fluoroalkyl radical, and mixtures thereof, where said metallocene is a member selected from the class consisting of ferrocene, osmocene, and ruthenocene substituted with radicals selected from the class consisting of hydrogen, and a mixture of hydrogen and monovalent hydrocarbon radicals selected from the class consisting of alkyl radicals, aryl radicals, and mixtures thereof.

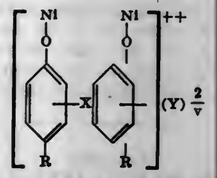
3,321,502

NICKEL PHENOLATES AND THEIR USE AS LIGHT STABILIZERS FOR POLYOLEFINS

Mary Lou Soeder, Minneapolis, Minn., assignor to Hercules Incorporated, a corporation of Delaware

No Drawing. Original application Aug. 6, 1962, Ser. No. 214,834, now Patent No. 3,282,887, dated Nov. 1, 1966. Divided and this application Sept. 28, 1965, Ser. No. 505,220
6 Claims. (Cl. 260—439)

1. The nickel phenolate of a compound selected from the group consisting of bis(p-alkylphenol) sulfoxides and bis(p-alkylphenol) sulfones, said nickel phenolate having the formula:



where R is an alkyl radical containing 1 to 20 carbon atoms, X is selected from the group consisting of sulfoxide and sulfonyl radicals, Y is an anion, and v is the valence of the anion Y.

3,321,503

REACTIONS OF TRIMETHYLALUMINUM WITH HYDRAZINES AND PRODUCTS THEREOF

Neil R. Fetter, Arlington, Calif., and Bodo K. W. Bartocha, Indian Head, Md., assignors to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed Apr. 3, 1962, Ser. No. 184,858
13 Claims. (Cl. 260—448)

1. A process comprising reacting a member selected from the group consisting essentially of trimethylaluminum and trimethylaluminum trimethylamine with a member selected from the group consisting essentially of 1,2-dimethylhydrazine, 1,1-dimethylhydrazine, tetramethylhydrazine, trimethylhydrazine, methylhydrazine and hydrazine at a reaction temperature ranging from −10° C. to −196° C. and warming to room temperature whereby a product forms.

3,321,504

REACTION COMPOUNDS OF TETRAMETHYLTETRAZENE WITH ALUMINUM TRIALKYLS AND THEIR AMINE COMPLEXES AND THE PREPARATION THEREOF

Neil R. Fetter, Arlington, Calif., and Bodo K. W. Bartocha, Indian Head, Md., assignors to the United States of America as represented by the Secretary of the Navy

No Drawing. Filed Aug. 23, 1962, Ser. No. 219,081
8 Claims. (Cl. 260—448)

1. A process for the preparation of aluminum-nitrogen compounds comprising distilling a tetramethyltetrazene onto an aluminum trialkyl selected from the group consisting of triethylaluminum trimethylamine and trimethylaluminum dissolved in pentane at about −196° C., warming to room temperature, then heating to a temperature of about 60° C. for 20 hours.

2. The compound having the formula

$$(C_2H_5)_3Al{:}(CH_3)_2NN{=}NN(CH_3)_2$$

4. The process for preparing the compound having the formula $C_4H_{10}AlN$ comprising distilling triethylaluminum trimethylamine onto tetramethyltetrazene at −196° C., whereby a reaction mixture results; heating said mixture at 80° C. for 20 hours until a viscous orange fluid forms.

7. The compound having the formula

$$(CH_3)_3Al[N_2(CH_3)_2]_2$$

8. The process for the synthesis of the compound of

claim 7 comprising reacting trimethylaluminum with tetramethyltetrazene dissolved in n-pentane at room temperature until a reaction mixture forms, then heating said mixture to about 90° C. for 3 hours until a viscous red product forms which is purified by vacuum distillation at 60° C.

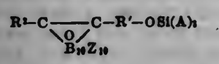
3,321,505

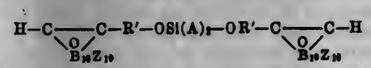
THERMALLY STABLE SILICATE ESTERS

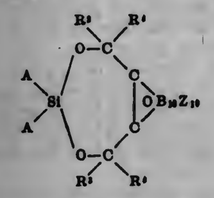
Marvin M. Fein, Westfield, Nelson N. Schwartz, Trenton, and Sidney I. Karlan, Nutley, N.J., assignors to Thiokol Chemical Corporation, Bristol, Pa., a corporation of Delaware

No Drawing. Filed Nov. 13, 1963, Ser. No. 324,170
25 Claims. (Cl. 260—448.8)

1. Silane esters of carboranyl alcohols selected from the group consisting of:

(I) 

(II) 

(III) 

wherein R′ is an alkylene radical, R^3 and R^4 are members selected from the group consisting of hydrogen and methyl, A is selected from the group consisting of alkyl, aryl and arylalkyl, Z is a member selected from the group consisting of hydrogen, halogen, alkyl and aryl, and R^2 is selected from the group consisting of hydrogen and —R′—$OSiA_3$ in which R′ and A have the same meaning ascribed to them above.

3,321,506

BORATE AMINE SALT

Edwin C. Knowles, Poughkeepsie, N.Y., and Edward L. Kay, Akron, Ohio, assignors to Texaco Inc., New York, N.Y., a corporation of Delaware

No Drawing. Original application Jan. 17, 1961, Ser. No. 83,173, now Patent No. 3,185,644, dated May 25, 1965. Divided and this application Oct. 1, 1964, Ser. No. 400,875
6 Claims. (Cl. 260—462)

1. An amine salt of a tetra-covalent boron acid having the following general formula:

$$(RO)_1\bar{B}{-}O{-}R'\dot{N}HR''R'''$$

wherein R is a monovalent lower alkyl radical, R′ is an ethylene radical and R″ and R‴ are selected from the group consisting of hydrogen, phenyl, and a lower alkyl radical containing 1 to 8 carbon atoms.

3,321,507

PROCESS FOR THE PRODUCTION OF UNSATURATED NITRILES

Alessandro Ginnasi, Milan, Marcello Massi Mauri, San Donato Milanese, and Antonio Colombi, Milan, Italy, assignors to SNAM S.p.A., Milan, Italy, a company of Italy

No Drawing. Filed Mar. 31, 1964, Ser. No. 356,045
Claims priority, application Italy, Apr. 1, 1963, 6,603/63, Patent 690,486
5 Claims. (Cl. 260—465.3)

1. A process for the production of acrylonitrile in which a refinery gas consisting essentially of $C_2H_4+C_2H_6$ in a molar ratio range of 0.6% to 3.7%, of C_2H_6 in a molar ratio range of 11.8% to 22.1%, of C_2H_8 in a molar range of 19.2% to 28.9%, of iso C_4H_8 in a molar range of 12.5% to 18.6%, of C_4H_8 in a molar ratio range of 8.2% to 20.1% and of C_4H_{10} in a molar ratio range of 22.7% to 33.3%, the sum total of said components in the gas being essentially 100%, is reacted with ammonia and oxygen in the presence of an oxidation catalyst consisting essentially of a mixture of bismuth oxide, molybdenum oxide, and vanadium oxide, where the vanadium content is between 0.5 and 3%, the reaction being conducted at a temperature between 450° C. and 525° C. and for from 0.5 to 30 seconds.

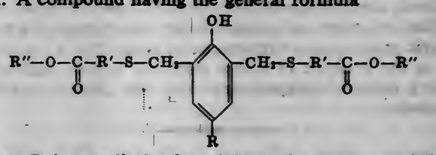
3,321,508

BIS-(HYDROCARBYLOXYCARBONYLALKYLTHIOALKYL) PHENOLS

Billy D. Simpson, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Original application Jan. 2, 1962, Ser. No. 163,880, now Patent No. 3,227,677, dated Jan. 4, 1966. Divided and this application Aug. 5, 1965, Ser. No. 477,596
2 Claims. (Cl. 260—470)

1. A compound having the general formula



where R is a radical selected from the group consisting of hydrogen and alkyl radicals having from 1 to 7 carbon atoms, R′ is an alkylene radical having 1 to 7 carbon atoms, and R″ is a radical having 4 to 18 carbon atoms and is selected from the group consisting of alkyl, aryl, cycloalkyl, and combinations thereof.

3,321,509

PREPARATION OF ALKYL ESTERS OF PARA-HYDROXYBENZOIC ACID

George H. Burris, Fair Lawn, and Hyman L. Schulman, Westfield, N.J., assignors to Washine Chemical Corporation, Lodi, N.J., a corporation of New York

No Drawing. Filed Mar. 2, 1964, Ser. No. 348,785
8 Claims. (Cl. 260—473)

1. A process for the recovery of alkyl ester of p-hydroxybenzoic acid from a reaction mixture consisting essentially of said ester, excess and unreacted alkanol and impurities resulting from the esterification of p-hydroxybenzoic acid with said alkanol, which comprises heating the reaction mixture to a temperature of 100 to 170° C., then passing live steam into the thus-heated reaction mixture, whereby said unreacted alkanol and impurities are expelled, and discontinuing the introduction of the live steam when the reaction mixture residue, after being dried, has a maximum melting point, said alkyl group being alkyl of from 1 to 12 carbon atoms and said alkanol being the corresponding alkanol.

3,321,510

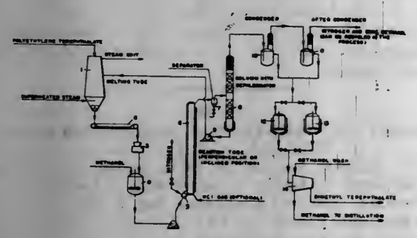
PROCESS FOR THE RECOVERY OF DIMETHYL TEREPHTHALATE FROM POLYETHYLENE TEREPHTHALATE

Rudolf Lotz, Obernburg (Main), Gerhard Wick, Erlenbach am Main, and Clemens Neuhaus, Erlenbach, Germany, assignors to Vereinigte Glanzstoff-Fabriken Ag, Wuppertal-Elberfeld, Germany

Filed Aug. 7, 1963, Ser. No. 300,701
Claims priority, application Germany, Aug. 17, 1962, V 22,920
16 Claims. (Cl. 260—475)

1. A process for the regeneration of dimethyl terephthalate from polyethylene terephthalate which comprises: melting polyethylene terephthalate with steam at a tem-

perature of about 200° C. to 450° C.; cooling the molten polyethylene terephthalate to the solid state and reducing the resulting brittle polyethylene terephthalate product to a powder having a mean particle size of about 0.0005 to 0.002 mm.; atomizing said powder together with at least one gaseous substance selected from the group consisting of an inert gas and methanol vapor to form an



aerosol; conducting said aerosol in turbulent flow through a reaction zone maintained under approximately atmospheric pressure at a temperature of about 250° C. to 300° C. in the presence of excess methanol vapors; and separating dimethyl terephthalate from the effluent reaction products.

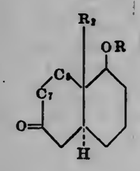
3,321,511

INTERMEDIATES FOR PREPARING STEROIDS

Marinus Los, Trenton, N.J., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed June 4, 1964, Ser. No. 372,688
13 Claims. (Cl. 260—488)

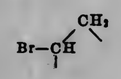
1. A compound of the formula:



wherein R is selected from the group consisting of formyl, lower alkanoyl, benzoyl, methylbenzoyl and halobenzoyl; R_2 is lower alkyl and



is selected from the group consisting of



and



group.

3,321,512

MANUFACTURE OF PERBENZOIC ACIDS

David James Cooper and Tony Nicholas Gibson, both of Whitley Bay, Northumberland, England, assignors to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio

No Drawing. Filed Jan. 22, 1964, Ser. No. 339,323
Claims priority, application Great Britain, Jan. 31, 1963, 4,012/63
2 Claims. (Cl. 260—502)

1. A process for the manufacture of perbenzoic acids which comprises the steps of:

(1) Forming, by violent agitation and distribution, a suspension of finely divided benzoyl peroxide selected from the group consisting of chlorobenzoyl peroxide, dichlorobenzoyl peroxide, alkyl-substituted benzoyl peroxide having from one to about four carbon atoms in the alkyl group, alkoxy-substituted benzoyl peroxide having from one to about four carbon atoms in the alkoxy group, and cyano-benzoyl peroxide in an aqueous alkaline solution of hydrogen peroxide containing at least 10% by weight excess hydrogen peroxide over that amount of hydrogen peroxide theoretically necessary to give 100% conversion of the benzoyl peroxides to perbenzoic acids and having a pH of not less than 10, said benzoyl peroxide having a particle size of from about 10 to about 50 microns; said suspension being stabilized against decomposition of the per compounds by the inclusion of a stabilizer selected from the group consisting of magnesium hydroxide, the sodium salts of ethylenediamine-tetraacetic acid and the sodium salts of nitrilotriacetic acid;

(2) maintaining said suspension at a pH of not less than 10 and a temperature between the freezing point of the aqueous solution and about 75° F. until a part of said benzoyl peroxide is converted to a salt of the perbenzoic acid;

(3) separating the unconverted benzoyl peroxide from the aqueous solution containing the salt of the perbenzoic acid;

(4) precipitating perbenzoic acid by rapid acidification of the aqueous solution to a pH of not more than about 2; and

(5) separating and recovering said perbenzoic acid.

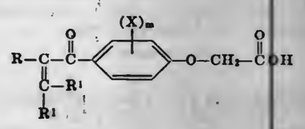
3,321,513

PROCESS FOR THE OXIDATION OF [4-(1-HYDROXY - 2-ALKYLIDENEALKYL)PHENOXY] ACETIC ACIDS TO [4-(2-ALKYLIDENEALKANOYL)PHENOXY] ACETIC ACIDS

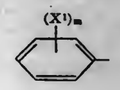
Everett M. Schultz, Ambler, Pa., assignor to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed Dec. 17, 1963, Ser. No. 331,105
12 Claims. (Cl. 260—520)

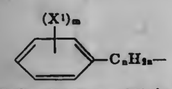
1. A process for preparing a compound of the formula



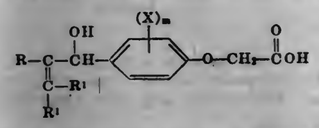
where R is a member selected from the group consisting of hydrogen, lower alkyl, trifluoromethyl substituted lower alkyl, cycloalkyl,



wherein X^1 is a member selected from the group consisting of hydrogen, halogen, lower alkyl and lower alkoxy and



wherein X^1 is a defined above, R^1 is a member selected from the group consisting of hydrogen and lower alkyl, X is a member selected from the group consisting of hydrogen, halogen, lower alkyl, lower alkoxy and taken together two of the X radicals on adjacent carbon atoms of the benzene nucleus are joined to form an hydrocarbylene chain containing from 3–4 carbon atoms, *m*, in each occurrence, is an integer having a value of 1–4 and *n* is an integer having a value of 1–5, which comprises the reaction of a compound of the formula



wherein R, R^1, X and *m* are as defined above, with ortho-chloranil.

3,321,514

SYNTHESIS OF ORGANIC AMINO COMPOUNDS

John L. Eisenmann, Hingham, Mass., assignor to Ionics, Incorporated, Cambridge, Mass.

No Drawing. Filed Mar. 12, 1964, Ser. No. 351,545
2 Claims. (Cl. 260—534)

1. A process for preparing organic nitrogen containing compounds of the group consisting of acids, esters, thiolesters, amides, and aldehydes, which comprises reacting carbon monoxide and an active hydrogen contributing compound selected from the group consisting of water, lower alkyl alcohols, lower alkyl mercaptans, lower alkyl amines, benzyl alcohol, and hydrogen, in the presence of a metal carbonyl catalyst of the group consisting of cobalt, rhodium and irridium at a temperature in the range of about between 80° C. to 300° C. and at a pressure in the range of about between 800 to 8,000 pounds per square inch, with a starting material of an organic compound selected from the group consisting of ethylenimine, lower alkyl substituted ethylenimine and phenyl substituted ethylenimine and recovering the amino compound from the reacted mass.

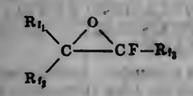
3,321,515

METHOD OF MAKING FLUORINATED CARBONYL COMPOUNDS

Earl Phillip Moore and Alwin S. Milian, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Apr. 24, 1963, Ser. No. 275,231
10 Claims. (Cl. 260—544)

1. A method for making fluorinated carbonyl compounds which comprises contacting a compound having the chemical formula



wherein R_{f_1}, R_{f_2} and R_{f_3} are radicals selected from the class consisting of fluorine radicals, perfluoroalkyl radicals having from 1 to 8 carbon atoms, omega-hydroperfluoroalkyl radicals having from 1 to 8 carbon atoms and, pairwise, perfluoroalkylene biradicals having from 2 to 8 carbon atoms, with a catalytic amount of an alkali metal fluoride and thereafter recovering a fluorinated carbonyl compound from the reaction product.

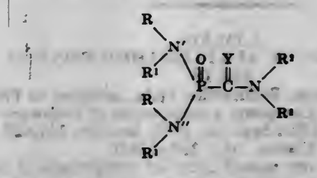
3,321,516

DIALKYLTHIOCARBAMYLPHOSPHONIC DIAMIDES

Ivan C. Popoff, Ambler, Pa., assignor to Pennsalt Chemicals Corporation, Philadelphia, Pa., a corporation of Pennsylvania

No Drawing. Filed Dec. 6, 1963, Ser. No. 328,511
6 Claims. (Cl. 260—551)

1. A compound of the formula



in which R is selected from the group consisting of hydrogen, hydrocarbon and substituted hydrocarbon radicals; R^1, R^2 and R^3 are each selected from the group consisting of hydrocarbon radicals and substituted hydrocarbon; and Y is selected from the group consisting of oxygen and sulfur additionally characterized in that

(a) when R, R^1, R^2 or R^3 is a hydrocarbon radical said radical is selected from the group consisting of lower alkyl with from 1 to about 12 carbon atoms and phenyl;

(b) when R, R^1, R^2, or R^3 is a substituted hydrocarbon radical said radical is phenyl substituted with a substituent selected from the group consisting of alkyl with from 1 to about 12 carbon atoms, halogen, $—NO_2$, or —COOR in which R is alkyl with from 1 to about 6 carbon atoms;

(c) R^2 and R^3 together can be alkylene with from 2 to 12 carbon atoms; and

(d) R, R^1, R^2 and R^3 are the same or different hydrocarbon or substituted hydrocarbon radicals.

3,321,517

PERFLUOROPYRUVYL FLUORIDE AND PROCESS

Stanley Selman, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed May 26, 1966, Ser. No. 553,051
5 Claims. (Cl. 260—544)

1. Perfluoropyruvyl fluoride.

3,321,518

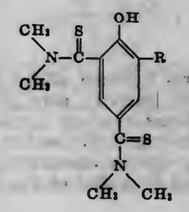
N-SUBSTITUTED POLY(THIOCARBAMYL) PHENOLS

Richard C. Mansfield, Haddonfield, N.J., assignor to Rohm & Haas Company, Philadelphia, Pa., a corporation of Delaware

No Drawing. Filed July 9, 1964, Ser. No. 381,533
7 Claims. (Cl. 260—551)

1. Compounds of the class consisting of a phenol, a chlorophenol, an alkylphenol in which the alkyl group is C_1 to C_9, and an phenylphenol in each of which two and only two of the hydrogen atoms on the benzene ring are respectively replaced by an N-dialkylthiocarbamyl group.

3. N,N,N',N'-tetramethyl - 4 - hydroxythioisophthlamide having the structure



in which R is a member of the class consisting of chloro and methyl groups.

ERRATUM

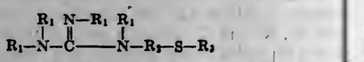
For Class 260—555 see:
Patent No. 3,321,603

3,321,519
PRODUCTION OF ALKYLISOTHIOURONIUM SALTS

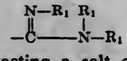
Clarence R. Bresson, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed Sept. 26, 1963, Ser. No. 311,627
7 Claims. (Cl. 260—564)

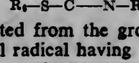
1. Process for the manufacture of compounds of the formula



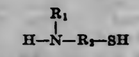
wherein each R_1 is selected from the group consisting of hydrogen and alkyl, aryl, alkaryl, aralkyl, cycloalkyl, alkylcycloalkyl, and cycloalkylalkyl radicals containing from 1 to 8 carbon atoms, inclusive, wherein R_2 is selected from the group consisting of alkylene and arylene radicals containing from 1 to 8 carbon atoms, wherein R_3 is



which comprises: reacting a salt of a thiourea of the formula:



wherein R_4 is selected from the group consisting of hydrogen and an alkyl radical having 1 to 8 carbon atoms, and R_1 is selected from the group consisting of hydrogen, alkyl, aryl, alkaryl, aralkyl, and cycloalkyl radicals having from 1 to 8 carbon atoms; with a mercapto compound of the formula:



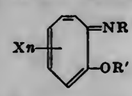
wherein R_2 is selected from the group consisting of alkylene and arylene radicals having from 1 to 8 carbon atoms; and the mol ratio of said thiourea salt reactant to said mercapto compound reactant is in the range of 4:1 to 2:1.

3,321,520
IMINOCYCLOHEPTATRIENES AND A PROCESS FOR PREPARING THE SAME

Genshun Sunagawa, Nobuo Soma, and Junichi Nakazawa, Tokyo, Japan, assignors to Sankyo Company, Limited, Tokyo, Japan

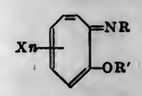
No Drawing. Filed July 31, 1964, Ser. No. 386,734
Claims priority, application Japan, Aug. 7, 1963, 38/40,610
8 Claims. (Cl. 260—566)

1. A compound of the formula

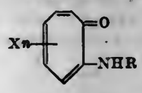


wherein X represents hydrogen, chloro, bromo, alkyl of 1 to 3 carbon atoms, methoxy, nitro or phenyl and can be the same or different when n is 2, n is an integer of 1 to 2, R represents hydrogen, alkyl of 1 to 2 carbon atoms, dimethylamino, β-dimethylaminoethyl, phenylamino, p-tolyl or benzyl and R′ is alkyl of 1 to 2 carbon atoms.

6. A process for preparing a compound having the formula



wherein X represents hydrogen, chloro, bromo, alkyl of 1 to 3 carbon atoms, methoxy, nitro or phenyl and can be the same or different when n is 2, n is an integer of 1 or 2, R represents hydrogen, alkyl of 1 to 2 carbon atoms, dimethylamino, β-dimethylaminoethyl, phenylamino, p-tolyl or benzyl and R′ represents alkyl of 1 to 2 carbon atoms which comprises reacting a compound having the formula



wherein R, X and n have the same meanings as set forth above with a compound selected from the group consisting of lower alkyl sulfates and lower alkyl-benzene- and toluene-sulfonates.

3,321,521
REGENERATION OF CHELATING SOLUTIONS

George T. Kerr, Lawrence Township, Mercer County, N.J., assignor to Mobil Oil Corporation, a corporation of New York

No Drawing. Filed Dec. 6, 1963, Ser. No. 328,496
6 Claims. (Cl. 260—567.6)

1. A method of obtaining an aqueous solution of NR_4OH from an aqueous solution containing NR_4^+, H^+, $H_2EDTA^=$, $CaEDTA^=$ and $AlEDTA^-$, wherein NR_4^+ is a tetraethylammonium ion and wherein said EDTA represents the ethylenediaminetetraacetate ion, comprising:

(a) adjusting the solution to a sufficiently low pH with an acidic additive to induce H_4EDTA to precipitate; and

(b) adjusting the pH of the remaining solution so that it is sufficiently basic to form insoluble compounds containing aluminum and calcium, said pH being adjusted with at least one base whose cation will form with the anion of said acidic additive an insoluble compound which will precipitate in the solution.

3,321,522
2-AMINO-5-CHLORO-α-PHENYLBENZYL AMINE

Scott J. Childress and Stanley C. Bell, Philadelphia, and Theodore S. Sulkowski, Narberth, Pa., assignors to American Home Products Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Oct. 1, 1965, Ser. No. 492,310
1 Claim. (Cl. 260—570)

2-amino-5-chloro-α-phenylbenzyl amine.

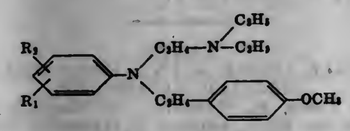
3,321,523
N - (β - DIETHYLAMINO ETHYL) - N - [β - (p-METHOXY PHENYL)ETHYL]ANILINES AND SALTS THEREOF

Hugo Zellner, Linz (Danube), Austria, assignor to Donau-Pharmazie G.m.b.H., Linz (Danube), Austria, a corporation of Austria

No Drawing. Original application Mar. 29, 1965, Ser. No. 443,707. Divided and this application Aug. 5, 1966, Ser. No. 570,418
Claims priority, application Austria, June 26, 1959, A 4,719/59
5 Claims. (Cl. 260—570.5)

1. The compound selected from the group consisting

of the N-(β-diethylamino ethyl)-N-[β-(p-methoxy phenyl) ethyl]aniline compound of the formula



wherein

R_1 and R_2 are members selected from the group consisting of hydrogen and methoxy, at least one of said members R_1 and R_2 being methoxy,

and their salts with therapeutically acceptable acids.

3,321,524
1 - ANILINO - 1 - (2 - CHLORO - 6 - HYDROXY - p-TOLYL) - 14 - [2,4,6 - TRICHLORO - 3 - {2 - HYDROXY - 3 - <2,4,6 - TRICHLORO - 3 - [2 - HYDROXY - 3 - (2,4,6 - TRICHLOROPHENOXY)PROPYL]PHENOXY>PROPYL}PHENOXY]

Jakob Harich, 31 S. Cortez Ave., North Orlando, Fla. 32808

No Drawing. Filed Nov. 21, 1963, Ser. No. 325,467
2 Claims. (Cl. 260—570.6)

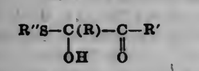
1. 1 - anilino-1-(2-chloro-6-hydroxy-p-tolyl)-14-{2,4,6-trichloro-3-{2-hydroxy-3<2,4,6-trichloro-3-[2-hydroxy-3-(2,4,6 - trichlorophenoxy)propyl] phenoxy>propyl}phenoxy}.

3,321,525
CO-OXIDATION OF THIOLS AND ACETYLENIC COMPOUNDS

Karl Griesbaum, Elizabeth, and Alexis A. Oswald, Westfield, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Filed Jan. 31, 1963, Ser. No. 255,165
10 Claims. (Cl. 260—590)

1. A selective oxidation process which comprises bubbling oxygen through a mixture of an acetylenic compound having the formula R—C≡C—R′ where R is hydrogen and R′ is selected from the group consisting of C_1 to C_{10} alkyls, aryls, and alkylaryls and a thiol having the formula R″SH where R″ is selected from the group consisting of C_1 to C_{10} alkyls, aryls, and alkylaryls at a temperature in the range of −100° to +50° C. for a time sufficient to yield a glyoxal hemimercaptal having the formula



10. 1-phenyl - 2 - phenylmercapto - 1 - hydroperoxyethylene.

3,321,526
PRODUCTION OF HYDROXY BENZALDEHYDES

Pierre André Robert Marchand, Caluire, and Jean-Baptiste Grenet, Bron, France, assignors to Rhone-Poulenc S.A., Paris, France, a corporation of France

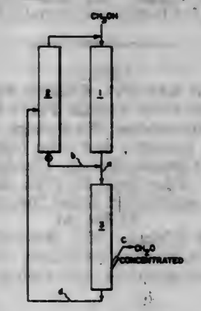
No Drawing. Filed Apr. 30, 1963, Ser. No. 276,996
7 Claims. (Cl. 260—600)

1. Process for the production of a hydroxybenzaldehyde selected from the class consisting of ortho-, meta-, and para-hydroxybenzaldehydes, which comprises subjecting a hydroxybenzyl alcohol selected from the class consisting of ortho-, meta-, and para-hydroxybenzyl alcohols dissolved in an aqueous medium and at a temperature below the decomposition temperature of the said hydroxybenzyl alcohol to the action of elemental oxygen in the presence of a palladium catalyst until substantially the theoretical uptake of oxygen has occurred, and isolating the desired hydroxybenzaldehyde.

3,321,527
PREPARATION OF CONCENTRATED FORMALDEHYDE

John Oliver Punderson and Carl Earle Schweitzer, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed May 16, 1960, Ser. No. 29,235
3 Claims. (Cl. 260—603)



3. A process for the production of concentrated formaldehyde, which comprises

(1) catalytically dehydrogenating methanol to give a vaporous mixture containing formaldehyde and methanol, which is at least 60% by weight formaldehyde based on the total weight of methanol and formaldehyde present,

(2) partially condensing said vaporous formaldehyde mixture to form a liquid formaldehyde solution which is less concentrated with respect to the percent by weight of formaldehyde than the resulting uncondensed formaldehyde vapors,

(3) recovering uncondensed formaldehyde,

(4) separating methanol from the liquid to increase the amount of formaldehyde on a percentage weight basis present in the liquid, and

(5) vaporizing the thus treated liquid by introducing it into the vaporous mixture obtained from the catalytic dehydrogenation.

3,321,528
METHOD FOR PRODUCING BIS(CHLOROVINYL)SULFIDES

Jack R. Gould, Monsey, and Silvio L. Giolito, Whitestone, N.Y., assignors to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Feb. 26, 1964, Ser. No. 347,364
4 Claims. (Cl. 260—609)

1. The method of preparing bis(2-chlorovinyl) sulfide which comprises reacting in a molar ratio of 2 to 1 sulfur dichloride with acetylene in a reaction medium comprising a polymerization inhibitor selected from the group consisting of hydroquinone, resorcinol, 1-naphthol, 2-naphthol, toluhydroquinone, pyrogallol, trimethylhydroquinone, and 1,4-naphthohydroquinone and a solvent selected from the group consisting of liquid saturated aliphatic esters of lower carboxylic acids and lower dialkyl formamides, and isolating the so formed bis(2-chlorovinyl) sulfide.

3,321,529
POLYPHENYL THIOETHERS

John Robert Campbell, Tarkio, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed May 19, 1965, Ser. No. 456,905
3 Claims. (Cl. 260—609)

1. A compound selected from the group consisting of m-phenylmercaptophenyl p-phenylmercaptophenyl sulfide,

p-bis(m-phenylmercaptophenylmercapto)benzene and m-bis(p-phenylmercaptophenylmercapto)benzene.

3,321,530

3,4-DIHYDRO-2,5-DIMETHOXYNAPHTHALENE

William A. Bolhofer, Frederick, Pa., assignor to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed June 28, 1963, Ser. No. 291,249
1 Claim. (Cl. 260—613)

3,4-dihydro-2,5-dimethoxynaphthalene.

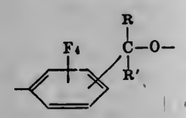
3,321,531

FLUORINATED BENZYL ETHER POLYMERS AND PROCESS FOR THEIR PREPARATION

Robert Neville Haszeldine, Windyridge, Lyme Road, Disley, Cheshire, England, and John Michael Birchall, 22 Lorna Road, Cheadle Hulme, Cheshire, England

No Drawing. Filed Sept. 13, 1962, Ser. No. 223,553
Claims priority, application Great Britain, Sept. 19, 1961, 33,566/61
19 Claims. (Cl. 260—613)

1. A polymer consisting essentially of a chain of from 2 to about 10,000 repeating units having the formula



where R and R' are hydrogen or a methyl group.

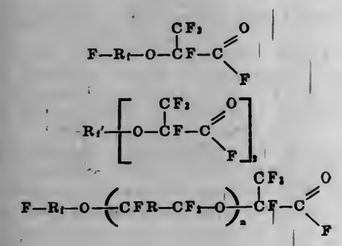
3,321,532

FLUOROCARBON ETHERS

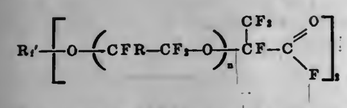
Carl Edward Lorenz, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Oct. 8, 1963, Ser. No. 314,618
4 Claims. (Cl. 260—614)

1. A process for the preparation of perfluorovinyl ethers from a perfluoro-2-alkoxypropionyl fluoride selected from the group consisting of



and



wherein R_f is a perfluoroalkylene radical having 1 to 12 carbon atoms, R_f' is a perfluoroalkylene radical having 2 to 12 carbon atoms, n is an integer from 1 to 20 and R is a radical selected from the group consisting of fluorine and trifluoromethyl, which comprises the steps of reacting at an elevated temperature of from 100 to 450° C., said fluoride and at least a stoichiometric quantity of a solid oxide of an element selected from the group consisting of zinc and cadmium, and thereafter recovering said perfluorovinyl ether.

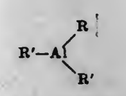
3,321,533

SURFACE ACTIVE AGENTS FROM ORGANO-METALLIC COMPOUNDS

John T. Patton, Jr., Wyandotte, and Mason H. Earing, Grosse Ile, Mich., assignors to Wyandotte Chemicals Corporation, Wyandotte, Mich., a corporation of Michigan

No Drawing. Filed Aug. 5, 1963, Ser. No. 300,083
18 Claims. (Cl. 260—615)

1. A process for the production of a cogeneric mixture of nonionic surface active agents comprising the steps of (1) oxidizing at a temperature of about 50° to about 200° C. a compound selected from those having the formula:



wherein R is an alkyl group having 4–30 carbon atoms inclusive and each R' is a member of the group consisting of chlorine, bromine, a hydrocarbon radical having 4–30 carbon atoms inclusive and an alkoxy radical having 4–30 carbon atoms inclusive, (2) adding an alkali metal hydroxide in an amount of about 0.1 to 10% by weight, with respect to said aluminum alkyl or aralkyl, to the product of step (1), (3) condensing a lower-alkylene oxide having 2 to 4 carbon atoms, inclusive with the product of step (2) at a temperature of about 0° to about 200° C., and (4) hydrolyzing the product of step (3) by mixing and reacting an acid therewith wherein the amount of the compound added in step (1) is sufficient so that the hydrophobic hydrocarbon portion of the compound obtained in step (4) constitutes at least about 10% by weight of the product obtained in step (4).

3,321,534

NICKEL CATALYST

Alfred Landgraf, Limburgerhof, Pfalz, Hans Moell, Ludwigshafen (Rhine), Horst Kerber, Mannheim, and Friedrich Wodtcke, Fanz L. Ebenboech, and Leopold Hupfer, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Dec. 29, 1964, Ser. No. 422,012
Claims priority, application Germany, Jan. 2, 1964, B 74,876
4 Claims. (Cl. 260—638)

2. In a process for the catalytic hydrogenation of sulfur-containing mixtures of aldehydes, ketones and esters to the corresponding alcohols, said mixtures being obtained in oxo synthesis from olefins by reaction with carbon monoxide and hydrogen, the improvement which comprises using a catalyst which has been prepared by mixing a solution of sodium silicate and sodium molybdate in such proportions and such concentrations that a solution is obtained which is 0.5 to 3 molar in silicon and has an atomic ratio of sodium to silicon of from 0.7 to 7:1 and an atomic ratio of molybdenum to silicon of 0.04:1 to 0.2 to 1, subsequently adding to said solution while stirring such an amount of a 1 to 3 molar nickel salt solution that the amount of nickel added is from 10% by weight less up to 10% by weight more than the amount of nickel equivalent to the amount of sodium contained in the solution, separating the resultant precipitate from the solution, molding the precipitate and reducing it with hydrogen at temperatures of from 300° to 500° C.

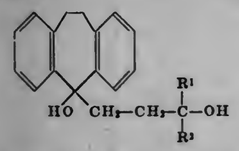
3,321,535

PROCESS FOR DIBENZO[a,d]CYCLOHEPTA[1.4]DIENE INTERMEDIATES

Lynn R. Peters, Indianapolis, and George F. Hennion, South Bend, Ind., assignors to Eli Lilly and Company, Indianapolis, Ind., a corporation of Indiana

No Drawing. Original application Aug. 10, 1962, Ser. No. 216,029, now Patent No. 3,281,469, dated Oct. 25, 1966. Divided and this application Oct. 18, 1965, Ser. No. 497,481
2 Claims. (Cl. 260—649)

1. The process for preparing a 5-(3-chloroalkylidene)-dibenzo[a,d]cyclohepta[1.4]diene which comprises heating under reflux an excess of thionyl chloride with a compound of the formula



wherein R^1 and R^2, when taken separately, are hydrogen or C_1–C_4 alkyl, and R^1 and R^2, when taken together with the carbon to which they are attached, are C_4–C_7 cycloalkyl.

3,321,536

ABNORMAL ADDITION OF HYDROGEN BROMIDE TO STYRENE

Frank J. Plesmid, Westfield, N.J., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Oct. 19, 1965, Ser. No. 498,148
1 Claim. (Cl. 260—651)

In a process for the reaction of hydrogen bromide and styrene to form beta-bromoethylbenzene, the improvement comprising simultaneously introducing into a closed vessel containing a heel of liquid beta-bromoethylbenzene reaction mass, hydrogen bromide at a rate such that the amount of unreacted hydrogen bromide will not exceed 10 milligrams per milliliter of reaction mass, and styrene at a rate such that amount of unreacted styrene will not exceed 10 milligrams per milliliter of reaction mass, the molar ratio of hydrogen bromide to styrene in the reaction mass being maintained in excess of 1, heating said reactants at a temperature between about 25° C. and 100° C., agitating said reactants during the course of the reaction, maintaining the amount of water in the system below about 100 parts by weight per million parts of all the other reactants, carrying out said reaction in the presence of a solvent which is miscible with beta-bromoethylbenzene and inert to hydrogen bromide and styrene, said solvent characterized by having a dielectric constant of no greater than 5.35 at 25° C. and 10^5 cycles, and carrying out said reaction in the presence of from about 0.02 to about 2.4 mole percent of oxygen based on the amount of hydrogen bromide.

3,321,537

FLUORINATION OF OLEFINS WITH ARSENIC CHLOROFLUORO COMPLEX

Francis H. Walker, El Cerrito, and Attila E. Pavlath, Berkeley, Calif., assignors to Stauffer Chemical Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Aug. 12, 1963, Ser. No. 302,122
6 Claims. (Cl. 260—653)

1. The process of preparing at least one member of the group consisting of chlorofluoroalkanes which comprises reacting the inorganic fluorochloroarsenic complex $[AsCl_4]^+[AsF_6]^-$ with a halogenated olefin; said halogen containing olefin containing from 2 to 4 carbon atoms and at least one halogen atom bonded to at least one carbon atom at the double bond, said halogen atoms selected from the group consisting of chlorine, fluorine and combinations thereof; and isolating the resulting chlorofluoroalkane.

3,321,538

HYDROBROMINATION PROCESS

Kenneth W. Theile, Glen R. Wyness, and Charles B. McCarty, Cincinnati, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio

Filed Dec. 26, 1963, Ser. No. 333,576
5 Claims. (Cl. 260—663)

1. A continuous process for converting alpha olefins containing from about 10 to about 20 carbon atoms predominantly to primary aliphatic bromides which comprises the steps of:

treating said alpha olefins with ozone to form a mixture of unreacted alpha olefins and from about 0.005 to about 5.0 mole percent of an ozonide free radical initiator,

passing said mixture to a hydrobromination reaction zone in which the pressure is from about 10 p.s.i.g. to about 400 p.s.i.g.,

introducing hydrogen bromide into said mixture and dissolving it therein, the amount of hydrogen bromide added being in excess of the stoichiometric ratio of hydrogen bromide to said alpha olefin, the molar excess ranging from about 10 mole percent to about 500 mole percent of hydrogen bromide,

reacting said reactants under conditions of vigorous mixing and a temperature in the range of from about 20° F. to about 100° F. for an average residence time within said zone of from about 1 to about 15 minutes to form an alkyl bromide reaction product,

withdrawing said alkyl bromide reaction product from said hydrobromination reaction zone and passing it to a heat exchanger,

splitting the withdrawn reaction product into two fractions,

recycling a first fraction to the hydrobromination reaction zone at a rate of from about 20 to about 200 times the rate of the initial feed to said zone,

recovering a second fraction containing the aliphatic bromide reaction product.

3,321,539

CYCLOHEXENE PRODUCTION

Lynn H. Slaugh, Lafayette, Calif., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Feb. 23, 1965, Ser. No. 434,610
4 Claims. (Cl. 260—666)

1. The process of producing cyclohexene consisting essentially of the steps of (a) contacting a normally liquid hydrocarbon phase containing from 10 to 100 mole percent benzene and the remainder cyclohexene with alkali metal of atomic number from 19 to 55 inclusive and nongaseous ammonia in a ratio of 0.5 mole to 2.5 moles of ammonia per gram-atom of alkali metal and the ratio of ammonia to total hydrocarbon being from 1:6 to 5:1 in nongaseous phase at a temperature of about 10° C. to about 90° C., thereby producing a product mixture containing cyclohexene and the amide of said alkali metal, (b) separating the alkali metal amide from other product mixture components, (c) recovering the cyclohexene from the resulting alkali metal compound-free product mixture, (d) regenerating the alkali metal from the separated alkali metal amide by hydrogenolysis of the separated amide to the corresponding alkali metal hydride and pyrolysis of the resulting hydride to produce the alkali metal, and (e) recycling the regenerated alkali metal to step (a).

3,321,540
PREPARATION OF DIARYLETHYLENE COMPOUNDS

William J. Trepka, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed Sept. 1, 1964, Ser. No. 393,744
13 Claims. (Cl. 260—668)

1. A process for the production of a diarylethylene comprising reacting an organolithium compound having the formula RLi_x wherein R is an organic radical selected from aliphatic, cycloaliphatic, and aromatic radicals, and x is an integer from 1 to 4 with a compound selected from benzyl mercaptan, dibenzyl sulfide, dibenzyl disulfide, and derivatives and mixtures thereof.

3,321,541
LIQUID POLYMERS OF BUTADIENE AND STYRENE HAVING A PREDOMINANTLY 1,4-CIS STRUCTURE

Bernhard Schleimer and Heinrich Weber, Marl, Germany, assignors to Chemische Werke Huls Aktiengesellschaft, Marl, Germany

No Drawing. Filed Sept. 22, 1964, Ser. No. 398,415
Claims priority, application Germany, Sept. 25, 1963, C 30,966
7 Claims. (Cl. 260—669)

1. A process for the production of liquid copolymers of butadiene/styrene having at least 75% cis-double bonds and a molecular weight between 500 and 50,000, which process comprises copolymerizing, at −30° to +100° C. in an inert atmosphere, butadiene and styrene monomers, present in a mol ratio of 0.01:1 to 1:0.01, in contact with a catalyst consisting essentially of:

(a) an alkyl aluminum halogenide of the formula

$$R_nA1X_{(3-n)}$$

wherein

R is selected from the group consisting of alkyl of 1–2 carbon atoms and hydrocarbon alkylaryl of 1–12 carbon atoms, and hydrogen

X is halogen, and

n is a number from 1 to 2, inclusive,

said alkyl aluminum halogenide being present in proportions of about 0.0001 to 0.1 g. mol per 100 g. of butadiene/styrene monomer;

(b) a nickel compound soluble in an inert diluent in a concentration of about 0.0005 to 1.0 g. mol per g. mol of said aluminum alkyl halogenide, and

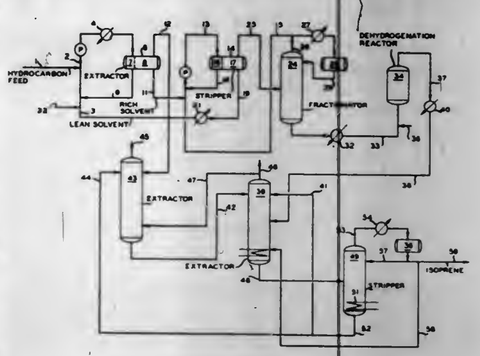
(c) the inert diluent in (b) being present in proportions of 0.1 to 20 times the quantity of butadiene/styrene.

3,321,542
PRODUCTION, SEPARATION, AND RECOVERY OF ISOPRENE

John E. Cottle, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

Filed May 7, 1963, Ser. No. 278,704
4 Claims. (Cl. 260—680)

1. A process for the production of isoprene, which comprises extracting in a first zone a hydrocarbon feed comprising C_4 hydrocarbons, saturated C_5 hydrocarbons, tertiary amylenes, and other C_5 olefins with a first liquid absorbent selective for said tertiary amylenes to obtain a first stream comprising said C_4 hydrocarbons, saturated C_5 hydrocarbons and other C_5 olefins and a first rich absorbent stream comprising said first liquid absorbent and said tertiary amylenes, stripping said first rich absorbent to obtain a first lean absorbent stream and a second stream comprising said tertiary amylenes, recycling said first lean absorbent to said first zone for use as said first liquid absorbent, passing said second stream to a dehydrogenation zone for production of isoprene, passing the resulting dehydrogenation effluent comprising isoprene and tertiary amylenes to a second zone and extracting said effluent therein with a second liquid absorbent selective for isoprene, passing said first stream to a third zone and extracting the same therein with said second liquid absorbent, withdrawing a third stream comprising C_4 and C_5 saturated hydrocarbons from said third zone and a second rich absorbent stream comprising said second liquid



absorbent and olefins, passing said rich absorbent stream to said second zone, withdrawing a fourth stream comprising olefins from said second zone, withdrawing a third rich absorbent stream comprising said second liquid absorbent and isoprene from said second zone, stripping the latter stream to obtain an isoprene product and lean absorbent, recycling the latter to said second and third zones for use therein as said second liquid absorbent.

3,321,543
PREPARATION OF 1,7-OCTADIENE

Walter K. Henle, Orinda, Calif., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed May 12, 1964, Ser. No. 366,911
5 Claims. (Cl. 260—680)

1. A process of preparing 1,7-octadiene by reacting di(alkali metal) octadiene, the alkali metal having an atomic number of from 11 to 19, inclusive, with a metal halide MR_o, wherein M is a metal selected from the group consisting of aluminum, boron, magnesium and zinc, R is selected from the group consisting of halide, alkyl, aryl and alkoxide, wherein the hydrocarbon contains from 1 to 5 carbons, provided that at least one R is halide, and n is a whole number of from 2 to 3, and hydrolyzing the resulting reaction product to obtain the 1,7-octadiene.

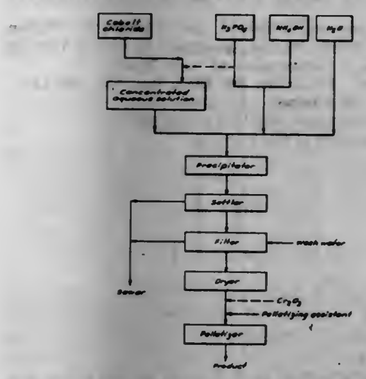
3,321,544
COBALT PHOSPHATE CATALYST AND METHOD FOR DEHYDROGENATING AND CRACKING ALKANES AND OLEFINS

Charles R. Noddings, Midland, and Ronald G. Gates, Breckenridge, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

Filed Jan. 6, 1964, Ser. No. 335,902
3 Claims. (Cl. 260—683)

1. The method which comprises dehydrogenating and cracking an aliphatic hydrocarbon having at least 3 carbon atoms by passing the hydrocarbon together with steam at a temperature between 600° and 750° C. in contact with a catalyst composed of a metal phosphate material consisting essentially of phosphate radicals chemically

combined with cobalt, which metal phosphate material is preparable by mixing a solution of soluble salts of cobalt

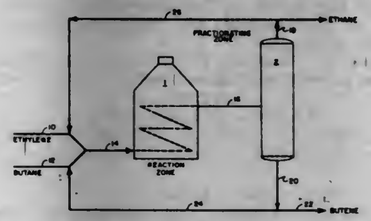


with a solution of a soluble ortho-phosphate and precipitating said metal phosphate material from the mixture at a pH of between about 5 to 9.

3,321,545
OLEFINS BY HYDROGEN TRANSFER

James Arthur Rigney, Baton Rouge, La., and Clyde Lee Aldridge, Rouen, Seine-Maritime, France, assignors to Esso Research and Engineering Company, a corporation of Delaware

Filed June 30, 1964, Ser. No. 379,287
12 Claims. (Cl. 260—683.9)



1. In a process comprising reacting an aliphatic hydrocarbon containing more than three carbon atoms with a hydrogen accepting olefin having a lower carbon atom content in the presence of a catalyst effective in transferring hydrogen from the hydrocarbon to the olefin thereby forming an alkane corresponding to said olefin and an aliphatic olefin of more than three carbon atoms but containing the same number of carbon atoms as the starting aliphatic hydrocarbon, the improvement which comprises pretreating said catalyst by contact with a treating olefin having from 2 to 3 carbon atoms at a temperature of over 850° F. for a period of time of from 5 to 180 minutes.

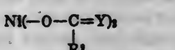
3,321,546
OLEFIN DIMERIZATION USING ALUMINUM ALKYL HALIDE-NICKEL COMPLEX CATALYST

Bernard C. Roest and Ernst L. Th. M. Spitzer, Amsterdam, Netherlands, assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Nov. 26, 1963, Ser. No. 326,241
Claims priority, application Netherlands, Nov. 30, 1962, 286,211
17 Claims. (Cl. 260—683.15)

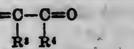
1. The process for converting an alpha-monoolefinic hydrocarbon to a reaction product consisting essentially of dimers of said olefinic hydrocarbon which consists of contacting said olefinic hydrocarbon in liquid phase at a temperature of from about −20 to about +40° C. in a hydrocarbon solvent, with a catalyst composition consisting essentially of a nickel-complex having the formula:

wherein

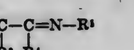


Y is a member of the group consisting of

(1) =O

(2) 

and

(3) 

and

R^2, R^3, R^4, and R^5 each represent a member of the group consisting of:

(1) H

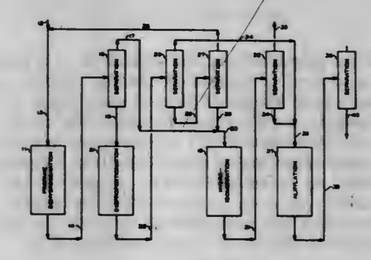
(2) hydrocarbyl group having up to 20 carbons;

in combination with an aluminumhydrocarbyl halide, said catalyst composition containing from about 2 to about 100 atoms of aluminum per atom of nickel, and the reaction mixture contains from about 0.2 to about 8 milliatoms of nickel per liter.

3,321,547
CONVERSION OF PROPANE TO DIISOPROPYL

Robert L. Banks, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

Filed Nov. 23, 1964, Ser. No. 412,928
2 Claims. (Cl. 260—683.47)



1. A process for producing diisopropyl, comprising the steps of:

cracking propane in a cracking zone to produce hydrogen, ethylene and propylene;

separating the effluent of the propane cracking to produce a first stream comprising substantially all of said propylene and unconverted propane and a second stream comprising substantially all of said hydrogen and said ethylene;

passing said first stream into a disproportionation zone and disproportionating propylene therein to produce butene and additional ethylene;

separating the effluent from the disproportionation to produce a third stream comprising unconverted propane and propylene and substantially all of said butene and a fourth stream comprising substantially all of said additional ethylene;

separating said third stream to produce a fifth stream comprising substantially all of said butene and a sixth stream comprising substantially all of said unconverted propane and propylene;

passing said second and fifth streams into a hydroisomerization zone and hydroisomerizing butenes therein, utilizing hydrogen produced by cracking said propane, to produce isobutane;

separating the effluent of said hydroisomerization zone to produce a seventh stream comprising substantially all of said isobutane and an eighth stream comprising unconverted hydrogen;

passing said fourth stream and said seventh stream into an alkylation zone and alkylating isobutane therein utilizing said additional ethylene, thereby producing diisopropyl; and

returning said sixth stream to said cracking zone.

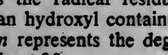
3,321,548

AMINE-MODIFIED EPOXY RESIN BLENDED WITH A BLOCKED POLYISOCYANATE

Frank A. Sattler, Monroeville, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania

Filed Dec. 31, 1962, Ser. No. 248,713
18 Claims. (Cl. 260—829)

1. A liquid resinous coating composition comprising an admixture of at least about 35%, on a solids weight basis, of (A) a resinous blend of about 40 to 90%, by weight, of (1) a modified epoxy resin derived from the reaction of (a) an aromatic base diglycidyl ether having an epoxy equivalent from 400 to 4000 and (b) an organic amino compound selected from the group consisting of aromatic polyamines and alkanol amines in proportions to provide from one-half to two epoxy groups for each amino group and about 10% to 60%, by weight, of (2) a blcoked polyisocyanate having the general formula



wherein R is a polyvalent organic radical, R_1 is a phenyl group or a derivative thereof containing methyl substituents and n is an integer of three or more; up to about 30%, by weight, of (B) a urea-formaldehyde resin; up to about 65%, by weight, of (C) a polyester resin selected from the group consisting of isophthalate and terephthalate polyesters; up to about 65%, by weight, of (D) a polyester amide resin; up to about 40%, by weight, of (E) a phenol-modified coumaroneindene resin; and up to about 35%, by weight, of (F) a polyurethane resin.

3,321,549

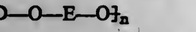
THERMOPLASTIC POLYHYDROXYETHERS MODIFIED BY THE ADDITION OF A BLEND OF AN EPOXY RESIN AND AN AMINE BLOCKED POLYISOCYANATE

Bruce P. Barth, Bound Brook, N.J., assignor to Union Carbide Corporation, a corporation of New York

No Drawing. Filed June 15, 1964, Ser. No. 375,340
19 Claims. (Cl. 260—830)

1. A curable thermoplastic polyhydroxyether composition comprising:

(a) a thermoplastic polyhydroxyether having the structure:



wherein D is the radical residuum of a dihydric phenol, E is an hydroxyl containing residuum of an epoxide and n represents the degree of polymerization and is at least 30;

(b) about a stoichiometric amount of an amine blocked polyisocyanate based on the weight of thermoplastic polyhydroxyether; and

(c) a stoichiometric amount of an epoxy resin based on the weight of amine blocked polyisocyanate.

3,321,550

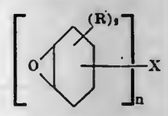
CURABLE COMPOSITIONS OF A VINYL CHLORIDE POLYMER AND A POLYEPOXIDE CONTAINING AT LEAST TWO EPOXYCYCLOHEXYL GROUPS

Donald E. Hardman, Winfield, and Charles E. Metten, South Charleston, W. Va., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Filed July 30, 1964, Ser. No. 386,443
10 Claims. (Cl. 260—836)

1. A curable composition that comprises:

(a) a polyepoxide of the formula



wherein each R individually represents a member of the group consisting of hydrogen, alkyl, and halogen, wherein n represents an integer having a value in the range of from 2 to 4, and wherein X represents an organic group of from 2 to 20 carbon atoms that has a valence of n and that contains no non-hydrocarbon moieties other than carbonyloxy and ether oxygen, provided that X contains at least one carbonyloxy group,

(b) a vinyl chloride polymer, wherein at least 50 percent of the monomer units are vinyl chloride, and

(c) a catalyst for promoting the polymerization of said polyepoxide.

3,321,551

NOVEL RESIN AND METHOD FOR PRODUCING SAME

Knut Emil Stig Knutsson, Stockviksverken, Sweden, assignor to Fosfatbolaget AB, Stockholm, Sweden, a company of Sweden

No Drawing. Filed July 27, 1965, Ser. No. 475,228
Claims priority, application Sweden, Apr. 6, 1960, 3,390/60
9 Claims. (Cl. 260—840)

1. A process for producing substantially colorless resinous products which comprises the following sequence of steps:

(a) providing a supply of phenol;

(b) providing a separate acidic solution of formaldehyde containing about 0.02% of formic acid;

(c) reacting said phenol with said acidic solution of formaldehyde to thereby produce a water-soluble precondensate, the molar ratio of formaldehyde to phenol being at least 1:1;

(d) neutralizing said water-soluble precondensate with a neutralizing agent selected from the group consisting of the carbonates of Ca, Ba and Mg to obtain a pH of between about 6.9 and about 7.8; and

(e) reacting said neutralized water-soluble precondensate with melamine, the molar ratio of melamine to phenol being at least 1:1.

6. A process according to claim 1 wherein the product resulting from the reaction between said neutralized water-soluble precondensate and melamine is added to a solution of a urea-aldehyde resin.

3,321,552

UNSATURATED POLYESTERS PREPARED FROM ALKYL ALPHA-METHYLENE-BETA-HYDROXY-PROPIONATE

Samuel C. Temin, Pittsburgh, and Melvin E. Baum, Monroeville, Pa., assignors to Koppers Company, Inc., a corporation of Delaware

No Drawing. Filed May 31, 1962, Ser. No. 198,752
8 Claims. (Cl. 260—860)

1. A method of making poly(alpha-methylene-beta-propionate) having a melting point above 150° C. comprising condensation polymerizing in an inert atmosphere lower alkyl alpha-methylene-beta-hydroxypropionate in the presence of a vinyl polymerization inhibitor and a transesterification catalyst at a temperature of 75–200° C. and a pressure of 0.1–760 mm. Hg.

3,321,553

POLYESTER COMPOSITIONS CONTAINING HALOGEN AND PHOSPHORUS

Nicodemus E. Boyer, Parkersburg, W. Va., and Raymond R. Hindersinn, Lewiston, and Claude Thomas Bean, Jr., Niagara Falls, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York

No Drawing. Filed June 10, 1966, Ser. No. 556,546
14 Claims. (Cl. 260—862)

1. A composition for use in preparing thermoset polymers comprising (A) an unsaturated polyester resin having reacted therein an adduct of hexahalocyclopentadiene and a dienophile having a plurality of functional groups capable of esterification, wherein the halogen is selected from at least one member of the group consisting of fluorine, chlorine and bromine; and (B) an unsaturated polyester resin comprising the reaction product of (1) a reactive phosphite of the formula $(RO)_3P$ wherein each R is independently selected from the group consisting of alkyl, cycloalkyl, alkenyl, aryl, alkyl-aryl, arylalkyl, haloalkyl, alkoxyalkyl and aryloxy-alkyl, and (2) an unsaturated polyester resin which contains aliphatic carbon-to-carbon double bonds that are conjugated with carbonyl groups, said resin being reacted with an insufficient amount of phosphorus compound to react with all the carbon-to-carbon double bonds, and the resulting unsaturated phosphonated polyester containing aliphatic carbon-to-carbon double bonds, and phosphorus atoms attached directly to carbon atoms which were present in the resin prior to the reaction with the phosphorus compound; wherein the halogen-containing polyester resin and the phosphorus-containing polyester resin are employed in a proportion to provide at least 0.5 weight percent phosphorus and at least 3 weight percent halogen in the thermoset polymer.

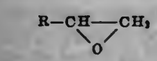
3,321,554

MODIFIED POLYMERS OF 1,2-EPOXYHYDROCARBONS AND PROCESS FOR THEIR MANUFACTURE

Johann Wolfgang Zimmermann and Edgar Fischer, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Brüning, Frankfurt am Main, Germany, a corporation of Germany

No Drawing. Filed Oct. 3, 1961, Ser. No. 146,058
Claims priority, application Germany, Oct. 4, 1960, F 32,258
10 Claims. (Cl. 260—874)

1. A process for the manufacture of chemically modified polymers of 1,2-epoxyhydrocarbons, said polymers having improved surface active properties, which process comprises reacting, at a temperature of from 30° C. to 150° C. and in the presence of 0.1 to 15 percent, by weight of the reaction mixture, of a free radical polymerization catalyst, (A) a polymer comprising 10 to 50000 polymer units derived from a polymerizable monomer of the formula



wherein R is hydrogen, a monovalent saturated hydrocarbon having 1 to 6 carbon atoms, and phenyl, and (B) at least one monomer selected from (1) alpha-beta-unsaturated dicarboxylic acids, their alkali metal salts, their anhydrides, and their mono- and di-esters with monohydric saturated alcohols having 1 to 18 carbon atoms; (2) vinyl sulfonic acid and its esters with monohydric saturated alcohols having 1 to 18 carbon atoms; (3) vinyl phosphonic acid and its esters with monohydric saturated alcohols having 1 to 18 carbon atoms; (4) vinyl sulfones of the formula $RSO_2CH{=}CH_2$ and $RNH{-}SO_2CH{=}CH_2$, wherein R is an aromatic radical having one to three nuclei or a saturated aliphatic hydrocarbon having 1 to 18 carbon atoms; (5) dihydropyran; and (6) allyl-alkyl and allyl-chloroalkyl ethers having 1 to 18 carbon atoms in the alkyl group thereof; the ratio by weight of reactant (A) to reactant (B) being from 100:1 to 1:100.

3,321,555

PHOSPHORYLATED POLYESTER POLYOLS

Martin R. Lutz, Gene Nowlin, and Hugo Stange, all of Princeton, N.J., assignors to FMC Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Original application Sept. 12, 1961, Ser. No. 137,521. Divided and this application May 4, 1966, Ser. No. 555,644
3 Claims. (Cl. 260—920)

1. A diorgano phosphorylated polyester polyol comprising the condensation product of

(1) a liquid hydroxyl-terminated polyester having an average molecular weight of 200–5,000 derived from the reaction of

(a) one carboxyl equivalent weight of a dicarboxylic acid with

(b) more than one, but not more than two, hydroxyl equivalent weights of polyol containing 2–4 hydroxyl groups,

said polyester containing at least three hydroxyl groups per molecule, and having an acid number of 0–20 and a hydroxyl number of 100–700, and

(2) a diorgano phosphorochloridate having the formula $(X_nRO)_2P(O)Cl$ in which X is selected from the group consisting of chlorine and bromine, n is 0–4 and R is an organic radical selected from the group consisting of alkyls containing 1–5 carbon atoms, phenyl and tolyl,

said condensation product containing at least 2% by weight phosphorus and an average of at least two hydroxyl groups per molecule, and having a viscosity of less than 4,000 poises at 25° C.

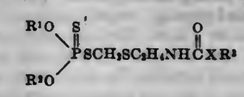
3,321,556

N - [2 - (O,O - DILOWERALKYL - PHOSPHORODITHIO - METHANEMERCAPTO)-ETHYL] CARBAMATE OR THIOCARBAMATE ESTERS

Donald G. Stoffey, Corte Madera, and Arnold D. Gutman, Oakland, Calif., assignors to Stauffer Chemical Company, New York, N.Y., a Delaware corporation

No Drawing. Filed Dec. 20, 1963, Ser. No. 332,289
6 Claims. (Cl. 260—938)

1. A compound of the formula



wherein X is selected from the group consisting of oxygen and sulfur, R^1 and R^2 are lower alkyl radicals, and R^3 is selected from the group consisting of lower alkyl, phenyl, alkoxy lower alkyl and phenoxy lower alkyl radicals.

3,321,557
PROCESS FOR EXCHANGING HALOGEN ATOMS FOR HYDROCARBON RADICALS IN PHOSPHORUS HALIDE COMPOUNDS
Ludwig Maier, Zurich, Switzerland, assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Filed May 31, 1966, Ser. No. 553,668
Claims priority, application Switzerland, Oct. 23, 1961, 12,295/61; Mar. 28, 1962, 3,813/62
11 Claims. (Cl. 260—968)

1. A process for exchanging halogens for hydrocarbon radicals in phosphorus halide compounds comprising reacting a phosphorus halide compound of the formula $R_nP(A)_mX_{3-n}$ wherein R is selected from the class consisting of hydrocarbyl, halohydrocarbyl, hydrocarbonoxy and dialkylamino having not more than 18 carbon atoms in each hydrocarbon group, n is an integer from 0 to 2, A is selected from the class consisting of sulfur and oxygen, m is an integer from 0 to 1, and X is selected from the class consisting of chlorine and bromine, with an organo lead compound of the formula $R'_aPbX'_{4-a}$ wherein R' is hydrocarbyl having not more than 18 carbon atoms, a is an integer from 2 to 4, X' is a halogen atom, in the presence of a strong Lewis acid.

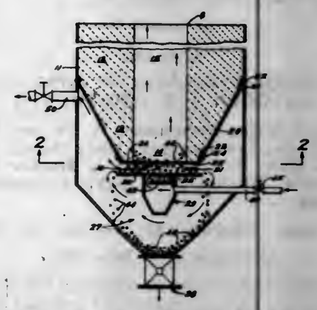
3,321,558
ULTRASONIC HEATING METHOD
Lewis Balamuth, New York, and Arthur Kuris, Bronx, N.Y., assignors to Cavitron Ultrasonics, Incorporated, Long Island City, N.Y.
Filed Oct. 8, 1962, Ser. No. 228,803
13 Claims. (Cl. 263—52)



13. The method of heating an object which comprises generating frictional heat therein by moving a frictional body in contact with the interior thereof at low amplitude and high frequency.

3,321,559
KILN OPERATION
Aage M. Tvergaard, Albert H. Pack, and William W. Campbell, Ludington, Mich., and Earl Leatham, Wexford, Pa., assignors to Harbison-Walker Refractories Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Nov. 17, 1964, Ser. No. 411,926
The portion of the term of the patent subsequent to Jan. 12, 1982, has been disclaimed
6 Claims. (Cl. 263—52)

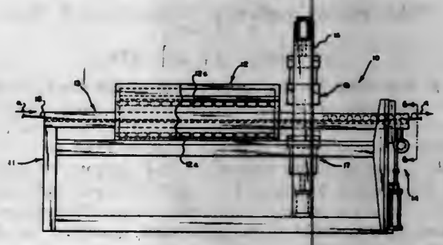
1. In a method for operating a vertical kiln of the type capable of dead burning refractor material above about 3000° F. and including a tubular outer shell having a refractory lining continguously positionsed therein to define a vertical passage, means arranged for providing said temperature in a dead burning zone, means defining an upper inlet and a bottom outlet, an apertured discharge table spaced beneath the kiln outlet, and in which a charge material is moved continuously downwardly in the passage through the dead burning zone and is deposited in said discharge table after dead burning, the improvement comprising passing a stream of air, in amounts at least 10% in excess of that required to maintain optimum charge material balance, upwardly through the discharge table and dead burned material residing thereon, removing only said excess air while simultaneously discharging the cooled material from said table and passing the balance of said air through the kiln vertical passage in an upwardly moving countercurrent flow to the downwardly moving charge of material to be dead burned.



3,321,560
PRODUCTION OF FUEL FOR NUCLEAR REACTORS
William Lionel Wilkinson, Lytham Saint Anne's, England, assignor to United Kingdom Atomic Energy Authority, London, England
Filed June 14, 1965, Ser. No. 463,715
Claims priority, application Great Britain, June 30, 1964, 27,041/64
6 Claims. (Cl. 264—5)

1. In a process for the production of fuel bodies for nuclear reactors, the method of making granules of a ceramic nuclear fuel consisting of at least one of the group uranium dioxide and uranium dioxide/plutonium dioxide, said method comprising the steps of slurrying the ceramic nuclear fuel in powder form in a solution of an organic binder for uranium dioxide or uranium dioxide/plutonium dioxide in an excess of an organic chlorinated hydrocarbon solvent for said binder, and spray-drying the slurry to produce dry granules of the ceramic nuclear fuel having said binder intimately incorporated therein.

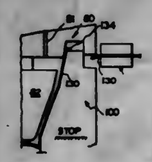
3,321,561
METHODS FOR TREATING ORGANIC PLASTIC SHEET TO BE DIFFERENTIAL PRESSURE FORMED
Gaylord W. Brown, Beaverton, Mich., assignor to Brown Machine Company of Michigan, Inc., a corporation of Michigan
Filed July 24, 1964, Ser. No. 384,895
2 Claims. (Cl. 264—96)



1. A method of thermoforming thermoplastic plastic sheet comprising: applying gripping means to a longitudinally extending sheet at its side edges, and moving the gripping means longitudinally while applying heat to the surface area of the sheet to render it deformable; the gripping

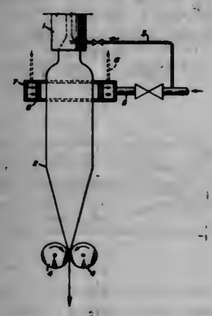
means in at least a portion of the longitudinal travel being moved laterally outwardly at a rate which takes up the thermal widthwise expansion of the heated sheet but imparts substantially no widthwise stretching pull to the sheet and relatively moving differential pressure forming die means and the heated sheet to form articles therein.

3,321,562
METHOD AND APPARATUS FOR FORMING ENLARGED CONTAINER RIM
Herbert Jourdan Wanderer, Elmhurst, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill., a corporation of Delaware
Original application May 8, 1964, Ser. No. 366,080, now Patent No. 3,232,512, dated Feb. 1, 1966. Divided and this application Sept. 15, 1965, Ser. No. 487,447
8 Claims. (Cl. 264—93)



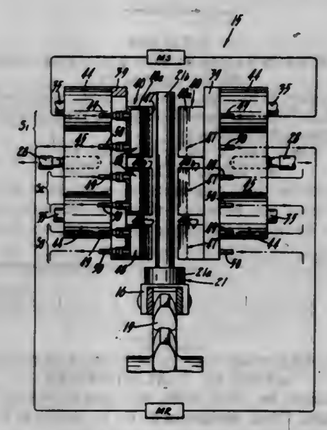
1. The method of forming an enlarged peripheral bead on an article from heated plastic sheet stock having an elastic memory comprising forming an article having a substantially vertically extending side wall, clamping the side wall of the article at its upper margin, and severing the article from the sheet stock at a point laterally and outwardly spaced from the clamped upper margin of the article side wall while the article is still in a heated condition to stress relieve the severed free end and thereby cause a material build up in the vicinity of the clamped upper margin of the article to form the enlarged peripheral bead portion.

3,321,563
PRODUCTION OF HIGHLY TRANSPARENT FILMS FROM THERMOPLASTICS
August Rettig, Kurt Schmidts, and Theodor Daur, all of Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
Filed Oct. 10, 1963, Ser. No. 315,283
Claims priority, application Germany, Oct. 12, 1962, B 69,203
5 Claims. (Cl. 264—95)



1. A process for production of polypropylene films which comprises extruding from a die a tube of polypropylene at a temperature below its decomposition point and above at least 30° C. above its softening point, inflating the tube as it emerges from the die and thereby enlarging its diameter, applying against the outer side of the inflated tube in the region of the zone in which said inflated tube reaches its largest inflated diameter a cooling band of a gaseous medium having a temperature about 5° C. to 30° C., and forming by the cooling of said inflated tube by said cooling band a turbid ring in the one third portion of said cooling band nearest said die, which turbid ring disappears as said inflating tube passes further through said cooling band.

3,321,564
METHOD FOR THERMALLY CONDITIONING BLOW MOLDED MACHINE ELEMENTS
Walter James Dobbins, Lake Zurich, Oscar Frederick Ecklund, Barrington, and Eugen Franz Polka, Algonquin, Ill., assignors to American Can Company, New York, N.Y., a corporation of New Jersey
Original application Oct. 31, 1962, Ser. No. 234,437, now Patent No. 3,186,028, dated June 1, 1965. Divided and this application May 11, 1965, Ser. No. 470,279
9 Claims. (Cl. 264—97)

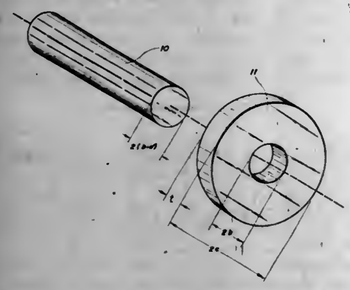


1. A method of thermally conditioning a mold core comprising the steps of positioning said core preparatory to receiving a preform into heat exchange relationship with a plurality of external heat transfer elements spaced apart at select increments relative to the longitudinal axis of said core and maintaining each of said elements at different temperatures for a predetermined period of time to impose upon corresponding peripheral surfaces of said core a thermal gradient, and separating said core and elements from said heat exchange position for subsequent formation of a preform on said core.

3,321,565
METHOD OF MANUFACTURING A FRICTION CLUTCH
Dean M. Peterson and Harvey F. Roller, both of Rochester, N.Y., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed Jan. 3, 1964, Ser. No. 335,626
8 Claims. (Cl. 264—162)

1. A method of forming an accurate slip rated friction clutch comprising a supporting shaft and a friction clutch member in which a predetermined overload torque causes slip between the shaft and clutch member, the steps comprising: forming an annular smooth surface area on a cylindrical supporting shaft; molding, directly onto said annular smooth surface area at an elevated pressure and temperature, an annular disk of a thermoplastic material having a coefficient of thermal expansion higher than the coefficient of thermal expansion of the shaft, the shaft and

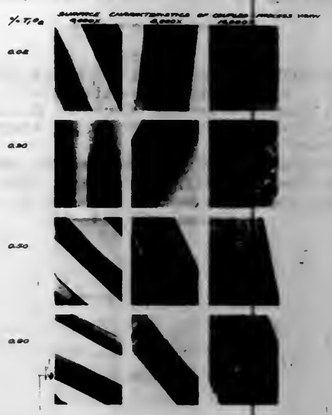
thermoplastic material being such as will not fuse together during the molding; and reducing the molding pressure and cooling the shaft and disk to cause pressure in-



terference between the disk and shaft to provide a force of friction which can be overcome by a predetermined overload torque to produce slip.

3,321,566
SEMI-DULL NYLON YARN AND THE PROCESS OF MAKING IT
Robert Wesley Whitman, Seaford, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Jan. 3, 1966, Ser. No. 525,006
4 Claims. (Cl. 264—210)

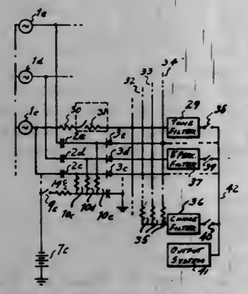
1. A process for preparing a semi-dull nylon yarn having at least one filament of round cross-section which comprises, in order, the steps of (1) adding from about 0.5 to about 0.75 weight percent TiO_2 to partially polymerized polyhexamethylene adipamide, (2) after polymerizing the said polyhexamethylene adipamide to fiber-forming molecular weight, extruding the molten polymer



from a spinneret to form a yarn having at least one filament of round cross-section, (3) quenching the molten filament by exposure to air, and (4) substantially immediately thereafter drawing the yarn to at least twice its extruded length and jet interlacing the said yarn.

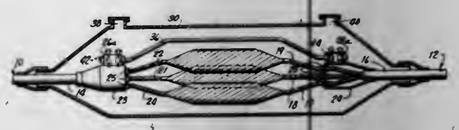
ELECTRICAL

3,321,567
WAVE SHAPING SYSTEM FOR ELECTRICAL MUSICAL INSTRUMENTS
Walter Munch, Jr., Park Hills, Ky., and Robert C. Scherer, Cincinnati, Ohio, assignors to D. H. Baldwin Company, Cincinnati, Ohio, a corporation of Ohio
Filed Oct. 20, 1965, Ser. No. 498,581
7 Claims. (Cl. 84—1.13)



1. In a music system,
a frequency divider stage constituting a tone generator,
said frequency divider stage comprising a multivibrator having a signal output terminal,
a resistive load, and
a wave shaping circuit connected between said output terminal and said load,
a capacitor,
a gating diode circuit,
a source of direct current gating voltage connected to said gating diode circuit,
said wave shaping-circuit including said capacitor and said gating diode circuit in series between said signal output terminal and said resistive load,
said capacitor and the resistance of said resistive load having a time constant short relative to one half cycle of the output of said multivibrator.

3,321,568
METHOD AND APPARATUS FOR JOINING TOGETHER SECTIONS OF OIL-FILLED CABLE
Oreste Venturelli, Milan, Italy, assignor to Pirelli Societa per Azioni, Milan, Italy, a corporation of Italy
Filed Apr. 1, 1964, Ser. No. 356,367
Claims priority, application Italy, Apr. 10, 1963, 7,399/63
10 Claims. (Cl. 174—21)

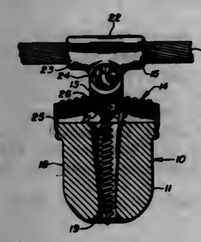


4. A joint for a three-phase oil-filled electrical cable, said joint comprising an outer casing, trifurcating boxes assembled at the ends of the cable sections to be joined, and enclosed by said outer casing, connecting members, each mounted on one of the trifurcating boxes, each of said connecting members being provided with two ducts having separate opening and closing valves, and extending to the interior of the associated trifurcating box, a bypass tube connecting a duct of one connecting member with a duct of the other, the two remaining ducts providing a

communication between the interior of each trifurcating box and the interior of the joint casing, and said casing being provided with means providing access to and permitting operation of said valves from a point external to said casing.

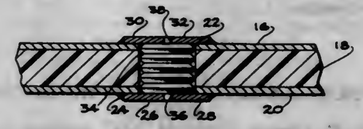
10. A process for making a connection between two oil-filled electrical cables, each having a plurality of cores and an outer covering with a minimum loss of oil, said process comprising the steps of removing from the ends of the cables to be joined a length of the outer covering of each of said cables, attaching to each of said cables a tubular inner connector in fluid tight relation with one end of each inner connector and the end of the outer covering of its respective cable and in fluid tight relation with the opposite end of each inner connector and the cores of each cable with the ends of said cores protruding therethrough, providing a fluid coupling between the interiors of the tubular connectors, electrically connecting the cores of one cable to the corresponding cores of the other cable, placing a hollow outer shell around said cable ends and said tubular inner connectors in sealing relationship to the outer coverings of said cable sections, and placing the interior of each of said tubular inner connectors into fluid communication with the interior of said hollow outer shell.

3,321,569
VIBRATION DAMPER FOR TRANSMISSION LINE CONDUCTORS
John J. Taylor, Medina, Ohio, assignor to The Ohio Brass Company, Mansfield, Ohio, a corporation of New Jersey
Filed Nov. 6, 1964, Ser. No. 409,444
12 Claims. (Cl. 174—42)



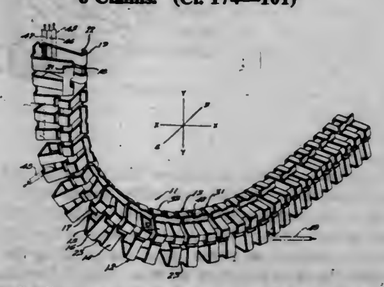
1. A conductor damper for stabilizing a transmission line conductor, comprising a generally tubular body member characterized by the mass thereof, spring means extending along an axis perpendicular to the line conductor and centrally through the body member, means attaching the lower end of the spring to the lower end of the body member, a support member at the upper end of the body member having the upper end of the spring means attached to the lower extremity thereof, and means for connecting the support member to the line conductor in fixed relation thereto, and a coupling device connected between the support member adjacent the lower extremity thereof and to the body member adjacent the upper end thereof for dissipating energy of relative movement between the members, and comprising a plurality of elastically deformable members extending generally radially between the support member and the outward extremity of the body member, the radial members being formed of flexible resilient material having a substantial damping coefficient, all for dissipating vibrations of the line conductor over a wide range of frequencies thereof.

3,321,570
PRINTED CIRCUIT BOARD WITH BELLOWS RIVET CONNECTION
James E. Webb, Administrator of the National Aeronautics and Space Administration, with respect to an invention of Clarence W. Gould, San Gabriel, Calif.
Filed Jan. 19, 1966, Ser. No. 521,753
8 Claims. (Cl. 174—68.5)



1. In an electronic printed circuit board wherein printed circuits are provided on both sides of said board with conductors interconnecting said circuits, the improvement which comprises:
a first electrical connector connected to the circuit on a first side of said board;
a second electrical connector connected to the circuit on the other side of said board;
a bore extending through said board from said first connector to said second connector; and
an electrically conductive bellows mounted in said bore, said bellows being in electrical contact with each of said connectors;
whereby stresses on electrical connections between said circuits are absorbed by said bellows.

3,321,571
FLEXIBLE CONDUIT
William R. Lynch, Birmingham, Mich., assignor to Republic Industrial Corporation, a corporation of Delaware
Filed Feb. 2, 1965, Ser. No. 429,745
6 Claims. (Cl. 174—101)



1. A flexible conduit formed to define a longitudinal axis and being freely bendable about axes extending laterally of said longitudinal axis comprising,
a plurality of longitudinally spaced elements having generally like cross sectional configurations in planes normal to said longitudinal axis and,
first and second bridging means integrally connecting alternate elements, respectively, to one another along the length of said flexible conduit, there being at least one such bridging means between adjacent elements,
said first bridging means having a relatively low moment of inertia about a first bending axis that is normal to said longitudinal axis to facilitate bending of said flexible conduit about said first bending axis, said first bridging means having a relatively high moment of inertia about a second bending axis that is normal to said longitudinal axis and to said first bending axis to resist bending of said flexible conduit about said second bending axis,
said second bridging means having a relatively low moment of inertia about said second bending axis to

facilitate bending of said flexible conduit about said second bending axis and a relatively high moment of inertia about said first bending axis to resist bending of said flexible conduit about said first bending axis,

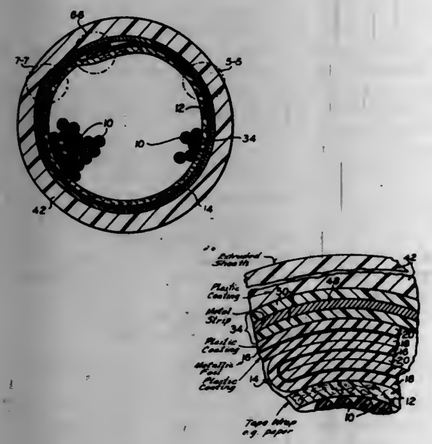
the spacing of said elements being such that conductors contained within and supported by said flexible conduit can be extended between an adjacent pair of said elements.

3,321,572

DUAL LAMINATED TELEPHONE CABLE SHEATH

Oscar G. Garner, Westfield, N.J., assignor to General Cable Corporation, New York, N.Y., a corporation of New Jersey

Filed Sept. 13, 1965, Ser. No. 486,863
7 Claims. (Cl. 174—105)



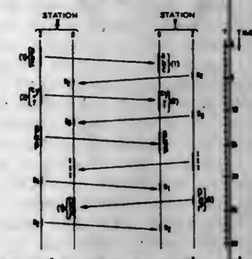
1. A small diameter telephone cable having overlying sealed jackets unbonded to each other and an outer sheath bonded to the outermost jacket, said cable comprising a number of individually insulated conductors stranded into a core, a wrapping of paper tapes surrounding the cable core, over the wrapped core an inner jacket formed from a longitudinally folded tape including a metal foil with at least its inside surface covered with a plastic coating that is chemically bonded to the metal foil, the tape having edge portions that are bent outwardly in juxtaposition and bonded together into a seam, the bonded edge portions being folded down against the inner jacket, an intermediate jacket formed from a laminated tape comprising a metal strip thicker than the metal foil coated on both sides with heat-sealing plastic chemically bonded to the metal strip, the tape forming said intermediate jacket being folded longitudinally around over the inner jacket and having a lap seam which is sealed by the bonding of the plastic on the inside of the outer overlapping edge portion to the plastic on the outside of the inner overlapping edge portion, the seams of the inner jacket and the intermediate jacket being spaced angularly from each other around the circumference of the cable, the intermediate jacket fitting closely over the inner jacket, but not bonded to the inner jacket, and a plastic outer sheath surrounding the outside of the intermediate jacket and bonded to the plastic over the outside surface of the intermediate jacket to further seal the lap seam.

3,321,573

SIMPLEX TELEGRAPH SYSTEM WITH BREAK-IN FACILITY

Herman da Silva, Voorburg, Netherlands, assignor to De Stadt Nederlanden, ten Deze Vertegenwoordigd, Door de Directeur-Generaal der Posterijen, Telegrafie en Telefonie, The Hague, Netherlands

Filed June 13, 1966, Ser. No. 557,105
12 Claims. (Cl. 178—2)



1. An automatic error correcting simplex telecommunication system for changing direction of traffic information between two stations (X and Y) in which each station has:

(A) means (K, RT) for transmitting blocks (1, 2) of traffic information signals spaced by pauses between each block, and

(B) means (G4, G5) for transmitting two different answer-back signals (R1, R2) during said pauses for indicating correct and incorrect reception of the block just received from a remote station;

the improvement comprising:

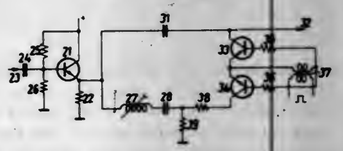
(C) means (G1) at each station for transmitting during one of said pauses a third answer-back signal (R3 or R3') different from said two answer-back signals (R1, R2) for indicating to said remote station that the direction of traffic information is to be changed.

3,321,574

CLAMPING CIRCUIT ARRANGEMENT FOR COLOR TELEVISION SIGNALS

Gerhard Krause, Darmstadt, Germany, assignor to Fernseh GmbH, Darmstadt, Germany

Filed Apr. 27, 1965, Ser. No. 451,141
Claims priority, application Germany, Apr. 29, 1964, F 42,745
5 Claims. (Cl. 178—5.4)



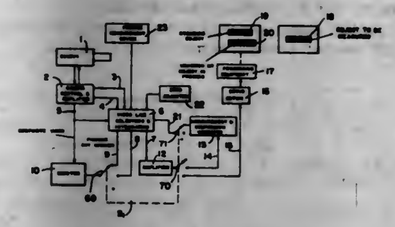
1. Color television signal modifying apparatus including in combination: a source of said color television signals including line blanking intervals and color subcarrier signal components of predetermined frequency occurring within said intervals; an output terminal; an alternating current signal path connecting said source to said output terminal; a source of reference potential; switch means having first and second terminals; a direct connection from said output terminal to said first switch terminal; a direct current path from said second switch terminal to said reference source; switch operating means closing said switch during said line blanking intervals; passive circuit means preferentially transmitting signal frequencies including said color sub-carrier frequency; and a signal path including said passive circuit means applying signal components of said color sub-carrier frequency from said source to said second switch terminal.

3,321,575

TELEVISION INSPECTION APPARATUS ADAPTED FOR MEASUREMENT AND COMPARISON PURPOSES

Edward A. Lewczyk, Newington, Conn., assignor to Jolew Corporation, Newington, Conn., a corporation of Connecticut

Filed Feb. 11, 1964, Ser. No. 343,989
9 Claims. (Cl. 178—6)



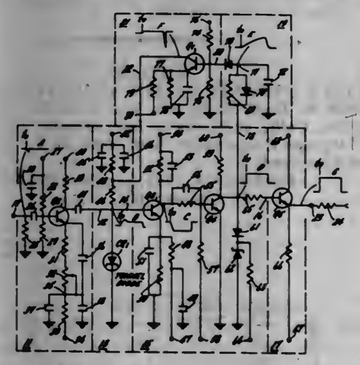
1. Inspection apparatus comprising a video camera for receiving light from a pair of objects to be compared and having an output circuit containing a signal proportional to a difference in dimensions of said objects, means for selecting from said camera output circuit line signals representing straight lines along said objects, display means in circuit with said selecting means visually presenting said line signals, comparison means for providing an indication of the difference of physical dimensions of said objects along said lines, and means for connecting said comparison means in circuit with said selecting means.

3,321,576

VIDEO THRESHOLD DETECTOR UTILIZING A TUNNEL DIODE AS A SWITCHING ELEMENT

Richard A. Linder and Jerry E. Steele, Baltimore, Md., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Navy

Filed Feb. 5, 1964, Ser. No. 342,837
10 Claims. (Cl. 178—7.3)



1. A video threshold detector circuit comprising:

a video amplifier, a threshold detector, and a direct current amplifier in series coupled relation from a video input to a video output, said threshold detector being a tunnel diode biased in a bistable low voltage condition to trigger to a high voltage state from a low voltage video trigger pulse; and

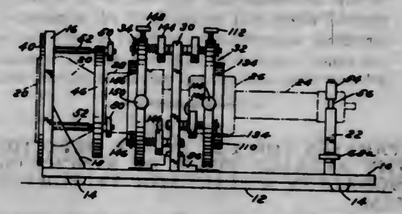
an integrator and amplifier coupled in series from the output of said direct current amplifier to said tunnel diode to reset said tunnel diode to its bistable low voltage state ready for the next video trigger pulse whereby any minute video signals exceeding a predetermined voltage threshold will produce a synthetic video pulse on an output thereof of predetermined amplitude and bandwidth.

3,321,577

ADJUSTABLE MOUNT FOR A CATHODE RAY TUBE

Charles W. Burke, Detroit, and Richard J. Clark, Belleville, Mich., assignors to Conduction Corporation, Ann Arbor, Mich., a corporation of Delaware

Filed July 5, 1963, Ser. No. 293,124
10 Claims. (Cl. 178—7.8)



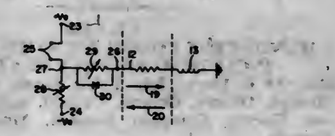
8. An adjustable mount assembly for a cathode ray tube having an electron beam generated and projected therewithin under the control of a deflection yoke and a focusing coil, said assembly comprising a base, means secured to said base for supporting the tube spaced from the base, a plate secured to said base and adapted to receive the neck of the tube therethrough, first and second ring assemblies disposed on opposite sides of said plate for respectively supporting the yoke and the coil, first and second adjusting means rigidly supported by said plate and respectively supporting said first and second ring assemblies in spaced relation from said plate, said first and second adjusting means each comprising three precision screw means arranged at 120 degree angular intervals relative to one another in the plane of said plate and extending from said plate with their axes parallel to one another, said screw means each being individually rotatable to threadably adjust the spacing between said plate and the associated ring assembly along the axis of said screw means whereby said screw means are operable to impart longitudinal, pitch and yaw movement individually to the associated ring assembly for correspondingly adjusting the position of the yoke and coil associated therewith relative to the tube, and means securing each of said adjusting means to the associated ring assembly for limited universal movement of said ring assembly on the associated adjusting means to accommodate movement of said ring assembly relative to said plate in response to adjustment operation of the other screw means of the same adjusting means.

3,321,578

POLAR GROUNDED LOOP D.C. TELEGRAPH RECEIVER CIRCUIT

John S. Myles, Ottawa, Ontario, Canada, assignor to Northern Electric Company, Limited, Montreal, Quebec, Canada

Filed Sept. 19, 1963, Ser. No. 309,951
10 Claims. (Cl. 178—68)



2. A circuit for causing direct currents of opposite polarities to flow in a grounded line comprising,

a first pair of terminals each for connection to a source of direct current voltage of polarity opposite to the

polarity of the source connected to the other terminal of said first pair of terminals, said sources having their free terminals grounded,

a second pair of terminals for connection to single pole single throw switch means, said second pair of terminals being connected in series with a first resistor and between said first pair of terminals,

a second resistor connected in parallel with a diode and between said line and the juncture of said first resistor and said second pair of terminals,

said diode being poled to cause current to flow in said line between said terminal of said first pair of terminals to which said first resistor is connected and ground when said second pair of terminals is open circuited, whereby current flows in said line between the other terminal of said first pair of terminals and ground when said second pair of terminals is shorted.

3,321,579
APPARATUS FOR USE IN THE DETECTION OF THE AVERAGE PHASE OF SYNCHRONIZING SIGNALS IN A START-STOP TELEGRAPH SYSTEM

George Lambert Grisdale, Great Baddow, England, assignor to The Marconi Company Limited, a British company

Filed June 10, 1963, Ser. No. 286,540
Claims priority, application Great Britain, June 20, 1962, 23,738/62
6 Claims. (Cl. 178—88)

1. In telegraph receiver equipment having means for detecting the average phase or time relation of telegraph elements in a sequence of received elements occurring at a predetermined element frequency; modulator means for receiving a signal comprising a number of received elements at a first predetermined element frequency, local oscillator means for providing a signal having a second frequency, said modulator means being electrically connected to said oscillator means for producing a signal having a third frequency which differs from the second frequency by the element frequency and which is greater than said element frequency, high Q resonator means responsive to the modulator signal and resonant at said third frequency, demodulation means electrically connected to said local oscillator means and said resonator means and adapted for electrical connection to said phase or time detection means.

3,321,580
HANDS-FREE COMMUNICATION SYSTEMS INCLUDING PRIVACY FEATURES

Sydney M. K. Horne, John Lewis Hanna, and Cornelis W. Reedyk, Ottawa, Ontario, Canada, assignors to Northern Electric Company Limited, Montreal, Quebec, Canada

Filed Dec. 20, 1963, Ser. No. 332,021
22 Claims. (Cl. 179—1)

1. A communication system comprising:

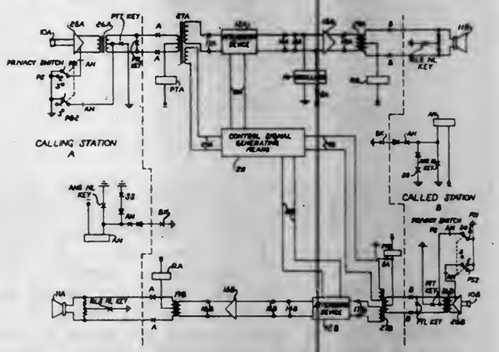
(a) a microphone and a loudspeaker;

(b) a voice communication channel arranged to connect the microphone to the loudspeaker;

(c) audible signal generating means connected to said channel to transmit a signal tone over said channel to the loudspeaker when said generating means is energized;

(d) electrical switching means arranged, when energized, to interconect the microphone, said channel and the loudspeaker, and to energize said generating means for a predetermined duration;

(e) control signal generating means for generating first and second predetermined control signals;



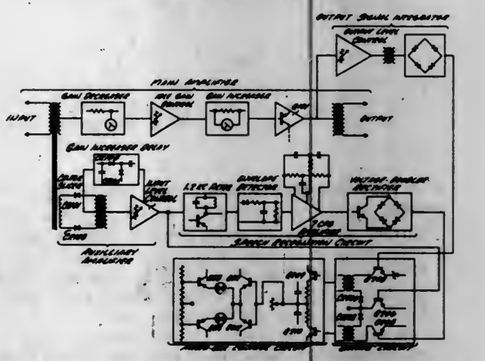
(f) said channel being connected to the control signal generating means and arranged to permit voice signals at the microphone to be heard over the loudspeaker via said channel when said first control signal is applied to said channel, and to prevent voice signals at the microphone from being heard over the loudspeaker via said channel when said second control signal is applied to said channel;

(g) and a privacy switch at the loudspeaker connected to the control signal generating means for conditioning the control signal generating means to apply a predetermined one or the other of said control signals to said channel.

3,321,581
VOICE OPERATED GAIN ADJUSTING DEVICE

Rudolf A. Zryd, Sunnyvale, and John M. Godfrey, Los Altos, Calif., assignors to International Telephone and Telegraph Corporation, New York, N.Y., a corporation of Maryland

Filed July 5, 1963, Ser. No. 293,027
17 Claims. (Cl. 179—1)

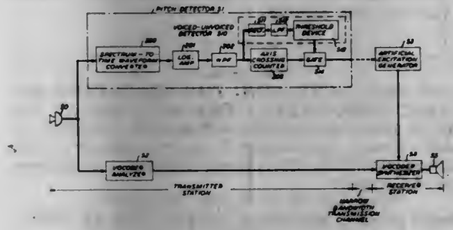


1. A voice-controlled automatic gain-adjusting device comprising amplifier means having a predetermined gain for amplifying incoming voice-frequency signals, means responsive to the presence of said voice-frequency signals for generating a signal-present signal, means for detecting the syllabic content of said signals and for generating a gain-increase signal responsive to said detection indicating the presence of speech signals, means responsive to the amplitude of said voice-frequency signals being greater than a predetermined amplitude for generating a gain-decrease signal, first and second variable-loss means selectively operable to respectively decrease and increase the said predetermined gain of said device, and control means operable responsive to the said gain-decrease signal for controlling the said first variable-loss means to reduce the amplification of said incoming signals.

3,321,582
WAVE ANALYZER

Manfred R. Schroeder, Gillette, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York

Filed Dec. 9, 1965, Ser. No. 517,170
11 Claims. (Cl. 179—1)



6. A speech communication system that comprises

a transmitter station including

a source of a speech wave having an amplitude spectrum that represents the product of the components of an excitation spectrum and the components of a vocal tract response spectrum,

an analyzer supplied with said speech wave for deriving a plurality of control signals representative of selected information-bearing characteristics of said speech wave,

and a pitch detector supplied with said speech wave for deriving a pitch control signal indicative of both the presence of voiced and unvoiced portions of said speech wave and the fundamental frequency of said voiced portions of said speech wave,

said pitch detector comprising

means supplied with said speech wave for converting the spectrum of said speech wave into a time varying wave that closely resembles a carrier wave amplitude modulated by a modulating wave in which the carrier wave corresponds to said excitation spectrum and the modulating wave corresponds to said vocal tract response spectrum,

means connected to said converting means for obtaining from said time varying wave a logarithmic wave proportional to the logarithm of said time varying wave so that the spectrum of said logarithmic wave represents the sum of the components of the spectrum of the logarithm of said carrier wave and the components of the spectrum of the logarithm of said modulating wave,

means supplied with said logarithmic wave for filtering said logarithmic wave to obtain a filtered logarithmic wave by suppressing components from the spectrum of the logarithm of said modulating wave and passing components from the spectrum of the logarithm of said carrier wave,

a first subpath connected to said filtering means comprising means for determining whether the amplitude level of said filtered logarithmic wave exceeds a preset threshold corresponding to the smallest amplitude level of said filtered logarithmic wave associated with voiced portions of said speech wave,

a second subpath comprising means for developing from the components passed by said filtering means an axis-crossing signal indicative of the axis crossings of said components,

and gating means under the control of said first subpath and supplied with said axis-crossing signal developed in said second subpath for deriving from said axis-crossing signal a pitch control signal by transmitting said axis-crossing signal whenever the amplitude level of said filtered logarithmic wave exceeds said preset threshold to indicate the presence of voiced portions of said speech wave and by blocking said axis-crossing signal whenever the amplitude of said filtered logarithmic wave falls below said preset threshold to indicate the presence of unvoiced portions of said speech wave,

narrow bandwidth transmission means for delivering to a receiver station said plurality of control signals derived by said analyzer and said pitch control signal derived by said pitch detector,

and at said receiver station,

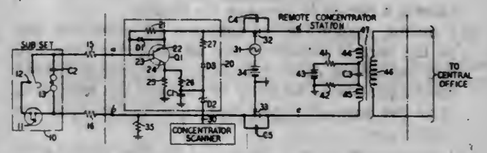
means responsive to said pitch control signal for generating an artificial excitation signal,

and means supplied with said artificial excitation and said plurality of control signals for synthesizing a replica of said speech wave.

3,321,583
SUPERVISORY CIRCUIT FOR TELEPHONE SUBSCRIBER'S LINE

Lloyd L. Maul, Lincroft, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York

Filed Mar. 25, 1964, Ser. No. 354,580
5 Claims. (Cl. 179—18)



1. A supervisory circuit for a telephone system comprising a subset loop having an on-hook open D.C. circuit and an off-hook closed D.C. circuit state; means for connecting alternating-current ringing signals to said loop; means for detecting said off-hook state during the presence or absence of said ringing signals in said loop including energy storage means, energizing means and output gating means responsive to said storage means for indicating said off-hook state; and means for preventing a false indication of said off-hook state during the presence of said ringing signals including de-energizing means responsive during alternate portions of said ringing signals for de-energizing said storage means.

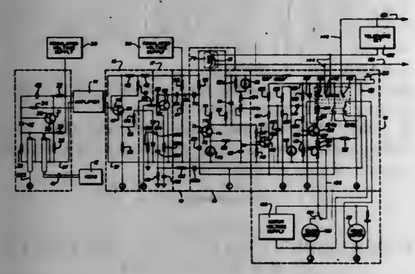
3,321,584
MOTOR CONTROL FOR REPERTORY DIALER

George S. Lockwood, Jr., San Mateo, Calif., and Genio R. Arciprete, Lexington, Walter J. Greene, Reading, Robin C. Moseley, West Acton, and John L. Rothery, Concord, Mass., assignors to Dasa Corporation, a corporation of California

Filed Jan. 3, 1963, Ser. No. 249,223
2 Claims. (Cl. 179—90)

1. In a telephone repertory dialer of the type having (1) information storage apparatus employing a magnetizable medium,

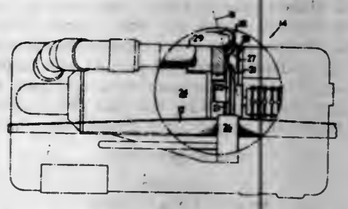
(2) transducer means for recording magnetic signals on the magnetizable medium and for reading the magnetic signals stored on the magnetizable medium,
(3) a motor for causing relative motion between the transducer means and the magnetizable medium,
the improvement of motor control apparatus comprising:
(a) a first switch means for energizing the motor for a first time period equal to the interval between digits of a telephone number to be recorded;
(b) a manually actuable second switch means for energizing the motor for a second time period that is longer than the first time period;
(c) a first and a second electronic switch, each having a conductive and a non-conductive state and each being normally in its non-conductive state;
(d) means, in circuit between the first and the second electronic switch, to inhibit the latter from its conductive state except when the former is in its conductive state;



(e) a relay coil in circuit with the second electronic switch, the relay coil having a set of normally open contactors associated therewith to complete, when closed, a circuit to energize the motor;
(f) means, responsive to actuation of either the first or the second switch means, to cause both the first and the second electronic switches to change to their conductive states whereby to energize the relay coil, close the normally open contactors and energize the motor; and
(g) means operative at the end of the first period after actuation of the first switch means and at the end of the second period of time after actuation of the second switch means to return the first electronic switch to its non-conductive state, thereby causing the second electronic switch to return to its non-conductive state and de-energize the relay coil, whereupon the contactors open and de-energize the motor.

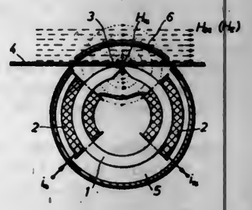
3,321,585
LUBRICATING DEVICE FOR MAGNETIC TAPE AND TRANSDUCING HEADS
Michael O. Felix, San Carlos, Calif., assignor to Ampex Corporation, Redwood City, Calif., a corporation of California
Filed Oct. 24, 1962, Ser. No. 232,851
6 Claims. (Cl. 179—100.2)

3. Apparatus for use with a magnetic tape recording and reproducing machine of the type wherein a tape is moved by a capstan past a transducing head located upstream from said capstan, comprising:
a volatile liquid;
means for directing said volatile liquid in a spray onto said tape at a point upstream from said transducing head;
means for spacing said spray means from said tape and from said head for a first space sufficient to ensure that the unvolatilized liquid remaining on said tape at said head has a concentration less than would destroy the transducing action of said head with respect to said tape; and



means for spacing said head from said capstan for a second space sufficient to ensure that the unvolatilized liquid remaining on said tape at said capstan has a concentration less than would cause slippage between said tape and capstan.

3,321,586
MEANS FOR INCREASING THE RECORDING DYNAMIC WHEN USING DEMAGNETIZING DEVICES FOR MAGNETIC STORAGE MEANS
Friedrich Krones, Leverkusen, Germany, assignor to Agfa Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
Filed Apr. 18, 1960, Ser. No. 23,101
Claims priority, application Germany, Apr. 18, 1959, A 31,865
9 Claims. (Cl. 179—100.2)

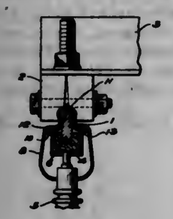


1. In a demagnetizing device for erasing signals recorded on magnetic record carriers having a ring shaped erasing head comprising an annular core of magnetic material having a coil mounted therein and having a pair of spaced confronting pole portions forming the erasing gap and relative to which said magnetic record carriers are adapted to be positioned for exposure to the demagnetizing field produced by said ring shaped erasing head, the improvement consisting of a shield element of ferromagnetic material enclosing said magnetic record carrier, the erasing head and the gap zone of the said erasing head for shielding said head against the unidirectional field of the earth, the shield element being sufficiently distant from the alternating demagnetizing field of the erasing head, to avoid magnetic saturation of the shield element.

3,321,587
TROLLEY SHOE DRESSING DEVICE
Donald R. Ross, Pittsburgh, Pa., assignor to U.S. Electric Manufacturing Company, Pittsburgh, Pa., a partnership
Filed Feb. 16, 1965, Ser. No. 433,132
7 Claims. (Cl. 191—35)

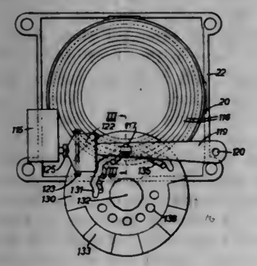
1. A trolley shoe dressing device having a central portion for attachment to an underlying trolley wire, and

having side portions projecting laterally outward from said central portion formed to remove the top of the sides of



a grooved trolley shoe sliding along the bottom of the wire and across the bottom of said device.

3,321,588
AUTOMATIC CONTROL MEANS
Neville Hamilton, Chiswick, London, England, assignor to The Hoover Company, North Canton, Ohio, a corporation of Delaware
Filed June 24, 1965, Ser. No. 466,689
Claims priority, application Great Britain, June 26, 1964, 26,567/64
4 Claims. (Cl. 200—38)



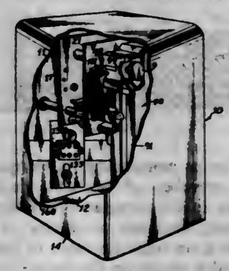
1. In an automatic control means for multi-program automatic machines such as washing machines having a group of operating cams arranged to move as a unit and to actuate electric switches for controlling various operations of the machine, stepping driving means for advancing the operating cams a step when energized, interval terminating means for normally energizing the stepping driving means at the end of each of the operations of the machine, two or more program cams arranged to move as a unit with the operating cams, an overriding switch common to all programs for energizing the stepping driving means independently of the interval terminating means to advance the operating cams to bypass unwanted operations, a carrier having a first cam follower engaging a selected program cam to move the carrier in a first direction to operate said overriding switch, a second cam follower on said carrier, a manually actuated selector cam means having a first cam surface arranged to move said first cam follower in a second direction generally normal to said first direction for moving said first cam follower into operative relation to a selected program cam, and a second cam surface engaging said second cam follower arranged to move said carrier to disengage said first cam follower from said program cams while said carrier is being moved in said second direction into operative relation to a selected program cam and then to return said first cam follower into engagement with said selected program cam.

3,321,589
SAFETY LOCK SWITCH
Raymond J. Persia, Farmington, John E. Arnold, Garden City, and Herbert A. Martens, Birmingham, Mich., assignors to Mackworth G. Rees, a division of Avis Industrial Corporation, Detroit, Mich., a corporation of Delaware
Filed Sept. 19, 1963, Ser. No. 310,081
5 Claims. (Cl. 200—42)



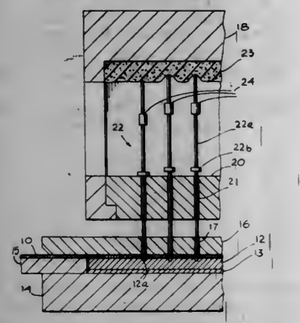
1. In a lock switch of the class described, a movable contact, a second contact matable with said movable contact, a yolk member coupled with said movable contact for moving said movable contact, a key, a housing having a keyhole therein for receiving said key, a connecting link coupled to said yolk member and rotatably and axially movable in said housing for axially moving said connecting link in response to the insertion of the key, and a locking pin carried by one of said housing and said connecting link for engaging a recess in the other of said housing and said connecting link to prevent rotation of said connecting link until said connecting link has been moved axially by said key, means engaging said connecting link supporting said connecting link for axial movement of said connecting link relative to said yoke member, and resilient means disposed between portions of said yoke member and said connecting link for resiliently urging said connecting link in an axial direction away from said yoke member.

3,321,590
CIRCUIT CONTROL DEVICE
Harrison G. Hooper, Atlanta, Ga., assignor to Lathem Time Recorder Company, Inc., Atlanta, Ga., a corporation of Georgia
Filed May 7, 1964, Ser. No. 365,759
5 Claims. (Cl. 200—46)



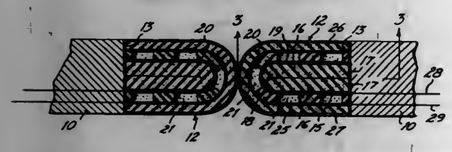
2. In a circuit control device; a rotatable drum having a circumferential channel therein and means for engaging and advancing a tape with its circumferential surface as it rotates; a finger member mounted for pivotal motion toward and away from said drum, said finger member being pivotable toward a perforation in the tape and into the channel; a first switch member positioned to be closed when the finger member is in said channel; means for periodically pivoting the finger member toward and away from said drum; means for rotating said drum when the finger member is pivoted away from said drum; and a second switch means in series with said first switch means, said second switch means being closed only when said finger member is pivoted toward said drum.

3,321,591
PUNCHED CARD READER
Norman R. Timares, Los Angeles, Calif., assignor to FMA, Inc., Los Angeles, Calif.
Filed Apr. 5, 1965, Ser. No. 445,385
4 Claims. (Cl. 200—46)



1. A punched card reader comprising: a flat, rigid electrically conductive plate having long, straight grooves therein with convexly curved side walls; a plurality of electrically conductive pins perpendicularly positioned over said plate in approximate registration with the grooves thereof, said pins each being tapered at the tip adjacent said plate so as to become aligned with and make contact with both walls of said grooves when the tips thereof are moved therein; means for supporting said pins so they are axially movable and have a small lateral play sufficient to permit contact with both walls of said grooves; and means for selectively applying a pressure to said pins to move them axially into said grooves, said means including a resilient pad mounted over said pins and in contact therewith for directly applying said pressure.

3,321,592
SAFETY CLOSURE EDGE
Norman K. Miller, Havertown, Pa., assignor to Miller Brothers, Upper Darby, Pa., a partnership
Filed July 21, 1966, Ser. No. 566,880
3 Claims. (Cl. 200—61.43)



1. A safety device comprising an elongate support, an elongate inner member of resilient yieldable material extending longitudinally along and projecting transversely from said support, an inner conductor of flexible sheet material extending on opposite sides of said inner member to substantially envelope the latter, an intermediate member of resiliently yieldable material in substantially completely covering relation with said inner conductor, said intermediate member being formed with a plurality of spaced thru openings exposing inner-conductor portions outwardly therethrough, an outer conductor of flexible sheet material substantially completely covering said intermediate member and having portions overlying said openings in spaced confronting relation with said exposed inner-conductor portions, an outer member of resiliently yieldable material in substantially completely covering relation with said outer conductor, and a casing of flexible sheet material substantially completely covering said outer member, whereby engagement with said casing from different directions flexes the casing and compresses said members to effect contact of said conductors through said openings.

3,321,593
SNAP-ACTION ELECTRIC SWITCH WITH THREE SWITCHING POSITIONS
Werner Schenke, Wehingen, Germany, assignor to J. & J. Marquardt, Riethelm, near Tuttlingen, Germany
Filed Apr. 19, 1966, Ser. No. 543,615
Claims priority, application Germany, Apr. 21, 1965, Sch 36,912
5 Claims. (Cl. 200—67)

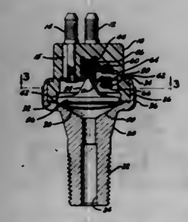


1. A snap-action reversing electric switch having two "on" positions and a stable "off" position intermediate its "on" positions, comprising, in combination, first and second fixed contacts; means mounting said fixed contacts in spaced relation to each other; a contact reversing lever having a free end carrying movable contact means selectively engageable with either of said fixed contacts, and an extended pivot end; a pivotally mounted intermediate lever having a free end; a snap-action spring having one end engaged with the free end of said intermediate lever and its other end engaged with said contact reversing lever between the free and pivot ends of the latter; a linearly movable operating plunger engaged with said intermediate lever adjacent the free end of the latter to pivot the same about its pivotal mounting; and mounting means extending along the extended pivot end of said contact reversing lever and in the direction of linear movement of said plunger, said mounting means having a pair of rocker bearings spaced apart in the direction of movement of said operating plunger, said extended pivot end including means pivotally engaging each of said rocker bearing, said mounting means successively engaged by the pivotally engaging means on the extended pivot end of said contact reversing lever as the latter is pivoted between a pair of limiting positions in each of which its movable contact means is engaged with a respective contact; the extended pivot end of said contact reversing lever, during an initial movement of said intermediate lever and said plunger, pivoting about one rocker bearing under the action of said snap-action spring, to snap-disengage said movable contact means from one fixed contact and bear against both rocker bearings in a stable intermediate position with said movable contact means disengaged from and intermediate both fixed contacts; the extended pivot end of said contact reversing lever, during continuation of the movement of said intermediate lever and said plunger, pivoting about the other rocker bearing under the action of said snap-action spring to snap-engage said movable contact means with the other fixed contact.

3,321,594
FLUID PRESSURE ACTUATED SWITCH
Donald A. Reise, St. Louis, and Charles W. Jeep, Jr., Webster Groves, Mo., assignors to ACF Industries, Incorporated, New York, N.Y., a corporation of New Jersey
Filed July 26, 1965, Ser. No. 474,715
3 Claims. (Cl. 200—83)

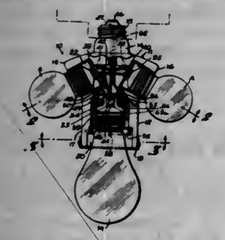
1. A fluid pressure actuated switch comprising
(A) an upper housing of electrically nonconductive material,
(B) a lower housing fastened to said upper housing,
(C) a diaphragm interposed between said upper and lower housings and secured at its outer periphery by said housings,

(D) an axial bore in said lower housing for communicating a source of pressure with one side of the said diaphragm,
(E) a recess within said upper housing, said recess containing a movable contact, a normally closed contact and a normally open contact,
(F) a plurality of electrodes extending through the said upper housing, one for each of said contacts, the said electrodes having means at their outer ends for securing an electrical conductor thereto and at their inner ends for securing one of the said contacts thereto,
(G) a spring centrally disposed in said recess and secured from lateral movement,
(H) a circumferential shoulder in said recess spaced a predetermined distance from the lower edge of said upper housing,



(I) a piston in said recess, said piston having an enlarged lower portion engaging the said diaphragm on one side and having a portion of reduced size at its upper end, said reduced portion also engaging a securing means in said movable contact to prevent lateral movement thereof, the said enlarged lower portion being confined also by the said recess whereby movement of the said piston on application of fluid pressure will be limited by the said circumferential recess,
(J) the said normally open and normally closed contacts being spaced apart a distance less than the length of travel of said piston whereby a rolling and sliding motion is imparted to the surfaces of the contacts during movement of said piston from one position to another.

3,321,595
ELECTRICAL PLUG WITH MAIN LAMP SOCKET AND THERMOSTATICALLY-CONTROLLED AUXILIARY LAMP SOCKETS
Henry Herion, 216 Sutherland St., City Island, N.Y. 10464
Filed June 18, 1965, Ser. No. 465,014
2 Claims. (Cl. 200—115.5)



1. In an electric light plug attachable to an electric socket, the combination comprising, a housing having a neck portion at one end, a cylindrical body portion at the other end and opposed sidewardly-projecting portions, a first cylindrical axial recess in the outer end of said body portion, the inner end of said first recess communicating with a second coaxial recess of decreased diameter in said body portion, a main lamp screw base ferrule in said second recess for receiving a main screw base lamp, a pair of auxiliary lamp screw base ferrules in cylindrical recesses formed in said sidewardly-projecting portions of said body portion, a cylindrical screw plug ferrule enveloping said neck portion, a central electrical contact for each of said screw plug and screw base ferrules, electrical conductor means interconnecting said central electrical contacts, electrical conductor means interconnecting said screw plug ferrule and said main lamp screw base ferrule, electrical circuit means interconnecting said screw plug ferrule and said auxiliary lamp screw base ferrules, and a heat-responsive switch means in said circuit means, said heat responsive switch means comprising an arcuate bi-metallic element secured at one end in said first cylindrical axial recess, a regulating spring fixed at one end to the outside of said bi-metallic element and bearing at its free end against an interior wall portion of said first cylindrical axial recess, said bi-metallic element being disposed in substantially concentric relation with respect to the axis of symmetry of said first cylindrical axial recess, and a contact member mounted in said first cylindrical axial recess and adapted to be contacted by the free end of said bi-metallic element in response to deenergization and consequent cooling of a main screw base lamp in said main lamp screw base ferrule, whereby said auxiliary screw base ferrules and their associated central contacts will be connected in parallel with said screw plug ferrule and its associated central contact.

3,321,596
PLUG CONNECTOR THERMALLY RESPONSIVE OVERLOAD CIRCUIT BREAKER
Kenneth M. Delafrange, 96 Washington Ave., Westwood, N.J. 07675
Filed Dec. 21, 1965, Ser. No. 515,405
5 Claims. (Cl. 200—116)

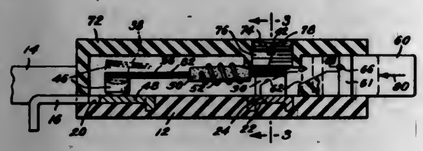


1. In an electrical plug connector thermally responsive overload circuit breaker, an insulating plug body having mounted thereon an external screw shell contact and internally recessed to receive, hold and position therein an overload circuit breaker assembly and provide operational space therefor, a fixed contact extending into said operational space and connected with said screw shell, circuit conductor means supported within the plug recess fixed at one end of the plug for circuit continuity therethrough from a conventional electric screw shell socket and provided at an inner free end with a contact member normally engaged with said fixed contact, said circuit conductor means directly including between the fixed end thereof and its free end in circuit connection with said fixed contact a helical spring form conductor of nickel-chromium alloy composition and of predetermined size and conductive capacity, said helical spring form conductor normally maintaining its free end associated contact in conductive engagement with said fixed contact throughout a predetermined normal load current flow range but subject to linear expansion to separate the contacts and break the circuit continuity under heat generated in the helical conductor resultant from overload current flow above said range.

3,321,597
CIRCUIT BREAKER HAVING A THERMORESPONSIVE ELEMENT WITH TWO LEG PORTIONS AND RESET BUTTON FOR CAMMING SAID LEG PORTIONS

Gerhardus Jan Meijer, Almelo, Netherlands, assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Filed July 19, 1965, Ser. No. 472,827
11 Claims. (Cl. 200—122)

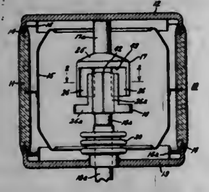


1. An electric switch comprising:
(a) an electrical insulating support;
(b) an electrically conductive thermoresponsive element having two leg portions;
(c) a bracket mounting said element on said support and adapted to squeeze said leg portions toward one another forming a snap acting element snapable from one position to a second position;
(d) a fixed contact mounted on said support;
(e) a contact mounted on said element remote from said bracket and movable into engagement with said fixed contact when said element is in said first position and out of engagement with said fixed contact when said second element is in said second position whereby an electrical circuit can be closed or opened;
(f) a reset button extending through a portion of said support and having a cam surface, said button slidable on said support between an inactive position and a reset position where said cam surface contacts and cams said leg portions when said element is in said second position; and
(g) biasing means urging said button toward said inactive position.

3,321,598
VACUUM-TYPE CIRCUIT INTERRUPTER WITH ARC-VOLTAGE LIMITING MEANS

August L. Streater, Broomall, Pa., assignor to General Electric Company, a corporation of New York

Filed Nov. 16, 1964, Ser. No. 411,289
11 Claims. (Cl. 200—144)

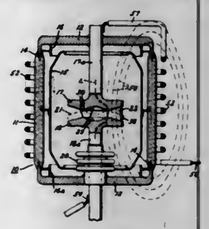


1. A vacuum-type circuit interrupter comprising:
(a) a pair of electrodes having a spaced-apart position,
(b) means defining a plurality of separate gaps electrically in parallel between said electrodes,
(c) means for forming parallel-connected arcs across said gaps during a circuit-interrupting operation,
(d) said gaps being so located that:
(i) the magnetic field in any one gap resulting from the total current through said interrupter passing through any element adjacent said one gap is in a direction generally parallel to the arc or arcs in said one gap, and
(ii) in any one gap, the magnetic field produced by current through an arc in any given other gap is in an opposite direction to the magnetic field produced by current through an arc in any of said other gaps immediately adjacent said given other gap,
(e) and means affording free communication between said gaps for the vapors generated by arcing at said gaps.

3,321,599
VACUUM-TYPE CIRCUIT INTERRUPTER WITH MEANS FOR REDUCING ARC VOLTAGE DURING HIGH INSTANTANEOUS CURRENTS

Thomas H. Lee, Media, Pa., assignor to General Electric Company, a corporation of New York

Filed Apr. 20, 1966, Ser. No. 549,750
10 Claims. (Cl. 200—144)



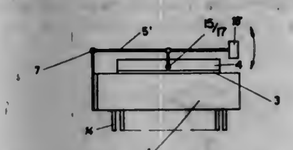
1. An alternating current circuit interrupter of the vacuum type that is adapted to interrupt currents having maximum instantaneous values higher than 20,000 amperes comprising:
(a) a highly evacuated envelope,
(b) a pair of electrodes within said envelope having a spaced-apart position and defining an arcing gap therebetween across which an alternating current arc is established,
(c) means developing in the immediate region of an arc at substantially any arcing location in said gap an axial magnetic field having its lines of force extending between said electrodes via paths generally parallel to the longitudinal axis of the arc,
(d) means controlling said magnetic field so that its flux density in the region of the arc during instantaneous arcing currents greater than 20,000 amperes will be high enough to substantially reduce the arc voltage as compared to that arc voltage normally developed during corresponding instantaneous currents without said axial magnetic field,
(e) means including eddy-current-reducing means effectively eliminating said axial magnetic field during the period just prior and upon reaching to a current zero following an instantaneous arcing current greater than 20,000 amperes so that there is no substantial impairment of the voltage withstand ability of said gap as compared to a gap having no axial field present during said period.

3,321,600
SWITCH WITH VARIABLE CONTACT ELEMENTS

Johannes Bernutz, Ludwigsburg-Hoheneck, Germany, assignor to International Standard Electric Corporation, New York, N.Y., a corporation of Delaware

Filed Mar. 22, 1965, Ser. No. 441,499
Claims priority, application Germany, Apr. 10, 1964, St 21,953
13 Claims. (Cl. 200—166)

1. A switch for providing readily changeable connections comprising a spring strip body for receiving and holding contact springs, a plurality of contact springs held in said spring strip body, a switching piece engaging said contact springs, said switching piece including contact leads over a part of at least one surface for contacting said contact springs, a rail engaging and supporting said switching piece, a lever mechanism engaging and

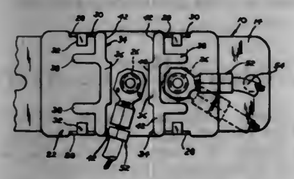


supporting said rail, and a switching handle connected to said lever mechanism for activating said lever mechanism to cause the switching piece to engage and disengage selected contact springs.

3,321,601
ELECTRIC SWITCH HAVING BARRIERS ISOLATING THE SEVERAL TERMINALS AND FRAME-ATTACHING TABS THEREOF

Kenneth H. Walterick and Walter H. Anthony, Levittown, Pa., assignors to Circle F Industries, Inc., a corporation of New Jersey

Filed Feb. 9, 1966, Ser. No. 526,299
2 Claims. (Cl. 200—168)



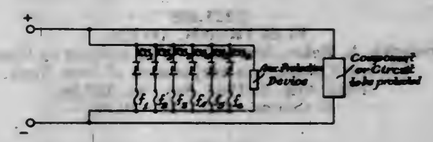
1. In an electric switch of the type including a flat, rectangular base of electrically insulative material, a frame of electrically conductive material having four rectangularly spaced connecting tabs attaching the frame to the base, a first terminal attached to the center of the base, and at least one second terminal attached to the base in alignment longitudinally centrally of the base with the first terminal, the improvement comprising a pair of identically but oppositely formed barriers isolating the terminals and the tabs one from another, said barriers formed integrally with the base and comprising:
(a) a pair of ribs, one in each barrier, said ribs extending transversely of the base at opposite sides of the first terminal to define between the ribs a center recess and a pair of side recesses communicating with the center recess and opening upon the respective sides of the base, said ribs extending substantially the full distance across the body and isolating the first terminal from the several tabs; and
(b) means extending from the respective transverse ribs in a direction away from the center recess, said means of the respective barriers defining end recesses opening toward the respective ends of the base, said second terminal disposed in one of said end recesses, said means extending as separators between the respective end recesses and the sereval connecting tabs to isolate the tabs from the second terminal.

3,321,602
VOLTAGE-SENSITIVE MULTIPLE SWITCH

Henry D. Hazzard, Williamstown, Mass., assignor to Sprague Electric Company, North Adams, Mass., a corporation of Massachusetts

Filed July 12, 1965, Ser. No. 471,256
5 Claims. (Cl. 200—181)

1. A voltage sensitive multiple switch comprising a valve metal body having a plurality of dielectric oxide areas having progressively higher breakdown voltages,



a fusible conductive contact affixed to each of said areas, and a common conductive contact affixed to said body.

3,321,603
RECOVERY OF UREA FROM OFF-GASES FROM THE SYNTHESIS OF MELAMINE FROM UREA IN THE GAS PHASE WHICH HAVE BEEN FREED FROM MELAMINE

Guenther Hamprecht, Limburgerhof, Pfalz, Hermann Dieter Fromm, Ludwigshafen (Rhine), Matthias Schwarzmann, Limburgerhof, Pfalz, and Ludwig Vogel, Frankenthal, Pfalz, Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany
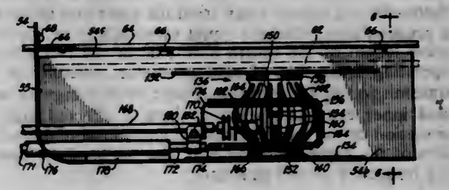
No Drawing. Filed Mar. 23, 1965, Ser. No. 442,176
Claims priority, application Germany, Mar. 28, 1964, B 76,110
10 Claims. (Cl. 260—555)

1. A process for recovering urea from the off-gas which has been obtained in a melamine synthesis from urea carried out in the gas phase and in the presence of catalysts and which has been freed from melamine by fractional condensation at from 150° to 200° C., wherein the off-gas is brought into intimate contact with a melt of urea, the temperature of said melt being kept above its melting point.

3,321,604
ELECTRONIC OVEN

Anthony J. Stecca, Wheaton, Louis A. Barnas, Cary, Sophocles J. Dokos, Chicago, William B. Jarzembski, Riverside, and Paul C. Norris, Wheaton, Ill., assignors to Sunbeam Corporation, Chicago, Ill., a corporation of Illinois

Filed Feb. 3, 1964, Ser. No. 342,199
20 Claims. (Cl. 219—10.55)



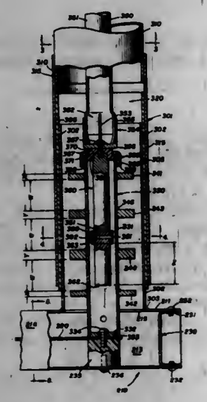
1. An apparatus for heating a load comprising an oscillator operating at a fixed frequency, a cavity defining member coupled to the oscillator, means for supporting a load within the cavity, the resonant frequency of the cavity changing with different loads, a reentrant portion in the cavity including conductive walls, said conductive walls being concurrently adjustable in at least two mutually perpendicular directions to change the resonant frequency of the cavity, and control means responsive to a difference between the resonant frequency of the cavity and the fixed frequency for automatically adjust-

ing the conductive walls of the reentrant portion to tune the resonant frequency of the cavity to the fixed frequency of the oscillator.

3,321,605
ELECTRONIC OVEN

Frederick A. Reker, Scarsdale, N.Y., assignor to General Electric Company, a corporation of New York

Filed Aug. 6, 1964, Ser. No. 387,861
8 Claims. (Cl. 219—10.55)



1. An electronic oven comprising structure defining an apparatus compartment and a cooking cavity, a generator disposed in said apparatus compartment for generating ultra-high frequency electromagentic wave energy, a transmission line of the coaxial conductor type interconnecting said generator and said cooking cavity, whereby the electromagnetic wave energy is supplied into said cooking cavity via said transmission line from said generator, said transmission line including a tubular outer conductor and an inner conductor disposed therein, said inner conductor including two longitudinally disposed sections electrically insulated from each other, one of said inner conductor sections including a tube and the other of said inner conductor sections including a probe extending into said tube, and a ring of low-loss dielectric material carried by said probe in surrounding relation therewith and spaced away from the inner end thereof by a predetermined distance equal substantially to a quarter wave length of the fourth harmonic of the fundamental operating frequency of said generator, whereby in the transmission of the electromagnetic wave energy between said inner conductor sections there is effected high attenuation of the fourth harmonic and substantial attenuation of the higher harmonics of the fundamental operating frequency of said generator.

3,321,606
HEADER FOR WIRES

David I. Cropp, Meadville, Chalmer C. Jordan, Saegertown, and Robert W. Lingo, Meadville, Pa., assignors to Glass-Tite Industries, Inc., Providence, R.I., a corporation of Rhode Island

Filed June 22, 1964, Ser. No. 376,853
7 Claims. (Cl. 219—79)

1. A machine for forming a head on the end of wire comprising

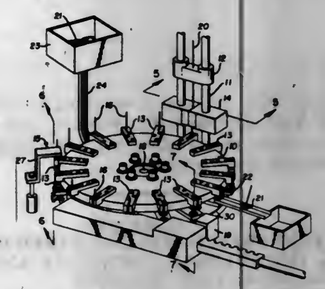
heading means having two jaws, one movable relative to the other,

said jaws each having a surface engaging the other,

a groove in each said jaw,

said grooves each defining a space generally having the the cross sectional shape of one half of said wire,

said shape being of lesser dimension axially and of greater dimension laterally than said wire diameter defining a space lateral of said wire and receiving

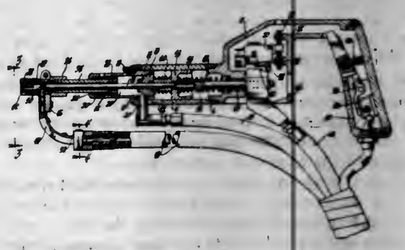


said wire as it is distorted and its material is moved from an axial position to a lateral position an amount less than its yield point when said jaws are closed.

3,321,607
AUTOMATIC FEED RESISTANCE WELDING GUN

Francesco Henry Falcone, Warren, Warren Le Roy Jubelt, East Detroit, and Donald Stanner, Dearborn, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Oct. 1, 1965, Ser. No. 491,920
3 Claims. (Cl. 219—98)

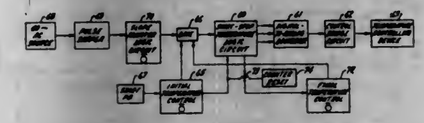


1. In a portable welding apparatus that may be hand carried having a casing supplied with electrical power, fluid pressure and collet means for supporting a part to be welded to a work member, the improvement comprising supply means conveying parts to said collet means in a predetermined position, fluid pressure means connected to said supply means to move said parts sequentially into said collet means, manually actuated means controlling said fluid pressure means to selectively supply parts to said collet means, reciprocable means mounted in said casing and being movable to force a part supported in said collet means into contact with a work member, electrical switching means mounted in said casing and connected to the electrical power source, and mechanical actuating means on said electrical switch means engageable by a part of said reciprocable means to close the switch and apply electric power to said reciprocable means and to the part when the part is pressed through said collet means into engagement with the electrically grounded work member thereby completing an electrical welding circuit.

3,321,608
DIGITAL PROGRAMMER FOR CONTROLLING VARIABLE CONDITION

Howard T. Sterling, Downers Grove, Ill., assignor to Packard Instrument Company, Inc., Lyons, Ill., a corporation of Illinois

Filed Apr. 15, 1963, Ser. No. 273,235
10 Claims. (Cl. 235—151.1)



1. In a digital ramp programmer for controlling the operating level of a condition which is initially at an ambient condition, the combination which comprises digital means for providing a digital signal having a value representative of a desired operating level, a control device responsive to the digital signal for controlling the operating level of the condition in accordance with the instantaneous value thereof, means associated with the digital means for initially causing the digital signal to have a value representative of a desired initial operating level, means associated with the digital means for limiting the value of the digital signal to a value representative of a desired final operating level, means for causing the digital signal to be varied from the value representative of the initial operating level to the value representative of the final operating level at a desired rate, and means responsive to the condition attaining the final operating level for causing the condition to be returned to the ambient condition when rendered operative.

3,321,609
COMPUTER LANGUAGE TRANSLATOR

Robert B. Bonney and Charles R. Sublett, Tustin, Calif., assignors to Electronic Engineering Co. of California, Santa Ana, Calif., a corporation of California

Filed Dec. 5, 1958, Ser. No. 778,396
5 Claims. (Cl. 235—154)

1. In an alterable converting means for selectively converting any one of plural digital codes from one to the other independent of an electronic computer electrical apparatus comprising:

a first means to accept magnetically reproduced digital information in the form of electrical energy levels;

a static core matrix memory to store in excess of five words of digital information;

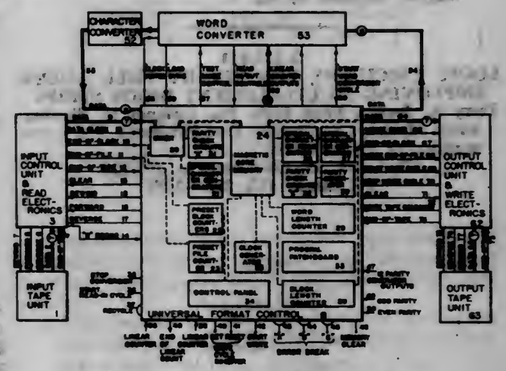
an electronic load element having plural logic and gating circuits to serially load said memory;

an electronic unload element having plural logic and gating circuits to serially unload said memory;

interconnecting means comprising a patchboard and any one of a plurality of prewired program boards connectable singly therewith, said patchboard having a plurality of terminals, wherein electrical connections coming into certain terminals of said patchboard proceed through the wiring of said program board and out through other of said terminals of said patchboard;

said first means, static core matrix memory, electronic load element, electronic unload element, logic and gating circuits of the load and unload elements connected respectively to said patchboard;

said interconnecting means connecting said first means output to said electronic load element input, said logic circuits and said gating circuits in said load element, said electronic load element output to said static matrix memory input, and said static matrix

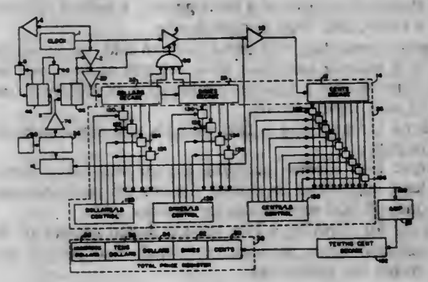


memory output to said electronic unload element input, and said logic circuits and said gating circuits in said unload element, for loading said memory in excess of five words according to one of said digital codes and to unload said memory according to another of said digital codes.

3,321,610
DECIMAL RATE MULTIPLICATION SYSTEM

Harry A. Currie, Jr., Dallas, Jack S. Mason, Richardson, and Robert H. Wise, Dallas, Tex., assignors, by direct and mesne assignments, of one-half to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware, and one-half to Sanitary Scale Company, Belvidere, Ill., a corporation of Illinois

Filed Jan. 14, 1964, Ser. No. 337,636
16 Claims. (Cl. 235—160)



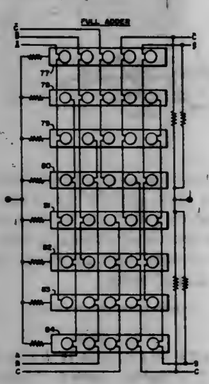
1. A system for multiplying a first number by a second number to produce a third number equal to the integral portion of the product of said first and said second numbers, said first number being represented by a first series of pulses and said third number being represented by a selected sequence of pulses, comprising:

(a) a decade counter means having a plurality of outputs for generating one output signal at one of said plurality of outputs in response to each of said first series of pulses applied to the input thereof; and

(b) control means coupled to said plurality of outputs

for applying to a common terminal said selected sequence of pulses derived from output signals occurring at said plurality of outputs, said selected sequence consisting of one of said pulses being applied to said common terminal each time the product of the number of pulses in said first series applied to the input of said decade counter means and said second number increases by ten.

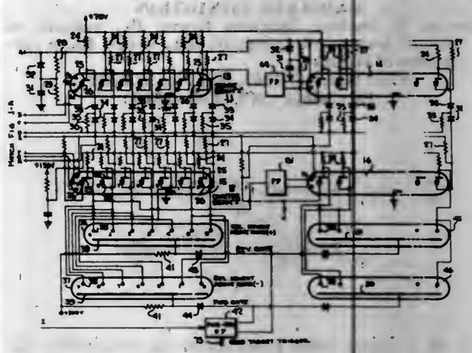
3,321,611
LOGIC CIRCUITRY FOR BINARY FULL ADDER EMPLOYING MULTI-ELEMENT DIODE STRIPS
Terry A. Jeeves, Penn-Hills, Pa., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Filed Aug. 31, 1964, Ser. No. 393,129
6 Claims. (Cl. 235—175)



5. A full adder comprising:
a plurality of semiconductor devices each comprising a semiconductor member having a plurality of doped regions on a first surface thereof, each region forming a diode element with said semiconductor member;
a plurality of input leads for receiving binary input signals indicative of a first operand, a second operand, a carry, and their complements;
means connecting said input leads to said doped regions in a manner such that three regions of each said devices receive a unique combination of different ones of said input signals;
means for applying a first bias to said semiconductor member;
output lead means including a sum and carry output lead connected to doped regions of predetermined ones of said semiconductor devices; and
means for applying a bias to said doped regions of the semiconductor members to which said output lead means are connected.

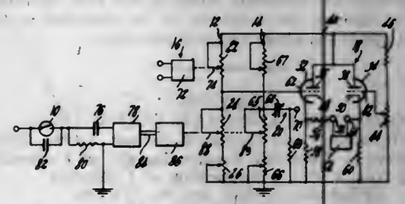
3,321,612
SUBTRACTION CIRCUIT
Franklyn D. Diller, Loveland, Ohio, assignor to Avco Corporation, Cincinnati, Ohio, a corporation of Delaware
Filed Nov. 12, 1963, Ser. No. 322,688
25 Claims. (Cl. 235—176)

1. A circuit for subtracting a serial second decimal signal from a first decimal signal comprising a first ten state decimal register, means for supplying said first signal in nine's complement form to said register, means for advancing the count stored in said register in response to each serial digit of said second signal, a pair of decimal indicators responsive to the count stored in said register, each digit of one of said indicators being responsive to the nine's complement of the count stored in said register, each digit of the other of said indicators being responsive to the count stored in said register, means for selectively



activating only one of said indicators at a time, said last named means including means for activating said other indicator only in response to the count of the second signal exceeding that of the first signal, and means for setting the count of said first register to zero in response to the counts of said two signals being equal.

3,321,613
MEASURING INSTRUMENT
Campbell L. Searle, Weston, Mass., assignor to Automation Management Incorporated, Westboro, Mass., a corporation of Massachusetts
Filed Sept. 19, 1961, Ser. No. 139,109
17 Claims. (Cl. 235—184)

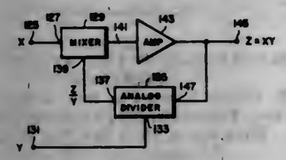


1. A performance sensing system for computing an output indicative of actual performance as a function of a predetermined standard performance comprising sensor means for serially providing digital indications spaced in time as a function of the actual performance supervised by said sensing system, means for providing a standard performance manifestation as a function of time, means for continuously combining said standard performance manifestation and the digital indications provided by said actual performance sensor to provide a modified performance indication, and means to record said modified performance indication as a function of time to provide actual performance efficiency information.

3,321,614
ANALOG MULTIPLIER EMPLOYING RATIO INDICATING APPARATUS
Victor S. Levadi, Evanston, Ill., assignor to Honeywell Inc., a corporation of Delaware
Filed June 5, 1963, Ser. No. 285,817
1 Claim. (Cl. 235—194)

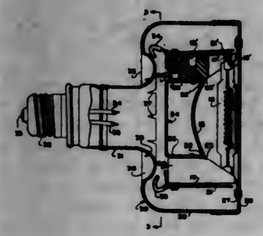
Computer apparatus comprising, in combination:
mixer means including first and second input means and output means;

dividing means including first and second input means and output means;
means connected to said first input means of said mixer means for supplying thereto a multiplicand signal;
means connected to said first input means of said dividing means for supplying thereto a multiplier signal;
means connecting said output means of said dividing means to said second input means of said mixer means;



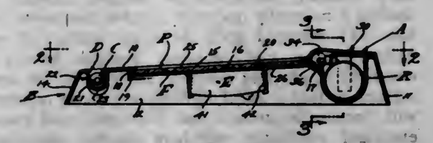
amplifying means including input and output means, said input means of said amplifying means being connected to said output means of said mixer means, said output means of said amplifying means being connected to said second input means of said dividing means; and
output terminal means connected for receiving signals from said output means of said amplifying means and adapted for providing an output indicative of the product of said input multiplicand and multiplier signals.

3,321,615
ELECTRICAL LIGHTING APPARATUS
Hy Hilzen, 1 Shore View Drive, Yonkers, N.Y. 10710
Filed Feb. 23, 1965, Ser. No. 434,543
4 Claims. (Cl. 240—3)



1. In an electrical lighting apparatus of the character described, a dished reflector having diametrically-opposite tabs struck therefrom, extending exterior thereof in the direction away from the mouth thereof whereby opposite openings are formed therein, an elongated electric lamp having aligned contact terminals exposed at its respective ends, two dielectric members extending through said openings respectively and mounted on said tabs respectively whereby a portion of each of said members is within said dished reflector and a portion is exterior thereof; each of said interior portions presenting a contact terminal releasably engaging an end terminal of said lamp and positioned on resilient conductive elements extending through said openings along said dielectric members respectively; said resilient elements being secured to said exterior portions of said dielectric members respectively, a sheet metal tubular casing having a reduced section terminating in a screw shell having a contact element insulated therefrom at its remote end, to be received in a socket outlet, and conductors within said casing connecting said screw shell and its contact element to said resilient elements respectively; said reflector being mounted in and extending into the larger section of said tubular casing and closing the larger end thereof whereby the mouth of said reflector is exposed.

3,321,616
ILLUMINATED SKETCH AND MEMO BOARD
Ronald E. Adler, 330 N. Poinsettia Place, Los Angeles, Calif. 90036
Filed Jan. 11, 1965, Ser. No. 424,673
6 Claims. (Cl. 240—6.4)



1. An illuminated sketch and memo board for general illumination and for the illumination of visible material deposited thereon, said sketch and memo board comprising:
A body member (B), said body member having four side walls (11, 12, 13 and 14) depending therefrom, one of said side walls (11) having a greater height than another of said side walls (14) so that said body member is provided with a sloping configuration, said body member having a top surface (10) provided with an enlarged opening (15) therein, the lower peripheral edge of said opening being provided with an extended projected edge (19) for receiving and retaining structure (P) placed within said opening, said body member being provided at one end thereof with a well shaped receiver (R) for receiving and retaining electrical illuminating means (A) therein for illuminating said sketch and memo board, said body member being provided at the other end thereof with a channel shaped receiver (22) for receiving and retaining a marking instrument (C) used for making visible marks on said sketch and memo board;
A plate member (P), said plate member being made of a material which passes light therethrough, said plate member being of appropriate size so as to fit snugly within the opening (15) provided within the top surface (10) of said body member (B) and thus be supported by the extended projected edge at the lower periphery of said opening;
A frame member (F), said frame member being made of an opaque material, said frame member being provided with a cavity (42) for receiving and retaining erasing materials (E) therein, said frame member being connected to said body member so as to be positioned below said plate member and provide support for said plate member;
Illuminating means (A) for transmitting light onto said plate (P) so as to provide for general illumination and provide for the illumination of visible material deposited on said plate, said illuminating means including a lamp member (34) mounted within said body member so that the filament of said lamp member is substantially centered between the upper (25) and lower (26) plane surfaces of said plate for radiating a substantial quantity of light into the marginal portion of said plate for internally illuminating said plate and thereby effectively lighting the peripheral edge portions of said plate, said plate being provided with a notched portion (36) on one of its ends for receiving the filament section of said lamp member, said illuminating means also including at least two dry cell batteries electrically connected in an electrical series connection for electrically energizing said lamp member; and

Electrical switching means for electrically energizing and de-energizing said lamp member, said switching means including at least two electrical conductor members (31 and 32) the opposite ends of which are biased against opposite end terminals of the dry cell batteries and the other ends of which are in electrical contact with said lamp member, said switching means also including a shiftable contactor member (33–35) for electrically connecting and disconnecting said electrical conductor members so as to thereby electrically energize and de-energize said lamp member, said contactor member (33–35) including a manually operable slidable contractor button (33) mounted upon the upper surface of said body member, said contactor member having an electrical conducting member attached to its lower surface so that manual movement of said contactor will electrically connect and disconnect said battery electrical conductor members thereby electrically energizing and de-energizing said lamp member so as to thereby control the periods of time during which light is radiated from said lamp member to said plate for general illumination and for the illumination of visible material deposited on the plate of said illuminated sketch and memo board.

3,321,617
SNAP ON NIGHT PROTECTOR

Viola G. Santana, 1022 Carmelita Ave., Sacramento, Calif. 95838

Filed Feb. 5, 1965, Ser. No. 430,618
1 Claim. (Cl. 240—6.4)



A snap on night protector comprising, in combination: an arm band, which comprises

a substantially rectangular central area, and

first and second band members extending from opposite sides thereof;

a plurality of snaps in spaced relation on said band members;

a curved reflector mounted in said center area facing outwardly therefrom;

a light bulb mounted in the center of the reflector;

a battery housing affixed to the rear of the central area;

a pair of batteries mounted in the battery housing; and

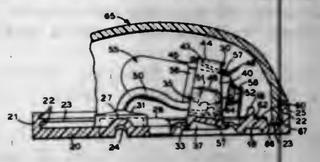
conductor means interconnecting the bulb and the batteries for energizing the bulb.

3,321,618
AUTOMOTIVE VEHICLE LAMP WITH SNAP-IN LENS

Elliott Goldbaum and Vilho Koljonen, Brooklyn, N.Y., and Joseph A. Feler, Newark, N.J., assignors to Lehigh Valley Industries, Inc., New York, N.Y., a corporation of Delaware

Filed Oct. 9, 1964, Ser. No. 402,719
9 Claims. (Cl. 240—8.2)

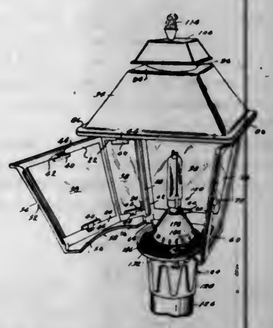
1. An automotive vehicle lamp comprising a base having a substantially cylindrical upstanding portion, a lens having a substantially cylindrical downwardly extending rim portion, said upstanding portion and said rim portion overlying one another in the assembled position, said overlying portions being provided with interengaging ribs forming a labyrinthine seal between said lens and said base, at least one of said overlying portions being formed of a relatively resilient material to permit disengaging deflection thereof on the application of an axial force, and means for applying a disengaging axial force to said base and lens on rotation of said lens relative to said base, said last-named means comprising a cam surface on said base and a cooperating cam surface on said lens.



3,321,619
LAMP HAVING SWING APART ACCESS PORTION

Donald E. Dailey, Evansville, Ind., assignor to Arkla Industries Inc., Evansville, Ind., a corporation of Delaware

Filed Jan. 4, 1965, Ser. No. 423,255
7 Claims. (Cl. 240—11)

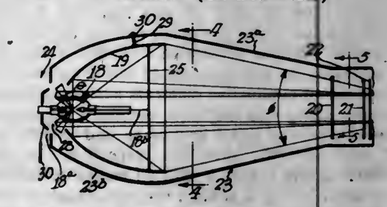


1. A gas lamp including: a chamber defining body having a plurality of glass panel receiving sides, said sides being obliquely angularly disposed with respect to one another, at least two of said sides being integrally fixedly joined to one another along a lateral edge of each, said two sides being hingedly joined to the remainder of said sides via hinge means on the opposite lateral edge of one of said two sides so as to be swingable toward the remainder of said sides in a closed position thereof and away therefrom in an open position thereof to close and open said chamber, and latch means on the other of said two sides cooperable with the remainder of the body for removably securing said two sides in the closed position thereof.

3,321,620
SOLAR SIMULATOR

John R. Miles, Glenview, Richard A. Karlin, Wilmette, and James R. Gettel, Evanston, Ill., and Joseph W. Steiner, Berea, Ohio, assignors to Linear, Inc., Chicago, Ill., a corporation

Filed Aug. 5, 1963, Ser. No. 299,902
2 Claims. (Cl. 240—41.3)



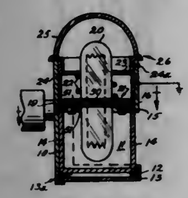
1. In a solar simulator, a light source, a reflector including a generally ellipsoidal section positioned about said source with said source being located at the section

proximal focus and extending through said reflector, a supplemental arcuate reflector about said source exterior to said section, both said section and arcuate reflector being arranged to develop an annular pattern in a plane adjacent to but spaced short of the distal focus of said section, a prismatic lenticular lens at said plane, and a second lenticular lens at the focus of said prismatic lenticular lens for collimating light rays from said prismatic lenticular lens.

3,321,621
ILLUMINATING MEANS FOR A VEHICLE

Roberto L. Bustamante, Santa Ana, El Salvador

Original application July 12, 1963, Ser. No. 294,701, now Patent No. 3,278,787, dated Oct. 11, 1966. Divided and this application Jan. 12, 1966, Ser. No. 535,631
4 Claims. (Cl. 240—57)



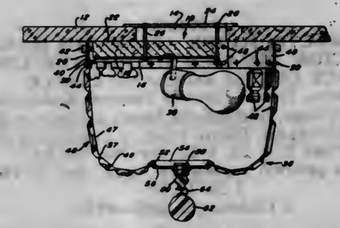
1. An adjusable bracket assembly for adjustable attachment of a clearance light housing to a vehicle and for receiving and permitting the passage therethrough of an electrical conductor from a source of electrical energy in said vehicle to a light source in said clearance light, comprising an elongated casing, said casing being open at both ends and one of said ends being adapted for mounting attachment to said vehicle, a movable sleeve disposed within said casing, said sleeve being provided with an elongated extension, said elongated extension being of a lesser diameter than said sleeve and extending through the other end of said casing opposite said end adapted for connection to said vehicle, the opening in said other end of said casing being restricted so that said sleeve will be prevented from passing through said casing, said elongated extension supportably connecting said housing with said sleeve and casing and vehicle and thereby permitting movement of said housing with respect to said casing and said vehicle, said sleeve being provided with a T-shaped bayonet slot adapted to receive a lug carried by and projecting from an interior portion of said casing such that said housing will be removably secured in a first position when said lug is received by the leg portion of said T-shaped bayonet slot and turnable in opposed directions transversely from said first position when said lug is received by the top portion of said T-shaped bayonet slot.

3,321,622
CRYSTAL BASKET LIGHTING FIXTURE

Carl S. Wellhofer, Glenside, and Julius Friedman, Levittown, Pa., assignors to Lighting Corporation of America, a corporation of Pennsylvania

Filed Mar. 5, 1964, Ser. No. 349,577
1 Claim. (Cl. 240—128)

A self-supporting crystal basket for a lighting fixture comprising an annular band, a plurality of spaced radially directed holes extending through said band, body structure disposed below said band, said body structure comprising a pair of plates in opposed substantially parallel relation, said plates having aligned central apertures, a headed nipple extending through said apertures, a finial threadedly coupled to said nipple for applying clamping pressure to said plates, an ornament depending from said finial, a plurality of rigid swags each having a first end coupled to said band at spaced positions and a second end coupled to said body structure, each swag having a plurality of interconnected light transmissive prismatic bodies, and a plurality of links rigidly interconnecting said light transmissive prismatic bodies so that said bodies on each swag are arranged in an integral rigid string, one of said pair of plates disposed at one side of said second ends of said swag at a location corresponding to an interior portion of the basket, and the other of said pair of plates disposed on the opposite side of said second ends of said swags at a location corresponding to an exterior portion of said basket whereby

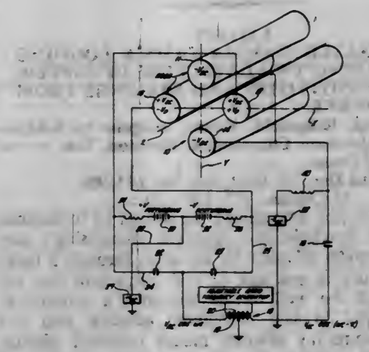


said swag second ends are clamped between said plates, said first end of each swag being provided with a pin, each pin extending through one of said holes in said band, said first end of said swag being radially inward of said band, said pins being frictionally engaged in said holes, the widths of each said swag tapering from said first end toward said second end, a portion of each swag adjacent said second end being bowed, the radial dimensions of said body structure being smaller than said band whereby the second ends of said swags are disposed radially inward of the first ends of said swags, said swags being made of a clear polymeric material.

3,321,623
MULTIPOLE MASS FILTER HAVING MEANS FOR APPLYING A VOLTAGE GRADIENT BETWEEN DIAMETRICALLY OPPOSITE ELECTRODES

Wilson M. Brubaker, Arcadia, and Charles F. Robinson, Pasadena, Calif., assignors, by mesne assignments, to Bell & Howell Company, Chicago, Ill., a corporation of Illinois

Filed May 13, 1963, Ser. No. 279,724
14 Claims. (Cl. 250—41.9)



1. A multipole mass filter for selectively detecting charged particles comprising a source of charged particles having different mass-to-charge ratios, a plurality of sub-

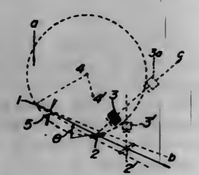
stantially parallel electrodes symmetrically disposed about a central axis, means for applying an A.C. voltage to the electrodes to create an alternating multipole electric field component, means for applying a D.C. voltage to the electrodes to create a static multipole field component, means for providing a voltage difference between at least two diametrically opposite electrodes, and means for detecting charged particles passed through said filter in a direction substantially parallel to said electrodes, whereby a region of zero electrical field along the central axis is eliminated and only particles of a predetermined mass-to-charge ratio are selectively detected.

3,321,624

X-RAY SPECTROMETER APPARATUS HAVING A DETECTOR LOCATED WITHIN THE CIRCUMFERENCE OF THE ROWLAND CIRCLE

Seigo Kishino, Tokyo, Teruichi Tomura, Kodaira-shi, and Hiroshi Okano, Hachioji-shi, Japan, assignors to Hitachi, Ltd., Chiyoda-ku, Tokyo, Japan, a corporation of Japan

Filed Feb. 25, 1964, Ser. No. 347,224
Claims priority, application Japan, Apr. 5, 1963, 38/17,215
5 Claims. (Cl. 250—49.5)



1. A linear type X-ray spectrometer apparatus, comprising: means for irradiating a specimen with an electron beam for generating characteristic X-ray emission from the specimen along a first axis, diffraction means for diffracting the characteristic X-ray emission along a second axis determined by the direction of X-ray diffraction from said diffraction means, said first axis passing through said specimen and said diffraction means, detector means for detecting the diffracted X-ray emission, said diffraction means being movable along said first axis by a predetermined distance such that said diffraction means and said specimen are positioned on the circumference of a circle having a predetermined radius, and said detector means being movable along said second axis so as to be positioned at a point on said second axis within the circumference of said circle in closely spaced relation with said diffraction means.

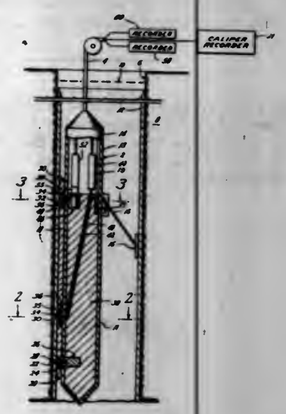
3,321,625

COMPENSATED GAMMA-GAMMA LOGGING TOOL USING TWO DETECTORS OF DIFFERENT SENSITIVITIES AND SPACINGS FROM THE SOURCE

John S. Wahl, Ridgefield, Conn., assignor to Schlumberger Technology Corporation, Houston, Tex., a corporation of Texas

Filed Dec. 10, 1962, Ser. No. 243,300
13 Claims. (Cl. 250—71.5)

2. Apparatus for determining the density of formations surrounding a borehole; said apparatus comprising a subsurface instrument adapted for traversal through a borehole; means urging one side of said instrument into engagement with the wall of the borehole; a gamma-ray source mounted in said instrument adjacent said one side; first gamma-ray detector means mounted longitudinally of said instrument immediately adjacent said one side and spaced about seven inches from said source; second gamma-ray detector means mounted in said instrument adjacent said one side and spaced about sixteen inches from said source, said second detector means having a sensitivity about 100-to-1000 times greater than that of said first detector; shielding means substantially opaque to gamma rays disposed about said detectors to make said detectors preferentially sensitive in the direction of said one side of said instrument; shielding means



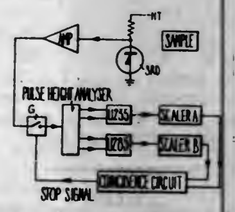
substantially opaque to gamma rays disposed about said source to direct gamma rays from said source primarily toward said one side of said instrument; and means for recording indications which are a function of signals derived from said detectors.

3,321,626

MEASURING APPARATUS

Dennis Allenden, Beenham, near Reading, Keith Boddy, Reading, David Vernon Freck, Basingstoke, and Stanley Ernest Hunt, Reading, England, assignors to Associated Electrical Industries Limited, London, England, a British company

Filed July 5, 1962, Ser. No. 207,627
Claims priority, application Great Britain, July 7, 1961, 24,693/61
6 Claims. (Cl. 250—83.3)



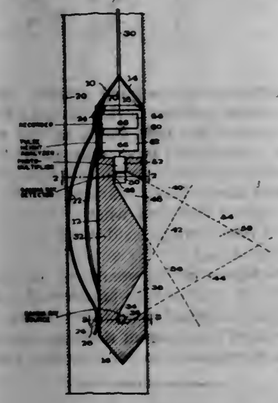
4. Measuring apparatus for measuring the relative proportion of uranium-235 in a mixture of uranium-235 and uranium-238 comprising detector means for generating a first set of pulses at a recurrence rate dependent upon the degree of concentration of uranium-235 in the mixture and for generating a second set of pulses at a recurrence rate dependent upon the degree of concentration of the uranium-238, means for separating said two sets of pulses, a first pulse counter which counts the first set of pulses positively, i.e. commencing from zero, a second pulse counter which commencing simultaneously with the first counter counts the second set of pulses negatively, i.e. commencing at the maximum count and reducing, and means for reading at least the first count when the readings of the counters coincide.

3,321,627

GAMMA-GAMMA WELL LOGGING COMPRISING A COLLIMATED SOURCE AND DETECTOR

Charles W. Tittle, Oakmont, Pa., assignor to Schlumberger Limited (Schlumberger N.V.), Houston, Tex., a corporation of the Netherlands Antilles

Continuation of application Ser. No. 337,828, Feb. 19, 1953. This application Oct. 7, 1966, Ser. No. 586,598
18 Claims. (Cl. 250—83.3)



1. In the art of gamma-gamma borehole logging that involves subjecting earth formations to gamma-rays emanating from a gamma-ray producing zone situated within the borehole, and detecting gamma-rays in a localized detecting zone also situated in the borehole; the improvement comprising the steps of attenuating gamma-rays emanating from the gamma-ray producing zone in substantially all directions excepting a limited solid angle directed towards the earth formations, attenuating gamma-rays that are proceeding towards the detecting zone from substantially all directions excepting those passing within a limited solid angle that intersects the first-mentioned limited solid angle within the earth formations, and recording indications primarily representing those gamma-rays possessing Compton-degraded energies scattered within the volume of earth formations defined by said limited solid angles.

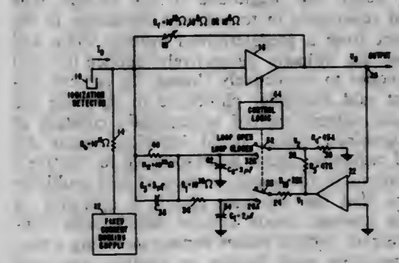
3,321,628

BASELINE STABILIZATION SYSTEM FOR IONIZATION DETECTOR

James E. Webb, Administrator of the National Aeronautics and Space Administration, with respect to an invention of J. Howard Marshall, Pasadena, Calif.

Filed Sept. 18, 1964, Ser. No. 397,665
2 Claims. (Cl. 250—83.6)

1. In a system for obtaining a chromatograph from a gas sample wherein an ionization detector is employed and its output is applied to the input of an electrometer amplifier which has an output, apparatus for stabilizing the baseline output of said ionization detector prior to the measurement of said gas sample comprising a network coupling the output of said electrometer amplifier to the output of said ionization detector including a comparator amplifier having its input connected to the output of said electrometer amplifier, switch means having an open and closed position, resistor means connecting the output of said comparator amplifier to said switch means, storage capacitor means connected to the output of said comparator amplifier when said switch means is in its closed position, means connecting said storage capacitor means to the output of said ionization detector, means operating said switch means to its closed position for charging said capacitor means to a voltage for bucking out the quiescent output of said ionization detector prior



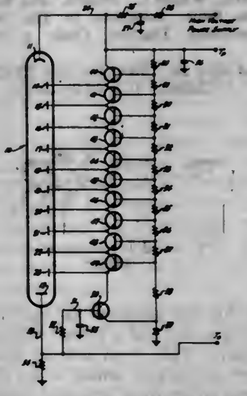
to the measurement of said gas sample, and means for opening said switch means when it is desired to measure said gas sample.

3,321,629

DYNODE CONTROL CIRCUIT FOR A PHOTOMULTIPLIER TUBE USING CASCADED TRANSISTORS

Gilbert Louis Hobrough, Los Altos, Calif., assignor to Itek Corporation, Lexington, Mass., a corporation of Delaware

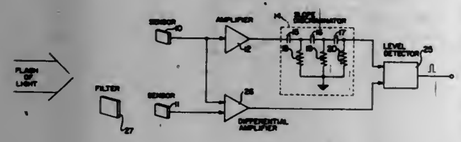
Filed Nov. 26, 1963, Ser. No. 325,867
2 Claims. (Cl. 250—207)



1. In a circuit providing two points adapted to have different potentials applied thereto by appropriate connection thereof to a power suppy, the combination of: a multiplier phototube having a cathode connected with one of said points, an anode connected with the other of said points, and a group of dynodes for amplifying the cathode current in proportion to the values of the potentials respectively applied to said dynodes; and a regulator circuit for automatically adjusting the current amplification of said phototube to maintain the average anode current thereof substantially constant comprising voltage-determining means connected with a plurality of said dynodes for respectively applying voltages thereto of progressively higher values in an increasing order in the direction from the first such dynode adjacent said cathode to the final dynode adjacent said anode and including a plurality of serially connected resistances coupled with said points and providing a current path therebetween and being respectively coupled with said

plurality of dynodes for applying voltages thereto proportional to the magnitude of the current flow through said resistances, current control means connected with said anode and with said resistances and being operative to regulatively adjust the magnitude of the current flow through said resistances in response to deviations in the anode current from a predetermined average value and thereby alter the voltages respectively applied to said plurality dynodes to correctively change the current amplification of said multiplier phototube to maintain the average anode current thereof substantially constant at such predetermined value, signal isolation means for making said regulator circuit nonresponsive to relatively rapid fluctuations in the anode current of said multipler phototube so that the regulator circuit is operative to maintain the average anode current substantially constant, said current control means further including a plurality of transistors each having an emitter, base and collector and being cascade-connected emitter-to-collector and coupled with said points, the emitter-collector junctions of certain successive transistors being respectively connected to said plurality of dynodes and the bases of the certain successive transistors being respectively connected to the successive junctions of the relatively corresponding resistances, whereby the potentials applied to said plurality of dynodes are essentially equal respectively to the voltage drops across the associated resistances as a consequence of the emitter follower action of said transistors.

3,321,630
SYSTEM FOR THE DETECTION OF HIGH INTENSITY LIGHT FLASHES
Richard F. Durig, Ralph C. Willett, and Robert D. Collins, Dayton, Ohio, assignors to The National Cash Register Company, Dayton, Ohio, a corporation of Maryland
Filed May 28, 1963, Ser. No. 283,787
3 Claims. (Cl. 250—209)



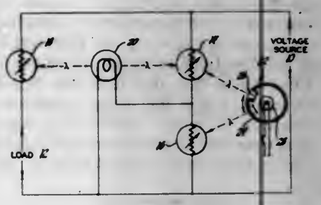
1. A system for the detection of high intensity light flashes comprising a first and a second sensor device each arranged to receive light from sources external of the system, and each of the type which, when illuminated by light, will produce an electrical potential signal of a magnitude which is proportional to the level of intensity of the illuminating light, first means for amplifying said electrical potential signal produced by the first one of said sensor devices, a slope discriminator means for producing a degree of slope signal having an amplitude proportional to the rate of rise of said electrical potential signal produced by said first sensor device, means for applying said electrical potential signal from said amplifying means to said slope discriminator means, second means for amplifying the difference between the said electrical potential signals produced by each of said sensor devices and producing an amplified difference potential signal, electrical circuit means for applying the said electrical potential signals produced by each of said sensor devices to said second amplifying means, and a level detector means sensitive to potential magnitudes of a selected level for producing an output signal in response to the application thereto of either said degree of slope signal or said amplified difference potential signal of sufficient magnitude to exceed said selected level.

3,321,631
ELECTRO-OPTICAL SWITCH DEVICE
James R. Biard and Edward L. Bonin, both of Richardson, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Filed Nov. 29, 1963, Ser. No. 327,137
12 Claims. (Cl. 250—209)



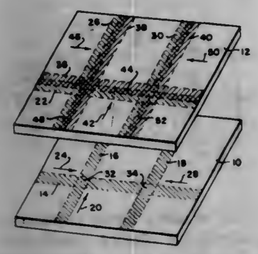
1. An electro-optical coupling system, comprising:
(a) a first semiconductor device having a first region of a first conductivity type and a second region of an opposite conductivity type contiguous to and forming a rectifying junction with said first region,
(b) said first device being characterized by the generation of optical radiation when a forward current is caused to flow through said rectifying junction,
(c) a transistor, and
(d) photosensitive means connected in electrical parallel with the emitter-base junction of said transistor and optically coupled to said first device for generating a forward bias current through said emitter-base junction in response to said optical radiation.

3,321,632
TWO-STATE RADIANT ENERGY ACTUATED CIRCUITS
Paul W. Wood, Warren, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Nov. 13, 1964, Ser. No. 410,978
2 Claims. (Cl. 250—209)



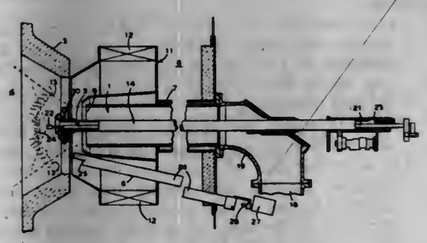
1. A light actuated bistable circuit for energizing a load comprising, in combination, a source of potential, a pair of series connected On and Off light responsive cells connected across the source, an incandescent lamp connected across the Off light responsive cell and positioned opposite the On light responsive cell so as to provide optical feedback thereto when illuminated for maintaining the On light responsive cell illuminated, a load connected across the Off light responsive cell and also across the lamp and external control means selectively maneuverable to plural positions for operating the cells, the control means including a plural position source of light selective maneuverable to one position thereof for illuminating the On light responsive cell so that substantially all of the source potential is applied across the Off light responsive call causing the lamp to be illuminated to maintain the illuminated state of the On light responsive cell and also the load to be energized and to another position thereof for illuminating the Off light responsive cell so that substantially all of the source potential is applied across the On light responsive cell causing the lamp to be nonconductive and the load to be deenergized.

3,321,633
LUMINOUS SPOT SHRINKING SYSTEM EMPLOYING OVERLAPPING STANDING WAVES
Vincent L. Carney, Silver Spring, Md.
(2839 W. Palmer St., Chicago, Ill. 60647)
Filed Apr. 5, 1963, Ser. No. 270,941
18 Claims. (Cl. 250—213)



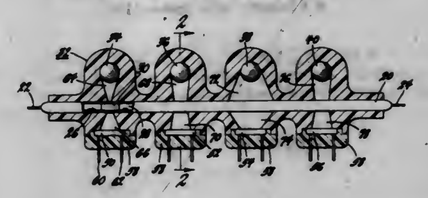
9. A display device comprising:
first transducer means for emitting light in response to a first form of energy;
second transducer means, positioned so as to receive light from said first transducer means, for emitting light in response to the combination of light and said first form of energy; and
energizing means for providing said first form of energy to said first transducer means at a selected area, whereby light will be emitted at that area, and for providing said first form of energy to said second transducer means at an area which partially overlaps the area on which it receives light from said first transducer means, whereby an area on said second transducer receiving both said light and said first form of energy will emit light.

3,321,634
PHOTOSENSITIVE FLAME MONITORING CIRCUIT
David C. K. G. Innes, London, England, assignor to Babcock & Wilcox, Limited, London, England, a corporation of Great Britain
Filed Aug. 17, 1964, Ser. No. 390,100
8 Claims. (Cl. 250—215)



6. Apparatus for monitoring a flame which exhibits a fluctuating illumination characteristic, said apparatus comprising an electronic circuit including a photo-conductive cell disposed in light receiving relationship to said flame to produce a fluctuating current having alternating components, said cell having a characteristic whereby receipt of reduced average radiation from said flame effects a proportionately reduced average cell current and a diminished response to said radiation fluctuations, a first diode connected in series with said cell and having a characteristic resistance/current relationship whereby resistance is increased at said reduced cell current to compensate for the diminished radiation fluctuating response of said cell, a second diode having a resistance/current relationship substantially similar to that of said first diode, means for passing an A.C. signal representative of radiation fluctuations on said cell to said second diode, a transistor, means for by-passing said alternating components around said transistor and said second diode comprising a choke in series with said cell, and a condenser connected between said cell and said choke and in parallel with said choke, and means for passing said average cell current through said transistor to said second diode, whereby a fluctuating A.C. output signal representative of the ratio of flame radiation fluctuations to average flame radiation is produced.

3,321,635
COULOMETRIC CONTROL
James W. Jacobs, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Feb. 5, 1964, Ser. No. 342,752
8 Claims. (Cl. 250—218)

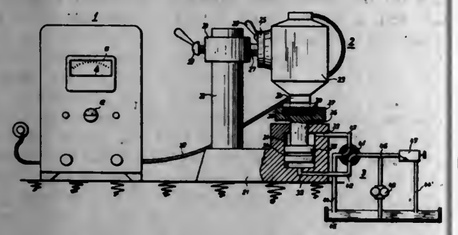


1. A timing control including a body translucent to rays having a small diameter bore therein, first and second columns of liquid metal within said bore, said metal being opaque to rays, a translucent electrolyte within said bore separating and contacting the adjacent ends of said first and second columns, conducting means for connecting said columns to an external source of potential, an opaque enclosure substantially enclosing a major portion of said body containing a plurality of separate sources of light rays distributed alongside said bore and a separate light ray responsive device alongside said bore substantially diametrically opposite each of said sources of rays, said enclosure having separate light transmitting passages extending from each of said separate sources to said body and from said body to each of said diametrically opposed ray responsive devices and separate means individually electrically connected to each of said light ray responsive devices for control thereby, said enclosure having light ray shielding means between said sources of rays for preventing the transmission of rays from one source of rays to a light responsive device opposite another source of rays.

3,321,636
PHOTOSENSITIVE APPARATUS FOR COLOR TESTING AND COLOR CONTROL IN A PROCESSING PLANT
Karl Karrer, Saint Gall, Switzerland, assignor to Gebrüder Bühler, Uzwil, Switzerland, a company of Switzerland
Filed Aug. 29, 1963, Ser. No. 305,347
Claims priority, application Switzerland, Aug. 31, 1962, 10,382/62
21 Claims. (Cl. 250—218)

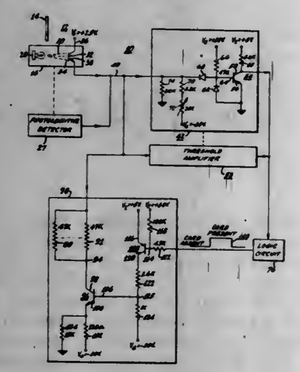
1. A device for testing liquid and solid materials, such as flours, pastes and the like for colour, comprising a uniform light source, photo-electric cell means adjacent said light source, and means for supporting material to be tested in the path of rays from said light source and for

uniformly compressing the material, said photo-electric cell means being located to be influenced by the light



intensity reflected from the material under the influence of said light source.

3,321,637
CHECK CIRCUIT FOR OPTICAL READER EMPLOYING THRESHOLD AMPLIFIER
John P. Beltz, Willingboro, and Harry Ditkofsky, Cherry Hill, N.J., assignors to Radio Corporation of America, a corporation of Delaware
Filed Aug. 12, 1965, Ser. No. 479,207
6 Claims. (Cl. 250—219)



1. In an optical document reader including a reading station containing a photosensitive detector for detecting light signals corresponding to data recorded on said documents to produce a sense signal, the combination comprising,

a threshold amplifier coupled to said photosensitive detector to produce a read signal when said sense signal exceeds the threshold of said amplifier, and

means for switching a portion of said sense signal away from said amplifier in the absence of a document in said reading station.

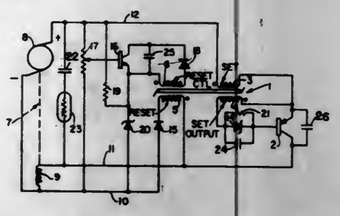
3,321,638
REGULATOR SYSTEMS
Aloysius W. Pratt, New Carlisle, Ohio, assignor to American Machine & Foundry Company, a corporation of New Jersey
Filed Aug. 30, 1963, Ser. No. 305,773
11 Claims. (Cl. 307—57)

1. In a regulator system for a generator having a field winding for controlling the generator output, the combination of

a semiconductor switching device connected to control energization of the generator field winding in on-off fashion;

a saturable reactor having a set winding, a set output winding, a reset winding and a reset control winding, operatively associated therewith;

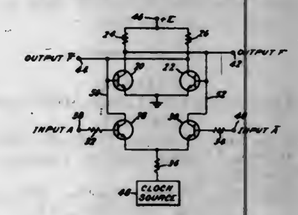
said set winding being operatively connected to drive said saturable reactor toward one state of saturation when said semiconductor device is conductive and said reset winding being operatively connected to drive said saturable reactor toward the other state of saturation where said semiconductor device is nonconductive;



said set output winding being connected to maintain said semiconductor device conductive while said saturable reactor is being driven toward said one state of saturation;

means responsive to the generator output and connected to said reset control winding, said means being operative to maintain a potential across said reset control winding while said saturable reactor is being driven toward said other state which is a function of the generator output.

3,321,639
DIRECT COUPLED, CURRENT MODE LOGIC
Robert Z. Fowler, Ithaca, and Edgar W. Seymour, Freeville, N.Y., assignors to General Electric Company, a corporation of New York
Filed Dec. 3, 1962, Ser. No. 241,965
4 Claims. (Cl. 307—88.5)



1. A logic circuit for processing digital signals comprising:

(a) a first pair of transistors each having base and emitter electrodes and having their emitters directly coupled, to form a differential amplifier and receiving digital input signals at the base of at least one of said transistors;

(b) clock means for applying synchronous pulses to the emitters of said transistors for gating; and

(c) a second pair of transistors, interconnected as a bistable flip-flop and having one input terminal coupled to one of said transistors and another input terminal to the other of said first pair of transistors for control of the bistable state thereof in accordance with the output of said differential amplifier.

3,321,640
ELECTRICAL CIRCUIT
Juan J. Amodei, Levittown, Pa., assignor to Radio Corporation of America, a corporation of Delaware
Filed May 4, 1964, Ser. No. 364,416
10 Claims. (Cl. 307—88.5)

1. The combination comprising:

first and second points;

a transistor of one conductivity type having an emitter connected to the first point, a base connected to the second point, and a collector;

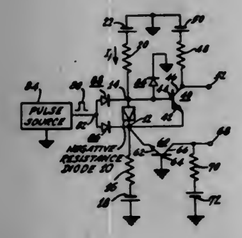
a negative resistance diode having a forward volt-ampere characteristic defined by two regions of positive resistance separated by a region of negative resistance;

means connecting said diode between said points in a polarity direction to conduct forward current in the same direction, relative to the second point, as the direction of easy current flow across the emitter-base junction of the first transistor;

a point of reference potential;

current source means connected between the first point and the point of reference potential;

a second transistor of said one conductivity type having an emitter connected to the first point, a base connected to the point of reference potential, and a collector;



means operatively connected between the second point and the point of reference potential and having a value to bias said diode bistably;

a threshold device connected between the second point and the reference point in a manner to conduct current in the same direction, relative to the second point, as the direction of forward current through said diode, said device having a threshold of conduction that is higher than the conduction threshold of said emitter-base junction;

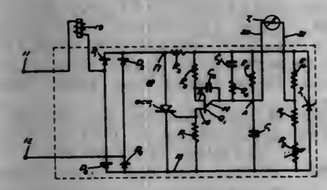
a first coupling device having one terminal connected at the first point;

a second coupling device having a terminal connected at the second point;

means for applying input signals at the other terminals of the first and second coupling devices; and

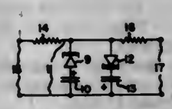
means for applying operating potentials between the point of reference potential and the collectors of the first and second transistors.

3,321,641
SNAP-ACTION TRIGGER CIRCUIT FOR SEMICONDUCTOR SWITCHING DEVICES
Edward Keith Howell, Skaneateles, N.Y., assignor to General Electric Company, a corporation of New York
Filed May 18, 1964, Ser. No. 368,267
16 Claims. (Cl. 307—88.5)



1. A trigger circuit for turning a first semiconductor switching device on and off, said trigger circuit comprising: input means for connection with a cyclically varying potential source, a timing capacitor, a second semiconductor switching device coupled to said first semiconductor switching device and said input means thereby being synchronized with the potential source for periodically discharging the timing capacitor to effect a turn on of the first semiconductor switching device when the potential on said timing capacitor reaches a predetermined level, a condition responsive charging circuit means connected with said input means for applying a potential across said timing capacitor, said condition responsive circuit means including at least one potential dividing network having a potential dividing point connected in circuit with the timing capacitor, said potential dividing network being connected with at least one condition sensing element coupled in circuit with the potential dividing point to vary the potential at said potential dividing point in response to the condition sensed by said condition sensing element, and peaking circuit means connected in circuit with said timing capacitor for increasing the potential applied across the capacitor by said condition responsive charging circuit means near the start of a half cycle whereby the potential across the capacitor reaches its maximum value near the start of a half cycle to turn on the first semiconductor switching device only near the start of a half cycle or not at all thereby providing a snap type of switching action.

3,321,642
FLOATING BACK DIODE LIMITER
Olav Peterson, Ottawa, Ontario, Canada, assignor to Northern Electric Company Limited, Montreal, Quebec, Canada
Filed June 9, 1964, Ser. No. 373,673
7 Claims. (Cl. 307—88.5)



1. A signal amplitude limiter circuit comprising a signal input circuit and a signal output circuit, a signal path connecting the output to the input circuit, and a first circuit means comprising a back diode and charge storage means connected in series across the signal path, said charge storage means being of such capacity that in input signal from the signal input circuit exceeding a predetermined amplitude cooperates with the back diode and said storage means to charge said storage means to bias the back diode in the reverse conduction direction.

3,321,643
SIGNAL RESPONSIVE APPARATUS UTILIZING TUNNEL DIODE MEANS
Vincent J. Korkowski, Minneapolis, Minn., assignor to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Filed Nov. 25, 1964, Ser. No. 413,730
18 Claims. (Cl. 307—88.5)

5. A search memory system match logic circuit, comprising:

first and second tunnel diodes each having an anode and a cathode;

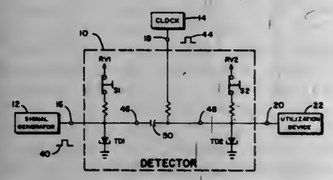
A.C. coupling means intercoupling the anodes of said first and second tunnel diodes for forming first and second junctions at said anodes, respectively;

means coupled to said first junction for receiving an input signal;

means coupled to said second junction for receiving a clock signal;

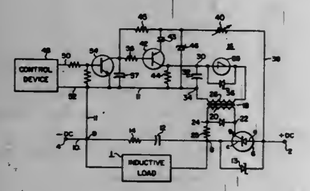
means coupled to said second junction for receiving an output signal;

means including a resistor means for coupling said first junction to a first reference potential;
means including a resistor means for coupling said second junction to a second reference potential;
means for coupling the cathode of said first tunnel diode to a third reference potential;
means for coupling the cathode of said second tunnel diode to a fourth reference potential;
said first, second, third and fourth reference potentials setting said first and second tunnel diodes into their low voltage states defining a preset condition;



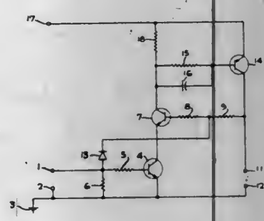
said input signal when coupled to said first junction setting only said first tunnel diode into its high voltage state;
said input signal and said clock signal when concurrently coupled to said first junction and to said second junction, respectively, setting both of said first and second tunnel diodes into their high voltage states.

3,321,644
CONTROL DEVICE TO PROVIDE RAPID TURN-ON POTENTIAL FOR SCR IN RESPONSE TO INITIATING SIGNAL
Howard J. Calhoun, Bernards Township, N.J., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Dec. 30, 1964, Ser. No. 422,297
7 Claims. (Cl. 307—88.5)



1. In an electrical network, a pair of terminals between which a predetermined voltage is to be established, a switching device having current conducting and current interrupting conditions and being ineffective to support more than a critical voltage thereacross when said device is in said current interrupting condition, said predetermined voltage being greater than said critical voltage, a chargeable device, an impedance device connected in parallel with said chargeable device through a continuously conductive circuit, an impedance element, first circuit means connecting said switching device to one of said terminals and including said impedance element, second circuit means connecting said switching device to the other of said terminals and including said shunt connected devices, said first and second circuit means providing a charging circuit for said chargeable device, said charging circuit being substantially free of impedance except for the impedance of said impedance element, and a breakover diode connected in shunt with said devices and in series with said element between said terminals, the voltage so established by said breakover diode across said switching device with said predetermined voltage at said terminals and with said switching device in said current interrupting condition being not greater than said critical voltage of said switch device.

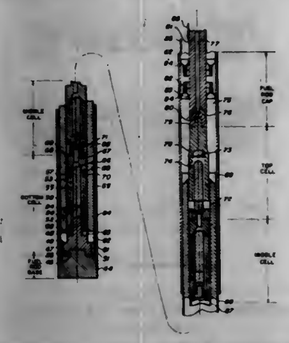
3,321,645
SWITCHING CIRCUIT EMPLOYING REGENERATIVELY CONNECTED COMPLEMENTARY TRANSISTORS
James E. Webb, Administrator of the National Aeronautics and Space Administration with respect to an invention of Spencer R. Shortridge, Los Angeles, Calif.
Filed Feb. 25, 1965, Ser. No. 435,387
11 Claims. (Cl. 307—88.5)



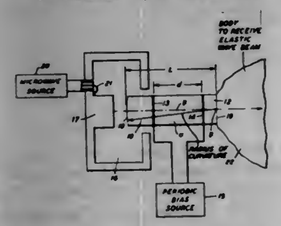
2. A voltage responsive switching circuit, comprising:
first and second transistors of like conductivity type and a third transistor of opposite conductivity type, each of said transistors having a base, an emitter, and a collector;
means connecting the collector of said first transistor to the emitter of said second transistor;
network means connecting the collector of said second transistor to the base of said third transistor;
a source of operating potential connected to said network means and to the emitter of said third transistor;
a voltage dividing network connected between the base of said second transistor and the collector of said third transistor, said dividing network having an intermediate terminal;
input circuit means connected to the base of said first transistor for receiving an input voltage;
output circuit means connected to the collector of said third transistor;
a common reference terminal for said input circuit means, the emitter of said first transistor, said source of operating potential, and said output circuit means; and
a diode connected between said intermediate terminal and said input circuit means.

3,321,646
THERMOELECTRIC CELL AND REACTOR
George M. Grover, Los Alamos, N. Mex., Robert W. Pidd, La Jolla, Calif., and Ernest W. Salmi, Los Alamos, N. Mex., assignors to the United States of America as represented by the United States Atomic Energy Commission
Continuation of application Ser. No. 821,339, June 18, 1959. This application Dec. 27, 1963, Ser. No. 337,967
38 Claims. (Cl. 310—4)

1. Means for converting one form of energy into electrical energy comprising, in combination, a first electrically conductive refractory material, a second electrically conductive material spaced from said first electrically conductive refractory material, closure means defining a gas chamber between said electrically conductive refractory materials and a partial filling of an alkali metal in said chamber, said first electrically conductive refractory material being at a temperature of not less than 1500° K. during operation and comprising at least one of the carbides selected from the class consisting of uranium, zirconium, niobium, thorium, protactinium, plutonium, neptunium, and americium.



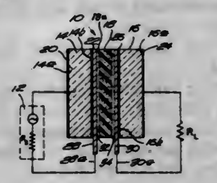
3,321,647
ELASTIC WAVE GENERATOR OF HIGHLY RESOLVED AND CONCENTRATED BEAM
Ping K. Tien, Chatham Township, Morris County, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Feb. 9, 1966, Ser. No. 526,243
9 Claims. (Cl. 310—8.1)



1. An elastic wave device comprising a pair of spaced acoustical reflectors disposed along a common axis, at least one of said reflectors having a spherical surface with the center of curvature thereof located upon the other of said surfaces, and means interposed between said surfaces for introducing a gain to multiple reflections of elastic waves between said surfaces that is maximum for waves having a principal component propagating parallel to said common axis and less than said maximum for waves having a principal component propagating at angles to said common axis.

3,321,648
PIEZOELECTRIC FILTER ELEMENT
Eric A. Kolm, Brookline, Mass., assignor to Sonus Corporation, Cambridge, Mass.
Filed June 4, 1964, Ser. No. 372,482
3 Claims. (Cl. 310—8.2)

1. A piezoelectric coupling element having a resonant frequency and comprising a first discoid piezoelectric transducer having opposite surfaces and capable of vibrating at frequencies including said resonant frequency, a second discoid piezoelectric transducer having opposite surfaces and capable of vibration at frequencies including said resonant frequency, electrode means affixed to said surfaces, a thin discoid relatively stiff rubber-like cushioning member positioned between said transducers with its opposite faces facing said electrode means, means for bonding each face of said cushioning member to the adjacent one of said electrode means so as to mechanically couple together the first and second transducers,

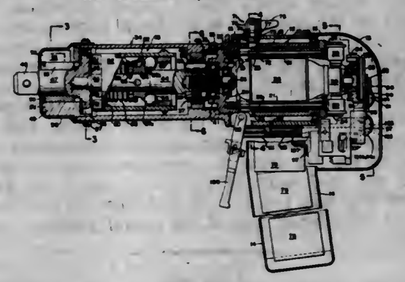


said cushioning member filtering out the spurious vibrations of said first transducer so that said second transducer will vibrate at said resonate frequency.

3,321,649
SEPARATION OF SUSPENDED SOLIDS BY CATIONIC POLYMERIC FLOCCULANTS
Aldo De Benedictis, Berkeley, Calif., and Igor Sobolev, Morristown, N.J., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware
No Drawing. Filed Dec. 28, 1964, Ser. No. 421,717
3 Claims. (Cl. 210—54)

1. In the process of separating aqueous suspensions containing finely divided minerals by adding to the suspension a flocculating agent and subsequently separating from the resulting mixture a concentrate of said minerals, the improvement which comprises employing as the flocculating agent a mixture consisting essentially of (a) a water-soluble cationic polymer of 2-hydroxy-3-methacrylyloxypropyltrimethylammonium chloride and up to 50% by weight of a dissimilar monomer of at least one polymerizable ethylenic linkage, said cationic polymer having an intrinsic viscosity of from about 0.5 to about 10 dl/g., and (b) from about 10 to about 500 parts per 100 parts by weight of said cationic polymer of a polyacrylamide of at least 85% by weight polymerized acrylamide, said polyacrylamide having a molecular weight of at least 1,000,000 and being substantially free of cross-linking.

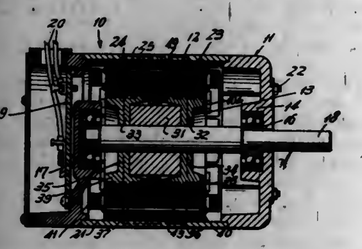
3,321,650
CONTROL MECHANISM FOR ROTARY POWER DRIVEN DEVICES
Michael J. Pedone, Jr., Lutherville, Md., and Harry L. Beam, Syracuse, N. Y., assignors to Black and Decker Manufacturing Company, Towson, Md., a corporation of Maryland
Filed Oct. 19, 1964, Ser. No. 406,955
10 Claims. (Cl. 310—115)



1. In a power-driven tool, the combination of
a housing;
an electrical motor comprising a field structure and an armature;
bearing means mounting said motor in said housing with said field structure and said armature supported for rotation relative to each other and relative to said housing;

slip ring means carried by said field structure for rotation therewith;
at least one contact member mounted on said housing for selective movement into and out of engagement with said slip ring means;
a manual control member movably mounted on said housing; and
means connecting said control member to said contact member to selectively move same into and out of engagement with said slip ring member,
said motor being connected to be energized via said slip ring means and contact member.

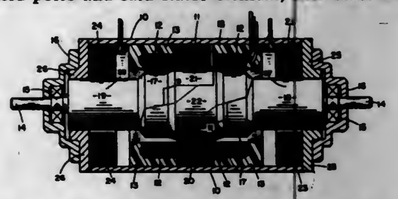
3,321,651
ELECTRIC MOTOR
Elmer W. Madsen, Bristol, Conn., assignor to The Superior Electric Company, Bristol, Conn., a corporation of Connecticut
Filed July 28, 1964, Ser. No. 385,593
4 Claims. (Cl. 310—156)



1. An electric motor comprising a housing, a stator secured to said housing including an annular pole forming member shaped to provide a plurality of inwardly extending poles, the inner periphery of the poles being arcuate and formed with axially extending teeth and a winding associated with each pole for magnetizing the pole; a rotor including a shaft mounted for rotation in said housing and positioned to be encircled by the stator, a permanent magnet carried by the shaft and magnetized axially, a pair of end caps secured on said shaft with a cap abutting each end of the magnet and being formed of magnetizable material, each of said end caps being circular and having an annular central portion and a peripheral flange portion with the axial width of the flange portion being greater than the axial thickness of the central portion, evenly spaced axially extending teeth formed on the periphery of the flange portion, the teeth of the end caps being opposite to the teeth of the poles to define an air gap therebetween, said flange portion being shaped to provide substantially uniform distribution of the flux from the permanent magnet about its periphery without flux saturation of the flange portion and said central portion having a width which is substantially saturated by the flux from the permanent magnet, and in which the axial width of the widest part of the flange portion is at least two and one-half times the axial thickness of the thinnest part of the central portion.

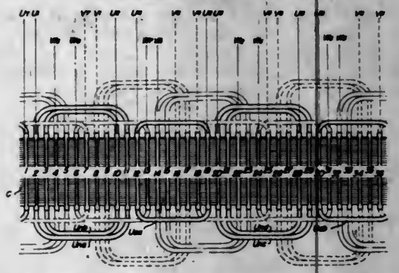
3,321,652
DYNAMO-ELECTRIC MACHINE
Lawrence G. Opel, Pacific Palisades, Calif., assignor to North American Aviation, Inc.
Filed Dec. 23, 1963, Ser. No. 332,635
5 Claims. (Cl. 310—168)

1. A dynamo-electric machine comprising a stator element, a plurality of stationary field poles, an external magnetic flux return connection between said stator element and said field poles, and a salient pole rotor for said machine comprising a solid body of revolution providing an internal excitation flux path between each of said field poles and said stator element, said rotor being



substantially free from magnetic attraction in an axial direction, to either of said field poles or said stator element.

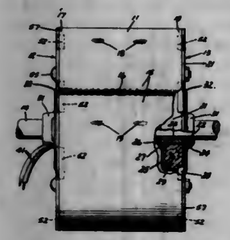
3,321,653
ALTERNATING CURRENT ELECTRIC MOTOR ROTOR
Yutaka Sonoyama, Tokyo, Japan, assignor to Hitachi, Ltd., Chiyoda-ku, Tokyo, Japan, a corporation of Japan
Filed Mar. 3, 1964, Ser. No. 349,085
Claims priority, application Japan, Mar. 4, 1963, 38/10,121; Apr. 22, 1963, 38/20,141; Aug. 31, 1963, 38/46,886
4 Claims. (Cl. 310—180)



1. A stator for an A.C. motor comprising a stator core having a plurality of slots and first and second type coils corresponding in number to a predetermined number of poles and circularly disposed one after another in alternate arrangement with the same distance between the electrical centers of said first and second type coils in the circumferential direction of said stator body, said first and second type coils mutually adjacent to each other being provided to be 180 electrical degrees offset therebetween to produce opposite polarities from each other, said first type coil being wound in said slots with a certain slot pitch which is shorter than that of said second type coil, and said first coil producing an effective magneto-motive force smaller than that of said second type coil.

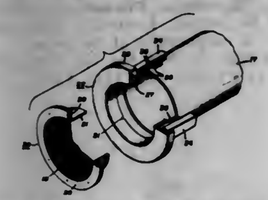
3,321,654
DYNAMOELECTRIC MACHINE FRAME
Lewis R. Allendorph, Fort Wayne, Ind., assignor to General Electric Company, a corporation of New York
Filed Apr. 1, 1964, Ser. No. 356,564
4 Claims. (Cl. 310—258)

1. In a dynamoelectric machine having a stationary frame formed of flexible sheet material rotatably supporting a shaft: a substantially tubular shell and an end frame having a member fabricated of rigid sheet material mounting a bearing and being connected to one end of said shell; said member including a plurality of angularly spaced apart first sections bent axially toward the shell; said sections each including a transversely curved outer surface with the transverse curvature thereof defining an arc substantially of the same circle having a common center at the rotational axis of the machine; said outer surfaces providing a tight fit with first portions of the inner surface of the associated shell end, said first portions conforming to said outer surfaces and second portions of said associated shell end between said spaced apart first sections tending to form chords of the circle defined by said outer surfaces as said shell end is forced



into a generally circular form by said first sections, the generally circular form having a common center at the rotational axis of the dynamoelectric machine; and said member having second sections alternating with said first sections in abutting relation with the edge of said associated shell end.

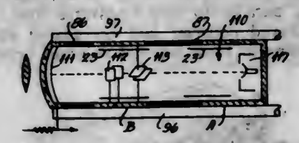
3,321,655
PHOTOCONDUCTIVE PICKUP TUBE FIELD MESH SUPPORT
Ideal T. Saldi, Manlius, N.Y., assignor to General Electric Company, a corporation of New York
Filed Apr. 2, 1965, Ser. No. 445,015
7 Claims. (Cl. 313—65)



7. For use in a photoconductive camera pickup tube a mounting for the decelerating field mesh electrode comprising,
(a) the combination of three engaging and interfitting metal cylinders,
(b) the first and outer of said cylinders comprising a support ring axially spaced from, concentric with, and electrically insulated from a tubular focusing electrode by insulating spacers,
(c) the second and intermediate cylinder fitting within said first cylinder comprising a spacer member in contact with the envelope of said tube and supporting said first cylinder in said envelope,
(d) the third and inner cylinder fitting within said second cylinder and comprising a flanged member supporting a transverse mesh electrode over the outer end thereof, and
(e) an electrode in contact with said flange member.

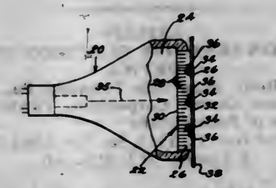
3,321,656
TELEVISION CAMERA TUBE WITH LEAD OXIDE SCREEN
Edward E. Sheldon, 30 E. 40th St., New York, N.Y. 10016
Original application Dec. 4, 1961, Ser. No. 158,638, now Patent No. 3,279,460, dated Oct. 18, 1966. Divided and this application Oct. 21, 1965, Ser. No. 499,416
15 Claims. (Cl. 313—65)

1. A vacuum tube comprising in combination a screen, essentially *the only* photoelectric compound in said screen being a photoelectric layer of lead monoxide, said layer having one major surface *uncovered*, said screen receiving an image and converting said image into electrical resistivity changes, said screen comprising in addition electrically conducting means connected to a source of electrical potential, and means for producing an electron



beam of a slow velocity to irradiate with said beam said screen, said beam being converted by said electrical resistivity changes directly into electrical signals corresponding to said image, said electron beam producing means being spaced apart from said screen.

3,321,657
ELECTROSTATIC PRINTING CATHODE RAY TUBE WITH CONDUCTING WIRES IN FACE PLATE
George A. Granitsas, Marlboro, Mass., and Frederick R. Hays, Woodstock, Conn., assignors to American Optical Company, Southbridge, Mass., a voluntary association of Massachusetts
Filed Dec. 18, 1962, Ser. No. 245,443
5 Claims. (Cl. 313—73)

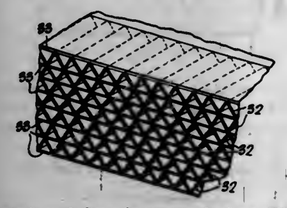


1. An energy-conducting plate formed of electrical-insulating matrix material having a multiplicity of wires each extending longitudinally from one face of said plate substantially right angularly toward an opposite face thereof wherein the improvement comprises said wires being in closely individually spaced random side-by-side relationship with each other and at least one face of said plate having corresponding ends of said wires exposed within the boundaries of at least one special area of prescribed geometrical configuration, the boundaries of said area discretely excluding similar ends of others of said wires, said excluded ends of said other wires being recessed relatively deeply in said matrix material and an electrical-insulating filler extending between said face and said recessed ends of said other wires whereby electrical energy applied to a face of said plate and caused to propagate through said wires will be emitted at the opposite face only by particular wires included within the boundaries of said special area and, accordingly, produce an electric field thereat of a shape corresponding to the shape of said area.

3,321,658
CATHODE RAY TUBE WITH COMPOSITE MULTIPLE GLASS FIBRE FACE
Jeofry Stuart Courtney-Pratt, Springfield, N.J., assignor to National Research Development Corporation, London, England, a British corporation
Application Dec. 19, 1963, Ser. No. 332,984, now Patent No. 3,141,105, dated July 14, 1964, which is a continuation of application Ser. No. 680,308, Aug. 26, 1957. Divided and this application July 2, 1964, Ser. No. 380,006
Claims priority, application Great Britain, Sept. 17, 1956, 28,407/56
28 Claims. (Cl. 313—92)

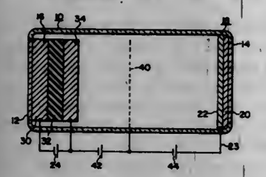
1. In an electronic image-forming tube having an envelope, a honeycomb structure forming at least part of

said envelope and comprising light guiding fibres bonded together into a gas-tight slab, the axes of said fibres extending along transverse lines from an interior surface of said slab to an exterior surface thereof, said fibres including corrugated glass sheets having the corrugations thereof extending parallel to said transverse lines, flat glass sheets interleaved between said corrugated glass sheets and cooperating to form internal volumes between adja-



cent corrugated and flat sheets, and glass fillings in said internal volumes to build up fibre cores in the form of said honeycomb structure in which said fibres are separated from each other by said glass sheets, said corrugated glass sheets, said flat glass sheets and said glass fillings of said honeycomb structure being bonded to each other in gas-tight fashion, said honeycomb structure being bonded to said envelope in gas-tight fashion so as to form a structural wall of said tube.

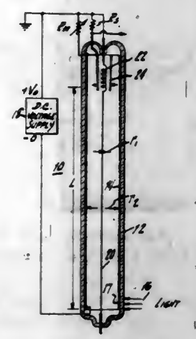
3,321,659
RADIATION SENSITIVE ELECTRON EMISSIVE DEVICE
Thomas P. Brody, Penn Hills Township, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Dec. 12, 1963, Ser. No. 330,139
8 Claims. (Cl. 313—94)



1. An electron device comprising a photosensitive solid state electron emissive source and an output electrode for collecting electrons emitted from said electron emissive source, said electron emissive source comprising a first layer of electrically conductive material exhibiting the property of absorbing radiations directed on a first surface thereof and permitting substantially all the photoelectrons generated within the layer in response to the radiation to reach a second surface of said layer; a second layer of insulating material in intimate contact with said first layer and providing a potential barrier to transmission of electrons of an energy less than the energy of said photoelectrons and a third layer of electrically conductive material in intimate contact with said second layer.

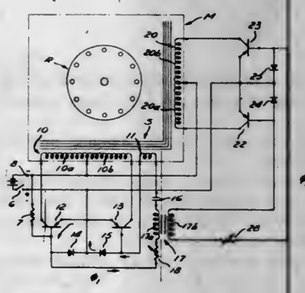
3,321,660
ELECTRON MULTIPLIER HAVING RESISTIVE SECONDARY EMISSIVE SURFACE WHICH IS ADAPTED TO SUSTAIN A POTENTIAL GRADIENT, WHEREBY SUCCESSIVE MULTIPLICATION IS POSSIBLE
Edward G. Ramberg, Southampton, Pa., assignor to Radio Corporation of America, a corporation of Delaware
Filed May 24, 1962, Ser. No. 197,467
11 Claims. (Cl. 313—103)

1. An electron multiplier comprising;
(a) a hollow elongated member,
(b) a coating of secondary electron emissive material on the inner surface of said member; and
(c) a conductive means extending longitudinally within said member and spaced from said inner surface;



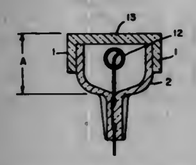
(d) the ratio of the radius of the inner surface of said member to a radius of said conductive means being of the order of 1000 to 1.

3,321,661
BRUSHLESS DIRECT CURRENT MOTOR
J. Roger Toth, Macedonia, Michael L. Gilliland, Kent, and Richard D. Sumser, Louisville, Ohio, assignors to Ametek, Inc., a corporation of Delaware
Filed May 12, 1966, Ser. No. 549,611
11 Claims. (Cl. 313—133)



1. A brushless direct current motor comprising an induction motor type rotor; a stator having a divided first phase main winding; a divided second phase main winding like to the first but spaced ninety electrical degrees on the stator core from the first; each said main winding divided in equal halves; a feedback winding associated on the core with the first phase main winding; a pair of solid state switching devices for each main winding, each said device having two electrodes connected in series with a respective half of the corresponding main winding across a direct current source and having a third electrode as a control electrode serving with a first of said two electrodes for application of switching control pluses to the device, said first electrodes of each pair of devices commonly connected, whereby upon alternating switching action of the devices associated with each main winding an alternating magnetic flux is produced in the stator core by the corresponding main winding; a first phase driver circuit including said feedback winding connected in series with a capacitor and inductor, said driver circuit having output leads, each output lead connected to a control electrode of a respective one of the first phase switching devices, and respective means affording a shunt between each lead about one of said devices for completing a feedback path for pulses of appropriate polarity controlling the other of said first phase switching devices, whereby alternate feedback pluses of opposite polarity are effective to cut-off and turn on one of said switching devices while turning on and cutting off the other in an inverter action at an operating frequency determined substantially by the parameters of the feedback circuit; a second phase driver circuit including an inductor, with output leads each connected to the control electrodes of the respective second phase switching devices and including respective shunt means as in the first phase driver circuit; said inductors of the first and second phase feedback circuits provided by the primary and secondary respectively of a transformer, whereby pluses in the first phase feedback winding produce driver pulses in the first and second phase driver circuits sufficiently out of phase to result in a starting torque-developing alternating magnetic field in said stator core.

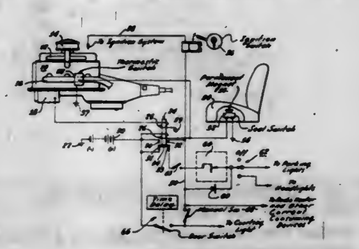
3,321,662
ELECTRIC LAMP WITH TUBULAR BODY AND LIGHT TRANSMITTING CLOSURE HAVING OVER-LAPPING FLANGE SEAL
James J. Palermo, Salem, N.H., and Robert P. Bonazoli, Hamilton, Robert F. Scoledge, Danvers, and Emery G. Audesse, Salem, Mass., assignors to Sylvania Electric Products Inc., a corporation of Delaware
Filed July 2, 1962, Ser. No. 206,881
4 Claims. (Cl. 313—315)



1. An electric lamp comprising a glass body formed of a hollow tubular portion having a pressed sealed portion closing one end of said tubular portion, a light-transmitting piece closing the other end of said other tubular portion and an integral tubular flange projecting from the periphery of said light-transmitting piece, said flange fitting into engagement with the surface of the hollow tubular portion in a peripheral overlapping marginal area thereof around the end of said tubular portion, said light-transmitting piece, integral flange and marginal area being fused together forming a permanent hermetic seal of said other end of the hollow tubular portion, a pair of ribbon lead-in conductors sealed through said pressed seal, and a coiled-coil wire filament attached to the inner end of said conductors.

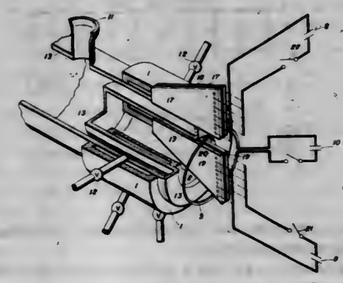
3,321,663
CONTROL SYSTEM FOR MOTOR VEHICLES
William A. Poznik, 1710 Harper Ave., Redondo Beach, Calif. 90278
Filed Mar. 10, 1964, Ser. No. 350,733
3 Claims. (Cl. 315—82)

1. An electrical control system for controlling the connection between a source of electrical energy and the parking lights and headlights of a motor vehicle, including: relay means having a pair of normally-closed contacts and a pair of normally-open contacts; an automatically operated control circuit connected to said relay means for selectively activating said relay means; a flasher switch unit; a manually operated multi-pole switch; a first circuit connecting said source, said normally-closed contacts of said relay means and said flasher unit in circuit with said manually operated switch; a second circuit connecting said source and said normally-open contacts of said relay means in circuit with said manually operated switch; and further circuitry connecting said manually operated switch to said headlights and said parking lights



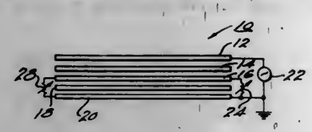
to permit said manually operated switch selectively to switch said parking lights between an "off" position and at least one "on" position during which said parking lights are connected to said first circuit, and simultaneously to permit said manually operated switch selectively to switch said headlights and parking lights between an "off" position and a first "on" position during which said parking lights are connected to said second circuit and a second "on" position during which said headlights are connected to said second circuit.

3,321,664
PLASMA ACCELERATOR HAVING RAPIDLY PULSED COIL FOR EXPELLING PLASMA
James A. Phillips and Joseph W. Mather, Los Alamos, N. Mex., assignors to the United States of America as represented by the United States Atomic Energy Commission
Filed Aug. 10, 1964, Ser. No. 388,735
6 Claims. (Cl. 315—111)



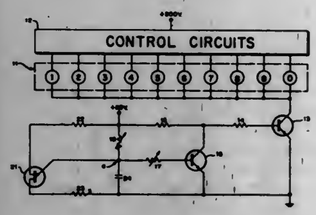
1. A plasma accelerator comprising:
(a) two concentric coils,
(b) said concentric coils being driven by two matched independent power supplies and so connected to said power supplies that the currents in the two coils are flowing the same direction,
(c) means for introducing an ionizable gas in the annular space between said concentric coils, and
(d) means for triggering the magnetic fields resulting from flowing currents in the two concentric coils into unstable configurations.

3,321,665
METHOD AND APPARATUS FOR PRODUCING A STEERABLE ELECTRIC POTENTIAL
Robert H. Dye, Ann Arbor, Mich., assignor to The Bendix Corporation, Ann Arbor, Mich., a corporation of Delaware
Filed Oct. 16, 1964, Ser. No. 404,471
2 Claims. (Cl. 315—169)



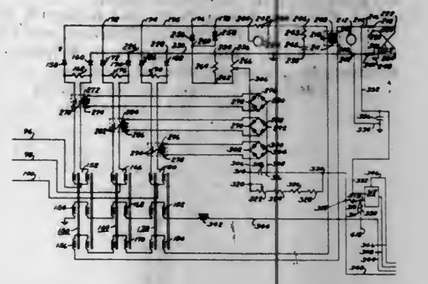
1. An information display comprising:
a first conducting surface,
a second conducting surface having a boundary and a predetermined resistivity,
a dielectric layer separating said first and second surfaces,
an electroluminescent panel in substantial registration with said second surface,
a transparent conducting third surface disposed on the opposite side of said panel from said second surface,
a source of electric potential connected to said first and third surfaces, and
a plurality of voltage control devices connecting equally spaced points along the boundary of said second surface with a reference potential.

3,321,666
DIMMER CIRCUIT FOR GAS DISCHARGE TUBES
James R. Garnett and Harry Brown, both of Philadelphia, Pa., assignors to the United States of America as represented by the Secretary of the Navy
Filed Dec. 21, 1964, Ser. No. 420,221
3 Claims. (Cl. 315—209)



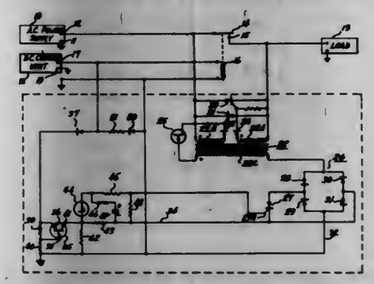
1. An apparatus for controlling the brightness of a light source comprising:
a light source requiring a predetermined minimum voltage across it for conduction;
a first voltage source connected in circuit to said light source; and means for periodically interrupting the connection between said first voltage source and said light source, the ratio of connection time to non-connection time being variable, said means comprising:
a second voltage source;
a unijunction transistor having two base electrodes and an emitter electrode, one base electrode coupled to said second voltage source;
a resistor-capacitor network connected in series between the other base electrode and the emitter electrode of said unijunction transistor;
a first variable resistance connected between said second voltage source and said emitter electrode for providing a variable charging current for said capacitor, said capacitor being discharged by said unijunction transistor upon reaching a prescribed voltage;
a first transistor;
a second variable resistance connected between the emitter electrode of said unijunction transistor and the base of said first transistor thereby forming a voltage divider with said first transistor for varying the point of conduction thereof; and
means operatively connected to the collector of said first transistor and said light source for periodically interposing a substantially infinite resistance between said light source and said first voltage source as said resistor-capacitor network is charged and discharged.

3,321,667
CONTROL SYSTEMS FOR ELECTRIC WELDERS
Harold C. Hoyt, Jr., Overland, Mo., assignor to Sperry Rand Corporation, a corporation of Delaware
Filed June 4, 1962, Ser. No. 199,771
24 Claims. (Cl. 315—284)



9. An electric welder that comprises:
(a) a high gain variable power output source and control system therefor, and
(b) an ignition circuit that is connected to said control system for said variable output source,
(c) said ignition circuit having a first sub-circuit, means for connecting said first sub-circuit to said control system for supplying a signal to said control system to force said variable power output source to hold its output to low levels,
(d) said high gain variable power output source normally supplying power to the workpiece at predetermined levels which would, during the establishment of an arc, form craters and holes in said workpiece,
(e) said low levels to which said variable power output is forced to hold its output being low enough to avoid the formation of craters and holes in said workpiece but being high enough to establish said arc,
(f) said ignition circuit having a second sub-circuit responsive to the output of the variable output source, means connecting said second sub-circuit to said control system for permitting the first said sub-circuit to supply said signal to said control system during the initiation of arcs but thereafter preventing the first said sub-circuit from supplying said signal to said control system,
(g) whereby said ignition circuit will cause said control system to force said variable power output source to hold its output to said low levels during the establishment of said arc but will, after said arc has been established, permit said variable power output source to supply power to said workpiece at said predetermined levels.

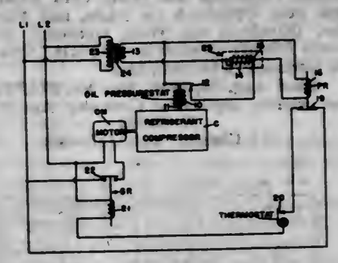
3,321,668
CURRENT CONTROL APPARATUS
Edward S. Baker, Seattle, Wash., assignor to The Boeing Company, Seattle, Wash., a corporation of Delaware
Filed Dec. 13, 1965, Ser. No. 517,176
6 Claims. (Cl. 317—11)



1. A protection circuit for the contacts of an electromechanical relay having a control winding comprising in combination: a silicon controlled rectifier having a main current carrying circuit connected in parallel with said contacts and having a control electrode; and control circuit means coupled with said control electrode and responsive to operation of said winding for closing said contacts to provide gating current to said control electrode, whereby said rectifier is rendered conductive prior to the time said contacts move into engagement with each other, said control circuit comprising a first transformer having a primary winding connected to one of said contacts and a secondary winding coupled with the control electrode of said first rectifier; a second controlled rectifier connected to said primary winding to control the flow of current therethrough and having a control electrode; a second transformer having a primary winding connected to one of said contacts and having a secondary winding; a third current control device connected to the primary winding of said second transformer and having a control electrode; means connecting said control electrode of said third device to said control winding; and circuit means connecting the control electrode of said second rectifier to the secondary winding of said second transformer.

3,321,669
TIME DELAY CIRCUIT USING THERMISTORS
Alan L. Rhodes, Staunton, Va., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Apr. 13, 1964, Ser. No. 359,191
4 Claims. (Cl. 317—41)

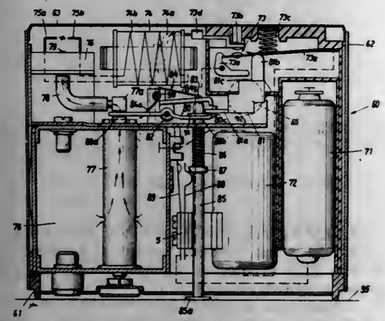
1. A protective circuit for a refrigerant compressor having an electric driving motor, comprising an oil pressurestat connected to said compressor, a switch closed by said pressurestat when the pressure within said pressurestat is below normal, a protective relay having a switch which is closed when said relay is energized, a starter relay for said motor, said starter relay having a switch which is closed when said starter relay is energized, electric supply connections, means connecting said switch of said protective relay and said starter relay in series to said connections, means connecting said switch of said starter relay and said motor in series to said connections, a thermistor having a positive temperature coefficient of resistance, means connecting said thermistor and said protective relay in series to said connections, a heater resistor adjacent to said thermistor for heating said thermistor when said resistor is energized, and means connecting said resistor and said switch of said pressurestat in series to said connections.



3,321,670
ELECTRICAL PROTECTIVE RELAYS
Peter Lewis Moreton, Felton, Somerset, England, assignor to The English Electric Company Limited, London, England, a British company
Filed Sept. 6, 1963, Ser. No. 307,149
Claims priority, application Great Britain, Sept. 11, 1962, 34,734/62
3 Claims. (Cl. 317—58)

1. An electrical protective relay including a magnetic flux producing means having poles producing in an air gap between them a magnetic flux, a rotor mounted for rotation with a part thereof extending into the air gap between the poles, a first electrical winding carried by the rotor for co-operation with the magnetic flux in the air gap and for exerting on the rotor when energized by a uni-directional relay input current an electro-magnetic torque tending to rotate the rotor from a non-operative position to an operative position, a second electrical winding carried by the rotor for co-operation with the magnetic flux in the air gap and for exerting on the rotor when energised by part of the relay input current an electro-magnetic torque for increasing the torque tending to rotate the rotor to the operative position, a relay input electric circuit for receiving the uni-directional relay input current, this circuit including in series with one another the said first electrical winding and a non-linear resistance device which exhibits at low current values a relatively high resistance value, and at progressively increasing current values progressively decreasing resistance values, first electrical contact means for connection in a control circuit to be controlled by the relay, this contact means being operated by the rotor from a first state to a second state only when the rotor moves into the said operative position, and second electrical contact means operated from a first state to a second state by the rotor when the rotor moves into a predetermined range of positions adjacent to and including the said operative position, this contact means when in the said second state connecting the said second electrical winding electrically in parallel with the said non-linear resistance device.

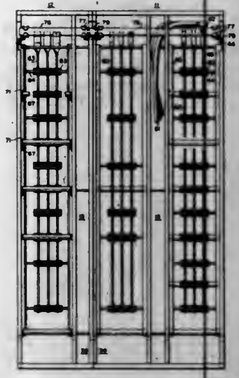
3,321,671
ELECTRICALLY IGNITED LIGHTER
Hermann Remy, Dietzenbach-Steinberg, Hans-Jürgen Berghaus, Offenbach am Main, Otto Adler, Heusenstamm, near Offenbach am Main, and Martin Grünbacher, Offenbach am Main, Germany, assignors to Rowenta Metallwarenfabrik G.m.b.H., Offenbach am Main, Germany, a German firm
Filed Aug. 30, 1966, Ser. No. 576,776
Claims priority, application Germany, Apr. 28, 1962, R 32,569
14 Claims. (Cl. 317—85)



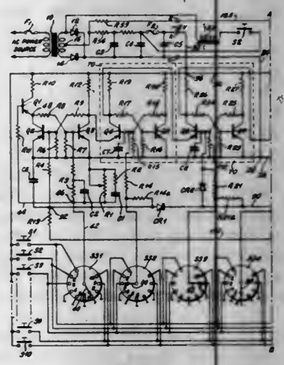
1. An electrically ignited gas-fueled lighter comprising, in combination: a fuel tank; a normally closed fuel valve for discharging a flow of gasified fuel from said tank upon opening of the valve; an ignition system including a voltage source, electrodes defining a spark gap therebetween, and normally open switch means for connecting said voltage source and said electrodes to effect a spark discharge across said spark gap, said spark gap being disposed in the path of the fuel discharged through said valve; a pivotally mounted two-armed valve control lever, one arm of said lever coacting with said valve to open the same in one pivotal position of said lever and to close the valve in another pivotal position of the lever; a movable mounted switch control member coacting with said switch means and displaceable between a switching position moving the switch means into the closed position and an initial position freeing the switch means for return into the open position; coacting cam means on said control member and the other arm of said lever, said cam means upon displacement of the control member toward the switch-closing position pivoting said lever into the valve-opening position; releasable catch means coacting with said control lever to retain the same in the valve-opening pivotal position; and release means coacting with said catch means for releasing the same.

3,321,672
CONTROL CENTER HOUSING STRUCTURE
Edmund W. Kuhn and Wesley L. McKelthan, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Dec. 31, 1964, Ser. No. 422,850
10 Claims. (Cl. 317—120)

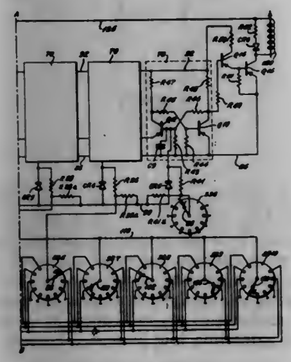
1. A control center for housing control units, said control center comprising horizontally disposed rectangular top and bottom frames, at least three individual vertical frames attached to the top and bottom frames in horizontally spaced relation to provide a vertical unit compartment between two of said vertical frames and a separate vertical wireway between one of said two vertical frames and a third vertical frame, each vertical frame including two horizontally spaced vertical members tied together by two horizontal members spaced from each other and from the ends of the vertical members, vertical supporting channel members attached to the horizontal members of the vertical frames, vertically spaced horizontal rails supported by the channel-members for supporting control units of a predetermined height and a predetermined increment of the height, and said channel members having openings therein vertically spaced at said increment for determining the location of the vertically spaced rails.



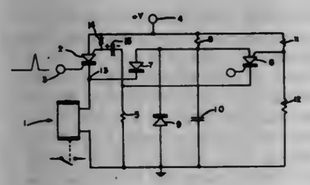
3,321,673
ELECTRONIC COMBINATION LOCK
James George Wolfe, Silver Spring, Md., assignor to Halliburton Company, Duncan, Okla., a corporation of Delaware
Filed Jan. 27, 1964, Ser. No. 340,446
8 Claims. (Cl. 317—134)



1. An electronic combination lock comprising a latch actuator, a power supply, a control circuit for selectively feeding operating power from said supply to the latch actuator, said control circuit comprising a plurality of semiconductor bistable devices each having an output electrode, an input electrode, and a control electrode, said bistable devices being in one conductive state and arranged in cascade such that the output electrode of one bistable device is coupled to the input electrode of the next succeeding bistable device, each said bistable device being operable to the other conduction state only when the next preceding bistable device is in the other conduction state and an operating signal is received by the respective control electrode, each bistable device returning to said one conduction state whenever the next preceding bistable device returns to said one conduction state, a bistable first stage having its output connected to the input electrode of the first bistable device and normally feeding a disabling voltage thereto to maintain said first bistable device in said one conduction state, said first stage having a control electrode and at least one reset electrode, a plurality of operable button switches coupled to said power supply for passing signals whenever the button switches are operated, adjustable coupling means for connecting different ones of a group of said buttons to different ones of said control electrodes and for connecting one of said button switches to the control electrode of said first stage so that whenever the preceding first stage or bistable device changes to the other conduction state and a signal is received by the next control electrode associated with a particular button switch, the associated bistable device changes state, a power switch coupled to the power supply and the last semiconductor bistable device and the latch actuator for operating the latch actuator in response to said last bistable device changing states, first reset means connected from each bistable device to one reset electrode of said first stage to reset the same to its normal output condition whenever a bistable device control electrode receives a signal from its button switch and its next preceding bistable device is in said one conduction state to assure the actuator operation only when said button switches are operated in the sequence determined by the setting of said coupling means.

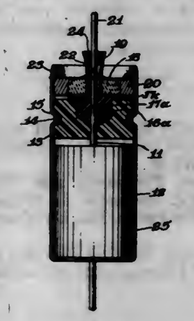


3,321,674
APPARATUS FOR SUPPLYING PULSES OF CONSTANT WIDTH TO A LOAD DEVICE
Marvin Felcheck, Bayside, N.Y., and Nanjundiah N. Murthy, Norwalk, Conn., assignors to American Machine & Foundry Company, a corporation of New Jersey
Filed July 14, 1964, Ser. No. 382,553
5 Claims. (Cl. 317—148.5)



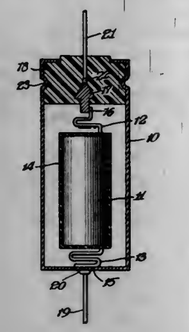
1. In apparatus for providing pulses of constant duration to a relay, the combination of
a terminal to which unregulated positive D.C. voltage can be supplied,
first circuit means having a first control terminal, a second control terminal, and an output terminal,
said circuit means being operative to provide at said output terminal of said first circuit means an electrical pulse of a duration dependent upon the time between application of a start pulse to said first control terminal and a stop pulse to said second control terminal;
capacitive circuit means;
charging circuit means;
means for preventing operation of said charging circuit means until a start pulse is applied to said first control terminal of said first circuit means;
second circuit means operative to provide a reference voltage proportional to said positive D.C. supply voltage; and
means responsive to charging of said capacitive circuit means to a predetermined voltage level and to said reference voltage provided by said second circuit means for supplying a stop pulse to said second control terminal,
said last mentioned means being operative to provide said stop pulse at a fixed time later than the next preceding start pulse when said D.C. supply voltage is within a predetermined range.

3,321,675
ELECTROLYTIC CAPACITOR COMPRISING GLASS-TO-METAL AND RESILIENT PRESSURE SEAL COMBINATION
George W. Diggens, North Adams, Mass., assignor to Sprague Electric Company, North Adams, Mass., a corporation of Massachusetts
Filed Apr. 14, 1964, Ser. No. 359,745
4 Claims. (Cl. 317—230)



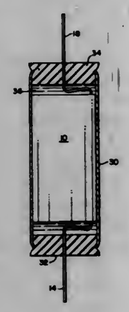
1. A sealed electrolytic capacitor comprising a metal capacitor case containing an anodized valve-metal anode with attached anodized valve-metal lead-wire and an electrolyte; a circumferentially grooved rigid insulating member positioned about said lead wire at a point adjacent said anode, said insulating member being held in place by engagement of the groove with an internal beading of the wall of said case, said insulating member having a centrally located recess extending inwardly from the non-anode facing side thereof; a resilient member, slightly oversized with respect to said recess, positioned about said lead-wire and compressed within said recess so as to take the shape thereof, a protuberant portion of said resilient member extending beyond said recess; a glass-to-metal seal comprising a mass of glass surrounding and fused to a tubular metal eyelet and surrounded by and fused to a metal washer, said seal being positioned so as compress said resilient member into said recess thereby effecting a tight seal about said lead wire, said seal deforming said protuberant portion thereby effecting a tight seal against the eyelet of said seal; said glass-to-metal seal being soldered at its periphery to the case wall.

3,321,676
ENCLOSED ELECTROLYTIC CAPACITOR WITH INSULATIVE IMPERVIOUS SEAL-LAYER ON SECTION-BODY
Sidney D. Ross, Williamstown, Mass., assignor to Sprague Electric Company, North Adams, Mass., a corporation of Massachusetts
Filed June 4, 1964, Ser. No. 372,566
6 Claims. (Cl. 317—230)



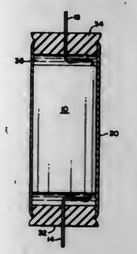
1. An aluminum electrolytic capacitor comprising an electrolytic capacitance section of convolutely wound aluminum foils separated by a spacer material, leads affixed to said foil and extending from said section; said section being impregnated with a liquid electrolyte; a section-conforming, substantially neutral, water-insoluble, electrolyte-impervious, continuous thin organic dielectric formed-in-place film enveloping said section, said film being a member selected from the group consisting of a hydrocarbon and a cellulose; said leads protruding through said films; and an outer protective container housing said section and said film.

3,321,677
ELECTROLYTIC CAPACITOR HAVING ELECTRODE CONTAINING NIOBIUM-ZIRCONIUM-TITANIUM
Lyon Mandelcorn, Pittsburgh, and Thomas W. Dakin, Murrysville, Pa., assignors to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Aug. 31, 1964, Ser. No. 393,130
7 Claims. (Cl. 317—230)



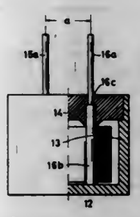
1. An electrolytic capacitor comprising an electrolyte and spaced electrodes disposed therein, at least one of said electrodes comprising an alloy consisting essentially of from 28% to 65% of niobium, from 10% to 50% of titanium and from 20% to 52% of zirconium, the zirconium including up to 2.3% hafnium and including not more than about 0.2% by weight of impurities, and the said electrode having a dielectric oxide film thereon.

3,321,678
ELECTROLYTIC CAPACITOR ELECTRODE COMPRISING ZIRCONIUM-NIOBIUM ALLOY COMPOSITION
Thomas W. Dakin, Murrysville, and William C. Divens, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Filed Sept. 3, 1964, Ser. No. 394,108
2 Claims. (Cl. 317—230)



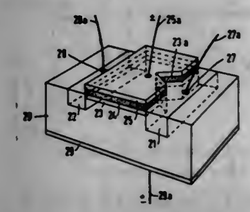
1. In an electrolytic capacitor, an electrode consisting of an alloy of from 20% to 30% by weight of zirconium with not over 2.3% of the zirconium comprising hafnium, the balance being niobium and small amounts of incidental impurities in an amount of not over about 0.2%, the electrode having an amorphous anodic dielectric surface oxide highly resistant to crystallization at operating temperatures and exhibiting low discharge currents.

3,321,679
ROLLED FOIL CAPACITOR HAVING HOLLOW LUG TERMINAL WITH CONNECTING PIN THEREFOR
Heinz Thiel, Teningen, Baden, and Claus Bachmann, Freiburg im Breisgau, Germany, assignors to Messrs. Frako Kondensatoren- und Apparatebau Gesellschaft mit beschränkter Haftung, Teningen, Baden, Germany, a corporation of Germany
Filed Aug. 19, 1963, Ser. No. 302,847
Claims priority, application Germany, Aug. 24, 1962, F 37,671; Dec. 13, 1962, F 38,551; Dec. 22, 1962, F 38,651
7 Claims. (Cl. 317—230)



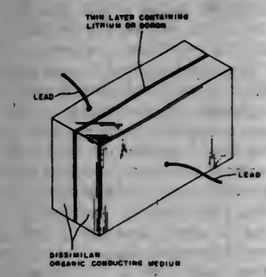
1. An electrical condenser comprising first and second hollow lugs arranged in predetermined spaced relationship, an anode foil connected to said first lug, a cathode foil connected to said second lug, a dielectric material web separating said lugs and disposed between said anode foil and said cathode foil, said anode foil, said web and said cathode foil being wound around the exterior of said lugs into a coil, said lugs each having an end projecting outwardly from a first common side of said coil, said coil having an opposite second side opening into the interior with said lugs therein, and a connecting pin for each lug extending into the coil opening from the second side and each connected to a respective lug adjacent the portion of the lug which projects outwardly from the first side of said coil.

3,321,680
CONTROLLABLE SEMICONDUCTOR DEVICES WITH A NEGATIVE CURRENT-VOLTAGE CHARACTERISTIC AND METHOD OF THEIR MANUFACTURE
Heinz-Herbert Arndt, Nurnberg, Jürgen Schädel, Hochstadt, and Theodor Renner, Nurnberg, Germany, assignors to Siemens-Schuckertwerke Aktiengesellschaft, Berlin-Siemensstadt, Germany, a German corporation
Filed Oct. 21, 1964, Ser. No. 405,627
Claims priority, application Germany, Oct. 22, 1963, S 87,961
9 Claims. (Cl. 317—234)



1. A controllable semiconductor device having a negative current voltage characteristic between two main electrodes, comprising a semiconductor monocrystal having a main portion of one conductance type and three mutually sequential regions adjacent to said main portion, the two outer ones of said regions having high extrinsic conductance of the opposed type and forming respective p-n junctions with the main portion, the intermediate region being formed as an inversion layer beneath an oxide coating between said outer regions and having low conductance different in type from the conductance of said main portion, said two outer regions being closely spaced from each other a distance sufficient to prevent mutual contact of said junctions at voltages below the breakdown limit, said intermediate region being further characterized by having a geometric restriction remotely located with respect to the locality of the predetermined point of highest field strength in the intermediate region; and four contact electrodes one each on said two outer regions forming the main electrodes, one on said oxide coating on top of said intermediate region and one on said main portion.

3,321,681
SEMICONDUCTOR CONSISTING OF PERYLENE IODINE COMPLEX JOINED TO A TETRACYANOQUINODIMETHANE COMPLEX TO FORM A P-N JUNCTION
Robert G. Lauttman, Neptune, N.J., assignor to the United States of America as represented by the Secretary of the Army
Filed Oct. 6. 1965, Ser. No. 493,592
1 Claim. (Cl. 317—234)



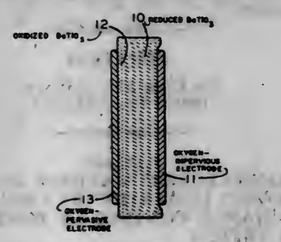
An organic semiconducting electronic device comprising, perylene iodine complex as a first organic semiconducting acceptor like material and tetracyanoquinodimethane complex as a second organic semiconductor donor like material, said semiconducting materials being chemically bonded together at their respective interfaces so that a junction is formed across which charge can be transferred, said first and second organic semiconducting materials having respective electrical contacts chemically bonded to their respective outer faces.

3,321,682
GROUP III–V COMPOUND TRANSISTOR
Doris W. Flatley, Trenton, Hans W. Becke, Morristown, and Daniel Stolnitz, Raritan, N.J., assignors to Radio Corporation of America, a corporation of Delaware
Original application May 20, 1963, Ser. No. 281,559, now Patent No. 3,255,056. Divided and this application Apr. 14, 1966, Ser. No. 542,573
2 Claims. (Cl. 317—237)



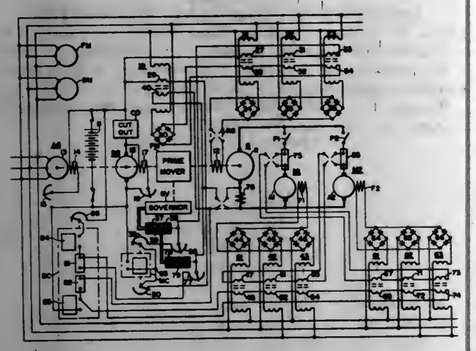
1. A transistor comprising:
an N type crystalline semiconductive body having at least one major face, said body consisting of a material selected from the group consisting of the phosphides, arsenides and antimonides of boron, aluminum, gallium and indium;
a P type base zone in said body immediately adjacent said major face, said zone being about 0.4 micron thick and containing a net excess of zinc atoms over N type impurity atoms, said excess being less than 5×10^{17} zinc atoms per cm.^{3} at said one major face;
a rectifying barrier between said P type zone and said N type body;
an N type emitter region in said body immediately adjacent said one face, said N type region being completely surrounded by said P type zone, the concentration of donor atoms in said emitter region being about 1×10^{19} atoms per cm.^{3};
a rectifying barrier between said N type emitter region and said P type base zone;
a metallic contact to said N type emitter region;
a metallic contact to said P type base zone; and,
electrical connections to said contacts.

3,321,683
ELECTRIC CIRCUIT ELEMENTS
William A. Tatem, Avon, N.Y., assignor to Sprague Electric Company, North Adams, Mass., a corporation of Massachusetts
Filed June 1, 1965, Ser. No. 465,823
12 Claims. (Cl. 317—258)



1. An electrical circuit element comprising a ceramic body having an oxygen-impervious electrode and an oxygen-pervasive counterelectrode, the surface of said body underlying said counterelectrode being in an oxidized state and said body underlying said oxygen-impervious electrode being in a reduced state.

3,321,684
LOCOMOTIVE GENERATOR-FED PLURAL MOTOR CONTROL SYSTEM
John J. Stamm, Franklin Township, Westmoreland County, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed June 25, 1963, Ser. No. 290,374
2 Claims. (Cl. 318—71)



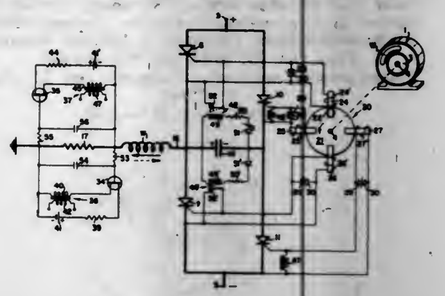
1. In combination, a direct current generator having an armature and a field winding, a prime mover for driving the generator, separate excitation means for the generator field winding, said excitation means including saturable reactor control means for controlling the generator field current, a controller, the saturable reactor means having first control winding means energized in response to the position of said controller and to the speed of the prime mover, the saturable reactor means having second control winding means for limiting the generator current, the second control winding means being energized in response to the generator current and the position of the controller, a plurality of motors having armatures connected to the generator and having field windings, separate excitation means for the motor field windings, said last mentioned excitation means including saturable reactor control means for controlling the excitation of the motor field windings, the last mentioned saturable reactor means having first control winding means energized in response to the motor current and second control winding means energized in response to the generator current and the speed of the prime mover to reduce the motor field current when the generator field excitation has reached its maximum value, and braking means including a braking controller for effecting energization of the second control winding means of the last mentioned saturable reactor means to increase the motor field excitation to effect operation of the motors as generators for braking action.

ERRATUM

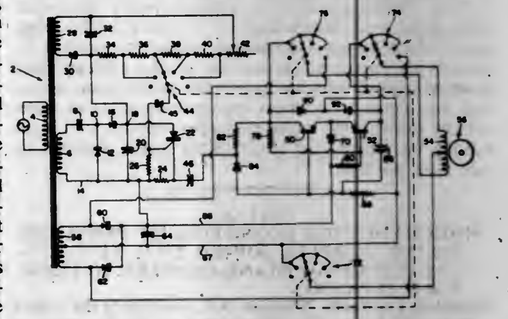
For Class 318—138 see:
Patent No. 3,321,661

3,321,685
DYNAMOELECTRIC MACHINE INCLUDING CURRENT LIMITATION BY CAPACITANCE DISCHARGE CONTROL OF POWER WINDING SWITCH
Virgil I. Johannes, Plainfield, N.J., assignor to Carrier Corporation, Syracuse, N.Y., a corporation of Delaware
Filed Jan. 6, 1965, Ser. No. 423,765
5 Claims. (Cl. 318—138)

5. In a control arrangement for operating a motor having energizing windings and a rotor movable on energization of said windings, the combination of a solid state switching device for each of said windings adapted when rendered operative to energize the winding associated therewith to move said rotor, means for rendering said switching devices operative in selected order to operate said motor, capacitance means chargeable upon energization of said windings, and means for sensing current in each of said windings adapted at a predetermined high winding current to discharge said capacitance means through the switching device for that winding to render said switching device inoperative and deenergize said winding.

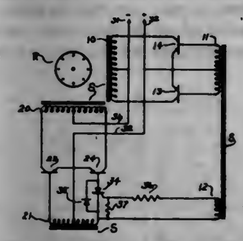


3,321,686
STEPPING MOTOR CONTROL CIRCUIT UTILIZING A FLIP-FLOP WITH A DELAYED FLOP
Morton Sklaroff, Philadelphia, Pa., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware
Filed May 22, 1964, Ser. No. 369,450
4 Claims. (Cl. 318—138)



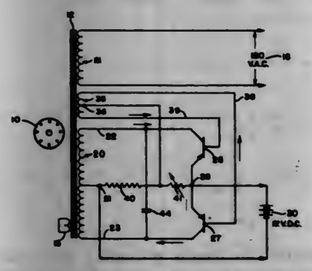
1. A motor control system comprising a pulse generator including a capacitive storage circuit means and a bias-controlled gate circuit means connected to said storage circuit means for periodically discharging said storage circuit means at a repetition rate determined by the magnitude of a bias signal applied to said gate circuit means, a bias selection circuit including a resistance string for producing a plurality of bias voltage signals and a selector switch means connected between said resistance string and said gate circuit means for applying a selected one of said plurality of bias signals to said gate circuit means, a stepping motor having a field winding, said motor being responsive to a pulse having a positive and negative peak for advancing a single increment, and control circuit means connected between said gate circuit means and said motor winding, said control circuit means including a transistor flip-flop circuit with a delayed flop and being responsive to pulses from said gate circuit means to effectively apply a series of pulses having positive and negative peaks to said motor winding.

3,321,687
BRUSHLESS OSCILLATOR FED ELECTRIC MOTOR
J. Roger Toth, Parkview, Ohio, assignor to Ametek, Inc., a corporation of Delaware
Filed Dec. 21, 1964, Ser. No. 419,869
5 Claims. (Cl. 318—138)



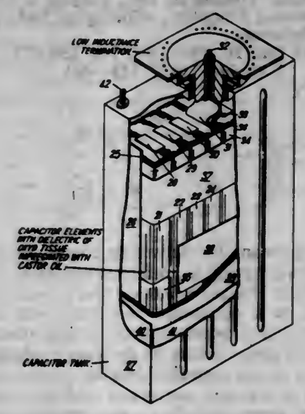
5. In a brushless direct current motor having a rotor, a stator core, first and second phase transistorized inverters each including a main and a feedback winding on the stator, the windings of the two inverters spaced as two-phase windings, a phase lock circuit to ensure motor starting in the same direction comprising: an SCR interposed between the control element of one transistor in the first phase inverter and the feedback winding thereof, whereby the said one transistor is prevented from conducting in response to a feedback signal until the SCR is gated on, a diode connected with reversed polarity between the anode and cathode of the SCR whereby a back bias signal from the first phase feedback winding can turn off said one transistor, a third feedback winding associated with the second phase main winding, and means for applying pulses developed on said third winding to the SCR gate.

3,321,688
A.C./D.C. FED TRANSISTORIZED INDUCTION MOTORS
Florens J. von Delden, Glendale, Calif., assignor to The Lau Blower Company, Dayton, Ohio, a corporation of Ohio
Filed Oct. 14, 1965, Ser. No. 495,928
7 Claims. (Cl. 318—138)



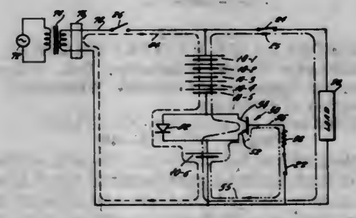
1. An induction motor for operation from a source of conventional alternating current or from a battery, comprising a stator, and a rotor inductively associated with said stator, a first winding on said stator adapted for connection to such alternating current source to operate said motor directly from said source, a second winding on said stator, a transistor switching circuit having transistors connected to said second winding and further having a common connection to such battery for applying current flow from the battery to said second winding first in one flux producing direction and then in the other at a switching rate which is approximately equal to the frequency of the alternating current for operating said motor at substantially the same speed and torque as compared to operation on said first winding, said second winding being inductively energized during the times that said motor is operating on said first winding inducing alternate back voltages across the emitter-collector circuits of each of said transistors, and circuit switching means including a further winding on said stator and having a connection to the bases of said transistors for causing said transistors alternately to become conductive as symmetrical devices during the times they are back biased for effecting full wave rectification of the output from said second winding when it is so energized as a charging current to the battery.

3,321,689
ELECTRIC CAPACITORS
Edward Henry Reynolds, London, and Gordon Alfred Curtis, Wallasey, England, assignors to British Insulated Callender's Cables Limited, London, England
Filed June 4, 1962, Ser. No. 199,985
Claims priority, application Great Britain, June 6, 1961, 20,388/61
8 Claims. (Cl. 320—1)



1. An impregnated paper insulated capacitor for energy storage and surge generator purposes comprising at least two electrodes and a dielectric material separating said electrodes consisting of oxyd capacitor tissue impregnated with castor oil.

3,321,690
RECHARGEABLE BATTERY ASSEMBLY WITH REVERSE POLARITY CHARGE PROTECTION
Robert J. McCarthy, Goldensbridge, and Ilyitch Jacob Sobel, White Plains, N.Y., assignors to Sonotone Corporation, Elmsford, N.Y., a corporation of New York
Filed Oct. 19, 1964, Ser. No. 404,763
19 Claims. (Cl. 320—6)



1. A rechargeable battery assembly comprising:
a plurality of individual cells, electrically connected together to combinedly discharge into an external circuit;

individual ones of said cells having a positive and cooperating negative electrode, with said negative electrode having a greater charge capacity than said positive electrode;

said cells being subject to charging with reverse polarity in response to full discharge of said positive electrode by discharging current;

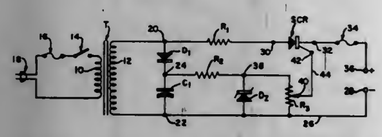
one of said cells predeterminedly selected to approach said reverse polarity condition before any of the other of said cells;

said one cell having a first condition corresponding to an appreciable positive charge;

and a second condition corresponding to the approaching of said reverse polarity condition;

means for sensing the condition of said one cell and interrupting the discharging of all of said cells respective to said one cell being in said second condition.

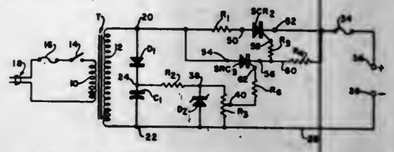
3,321,691
SELF-REGULATED BATTERY CHARGER
Robert R. Walsh, Wilmington, Del., assignor to All American Engineering Company, Wilmington, Del., a corporation of Delaware
Filed Jan. 10, 1963, Ser. No. 250,624
2 Claims. (Cl. 320—40)



1. Charging means for delivering charging current to a load, said load having a predetermined rated terminal voltage in a fully charged condition and a lesser terminal voltage when in a discharged condition, said charging means comprising a power source, circuit means connected with said power source for deriving a voltage standard therefrom, silicon controlled rectifier means connected in series with said power source and said load, said controlled rectifier means including a gate terminal, and conductor means connecting said gate terminal with said circuit means whereby a bias potential is applied to said gate terminal, said bias potential being selected such that said controlled rectifier means will prevent the flow of charging current to said load upon the advent of rated terminal voltage at said load; wherein said circuit means comprises a filter capacitor and rectifier means connected in series across said power source, a voltage divider comprising first and second series connected resistance means connected across said filter capacitor, and a voltage regulator means connected across said second resistance means, said second resistance means having a variable center tap thereon connected with said conductor means, whereby a selectively variable bias potential is provided for said gate terminal of said controlled rectifier means.

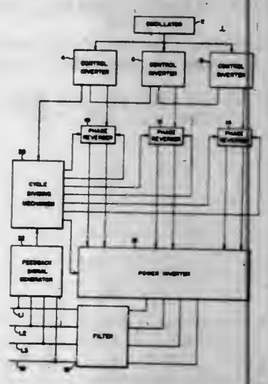
3,321,692
SELF-REGULATED BATTERY CHARGER
Robert Reddington Walsh, Wilmington, Del., assignor to All American Engineering Company, Wilmington, Del., a corporation of Delaware
Filed Sept. 26, 1963, Ser. No. 311,903
6 Claims. (Cl. 320—40)

1. Charging means for delivering charging current to a load, said load having a predetermined rated terminal voltage in a fully charged condition and a lesser terminal voltage when in a discharged condition, said charging means comprising a power source, circuit means connected with said power source for deriving a voltage standard therefrom, first semiconductor switch means connected in series with said power source and said load including a gate terminal, second semiconductor switch means connected in series with said power source and said load having a control terminal and having a cathode terminal conductively coupled with said load and said gate terminal through first and second coupling means, respectively, and conductor means connecting said control terminal with said circuit means whereby a bias potential is applied to said control terminal, said bias potential being selected such that said second switch means will prevent the flow of charging current to said



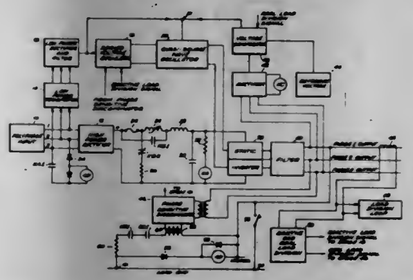
load via said first and second semiconductor switch means, upon the advent of rated terminal voltage at said load, said first switch means being controlled by said second, and such that in the event of a lesser terminal voltage at said load, said second semiconductor switch means will be activated, to complete a first charging path therethrough from said source to said load, causing similar activation of said first semiconductor switch means, and causing said source to supply charging current to said load through both said semiconductor switch means.

3,321,693
INVERTER AND SWITCHING SCHEME THEREFOR
Theodore M. Heinrich and Andrew Kernick, Lima, Ohio, assignors to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Filed Nov. 6, 1963, Ser. No. 321,834
21 Claims. (Cl. 321—5)



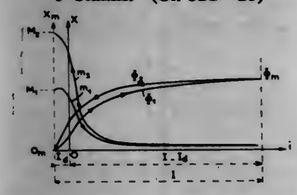
8. In combination, means providing first and second sources of alternating control potential alternating at first and second frequencies respectively, said first frequency being three times that of said second frequency, a controlling network energized by said sources and having first and second output circuits which are alternately energized at said first frequency and in fixed relationship to the half cycles of said first source, third and fourth sources of power potential alternating at said first frequency and in predetermined phase relation therewith, said third and fourth sources being phase displaced from each other and of unequal magnitude, a pair of power output terminals, first and second power flow controlling devices, a first power circuit connecting said third source to said output terminals for flow of power therebetween and including said first power flow device, a second power circuit connecting said fourth source to said output terminals and including said second power flow device, means connecting said first power flow device to said first output circuit and said second power flow device to said second output circuit, said power flow devices being rendered effective to cause the said power circuit with which they are associated to become alternately conductive at said first frequency in accordance with the alternate energization of said output circuits, said network being operable in response to said second frequency to reverse said relationship each half cycle of said second source.

3,321,694
CONTROL ARRANGEMENT FOR INVERSION SYSTEM
Philip D. Corey, Waynesboro, Va., assignor to General Electric Company, a corporation of New York
Filed Aug. 23, 1963, Ser. No. 304,145
9 Claims. (Cl. 321—18)



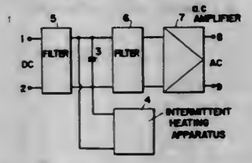
1. In an inverter system for converting the output of a unidirectional potential source to an AC output comprising generating means, inverting means responsive to said generating means for converting the output of said unidirectional potential source to said AC output in accordance with the output of said generating means; saturable magnetic means in circuit with said inverting means and adapted to be connected to said source to delay the application of said potential to said inverting means for the period required to saturate said saturable means, and means responsive to the application of said potential to provide an alternative connection of said inverting means to said potential source.

3,321,695
RECTIFIER INVERTER CIRCUITS WITH CONTROLLED RECTIFIERS AND SATURABLE INDUCTANCE MEANS
Jean Auguste Augier, Belfort, France, assignor to Societe Generale de Constructions Electriques & Mecaniques (Alsthom), a French body corporate
Filed July 10, 1963, Ser. No. 293,938
3 Claims. (Cl. 321—25)



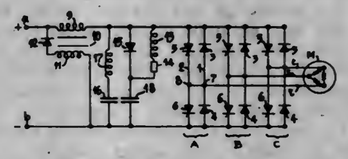
3. An inverter circuit comprising a polyphase alternating current network functioning as a load, a source of direct current, at least two groups of controlled semiconductor rectifiers connected in a single path arrangement connecting said polyphase and direct current sources, compensating inductors including, coil windings interconnected between said rectifiers and said polyphase source, and saturable magnetic coupling means between each of said coil windings of one of said groups of rectifiers and the particular coil winding of the other group of rectifiers which corresponds to ampere-turns in the opposite sense in said polyphase source, the direction of said magnetic coupling being arranged so that an increase in the normal direct current passing through the coil winding of one of said groups of rectifiers induces a voltage in the coupled coil winding of the other group of said rectifiers which tends to cause a current to circulate in it in the opposite direction to that of its normal direct current, and the mutual inductance of the two coupled coil windings being substantially equal, for zero currents, to the mutual inductance between the internal inductances of the two corresponding phases of said polyphase source.

3,321,696
VARIABLE CAPACITANCE D.C.–A.C. CONVERTER
Zenmon Abe and Katsumi Takami, Kitatama-gun, Tokyo-to, Kiyokata Matsuura, Chikusa-ku, Nagoya-shi, and Yoshio Furuhata, Hachioji-shi, Japan, assignors to Kabushiki Kaisha Hitachi Seisakusho, Tokyo-to, Japan, a joint-stock company of Japan
Filed Dec. 24, 1963, Ser. No. 333,006
Claims priority, application Japan, Dec. 28, 1962, 37/59,180
4 Claims. (Cl. 321—43)



1. A variable capacitance type D.C.–A.C. converter comprising a converting capacitor made of ferroelectric material; means to apply an input direct current to said capacitor; means to cause the temperature of said ferroelectric material to vary periodically in the vicinity of the temperature at which the dielectric constant of said material varies greatly with temperature; means to take out from said capacitor an alternating current having a period corresponding to the period of said temperature variation.

3,321,697
SINGLE COMMUTATION MEANS FOR SINGLE PHASE OR MULTI-PHASE INVERTERS
Marcel Etter, Blvd. des Promenades 6, Carouge-Geneva, Switzerland
Filed Aug. 9, 1963, Ser. No. 301,063
Claims priority, application Switzerland, Aug. 13, 1962, 9,577/62
7 Claims. (Cl. 321—45)



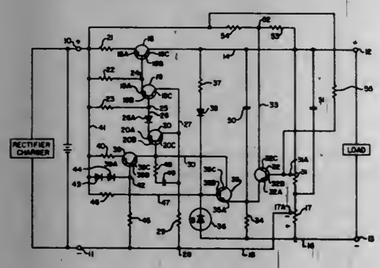
5. A generator of current of an adjustable polarity comprising a pair of input terminals connected to a source of D.C. potential a single pair of input conductors each connected to a respective input terminal, said conductors consisting of a positive input conductor and a negative input conductor, at least one line breaker unit connected across said input conductors and having two branches, each branch including a solid state thyratron connected in

series with a diode to a common junction point, the solid state thyratron of each branch being connected in normal polarity, and the associated diode in reverse polarity, with respect to the polarity of said input conductor, one thyratron of each unit being connected, on the one hand, to the positive input conductor and, on the other hand, through its associated diode to the negative input conductor, the other thyratron of each unit being connected, on the one hand, to the negative input conductor and, on the other hand, through its associated diode to the positive input conductor, the common juncture points of the branches of each unit being interconnected with each other and with a respective output terminal of the generator, an oscillating circuit inserted shuntwise across said input conductors with reference to at least one unit and including a condenser, and a shunt circuit for said condenser including an induction coil and a contact-maker in series, the closing of the contact-maker producing an A.C. discharge of the condenser to apply an oscillating potential between said conductors and across said thyratrons and said diodes to transiently reverse the current flow through said thyratrons relative to that supplied by the D.C. source thereby to extinguish any ignited thyratron.

3,321,698
VOLTAGE REGULATOR CIRCUITRY

Stephen L. Merkel, Cleveland, Ohio, assignor to Lorain Products Corporation, a corporation of Ohio

Filed Dec. 9, 1963, Ser. No. 329,132
8 Claims. (Cl. 323—16)

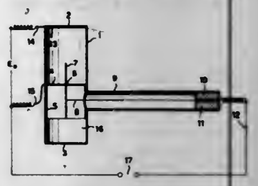


4. In a voltage regulating circuit having input and output terminals, in combination, variable conducting means serially connected between an input terminal and an output terminal of like polarity and having a control electrode, a first voltage divider connected across said output terminals, constant voltage means, first resistive means, error signal generating means including first and second transistors each having a base, a collector and an emitter electrode, means for connecting said first resistive means between one of said output terminals and a point electrically common to said emitter electrodes of said first and second transistors, means for connecting said base electrode of said first transistor to said first voltage divider, means for connecting said constant voltage means between said base electrode of said second transistor and one of said output terminals, amplifying means, means for connecting the collector electrode of said second transistor to the control electrode of said variable conducting means through said amplifying means, a constant current source, means for connecting said constant current source to said collector electrode of said second transistor to stabilize the gain thereof, a second voltage divider connected between an input terminal and an output terminal of like polarity, means for connecting said collector electrode of said first transistor to said second voltage divider whereby changes in power dissipation of said first and second transistors due to changes in input voltage are equalized, second resistive means connected between one of said input terminals and said base of said second transistor, unidirectional conducting means and third resistive means serially connected between said base electrode of said second transistor and one of said output terminals whereby current can flow from said one of said output terminals toward said constant voltage means but current cannot flow from said one of said input terminals to said one of said output terminals through said third resistive means.

3,321,699
DEVICE FOR QUADRATICALLY CONVERTING A LINEAR DISPLACEMENT INTO AN ELECTRICAL QUANTITY

Petrus J. Rademakers, Overveen, Netherlands, assignor to Laboratorium Voor Instrumentatie Dalsweil N.V., Haarlem, Netherlands

Filed Sept. 15, 1964, Ser. No. 396,571
Claims priority, application Netherlands, Sept. 19, 1963, 298,084
11 Claims. (Cl. 323—93)

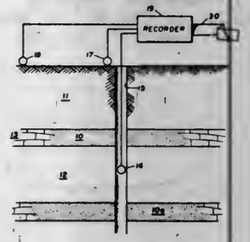


1. A device for converting a displacement into an electrical quantity so arranged that the electrical quantity varies with the square of the displacement, comprising a first electrode and a second electrode spaced apart and facing each other, a hole provided in said first electrode, and a third electrode having an elongate form and a uniform cross-section perpendicular to its length, said third electrode being positioned within said hole and having a portion thereof extending on either side of said first electrode, mounting means for said third electrode permitting said electrode to be displaced for a limited distance in the direction of its length with respect to said first electrode, electrical connecting means mounted on each of said electrodes, a voltage source connected to said first and second electrodes, and output terminals one connected to said third electrode and another connected to one of said first and second electrodes.

3,321,700
METHOD AND APPARATUS FOR GEOPHYSICAL EXPLORATION BY MEASURING TIME VARIATIONS IN THE EARTH'S MAGNETIC FIELD AT A PLURALITY OF LOCATIONS

John R. Zimmerman, Jr., Dallas, Tex., assignor to Mobil Oil Corporation, a corporation of New York

Filed Apr. 3, 1963, Ser. No. 270,268
10 Claims. (Cl. 324—8)



10. In the determination of the configuration of a subterranean body having resistivity which contrasts with the resistivity of formations surrounding said body, the method which comprises:

(a) generating a first signal and a second signal respectively representative of time variations in the earth's magnetic field at two spaced apart stations,

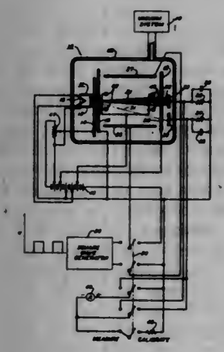
(b) generating a third signal representative of time variations in the earth's magnetic field at a subterranean station spaced from both said two stations and adjacent to a boundary between said body and said formations, and

(c) generating a scalar output signal from the first, second, and third signals representative of the difference between the differences between the amplitudes of a selected frequency component in the first and third signals and the second and third signals.

3,321,701
IONIZATION MANOMETER WHICH COMPARES AN ION NEUTRALIZED ELECTRON BEAM FLOW WITH AN UNNEUTRALIZED BEAM FLOW

Merton H. Crowell, Morristown, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York

Filed July 8, 1963, Ser. No. 293,346
7 Claims. (Cl. 324—33)



1. In combination:

means for forming and projecting a beam of electrons along an undeflected path;

means for periodically deflecting the beam, thereby causing it to flow along a predetermined deflected path;

a shield having a first aperture located on the undeflected path and a second aperture located on the deflected path;

said shield comprising means for collecting all electrons that do not pass through the first or second apertures;

means for collecting all electrons that do pass through the first or second apertures;

and means for indicating any difference of electron beam current through the first and second apertures.

3,321,702
MAGNETOMETER AND ELECTROMETER UTILIZING VIBRATING REEDS WHOSE AMPLITUDE OF VIBRATION IS A MEASURE OF THE FIELD

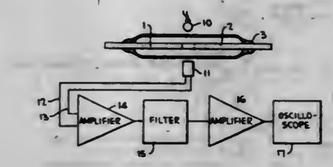
Thomas E. Tucciardi, Wheaton, Md., assignor to the United States of America as represented by the Secretary of the Army

Filed June 4, 1964, Ser. No. 372,726
8 Claims. (Cl. 324—43)

1. An apparatus for the measurement of small magnetic or electric field intensities comprising:

(a) first and second electrically conducting and flexible reeds each rigidly supported at one end and having their free ends overlapping but not touching and deflectable each toward the other under the influence of attractive forces created by a field existing therebetween,

(b) means for generating a steady-state oscillating field between the overlapping reeds having a frequency equal to the mechanical resonant frequency of the reeds thereby causing said reeds to have a component of vibration of twice their mechanical resonant frequency, and

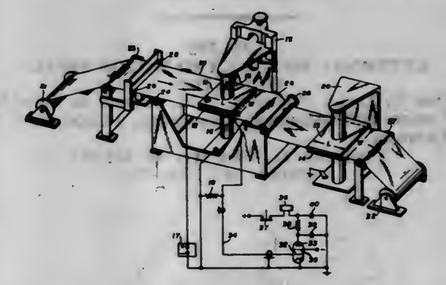


(c) means for detecting the variation in amplitude of the component of vibration of the reeds at their mechanical resonant frequency which is caused by the field to be measured together with the steady-state oscillating field.

3,321,703
METHOD AND APPARATUS FOR TESTING A DIELECTRIC MATERIAL IN THE PRESENCE OF A GAS BY MOVING THE MATERIAL WITH A SUFFICIENT VELOCITY TO IONIZE THE GAS

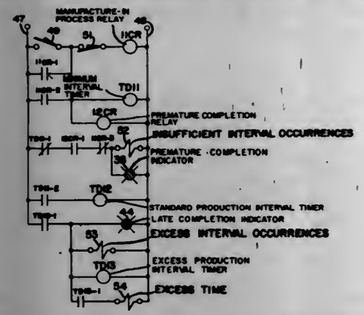
Wieslaw Jozef Tyszewicz, Dollard des Ormeaux, Quebec, Canada, assignor to Northern Electric Company Limited, Montreal, Quebec, Canada

Filed Dec. 9, 1963, Ser. No. 328,955
27 Claims. (Cl. 324—54)



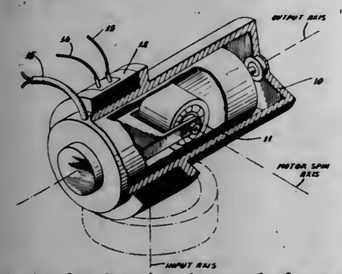
1. A method of testing dielectric material by making electrical contact with at least one surface of opposite surfaces of the dielectric material in the presence of a gas which comprises advancing said material between a pair of oppositely disposed electrodes so that each of said opposite surfaces is in juxtaposition with one of said electrodes and the dielectric material shields the pair of oppositely disposed electrodes one from the other so as to prevent direct conduction therebetween in the absence of a fault, maintaining said one surface of said material spaced from its adjacent electrode, applying a voltage between said electrodes, advancing said material with sufficient velocity, adjusting the amplitude of the voltage to be sufficient relative to the velocity of the material to ionize the gas between said one surface and said adjacent electrode, and monitoring the current flow to at least one of said electrodes for detecting the occurrence of faults in said material.

3,321,704
APPARATUS FOR MONITORING DEVIATIONS FROM PRODUCTION STANDARDS
Charles G. Mann, Farmington, Mich., assignor to Weltronic Company, Southfield, Mich., a corporation of Michigan
Filed Sept. 14, 1962, Ser. No. 223,655
3 Claims. (Cl. 324—68)



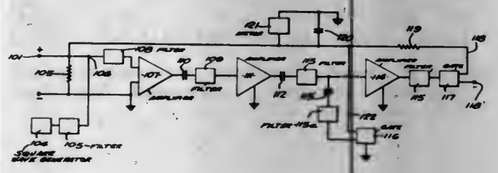
1. In combination a production rate monitoring system comprising a first switch responsive to the initiation of a manufacturing operation, a timer for defining a given interval, said switch when operated initiating operation of said timer, a second switch responsive to the completion of said manufacturing operation, a first counter responsive to the operation of said second switch prior to the completion of said given interval, a second timer for defining a second interval, means initiating operation of said second timer in response to said first mentioned timer defining the expiration of said first interval, a second counter responsive to the expiration of said second interval prior to the operation of said second switch, and a third timer actuated upon the completion of said second interval for measuring the interval between completion of said second interval and operation of said second switch.

3,321,705
EXTERNAL ROTOR GYRO MOTOR SPEED DETECTOR
Myron B. Levitt, Plainview, N.Y., assignor to Fairchild Camera and Instrument Corporation, a corporation of Delaware
Filed Nov. 21, 1963, Ser. No. 325,365
2 Claims. (Cl. 324—70)



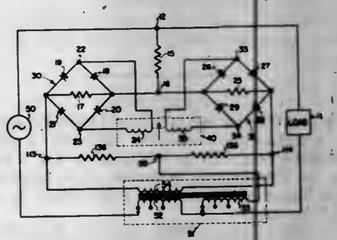
1. A device for detecting the speed of a gyro motor comprising a gyroscope having a housing, a hysteresis synchronous motor within said housing having a stator element and a rotor element external to said stator element which rotates when an excitation voltage is applied to said motor, and a coil of wire around said housing positioned so that when an excitation voltage is applied to said motor the magnetic fields generated by said rotor combine with the magnetic field of said stator induces in said coil of wire a voltage of the same frequency as the excitation voltage and of a magnitude proportional to the algebraic sum of said rotor and stator magnetic fields which voltage decreases as the rotor comes up to synchronous speed.

3,321,706
COMPARISON VOLTAGE MEASURING CIRCUITS USING CONDENSER CHARGING AND DISCHARGING
Raymond L. Donovan, Santa Monica, Calif., assignor to Statham Development Corporation, Los Angeles, Calif., a corporation of California
Filed Dec. 23, 1959, Ser. No. 861,495
18 Claims. (Cl. 324—111)



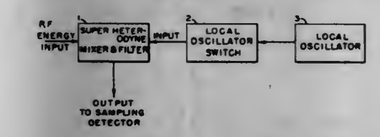
1. A voltage computer circuit including resistance network means to establish a signal potential between a reference point and a second point on said network, a substantially constant potential source of polarity opposite to the signal potential at said reference point, said substantially constant potential being of magnitude substantially greater than the magnitude of said signal potential at said reference point, an RC time delay circuit connecting said reference point and said potential source, said RC circuit including a condenser, a by-pass connection short circuiting the condenser of said RC circuit to base potential, switch means connecting said potential source to said reference point when said signal potential is established at said reference point, and substantially simultaneously to open the said by-pass short circuit connection to said base potential, said switch means also having means to disconnect the said potential source from said reference point when the potential at said reference point is substantially that at said second point and substantially simultaneously to close the said by-pass circuit to shunt the condenser to said base potential.

3,321,707
A.C. AND D.C. WATTMETER USING RECTIFIERS AND DIFFERENTIAL INDICATOR
Harry Russell Brownell, Larchmont, N.Y., assignor to The Singer Company, New York, N.Y., a corporation of New Jersey
Filed Sept. 20, 1963, Ser. No. 310,236
5 Claims. (Cl. 324—142)



1. A wattmeter including
a pair of rectifier units each having an input circuit and an output circuit and each providing a square-law relationship between the input and output signals thereof,
an indicating device including a pair of input circuits actuable to provide differential response to signals supplied thereto, each of said input circuits being connected to the output circuit of one of said rectifier units,
a shunt circuit including a shunt resistor having a centertap and a transformer having a primary winding, a secondary winding, and a compensating winding, said shunt resistor being connected in parallel with said secondary winding,
said secondary winding connected at each end thereof to one end of the input circuit of each of said rectifier units, the opposite ends of the input circuit of each of said rectifier units being connected together at a point connected to one end of a power source connected to a load, the primary winding of said transformer being connected between the opposite end of said power source and said load,
said compensating winding being connected between said centertap and said end of said primary winding connected to said load to produce a flux in opposition to flux developed in the primary of said transformer in response to currents passing through one of said wattmeter rectifier units and said primary winding.

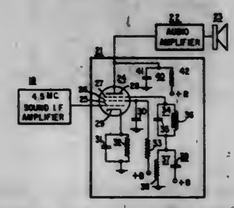
3,321,708
SAMPLING METHOD FOR RADAR RETURNS
Carl O. Olson, Jr., Burke, Va., assignor to the United States of America as represented by the Secretary of the Navy
Filed July 31, 1963, Ser. No. 299,122
1 Claim. (Cl. 325—322)



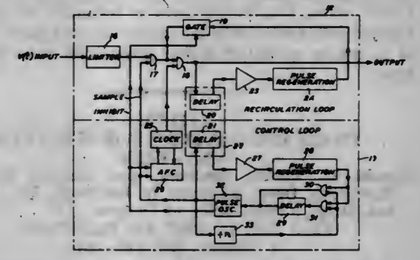
Apparatus for use in sampling RF radar return comprising:
a local oscillator to produce a signal at a first frequency;
switching means connected to said local oscillator to turn said oscillator signal on and off, the on time being very short compared to the off time and
mixing and filtering means connected to receive both said oscillator on signal and said RF radar return to provide pulses of energy at a second frequency related to the difference of said RF and first frequency, said pulses from said mixing and filtering means being of a duration corresponding to said on time and of an amplitude related to the amplitude of said RF radar return.

3,321,709
QUADRATURE GRID DETECTOR HAVING MEANS FOR INHIBITING UNDESIRABLE OSCILLATIONS
Leonard Dietch, Skokie, and James G. S. Chua, Roselle, Ill., assignors to Admiral Corporation, Chicago, Ill., a corporation of Delaware
Filed May 6, 1964, Ser. No. 365,383
7 Claims. (Cl. 325—349)

1. A quadrature-grid detector circuit comprising; a pentode vacuum tube including an anode, a cathode, a control grid and a suppressor grid; power supply means supplying D.C. operating potentials to said pentode; means applying a frequency modulated carrier signal to said control grid for detection, resonant means, having an oscillatory and a non-oscillatory mode, coupled to said suppressor grid generating oscillations of the same frequency as said frequency modulated carrier signal, said resonant means being excited into said oscillatory mode by energy capture from the anode-cathode conduction current in said pentode; said resonant means undesirably experiencing cyclical changes between said oscillatory and non-oscillatory modes over a certain range of operating potentials, said certain range of operating potentials being encountered upon turn-off of said power supply and consequent decay of said operating potentials supplied thereby; and means, responsive to turn-off of said power supply, coupling a potential to said suppressor grid for preventing said cyclical changes in the mode of said resonant means.

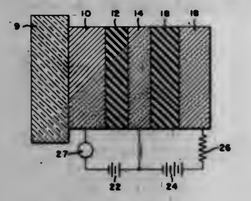


3,321,710
TIME-COMPRESSION SYSTEM EMPLOYING MEANS TO SELECTIVELY ALTER TIME-COMPRESSION FACTOR WITHOUT CHANGING LENGTH OF DELAY MEDIUM
William O. Dunnican, Totowa Borough, Passaic County, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Dec. 31, 1964, Ser. No. 422,719
14 Claims. (Cl. 328—55)



1. A time compression storage system comprising,
means for sampling an applied input wave at predetermined intervals of time to develop pulse signals representative of the information content of said applied wave,
delay means,
means responsive to said pulse signals for circulating said signals through said delay means,
means responsive to said sampling means for inhibiting successive recirculation of said signals through said delay means when said sampling interval and the signal circulation interval through said delay means are substantially identical,
and means for selectively altering the duration of said sampling intervals whereby signals circulated through said delay means during said altered intervals recirculate successively through said delay means.

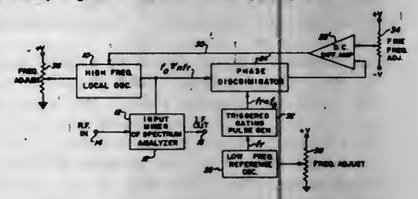
3,321,711
SPACE CHARGE LIMITED CONDUCTION SOLID STATE ELECTRON DEVICE
Peter N. Wolfe, Penn Hills, Pa., assignor to Westinghouse Electric Corporation, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Dec. 12, 1963, Ser. No. 330,140
6 Claims. (Cl. 330—39)



1. A solid state device comprising a plurality of layers in intimate contact comprising a first layer of an electrically conductive material, a second layer of insulating material of a thickness greater than the mean-free path of an electron in intimate contact with said first layer to provide by means of said first layer an electron injecting contact, a third layer of electrically conductive material in non-ohmic contact with said second layer and providing a blocking contact with said layer, said blocking contact providing a sharp downward discontinuity between the conduction edge of said second layer and the Fermi level of said third layer, a source of input potential connected across said first and third layers for impressing a field across said second layer to transport the electrons injected into said second layer from said first layer across said second layer and into said third layer, said third layer of a thickness that permits the electrons transported across said second layer to penetrate said third layer if of sufficient energy, a fourth layer of insulating material in intimate contact with said third layer and providing a blocking contact with said third layer, a fifth layer of electrically conductive material in intimate contact with said fourth layer, and an output source of potential connected across said third and fifth layers for impressing a field across said fourth layer to transport the electrons injected into said fourth layer through said third layer so as to derive an output signal across said third and fifth layers.

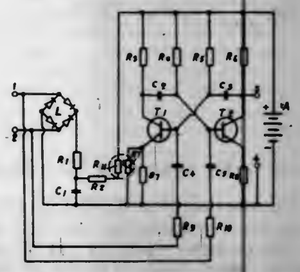
3,321,712
PHASE LOCK SYSTEM FOR SPECTRUM ANALYZER
Arnold M. Frisch, Portland, and Gordon D. Long, Beaverton, Oreg., assignors to Tektronix, Inc., Beaverton, Oreg., a corporation of Oregon
Filed Aug. 16, 1965, Ser. No. 479,903
6 Claims. (Cl. 331—26)

1. A phase lock system for a spectrum analyzer comprising:
- a high frequency oscillator normally free-running to produce a repetitive sine wave oscillator signal;
- a signal mixer having one input connected to the input terminal of said spectrum analyzer and its other input connected to the output of said oscillator;
- means for adjusting the frequency of said oscillator signal over a wide range;
- phase discriminator means for determining whether said oscillator signal is of a predetermined frequency and phase, and including a normally nonconducting gate having its input connected to the output of said oscillator;
- a low frequency pulse generator normally free-running to produce narrow gating pulses having a standard reference frequency which is lower than that of said oscillator signal and is a subharmonic of said predetermined frequency, said gating pulses having a pulse width which is less than the width of one-half cycle of said oscillator signal regardless of its frequency;
- means connecting the output of said pulse generator to said gate to render said gate momentarily conducting for a time determined by the width of said gating pulse so that a portion of the oscillator signal is transmitted through said gate to the output of said discriminator as an output pulse having a width substantially equal to that of said gating pulse; and



feedback means connected between the output of said phase discriminator means and a frequency control terminal of said oscillator for applying an unfiltered phase correction signal from said phase discriminator means to said oscillator in order to vary the frequency and phase of said oscillator to eliminate said phase shift in said oscillator signal.

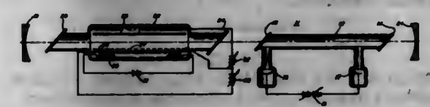
3,321,713
FREQUENCY STABILIZED MULTIVIBRATOR
Hans Johansson, Huddinge, Sweden, assignor to Billman-Regulator A.-B., Huddinge, Sweden, a Swedish company
Filed Apr. 4, 1966, Ser. No. 539,846
Claims priority, application Sweden, Apr. 13, 1965, 4,876/65
7 Claims. (Cl. 331—66)



1. Circuit for stabilizing the frequency of a multivibrator subjected to variations of the ambient temperature; said multivibrator comprising two transistors having their base and collector electrodes mutually cross-connected via frequency determining members, characterised in that the emitter circuit of at least one of the transistors comprises a negative thermistor, whereby variations of the ambient temperature will bring said thermistor to influence the emitter voltage in such a manner as to compensate the variations of the collector voltages of the transistors caused by said temperature variations.

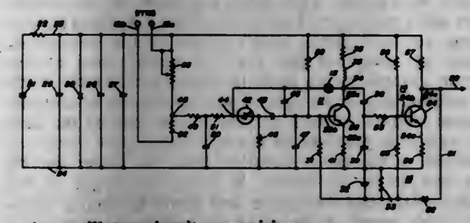
3,321,714
LIGHT MODULATING SYSTEM
Ping K. Tien, Chatham Township, Morris County, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Sept. 24, 1963, Ser. No. 311,000
6 Claims. (Cl. 331—94.5)

1. A light modulating system comprising, in combination, an optical maser comprising an elongated member containing an active medium and a pair of means external to said member forming an optical cavity resonator, a gas-filled elongated electron tube between one end of said member and one of said means, the longitudinal axis of said electron tube being coextensive with the longitudinal axis of said member, said electron tube having cathode, anode, and grid electrodes parallel to the longitudinal



axis thereof, means for exciting said member to emit a beam of light, means for applying a voltage to at least one of said electrodes for varying the absorption properties of the gas to said beam, and means for varying the amplitude of the light emitted from said resonator comprising means for varying the voltage difference between at least two of said electrodes.

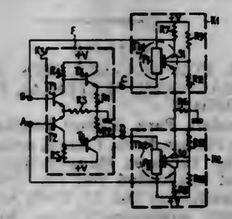
3,321,715
CRYSTAL OSCILLATOR CIRCUIT USING FEEDBACK CONTROL TECHNIQUES
Martin B. Bloch, Forest Hills, N.Y., assignor, by mesne assignments, to the United States of America as represented by the Secretary of the Navy
Filed Sept. 25, 1964, Ser. No. 399,411
1 Claim. (Cl. 331—109)



An oscillator circuit comprising:
- a first and a second transistor stage each having a base, an emitter and a collector terminal, said stages cascaded in common emitter configuration with the collector of the first transistor connected to the base of the second transistor;
- a plurality of capacitors connected in series-parallel relationship at one end to the base terminal of said first transistor, at least one of said plurality being a Varicap;
- a quartz crystal connected between the collector terminal of said first transistor and the other end of said plurality of capacitors;
- a D.C. feedback circuit connected to said collector terminal of said second transistor and the base terminals of said first and second transistors; and
- means for applying a bias signal capable of being variable to said Varicap.

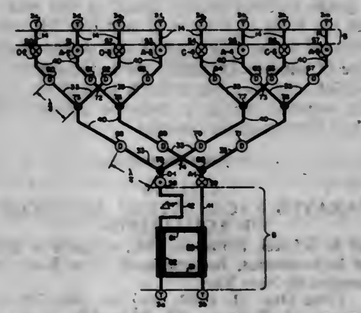
3,321,716
THERMALLY COUPLED ELECTRONIC CIRCUITS
Robert Lyon-Caen, Bry-sur-Marne, France, assignor to Compagnie Francaise Thomson Houston-Hotchkiss Brandt, Paris, France, a corporation of France
Filed Mar. 11, 1966, Ser. No. 533,490
Claims priority, application France, Mar. 16, 1965, 9,367
12 Claims. (Cl. 331—113)

1. A device for generating periodic signals comprising:
- a bistable circuit having a pair of inputs and a pair of outputs and switchable to either of two stable states in which one output is at an active potential and the other output at an inactive potential on application of a prescribed voltage level to each of said inputs;
- a pair of thermal coupling units each comprising:
  - a heat-dissipating primary element and a secondary element in thermally coupled relation therewith and having a first conductive condition at a non-elevated temperature and a second conductive condition at elevated temperature;
- means connecting said bistable circuit outputs to the primary elements of respective ones of said units including means for passing substantial current through each primary element to dissipate heat therefrom when the output connected thereto is at said active potential but not when said connected output is at said inactive potential; and



means connecting the secondary elements of said coupling units back to said respective bistable circuit inputs including means for applying said prescribed voltage level to each input when the secondary element connected thereto is in one of its conductive conditions but not in the other, whereby to switch the bistable circuit alternately between its two stable states and whereby periodic signals will appear at said inputs and outputs of said circuit.

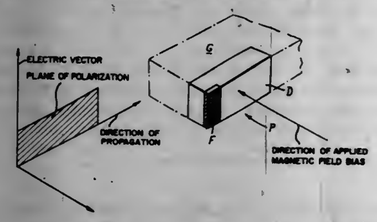
3,321,717
LOW-LOSS, BROADBAND, PROGRAMMABLE MONOPULSE BEAM-SELECTOR SWITCH
Willis H. Harper, Oxon Hill, Md., assignor to the United States of America as represented by the Secretary of the Navy
Filed Sept. 7, 1965, Ser. No. 485,652
5 Claims. (Cl. 333—7)



1. A selector switch for selectively passing R.-F. energy and intended to function as a low-loss, broadband beam selector when used with an appropriate beam forming matrix for monopulse operation in radar scanning, said switch comprising:
- a plurality of input terminals and two output terminals, hybrid means including conductive paths connected to said output terminals,
- a pair of conductive paths extending from said hybrid means, one of said pair of conductive paths forming a 90-degree signal delay line relative to the other of said pair of conductive paths,

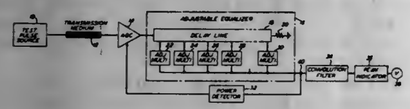
a first plurality of conductive lines each having one end thereof connected to said one conductive path at its extended end to form a first junction thereat,
a second plurality of conductive lines each having one end thereof connected to said other conductive path at its extended end to form a second junction thereat,
respective unidirectional conductive means electrically contacting each of said conductive lines at a predetermined distance from said first and second junctions, each of said unidirectional conductive means being electrically biased in accordance with a preselected program,
each of said plurality of conductive lines having conductive branches extending therefrom, and
coupling means connecting each of said conductive branches to a respective one of said input terminals.

3,321,718
COUPLER FOR WAVEGUIDES UTILIZING FERRIMAGNETIC MATERIAL FOR MODE CONVERSION
Roger S. Alfandari, Paris, Robert Pauchard, St. Mande, and Georges Pircher, Paris, France, assignors to Compagnie Francaise Thomson Houston-Hotchkiss Brandt
Continuation of application Ser. No. 154,664, Nov. 24, 1961. This application Oct. 25, 1965, Ser. No. 515,286
Claims priority, application France, Nov. 23, 1960, 844,801, Patent 79,002
5 Claims. (Cl. 333—21)



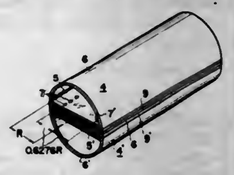
1. In a microwave coupling device including a rectangular wave-guide section and a member comprising ferrimagnetic material, said member being positioned in the waveguide section adjacent a wall thereof and being subjected to a magnetic field having a component normal to the plane of polarization of a microwave of one TE mode in said guide whereby energy reaching one end of said device in the form of a wave of said one TE mode will be transferred to the other end of said device in the form of a wave of another TE mode, the improvement according to which said member consists in part of a low-loss dielectric material having a dielectric constant close to that of said ferrimagnetic material.

3,321,719
APPARATUS FACILITATING ADJUSTMENT OF EQUALIZERS
Reginald A. Kaenel, Bethesda, Md., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Dec. 21, 1962, Ser. No. 246,377
8 Claims. (Cl. 333—28)



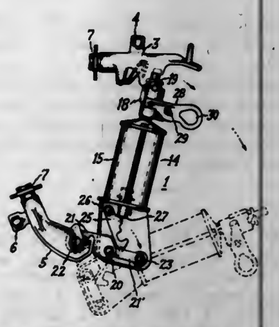
1. In a transmission system, a sending point and a receiving point linked by a transmission facility to be equalized, an adjustable equalizer situated in the transmission path between said sending point and said receiving point, a source of periodic test signals applied to said medium at said sending point, means for maintaining the power level of said test signal at said receiving point constant, means for deriving the crosscorrelation coefficient of the actual test signal wave form at said receiving point and the test signal wave form desired at said receiving point, and means for measuring the value of the peaks of said cross-correlation coefficient.

3,321,720
CIRCULAR WAVEGUIDE TE_{0n} MODE FILTER
Sadakuni Shimada, 330 Koigakubo, Kokubunji-shi, Tokyo-to, Japan
Filed Sept. 13, 1965, Ser. No. 491,486
Claims priority, application Japan, Nov. 9, 1961, 36/40,028
18 Claims. (Cl. 333—98)



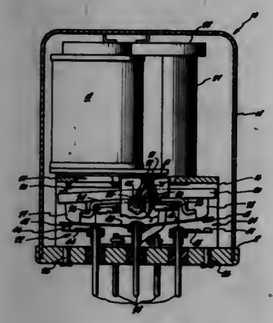
14. An electromagnetic wave TE_{0n} mode filter which comprises, in combination: a composite circular waveguide constructed with a plurality of single bodies of sector waveguides, each being composed of an arcuate part and a planar part both of which are integrated beforehand, the said single bodies of the sector waveguides being so assembled that the said planar parts of the sector waveguides are made to oppose juxtaposition with a substantially equal space gap; and mode conversion means aligned in rows parallel to the axis of the said waveguide at positions on the said planar part which are 0.6276R in the radial direction from the center line of the said sector waveguide, R being the length of the radius of the said waveguide; and means to remove spurious mode waves produced by the said mode conversion means.

3,321,721
SECTIONALIZER FOR OPEN CUTOUTS
Sidney R. Smith, Jr., Stockbridge, Mass., assignor to General Electric Company, a corporation of New York
Filed Nov. 12, 1965, Ser. No. 507,395
6 Claims. (Cl. 335—32)



6. A line sectionalizer for use in an open cutout frame of the type having an upper latch contact and a lower trunnion receiving hinge contact, said sectionalizer comprising an elongated cylindrical housing, a latched contact mounted on the upper end of said housing and extending axially outwardly therefrom for latched closed engagement with the latch contact of a cutout frame, a latched pivoted trunnion mounted on the other end of said housing and extending outwardly therefrom for seating in the hinge contact of said cutout frame, said housing containing a solenoid coil mounted coaxially therein, means for connecting said solenoid coil between said latched contact and said trunnion, a reciprocable plunger for said coil holding means for normally limiting the downward gravity biased movement of said plunger and timer restored counting means respectively to a predetermined movement of upward strokes of said plunger within a given time for releasing said holding means and allowing said plunger to fall far enough to trip the latch of said pivoted trunnion to cause said sectionalizer to drop and swing open.

3,321,722
RELAY WITH ADJUSTABLE ARMATURE
Harold A. Cohen, Los Angeles, Calif., assignor to Leach Corporation, Los Angeles, Calif., a corporation of Delaware
Filed Oct. 21, 1964, Ser. No. 405,555
1 Claim. (Cl. 335—128)



A relay comprising:
a frame;
an electrically energizable coil secured to the frame and including a core having a pole face;
an armature;
an elongated pivot pin engaged with the armature; and
a pair of spaced-apart eccentric bearings independently journaled through the frame and engaged with opposite ends of the pivot pin for supporting the armature to be movable toward and away from the pole face, whereby rotational adjustment of the eccentric bearings shifts the position of the pivot pin laterally with respect to the frame to adjustably position the armature with respect to the pole piece.

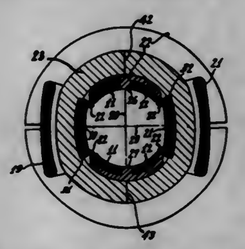
3,321,723
SEALED SWITCH ASSEMBLY WITH IMPROVED CONNECTING MEANS
Harry Chanowitz, Skokie, Ill., assignor to C. P. Clare & Company, Chicago, Ill., a corporation of Delaware
Filed Oct. 21, 1965, Ser. No. 499,583
6 Claims. (Cl. 335—152)

5. A switching assembly comprising an operating winding means having an axial opening, a sealed switch unit including an elongated insulating housing in the opposite ends of which a pair of terminals are sealed, said sealed switch unit being disposed in the axial opening of the operating winding means with the terminals projecting outwardly beyond the ends of the operating winding means, the transverse dimensions of the axial opening being greater than the transverse dimensions of the insulating housing so that the sealed switch unit is free to be disposed in various positions within the axial opening, a connector means secured to the operating winding means at the opposite ends of the axial opening, each of the connector means having an opening therein which is disposed one of the terminals of the sealed switch unit, the portions of the terminals disposed within the openings in the connector means being substantially smaller than the openings to space the terminals from contact with the connector means and to permit the sealed switch unit to



occupy any position relative to the operating winding means and the connector means that avoids the application of stress to the terminals regardless of the relation of the terminals to the elongated housing, and a mass of electrically conductive connecting material disposed in the openings interposed between the terminals and the connector means to secure the sealed switch unit to the connector means in a stress-free relation.

3,321,724
DEFLECTION YOKE CORE SLOTTED FOR VERTICAL TOROIDAL COILS
Maximilian J. Obert, Indianapolis, Ind., assignor to Radio Corporation of America, a corporation of Delaware
Filed Feb. 4, 1965, Ser. No. 430,416
4 Claims. (Cl. 335—213)



1. In an electromagnetic yoke for deflecting the electron beam of a cathode ray tube in two orthogonal directions:
a ferromagnetic core encircling said cathode ray tube and having an oval transverse cross-section with a minor axis in one of said orthogonal directions and a major axis in the other of said orthogonal directions.
said core having a pair of slots formed internally thereof centered about the extremities of said minor axis and extending from the rear end to the front end of said core,
said core also having a pair of recesses formed in said rear end in communication with said respective slots,
and said front and rear ends of said core being rounded at least in the regions of said slots and recesses so that toroidal type coils may be supported by and in direct physical contact with said slots and recesses without rupture of the insulation of the wire of said coils.

3,321,725
CURRENT TRANSFORMERS HAVING MULTI-TURN PRIMARY WINDINGS

Robert S. Canney, Berwick, Maine, assignor to General Electric Company, a corporation of New York

Filed Dec. 16, 1965, Ser. No. 514,221
5 Claims. (Cl. 336—173)

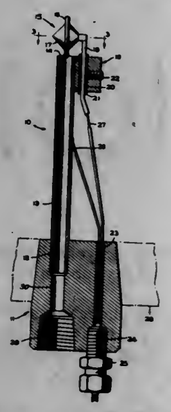


1. A current transformer having a multi-turn primary winding comprising a core and secondary winding unit having a window opening therein, a first plurality of primary conductors extending through said window opening, a second plurality of primary conductors extending around the outisde of said core and secondary winding unit, end caps secured to opposite ends of said core and secondary winding unit, said end caps provided with slots for receiving said first and said second plurality of primary conductors and holding them in position within and around said core and said secondary winding unit.

3,321,726
AEROSOL PROBE

Richard H. Babylon, Hagerstown, Md., assignor to Frick Company, Waynesboro, Pa., a corporation of Pennsylvania

Filed Sept. 29, 1965, Ser. No. 491,150
10 Claims. (Cl. 338—34)



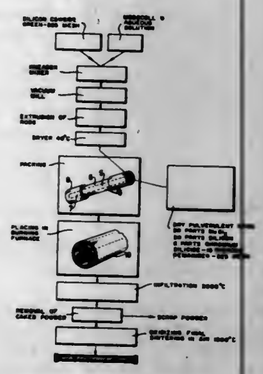
8. A probe for sensing liquid entrained in a gaseous fluid stream confined in a conduit in combination with a source of gaseous fluid under pressure and a source of very low voltage electric current, the probe comprising

(a) a mounting body secured in said conduit,
(b) an open ended tubular member secured at one end in said body and projecting from the latter,
(c) an electrode assembly secured to the distal end portion of said tubular member so as to be disposed in said conduit,
(d) said electrode assembly comprising
  (1) a ring shaped electrode and
  (2) a second electrode disposed in closely spaced coaxial relation to the ring shaped electrode,
(e) means associated with said body for connecting the electrodes to a source of very low voltage current,
(f) insulating means to electrically insulate the means connecting the ring and second electrode to a source of electric current,
(g) passage means in and connected to said body to communicate the tubular member with said source of fluid so that fluid is conducted through and discharged from the distal open end of the tubular member into impingement against the ring shaped and second electrode to thereby remove liquid adhering to the electrodes and restore the electrode assembly to sensing effectiveness.

3,321,727
HEAT-RESISTANT AND OXIDATIONPROOF MATERIALS

Nils Gustav Schrewelius, Hallstahammar, Sweden, assignor to Aktiebolaget Kanthal, Hallstahammar, Sweden

Continuation of abandoned application Ser. No. 64,833, Oct. 25, 1960. This application Dec. 9, 1964, Ser. No. 417,197
14 Claims. (Cl. 338—330)



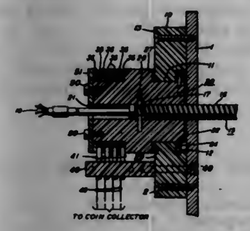
1. A dense oxidationproof heat-resistant heating element, having a heating zone formed of 30–90% by volume recrystallized silicon carbide and being impregnated with 10–70% by volume of a refractory alloy, the refractory alloy being principally molybdenum disilicide said impregnation being substantially complete and any overall porosity of said heating zone being at most 3% by volume and said heating zone being heat-resistant in air at temperatures of at least 1550° C.–1600° C.

3,321,728
ROTATING ELECTRICAL CONNECTOR FOR ARMORED CORD

Eugene R. Cocco, Baltimore, and Victor S. Martin, Lutherville, Md., assignors to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York

Filed Aug. 13, 1964, Ser. No. 389,440
4 Claims. (Cl. 339—8)

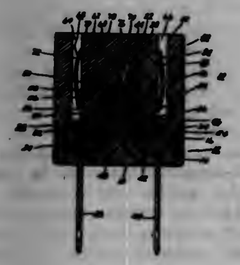
1. Apparatus for effecting rotatable electrical connections between the conductors of an electrical cord leading to a fixed housing and a like plurality of conductors within said housing, said apparatus comprising: an insulative rotatable element comprising first and second cylindrical end shoulders and a raised midportion flange, said first end shoulder defining a rotational bearing surface and the adjacent said midportion flange defining a thrust bearing surface, said rotatable element further comprising an axial passage; a plurality of spaced conductive rings mounted on said second end shoulder; an electrical cord passing through said housing and disposed in said axial passage; means for anchoring said cord internally in said rotatable element; means for connecting individual conductors in said cord with respective ones of said annular rings; bearing means fixed in said housing interior for receiving the rotational and the thrust bearing surfaces of said rotatable element, whereby a pull on said cord draws said thrust bearing surface against said bearing means, and a twist of said cord causes said rotational bearing surface to rotate within said bearing means; and a plurality of arms mounted within said housing and connected to said like plurality of conductors for effecting electrical contact with respective ones of said rings.



3,321,729
ROTATABLE ELECTRICAL CONNECTOR

Hermon E. Phillips, R.F.D. Lake James, Angola, Ind. 46703

Filed Oct. 22, 1964, Ser. No. 405,705
12 Claims. (Cl. 339—8)



1. A rotatable electrical connector comprising: a first member formed of molded insulating material and having a surface with a portion extending axially therefrom, said extension portion having a cylindrical surface and an end surface; annular bearing means having relatively rotatable inner and outer parts, said inner bearing means part being seated on said cylindrical surface with a friction-fit; said first member having a first electrical lead molded therein with one end thereof exposed to said cylindrical surface and contacting said inner bearing means part; said first member having a second electrical lead molded therein with a first end thereof exposed to said end surface; said first member having first means molded therein for making electrical contact with the other ends of said first and second leads, respectively; a second member formed of molded insulating material and having a cavity formed therein defining a cylindrical wall and a bottom wall; said first member extension portion and said bearing means being positioned in said cavity with said outer bearing means part engaging said cylindrical wall with a friction-fit whereby said first and second members are relatively rotatable and axial separation of said members is inhibited; said second member having a third electrical lead molded therein with one end thereof exposed to said cylindrical wall and contacting said outer bearing means part; said second member having a fourth electrical lead molded therein with a first end thereof exposed to said bottom wall; said second member having second means molded therein for making electrical contact with the other ends of said third and fourth leads, respectively; and rotatable contact means connecting said first ends of said second and fourth leads.

3,321,730
TREE LIGHTING APPARATUS

Donald M. Schlangen, 393 Lakewood Lane, Geyserville, Calif. 95441

Filed Sept. 21, 1964, Ser. No. 397,910
3 Claims. (Cl. 339—12)



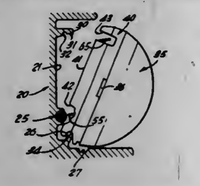
3. A power line section and plug for attachment thereto, said power line section comprising an elongate member of flexible insulating material, said member having a pair of spaced parallel slots thereon opening substantially along the entire length of said power line section and facing generally in a common direction, a pair of elongate conductors, one of said conductors being disposed in each said of said slots for supplying power to a plug, said power line section including means for retaining and supporting each of said conductors within its respective slot, and a plug including a pair of conductive prongs, a body for securing and retaining the prongs in insulated spaced relationship so that the prongs can be simultaneously inserted into the slots of said elongate member, and said power line section and plug being so constructed that when the plug is rotated about a line transverse to the section and intersecting points of contact therebetween, the plug and section are separated by body forces exerted between them, said prongs and said elongate conductors being so constructed and arranged that they make essentially frictionless, wiping contact with each other as the plug is inserted and withdrawn, one portion of a magnetic retaining means being disposed on said body of said plug and between the prongs, another portion of magnetic retaining means being disposed on said elongate member between the slots thereon and adapted for registry with the first portion of said magnetic retaining means on said plug when the plug is connected to the power line section, said magnetic means constituting the sole means for retaining the power line section to the plug so that when said plug is rotated about a line transverse to the power line section and intersecting points of contact between the plug and the power line section said magnetic retaining means is broken open and said plug is freely movable to thereby permit easy withdrawal of said plug from said power line section without requiring significant external support of the power line section.

3,321,731

MARKER LAMP ADAPTED FOR MOUNTING ON AN AUTOMOTIVE VEHICLE, AND CONNECTION INTO AN ELECTRICAL CIRCUIT, WITHOUT THE USE OF TOOLS

Elliott Goldbaum, Brooklyn, N.Y., assignor to Lehigh Valley Industries, Inc., New York, N.Y., a corporation of Delaware

Filed July 13, 1964, Ser. No. 382,000
10 Claims. (Cl. 339—21)



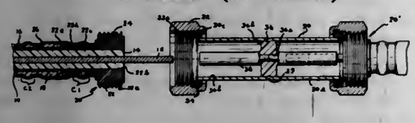
1. Illuminating structure comprising elongated lamp-carrying means for carrying a lamp at any selected location along said lamp-carrying means, said lamp-carrying means being electrically conductive and forming a ground of an electrical circuit, and said lamp-carrying means carrying an electrical conductor which is at least partly exposed at the exterior of said lamp-carrying means, which is insulated therefrom, and which forms a live portion of said circuit, a lamp assembly including an electrically non-conductive lamp housing, a lamp bulb therein, and live and ground connections for the lamp bulb, and mounting means carried in part by said lamp-carrying means and in part by said housing for mounting the latter on said lamp-carrying means without the use of tools, said housing when thus mounted on said lamp-carrying means having its live connection engaging said conductor and its ground connection engaging said lamp-carrying means so that when said circuit is closed said bulb will be illuminated, said ground connection of said lamp housing including an electrically conductive springy member at the exterior of said housing, said lamp-carrying means having a projecting portion engaging said springy member for providing with the latter a latch structure releasably holding said housing on said lamp-carrying means, and means in said projecting portion defining a space behind said springy member for releasing the same.

3,321,732

CRIMP TYPE COAXIAL CONNECTOR ASSEMBLY

Edgar Wilmot Forney, Jr., Harrisburg, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed May 14, 1965, Ser. No. 455,819
4 Claims. (Cl. 339—89)



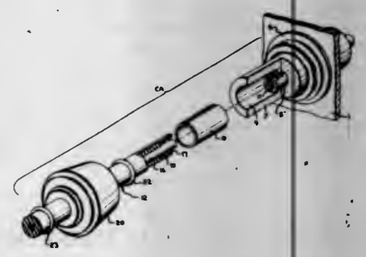
1. In an assembly for connecting coaxial cables of the type having an inner conductor surrounded by dielectric material and an outer conductor, the combination comprising a conductive receptacle including a first tubular sleeve having a bore of substantially constant diameter extending therethrough with means at either end of said first sleeve to electrically and mechanically connect to plug members terminated to coaxial cable for insertion at either end of said receptacle, a dielectric bead adapted to be fitted within said first sleeve toward the center thereof, said bead having an axial length small in comparison to the axial length of said sleeve and having a central bore extending therethrough, a second condctive sleeve having a center section of reduced diameter to define spaced shoulders adapted to engage the outside end surfaces of said bead, said bead being split along its length so as to be fitted over the center section of said second sleeve with said second sleeve in the said bore of said bead and axially aligned within said first sleeve whereby to be closed against the said center section of said second sleeve to position and axially lock said second sleeve within said first sleeve, said second conductive sleeve being of a diameter substantially less than the interior diameter of said first sleeve and being held by said bead to extend coaxially along portions of said first sleeve, said second sleeve carrying therein spring contact members having a plurality of spirally formed fingers extending along the second sleeve length with a substantial spring action transverse to the length of said second sleeve whereby to be capable of substantial radial deflection to accommodate differently sized center conductors of coaxial cable inserted therewithin.

3,321,733

HIGH VOLTAGE AND ALTITUDE CONNECTOR MEANS

John Edward Thomas, Hershey, Pa., assignor to AMP Incorporated, Harrisburg, Pa.

Filed Apr. 3, 1964, Ser. No. 357,178
7 Claims. (Cl. 339—90)



1. An electrical connector assembly comprising a rigid tubular member of insulating material, a contact element disposed at one end of said tubular member and sealed therein, an insulated conductor means disposed in said tubular member and having a contact member affixed to a conductor core thereof for mating engagement at said one end with said contact element, the insulation of said conductor means extending from the open end of said tubular member to the closed end and completely filling this interior space and substantially enveloping said contact element extending from said one end, a tubular piece of material disposed between said tubular member and said insulated conductor means and includes a gap therein to allow said conductor means to be readily inserted within said tubular member and to permit air to readily escape from said tubular member, and cap member means on said conductor means to engage said tubular member to maintain said conductor means in position in said tubular member.

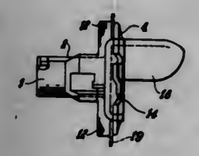
3,321,734

ELECTRIC LAMP SOCKETS

Peter Stephen Haas, Sandringham, Victoria, Australia, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Dec. 5, 1963, Ser. No. 328,288
Claims priority, application Australia, May 23, 1963, 31,049/63
4 Claims. (Cl. 339—127)

1. An electric lamp socket composed of electrical insulating material and which comprises a hollow body portion having a laterally projecting resilient flange at or adjacent to its outer end and which is of substantially circular formation, said body portion having means for detachably connecting it to an apertured supporting panel and which include a plurality of circumferentially spaced retaining lugs and which include circumferentially spaced locating stops that form part of said flange, said lugs being carried by and projecting radially in relation to said body portion and being spaced axially and rearwardly of said flange so that when in use said body portion is passed through a hole in said panel from the front thereof in such



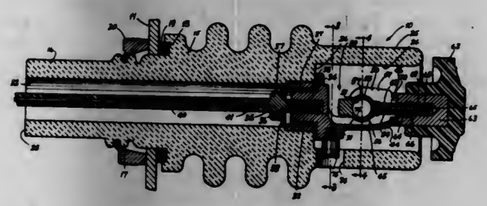
a manner that said lugs enter into mating fit with said panel which engage peripherally with said hole whereby axial inward pressure on said body portion and partial rotation thereof flexes the flange and passes the lugs to the rear of said panel and causes each stop to enter into peripheral engagement at predetermined location of said panel and oppose further undesirable rotation of the lamp socket in relation to the panel, and a forwardly axially projecting hood secured to said body portion in a location on one side of said flange.

3,321,735

BUSHING CONNECTOR

Clarence G. Duenke, St. Louis, and Fred O. Engert, Affton, Mo., assignors to Washington Electrical Products Company, Washington, Mo., a corporation of Missouri

Filed Sept. 14, 1964, Ser. No. 396,025
4 Claims. (Cl. 339—202)



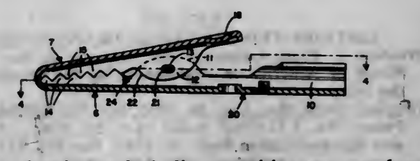
1. A bushing connector comprising an insulating body adapted to be mounted in a side of a transformer housing, means in the body to receive an electrically conductive cable extending from the interior of the transformer housing to a point inside the body, an electrically conductive casting in electrical contact with the cable, the casting having a bifurcated hook portion extending in a direction opposite the connection to the cable, a recess in the end of the body which projects away from the transformer housing, the bifurcated hook portion being positioned within the recess, an eyebolt adapted to be received within the bifurcated hook portion of the casting, the eyebolt having laterally projecting arms, a threaded shaft extending from the eyebolt toward the mouth of the recess in the body, a handle threaded onto the shaft for drawing the eyebolt toward an opposing side of the bifurcated hook portion, the handle and eyebolt being removable from the casting when the handle is rotated in an unthreading direction.

3,321,736

ELECTRIC TERMINAL CLIP

Alfred A. Flynn, Cleveland Heights, Ohio, assignor, by mesne assignments, to Mueller Electric Company, Cleveland, Ohio, a corporation

Filed Apr. 26, 1965, Ser. No. 450,941
4 Claims. (Cl. 339—255)



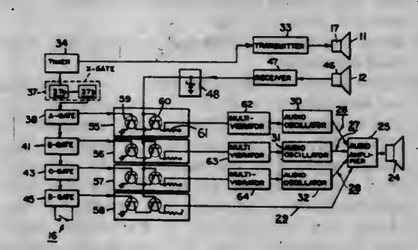
1. An electric terminal clip comprising two members each having an elongated gripping jaw generally U-shaped in transverse cross-section with longitudinal free edges of each jaw adjacent one another, means pivoting said members together adjacent one end of said jaws to provide for movement of said jaws into and out of engagement with one another, said jaws each having V-shaped teeth formed along said longitudinal free edges thereof adapted to mesh with the teeth of the other of said jaws when said jaws are moved to engage one another, and a spring urging said members about said pivot means to close said jaws with the teeth thereof in meshing engagement, said pivot means comprising an opening in one of said members, said opening being elongated in the direction that said jaws extend from said pivot means, and a pivot pin extending through said opening whereby said one member has sufficient movement longitudinally of its length on said pin relative to the other of said members to permit the teeth on one jaw to become centered between the respective teeth of the other jaw so that the teeth mesh with a continuous line of contact therebetween.

3,321,737

SONAR-TYPE SENSORY AIDS

Lindsay Russell, 100 Memorial Drive, Apt. 5–18–C, Cambridge, Mass. 02138

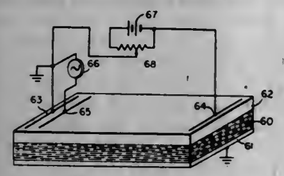
Filed Feb. 3, 1965, Ser. No. 430,069
11 Claims. (Cl. 340—1)



11. The method of sensing objects for guidance of a blind person comprising the steps of producing bursts of supersonic signals at a repetition rate of many times per second and propagating said bursts in a directional beam substantially horizontally and forwardly from in front of a blind person at about chest height, receiving the supersonic signals reflected from objects within the beam and producing electrical pulses related thereto, producing a first audible alarm signal for a period less than the remaining interval before transmission of the next-succeeding burst of supersonic signals whenever an electrical pulse is produced within a first predetermined relatively sustained interval following transmission of a burst of the supersonic signals, and producing at least a second distinctive audible output signal for a period

less than the remaining interval before transmission of the next-succeeding burst of supersonic signals whenever an electrical pulse is produced within at least a second predetermined relatively sustained interval following said first predetermined interval and before transmission of the next-succeeding burst of supersonic signals.

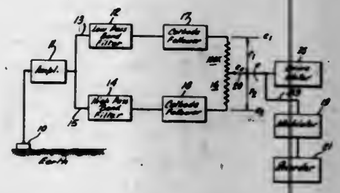
3,321,738
DISTRIBUTED COUPLING TRANSDUCER
Winfield J. Trott, Orlando, Fla., assignor to the United States of America as represented by the Secretary of the Navy
Original application Aug. 30, 1962, Ser. No. 220,962, now Patent No. 3,243,769, dated Mar. 29, 1966. Divided and this application Sept. 30, 1965, Ser. No. 513,878
2 Claims. (Cl. 340—10)



1. A sound transducer of the type having a mechanical delay line and an electrical delay line, portions of each of said lines being formed by a common element capable of reciprocally converting energy between electrical and mechanical forms, said lines having substantially the same phase velocity whereby energy inserted in one of said lines is coupled gradually to the other of said lines, comprising:
- a layer of piezoelectric material having one side thereof plated with a highly conductive material;
- a layer of mobile charge type of semiconductive material attached to the other side of said layer of piezoelectric material;
- first and second electrodes embedded in said layer of semiconductive material at widely separated locations;
- a third electrode embedded in said layer of semiconductive material at a location which is between said first and second electrodes but is closely spaced to said first electrode and
- a sonar transceiver connected between said first and third electrodes;
- whereby when the characteristics of said piezoelectric and semiconductive layers are such that the propagation velocities of mechanical and electrical energy respectively in said layers are similar, electrical energy applied by the transceiver to said first and third electrodes will diffuse through said layer of semiconductive material and gradually transfer energy and be converted to mechanical energy in said piezoelectric layer and conversely mechanical energy applied to said piezoelectric layer will be converted to electrical energy and energize said transceiver.

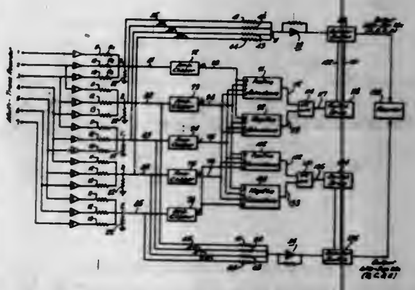
3,321,739
SEISMIC SIGNAL PROCESSING SYSTEM EMPLOYING CONTINUOUS MIX OF FILTERED SIGNAL
Burton D. Lee, Houston, Tex., assignor to Texaco Inc., New York, N.Y., a corporation of Delaware
Filed June 2, 1964, Ser. No. 372,009
11 Claims. (Cl. 340—15.5)

1. In a seismic exploration system comprising a source of seismic waves for introducing seismic signals into the earth, at least one receiving station for receiving said seismic signals after travel within the earth, said receiving station including a transducer for converting said received seismic signals into corresponding electric signals, the improvement comprising a plurality of parallel signal channels upon which each of said electric signals from said transducer is impressed, each of said electric signal channels including a filter means having a different predetermined frequency pass-band and adapted to pass said electric signals falling within said predetermined frequency pass-band, combining means for providing a signal which is a combination of the output signals from each of said



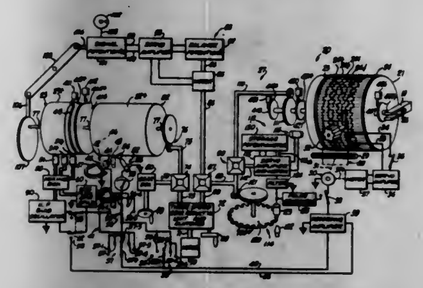
filter means, said combining means comprising a continuously variable potentiometer connected in each channel for varying the proportions in which the output signals of said filter means are applied to said combining means, automatic drive means for varying said potentiometers in accordance with a predetermined function of time and utilization means for obtaining information from said signal provided by said combining means about the earth through which said seismic signals travel.

3,321,740
METHOD AND APPARATUS FOR SELECTIVELY COMBINING SIGNALS TO DISTINGUISH CORRELATIVE DATA FROM NON-CORRELATIVE DATA
Burton D. Lee, Houston, Tex., assignor to Texaco Inc., New York, N.Y., a corporation of Delaware
Filed Dec. 22, 1964, Ser. No. 420,378
22 Claims. (Cl. 340—15.5)



1. A method of processing at least three signals in which correlative data is distinguished from non-correlative data in the respective signals, comprising the steps of arranging said signals into at least two groups, algebraically mixing the signals within each group and producing an algebraically mixed signal from each group, comparing the polarities of corresponding portions of the algebraically mixed signal from each of said groups, further algebraically mixing the algebraically mixed signal from each of said groups when an agreement of polarities of the corresponding portions of the algebraically mixed signal from each of said groups is obtained, and passing that portion of said further algebraically mixed signal which includes said corresponding portions to an output as an output signal and providing no output signal at said output when said agreement of polarities is not obtained.

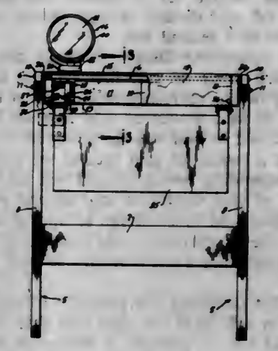
3,321,741
APPARATUS FOR SEISMIC CURVE FOLLOWING, REPRODUCING AND RECORDING
Edward J. Crossland, Tulsa, Okla., assignor to Seismograph Service Corporation, Tulsa, Okla., a corporation of Delaware
Filed June 11, 1959, Ser. No. 819,708
26 Claims. (Cl. 340—15.5)



1. In an apparatus for reproducing and recording seismic signals the combination of means for snpporting a seismic record having thereon a timing signal and a plurality of seismic traces recorded as a function of time, means for repeatedly driving said record supporting means past a reproducing means in order to reproduce the timing signal and one of the seismic traces during each cycle of movement of the record supporting means, means for re-recording the reproduced seismic trace upon a record medium, means for generating a standard timing signal corresponding to the desired speed of drive of the record supporting means, means jointly responsive to the standard signal and to the reproduced timing signal for developing a control signal whenever the reproduced timing signal deviates from the standard signal, means responsive to the control signal for applying a correction to the driving means in order to change the speed of drive of the record supporting means in a direction tending to bring the reproduced timing signal into coincidence with the standard signal, means for adding up the total effective corrections applied to the driving means during each cycle to develop a zeroing signal, and means for supplying said zeroing signal to the driving means at the end of each cycle in order to drive the record supporting means an amount sufficient to zero it for the next cycle.

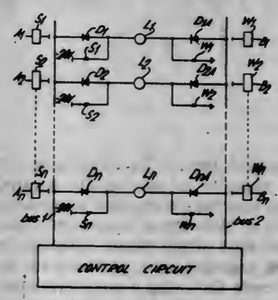
3,321,742
BARRICADE WITH FLASHER
Ewing D. Nunn, Jr., Fullerton, Calif.
(1108 Raymond Way, Anaheim, Calif. 92801)
Filed Mar. 12, 1965, Ser. No. 439,422
7 Claims. (Cl. 340—114)

1. A warning barricade having a pair of spaced apart leg units, and an electrically lighted head including a lamp bulb, said barricade being characterized by:
- A. a hollow cross bar having an open end;
- B. means swingingly connecting the hollow cross bar above its center of gravity with the upper ends of the spaced apart leg units, with the hollow cross bar substantially spanning the distance between the leg units so that in the normal pendent position of the hollow cross bar, access to its ends is obstructed by the leg units;
- C. a battery inside the hollow cross bar, said battery being insertable and removable through the open end of the hollow cross bar and providing a voltage source for energizing the lamp bulb;
- D. mechanism for controlling connection of the lamp bulb with the battery;
- E. a closure for the open end of the hollow cross bar;
- F. means fixedly mounting the control mechanism on the inside face of the closure;
- G. conductive means connecting the control mechanism with the battery and with the lamp bulb; and



- H. means removably securing the closure in position closing the open end of the hollow cross bar, so that the closure can be removed to afford access to the interior of the hollow cross bar and exposure of the control mechanism when the cross bar is swung from its pendent position to a position in which access to the closure is not obstructed by the adjacent leg unit.

3,321,743
COMPARISON CIRCUIT
Peter Nador, Eatontown, N.J., assignor to Northern Electric Company Limited, Montreal, Quebec, Canada
Filed June 10, 1964, Ser. No. 374,104
4 Claims. (Cl. 340—146.2)



1. Apparatus for determining if corresponding switches of first and second sets of switches are in the same state comprising:
- means for connecting one terminal of each switch in said first set to a first source of voltage of predetermined polarity and value,
- first and second sets of diodes, each diode having a first and a second terminal,
- means for connecting the other terminal of each switch in said first set to the first terminal of a diode of said first set of diodes, the second terminal of each of said diodes of said first set being connected to a first bus,

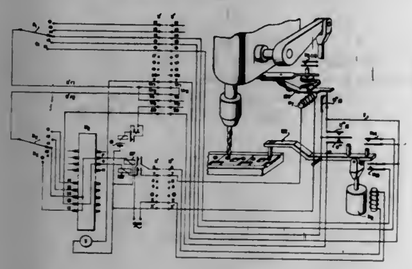
means for connecting one terminal of each switch in said second set of switches to a second source of voltage of predetermined polarity opposite to the polarity of said first source,

means for connecting the other terminal of each switch in said second set to the second terminal of a diode of said second set of diodes, the first terminal of each of said diodes of said second set being connected to a second bus,

a lamp connected directly between the first terminal of each diode of said first set and the second terminal of the corresponding diode of the second set, each of said diodes of said first set being poled to cause said second voltage to appear on said first bus when a switch of said second set is closed and the corresponding switch of said first set is opened, and each of said diodes of said second set being poled to cause said first voltage to appear on said second bus when a switch of said first set is closed and the corresponding switch of the second set is opened, and

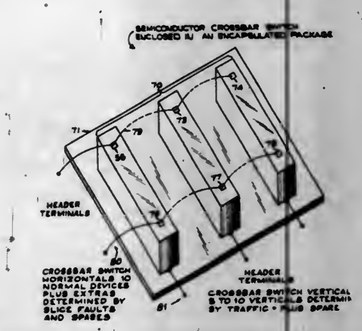
means for detecting the presence of said second voltage on said first bus and said first voltage on said second bus to indicate a difference in state of said first and second sets of switches.

3,321,744
AUTOMATION CONTROL SYSTEM FOR WORKING MACHINES OR THE LIKE
Hermann Børge Funck Jensen, Klintergarden I, Arhus, Denmark
Filed Mar. 16, 1962, Ser. No. 180,159
Claims priority, application Great Britain, Oct. 12, 1956, 31,087/56
34 Claims. (Cl. 340—163)



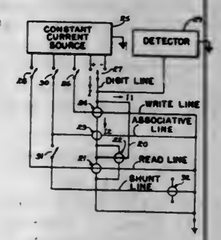
1. In control means for running a working machine having a plurality of electrically controlled operation-performing members controlled by command signals and included in a plurality of command signal lines, and a plurality of data signal means adapted to produce data signals and included in a plurality of data signal lines through a cycle following a predetermined sequence comprising: an electrically controlled counter device effectively providing a plurality of stages, means operatively connecting said counter device with said data signal lines to effectively switch said counter device exclusively by respective data signals of said data signal means and exclusively upon coincidence of a respective stage and of a respective one of said data signal means, said operation performing members each having a first and a second operating condition and being operable to be selectively switched from said first to said second operating condition and vice versa in response to sequential command signals, and means operable exclusively at a predetermined number of stages of said counter device to effectively provide a respective command signal for a correlated operation-performing member through a corresponding one of said command signal lines.

3,321,745
SEMICONDUCTOR BLOCK HAVING FOUR LAYER DIODES IN MATRIX ARRAY
Nicholas Victor Mansuetto, Lisle, and Raymond F. Berry, Hazel Crest, Ill., assignors to International Telephone and Telegraph Corporation
Filed Nov. 20, 1963, Ser. No. 325,074
12 Claims. (Cl. 340—166)



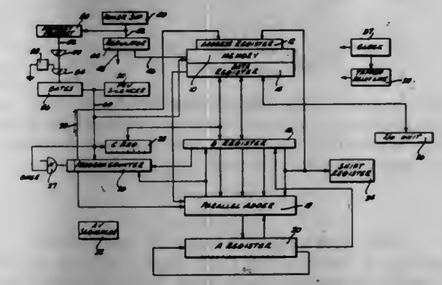
1. An electronic switch comprising a plurality of strips of semiconductor material, each of said strips having a four layer diode sections formed therein, means for supporting said strips in spaced parallel relation to provide a first group of multiples, said diode sections being oriented to provide a second number of multiples, and means for electrically joining all of the diodes which comprise each of the second multiples.

3,321,746
CRYOGENIC ASSOCIATIVE MEMORY
John W. Bremer, Sunnyvale, Calif., assignor to General Electric Company, a corporation of New York
Filed Sept. 27, 1962, Ser. No. 226,517
13 Claims. (Cl. 340—172.5)



1. In an associative memory system, a storage cell comprising: a digit line; first, second and third cryotrons, the gate of said first cryotron, the control of said second cryotron and the gate of said third cryotron being connected in series with said digit line; a fourth cryotron, the gate thereof being connected in parallel with the gate of said third cryotron; a branch circuit connected in parallel with the series connected gate of said first cryotron and control of said second cryotron, said branch circuit including the control of said fourth cryotron; a write line including the control of said first cryotron; an associative line including the gate of said second cryotron; a read line including the control of said third cryotron; a shunt line; means for selectively connecting said shunt line in parallel with said associative line; and means for selectively applying currents to said digit, write, associative and read lines.

3,321,747
MEMORY PROTECTION SYSTEM
Leslie H. Adamson, Tustin, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware
Filed Oct. 2, 1964, Ser. No. 401,173
16 Claims. (Cl. 340—172.5)



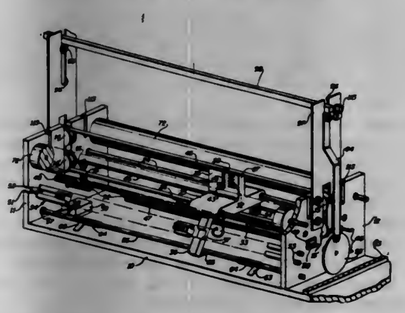
1. A system for protecting a computer memory from destruction of stored information including program information during voltage failure at a power supply, said memory operating in cycles at memory addresses transferred from a program counter, said memory having a read-write current source comprising

first means for sensing the voltage at said power supply and responding to a voltage failure condition,

second means responsive to said first means for de-energizing the read-write current source and for stopping the operation of said memory on termination of the currently operating cycle,

and third means responsive to said first means for developing a return address in said program counter during said voltage failure condition and for initiating the operation of said memory at said return address upon removal of said voltage failure condition.

3,321,748
INFORMATION RETRIEVAL APPARATUS
John H. Holland, West Hartford, Conn., assignor, by mesne assignments, to Royal Typewriter Company, Inc., a corporation of Delaware
Filed Feb. 18, 1963, Ser. No. 259,096
16 Claims. (Cl. 340—173)



1. Data retrieval apparatus comprising a frame,

a carriage movable relative to said frame, said carriage having a slot defining a read station,

transducer means located in and facing said slot,

selectively conditionable carriage position determining means located at uniform intervals parallel to the path of said carriage,

means carried by said carriage for sensing conditioned carriage position determining means,

a shaft,

means supporting said shaft above said carriage and operative to move said shaft between upper and lower positions relative to and parallel to the path of said carriage,

a plurality of centrally slotted discs having data radially recorded therein axially mounted on and movable relative to said shaft,

means for maintaining said discs axially spaced at intervals corresponding to the spacing intervals of said carriage position determining means,

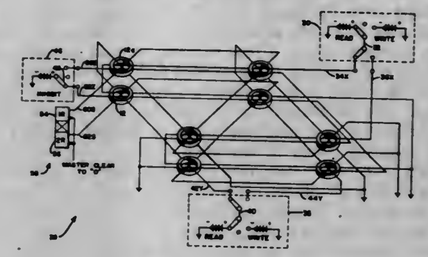
spaced drive rollers parallel to said carriage path mounted on said frame, said shaft maintaining said discs above said drive rollers and out of the path of said carriage when in its upper position,

drive means,

means on said carriage operative to engage said drive means for initiating carriage movement,

and means responsive to the detection of a conditioned carriage position determining means for effecting the arrest of carriage movement and operative on said shaft supporting means to effect the movement of said shaft to its lower position whereby a selected disc enters said slot and is frictionally peripherally driven by said rollers to thereby permit data recorded in said selected disc to be read.

3,321,749
MAGNETIC MEMORY APPARATUS
William M. Overa, Egan Township, Dakota County, Minn., assignor to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware
Filed Oct. 29, 1962, Ser. No. 233,666
12 Claims. (Cl. 340—174)



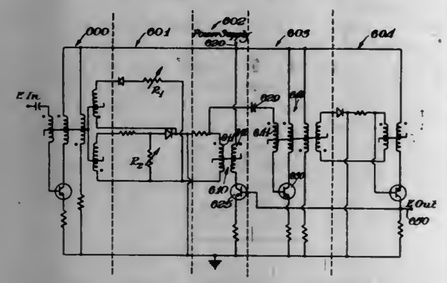
1. A magnetic memory apparatus having a plurality of cores, each core capable of being set into at least first and second substantially high flux density remanent magnetic states, said cores arranged in a plurality of similar planes, the cores of each plane being arranged in a plurality of rows and columns with a core being located at the intersection of each row and column, a first group of separate conductors each conductor coupled to all the cores of similar rows of each plane, a second group of separate conductors each conductor coupled to all the cores of similar columns of each plane, a third group of separate conductors each conductor coupled to all the cores of each plane, means for providing a symmetrical control signal of a first polarity read pulse followed by a second and opposite polarity write pulse said signal coupled separately to each conductor of said first and second groups with any core of any plane being capable of being individually selected to be set into said first or second remanent magnetic state by the coaction of said read-write pulses, respectively, when said read-write pulses are coupled to a conductor of said first and second groups which conductors are coupled to said selected core, the improvement comprising: coupled to said third group of conductors; first means for providing a first polarity pre-write disturb pulse intermediate in time said read-write pulses, and second means for selectively providing an in-

hibit pulse of the same polarity as said pre-write disturb pulse and of such duration such that said inhibit pulse shall at least substantially overlap said write pulse and shall have substantially the opposite magnetic effect upon any core as one of said write pulses.

3,321,750
MAGNETIC PULSE COUNTERS

Raymond J. Lussier, Williamstown, Mass., assignor to Sprague Electric Company, North Adams, Mass., a corporation of Massachusetts

Filed July 15, 1963, Ser. No. 295,170
16 Claims. (Cl. 340—174)



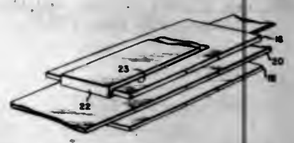
1. A pulse counter consisting essentially of: a first and second magnetic counting core; a magnetic output core; a first and second transistor in connection to said first and second counting cores respectively; and passive input and output circuits for the transistors; each of said counting cores having at least two windings; a first winding of said first core in connection to a source of pulses to be counted and to a first winding of said second core to cause a stepwise shifting of said first core to saturation in one direction, and therafter a stepwise shifting of said second core to saturation in one direction which adds the counts of said counting cores; a second winding of both counting cores in connection to an output circuit of their respective transistors to switch each of said cores to saturation in the opposite direction once their respective transistors become conductive; the input circuit of said second transistor in connection to said first winding of said second core to cause said second transistor to become conductive upon saturation of said second core in said one direction, and the input circuit of said first transistor in connection to the output circuit of said second transistor to render said first transistor conductive with said second transistor thereby switching both counting cores in the other direction once said second core is shifted to saturation in said one direction; and said output core having a first winding in the output circuit of said second transistor, and a second winding which develops an output signal each time said second core is switched.

3,321,751
MAGNETIC THIN FILM ELEMENT

Kent D. Broadbent, San Pedro, Calif., assignor to Hughes Aircraft Company, Culver City, Calif., a corporation of Delaware

Continuation of application Ser. No. 817,443, May 29, 1959. This application Dec. 20, 1963, Ser. No. 333,264
4 Claims. (Cl. 340—174)

1. A magnetic element deposited on a substrate in terms of thin film layers having essentially two dimensions comprising, a pair of spaced-apart complementary layers having magnetic properties, the thickness of said layers being greater than the minimum required to exhibit ferromagnetic properties and less than that thickness at which eddy-current losses in said material become significant, a pair of insulative layers disposed intermediate said magnetic layers and dimensionally defined with respect to said magnetic layers to have one dimension larger and one dimension smaller than said magnetic layers whereby said latter mentioned layers

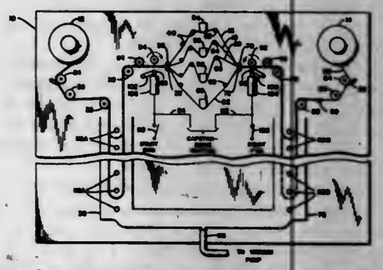


lap along two sides, and a conductive strip layer interposed between said insulative layers, extending in a direction between said two sides, and arranged therewith to be completely insulated from said magnetic layers.

3,321,752
MULTI-TAPE TRANSPORT ASSEMBLY

Laverne R. Peterson, St. Paul, Minn., assignor to Sperry Rand Corporation, New York, N.Y., a corporation of Delaware

Filed July 9, 1963, Ser. No. 293,775
11 Claims. (Cl. 340—174.1)



1. In a data processing system, transport apparatus for recording and reading a magnetic tape record assembly made up of at least two superposed magnetic tapes connected together at their respective leading ends, each tape for magnetically recording data manifestations for use in data processing and having aligned registration means, the magnetic tape record assembly arranged for coupling to and winding upon first and second storage reels, comprising:

a support member;

means including a first storage reel for feeding out a magnetic tape record assembly as it is moved in a forward direction and winding up a magnetic tape record assembly as it is moved in a backward direction;

means including a second storage reel for winding up a magnetic tape record assembly as it is moved in a forward direction and for feeding out a magnetic tape record assembly as it is moved in a backward direction;

means including a plurality of transducers for selectively recording and reading magnetic data manifestation on selected ones of the magnetic tapes, said transducers mounted on said support member between said first and second storage reels;

means for selectively driving the magnetic tapes in a forward and backward direction past respectively associated ones of said transducers;

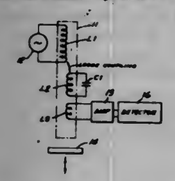
registration means for engaging the magnetic tapes to assure proper alignment as the tapes pass the respective ones of said transducers; and,

a first plurality of magnetic tape guide members mounted on said support member between said transducers and said first registration sprocket and a second plurality of magnetic tape guide members mounted on said support member between said transducers and said second registartion sprocket for guiding associated magnetic tapes and maintaining relative alignment of the tapes of the magnetic record assembly.

3,321,753
RESONANT PICKOFF DEVICE

Joseph T. Buckingham, Concord, and Harold D. Morris, Orinda, Calif., assignors to Systron-Donner Corporation, Concord, Calif., a corporation of California

Continuation of abandoned application Ser. No. 25,115, Apr. 27, 1960. This application Feb. 26, 1965, Ser. No. 435,459
13 Claims. (Cl. 340—196)

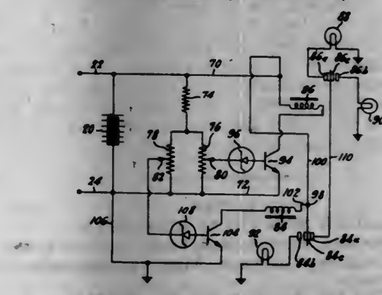


1. In a resonant pickoff device, a transformer having at least two windings, said two windings being loosely coupled with respect to each other, means for supplying alternating current of a first predetermined frequency to one of said windings, a vane of conducting material disposed outside of said transformer and movable towards and away from said transformer, means connected to another of said windings and forming with said winding a tuned circuit at a second predetermined frequency and at a predetermined spacing of said vane from said transformer, said tuned circuit having a resonance curve in which the gain drops off sharply on both sides of the resonance curve as the vane is moved from a position in which it has a predetermined spacing with respect to said transformer, movement of said vane from the position in which it has a predetermined spacing serving to detune the tuned circuit, to modify the coupling between the windings of the transformer and to modify the loading of the windings of the transformer, detector means and means coupling said detector means to the tuned circuit whereby said detector means detects the changes in the tuning of the tuned circuit, the coupling between the windings and the loading of the windings caused by movement of said vane.

3,321,754
BATTERY VOLTAGE INDICATING SYSTEM

Robert A. Grimm and Harry G. Johnson, Flint, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Aug. 20, 1964, Ser. No. 390,840
4 Claims. (Cl. 340—249)

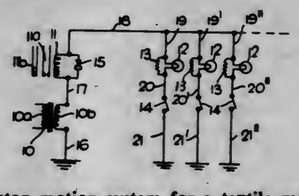


1. An indicating system for a battery charging system comprising, a source of direct current, conductors connected with opposite ends of said source of direct current, a battery connected across said conductors, first, second and third signal lamps, a first control means connected to sense the voltage across said conductors and operative to control the energization of said first and second signal lamps, said first control means completing a circuit for said first signal lamp when the voltage appearing across said conductors is below a first predetermined value, said first control means completing a circuit for said second signal lamp and deenergizing said first signal lamp when the voltage appearing across said conductors is above said first predetermined value, second control means including means for sensing the voltage appearing across said conductors and including means for controlling the energization of said second and third signal lamps, said second control means completing a circuit for said third signal lamp and deenergizing said second signal lamp when the voltage appearing across said conductors rise to a value which is above a second predetermined value, said second predetermined value being higher than said first predetermined value.

3,321,755
STOP MEANS FOR TEXTILE MACHINES

Albert E. Cooke, Leicester, England, assignor to Trip-Lite Limited, Leicester, England

Filed June 12, 1964, Ser. No. 374,673
Claims priority, application Great Britain, June 14, 1963, 23,812/63
10 Claims. (Cl. 340—419)

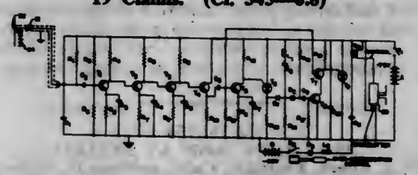


1. In a stop motion system for a textile machine, the combination comprising a plurality of detector switches, indicators associated respectively with said switches, an actuator including an energizing coil for effecting machine stoppage, circuit connections connecting said detector switches in parallel arrangement each with an indicator in its circuit, other circuit connections connecting the plurality of detector switches and indicators as a group in series with the energizing coil of said actuator for energization from an alternating current supply, and a diode rectifier shunting said energizing coil.

3,321,756
TRANSPONDER BEACONS

William F. Slaght, Ste.-Foy, Quebec, Canada, assignor to Her Majesty the Queen in right of Canada, as represented by Canadian Patents and Development Limited, National Research Council, Ottawa, Ontario, Canada

Filed Jan. 17, 1966, Ser. No. 521,171
19 Claims. (Cl. 343—6.8)



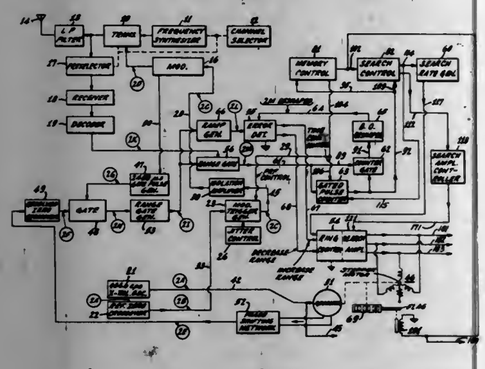
1. A beacon operable to generate an artificial echo in response to interrogation signals received from a radar associated therewith comprising means for receiving and detecting said interrogation signals; a decoder, said decoder including a gate-forming network operable to produce a delayed pulse in response to the application thereto of the first of said interrogation signals and a gating circuit, said delayed pulse being applied to one input of said

gating circuit to enable the latter whereby simultaneous application of a second interrogation signal to another input of said gating circuit is effective to produce a trigger pulse at the output of said gating circuit; and a transmitter, said trigger pulse being applied to the modulator of said transmitter to energize the latter thereby to generate an artificial echo signal in response to said interrogation signals, said decoder also including a solid state switching device, said first interrogation signal being applied to the gate electrode of said switching device, said switching device operable by said first interrogation signal to apply a step-function voltage across said gate-forming network whereby the latter produces said pulse delayed in time with respect to said first interrogation signal.

3,321,757
DME WITH GROUND SPEED AND TIME-TO-STATION INDICATOR

Robert P. Crow, Los Angeles, and Kay K. Fujimoto, Granada Hills, Calif., assignors to Radio Corporation of America, a corporation of Delaware

Filed Aug. 17, 1965, Ser. No. 480,356
5 Claims. (Cl. 343—7.3)



1. Radar apparatus of the automatic track-in-range type,

said radar having means including servo means for making said radar automatically track in range,

said servo means including a stepper servo motor having a plurality of windings,

said servo means also including means for applying driving pulses to said windings in one sequence to drive said motor in one direction and in the opposite sequence to drive said motor in the opposite direction,

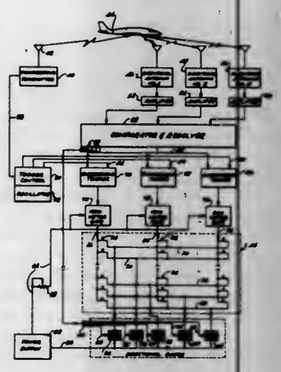
and means for obtaining a voltage having an amplitude that is a function of the difference in the number of said driving pulses occurring in one sequence and the number of said driving pulses occurring in the opposite sequence whereby said voltage amplitude is proportional to the rate of change in range.

3,321,758
PROXIMITY DISPLAY SYSTEM

Louis J. Elliott, Encinitas, Calif., assignor to Autosearch Corporation, Encinitas, Calif., a corporation of Nevada

Filed July 6, 1964, Ser. No. 380,417
10 Claims. (Cl. 343—7.9)

8. In a proximity display system, the combination comprising: a transparent housing; a directional array within said housing, said directional array including a plurality of stationary direction line electrical conductors radiating outwardly in different directions from a common center, each of said direction line conductors being electrically insulated from every other direction line conductor; a distance array within said housing, said distance array being superimposed upon said directional array but electrically insulated therefrom, said distance array including a plurality of stationary distance line electrical conductors, each of said distance line conductors being electrically insulated from every other distance line conductor, each distance line conductor being closely adjacent a portion of every direction line conductor at a common radial distance from said common center of all of said direction line conductors, said common radial distance being a different distance for each distance line conductor; means for selectively illuminating any crossover zone where a direction line conductor is closely adjacent a distance line conductor in response to the simultaneous application of different levels of electrical potential to the direction line conductor and the distance line conductor at the particular crossover zone; means for transmitting pulses of electromagnetic energy to an object whose location is to be displayed by the system; receiving means



for detecting reflected pulses from said object; electrical power supply means; a plurality of normally disabled direction gates, one for each direction line conductor, each direction gate being electrically connected between said power supply means and the direction line conductor corresponding to that particular direction gate; a plurality of normally disabled distance gates, one for each distance line conductor, each of said distance gates being electrically connected between said power supply means and the distance line conductor corresponding to that particular distance gate; means responsive to said receiving means for selectively enabling one of said direction gates and electrically energizing the corresponding direction line conductor in accordance with the direction of arrival of said reflected pulses from said object; timing means; and means responsive to said receiving means and said timing means for selectively enabling one of said distance gates and electrically energizing the corresponding distance line conductor in accordance with the time of arrival of said reflected pulses from said object.

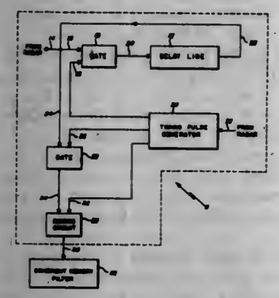
3,321,759
RADAR SPECTRUM ANALYZER

Nathan Freedman, West Newton, Mass., assignor to Raytheon Company, Lexington, Mass., a corporation of Massachusetts

Filed Oct. 13, 1964, Ser. No. 403,756
13 Claims. (Cl. 343—17.2)

1. For operating on a train of pulses each having a predetermined phase and amplitude, a combination of elements comprising:

a spectrum analyzer for receiving and producing a frequency spectrum analysis of said train of pulses; and pulse stretching means connected to said spectrum analyzer for extending the length of each pulse in said train before applying said each pulse to said analyzer

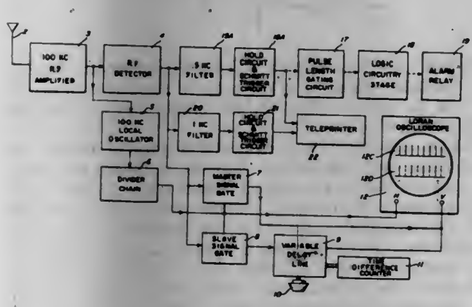


for producing said spectrum analysis including ringing circuit means for selectively ringing with the phase and amplitude of said pulses.

3,321,760
MODIFIED LORAN-C PRECISION NAVIGATION SYSTEM WITH COMMUNICATIONS CAPABILITY

Elmer M. Lipsey, Springfield, Va.
(1925 N. Lynn St., Room 1001, Arlington, Va. 22209)

Filed Sept. 23, 1963, Ser. No. 310,956
2 Claims. (Cl. 343—103)

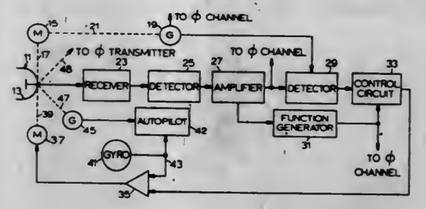


2. In a modified Loran-C radio navigation receiver which includes gating circuits for applying energizing potentials to measuring circuitry to determine the time interval between receipt of a master signal and a slave signal, and a detector for developing the envelope of incoming bursts of radio frequency energy arriving at either of two distinct pulse repetition rates, the improvement for decoding message data implicit within such incoming radio frequency energy which comprises: a pair of filters connected to receive the output signals developed by said detector, one of said filters being tuned to resonate at a frequency equal to one of said repetition rates and the other of said filters being tuned to resonate at a frequency equal to the other of said repetition rates; a hold filter and Schmitt trigger circuit connected to each of said filters to receive said output signals from said filters and produce signals corresponding to the "zero" and "one" characters in binary code therefrom, and means connected in-circuit with each of said hold filter and Schmitt trigger circuits to receive said binary coded signals and retrieve said message data implicit therein.

3,321,761
ADAPTIVE TARGET SEEKING SYSTEM

Fernando Biagi, Wayne, N.J., and Michael W. McKay, Tarrytown, N.Y., assignors to General Precision Inc., Little Falls, N.Y., a corporation of Delaware

Filed Dec. 28, 1964, Ser. No. 421,368
1 Claim. (Cl. 343—117)



In a passive target detecting and seeking system for use with a missile including a gimballed rotating antenna having an axis adapted to be aimed at the target, means for rotating said antenna, means connected to said antenna rotating means for generating a reference voltage wave, motor means for shifting the axis of said antenna, means including said antenna for forming a voltage wave having a target signal component therein, means for detecting said target signal from said voltage wave to provide a modified voltage wave, means for amplifying said modified wave, means for comparing the phase of said modified wave and said reference wave to produce an error signal voltage having an amplitude and direction which varies with the error in pointing said antenna toward the target, means for integrating said error signal voltage and control means responsive to said amplifying means for varying the gain and integration of said error signal voltage integrating means, and means for utilizing said integrated error signal voltage to drive said motor means to shift the position of the axis of said antenna in such a direction as to reduce the error to substantially zero, the improvement in said system wherein said means for integrating said error signal voltage includes a triode having the grid connected to said comparing means and said control means, and a capacitor connected between the plate and grid of said triode.

3,321,762
SLOT ANTENNA ARRAY USEFUL WITH TOP MOUNTED BEACON LIGHT AND DECOUPLED INTERNAL POWER LINE

Bruno Zucconi, 2814 19th St., San Francisco, Calif. 94110

Filed May 27, 1964, Ser. No. 370,405
8 Claims. (Cl. 343—721)

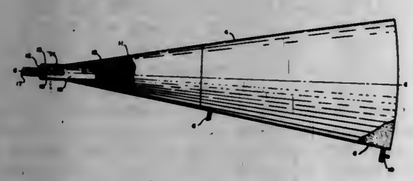
1. In an antenna array, a first tubular conductive member; said member having a plurality of elongate slots therein, said slots being spaced along the length of said member, a parallel conductor transmission line disposed within said tubular member, one of the conductors of said transmission line comprising a second tubular member having an opening through its side, a conductor disposed within said second tubular member to form therewith a coaxial transmission line for feeding the parallel transmission line at a location intermediate its length, said con-

ductor being passed through said opening and electrically connected to the other conductor of said parallel trans-



mission line, and means for electrically connecting each of said slots to said parallel transmission line.

3,321,763
INFLATABLE MICROWAVE ANTENNA WITH VARIABLE PARAMETERS
Kurt Ikrath, Elberon, and Wilhelm A. Schneider, Fair Haven, N.J., assignors to the United States of America as represented by the Secretary of the Army
Filed Jan. 27, 1965, Ser. No. 428,586
8 Claims. (Cl. 343—754)



1. A directional microwave antenna comprising, a helical antenna slidably mounted within a cylindrical dielectric tube, said dielectric tube inserted into a recess at the apex of a conical-shaped solid dielectric, an inflatable bag attached to the base of said solid dielectric and forming an extension of the conical shape of said solid dielectric, said bag filled with pellets of dielectric material, and means to pressurize the interior of said bag.

3,321,764
TELEVISION ANTENNA
John R. Winegard and Carey W. Shelledy, both of Burlington, Iowa, assignors to The Winegard Company, Burlington, Iowa, a corporation of Iowa
Filed Aug. 26, 1966, Ser. No. 593,228
8 Claims. (Cl. 343—815)

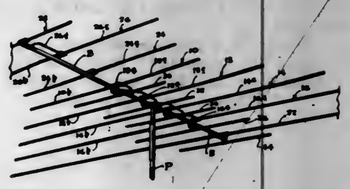
1. A television antenna effective in both the high frequency and low frequency bands comprising in combination:

at least three low band dipole driven elements located in substantially parallel relation to each other, in substantial alignment, defining connecting terminals located along substantially a common line normal to the elements, and having progressively increasing lengths when said common line is traced in one direction providing differing frequencies of most effective operation and coverage of the low frequency band;

a transmission line connecting said terminals to provide signal effects due to their combined action;

unitary elements associated with said driven elements, respectively, each unitary element being located in substantially parallel aligned relation to its associated driven element and in a plane through the driven element substantially normal to the plane defined by the driven elements, each unitary element having substantially the same number of wave lengths in the high band as the associated driven element has in the low band, each unitary element being spaced from the associated driven element by a distance that is short in relation to the length of the unitary element; and

a dipole director located in coplanar parallel aligned relation with the driven elements outboard the same on the side of the shortest element and in the plane defined thereby, said director including a pair of insulatingly supported dipole elements and a coupler connecting the same, the coupler having a substantial impedance in the high frequency band in conjunction with the other elements and the dipole director as a whole being effective in director action in the low band;



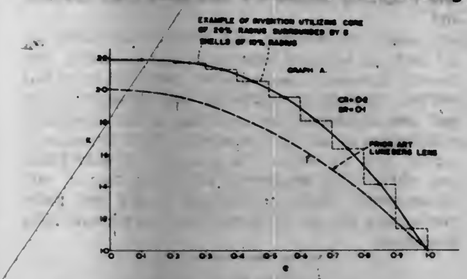
a pair of coaxial unitary high band directors in parallel aligned relation with the arms of the dipole director, in the plane defined by the dipole director and the driven elements;

and a reflector located in coplanar parallel aligned relation with the driven elements, outboard the same on the side of the longest element, the reflector comprising a main arm of unitary construction of length for reflector action in the low frequency band, said director further having a unitary element in parallel aligned relation with said main arm and in a plane through said main arm substantially normal to the plane defined by the driven elements, said last unitary element having substantially the same number of wave lengths length in the high band as said main arm has in the low band, said last unitary element being spaced from the main arm by a distance that is short in relation to the length of the unitary element.

3,321,765
SPHERICAL STEPPED-INDEX MICROWAVE LUNEBERG LENS
Basil Peters and Lawrence Brian Peters, Heston, England, assignors to Fairey Engineering Limited, Heston, England, a company of Great Britain
Filed Sept. 27, 1962, Ser. No. 226,696
Claims priority, application Great Britain, Oct. 3, 1961, 35,699/61; Dec. 15, 1961, 45,690/61
4 Claims. (Cl. 343—911)

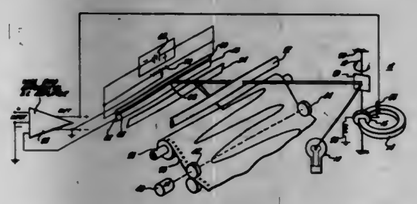
1. A spherical microwave lens which will bring incoming waves to a focus on the surface of the sphere comprising in combination, a number of hollow spherical shells fitting within one another with the successive shells

having a desired centre sphere ratio in the range 0.1 to 0.4 and shell thickness ratios in the range from 0.02 to 0.1, and each shell with a dielectric constant designated



from the corresponding ones of curves 1 through 7 in FIGURE 5 at a specified center sphere ratio within said range.

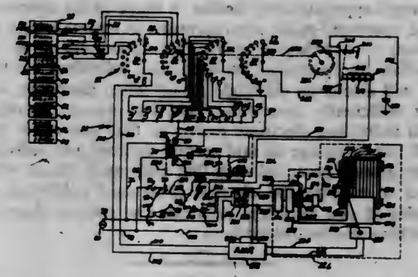
3,321,766
CLOSED-LOOP GALVANOMETER SERVO SYSTEM
Charles E. Everest, Palos Verdes Peninsula, Calif., assignor to Consolidated Electrodynamics Corporation, Pasadena, Calif., a corporation of California
Continuation of application Ser. No. 362,354, Apr. 24, 1964. This application June 8, 1966, Ser. No. 562,037
3 Claims. (Cl. 346—32)



1. A recording system for producing a visual record of variations in amplitude of an input voltage comprising a galvanometer having a moving coil element, a mirror mounted on the moving coil element, means for illuminating the mirror, an electro-optical potentiometer unit including a resistance element, a conductive element, and photosensitive material responsive to light for making a lower resistance path between the conductive element and the resistance element at the point of an impinging light beam, means for applying a fixed voltage across the resistance element, means for driving the galvanometer in response to the voltage difference between the input voltage and the voltage derived from the conductive element of the electro-optical potentiometer unit, means for focusing a portion of the light reflected by the mirror in a narrow beam position to scan the photosensitive material of the potentiometer with rotation of the mirror, means for driving a continuous strip of recording medium sensitive to light from the means for illuminating, and means for directing a portion of the light reflected from the mirror in a narrow beam onto the recording medium.

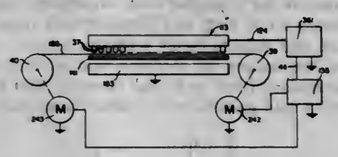
3,321,767
AUTOMATIC LOGGING SYSTEM
Salvatore A. Fulchino, 146 Hancock St., Everett, Mass. 02149
Filed Jan. 11, 1965, Ser. No. 424,604
3 Claims. (Cl. 346—34)

1. In an automatic logging system for repetitive sequential recording of each of a plurality of information signals on a single chart comprising, a chart recorder of the type having a moveable chart, a meter with an indicator at said chart, means for causing said indicator to make mark impressions on said chart at positions corresponding to the intensity of information signals at said meter; a plurality of information signal transducers, each adapted for coupling to an associated signal source and creating an output information signal identifying the information of the signal from said associated source for recording on said chart; a stepper switch having at least three terminal banks with a moveable contact arm in each of said terminal banks coupled together to simultaneously contact the corresponding terminal in each of said banks; means coupling the output of each of said transducers to a corresponding terminal in each of two of said terminal banks; an amplifier having an input and output terminals; means coupling the moveable contact arms of said two terminal banks to the input terminals of said amplifier; means coupling the output terminals of said



amplifier to said meter; power operated timing means adapted for coupling to a power source and said chart recorder for driving said chart at a preselected speed and including a timing cam; means in responsive relation to said timing cam and in control relation to said mark impression causing means for effecting intermittent mark impressions by said indicator on said chart; stepper switch indexing means in responsive relation to said timing cam for causing each of said contact arms to index to the next adjacent terminal in each of said terminal banks after each successive mark impression on said chart; and recycling means coupled to said third bank and arranged for indexing said contact arms to the first terminal after the terminal in said banks following the terminal coupled to the last of said transducer coupling means has been reached by the associated contact arm.

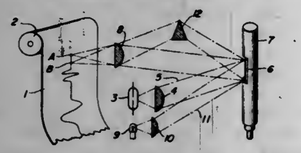
3,321,768
ELECTROSTATIC RECORDING WITH INTERCHANGEABLE STENCILS
Theodore E. Byrd, Philadelphia, Pa., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan
Filed May 12, 1960, Ser. No. 28,670
3 Claims. (Cl. 346—74)



1. In an electrostatic recording page printer, the combination comprising: a record medium store; means for advancing a record medium having a charge-retentive obverse from the said store toward a printing station, the said printing station comprising discharge electrode means comprising individual electrodes and backing electrode means aligned with and in proximity to said discharge electrode means to form a gap for receiving said record medium between said discharge and back electrode means

for establishing electric charges upon the obverse of said record medium; data source and control means for applying to said discharge electrode means electrical pulses selectively in accordance with data from said data source wherein said pulses are of magnitude and duration such that said electric charges are established on said record medium during a short duration substantially of the order of the pulse width and the discharge is terminated in a time period of the order of within a microsecond; developing and fixing means for rendering the distribution of said electric charges on said record medium permanently visible; apertured mask means movably interposed between said individual electrodes of said discharge electrode means and said record medium so to shape the discharge from said discharge electrode means as to produce on said record medium distributions of electric charges approximately similar in shape to the apertures of said apertured mask means; means to maintain said mask means at a potential to facilitate good discharge intermediate the potential between said individual electrodes of said discharge electrode means when discharge occurs but sufficiently apart from said last-named potential of said individual electrode means so that said mask means will not discharge to said record medium and sufficiently near ground potential such that said mask means will not tend to capture the charges from said individual electrodes of said discharge electrode and prevent them from reaching said record medium.

3,321,769
RECORDING APPARATUS WITH MEANS FOR PREVENTING OVEREXPOSURE
Norman L. Stauffer, Englewood, Colo., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware
Filed Aug. 24, 1965, Ser. No. 482,063
4 Claims. (Cl. 346—109)



3. In an oscillographic apparatus including a galvanometer having a reflective mirror therein for reflecting a beam of radiant energy onto a recording surface sensitive to said radiant energy and thereby produce a trace upon said recording surface, the improvements comprising

an ultraviolet light source for producing a primary portion of said beam of radiant energy,

an infrared light source for producing a secondary portion of said beam of radiant energy,

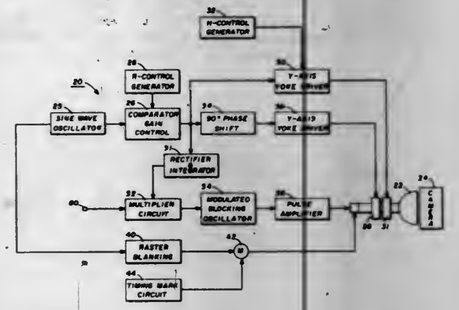
lens means for focusing said ultraviolet light into a primary focal path and directing said focal path toward said galvanometer reflective mirror,

second lens means for focusing said infrared light into a secondary focal path and directing said focal path toward said galvanometer reflective mirror,

recording lens means for focusing said reflected primary focal path of ultraviolet light into a spot upon said recording surface for forming a trace thereon, and

prism means for focusing said reflected secondary focal path of infrared light onto said recording lens thereby focusing a second spot upon said recording surface, whereby the paths of said trace producing spot and said second spot overlap, in the absence of a deflection of said galvanometer, for allowing said second spot to reduce the intensity of said trace, and wherein the occurrence of a deflection of said galvanometer causes a cessation of said spot paths overlapping for allowing said trace to become fully intensified.

3,321,770
APPARATUS FOR VARIABLE DENSITY RECORDING
Robert R. Pittman, Dallas, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Filed Dec. 4, 1964, Ser. No. 416,094
9 Claims. (Cl. 346—110)



1. The system for recording seismic response data as a variable density wave-front pattern which comprises:

means for scanning a beam of energy over a record sheet sensitive to the energy in a series of arcs the radii of which increase in a manner determined by velocity data and the apparent centers of which are lowered in accordance with acceleration data,

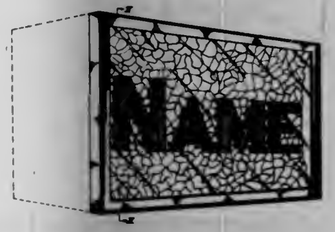
means for modulating the beam of energy to produce a series of pulses of substantially uniform size having a repetition rate representative of the product of the instantaneous value of the seismic response data and the velocity of the beam of energy over the record sheet to produce a wave front pattern, and

means for indexing the record sheet past the means for scanning the beam of energy at intervals less than the scanning width of the beam after each scanning cycle produces a wave front pattern whereby successive wave front patterns will overlap and be partially superimposed one upon the other.

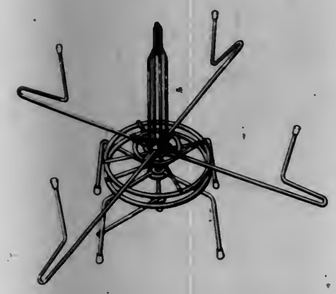
DESIGNS

MAY 23, 1967

207,697
ILLUMINATED SIGN OR SIMILAR ARTICLE
James R. Reichow, Edina, Minn., assignor to The Cornelius Company, Anoka, Minn., a corporation of Minnesota
Filed Mar. 17, 1966, Ser. No. 1,612
Term of patent 14 years
(Cl. D1—12)



207,698
COMBINED SKEIN HOLDER AND BALL WINDER
Joseph R. Silvia, 1224 Center St., Middleboro, Mass. 02346
Filed Apr. 29, 1966, Ser. No. 2,071
Term of patent 7 years
(Cl. D3—19)



207,699
PUFFED CEREAL CONFIGURATION OR THE LIKE
Rudolph K. Scharschmidt and Roger M. Burge, Battle Creek, Mich., assignors to General Foods Corporation, White Plains, N.Y., a corporation of Delaware
Filed Sept. 27, 1965, Ser. No. 87,166
Term of patent 14 years
(Cl. D8—1)



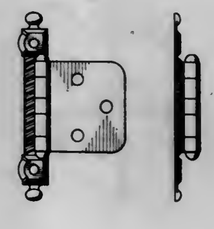
207,700
ESCUTCHEON PLATE FOR CABINETS AND THE LIKE
Leland George Stone, Mundelein, Ill., assignor to Amerock Corporation, Rockford, Ill., a corporation of Illinois
Filed July 15, 1966, Ser. No. 3,082
Term of patent 14 years
(Cl. D10—8)



207,701
ESCUTCHEON PLATE FOR CABINETS AND THE LIKE
Leland George Stone, Mundelein, Ill., assignor to Amerock Corporation, Rockford, Ill., a corporation of Illinois
Filed July 20, 1966, Ser. No. 3,140
Term of patent 14 years
(Cl. D10—8)



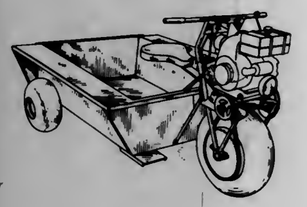
207,702
CABINET HINGE
Anthony J. Carsello, Hollywood, Calif., assignor to Ajax Hardware Manufacturing Corp., City of Industry, Calif., a corporation of California
Filed July 26, 1966, Ser. No. 3,211
Term of patent 14 years
(Cl. D10—9)



207,703
EXTENSION HANGER FOR A MEAT HOOK OR THE LIKE
Walter A. Reich, Kansas City, Mo., assignor to A. Reich & Sons, Inc., Kansas City, Mo., a corporation of Missouri
Filed June 6, 1966, Ser. No. 2,579
Term of patent 7 years
(Cl. D11—1)



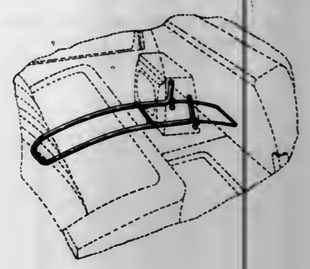
207,704
VEHICLE
Earl L. Miner, Moran, Kans., assignor to Humboldt Industries, Inc., Humboldt, Kans., a corporation of Kansas
Filed May 11, 1966, Ser. No. 2,259
Term of patent 14 years
(Cl. D14—3)



207,705
EXTENSIBLE DOLLY
Edward P. Allen, 99 Union St., Winooski, Vt. 05404
Filed May 17, 1966, Ser. No. 2,333
Term of patent 3½ years
(Cl. D14—3)



207,706
PORTABLE TELEVISION RECEIVING SET SUPPORT FOR AUTOMOBILES
Walter P. Myers, River Forest, Ill., and Joseph J. Orlof, Wheaton, Ill. (both of 2958 W. Carroll Ave., Chicago, Ill. 60612)
Filed May 31, 1966, Ser. No. 2,471
Term of patent 14 years
(Cl. D14—6)



207,707
CHAIR
Robert E. Kjer Jakobsen, Los Angeles, Calif., assignor to Schlumberger Limited (Schlumberger N.V.), Houston, Tex., a corporation of the Netherlands Antilles
Filed Feb. 9, 1966, Ser. No. 976
Term of patent 14 years
(Cl. D15—1)



207,708
CHILD'S STOOL OR THE LIKE
Theodore T. Michals, 350 Fairbank Road, Riverside, Ill. 60546
Filed Aug. 5, 1965, Ser. No. 86,454
Term of patent 14 years
(Cl. D15—8)



207,709
ELECTRICAL TERMINAL PIN
David John Tizard, Botley, England, assignor to Vero Electronics Limited, Southampton, England, a British company
Filed Sept. 13, 1965, Ser. No. 86,973
Claims priority, application Great Britain Aug. 25, 1965
Term of patent 14 years
(Cl. D26—1)



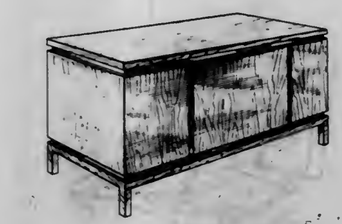
207,710
COMBINED STEREO SPEAKER UNIT AND HIGH FIDELITY CABINET SUPPORT
Alfred William Faux, Toronto, Ontario, Canada, assignor to Clairtone Sound Corporation Limited, Rexdale, Ontario, Canada
Filed Sept. 16, 1965, Ser. No. 87,021
Term of patent 14 years
(Cl. D26—14)



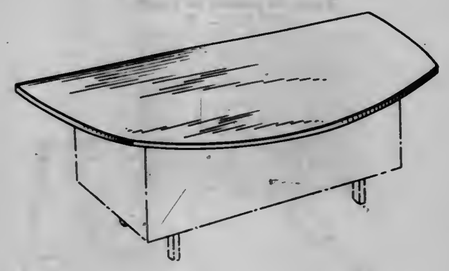
207,711
BADGE OR SIMILAR ARTICLE
William T. Rigby, Cochituate, and Melvin P. Solomon, Sudbury, Mass., assignors to Sylvania Electric Products Inc., a corporation of Delaware
Filed Apr. 7, 1966, Ser. No. 1,807
Term of patent 14 years
(Cl. D29—2)



207,712
DESK
William H. Sullivan, Shaker Heights, Ohio, assignor to B. L. Marble Furniture Inc., Bedford, Ohio, a corporation of Ohio
Filed Jan. 7, 1966, Ser. No. 534
Term of patent 14 years
(Cl. D33—7)



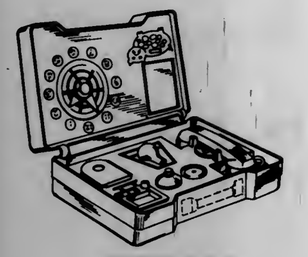
207,713
DESK
William H. Sullivan, Shaker Heights, Ohio, assignor to B. L. Marble Furniture Inc., Bedford, Ohio, a corporation of Ohio
Filed Oct. 1, 1965, Ser. No. 87,256
Term of patent 14 years
(Cl. D33—7)



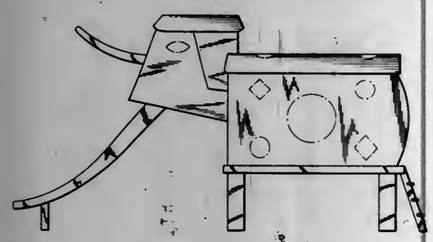
207,714
COMBINED GAME BOARD AND SUITCASE-TYPE CONTAINER
John W. Ryan, Bel Air, and Cecil Frederick Adickes, Jr., Woodland Hills, Calif., assignors to Mattel, Inc., a corporation of California
Filed Jan. 28, 1966, Ser. No. 819
Term of patent 14 years
(Cl. D34—5)



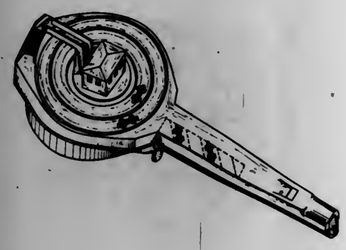
207,715
COMBINED GAME BOARD AND SUITCASE-TYPE CONTAINER
John W. Ryan, Bel Air, and Cecil Frederick Adickes, Jr., Woodland Hills, Calif., assignors to Mattel, Inc., a corporation of California
Filed Feb. 1, 1966, Ser. No. 880
Term of patent 14 years
(Cl. D34—5)



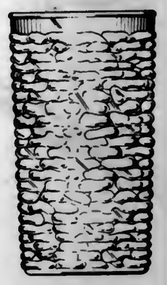
207,716
CHILDREN'S PLAYGROUND SLIDE OR SIMILAR ARTICLE
William Accorsi, 80 Jefferson St., New York, N.Y. 10002
Filed Mar. 24, 1966, Ser. No. 1,624
Term of patent 14 years
(Cl. D34—5)



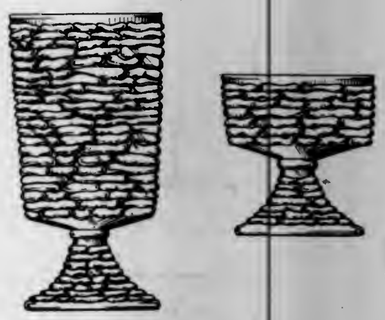
207,717
TOY BLOWPIPE
Christian Meyer, Nurnberg, Germany, assignor to Leonhard Hofler, Furth, Bavaria, Germany
Filed Apr. 20, 1966, Ser. No. 1952
Term of patent 14 years
(Cl. D34—15)



207,718
TUMBLER OR SIMILAR ARTICLE
Frank J. Benes, Lancaster, Ohio, assignor to Anchor Hocking Glass Corporation, Lancaster, Ohio, a corporation of Delaware
Filed Jan. 5, 1966, Ser. No. 483
Term of patent 14 years
(Cl. D36—8)



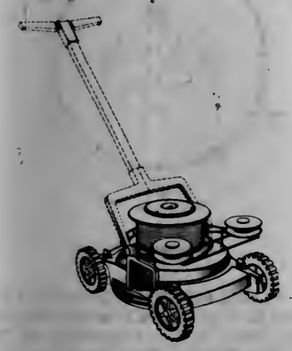
207,719
GOBLET OR SIMILAR ARTICLE
Frank J. Benes, Lancaster, Ohio, assignor to Anchor Hocking Glass Corporation, Lancaster, Ohio, a corporation of Delaware
Filed June 28, 1966, Ser. No. 2,846
Term of patent 14 years
(Cl. D36—8)



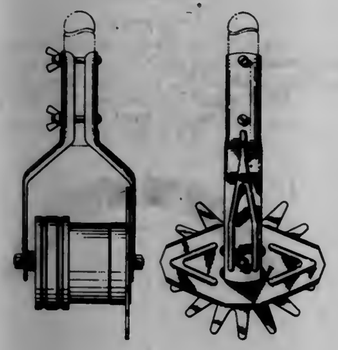
207,720
VIBRATORY SANDER OR SIMILAR ARTICLE
Nicholas T. Anton, Park Ridge, Ill., assignor to Wen Products Inc., Chicago, Ill., a corporation of Illinois
Filed May 2, 1966, Ser. No. 2,107
Term of Patent 14 years
(Cl. D37—1)



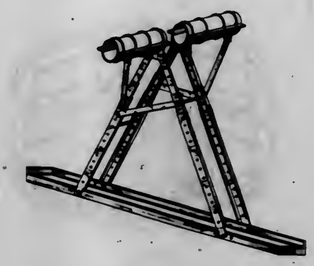
207,721
POWER LAWN MOWER
James B. Stewart, Glen Ellyn, Ill., assignor to Sunbeam Corporation, Chicago, Ill., a corporation of Illinois
Filed July 5, 1966, Ser. No. 2,936
Term of patent 14 years
(Cl. D40—1)



207,722
LAWN EDGING TOOL
Walter R. Hart, Columbus, Ohio, assignor to The Union Fork and Hoe Company, Columbus, Ohio, a corporation of Ohio
Continuation of design applications Ser. No. 1,391, Ser. No. 1,396, and Ser. No. 1,402, Mar. 10, 1966. This application Sept. 15, 1966, Ser. No. 4,586
Term of patent 14 years
(Cl. D40—1)

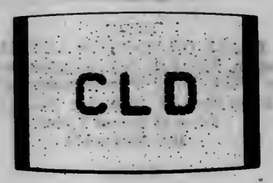


207,723
EXTENSIBLE FRAME FOR A MOBILE IRRIGATION DEVICE
David Kane, 5036 Roosevelt Ave., San Antonio, Tex. 78214
Filed Dec. 1, 1966, Ser. No. 4,873
Term of patent 14 years
(Cl. D40—1)



207,724
CUTTING BOARD
Robert D. Pyle, 1244 E. Howard St., Pasadena, Calif. 91104
Filed Dec. 7, 1965, Ser. No. 106
Term of patent 14 years
(Cl. D44—1)

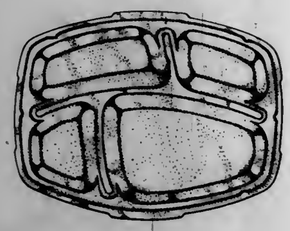




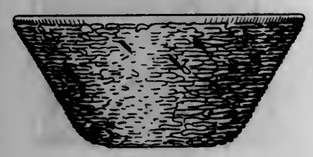
207,725
CUP OR SIMILAR ARTICLE
Frank J. Benes, Lancaster, Ohio, assignor to Anchor Hocking Glass Corporation, Lancaster, Ohio, a corporation of Delaware
Filed June 28, 1966, Ser. No. 2,845
Term of patent 14 years
(Cl. D44—9)



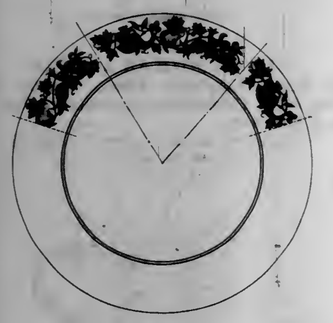
207,726
COVERED FOOD TRAY
Mark Whelan, Chippewa Falls, Wis., assignor to Applied Research and Development Corporation, Chippewa Falls, Wis., a corporation of Wisconsin
Filed June 8, 1966, Ser. No. 2,606
Term of patent 14 years
(Cl. D44—10)



207,727
BOWL OR SIMILAR ARTICLE
Frank J. Benes, Lancaster, Ohio, assignor to Anchor Hocking Glass Corporation, Lancaster, Ohio, a corporation of Delaware
Filed Jan. 5, 1966, Ser. No. 487
Term of patent 14 years
(Cl. D44—15)



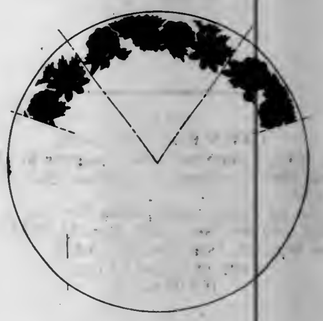
207,728
PLATE OR SIMILAR ARTICLE
Shigeru Masuda, Fort Lee, N.J., assignor to Noritake Co., Inc., New York, N.Y., a corporation of New York
Filed May 16, 1966, Ser. No. 2,318
Term of patent 7 years
(Cl. D44—15)



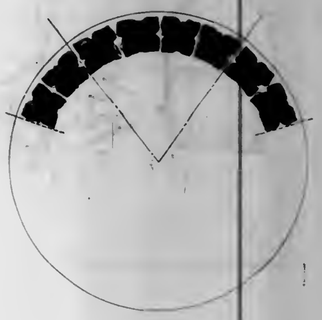
207,729
PLATE OR SIMILAR ARTICLE
Shigeru Masuda, Fort Lee, N.J., assignor to Noritake Co., Inc., New York, N.Y., a corporation of New York
Filed May 16, 1966, Ser. No. 2,319
Term of patent 7 years
(Cl. D44—15)



207,730
PLATE OR SIMILAR ARTICLE
Shigeru Masuda, Fort Lee, N.J., assignor to Noritake Co., Inc., New York, N.Y., a corporation of New York
Filed May 16, 1966, Ser. No. 2,320
Term of patent 7 years
(Cl. D44—15)



207,731
PLATE OR SIMILAR ARTICLE
Shigeru Masuda, Fort Lee, N.J., assignor to Noritake Co., Inc., New York, N.Y., a corporation of New York
Filed May 16, 1966, Ser. No. 2,321
Term of patent 7 years
(Cl. D44—15)



207,732
PLATE OR SIMILAR ARTICLE
Frank J. Benes, Lancaster, Ohio, assignor to Anchor Hocking Glass Corporation, Lancaster, Ohio, a corporation of Delaware
Filed June 28, 1966, Ser. No. 2,840
Term of patent 14 years
(Cl. D44—15)



207,733
LIGHT FIXTURE CAP
Dillard M. Smith, Beverly Hills, and Jan Jaspers Fayer, Palos Verdes Peninsula, Calif., assignors to Eagle Manufacturing Co., City of Industry, Calif., a corporation of California
Filed Sept. 15, 1965, Ser. No. 86,999
Term of patent 14 years
(Cl. D48—7)



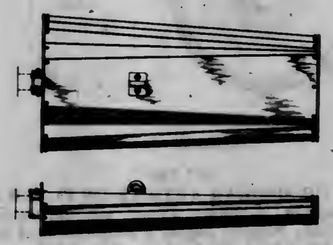
207,734
BOOM LAMP
Richard Cameron Fralick, 8251 S. Edmaru Ave., Whittier, Calif. 90602
Filed Mar. 10, 1966, Ser. No. 1,405
Term of patent 14 years
(Cl. D48—20)



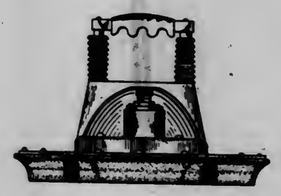
207,735
LAMP OR SIMILAR ARTICLE
Frank J. Benes, Lancaster, Ohio, assignor to Anchor Hocking Glass Corporation, Lancaster, Ohio, a corporation of Delaware
Filed July 11, 1966, Ser. No. 3,008
Term of patent 14 years
(Cl. D48—20)



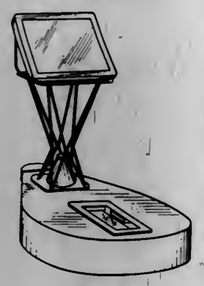
207,736
OUTDOOR LIGHTING FIXTURE
Rolland L. Johnson, Stockton, Calif., assignor to Electric Lighting, Inc., Stockton, Calif., a corporation of California
Filed May 23, 1966, Ser. No. 2,376
Term of patent 14 years
(Cl. D48—31)



207,737
SURFACE DENSITY GAUGE
William F. Troxler, Raleigh, N.C., and David B. Auld, Redwood Estates, Calif., assignors to Troxler Electronic Laboratories, Inc., Raleigh, N.C., a corporation of North Carolina
Filed Jan. 11, 1966, Ser. No. 1,498
Term of patent 14 years
(Cl. D52—6)



207,738
FOOT MEASURING APPARATUS
Michel H. Saad, % Dana Electronic Computer Co., E. 108 Jackson Ave., Spokane, Wash. 99207
Filed May 9, 1966, Ser. No. 2,213
Term of patent 14 years
(Cl. D52—6)



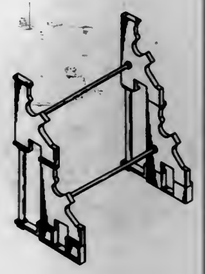
207,739
THERMOMETER OR THE LIKE
George A. Argabrite, Malibu, Calif. (2301 Federal Ave., Los Angeles, Calif. 90064)
Filed May 16, 1966, Ser. No. 2,316
Term of patent 14 years
(Cl. D52—7)



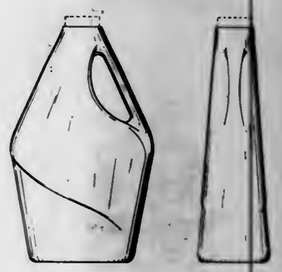
207,740
SPOON OR SIMILAR ARTICLE OF FLATWARE
Hiroshi Soehara, Tsubame, Japan, assignor to Soehara Mfg. Co., Ltd., Niigata, Japan, a corporation of Japan
Filed Sept. 16, 1966, Ser. No. 3,888
Claims priority, application Japan Apr. 27, 1966
Term of patent 14 years
(Cl. D54—12)



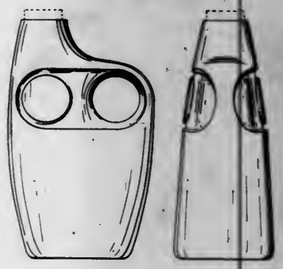
207,741
FRAME FOR A DOUBLE DECK SINGLE FACER MACHINE
Hans Meister, Cherry Hill, N.J., assignor to Samuel M. Langston & Company, Camden, N.J., a corporation of New Jersey
Filed Aug. 9, 1965, Ser. No. 86,513
Term of patent 14 years
(Cl. D55—1)



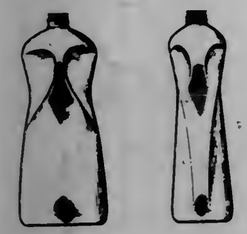
207,742
JUG
Bruce L. Roberts, Rossford, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio, a corporation of Ohio
Filed July 7, 1966, Ser. No. 2,966
Term of patent 14 years
(Cl. D58—5)



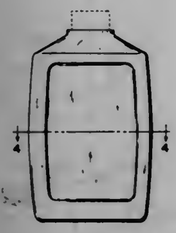
207,743
JUG
Bruce L. Roberts, Rossford, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio, a corporation of Ohio
Filed July 7, 1966, Ser. No. 2,976
Term of patent 14 years
(Cl. D58—5)



207,744
BOTTLE
Lee R. Olson, Beverly Hills, and Keith N. Thomas, Los Angeles, Calif., assignors to Purex Corporation, Ltd., Lakewood, Calif., a corporation of California
Filed Feb. 7, 1966, Ser. No. 929
Term of patent 14 years
(Cl. D58—6)



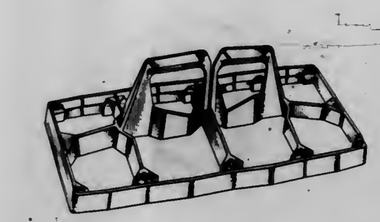
207,745
BOTTLE
James L. Linn, Maumee, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio, a corporation of Ohio
Filed May 23, 1966, Ser. No. 2,391
Term of patent 14 years
(Cl. D58—6)



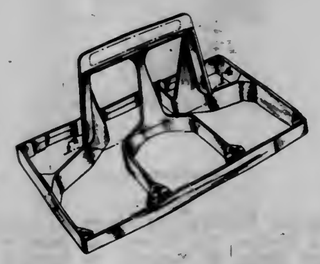
207,746
DISPLAY CARTON
Raymond A. Coté, Doraville, Ga., assignor to Riegel Paper Corporation, New York, N.Y., a corporation of Delaware
Filed Mar. 16, 1966, Ser. No. 1,478
Term of patent 14 years
(Cl. D58—12.6)



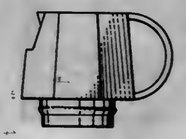
207,747
HANDLE AND SEPARATOR SECTION FOR A CARRIER FOR BOTTLES OR THE LIKE
William J. Hrozenchik, Norwalk, Conn., assignor to Diamond International Corporation, New York, N.Y., a corporation of Delaware
Filed May 10, 1966, Ser. No. 2,242
Term of patent 14 years
(Cl. D58—26)



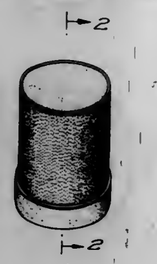
207,748
HANDLE AND SEPARATOR SECTION FOR A CARRIER FOR BOTTLES OR THE LIKE
William J. Hrozenchik, Norwalk, Conn., assignor to Diamond International Corporation, New York, N.Y., a corporation of Delaware
Filed May 10, 1966, Ser. No. 2,243
Term of patent 14 years
(Cl. D58—26)



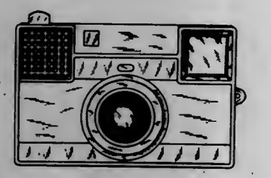
207,749
CONTAINER CLOSURE CAP
Trevor Gwilym Evans, Welwyn Garden City, England, assignor to Lever Brothers Company, New York, N.Y., a corporation of Maine
Filed Sept. 13, 1966, Ser. No. 3,833
Claims priority, application Great Britain Mar. 24, 1966
Term of patent 14 years
(Cl. D58—26)



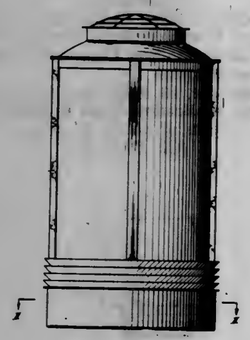
207,750
BOTTLE CLOSURE OR SIMILAR ARTICLE
Robert A. Roth, 15 E. 41st St., New York, N.Y. 10017
Filed Oct. 23, 1965, Ser. No. 87,855
Term of patent 14 years
(Cl. D58—26)



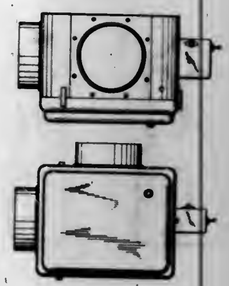
207,751
CAMERA
Jay Doblin, Chicago, Ill., assignor to Whitehouse Products, Inc., Brooklyn, N.Y., a corporation of New York
Filed Aug. 15, 1966, Ser. No. 3,468
Term of patent 14 years
(Cl. D61—1)



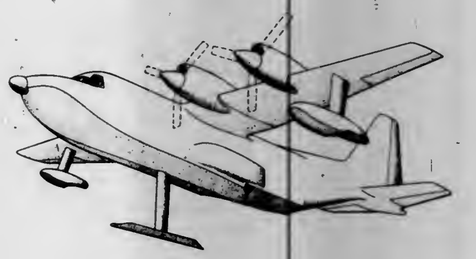
207,752
COOLING TOWER OR SIMILAR ARTICLE
Torsten S. Carlson, Des Plaines, and John W. Linehan, Jr., Park Ridge, Ill., assignors to Enthalpy Products Corporation, Park Ridge, Ill., a corporation of Illinois
Filed May 27, 1966, Ser. No. 2,452
Term of patent 14 years
(Cl. D62—4)



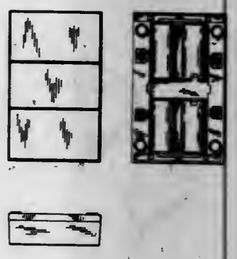
207,753
DUCT SUPPORTED HUMIDIFIER
Robert F. Fraser, Livingston, N.J., assignor to Walton Laboratories, Inc., Union, N.J., a corporation of New Jersey
Filed Nov. 26, 1965, Ser. No. 88,237
Term of patent 14 years
(Cl. D62—4)



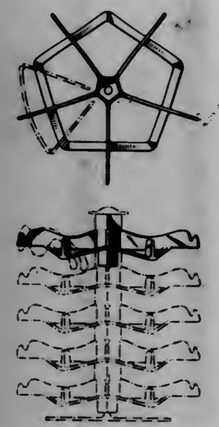
207,754
AIRPLANE
Rollo G. Smethers, Jr., Atlanta, Ga., assignor to Lockheed Aircraft Corporation, Burbank, Calif.
Filed Mar. 21, 1966, Ser. No. 1,555
Term of patent 14 years
(Cl. D71—1)



207,755
DOOR CHIME OR SIMILAR ARTICLE
Norman William Stevenson, Macclesfield, England, assignor to V. & E. Friedland Limited, Macclesfield, England, a British company
Filed Jan. 15, 1965, Ser. No. 83,466
Claims priority, application Great Britain July 29, 1964
Term of patent 14 years
(Cl. D72—1)



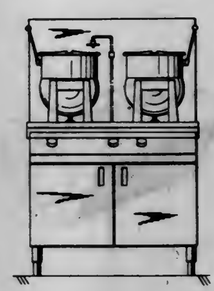
207,756
RACK MODULE FOR SPECTACLES
Jerre Cohen, New York, N.Y., assignor to Howard Displays, Inc., New York, N.Y., a corporation of New York
Filed June 24, 1966, Ser. No. 2,805
Term of patent 14 years
(Cl. D88—9)



207,757
ELECTRIC RANGE
James Leonard Ranlston, 800 Holly Ave., and Stephen L. Rogers, Jr., 400 Magnolia Ave., both of South Pittsburg, Tenn. 37380
Filed July 29, 1966, Ser. No. 3,272
Term of patent 14 years
(Cl. D81—4)



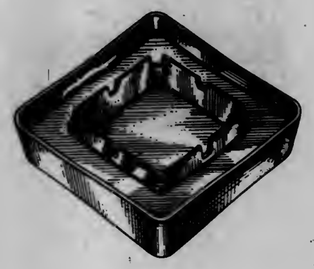
207,758
APPLIANCE FOR PREPARING FOOD AND THE LIKE
James R. Mecredy, Lakewood, Ohio, assignor to The Cleveland Range Company, Cleveland, Ohio, a corporation of Ohio
Filed Mar. 28, 1966, Ser. No. 1,650
Term of patent 14 years
(Cl. D81—10)



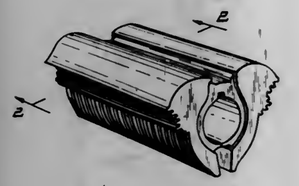
207,759
RESUSCITATOR
Mary D. James, 234 S. Carondelet Ave., Los Angeles, Calif. 90057
Filed Apr. 4, 1966, Ser. No. 1,757
Term of patent 7 years
(Cl. D83—1)



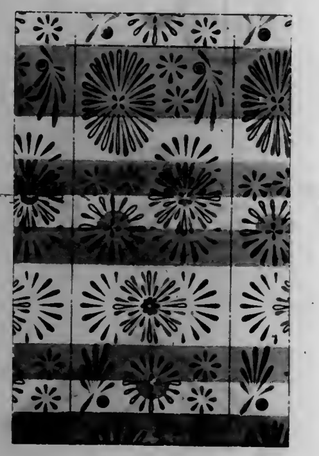
207,760
ASH TRAY
Frank J. Curran, 3250 N. Highland, Downers Grove, Ill. 60515
Filed Apr. 25, 1966, Ser. No. 2,007
Term of patent 14 years
(Cl. D85—2)



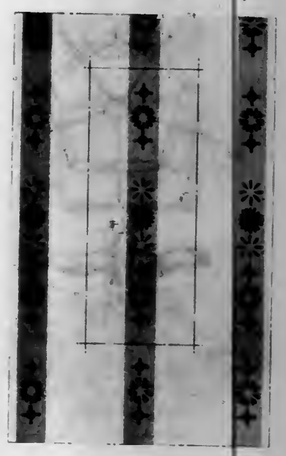
207,761
HEATING SLEEVE FOR PERMANENT WAVES
Jean Leclabart, 53 Ave. Raymond Poincare, Paris, France
Filed Aug. 10, 1965, Ser. No. 86,516
Term of patent 14 years
(Cl. D86—10)



207,762
PLASTIC SHEET MATERIAL OR THE LIKE
Virginia Broderick, Brookfield, Wis., assignor to Consoweld Corporation, Wisconsin Rapids, Wis., a corporation of Wisconsin
Filed Feb. 18, 1966, Ser. No. 1,105
Term of patent 14 years
(Cl. D87—3)



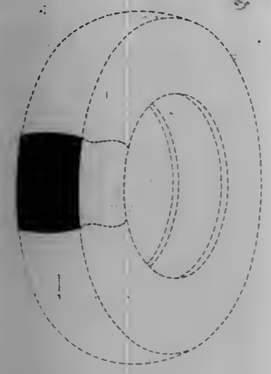
207,763
PLASTIC SHEET MATERIAL OR THE LIKE
Virginia Broderick, Brookfield, Wis., assignor to Consoweld Corporation, Wisconsin Rapids, Wis., a corporation of Wisconsin
Filed Feb. 18, 1966, Ser. No. 1,120
Term of patent 14 years
(Cl. D87—3)



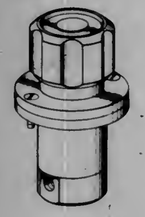
207,764
COMBINED WALKING CANE AND LIGHT
Elizabeth Lozo, La Mesa, Calif., assignor of one-fourth to Edward E. Marsh, Jr., El Cajon, one-eighth to Zola Stromberg, La Mesa, and one-eighth to Margaret G. Schmucker, San Diego, Calif.
Filed July 29, 1966, Ser. No. 3,258
Term of patent 14 years
(Cl. D88—4)



207,765
TIRE
Vance J. Davis, Detroit, Mich., assignor to Uniroyal Inc., a corporation of New Jersey
Filed Feb. 8, 1965, Ser. No. 83,742
Term of patent 14 years
The portion of the term of the patent subsequent to July 27, 1979, has been disclaimed
(Cl. D90—20)



207,766
VALVE
Robert S. Keane, Placentia, Calif., assignor to International Research Corp., Anaheim, Calif., a corporation of California
Filed May 24, 1966, Ser. No. 2,415
Term of patent 14 years
(Cl. D91—3)



207,767
POWER-OPERATED CARVING KNIFE
Fritz Bremshey and Wolfgang Fülling, both of Solingen-Ohligs, Germany, assignors to Bremshey & Co., Solingen-Ohligs, Germany, a firm
Filed Feb. 1, 1966, Ser. No. 853
Term of patent 14 years
(Cl. D95—3)



LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 23RD DAY OF MAY, 1967

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

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Sylvander, Frederick B. Re. 26,207.

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Knobel, Max. Apparatus for gaging wide sheet-form work. Re. 26,206, 5–23–67, Cl. 73—37.5.

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Thurston, Raymond, and Smith. Re. 26,211.

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Smith, Howard M.: *See*—
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Sylvander, Frederick B., to The Bendix Corp. Electroluminescent-photoconductor means for lighted column display. Re. 26,207, 5–23–67, Cl. 250—209.

Thurston, Raymond L., and H. M. Smith, to Republic Industrial Corp. Clamp structure for metal bands. Re. 26,211, 5–23–67, Cl. 24—20.

Tupper, Myron D., to General Electric Co. Contact terminal and lamination securing arrangement for electric devices and method of assembling same. Re. 26,208, 5–23–67, Cl. 310—71.

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Benes, Frank J. 207,725.
Benes, Frank J. 207,727.
Benes, Frank J. 207,732.
Benes, Frank J. 207,735.

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Benes, Frank J., to Anchor Hocking Glass Corp. Bowl or similar article. 207,727, 5–23–67, Cl. D44—15.

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Broderick, Virginia, to Consoweld Corp. Plastic sheet material or the like. 207,763, 5–23–67, Cl. D87—3.

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Keane, Robert S., to International Research Corp. Valve. 207,766, 5–23–67, Cl. D91—3.

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Lowo, Elizabeth; ½ to E. E. Marsh, Jr., and ⅛ each to Z. Stromberg and M. G. Schumucker. Combined walking cane and light. 207,764, 5–23–67, Cl. D88—4.

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Sullivan, William H. 207,713.

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Masuda, Shigeru, to Noritake Co., Inc. Plate or similar article. 207,730, 5–23–67, Cl. D44—15.

Masuda, Shigeru, to Noritake Co., Inc. Plate or similar article. 207,731, 5–23–67, Cl. D44—15.

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Reichow, James R., to The Cornelius Co. Illuminated sign, or similar article. 207,697, 5–23–67, Cl. D1—12.

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Roberts, Bruce L., to Owens-Illinois, Inc. Jug. 207,742, 5–23–67, Cl. D58—5.

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Ryan, John W., and C. F. Adickes, Jr., to Mattel, Inc. Combined game board and suitcase-type container. 207,714, 5–23–67, Cl. D34—5.

Ryan, John W., and C. F. Adickes, Jr., to Mattel, Inc. Combined game board and suitcase-type container. 207,715, 5–23–67, Cl. D34—5.

Saad, Michel H. Foot measuring apparatus. 207,738, 5–23–67, Cl. D52—6.

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Brody, Thomas P., to Westinghouse Electric Corp. Radiation sensitive electron emissive device. 3,321,659, 5–23–67, Cl. 313—94.
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Bryan, Morris M., Jr., to The Jefferson Mills, Inc. Method for continuous, high-speed processing and cleaning of fibers. 3,320,641, 5–23–67, Cl. 19—156.1.
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Carlsson, Arent G., to Aktiebolaget Bofors. Supply case for a cartridge magazine of a gun. 3,320,857, 5–23–67, Cl. 89—34.
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Cooper, Arley E. Wheel blocking system. 3,321,046, 5–23–67, Cl. 188—4.
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Copson, Raymond L., C. J. Howard, and C. F. Hecklinger, to Allied Chemical Corp. Conversion of caustic soda to soda ash. 3,321,268, 5–23–67, Cl. 23—63.
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Crawford, George H., Jr., and D. E. Rice, to Minnesota Mining and Mfg. Co. Halogenated nitroso terpolymers consisting of nitrosoalkanes, fluorine-containing monoolefins, and aliphatic nitroso monocarboxylic acids. 3,321,454, 5–23–67, Cl. 260—92.1.
Crenshaw, Ronnie R., to Bristol-Myers Co. Substituted 3,4-dihydro-3-phenyl-4-hydroxy(amino) alkoxy (or alkyl thio)phenyl thiochromans. 3,321,483, 5–23–67, Cl. 260—293.4.
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Crow, Robert P., and K. K. Fujimoto, to Radio Corp. of America. DME with ground speed and time-to-station indicator. 3,321,757, 5–23–67, Cl. 343—7.3.
Crowell, Merton H., to Bell Telephone Laboratories Inc. Ionization manometer which compares an ion neutralized electron beam flow with an unneutralized beam flow. 3,321,701, 5–23–67, Cl. 324—33.
Croyle, Jack V., to Rexall Drug and Chemical Co. Pop-up diaphragm closure. 3,321,114, 5–23–67, Cl. 222—499.
Cruden, John M., and C. Bondy. Aqueous resin emulsions. 3,321,431, 5–23–67, Cl. 260—29.6.
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Cunningham, Gerald A., to Colorado Outdoor Sports Corp. Non-sagging pack. 3,321,120, 5–23–67, Cl. 224—8.
Cunningham, Patrick J., D. H. Platus, F. A. Marovich, and G. Epstein, to A.R.A., Inc., (Aerospace Research Associates). Rolling cylindrical diaphragm means. 3,321,112, 5–23–67, Cl. 222—386.5.
Currie, Harry A., Jr., J. S. Mason, and R. H. Wise, to Texas Instruments Inc. Decimal rate multiplication system. 3,321,610, 5–23–67, Cl. 235—160.
Curry, Walter A. Sprinkler control means and combination. 3,321,138, 5–23–67, Cl. 239—99.
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Dadura, James G., J. W. Wisner, Jr., and M. A. Wiley, to Texaco Inc. Lubricating composition. 3,321,402, 5–23–67, Cl. 252—47.5.
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Hebel, Carl G., to General Foods Corp. Oval containers. 3,321,096, 5–23–67, Cl. 215—1.

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Juredine, Gordon M., to Synthetic Products Co. Alkaline earth metal carboxylate-phosphites. 3,321,499, 5–23–67, Cl. 260—403.
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Kaenel, Reginald A., to Bell Telephone Laboratories, Inc. Apparatus facilitating adjustment of equalizers. 3,321,719, 5–23–67, Cl. 333—28.
Kahle, Rolf D., to OPE Controls, Inc. Data collection system. 3,320,805, 5–23–67, Cl. 73—313.
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Kamborian, Jacob S., and M. M. Becka; said Becka assor. to said Kamborian. Heel seat lasting. 3,320,626, 5–23–67, Cl. 12—145.
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Kauppila, James E., and R. R. Bockemuehl, to General Motors Corp. Method for making cadmium sulphide field effect transistor. 3,320,651, 5–23–67, Cl. 29—25.3.
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Kano, Hideo, Adachi, Kido, and Hirose. 3,321,475.
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Kirk, Ralph D. Rotary lawn mower blade mounting structure. 3,320,733, 5–23–67, Cl. 56—295.

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Koy, Milton P., 75% to F. W. Gartner Co. Concrete pump. 3,320,901, 5–23–67, Cl. 103—152.

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Lee, Burton D., to Texaco Inc. Method and apparatus for selectively combining signals to distinguish correlative data from non-correlative data. 3,321,740, 5–23–67, Cl. 340—15.5.

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Los, Marinus, to American Cyanamid Co. Intermediates for preparing steroids. 3,321,511, 5–23–67, Cl. 260—488.

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Machnig, Oskar, and W. Sturmer, to Brown Boveri/Krupp Reaktorbau G.m.b.H. High temperature nuclear reactor. 3,321,376, 5–23–67, Cl. 176—59.

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Moffatt, John G., to Syntex Corp. Process for the preparation of nucleoside-5'-polyphosphates and α,ω-bis-(nucleoside-5')polyphosphates. 3,321,463, 5–23–67, Cl. 260—211.5.

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Monroe, Joseph W., G. K. Grace, and R. O. Hessler, to United States of America, Army. Center of gravity locating device. 3,320,795, 5–23–67, Cl. 73—65.

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Murphy, Bernard T., to Westinghouse Electric Corp. Methods for forming monolithic semiconductor devices. 3,321,340, 5–23–67, Cl. 148—175.

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Murray, John H., to Clemson Industries, Inc. Packaging apparatus. 3,320,720, 5–23–67, Cl. 53—182.

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Naimer, Jack. Method of making separable fastening fabrics. 3,320,649, 5–23–67, Cl. 28—72.

Najarian, Herand K. Gas and liquid contact apparatus. 3,321,191, 5–23–67, Cl. 261—29.

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Reed, Frederick P., and A. J. Lizza, to United States of America, Army. Exterior feed mechanism for automatic guns. 3,320,855, 5–23–67, Cl. 89—11.

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Reichhelm, Robert, to Combustion Efficiency Corp. Gasifier and burner. 3,320,743, 5–23–67, Cl. 60—39.71.

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Reise, Donald A., and C. W. Jeep, Jr., to ACF Industries, Inc. Fluid pressure actuated switch. 3,321,594, 5–23–67, Cl. 200—83.

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Remy, Hermann, H. J. Berghaus, O. Adler, and M. Grunbacher, to Rowenta Metallwarenfabrik G.m.b.H. Electrically ignited lighter. 3,321,671, 5–23–67, Cl. 317—85.

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Ross, Donald R., to U.S. Electric Mfg. Co. Trolley shoe dressing device. 3,321,587, 5–23–67, Cl. 191—35.

Ross, Sidney D., to Sprague Electric Co. Enclosed electrolytic capacitor with insulative impervious seal-layer on section-body. 3,321,676, 5–23–67, Cl. 317—230.

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DESIGN PATENTS

6 : 207,702	6 : 207,764	17 : 207,721	34 : 207,728	39 : 207,712	39 : 207,743
207,707	207,766	207,751	207,729	207,713	207,745
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U.S. DEPARTMENT OF COMMERCE
OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE
May 23, 1967 Volume 838 Number 4

TRADEMARKS

NOTICES

Decisions of the Commissioner of Patents

The 1966 edition of the Decisions of the Commissioner of Patents has been released from the printer and is available from the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402.
Price: $1.50.

CONDITION OF TRADEMARK APPLICATIONS AS OF MARCH 31, 1967

Total number of applications awaiting action [excluding renewals and Sec. 12 (c)]	17,856
Date of oldest new application	Jan. 24, 1966
Date of oldest amended application (filing date)	April 10, 1964

C. M. WENDT, Director, Trademark Examining Operation TRADEMARK EXAMINING DIVISIONS, EXAMINERS AND TRADEMARK CLASSES UNDER EXAMINATION	Oldest Application	
	New	Amended
(I) L. J. BETTENDORF, Classes 2, 4, 5, 8, 11, 12, 13, 14, 15, 16, 17, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 39, 41, 42, 43, 44	1-24-66	7-30-64
(II) F. H. WETHERBEE, Classes 1, 3, 6, 7, 9, 10, 18, 22, 38, 40, 45, 46, 47, 48, 49, 50, 51, 52; Service Marks, Classes 100, 101, 102, 103, 104, 105, 106, 107; Collective Membership Marks, Class 200; Certification Marks, Classes A and B	4-14-66	4-10-64
Renewals (All Classes)	2-23-67	
Sec. 12 (c) Publications (All Classes)	3-1-67	

Applications filed during the month of March 1967—2,606

Registrations Issued ---------- 366—No. 828,952 to No. 829,317
Renewals Issued ---------- 90

The TRADEMARK SECTION of the OFFICIAL GAZETTE, issued weekly, is mailed under the direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402 to whom all subscriptions should be made payable and all communications addressed; subscription price, $12.00 per annum, foreign mailing $4.00 additional; single copies, 25 cents each.

PRINTED COPIES OF TRADEMARK REGISTRATIONS are furnished by the Patent Office for 20 cents each. Address orders to the Commissioner of Patents, Washington, D.C., 20231.

MARKS PUBLISHED FOR OPPOSITION

SECTION 1

The following marks are published in compliance with section 12(a) of the Trademark Act of 1946. Application for the registration of these marks in more than one class has been filed as provided in section 30 of said act as amended by Public Law 772, 87th Congress, approved Oct. 9, 1962, 76 Stat. 769. Opposition under section 13 may be filed within thirty days of this publication. See Rules 2.101 to 2.105.

A separate fee of twenty-five dollars for each class opposed must accompany the opposition.

[NOTE: For publication of marks presented in applications for registration in one class, see section 2.]

SN 208,299. Armet Industries Limited, Guelph, Ontario, Canada. Filed Dec. 17, 1964.

ARMET

Priority claimed under Sec. 44(d) on Canadian application filed Dec. 2, 1964; Reg. No. 149,116, dated Feb. 3, 1967.

Class 1—Raw or Partly Prepared Materials

For Plastics, Rubber, and Silicone Rubber, Fluorocarbon Rubber, and Fluorosilicone Rubber in Rod, Sheet, Tube, Block, Coated, and Moulded Form for General Use in the Industrial Arts.

Class 4—Abrasives and Polishing Materials

For Polishes, Automobile Polishes and Metal Polishes.

Class 12—Construction Materials

For Plastic Patching Material.

Class 16—Protective and Decorative Coatings

For Paints, Enamels, Lacquers, Stains, Shellacs, and Varnishes.

Class 21—Electrical Apparatus, Machines, and Supplies

For Electrical Insulating Tape.

Class 35—Belting, Hose, Machinery Packing, and Non-metallic Tires

For Rubber and Silicone Rubber O-Rings, Gaskets, and Washers.

Class 52—Detergents and Soaps

For Hand Soap, Floor Cleaners, Commercial Dishwashing Compounds and Bowl and Drain Cleaners.

SN 214,401. CBS Films Inc., New York, N.Y. Filed Mar. 18, 1965.

MY FAIR LADY

Class 22—Games, Toys, and Sporting Goods

For Board Games, Paper Doll Kits, Play Cosmetic Kits, Cut-Out Books, Coloring Books, and Paint-By-Number Kits.
First use May 5, 1964.

Class 28—Jewelry and Precious-Metal Ware

For Costume Jewelry.
First use Nov. 19, 1964.

Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

For Drapery Fabrics and Draperies.
First use Mar. 1, 1965.

Class 46—Foods and Ingredients of Foods

For Chocolate Candy.
First use Sept. 4, 1962.

SN 220,748. The Corn King Co., Cedar Rapids, Iowa. Filed June 9, 1965.

TREND FEEDS

Applicant disclaims the word "Feeds" apart from the mark as shown.

Class 18—Medicines and Pharmaceutical Preparations

For Medicated Feeds and Feed Premixes, Concentrates and Supplements, for Livestock.
First use Feb. 2, 1965.

Class 46—Foods and Ingredients of Foods

For Feeds and Feed Premixes, Concentrates and Supplements, for Livestock.
First use Feb. 15, 1965.

SN 221,714. Nakamichi Research Inc., Kodaira, Tokyo, Japan, assignee of Koji Fujimura, New York, N.Y. Filed June 22, 1965.

gem Sonic

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Class 21—Electrical Apparatus, Machines, and Supplies

For Public Address Systems.

Class 36—Musical Instruments and Supplies

For Tape Recorders.
First use May 1, 1965; in commerce May 1, 1965.

SN 227,249. Chemische Fabrik Promonta Gesellschaft mit beschrankter Haftung, Hamburg, Germany. Filed Sept. 7, 1965.

EUKUTOL

Owner of German Reg. No. 451,974, dated Nov. 9, 1932.

Class 51—Cosmetics and Toilet Preparations

For Perfumery, Cosmetics Such as Shaving Lotion, Shaving Cream and Cosmetic Skin Cream.

Class 52—Detergents and Soaps

For Cosmetic Soap.

SN 229,395. Polyfab Company, Los Angeles, Calif. Filed Oct. 6, 1965.

Polyfab

Class 2—Receptacles

For Plastic Containers—Namely, Envelopes and Bags Used for Storing, Protecting, and Displaying Merchandise.
First use during 1950.

Class 39—Clothing

For Protective Plastic Clothing—Namely, Aprons, Gloves, and Boots.
First use during 1952.

Class 50—Merchandise Not Otherwise Classified

For Plastic Sheets and Covers for Dust, Dirt, and Weather Protection of Machinery, Fabricated Parts, and Other Equipment.
First use during 1952.

SN 233,610. Lawee, Inc., Long Beach, Calif. Filed Nov. 30, 1965.

CYCLE MATE

The word "Cycle" is disclaimed apart from the mark as shown.

Class 21—Electrical Apparatus, Machines, and Supplies

For Electrical Bicycle Lights and Horns.
First use Sept. 24, 1965.

Class 35—Belting, Hose, Machinery Packing, and Non-metallic Tires

For Bicycle Tires and Tubes.
First use Sept. 18, 1965.

SN 235,529. Rimrock Corporation, Columbus, Ohio. Filed Dec. 29, 1965.

RIMROCK

Class 2—Receptacles

For Pressure Tanks.

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

For Spray Nozzles.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Hand-Operated and Automatic Industrial Spraying Machines for Applying Liquids to Various Articles and Surfaces.
First use Nov. 1, 1965.

SN 235,794. The Permalux Company, Aurora, Ill. Filed Jan. 4, 1966.

THE Permalux COMPANY

The words "The" and "Company" are disclaimed apart from the mark as shown. Owner of Reg. Nos. 352,859 and 809,795.

Class 11—Inks and Inking Materials

For Lacquer Base Inks.
First use during December 1965.

Class 38—Prints and Publications

For Decalcomania Labels.
First use during March 1965.

SN 238,510. Wally Frank, Ltd., d.b.a. Hollco, New York, N.Y. Filed Feb. 10, 1966.



Owner of Reg. Nos. 55,031 and 242,831.

Class 8—Smokers' Articles, Not Including Tobacco Products

For Smoker's Articles—Namely, Tobacco Pipes.

Class 17—Tobacco Products

For Tobacco Products—Namely, Pipe Tobacco.
First use 1869.

SN 238,566. Riverton Laboratories Incorporated, d.b.a. Riverton Cosmetic Laboratories., Newark, N.J. Filed Feb. 10, 1966.



The drawing is lined for the color red.

Class 18—Medicines and Pharmaceutical Preparations

For Foot Balm.

Class 51—Cosmetics and Toilet Preparations

For Hair Grooming Spray, Hair Spray, Hair Conditioner, Hair Dressing, Rinse Soft, Press Cream, Hair Set Gel, and Smooth Set Lotion.

Class 52—Detergents and Soaps

For Hair Shampoo.
First use Nov. 10, 1964.

SN 238,592. Airguide Instrument Company, Chicago, Ill. Filed Feb. 11, 1966.

SEBRING

Class 26—Measuring and Scientific Appliances

For Measuring or Indicating Instruments Primarily for Automotive Use—Namely, Ammeters, Altimeters, Compasses, Tachometers and Engine Temperature, Fuel Level, Oil Pressure and Vacuum Level Gauges.
First use March 1962.

Class 27—Horological Instruments

For Clocks.
First use March 1963.

SN 240,136. Syntac Corporation, Brooklyn, N.Y., assignee of Aerogon Chemical Industries, Inc., New York, N.Y. Filed Mar. 4, 1966.

ROYAL LADY

Class 51—Cosmetics and Toilet Preparations

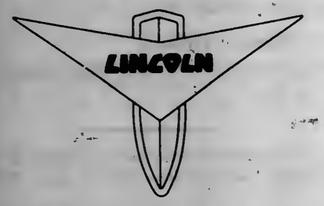
For Ladies' Cosmetics—Namely, Face Cream, Skin Cream, Moisturizing Cream, Cleansing Cream, Body Lotion, Hand Lotion, Cleansing Lotion, Bath Oil, Lipstick, Foundation Makeup, Rouge, Face Powder and Deodorant.

Class 52—Detergents and Soaps

For Shampoo.

First use Feb. 7, 1966.

SN 240,391. McNeil Corporation, Akron, Ohio. Filed Mar. 7, 1966.



Owner of Reg. Nos. 430,242, 688,266, and others.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Automobile Lifts.
First use Feb. 3, 1961.

Class 26—Measuring and Scientific Appliances

For Wheel Balancers and Tune-up Equipment for Testing the Electrical Systems of Automobiles.
First use Apr. 18, 1960, on tune-up equipment, and Dec. 13, 1961, as to "Lincoln."

SN 241,671. Limestone Products Corporation of America, Newton, N.J. Filed Mar. 23, 1966.



Class 1—Raw or Partly Prepared Materials

For Ground or Pulverized Limestone for Use as Poultry or Animal Feed Ingredient, Industrial Filler, Calcite Sand, Calcite Flour, and Ground or Pulverized Limestone for Use in Neutralizing Acid Wastes.
First use Nov. 15, 1965.

Class 6—Chemicals and Chemical Compositions

For Hydrated Lime for the Treatment of Sewage.
First use Nov. 15, 1965.

Class 10—Fertilizers

For Ground or Pulverized Limestone for Use as Fertilized Soil Conditioner and Plant Food.
First use Nov. 15, 1965.

Class 12—Construction Materials

For Hydrated Lime for Use as a Building Material, and Crushed Limestone for Use as a Road-Surfacing Material, as a Roofing Aggregate, and for Decorative Landscape Purposes.
First use Nov. 10, 1965.

SN 247,287. Laboratoires Capilo, Societe a Responsabilite Limitee, Montreuil, Seine-Saint-Denis, France. Filed June 6, 1966.

CAPILO

Owner of French Reg. No. 469,918, dated Jan. 30, 1958 (Seine) Natl. Inst. No. 102,106.

Class 51—Cosmetics and Toilet Preparations

For Perfumery Preparations, Rouge, Face Powders, Beauty Creams, Hair Preparations, Hair Dyes and Tints.

Class 52—Detergents and Soaps

For Shampoos.

SN 248,501. Mid-States Distributing Company, Inc., St. Paul, Minn. Filed June 20, 1966.



Class 6—Chemicals and Chemical Compositions

For Insect Repellent, Insecticide, Insect Spray, and Pine Oil Disinfectant.

Class 51—Cosmetics and Toilet Preparations

For Dry Skin Bath Oil, Hand Lotion, Medicated Hand and Body Lotion, Skin Freshener, Cleansing Lotion, Hair Spray, Cream Rinse, Milk Bath, Bubbling Bath, After-Bath Refresher, Powder Mist, Cologne Mist, Deodorant Stick, White Toothpaste, Fluoride Toothpaste, Mouth Wash, Roll-On Deodorant, After-Shave Foam, After-Shave Lotion, Men's Cologne, Spray Deodorant, Hair Cream, Pre-Electric Shave, Hair Tonic, Sun Tan Lotion, and Cleansing Cream.

First use June 1, 1966.

SN 248,872. Carolina Company, Inc., d.b.a. The Carolina Soap & Candle Makers, Southern Pines, N.C. Filed June 24, 1966.



Class 15—Oils and Greases

For Candles.

Class 51—Cosmetics and Toilet Preparations

For Cosmetics—Namely, Cologne, After Shave Lotion, Deodorant, Talcum Powder, Glycerin and Rose Water, Shaving Cream, Sachets, and Bubble Bath.

Class 52—Detergents and Soaps

For Toilet and Laundry Soap.

First use Sept. 20, 1960.

SN 251,841. Standard Kollsman Industries, Inc., Melrose Park, Ill. Filed Aug. 5, 1966.



Owner of Reg. No. 760,822.

Class 21—Electrical Apparatus, Machines, and Supplies

For Servo Motors, Amplifiers and Switches.

Class 26—Measuring and Scientific Appliances

For Aircraft and Aerospace Instruments and Systems—Namely, Accelerometers, Timers, and Miniature Programmers, Air Data Computers, Altitude Sensing and Reporting Systems, Doppler Computation Systems, Flight Crash Recorders, Airspeed Indicators, Pitots, Pressure Gauges, Compasses, Machmeter (Speed Ratio) Indicators, Astro Trackers, Inertial Navigation Systems, Sextants (Periscopic, Handheld and Photoelectric), Aerial Mapping Lenses, Electromagnetic Distance Measuring Equipment, Optical Viewfinders, Terrain Profile Altimetry, Binoculars, Data Display Projectors and Systems, Laser Optical Alignment Systems, Space Vehicle Simulators.

First use June 1965.

SN 259,201. R. D. Werner Co., Inc., Greenville, Pa. Filed Nov. 22, 1966.

WERNER

Owner of Reg. No. 722,351.

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

For Sink Frames and Rims and Parts and Accessories Therefor.

Class 50—Merchandise Not Otherwise Classified

For Ladders, Stepladders, Extension Ladders, Scaffolds, Stages and Planks, Towers and Platforms and Parts and Accessories Therefor.

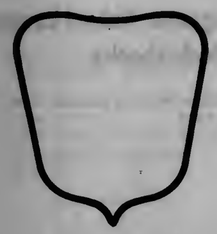
First use Sept. 16, 1966.

SECTION 2

The following marks are published in compliance with section 12(a) of the Trademark Act of 1946. Opposition under section 13 may be filed within thirty days of publication. See Rules 2.101 to 2.105.
A fee of twenty-five dollars must accompany the opposition.
[NOTE: For publication of marks presented in a combined application for registration in more than one class, see section 1.]

Class 1—Raw or Partly Prepared Materials

SN 231,315. United-Hagie Hybrids, Inc., Des Moines, Iowa. Filed Oct. 22, 1965.



For Seed Corn and Sorghum Seed.
First use October 1964.

SN 235,361. The Union Ice Company, San Francisco, Calif. Filed Dec. 27, 1965.

FROZEN DIAMONDS

Exclusive use of the term "Frozen" apart from the mark as shown is disclaimed.
For Crushed Ice.
First use 1952.

SN 235,891. E. M. Cromwell & Company Limited, Bishop's Stortford, Hertfordshire, England. Filed Jan. 6, 1966.

CEEMAR

Owner of British Reg. No. 756,669, dated Aug. 16, 1956.
For Synthetic Resins; and Plastics in the Form of Powders, Pastes, Liquids, Emulsions, Dispersions and Granulates, and Being Intended for Industrial Use.

SN 239,333. Stone's Poultry Breeding Farm, Dinuba, Calif. Filed Feb. 21, 1966.



For Live Chicks and Hatching Eggs.
First use Aug. 8, 1958.

SN 252,208. Reichhold Chemicals, Inc., White Plains, N.Y. Filed Aug. 11, 1966.

STA-TAC

For Synthetic Resins.
First use May 21, 1966.

SN 252,209. Reichhold Chemicals, Inc., White Plains, N.Y. Filed Aug. 11, 1966.

FOUNDREZ

Owner of Reg. Nos. 566,126 and 568,070.
For Synthetic Resin.
First use Feb. 7, 1952.

SN 253,109. Armour and Company, Chicago, Ill. Filed Aug. 25, 1966.

ARMIRA

For Leather.
First use on or prior to July 18, 1966.

SN 253,111. Armour and Company, Chicago, Ill. Filed Aug. 25, 1966.

BAKI

For Leather.
First use on or prior to May 27, 1966.

SN 256,989. West Virginia Pulp and Paper Company, New York, N.Y. Filed Oct. 21, 1966.

WESTVACO

Owner of Reg. Nos. 532,655, 712,527, and others.
For Natural and Synthetic Resins.
First use Aug. 26, 1966.

SN 260,797. E. I. du Pont de Nemours and Company, Wilmington, Del. Filed Dec. 15, 1966.

TYPAR

For Flexible Sheets and Sheeting of Spunbonded Manmade Fibers for General Use in the Industrial Arts.
First use Dec. 13, 1966.

Class 2—Receptacles

SN 183,669. Dixie Wax Paper Company, Dallas, Tex. Filed Dec. 27, 1963.

d DIXIE

Owner of Reg. No. 730,424.
For Wax Paper Bags.
First use Feb. 27, 1959; 1932 as to "Dixie."

SN 224,663. Vac Pac, Inc., Baltimore, Md. Filed July 30, 1965.

PERVAC

For Polyester Bags.
First use January 1964.

SN 229,028. Rexall Drug and Chemical Company, d.b.a. Rexall Chemical Company, Los Angeles, Calif. Filed Sept. 30, 1965.

REXWARE

Owner of Reg. No. 784,625.
For Plastic Containers for Merchandising Food Stuffs.
First use Aug. 20, 1965.

SN 232,034. Taiyo Kogyo Co., Ltd., Taisho-ku, Osaka City, Japan. Filed Nov. 2, 1965.

TAICON

For Flexible, Collapsible, Reusable Drum-Shaped Containers for Bulk Cargo Handling.
First use Oct. 5, 1964; in commerce Aug. 10, 1965.

SN 239,952. Worthall, Limited, New York, N.Y. Filed Mar. 1, 1966.

Worthall

For Vacuum Bottles.
First use at least as early as 1941, on or about Nov. 16, 1927, in a different form.

SN 262,297. J. W. Pepper & Son, Inc., Philadelphia, Pa. Filed Jan. 11, 1967.

FILE FINDER

"File" is disclaimed apart from the mark as shown.
For Paper Cartons for Sheet Music.
First use Oct. 7, 1966.

Class 3—Baggage, Animal Equipments, Portfolios, and Pocketbooks

SN 242,376. Morris White Fashions, Inc., New York, N.Y. Filed Mar. 31, 1966.

It's a MORRIS WHITE

The name "Morris White" was a living individual who is now deceased. Owner of Reg. No. 633,827.
For Ladies' Handbags.
First use May 3, 1965.

SN 250,288. Mercantile Stores Company, Inc., New York, N.Y. Filed July 14, 1966.

VISTA

For Luggage.
First use June 3, 1966.

SN 253,877. Hudson Associates, Inc., Hudson, Ohio. Filed Sept. 6, 1966.

MEDI-PERCH

For Bird Perches Containing Pesticides.
First use at least as early as Mar. 29, 1966.

Class 4—Abrasives and Polishing Materials

SN 240,898. General Motors Corporation, Detroit, Mich. Filed Mar. 14, 1966.

CRYSTALITE

For Polish and Cleaner for Automotive Finishes.
First use Feb. 28, 1966.

Class 5—Adhesives

SN 234,700. Gerard Packing and Belting Corp., New York, N.Y. Filed Dec. 14, 1965.

HERCU-SEAL

For General Laminating Adhesive for Wood, Paper, Metal, Asbestos, Natural and Neoprene Rubbers, Leather, Fabrics, and Similar Materials for the Purpose of Adhering Such Materials to Each Other or to Ridged Plastic or Metal.
First use Nov. 15, 1965.

SN 237,550. H. B. Fuller Company, St. Paul, Minn. Filed Jan. 28, 1966.

FULLER'S

For Industrial Adhesives—Namely, Glues, Pastes, Sizes, Gums, Mucilages, Cements, Binders.
First use 1887.

SN 237,714. Lilly Chemical Products, Inc., Gardner, Mass. Filed Feb. 1, 1966.

TIGER BOND

No claim is made to the exclusive use of the word "Bond" apart from the mark as shown.
For Quick Drying Solvent-Dispersed Industrial Cement for Internal Bonding of Decorate Laminates.
First use Nov. 19, 1965.

SN 248,287. Atlantic Gummed Paper Corporation, Brooklyn, N.Y. Filed June 17, 1966.

PADLOCK
double roll

No claim is made to the words "Double Roll" apart from the other features of the mark. Owner of Reg. No. 761,529.
For Reinforced Paper Tape for Sealing Lap Closures of Fiberboard Boxes.
First use Feb. 15, 1966.

Class 6—Chemicals and Chemical Compositions

SN 229,701. Water Chemists, Inc., Los Angeles, Calif. Filed Oct. 8, 1965.

ANTICOR

For Water Treating Chemicals—Namely, Rust and Corrosion Inhibitors.
First use June 1958.

SN 231,587. The Milwhite Company, Inc., d.b.a. Barium Supply Company, Houston, Tex. Filed Oct. 24, 1965.

BASCO FILTER RATE

For Chemical Drilling Mud Additive Containing Asphaltic Material, Cellulose Derivatives, Thinning Agents and Dispersing Agents, Used in Reducing the Water Loss and Lubricating the Drill Pipe in Oil Wells.
First use Mar. 17, 1962.

SN 231,588. The Milwhite Co., Inc., d.b.a. Barium Supply Company, Houston, Tex. Filed Oct. 24, 1965.

BASCO-DET

For Chemical Compound Additives Containing Detergents, Emulsifying Agents, Thinners, and Corrosion Preventatives for Use in Oil Well Drilling Mud Circulating Fluid.
First use Jan. 21, 1963.

SN 248,274. Wisconsin Ice & Coal Co., Milwaukee, Wis. Filed June 16, 1966.

FOUNTAIN GREEN

For Preparation To Kill Weeds.
First use Mar. 19, 1966.

SN 253,697. West Virginia Pulp and Paper Company, New York, N.Y. Filed Sept. 1, 1966.

AQUA NUCHAR

Applicant disclaims exclusive right to the word "Aqua." Owner of Reg. Nos. 189,657, 527,174, and others.
For Activated Carbon.
First use Mar. 11, 1966.

SN 255,424. The Drackett Company, Cincinnati, Ohio. Filed Sept. 29, 1966.

SEARCH

For Disinfectant.
First use July 28, 1965.

SN 261,618. S. C. Johnson & Son, Inc., Racine, Wis. Filed Dec. 29, 1966.

WARRIOR

For Insecticide-Disinfectant-Fungicide Preparation With Deodorant Properties.
First use on or about Oct. 4, 1966.

Class 7 — Cordage

SN 245,625. Southland Cord & Machine Sales Co., Inc., Alhambra, Calif. Filed May 13, 1966.

BONDWELT

For Cord Used for Welting, Seaming, and Piping for Upholstery.
First use Dec. 1, 1960.

Class 8 — Smokers' Artides, Not Including Tobacco Products

SN 230,662. Lenox, Incorporated, Trenton, N.J. Filed Oct. 20, 1965.

LENOX

Owner of Reg. Nos. 692,619, 769,524, and others.
For Cigarette Lighters and Bodies Therefor, Ash Trays, Cigarette Boxes, Cigarette Urns.
First use 1927.

Class 10 — Fertilizers

SN 248,995. Geigy Chemical Corporation, Ardsley, N.Y., assignee of Geigy Chemical Corporation, Ardsley, N.Y. Filed June 27, 1966.

SEQUESTRENE

Owner of Reg. Nos. 514,485 and 527,737.
For Metal Chelates for the Correction of Metal Deficiency in Fruits, Vegetables, Field Crops, Flowers, Ornamental Plants, Shrubs, Turf, and Trees.
First use November 1952.

SN 251,899. Continental Oil Company, Ponca City, Okla. Filed Aug. 8, 1966.

AGRI-K

Owner of Reg. No. 786,251.
For Fertilizer.
First use July 6, 1966.

SN 257,052. Hawkeye Chemical Company, Clinton, Iowa. Filed Oct. 24, 1966.



For Nitrogen Fertilizer Solutions.
First use on or about Nov. 1, 1963.

SN 258,830. Michigan Peat, Inc., New York, N.Y. Filed Nov. 16, 1966.



For Sphagnum Peat Moss and Dehydrated Cattle Manure Used as Soil Conditioners.
First use Mar. 2, 1964.

Class 12 — Construction Materials

SN 233,464. Continental Coatings Corporation, New York, N.Y. Filed Nov. 29, 1965.

K 10/10

For Coal Tar Base Coating for Protecting New or Old Roofs.
First use Aug. 8, 1965.

SN 241,831. Union Lumber Company, San Francisco, Calif. Filed Mar. 24, 1966.

NOYOLAM

Owner of Reg. No. 138,726.
For Glued, Laminated, Structural Timber, Including Laminated Beams and Like Products.
First use Feb. 28, 1963.

SN 242,516. Steffen Body Co., Sioux City, Iowa. Filed Apr. 1, 1966.

PERMA-PORTA

For Permanent Yet Portable Factory-Built and Electronic, or the Like, Equipped Buildings (or Room-Like or One-Room Structures) Ready for On-The-Site Installation.
First use Jan. 3, 1966.

SN 244,911. Martin-Marietta Corporation, New York, N.Y. Filed May 4, 1966.

LECTRO PATCH

No registration rights are claimed for the word "Patch" apart from the mark as shown, but applicant waives none of its common law rights therein.
For Refractory Dolomite and Magnesite Grains for Repair of Furnaces.
First use Nov. 29, 1965.

SN 248,079. Injection Rapide et Conservation des Bois par Procede Nouveau, Saint-Vit (Doubs), France. Filed June 9, 1966.

ININFLA

Owner of French Reg. No. 502,931, dated Feb. 28, 1962 (Seine); Natl. Inst. No. 180,398.
For Raw and Dressed Lumber, Wood Slabs and Sections, Treated in Order To Protect Simultaneously Against Attack by Fungus, Insects and Fire.

SN 248,148. Martin-Marietta Corporation, New York, N.Y. Filed June 15, 1966.

MASTERCRON

Owner of Reg. Nos. 214,865, 500,536, and others.
For Material To Be Applied to Fresh Concrete To Improve the Hardness Thereof, To Increase Resistance to Wear and Corrosion and To Color Same.
First use on or about June 18, 1965.

SN 249,534. Joslyn Mfg. and Supply Co., Chicago, Ill., assignee of Hayden-Shaw Mineral Products, Inc., Detroit, Mich. Filed July 5, 1966.

PAC-A-BLOCK

For Wood Floor Blocks.
First use Nov. 19, 1951.

SN 251,936. Los Angeles Tile Jobbers, Inc., Los Angeles, Calif. Filed Aug. 8, 1966.

RUBBLESTONES

For Ceramic Tile.
First use Mar. 8, 1960.

SN 252,178. E. J. Lavino and Company, Philadelphia, Pa. Filed Aug. 11, 1966.

LAV-K-GUN

For Refractory Gunning Mix.
First use Mar. 29, 1962.

SN 252,179. E. J. Lavino and Company, Philadelphia, Pa. Filed Aug. 11, 1966.

LAV-MK-GUN

For Refractory Gunning Mix.
First use Feb. 24, 1964.

SN 252,180. E. J. Lavino and Company, Philadelphia, Pa. Filed Aug. 11, 1966.

LAV-M-GUN

For Refractory Gunning Mix.
First use Feb. 23, 1962.

SN 252,181. E. J. Lavino and Company, Philadelphia, Pa. Filed Aug. 11, 1966.

LAV-KM-GUN

For Refractory Gunning Mix.
First use Nov. 7, 1961.

SN 260,215. Frigidome Corporation, Peoria, Ill. Filed Dec. 7, 1966.



For Buildings—Namely, Product Storage and Conditioning Units.
First use October 1965.

SN 260,920. Boise Cascade Corporation, Boise, Idaho. Filed Dec. 16, 1966.

PLY·SEAL

For Plywood Roof Sheathing With a Kraft Paper Laminate.
First use Nov. 10, 1966.

Class 13 — Hardware and Plumbing and Steam-Fitting Supplies

SN 227,046. M-C-M Machine Works, Oklahoma City, Okla. Filed Sept. 2, 1965.

LINE SCALE

Owner of Reg. No. 657,743.
For Valves and Parts Thereof Such as Seats and Closures Therefor.
First use on or about Mar. 1, 1956.

SN 236,939. Vilin-Vertrieb Vissing & Linsmayer, Munich, Germany. Filed Jan. 20, 1966.

VILIN

Owner of German Reg. No. 803,748, dated May 5, 1965.
For Construction Fittings for Fastening Wall Panels and for Attachment to Windows and Other Construction Units; Wall Hooks and Hooks for Invisible Fastening of Panels; Spur Plates for Use in Wall and Window Construction.

SN 237,685. L. W. Fleckenstein, Inc., Butler, Wis. Filed Feb. 1, 1966.



Owner of Reg. No. 722,905.
For Water Softening Apparatus—Namely, Control Valves Used With Water Softener Tanks, and Parts and Supplies Therefor.
First use at least as early as Jan. 1, 1964.

SN 242,237. Robert A. Gilmour, d.b.a. Gilmour Manufacturing Co., Somerset, Pa. Filed Mar. 30, 1966.

GILMOUR

For Hose Nozzles, Shower Heads, Water Sprinklers, and Hose Reels.
First use at least as early as December 1957.

SN 244,459. Bonwit Laboratories, Inc., Chicago, Ill. Filed Apr. 28, 1966.

MAGIC DISC

For Cooking Pot Lids With Hand Agitators for Use in Preparing Popcorn.
First use Oct. 11, 1965.

Class 14—Metals and Metal Castings and Forgings

SN 237,145. National Extruded Metal Products Company, Toledo, Ohio. Filed Jan. 24, 1966.

NEMPCO★

For Extruded Metal Shapes.
First use Oct. 25, 1965.

SN 242,721. Edgcomb-Milford, Inc., Milford, Conn. Filed Apr. 5, 1966.

EM

For Metal and Metal Alloy—Namely, Aluminum, Brass or Steel, Sheets, Strips, Bars, and Coils.
First use Mar. 3, 1966.

SN 244,278. Villaume Steel Company, St. Paul, Minn. Filed Apr. 25, 1966.

TACAR

For High Alloy Steel Products—Namely, Sheets, Plates, Rod Stock, and Bar Stock.
First use Apr. 14, 1966.

SN 244,942. L & L White Metal Casting Corporation, Lyndhurst, N.J. Filed May 4, 1966.

L & LWMC

For Lamp Part Castings.
First use 1963.

SN 245,945. National Steel Corporation, Pittsburgh, Pa. Filed May 18, 1966.

MP/T

For Steel Sheets and Strip and Galvanized Steel Sheets and Strip.
First use Apr. 21, 1966.

SN 248,627. Ledloy Limited, Woodley, Stockport, England. Filed June 21, 1966.

TELSTAR

Owner of British Reg. No. 842,573, dated Dec. 6, 1962.
For Steel.

SN 264,637. Phoenix Steel Corporation, Claymont, Del. Filed Feb. 14, 1967.

CLAY-LOY

For High Strength Low Alloy Steel.
First use Jan. 12, 1961.

Class 15—Oils and Greases

SN 243,192. Texas Refinery Corp., Fort Worth, Tex. Filed Apr. 11, 1966.

NO. 880 C & C

For General Purpose Lubricant.
First use Feb. 4, 1966.

SN 243,813. Yale Engineering Company, Chicago, Ill. Filed Apr. 19, 1966.

MOTOR PLAZMA

No registration rights are claimed for the word "Motor" apart from the mark as shown, but the applicant waives none of its common law rights in the mark shown in the drawing or any feature thereof.
For Oil Additive for Internal Combustion Engine.
First use Jan. 26, 1966.

SN 248,460. Fuel Combustion Corporation, New York, N.Y. Filed June 20, 1966.

FUELCO

For Fuel and Diesel Oil Additive.
First use Mar. 3, 1961.

SN 248,721. Mallinckrodt Chemical Works, St. Louis, Mo. Filed June 22, 1966.

HYVO

For Lubricant for Preventing Tablets Sticking to a Tablet Machine.
First use May 26, 1966.

SN 248,908. Hangsterfer's Laboratories, Inc., Mantua, N.J. Filed June 24, 1966.

HANGSTERFER'S S-500

For Water Soluble Cutting Compound.
First use 1955.

Class 16—Protective and Decorative Coatings

SN 240,582. Chemsearch Corporation, Fort Collins, Colo. Filed Mar. 10, 1966.

CHEMSTOP

For Wood and Masonry Penetrating Waterproofing Coating Used in the Building Construction Trade.
First use June 1, 1964.

SN 261,911. The American Asbestos Products Company, Cleveland, Ohio. Filed Jan. 4, 1967.

RINK-GRIP

Owner of Reg. No. 527,397.
For Varnish Type Sealer and Surfacer for Floors.
First use June 22, 1944.

SN 262,907. Chas. Pfizer & Co., Inc., New York, N.Y. Filed Jan. 20, 1967.

PASSIVION

For Anti-Corrosive Pigment for Use in Coatings.
First use Oct. 4, 1966.

SN 264,366. E. I. du Pont de Nemours and Company, Wilmington, Del. Filed Feb. 10, 1967.

DU PONT

Owner of Reg. Nos. 199,516, 373,894, and 378,573.
For Sprayable Foam and Liquid Which Hardens To Form a Cellular Resilient Film or Coating Used for Sound Deadening Applications.
First use Sept. 1, 1966.

Class 17—Tobacco Products

SN 249,055. Murray, Sons & Company Limited, Belfast, Northern Ireland. Filed June 27, 1966.



Owner of British Reg. No. 877,369, dated Mar. 25, 1965; and U.S. Reg. No. 309,176.
For Smoking Tobacco.

Class 18—Medicines and Pharmaceutical Preparations

SN 230,196. Roha-Werk Walter Bühner & Co., Bremen-Oberneuland, Germany. Filed Oct. 14, 1965.

Bekunis

Owner of German Reg. No. 498,340, dated Dec. 10, 1937.
For Pharmaceutical Preparations for Internal Medicine.

SN 231,299. Southwestern Drug Corporation, d.b.a. Tru-Lab Products, Dallas, Tex. Filed Oct. 22, 1965.

GLIDE

For Medicated Lanolin Lotion for Rub Downs and General Massage.
First use Aug. 25, 1964.

SN 244,465. Cole Pharmacal Company, Inc., St. Louis, Mo. Filed Apr. 28, 1966.

BUTADONNA

For Antispasmodic and Sedative.
First use Apr. 1, 1966.

SN 251,228. Chas. Pfizer & Co., Inc., New York, N.Y. Filed July 28, 1966.

VIBRACIN

For Antibiotic Preparation for Human Use.
First use July 25, 1966.

SN 253,467. Wolo A.-G. (Wolo Ltd.), Zurich, Zurich, Switzerland. Filed Aug. 30, 1966.

EMPYROL

Owner of Swiss Reg. No. 28,833, dated Feb. 6, 1911; and U.S. Reg. No. 208,694.
For Pharmaceutical Preparation Used for Preparing Tar Baths for the Treatment of Chronic Skin Diseases and Rheumatic Diseases.

SN 259,509. Adolph D. Storch, Elizabeth, N.J. Filed Nov. 28, 1966.

NUM-ZIT

For Preparation for Relief of Teething Pains in Infants and Children.
First use 1950.

SN 259,882. Alberto-Culver Company, Melrose Park, Ill. Filed Dec. 2, 1966.

RELEASE

Owner of Reg. No. 771,643.
For Laxative.
First use Nov. 7, 1966.

Class 19—Vehicles

SN 230,753. American-Mobile Products, Corporation, Lansing, Mich. Filed Oct. 21, 1965.

Plant Kat

For Battery Powered Three-Wheeled In-Plant Vehicles for Personnel.
First use Nov. 2, 1964.

SN 237,858. John C. May, Independence, Mo. Filed Feb. 2, 1966.

SPACE MOBILE

For Mobilized Homes.
First use Sept. 3, 1965.

SN 240,462. Molded Fiber Glass Body Company, Union City, Pa. Filed Mar. 7, 1966.



For Small Boats for Cruising and Sailing.
First use Oct. 5, 1965.

SN 242,098. Altec, Incorporated, Birmingham, Ala. Filed Mar. 29, 1966.

ALTEC

For Utility Service Truck Bodies and Special Duty Truck Bodies in Combination With Aerial Buckets, Derricks, Winches, Hydraulic Auger Units, Diggers, Jacks, and Components Thereof.
First use May 1, 1956.

SN 247,987. Wham-O Manufacturing Company, San Gabriel, Calif. Filed June 13, 1966.

WHEELIE-BAR

For Bicycle-Frame Attachment To Aid the Rider in Executing Rearing Maneuvers.
First use Apr. 26, 1966.

SN 248,611. Freightliner Corporation, Portland, Oreg. Filed June 21, 1966.

TURBOLINER

For Turbine Driven Motor Trucks (Tractors) for Towing Freight Loaded Trailers.
First use Oct. 1, 1965.

SN 248,612. Georgia Automobile Accessories, Inc., Atlanta, Ga. Filed June 21, 1966.

INSTA-VUE

For Rear View Mirror Assembly.
First use Jan. 14, 1966.

SN 248,770. The Buehler Corporation, Indianapolis, Ind. Filed June 23, 1966.

BOLERO

For Jet Boats.
First use Oct. 1, 1965.

Class 21—Electrical Apparatus, Machines, and Supplies

SN 192,255. The Antenna Specialists Company, Cleveland, Ohio. Filed Apr. 29, 1964.



The drawing is lined for yellow. Owner of Reg. No. 724,446.
For Engine-Generator Sets and Associated Starters, Regulators, Controls, Line Materials, and Parts Therefor.
First use Jan. 15, 1964.

SN 194,493. International Telephone and Telegraph Corporation, Chicago, Ill. Filed May 28, 1964.

KELEX

For Electronic Switching Systems for Automatic Telephone Exchanges and Parts Therefor.
First use on or before Mar. 18, 1963.

SN 218,283. Diax Corporation, Brooklyn, N.Y. Filed May 7, 1965.

DIAX

For Electrical Lamps and Bulbs Thereof.
First use Mar. 18, 1965.

SN 232,118. Dunkermotoren Prazisions-Kleinstmotoren Gesellschaft mbH, Bonndorf, Black Forest, Germany. Filed Nov. 4, 1965.



For Fractional Horsepower Electric Motors.
First use in or about January 1957; in commerce in or about December 1957.

SN 232,993. I-T-E Circuit Breaker Company, Philadelphia, Pa. Filed Nov. 19, 1965.

XL-U

Owner of Reg. Nos. 532,329, 711,469, and 712,068.
For Electrical Distribution Systems Comprising Electrical Busway, Including Tap-Offs, Feed-Ins, and Other Attachments and Fittings Therefor.
First use September 1965.

SN 240,591. Degree Corporation, Kansas City, Kans. Filed Mar. 10, 1966.



For Automotive Electrical Equipment—Namely, Storage Batteries, Generators, Alternators, and Electrical Starters for Automotive Engines.
First use June 1961.

SN 241,527. Sears, Roebuck and Co., Chicago, Ill. Filed Mar. 21, 1966.

TRANSTALK

For Portable Battery Operated Radio-Receiver Sets.
First use Aug. 23, 1965.

SN 241,596. The Macallen Company, Inc., Newmarket, N.H. Filed Mar. 22, 1966.

MACALLEN

Owner of Reg. No. 742,636.
For Mica Electrical Insulation in Various Forms Including Tapes, Segments, and Insulators.
First use on or about June 1, 1894.

SN 241,896. Holophane Company, Inc., New York, N.Y. Filed Mar. 25, 1966.

POWER-HOOK

For Illumination Equipment—Namely, Electrical Lamp Panels, Screens, Globes, Reflectors, Refractors, and Fixtures.
First use July 15, 1964.

SN 242,946. Voss Engineering Company, Callery, Pa. Filed Apr. 7, 1966.

VOSS

For Machines for Forming Steel—Namely, Roller Levelers, Shear-Welders, and Planishers.
First use Nov. 13, 1963.

SN 244,886. Continental-Wirt Electronics Corporation, Philadelphia, Pa. Filed May 4, 1966.

VACUMETTE

For Metal Film Resistors.
First use Mar. 18, 1966.

SN 245,067. The Dow Chemical Company, Midland, Mich. Filed May 6, 1966.

GALVALUM

Owner of Reg. Nos. 745,347, 722,803, and others.
For Anodes for Cathodic Protection.
First use Mar. 25, 1966.

SN 246,118. West Chemical Products, Inc., Long Island City, N.Y. Filed May 19, 1966.

WEST-O-STATIC

For Vacuum Cleaners for Institutional Use.
First use Apr. 21, 1965.

SN 246,301. Federal Sign and Signal Corporation, Blue Island, Ill. Filed May 23, 1966.

VIBRATONE

Owner of Reg. No. 795,084.
For Electrically Operated Bells.
First use Jan. 24, 1966.

SN 246,626. Winegard Company, Burlington, Iowa. Filed May 25, 1966.

CHROMA-FLEX

Owner of Reg. No. 808,058.
For Television Antennas.
First use Apr. 1, 1966.

SN 246,627. Winegard Company, Burlington, Iowa. Filed May 25, 1966.

CHROMA-LENS

Owner of Reg. No. 808,058.
For Television Antennas.
First use Apr. 1, 1966.

SN 247,292. Arthur T. Mendenhall, d.b.a. The Electronic Ad-Aids, Indianapolis, Ind. Filed June 6, 1966.

GO-GO HI! HI!
Like-Lite
"FIT FOR A KING"

Without waiving any of its common law rights applicant disclaims "Lite" apart from the mark as shown.
For Electric Lamps Used Exclusively To Illuminate Short Wave Radio Equipment of FCC Licensed Operators, the Lamps Also Identifying, by Numbers Printed Thereon, the Call Sign of a Particular Radio Station.
First use Apr. 4, 1966.

SN 247,590. Fisher Radio Corporation, Long Island City, N.Y. Filed June 8, 1966.

SUPER SYNCHRODE

For Radio Receiving Apparatus.
First use Mar. 4, 1966.

SN 247,602. Insulation Manufacturers Corporation, Chicago, Ill. Filed June 8, 1966.

IMC

Owner of Reg. Nos. 543,790 and 543,791.

For Electrical Insulating Material—Namely, Friction and Rubber Adhesive Tapes, Enamels, Lacquers, Shellacs, and Adhesives for Electrical Insulation, Woven Cloth Asbestos Tape in Roll and Sheet Form, Braided Sleevings, Cuffed Paper Coils and Tubings, Heat Sealing Resinous Sheets and Tapes, Insulating Bushings, Mica Insulating Material, Laminated Plastics for Insulation, Slot Insulators, Glass Tubings and Sleevings, and Wooden Wedges Used for Permanent Retention of Wire in Rotor and Stator Sloths of Electric Motors.

First use May 20, 1966.

SN 247,650. Union Carbide Corporation, New York, N.Y. Filed June 8, 1966.

NOXIDE

For Contacts for Use in Electrical Apparatus and Machines.
First use at least as early as Aug. 1, 1947.

SN 247,893. Carol Wire & Cable Corp., Pawtucket, R.I. Filed June 13, 1966.

990

For Insulated Wire and Cable.
First use on or about May 13, 1966.

SN 247,980. Tuttle Electric Products, Inc., Kirkland, Ill. Filed June 13, 1966.

TEP

Owner of Reg. No. 778,438.
For Open-Coil Electric Heaters.
First use Apr. 15, 1966; January 1956 in a different form.

SN 248,815. Kiekhaefer Corporation, Fond du Lac, Wis. Filed June 23, 1966.

THUNDERBOLT

Owner of Reg. No. 644,138.
For Electrical Ignition Systems.
First use Dec. 9, 1965.

SN 249,108. Amperex Electronic Corporation, Hicksville, N.Y. Filed June 28, 1966.

LDS

For Semiconductors.
First use Apr. 22, 1966.

SN 262,099. Lighting Corporation of America, Philadelphia, Pa. Filed Jan. 9, 1967.

progress
motion

Owner of Reg. No. 617,160.
For Electric Lighting Fixtures.
First use at least as early as January 1962.

Class 22—Games, Toys, and Sporting Goods

SN 228,689. Jackes-Evans Manufacturing Company, St. Louis, Mo. Filed Sept. 27, 1965.

Medart
PRODUCTS, INC.

Owner of Reg. Nos. 280,326, 738,635, and 761,263.
For Baskeball Backstops and Basketball Goals.
First use about Mar. 28, 1961; about 1861 as to the word "Medart."

SN 238,183. The Denver Tent & Awning Company, Denver, Colo. Filed Feb. 7, 1966.

DENTENCO

For Gym Mats, Gym Mat Covers and Tents.
First use Oct. 14, 1965; July 5, 1961, as to the word "Dentenco."

SN 240,876. Western Import Inc., Portland, Oreg. Filed Mar. 7, 1966.

Toy CRAFTER

No claim of exclusive right is made to "Toy" for the goods recited.

For Toy Vehicles Including Toy Automobiles, Cement Mixers, Dump Trucks, Bulldosers, Power Shovels, Skip Loaders, Auto Wreckers, Clam Shell Shovels, Fire Engines, and Road Graders; and Toy Firearms Including Rifles, Pistols, Carbines, Machine Guns, Space Guns, and Cork Guns.

First use Jan. 26, 1965.

SN 242,740. Merry Manufacturing Company, Cincinnati, Ohio. Filed Apr. 5, 1966.

JODI GO-GO TIME

For Toy Kits Containing a Doll and Accessories.
First use Mar. 22, 1966.

SN 242,741. Merry Manufacturing Company, Cincinnati, Ohio. Filed Apr. 5, 1966.

MINDY BEDTIME

For Toy Kits Containing a Doll and Accessories.
First use Mar. 22, 1966.

SN 246,106. A. G. Spalding & Bros. Inc., Chicopee, Mass. Filed May 19, 1966.



Owner of Reg. No. 816,932.
For Golf Clubs, Golf Balls, Athletic Implement Grips, Golf Bags, and Golf Bag Carts.
First use October 1963.

SN 247,237. Manning Manufacturing Corporation, Chicago, Ill. Filed June 3, 1966.

Ghoul Fingers

For Coin Banks.
First use Apr. 26, 1966.

SN 247,497. Gar Vic Enterprises, Inc., North Hollywood, Calif. Filed June 7, 1966.



For Model Racing Cars, as Well as Parts and Accessories Therefor, Such as the Chassis, Motors, and Tires Used Therein.
First use September 1965.

SN 248,382. Wilson Sporting Goods Co., River Grove, Ill. Filed June 17, 1966.

HOLIDAY

For Tennis Rackets.
First use May 7, 1966.

SN 249,436. Lakeside Industries, Inc., Minneapolis, Minn. Filed July 1, 1966.

SUPER-FLEX

Owner of Reg. No. 789,947.
For Plastic Doll.
First use on or about June 20, 1966.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

SN 220,680. The National Rolled Thread Die Co., Cleveland, Ohio. Filed June 8, 1965.

STYLE X

Applicant disclaims the word "Style" apart from the mark as shown.

For Exterior Forming Dies, Such as Exterior Thread and Form Rolling Dies; and Other Exterior Thread Forming Tools.

First use Mar. 5, 1957.

SN 220,681. The National Rolled Thread Die Co., Cleveland, Ohio. Filed June 8, 1965.

STYLE X

Applicant disclaims the word "Style" apart from the mark as shown.

For Exterior Forming Dies, Such as Exterior Thread and Form Rolling Dies; and Other Exterior Thread Forming Tools.

First use May 12, 1965.

SN 226,965. A.C. Rubber Manufacturing Co. Ltd., Vancouver, British Columbia, Canada. Filed Sept. 2, 1965.

DELTA FLO

Priority claimed under Sec. 44(d) on Canadian application filed Mar. 11, 1965; Reg. No. 141,516, dated Aug. 25, 1965.

For Marine Engine Silencers Formed of a Suitably Resilient Material Such as Neoprene.

SN 233,499. Hall Ski-Lift Company, Inc., Watertown, N.Y. Filed Nov. 29, 1965.

HALLIFT

For Ski-Lifts and Parts Therefor.
First use July 31, 1964.

SN 234,249. Societe Nouvelle d'Exploitation des Etablissements Bollot-Petolat, Dijon, Cote-d'Or, France. Filed Dec. 8, 1965.

Scraner

Priority claimed under Sec. 44(d) on French Reg. No. 6,919, dated June 10, 1965 (Dijon); Natl. Inst. No. 252,681.
For Self-Propelled Cranes and Derricks Mounted on Automotive Trucks or Lorries.

SN 235,843. Markwell Manufacturing Company, Inc., New York, N.Y. Filed Jan. 5, 1966.

RED RELOADER

For Stapling Machines.
First use Dec. 8, 1965.

SN 236,535. Whirl-Air-Flow Corporation, Minneapolis, Minn. Filed Dec. 16, 1965.

WHIRL-AIR-FLOW

For Pneumatic Conveying Equipment and Parts Thereof—Namely, Transporters, Switches, Control Cabinets, Receivers, and Chip Injector Units.
First use Sept. 28, 1954.

SN 238,841. Closure Corporation, Linden, N.J. Filed Feb. 15, 1966.

HOLD-O-MATIC

For Container-Forming and Sealing Machines.
First use Sept. 16, 1965.

SN 242,238. Robert A. Gilmour, d.b.a. Gilmour Manufacturing Co., Somerset, Pa. Filed Mar. 30, 1966.

GILMOUR

For Fluid Operated Sprayers for Home and Garden Use—Namely, for Spraying Fertilizers, Insecticides, Weed Eradicators, Disinfectants, and Detergent-Type Materials; and Fluid Operated Tools for Home and Industrial Cleaning Operations—Namely, Dispensing Acids, Solvents, Detergent-Type Materials, Cleaning Compounds, and Soluttions Thereof.
First use at least as early as December 1957.

SN 244,132. Precision Multiple Controls, Inc., Ridgewood, N.J. Filed Apr. 22, 1966.

DRILLGINE

For Portable Gasoline Powered Drill.
First use Apr. 26, 1962.

SN 246,072. The Gillette Company, Boston, Mass. Filed May 19, 1966.

EXCALIBUR

For Safety Razors and Safety Razor Blades.
First use Mar. 22, 1966.

SN 246,352. Pacific Stamping Co., Los Angeles, Calif. Filed May 23, 1966.

AQUA-MUFF

For Muffler for a Motor Boat.
First use Feb. 10, 1966.

SN 246,454. Cleveland Industrial Tool Company, Inc., Chardon, Ohio. Filed May 24, 1966.

DRESS-A-MATIC

For Attachment for Conditioning Precision Grinding Surfaces.
First use Mar. 12, 1966.

SN 247,105. Buehler Ltd., Evanston, Ill. Filed June 2, 1966.

ECOMET

For Machine for Polishing Metallurgical Test Samples.
First use Nov. 12, 1965.

SN 248,873. Apsco Products, Inc., Rockford, Ill. Filed June 24, 1966.

STAR

For Pencil Sharpeners and Parts Therefor.
First use Aug. 1, 1929.

SN 248,964. Buffalo Forge Company, Buffalo, N.Y. Filed June 27, 1966.

THRUST-O-MATIC

For Motor Pump Units.
First use May 5, 1966.

SN 260,706. The Gillette Company, Boston, Mass. Filed Dec. 14, 1966.

DAISY

For Razors and Razor Blades.
First use Nov. 29, 1966.

SN 262,891. Sardee Corporation, Chicago Ridge, Ill. Filed Jan. 19, 1967.

SARDEE

For Conveying Equipment for Packaged and Bulk Products—Namely, Cable Systems, Can Dividers, Can Rinsers, Can Runways, Belt and Magnetic Elevators, Twist Fittings, Belt Conveyors, Chain Conveyors, Magnetic Conveyors, Table Top Conveyors, Specialty Items, and Aerosol Water Baths.
First use August 1962.

SN 263,000. Meharry Welding, Inc., Wingate, Ind. Filed Jan. 23, 1967.

AUGER-ALL

For Foldable Grain Augers.
First use Nov. 3, 1965.

SN 264,881. Jomac, Inc., Warrington, Pa. Filed Feb. 17, 1967.

RYNO ROLLERS

Applicant disclaims the word "Rollers" apart from the mark as a whole. Owner of Reg. No. 723,078.
For Printing Rollers for Use in the Graphic Industries.
First use Jan. 12, 1967.

SN 265,956. The Gillette Company, Boston, Mass. Filed Mar. 6, 1967.

THE SPOILER

For Razor Blades.
First use August 1966.

Class 24—Laundry Appliances and Machines

SN 261,430. Raybestos-Manhattan, Inc., Manheim, Pa. Filed Dec. 27, 1966.

NOMALITE

Owner of Reg. No. 356,941.
For Covers for the Finishing Rolls of Flatwork Ironing Machines and for the Stationary Bucks on Laundry and Wearing Apparel Presses.
First use Apr. 26, 1966.

SN 261,782. Hattie May Pavlo, d.b.a. Hamilton House, Las Vegas, Nev. Filed Jan. 3, 1967.

gypsy press

No exclusive rights to the word "Press" are claimed apart from the mark as a whole.
For Portable Ironing Boards.
First use Sept. 3, 1966.

Class 26—Measuring and Scientific Appliances

SN 233,863. B-D Laboratories, Inc., East Rutherford, N.J. Filed Dec. 3, 1965.

AMBERLUX

For Petri Dishes.
First use on or about Oct. 5, 1965.

SN 233,991. Emil Busch GmbH., Berlin, Germany. Filed Dec. 6, 1965.

CLARLIT

For Spectacles and Spectacle Lenses.
First use July 1965; in commerce July 15, 1965.

SN 234,320. Hermann Wolf G.m.b.H., Wuppertal-Elberfeld, Germany. Filed Dec. 9, 1965.

LUXACOPY

For Photocopy Machines for Use in Business Offices.
First use 1953; in commerce 1959.

SN 236,308. Weston Instruments, Inc., Newark, N.J. Filed Jan. 12, 1966.

MASTER V

Owner of Reg. No. 649,684.
For Photographic Exposure Meters.
First use November 1939.

SN 238,509. Formaglas, Inc., Chelsea, Mass. Filed Feb. 10, 1966.

FORMAGLAS

Owner of Reg. No. 803,856.
For Ophthalmic Lenses and Blanks Therefor.
First use Oct. 27, 1964.

SN 240,677. Teletype Corporation, Skokie, Ill. Filed Mar. 10, 1966.

INKTRONIC

For Data Recorders—Namely, Telegraphic Printers.
First use Apr. 29, 1965.

SN 242,746. Porta-Lab, Inc., East Syracuse, N.Y. Filed Apr. 5, 1966.

PORTA-LAB

For Metal Testing Machine for Ferrous and Non-Ferrous Metal.
First use Mar. 1, 1966.

SN 244,222. The Jay International Corp., Chicago, Ill. Filed Apr. 25, 1966.

AQUAMARK

For Depth Gauges.
First use Mar. 3, 1966.

SN 245,395. Equipment Controls Company, Doraville, Ga. Filed May 11, 1966.

ecco

For Liquid Meters.
First use Oct. 21, 1965.

SN 245,490. Imperial Camera Corp., Chicago, Ill. Filed May 12, 1966.

IMPAR

For Camera Lens.
First use May 2, 1966.

SN 245,508. Printing Arts Research Laboratories, Inc., Santa Barbara, Calif. Filed May 12, 1966.

PARLAB

For Film for Projection Transparencies.
First use Apr. 5, 1966.

SN 245,928. Ilex Optical Co., Inc., Rochester, N.Y. Filed May 18, 1966.

UNIVERSAL

For Camera Shutters and Tachistoscopes.
First use at least as early as Jan. 12, 1925, on camera shutters.

SN 245,961. Pratt & Whitney Inc., West Hartford, Conn. Filed May 18, 1966.

TRU PATH

For Dimensional Gages, Thread Gages, and Parts Therefor.
First use March 1966.

SN 246,138. Accura, Ltd., Flushing, N.Y. Filed May 20, 1966.

EXPOMAT

For Photographic Accessories—Namely, Photographic Exposure Meter.
First use Oct. 1, 1965.

SN 246,152. E. W. Bliss Company, Davenport, Iowa. Filed May 20, 1966.

ELECTRO-FLEX

For Electronic Timers.
First use on or about Aug. 13, 1957.

SN 246,154. E. W. Bliss Company, Davenport, Iowa. Filed May 20, 1966.

MANUFLEX

For Small, Manually Set, Synchronous Motor Driven Timers.
First use on or about July 10, 1947.

SN 257,742. Xerox Corporation, Rochester, N.Y. Filed Nov. 2, 1966.

TELECOUPLER

For Audio-Electrical Impulse Transducer Used With Standard Telephone Handsets for Acoustically Coupling Transmission Lines With Transmitting and Receiving Equipment for Producing Facsimile Copies of Documents.
First use June 13, 1966.

SN 261,572. Clay-Adams, Inc., New York, N.Y. Filed Dec. 28, 1966.

GOLD SEAL · CLAY ADAMS NY

Owner of Reg. Nos. 234,920, 756,572, and 759,200.
For Microscope Slides and Cover Glasses.
First use on or about Nov. 4, 1955; June 1, 1927, as to "Gold Seal."

Class 27 — Horological Instruments

SN 241,784. Kohinoor Watch and Diamond Corporation, Birmingham, Ala. Filed Mar. 24, 1966.

Jen Portegé

The name "Jen Portegé" is not the name of any living individual.
For Watches.
First use Mar. 14, 1966.

Class 28 — Jewelry and Precious-Metal Ware

SN 244,690. The Easterling Company, Wheaton, Ill. Filed May 2, 1966.

EASTERLING

Owner of Reg. No. 422,262.
For Sterling Silver Flatware and Hollow Ware.
First use Dec. 7, 1946.

SN 245,218. Najarda Corporation, New York, N.Y. Filed May 9, 1966.

QUEEN OF THE ORIENT

For Pearls.
First use Nov. 29, 1965.

SN 245,670. Beatrix Jewelry Co., Pawtucket, R.I. Filed May 16, 1966.

Chris-Mouse

For Jewelry.
First use on or about Apr. 22, 1966.

SN 247,504. H. & S. Originals, Inc., New York, N.Y. Filed June 7, 1966.

LUNAR LITES

For Costume Jewelry.
First use Apr. 21, 1966.

Class 29 — Brooms, Brushes, and Dusters

SN 234,941. Shur-Line Manufacturing Co., Inc., Lancaster, N.Y. Filed Dec. 20, 1965.

HANDI

For Paint Rollers.
First use on or about Jan. 28, 1958.

SN 235,572. Maywood Industries, Newport Beach, Calif. Filed Dec. 30, 1965.

GROOMETTE

For Lint Removers for Cleaning the Surface of Clothing.
First use on or about Sept. 1, 1965.

SN 247,257. San Francisco Lighthouse for the Blind, San Francisco, Calif. Filed June 3, 1966.

BLINDCRAFT

Owner of Reg. No. 207,622.
For All Types of Brooms Using Broom Corn—Namely, Janitor's Brooms, Parlor Brooms, Mill Brooms, Hearth Brooms, Hotel Brooms, Whisk Brooms; Brushes—Namely, Clothes Brushes, Hair Brushes, Nail Brushes, and Scrub Brushes; and Dusters—Namely, String Mops.
First use 1916.

SN 248,999. John P. Gregory, Nashville, Tenn. Filed June 27, 1966.

WHAT-A-MOP

For Wet Mops.
First use Apr. 12, 1966.

SN 249,728. W & J Brush Company, Inc., Bronx, N.Y. Filed July 7, 1966.

EX-LON

For Paint Brushes.
First use Jan. 5, 1956.

SN 249,876. Pro-phy-lac-tic Brush Company, Florence, Mass. Filed July 8, 1966.

PRO

Owner of Reg. Nos. 349,120, 350,239, and 562,333.
For Shoe Daubers.
First use Jan. 3, 1966.

SN 253,908. Pro-phy-lac-tic Brush Company, Florence, Mass. Filed Sept. 6, 1966.

RED BREAST

For Brooms.
First use at least as early as Oct. 1, 1936.

SN 255,537. Manhattan Brush Co., Inc., New York, N.Y. Filed Sept. 30, 1966.

TEXLON

For Paint Brushes.
First use June 1, 1962.

Class 30 — Crockery, Earthenware, and Porcelain

SN 210,156. Shenango Ceramics, Inc., New Castle, Pa. Filed Jan. 18, 1965.

GILD

For China Dinnerware.
First use Nov. 4, 1964.

SN 212,597. Shenango Ceramics, Inc., New Castle, Pa. Filed Feb. 23, 1965.

ME TOO

For China Dinnerware.
First use Nov. 3, 1964.

SN 237,256. Shenango Ceramics, Inc., New Castle, Pa. Filed Jan. 25, 1966.

PONTCHARTRAIN

For China Dinnerware.
First use Nov. 8, 1965.

SN 237,257. Shenango Ceramics, Inc., New Castle, Pa. Filed Jan. 25, 1966.

COVINGTON

For China Dinnerware.
First use Aug. 14, 1965.

Class 31 — Filters and Refrigerators

SN 249,571. Philco-Ford Corporation, Philadelphia, Pa., by change of name from Philco Corporation, Philadelphia, Pa. Filed July 6, 1966.

TWICEBOX

For Combination Refrigerators and Freezers.
First use June 24, 1966.

Class 32 — Furniture and Upholstery

SN 265,589. Pearl-Wick Corporation, Long Island City, N.Y. Filed Feb. 28, 1967.

LEG LOUNGER BY PEARL-WICK

Owner of Reg. Nos. 652,051, 732,488, and others.
For Hassocks and Foot Rests.
First use 1957.

SN 265,590. Pearl-Wick Corporation, Long Island City, N.Y. Filed Feb. 28, 1967.

VAL-O-SEAT BY PEARL-WICK

Owner of Reg. Nos. 732,488, 747,625, and others.
For Combination Clothes Rack and Ottoman.
First use 1961.

Class 34 — Heating, Lighting, and Ventilating Apparatus

SN 239,630. Ventroguard, Inc., Gardena, Calif., assignee of Donald D. Jensen, Fresno, Calif. Filed Feb. 25, 1966.

VENTROGUARD

For Ventilation Systems for Cooking Areas in Restaurants and the Like.
First use Aug. 1, 1962.

SN 243,384. American Radiator & Standard Sanitary Corporation, New York, N.Y. Filed Apr. 14, 1966.

IDEAL STANDARD

Owner of Reg. Nos. 76,482, 580,757, and others.
For Industrial and Domestic Equipment for Heating, Ventilating, and Air Conditioning—Namely, Furnaces, Boilers, Radiators, Convectors, Space Heaters, Air Conditioners, Blowers, Fans and Ventilators, and for Electrostatic and Mechanical Air Cleaning Precipitators.
First use Mar. 11, 1966, on boilers.

SN 243,388. American Radiator & Standard Sanitary Corporation, New York, N.Y. Filed Apr. 14, 1966.

Owner of Reg. Nos. 544,406, 580,757, and others.
For Industrial and Domestic Equipment for Heating, Ventilating, and Air Conditioning—Namely, Furnaces, Boilers, Radiators, Convectors, Space Heaters, Air Conditioners, Blowers, Fans and Ventilators, and for Electrostatic and Mechanical Air Cleaning Precipitators.
First use Mar. 18, 1966, on boilers.

SN 243,392. American Radiator & Standard Sanitary Corporation, New York, N.Y. Filed Apr. 14, 1966.

AMERICAN STANDARD

Owner of Reg. Nos. 58,506, 580,757, and others.
For Industrial and Domestic Equipment for Heating, Ventilating, and Air Conditioning—Namely, Furnaces, Boilers, Radiators, Convectors, Space Heaters, Air Conditioners, Blowers, Fans and Ventilators, and for Electrostatic and Mechanical Air Cleaning Precipitators.
First use Mar. 10, 1966, on boilers; April 1946 as to the mark "American Standard."

SN 249,479. Air Reduction Company, Incorporated, New York, N.Y. Filed July 5, 1966.

EXACTOGRAPH

For Oxyacetylene Cutting and Welding Machine.
First use Nov. 5, 1964.

Class 35 — Belting, Hose, Machinery Packing, and Nonmetallic Tires

SN 230,073. Borg-Warner Corporation, Chicago, Ill., assignee of Precision Gasket Corporation, Ballwin, Mo. Filed Oct. 13, 1965.

PRECIS

Owner of Reg. No. 733,782.
For Gaskets.
First use June 24, 1965.

SN 239,598. Continental Oil Company, d.b.a. Thompson Apex Company, Pawtucket, R.I. Filed Feb. 25, 1966.

DIAMOND EAGLE

For Tread Rubber.
First use at least as early as 1957.

SN 242,372. Maurey Manufacturing Corporation, Chicago, Ill. Filed Mar. 31, 1966.

MOR-GRIP

For V-Belts.
First use Dec. 31, 1950.

SN 246,214. United States Rubber Company, New York, N.Y. Filed May 20, 1966.

GRIP-MATIC GR-10

Owner of Reg. No. 650,925.
For Pneumatic Tires.
First use Mar. 16, 1966.

SN 246,292. Eliminator Tire & Rubber Co., Inc., Thompsonville, Conn. Filed May 23, 1966.

PROWLER

For Tires.
First use Sept. 10, 1965.

SN 246,293. Eliminator Tire & Rubber Co., Inc., Thompsonville, Conn. Filed May 23, 1966.

MYSTERY

For Tires.
First use May 16, 1966.

SN 246,306. The General Tire & Rubber Company, Akron, Ohio. Filed May 23, 1966.

GENTREAD

Owner of Reg. No. 698,988.
For Camelback for Retreading Pneumatic Tires.
First use at least as early as August 1957.

Class 36 — Musical Instruments and Supplies

SN 225,229. Suzuki Violin Co., Ltd., Nakagawa-ku, Nagoya, Japan. Filed July 26, 1965.

SUZUKI

For Stringed Musical Instruments.
First use June 25, 1930; in commerce June 19, 1960.

SN 230,510. Chicago Musical Instrument Co., Chicago, Ill. Filed Oct. 19, 1965.

Owner of Reg. No. 717,191.
For Band Instruments, and Accessories Therefor, Including Band Instrument Cases.
First use at least as early as Sept. 1, 1964; at least as early as February 1936 as to the mark "Reynolds."

SN 237,519. Grundig Werke G.m.b.H., Furth, Bavaria, Germany. Filed Nov. 30, 1965.

SYSTEM DC INTERNATIONAL

The letters "DC" are the abbreviation for the words "Doppel-Cassette." The translation of "Doppel-Cassette" is "double container." Applicant disclaims "System International" apart from the mark as shown. The lines appearing in the drawing are for shading purposes only. Priority claimed under Sec. 44(d) on German application filed July 10, 1965; Reg. No. 808,466, dated Aug. 19, 1965.
For Magnetic Tape Recorders-Reproducers, and Parts and Accessories Therefor.

SN 241,906. Louis L. Madison, d.b.a. Madison Enterprises, Fontana, Calif. Filed Mar. 25, 1966.

MADIS

For Phonograph Records.
First use Feb. 23, 1966.

SN 244,147. Stanton Magnetics, Inc., Plainview, N.Y. Filed Apr. 22, 1966.

LONGHAIR

For Phonograph Pickup Cartridges.
First use July 7, 1965.

Class 37 — Paper and Stationery

SN 223,595. Star Forms, Inc., Bettendorf, Iowa. Filed July 16, 1965.

STAR★FORMS

Applicant disclaims the word "Forms" apart from the mark as shown.
For Business Forms.
First use about Nov. 20, 1958.

SN 236,490. Industrial Stationery & Printing Co., Los Angeles, Calif. Filed Jan. 14, 1966.

For Letterheads, Writing Tablets, and Business Cards.
First use Feb. 15, 1965.

SN 239,451. Paul E. Sernau, Inc., New York, N.Y. Filed Feb. 23, 1966.

TOP SCHOLAR

For Address, Autograph, Appointment, and Telephone Index Books.
First use Feb. 1, 1966.

SN 243,874. International Paper Company, New York, N.Y. Filed Apr. 20, 1966.

PLY CORR

For Paper and Paperboard for Containers Having Wet-Strength.
First use Mar. 26, 1966.

SN 243,984. Georgia-Pacific Corporation, Stamford, Conn. Filed Apr. 21, 1966.

CORONET FLORAL PRINTS

The words "Floral Prints" are disclaimed apart from the mark as shown, without prejudice to applicant's common law rights. Owner of Reg. Nos. 817,391 and 817,392.
For Paper Products—Namely, Bathroom Tissue, Facial Tissue, Paper Napkins, and Paper Towels.
First use Jan. 20, 1964, on bathroom and facial tissue.

SN 244,763. Sperry Rand Corporation, New York, N.Y. Filed May 2, 1966.

REM-A-DEX

For Visible Card and Strip Holding Pockets Forming Card Indexes.
First use on or about June 15, 1965.

SN 245,056. The Bendix Corporation, Detroit, Mich. Filed May 6, 1966.

BECK-LEE

For Cardiograph Recording Paper.
First use Nov. 30, 1962.

SN 248,027. Eberhard Faber Inc., Crestwood, Wilkes-Barre, Pa. Filed June 14, 1966.

DeSiGN

For Marking Pens.
First use June 8, 1966.

Class 38 — Prints and Publications

SN 229,921. Gregory & Sons, New York, N.Y. Filed Oct. 8, 1965.

$ MONEY-SCOPE $

For Financial Newsletter.
First use Sept. 7, 1965.

SN 233,756. Everett L. Storey, d.b.a. West Magazine, Santa Paula, Calif. Filed Dec. 1, 1965.

WEST

For Magazine of National Circulation Containing Articles of Regional and General Interest.
First use Sept. 8, 1956.

SN 234,004. The Curtis Publishing Company, Philadelphia, Pa. Filed Dec. 6, 1965.

NEVER UNDERESTIMATE THE POWER OF A WOMAN

Owner of Reg. No. 820,078.
For Magazine.
First use Nov. 1, 1965.

SN 234,219. Local One, Amalgamated Lithographers of America, New York, N.Y. Filed Dec. 8, 1965.

LITHOPINION

For Periodical Magazine.
First use Oct. 27, 1965.

SN 234,851. Scholastic Magazines, Inc., New York, N.Y. Filed Dec. 17, 1965.

MULTI-TEXT

For Books.
First use October 1961.

SN 234,900. Hallmark Cards, Incorporated, Kansas City, Mo. Filed Dec. 20, 1965.

Treasures

For Greetings in the Form of a Booklet.
First use Nov. 12, 1965.

SN 236,932. Studio Vista Limited, London, England. Filed Jan. 20, 1966.

VISTA

For Books.
First use Dec. 31, 1959; in commerce Dec. 31, 1959.

SN 238,791. The Sangamon Company, Taylorville, Ill. Filed Feb. 14, 1966.

A SATIN-SHEEN Card

The word "Card" is disclaimed apart from the mark as shown.
For Greeting Cards.
First use Sept. 14, 1965.

SN 239,110. J. A. Balthrop, d.b.a. Bobe Wes Music Co., Mesquite, Tex. Filed Feb. 18, 1966.

Bobe Wes music

Applicant disclaims the word "Music." "Bobe Wes" identifies the applicant, but does not identify any particular living individual, and is used with consent of the applicant.
For Sheet Music.
First use Mar. 20, 1960.

SN 239,443. Rental Tools & Equipment Co., Inc., Silver Spring, Md. Filed Feb. 23, 1966.

EquipRent News

The word "News" is disclaimed apart from the mark as a whole.
For House Organ.
First use October 1962.

SN 244,909. Lad Publishing Co., Hicksville, N.Y. Filed May 4, 1966.

PROFIT PROMOTER

For Promotional Sundry Trade Magazine Used by the Retail Drug Trade.
First use Apr. 1, 1966.

SN 246,103. Ruth S. Rosfelder, Lakewood, Ohio. Filed May 19, 1966.

ESOTERICS

For Unique Decorative Adjuncts—Namely, Custom-Mounted Reproductions of Drawings and Prints.
First use April 1959.

SN 247,930. Insurance Accounting and Statistical Association, Kansas City, Mo. Filed June 18, 1966.

THE INTERPRETER

For Monthly Magazine of the Insurance Accounting and Statistical Association Devoted to Subjects in the Field of Insurance Accounting and Statistics.
First use June 1940.

SN 248,875. Tompkins' Label Service, Philadelphia, Pa. Filed June 17, 1966.

The drawing is lined for the colors red, yellow, and blue.
For Printed Labels.
First use Aug. 3, 1964.

SN 249,057. National Engineering Company, Chicago, Ill. Filed June 27, 1966.

MULLING IT OVER

For Newsletter for the Foundry Industry, Issued Periodically.
First use on or about Oct. 1, 1944.

SN 257,010. Gibson Greeting Cards, Inc., Cincinnati, Ohio. Filed Oct. 24, 1966.

"NUTTY NURSERY RHYMES"

For Greeting Cards.
First use on or about Aug. 26, 1966.

SN 257,014. Gibson Greeting Cards, Inc., Cincinnati, Ohio. Filed Oct. 24, 1966.

APPLIQUE ARTISTRY

For Greeting Cards.
First use July 5, 1966.

SN 257,015. Gibson Greeting Cards, Inc., Cincinnati, Ohio. Filed Oct. 24, 1966.

"HISTERICAL HISTORICALS"

For Greeting Cards.
First use Mar. 12, 1965.

SN 257,016. Gibson Greeting Cards, Inc., Cincinnati, Ohio. Filed Oct. 24, 1966.

CONNOISSEUR CARDS

The word "Cards" is disclaimed apart from the mark as shown.
For Greeting Cards.
First use Jan. 28, 1966.

SN 257,020. Gibson Greeting Cards, Inc., Cincinnati, Ohio. Filed Oct. 24, 1966.

DISTINCTIVE DIMENSIONALS

For Greeting Cards.
First use May 10, 1966.

Class 39 — Clothing

SN 227,328. Wilfred J. Phillips, Pittsburgh, Pa. Filed Sept. 7, 1965.

PIX-POKIT

For Shirts, Sweaters, Jackets, Jerseys, and Blouses.
First use on or about Mar. 15, 1965.

SN 231,437. Osvaldo Martini, Pisa, Italy. Filed Oct. 23, 1965.

BOUTIQUE MARCO

For Men's, Women's, and Children's Footwear, Including Sandals and Slippers, in Leather and Other Materials.
First use January 1963; in commerce August 1963.

SN 235,370. Joseph G. Walser, Jr., d.b.a. Walser Hosiery Company, High Point, N.C. Filed Dec. 27, 1965.

PEEKERS

For Decorative Fashion Accessories for Use as Hosiery Welt, Panty Girdle Leg Covers, Wristlets, and Anklets.
First use Nov. 23, 1965.

SN 235,775. The Granet Corp., Framingham, Mass. Filed Jan. 4, 1966.



GRANET

The representative of a glove is disclaimed except in the posture shown. Owner of Reg. No. 699,885.
For Gloves—Namely, Coated Fabric Work Gloves.
First use October 1957.

SN 235,903. Dent, Allcroft & Company Limited, London, England. Filed Jan. 6, 1966.

DENTS

Owner of U.S. Reg. No. 80,990.
For Gloves.
First use at least the year 1914; in commerce Jan. 1, 1914.

SN 238,218. William H. Hawes, Jr., d.b.a. Original Tapoo Hawes, Pacific Palisades, Calif. Filed Feb. 7, 1966.

HANGOVER

For Novelty Hats Made of Cloth or Straw for Use in Connection With Leisure Activities Such as Resort Wear, Pool Side Living, etc.
First use Oct. 29, 1965.

SN 238,746. KC Boyswear, Inc., Kansas City, Mo. Filed Feb. 14, 1966.

GENERATION

For Clothing for Young Men—Namely, Jackets and Outerwear Coats.
First use Nov. 18, 1965.

SN 240,311. Rhoda Lee, Inc., New York, N.Y. Filed Mar. 7, 1966.

RHODA-SMOOTH

For Men's and Ladies' Shirts, Blouses, Pants, Jackets, Slacks, and Shorts.
First use Dec. 16, 1965.

SN 240,609. The Hestia Company Limited, Burwood, New South Wales, Australia. Filed Mar. 10, 1966.

HESTIA

Owner of Australian Reg. No. 76,103, dated Feb. 22, 1940.
For Brassieres, Girdles, Panties, Corsets, Ladies' Underwear, Sleepwear, Hosiery, Swimsuits and Bikinis, Blouses, and Shorts.

SN 242,388. M. H. Pierce & Co., Port Chester, N.Y. Filed Mar. 30, 1966.

INSERT-A

For Collars and Inserts for Collars.
First use Mar. 14, 1966.

SN 243,125. Marie Ganee, Ltd., New York, N.Y. Filed Apr. 11, 1966.

Ganée

For Women's Clothing—Namely, Suits, Coats, and Dresses.
First use Sept. 30, 1965.

SN 244,899. Gant of New Haven, Inc., New Haven, Conn. Filed May 4, 1966.

GANT
SHIRTMAKERS

No claim is made to the word "Shirtmakers" apart from the mark as shown.
For Outer Dress and Sport Shirts for Men and Women.
First use April 1949.

SN 245,107. E. J. Korvette, Inc., New York, N.Y., assignee of Russ Togs, Inc., New York, N.Y. Filed May 6, 1966.

KOR-PRESS

For Children's, Girls', and Ladies' Skirts, Jackets, Dresses, Blouses, Slacks, Pants, and Sweaters.
First use Dec. 1, 1965.

SN 245,774. Triumph Hosiery Mills, Inc., New York, N.Y. Filed May 16, 1966.

KNACKY-NETS

For Stockings.
First use May 2, 1966.

SN 246,189. Melville Shoe Corporation, New York, N.Y. Filed May 20, 1966.

MONKEYS

Owner of Reg. No. 578,871.
For Men's, Women's, and Children's Shoes, Sneakers, Slippers, and Hosiery.
First use May 19, 1966.

SN 246,244. Aimcee Wholesale Corporation, New York, N.Y. Filed May 23, 1966.

AMCREST

Owner of Reg. Nos. 547,598, 572,385, and 810,192.
For Men's and Boys' Hosiery.
First use May 1961.

SN 247,789. The Enro Shirt Company, Inc., Louisville, Ky. Filed June 10, 1966.



Owner of Reg. No. 162,068.
For Pajamas.
First use Mar. 15, 1966.

SN 249,620. Barrow Manufacturing Company, Winder, Ga. Filed July 6, 1966.

LAMP-POST THREADS

For Women's and Men's Slacks.
First use June 28, 1966.

SN 249,871. Parkland of Dallas, Inc., Dallas, Tex. Filed July 8, 1966.

Jo Jr

Owner of Reg. No. 638,476.
For Women's and Misses' Garments—Namely, Dresses, Coats, Jackets, Vests, Shifts, Skirts, Shirts, Blouses, Pants, Slacks, Shorts, Pants Suits, Jump Suits, and Culottes.
First use Sept. 10, 1960.

SN 249,936. Avondale Mills, Sylacauga, Ala. Filed July 11, 1966.

PERMA-PREST

Owner of Reg. No. 565,339.
For Men's and Boys' Shirts and Slacks; Men's All-Weather Coats; Women's and Girls' Shirts, Blouses, Dresses, Skirts and Slacks; Women's Uniforms, Lingerie, Nightgowns, and Brassieres; Girls' Slips and Jumpers; Infants' Overalls and Coveralls; and Children's Jackets, Coats, Suits, Shirts, Jeans, Slacks, and Shorts.
First use Sept. 17, 1964, on boys' slacks.

SN 250,465. Ellen Lynn Rollins-Dudley, West Palm Beach, Fla. Filed July 18, 1966.

Sun Topper

For Head Scarf.
First use July 8, 1966.

SN 250,728. Arrowood Investors Corporation, New York, N.Y. Filed July 21, 1966.

PINK MINK

For Ladies' Hosiery.
First use Mar. 6, 1957.

SN 250,782. Tami Sportswear, San Francisco, Calif. Filed July 21, 1966.

Bernita

For Ladies' Slacks, Jackets, Jumpers, Suits, Blouses, Sweaters, Skirts, and Dresses.
First use May 1966.

SN 250,921. Barrow Manufacturing Company, Winder, Ga. Filed July 25, 1966.

LAMPOST

For Women's and Men's Slacks.
First use July 9, 1966.

SN 251,755. Superior Surgical Mfg. Co., Inc., Huntington, N.Y. Filed Aug. 4, 1966.

Fashion Seal Uniforms

Applicant disclaims the descriptive word "Uniforms" apart from the mark as shown.
For Industrial, Hotel, Restaurant, Medical, and Hospital Uniforms, Aprons, Blouses, Boots, Caps, Coats, Coveralls, Dresses, Gloves, Gowns, Jackets, Pinafores, Robes, Shirts, Skirts, Smocks, Suits, and Trousers.
First use July 1, 1940.

SN 251,912. Gimbel Brothers, Inc., New York, N.Y. Filed Aug. 8, 1966.

Lady Sherwood

"Lady Sherwood" is not the name of any particular individual. Owner of Reg. Nos. 594,554 and 762,043.
For Women's Hosiery, Slips, Half-Slips, Nightgowns, Pajamas, Panties, Robes, and Coffee-Coats.
First use June 20, 1966.

SN 252,249. H. Daroff & Sons, Inc., Philadelphia, Pa. Filed Aug. 12, 1966.

YOUNG BACHELOR

Owner of Reg. No. 821,664.
For Young Men's Suits, Topcoats, Sport Coats, and Slacks.
First use on or about Aug. 2, 1965.

SN 254,458. Merit Clothing Company, Inc., Mayfield, Ky. Filed Sept. 14, 1966.

WOOLASTIC

For Fabric Made Into Men's Suits.
First use September 1963.

SN 254,752. Arthur Winer, Incorporated, Gary, Ind. Filed Sept. 19, 1966.

CADBURY

For Men's Slacks.
First use on or about May 10, 1966.

SN 260,800. Maidenform, Inc., New York, N.Y. Filed Dec. 15, 1966.

TRUMPET SHELL

For Foundation Garments and Lingerie.
First use Nov. 23, 1966.

SN 262,837. Rudin & Roth, Inc., New York, N.Y. Filed Jan. 19, 1967.

FIRE HOSE

No claim is made to the word "Hose" apart from the mark as shown.
For Men's Socks.
First use Jan. 4, 1967.

SN 262,838. Stony Brook Casuals, Inc., New York, N.Y. Filed Jan. 19, 1967.

CELLINO BY STONY BROOK

Owner of Reg. Nos. 807,559 and 807,560.
For Ladies', Misses', and Juniors' Dresses, Coats, Suits, Blouses, and Skirts.
First use Jan. 5, 1967.

SN 264,782. Hart Schaffner & Marx, Chicago, Ill. Filed Feb. 16, 1967.

VIRALITE
HART SCHAFFNER & MARX

Owner of Reg. Nos. 108,999, 817,410, and others.
For Men's Suits, Sport Coats, and Pants.
First use Nov. 30, 1966; 1887 as to "Hart Schaffner & Marx"; at least as early as 1957 as to "Viralite."

SN 265,461. Hart Schaffner & Marx, Chicago, Ill. Filed Feb. 27, 1967.

WHIFFENPOOFS

For Men's Slacks and Shorts.
First use Feb. 1, 1967.

SN 265,952. U.S. Industries, Inc., New York, N.Y. Filed Mar. 6, 1967.

TALBOTT TRAVLER

Owner of Reg. Nos. 594,267, 607,773, and 715,806.
For Sweaters, Skirts, and Dresses for Women and Girls.
First use November 1966.

SN 266,390. Chadbourn Gotham, Inc., Charlotte, N.C. Filed Mar. 10, 1967.

TABLON

For Ladies' Hosiery.
First use Mar. 9, 1967.

Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

SN 238,985. Troy Textiles, Inc., New York, N.Y. Filed Feb. 16, 1966.

DONCINO

For Fabrics Used in Making Dresses and Sportswear.
First use Jan. 15, 1966.

SN 240,586. Dan River Mills, Incorporated, Danville, Va. Filed Mar. 10, 1966.

PRIDE OF AMERICA

Applicant disclaims the words "of America" except as a part of the mark as a whole. Owner of Reg. No. 366,852.
For Textile Fabrics in the Piece of Cotton or Synthetic Fibers or Any Combinations Thereof, and Including Zephyr Gingham, Sheeting, Sheets, Pillow Cases, and Cotton Shirtings.
First use June 3, 1914.

SN 241,316. Crown Tuft Carpet, Inc., Dalton, Ga. Filed Mar. 18, 1966.

CROWN TUFT

CARPET, INC.

Owner of Reg. No. 758,903.
For Carpeting.
First use Jan. 30, 1964.

SN 241,786. Lancer Fabrics, Inc., New York, N.Y. Filed Mar. 24, 1966.

LANCETTA

For Polyester Fabrics.
First use Feb. 23, 1966.

SN 242,115. Dan River Mills, Incorporated, Danville, Va. Filed Mar. 29, 1966.

JEFF-PRESS

For Textile Fabrics in the Piece of Cotton or Synthetic Fibers, or Any Combinations Thereof, Including Precured Permanent Press Fabrics.
First use Feb. 16, 1966.

SN 242,418. Alamo Manufacturing Co., Inc., New York, N.Y. Filed Apr. 1, 1966.

ALACRON

For Piece Goods for Making Dresses, Skirts, Blouses, and the Like.
First use Jan. 29, 1966.

SN 242,622. Florence May, Atlanta, Ga. Filed Apr. 4, 1966.

Florence

For Tablecloths, Place Mats, Napkins, and Table Runners.
First use Nov. 10, 1944.

SN 243,735. United Cotton Goods Company, Inc., Griffin, Ga. Filed Apr. 18, 1966.

Durasorb

Owner of Reg. No. 713,584.
For Towels.
First use in or about 1952.

SN 245,932. Lanificio F.lli Cerruti S.A.S., Milan, Italy. Filed May 18, 1966.

FRATELLI CERRUTI 1881

Owner of Italian Reg. No. 158,487, dated Dec. 28, 1961.
For Coverlets and Table-Covers, and Fabrics To Be Used in Making Dresses, Overcoats, Jackets, and Raincoats.

SN 245,933. Lanificio F.lli Cerruti S.A.S., Milan, Italy. Filed May 18, 1966.

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FRATELLI
CERRUTI
BIELLA

The word "Biella" is disclaimed. Owner of Italian Reg. No. 161,580, dated Feb. 15, 1963.
For Clothing Fabrics.

SN 246,074. Murray A. Goldenberg Textiles, Inc., Dallas, Tex. Filed May 19, 1966.



For Bolts of Textile Fabrics for Making Into Articles of Clothing, Draperies, Furniture Covers, and the Like.
First use June 1, 1964.

SN 248,505. Mission Valley Mills, Inc., New Braunfels, Tex. Filed June 20, 1966.

MISSION PRESS

Applicant disclaims exclusive rights in the word "Press" per se, apart from the mark as shown. Owner of Reg. No. 562,039.
For Textiles Made of Cotton and Synthetic Fabrics.
First use Oct. 7, 1965.

SN 249,889. S.A. Tejidos Industriales, Barcelona, Spain. Filed July 8, 1966.

SATIVEL

Owner of Spanish Reg. No. 365,178, dated Sept. 20, 1960.
For Woven Fabrics of Cotton, Linen, Wool, Silk, Synthetic Fibres, and Combinations Thereof.

SN 251,536, Glen Raven Knitting Mills, Inc., Glen Raven, N.C. Filed Aug. 2, 1966

GLENCOLURE

For Velour Fabrics.
First use Apr. 20, 1966.

SN 254,627. Quaker Fabric Corporation, New York, N.Y. Filed Sept. 16, 1966.

NOVACOAT

For Upholstery Fabrics Having a Waterproof and/or Stain-proof Coating.
First use Aug. 12, 1966.

SN 255,695. Crompton Company, New York, N.Y. Filed Oct. 4, 1966.

MALE WALE

The word "Wale" is disclaimed apart from the mark as shown.
For Textile Fabrics in the Piece Composed of Cotton, Synthetic Fibers, and Blends Thereof.
First use Sept. 9, 1966.

SN 260,134. Beaunit Corporation, New York, N.Y. Filed Dec. 6, 1966.

BEAUNAIRE

Owner of Reg. No. 706,378.
For Brushed Knit Nylon Fabric.
First use on or about May 6, 1966.

SN 262,091. Deering Milliken, Inc., New York, N.Y. Filed Jan. 9, 1967.

WEARON

Owner of Reg. No. 666,935.
For Textile Fabrics Made of Wool, Cotton, and Synthetic Fibers, and Combinations Thereof.
First use on or about Dec. 15, 1966.

SN 264,477. Deering Milliken, Inc., New York, N.Y. Filed Feb. 13, 1967.

SNOWCOT

Owner of Reg. No. 428,511.
For Textile Fabrics Made of Wool, Cotton, and Synthetic Fibers, and Combinations Thereof.
First use on or about Jan. 23, 1967.

Class 43—Thread and Yarn

SN 235,907. Filatures Prouvost & Cie La Lainiere de Roubaix, Roubaix, Nord, France. Filed Jan. 6, 1966.

ROMANCE

Owner of French Reg. No. 6,467, dated Jan. 26, 1951 (Roubaix); Natl. Inst. No. 488,355.
For Hand Kitting Yarns and Threads Made of Wool, Cotton, Linen, Silk, Rayon, Hemp, Flax, and Synthetic and Artificial Fibers.

SN 242,359. Robert Glew & Company Limited, Idle, Bradford, England. Filed Mar. 31, 1966.

ROBIN WONDERWOOL

Priority claimed under Sec. 44(d) on British Reg. No. 886,912, dated Nov. 15, 1965.
For Hand Knitted Yarns Made Wholly or Substantially Wholly of Wool.

Class 44—Dental, Medical, and Surgical Appliances

SN 247,490. Drägerwerk, Heinr. & Bernh. Drager, Lubeck, Germany. Filed June 7, 1966.

OXY-SELFRESCUER

Owner of German Reg. No. 786,190, dated July 11, 1960.
For Breathing Apparatus and Respiratory Apparatus.

SN 247,491. Drägerwerk, Heinr. & Bernh. Drager, Lubeck, Germany. Filed June 7, 1966.

OXY-SR

Owner of German Reg. No. 782,610, dated July 11, 1960.
For Protective Breathing Apparatus, Anesthesia and Analgesic Apparatus.

SN 247,493. Drägerwerk, Heinr. & Bernh. Drager, Lubeck, Germany. Filed June 7, 1966.

OXY-SELBSTRETTER

Owner of German Reg. No. 764,938, dated July 11, 1960.
For Breathing Apparatus and Respiratory Apparatus.

SN 249,421. J. C. Fennelly Company, San Francisco, Calif. Filed July 1, 1966.

PORTA-TRAC

For Traction Units for Cervical or Pelvis Traction.
First use June 20, 1966.

SN 251,828. Medical Instrument Research Associates, Inc., Boston, Mass. Filed Aug. 5, 1966.



For Ophthalmological Instruments, Electro-Optical Instruments, Surgical Implants and Small Surgical Instruments (Knives, Forceps, etc.), All of Which Are for Use on or in the Human Body.
First use May 5, 1966.

SN 252,165. Diamond Dust Company, Inc., Mineola, N.Y. Filed Aug. 11, 1966.

GEMERY

For Nail Files.
First use Aug. 9, 1966.

SN 266,619. Pic n' Save Drug Co., Inc., Jacksonville, Fla. Filed Mar. 14, 1967.

PIC N' SAVE

For Sanitary Napkins.
First use on or about Mar. 15, 1966.

SN 266,709. Propper Manufacturing Company, Inc., Long Island City, N.Y. Filed Mar. 15, 1967.

CAL-MARK

For Glass Capillary Tubes, the Inside Surface of Which Is Coated With Heparin, Used To Collect a Sample of Blood To Determine the Red Cells Content.
First use January 1967.

Class 46—Foods and Ingredients of Foods

SN 204,769. Dansk Biscuit Company A/S, Elsinore, Denmark. Filed Oct. 26, 1964.

Ophelia

Priority claimed under Sec. 44(d) on Danish application filed June 11, 1964; Reg. No. 3,382, dated Oct. 31, 1964.
For Danish Pastry and Biscuits.
First use on or about Sept. 22, 1964, on Danish pastry; in commerce on or about Sept. 22, 1964.

SN 208,509. Vansons, Inc., Redmond, Wash. Filed Dec. 18, 1964.

vanSons

For Cake, Sweet Pastry, and Yeast Raised Products—Namely, Bread and Rolls.
First use Nov. 6, 1964.

SN 210,521. Bauer & Loewy Trading Corp., d.b.a. B & L, New York, N.Y. Filed Jan. 25, 1965.

DE JONKER

The mark means "the young nobleman" in the Dutch language.
For Cocoa Powder.
First use June 27, 1963.

SN 214,046. J. C. Watson Company, Parma, Idaho. Filed Mar. 12, 1965.

TREASURE VALLEY

For Fresh Potatoes and Fresh Onions.
First use Sept. 2, 1958.

SN 220,047. Williams Food Products, Inc., Williamsville, N.Y. Filed May 28, 1965.



For Barbecued Beef and Sauce and Popped Popcorn.
First use on or about Mar. 1, 1960.

SN 232,097. Trebor Limited, Woodford Green, Essex, England. Filed Nov. 3, 1965.



Owner of British Reg. No. 846,664, dated Mar. 20, 1963.
For Candy.

SN 232,900. Cal Pops Corporation, d.b.a. Cal Pops, Brooklyn, N.Y. Filed Nov. 18, 1965.



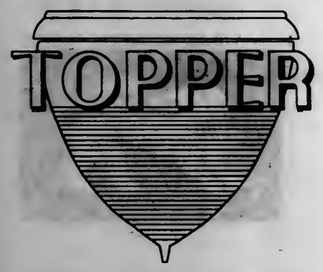
For Edible Confection Mounted on a Stick Sold in a Refrigerated State.
First use Aug. 1, 1965.

SN 234,262. H. F. Walker Company, Oakland, Calif. Filed Dec. 8, 1965.

Walker's

Owner of Reg. No. 761,427.
For Prepared and Processed Foods, Specifically, Mayonnaise, Salad Dressing, Sandwich Spreads, Pickles, Pickle Relishes, Prepared Mustard, Spices for Food Purposes, Food Flavoring Syrups, Food Flavoring Extracts; Sea Food Appetizers—Namely, Shellfish Cocktails; Sauces for Meats, Cooked and Prepared Vegetables, Cooked and Prepared Fruits, Dehydrated Vegetables, Dehydrated Fruits, Soups, Soup Mixes, Canned and Frozen Vegetable Juices, Canned and Frozen Fruit Juices; Jams, Jellies; Vegetable Oils and Vegetable Oil Products—Namely, Cooking Oils and Margarine.
First use Jan. 2, 1927.

SN 234,263. H. F. Walker Company, Oakland, Calif. Filed Dec. 8, 1965.



The drawing is lined for blue.
For Prepared and Processed Foods, Specifically, Mayonnaise, Salad Dressing, Sandwich Spreads, Pickles, Pickle Relishes, Prepared Mustard, Spices for Food Purposes, Food Flavoring Syrups, Food Flavoring Extracts; Sea Food Appetizers—Namely, Shellfish Cocktails; Meat Sauces, Soups, Soup Mixes, Jams, Jellies; Vegetable Oils and Vegetable Oil Products—Namely, Cooking Oils and Margarine.
First use Apr. 7, 1934.

SN 235,045. Ultra-Life Laboratories Inc., East St. Louis, Ill. Filed Dec. 16, 1965.

MARKITOP

For Feed for Livestock.
First use Jan. 19, 1942.

SN 236,813. General Mills, Inc., Minneapolis, Minn. Filed Jan. 19, 1966.

POTATO FLIPS

The word "Potato" is disclaimed apart from the mark as shown.
For Potato Products—Namely, Dehydrated Pan Fry Potatoes.
First use Jan. 4, 1966.

SN 236,896. The Kroger Co., d.b.a. Wesco Foods Co., Cincinnati, Ohio. Filed Jan. 20, 1966.

CLOVER VALLEY

Owner of Reg. Nos. 271,048, 797,552, and others.
For Nuts, Imitation Vanilla Flavoring for Food Purposes, Beans, Canned Jelly, Peanut Butter, Coffee, and Fresh Eggs.
First use at least as early as January 1954.

SN 236,972. Perry H. Chipurnoi, Inc., New York, N.Y. Filed Jan. 21, 1966.

LEOPARD SPOTS

For Candy.
First use Dec. 30, 1965.

SN 237,207. Daniel Echevarria, New York, N.Y. Filed Jan. 25, 1966.

GREEN SAUCE DANIEL

Applicant disclaims the words "Green Sauce" apart from the mark as shown.
For Meatless Liquid Sauce for Foods.
First use Oct. 11, 1965.

SN 242,141. James H. Methvin, Alamogordo, N. Mex. Filed Mar. 29, 1966.

GOLD TRAIL



For Pecans.
First use Feb. 2, 1966.

SN 242,358. Gerber Cheese Company, Inc., New York, N.Y. Filed Mar. 31, 1966.

BOUQUET DES ALPES

The English translation of the mark shown on the drawing is "bouquet of the Alps."
For Cheese.
First use Feb. 25, 1921.

SN 242,783. Atlantic Tuna Corporation (Proprietary) Limited, Foreshore, Capetown, Republic of South Africa. Filed Apr. 6, 1966.

MOUNT VEMA

For Frozen Rock Lobster Tails.
First use at least as early as Feb. 17, 1965; in commerce at least as early as Mar. 8, 1965.

SN 242,836. Muller-Grocers Baking Co., Grand Rapids, Mich. Filed Apr. 6, 1966.

TALL IN TASTE!

For Foods and Ingredients of Foods—Namely, Breads.
First use on or about Mar. 11, 1966.

SN 242,844. Ralston Purina Company, St. Louis, Mo. Filed Apr. 6, 1966.

MR. WAFFLES

For Breakfast Cereal Products.
First use Mar. 22, 1966.

SN 242,961. Edward J. Campbell, Larchmont, N.Y. Filed Apr. 8, 1966.

IKE

For Powdered Lemon Juice.
First use during the month of September 1965.

SN 243,128. G. P. Gundlach & Company, Cincinnati, Ohio. Filed Apr. 11, 1966.

JAVA JOY

For Combination of Fluid Milk and Cream.
First use Mar. 10, 1966.

SN 243,424. Dunkirk Ice Cream Co., Inc., Dunkirk, N.Y. Filed Apr. 14, 1966.



The drawing is lined for gold, purple, and blue, but no claim is made to the colors named.
For Artificially Sweetened Ice Cream.
First use on or about Jan. 1, 1962.

SN 243,510. Ceskoslovenske Cokoladovny Oborovy Podnik, Modrany, Czechoslovakia. Filed Mar. 17, 1966.

VELIM

The word "Velim" means "I command" or "I direct." Owner of Czechoslovakian Reg. No. 153,606, dated Feb. 13, 1958.
For Candy.

SN 244,164. Washington Fish & Oyster Co. of Calif., d.b.a. Washington Fish & Oyster Co. of California, San Francisco, Calif. Filed Apr. 22, 1966.



The Chinese characters mean "great or divine happiness."
For Canned Shellfish.
First use Apr. 4, 1966.

SN 244,463. Ceskoslovenske Cokoladovny, Oborovy Podnik, Modrany, Czechoslovakia. Filed Apr. 28, 1966.



Owner of Czechoslovakian Reg. No. 151,947, dated Oct. 22, 1954.
For Eating, Baking, and Cooking Chocolate; Chocolate Products—Namely, Chocolate Figurines, Chocolate Candies, Chocolate Pastry, Chocolate Cookies.

SN 244,510. Marion J. Morris, d.b.a. The Prairie Pioneer Company, Markham, Ontario, Canada. Filed Apr. 28, 1966.

THE MAPLE PORK BARREL

Priority claimed under Sec. 44(d) on Canadian application, filed Dec. 21, 1965; Reg. No. 146,391, dated July 29, 1966. Applicant disclaims the words "Maple" and "Pork" apart from the mark as shown.
For Pork Products Processed in Maple Syrup.

SN 244,723. National Dairy Products Corporation, Chicago, Ill. Filed May 2, 1966.

BLU-ZING

For Food Flavor of a Cheese Nature.
First use Mar. 30, 1966.

SN 245,092. Ocean Spray Cranberries, Inc., Hanson, Mass. Filed May 6, 1966.

CRANPRUNE

For Bottled Food Beverage Consisting of Prune Juice, Cranberry Juice and Lesser Ingredients.
First use Apr. 18, 1966.

SN 248,523. Piggy Wiggly Operators' Warehouse, Inc., Shreveport, La. Filed June 20, 1966.

Bonnie Baker

The name "Bonnie Baker" is not the name of any known living individual. Owner of Reg. Nos. 752,222, 789,433, and others.
For Corn Meal, Wheat Flour; Fresh Dough Biscuits; Vegetable Shortening; Fresh Eggs; Fresh Bread; Brown 'n' Serve Rolls; Canned Evaporated Milk; Instant Non-Fat Dry Milk; Oleomargarine; Salad and Cooking Oils; Salt; Cake Mix; Potato Chips; Mayonnaise; Salad Dressing, Sandwich Spread; and Peanut Butter.
First use Dec. 17, 1956, on wheat flour.

SN 259,993. Robert Sealey Associates, Inc., Gainesville, Ga. Filed Dec. 5, 1966.



Applicant disclaims any exclusive rights in the words "Fried Chicken" apart from the mark as used.
For Fried Chicken.
First use Oct. 18, 1965.

Class 47—Wines

SN 237,596. San Antonio Winery, Inc., d.b.a. San Antonio Vintage Co., Los Angeles, Calif. Filed Jan. 28, 1966.



Owner of Reg. No. 637,838.
For Wines.
First use August 1964.

SN 237,597. San Antonio Winery, Inc., d.b.a. San Antonio Winery, Los Angeles, Calif. Filed Jan. 28, 1966.



No claim is made to the word "De Luxe."
For Wine.
First use at least as early as September 1959; Feb. 14, 1959, as to "Marsalovo."

SN 239,368. H. Beaumont y Cia., S.R.C., Navarra, Spain. Filed Feb. 23, 1966.

SARRIA

For Wines.
First use April 1963; in commerce Apr. 12, 1965.

SN 251,300. Gustav Adolf Schmitt'sches Weingut, Nierstein (Rhine), Germany. Filed July 29, 1966.

VATER RHEIN

The geographically descriptive word "Rhein" is disclaimed apart from the mark as shown. The words "Vater Rhein" in English mean "father Rhine."
For Wine.
First use 1954; in commerce 1956.

SN 262,540. Dino Barengo, d.b.a. Acampo Winery and Distilleries, Acampo, Calif. Filed Jan. 16, 1967.

Cremocha

For Wines.
First use Jan. 3, 1967.

Class 51—Cosmetics and Toilet Preparations

SN 224,197. Hy-Grade Laboratories, Inc., Grand Junction, Colo. Filed July 26, 1965.



Applicant disclaims the words "Dry Climate" apart from the mark.
For Liquid Lotion for the Hands and Skin.
First use Aug. 24, 1964.

SN 231,731. Clairol Incorporated, New York, N.Y. Filed Oct. 28, 1965.

SHINING TOUCH

For Spray-On Hairdressing.
First use June 2, 1965.

SN 241,352. Luzier Incorporated, Kansas City, Mo. Filed Mar. 18, 1966.

Invitation
to a Lovelier You

For Kits Containing Cleansing Cream, Skin Freshener, Creme Beauty Mask, Eye Cream, Skin Lubricant, Massage Cream, Moisture Cream, Moisturising Skin Lotion, Facial Pack Cream and Powder and Skin Astringent.
First use Sept. 15, 1964.

SN 247,369. Laboratories Capilo, Societe a Responsabilite Limitee, Montreuil, Seine-Saint-Denis, France. Filed June 6, 1966.

CAPILLOGENE

Owner of French Reg. No. 489,918, dated Aug. 5, 1960 (Seine); Natl. Inst. No. 149,042.
For Perfumery Preparations, Rouge, Face Powders, Beauty Creams, Hair Preparations, Hair Dyes and Tints.

SN 248,959. Avon Products, Inc., New York, N.Y. Filed June 27, 1966.

WILD COUNTRY

For Men's Toiletries—Namely, Cologne, After Shave Lotion, After Shave Spray, Cream Hair Dress, Talc, and Aerosol Personal Deodorant.
First use June 7, 1966.

SN 249,775. Leon Products, Inc., Jacksonville, Fla. Filed July 7, 1966.

CERTAN-FOOT

For Foot Anti-Perspirant and Deodorant.
First use August 1954.

SN 264,372. Leon Products, Inc., Jacksonville, Fla. Filed Feb. 10, 1967.

CERTAN-SILK

Owner of Reg. No. 747,719.
For Bath Oil.
First use Nov. 21, 1966.

SN 264,712. American Home Products Corporation, New York, N.Y. Filed Feb. 15, 1967.

BARE BEAUTY

For Depilatory.
First use Feb. 2, 1967.

SN 264,713. American Home Products Corporation, New York, N.Y. Filed Feb. 15, 1967.

NAKED SATIN

For Depilatory.
First use Feb. 2, 1967.

Class 52—Detergents and Soaps

SN 247,899. Continental Oil Company, Ponca City, Okla. Filed June 13, 1966.

CONOCO

Owner of Reg. Nos. 646,209, 660,432, and others.
For Detergents and Cleaning Compositions, Specifically, Whitewall Tire Cleaners, Car Washing Compounds, and Concrete Cleaners.
First use 1952.

SN 248,173. Sterling Drug Inc., New York, N.Y. Filed June 15, 1966.

SEBBAFON

For Dermatologic Shampoo for Veterinary Use.
First use Apr. 29, 1966.

SN 250,586. Jarmco, Big Spring, Tex. Filed July 19, 1966.

PORB

For Powdered Oil Absorbent Material Used for Absorbing and Cleaning Oil From Floors, Driveways, and Other Surfaces.
First use July 13, 1966.

SERVICE MARKS

Class 100—Miscellaneous

SN 235,923. Allen Abrams & Morton A. Rosen (joint owners), Los Angeles, Calif., assignee of Multi Color Incorporated, d.b.a. Sneeky Pete's, Los Angeles, Calif. Filed Jan. 6, 1966.

SNEEKY PETE'S

For Restaurant Services.
First use Oct. 5, 1964.

SN 249,342. Malleable Research and Development Foundation, Dayton, Ohio. Filed June 30, 1966.



The drawing is lined for the color red, but color is not claimed as part of the mark.
For Research and Development Services in Uses of Malleable Iron and Disseminating Information Respecting It With a View To Improving the Methods of Processing and Quality of the Material.
First use Feb. 23, 1966.

Class 101—Advertising and Business

SN 207,182. Rexall Drug and Chemical Company, Los Angeles, Calif., assignee of Howard W. Wilson, d.b.a. Howard W. Wilson & Associates, Minneapolis, Minn. Filed Nov. 27, 1964.

BONUS GIFTS

For Promoting the Sale of Merchandise or Services Through the Use of Gift Certificates, Stamps, or Coupons Redeemable in Cash, Various Selected Items of Merchandise, or Certificates or Credits Therefor.
First use Jan. 21, 1964.

SN 231,517. Wolf & Dessauer Co., Fort Wayne, Ind. Filed S.R. Oct. 23, 1965; Am. P.R. Mar. 1, 1967.

Amy Lee

The name "Amy Lee" is fanciful. Owner of Reg. No. 418,319.
For Personalized Department Store Services for Shopping by Mail.
First use Mar. 1, 1944.

SN 236,552. Automation Sciences, Inc., New York, N.Y. Filed Jan. 17, 1966.



The mark consists of the letters "ASI."
For Computer Programming Services.
First use Sept. 15, 1964.

SN 246,820. Tempositions, Inc., New York, N.Y. Filed May 27, 1966.

TEMPositions

For Temporary Employment Service for Office Personnel.
First use Nov. 4, 1964.

Class 102 — Insurance and Financial

SN 232,448. Central Security Mutual Insurance Company, Chicago, Ill. Filed Nov. 10, 1965.

CENTRAL SECURITY

For Underwriting of Insurance.
First use on or about Mar. 15, 1954.

SN 248,877. The National Shawmut Bank of Boston, Boston, Mass. Filed June 24, 1966.

SUPERCHECK

For Services in Connection With Banking Accounts Which Provide Automatic Cash Reserves for Preventing the Overdrawals of Such Accounts and for Supporting the Making of Loans and the Establishing of Automatic Savings.
First use May 27, 1966.

Class 106 — Material Treatment

SN 229,387. Water Damage Protection Company, Detroit, Mich. Filed Oct. 5, 1965.



For Cleaning and Protecting Metal Surfaces and Electrical Equipment Against Rust and Corrosion.
First use on or about Jan. 7, 1964.

Class 107 — Education and Entertainment

SN 235,209. Teen America Associates, Inc., Dallas, Tex., assignee of Miss American Teen-Ager, Inc., Palisade, N.J. Filed Dec. 23, 1965.

MISS AMERICAN TEEN-AGER

Owner of Reg. No. 712,636.
For Entertainment Services in the Nature of a Pageant and for the Promotion of Personal Grooming, Personality Development, and Poise, Through the Granting of Awards, the Recipients Being Young Girls From Different Parts of the Country Selected Because of Such Factors as Beauty of Face and Figure, Charm, Poise, and Personality.
First use on or about July 29, 1960.

SN 238,130. United Business Schools Association, Washington, D.C. Filed Feb. 4, 1966.



For Furnishing Association Services—Namely, Promoting the Interests of Private Business Schools' Aims and Objectives Thereof.
First use June 1962.

SN 247,692. Gulf Coast Broadcasting Company, Corpus Christi, Tex. Filed June 9, 1966.

THE COLONEL CHRISTOPHER SHOW

For Television Entertainment Services in the Form of a Series of Programs Each of Which Includes Motion Pictures, Puppets, and Living Persons.
First use Mar. 28, 1966.

COLLECTIVE MEMBERSHIP MARKS

Class 200

SN 239,694. Amateur Softball Association of America, Oklahoma City, Okla. Filed Feb. 28, 1966.



For Indicating Membership in Applicant.
First use January 1934.

SN 251,441. Universal Temple of Divine Wisdom, San Marcos, Calif. Filed Aug. 1, 1966.



For Indicating Membership in Applicant.
First use June 4, 1965.

SN 261,436. American Chiropractic Society, Saugus, Calif. Filed Dec. 27, 1966.



For Indicating Membership in Applicant Association.
First use Feb. 26, 1964; at least as early as 1943 in a different form.

TRADEMARK REGISTRATIONS ISSUED

PRINCIPAL REGISTER

Class 1—Raw or Partly Prepared Materials

828,952. QUIK-LOCK. The B. F. Goodrich Company. MULTIPLE CLASS (Classes 1, 5, and 35). SN 230,533. Pub. 3–7–67. Filed 10–19–65.

828,953. 0217. Jacklin Seed Co., Inc. SN 255,169. Pub. 3–7–67. Filed 9–27–66.

828,954. SH STAUFFER HOECHST AND DESIGN. Stauffer Hoechst Polymer Corporation. SN 259,380. Pub. 3–7–67. Filed 11–25–66.

Class 2—Receptacles

828,955. PORT-A-KEG. Brewmaster California Corporation. SN 213,650. Pub. 3–7–67. Filed 3–9–65.

828,956. TUPAK AND DESIGN. James Gray, d.b.a. Tube Sales and Services. SN 226,530. Pub. 10–25–66. Filed 8–26–65.

828,957. TUPAK. James Gray, d.b.a. Tube Sales and Services. SN 226,532. Pub. 11–1–66. Filed 8–26–65.

828,958. DRI-ELECTRIC. Creative Packaging, Inc. SN 227,565. Pub. 3–7–67. Filed 9–10–65.

828,959. BASKET WORLD. R. Sanford Wilson, d.b.a. Basket World. MULTIPLE CLASS (Classes 2, 3, 32, and 50). SN 227,981. Pub. 3–7–67. Filed 9–16–65.

828,960. AMBASSADOR AND DESIGN. Hallmark Cards, Incorporated. MULTIPLE CLASS (Classes 2, 7, 37, and 38). SN 232,257. Pub. 3–7–67. Filed 11–8–65.

828,961. TULOMA. Tuloma Gas Products Company. MULTIPLE CLASS (Classes 2, 6, 10, 23). SN 232,804. Pub. 3–7–67. Filed 11–17–65.

828,962. QD AND DESIGN. International Paper Company. SN 235,673. Pub. 3–7–67. Filed 1–3–66.

828,963. ROYALE FLAIR. Gessner Products Company, Inc. SN 254,927. Pub. 3–7–67. Filed 9–22–66.

Class 3—Baggage, Animal Equipments, Portfolios, and Pocketbooks

828,959. (See Class 2 for this trademark.)

828,964. WP AND DESIGN. Warren Products, Ltd. SN 237,408. Pub. 3–7–67. Filed 1–26–66.

828,965. TCTE-SEW. Brother International Corporation. SN 243,834. Pub. 3–7–67. Filed 4–20–66.

Class 4—Abrasives and Polishing Materials

828,966. UNI AND DESIGN. Universal Grinding Wheel Co.; Limited. MULTIPLE CLASS (Classes 4 and 23). SN 229,613. Pub. 3–7–67. Filed 10–7–65.

828,967. FLOOR RICH. Huntington Laboratories, Inc. SN 259,694. Pub. 3–7–67. Filed 11–30–66.

Class 5—Adhesives

828,952. (See Class 1 for this trademark.)

Class 6—Chemicals and Chemical Compositions

828,961. (See Class 2 for this trademark.)

828,968. MONDUR MR. Mobay Chemical Company. SN 208,099. Pub. 1–3–67. Filed 12–14–64.

828,969. PRECO AND DESIGN. Preco Chemical Corporation. MULTIPLE CLASS (Classes 6, 12, and 16). SN 210,812. Pub. 3–7–67. Filed 1–27–65.

828,970. MOUSE-TOX. Geigy Chemical Corporation (New York corporation), assignee, by merger from Geigy Chemical Corporation (Delaware corporation). SN 227,413. Pub. 3–7–67. Filed 9–8–65.

828,971. DELVANOL. Dexter Chemical Corporation. SN 228,662. Pub. 12–27–66. Filed 9–27–65.

828,972. RELACO. Relaco Mfg. Co., Inc. MULTIPLE CLASS (Classes 6 and 16). SN 230,703. Pub. 3–7–67. Filed 10–20–65.

828,973. LESTAIN. Standard International Corporation. SN 244,764. Pub. 3–7–67. Filed 5–2–66.

828,974. OPCOLIG. The Ontario Paper Company Limited. SN 247,145. Pub. 3–7–67. Filed 6–2–66.

828,975. HYDROTINT. Frank D. Davis Company. SN 248,436. Pub. 3–7–67. Filed 6–20–66.

828,976. SUPRA INSTANT. Frank D. Davis Company. SN 248,438. Pub. 3–7–67. Filed 6–20–66.

828,977. ZAPONIN. Coulter Electronics, Inc. SN 249,506. Pub. 3–7–67. Filed 7–5–66.

828,978. DELTA AND DESIGN. Sternco Industries, Inc. SN 249,592. Pub. 3–7–67. Filed 7–5–66.

828,979. LINDE. Union Carbide Corporation. SN 250,869. Pub. 3–7–67. Filed 7–22–66.

828,980. NUCOTEST. The Denver Chemical Manufacturing Company, d.b.a. Wampole Laboratories. SN 251,124. Pub. 3–7–67. Filed 7–27–66.

828,981. GALECRON. Ciba Limited. SN 251,280. Pub. 3–7–67. Filed 7–29–66.

828,982. PHOBOTEX AND DESIGN. Ciba Limited. SN 251,282. Pub. 3–7–67. Filed 7–29–66.

828,983. CLOROX. The Clorox Company. SN 253,197. Pub. 3–7–67. Filed 8–26–66.

828,984. BUSY B AND DESIGN. Balboa Supply Co. MULTIPLE CLASS (Classes 6 and 52). SN 253,815. Pub. 3–7–67. Filed 9–6–66.

828,985. COMPASS. Huntington Laboratories, Inc. SN 254,574. Pub. 3–7–67. Filed 9–16–66.

Class 7—Cordage

828,960. (See Class 2 for this trademark.)

828,986. LUSTRE-PACK. Norcross, Inc. SN 244,016. Pub. 3–7–67. Filed 4–21–66.

Class 10—Fertilizers

828,961. (See Class 2 for this trademark.)

828,987. BIO. Finch & Knight Limited. SN 213,423. Pub. 12–13–66. Filed 3–5–65.

Class 11—Inks and Inking Materials

828,988. FELTMARK. Mason Marking Systems Corporation. SN 251,641. Pub. 3–7–67. Filed 8–3–66.

828,989. SOFTMARK. Mason Marking Systems Corporation. SN 253,152. Pub. 3–7–67. Filed 8–25–66.

Class 12—Construction Materials

828,969. (See Class 6 for this trademark.)

828,990. "CURE SEAL." Buckley Construction Industries. SN 235,621. Pub. 3–7–67. Filed 1–3–66.

828,991. GRANIZEAL. A. Ottavino Corp. SN 236,340. Pub. 3–7–67. Filed 1–13–66.

828,992. SUPER 7 AND DESIGN. Herman W. Patterson, d.b.a. Ti-Not Company. SN 238,778. Pub. 3–7–67. Filed 2–14–66.

828,993. PANELCRAFT. Panelcraft Corp. SN 243,473. Pub. 3–7–67. Filed 4–14–66.

828,994. SPECTRA-PANEL. The Burns & Russell Company of Baltimore City. SN 244,391. Pub. 3–7–67. Filed 4–27–66.

828,995. MOTO-FIBR AND DESIGN. Colonial Board Company. SN 244,570. Pub. 3–7–67. Filed 4–29–66.

828,996. U-NEEK-O. U-Neek Aluminum Products Co., d.b.a. U-Neek Products Company. SN 244,859. Pub. 3–7–67. Filed 5–3–66.

828,997. TRAVERCON. Otto Buehner and Company. SN 244,964. Pub. 3–7–67. Filed 5–5–66.

828,998. BRUNSPILE AND DESIGN. Brunspile Corporation. SN 247,322. Pub. 3–7–67. Filed 6–6–66.

828,999. UNICON. United States Concrete Pipe Company. SN 247,423. Pub. 3–7–67. Filed 6–6–66.

829,000. PLYTUBE. Plycraft, Inc. SN 247,720. Pub. 3–7–67. Filed 6–9–66.

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

829,001. COR-RESIST. Alvin Metals Co. MULTIPLE CLASS (Classes 13 and 14). SN 232,111. Pub. 3–7–67. Filed 11–4–65.

829,002. DOUBLE STAR (DESIGN). Borneo Sumatra Trading Company, Inc. MULTIPLE CLASS (Classes 13 and 23). SN 233,777. Pub. 10–25–66. Filed 12–2–65.

829,003. D+B. The Youngstown Sheet and Tube Company. MULTIPLE CLASS (Classes 13, 23, and 35). SN 236,433. Pub. 3–7–67. Filed 1–13–66.

Class 14—Metals and Metal Castings and Forgings

829,001. (See Class 13 for this trademark.)

829,004. NIVAROX. Nivarox SA. MULTIPLE CLASS (Classes 14, 26, and 27). SN 233,730. Pub. 3–7–67. Filed 12–1–65.

829,005. THREE POINTED STAR IN RING (DESIGN). Daimler-Benz Aktiengesellschaft. SN 234,805. Pub. 3–7–67. Filed 12–17–65.

Class 15—Oils and Greases

829,006. LAMPLIGHT. Lamplight Oil Products, Inc. SN 232,213. Pub. 3–7–67. Filed 11–5–65.

829,007. NFO AND DESIGN. Non-Fluid Oil Corporation. SN 245,091. Pub. 3–7–67. Filed 5–6–66.

829,008. HALLMARK AND DESIGN. Hallmark Cards, Incorporated. SN 245,445. Pub. 3–7–67. Filed 5–9–66.

829,009. COCHEM. The Clark Oil & Chemical Company. SN 256,269. Pub. 3–7–67. Filed 10–12–66.

Class 16—Protective and Decorative Coatings

828,969. (See Class 6 for this trademark.)

828,972. (See Class 6 for this trademark.)

829,010. CHIPKOTE. Macnaughton-Brooks, Limited. SN 235,315. Pub. 3–7–67. Filed 12–27–65.

829,011. LUNEX. Lunex Company. SN 236,497. Pub. 3–7–67. Filed 1–14–66.

829,012. 1000F AND DESIGN. Zynolyte Products Company. SN 236,693. Pub. 3–7–67. Filed 1–17–66.

Class 17—Tobacco Products

829,013. LAKE SHORE AND DESIGN. Anita Howard, d.b.a. Howard House Tobaccos. SN 237,560. Pub. 3–7–67. Filed 1–28–66.

829,014. VILLETTE. Villiger Sohne GmbH. SN 242,077. Pub. 3–7–67. Filed 3–28–66.

Class 18—Medicines and Pharmaceutical Preparations

829,015. DAIRY DEW. Big Bear, Inc. SN 233,673. Pub. 3–7–67. Filed 12–1–65.

829,016. VOLAR. The Upjohn Company. SN 237,055. Pub. 3–7–67. Filed 1–21–66.

829,017. CRUEX. Wallace & Tiernan Inc. SN 237,059. Pub. 3–7–67. Filed 1–21–66.

829,018. VOLARE. The Upjohn Company. SN 237,499. Pub. 3–7–67. Filed 1–27–66.

829,019. PASALATE. Mallinckrodt Chemical Works. SN 237,852. Pub. 3–7–67. Filed 2–2–66.

829,020. OSMORIN. Baxter Laboratories, Inc. SN 245,457. Pub. 3–7–67. Filed 5–12–66.

829,021. DELTA AND DESIGN. Sternco Industries, Inc. SN 249,593. Pub. 3–7–67. Filed 7–5–66.

829,022. RAPORE. Sandoz, Inc. SN 252,688. Pub. 3–7–67. Filed 8–18–66.

829,023. VASAL. S. J. Tutag & Company. SN 252,769. Pub. 1–17–67. Filed 8–19–66.

829,024. NEOREU. Tarmac Products, Inc. SN 253,059. Pub. 3–7–67. Filed 8–24–66.

829,025. ADELGADINA. Tarmac Products, Inc. SN 253,061. Pub. 3–7–67. Filed 8–24–66.

829,026. ULKAN. Tarmac Products, Inc. SN 253,062. Pub. 3–7–67. Filed 8–24–66.

829,027. KRONOX. Tarmac Products, Inc. SN 253,063. Pub. 3–7–67. Filed 8–24–66.

Class 19—Vehicles

829,028. IPU. Independent Parts Warehouse, Inc. MULTIPLE CLASS (Classes 19, 21, and 23). SN 220,506. Pub. 3–7–67. Filed 6–7–65.

829,029. HYDROCRAFT. The Hydrocraft Corporation. SN 233,352. Pub. 3–7–67. Filed 11–26–65.

829,030. MASCOT. General Motors Corporation. SN 237,691. Pub. 3-7-67. Filed 2-1-66.

829,031. GULL WING. Outboard Marine Corporation. SN 244,349. Pub. 3-7-67. Filed 4-26-66.

829,032. ARDMORE. Richardson Homes Corporation. SN 244,357. Pub. 3-7-67. Filed 4-26-66.

829,033. MARKETEER. Westinghouse Electric Corporation. SN 244,444. Pub. 3-7-67. Filed 4-27-66.

829,034. CAR-JOT. Cobar. SN 244,884. Pub. 3-7-67. Filed 5-4-66.

Class 20 — Linoleum and Oiled Cloth

829,035. FEMINIQUE. De Soto Chemical Coatings, Inc. SN 247,111. Pub. 3-7-67. Filed 6-2-66.

Class 21 — Electrical Apparatus, Machines, and Supplies

829,028. (See Class 19 for this trademark.)

829,036. SKIATRON. Skiatron Electronics & Television Corporation. SN 226,950. Pub. 3-7-67. Filed 9-1-65.

829,037. NARCO. National Aeronautical Corporation, MULTIPLE CLASS (Classes 21 and 26). SN 228,268. Pub. 3-7-67. Filed 9-21-65.

829,038. IVI-SPRAY. Minnesota Mining and Manufacturing Company. SN 234,289. Pub. 3-7-67. Filed 12-9-65.

829,039. 3M. Minnesota Mining and Manufacturing Company. SN 234,570. Pub. 3-7-67. Filed 12-14-65.

829,040. MATTES AND DESIGN. Mattes Electronics, Inc. SN 240,011. Pub. 3-7-67. Filed 3-2-66.

Class 22 — Games, Toys, and Sporting Goods

829,041. DRAG-STRIP. Patterson International, Inc. SN 218,310. Pub. 2-15-66. Filed 5-7-65.

829,042. PIFTY. Washington Technical Enterprises, Inc. SN 227,897. Pub. 3-7-67. Filed 9-15-65.

829,043. THE LEAN 2. Lee Roy Mudgett. SN 230,418. Pub. 3-7-67. Filed 10-18-65.

829,044. PLAS/STEEL. Plas-Steel Products, Inc. SN 232,591. Pub. 3-7-67. Filed 11-12-65.

829,045. GAPEN ORIGINAL. Gapen Manufacturing Company, Inc. SN 234,193. Pub. 3-7-67. Filed 12-8-65.

829,046. FAMOUS FISH. Old Pal, Inc. SN 235,579. Pub. 3-7-67. Filed 12-30-65.

829,047. JOTNIKS. James W. Watkins, d.b.a. Aero Products. SN 235,747. Pub. 3-7-67. Filed 1-3-66.

829,048. DENTENCO. The Denver Tent & Awning Company. SN 238,182. Pub. 3-7-67. Filed 2-7-66.

829,049. THUNDERBALL. Brunswick Corporation. SN 239,008. Pub. 3-7-67. Filed 2-17-66.

829,050. MISCELLANEOUS DESIGN. Jack Tetsuta Numata. SN 241,504. Pub. 3-7-67. Filed 3-21-66.

829,051. LITTLE FLAPPER. Standard Pyroxoloid Corporation. MULTIPLE CLASS (Classes 22 and 40). SN 243,374. Pub. 3-7-67. Filed 4-14-66.

829,052. DEVON. Milton Bradley Company. SN 243,538. Pub. 3-7-67. Filed 4-15-66.

829,053. DORSET. Milton Bradley Company. SN 243,539. Pub. 3-7-67. Filed 4-15-66.

829,054. PEDIGO'S. Pedigo Pork Rind Company, Inc. SN 246,354. Pub. 3-7-67. Filed 5-23-66.

Class 23 — Cutlery, Machinery, and Tools, and Parts Thereof

828,961. (See Class 2 for this trademark.)

828,966. (See Class 4 for this trademark.)

829,002. (See Class 13 for this trademark.)

829,003. (See Class 13 for this trademark.)

829,028. (See Class 19 for this trademark.)

829,055. FAN-JET. Plasa Industries, Inc. SN 217,207. Pub. 3-7-67. Filed 4-23-65.

829,056. ITC. Inter-Continental Trading Corporation. SN 226,535-A. Pub. 9-20-66. Filed 4-7-67.

829,057. PATWIN. The Patent Button Company. SN 226,569. Pub. 3-7-67. Filed 8-26-65.

829,058. CIRCULAR DESIGN. Federal-Mogul Corporation. MULTIPLE CLASS (Classes 23 and 35). SN 227,492. Pub. 3-7-67. Filed 9-9-65.

829,059. HYDRO-PAC. Scovill Manufacturing Company. SN 234,246. Pub. 12-27-66. Filed 12-8-65.

829,060. PILEDRIVER. McNeil Corporation. SN 242,035. Pub. 3-7-67. Filed 3-28-66.

829,061. RIVET-EZE. Reuter, Inc., assignee of Rivet-Eze, Inc. SN 242,497. Pub. 3-7-67. Filed 4-1-66.

829,062. LYNLEE. Herbert Milstein. SN 242,628. Pub. 3-7-67. Filed 4-4-66.

829,063. SUPER-SET. Super-Cut, Inc. SN 242,677. Pub. 3-7-67. Filed 4-4-66.

829,064. TENTHSET. Erickson Tool Company. SN 243,109. Pub. 3-7-67. Filed 4-11-66.

829,065. VULCAN. S & S Machinery Co. SN 244,622. Pub. 1-10-67. Filed 4-29-66.

829,066. WEATHERHEAD. The Weatherhead Company. SN 245,638. Pub. 3-7-67. Filed 5-13-66.

829,067. MIKINI. Stampak Corporation. SN 248,373. Pub. 3-7-67. Filed 6-17-66.

Class 26 — Measuring and Scientific Appliances

829,004. (See Class 14 for this trademark.)

829,037. (See Class 21 for this trademark.)

829,068. BREWER AND DESIGN. Brewer Pharmacal Engineering Corp. MULTIPLE CLASS (Classes 26, 31, and 44). SN 149,809. Pub. 9-28-65. Filed 7-26-62.

829,069. GYROFLEX. General Precision, Inc. SN 229,343. Pub. 3-7-67. Filed 10-5-65.

829,070. REOLITH. Henry A. Giesecke. SN 230,380. Pub. 3-7-67. Filed 10-18-65.

829,071. BIRD AND DESIGN. Bird Electronic Corporation. SN 237,294-A. Pub. 8-9-66. Filed 3-4-67.

829,072. UNI-SPACE. The Warner & Swasey Company. SN 237,768. Pub. 12-6-66. Filed 2-1-66.

829,073. TELTRON. Signaltron Corporation. SN 238,309. Pub. 3-7-67. Filed 2-7-66.

829,074. VA AND DESIGN. Varian Associates. SN 258,763. Pub. 3-7-67. Filed 11-16-66.

Class 27 — Horological Instruments

829,004. (See Class 14 for this trademark.)

829,075. CROSSED ARROWS (DESIGN). Gebruder Junghans, A.G. SN 186,007. Pub. 3-7-67. Filed 2-4-64.

829,076. ULYSSE NARDIN AND DESIGN. Ulysse Nardin, Societe Anonyme, Manufacture de Montres et de Chronometres. SN 237,180. Pub. 3-7-67. Filed 1-24-66.

Class 28 — Jewelry and Precious-Metal Ware

829,077. MIKIMOTO. K. Mikimoto & Co., Ltd. SN 234,288. Pub. 3-7-67. Filed 12-9-65.

829,078. HAIRRINGS. Fashion Tress, Inc. SN 255,308. Pub. 3-7-67. Filed 9-28-66.

829,079. VINCENZO. Uncas Manufacturing Company. SN 259,289. Pub. 3-7-67. Filed 11-23-66.

Class 29 — Brooms, Brushes, and Dusters

829,080. ZIP TIP. Gant Brushes, Inc. SN 240,090. Pub. 3-7-67. Filed 3-3-66.

829,081. MI. Montclair Imports Inc. MULTIPLE CLASS (Classes 29 and 40). SN 241,117. Pub. 3-7-67. Filed 3-16-66.

Class 30 — Crockery, Earthenware, and Porcelain

829,082. M AND DESIGN. Mayer China Company. SN 232,409. Pub. 3-7-67. Filed 11-9-65.

829,083. CHAMPAGNE. Syracuse China Corporation. SN 241,540. Pub. 3-7-67. Filed 3-21-66.

Class 31 — Filters and Refrigerators

829,068. (See Class 26 for this trademark.)

829,084. XILOSTEEL. Ignis U.S.A. Corp. SN 241,899. Pub. 3-7-67. Filed 3-25-66.

Class 32 — Furniture and Upholstery

828,959. (See Class 2 for this trademark.)

829,085. FLAIR II AND DESIGN. Formco, Inc. SN 231,097. Pub. 3-7-67. Filed 10-22-65.

829,086. MANAGEMENT. Alma Desk Company. SN 233,046. Pub. 3-7-67. Filed 11-22-65.

829,087. THE MANUSCRIPT. Canadian Hardwoods Ltd. SN 241,860. Pub. 3-7-67. Filed 3-25-66.

829,088. HEZZIE TOT MATRRESS. Hezzie Tot Mattress Co. SN 245,200. Pub. 3-7-67. Filed 5-9-66.

Class 34 — Heating, Lighting, and Ventilating Apparatus

829,089. PLATECOIL. Tranter Manufacturing, Inc. SN 238,464. Pub. 3-7-67. Filed 2-9-66.

Class 35 — Belting, Hose, Machinery Packing, and Nonmetallic Tires

828,952. (See Class 1 for this trademark.)

829,003. (See Class 13 for this trademark.)

829,058. (See Class 23 for this trademark.)

829,090. DYNA-STAT. Industrial Tectonics, Inc. SN 240,614. Pub. 3-7-67. Filed 3-10-66.

Class 36 — Musical Instruments and Supplies

829,091. OLD TIMER AND DESIGN. Old Timer Records. SN 222,956. Pub. 3-7-67. Filed 7-8-65.

829,092. JAM JAM AND DESIGN. John A. Masters, d.b.a. Masters for Music Recording Co. SN 227,164. Pub. 3-7-67. Filed 9-3-65.

829,093. TRANSCRIBER MAKES IT SOUND BETTER AND DESIGN. Transcriber Company, Inc. SN 231,509. Pub. 3-7-67. Filed 10-23-65.

829,094. ANA. Thomas W. Pedigo, d.b.a. Ana Records. SN 231,846. Pub. 3-7-67. Filed 10-29-65.

829,095. TIGER. Emenee Industries, Inc. SN 235,965. Pub. 3-7-67. Filed 1-7-66.

Class 37 — Paper and Stationery

828,960. (See Class 2 for this trademark.)

829,096. MANAGEMENT CONTROLS AND DESIGN. Data Management, Incorporated. SN 236,571. Pub. 3-7-67. Filed 1-17-66.

829,097. GOODLAM. Goodren Products Corp. SN 236,814. Pub. 3-7-67. Filed 1-19-66.

829,098. FERRO-PAK AND DESIGN. The Cromwell Paper Company. SN 248,898. Pub. 3-7-67. Filed 6-24-66.

829,099. E-Z SERVICE. Gulf States Paper Corporation. SN 249,529. Pub. 3-7-67. Filed 7-5-66.

829,100. ZENITH. Beckley-Cardy Company. SN 249,718. Pub. 3-7-67. Filed 7-7-66.

829,101. HEALTH CROSS. White Cross Stores, Inc. SN 250,886. Pub. 3-7-67. Filed 7-22-66.

829,102. UFORMA. Uforma, Inc. SN 253,577. Pub. 3-7-67. Filed 8-31-66.

829,103. 3M. Minnesota Mining and Manufacturing Company. SN 255,541. Pub. 3-7-67. Filed 9-30-66.

Class 38 — Prints and Publications

828,960. (See Class 2 for this trademark.)

829,104. U AND DESIGN. MCA Inc. SN 229,829. Pub. 3-7-67. Filed 10-11-65.

829,105. BALANCE. Hendrickson Manufacturing Company. SN 234,198. Pub. 3-7-67. Filed 12-8-65.

829,106. ITT. International Telephone and Telegraph Corporation. SN 237,707. Pub. 9-27-66. Filed 2-1-66.

829,107. DESERET NEWS. Deseret News Publishing Company. SN 242,438. Pub. 3-7-67. Filed 4-1-66.

829,108. LAMINOTES. Laminated Shim Company, Inc. SN 243,325. Pub. 3-7-67. Filed 4-13-66.

829,109. NEW YORK BUILDING SUPT. ASSN. INC. AND DESIGN. New York Building Superintendents' Association, Inc. SN 243,704. Pub. 3-7-67. Filed 4-18-66.

829,110. VENDING TIMES ETC. AND DESIGN. Vending Times, Inc. SN 243,930. Pub. 3-7-67. Filed 4-20-66.

829,111. THE PSYCHOANALYTIC FORUM. Psychiatric Research Foundation. SN 244,025. Pub. 3-7-67. Filed 4-21-66.

829,112. VE VENDING ENGINEER AND DESIGN. Michael & Ginsberg Publishing Company. SN 244,127. Pub. 3-7-67. Filed 4-22-66.

829,113. CONTIQUE. The Plastic Contact Lens Company. SN 244,245. Pub. 3-7-67. Filed 4-25-66.

829,114. DRAMATICS. The National Thespian Society for High Schools. SN 245,270. Pub. 3-7-67. Filed 5-6-66.

829,115. ASSIGNMENT AMERICA. The Hearst Corporation. SN 246,227. Pub. 3-7-67. Filed 5-23-66.

829,116. REVIEW AND HERALD. Review and Herald Publishing Association. SN 253,910. Pub. 3-7-67. Filed 9-6-66.

829,117. LABORATORY OF ADVERTISING PERFORMANCE. McGraw-Hill, Inc. SN 255,750. Pub. 3-7-67. Filed 10-5-66.

829,118. TEEN SCOOP. Maco Publishing Co. Inc. SN 256,293. Pub. 3-7-67. Filed 10-12-66.

829,119. LAMP (DESIGN). Spot-O-Gold Corporation. SN 256,504. Pub. 3-7-67. Filed 10-14-66.

829,120. EDU TEXT AND DESIGN. International Textbook Company. SN 258,196. Pub. 3-7-67. Filed 11-8-66.

Class 39—Clothing

829,121. JODI. The Thomas Holmes Corporation. SN 206,541. Pub. 3-7-67. Filed 11-19-64.

829,122. MENFIT. Muller-Renner AG. SN 215,473. Pub. 3-7-67. Filed 2-23-65.

829,123. RELDAN. Reldan Limited, by change of name from Michael Nadler Limited. SN 229,022. Pub. 3-7-67. Filed 9-30-65.

829,124. DOUGLAS FURS AND DESIGN. Douglas Furs. SN 229,507. Pub. 3-7-67. Filed 10-7-65.

829,125. DOUGLAS FURS. Douglas Furs. SN 229,508. Pub. 3-7-67. Filed 10-7-65.

829,126. TY TY. Florence Lustig. SN 230,405. Pub. 3-7-67. Filed 10-18-65.

829,127. SUE WELLS AND DESIGN. J. C. Penney Company. SN 231,483. Pub. 3-7-67. Filed 10-23-65.

829,128. STATUS SYMBOL. W. S. Peebles & Company, Incorporated. SN 232,025. Pub. 3-7-67. Filed 11-2-65.

829,129. MISS PERNILLA. Venice Knitting Mills, Inc. SN 232,251. Pub. 3-7-67. Filed 11-5-65.

829,130. GLOBE SUPERIOR. Globe Superior, Inc. SN 232,400. Pub. 3-7-67. Filed 11-9-65.

829,131. BREATH O'HEAVEN. Earl J. Maixner, d.b.a. The Chinchilla Guild of America. SN 236,110. Pub. 3-7-67. Filed 1-10-66.

829,132. HAPPY JEANS AND DESIGN. Stadium Manufacturing Co., Inc. SN 236,835. Pub. 3-7-67. Filed 12-2-65.

829,133. L.B.T.'s. Lane Bryant, Inc. SN 236,897. Pub. 3-7-67. Filed 1-20-66.

829,134. AVANT GARDE. S. Rudofker's Sons, Inc. SN 238,300. Pub. 3-7-67. Filed 2-7-66.

829,135. TOUCH ME AND I AM YOURS AND HEART DESIGN. Dolly Hosiery Mills, Inc. SN 238,504. Pub. 3-7-67. Filed 2-10-66.

829,136. DRU FASHIONS. Lily Lynn, Inc. SN 240,315. Pub. 3-7-67. Filed 3-7-66.

829,137. ESTELA ORIGINALS. P. K. Sorren Export Company, Inc. SN 240,352. Pub. 3-7-67. Filed 3-7-66.

829,138. UNDER-SHEATH. Maidenform, Inc. SN 240,757. Pub. 3-7-67. Filed 3-11-66.

829,139. DEBRA JOAN. Debra Joan, Inc. SN 240,918. Pub. 3-7-67. Filed 3-14-66.

829,140. STAGE THONG. Capezio Inc. SN 242,711. Pub. 3-7-67. Filed 4-5-66.

829,141. COSMETIC CIRCLE. Burlington Industries, Inc. SN 244,670. Pub. 3-7-67. Filed 5-2-66.

829,142. BRIGHT DAY. Burlington Industries, Inc. SN 244,672. Pub. 3-7-67. Filed 5-2-66.

829,143. HARROW COLLECTION AND DESIGN. Wembley, Inc. SN 244,782. Pub. 3-7-67. Filed 5-2-66.

829,144. CREW-CHIEF. Kayser-Roth Corporation. SN 244,830. Pub. 3-7-67. Filed 5-3-66.

829,145. GARDWELL. The Safety Clothing and Equipment Company. SN 244,925. Pub. 3-7-67. Filed 5-4-66.

829,146. LITTLE PLEASURES. Blair Fashions, Inc. SN 245,381. Pub. 3-7-67. Filed 5-11-66.

8299,147. AUDACIA. Bland Terry Shoe Corporation. SN 245,673. Pub. 3-7-67. Filed 5-16-66.

829,148. MR CHAVANOZ AND DESIGN. Moulinage et Retorderie de Chavanos. SN 245,842. Pub. 3-7-67. Filed 5-17-66.

829,149. COQUETTES AND DESIGN. A. S. Beck Shoe Corporation. SN 246,254. Pub. 3-7-67. Filed 5-23-66.

829,150. REDI-SNAP. France Neckwear Co., Inc. SN 246,671. Pub. 3-7-67. Filed 5-26-66.

829,151. SNOKI-CAP. Peck Manufacturing Company, Inc. SN 247,052. Pub. 3-7-67. Filed 6-1-66.

829,152. THERMOSTAT. H. Daroff & Sons, Inc. SN 247,388. Pub. 3-7-67. Filed 6-6-66.

829,153. SISMAN COOLS. Kinney Shoe Corporation. SN 248,918. Pub. 3-7-67. Filed 6-24-66.

829,154. GALLAVANTER. Frank Gallant, Inc. SN 249,155. Pub. 3-7-67. Filed 6-28-66.

829,155. 212. Nusbaum, Knitters, Inc. SN 249,438. Pub. 3-7-67. Filed 7-1-66.

829,156. PRESTEASE. Phil Rose of California, Inc. SN 249,670. Pub. 3-7-67. Filed 7-6-66.

829,157. TEMPTATION. Maro Industries, Inc. SN 250,007. Pub. 3-7-67. Filed 7-11-66.

829,158. FARA STRIPE. Farah Manufacturing Company, Inc. SN 258,990. Pub. 3-7-67. Filed 11-18-66.

Class 40—Fancy Goods, Furnishings, and Notions

829,051. (See Class 22 for this trademark.)

829,081. (See Class 29 for this trademark.)

829,159. HERO AND DESIGN. Hero Manufacturing Co., Inc. SN 234,901. Pub. 3-7-67. Filed 12-20-65.

829,160. GRIP-TITE. Solo Products Corporation. SN 239,331. Pub. 3-7-67. Filed 2-21-66.

829,161. EYE BRELLAS. Kleer-Vu Industries, Inc. SN 245,595. Pub. 3-7-67. Filed 5-13-66.

Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

829,162. REGAL. Regal Rugs, Inc. SN 217,138. Pub. 3-7-67. Filed 4-22-65.

829,163. CLINGSTERS. Deering Milliken, Inc. SN 239,977. Pub. 3-7-67. Filed 3-2-66.

829,164. TINGLE. Puritan Fashions Corporation. SN 240,198. Pub. 3-7-67. Filed 3-4-66.

829,165. MR CHAVANOZ AND DESIGN. Moulinage et Retorderie de Chavanoz. SN 245,841. Pub. 3-7-67. Filed 5-17-66.

829,166. ULTRILURE. Guilford Mills, Inc. SN 254,015. Pub. 3-7-67. Filed 9-8-66.

829,167. DOUBLOON. Hilton Clothes, Inc. SN 254,163. Pub. 3-7-67. Filed 9-9-66.

829,168. BROUGHAM. Hilton Clothes, Inc. SN 254,164. Pub. 3-7-67. Filed 9-9-66.

829,169. WHITE LABEL. Hilton Clothes, Inc. SN 254,165. Pub. 3-7-67. Filed 9-9-66.

Class 43—Thread and Yarn

829,170. LINETTE. Spinnerin Yarn Co., Inc. SN 245,521. Pub. 3-7-67. Filed 5-12-66.

829,171. MR CHAVANOZ AND DESIGN. Moulinage et Retorderie de Chavanos. SN 245,850. Pub. 3-7-67. Filed 5-17-66.

Class 44—Dental, Medical, and Surgical Appliances

829,068. (See Class 26 for this trademark.)

829,172. MEDI-GARD. Medical Plastics Corporation of America. SN 244,006. Pub. 3-7-67. Filed 4-21-66.

829,173. LOGOTRON. Fidelity Electronics, Ltd., Inc. SN 246,302. Pub. 3-7-67. Filed 5-23-66.

829,174. SUREL. Surel, Inc. (Delaware corporation), assignee of Surel, Inc. (California corporation). SN 246,498. Pub. 3-7-67. Filed 5-24-66.

829,175. TITAN. Roberts Dental Manufacturing Co., Inc. SN 246,950. Pub. 3-7-67. Filed 5-31-66.

829,176. RELAX-A-SAUNA ETC. AND DESIGN. Relax-A-Sauna, Inc. SN 257,309. Pub. 3-7-67. Filed 10-26-66.

Class 45—Soft Drinks and Carbonated Waters

829,177. SLURPEE. The Southland Corporation. SN 249,881. Pub. 3-7-67. Filed 7-8-66.

Class 46—Foods and Ingredients of Foods

829,178. PARROT (DESIGN). Edward Sharp & Sons Limited. SN 185,082. Pub. 5-10-66. Filed 1-21-64.

829,179. GOOD EARTH. Good Earth Natural Foods, Inc. SN 202,262. Pub. 12-20-66. Filed 9-21-64.

829,180. MUNDIAL ETC. AND DESIGN. Masso Hermanos, S.A. SN 209,868. Pub. 3-7-67. Filed 1-5-65.

829,181. PENNANT AND DESIGN. Union Starch & Refining Co., Inc. SN 214,041. Pub. 3-7-67. Filed 3-12-65.

829,182. GOLDEN GRITS. The Quaker Oats Company. SN 215,267. Pub. 3-7-67. Filed 3-29-65.

829,183. CORK 'N CLEAVER. Cork 'n Cleaver, Inc. SN 225,285. Pub. 3-7-67. Filed 8-9-65.

829,184. CORK 'N CLEAVER ETC. AND DESIGN. Cork 'n Cleaver, Inc. SN 225,287. Pub. 3-7-67. Filed 8-9-65.

829,185. SUGAR MAMA. National Biscuit Company. SN 229,270. Pub. 3-7-67. Filed 10-4-65.

829,186. MISCELLANEOUS DESIGN. Paw Paw Grape Juice Company. SN 230,071. Pub. 3-7-67. Filed 10-13-65.

829,187. HEALTHWISE. U.S. Health Club, Inc. SN 234,788. Pub. 3-7-67. Filed 12-16-65.

829,188. VITAWIL. Heino Wührmann, d.b.a. Vitakraft-Werk. SN 234,982. Pub. 3-7-67. Filed 12-20-65.

829,189. LAMB'S. Lamb-Weston, Inc. SN 236,099. Pub. 3-7-67. Filed 1-10-66.

829,190. BIRD (DESIGN). Agway, Inc. SN 237,283. Pub. 3-7-67. Filed 1-26-66.

829,191. STRIKE. Agway, Inc. SN 237,285. Pub. 3-7-67. Filed 1-26-66.

829,192. FIRST LADY. Agway, Inc. SN 237,286. Pub. 3-7-67. Filed 1-26-66.

829,193. CHIRP. Agway, Inc. SN 237,287. Pub. 3-7-67. Filed 1-26-66.

829,194. JUMBLE-ONI AND DESIGN. Maplecrest Sausage Co., Inc. SN 237,463. Pub. 3-7-67. Filed 1-27-66.

829,195. GMS-90. Breddo-Food Products Corporation, Inc. SN 238,396. Pub. 9-20-66. Filed 2-9-66.

829,196. NP AND GLOBE DESIGN. National Pectin Products Company. SN 239,649. Pub. 3-7-67. Filed 2-25-66.

829,197. REDDI-CURE. Chas. Pfizer & Co., Inc. SN 240,191. Pub. 3-7-67. Filed 3-4-66.

829,198. RAPIDO. Consolidated Foods Corporation, d.b.a. Joe Lowe Company. SN 240,708. Pub. 3-7-67. Filed 3-11-66.

829,199. DYNASTY AND DESIGN. Japan Food Corporation. SN 241,146. Pub. 3-7-67. Filed 3-16-66.

829,200. STARMAR. Armour and Company. SN 241,225. Pub. 3-7-67. Filed 3-17-66.

829,201. ARMAR. Armour and Company. SN 241,226. Pub. 3-7-67. Filed 3-17-66.

829,202. HY-STAR. Armour and Company. SN 241,227. Pub. 3-7-67. Filed 3-17-66.

829,203. TOPPS. Topps Chewing Gum, Incorporated. SN 241,286. Pub. 3-7-67. Filed 3-17-66.

829,204. BANAVAC. United Fruit Company. SN 241,291. Pub. 3-7-67. Filed 3-17-66.

829,205. COUNTRY STYLE AND DESIGN. Country Style Donuts. SN 241,643. Pub. 3-7-67. Filed 3-23-66.

829,206. DIXIE MAID. Modern Bakery, Inc. SN 242,413. Pub. 3-7-67. Filed 3-28-66.

829,207. CHUK-O-LUCK. Safeway Stores, Incorporated. SN 243,026. Pub. 3-7-67. Filed 4-8-66.

829,208. MARELA. Marela Limited. SN 245,410. Pub. 3-7-67. Filed 5-11-66.

829,209. CITRA PAK. The Citrapak Corporation. SN 246,159. Pub. 3-7-67. Filed 5-20-66.

829,210. KO-KEE-LA. Le-Branch Products Corp. SN 246,335. Pub. 3-7-67. Filed 5-23-66.

829,211. GAY. Fred Meyer, Inc., d.b.a. Eve's Kitchens. SN 246,339. Pub. 3-7-67. Filed 5-23-66.

829,212. CALORIE COUNT. Beatrice Foods Co. SN 246,438. Pub. 3-7-67. Filed 5-24-66.

829,213. MIL-KA-MAC. Milk Research, Inc. SN 252,790. Pub. 3-7-67. Filed 8-22-66.

829,214. LIPOLAC. Mead Johnson & Company. SN 257,231. Pub. 3-7-67. Filed 10-26-66.

829,215. CARRIER AND DESIGN. Admiral Packing Company. SN 259,986. Pub. 3-7-67. Filed 12-5-66.

829,216. JB AND DESIGN. J-B Distributing Co. SN 259,988. Pub. 3-7-67. Filed 12-5-66.

Class 47—Wines

829,217. VALPO. Societa per Azioni Fratelli Folonari. SN 230,444. Pub. 3-7-67. Filed 10-18-65.

829,218. BARDO. Societa per Azioni Fratelli Folonari. SN 230,445. Pub. 3-7-67. Filed 10-18-65.

829,219. YAGO. Bodegas Rioja Santiago, S.A., d.b.a. Rioja Santiago S.A. SN 238,393. Pub. 3-7-67. Filed 2-9-66.

829,220. EDEN. E. & J. Gallo Winery, d.b.a. The Vintners of Eden Roc. SN 257,140. Pub. 1-17-67. Filed 10-25-66.

829,221. RUBINET NOIR. E. & J. Gallo Winery. SN 257,560. Pub. 3-7-67. Filed 10-31-66.

Class 48—Malt Beverages and Liquors

829,222. ORANGE TREE WITH CROWN (DESIGN). Verenigde Nederlandse Brouwerijen d'Oranjeboom N.V., d.b.a. d'Oranjeboom Breweries. SN 234,261. Pub. 3-7-67. Filed 12-8-65.

829,223. TIVOLI DENVER BEER AND DESIGN. The Tivoli Brewing Company. SN 236,936. Pub. 3-7-67. Filed 1-20-66.

Class 49 — Distilled Alcoholic Liquors

829,224. CHERRY HEERING AND WHITE LABEL DESIGN. Peter Frederik Suhm Heering, d.b.a. Peter F. Heering. SN 209,346. Pub. 3–7–67. Filed 1–5–65.

829,225. OLD GEORGETOWN'S. Cooper Liquors, Inc., d.b.a. Wagner's Liquor Shop, and Wagner's. SN 227,650. Pub. 3–7–67. Filed 9–13–65.

829,226. POET'S DREAM. H. C. Macpherson, d.b.a. Macpherson & Company, and A. & B. Mackay, Ltd. SN 244,995. Pub. 3–7–67. Filed 5–5–66.

Class 50 — Merchandise Not Otherwise Classified

828,959. (See Class 2 for this trademark.)

829,227. GOLDINE. The Osborne Coinage Co. SN 237,585. Pub. 3–7–67. Filed 1–28–66.

829,228. AMCREST. Aimcee Wholesale Corporation. SN 246,429. Pub. 3–7–67. Filed 5–24–66.

829,229. VIC. L'Aluminium Francais (SA). SN 246,695. Pub. 3–7–67. Filed 5–26–66.

829,230. MINI-ZIBIT. John W. Haslett. SN 248,618. Pub. 3–7–67. Filed 6–21–66.

829,231. DEC-ETS. Poly-Dec Co., Inc. SN 249,067. Pub. 3–7–67. Filed 6–27–66.

829,232. SHILLCRAFT. A. & H. Shillman Co., Inc. SN 253,055. Pub. 3–7–67. Filed 8–24–66.

829,233. HALT. Hogart Manufacturing Company. SN 254,282. Pub. 3–7–67. Filed 9–12–66.

Class 51 — Cosmetics and Toilet Preparations

829,234. EVAN WILLIAMS. Evan Williams Beauty Aids Limited. MULTIPLE CLASS (Classes 51 and 52). SN 232,395. Pub. 3–7–67. Filed 11–9–65.

829,235. JEANNE GATINEAU. Institut Jeanne Gatineau S.A. SN 238,353. Pub. 3–7–67. Filed 2–8–66.

829,236. TREK. The Gillette Company. SN 238,424. Pub. 3–7–67. Filed 2–9–66.

829,237. SIGLO DE ORO. Abelardo Vera Martinez. MULTIPLE CLASS (Classes 51 and 52). SN 238,909. Pub. 3–7–67. Filed 2–16–66.

829,238. DEMI PERM. Samuel Bonat & Bro., Inc. SN 240,249. Pub. 10–25–66. Filed 3–7–66.

829,239. SETAGENE. Eugene-Gallia S.A. SN 242,444. Pub. 3–7–67. Filed 4–1–66.

829,240. REBELLION. The Stephan Co. SN 245,113. Pub. 3–7–67. Filed 5–6–66.

829,241. MANLY ART. Chas. Pfizer & Co., Inc. SN 249,791. Pub. 3–7–67. Filed 7–7–66.

829,242. NOXELL. The Noxzema Chemical Company. SN 250,394. Pub. 3–7–67. Filed 7–15–66.

829,243. AZURINE. Robert Miles Sherman, d.b.a. Madeleine de Martel Cosmetics. SN 252,523. Pub. 11–15–66. Filed 8–17–66.

829,244. C'EST WILD. Bobbie Brooks Incorporated. SN 254,492. Pub. 3–7–67. Filed 9–15–66.

829,245. RENNA OF NEW YORK AND DESIGN. George H. Campbell, d.b.a. Renna of New York. MULTIPLE CLASS (Classes 51 and 100). SN 255,564. Pub. 3–7–67. Filed 10–3–66.

829,246. SABRINA AND DESIGN. Taro-Vit Chemical Industries, Ltd. SN 257,443. Pub. 3–7–67. Filed 10–28–66.

829,247. ITS ALL A WOMAN NEEDS TO WEAR. Hermes. SN 257,862. Pub. 3–7–67. Filed 11–3–66.

829,248. DENAFAST. American Home Products Corporation. SN 259,880. Pub. 3–7–67. Filed 12–2–66.

Class 52 — Detergents and Soaps

828,984. (See Class 6 for this trademark.)

829,234. (See Class 51 for this trademark.)

829,237. (See Class 51 for this trademark.)

829,249. BITE. C-Z Chemical Co., Inc. SN 203,136. Pub. 3–7–67. Filed 10–2–64.

829,250. CLOROX AND DESIGN. The Clorox Company. SN 227,480. Pub. 3–7–67. Filed 9–9–65.

829,251. RUF-CUT. Philip Morris Incorporated. SN 227,768. Pub. 3–7–67. Filed 9–14–65.

829,252. BEN HUR. Colgate-Palmolive Company. SN 229,206. Pub. 3–7–67. Filed 10–4–65.

829,253. RENCOA. Rendering Corporation of America. SN 240,025. Pub. 3–7–67. Filed 3–2–66.

829,254. YOU DON'T HAVE TO SELL JANIE PEOPLE JUST BUY IT. Richard S. Cowen, d.b.a. R. S. Cowen Company. SN 245,294. Pub. 3–7–67. Filed 5–10–66.

829,255. MAJESTIC. Sampson Industrial Chemical Company. SN 257,987. Pub. 3–7–67. Filed 11–4–66.

829,256. LECTRA-MOTIVE. C. J. Webb, Inc., d.b.a. Corrosion Reaction Consultants, and Corrosion Reaction Consultants, Inc. SN 258,750. Pub. 3–7–67. Filed 11–16–66.

Service Marks

Class 100 — Miscellaneous

829,245. (See Class 51 for this trademark.)

829,257. CAMELOT INN. Ainslie Perrault. SN 204,731. Pub. 1–24–67. Filed 10–26–64.

829,258. CLIMAX AND DESIGN. Climax Dental Supply Company, Inc. SN 206,003. Pub. 3–7–67. Filed 11–12–64.

829,259. AMERICAN SAFE DRIVING INSTITUTE AND DESIGN. American Safe Driving Institute. SN 217,691. Pub. 3–7–67. Filed 4–30–65.

829,260. SKIATRON. Skiatron Electronics & Television Corporation. SN 226,951. Pub. 3–7–67. Filed 9–1–65.

829,261. HOT-LINE. Advanced Instruments, Inc. SN 226,970. Pub. 3–7–67. Filed 9–2–65.

829,262. FUNERAL SECURITY PLANS INC. ETC. AND DESIGN. Funeral Security Plans, Inc. SN 227,411. Pub. 3–7–67. Filed 9–8–65.

829,263. INTERNATIONAL MUNICIPAL PARKING CONGRESS AND DESIGN. International Municipal Parking Congress. SN 229,529. Pub. 3–7–67. Filed 10–7–65.

829,264. RED STEER. Four H Bros. Corp. SN 230,528. Pub. 3–7–67. Filed 10–19–65.

829,265. AAA. The American Automobile Association (Incorporated). MULTIPLE CLASS (Classes 100, 101, 102, 103, 105, and 107). SN 230,991. Pub. 3–7–67. Filed 10–22–65.

829,266. "SERVICE IS OUR MIDDLE NAME." Underwriters Service Agency, Inc., d.b.a. Underwriters Service Agency. MULTIPLE CLASS (Classes 100 and 102). SN 237,524. Pub. 3–7–67. Filed 1–28–66.

829,267. HICKORY COFFEE HOUSE ETC. AND DESIGN. Hickory House Motel Enterprises, Inc. SN 240,297. Pub. 3–7–67. Filed 3–7–66.

829,268. TEL-PLAN. Tel-Plan, Inc. SN 241,543. Pub. 3–7–67. Filed 3–21–66.

829,269. NEW HORIZONS FOR WOMEN. Pennsylvania Computer Systems Institute, Inc. SN 242,479. Pub. 3–7–67. Filed 4–1–66.

829,270. HARVEY GIRL. Fred Harvey. SN 258,645. Pub. 3–7–67. Filed 11–15–66.

Class 101 — Advertising and Business

829,265. (See Class 100 for this trademark.)

829,271. THE COACHMEN. The Coachmen, Inc. SN 216,269. Pub. 3–7–67. Filed 4–12–65.

829,272. GO GIT'ER AND DESIGN. Go Promotions, Inc. SN 226,840. Pub. 3–7–67. Filed 8–31–65.

829,273. THE SUN, INC. AND DESIGN. The Sun, Inc. SN 227,622. Pub. 3–7–67. Filed 9–10–65.

829,274. GIBSON AND DESIGN. H. R. Gibson, Sr., d.b.a. Gibson Products Co. SN 229,233. Pub. 3–7–67. Filed 10–4–65.

829,275. UNIVERSAL. Universal Publicisers, Inc. SN 230,589. Pub. 3–7–67. Filed 10–19–65.

829,276. BPC AND DESIGN. Business Personnel Consultants, Inc. SN 237,077. Pub. 3–7–67. Filed 1–24–66.

829,277. MAGIC POKER. Radcliffe Advertising, Inc. SN 238,890. Pub. 3–7–67. Filed 2–15–66.

829,278. COLORBOSS. Fleming-Potter Company, Inc. SN 239,249. Pub. 3–7–67. Filed 2–21–66.

829,279. RACE TO RICHES. Bradfute Corporation. SN 239,961. Pub. 3–7–67. Filed 3–2–66.

829,280. FOUR OF A KIND. Bradfute Corporation. SN 239,963. Pub. 3–7–67. Filed 3–2–66.

829,281. FOUR IN A ROW. Bradfute Corporation. SN 239,964. Pub. 3–7–67. Filed 3–2–66.

829,282. BEEFSTAKES AND DESIGN. Brian & Associates, Inc., assignee of L.B. Inc. SN 240,452. Pub. 3–7–67. Filed 3–8–66.

829,283. SEARCH, INC. AND DESIGN. Search, Inc. SN 241,187. Pub. 3–7–67. Filed 3–16–66.

829,284. TRANSIM. Comress, Inc. SN 249,304. Pub. 3–7–67. Filed 6–30–66.

Class 102 — Insurance and Financial

829,265. (See Class 100 for this trademark.)

829,266. (See Class 100 for this trademark.)

829,285. OLD REPUBLIC LIFE INSURANCE COMPANY OF NEW YORK. Old Republic Life Insurance Company, assignee of Old Republic Life Insurance Company of New York. SN 230,879. Pub. 3–7–67. Filed 10–21–65.

829,286. OLD REPUBLIC ASSURANCE COMPANY. Old Republic Life Insurance Company, assignee of Old Republic Assurance Company. SN 230,880. Pub. 3–7–67. Filed 10–21–65.

829,287. PERMAGROUP. Feldman Group Associates, Inc. SN 233,891. Pub. 3–7–67. Filed 12–3–65.

829,288. COMP 500 AND DESIGN. Industrial Indemnity Company. SN 234,752. Pub. 3–7–67. Filed 12–16–65.

829,289. 20TH CENTURY INVESTORS INC. AND DESIGN. 20th Century Investors, Inc. SN 241,389. Pub. 3–7–67. Filed 3–18–66.

829,290. ABC. Continental Casualty Company. SN 242,565. Pub. 3–7–67. Filed 4–4–66.

829,291. ML MONUMENTAL LIFE INSURANCE COMPANY. Monumental Life Insurance Company. SN 244,338. Pub. 3–7–67. Filed 4–26–66.

Class 103 — Construction and Repair

829,265. (See Class 100 for this trademark.)

829,292. JIFFY CLEANERS. Cleanex Machinery Corp. SN 222,472. Pub. 3–7–67. Filed 7–1–65.

829,293. PLANTKEEPERS. Plantkeepers, Inc. SN 242,483. Pub. 3–7–67. Filed 4–1–66.

829,294. FOX INTERNATIONAL AND DESIGN. Fox International Corp. SN 243,658. Pub. 3–7–67. Filed 4–18–66.

829,295. DEGREE AND DESIGN. Degree Corporation. SN 243,851. Pub. 3–7–67. Filed 4–20–66.

829,296. ROYAL SERVICES. Royal Services, Inc. SN 243,900. Pub. 3–7–67. Filed 4–20–66.

829,297. MEDI-CAR AND DESIGN. Method Master, Inc. SN 257,740. Pub. 3–7–67. Filed 11–2–66.

Class 105 — Transportation and Storage

829,265. (See Class 100 for this trademark.)

829,298. EUROTRIP. Camino Tours, Inc. SN 231,104. Pub. 3–7–67. Filed 10–22–65.

829,299. LYON LEASING SYSTEM AND DESIGN. Lyon Leasing System, Incorporated. SN 236,435. Pub. 3–7–67. Filed 1–4–66.

829,300. WINGSY WINGS & WHEELS AND DESIGN. Wings and Wheels Express, Inc. SN 239,095. Pub. 3–7–67. Filed 2–17–66.

829,301. SIGNATURE. Signature Transportation Inc. SN 240,797. Pub. 3–7–67. Filed 3–11–66.

829,302. ZIPPY. Zippy Car Rental, Inc. SN 243,371. Pub. 3–7–67. Filed 4–13–66.

829,303. ZIP AND DESIGN. Zippy Car Rental, Inc. SN 244,284. Pub. 3–7–67. Filed 4–25–66.

Class 107 — Education and Entertainment

829,265. (See Class 100 for this trademark.)

829,304. WESTPORT COUNTRY PLAYHOUSE. Westport Country Playhouse, Inc. SN 180,981. Pub. 3–7–67. Filed 11–12–63.

829,305. FUNTASTICS. Caterers of Cape Cod, Inc. SN 236,230. Pub. 3–7–67. Filed 1–12–66.

829,306. FAMOUS WRITERS COURSE. Famous Writers School, Inc. SN 236,361. Pub. 3–7–67. Filed 1–13–66.

829,307. GOLDEN GATE COLLEGE. Golden Gate College. SN 239,766. Pub. 3–7–67. Filed 2–28–66.

829,308. BRAVES. Atlanta Braves, Inc. SN 240,838. Pub. 3–7–67. Filed 3–14–66.

829,309. BRAVES AND DESIGN. Atlanta Braves, Inc. SN 240,839. Pub. 3–7–67. Filed 3–14–66.

829,310. LAUGHING INDIAN (DESIGN). Atlanta Braves, Inc. SN 240,840. Pub. 3–7–67. Filed 3–14–66.

829,311. PANDORAS. Scooby Productions, Inc. SN 246,104. Pub. 3–7–67. Filed 5–19–66.

Collective Membership Marks

Class 200

829,312. OPTIMIST OCTAGON CLUB. Optimist International. SN 235,699. Pub. 3–7–67. Filed 1–3–66.

SUPPLEMENTAL REGISTER

These registrations are not subject to opposition.

Class 2—Receptacles

829,313. Fusion Rubbermaid Corporation, Statesville, N.C. SN 207,484. Filed P.R. 12-4-64; Am. S.R. 3-29-67.

TRASH TOTER

For Refuse Containers—Namely, Trash Cans.
First use June 1, 1962.

Class 26—Measuring and Scientific Appliances

829,314. Ward's Natural Science Establishment, Inc., Rochester, N.Y. SN 232,747. Filed P.R. 11-15-65; Am. S.R. 3-16-67.

LessonPak

For Units of Teaching Aids for Science.
First use July 29, 1965.

Class 37—Paper and Stationery

829,315. Freund-Mayer & Co., Inc., New York, N.Y. SN 234,024. Filed P.R. 12-6-65; Am. S.R. 9-22-66.

DEVON LACE

For Paper Napkins.
First use July 1945.

Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

829,316. Charles Bloom, Inc., New York, N.Y. SN 239,002. Filed P.R. 2-17-66; Am. S.R. 3-14-67.

SATIN PREMIUM

For Drapery Material.
First use Dec. 6, 1965.

829,317. Silco Knitting Mills, Inc., Johnstown, N.Y. SN 239,810. Filed 2-28-66.

DOUBLE STRETCH

For Flat Knit Fabric Used for Making Gloves, Brassieres, Panty Girdles, Swimwear, Stretch Pants, Dresses, Suits, Sportswear and Upholstery.
First use June 10, 1964.

TRADEMARK REGISTRATIONS RENEWED

29,910. NO BRAC PAINT AND DESIGN. Cl. 16. 4-27-1897.
57,932. DIMITY. Cl. 37. 12-4-06.
59,178. AMOLIN. Cl. 18. 1-1-07.
61,120. VULCAN. Cl. 37. 3-5-07.
61,493. REDLEAF AND DESIGN. Cl. 42. 3-26-07.
61,564. DUPLEX. Cl. 37. 3-26-07.
61,585. UNIVERSAL. Cl. 37. 3-26-07.
61,924. LILLY. Cl. 18. 4-9-07.
61,982. BULLS EYE. Cl. 9. 4-16-07.
62,067. GEM. Cl. 44. 4-16-07.
62,136. MISCELLANEOUS DESIGN. Cl. 16. 4-23-07.
62,344. BLACK & WHITE. Cl. 37. 4-30-07.
62,385. DRAGON. Cl. 43. 5-7-07.
62,388. WILLIMANTIC. Cl. 43. 5-7-07.
62,523. MOSS ROSE AND DESIGN. Cl. 42. 5-14-07.
62,977. FLAKE. Cl. 1. 6-4-07.
63,528. AMERICAN GRAPHITE. Cl. 37. 6-25-07.
64,157. KALSO. Cl. 16. 7-23-07.
65,052. MUELLER. Cl. 13. 9-3-07.
219,805. HENRIETTA JUNIORS. Cl. 17. 10-26-26.
222,136. MISCELLANEOUS DESIGN. Cl. 52. 12-21-26.
222,138. RODA BJORN. Cl. 4. 12-21-26.
225,049. BANROC. Cl. 12. 3-8-27.
225,492. CARNATION AND DESIGN. Cl. 46. 3-22-27.
225,704. CRESCENT. Cl. 46. 3-22-27.
225,912. ORGIA. Cl. 51. 3-29-27.
225,914. FLOR DE BLASON. Cl. 51. 3-29-27.
225,930. KING C. GILLETTE AND DESIGN. Cl. 44. 3-29-27.
226,175. MAYES' AND DESIGN. Cl. 26. 4-5-27.
226,206. CALAVERAS CEMENT AND DESIGN. Cl. 12. 4-5-27.
226,276. HYDRALT. Cl. 12. 4-5-27.
226,285. LUCINE. Cl. 37. 4-5-27.
226,344. GILLETTE AND DESIGN. Cl. 44. 4-5-27.
226,367. TREE (DESIGN). Cl. 12. 4-5-27.
226,372. DELEGON. Cl. 18. 4-5-27.
226,374. CHATEAU. Cl. 46. 4-5-27.
226,862. TUTTLE'S SWISS CHEESE AND DESIGN. Cl. 46. 4-19-27.
227,019. LIFTRIGHT. Cl. 50. 4-26-27.
227,310. GIANT AND DESIGN. Cl. 6. 5-3-27.
227,519. HYDRON. Cl. 23. 5-10-27.
227,663. OLD PLANTATION. Cl. 46. 5-10-27.
227,808. CLARION. Cl. 36. 5-17-27.
228,103. MISCELLANEOUS DESIGN. Cl. 13. 5-24-27.
228,605. MILK BONE (DESIGN). Cl. 46. 6-7-27.
228,676. GOLDEN FEATHER. Cl. 46. 6-7-27.
228,746. HIGHLAND GROVE. Cl. 46. 6-7-27.
229,517. SANISORB. Cl. 44. 6-28-27.
229,629. CINCH-WELD. Cl. 23. 7-5-27.
230,226. GEORGIA ACE ETC. AND DESIGN. Cl. 10. 7-19-27.

230,602. CHARMED LAND. Cl. 46. 8-2-27.
230,757. JOHNSON'S. Cl. 16. 8-2-27.
230,938. POULTRY TRIBUNE. Cl. 38. 8-9-27.
230,952. THE WATERWAYS JOURNAL. Cl. 38. 8-9-27.
231,217. RADIO. Cl. 46. 8-16-27.
231,293. CELITE. Cl. 12. 8-16-27.
231,563. MAXIMUS. Cl. 27. 8-23-27.
231,635. JEWEL AND DESIGN. Cl. 46. 8-23-27.
231,710. LUBE-WELL. Cl. 15. 8-23-27.
231,753. AVALON. Cl. 27. 8-23-27.
232,297. NUVO. Cl. 52. 9-6-27.
232,405. SCHOOL CHEWS. Cl. 46. 9-6-27.
232,444. DOUBLE A. Cl. 46. 9-6-27.
233,009. "FASHION CRAFT" AND DESIGN. Cl. 39. 9-20-27.
425,010. CLOUD BUSTER. Cl. 22. 10-29-46.
425,569. BUTAPHYLLAMINE. Cl. 18. 11-26-46.
428,165. DBS AND DESIGN. Cl. 23. 3-11-47.
428,411. MISCELLANEOUS DESIGN. Cl. 26. 3-25-47.
428,497. BLUE STREAK BESSINOIL AND DESIGN. Cl. 15. 3-25-47.
428,500. A GATEWAY PRODUCT AND DESIGN. Cl. 42. 3-25-47.
428,561. UNI-BOND. Cl. 5. 3-25-47.
428,665. ODOWAY. Cl. 51. 4-1-47.
428,702. CELLOLYN. Cl. 1. 4-1-47.
428,766. LIQUIDERM. Cl. 18. 4-1-47.
428,768. CELLOTHYL. Cl. 18. 4-1-47.
428,776. GENICOP. Cl. 6. 4-1-47.
428,801. LULLABY. Cl. 43. 4-1-47.
428,861. INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS AND DESIGN. Cl. 38. 4-8-47.
428,902. MOSTLY MALARKY AND DESIGN. Cl. 38. 4-8-47.
428,972. LINO-PLASTIC. Cl. 16. 4-15-47.
429,163. DH AND DESIGN. Cl. 14. 4-22-47.
429,776. THERMATRON. Cl. 21. 5-20-47.
429,992. SLOANE MASTER. Cl. 32. 6-3-47.
430,128. INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS AND DESIGN. Cl. 37. 6-10-47.
430,272. AMBASSADOR. Cl. 21. 6-10-47.
431,576. INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS AND DESIGN. Cl. 21. 6-29-47.
431,731. TERRA-LITE. Cl. 10. 8-5-47.
431,944. MAGNIFIC. Cl. 28. 8-12-47.
432,633. CYLON. Cl. 52. 9-9-47.
432,684. JAY BIRD AND DESIGN. Cl. 29. 9-9-47.
432,692. METLON. Cl. 43. 9-9-47.

TRADEMARK REGISTRATIONS CANCELED

Section 8

141,080. RELIANCE. Cl. 43. 4-12-21.
141,220. PINE TREE AND DESIGN. Cl. 16. 4-12-21.
171,775. GOTHAM AND DESIGN. Cl. 39. 8-14-23.
324,687. SUPREZIST. Cl. 12. 5-28-35.
383,580. WHITE. Cl. 23. 12-17-40.
384,093. SPIRO SEAL. Cl. 35. 1-7-41.
386,850. SIMPLICATOR. Cl. 26. 4-22-41.
400,630. DESIGN OF A ROOSTER. Cl. 39. 3-23-43.
407,965. UMBRELLA AND DESIGN. Cl. 39. 7-11-44.
438,803. IN THE BAG. Cl. 39. 5-11-48.
443,226. NORTHERM. Cl. 39. 8-16-49.

The following registrations issued Apr. 4, 1961

713,312. BRI-LON. Cl. 1.
713,314. FOAMSPUN. Cl. 1.
713,319. GOBI. Cl. 1.
713,324. SOFTY. Cl. 2.
713,331. SHOE • SHEEN. Cl. 4.
713,332. PRESTONE AND DESIGN. Cl. 6.
713,337. DDI. Cl. 6.
713,338. CUVAN. Cl. 6.
713,341. ELUDE. Cl. 6.
713,342. P-1-X. Cl. 6.
713,349. COLGATE. Cl. 6.
713,352. FANCIFUL DESIGN. Cl. 12.
713,356. CONDO-WALL. Cl. 12.
713,357. PLASTICOMB. Cl. 12.
713,358. HOLT END TO END. Cl. 12.
713,359. GBC CO. AND DESIGN. Cl. 12.
713,362. REPRESENTATION OF A SILVER BAND ENCIRCLING TOP OF FENCE POST. Cl. 13.
713,363. COPES VULCAN. Cl. 13.
713,364. HI-TROL. Cl. 13.
713,369. EYEFRESHNER. Cl. 13.
713,377. UNIVERSAL. Cl. 14.
713,384. PLASMAKOTE. Cl. 16.
713,391. REPRESENTATION OF A TREE. Cl. 18.
713,400. CORTACAPS. Cl. 18.
713,410. RYTHMOL. Cl. 18.
713,417. MAVERICK AND DESIGN. Cl. 19.
713,421. SHIP SHAPE. Cl. 19.
713,422. S-WITCH-CART "600" AND DESIGN. Cl. 19.
713,430. AMP-FRA-LITE. Cl. 21.
713,431. AMLAB AND DESIGN. Cl. 21.
713,436. THE VEGA. Cl. 21.
713,437. FPL. Cl. 21.
713,440. NOMAD. Cl. 21.
713,441. PENN-SPECIAL. Cl. 21.
713,442. PENN-STANDARD. Cl. 21.
713,444. SILVER LINE AND DESIGN. Cl. 21.
713,445. ULTRA-FI. Cl. 21.
713,447. CME. Cl. 21.
713,450. TRAMBOUNCER. Cl. 22.
713,451. SONNY'S FAVORITE. Cl. 22.
713,453. ZINGO. Cl. 22.
713,466. MCKISSICK ETC. AND DESIGN. Cl. 23.
713,475. JACK MASTER. Cl. 23.
713,477. SHARK. Cl. 23.
713,485. VOCAMETER. Cl. 26.
713,486. DESIGN OF THREE ARROWHEAD-LIKE SYMBOLS. Cl. 26.
713,487. ZEFIR. Cl. 26.
713,488. WINTRONIX. Cl. 26.
713,489. HI-REX AND DESIGN. Cl. 26.
713,495. MARLEX. Cl. 27.
713,500. COLIBRI. Cl. 28.
713,501. LUCKY SPIKE. Cl. 28.
713,504. SHAMPOO QUEEN. Cl. 29.
713,505. SHAMPOO KING. Cl. 29.
713,506. WONDERWARE. Cl. 30.
713,511. IMSLIDE. Cl. 32.
713,515. PUMPLITE. Cl. 32.
713,516. FASHION FLAIR. Cl. 32.
713,517. DISPOSABOTTLE. Cl. 33.
713,518. FAIRWAY. Cl. 34.
713,521. COLEDGE. Cl. 35.
713,522. FIRESTONE INTERSTATE AND SHIELD DESIGN. Cl. 35.
713,529. TRIUMPH. Cl. 36.
713,531. STENO DISC AND DESIGN. Cl. 36.
713,532. TRAYCO. Cl. 37.
713,536. SPACEMAN. Cl. 38.
713,541. IVY CASUAL. Cl. 39.
713,545. ALERT. Cl. 39.
713,550. PAMELA FOSTER. Cl. 39.
713,552. WINNIE-THE-POOH CHRISTOPHER ROBIN. Cl. 39.
713,553. PANTALONE. Cl. 39.
713,557. TROUT MASTER. Cl. 39.
713,561. STANCE. Cl. 39.
713,563. MANSON. Cl. 39.
713,566. MICKEY LEE. Cl. 39.
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Errata

In the OFFICIAL GAZETTE of Mar. 28, 1967, at page TM 189, under Trademark Registrations Canceled, "710,808. AZUALAX. Cl. 18." should be deleted and *710,808. AQUALAX. Cl. 18.* should be inserted; and "710,834. HY-FIDELCO. Cl. 21." should be deleted and *710,843. HY-FIDELCO. Cl. 12.* should be inserted.

TRADEMARK REGISTRATIONS AMENDED, DISCLAIMED, CORRECTED, ETC.

58,579. PEERLESS AND DESIGN. Cl. 46. 12-18-06. Borden's Condensed Milk Company. The Borden Company, New York, N.Y. Amended to appear:

PEERLESS

222,990. GULF HIGH PRESSURE GREASE. Cl. 15. 1-11-27. Gulf Refining Company. Gulf Oil Corporation, Pittsburgh, Pa. Amended: In the statement, column 1, lines 11 through 13, "the shading shown in the drawing being used merely to indicate shadow and not color," is deleted and in column 1, line 24, "goods or to" is deleted, line 25 through column 2, line 4 is deleted and *containers of the product by stenciling or lithographic process.* is inserted, and the drawing is amended to appear:

GULF HIGH PRESSURE GREASE

249,358. PRATTLOW. Cl. 46. 11-13-28. Pratt-Low Preserving Company. Duffy-Mott Company, Inc., New York, N.Y. Amended to appear:

PRATT-LOW

249,359. PRATTLOW AND DESIGN. Cl. 46. 11-13-28. Pratt-Low Preserving Company. Duffy-Mott Company, Inc., New York, N.Y. Amended to appear:

PRATT-LOW

397,591. TRULY YOURS. Cl. 51. 9-8-42. Elizabeth Kent, Inc., New York, N.Y. Corrected: In the statement, column 1, line 1, after "Inc." *, now owned by Elisabeth Kent Cosmetics, Inc.* should be inserted.

606,109. GWG AND DESIGN. Cl. 39. 5-17-55. The Great Western Garment Co., Ltd. The Great Western Garment Company, Limited, Edmonton, Alberta, Canada. Amended to appear:

GWG

633,841. DAMASCUS. Cl. 12. 9-4-56. Sivad Ceramic Corporation, Oak Hill, Ohio. Corrected: In the statement, column 1, line 1, before "Sivad" *The* should be inserted.

634,287. D AND DESIGN. Cl. 12. 9-11-56. Sivad Ceramic Corporation. The Sivad Ceramic Corporation, Oak Hill, Ohio. Corrected: In the statement, column 1, line 1, before "Sivad" *The* should be inserted.

634,288. DRAGOON. Cl. 12. 9-11-56. Sivad Ceramic Corporation. The Sivad Ceramic Corporation, Oak Hill, Ohio. Corrected: In the statement, column 1, line 1, before "Sivad" *The* should be inserted.

706,509. PERMA-SET. Cl. 12. 11-1-60. Sivad Ceramic Corporation. The Sivad Ceramic Corporation, Oak Hill, Ohio. Corrected: In the statement, column 1, line 1, before "Sivad" *The* should be inserted.

791,297. DRI-FAB. Cl. 16. 6-22-65. Amway Corporation, Ada, Mich. Amended to appear:

DRIFAB

816,679. DECORATOR INDUSTRIES. Cl. 42. 10-11-66. Decorator Industries, Inc., Pittsburgh, Pa. Corrected: In the statement, column 2, line 2, "Aug. 26, 1960" both occurrences should be deleted and *as early as June 1958* should be inserted.

821,844. TYSTAR. Cl. 6. 1-10-67. Morningstar-Paisley, Inc., New York, N.Y. Corrected: In the statement, column 1, line 1, "New York" should be deleted and *Delaware* should be inserted.

821,898. FERRO-TREET. Cl. 18. 1-10-67. Philips Roxane, Inc., New York, N.Y. Corrected: In the statement, column 1, line 1, "Rozane" should be deleted and *Roxane* should be inserted.

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Agway, Inc., Syracuse, N.Y. 829,190-3, pub. 3-7-67. Cl. 46.
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American Home Products Corp., New York, N.Y. 829,248, pub. 3-7-67. Cl. 51.
American Safe Driving Institute, Dayton, Ohio. 829,259, pub. 3-7-67. Cl. 100.
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France Neckwear Co., Inc., New York, N.Y. 829,150, pub. 3–7–67. Cl. 39.
Freund-Mayer & Co., Inc., New York, N.Y. 829,315. Cl. 37.
Fuld Brothers, Inc., d.b.a. Just Distributors, Inc., Baltimore, Md. 713,337, canc. Cl. 6.
Funeral Security Plans, Inc., Kansas City, Mo. 829,262, pub. 3–7–67. Cl. 100.
Fusion Rubbermaid Corp., Statesville, N.C. 829,313. Cl. 2.
Gallant, Frank, Inc., New York, N.Y. 829,154, pub. 3–7–67. Cl. 39.
Gallo, E. & J., Winery, Modesto, Calif. 829,221, pub. 3–7–67. Cl. 47.
Gallo, E. & J., Winery, d.b.a. The Vintners of Eden, Roc, Modesto, Calif. 829,220, pub. 1–17–67. Cl. 47.
Gant Brushes, Inc., Port Chester, N.Y. 829,080, pub. 3–7–67. Cl. 29.
Gapen Mfg. Co., Inc., Coon Rapids, Minn. 829,045, pub. 3–7–67. Cl. 22.
Gardiner, J. B. W., Inc., to The Flintkote Co., New York, N.Y. 226,276, ren. 5–23–67. Cl. 12.
Gebruder Junghans, A.G., Schramberg, Wurttemberg, Germany. 829,075, pub. 3–7–67. Cl. 27.
Geigy Chemical Corp., from Geigy Chemical Corp., Ardsley, N.Y. 828,970, pub. 3–7–67. Cl. 6.
General Chemical Co., to Allied Chemical Corp., New York, N.Y. 428,776, ren. 5–23–67. Cl. 6.
General Foods Corp.: *See*—
Baker, Franklin, Co.
General Motors Corp., Detroit, Mich. 829,030, pub. 3–7–67. Cl. 19.
General Precision, Inc., Pleasantville, N.Y. 713,489, canc. Cl. 26.
General Precision, Inc., Little Falls, N.J. 829,069, pub. 3–7–67. Cl. 26.
Georgia Fertilizer Co., Valdosta, Ga. 230,226, ren. 5–23–67. Cl. 10.
Geriatric Foods, Ltd., Lakeland, Fla. 713,608, canc. Cl. 46.
Gessner Products Co., Inc., Ambler, Pa. 828,963, pub. 3–7–67. Cl. 2.
Gibson, H. R., Sr., d.b.a. Gibson Products Co., Seagoville, Tex. 829,274, pub. 3–7–67. Cl. 101.
Gibson Products Co.: *See*—
Gibson, H. R., Sr.

Giesecke, Henry A., Dayton, Ohio. 829,070, pub. 3–7–67. Cl. 26.
Gillette Co., The, Boston, Mass. 829,236, pub. 3–7–67. Cl. 51.
Gillette Co., The: *See*—
Gillette Safety Razor Co.
Gillette Safety Razor Co., to The Gillette Co., Boston, Mass. 226,344, ren. 5–23–67. Cl. 44.
Gillette Safety Razor Co., to The Gillette Co., Boston, Mass. 225,930, ren. 5–23–67. Cl. 44.
Globe Superior, Inc., Greensboro, N.C. 829,130, pub. 3–7–67. Cl. 39.
Go Promotions, Inc., Wayne, Mich. 829,272, pub. 3–7–67. Cl. 101.
Goldberg, I., Marine World, Inc., Philadelphia, Pa. 713,421, canc. Cl. 19.
Golden Gate College, San Francisco, Calif. 829,307, pub. 3–7–67. Cl. 107.
Good Earth Natural Foods, Inc., New York, N.Y. 829,179, pub. 5–10–67. Cl. 46.
Goodren Products Corp., Englewood, N.J. 829,097, pub. 3–7–67. Cl. 37.
Goodrich, B. F., Co., The, Akron, Ohio. 828,952, pub. 3–7–67. Multiple Class (Classes 1, 5, and 35).
Goodyear Tire & Rubber Co., The, Akron, Ohio. 428,561, ren. 5–23–67. Cl. 5.
Gossard, H. W., Co., The, Chicago, Ill. 713,573, canc. Cl. 39.
Gotham Knitting Mills, to Gotham Knitting Mills, Inc., New York, N.Y. 171,775, canc. Cl. 39.
Gotham Knitting Mills, Inc.: *See*—
Gotham Knitting Mills.
Grace, W. R., & Co.: *See*—
Universal Zonolite Insulation Co.
Gray, James, d.b.a. Tube Sales and Services, Toronto, Ontario, Canada. 828,956–7, pub. 10–25–66. Cl. 2.
Grayson-List & Co., Secaucus, N.J. 713,364, canc. Cl. 13.
Green Bag Cement Co., Pittsburgh, Pa. 713,359, canc. Cl. 12.
Greiner, William, Co., Chicago, Ill. 713,319, canc. Cl. 1.
Greylock Electronics Supply Co., Inc., New York, N.Y. 713,444, canc. Cl. 21.
Guilford Mills, Inc., Greensboro, N.C. 829,166, pub. 3–7–67. Cl. 42.
Gulf States Paper Corp., Tuscaloosa, Ala. 829,099, pub. 3–7–67. Cl. 37.
Hallmark Cards, Inc., Kansas City, Mo. 828,960, pub. 3–7–67. Multiple Class (Classes 2, 7, 37, and 38).
Hallmark Cards, Inc., Kansas City, Mo. 829,008, pub. 3–7–67. Cl. 16.
Hanson, R. A., Co., Inc., Palouse, Wash. 713,669, canc. Cl. 103.
Harris, B. W., Mfg. Co., St. Paul, Minn. 713,691, canc. Cl. 39.
Harvey, Fred, Chicago, Ill. 829,270, pub. 3–7–67. Cl. 100.
Haslett, John W., Darien, Conn. 829,230, pub. 3–7–67. Cl. 50.
Hearst Corp., The, New York, N.Y. 829,115, pub. 3–7–67. Cl. 38.
Heering, Peter F.: *See*—
Heering, Peter F. S.
Heering, Peter F. S., d.b.a. Peter F. Heering, Copenhagen, Denmark. 829,224, pub. 3–7–67. Cl. 49.
Helios Kemisk Tekniska Fabriker, Aktiebolag: *See*—
Lindahl, Anders.
Hendrickson Mfg. Co., Lyons, Ill. 829,105, pub. 3–7–67. Cl. 38.
Henthorn Advertising: *See*—
Henthorn, Emerson.
Henthorn, Emerson, d.b.a. Henthorn Advertising, Cincinnati, Ohio. 713,636, canc. Cl. 50.
Hercules Inc.: *See*—
Laflin & Rand Powder Co.
Hercules Powder Co.
Hercules Powder Co., to Hercules, Inc., Wilmington, Del. 428,702, ren. 5–23–67. Cl. 1.
Hermanos, Masso, S.A., Vigo, Pontevedra, Spain. 829,180, pub. 3–7–67. Cl. 46.
Hermes, Paris, France. 829,247, pub. 3–7–67. Cl. 51.
Hero Mfg. Co., Inc., Middleboro, Mass. 829,159, pub. 3–7–67. Cl. 40.
Heyden Newport Chemical Corp.: *See*—
Nuodex Products Co., Inc.
Hezzie Tot Mattress Co., Alexandria, Va. 829,088, pub. 3–7–67. Cl. 32.
Hickory House Motel Enterprises, Inc., Poplar Bluff, Mo. 829,267, pub. 3–7–67. Cl. 100.
Highland Fruit Growers Association, Highland, to East Highlands Citrus Association, East Highlands, Calif. 228,746, ren. 5–23–67. Cl. 46.
Hilton Clothes, Inc., New York, N.Y. 829,167–9, pub. 3–7–67. Cl. 42.
Hilvert, Fred G., Co., Inc., Distributors, Glendale, Ariz. 713,622, canc. Cl. 46.
Hoberg Paper & Fibre Co., Green Bay, Wis., to The Procter & Gamble Co., Cincinnati, Ohio. 229,517, ren. 5–23–67. Cl. 44.
Hodgman Rubber Co., Framingham, Mass. 713,515, canc. Cl. 32.
Hoffmann-La Roche, Inc., Nutley, N.J. 713,410, canc. Cl. 18.
Hogart Mfg. Co., Wyandotte, Mich. 829,233, pub. 3–7–67. Cl. 50.
Holman, Luella M., d.b.a. Blue Streak Co., to W. L. Stevenson, Hiawatha, Kans. 428,497, ren. 5–23–67. Cl. 15.
Holmes, Thomas, Corp., The, New York, N.Y. 829,121, pub. 3–7–67. Cl. 39.
Holt Hardwood Co., Oconto, Wis. 713,358, canc. Cl. 12.
Howard, Anita, d.b.a. Howard House Tobaccos, Chicago, Ill. 829,013, pub. 3–7–67. Cl. 17.
Howard House Tobaccos: *See*—
Howard, Anita.
Hudnut, Richard, Morris Plains, N.J. 713,647, canc. Cl. 51.
Huntington Laboratories, Inc., Huntington, Ind. 828,967, pub. 3–7–67. Cl. 4.
Huntington Laboratories, Inc., Huntington, Ind. 828,985, pub. 3–7–67. Cl. 6.
Hydraulic Jack Packing & Tool Co.: *See*—
Kron, Saul.
Hydrocraft Corp., The, Rumson, N.J. 829,029, pub. 3–7–67. Cl. 19.
Ignis, New York, N.Y. 829,084, pub. 3–7–67. Cl. 31.
Imhof, Alfred, Ltd., London, England. 713,511, canc. Cl. 32.
Independent Parts Warehouse, Inc., Jacksonville, Fla. 829,028, pub. 3–7–67. Multiple Class (Classes 19, 21, and 23).
Indian Head, Inc.: *See*—
Ulmann, Bernhard, Co., Inc.
Industrial Indemnity Co., San Francisco, Calif. 829,288, pub. 3–7–67. Cl. 102.
Industrial Tectonics, Inc., Ann Arbor, Mich. 829,090, pub. 3–7–67. Cl. 35.
Institut Jeanne Gatineau S.A., Paris, France. 829,235, pub. 3–7–67. Cl. 51.
Inter-Continental Trading Corp., New York, N.Y. 829,056, pub. 9–20–66. Cl. 23.
International Brotherhood of Electrical Workers, Washington, D.C. 431,576, ren. 5–23–67. Cl. 21.
International Brotherhood of Electrical Workers, Washington, D.C. 430,128, ren. 5–23–67. Cl. 37.
International Brotherhood of Electrical Workers, Washington, D.C. 426,861, ren. 5–23–67. Cl. 38.
International Municipal Parking Congress, Tampa, Fla. 829,283, pub. 3–7–67. Cl. 100.
International Paper Co., New York, N.Y. 828,962, pub. 3–7–67. Cl. 2.
International Telephone and Telegraph Corp., New York, N.Y. 829,106, pub. 9–27–66. Cl. 38.
International Textbook Co., Scranton, Pa. 829,120, pub. 3–7–67. Cl. 38.
Iselin-Jefferson Co., assor. to Iselin-Jefferson Co., Inc., to Iselin-Jefferson Co., Inc., New York, N.Y. 428,500, ren. 5–23–67. Cl. 42.
Iselin-Jefferson Co., Inc.: *See*—
Iselin-Jefferson Co.
J-B Distributing Co., Los Angeles, Calif. 829,216, pub. 3–7–67. Cl. 46.
Jacklin Seed Co., Inc., Dishman, Wash. 828,953, pub. 3–7–67. Cl. 1.
Japan Food Corp., San Francisco, Calif. 829,199, pub. 3–7–67. Cl. 46.
Jetronic Industries, Inc., Philadelphia, Pa. 713,488, canc. Cl. 26.
Joan, Debra, Inc., New York, N.Y. 829,139, pub. 3–7–67. Cl. 39.
Johns-Manville Corp.: *See*—
Celite Co., The.
Banner Rock Products Co.
Johnson, Mead, & Co., Evansville, Ind. 829,214, pub. 3–7–67. Cl. 46.
Johnson, S. C., & Son, to S. C. Johnson & Son, Inc., Racine, Wis. 230,757, ren. 5–23–67. Cl. 16.
Johnson, S. C., & Son, Inc.: *See*—
Johnson, S. C., & Son.
Joiner, Richard V., d.b.a. Dick Joiner & Associates, Lemont, Ill. 713,643, canc. Cl. 50.
Joiner, Dick, & Associates: *See*—
Joiner, Richard V.
Joyce, Inc., Cincinnati, Ohio. 713,545, canc. Cl. 39.
Just Distributors, Inc.: *See*—
Fuld Brothers, Inc.
Kayser-Roth Corp., New York, N.Y. 829,144, pub. 3–7–67. Cl. 39.
Keane, Mary J., d.b.a. Keane Records, Hollywood, Calif. 713,531, canc. Cl. 36.
Keane Records: *See*—
Keane, Mary J.
Kelley, Farquhar, and Co.: *See*—
Puyallup & Sumner Fruit Growers Assn.
Kemp, Edward F., d.b.a. The Radio Nut Co., to E. F. Kemp Corp., Sommerville, Mass. 231,217, ren. 5–23–67. Cl. 46.
Kemp, E. F., Corp.: *See*—
Radio Nut Co., The.
Kemp, Edward F.
Kern Foods, Inc., Cincinnati, Ohio. 713,693, canc. Cl. 46.
Keuffel & Esser Co., Hoboken, N.J. 226,285, ren. 5–23–67. Cl. 37.
Keuffel & Esser Co., Hoboken, N.J. 61,585, ren. 5–23–67. Cl. 37.
Keuffel & Esser Co., Hoboken, N.J. 61,564, ren. 5–23–67. Cl. 37.
Keystone Shower Door Co.: *See*—
Finkel, Abram.
Kinney Shoe Corp., New York, N.Y. 829,153, pub. 3–7–67. Cl. 39.
Kleer-Vu Industries, Inc., New York, N.Y. 829,161, pub. 3–7–67. Cl. 40.
Kron, Saul, d.b.a. Hydraulic Jack Packing & Tool Co., Bloomfield, N.J. 713,475, canc. Cl. 23.
Laclede-Christy Clay Products Co., St. Louis, Mo., to H. K. Porter Co., Inc., Pittsburgh, Pa. 324,687, canc. Cl. 12.
Laflin & Rand Powder Co., New York, N.Y., to Hercules Inc., Wilmington, Del. 61,982, ren. 5–23–67. Cl. 9.
L'Aluminium Francais (SA), Paris, France. 829,229, pub. 3–7–67. Cl. 50.
Lamb-Weston, Inc., Portland, Oreg. 829,189, pub. 3–7–67. Cl. 46.
Laminated Shim Co., Inc., Glenbrook, Conn. 829,108, pub. 3–7–67. Cl. 38.
Lamplight Oil Products, Inc., Milwaukee, Wis. 829,006, pub. 3–7–67. Cl. 15.

Lane, Bryant, Inc., New York, N.Y. 829,133, pub. 3–7–67. Cl. 39.
Lane Enterprises: *See*—
Vance, Lindsey L.
Le-Branch Products Corp., New York, N.Y. 829,210, pub. 3–7–67. Cl. 46.
Legettes Inc., Boise, Idaho. 713,557, canc. Cl. 39.
Les Parfums Robert Piguet, Paris, France. 713,648, canc. Cl. 51.
Lilly, Eli, & Co., The, to Eli Lilly and Co., Indianapolis, Ind. 61,924, ren. 5–23–67. Cl. 18.
Lindahl, Anders, to Helios Kemisk Tekniska Fabriker, Aktiebolag, Stockholm, Sweden. 222,136, ren. 5–23–67. Cl. 52.
Lindahl, Anders, d.b.a. Tekniska Fabriken Helios, A. Lindahl, Stockholm, to Aktiebolaget A. Lindahls Fabriker, Angelholm, Sweden. 222,138, ren. 5–23–67. Cl. 4.
Linen Thread Co., Inc., The: *See*—
Barbour Flax Spinning Co.
Los Angeles Felt Co., Inc., Los Angeles, Calif. 713,314, canc. Cl. 1.
Lowe, Joe, Co.: *See*—
Consolidated Foods Corp.
Lunex Co., Pleasant Valley, Iowa. 829,011, pub. 3–7–67. Cl. 16.
Lustig, Florence, New York, N.Y. 829,126, pub. 3–7–67. Cl. 39.
Lynn, Lily, Inc., New York, N.Y. 829,136, pub. 3–7–67. Cl. 39.
Lyon Leasing System, Inc., Springfield, Mass. 829,299, pub. 3–7–67. Cl. 105.
MCA, Inc., Universal City, Calif. 829,104, pub. 3–7–67. Cl. 38.
MacNaughton-Brooks, Ltd., Weston, Ontario, Canada. 829,010, pub. 3–7–67. Cl. 16.
MacPherson & Co.: *See*—
MacPherson, H. C.
MacPherson, H. C., d.b.a. MacPherson & Co., and A. & B. Mackay, Ltd., San Francisco, Calif. 829,226, pub. 3–7–67. Cl. 49.
MacKay, A. & B., Ltd.: *See*—
MacPherson, H. C.
Maco Publishing Co., Inc., New York, N.Y. 829,118, pub. 3–7–67. Cl. 38.
Magnasync Corp., North Hollywood, Calif. 713,440, canc. Cl. 21.
Maidenform, Inc., New York, N.Y. 829,138, pub. 3–7–67. Cl. 39.
Maixner, Earl J., d.b.a. The Chinchilla Guild of America, Bakersfield, Calif. 829,131, pub. 3–7–67. Cl. 39.
Mallinckrodt Chemical Works, St. Louis, Mo. 829,019, pub. 3–7–67. Cl. 18.
Maltine Co., The, New York, N.Y., to Warner-Lambert Pharmaceutical Co., Morris Plains, N.J. 428,768, ren. 5–23–67. Cl. 18.
Maplecrest Sausage Co., Inc., Rochester, N.Y. 829,194, pub. 3–7–67. Cl. 46.
Marela, Ltd., London, England. 829,208, pub. 3–7–67. Cl. 46.
Maro Industries, Inc., New York, N.Y. 829,157, pub. 3–7–67. Cl. 39.
Martinez, Abelardo V., Barcelona, Spain. 829,237, pub. 3–7–67. Multiple Class (Classes 51 and 52).
Mason Marking Systems Corp., Norfolk, Va. 828,988–9, pub. 3–7–67. Cl. 11.
Masters for Music Recording Co.: *See*—
Masters, John A.
Masters, John A., d.b.a. Masters for Music Recording Co., Miami, Fla. 829,092, pub. 3–7–67. Cl. 36.
Mattes Electronics, Inc., Chicago, Ill. 829,040, pub. 3–7–67. Cl. 21.
Mayer China Co., Beaver Falls, Pa. 829,082, pub. 3–7–67. Cl. 30.
Mayes Bros. Tool Mfg. Co.: *See*—
Mayes Bros. Tool Mfg. Co., Inc.
Mayes Bros. Tool Mfg. Co., Inc., Port Austin, Mich., to Mayes Bros. Tool Mfg. Co., Johnson City, Tenn. 226,175, ren. 5–23–67. Cl. 26.
McGraw-Hill, Inc., New York, N.Y. 829,117, pub. 3–7–67. Cl. 38.
McNeil Corp., Akron, Ohio. 829,060, pub. 3–7–67. Cl. 23.
Mead Corp., The: *See*—
Dill & Collins Co., The.
Medical Plastics Corp. of America, Greensboro, N.C. 829,172, pub. 3–7–67. Cl. 44.
Merrell, Wm. S., Co., The, Cincinnati, Ohio, to Richardson-Merrell Inc., New York, N.Y. 425,569, ren. 5–23–67. Cl. 18.
Metalcraft Products Co., Inc., Philadelphia, Pa. 713,436–7, canc. Cl. 21.
Method Master, Inc., Lincolnwood, Ill. 829,297, pub. 3–7–67. Cl. 103.
Meyer, Fred, Inc., d.b.a. Eve's Kitchens, Portland, Oreg. 829,211, pub. 3–7–67. Cl. 46.
Meyer, Joseph H., Bros., Brooklyn, to The Richelieu Corp., Holbrook, N.Y. 431,944, ren. 5–23–67. Cl. 28.
Michael & Ginsberg Publishing Co., Wilmette, Ill. 829,112, pub. 3–7–67. Cl. 38.
Mikimoto, K., & Co., Ltd., New York, N.Y. 829,077, pub. 3–7–67. Cl. 28.
Milk Research, Inc., Fond du Lac, Wis. 829,213, pub. 3–7–67. Cl. 46.
Milky-Way Co., Inc., The, Chicago, Ill. 225,082, canc. Cl. 6.
Milstein, Herbert, Harrisburg, Pa. 829,062, pub. 3–7–67. Cl. 23.
Minnesota Mining and Mfg. Co., St. Paul, Minn. 829,038–9, pub. 3–7–67. Cl. 21.
Minnesota Mining and Mfg. Co., St. Paul, Minn. 829,103, pub. 3–7–67. Cl. 37.
Missouri Rolling Mill Corp., St. Louis, Mo. 713,362, canc. Cl. 13.
Mobay Chemical Co., Pittsburgh, Pa. 828,968, pub. 1–3–67. Cl. 6.
Modern Bakery, Inc., Harlan, Ky. 829,206, pub. 3–7–67. Cl. 46.
Monostructure, Inc., Sarasota, Fla. 713,357, canc. Cl. 12.
Montclair Imports, Inc., Westbury, N.Y. 829,081, pub. 3–7–67. Multiple Class (Classes 29 and 40).
Montgomery Ward & Co., Inc., Chicago, Ill. 713,518, canc. Cl. 34.
Monumental Life Insurance Co., Baltimore, Md. 829,291, pub. 3–7–67. Cl. 102.
Morrell, John, & Co., Ottumwa, Iowa. 713,620–1, canc. Cl. 46.
Morris, Philip, Inc., New York, N.Y. 829,231, pub. 3–7–67. Cl. 52.
Moss Rose Mfg. Co., to Moss Rose Mfg. Co., Philadelphia, Pa. 62,523, ren. 5–23–67. Cl. 42.
Moulinage et Retorderie de Chavanoz, Chavanoz, Isere, France. 829,148, pub. 3–7–67. Cl. 39.
Moulinage et Retorderie de Chavanoz, Chavanoz, Isere, France. 829,165, pub. 3–7–67. Cl. 42.
Moulinage et Retorderie de Chavanoz, Chavanoz, Isere, France. 829,171, pub. 3–7–67. Cl. 43.
Mudgett, Lee R., Bigfork, Mont. 829,043, pub. 3–7–67. Cl. 22.
Mueller Co.: *See*—
Mueller, H., Mfg. Co.
Mueller, H., Mfg. Co., to Mueller Co., Decatur, Ill. 65,052, ren. 5–23–67. Cl. 13.
Muller-Renner AG, Kreuzlingen, Switzerland. 829,122, pub. 3–7–67. Cl. 39.
Muralo Co., The, New Brighton, N.Y., to The Sherwin-Williams Co., Cleveland, Ohio. 64,157, ren. 5–23–67. Cl. 16.
Myrurgia, S.A., to Myrurgia S.A., Barcelona, Spain. 225,912, ren. 5–23–67. Cl. 51.
Myrurgia, S.A., to Myrurgia, S.A., Barcelona, Spain. 225,914, ren. 5–23–67. Cl. 51.
Nadler, Michael, Ltd.: *See*—
Reidan Ltd.
Nardin, Ulysse, Societe Anonyme, Manufacture de Montres et de Chronometres, Rue du Jardin, Le Locle, Switzerland. 829,076, pub. 3–7–67. Cl. 27.
National Aeronautical Corp., Fort Washington, Pa. 829,037, pub. 3–7–67. Multiple Class (Classes 21 and 26).
National Biscuit Co.: *See*—
Bennett, F. H., Biscuit Co.
National Biscuit Co., New York, N.Y. 829,135, pub. 3–7–67. Cl. 46.
National Comics Publications, Inc., New York, N.Y. 713,536, canc. Cl. 38.
National Lead Co., New York, N.Y. 62,136, ren. 5–23–67. Cl. 16.
National Pectin Products Co., Chicago, Ill. 829,196, pub. 3–7–67. Cl. 46.
National Thespian Society for High Schools, The, Cincinnati, Ohio. 829,114, pub. 3–7–67. Cl. 38.
Nelson-Boyer Co., Inc., Glendale, Calif. 713,400, canc. Cl. 18.
New York Building Superintendents' Assn., Inc., New York, N.Y. 829,109, pub. 3–7–67. Cl. 38.
Nicholson File Co.: *See*—
Atkins, E. C., & Co.
Nivarox SA, St. Imier, Swtiserland. 829,004, pub. 3–7–67. Multiple Class (Classes 14, 26, and 27).
Non-Fluid Oil Corp., New York, N.Y. 829,007, pub. 3–7–67. Cl. 15.
Norcross, Inc., New York, N.Y. 828,986, pub. 3–7–67. Cl. 7.
Northwestern Kite Co., Minneapolis, Minn., to Crunden Martin Mfg. Co., St. Louis, Mo. 425,010, ren. 5–23–67. Cl. 22.
Norwich Pharmacal Co., The: *See*—
Amolin Chemical Co.
Noxzema Chemical Co., The, Baltimore, Md. 829,242, pub. 3–7–67. Cl. 51.
Numata, Jack T., Minneapolis, Minn. 829,050, pub. 3–7–67. Cl. 22.
Nuodex Products Co., Inc., Elisabeth, N.J., to Heyden Newport Chemical Corp., New York, N.Y. 386,850, canc. Cl. 26.
Nusbaum, Knitters, Inc., New York, N.Y. 829,155, pub. 3–7–67. Cl. 39.
Nuvo Corp., The, to Electrolux Corp., New York, N.Y. 232,297, ren. 5–23–67. Cl. 52.
O-Cedar of Canada, Ltd., Toronto, Ontario, to The Drackett Co. of Canada, Ltd., Stratford, Ontario, Canada. 428,665, ren. 5–23–67. Cl. 51.
Old Pal, Inc., Lititz, Pa. 829,046, pub. 3–7–67. Cl. 22.
Old Republic Life Insurance Co., Chicago, Ill., from Old Republic Life Insurance Co. of New York, New York, N.Y. 829,285–6, pub. 3–7–67. Cl. 102.
Old Republic Life Insurance Co. of New York: *See*—
Old Republic Life Insurance Co.
Old Timer Records, New York, N.Y. 829,091, pub. 3–7–67. Cl. 36.
Olivarera Peninsular, S.A., Malaga, Spain. 713,607, canc. Cl. 46.
Olive Products Co., Oroville, Calif. 228,678, ren. 5–23–67. Cl. 46.
Ontario Paper Co., Ltd., The, Ontario, Canada. 828,974, pub. 3–7–67. Cl. 6.
Optimist International, St. Louis, Mo. 829,312, pub. 3–7–67. Cl. 200.
Osborne Coinage Co., The, Cincinnati, Ohio. 829,227, pub. 3–7–67. Cl. 50.
Oswego Falls Corp., Fulton, N.Y., to Phillips Petroleum Co., Bartlesville, Okla. 227,019, ren. 5–23–67. Cl. 50.
Ottavino, A., Corp., Ozone Park, N.Y. 828,991, pub. 3–7–67. Cl. 12.
Outboard Marine Corp., Waukegan, Ill. 829,031, pub. 3–7–67. Cl. 19.
Owens-Illinois Glass Co., Toledo, Ohio. 713,517, canc. Cl. 33.
Panelcraft Corp., Phoenix, Ariz. 828,993, pub. 3–7–67. Cl. 12.
Patek and Co., d.b.a. Patek & Co., San Francisco, Calif. 432,633, ren. 5–23–67. Cl. 52.

Patent Button Co., The, Waterbury, Conn. 829,057, pub. 3–7–67. Cl. 23.
Patterson, Herman W., d.b.a. Ti-Not Co., Overland Park, Kans. 828,992, pub. 3–7–67. Cl. 12.
Patterson International, Inc., Cincinnati, Ohio. 829,041, pub. 2–15–66. Cl. 22.
Patterson-Sargent Co., The, Cleveland, Ohio, to Textron Industries, Inc., Orange, N.J. 29,910, ren. 5–23–67. Cl. 16.
Paw Paw Grape Juice Co., Paw Paw, Mich. 829,186, pub. 3–7–67. Cl. 46.
Peck Mfg. Co., Inc., New York, N.Y. 829,151, pub. 3–7–67. Cl. 39.
Pedigo Pork Rind Co., Inc., Bowling Green, Ky. 829,054, pub. 3–7–67. Cl. 22.
Pedigo, Thomas W., d.b.a. Ana Records, McMinnville, Tenn. 829,094, pub. 3–7–67. Cl. 36.
Peebles, W. S., & Co., Inc., Lawrenceville, Va. 829,128, pub. 3–7–67. Cl. 39.
Penney, J. C., Co., New York, N.Y. 829,127, pub. 3–7–67. Cl. 39.
Pennsalt Chemicals Corp.: *See*—
Babbitt, B. T., Inc.
Pennsylvania Computer Systems Institute, Inc., Pittsburgh, Pa. 829,269, pub. 3–7–67. Cl. 100.
Penn-Union Electric Corp., Erie, Pa. 713,441–2, canc. Cl. 21.
Pentron Corp.: *See*—
Pentron Sales Co., Inc.
Pentron Sales Co., Inc., to Pentron Corp., Chicago, Ill. 713,529, canc. Cl. 36.
Perrault, Ainslie, Tulsa, Okla. 829,257, pub. 1–24–67. Cl. 100.
Pfizer, Chas., & Co., Inc., New York, N.Y. 829,197, pub. 3–7–67. Cl. 46.
Pfizer, Chas., & Co., Inc., New York, N.Y. 829,241, pub. 3–7–67. Cl. 51.
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Plantkeeper, Inc., Atlanta, Ga. 829,293, pub. 3–7–67. Cl. 103.
Plasmakote Corp., Culver City, Calif. 713,384, canc. Cl. 16.
Plas-Steel Products, Inc., Walkerton, Ind. 829,044, pub. 3–7–67. Cl. 22.
Plastic Contact Lens Co., The, Chicago, Ill. 829,113, pub. 3–7–67. Cl. 38.
Plastic Products: *See*—
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Plaza Industries, Inc., Greenville, S.C. 829,055, pub. 3–7–67. Cl. 23.
Plycraft, Inc., Lawrence, Mass. 829,000, pub. 3–7–67. Cl. 12.
Poly-Dec Co., Inc., Bayonne, N.J. 829,231, pub. 3–7–67. Cl. 50.
Poole, Foster M., d.b.a. Poole Mfg. Engineers, to Poole Instruments, Inc., Dallas, Tex. 428,411, ren. 5–23–67. Cl. 26.
Poole Instruments, Inc.: *See*—
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Poole Mfg. Engineers: *See*—
Poole, Foster M.
Porter, H. K., Co., Inc.: *See*—
Laclede-Christy Clay Products Co.
Porter, H. K., Co., Inc., Pittsburgh, Pa. 713,521, canc. Cl. 35.
Poultry Tribune Co., Mount Morris and Chicago, Ill., to Watt Publishing Co., Mount Morris, Ill. 230,938, ren. 5–23–67. Cl. 38.
Presco Chemical Corp., Westbury, N.Y. 828,969, pub. 3–7–67. Multiple Class (Classes 6, 12, and 16).
Procter & Gamble Co., The: *See*—
Hoberg Paper & Fibre Co.
Psychiatric Research Foundation, Beverly Hills, Calif. 829,111, pub. 3–7–67. Cl. 38.
Puritan Fashions Corp., New York, N.Y. 829,164, pub. 3–7–67. Cl. 42.
Puyallup & Sumner Fruit Growers Association, Puyallup, to Kelley, Farquhar & Co., Tacoma, Wash. 230,602, ren. 5–23–67. Cl. 46.
Quaker Oats Co., The, Chicago, Ill. 829,182, pub. 3–7–67. Cl. 46.
Radcliffe Advertising, Inc., Jacksonville, Fla. 829,277, pub. 3–7–67. Cl. 101.
Radio Receptor Co., Inc., to Wilcox & Gibbs Sewing Machine Co., New York, N.Y. 429,776, ren. 5–23–67. Cl. 21.
Ramsey Accessories Mfg. Corp., to Ramsey Corp., St. Louis, Mo. 384,093, canc. Cl. 35.
Ramsey Corp.: *See*—
Ramsey Accessories Mfg. Corp.
Regal Rugs, Inc., North Vernon, Ind. 829,162, pub. 3–7–67. Cl. 42.
Reis, Robert, & Co., New York, N.Y. 713,571, canc. Cl. 39.
Reitz & Colucci, Fresno, Calif. 713,698, canc. Cl. 46.
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Relax-A-Sauna, Inc., Sarasota, Fla. 829,176, pub. 3–7–67. Cl. 44.
Reidan, Ltd., from Michael Nadler, Ltd., London, England. 829,123, pub. 3–7–67. Cl. 39.
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Reuter, Inc., Minneapolis, Minn., from Rivet-Ese, Inc., Gregory, S. Dak. 829,061, pub. 3–7–67. Cl. 23.
Review and Herald Publishing Association, Washington, D.C. 829,116, pub. 3–7–67. Cl. 38.
Reynolds, Dwight E., El Monte, Calif. 713,640, canc. Cl. 50.
Richards, G. Whitfield, to G. Whitfield Richards Co., Philadelphia, Pa. 231,710, ren. 5–23–67. Cl. 15.
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Richardson-Merrell Inc.: *See*—
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Richelieu Corp., The: *See*—
Meyer, Joseph H., Bros.
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Riverside Trailer Mfg. Co., Inc., Brownwood, Tex. 713,417, canc. Cl. 19.
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Roberts Dental Mfg. Co., Inc., Buffalo, N.Y. 829,175, pub. 3–7–67. Cl. 44.
Roche Fruit Co., Inc.: *See*—
Roche Fruit & Produce Co.
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Rudofker's, S., Sons, Inc., Philadelphia, Pa. 829,134, pub. 3–7–67. Cl. 39.
S.L.I.A. Sicule Lombarde Industrie Associate Societa per Azioni, Codogno, Milan, Italy. 713,695, canc. Cl. 46.
S & S Machinery Co., Brooklyn, N.Y. 829,065, pub. 1–16–67. Cl. 23.
Safety Clothing and Equipment Co., The, Cleveland, Ohio. 829,145, pub. 3–7–67. Cl. 39.
Safeway Stores, Inc., Oakland, Calif. 713,629, canc. Cl. 46.
Safeway Stores, Inc., Oakland, Calif. 829,207, pub. 3–7–67. Cl. 46.
Sampson Industrial Chemical Co., Chicago, Ill. 829,255, pub. 3–7–67. Cl. 52.
Sandoz, Inc., Hanover, N.J. 829,022, pub. 3–7–67. Cl. 18.
Schelin & Engel Co., d.b.a. Banner Watch Co., to N. Engel & Co., Inc., New York, N.Y. 231,753, ren. 5–23–67. Cl. 27.
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Schwarzkopf, Hans, Hamburg-Altona, Germany. 713,645, canc. Cl. 51.
Scooby Productions, Inc., Winthrop, Mass. 829,311, pub. 3–7–67. Cl. 107.
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Seagull Imports, Inc., New York, N.Y. 713,570, canc. Cl. 39.
Sealy, Thomas, New York, N.Y., to Stallworth Pine Products Co., Inc., Mobile, Ala. 141,220, canc. Cl. 16.
Search, Inc., Washington, D.C. 829,283, pub. 3–7–67. Cl. 101.
Selmer, H. & A., Inc., New York, N.Y., to H. & A. Selmer, Inc., Elkhart, Ind. 227,808, ren. 5–23–67. Cl. 36.
Sharp, Edward, & Sons Ltd., Maidstone, Kent, England. 829,178, pub. 5–10–66. Cl. 46.
Shaw, Earl R., d.b.a. Tie Rite Neckwear Co., Asheboro, N.C. 713,563, canc. Cl. 39.
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Signaltron Corp., East Elmhurst, N.Y. 829,073, pub. 3–7–67. Cl. 26.
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Silco Knitting Mills, Inc., Johnstown, N.Y. 829,317. Cl. 42.
Skiatron Electronics and Television Corp., New York, N.Y. 829,036, pub. 3–7–67. Cl. 21.
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Sorren, P. K., Export Co., Inc., New York, N.Y. 829,137, pub. 3–7–67. Cl. 39.
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Speakman Co., Wilmington, Del. 713,369, canc. Cl. 13.
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Stetson China Co., Lincoln, Ill. 713,506, canc. Cl. 30.
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Sun, Inc., The, Hartwell, Ga. 829,273, pub. 3-7-67. Cl. 101.
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Taro-Vit Chemical Industries, Ltd., Haifa, Israel. 829,246, pub. 3-7-67. Cl. 51.
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Taylor-Bell Co., Inc., New York, N.Y. 713,577, canc. Cl. 40.
Tekniska Fabriken Helois, A. Lindahl: *See*—
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Terry, Bland, Shoe Corp., Atlanta, Ga. 829,147, pub. 3-7-67. Cl. 39.
Textron Industries, Inc.: *See*—
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Thomas, Walter R., Inc., Atlanta, Ga. 713,495, canc. Cl. 27.
Tie Rite Neckwear Co.: *See*—
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Ti-Not Co.: *See*—
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Tivoli Brewing Co., The, Denver, Colo. 829,223, pub. 3-7-67. Cl. 48.
Topps Chewing Gum, Inc., Brooklyn, N.Y. 829,203, pub. 3-7-67. Cl. 46.
Transcriber Co., Inc., Attleboro, Mass. 829,093, pub. 3-7-67. Cl. 36.
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Tuloma Gas Products Co., Tulsa, Okla. 828,961, pub. 3-7-67. Multiple Class (Classes 2, 6, 10, and 23).
Tutag, S. J., and Co., Detroit, Mich. 829,023, pub. 1-17-67. Cl. 18.
Tuttle, Jess L., Oakland, to Foremost Dairies, Inc., San Francisco, Calif. 226,862, ren. 5-23-67. Cl. 46.
20th Century Investors, Inc., Kansas City, Mo. 829,289, pub. 3-7-67. Cl. 102.
Uforma, Inc., Roseville, Mich. 829,102, pub. 3-7-67. Cl. 37.
Ulman, Bernhard, Co., Inc., to Indian Head, Inc., New York, N.Y. 428,801, ren. 5-23-67. Cl. 43.
Uncas Mfg. Co., Providence, R.I. 829,079. pub. 3-7-67. Cl. 28.
Underwriters Service Agency, d.b.a. Underwriters Service Agency, Hartford, Conn. 829,266, pub. 3-7-67. Multiple Class (Classes 100 and 102).
U-Neek Aluminum Products Co., d.b.a. U-Neek Products Co., Pasadena, Calif. 828,996, pub. 3-7-67. Cl. 12.
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Union Bag & Paper Co., The, to Union Camp Corp., New York, N.Y. 61,120, ren. 5-23-67. Cl. 37.
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Union Carbide Corp., New York, N.Y. 828,979, pub. 3-7-67. Cl. 6.
Union Starch & Refining Co., Inc., Columbus, Ind. 829,181, pub. 3-7-67. Cl. 46.
United Fruit Co., Boston, Mass. 829,204, pub. 3-7-67. Cl. 46.
United Merchants and Mfg., Inc., New York, N.Y. 713,586, canc. Cl. 42.
United Novelty Shoe Co., Indianapolis, Ind., to Craddock-Terry Shoe Corp., Lynchburg, Va. 233,009, ren. 5-23-67. Cl. 39.
United States Concrete Pipe Co., Cleveland, Ohio. 828,999, pub. 3-7-67. Cl. 12.
U.S. Health Club, Inc., Yonkers, N.Y. 829,187, pub. 3-7-67. Cl. 46.
Universal Grinding Wheel Co., Ltd., Stafford, England. 828,966, pub. 3-7-67. Multiple Class (Classes 4 and 23).
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Universal Publicizers, Inc., Chicago, Ill. 829,275, pub. 3-7-67. Cl. 101.
Universal Spray Can Corp., New York, N.Y. 713,677-8, canc. Cl. 4.
Universal Zonolite Insulation Co., Chicago, Ill., to W. R. Grace & Co., New York, N.Y. 431,731, ren. 5-23-67. Cl. 10.
Unterbrink, Victor, d.b.a. Plastic Products, Ottawa, Ohio, to Plastic Products Co., Inc., Deerfield, Ill. 428,972, ren. 5-23-67. Cl. 16.
Upjohn Co., The, Kalamazoo, Mich. 829,016, pub. 3-7-67. Cl. 18.
Upjohn Co., The, Kalamazoo, Mich. 829,016, pub. 3-7-67. Cl. 18.
Vance, Lindsey L., d.b.a. Lane Enterprises, Denver, Colo. 713,501, canc. Cl. 28.
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Vending Times, Inc., New York, N.Y. 829,110, pub. 3-7-67. Cl. 38.
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Verenigde Nederlandse Brouwerijen D'Oranjeboom, N.V., d.b.a. D'Oranjeboom, Rotterdam, Netherlands. 829,222, pub. 3-7-67. Cl. 48.
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Vitakraft-Werk: *See*—
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Waterways Journal, Inc., The: *See*—
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Watkins, James W., d.b.a. Aero Products, St. Charles, Ill. 829,047, pub. 3-7-67. Cl. 22.
Watt Publishing Co.: *See*—
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Weatherhead Co., The, Cleveland, Ohio. 829,066, pub. 3-7-67. Cl. 23.
Webb, C. J., Inc., d.b.a. Corrosion Reaction Consultants, and Corrosion Reaction Consultants, Inc., Jenkintown, Pa. 829,256, pub. 3-7-67. Cl. 52.
Wembley, Inc., New Orleans, La. 829,143, pub. 3-7-67. Cl. 39.
West Bend Aluminum Co., West Bend, Wis. 713,477, canc. Cl. 23.
Westinghouse Electric Corp., Redlands, Calif. 829,033, pub. 3-7-67. Cl. 19.
Westport Country Playhouse, Inc., Westport, Conn. 829,304, pub. 3-7-67. Cl. 107.
White Cross Stores, Inc., Monroeville, Pa. 829,101, pub. 3-7-67. Cl. 37.
White Sewing Machine Corp., Lakewood, Ohio. 383,580, canc. Cl. 23.
White Stag Mfg. Co.: *See*—
Breier's, Marcus, Sons.
Whiting & Co., Inc.: *See*—
Whiting Paper Co.
Whiting Paper Co., to Whiting & Co., Inc., Holyoke, Mass. 57,932. ren. 5-23-67. Cl. 37.
Willcox & Gibbs Sewing Machine Co.: *See*—
Radio Receptor Co., Inc.
Williams, Evan, Beauty Aids, Ltd., London, England. 829,234, pub. 3-7-67. Multiple Class (Classes 51 and 52).
Wilson, R. Sanford, d.b.a. Basket World, Weirs Beach, N.H. 828,959, pub. 3-7-67. Multiple Class (Classes 2, 3, 32, and 50).
Wings and Wheels Express, Inc., Flushing, N.Y. 829,300, pub. 3-7-67. Cl. 105.
Winthrop Chemical Co., Inc., to Sterling Drug, Inc., New York, N.Y. 226,372, ren. 5-23-67. Cl. 18.
Wright, Donald T., to The Waterways Journal, Inc., St. Louis, Mo. 230,952, ren. 5-23-67. Cl. 38.
Wuhrmann, Heino, d.b.a. Vitakraft-Werk, Bremen-Mahndorf, Germany. 829,188, pub. 3-7-67. Cl. 46.
Youngstown Sheet and Tube Co., The, Youngstown, Ohio. 829,003, pub. 3-7-67. Multiple Class (Classes 13, 23, and 35).
Zippy Car Rental, Inc., Freeport, N.Y. 829,302-3, pub. 3-7-67. Cl. 105.
Zynolyte Products Co., Compton, Calif. 829,012, pub. 3-7-67. Cl. 16.

U.S. GOVERNMENT PRINTING OFFICE: 0—1967

U.S. DEPARTMENT OF COMMERCE
OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE
May 30, 1967 Volume 838 Number 5

PATENTS
NOTICES

Board of Appeals Decisions Rendered in the Month of April 1967

Examiner affirmed	230
Examiner affirmed in part	41
Examiner reversed	65
Total	336

English Translation of Subject Index to Patent Classification of the German Federal Republic Now Available

A complete translation into English of the Index to Patent Classification of the Patent Office of the German Federal Republic (Deutsches Patentamt) has been published for the Department of Commerce and the National Science Foundation by the Israel Program for Scientific Translations. This is a translation of the key-word index (Stichwörterverzeichnis, 5th edition, 1951) to the German Manual of Patent Classification, 6th edition, 1949, and has been brought up-to-date in regard to the principal changes for use with the 7th edition of the Manual, 1958. The only known previous translation was the 1919 translation of the 1914 edition of the Stichwörterverzeichnis by N. E. Kuhlmann of the U.S. Patent Office.

This 469-page book is an alphabetical index, by key-words, of subject matter indicating the relevant patent classes, subclasses, groups, and subgroups of the arts dealt with by the Deutsches Patentamt and is useful for searching the German patents. It is not limited to an alphabetical listing of the classes but extends to detailed subject matter within the subgroups.

Orders for the index, price $3.00, should refer to order number TT 65-50147 and be sent to the following address:

Clearinghouse for Federal Scientific and Technical Information
U.S. Department of Commerce
5285 Port Royal Road
Springfield, Virginia 22151

Amended Claim Drafting

Effective May 30, 1967, the Office will accept, on a trial basis until further notice, claims rewritten in reissue form in place of amendments to the claims.

A claim in this form should use the original claim number followed by the parenthetical word "amended" and should include (1) brackets around the words to be deleted and (2) underlining below the words to be added. In drafting a claim in place of a claim previously rewritten the bracketing and underlining should be applied with reference to the original claim and not the rewritten claim. However, in this case the parenthetical expression following the claim number should be "twice amended."

In the printed patent these claims will appear, as any others, with the bracketed portions omitted and no indication of underlining.

Inasmuch as a claim presented in this form will replace a similar claim, it does not appear that the question of additional fees will arise merely from the adoption of this technique.

Aside from other procedural and processing advantages, a significant benefit of this amended claim form would be to make the history and evolution of an allowed claim more readily apparent.

The practice outlined herein will neither apply to nor affect the current practice concerning Reissue applications.

Although this form of claim drafting in amendment papers will be purely voluntary, applicants and their representatives are strongly urged to utilize this trial practice.

To the extent that this notice may be inconsistent with Rule 126, the rule is suspended during the trial period with respect to any claims treated in accordance with the suggested practice.

EDWARD J. BRENNER,
Commissioner of Patents.

May 12, 1967.

New Applications Received During April 1967

Patents	7201
Designs	408
Plant Patents	3
Reissues	10
Total	7622

Issue—May 30, 1967

Patents	1363	No. 3,321,771 to No.	3,323,133, incl.
Designs	65	No. 207,768 to No.	207,832, incl.
Plant Patents	2	No. 2,744 to No.	2,745, incl.
Reissues	5	No. 26,212 to No.	26,216, incl.
Total	1435		

PROPOSED INTERNATIONAL NON-PROPRIETARY NAMES (PROP. INN) LIST 17[1]

In accordance with article 3 of the Procedure for the Selection of Recommended International Non-Proprietary Names for Pharmaceutical Preparations,[2] notice is hereby given that the following names are under consideration by the World Health Organization as Proposed International Non-Proprietary Names.

Comments on, or formal objections to the proposed names may be forwarded by any person to the Pharmaceuticals Unit of the World Health Organization within four months of the date of their publication in *WHO Chronicle*.

The inclusion of a name in the lists of proposed international non-proprietary names does not imply any recommendation for the use of the preparation in medicine or pharmacy.

PROPOSED INTERNATIONAL NON-PROPRIETARY NAME (*Latin, English*)	CHEMICAL NAME OR DESCRIPTION AND MOLECULAR FORMULA
acefurtiaminum acefurtiamine	*S*-ester of thio-2-furoic acid with *N*[(4-amino-2-methyl-5-pyrimidinyl)methyl]-*N*-(4-hydroxy-2-mercapto-1-methyl-1-butenyl)formamide *O*-glycolate acetate $C_{21}H_{34}N_4O_7S$
acetorphinum acetorphine	tetrahydro-7α-(1-hydroxy-1-methylbutyl)-6,14-*endo*-ethenooripavine 3-acetate $C_{27}H_{39}NO_5$
acevaltratum acevaltrate	3a,4-dihydro-3,4-dihydroxyspiro[benzofuran-2(3*H*)-2′-oxirane]-6-methanol 6-acetate 3-(or 4)-isovalerate 4(or 3)-(3-hydroxy-3-methylbutyrate, acetate) $C_{24}H_{36}O_{10}$
acidum clamidoxicum clamidoxic acid	3,4-dichloro-α-phenoxyhippuric acid $C_{15}H_{11}Cl_2NO_4$
acidum meclofenamicum meclofenamic acid	*N*-(2,6-dichloro-*m*-tolyl)anthranilic acid $C_{14}H_{11}Cl_2NO_2$
acidum niflumicum niflumic acid	2-[3-(trifluoromethyl)anilino]nicotinic acid $C_{13}H_9F_3N_2O_2$
acidum nixylicum nixylic acid	2-(2,3-xylidino)nicotinic acid $C_{14}H_{14}N_2O_2$
alcuronii chloridum alcuronium chloride	*N,N′*-diallylnortoxiferinium dichloride $C_{44}H_{48}Cl_2N_4O_2$
amantocillinum amantocillin	6-(3-amino-1-adamantanecarboxamido)-3,3-dimethyl-7-oxo-4-thia-1-azabicyclo[3.2.0]heptane-2-carboxylic acid $C_{20}H_{27}N_3O_4S$
amicibonum amicibone	1-[2-(hexahydro-1*H*-azepin-1-yl)ethyl]-2-oxocyclohexanecarboxylate $C_{20}H_{33}NO_3$
amiquinsinum amiquinsin	4-amino-6,7-dimethoxyquinoline $C_{11}H_{12}N_2O_2$
antramycinum antramycin	5,10,11,11a-tetrahydro-9,11-dihydroxy-8-methyl-5-oxo-1*H*-pyrrolo[2,1-*c*][1,4]benzodiazepine-2-acrylamide $C_{18}H_{17}N_3O_4$
antrідonii chloridum antridonium chloride	8-[3-(*m*-amidinophenyl)-2-triazeno]-3-amino-5-ethyl-6-phenylphenanthridinium chloride $C_{28}H_{28}ClN_7$
apicyclinum apicycline	α-[4-(dimethylamino)-1,4,4a,5,5a,6,11,12a-octahydro-3,6,10,12,12a-pentahydroxy-6-methyl-1,11-dioxo-2-naphthacenecarboxamido]-4-(2-hydroxyethyl)-1-piperazineacetic acid $C_{30}H_{38}N_4O_{11}$
beclometasoni dipropionas beclometasone dipropionate	9-chloro-11β,17,21-trihydroxy-16β-methylpregna-1,4-dione-3,20-dione 17,21-dipropionate $C_{28}H_{37}ClO_7$
beclotiaminum beclotiamine	3-[(4-amino-2-methyl-5-pyrimidinyl)methyl]-5-(2-chloroethyl)-4-methylthiazolium chloride $C_{12}H_{16}Cl_2N_4S$
broquinaldolum broquinaldol	5,7-dibromo-2-methyl-8-quinolinol $C_{10}H_7Br_2NO$
bucolomum bucolome	5-butyl-1-cyclohexylbarbituric acid $C_{14}H_{22}N_2O_3$
buforminum buformin	1-butylbiguanide $C_6H_{13}N_5$
bupivacainum bupivacaine	1-butyl-2′,6′-pipecoloxylidide $C_{18}H_{28}N_2O$
butetamatum butetamate	2-(diethylamino)ethyl 2-phenylbutyrate $C_{18}H_{29}NO_2$
carbocloralum carbocloral	ethyl (2,2,2-trichloro-1-hydroxyethyl)carbamate $C_5H_8Cl_3NO_3$
cetotiaminium cetotiamine	the *S*-ester of *O*-ethyl thiocarbonate with *N*-[4-amino-2-methyl-5-pyrimidinyl)methyl]-*N*-(4-hydroxy-2-mercapto-1-methyl-1-butenyl)formamide ethyl carbonate $C_{15}H_{23}N_4O_5S$
cidoxepinum cidoxepin	*N-N*-dimethyldibenz[b,e]oxepin-*cis*-Δ11(6*H*),γ-propylamine $C_{20}H_{23}NO$
cimemoxinum cimemoxin	(cyclohexylmethyl)hydrazine $C_7H_{16}N_2$
cinanserinum cinanserin	2′-[[3-(dimethylamino)propyl]thio]cinnamanilide $C_{20}H_{24}N_2OS$
cinnopentazonum cinnopentazone	2-pentyl-6-phenyl-1*H*-pyrazolo[1,2-*a*]cinnoline-1,3(2*H*)-dione $C_{22}H_{22}N_2O_2$
cinnopropazonum cinnopropazone	5-(dimethylamino)-9-methyl-2-propyl-1*H*-pyrazolo[1,2-*a*][1,2,4]benzotriazine-1,3(2*H*)-dione $C_{16}H_{20}N_4O_2$
citicolinum citicoline	choline cytidine 5′-pyrophosphate ester $C_{14}H_{26}N_4O_{11}P_2$
clinolamidum clinolamide	*N*-cyclohexyllinoleamide $C_{24}H_{43}NO$
clofaziminum clofazimine	3-(*p*-chloroanilino)-10-(*p*-chlorophenyl)-2,10-dihydro-2-(isopropylimino)phenazine $C_{27}H_{22}Cl_2N_4$
clofenciclanum clofenciclan	2-[[1-(*p*-chlorophenyl)cyclohexyl]oxy]triethylamine hydrochloride $C_{18}H_{29}ClNO$

[1] Other lists of proposed international non-proprietary names can be found in *Chron. Wld Hlth Org.*, 1953, *7*, 299; 1954, *8*, 216, 313; 1956, *10*, 28; 1957, *11*, 231; 1958, *12*, 102; 1959, *13*, 105; *WHO Chronicle*, 1959, *13*, 152; 1960, *14*, 168, 244; 1961, *15*, 314; 1962, *16*, 385; 1963, *17*, 389; 1964, *18*, 433; 1965, *19*, 446; 1966, *20*, 216

Lists of recommended international non-proprietary names were published in *Chron. Wld Hlth Org.*, 1955, *9*, 185; 1959, *13*, 106; *WHO Chronicle*, 1959, *13*, 463; 1962, *16*, 101; 1965, *19*, 165, 206, 249; 1966, *20*, 421.

[2] *Off. Rec. Wld Hlth Org.*, *60*, 3 and 55 (resolution EB15.R7).

PROPOSED INTERNATIONAL NON-PROPRIETARY NAME (*Latin, English*)	CHEMICAL NAME OR DESCRIPTION AND MOLECULAR FORMULA
clofezonum clofezone	equimolar combination of clofexamide and phenylbutazone $C_{14}H_{21}ClN_2O_2.C_{19}H_{20}N_2O_2.H_2O$
clomipraminum clomipramine	3-chloro-5-[3-(dimethylamino)propyl]-10,11-dihydro-5*H*-dibenz[*b*,*f*]azepine $C_{19}H_{23}ClN_2$
cloperidonum cloperidone	3-[3-[4-(*m*-chlorophenyl)-1-piperazinyl]propyl]-2,4(1*H*,3*H*)-quinazolinedione $C_{21}H_{23}ClN_4O_3$
cloquinozinum cloquinozine	3-(*p*-chlorobenzyl)octahydroquinolizine $C_{16}H_{22}ClN$
clormecainum clormecaine	2-(dimethylamino)ethyl 3-amino-4-chlorobenzoate ester $C_{11}H_{15}ClN_2O_2$
cyclazodonum cyclazodone	2-(cyclopropylamino)-5-phenyl-2-oxazolin-4-one $C_{12}H_{12}N_2O_2$
cyclofenilum cyclofenil	4,4′-(cyclohexylidenemethylene)diphenol diacetate ester $C_{23}H_{24}O_4$
cycotiaminum cycotiamine	*N*-[1-(2-oxo-1,3-oxathian-4-ylidene)ethyl]-*N*-[(4-amino-2-methyl-5-pyrimidinyl)methyl]formamide $C_{12}H_{16}N_4O_2S$
cyheptamidum cyheptamide	10,11-dihydro-5*H*-dibenzo[*a*,*d*]cycloheptene-5-carboxamide $C_{16}H_{15}NO$
cyprenorphinum cyprenorphine	*N*-(cyclopropylmethyl)tetrahydro-7α-(1-hydroxy-1-methylethyl)-6,14-endo-ethenonororipavine $C_{28}H_{39}NO_4$
cyprodenatum cyprodenate	2-(dimethylamino)ethyl cyclohexanepropionate $C_{13}H_{25}NO_2$
dantrolenum dantrolene	1-[[5-(*p*-nitrophenyl)furfurylidene]amino]hydantoin $C_{14}H_{10}N_4O_5$
demelverinum demelverine	*N*-methyldiphenethylamine $C_{17}H_{21}N$
descinolonum descinolone	9-fluoro-11β,16α,17-trihydroxypregna-1,4-diene-3,20-dione $C_{21}H_{27}FO_5$
dextriferronum dextriferron	a colloidal solution of ferric hydroxide in complex with partially hydrolysed dextrin
dibupyronum dibupyrone	sodium(antipyrinylisobutylamino)methanesulfonate $C_{15}H_{22}N_3NaO_4S$
dicarfenum dicarfen	2-(diethylamino)ethyl diphenylcarbamate ester $C_{19}H_{24}N_2O_2$
didrovaltratum didrovaltrate	3a,4,5,6-tetrahydro-3,4-dihydroxyspiro[benzofuran-2(3*H*),2′-oxirane]-5-methanol 6-acetate 3,4-diisovalerate $C_{28}H_{42}O_8$
difemerinum difemerine	2-(dimethylamino)-2-methylpropyl benzilate ester $C_{20}H_{25}NO_3$
dikalii clorazepas dipotassium clorazepate clorazepate dipotassique	[(3-carboxy-7-chloro-2,3-dihydro-2-hydroxy-5-phenyl-1*H*-1,4-benzodiazepin-2-yl)oxy]potassium $C_{16}H_{11}ClK_2N_2O_4$
dimetotiazinum dimetotiazine	10-[2-(dimethylamino)propyl]-*N*,*N*-dimethylphenothiazine-2-sulfonamide $C_{19}H_{25}N_3O_2S_2$
dimetridazolum dimitridazole	1,2-dimethyl-5-nitroimidazole $C_5H_7N_3O_2$
dinsedum dinsed	*N*,*N*′-ethylenebis[3-nitrobenzenesulfonamide] $C_{14}H_{14}N_4O_8S_2$
drotaverinum drotaverine	1-(3,4-diethoxybenzylidene)-6,7-diethoxy-1,2,3,4-tetrahydroisoquinoline $C_{24}H_{31}NO_4$
etabenzaronum etabenzarone	*p*-[2-(diethylamino)ethoxy]phenyl 2-ethyl-3-benzofuranyl ketone $C_{29}H_{37}NO_3$
etaqualonum etaqualone	3-(*o*-ethylphenyl)-2-methyl-4(3*H*)-quinazolinone $C_{17}H_{16}N_2O$
ethyneronum ethynerone	21-chloro-17-hydroxy-19-nor-17α-pregna-4,9-dien-20-yn-3-one $C_{20}H_{23}ClO_2$
etorphinum etorphine	tetrahydro-7α-(1-hydroxy-1-methylbutyl)-6,14-*endo*-ethenooripavine $C_{25}H_{33}NO_4$
fenpipramidum fenpipramide	α,α-diphenyl-1-piperidinebutyramide $C_{21}H_{26}N_2O$
fenpipranum fenpiprane	1-(3,3-diphenylpropyl)piperidine $C_{20}H_{25}N$
fenproporexum fenproporex	(±)-3-[(α-methylphenethyl)amino]propionitrile $C_{12}H_{16}N_2$
flavaminum flavamine	6-[(diethylamino)methyl]-3-methylflavone $C_{21}H_{23}NO_2$
flucloxacillinum flucloxacillin	6-[3-(2-chloro-6-fluorophenyl)-5-methyl-4-isoxazolecarboxamido]-3,3-dimethyl-7-oxo-4-thia-1-azabicyclo[3.2.0]heptane-2-carboxylic acid $C_{19}H_{17}ClFN_3O_5S$
flumetramidum flumetramide	6-(α,α,α-trifluoro-*p*-tolyl)-3-morpholinone $C_{11}H_{10}F_3NO_2$
ftalofynum ftalofyne	1-ethyl-1-methyl-2-propynyl phthalate $C_{14}H_{14}O_4$
furaltadonum furaltodone	(±)-5-(morpholinomethyl)-3-[(5-nitrofurfurylidene)amino]-2-oxazolidinone $C_{13}H_{16}N_4O_6$
fursultiaminum fursultiamine	*N*-[(4-amino-2-methyl-5-pyrimidinyl)methyl]-*N*-[4-hydroxy-1-methyl-2-[(tetrahydrofurfuryl)dithio]-1-butenyl]formamide $C_{17}H_{28}N_4O_2S_3$
gamfexinum gamfexine	*N*,*N*-dimethyl-γ-phenylcyclohexanepropylamine $C_{17}H_{27}N$
glyclopyramidum glyclopyramide	1-[(*p*-chlorophenyl)sulfonyl]-3-(1-pyrrolidinyl)urea $C_{11}H_{14}ClN_3O_3S$
haloproginum haloprogin	3-iodo-2-propynyl 2,4,5-trichlorophenyl ether $C_9H_4Cl_3IO$
hexacypronum hexacyprone	1-benzyl-2-oxocyclohexanepropionic acid $C_{16}H_{20}O_3$
hycanthonum hycanthone	1-[[2-diethylamino)ethyl]amino1-4-(hydroxymethyl)thioxanthen-9-one $C_{20}H_{24}N_2O_2S$
idoxuridinum idoxuridine	2′-deoxy-5-iodouridine $C_9H_{11}IN_2O_5$
indoxolum indoxole	2,3-bis(*p*-methoxyphenyl)indole $C_{22}H_{19}NO_2$

PROPOSED INTERNATIONAL NON-PROPRIETARY NAME (*Latin, English*)	CHEMICAL NAME OR DESCRIPTION AND MOLECULAR FORMULA
kalii nitrazepas potassium nitrazepate	potassium 2,3-dihydro-7-nitro-2-oxo-5-phenyl-1*H*-1,4-benzodiazepine-3-carboxylate $C_{15}H_{10}KN_3O_5$
ketimipraminum ketimipramine	5-[3-(dimethylamino)propyl]-5,11-dihydro-10*H*-dibenz[*b*,*f*]azepin-10-one $C_{20}H_{22}N_2O$
leptaclinum leptacline	1-(cyclohexylmethyl)piperidine $C_{12}H_{23}N$
leucinocainum leucinocaine	2-(diethylamino)-4-methyl-1-pentanol *p*-aminobenzoate (ester) $C_{17}H_{28}N_2O_2$
levofuraltadonum levofuraltadone	(−)5-(morpholinomethyl)-3-[(5-nitrofurfurylidene)amino]-2-oxazolidinona $C_{13}H_{16}N_4O_6$
meclastinum meclastine	(+)-2-[2-[(*p*-chloro-α-methyl-α-phenylbenzyl)oxy]ethyl]-1-methylpyrrolidine $C_{21}H_{26}ClNO$
medazomidum medazomide	1,4,5,6-tetrahydro-1-methyl-6-oxo-3-pyridazinecarboxamide $C_6H_9N_3O_2$
menbutonum menbutone	3-[4-methoxy-1-naphthoyl]propionic acid $C_{15}H_{14}O_4$
metomidatum metomidate	methyl 1-(α-methylbenzyl)imidazole-5-carboxylate $C_{13}H_{14}N_2O_2$
metopimazinum metopimazine	1-[3-[2-(methylsulfonyl)phenothiazin-10-yl]propyl]isonipecotamide $C_{24}H_{27}N_3O_4S_2$
metoquizinum metoquizine	3,5-dimethyl-*N*-(4,6,6a,7,8,9,10,10a-octahydro-4,7-dimethylindolo[4,3-*fg*]quinolin-9-yl)pyrazole-1-carboxamide $C_{24}H_{37}N_5O$
metribolonum metribolone	17β-hydroxy-17-methylestra-4,9,11-trien-3-one $C_{19}H_{24}O_2$
mikamycinum mikamycin	an antibiotic obtained from cultures of *Streptomyces mitakaensis*, or the same substance obtained by any other means.
mitogillinum mitogillin	an antibiotic obtained from cultures of *Aspergillus restrictus*, or the same substance obtained by any other means.
mitopodozidum mitopodozide	podophyllic acid 2-ethylhydrazide $C_{24}H_{28}N_2O_8$
mitotenaminum mitotenamine	5-bromo-*N*-(2-chloroethyl)-*N*-ethylbenzo[*b*]thiophene-3-methylamine $C_{13}H_{15}BrClNS$
myfadolum myfadol	2-[3-(*m*-hydroxyphenyl)-2,3-dimethylpiperidino]acetophenone $C_{23}H_{29}NO_2$
natrii aurotiosulfas sodium aurotiosulfate	sodium dithiosulfatoaurate(I) $AuNa_3O_6S_4$
natrii glucaspaldras sodium glucaspaldrate	sodium bis(acetate)tetrakis[gluconato(2-)]bis[salicylato(2-)]dialuminate dihydrate $C_{48}H_{62}Al_2Na_8O_{36}.2H_2O$
natrii picosulfas sodium picosulfate	4,4′-(2-pyridylmethylene)diphenol bis(hydrogen sulfate) disodium salt $C_{18}H_{13}NNa_2O_8S_2$
natrii stibocaptas sodium stibocaptate	hexasodium salt of the *S*,*S*-diester of the cyclic thioantimonate(III) of 2,3-dimercaptosuccinic acid $C_{12}H_6Na_6O_{12}S_6Sb_2$
nifuraldezonum nifuraldezone	5-nitro-2-furaldehyde semioxamazone $C_7H_6N_4O_5$
nifuratel nifuratel	5-[(methylthio)methyl]-3-[(5-nitrofurfurylidene)amino]-2-oxazolidinone $C_9H_{11}N_3O_5S$
nifurvidinum nifurvidine	2-methyl-6-[2-(5-nitro-2-furyl)vinyl]-4-pyrimidinol $C_{11}H_9N_3O_4$
niridazolum niridazole	1-(5-nitro-2-thiazolyl)-2-imidazolidinone $C_6H_6N_4O_3S$
nitarsonum nitarsone	*p*-nitrobenzenearsonic acid $C_6H_6AsNO_5$
nonoxynolum nonoxynol	poly(ethylene glycol)*p*-nonylphenyl ether
norbudrinum norbudrine	α-[(cyclobutylamino)methyl]-3,4-dihydroxybenzyl alcohol $C_{12}H_{17}NO_3$
norgestrelum norgestrel	13-ethyl-17-hydroxy-18,19-dinor-17α-pregn-4-en-20-yn-3-one $C_{21}H_{28}O_2$
orestratum orestrate	17β(cyclohexen-1-yloxy)-estra-1,3,5(10)-trien-3-ol propionate $C_{27}H_{36}O_3$
oxaflumazinum oxaflumazine	10-3-[4-(2-*m*-dioxanylethyl)-1-piperazinyl]propyl-2-(trifluoromethyl)phenothiazine $C_{26}H_{32}F_3N_3O_2S$
oxyridazinum oxyridazine	2-methoxy-10-[2-(1-methyl-2-piperidyl)ethyl]phenothiazine $C_{21}H_{26}N_2OS$
pipamperonum pipamperone	1′-[3-(*p*-fluorobenzoyl)propyl][1,4′-bipiperidine]-4′-carboxamide $C_{21}H_{30}FN_3O_2$
poloxalenum poloxalene	liquid nonionic surfactant polymer of the polyoxypropylene polyoxyethylene type, having a molecular weight of approximately 3000, of which approximately 67 percent is polyoxypropylene
primaperonum primaperone	4′-fluoro-4-piperidinobutyrophenone $C_{23}H_{30}FNO$
proclonolum proclonol	bis(*p*-chlorophenyl)cyclopropylmethanol $C_{16}H_{14}Cl_2O$
proquinolatum proquinolate	methyl 4-hydroxy-6,7-diisopropoxy-3-quinolinecarboxylate $C_{17}H_{23}NO_5$
prosciliaridinum prosciliaridin	14-hydroxy-3β-(rhamnosyloxy)bufa-4,20,22-trienolide $C_{36}H_{48}O_8$
pyrantelum pyrantel	1,4,5,6-tetrahydro-1-methyl-2[*trans*-2-(2-thienyl)vinyl]pyrimidine $C_{11}H_{14}N_2S$
pyrrolnitrinum pyrrolnitrin	3-chloro-4-(3-chloro-2-nitrophenyl)pyrrole $C_{10}H_5Cl_2N_3O_2$
quinaldinum coeruleum quinaldine blue	1-ethyl-2-[3-(1-ethyl-2(1*H*)-quinolylidene)propenyl]quinolinium chloride $C_{25}H_{25}ClN_2$
quinazosinum quinazosin	2-(4-allyl-1-piperazinyl)-4-amino-6,7-dimethoxyquinazoline dihydrochloride $C_{17}H_{25}N_5O_2$
quinprenalinum quinprenaline	8-hydroxy-α-[(isopropylamino)methyl]-5-quinolinemethanol $C_{14}H_{18}N_2O_2$
quipazinum quipazine	2-(1-piperazinyl)quinoline $C_{13}H_{15}N_3$

PROPOSED INTERNATIONAL NON-PROPRIETARY NAME (*Latin, English*)	CHEMICAL NAME OR DESCRIPTION AND MOLECULAR FORMULA
rifampicinum rifampicin	3-([(4-methyl-1-piperazinyl(imino]methyl)rifomycin SV $C_{43}H_{58}N_4O_{12}$
rimantadinum rimantadine	α-methyl-1-adamantanemethylamine $C_{12}H_{21}N$
roletamidum roletamide	3′,4′,5′-trimethoxy-3-(3-pyrrolin-1-yl)acrylophenone $C_{16}H_{19}NO_4$
roxarsonum roxarsone	4-hydroxy-3-nitrobenzenearsonic acid $C_6H_6AsNO_6$
roxoperonum roxoperone	8-[3-(p-fluorobenzoyl)propyl]-2-methyl-2,8-diazaspiro[4.5]-1,3-dione $C_{19}H_{23}FN_2O_3$
simetridum simetride	1,4-bis[(2-methoxy-4-propylphenoxy)acetyl]piperazine $C_{28}H_{38}N_2O_6$
spiperonum spiperone	8-[3-(p-fluorobenzoyl)propyl]-1-phenyl-1,3,8-triazaspiro[4.5]decan-4-one $C_{23}H_{26}FN_3O_2$
stenbolonum stenbolone	17β-hydroxy-2-methyl-5α-androst-1-en-3-one $C_{20}H_{30}O_2$
sulfabenzum sulfabenz	sulfanilanilide $C_{12}H_{12}N_2O_2S$
sulfaclomidum sulfaclomide	N^1-(5-chloro-2,6-dimethyl-4-pyrimidinyl)sulfanilamide $C_{12}H_{13}ClN_4O_2S$
talbutalum talbutal	5-allyl-5-sec-butylbarbituric acid $C_{11}H_{16}O_3N_2$
teroxalenum teroxalene	1-(3-chloro-p-tolyl)-4-[6-(p-*tert*-pentylphenoxy)hexyl]piperazine $C_{28}H_{41}ClN_2O$
tetrazepamum tetrazepam	7-chloro-5-(cyclohexen-1-yl)-1,3-dihydro-1-methyl-2*H*-1,4-benzodiazepin-2-one $C_{16}H_{17}ClN_2O$
tetroquinonum tetroquinone	tetrahydroxy-p-benzoquinone $C_6H_4O_6$
tiazesimum tiazesim	5-[2-(dimethylamino)ethyl]-2,3-dihydro-2-phenyl-1,5-benzothiazepin-4(5*H*)-one $C_{19}H_{22}N_2OS$
toloconii methylsulfas toloconium methylsulfate	trimethyl(1-p-tolyldodecyl)ammonium methyl sulfate $C_{26}H_{49}NO_4S$
toquizinum toquizine	N-(4-ethyl-4,6,6a,7,8,9,10,10a-octahydro-7-methylindolo[4,3-*fg*]quinolin-9-yl)-3,5-dimethylpyrazole-1-carboxamide $C_{23}H_{30}N_6O$
trimoxaminum trimoxamine	α-allyl-3,4,5-trimethoxy-*N*-methylphenethylamine $C_{15}H_{23}NO_3$
troxerutinum troxerutin	3′,4′,7-tris(hydroxyethyl)rutin $C_{33}H_{42}O_{19}$
valtratum valtrate	3a,4-dihydro-3,4-dihydroxyspiro[benzofuran-2(3*H*),2′-oxirano]-6-methanol 6-acetate 3,4-diisovalerate $C_{32}H_{50}O_8$
xylamidini tosulas xylamidine tosylate	*N*-[2-(3-methoxyphenoxy)propyl]-2-*m*-tolylacetamidine *p*-toluenesulfonate $C_{26}H_{32}N_2O_2.C_7H_8O_3S$
zinci pyrithionum zinc pyrithione	bis(1-hydroxy-2(1*H*)-pyridinethionato)zinc $C_{10}H_8N_2O_2S_2Zn$
zolertinum zolertine	1-phenyl-4-(2-tetrazol-5-ylethyl)piperazine $C_{13}H_{18}N_6$

PATENT EXAMINING CORPS

R. A. WAHL, Assistant Commissioner

CONDITION OF PATENT APPLICATIONS AS OF APRIL 10, 1967

PATENT EXAMINING OPERATIONS AND GROUPS	Actual Filing Date of Oldest Case Awaiting Action: New	Amended
CHEMICAL EXAMINING OPERATION—I. MARCUS, Director.		
GENERAL CHEMISTRY AND PETROLEUM CHEMISTRY, GROUP 110—R. L. CAMPBELL, Manager. Inorganic Compounds; Inorganic Compositions; Organo-Metal and Organo-Metalloid Chemistry; Metallurgy; Metal Stock; Electro Chemistry; Batteries; Hydrocarbons; Mineral Oil Technology; Lubricating Compositions; Gaseous Compositions; Fuel and Igniting Devices.	10-21-63	4-27-62
GENERAL ORGANIC CHEMISTRY, GROUP 120—G. D. MITCHELL, Manager. Heterocyclic; Amides; Alkaloids; Azo; Sulfur; Misc. Esters; Carbohydrates; Herbicides; Poisons; Medicines; Cosmetics; Steroids; Oxo and Oxy; Quinones; Acids; Carboxylic Acid Esters; Acid Anhydrides; Acid Halides.	8-21-63	9-12-61
HIGH POLYMER CHEMISTRY, PLASTICS AND MOLDING; GROUP 140—M. STERMAN, Manager. Synthetic Resins; Rubber; Proteins; Macromolecular Carbohydrates; Mixed Synthetic Resin Compositions; Synthetic Resins With Natural Polymers and Resins; Natural Resins; Reclaiming; Pore-Forming; Compositions (Part) e.g.: Coating; Molding; Ink; Adhesive and Abrading Compositions; Molding, Shaping and Treating Processes.	1-24-64	1-16-62
COATING AND LAMINATING, BLEACHING, DYEING AND PHOTOGRAPHY, GROUP 160—J. R. LIBERMAN, Manager. Coating; Processes and Misc. Products; Laminating Methods and Apparatus; Stock Materials; Adhesive Bonding; Special Chemical Manufactures; Special Utility Compositions; Bleaching; Dyeing and Photography.	12-23-63	3-28-62
SPECIALIZED CHEMICAL INDUSTRIES AND CHEMICAL ENGINEERING, GROUP 170—W. B. KNIGHT, Manager. Fertilizers; Foods; Fermentation; Analytical Chemistry; Reactors; Sugar and Starch; Paper Making; Glass Manufacture; Gas; Heating and Illuminating; Cleaning Processes; Liquid Purification; Distillation; Preserving; Liquid and Solid Separation; Gas and Liquid Contact Apparatus; Refrigeration; Concentrative Evaporators; Mineral Oils Apparatus; Misc. Physical Processes.	9-6-63	12-12-61
ELECTRICAL EXAMINING OPERATION—N. H. EVANS, Director.		
INDUSTRIAL ELECTRONICS AND RELATED ELEMENTS, GROUP 210—M. L. LEVY, Manager. Generation and Utilization; General Applications; Conversion and Distribution; Heating and Related Art Conductors; Switches; Miscellaneous.	2-24-64	9-21-62
SECURITY, GROUP 220—S. BOYD, Manager. Ordnance, Firearms and Ammunition; Radar, Underwater Signalling, Directional Radio, Torpedos, Seismic Exploring, Radio-Active Batteries; Nuclear Reactors, Powder Metallurgy, Rocket Fuels; Radio-Active Material.	3-17-65	9-9-63
INFORMATION TRANSMISSION, STORAGE AND RETRIEVAL, GROUP 230—E. J. SAX, Manager. Communications; Multiplexing Techniques; Facsimile; Date Processing, Computation and Conversion; Storage Devices and Related Arts.	9-3-63	5-25-61
ELECTRONIC COMPONENT SYSTEMS AND DEVICES, GROUP 250—F. M. STRADER, Manager. Semi-Conductor and Space Discharge Systems and Devices; Electronic Component Circuits; Wave Transmission Lines and Networks; Optics; Radiant Energy; Measuring.	10-11-63	11-3-61
PHYSICS, GROUP 280—R. L. EVANS, Manager. Photography; Sound and Lighting; Indicators and Optics; Measuring and Testing; Geometrical Instruments.	3-18-64	6-24-63
DESIGNS, GROUP 290—S. BOYD, Manager. Industrial Arts; Household, Personal and Fine Arts.	10-22-65	8-3-65

Total number of pending applications (excluding Designs)	189,043
Total number of Design applications pending	4,127
Total number of applications awaiting action (excluding Designs)	138,888
Total number of Design applications awaiting action	2,319
Date of oldest new application awaiting action	August 21, 1963
Date of oldest amended application awaiting action	May 25, 1961

EXPIRATION OF PATENTS

The patents within the range of numbers indicated below expire during May 1967, except those which may have been extended under the provisions of the Veterans Patent Extension Act (64 Stat. 316 as amended by 66 Stat. 321) and those which may have expired earlier due to shortened terms under the provisions of Public Law 600. A list of Veterans' patents which have been extended appears in the *Annual Index of Patents—1963*.

Patents	Numbers 2,505,743 to 2,510,050, inclusive
Plant Patents	Numbers 938 to 945, inclusive

PATENT EXAMINING OPERATIONS AND GROUPS (Continued)	Actual Filing Date of Oldest Case Awaiting Action	
	New	Amended
MECHANICAL EXAMINING OPERATION—F. H. BRONAUGH, Director.		
HANDLING AND TRANSPORTING MEDIA, GROUP 310—A. BERLIN, Manager. Conveyors; Hoists; Elevators; Article Handling Implements; Store Service; Sheet and Web Feeding; Dispensing; Fluid Sprinkling; Fire Extinguishers; Coin Handling; Check Controlled Apparatus; Classifying and Assorting Solids; Boats; Ships; Aeronautics; Motor and Land Vehicles and Appurtenances; Railways and Railway Equipment; Brakes; Rigid, Flexible and Special Receptacles and Packages.	4-28-65	12-26-63
MATERIAL SHAPING, ARTICLE MANUFACTURING, TOOLS, GROUP 320—N. BERGER, Manager. Manufacturing Processes, Assembling, Combined Machines, Special Article Making; Metal Deforming; Sheet Metal and Wire Working; Metal Fusion—Bonding, Metal Founding; Metallurgical Apparatus; Plastics Working Apparatus; Plastic Block and Earthenware Apparatus; Machine Tools for Shaping or Dividing; Work and Tool Holders; Woodworking; Tools; Cutlery; Jacks; Fasteners.	1-15-65	10-25-62
AMUSEMENT, HUSBANDRY, PERSONAL TREATMENT, INFORMATION, GROUP 330—A. RUEGG, Manager. Amusement and Exercising Devices; Projectors; Animal and Plant Husbandry; Butchering; Earth Working and Excavating; Fishing, Etc.; Tobacco; Artificial Body Members; Dentistry; Jewelry; Surgery; Toiletry; Printing; Typewriters; Stationery; Information Dissemination.	1-11-65	7-17-62
HEAT AND POWER ENGINEERING, GROUP 340—C. F. GAREAU, Manager. Powar Plants; Combustion Engines; Fluid Motors; Pumps; Turbines; Heat Generation and Exchange; Refrigeration; Ventilation; Drying; Vaporizing; Temperature and Humidity Regulation; Machine Elements; Power Transmission.	9-2-65	7-31-64
FIXED CONSTRUCTIONS, SUPPORTS, AND HARDWARE, GROUP 350—T. J. HICKEY, Manager. Joints; Fasteners; Rod, Pipe and Electrical Connectors; Miscellaneous Hardware; Locks; Building Structures; Closure Operators; Bridges; Closures; Earth Engineering; Drilling; Mining; Furniture; Receptacles; Supports; Cabinet Structures.	5-24-65	4-29-63
TEXTILES, CLEANING AND FLUID HANDLING, GROUP 360—W. S. COLE, Manager. Fluid Handling, including Valves; Conduits; Filling Receptacles; Lubrication; Joint Packing; Bathroom Fixtures; Centrifugal Separators; Cleaning; Coating; Pressing; Agitating; Foods; Textiles; Apparel and Shoes and their Manufacture; Sewing Machines; Winding and Reeling.	2-16-65	7-25-62

DECISIONS IN PATENT AND TRADEMARK CASES

U.S. Court of Customs and Patent Appeals

ALVIN L. BREEN AND HERBERT G. LAUTERBACH *v.* ALFRED RICHMOND, ROBERT ALBERT KING, AND ALEXANDER HENDERSON GENTLE

No. 7520. Decided October 6, 1966

[— CCPA —; 366 F.2d 482; 151 USPQ 194]

1. INTERFERENCE—BURDEN OF PROOF—REDUCTION TO PRACTICE—DELAY IN FILING. "In reviewing the testimony and exhibits we have been concerned not only with the burden of the appellants as junior party to prove their case by a preponderance of the evidence, but also with appellants' delay of over six years, after the allegedly successful reduction to practice, in filing the application here in issue. There are substantial reasons of sound public policy why such a delay is a factor to be considered in a case such as the present and we think the Board properly took note of this conduct and the lack of any explanation therefor.

APPEAL from the Patent Office. Interference No. 91,502.

AFFIRMED.

A. Newton Huff, *Norris E. Ruckman* (*Frederick Schafer*, of counsel) for appellants.

Casper C. Schneider, Jr., *William A. Smith, Jr.*, for appellees.

Before WORLEY, *Chief Judge*, and RICH, MARTIN, SMITH, and ALMOND, JR., *Associate Judges*

SMITH, *J.*, delivered the opinion of the court.

The Board of Patent Interferences awarded priority to Richmond et al. (hereafter Richmond), and Breen et al. (hereafter Breen) appealed. Two principal issues are before us for determination. (1) Was Richmond's motion to shift the burden of proof properly granted? (2) If the first issue is resolved in favor of Richmond, did Breen establish an actual reduction to practice prior to the date accorded to Richmond for a constructive reduction to practice?

The interference was declared as to common subject matter in two pending applications. Claim 23, which became the single count herein, originated in Breen's application.[1] It was suggested by the Examiner for purposes of the interference and was copied in Richmond's application.[2] The Breen application is assigned to E. I. du Pont de Nemours and Company. The Richmond application is assigned to British Celanese Limited.

Background material for understanding the technical aspects of the invention in issue is found in the Breen application which states:

> This invention relates to a process for treating a bundle of filaments such as yarn or thread to produce a multifilament yarn of greatly increased bulk and to the novel bulky yarn produced. More particularly, the invention relates to a bulky yarn composed of a plurality of substantially continuous individually crimped filaments having a random three-dimensional curvilinear configuration and improved level dyeing characteristic and faster dyeing rate and to the process used for preparing such yarn.
>
> Artificial fibers are normally produced most easily as continuous filaments. These continuous filament yarns are very strong because of the absence of loose ends that are unable to transmit imposed stresses. Their extreme uniformity and lack of discontinuity, however, makes conventional continuous synthetic filament yarns much more dense than yarns made from synthetic staple fibers.

[1] Ser. No. 698,103, filed Nov. 22, 1957, for "Textile Product and Process for Making the Same."

[2] Ser. No. 714,601, filed Feb. 11, 1958, for "Production of Voluminous Yarn."

The production of yarn from staple fibers, however, is time consuming and requires a complex series of operations to crimp the fibers, align the fibers into an elongated bundle and then to draw the bundle to successively smaller diameters. The final spinning operation, which involves a high degree of twist, finally binds these discontinuous fibers together to produce a coherent yarn with considerably increased bulk. The occluded air spaces give them a lightness, covering power, and warmth-giving bulk not normally possible with continuous filament yarns. Thus to get staple fibers that can be processed on conventional wool or cotton spinning equipment, it has been the practice to cut continuous filament yarns such as rayon, acetate, nylon, as well as the polyacrylic and polyester fibers into short lengths for spinning into staple yarn.

Recent developments in the textile industry have provided useful routes for improving the bulk and covering power and recoverable elongation of continuous filament yarns without resorting to the staple spinning systems of the prior art. A well-known process for making stretch yarn involves the steps of twisting, heat-setting and then backtwisting to a low final twist level. Another yarn of improved bulk is prepared commercially by the steps of twisting, heat-setting and backtwisting on-the-run using a false-twisting apparatus. This end product can be further modified by hot relaxing to improve the bulk and handle. Still another bulk yarn is being prepared by the well-known stuffer box techniques wherein the yarn is steamed to heat-set while it is in a compressed state in the stuffer box.

All of these yarns of the prior art are produced by a process which has the common elements of deforming the yarn mechanically and then heat-setting either with or without an after-relaxation step. * * *

After discussing the "recently disclosed product" of the Breen U.S. Patent No. 2,783,609, issued Mar. 5, 1957, Breen set forth the objects of the invention here in issue as follows:

It is an object of the present invention therefore to provide continuous filaments and continuous filament yarn having a bulkiness greater than staple yarn spun from comparable fibers. Another object is to provide multifilament yarn resembling spun staple in its desirable lightness, covering effectiveness and warmth-giving bulk but retaining the characteristic continuous filament freedom from loose ends, fuzziness and pilling. A further object is to provide a process for preparing continuous filament yarn having a bulk greater than that of comparable staple yarn without abrading or cutting the constituent filaments. A still further object is to provide a process which is suitable for rapidly and economically treating ordinary multifilament continuous yarn to greatly increase the bulk without the use of moving mechanical parts other than in the windup. It is also an object to prepare a bulky filamentary material especially useful for the pile component of pile fabrics. Other objects include the provision of continuous filament yarn having greater bulk than staple yarn together with increased uniformity of dyeing rate with low elongation and very low pilling tendency. * * *

The single count reads as follows:

The process of imparting a persistent crimp to synthetic linear polymeric filaments and yarns which comprises feeding the same to a plasticizing stream of a compressible fluid having a temperature of at least 300° F. in which the individual filaments, while in a plastic state and under substantially zero tension, are separated from each other and crimped individually while whipping about in the turbulent plasticizing stream, the crimp having a random, three-dimensional, curvilinear, extensible configuration, and setting the crimp thereby imparted to the said filaments.

The count and its relation to the issues here is best understood when broken down into its component parts. Breen and Richmond agree in general as to the importance of such a breakdown but in doing so emphasize different portions of the count as being the critical factors therein. Thus Breen emphasizes that the count covers a two step "*process*" for imparting persistent crimp to synthetic linear polymeric filaments and yarns. These steps being (1) "*feeding*" the filament to a stream of compressible fluid having a temperature of at least 300° F. and (2) "*setting*" the crimp imparted to the filaments in the stream.

Richmond, however, emphasizes other portions of the count and interprets it as requiring:

1. that the synthetic linear polymeric filaments be fed into a gaseous stream which
   a. *is turbulent*,
   b. *has a temperature of at least 300° F.*, and
   c. *is capable of plasticizing* the filaments;
2. that, while "whipping about" in this stream, the filaments are
   a. *rendered plastic*,
   b. *separated from one another*, and
   c. *crimped individually*;
3. that the crimp so imparted is
   a. *random*,
   b. *three-dimensional*,
   c. *curvilinear*, and
   d. *extensible*; and
4. that the crimp is then set.

Various prior patents as well as Breen's Australian Patent No. 161,076 were cited by the Patent Office as references against both applications. It is Richmond's position that these references show the broad two step process of *feeding* the filament and *setting* a crimp therein was old. The position taken in Richmond's brief is:

* * * The count is patentable *only* by virtue of the nature of the gas stream (over 300° F., turbulent and plasticizing), the behavior of the filaments (they are separated and individually crimped while "whipping about" in the plasticizing stream), and the nature of the crimp (random, three-dimensional, curvilinear and extensible). * * *

As originally declared, Breen was senior party in the interference. Richmond's motion to shift the burden of proof was granted and the interference proceeded to issue with Richmond in the senior party position by reason of a priority claim under 35 U.S.C. 119 based on a corresponding British provisional specification No. 6,876 of 1957, filed in Great Britain on March 1, 1957. Breen opposed the granting of this motion before the Examiner and before the Board of Patent Interferences and assigns it as error here. It is Breen's contention that Richmond's British provisional specification does not support the count in interference. The British application is substantially the same as the Richmond application in interference except for the addition of Examples IV and V in the latter, and upon which there has been no reliance by the Patent Office in resolving the issue against Breen.

We shall first consider this issue. It is stated in Breen's brief that:

There is no disclosure in the Richmond et al. British application of the following limitations of the count:

1. "imparting a persistent crimp" by means of a turbulent plasticizing stream in which the indivdual filaments
2. "while in a plastic state"
3. "and under substantially zero tension" are separated and crimped individually, and
4. "the crimp having a random, three dimensional, curvilinear, extensible configuration."

In stating this position, it will be seen that Breen is reading the count in substance in much the same manner as Richmond contends it should be read when evaluating Breen's proofs as to an earlier actual reduction to practice.

Each of the above limitations in the count was considered by the Examiner and his decision that the count was supported by the British application was affirmed by the Board. Their reasoning and conclusions on these reasons have been fully reviewed. For the reasons stated by the Board, we agree with the Examiner's decision which shifted the burden of proof. In summary, we think the limitation of "imparting a persistent crimp" finds support in Richmond's disclosure of "increasing the degree of permanence [of crimp]." The limitation of "plasticizing" is supported by "softening" in view of Breen's synonymous use of "soften or plasticize." Also we find no error in the reasoning below that Richmond discloses "substantially zero tension" and the necessary crimp in view of the overfeed and turbulent air employed by Richmond.

Concerning the above motion, neither the Examiner nor the Board appears to have read the count as narrowly as Richmond here contends it should be read. For example, it is Richmond's position that it is while the bundle of filaments are "whipping about" in the gaseous stream that they are "rendered plastic, separated from one another and crimped individually." In deciding the motion, neither the Examiner nor the Board appears to have treated this limitation specifically. It appears, however, that this feature is generally disclosed in the British application in the statement that:

> According to the present invention, in subjecting a filamentary bundle to the action of a turbulent stream of fluid for the purpose stated, a hot gaseous fluid is used with the object of increasing the degree of permanence of the loops and sinuosities imparted to the individual filaments of the bundle by the action of the turbulent stream. * * *

We pass now to the second issue on appeal, i.e., did Breen establish an actual reduction to practice prior to March 1, 1957, the date of constructive reduction to practice accorded Richmond on the basis of the filing date of the British provisional specification?

It is Breen's position that:

> Breen et al. has shown by adequately corroborated and credible testimony and by supporting documentary evidence that on at least six occasions between March and July of 1951, the process steps of the count were successfully performed. It has been shown that synthetic linear polymeric filaments ("Dacron" polyethylene terephthalate) were fed into a plasticizing stream of a compressible fluid having a temperature of at least about 300° F.; that the individual filaments while in a plastic state and under substantially zero tension were separated from each other and crimped individually while whipping about in the turbulent plasticizing stream; and that the crimp imparted thereby was set and had a random, three-dimensional, curvilinear, extensible configuration.

Richmond's position is:

> To sum up, the Breen et al. experiments do not show a reduction to practice of the process defined in the count because:
>
> (*a*) In none of the experiments was the temperature of the gas in contact with the filaments determined to be at least 300° F. or sufficiently high to plasticize the filaments.
>
> As admitted by the witnesses for Breen et al. the minimum plasticizing temperature for the fiber with which they were concerned was almost 400° F. While they supplied air at a higher temperature, the structure of the jet was such that air at *room* temperature was also aspirated into the device, and the air which contacted the filaments was a mixture of the hot air and the cold air. The relative quantities of the two streams were unknown. In the single case where it was measured, the average temperature of the gases emerging from the jet was below 300° F.
>
> (*b*) In none of the experiments was it possible to observe the filaments being crimped. It was therefore impossible to say that the individual filaments
>
> while in a plastic state and under substantially zero tension (were) separated from each other and crimped individually while whipping about in the turbulent plasticizing stream.
>
> The fact that the filaments were crimped does not show that there was turbulence because it has been established that crimp forms even without turbulence. (Breen et al. Exhibit 17, page 5, paragraph 1, first three sentences.)
>
> (*c*) There is no firm *contemporaneous* evidence that the filaments obtained had a "random, three-dimensional, curvilinear, extensible" crimp. None of the samples attached to the exhibits was clearly identified as having been made by the processes described. Lauterbach, in his report (Breen et al. Exhibit 17) referred to the crimp as "saw-toothed" and irregular.
>
> Certainly the written report of 1951 is to be accorded heavier weight than the memory of the witnesses, who can scarcely be described as disinterested, in 1963. Moreover, the tendency of the witnesses, including even Lauterbach himself, to contradict the carefully written report casts doubt on the weight and reliability of the more hastily written notebooks, and the recollections of the witness with respect to the material recorded therein.
>
> (*d*) None of the yarns asserted to have been made was tested; or more precisely none of the test results on yarns made in the experiments were put into evidence. Breen et al. excuse this by saying that once the yarn was made, the process defined in the count was completely reduced to practice and testing was unnecessary. * * *

These opposed positions have required a review of the testimony and exhibits offered by Breen to determine whether they do in fact establish an actual reduction to practice of a process as specifically defined and limited by the terms of the count in issue.

[1] In reviewing the testimony and exhibits we have been concerned not only with the burden of the appellants as junior party to prove their case by a preponderance of the evidence, but also with appellants' delay of over six years, after the allegedly successful reduction to practice, in filing the application here in issue. There are substantial reasons of sound public policy why such a delay is a factor to be considered in a case such as the present and we think the Board properly took note of this conduct and the lack of any explanation therefor.

In *Birmingham* v. *Randall*, 36 CCPA 780, 171 F.2d 957, 80 USPQ 371, this court pointed out:

> * * * The failure of appellee to file an application covering the invention in issue for more than seven years after the last-mentioned experiments also raises a strong presumption that the results of those experiments were not considered satisfactory.

Breen's proofs relate to what are asserted to be at least six actual reductions to practice during the period beginning in March 1951 and extending through July of that year. We agree with the ultimate conclusion of the Board that:

> * * * the evidence concerning the work done by Breen in 1951 does not establish an actual reduction to practice of the invention in issue. Breen et al. accordingly have not established an actual reduction to practice prior to the date accorded Richmond et al. for reduction to practice and are the second to reduce to practice. Since Breen et al. have not established the diligence required of the second to reduce to practice, priority will be awarded to Richmond et al., the first to complete the invention by constructively reducing it to practice.

In essence, Breen's case stands or falls on the proofs of some six alleged reductions to practice in the period of March–July 1951. The testimony concerning these events was not taken until 1963, a factor which requires consideration as the testimony is based on recollection of events occurring some 12 years earlier. Breen's case does not rest solely upon such testimony for there are certain contemporaneous written records which were offered in evidence. As stated in *Buffington et al.* v. *Blair et al.*, 28 CCPA 1382, 1385; 121 F.2d 635, 637; 50

USPQ 211, 213, "The record must be considered as a whole, and all competent testimony making up the continuous story given its proper place and weight." However, even when so considered, we do not find satisfactory proofs by Breen of a reduction to practice of a process meeting the limitations of the count in issue. Since the proofs are deficient in different particulars in the various tests relied upon by Breen, we shall consider them separately.

In so doing, a determinative factor in our resolution of the issue has been the precise and limited nature of the count in issue. Thus, we have considered it to be an essential part of the claimed process which constitutes the subject matter of this interference that filaments are plasticized, separated from one another and individually crimped while whipping about in a turbulent gaseous stream, capable of plasticizing the filaments and having a temperature of at least 300° F. Furthermore, we have considered it to be essential that the crimp obtained be random, curvilinear, three-dimensional and extensible.

While we do not find reason in the record considered as a whole for doubting a joint conception and joint efforts directed towards a reduction to practice by appellants, we do not find that appellants have proven a reduction to practice of the process as limited by the count in issue.

The evidence fairly establishes that Breen and the co-inventor Lauterbach were active during the period of March–July 1951 in testing new ways to make crimped fiber. Among these tests were the six specific experiments here relied upon as establishing an actual reduction to practice of a process meeting the count in issue.

The first two experiments can be considered together. Pages 9 and 10 of Lauterbach's notebook (Breen Exh. 3) and the testing report (Breen Exh. 4), allegedly show that filaments falling within the count were heated using air as the heat transfer medium and that this was done in the apparatus referred to as "the jet on Albert's Tower." The notebook contains the following description of the two experiments:

Experiment 1

* * * To evaluate hot air supply for crimper design used hot air and jet on Albert's tower, taking yarn directly from bobbin and piddling it into bucket. No crimp until air temperature was high. Using yarn described above at air temp. of abt. 235° C. a *beautiful crimp* was obtained.

Experiment 2

* * * The yarn was piddled into a 3'' diameter tube, about 1 ft. long with holes on the side. It was easy to wind it upon a bobbin from there with the usual wind-up equipment. *Excellent crimp* obtained in all cases. [Emphasis added.]

We find no acceptable proof as to the construction, size or shape of this "jet." It was described generally by Lauterbach but it was made clear on his cross examination that he was not familiar with such structural details. The jet was admittedly designed for an entirely different undisclosed purpose. The temperature of the air fed to the jet was measured at about 235° C. (455° F.) but the air in contact with the filaments was a mixture of hot and cold air. Its temperature was not measured. No measurement was made of the *quantity* of hot air fed or the *quantity* of cold air aspirated, so that the temperature of the combined stream could not be calculated. Lauterbach admitted that he did not know the temperature of the air actually in contact with the filaments. He did not know whether it was at least 300° F. as required by the count.

The jet itself was opaque so there was no way to know whether the filaments, as they passed through the jet, were treated in accordance with the terms of the count. The record herein does not establish that "the individual filaments, while in a plastic state" were "separated from each other and crimped individually while whipping about in the turbulent plasticizing stream."

There is no clear evidence that the filaments were separated before or after crimping—or indeed that they were separated at all. There is no evidence that they were crimped while "whipping about" in a gas stream having a temperature sufficient to plasticize the yarn. There is no evidence that the stream was turbulent. The pressure in the March 14th run is not given. In the March 15th run the pressure of the hot air stream was said to be 160 p.s.i. However, whether this pressure would produce a turbulent combined stream depends on many factors including the geometry of the jet, and the quantity of hot air added. The claim specifically requires a stream in contact with the filaments which is simultaneously turbulent and capable of plasticizing the filaments. There is no clear evidence that such a stream existed in the Lauterbach experiments.

Breen has asked us to note Lauterbach's reference in his notebook to the "beautiful" crimp which was produced in the fibers. In Breen's brief, this cryptic entry is explained as meaning a "random, three-dimensional, curvilinear and extensible" crimp. It is true that Kolb, Lauterbach's supervisor, so testified but as against this we find in Richmond Cross Exh. 3 a contemporaneous record of appellants which describes the crimp as a "saw-tooth" crimp. Thus, we do not think Breen's proof carries conviction as to the meaning in terms of the count which should be ascribed to Lauterbach's use of the term "beautiful." While fibers made by Lauterbach were sent to a testing laboratory, no one from that laboratory testified and on the present record, no one knows what was done to the fibers in the laboratory.

The terms of the count require that the crimp be "persistent" and that it be "random, three-dimensional, curvilinear, and extensible." As noted above, the contemporaneous records describe the crimp as "saw-tooth," not "curvilinear." Moreover, one of the tests which was to be applied to this fiber at the testing laboratory was to determine "crimp retention." If the results of this test showed a low or negligible crimp retention, there would be no reduction to practice. Although the request for testing was introduced in evidence no results of that test are to be found in the record.

In summary, therefore, we do not find that the conditions under which the filaments were treated in Experiments 1 and 2 or the properties of the products were established to come within the terms of the count. Thus we find the proofs as to these experiments fail to establish a reduction to practice of a process meeting the terms of the count in issue.

The third experiment upon which Breen relies is connected with Breen's Exh. 6 which consists of 3 pages from Breen's notebook. Breen testified that this experiment grew out of his idea of directing a pin-point stream of hot gases against a group of filaments passing through a vertical tube. The subject of the experiment is stated as "Economical Air Jet Crimper Design," and the exhibit begins, "Power consumption at the single yarn crimping position may be a critical factor in determining process economy." A sketch appears on the first page of this exhibit which Breen's brief treats as illustrating

what actually occurred in the devices made for and used in this experiment. We note that nothing in the sketch indicates the presence of turbulent conditions in the tube. Since it seems clear that heated slack filaments will crimp without turbulence, we reject, in the absence of supporting proof, Breen's position that since the sketch shows crimping, it is evidence that Breen contemplated a turbulent zone. The exhibit states, "Several types of two component yarns * * * were run * * * and all were readily crimped over a wide range of crimp types by controlling the power input * * *."

The second page of Breen's Exh. 6 describes the construction of several devices or units. The first ("Jet #1") consisted of a Teflon tube into which a tiny hypodermic needle was angularly inserted.

Breen testified that he carried out experiments with the device labelled "Jet #1" and these are described on page 3 of Breen's Exh. 6. In these experiments, according to Breen, air at 90 p.s.i. was delivered to the hypodermic needle and the needle was heated electrically. Drawn Dacron yarn was delivered to the top of the Teflon tube and allowed to pass vertically through it. A crimped yarn is said to have been obtained.

This experiment, however, fails to show a reduction to practice of a process as defined by the count. The hot gas issuing from the hypodermic needle is said to have been at 400° C. But Spear, Breen's assistant, testified this was measured by a thermocouple inserted at the junction of the hypodermic needle and the Teflon tube. As such it was directly exposed to the path of the hot gas and to any radiation from the glowing hypodermic needle. The temperature of 400° C. read on this thermocouple was thus not indicative of the temperature of the air in contact with the filaments which included a mixture of the stream of hot air from the hypodermic needle and cold air drawn in from the top of the vertical tube. Thus Breen has not shown that it was at least 300° F. and Breen's testimony on the temperature required to plasticize the yarn is not clear.

The jet device used by Breen was Teflon. It was opaque. No one knew what occurred within the jet. Assuming that plasticization or separation occurred, it was not established that crimping followed separation or preceded it; or that plasticization followed separation or preceded it.

The count also requires "whipping about" of the filaments in a "turbulent plasticizing stream." No one testified to seeing filaments "whipping about." No one knows whether or not the stream was turbulent. The air pressure is said by Breen to have been 90 p.s.i., but this was not corroborated and in any case, it is not clear that the amount of air introduced through the tiny hypodermic needle would be sufficient to impart turbulence to the much larger stream passing through the vertical tube. There is nothing in the contemporaneous records which would indicate that Breen got turbulence or that turbulence was considered necessary.

While page 3 of Exh. 6 has yarn attached to it, Breen did not clearly identify the sample with the experiment described thereon.

Spear, Breen's assistant testified:

XQ77. Mr. Spear, what did you do with the product after you had made it, referring again to Breen's Exhibits 6, 10 and 13? A. Well, this was put on a package, and then of course—I mean, this again is kind of out of my line—Al would submit these samples to the P. T. Lab, and from there on I had nothing——

XQ78. As far as you know it was put on a spool, on these little packages such as appear in Breen's Exhibit 13, and from there on you know nothing about it? A. That is right.

There is nothing of record indicating the results obtained from the physical testing laboratory. Breen argues that testing was not necessary because the utility of the yarn was obvious. However, the object of the process set forth was not to make just any crimped yarn but rather to produce yarn with a "persistent" crimp, and crimp persistency was one of the areas which Lauterbach asked to be investigated when he filed the request for testing of the results of Exh. 4.

We think, therefore, that Breen's Experiment No. 3 does not establish a reduction to practice of the process as required by the count.

The fourth experiment is associated with Breen Exhs. 5, 7, 8, 9, 11, 12, 14, 15, 16 and 17. The crimping operation is particularly associated with Breen Exhs. 5, 7, 8, 9 and 11. While these exhibits and the oral testimony pertinent thereto indicate considerable activity on behalf of Breen and Lauterbach, the proofs fall short of establishing a reduction to practice of a process meeting the limitations of the count in issue. The temperature limitation is not met. The temperature of the gas into which the filaments were fed is not established by direct measurement thereof. It cannot be calculated from the data of record. The presence of turbulence in the jet is not proven. No parameters of jet design, flow rates, etc., have been established by which the presence of turbulence in the jet may be reasonably inferred. As pointed out in Richmond's brief:

Breen et al. Exhibit 5 is a page from Lauterbach's notebook showing sketches made by Lauterbach of the apparatus used for this experiment. Section (*a*) on that page is a wiring diagram of a heater used to heat the air. Section (*b*) shows the jet construction. As shown there, the jet comprised a brass block having a hollow cavity. A funnel extended from the top of this block to some point near the bottom of the cavity. Hot air was fed into the cavity from the side. Yarn and cold air were sucked into the funnel. It will be observed that the hot gas did not contact the yarn directly; rather it passed around the funnel and joined the stream of cold air near the bottom of the block. There is an arrow directed downwardly from the block reading "mixed air and threadline."

Sketch (*c*) on this page shows the jet assembled with an expander tube. This was an element containing a straight, cylindrical top part which was connected to the bottom of the jet block, and an outwardly flared, conical bottom part. A thermocouple ("thermocouple 2") was placed in the cylindrical part to measure mixed air temperature. There was also a means for measuring the temperature of the hot air before it was introduced into the jet. This is "thermocouple 1" in section (*a*) on this same page.

The count requires that the filaments be brought into contact with gas at at least 300° F. and that the filaments be separated from each other and crimped individually while whipping about in a "turbulent plasticizing stream." Breen Exh. 5 does not show where the filaments were crimped. If this occurred in the funnel, the gas in the funnel was atmospheric air, heated but not shown to be at 300° F. If this occurred in the narrow throat below the funnel, the temperature of the mixed gas stream there was below the temperature of the hot gas, because cold air from the funnel had been mixed with the hot gas.

The assumption that the yarn was crimped just as it emerged from the funnel of Lauterbach's device, is the one most favorable to Breen. However, in the sketch shown in par. (*c*) of Breen Exh. 5 it appears that in 1951 Lauterbach thought that the yarn was crimped in the expander tube below thermocouple 2 where the temperature is less than 300° F. and far below the asserted plasticizing temperature of

Dacron. Lauterbach's report (Breen Exh. 17), FIG. 2, refers to the conical expander tube as the "crimper."

Thus, according to Lauterbach's own records, the requirement of the count that the filaments be crimped while "whipping about" in a "plasticizing stream" was not met.

While the air pressure used in this apparatus was 8 p.s.i. this does not necessarily establish the existence of turbulence in the apparatus. It is necessary to know more about the dimensions and geometry of the system than Breen has established. We note in this connection that the idea of turbulence as an operative factor in the process is absent from any of the contemporaneous records which Breen relies upon.

If turbulence did in fact occur, it would seem most likely to have occurred in the flared expander tube. Here, however, the temperature in the flared expander tube was below 300° F. and below the plasticizing temperature of the Dacron filaments. This proof falls short of meeting the requirements of the count that crimping occur while the plastic filaments "whip about" in "the turbulent, plasticizing stream."

Breen argues that because the Richmond specification describes the same general type of jet and specifies turbulence, that turbulence must have been obtained in the Breen jets. There is no doubt that it is possible to create turbulent conditions in many different kinds of jets. It would, we are certain, have been possible to establish conditions from which turbulence would result in the jet shown in Breen Exh. 5. We are, however, not free to supply by speculation the proofs of this fact, the burden of which was on Breen.

Since the count does not require that turbulence occur within the jet, it is clear that it does not require a jet. The count does require, however, that the yarn be crimped in a "turbulent" stream which is also "plasticizing." In the case of hot air as the gas and Dacron as the filaments this requires that the yarn be crimped in a turbulent stream whose temperature is at least 392° F. (200° C., according to Lauterbach's testimony). If, referring to Lauterbach's sketch, turbulence occurred in the jet and then crimping took place in the expander tube, the count is not met.

The Board's opinion refers to Breen Patent No. 2,783,609 (Richmond Cross Exh. 5) and notes that in FIG. 1 of that patent the yarn is crimped by turbulence occurring after the yarn has left the jet, corresponding to the expander cone of the device shown under (*c*) in Breen Exh. 5. Breen argues that the patent drawing applies only to the particular jet device, dimensions and process disclosed in the patent. The fact is that whether one has turbulence and where this turbulence occurs depends on the apparatus and the operating conditions. For any apparatus there are flow rates and pressures which will give turbulence and other conditions which will not. Breen has not shown that under the operating conditions used by Dr. Lauterbach, with the particular type of jet he used, turbulence will necessarily occur. Neither has Breen shown that the turbulence occurred where the temperature of the gas was 300° F. or higher and sufficient to plasticize the filaments.

Breen argues that since the details of Richmond's jet and the operating conditions relating thereto have been but generally stated in the Richmond British application, it should be assumed that if Richmond had turbulence, then Breen had turbulence. Since the details of the Breen jet design and the operating conditions within the jet during the experiments on which Breen relies to establish a reduction to practice were not established, it is not possible from the present record to relate Breen's jet operation to that of Richmond. Here again, appealing as is Breen's argument, Breen's burden is to establish facts from which the suggested comparison may be validly made and this we find Breen has failed to do.

After Lauterbach made a quantity of yarn it was sent to the Newport Laboratory to be made into a fabric. Production of yarn defined by the count is all that need be established to show operability of the process as defined in the count. However, the count is very specific in defining the crimp in the yarn as having "a random, three-dimensional, curvilinear, extensible configuration." It is this limitation which Breen is required to show was present in the end product of the experiments relied upon to establish the fourth alleged reduction to practice. Breen's proofs fail to establish that the yarn sent to the Newport Laboratory had these properties. No results of tests made on the yarn were reported, though it is clear from Lauterbach's notebook (Breen Exh. 8) that some testing was carried out. There is no clear showing that the product made in the fourth experiment met the objects of the count.

We find, therefore, that Breen's proofs regarding the fourth experiment are insufficient to establish an actual reduction to practice of a process as limited by the express terms of the count.

The fifth and sixth experiments which Breen relies upon to establish an actual reduction to practice were conducted in apparatus using "micro-jets." The proofs as to the fifth experiment fail to establish that it was a reduction to practice of a process as limited by the significant limitations in the count. Thus, the temperature of the air contacting the fibers, which was a mixture of hot and cold air, was not measured and is unknown. There is no testimony as to air pressure, or flow rates, so that it is unknown whether or not there was turbulence. As to the product of this experiment, no samples are available and the testimony concerning it is not persuasive that the fibers possessed the specific crimp required by the count.

In the sixth experiment, Dacron filaments were treated to 150 p.s.i. steam in a "microjet." The precise type of jet used is not established and there is no evidence of measurement of the steam temperature at the jet. There is nothing but speculation that the process met the terms of the count which require that individual filaments, while in a plastic state and under substantially zero tension be separated from one another and crimped individually while whipping about in the turbulent plasticizing stream. Since flow rates are not given and temperatures not measured, there is no way to tell whether the stream was either turbulent or plasticizing, much less what happened to the filaments in the stream.

Breen testified the temperature of 150 pounds saturated steam is 366° F. Steam at this temperature was led through a line for a distance of about 6 feet and then passed through a small hypodermic needle into the jet. In the experiments recounted on pages 53 (Exh. 6) and 66 (Exh. 10) of Breen's notebook, air, supposedly at 400° C., was injected in the same way and was not shown to have given a mixed air temperature above the melting point of Dacron. It was not established that the temperature of the fluid into which the filaments were fed was at least 300° F. as required by the count.

Breen Exh. 13 has two yarn samples attached to it. The samples were identified by Spear as having been made in the experiment there

described. Samples made according to Exh. 13 were sent to the physical testing laboratory. However, we have no report on these tests.

It seems clear, therefore, that Breen failed to establish that the process of the sixth experiment was carried out with the limitations imposed by the count. There also is a failure of proof that the filaments crimped in the sixth experiment were crimped in the manner required by the express language of the count.

Breen's case falls simply and solely by reason of the failure of proofs to establish a reduction to practice of the process as expressly limited and defined by the precise terms of the count. On this basis, and this basis only, the decision of the Board is affirmed.

AFFIRMED.

U.S. Court of Customs and Patent Appeals

IN RE EDWIN H. LAND AND HOWARD G. ROGERS

No. 7488. Decided November 23, 1966

[54 CCPA —; 368 F.2d 866; 151 USPQ 621]

1. PATENTABILITY—REFERENCE—COPENDING PATENT.

"Patents *otherwise available* as references may be used singly or combined as of their U.S. filing dates to support section 103 rejections though copending with the application at bar. We so held in *In re Harry*, 51 CCPA 1541, 333 F.2d 920, 142 USPQ 164 (1964)."

2. APPEAL TO U.S. COURT OF CUSTOMS AND PATENT APPEALS—MATTER BEFORE COURT—NEWLY RAISED QUESTION OF LAW—AVAILABILITY OF A REFERENCE.

"Generally speaking, we decline to consider questions which could and should have been raised in the Patent Office so that we have the benefit of the views of its trained personnel on matters within their special competence and so that the Patent Office has the opportunity to furnish its position as expert on technical questions, the interpretation of references, applications, and the like. We will nevertheless consider a question of law, such as the availability of a reference, which is necessary to the determination of patentability."

3. PATENTABILITY—REFERENCE—AVAILABILITY OF REFERENCE PATENT—COMMON INVENTORS—35 U.S.C. 102(e)—*In re Blout and Rogers* CONSTRUED.

"Subsequent to the Board decision herein, we handed down our decision in *Blout and Rogers* wherein, on the facts there presented to us, *we held unanimously that the Rogers sole '606 patent was 'not properly a reference' against the Blout and Rogers joint application* filed February 3, 1955, which was after the March 9, 1954, filing date there accorded to Rogers '606 for the disclosure relied on but more than six years prior to the issuance of Rogers '606. We also commented that the same Rogers, one of the joint applicants, was not 'another' within the meaning of section 102(e), though the opinion does not expressly refer to the statute except by quoting that key word from it in the course of discussing the dispute in that case, which revolved around 'Rule 131 affidavits.'"

4. SAME—SAME—*Alexander Milburn Co.* v. *Davis-Bournonville Co.* AND *In re Blout and Rogers* CONSTRUED—35 U.S.C. 102(a).

"The salient fact in *Milburn* was that there was conclusive evidence that his invention was known to others *before he claimed to have made it* and there was no countervailing evidence at all. What he had invented lacked *novelty*, to put it one way, or he was not the *first* inventor, to put it another. The sole evidence was Clifford's patent application. If that application had said, in the course of describing another invention on which Clifford got his patent, that it was describing in addition an invention of Whitford, which would more resemble the case we had in *Blout*, it would not have been evidence that Clifford, or anyone else, knew the invention Whitford made *before* he made it. On the contrary, it would show Whitford made his invention before Clifford described it. We repeat what we pointed out in *Hilmer*, that the statutory basis for the finding of unpatentability in *Milburn* was lack of novelty, as presently embodied in section 102(a). What Whitford claimed was known by others (Clifford, at least) before the date of his invention."

5. SAME—SAME—35 U.S.C. 102(a), (e) AND 103.

"In a rejection today under the 1952 Patent Act, a so-called 'section 102(e) rejection' is equally predicated on lack of novelty and 102(a) if the reference *fully* describes the invention; if it is only *partially* described, because of a difference, then it is based on section 103 into which must be read the *prior* art outlined in 102 which supplies the evidence of obviousness. In the first case the evidence shows the invention was old and in the second that it was obvious, *at the time the applicant or patentee at bar made his invention.* The rejection is *based* on 102(a) or 103, however; 102(e) merely makes the evidence in the form of a 'reference patent' available, as before 1953 the rule of the *Milburn* case made it available."

6. SAME—SAME—OVERCOMING REFERENCE EVIDENCE OF PRIOR KNOWLEDGE—RULES 131 AND 132.

"Rule 131, however, is only one way of overcoming a reference, as close reading of its language, and of broader Rule 132, will amply demonstrate. *If* Rule 131 is complied with, the reference 'shall not bar the grant of a patent' but nothing is said restricting an applicant to compliance with its specific terms as the *only* way to demonstrate that a reference does not disclose knowledge by 'others' *prior* to an applicant's invention but discloses, instead, knowledge by others of applicant's own invention acquired *after*—necessarily after—he made it. Such a state of facts is wholly compatible with the novelty and unobviousness of an applicant's invention under sections 102 and 103, notwithstanding its *disclosure* in a 'reference' patent having a filing date earlier than the applicant's. There is no necessary relation between the order of making inventions and the order of filing applications on them."

7. SAME—SAME—AVAILABILITY OF REFERENCE PATENTS—COMMON INVENTOR.

"The question here is not merely whether A or B, individually, is or is not 'another' to A & B jointly on a theory of 'different legal entities.' Of course they are different 'entities' in the sense that an invention made jointly by A & B cannot be the sole invention of A or B and vice versa, and certain legal consequences flow from such fact, such as who must apply for patent. But it is inescapable fact, too, that when A applies for a patent jointly with B he still has in his head all the information he had as individual inventor A, the same being true of B. If as individuals they apply for patents on individual inventions during a period when they are working together on their joint inventions, they also have in their several heads full knowledge of what they have done jointly. When the joint and sole inventions are related, as they are here, inventor A commonly discloses the invention of A & B in the course of describing his sole invention and when he so describes the *invention of A & B* he is not disclosing 'prior art' to the A & B invention, even if he has legal status as 'another.'"

8. SAME—SAME—PATENTEE'S DISCLOSURE DERIVED FROM APPLICANT—35 U.S.C. 102(d).

"In short, there are two conditions expressed in section 102(e): (1) the application for the reference patent must have been by one who is legally 'another' and (2) the filing date must be 'before the invention * * * by the applicant * * *.' When the 102(e) reference patentee got knowledge of the applicant's invention from him, as by being associated with him, or, as here, had knowledge of the joint applicants' invention by being one of them, and *thereafter* describes it, he necessarily files the application *after* the applicant's invention date and the patent as a 'reference' does not evidence that the invention, when made, was already known to others. Evidence of such a state of facts, whatever its form, must be considered."

9. SAME—SAME—SAME—*In re Blout and Rogers* CONSTRUED.

"On reconsidering our opinion in *Blout and Rogers*, wherein it was remarked that 'Rogers is not "another" to Blout and Rogers,' we now think that remark to have been unfortunate. The true basis of our decision 'that the Rogers patent is not properly a reference against Blout and Rogers' was that the evidence before us showed that the alleged anticipatory disclosure in the Rogers patent was a description of the Blout and Rogers joint invention, *not* the *invention of another*. In that sense only Rogers was not 'another,' but as a patentee, of course, he was. However the disclosure relied on was not *his* invention, or that of a third party as in *Milburn*, but *the applicants' own invention* which, as against them, could not possibly be *prior* art."

10. SAME—AFFIDAVIT UNDER RULE 131—*In re Stempel* CONSTRUED.

"*In re Stempel, Jr.*, 44 CCPA 820, 241 F.2d 755, 113 USPQ 77, was another case in which affidavits 'under Rule 131' satisfactorily showed that what the reference disclosed was in fact the invention of *Stempel*, knowledge of which *Amos et al.*, the reference patentees, had acquired *from him* so that they were not disclosing knowledge by others prior to Stempel's invention. We accepted the affidavits as disposing of the reference even though the precise terms of Rule 131 were not met. As we now see the matter, the proper subject of inquiry was not compliance with Rule 131 but what the *evidence* showed as to *who* invented the subject matter disclosed by *Amos et al.* which was relied on to support the rejection."

11. SAME—REFERENCE—COMMON INVENTOR—PRIOR ART.

"While * * * there is much to be said on both sides of the question, our considered opinion is that Land and Rogers '606, on the facts of this case, should be regarded as prior art. It is certainly in accord with the weight of authority to regard Land and Rogers individually as separate legal entities from Land and Rogers as joint inventors, as they would be regarded relative to each other if a Land application were rejected on a Rogers copending patent. It seems to us that the disclosures in their individual applications of their individual inventions are part of the prior art and they seem to admit as much in saying that Land and Rogers brought their knowledge of their individual work, and of each other's work, with them 'when they made the invention jointly claimed here.' There is no indication that the portions of the references relied on disclose anything they did jointly. Neither is there any showing that what they did jointly was done before the filing of the reference patent applications."

12. CLAIM—FUNCTIONAL—35 U.S.C. 112.

"Since claim 71 depends from 70 they have a common limitation in 70 which is, we think, significant. It reads: '* * * said color-providing substances associated with at least the inner photosensitive emulsion layers are *adapted to be rendered diffusible* in said liquid composition *only after at least substantial development* of the next outermost photosensitive * * * layer has occurred.' [Emphasis ours.] It is true that the italicized portions are 'functional' but we do not regard that as good ground to give them 'no weight' in view of the third paragraph of 35 U.S.C. 112."

18. PATENTABILITY—PARTICULAR SUBJECT MATTER—"PHOTOGRAPHIC COLOR PROCESSES."

The refusal of certain claims in an application entitled "Photographic Color Processes," as unpatentable over the prior art, is affirmed as to certain claims and reversed as to the others.

APPEAL from the Patent Office. Serial No. 565,135.

MODIFIED.

Donald L. Brown (*Stanley H. Mervis*, of counsel) for appellants.

Clarence W. Moore (*Jack E. Armore*, of counsel) for the Commissioner of Patents.

Before WORLEY, *Chief Judge*, and RICH, MARTIN, SMITH, and ALMOND, JR., *Associate Judges*

RICH, *J.*, delivered the opinon of the court.

This appeal is from the decision of the Patent Office Board of Appeals affirming the Examiner's rejection of thirty claims of application Serial No. 565,135, filed February 13, 1956, entitled "Photographic Color Processes." The claims on appeal define both processes and products and are numbered 52–55, 58–61, 63, 64, 66–71, 73–76, 78–86, and 90. The product claims are 69–71 and 82–86. The others are process claims.

The Proceedings Below

The proceedings in the Patent Office were unusual. Appeal was taken to the Board from the final rejection and the Examiner filed his answer. After the hearing, the Board remanded the case to the Examiner "for clarification of his position." The Board said, "We do not have the benefit of the Examiner's views as to the application of the references to each claim, noting that process and product claims of varying scope and different species are presented." A second Examiner's answer was filed, going into much greater detail as to the grounds of rejection. Appellants then filed two amendments and had an interview. The Examiner entered the amendments "since they materially reduce the issues on appeal" and filed a third answer in which it was noted that several claims had been cancelled since the original appeal and that other claims had been amended so as to obviate any question of the claims on appeal reading directly on certain references so as to be anticipated, i.e., fully met.

The references relied on throughout all three answers and by the Patent Office Solicitor here are:

White, 2,350,380, June 6, 1944.
Yutzy, 2,756,142, July 24, 1956 (filed Jan. 22, 1953).
Rogers, 2,774,668, December 18, 1956 (filed May 28, 1953).
Land (sole), 2,968,554, January 17, 1961 (filed Aug. 9, 1954).
Rogers (sole), 2,983,606, May 9, 1961 (filed July 14, 1958) (parent applications filed Mar. 9, 1954 and June 29, 1955, now both abandoned).

The patentees Land and Rogers are the appellants. Since two Rogers patents are cited, we will distinguish them as '668 and '606.

In the third and last answer, the Examiner summarized the situation thus:

The sole issue which appears to remain is whether the appealed claims recite obvious subject matter over Land ('554) or the claims or disclosure of Rogers ('606) in view of White, Rogers ('668) or Yutzy.

As a matter of interest, Land and Rogers, individually and jointly, are assignors to Polaroid Corporation, White to E. I. du Pont de Nemours & Company, and Yutzy to Eastman Kodak Company, and are all leading inventors in the field of photography to which the present invention relates.

Following the filing of the third answer, the Board rendered its decision. In the last quotation above it will be seen that the issue of obviousness, as the Examiner concisely stated it in the alternative, was a two-pronged issue: (1) It was a 35 U.S.C. 103 issue; (2) as to Rogers '606 plus the other references, it was *also* a "double patenting" issue of the type predicated on the *claims* of a patent to a common assignee (here Polaroid, assignee of the application at bar) considered with additional prior art alleged to render obvious the subject matter of the appealed claims in view of the claims of Rogers '606. *In re Simmons*, 50 CCPA 990, 312 F.2d 821, 136 USPQ 450, decided by us in 1963, is a typical "double patenting" case of that type.

We here make the observation that "double patenting" is normally applied as a ground of rejection when the patent used to support the double patenting rejection is *not available* as a reference to show "prior art" under 35 U.S.C. 102 or 103. However, Rogers '606 was used in this case as a prior art reference, as of the filing dates to which it was entitled, the statute presumably relied on but not stated being 35 U.S.C. 102(e). In *Simmons*, the applicant's own prior patent could not be used as prior art *under the statute* and the rejection was therefore predicated on the theory of "double patenting." Here the applicants are Land and Rogers (jointly), and a principal reference is Rogers '606 (sole) plus other references. The existence of these different "legal entities," as the Patent Office calls them (Land and

Rogers being one entity and Rogers '606 being another), is a factual distinction from *Simmons* bearing on the availability of Rogers '606, as well as Land, as prior art references against the joint Land and Rogers application, a disputed point considered later. For the moment we merely wish to point out that the Examiner used Rogers '606 in a dual capacity as a primary reference to support *both* a rejection for obviousness over the *prior art* and a rejection for "double patenting" of the type involving an obviousness issue based on Rogers' claims. We point this out because it bears on the next question we wish to consider and dispose of before getting to the merits of the appealed claims.

The Questioned Allowance of Claim 56

Claim 56 is not on appeal. The reason it is not on appeal is that appellants thought it was allowed by the Board. The reason they thought so is that the Board said, "The decision of the Examiner * * * is reversed as to claim 56." The docket branch of the Patent Office, in making up the record for this court, listed claim 56 as an "allowed claim." Appellants' brief so treats it. It states on page 1:

> Claim 56 was allowed by the Board of Appeals and is printed in the record on page 203.

According to the usual procedure, the Patent Office brief was prepared after the filing of appellants' brief and it takes issue with that statement. That is why we have before us the question, raised by the Patent Office Solicitor, whether the decision of the Board did or did not allow claim 56. After devoting an inordinate amount of time at oral argument to this question, the Solicitor suggests that on either of two theories claim 56 "is not before the court." The first theory was that if all rejections of claim 56 were in fact reversed, the claim is not before us. The second is that no appeal was taken on this claim, wherefore, it is not before us. Clearly, in the absence of an appeal on claim 56, the question of its patentability is not before us *on the merits*. We do consider, however, that since the Patent Office brief so insistently questions appellants' statement that the claim was allowed, we will consider whether or not it was allowed on the basis of what we find in the record.

This brings us to the fact that claim 56, like all other appealed claims, was rejected both as unpatentable over the prior art under section 103 and for "double patenting." Though not there so termed, the latter rejection originated in the final rejection where the wording of the rejection was, "unpatentable over either the disclosure of [or] the claims of one of the newly cited patents to Land and Rogers ['606] * * *." This was reiterated in the first answer, commented on in the second answer, with citation of authority, and dealt with at length in the third answer, where the discussion begins and ends with these sentences (our emphasis):

> The instant claims are not seen to recite a patentably distinct invention over the claims of Rogers ('606) in view of Yutzy. * * *
>
> * * * * * * *
>
> For this reason, the present claims are not seen to be patentably distinct from Rogers ('606) in view of Yutzy. See *In re Simmons*, 136 USPQ 450, and *In re Zickendraht*, 138 USPQ 22 [50 CCPA 1529, 319 F.2d 225].

Zickendraht is another of our recent "double patenting" decisions, but is a quite different type of case from *Simmons*.

The Solicitor's argument about claim 56 is based on his view that all the Board did was reverse the section 103 rejection and, since it allegedly failed to pass on "double patenting," that rejection still stands as to claim 56. We do not so read the record.

We first consider what the Board itself said. Its opinion opens with the statement "No claim has been allowed." It affirmed the rejection of the Examiner on prior art as to a long list of claims from which it omitted claim 56. It then took up that claim separately, discussed how it distinguished from the art and said:

> In our view the art of record *as applied by the Examiner* does not suggest the process of this claim. Accordingly, *the rejection* of claim 56 will not be sustained. [Emphasis ours.]

We note it made no distinction as to the legal theory on which the "art of record," which includes Rogers '606, failed to suggest the claim 56 process. We note that "the rejection" was not sustained. At the end of its opinion the Board said:

> We do not find it necessary to rule on the rejection of the claims on the ground of double patenting with respect to Rogers '606 since the disclosure relied upon, in the absence of a Rule 131 affidavit, is available as prior art.

It then summarized its *decision* as to all claims on appeal, ending with the statement, quoted above at the beginning of this discussion, that the *decision* of the Examiner "is reversed as to claim 56." This seems to us a clear, specific statement. But this is not the end.

Appellants filed a request for reconsideration asking a specific ruling on the double patenting issue, saying that it "should be expressly thrown out since it only confuses the issues" which they intended to bring to this court. They pointed out that the Examiner did not contend that appellants and Rogers '606 claimed the *same* invention, adding:

> The question, then, is whether the differences between the claims on appeal and the claims of Rogers ('606) are directed to unobvious variations or improvements. This question is actually the same question presented in the art rejection under 35 U.S.C. 103.[1]

Appellants there pointed out to the Board that it had in fact reversed the rejection of claim 56 and added:

> Since the Board of Appeals *has allowed claim 56* to applicants, it can only be assumed that the rejection on double patenting *was considered and reversed*, at least with respect to claim 56. This implicit holding should be made explicit. [Emphasis ours.]

Thereby the Board was advised of appellants' understanding of the Board's action on claim 56. In ruling on the petition, which was denied, the Board said "we * * * reversed the decision [sic] of claim 56," by which it could only have meant that it had reversed the decision *of the Examiner* on claim 56. Generally, they added:

> In rendering our decision we relied only on the disclosure of Rogers which was available as a reference prior to the filing date of the present application. * * *
>
> Since we sustained the rejection on the broader basis of the available disclosure we did not then, nor do we now, feel compelled to render a decision based upon the narrower aspect [basis?] of double patenting.

As we view it, the Board deemed Rogers '606, insofar as it had value as a reference, to be *available* as prior art and therefore saw no reason

[1] From the standpoint of analyzing the *obviousness* of the inventions of the appealed claims this a correct statement. But we issue a word of warning that the obviousness question in this "double patenting" rejection, based on patent claims plus other art, as here, is *not* an issue *under* section 103; it is not a statutory issue, as pointed out in the concurring opinion in *Zickendraht*, supra. Section 103, as such, is not involved in the "double patenting" rejection.

to utilize that patent under a "double patenting" theory, which *is* "narrower" in the sense that one *cannot thus reject on the disclosure*, as the Board preferred to do, but must reject on the *claims*, or what has already been patented, plus other art if desired. Thus viewed, it is reasonable to assume that the Board's view was that on any theory, including "double patenting," claim 56 distinguished from the references, including the *claimed* subject matter in Rogers '606, by defining an *unobvious* process. It should be remembered that Rogers '606 was used to support an *obviousness* type of "double patenting" rejection.

The Solicitor's theories concerning what the Board did appear to us to be groundless. When the Board was told that it *had allowed* claim 56, not only did it not demur, it repeated that it had reversed the decision rejecting it.

This issue is discussed in the Solicitor's brief at the beginning, in the middle, and at the end. It is not a mere incidental observation. After noting the statement in appellants' Notice of Appeal that the Board decision appealed from had *not* refused a patent on the "subject matter defined by claim 56," it would seem to have been appropriate for the Solicitor to have inquired of the Board what its intended action had been, in case he had doubts about it. Furthermore, we deem it inappropriate for him to have raised the issue before us and then to have argued that we cannot deal with it because no reason of appeal brought it before us. This question was first raised in the Patent Office brief, filed long after the notice wherein the reasons of appeal are stated. 35 U.S.C. 142. We deem claim 56 to stand allowed.

The Invention

The invention relates to "picture-in-a-minute" photography as popularized by Polaroid Corporation, more particularly color photography. Before undertaking to describe it, we have considered whether to describe what is claimed, on the theory that the claims define what the invention is, or to describe what appears to be the invention from consideration of the oral argument and a reading of the specification and appellants' brief, on the theory the appellants can tell us through counsel what they have invented. In doing this, it appears impossible to arrive at a single concept of the invention, for different approaches lead to different results.[2] However, by setting aside the claims and the arguments specific thereto, a central theme emerges, stated at oral argument to be the gist of the invention, which seems to permeate the whole specification and to be generally agreed on by appellants and the Patent Office as the essence of the invention *sought* to be patented. One term for it is "deferred diffusion." We merely name it here and will describe it later. It is first necessary to understand the general nature of the photographic process and products in which it occurs.

The photographic color process here involved is known as diffusion transfer and we describe it in connection with a three-color process

[2] The final rejection and first Examiner's answer contained a rejection under 35 U.S.C. 112 on the ground certain claims, some of which are on appeal, failed to particularly point out and define the invention, and under the same section also contained an undue multiplicity rejection. This was repeated in detail in the second answer. After an interview and two amendments, the nature of which the record does not disclose, which followed the second answer, this rejection was abandoned in the third answer. We nevertheless observe a considerable gap between the invention as described and the subject matter of the broader claims. What seems to have survived is a rejection on the ground such claims, apparently because of their breadth, *define only subject matter which would be obvious* from the prior art rather than the invention as described, the Board having found claim 56 which *does* define the invention described, to be directed to *unobvious* subject matter.

(two-color processes may be used). There is a multilayer "negative" element, sometimes called a "monopack," consisting of a film base on which there are three photosensitive layers or silver halide emulsions, sensitized to different portions of the visible light spectrum. Associated with each is a color-providing substance which may be either a colored material itself, such as a dye, or a material which will react chemically to produce a dye. Associated with the monopack negative, usually *after* it has been exposed to the subject photographed, is an image-receiving layer to which some of the three colors from the negative may be transferred, "imagewise," after development of the negative, by a sort of blotting-paper action known as imbibition, it being understood that at the time of development and transfer the negative and image-receiving layer are in close face-to-face relation.

The monopack negative, broadly old, is constructed generally as follows. On the film support or base there is, first, a layer of red-sensitive silver halide emulsion associated with a cyan image dye. Next, there is a green-sensitive emulsion associated with a magenta image dye. On top of these layers is a blue-sensitive emulsion associated with a yellow image dye. Separate dye layers may underlie the photosensitive layers or the dye may be placed therein. The three photosensitive layers are exposed simultaneously through the camera lens and, upon development, negative images are produced, these images recording, respectively and separately, the blue, green, and red portions of light emanating from or reflected by the scene photographed.

The characteristic of this type of process is that when the silver halide has been exposed to light to which it is sensitive it can develop to produce the negative image. In doing so it acts chemically to immobilize the dye or color-former associated with it to the extent that it has been exposed. Conversely, where it has not been exposed to light it leaves the color-providing substance mobile and *free to diffuse* to the image-receiving layer to which it *transfers*, hence the name "diffusion transfer." The three colors are thus imbibed by said layer in different amounts or "imagewise" and, being superposed, produce a positive color photograph by making three color-separation printings in registration on the same sheet. This is, of course, a crude description intended only to give a general idea of what happens and the monopack is actually more complex. It may contain other layers such as barrier layers, light filtering layers, etc.

The process employed is a "subtractive" color process, the blue-sensitive layer producing the yellow (minus blue) dye, the green-sensitive layer producing magenta (minus green), and the red-sensitive layer producing cyan (minus red) which, when combined, form the positive image. Thus it is that the negative produces a positive, substantially simultaneously with its development.

Development of the negative and transfer of the image-forming color-forming materials are produced, as in the previously known Land-Polaroid monochrome technique, by a single liquid processing composition which is contained in a pod associated with each picture unit of the film and adapted to be ruptured, the liquid being spread across the opposed faces of the negative and image-receiving layers when they are squeezed between rollers usually forming part of the camera. After allowing the proper time for processing, the image-receiving layer is stripped from the negative. The processing liquid

is adapted to activate the rather complex chemicals which may be carried in a dry state in the monopack, and possibly also in the image-receiving layer, which commence to function as they go into solution in said liquid.

A preferred color-providing material is known as a dye-developer which is both a dye, supplying the desired color for the positive image, and a developer for the silver halide light-sensitive element with which it is associated. The use of dye-developers appears to be the invention of Rogers and is described and claimed in his '606 patent which is a reference.[3]

While appellants' brief says they "have invented a novel and highly successful process for forming full color images by diffusion transfer" it is not expressly stated that the success is to be attributed wholly to what is disclosed in the present application. It was stated at oral hearing that the present invention does not use any new element, material, or processing solution but resides in the combination of such old elements to produce a new result. We will now quote the passages from the specification which more fully explain the gist of the invention, deferred diffusibility (all emphasis ours):

> As noted hereinabove, multicolor positive images are formed *in accordance with this invention by suitable control of the diffusibility or availability for diffusion of color-providing substances* associated with at least the inner photosensitive layer or layers to other photosensitive layers of an integral multilayer photosensitive element or to the image-receiving layer. This control of the availability of color-providing substances may be described as "deferred mobility," "deferred diffusibility" or "retarded mobility." *Such control of the nonimmobilized color-providing substances is necessary to insure that they do not participate in the development of the latent color image in a photosensitive layer or stratum other than that with which they are associated.* This is particularly essential where the nonimmobilized color-providing substance is capable of developing exposed silver halide. * * * Various mechanisms may be utilized to create the desired deferred diffusibility of the color-providing substances, and a particular integral multilayer photosensitive element may utilize the same or *several different mechanisms for creating the desired deferred diffusibility* in the several layers.
>
> * * * * * * *
>
> In general, it may be stated that the desired deferred diffusibility of color-providing substances may be obtained by two types of processing. In one, the latent color record images in the several emulsion layers are substantially simultaneously developed prior to the time the nonimmobilized color-providing substances in unexposed areas achieve the requisite diffusibility. In the second type of processing, the integral multilayer photosensitive element is processed layerwise, one emulsion layer being developed and the color-providing substances associated therewith, but not immobolized by development, rendered diffusible to the image-receiving layer substantially prior to the time development and diffusion occurs in another layer. In certain instances, an integral multilayer photosensitive element may be so constructed as to utilize both types of processing techniques.

It may be helpful to note that since the whole object is to get a good color image with a single processing solution, spread just once between the monopack and the image-receiving layer according to the Polaroid method, the *process* which results depends entirely on the construction and the ingredients of the monopack and the image-receiving layer and the chemical make-up of the processing solution. Once they are so made as to accomplish the desired result, the process is inherent in them.

[3] That patent states (col. 5) that the developing function can be *insulated* from the dye molecule, as disclosed in the joint application of Blout and Rogers, Serial No. 485,840, filed Feb. 3, 1955. That application was here on appeal in *In re Blout and Rogers*, 52 CCPA 751, 333 F.2d 928, 142 USPQ 173 (1964). Blout and Rogers patent issued June 7, 1966, No. 3,255,001.

We here reproduce claim 52, stated to be the broadest of the process claims on appeal, the italicized portions being from appellants' brief which says they are the portions primarily relied upon to establish patentability. We have broken the claim into its three main process steps and have capitalized the key words of those steps. The reader who has followed our opinion thus far will be interested to note that the claim makes no mention of deferred diffusion, which should not be confused with imagewise immobilization, one of the italicized passages, though it is not contended there is anything new in it.

> 52. A process of forming positive transfer images in color comprising the STEPS of:
>
> EXPOSING an integral, multilayer, photosensitive monopack element comprising a support carrying a plurality of continuous, coextensive, superposed photosensitive silver halide emulsion layers, each said emulsion having associated with it a color-providing substance selected from the class consisting of an image dye and an intermediate for said image dye, each said silver halide emulsion being sensitized to different portions of the spectrum,
>
> DEVELOPING each of said emulsions, *immobilizing in developed areas, as a function of said development, said color-providing substance associated with each said emulsion thereby providing in undeveloped areas of each said emulsion an imagewise distribution of nonimmobilized, diffusible color-providing substance,*
>
> TRANSFERRING by imbibition at least a portion of each of said imagewise distributions of nonimmobilized, diffusible color-providing substance to *a single, superposed image-receiving layer* to impart thereto a plurality of dye images, thereby providing a positive, multicolor image, *said development and said transfer being effected by the application of a single liquid composition.*

Allowed claim 56 and 12 other process claims depend from claim 52. It is illuminating to read the allowed claim:

> 56. A process as defined in claim 52, wherein said permeation of said integral multilayer, photosensitive element proceeds substantially layerwise, so that development of an outer emulsion layer is substantially completed and diffusion of the color-providing substance associated with undeveloped areas is at least partially completed prior to substantial permeation and development of the next inner emulsion layer by said liquid composition.

In allowing it, the Board pointed out that it is limited to control of diffusibility by layerwise permeation, which, the Board said, "the art of record * * * does not suggest * * *."

As appellants' brief correctly points out, the issues require an adjudication of the obviousness of each of the 30 appealed claims in view of the prior art but before we can do this we have to deal with Point 2 of that brief raising questions as to whether some of the references underlying the rejection are, in law, available as prior art. This question, as argued, falls into two parts.

What References Are "Prior Art"—Part I

This first aspect of the question involves the issue recently before the United States Supreme Court in *Hazeltine Research, Inc.* v. *Brenner*, 382 U.S. 252, 147 USPQ 429 (1965). The Land, Rogers '606, and Yutzy patents were all *copending* with the application on appeal. The statutory ground of rejection involved in this question is 35 U.S.C. 103 obviousness. Though appellants concede such references are "prior art" under section 102, they raised the old question whether, in view of the unavailability of the contents of pending applications under 35 U.S.C. 122, the patents issuing thereon are available as prior art *to show obviousness under section 103*, as of their *filing* dates in the United States. See 35 U.S.C. 102(e).

Appellants held this question open in their brief, filed May 7, 1965, because *Hazeltine* was then pending before the Supreme Court. December 8, 1965, the point was decided adversely to appellants. [1] Patents *otherwise available* as references may be used singly or combined as of their U.S. filing dates to support section 103 rejections though copending with the application at bar. We so held in *In re Harry*, 51 CCPA 1541, 333 F.2d 920, 142 USPQ 164 (1964). With respect to this case, that makes Yutzy clearly available as a reference, no other question being raised as to its availability.

As to the Land and Rogers '606 references, however, appellants raise the second part of the question about availability, based on our decision in *In re Blout and Rogers*, 52 CCPA 751, 333 F.2d 928, 142 USPQ 173 (1964). They admit that they did not argue this point of law before the Board, nor could they have done so as *Blout and Rogers* was not decided until more than four months after the Board decision. The Solicitor's brief objects to our considering it on the usual ground that we do not generally consider points not raised below, citing *In re Herthel*, 36 CCPA 1095, 174 F.2d 935, 82 USPQ 55, *In re Panagrossi et al.*, 47 CCPA 904, 277 F.2d 181, 125 USPQ 410, and *In re Soli*, 50 CCPA 1288, 317 F.2d 941, 137 USPQ 797. We find nothing in those cases or in the two other cases cited in *Herthel* which precludes us from dealing with this point of law. In none of those cases was it a point of law that we declined to consider but rather such things as the interpretation of a word (*Herthel*), the factual significance of a claim limitation, a question of operability, the construction of a claim (*Panagrossi*), and the propriety of actions of the Examiner to which response could have been made in the Patent Office (*Soli*). [2] Generally speaking, we decline to consider questions which could and should have been raised in the Patent Office so that we have the benefit of the views of its trained personnel on matters within their special competence and so that the Patent Office has the opportunity to furnish its position as expert on technical questions, the interpretation of references, applications, and the like. We will nevertheless consider a question of law, such as the availability of a reference, which is necessary to the determination of patentability. *In re Schoenwaldt*, 52 CCPA 1258, 343 F.2d 1000, 145 USPQ 289, 290. Indeed, we believe we are in a position to interpret our own opinion in *Blout and Rogers* without the benefit of the views of Patent Office tribunals. The Solicitor is just as free to argue his views as he is when they have been considered below. We therefore proceed to a consideration of the question raised.

What References Are "Prior Art"—Part II, Joint Applicants' Own Sole Patents

As we recently pointed out in *In re Hilmer*, 53 CCPA 1287, —, 359 F.2d 859, 879, 149 USPQ 480, 496 at [11],

> Much confused thinking could be avoided by realizing that rejections are *based* on statutory provisions, not on references, and that the references merely supply the *evidence* of lack of novelty, obviousness, loss of right or whatever may be the ground of rejection.

The ground of rejection Land and Rogers '606 are cited to support is section 103 obviousness. These patents did not issue until several years after the instant application was filed.[4] They are being used as references as of U.S. filing dates which antedate the joint appellants' filing date. The only basis for so using a U.S. patent is section 102(e):

> A person shall be entitled to a patent unless—
> (e) the invention was described in a patent granted on an application for patent by another *filed in the United States before the invention thereof by the applicant* for patent * * *. [Emphasis ours.]

"Another" clearly means another than "the applicant[s]." In the final rejection, the Examiner appears to have assumed availability of the Land and Rogers '606 patents *as prior art* on the ground Land and Rogers, *individually*, were "another" with respect to the same persons as *joint* applicants. The first answer took it for granted. The second answer on the first remand merely pointed out the specific filing dates antedating that of the present application. The third answer on the second remand to consider amendments again seems to have assumed availability as prior art and the Board clearly did likewise. Additionally, in explaining why it found it unnecessary to rule on the double patenting rejection, which the Examiner had retained throughout, the Board made the express statement that the portion of Rogers '606 relied on by it "is available as prior art."[5] This could only have been on the basis of filing date and based on section 102(e).

[3] Subsequent to the Board decision herein, we handed down our decision in *Blout and Rogers* wherein, on the facts there presented to us, *we held unanimously that the Rogers sole '606 patent was "not properly a reference" against the Blout and Rogers joint application* filed February 3, 1955, which was after the March 9, 1954, filing date there accorded to Rogers '606 for the disclosure relied on but more than six years prior to the issuance of Rogers '606. We also commented that the same Rogers, one of the joint applicants, was not "another" within the meaning of section 102(e), though the opinion does not expressly refer to the statute except by quoting that key word from it in the course of discussing the dispute in that case, which revolved around "Rule 131 affidavits."

The Solicitor seeks to distinguish *Blout and Rogers* on the ground that in that case the portion of Rogers '606 relied on was *not claimed* and that we held the unclaimed matter was not prior art whereas here (*a*) it is not *alleged* the subject matter relied on is not claimed and (*b*) in point of fact it is claimed. We see no legal significance in these alleged distinctions *with respect to a section 103 rejection.* Claiming in the reference has relevance on a double patenting issue but it has been settled ever since *Alexander Milburn Co.* v. *Davis-*

[4] These two references were first cited in this application in the final rejection of June 7, 1961. The Land patent had issued about five months and the Rogers '606 patent about one month prior thereto. All claims were rejected on *three grounds*, the first two being initially stated as "unpatentable over either the disclosure or the claims of one of the newly cited patents to Land and Rogers * * * this ground of rejection alone or further taken together with one of Martines, the White patents, Rogers ('668) and Yutzy." The Examiner said he "found nothing patentable over the disclosure of these two patents to different inventive entities." He cited no statute as the basis for this rejection or as warranting the use of the newly issued, newly cited patents as references. He merely justified it on the basis they were to "*different inventive entities.*" He then proceeded at greater length to expound his rejection *on the claims of either* Land or Rogers '606, referring to the granting of the patents to the *assignee* of the present case and to "an extension of the patent monopoly." Though he never referred to double patenting, that must have been what he had in mind as the ground of rejection. The third ground, no longer asserted, was failure to comply with section 112 in failing to point out the invention. On the availability issue, we are concerned only with the section 103 rejection, not with double patenting.

[5] This was because the Rogers '606 specification had originated in various parent applications with different filing dates. The final application was filed *after* appellants filed, July 14, 1958, but as a continuation-in-part of others filed March 9, 1954, and June 29, 1955, *prior* to appellants' filing date. The last two are the filing dates used.

Bournonville Co., 270 U.S. 390 (1926), wherein the rule of section 102(e) originated, that the disclosure in the reference is available as prior art whether or not the disclosed subject matter is claimed. See *In re Hilmer*, supra, at 149 USPQ pages 483 and 495. That is the only effort the Patent Office makes to distinguish *Blout* and we think it must fail.

As to the soundness of the *Blout* rule, appellants cite a number of cases showing that it is elementary that the copending application of the *same* inventor entity is not "prior art," namely, *In re Heinle*, 52 CCPA 1164, 342 F.2d 1001, 145 USPQ 131 (1965), *Weatherhead Co.* v. *Drillmaster Supply Co.*, 227 F.2d 98, 107 USPQ 184 (7th Cir. 1955), *Old Town Ribbon & Carbon Co.* v. *Columbia R. & C. Mfg. Co.*, 159 F.2d 379, 72 USPQ 57 (2d Cir. 1947),[6] and *Ex parte Lemieux*, 1957 C.D. 47, 115 USPQ 148. In the last case the Board of Appeals, in a well-reasoned opinion, cited *Ex parte Powell and Davis*, 37 USPQ 285 (Bd. App. 1938) where it was held applicants' *own* British specification, published a few weeks before the filing of their application, was not prior art and concluded that subsequent legislation had not altered that rule, that the reference asserted to show *prior* art must disclose the work of someone *other* than the applicant. For two additional cases wherein this court recognized that rule, see *In re Land*, 27 CCPA 863, 109 F.2d 246, 44 USPQ 352, and *In re Land*, 27 CCPA 869, 109 F.2d 251, 44 USPQ 348 (1940), where the court said Land's *own* prior filed copending patent could be used only for what it claimed, i.e., in support of a rejection for double patenting.

There appears to be no dispute as to the law that A is not "another" as to A, B is not "another" as to B, or even that A & B are not "another" as to A & B. But that is not this case, which involves, as did *Blout*, the question whether either A or B is "another" as to A & B as joint inventors under section 102(e).

In re Middleton and Reynolds, 50 CCPA 1479, 319 F.2d 552, 138 USPQ 253, 259 (1963) is also discussed by appellants and the Solicitor, the latter attempting to use it to take this issue from us on the ground *Middleton* was decided prior to the Board decision herein, and therefore this question could have been considered below. However, it is not a parallel case to *Blout*. The rejection there, of a Middleton and Reynolds application, was based on section 102(b), the Middleton sole patent being cited as a one-year time-bar by reason of its *issuance* a year before the joint applicants' filing date. We held it was not available as a reference for that purpose because the applicants *were entitled to a filing date prior to the date of the patent*. While our opinion quotes from *Lemieux* and makes some general statements about the invention of the reference being applicants' own, it is dictum and it is clear that neither the issue here nor section 102(e) was involved.

Dealing, as we are, with a section 103 rejection and with references in support of that rejection alleged to show *prior* art to appellants by virtue of section 102(e), it behooves us to consider the fundamental statutory basis of the rejection. In *Hilmer* we reviewed the history and meaning of section 102(e) (149 USPQ 480, at 494) and its origin in the *Milburn* case wherein Whitford's patent was invalidated on the ground that Clifford's patent, containing a full description of it

[6] We believe this case is not in point on this issue because the Foster reference patent, which was copending, involved no inventor in common with the patentees of the patent in suit, Lewis and Menihan.

earlier than any date of invention claimed by Whitford, was *evidence* that Whitford was not the first inventor. The statutory basis of that decision was that Whitford's invention was not patentable because "known * * * by others in this country, *before his* invention" (emphasis ours), under that part of R.S. 4886 which is now 102(a). The "other" in the *Milburn* case was Clifford, a total stranger to Whitford.

[4] The salient fact in *Milburn* was that there was conclusive evidence that his invention was known to others *before he claimed to have made it* and there was no countervailing evidence at all. What he had invented lacked *novelty*, to put it one way, or he was not the *first* inventor, to put it another. The sole evidence was Clifford's patent application. If that application had said, in the course of describing another invention on which Clifford got his patent, that it was describing in addition an invention of Whitford, which would more resemble the case we had in *Blout*, it would not have been evidence that Clifford, or anyone else, knew the invention Whitford made *before* he made it. On the contrary, it would show Whitford made his invention before Clifford described it. We repeat what we pointed out in *Hilmer*, that the statutory basis for the finding of unpatentability in *Milburn* was lack of novelty, as presently embodied in section 102(a). What Whitford claimed was known by others (Clifford, at least) before the date of his invention.

[5] In a rejection today under the 1952 Patent Act, a so-called "section 102(e) rejection" is equally predicated on lack of novelty and 102(a) if the reference *fully* describes the invention; if it is only *partially* described, because of a difference, then it is based on section 103 into which must be read the *prior* art outlined in 102 which supplies the evidence of obviousness. In the first case the evidence shows the invention was old and in the second that it was obvious, *at the time the applicant or patentee at bar made his invention.* The rejection is *based* on 102(a) or 103, however; 102(e) merely makes the evidence in the form of a "reference patent" available, as before 1953 the rule of the *Milburn* case made it available.

The significant words in 102(a) are "known or used by *others* * * * before the invention thereof by the applicant" and the parallel words in 102(e) are "application for patent *by another* * * * *before* the invention thereof by the applicant" (emphasis ours). These are the key words on which resolution of the present problem turns. The real issue is whether *all* the evidence, including the references, truly shows knowledge by another *prior to the time appellants made their invention* or whether it shows the contrary. It is a question of fact.

On problems of this kind, thinking seems to have fallen into the following stereotype: A U.S. patent is a "prior art reference" under 102(e) as of its filing date; a "reference" can be overcome only by "swearing back" of it under Rule 131; Rule 131 requires a showing of facts which establish a reduction to practice before the date of the reference, or prior conception coupled with a reduction to practice by diligence; a patent to the *same* applicant or applicants is recognized as incapable of being such a reference because it does not show knowledge by "others" but a *sole* applicant or patentee and *joint* applicants or patentees are separate or different "legal entities" and either is treated as "another" relative to the other (until *Blout and Rogers* raised a question about it). Therefore, joint applicants A and B must "overcome" a reference patent to A or to B and the

only way one can overcome a "reference" is by complying with *all* of the requirements of Rule 131.[7]

[6] Rule 131, however, is only one way of overcoming a reference, as close reading of its language, and of broader Rule 132, will amply demonstrate. *If* Rule 131 is complied with, the reference "shall not bar the grant of a patent" but nothing is said restricting an applicant to compliance with its specific terms as the *only* way to demonstrate that a reference does not disclose knowledge by "others" *prior* to an applicant's invention but discloses, instead, knowledge by others of applicant's own invention acquired *after*—necessarily after—he made it. Such a state of facts is wholly compatible with the novelty and unobviousness of an applicant's invention under sections 102 and 103, notwithstanding its *disclosure* in a "reference" patent having a filing date earlier than the applicant's. There is no necessary relation between the order of making inventions and the order of filing applications on them.

We therefore approach the question of the availability of the Land and Rogers '606 patents realistically for what it is, a problem of evidence and a question of fact as to what disclosure is relied on in support of the rejection and who invented the subject matter disclosed. We are not concerned with any affidavits under Rule 131 as there are no affidavits at all in this case, unlike *Blout and Rogers*. As in that case, however, we are dealing with inventors who worked closely together for their common assignee, Polaroid, and with a joint application rejected on patents issued to an individual inventor who is one of the joint inventors. The application and the reference patents all flowed from the same research out of the same laboratory, were prepared by the same attorneys, are complex, lengthy, interrelated, and contain extensive cross-references,[8] a situation bearing no resemblance to the *Milburn* case whence came the law making copending patents available as references, codified in section 102(e).

[7] The question here is not merely whether A or B, individually, is or is not "another" to A & B jointly on a theory of "different legal entities."[9] Of course they are different "entities" in the sense that an invention made jointly by A & B cannot be the sole invention of A or B and vice versa, and certain legal consequences flow from such fact, such as who must apply for patent. But it is inescapable fact, too, that when A applies for a patent jointly with B he still has in his head all the information he had as individual inventor A, the same being true of B. If as individuals they apply for patents on individual inventions during a period when they are working together on their joint inventions, they also have in their several heads full knowledge of what they have done jointly. When the joint and sole inventions are related, as they are here, inventor A commonly discloses the invention of A & B in the course of describing his sole invention and when he so describes the *invention of A & B* he is not disclosing "prior art" to the A & B invention, even if he has legal status as "another."

[8] In short, there are two conditions expressed in section 102(e): (1) the application for the reference patent must have been by one who is legally "another" and (2) the filing date must be "before the invention * * * by the applicant * * *." When the 102(e) reference patentee got knowledge of the applicant's invention from him, as by being associated with him, or, as here, had knowledge of the joint applicants' invention by being one of them, and *thereafter* describes it, he necessarily files the application *after* the applicant's invention date and the patent as a "reference" does not evidence that the invention, when made, was already known to others.[10] Evidence of such a state of facts, whatever its form, must be considered.[11]

What facts does the evidence here show and what is the evidence? Appellants' contention is:

> **Even if it be assumed that a copending patent is available as a reference under 35 U.S.C. 103 as of its filing date, it is believed that the Land '554 and Rogers '606 patents are not available as references against any of the appealed claims, for *they are not prior art as to appellants*.**
>
> **It is acknowledged by all that neither Land '554 or Rogers '606 *disclosed* the here claimed invention prior to appellants' filing date.**

We take this last stated fact to be implicit in the rejection for obviousness under section 103. Appellants continue the argument:

> **Here we are concerned with a joint application of Land and Rogers rejected upon an earlier sole application of Land and an earlier sole application of Rogers. The fact that Land communicated the subject matter of the Land '554 patent to Rogers prior to the filing of Rogers' sole application is established by express cross-references to Land's 1950 application * * * [three cross-references are here set forth] of the Rogers '606 patent. Thus, Land and Rogers *jointly* possessed, prior to the filing of their joint application, all of the disclosure in their respective sole applications which is relied upon by the Patent Office. Land and Rogers brought this knowledge with them when they made the invention jointly claimed here. * * * Under these circumstances, it is submitted that appellants are here being rejected upon their own knowledge and disclosures, just as much as if the earlier filed sole applications had been joint applications.**

As we understand this last point, it is based on the justifiable assumption that *if* the reference were another joint Land and Rogers application, instead of two individual applications, the rule would apply that an applicant's copending applications or publications are not prior art to him, *In re Heinle*, 52 CCPA 1164, 342 F.2d 1001, 145

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[7] The only statement made by the Board on this score was that Rogers '606, "In the absence of a Rule 131 affidavit, is available as prior art." On rehearing, it repeated this dogma. In the *Blout and Rogers* case, supra, "Rule 131 Affidavits" were filed but ignored by the Patent Office because not deemed in full compliance with the rule. We deemed them sufficient, however, even though they did not comply with the rule, to show that the invention disclosed in Rogers '606 was not that of "another" *but that of Blout and Rogers*, the applicants against whom the reference was cited. (See, however, footnote 10, infra.) In addition, the Rogers reference patent contained a clear cross-reference under Rule 79 to appellants' application with a statement of what they claimed as their invention as distinguished from Rogers'. It appears at col. 5, lines 54–61 of the Rogers Patent No. 2,983,606, the same reference which is being used herein.

[8] The application at bar occupies 45 pages of printed record. Land 2,968,554 contains 36 columns. Rogers '606 contains 34 columns. One table of other copending applications in the latter to which cross-reference is made for relevant disclosures contains 33 applications. Additionally there are cross-references to several other applications.

[9] In *Helene Curtis Industries v. Sales Affiliates, Inc.*, 233 F.2d 148, 109 USPQ 159 (2d Cir. 1956), faced with the problem whether McDonough was "another" as to patentees Evans and McDonough, the court recognized the question as one of first impression under 102(e) and, "in view of the policy considerations involved," refused to commit itself to the interpretation made below that the joint patentees were "another" as to the sole patentee.

[9] [10] On reconsidering our opinion in *Blout and Rogers*, wherein it was remarked that "Rogers is not 'another' to Blout and Rogers," we now think that remark to have been unfortunate. The true basis of our decision "that the Rogers patent is not properly a reference against Blout and Rogers" was that the evidence before us showed that the alleged anticipatory disclosure in the Rogers patent was a description of the Blout and Rogers joint invention, *not* the *invention of another*. In that sense only Rogers was not "another," but as a patentee, of course, he was. However the disclosure relied on was not *his* invention, or that of a third party as in *Milburn*, but *the applicants' own invention* which, as against them, could not possibly be *prior* art.

The situation here dealt with was not before us in *In re Bowers*, 53 CCPA 1590, 359 F.2d 886, 149 USPQ 570, and should be regarded as a special exception to statements therein regarding the availability of references under 102(e).

[10] [11] *In re Stempel, Jr.*, 44 CCPA 820, 241 F.2d 755, 113 USPQ 77, was another case in which affidavits "under Rule 131" satisfactorily showed that what the reference disclosed was in fact the invention of Stempel, knowledge of which Amos et al., the reference patentees, had acquired *from him* so that they were not disclosing knowledge by others prior to Stempel's invention. We accepted the affidavits as disposing of the reference even though the precise terms of Rule 131 were not met. As we now see the matter, the proper subject of inquiry was not compliance with Rule 131 but what the *evidence* showed as to *who* invented the subject matter disclosed by Amos et al. which was relied on to support the rejection.

USPQ 131, *Ex parte Lemieux*, 115 USPQ 148, and the reference would be unavailable as not that of "another." [12]

As to evidence to show the determinative facts, appellants say:

While no formal affidavits have been filed in this application * * * the oaths and formal cross-references in each of the sole and joint applications clearly set forth the facts as to who invented what.

The oaths of the reference patents are not of record and the oath of the application at bar is in usual form for an original application. They are not helpful. We find cross-references in the present application as amended to the application for the Land reference and to the Rogers '668 and '606 references. In Land we find no reference to this application. In Rogers '606 is a general description of and cross-reference to the subject matter of the instant joint application *but* this does not appear to be any part of the disclosure relied on to support the obviousness rejection. In this respect this case is different from *Blout and Rogers*.

[11] While, as the foregoing would indicate, there is much to be said on both sides of the question, our considered opinion is that Land and Rogers '606, on the facts of this case, should be regarded as prior art. It is certainly in accord with the weight of authority [13] to regard Land and Rogers individually as separate legal entities from Land and Rogers as joint inventors, as they would be regarded relative to each other if a Land application were rejected on a Rogers copending patent. It seems to us that the disclosures in their individual applications of their individual inventions are part of the prior art and they seem to admit as much in saying that Land and Rogers brought their knowledge of their individual work, and of each other's work, with them "when they made the invention jointly claimed here." There is no indication that the portions of the references relied on disclose anything they did jointly. Neither is there any showing that what they did jointly was done before the filing of the reference patent applications.

Merits of the Obviousness Rejection

Against the background of the description of the invention, given earlier, we will very briefly indicate the nature of the reference disclosures relied on.

Land discloses a one-step color photography diffusion transfer process using a negative with emulsions sensitive to three colors, associated color-formers, and insulating layers, a single image-receiving layer, and a single processing solution delivered from a rupturable pod. The Solicitor describes the negative as a "monopack" but this is misleading as it is not such a monopack as described above, utilized by appellants. Land's negative is a "screen" wherein the three layers are laid on the base in such a way as to form a grid or dots, each of the red-, green-, and blue-sensitive emulsions being exposed on the surface. At minute *discrete areas* on the negative it is possible to point

[12] It appears to be still an open question under 35 U.S.C. 103 whether the "prior art" therein referred to is not broad enough to include applicant's admissions about prior art, for example, where he shows or admits that an invention he desires to patent is an improvement upon one of his own inventions, the subject of another application or copending patent. Compare *In re Simmons*, supra, and consider what the situation would have been had the rejection been framed under section 103, instead of based on "double patenting," on the premise that Simmons' invention was stated to be an improvement on apparatus on which he had filed an application more than a year earlier. The question would then be the obviousness of the improvements, which is the same question presented by the double patenting rejection. See also *In re LoPresti*, 52 CCPA 755, 333 F.2d 932, 142 USPQ 176.

[13] See *In re Ward*, 43 CCPA 1007, 236 F.2d 428, 111 USPQ 101, and *Ex parte Lindeman and Youngs*, 107 USPQ 331 (Bd. Appls. 1955) although in the latter the cases cited do not appear to support the proposition, in particular this court's *In re Beck*, 33 CCPA 1060, 155 F.2d 398, 69 USPQ 520 (1946), in which there was no common inventor in the application and reference patent.

to superposed *layers* of the three emulsions, as the Examiner did in finding complete anticipation before the claims were amended to avoid it, but such layered areas are of minute dimensions considering that the screen is produced by applying strips of emulsion so narrow as to have 250 lines thereof per linear inch. The surface portions participate in picture production and underlying portions do not.

Rogers '606 is also a screen negative diffusion transfer, single processing liquid structure but contains other relevant disclosures. Rogers' contribution is in the use of dye developers. The specification contains frequent cross-references to Land. The portions relied on have to do with single-liquid processing, the mechanism of imagewise color immobilization, and the *prevention* of participation in color image formation of underlying emulsions and associated color substances which, in a screen negative, was considered undesirable. According to the present invention, on the contrary, it is of the essence of the process that all underlying layers do participate in image forming.

Yutzy discloses a process of obtaining a multicolor image by the transfer of color-yielding substances from a multilayer negative or monopack to a single image-receiving layer. He employs imagewise immobilization of color substance, as do all of these processes, but differs from Land, Rogers, and appellants' process in not using single solution processing. Yutzy uses at least three processing solutions and may use as many as six. His process involves keeping all color substances immobilized until development is completed and then releasing them for transfer. The principle of the release mechanism of Yutzy is to utilize color substances which are diffusible in the presence of alkali and thereafter to contact the developed negative with an alkaline image-receiving sheet. The alkali diffuses into the negative and the color substances begin to diffuse.

White is cited for disclosure of emulsion layers sensitized to different regions of the visible spectrum and associated layers of color-providing substance. It is not a transfer process.

Rogers '668 is cited for dye transfer processes in which complete dyes are provided in separate layers or particles of slowly permeable material. It appears to have been relied on as merely cumulative.

We will first dispose of the product claims. At the argument appellants' counsel conceded claims 82–86 to be of doubtful validity and retained in the case pending the decision of the Supreme Court in *Hazeltine* v. *Brenner*. They were rejected on Yutzy taken with White or Land or both. They are directed to the monopack negative element per se. We agree that the products defined would be obvious in view of the references cited against them. The second group of product claims consists of 69 as a main claim and two dependent claims 70, 71. Claim 69 is directed broadly to the complete photographic unit: monopack, image-receiving layer, connecting means, and single processing liquid in its pod. Appellants say its language is analogous to that of claim 52, quoted above. Hence, it is broad language. Appellants' brief concedes the definition of the monopack elements "comes very close to reading on the multilayer negative of Yutzy as a structure per se if one ignores the functional statements * * * or recitations of the manner of use * * *." The Examiner said the general combination is shown in Rogers '606 but the Board pointed out it is so shown with a screen-type negative, holding it would be obvious, however, to provide the same combination with Yutzy's monopack and held it obvious on Land or Rogers '606 in view of Yutzy. As to claim

69, we agree. The dependent claims contain further limitations which the Board regarded as functional and gave no weight to them. [12] Since claim 71 depends from 70 they have a common limitation in 70 which is, we think, significant. It reads:

> * * * said color-providing substances associated with at least the inner photosensitive emulsion layers are *adapted to be rendered diffusible* in said liquid composition *only after at least substantial development* of the next outermost photosensitive * * * layer has occurred. [Emphasis ours.]

It is true that the italicized portions are "functional" but we do not regard that as good ground to give them "no weight" in view of the third paragraph of 35 U.S.C. 112. We give them weight and with this limitation we think claims 70 and 71 are limited to deferred diffusion *built into the structure recited*, thereby being limited to the actual invention disclosed and hence allowable for the same reasons given by the Board in allowing claim 56, of which it said: "In our view the art of record as applied by the Examiner does not suggest the process of this claim." We think the same reasoning applies to the product.

We turn now to the process claims. There are only two independent claims. Claim 52, above, from which claims 53–55, 58–61, 63, 64, 66–68, and 90 depend; and claim 73, from which claims 74–76, and 78–81 depend. As we indicated above in footnote 2, the obviousness rejection appears to rest, not on obviousness of the invention as disclosed but on the obviousness of processes of the *breadth* defined in the claims. We may state our conclusion broadly as an agreement with the Patent Office as to those claims which say nothing whatever about what we regard as the invention, deferred diffusion by whatever name it may be called, but disagreement as to the claims which contain reasonably clear limitations thereto, reading the dependent claims, as we must, as including all limitations in the claims from which they depend. We will now sort out the claims.

Claim 52 is reproduced above with the portions appellants rely on for patentability italicized. It will be seen that it recites the steps of exposing, developing, and transferring; that a broadly defined monopack such as Yutzy describes is exposed and developed and that there is imagewise immobilization of color as known to the art; that color is transferred to the image-receiving layer; and that a single processing liquid is used. And that is about all. We agree that the mere putting together of the Yutzy monopack with the Land and Rogers single processing liquid methods, without more, is properly described as obvious. We affirm the rejection of claim 52.

Claim 53 is almost the same as product claim 70 quoted from and discussed above. We think it should be allowed for the reasons given as to claim 70. We do not agree with the Board's view that claim 53 merely hints at deferred diffusibility or that it is so broad as to read on Yutzy. We reverse its rejection.

Claim 54 depends from 52, claim 55 from 54, and claims 61 and 63 from 55. Claim 54 calls for at least one color-providing substance having a rate of solution in the processing solution slower than the rate of development of its *associated* silver halide layer. Appellants' brief describes this as a technique "to increase control of each color-providing substance by its own silver halide emulsion, and thus improve color isolation * * *." Claim 55 adds that the control is by a carrier permeated at a slower rate than the light-sensitive emulsion is permeated, 61 calls for carrier *particles in* the emulsion layer and 63 for a *layer behind* the emulsion layer. It seems to us these techniques, which we find in the prior art, have to do with imagewise immobilization, not with deferred diffusion as we understand it. We agree with the rejection of claims 54, 55, 61 and 63.

Claim 58 merely adds to 52 the spreading of the processing liquid according to the Land or Rogers technique and claim 59 the separating of negative and image layers after processing. Claim 60 specifies dye-developer from Rogers '606. We affirm the rejection of claims 58–60.

Claim 64 specifies including color-providing substance in the processing liquid to be associated with the outermost silver halide emulsion. Appellants describe this as a "unique embodiment" of their invention. The rejection of this claim appears to have gone along with that of 52. We find the incorporation of color substance in the processing liquid to be disclosed in Rogers '606 and Rogers '668. The claim says nothing about deferred diffusion. We affirm its rejection.

As to claim 66 the Examiner noted that it is "not met by Rogers ['606] alone." The Solicitor lists it with claims alluding to deferred diffusion. Deferment appears to be accomplished by using a color-providing substance initially insoluble in the *single* processing liquid specified in parent claim 52 but rendered soluble during processing. Seeing no distinct reason for its rejection we reverse it.

Claims 67 and 68 are drawn to limitations which are to be found in Rogers '606, relating to developing agents. Claim 90 specifies that the dye intermediate of claim 52 is a color coupler; such is shown in Land. We sustain the rejection of claims 67, 68, and 90. This completes the claims depending from 52.

Independent claim 73 resembles claim 52 but is more limited in specifying Rogers' dye-developers in the monopack, an alkaline process solution, and the color sensitivities of the emulsions. We think it unpatentable for the same reasons as claim 52. The claims dependent from it add various other limitations from the prior art and none refers in any way to deferred diffusion. Their rejection is sustained.

Double Patenting Rejection

We find it unnecessary to pass separately on this rejection which appears to have been retained in the case in the event the Land and Rogers '606 patents were found to be unavailable as prior art. As stated earlier, and as the Board viewed the matter, it is simply a narrower aspect of the obviousness question utilizing as a base the claims only of Rogers '606 plus the other prior art instead of the full Rogers disclosure. As to the claims on which we have affirmed the obviousness rejection, it is clearly unnecessary to pass on another rejection. As to the claims on which we have reversed the obviousness rejection, a fortiori this double patenting rejection, predicated on obviousness, would be reversed for the same reasons.

Conclusion

[13] For the foregoing reasons, the decision of the Board is reversed as to claims 53, 66, 70, and 71 and affirmed as to claims 52, 54, 55, 58–61, 63, 64, 67–69, 73–76, 78–86, and 90.

MODIFIED.

Judge Martin participated in the hearing of this case but died before a decision was reached.

WORLEY, *Chief Judge*, dissenting in part.

I agree with the reasoning and conclusions of the majority save its reversal of the rejection of claims 53, 66, 70 and 71. I disagree with the majority's conclusion with respect to the latter claims insofar as it appears to proceed on the rationale that the claims are limited to the same aspect of the invention as claimed in allowed claim 56, hence allowable for the reasons the Board gave for allowing that claim.[14]

As the majority observes, the disclosed invention is capable of expression in various ways. "Deferred diffusion" is one expression appellants use. What the majority apparently fails to recognize, however, is that there are *several kinds* of "deferred diffusion" disclosed by appellants, as exemplified by the following pertinent disclosure:

> Another object of this invention is to provide diffusion transfer-reversal processes wherein *diffusion of the color-providing substances associated with at least one emulsion layer of an integral multilayer photosensitive element to an image-receiving layer is* controlled in such a way as to be *deferred until at least substantial development of the latent color record contained in said emulsion layer has occurred.*
>
> * * * * * * *
>
> In general, it may be stated that the desired deferred diffusibility of color-providing substances may be obtained by two types of processing. *In one*, the latent color record images in the several emulsion layers are substantially simultaneously developed prior to the time the non-immobilized color-providing substances in unexposed areas achieve the requisite diffusibility. *In the second* type of processing, the integral multilayer photosensitive element is processed layerwise, one emulsion layer being developed and the color-providing substances associated therewith, but not immobilized by development, rendered diffusible to the image-receiving layer substantially prior to the time development and diffusion occurs in another layer. In certain instances, an integral multilayer photosensitive element may be so constructed as to utilize both types of processing techniques. [Emphasis supplied.]

The "second type" of processing, in which the "integral multilayer photosensitive element is processed layerwise," appears to correspond substantially to that recited in claim 56. The first type of processing,[15] in which the several exposed emulsion layers may all be developed prior to the time diffusion begins to occur, appears to be embraced by the language of claims 53 and 70 as follows:

> 53. A process as defined in claim 52, wherein said color-providing substance associated with undeveloped areas of *at least* each inner emulsion layer of said multilayer, photosensitive element is rendered diffusible *only after at least* substantial development of the next outer emulsion layer has occurred.
>
> 70. A photographic product as set forth in claim 69, wherein said color-providing substances associated with *at least* the inner photosensitive emulsion layers are adapted to be rendered diffusible in said liquid composition *only after at least* substantial development of the next outermost photosensitive silver halide emulsion layer has occurred. [Emphasis supplied.]

I read those claims, interpreated in light of the disclosure, to allow development of two, or three, emulsion layers, either simultaneously or sequentially, before diffusion begins to occur to any appreciable

[14] Whether it is proper for the majority to compare those claims with allowed claim 56 is a question upon which it is not necessary to dwell at length. Suffice it to say it is well settled that appealed claims must be judged on their own merits and not on the basis of a comparison with other claims which have been allowed. See *In re Margaroli*, 50 CCPA 1400, 318 F.2d 348, 138 USPQ 158; *In re Ashley*, 50 CCPA 1200, 315 F.2d 945, 137 USPQ 361; and *In re McMurry*, 43 CCPA 821, 230 F.2d 442, 109 USPQ 46.

[15] Appellants' specification also states:

> * * * Thus, by *deferred diffusibility* it is intended to cover situations where non-immobilized color-providing substances associated with an inner emulsion are rendered diffusible after at least substantial development of an outer emulsion has occurred but simultaneously with the development of said inner emulsion, *or where development of both said inner and outer emulsion layers has been substantially completed.* [Emphasis supplied.]

extent. It is in that regard that the Yutzy reference becomes particularly pertinent. There can be no doubt that the Yutzy reference relied on by the Patent Office does disclose a type of "deferred diffusion." The following excerpts from Yutzy make it clear that he recognized the necessity and desirability of deferred diffusion:

> In the broadest aspects of my invention, the objects are accomplished by exposing to a colored subject a photographic element containing at least two silver halide emulsions sensitized to different regions of the visible spectrum and *each emulsion having intimately associated with it a potentially diffusible* [16] *coloring material which is non-wandering during coating and development*, developing the exposed photographic element with a solution of a silver halide developing agent which renders said coloring material non-diffusible only in the regions of exposure and development of the emulsions, rendering the coloring material only in the unexposed regions of the emulsions diffusible and placing the emulsions in intimate contact with an absorbent surface to simultaneously cause the diffusible coloring material in the emulsions to diffuse imagewise into the absorbent surface.
>
> * * * In a three-layer silver halide material for substractive color photography the blue-, green- and red-sensitive layers normally contain, respectively, yellow, magenta and cyan dyes or color formers. These dyes or color formers must be such as to be non-wandering during the coating operations and usually during *at least the early stages of negative development.* This is *conventionally* accomplished by any of several means, namely, using very large molecules, molecules containing groups which are substantive to gelatin or the vehicle, molecules containing groups which can be mordanted by conventional cation or anion mordants, etc. In my invention, dyes or color formers are selected such that they will not diffuse from layer to layer during coating or negative development, with the additional characteristic that by an appropriate step in the processing they can be made to diffuse easily so that after a negative development the release mechanism can be called into operation so that unaltered dye or color former can thereupon diffuse readily to a receiving sheet which has been placed in contact with the emulsion layers. * * *
>
> * * * *If dyes or couplers are used which diffuse at too early a stage, i.e., during coating or development, then the association between the appropriate dye and silver halide is lost and color separation will not be obtained.* The dyes or color formers may be rendered non-wandering during coating by many techniques which would include mordanting, precipitation with metallic ions, and the like. Similarly, dyes or color formers can be used in chemical combinations, such as esters which are hydrolyzed at an appropriate step in the processing to release the dye or color former as a smaller molecule to wander. * * * [Emphasis supplied.]

Those same concepts are expressed in slightly different language in appellants' specification, as noted by the Examiner. Indeed, as the Examiner pointed out,[17] it would seem necessary for the operation of any diffusion transfer process of the type disclosed by appellants that diffusion from unexposed areas of the positive image forming material be deferred until development of the exposed regions of the negative has proceeded to a substantial degree. As the Board noted:

> Claims 53, 54, and 55 hint at the concept of deferred diffusibility *but are so broadly worded as to read on the complete development of all the emulsion*

[16] Appellants' specification states:

> * * * It is to be understood that, prior to development, all of the color-providing substances present are considered mobile in that they are potentially diffusible. Various mechanisms may be utilized to create the desired deferred diffusibility of the color-providing substances. * * *

[17] The Examiner stated:

> * * * It appears that the problem is solved generally in the *same way* by *both* appellants and Yutzy. Both defer diffusion of the color-providing substances until the development of the negative image which supplies the control mechanism has at least gone through its early stages. * * * the only critical mechanism evident in the case is the one exemplified in any of the Rogers or Land patents. That is to say, the concept of providing a color-providing substance which will diffuse only after at least early stages of development of negative image is considered a feature of any one of the last mentioned references. The deferred diffusion of substances such as dye developers is inherent in the monochromatic process specifically disclosed by Rogers ('606), for instance. How else is the lack of transfer from exposed areas of negative emulsion controlled? * * *

layers as in Yutzy prior to rendering the color providing substances diffusible to the image receiving layer. The Examiner has pointed out where certain details of the claims are found in the prior art and we find no error in the application of the references. * * * [Emphasis supplied.]

Appellants do not challenge the Board's analysis of the scope of those claims, but only assert the Board erred "in failing to give weight to the express requirement in these claims that *both development and transfer must be effected by a single liquid composition.*" It seems to me the limitations in claim 53, 70 and 71 do not impart patentability for the same reasons expressed by the majority with respect to claims 52 and 69, from which the former are dependent.

As for claim 66, it reads:

66. A process as defined in claim 52, wherein said color-providing substances are initially insoluble in said liquid processing composition, said process including the step of rendering said nonimmobilized color-providing substances soluble in said liquid processing composition whereby they may diffuse to said image-receiving layer.

The specification discloses several techniques by which those limitations apparently are accomplished, among which are: (1) incorporating the color material in a "high-boiling, water- and alkali-immiscible liquid," whereupon contact by the processing liquid renders the color material "increasingly diffusible by a differential extraction process"; (2) employing the color material in particle form whereby it "is more slowly dissolved than if molecularly dispersed, thus permitting one to effect the desired deferred diffusibiilty"; (3) associating the color material with a "temporary mordant" which renders it "temporarily insoluble"; subsequent contact with the processing solution hydrolyzes off the "insolubilizing substituent" and renders the color material diffusible; and (4) employing an auxiliary developer, the oxidation product of which reacts with unoxidized dye developer while the latter "is still in an immobile condition, i.e. prior to its being solubilized by the liquid processing composition," thereby preventing diffusion of the reacted dye developer from exposed areas.

Appellants nowhere present an argument for the separate patentability of claim 66. The Examiner and Board have pointed out that many of the above techniques encompassed within the broad language of claim 66 are suggested by one or more of the Land, Rogers, or Yutzy references. Land, for example, mixes color material and developers in a high-boiling solvent "which has been found beneficial for introducing and maintaining coupler materials within emulsion layer"; the developers employed possess "low solubility in alkali but have good solubility in a high-boiling-point solvent." Rogers, in addition to disclosing the use of dye developers "in relatively large particle sizes," discloses "immobilizing" couplers "through the use of high-boiling-point solvents." As noted earlier, Yutzy discloses use of mordants, or esters "which are hydrolyzed at an appropriate step in the processing to release the dye or color former as a smaller molecule to wander." The use of an auxiliary developer described in (4) above is claimed more specifically in such claims as 67, 68, and 76 which the majority does not allow. I see no valid reason for reaching a different conclusion with respect to claim 66.

I would affirm the decision below in its entirety.

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2,935,602, R. S. Fremont, LIGHTING FIXTURES FOR RECESSED CEILING MOUNTING, filed Apr. 5, 1965, D.C., N.D. Ill. (Chicago), Doc. 65c524, *Progress Manufacturing Co., Inc. and Marvin Electric Mfg. Co., Inc.* v. *Robert S. Fremont.* Same, filed Feb. 11, 1965, D.C., N.D. Ill., Doc. 65c210, *Halo Lighting, Inc.* v. *North Shore Electrical Supply Company.* Consent judgment, Mar. 9, 1967.

2,941,785, A. W. Kammerer, EXPANSIBLE ROTARY DRILL BIT, filed Dec. 22, 1966, D.C., C.D. Calif. (Los Angeles), Doc. 66–2058–PH, *Rotary Oil Tool Co.* v. *Ben H. Fuchs.* Dismissed without prejudice, Feb. 6, 1967.

2,953,354, E. B. Williams, Jr., DRILL BIT, filed Oct. 17, 1964, D.C., E.D. Tex. (Tyler), Doc. 4321, *Williams Bit & Tool Company (Edw. B. Williams III, Joseph W. Williams and David B. Williams)* v. *Christensen Diamond Products Company.* Claim 5 of patent valid; defendant has not infringed, Jan. 18, 1967.

2,962,979, W. C. McCormick, METHOD OF CORRECTING EXISTING TRACK AND ALIGNMENTS AND MEANS FOR PRACTICING IT, filed Dec. 13, 1963, D.C., N.D. Ill. (Chicago), Doc. 63c2250, *Nordberg Manufacturing Company and William C. McCormick* v. *Jackson Vibrators, Inc.* Judgment claims of patent are valid, Mar. 1, 1967.

2,973,131, Mead and Siagel, BAG FOR SAMPLING MILK AND THE LIKE, filed Dec. 8, 1965, D.C., N.D. Ill. (Chicago), Doc. 65c2070, *Nasco Inc.* v. *Vision Wrap Industries, Inc.* Consent order, patent is valid and infringed, Feb. 23, 1967.

2,983,010, O. R. Huggins, GUY HOOK FOR ATTACHMENT TO TRANSMISSION LINE POLES OR THE LIKE, filed Oct. 19, 1966, D.C., N.D. Ala. (Birmingham), Doc. CA66–646–S, *Malleable Iron Fittings Company* v. *Continental Electric Company.* Plaintiff is the owner of U.S. Patent No. 2,983,010, which has been infringed by defendant. Defendant, agents, etc. are all permanently enjoined until May 9, 1978 from manufacturing, using, etc. defendant's "type G–A" guy attachments, etc., except under license from plaintiff, Feb. 28, 1967, consent judgment.

2,967,704. (See 2,701,748.)

3,007,262, W. J. Richards, SHOE CONSTRUCTION, filed Dec. 4, 1964, D.C., N.D. Ill. (Chicago), Doc. 64c2034, *Genesco, Inc.* v. *Knapp Brothers Shoe Manufacturing Corporation, doing business as Knapp Bros. Shoe Corp et al.* By judgment, plaintiff is owner of patent; plaintiff permanently enjoined from asserting against defendants, Feb. 28, 1967.

3,015,969, O. J. Bratz, PUSH-PULL CABLE, filed July 9, 1964, D.C., S.D.N.Y., Doc. 64–C–2139, *The Morse Instrument Co.* v. *American Chain & Cable Co., Inc.* Same, filed June 23, 1964, D.C., S.D.N.Y., Doc. 64–C–1944, *Teleflex Incorporated* v. *American Chain & Cable Co., Inc.* Defendant's counterclaims are dismissed and defendants are enjoined, Feb. 6, 1967.

3,047,196, Levine and Phillips, GARMENT HANGER, filed Jan. 27, 1966, D.C., S.D.N.Y., Doc. 66–C–256, *Bernard Plastics Molding Corp.* v. *Capco Sales Corp.* Voluntary dismissal by plaintiff, Dec. 5, 1966.

3,048,526, C. L. Boswell, MEDICINAL TABLET, filed Aug. 9, 1963, D.C. Del. (Wilmington), Doc. 2720, *The Wander Company* v. *Warner-Lambert Pharmaceutical Company.* Dismissed on stipulation and order without prejudice, Mar. 16, 1967.

REISSUES

MAY 30, 1967

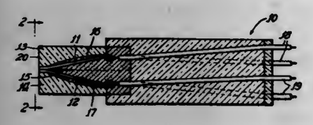
Matter enclosed in heavy brackets [ ] appears in the original patent but forms no part of this reissue specification; matter printed in italics indicates additions made by reissue.

26,212
ELECTROSTATIC RECORDING HEAD

Edward M. Johnson, Glenside, and Herman Epstein, Philadelphia, Pa., assignors, by mesne assignments, to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois

Original No. 3,124,804, dated Mar. 10, 1964, Ser. No. 145,373, Oct. 16, 1961. Application for reissue Mar. 7, 1966, Ser. No. 538,136

8 Claims. (Cl. 346—74)



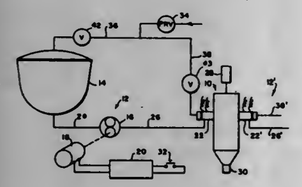
1. In an electrostatic recording head, the combination of a pair of pin electrodes for each recording channel, a high voltage pulse circuit for providing [negative] high voltage pulses to one of said electrodes, and a current limiting resistor connected in series between the other of said electrodes and ground, *said resistor being the only component connected between said other electrode and ground.*

26,213
FLUID METERING MEANS

August L. Kraft, Roselle Park, N.J., assignor to Automatic Process Control, Inc., Union, N.J., a corporation of New Jersey

Original No. 3,119,412, dated Jan. 28, 1964, Ser. No. 228,597, Oct. 5, 1962. Application for reissue Dec. 2, 1965, Ser. No. 515,293

4 Claims. (Cl. 137—565)



1. In an apparatus including a positive displacement pump having inlet and outlet connections thereto, said pump being operable when actuated to transfer fluid into said inlet connection and to discharge such fluid through said outlet connection: the improvement which includes a valve having a hollow valve body, an inlet passageway in said valve body providing external communication to the hollow interior of said valve body, an outlet passageway in said valve body providing external communication to the hollow interior of said valve body, *the interior ends of said passageways having openings into the hollow interior of said valve body,* and a flexible diaphragm disposed over said openings and secured to the interior structure of said valve body in sealing contact therewith through an area encircling said openings, whereby communication between said inlet and outlet passageways is prevented when said diaphragm lies against said openings and is permitted when said diaphragm is flexed away from said openings; conduit means interconnecting said outlet connection of said pump and said inlet passageway of said valve; and means for applying a pressured-fluid as a head at the inlet connection of said pump and to hold said diaphragm against said openings.

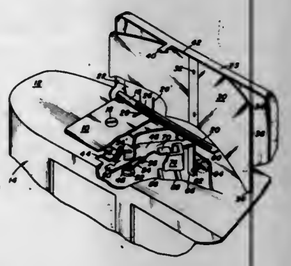
26,214
PHOTOGRAPHIC FLASH UNIT

John J. Bundschuh, Penfield, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

Original No. 3,184,584, dated May 18, 1965, Ser. No. 261,661, Feb. 28, 1963. Application for reissue June 14, 1966, Ser. No. 562,973

Claims priority, application Germany, Aug. 29, 1962, K 42,347

7 Claims. (Cl. 240—1.3)



7. A photographic flash unit for use with a camera having a flash control circuit, the unit comprising:

(a) a support;

(b) a socket mounted on the support for accepting the base of an inserted flash device for illumination of the subject to be photographed upon actuation of the flash control circuit;

(c) a single cover-and-reflector member movably mounted on the support to move between a closed position, in which said member lies in a plane transverse to the central axis of the socket and covers at least a portion of the socket, and an open position, in which said member lies in a plane substantially parallel with the central axis of the socket, uncovers the socket, and places the reflector portion of said member in operative position to reflect light from a flash device inserted in the socket after said member has moved to such open position;

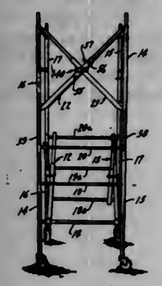
(d) a single, manually operable control member movable from a first position to a second position for effecting thereby movement of the cover-and-reflector member from its closed position to its open position and ejection of a subsequently inserted flash device from the socket when the cover-and-reflector member is in its open position.

26,215
COLLAPSIBLE STRUCTURE

John R. Usher, 7548 S. Chappell Ave; James F. Usher, 7412 S. Shore Drive; and John A. Usher, deceased, late of Chicago, Ill., by Marcella C. Usher, executrix, 7412 S. Shore Drive; all of Chicago, Ill. 60649

Original No. 3,190,406, dated June 22, 1965, Ser. No. 223,885, Sept. 17, 1962. Application for reissue Apr. 1, 1966, Ser. No. 544,655

10 Claims. (Cl. 52—646)



7. For use in a collapsible framework structure, a pair of crossed, variable-length brace members, and means removably connected with said brace members, said means including a set of tie bars, each of said tie bars being separably, pivotally connected to an outer surface of one of said brace members, and spacer members extending between and removably secured to said tie bars to couple said brace members together in abutting relationship and to hold said tie bars in pivotal connection with said brace members.

26,216
BRIGHT FINISHED ALUMINUM ALLOY SYSTEM

John B. English, Tokyo, Japan, assignor to Reynolds Metals Company, Richmond, Va., a corporation of Delaware

No Drawing. Original No. 3,164,494, dated Jan. 5, 1965, Ser. No. 63,503, Oct. 19, 1960. Application for reissue May 11, 1966, Ser. No. 552,674

15 Claims. (Cl. 148—31.5)

5. An article having a highly reflective and lustrous surface, comprising a transparent layer of aluminum oxide upon a substrate of aluminum alloy, said alloy consisting essentially of magnesium up to about 1.20%, copper .01–.08%, manganese .03% max., iron .01–.12%, and silicon .01–.08%, in weight percent, balance aluminum.

PLANT PATENTS

GRANTED MAY 30, 1967

Illustrations for plant patents are usually in color and therefore it is not practicable to reproduce the drawing.

2,744
LILAC PLANT

Walter E. Lammerts, Livermore, Calif., assignor to General Bionomics, Inc., Santa Rosa, Calif.

Filed Aug. 9, 1965, Ser. No. 479,698

1 Claim. (Cl. Plt.—66)

A new and distinct variety of lilac plant of the French hybrid class substantially as herein shown and described, primarily characterized by: an unusually long life of the bloom on the plant and as a cut flower, an ability to leaf out and flower well and at the proper time of year under unusually mild climatic conditions such as prevail in coastal California, especially south of Marin County, Calif.; a dense, compact, rounded habit of growth that is vigorous but uniform; a large compound thyrse bearing fragrant white flowers of large size and having large broad petals, and with the individual florets well spaced in the inflorescence; and by its adaptability to irrigated culture.

2,745
ROSE PLANT

Samuel McGredy, % Samuel McGredy & Son Limited, Royal Nurseries, County Armagh, Portadown, Northern Ireland

Filed May 2, 1966, Ser. No. 547,113

1 Claim. (Cl. Plt.—12)

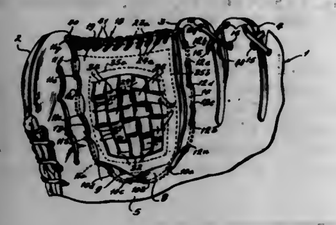
A new and distinct variety of rose plant of the hybrid tea class substantially as herein shown and described primarily characterized by a distinct and intensely pigmented bicoloured flower which is deep to medium red on the face of the petals and amber yellow to silvery-white on the reverse, and which is otherwise similar to the parent variety Peace, Pat. No. 591 of which it is a true sport.

PATENTS

GRANTED MAY 30, 1967

GENERAL AND MECHANICAL

3,321,771
BASEBALL GLOVES
Roland N. Latina, Belleville, Ill., assignor to Rawlings Sporting Goods Company, St. Louis, Mo., a corporation of Missouri
Filed July 6, 1965, Ser. No. 469,735
9 Claims. (Cl. 2—19)



1. A baseball glove including spaced apart elongated thumb and finger sections forming a crotch opening outwardly along the length of said thumb and finger sections, a backstop device located in the crotch opening between said sections, said backstop device comprising a plurality of strips arranged in two groups interwoven crosswise relative to each other thereby forming a flexible ball catching area, and means connecting said backstop device to the glove between said thumb and finger sections.

3,321,772
SWIM CAP
Jan J. Arps, 414 Peavy Road, Dallas, Tex. 75218, and Carl E. Haskett, 1214 W. Cedar, Eldorado, Ark. 71730
Filed Oct. 19, 1964, Ser. No. 404,706
7 Claims. (Cl. 2—68)



1. A bathing cap which comprises:
(a) an inner cap formed of an impervious membrane having a centrally located aperture,
(b) an outer impervious cap larger than said inner cap, and
(c) a porous permeable layer of strongly hydrophylic water-wet material characterized by high capillary pressure in the zone between said caps having a peripheral zone disposed to contact the skull outside the margin of said inner cap and inside the margin of said outer cap whereby, upon inflow of water to said zone, capillary forces generated in said zone create pressure in the region of said aperture tending to cause air flow through said aperture toward the margins of said inner cap.

3,321,773
NECKTIE
Chester J. Orciuch, 349 Crawford St., Northboro, Mass. 01532
Filed Aug. 9, 1965, Ser. No. 478,138
1 Claim. (Cl. 2—146)



A necktie, comprising an elongated body member having one wide end and one narrow end and having a front surface and a rear surface, a first set of spaced indicia arranged in a row extending longitudinally of the body member on the front surface thereof, each of the indicia of the first set being located a predetermined distance from the center line extending transversely of the body member and the narrow end, a second set of spaced indicia arranged in a row extending longitudinally of the body member on the rear surface, each of the indicia of the second set being located a predetermined distance from said center line and the wide end, said predetermined distances being maintained irrespective of the overall length of the body member, said number of indicia in the first set being equal to the number of indicia in the second set, each individual indicium of the first set having an appearance distinguishing it from the others, each individual indicium in the first set having a corresponding indicium in the second set which is similar in appearance, the order of arrangement of the corresponding indicia of the first and second sets being the same in the direction away from the center line.

3,321,774
CAP
Daniel Tames, 3500 N. Lake Shore Drive, Chicago, Ill. 60657
Filed May 4, 1964, Ser. No. 364,634
1 Claim. (Cl. 2—181)



A cap comprising a generally elliptical flat crown of a size adapted generally to cover the top of a person's head, a side portion having upper and lower edges with the upper edge secured to the periphery of said crown forming a seam, said side portion being a generally rectangular unitary strip having free ends and of a size adapted to encircle the upper portion of a person's head, the free ends of said side portions forming a rearwardly directed vent for size adjustability, closing means to draw the free ends of the vent toward one another and adapted to secure the cap on a person's head, and a generally rectangular absorbent lining having upper and lower edges with the upper edge attached within said seam to the inside of said side portion along the front and sides of the said side portion and adapted to contact the area of the forehead of the wearer, said absorbent lining extending downwardly to the lower edge of the side portion, said side portion having a marginally turned-up edge with the lower edge of said lining secured therein, said absorbent lining having free ends secured generally midway of the side of the cap and being of a size adapted to extend laterally across the forehead of a person's head to a line in front of the area of each ear whereby forehead perspiration may be absorbed.

3,321,775
HAT-SIZE REDUCER
Abe Berlin, 2843 W. Girard Ave., Philadelphia, Pa. 19130
Filed Nov. 24, 1965, Ser. No. 509,544
1 Claim. (Cl. 2—183)



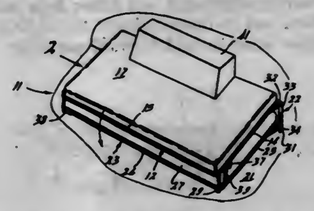
The combination with a hat including a crown and a flexible sweatband extending about and secured to the interior of said crown, of a hat-size reducer comprising an elongate elastic element extending interiorly along said sweatband, and a pair of anchoring means respectively secured at opposite ends of said element, said anchoring means being fixed to said sweatband at circumferentially spaced locations therealong with said element resiliently distended between said anchoring means, to effectively reduce the head size of said hat, said anchoring means each comprising a flat bar extending transversely of and generally coplanar with said strip at a respective end thereof, an end loop on said strip circumposed about the respective bar, each flat bar having opposite ends extending beyond opposite ends of a respective end loop and tines extending from each bar for piercing engagement through said sweatband, said tines each including a U-shaped portion at the outer side edge of each bar and a pointed elongate portion extending from said U-shaped portion longitudinally inward of said strip appreciably beyond the associated bar, for retaining said bar generally parallel to the adjacent portion of said hatband.

ERRATUM

For Class 4—154 see:
Patent No. 3,321,781

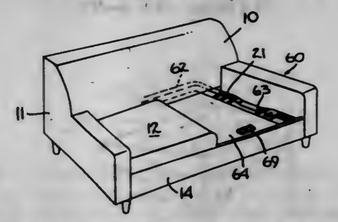
3,321,776
STACKABLE BED
John O. Black, 18094 Parkside, Detroit, Mich. 48221
Filed May 7, 1965, Ser. No. 454,045
4 Claims. (Cl. 5—8)

1. A stackable bed comprising
a first mattress supporting portion adapted to receive a mattress on its upper surface,
leg means for supporting said first portion upon a floor,
a second mattress supporting portion adapted to receive a mattress on its upper surface, said second portion being supported on a different level than said first portion for storage of said portions in a vertically stacked relationship with the respective mattresses stored one above the other, and



means pivotally connecting said portions adjacent one corner thereof for swinging movement of said second portion from a storage position to an operative position for completely exposing the mattresses supported by each mattress supporting portion.

3,321,777
SOFA-BED ASSEMBLY
Louis Pokorny, Jr., Ronkonkoma, N.Y., assignor of one-third to Louis Pokorny, Ronkonkoma, N.Y., and one-third to John M. Pokorny, Bellport, N.Y.
Filed Dec. 1, 1964, Ser. No. 415,050
8 Claims. (Cl. 5—13)



1. In a sofa-bed assembly, a sofa body having a hollow back, a crosspiece at the base of the back, sides, and a front board whose top edge is approximately at the level of said crosspiece; a mechanism formed of pivoted sections including in succession a rear section, a lower horizontal section, a front vertical section, and an upper horizontal section, said sections being foldable between (a) a collapsed sofa position in which the horizontal sections lie in superposed relation while the rear section is within said back and (b) an extended bed position in which said sections extend in horizontal alignment forwardly from in front of the back and across said front board; and a supporting linkage independent of said rear section and directly connected to the rear of said lower horizontal section for pivotally connecting said mechanism to said sofa body.

3,321,778
PULL-OUT BED MECHANISM
Harold A. Vogel, Seattle, Wash., assignor, by mesne assignments, to Lear Siegler, Inc., a corporation of Delaware
Filed Feb. 25, 1963, Ser. No. 260,697
5 Claims. (Cl. 5—17)

1. An article of convertible furniture comprising:
a dolly having legs movable on a floor and having spaced tracks mounted thereon, said tracks having lower rearward end portions than the forward portions thereof, said rearward and forward portions being connected by smoothly arcuate portions, and said dolly having stop flanges at the forward ends of said forward portions of said tracks;

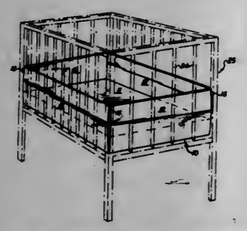
a seat frame movable relative to said dolly from a rearward position to a forward position and having forward legs engaging said floor in both of said positions and during movement therebetween, said seat frame having rearward legs received in and movable along said tracks, said rearward legs being of such length as to pitch said seat frame downwardly and rearwardly when said seat frame is in said rearward position and to raise said seat frame to a horizontal position when in said forward position;



and a lever mechanism connecting said dolly to a support and permitting limited movement of said dolly away from said support;

said seat frame being movable by a horizontally applied force thereto to move said seat frame relative to said dolly from said rearward position to said forward position.

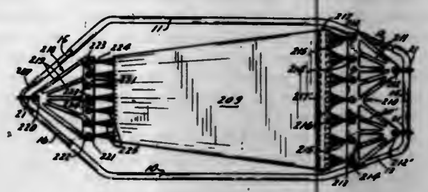
3,321,779
BABY MATTRESS WITH ATTACHED SIDE PADS
Hester M. Kaufman and John M. Tabler, both of 703 Bashford Lane, Alexandria, Va. 22314
Filed Apr. 11, 1966, Ser. No. 541,558
10 Claims. (Cl. 5—93)



1. A mattress for bady cribs or the like which comprises: a mattress part; hinge members projecting from the lower portion of said mattress part; and guard members connected to an extending from said hinge members whereby the general outline of a cross is formed by said mattress part, hinge members and guard members in flat position, and an open box-like structure is formed when said guard members extend upwardly relative to said mattress part; each of said hinge members projecting beyond said mattress part a distance approximating the thickness of its associated guard member, whereby when said guard members extend normally relative to said mattress part said guard members bear against the edges of said mattress part, the area of said mattress part together with the areas of the lower edges of said guard members being substantially equal to the mattress receiving area of said crib or the like.

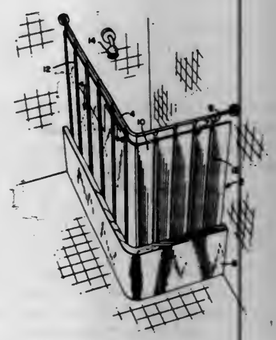
3,321,780
HAMMOCKS
Elliott C. Morris, Milwaukee, Wis., assignor to Gleason Corporation, Milwaukee, Wis., a corporation of Wisconsin
Filed May 13, 1966, Ser. No. 549,904
6 Claims. (Cl. 5—122)

1. In a hammock structure including a supporting frame having a head end and a foot end, and having a hammock bed supported by and between said frame ends, said hammock bed having a head end and a foot end, the improvement comprising: a triangular rigid connector element at the head end of said hammock having a forward end adjacent said frame head end and having a base portion, a plurality of converging arms extending from



said base portion, said connector being formed of flat sheet material; means securing the head end of said bed to the base portion of said connector; and means removably securing the forward end of said connector to said frame head end.

3,321,781
SHOWER CLOSURE
Jerome Reich, Boston, Mass., assignor to The General Tire & Rubber Company, a corporation of Ohio
Filed May 9, 1963, Ser. No. 279,087
1 Claim. (Cl. 4—154)

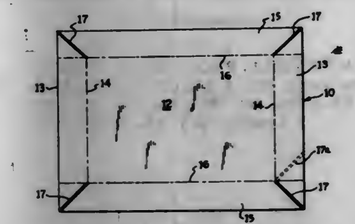


An enclosure curtain comprising a panel of flexible, heat-weldable plastic material having an upper edge thereto, a plurality of heat-weldable stiffening strips of plastic material of substantially greater thickness than said panel heat-welded to one face of said panel in spaced parallel relationship to one another perpendicular to said upper edge, and eyelets adapted to receive curtain support rings extending through said panel and strips adjacent said upper edge.

3,321,782
SANITARY PRODUCT AND METHOD
Frederick J. Hrubecky, Hendersonville, N.C., and Frank M. Lewis, Jr., Neenah, Wis., assignors to Kimberly-Clark Corporation, Neenah, Wis., a corporation of Delaware
Filed Feb. 23, 1966, Ser. No. 529,303
10 Claims. (Cl. 5—336)

1. A fitted sheet of simplified construction comprising a rectangular sheet of flexible material having a central rectangular portion, a pair of opposed side panels, and a pair of opposed end panels; said side panels and said end panels being of substantially the same width; each of said side panels being folded over in contiguous relationship

with said central portion and said end panels; each of said side panels being bonded to at least one end panel by a line of adhesive extending diagonally from the outer edge of



said side panel where it meets the outer edge of said end panel to a point at said fold coincident with the interior edge of said end panel.

3,321,783
HATCHET, HAMMER AND KNIFE COMBINATION
James Ivan, 1015 Liberty, Salem, Ohio 44460
Filed June 30, 1965, Ser. No. 468,281
4 Claims. (Cl. 7—8.1)



1. A combination tool comprising a pair of body members, one of said body members comprising an elongated blade-like member having a rectangular end section and an extending portion with a saw tooth configuration on one longitudinal edge and a sharpened knife blade configuration on the other longitudinal edge, the other of said body members having a transverse and a longitudinal channel formed therein, a hammer head configuration on one end and a tapered blade configuration on the other end of said body member, said longitudinal and transverse channels in said other body member being of a size to snugly receive said rectangular end section of said elongated blade-like member and an adjustable fastener holding said body members to one another in a selected position of alignment or in a position whereby one body member is normal to the other.

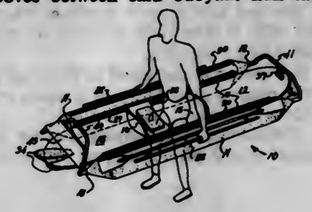
3,321,784
CATAMARAN TYPE OF WATER CRAFT
Edwin W. Rasmussen, 1227–A 24th Ave., San Francisco, Calif. 94122
Filed Oct. 23, 1963, Ser. No. 503,970
25 Claims. (Cl. 9—1)

1. A water craft adaptable for use in a variety of ways, comprising in combination:

a pair of buoyant hull members;

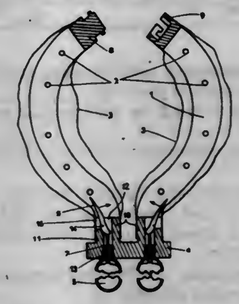
means forming a pair of grooves extending horizontally along the inside of each of said hull members;

and a plurality of center hull members retained in said grooves between said buoyant hull members, said



center hull members being movable longitudinally to extended positions to support the craft when it is used.

3,321,785
INFLATABLE BUOY
Jean Pierre Soubiran, Rue Couteller, Glairac, France
Filed Sept. 29, 1964, Ser. No. 400,188
Claims priority, application France, Sept. 30, 1963, 949,032
5 Claims. (Cl. 9—316)



1. An inflatable buoy, the inflatable assembly of which comprises essentially a frame of which at least some parts are tubular and provided with perforations, this frame permitting the buoy to be fixed and kept around the neck or any other part of the body of the wearer, as well as permitting the flow of the inflating gas, at least two inflatable sleeves disposed independently around the frame, and coupling elements permitting, on the one hand, the gas-tight mounting of each sleeve around the frame and, on the other hand, communication of the tubular parts of the frame with one or more sources of gas under pressure, the source or sources of gas under pressure being one or more bottles of compressed gas closed by valves and screwed into the coupling elements, the latter being equipped with percussion devices enabling the opening of the corresponding valves to be produced at the desired instant, the gas then entering the sleeves by passing through the coupling elements, the tubular portion of the frame and the perforations in the said tubular portion.

3,321,786
METHOD AND APPARATUS FOR BINDING PAPER
Fred C. Bolick, Jr., Atlanta, Ga., assignor to Lanier Electronics Laboratory, Inc., Atlanta, Ga., a corporation of Georgia
Filed Mar. 14, 1966, Ser. No. 534,226
5 Claims. (Cl. 11—1)

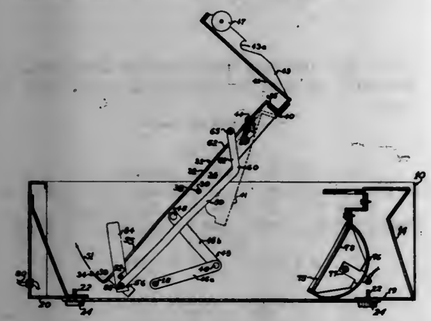
1. A binding machine comprising:

a cabinet having front, back, and side wall portions,

a heating element disposed within said cabinet adjacent said front wall portion,

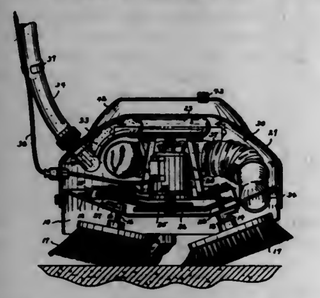
a pivotal support platform having a front edge and a rear edge, said platform being pivotally supported

near its center of gravity by said side wall portions of said cabinet,
means for pivoting said support platform whereby its said front edge is selectively adjacent to or remote from said heating element,
a tamping tray pivotally connected to the front edge of said pivotal support platform, said tamping tray having a tamping surface,
means for positioning said tamping surface substantially normal to said pivotal support platform,



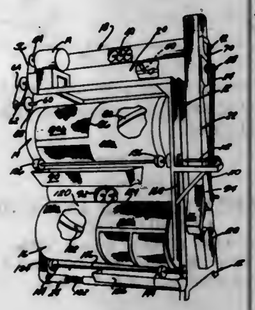
means for positioning said tamping surface beneath said pivotal support platform,
a stacking tray carried by said pivotal support platform,
clamping means adjustably connected to said stacking tray,
means for adjusting the distance between said clamping means and said tamping surface when said tamping surface is disposed substantially normal to said pivotal platform,
means for energizing said heating element for a predetermined period of time.

3,321,787
SWIMMING POOL CLEANING MEANS
Robert R. Myers, 904 NE. 2nd St., Boca Raton, Fla. 33432
Filed Dec. 17, 1964, Ser. No. 419,136
18 Claims. (Cl. 15—1.7)



1. A submarine cleaner including a chassis adapted to be submerged beneath the liquid in a tank for cleaning the bottom surface of the tank, said cleaner comprising,
two rotatably mounted brushes operatively connected to said chassis,
means for rotating said brushes,
said rotatable brushes being in engagement with the bottom surface of the tank for cleaning said bottom surface and driving said cleaner over said bottom surface, said rotatable brushes being the only powered drive means in contact with the bottom surface of said tank,
and means for removing foreign matter agitated by said brushes;
one of said brushes having an axis at an angle different than that of the angle of axis of said other brush.

3,321,788
VEGETABLE PROCESSING SYSTEM
Evart Himebaugh, Rte. 3, Mount Pleasant, Mich. 48858
Filed Jan. 10, 1966, Ser. No. 519,584
3 Claims. (Cl. 15—3.16)

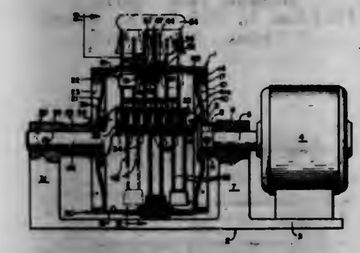


1. Continuous processing apparatus for cleaning and drying dirty, edible, frangible, particulate products such as peas and beans, comprising: an elongated mixing chamber for continuously receiving product and damp particulate cleaning agent, and rotational mixing means therein for continuously mixing product and cleaning agent, said mixing means being arranged and configurated to advance the mixed product and cleaning agent to one end thereof; a rotational, elongated cleaning drum including an inlet opening on one end; a transfer chute from said one end of said mixing chamber, projecting into said inlet opening of said drum for transferring mixed product and cleaning agent to said drum; said cleaning drum including means for advancing mixed product and agent from said one end to the opposite end, and having peripheral perforations to separate product and particulate agent by allowing passage of only the agent; cleaning agent collection and recirculation means positioned beneath said drum and arranged to recirculate cleaning agent back to said mixing chamber; a rotational elongated drying drum including an inlet opening on one end for damp product and means to continuously advance the damp product from said one end to the second end; damp product transfer means from said cleaning drum second end to said drying drum one end; said drying drum having perforations forming product and drying agent separation means, and having dry product discharge means; and drying agent collection means beneath said drying drum, and recirculation means from said collection means back to said inlet opening.

3,321,789
HAIR BRUSH CLEANING DEVICE
William T. Gundelfinger, Star Rte., Harbor Springs, Mich. 49740, and Edwin F. Huddle, 1700 N. 77th Court, Elmwood Park, Ill. 60635
Filed Oct. 21, 1965, Ser. No. 499,980
11 Claims. (Cl. 15—38)

1. In a hair brush cleaner, a rotatable drum comprising a plurality of perforations therein, eccentric means in the drum, brush stripping tine assemblies rotatably mounted on said means and comprising tines projecting through said perforations, said tines extending on one side of the drum for raking engagement with a brush and retracting on the other side of the drum for

stripping hair picked up by the tines, and said tine assemblies comprising a spring coil sleeved over said



eccentric means and said tines extending in opposite directions from opposite ends of the coil.

3,321,790
LINT REMOVER
Viola W. Hand, 5051 Nestle Ave., Tarzana, Calif. 91356
Filed Oct. 12, 1965, Ser. No. 495,081
8 Claims. (Cl. 15—104)



7. In a device for removing lint and other foreign matter from garments, the combination of:
a flexible sheet having first and second opposed faces;
adhesive material coating said first face of said flexible sheet, engagement of said adhesive material with the foreign matter causing the latter to adhere to said adhesive material, said second face of said flexible sheet being free of adhesive material;
a removable backing strip having first and second opposed surfaces, said first surface engaging said adhesive material and being releasably adhered to said sheet by said adhesive material, said second surface of said backing strip substantially completely covering said adhesive material on said sheet, said backing strip having a band portion and a cover portion, at least one cut located in said backing strip to separate said band portion from said cover portion so that said cover portion may be removed from said sheet without removing said band portion from said sheet; and
handle means including said band portion of said backing strip and a portion of said flexible sheet, said band portion of said backing strip having sufficient surface area to substantially completely cover said portion of said flexible sheet.

ERRATUM

For Class 15—182 see:
Patent No. 3,321,799

3,321,791
MOP HAVING SLEEVE-TYPE MOP HEAD
Carl E. Olsen, Merrick N.Y., assignor to The New York Association for the Blind, New York, N.Y., a corporation of New York
Filed May 24, 1966, Ser. No. 552,520
4 Claims. (Cl. 15—229)

1. A mop head comprising a plurality of mop strands, a transverse flexible tape connecting said strands at approximately their mid-section and extending beyond the edges of said strands, means including said tape forming a sleeve having two strand-free ends, said sleeve accommodating a reinforcing member, said reinforcing member being in the form of a flattened oval and having each end protruding beyond the sleeve and arranged to provide



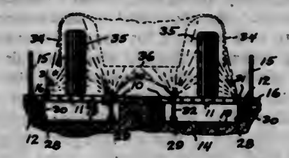
two projecting parallel lugs, and a channel-shaped clip having two side walls and a base with holes in the base which accommodate and position said lugs, said lugs protruding through said holes, said clip side walls being clamped into retaining engagement with said strand-free sleeve ends and said reinforcing member.

3,321,792
WINDSHIELD WIPER WITH HOT AIR
Alexander M. Senkewich, New York, N.Y., assignor of five percent to James M. Hellman, Rye, and five percent to Marjorie Kingston, Flushing, N.Y.
Filed Jan. 18, 1965, Ser. No. 426,029
1 Claim. (Cl. 15—250.04)



A combined windshield wiper and defroster comprising a wiper blade, an air collector casing having a series of spaced stops positioned throughout its length, corrugated spring means secured to said spaced stops to form a U and extending toward the outer edge of said air collector casing, said wiper blade being positioned in the bight of said U and removably retained therein by said corrugated spring means, and an air tube extending from heating means to said air collector casing whereby the air may circulate on both sides of said wiper blade throughout substantially its entire length.

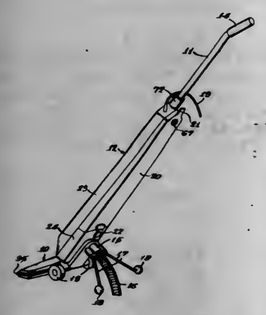
3,321,793
DEVICE FOR STEAM CLEANING AND DE-ICING THE LOWER PORTIONS OF AUTOMOBILES
Anthony J. Brasunger, 406 26th St., Sioux City, Iowa, 51104
Filed Mar. 19, 1965, Ser. No. 441,221
1 Claim. (Cl. 15—302)



A device for steam cleaning and de-icing the lower portions of automobiles comprising a horizontally positioned grille structure adapted to receive an automobile

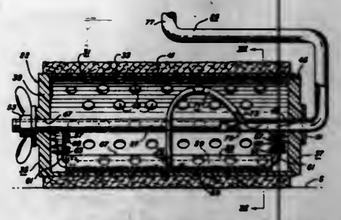
thereon, a plurality of steam jets positioned beneath said grille structure for ejecting steam onto the lower portions of said automobile, steam pipes communicating to said jets, a valve member for releasing steam to said jets, a plate positioned above said grille structure and attached to said valve member for releasing said steam to said jets when the weight of a portion of an automobile rests upon said plate, certain of said jets being positioned outwardly, and being adapted to provide steam jets passing angularly upwardly and inwardly, a further plurality of jets being positioned inwardly and being further adapted to impinge upon certain lower portions of said automobile.

3,321,794
VACUUM CLEANER
Ivar Jepson, South Duxbury, Mass., and Julius Wied, Oak Park, and Gilbert R. Wolter, Elmhurst, Ill., assignors to Sunbeam Corporation, Chicago, Ill., a corporation of Illinois
Original application May 31, 1963, Ser. No. 284,441, now Patent No. 3,273,194, dated Sept. 20, 1966. Divided and this application Apr. 11, 1966, Ser. No. 541,588
2 Claims. (Cl. 15—337)



1. In an upright-type vacuum cleaner comprising a floor engaging suction nozzle, a stick-type handle, and an elongated rigid box-type housing having motor-driven suction creating means contained therein at one end thereof and dirt collecting means therein at the other end thereof, a swivel connection between said nozzle and said one housing end, said handle being connected to said other housing end for manually pushing said vacuum cleaner along a floor with said nozzle being engaged with said floor and said housing being in an upright tilted position with respect to said floor, whereby said one and other housing ends are the lower and upper ends respectively of said housing during on-the-floor cleaning with said vacuum cleaner; the improvement of means for retaining said vacuum cleaner in its mentioned on-the-floor cleaning position while performing off-the-floor cleaning therewith, said improvement comprising a removably covered opening formed in the back side of said housing at its lower end for connecting an air hose to said suction creating means, said opening being formed in said housing at a location vertically above said swivel connection, a rigid tubular connector, the inner end of said connector being insertable into said opening for connection with said suction creating means, a flexible elongated air hose, one end of said air hose being connected to the other end of said tubular connector and the other end of said air hose being adapted to have off-the-floor cleaning fittings attached thereto, and a pair of elongated support struts connected to said tubular connector along opposite sides of said hose, said struts extending from said tubular connector to the floor at an angle of inclination opposite to the tilted position of said housing.

3,321,795
PAINT ROLLING APPARATUS
Randel E. Richardson, 4822 Holt Drive, Memphis, Tenn. 38116
Filed June 21, 1965, Ser. No. 465,405
7 Claims. (Cl. 15—510)



1. Paint rolling apparatus for applying a coat of paint on a flat surface comprising a first roller including an axially elongated barrel having an outer cylindrical surface and an inner cylindrical surface concentric with said outer surface and with said barrel having a plurality of through apertures with each aperture intersecting said inner and outer surfaces and with said plurality of apertures being disposed respectively around the cylindrical periphery of said roller with said adjacent apertures being spaced apart circumferentially and longitudinally relative to said roller, a second roller having an outer cylindrical surface, handle support means including an axle portion rotatably supporting said first roller and a handle portion for manually manipulating said first roller, means mounting said second roller from said axle portion with said outer cylindrical surface of said second roller rotatably engaging said inner cylindrical surface of said first roller, conduit means including a conduit having an outlet end opening disposed in the interior of said first roller and adjacent the coactingly engaging surfaces of said first and second rollers, and means for supplying paint through said conduit, through said outlet opening, and on said inner cylindrical surface of said first roller and said outer cylindrical surface of said second roller.

3,321,796
DISPOSABLE TOOTHBRUSH
Jhon Lelicoff, 1732 Norfolk Lane, Anaheim, Calif. 92802
Filed Nov. 10, 1964, Ser. No. 410,318
13 Claims. (Cl. 15—605)



10. A disposable toothbrush, including:
(a) an elongate rigid member having first and second end portions, which member is formed from a material that is softer than tooth enamel and will do no damage thereto if brought into frictional contact therewith;
(b) a doubled-over strip of a soft non-water-soluble material that covers two opposite sides of an end portion of said member;
(c) holding means for maintaining said strip in a fixed position on said end portion;
(d) a layer of a dentifrice covering at least a portion of the exterior surface of said strip; and
(e) a film of water soluble material that envelopes said layer of dentifrice and strip to prevent flaking of said dentifrice from said sheet prior to use of said toothbrush.

3,321,797
DRAPERY SUPPORT ASSEMBLY
Sidney Weisberg, Maplewood, N.J., assignor to Worthy Products Corp., New York, N.Y., a corporation of New York
Filed June 25, 1965, Ser. No. 467,028
5 Claims. (Cl. 16—87.4)



1. A drapery support assembly for a horizontal, hollow, curtain rod comprising a slider freely carried within the curtain rod, a depending tab on said slider having an opening spaced from the free end thereof, a downwardly extending drapery support arm curved outwardly away from the slider, a tab receiving recessed portion on the upper end of the support arm engageable with the depending tab and provided with at least one opening in register with the tab opening in the engaged position, and a drapery supporting hook receivable within the tab and support arm openings to couple the assembly together, and said support arm extends substantially below the drapery supporting hook to engage the drapery and prevent it from tilting.

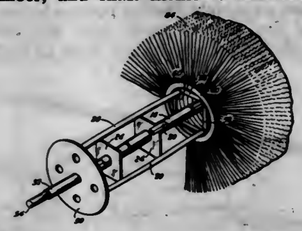
3,321,798
HANDLE FOR LUNCH BOXES
Jacques A. Plamondon, 987 S. York St., Denver, Colo. 80209
Filed May 18, 1965, Ser. No. 456,694
5 Claims. (Cl. 16—114)



1. A handgrip of the class described comprising a one-piece body embodying an elongated plate provided on an underneath surface thereof with a longitudinally extending centrally disposed reinforcing rib and provided at its end portions with link accommodating and attaching adapters, said rib being of a length less than the length of the plate and having its ends terminating inwardly of the respective end portions of said plate, said rib being provided on opposite longitudinal sides thereof with outstanding laterally disposed fins, said fins being integral with the plate and rib and being spaced from each other and defining pocket-like spaces for ventilating purposes.

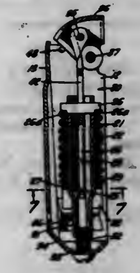
3,321,799
ROTARY BRUSH
Lloyd G. Hackworth, 3708 S. 29th West Ave., Tulsa, Okla. 74107
Filed May 14, 1964, Ser. No. 367,311
6 Claims. (Cl. 15—182)

1. A rotary brush comprising a central core structure, a unitary brush sleeve removably disposed on the core structure, and means for retaining the brush sleeve in position on the core structure, wherein the core structure comprises a centrally disposed sleeve member, a plurality of spaced angle members supported by said central sleeve member, and shaft members removably secured



to opposite ends of said central sleeve member and adapted to transmit rotational movement to the central sleeve.

3,321,800
SPRING-LOADED HINGE
Carl J. Nardon, 4532 Cockerham Drive, Los Angeles, Calif. 90027
Filed Apr. 7, 1965, Ser. No. 446,323
2 Claims. (Cl. 16—190)

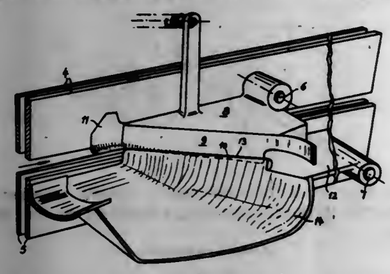


1. A spring-loaded hinge device comprising in combination: a stationary housing having side walls, a swinging hinge part pivotally attached to the housing, a movable tension member in the housing pivotally attached to said hinge part, a stationary tension member in the housing secured at one end to the housing remote from said hinge part, each of the tension members having an axially extending slot and each having a crossmember fixed thereto extending through the slot in the other tension member, a coil compression spring encircling said tension members and being operatively positioned between said crossmembers, the housing side walls having indentations to reduce the clearance space between them, and a snubber means carried on the movable tension member frictionally engaging the side indented walls and movable into the reduced clearance space between said indentations.

3,321,801
APPARATUS FOR SEPARATING THE FLANK FLESH FROM THE RIBS AND VERTEBRAL APPENDAGES OF A FISH
Henri Westerdahl, Ronne, Bornholm, Denmark, assignor to the firm Nordischer Maschinenbau Rud. Baader, Lubeck, Germany
Filed Mar. 18, 1965, Ser. No. 440,722
Claims priority, application Germany, Mar. 20, 1964, N 24,657
6 Claims. (Cl. 17—4)

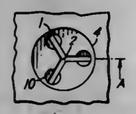
1. A tool for separating the flank flesh of a fish, said tool comprising a first pair of parallel guide rails, a second pair of parallel guide rails coextensive with said first pair of guide rails and spaced therefrom, whereby a gap is located between the two pairs of guide rails, an axle extending through said first pair of guide rails, a second

axle extending through said second pair of guide rails, a cutting tool pivotally mounted upon the first-mentioned axle and having a wedge-shaped portion providing a cutting edge and an upright guiding portion located adjacent one of said first pair of guide rails, said cutting edge being located substantially on the level of said gap, and



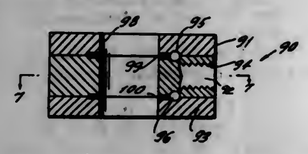
a resilient support pivotally mounted upon said second axle and comprising a bead-like edge extending close and at an incline to said cutting edge and a rounded trough connected with said bead-like edge and cooperating with said wedge-shaped portion for tipping over fish fillets.

3,321,802
SPINNERETS
Derek J. Wood, Raglan, William G. Parr, Abergavenny, and Peter C. C. Sanders, Cwmbran, England, assignors to British Nylon Spinners Limited, Pontypool, Monmouthshire, England
Filed Mar. 26, 1965, Ser. No. 442,857
Claims priority, application Great Britain, Mar. 31, 1964, 13,327/64
18 Claims. (Cl. 18—8)



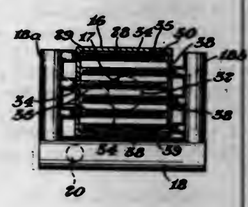
1. A spinneret for use in spinning artificial filaments having non-circular cross-sections comprising a spinneret plate having a front and back face and containing therein an extrusion orifice consisting of at least two interconnecting slot-like arms having tip portions, said tip portions of said slot-like arms having at least one bore communicating with said tip portions of said extrusion orifice, said bore being of such depth as to avoid reaching said front face of said spinneret.

3,321,803
EXTRUSION DIE FOR EASILY DECOMPOSABLE MATERIALS
Herbert Oliver Corbett, Bridgeport, Conn., assignor to National Distillers and Chemical Corporation, New York, N.Y., a corporation of Virginia
Filed Jan. 14, 1966, Ser. No. 520,569
4 Claims. (Cl. 18—13)



1. An extrusion die for easily decomposable materials comprising first, second and third plates stacked atop one another; each of said first, second and third plates having aligned central openings therethrough; each of said first, second and third plates disposed in parallel spaced planes; said first and second plates having abutting surfaces; said second and third plates having abutting surfaces; a first closed semicircular channel defined between said first and second abutting surfaces; a second closed semicircular channel defined between said second and third abutting surfaces; a common channel means extending from regions external of said extrusion die and into said first and second closed semicircular channels; said first and second closed semicircular channels defining overlapping axially spaced sections of a full circle extending around the axis of said die.

3,321,804
EXTRUSION OF WIDE THERMOPLASTIC FILM AND SHEET
Peter Breidt, Jr., Midland, and Lloyd E. Lefevre, Bay City, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
Original application Oct. 14, 1964, Ser. No. 403,713. Divided and this application Mar. 24, 1966, Ser. No. 571,656
2 Claims. (Cl. 18—13)

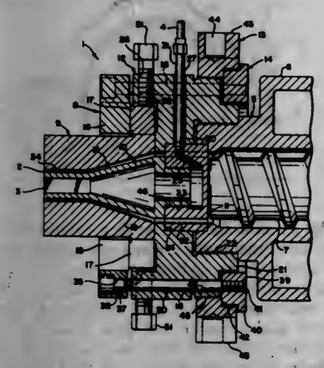


1. An apparatus for the extrusion of a composite thermoplastic resinous sheet comprising in cooperative operative combination
an extrusion die, the extrusion die comprising a housing,
the housing having first passageway so constructed and arranged so as to permit streamline flow therein, the housing defining
a first polymer entrance, and an oppositely disposed slot-like major extrusion orifice,
means distributed within the passageway defining
a plurality of generally slot-like minor extrusion orifices, each minor extrusion orifice adapted to deliver a sheet-like stream of material into a material flowing within the first passageway, the
minor extrusion orifices alternately extending from opposite walls of the passageway for a distance somewhat less than the total width of the passageway, and the minor orifices being distributed in interdigitating relationship.

3,321,805
DIE ASSEMBLY
Joseph H. Given, Pompano Beach, Fla., assignor to The Plastex Company, Columbus, Ohio, a corporation of Ohio
Filed Dec. 7, 1965, Ser. No. 512,099
10 Claims. (Cl. 18—14)

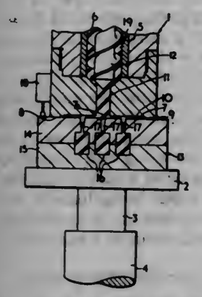
1. Extrusion apparatus for continuously extruding plastic material in a predetermined configuration, in conjunction with a die-assembly comprising in combination;
a die-body housing,
a spider provided with a first passage centrally disposed within said die-body housing,
a mandrel, axially provided with a second passage, mounted within said spider and centrally disposed within said die-body housing,

a die-bushing, provided with a generally conical third passage, with a castellated flange at one end, disposed about said mandrel to define a tapered annular extrusion zone and centrally disposed within said die-body housing,
a locking flange interiorly incomplete with interruptions arrayed in a predetermined manner, disposed about said die-bushing, said interruptions being disposed within said locking flange to permit said castellated flange of said die-bushing to slip through,



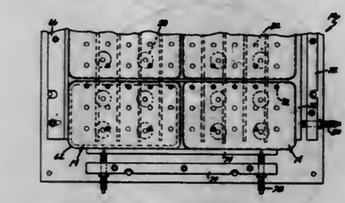
a flanged backing plate in face-to-face abutment with said die-body housing, a portion of said backing plate slidably fitted over a portion of said die-body housing,
locking means mounted exteriorly on said die-body housing against said backing plate, said combination being bolted together in predetermined spatial relationship with a plurality of bolts passing through the periphery of said locking flange, die-body housing and backing plate whereby a change of die-bushing may be quickly accomplished by releasing said die-bushing by loosening said locking means.

3,321,806
EXTRUDERS FOR INJECTION MOULDING MACHINES
Brian Harry Beebee, Walsall, England, assignor to Dunlop Rubber Company Limited, a British company
Filed Aug. 25, 1964, Ser. No. 391,915
Claims priority, application Great Britain, Sept. 14, 1963, 36,259/63
8 Claims. (Cl. 18—30)



1. Injection moulding apparatus for rubber or other plastic material comprising an injector and a mould having at least one moulding cavity therein and being operably engageable with the injector, an end surface on the injector having a feed recess formed therein, an end surface on the mould having a plurality of inlet holes connected to said moulding cavity or cavities and said two end surfaces being engageable so that said feed recess of the injector spans the said plurality of inlet holes of the mould.

3,321,807
UNIVERSAL MAGNETIC DIE PLATE
Robert E. O'Brien, Grand Rapids, Mich., assignor to Kirkhof, Manufacturing Corporation, Grand Rapids, Mich., a corporation of Michigan
Filed July 7, 1965, Ser. No. 470,049
2 Claims. (Cl. 18—35)



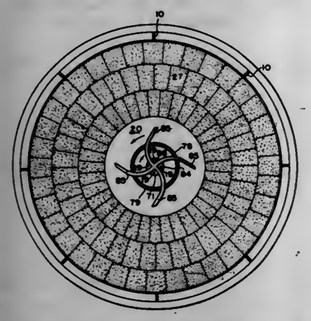
1. Forming die apparatus comprising: a press platen assembly having a die receiving surface area; a plurality of die elements, each having surface area cooperatively engageable with said die receiving surface area; the surface area of each die element being a fraction of said platen surface area, to enable said platen to engage a plurality of said die elements simultaneously; magnetizable means anchored to said platen at said die receiving surface area; magnetizable means on each of said die elements at its surface area; one of said magnetizable means between each die element and said platen being magnetized; said platen magnetizable means being in a pattern over said die receiving surface area, the portions of said pattern being spaced closer than the size of said die surface area, to create at least one magnetic circuit between said platen and each of said die elements to retain the die elements peripheral clamping and alignment means cooperative with said platen and said die elements to retain said die elements in particular relationship to said platen and to each other.

3,321,808
DEVICE FOR OPENING CRIMPED CONTINUOUS TOW FOR CIGARETTE FILTERS
Shigehiko Kato, Saijo, Japan, assignor to Kurashiki Rayon Company Limited, Kurashiki, Japan, a corporation of Japan
Filed Apr. 2, 1964, Ser. No. 356,865
Claims priority, application Japan, Apr. 10, 1963, 38/17,623
3 Claims. (Cl. 19—65)



1. A device for opening continuous crimped tow to be used for cigarette filters comprising a constant driving means for pulling said crimped tow, two endless belts arranged in a spaced relation to a continuous crimped tow passing between them, each of said belts having needles secured to its surface in definite patterns for acting upon said tow, means for driving said belts intermittently and at unequal relative speeds so that said needles stick into the tow and continuously alternate the tow between a tense and slack condition, and means for gradually increasing the space between said belts in the direction of travel of the tow whereby the tow attains a degree of bulkiness due to the action of said needles.

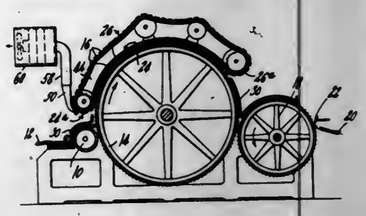
3,321,809
PAPERMAKING MACHINE STOCK DISTRIBUTOR APPARATUS
Darrel J. Younk, Munising, Mich., assignor to Kimberly-Clark Corporation, Neenah, Wis., a corporation of Delaware
Filed Jan. 9, 1964, Ser. No. 336,710
2 Claims. (Cl. 19—66)



1. In a machine for processing stock for papermaking purposes, an annular imperforate distributor plate, a stock inlet of the machine coaxial with the said distributor plate and surrounded by the distributor plate, a first rotary working plate having a working surface coaxial with and surrounding said distributor plate and to which working plate at the distributor plate perphery said distributor plate is secured for rotation with the working plate at working plate speed; a second rotary working plate having a working surface and disposed to form with the first working plate a working space, said working plates being vertically disposed and axially offset and said working surfaces being roughened to provide traction for stock being processed without obstructing rolling traverse of the stock on the working surfaces, a feed screw for feeding stock to be processed to the said stock inlet, and vanes secured to the distributor plate spaced at intervals around the distributor plate to provide stock receiving zones on the distributor plate, said vanes each having a front face which is convex in the direction of plate rotation and the vanes extending from the axis of the distributor plate across the stock inlet in spaced relation to intercept and deflect stock from the stock inlet to the annular distributor plate, said vanes having a substantial length on the distributor plate but terminating short of the outer periphery of the distributor plate thereby forming a continuous uninterrupted smooth surface area on the distributor plate between the outer extremities of the vanes and the working surface of the first working plate, the said area being complete in a circumferential sense, said vanes terminating short of the outer periphery of the distributor plate to such an extent that stock traversing the distributor plate over the ends of the vanes tends to drag itself slighly and to distribute itself uniformly in the continuous uninterrupted smooth surface area and said smooth surface area having a significant radial distance beyond the vanes' extremities to accommodate such stock movement.

3,321,810
TEXTILE CARDING MACHINE
Virgil Allan Burnham, Saco, Maine, assignor, by mesne assignments, to Maremont Corporation, Chicago, Ill., a corporation of Illinois
Continuation of application Ser. No. 290,388, June 25, 1963. This application Oct. 5, 1965, Ser. No. 493,019
4 Claims. (Cl. 19—107)

1. A flat card having a card cylinder rotatable to move fibers from the inlet end to the outlet end of said card, an endless chain of flats in carding relationship with the cylinder, the flats being disposed parallel to the axis of the cylinder in a pair of flights separated by a pair of bights, the individual adjacent flats being relatively widely initially separated by at least 0.065 inch substantially throughout the flights and relatively further separated at the bights forming an air enclosure having side openings between the flights and end openings between the flats at the bights, means for moving said flats to move



the flight of said flats in carding relationship with said cylinder, and pneumatic means providing, with the rotation of said carding cylinder, a current of air inwardly between the individual adjacent flats when said flats are in carding relationship with said cylinder to remove short fibers from said cylinder and draw them into the interior of said endless chain of flats and, a current of air to remove fibers from the interior of said endless chain of flats.

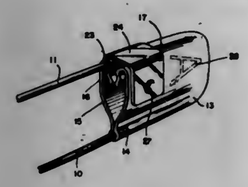
3,321,811
METAL CLAMPING BAND
Karl Thomas, Bergsdorf, Germany, assignor to Jurid Werke G.m.b.H., Hamburg, Germany, a firm of Germany
Filed Mar. 31, 1965, Ser. No. 444,255
2 Claims. (Cl. 24—20)



1. A one piece metal band for the clamping of hose, sleeves and similar formed parts of rubber or plastics upon tubes or supports, said band having two ends, an outwardly extending compressible fold integral with said band, there being a plurality of openings located side by side upon the band adjacent one of the ends thereof and between said fold and said one end, a tooth integral with said band stamped out therefrom and located adjacent the other end of the band, said tooth being adapted to engage from the inside any one of said openings when an end portion of the band extends over the other end portion thereof, said tooth being located at a distance from said other end such that the adjacent end portion covers said fold when said tooth is located in any one of said openings.

3,321,812
SAFETY PIN
Emile Scheemaeker, 188 Broad St., Providence, R.I. 02903
Filed July 12, 1965, Ser. No. 471,141
2 Claims. (Cl. 24—158)

2. A safety pin comprising a spring wire bent into a U-shape to form a pair of spring arms, one of said arms being sharpened, a cap having spaced walls integrally connected at a U-bend, said U-bend being pinched around said other arm to mount said cap on said spring arms, the free edges of said cap walls defining a slot, said sharp arm being adapted to enter said slot into said cap, means for locking said sharp arm in said cap, and means for releasably retaining said sharp arm in said cap, said retaining means comprises a pair of pockets inside the front



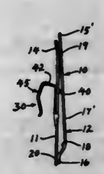
edge of each cap wall, said cap walls being reentrantly bent to form said pockets, said sharp arm entering between the inwardly bent ends of said cap walls and nesting in said pockets, the side walls of said cap being solid, said slot defining the only entrance into said cap for said sharp arm.

3,321,813
COMBINATION METAL AND PLASTIC MEMBERS
Arnold O. Jansson and George D. Pickering, Arlington, Mass., assignors to United-Carr Incorporated, Boston, Mass., a corporation of Delaware
Filed Dec. 11, 1964, Ser. No. 417,716
1 Claim. (Cl. 24—73)



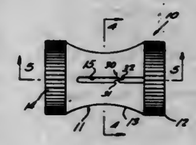
A fastener for attaching a hollow molding having spaced inturned flanges to a support, comprising a thin metallic cross plate adapted to engage the inturned flanges of the molding, said cross plate having a generally parallelogrammic configuration including curved ends and parallel peripheral edges, the length and width of said cross plate being respectively greater than and less than the distance between the inturned molding flanges, said cross plate having a slot formed therein which extends angularly inwardly from one of said parallel edges intermediate said curved ends, means for securing said fastener to a support depending from one side of said cross plate, and a yieldable plastic spring finger extending angularly from said cross plate and lying in planes parallel to said cross plate, the width of said finger being greater than the width of said slot and the thickness of said finger being greater than the thickness of said cross plate, portions of one end of said spring finger being seated in said slot, said portions being compressed between the internal edges of said cross plate defining the sides of said slot, other portions of said one end overlying the surfaces of said cross plate adjacent said slot on both sides of said cross plate, said spring finger having a free end opposite said one end adapted to engage one of the inturned flanges of the molding at points spaced from one of said curved ends of said cross plate to rotatably urge said curved ends of said cross plate into a molding flange engaging attitude.

3,321,814
DRAPERY HOOK
Joseph V. Graber, Madison, Wis., assignor to Graber Manufacturing Company, Inc., Middleton, Wis., a corporation of Wisconsin
Filed Mar. 31, 1965, Ser. No. 444,270
9 Claims. (Cl. 24—84)



7. An adjustable drapery support comprising a drapery receiving member, keeper means on the receiving member for engaging and keeping a hook apparatus at selectively adjustable positions thereon, and a hook apparatus including a body portion having upper and lower ends, said lower end contacting the receiving member and said upper end being spaced from the receiving member, mounting means attached to the upper end of the body portion adjacent the sides thereof and spaced above the lower end of the body portion for slidably mounting the body portion on said receiving member, a substantially resilient neck portion attached to the body portion and extending upwardly therefrom, a latch on the neck intermediate the upper and lower ends thereof for selectively engaging the keeper means, an arm attached to the upper end of the neck and extending outwardly therefrom, and a depending hook attached to the outer end of said arm.

3,321,815
SHOESTRING KNOT RETAINER
Charles W. Herdman, 35 Royal Palm Drive, Fort Lauderdale, Fla. 33301
Filed Jan. 21, 1966, Ser. No. 522,162
4 Claims. (Cl. 24—119)

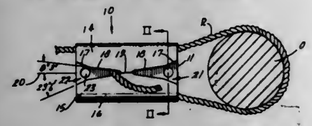


1. In a shoestring knot retainer comprising a pair of receptacles, each having a continuous wall closed at one end and open at the other end, the continuous wall of one of said receptacles having a single slot opening out of the open end and extending longitudinally inwardly from the open end toward and spaced from its closed end, and releasable interengaging screw thread means between the open end portions of said receptacles for securing said receptacles together, said receptacles when releasably interengaged having a portion of said slot which is in communication with the exterior, the improvement consisting of providing an obstructing means projecting into said slot from opposed walls of said slot, said means being so constructed and arranged as to permit the insertion into and the withdrawal from the slot of the parts of the shoestring protruding from the knot, when the open end of said one receptacle is not closed by the other receptacle, and to center and retain the parts of the shoestring inserted in the slot within the visible portion of the slot.

3,321,816
ROPE TYING DEVICE

Harry C. Monroe, Gun Plain Township, Allegan County, Mich., assignor to Capre Company, Kalamazoo, Mich., a partnership

Filed June 21, 1965, Ser. No. 465,523
4 Claims. (Cl. 24—130)

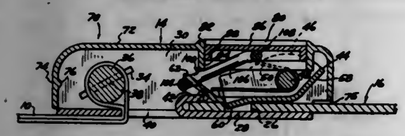


1. A rope tying device, comprising:
a one-piece member of substantially oval cross section having a wide, flat base wall, two relatively short, arcuate, opposed end walls and a wide, flat front wall substantially parallel with said base wall, the front wall being defined by two coplanar flanges which extend from said end walls toward each other, said flanges having opposing edges defining at least one substantially V-shaped slot therein with the widest part of the slot opening through one end edge of said front wall so that the free end of a rope can be received in said slot and secured against movement by engagement with the edges of said slot.

3,321,817
BUCKLE FOR SEAT BELTS

Lawrence H. Smith, Bloomfield Hills, and Gerald J. Partridge, Detroit, Mich., assignors to Jim Robbins Seat Belt Co., Royal Oak, Mich., a corporation of Delaware

Filed Jan. 28, 1966, Ser. No. 523,700
8 Claims. (Cl. 24—230)



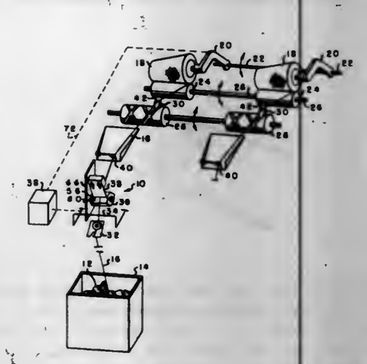
1. A buckle for a seat belt, comprising: a base member; a latch supported for motion between two extreme positions with respect to the base member; a locking section on said latch member adapted to be disposed adjacent to the base member at one extreme of motion thereof; a pushbutton slidably supported for motion toward and away from said base member; a lever pivotably supported with respect to the base and having a first arm which projects from the axis of pivotation of said lever and contacts said latch member at a point separated from the axis of rotation of the latch member and a second extending arm which projects in a substantially opposite direction from said axis of pivotation and movably contacts the side of the pushbutton facing said base, whereby a motion of the pushbutton in the direction of the base will rotate the lever member and thereby move the latch member so as to transfer it away from the position wherein the locking section is adjacent to said base; and a tongue member having an aperture therein adapted to be inserted between the base member and the latch member so that said locking section engages the aperture.

3,321,818
SLUB CATCHER

Lewis F. Scruggs, McCormick, S.C., assignor to Deering Milliken Research Corporation, Spartanburg, S.C., a corporation of Delaware

Filed Mar. 30, 1965, Ser. No. 443,918
8 Claims. (Cl. 28—64)

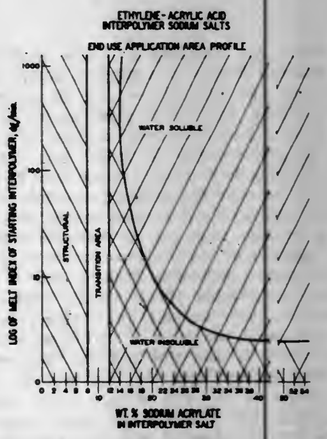
1. A slub catcher comprising: a cutter member, a polygon shaped member rotatably supported adjacent said cutter member with one side in operative relationship with said cutter member and spaced a predetermined distance therefrom, said polygon shaped member having at least one other side with a radius from the center of rotation of said member less than the smallest radial distance from the center of rotation of said polygon shaped member to any point on the surface of said one side and means operably associated with said polygon shaped member to allow selective rotation of said polygon shaped member to rotate said other side into operative relationship with said cutter member to provide a different predetermined distance between said cutter member and said other side.



3,321,819
PROCESS FOR SIZING AND DESIZING TEXTILE FIBERS

Andrew T. Walter, Charleston, and George M. Bryant, South Charleston, W. Va., and Chester L. Purcell, Somerville, N.J., assignors to Union Carbide Corporation, a corporation of New York

Filed Dec. 24, 1964, Ser. No. 421,160
16 Claims. (Cl. 28—72.6)

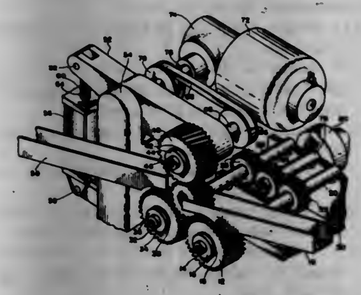


1. A process for warp sizing and desizing textile fibers comprising the steps of:
(a) sizing textile fibers with an aqueous sizing solution of a warp size comprising essentially a water soluble alkali metal salt of an interpolymer of ethylene and an acrylic acid having 3 to 4 carbon atoms, said interpolymer having a melt index of about 15 decigrams/minute to 1000 decigrams/minute and containing about 12 to 54% of an acrylic acid interpolymerized therein and with the acrylic acid alkali metal salt moieties comprising about 12 to 65% by weight of the total interpolymer salt;
(b) weaving said textile fibers into cloth;
(c) desizing the textile fibers in said cloth by contacting the fibers with a hot water wash in which the interpolymer salt is soluble;
(d) adding on acid to the hot water wash until its pH is about 4 to 6 thereby precipitating the interpolymer;
(e) isolating the precipitated interpolymer from the hot water wash; and
(f) reforming the alkali metal salt of the interpolymer by contacting the isolated interpolymer with an alkali metal base.

3,321,820
APPARATUS FOR GEAR BURNISHING

Guenter K. Rosendahl, Chicago, Ill., assignor to Illinois Tool Works Inc., Chicago, Ill., a corporation of Delaware

Filed July 20, 1965, Ser. No. 473,391
6 Claims. (Cl. 29—90)



1. Apparatus for burnishing gears which comprises a plurality of gears having tooth forms and tooth spacing adapted to mesh with a gear to be burnished, said plurality of gears being in substantially parallel axes relation, one of said plurality of gears being a drive gear, means for applying a load to at least one of said plurality of gears and means for changing the relative rates of rotation between said drive gear and the rest of said plurality of gears whereby the gear being burnished is moved out of mesh with said plurality of gears.

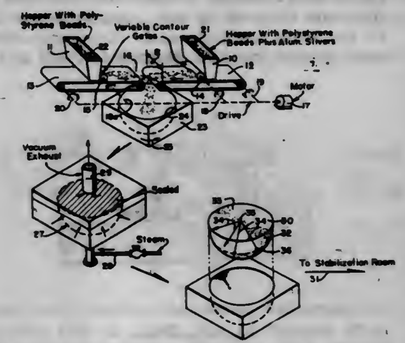
3,321,821
THREE-DIMENSIONAL DIELECTRIC LENS AND METHOD AND APPARATUS FOR FORMING THE SAME

Robert L. Horst, Lancaster, Pa., assignor to Armstrong Cork Company, Lancaster, Pa., a corporation of Pennsylvania

Filed Oct. 30, 1962, Ser. No. 234,135
28 Claims. (Cl. 29—155.5)

1. The method of fabricating a monolithic mass of dielectric material having a variation in dielectric constant therein which comprises the steps of cross-feeding a particulate dielectric material of near-unity dielectric constant with a particulate dielectric material of higher dielectric constant, said cross-feeding being effected along a radius of a circularly symmetrical collection receptacle, progressively altering the amounts of said materials being mixed with one another at different points along said radius as said cross-feeding step proceeds, rotating said collection receptacle during said cross-feeding step and simultaneous with said progressive altering step to build up a circularly symmetrical mass of said cross-fed particulate material having a three-dimensional variation in dielectric constant, and fusing the material in said collection receptacle into a monolithic mass of three-dimensionally graded dielectric material.

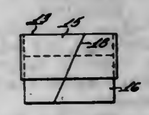
19. An apparatus for producing a mass of dielectric material exhibiting a variation in dielectric constant, comprising first means for feeding a first dielectric material toward a mixing location, second means for feeding a second dielectric material, having a dielectric constant different from that of said first material, toward said mixing location, first and second three-dimensionally contoured gates located respectively adjacent said first and second feeding means upstream of said mixing location, and means for successively repositioning said first and second gates at rates related to the feed rates of said first and second feeding means for altering the amounts of said materials which are mixed with one another at said mixing location with elapse of time.



3,321,822
WOUND CORE METHOD

Leslie A. Shupe, Pittsburgh, Pa., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.

Filed June 1, 1965, Ser. No. 460,263
2 Claims. (Cl. 29—155.57)



1. The method of forming a core for an electrical induction apparatus comprising the steps of: winding a pair of offset but partially overlapping strips of magnetic sheet steel into an annulus; cutting said wound strips at an oblique angle relative to the longitudinal direction of said strips to form butt joints in each layer of said strips; sliding said strips toward each other so that they assume a fully overlapping position with the edges of said strips lying in parallel planes; positioning said core around one leg of an electric coil so that said butt joints in adjacent layers are staggered.

3,321,823
METHOD FOR MANUFACTURING ROLLING DIAPHRAGM DEVICES

John F. Taplin, 15 Sewall St., West Newton, Mass. 02165

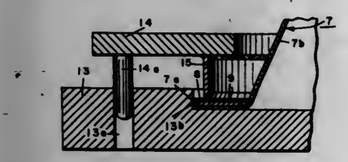
Original application Jan. 25, 1965, Ser. No. 427,847, now Patent No. 3,283,670, dated Nov. 8, 1966. Divided and this application May 25, 1966, Ser. No. 574,483
1 Claim. (Cl. 29—156.4)

A method for manufacturing rolling diaphragm devices including an alignment ring having a cylindrical align-

ment surface of predetermined inner diameter being arranged in coaxial relation to the bore in the cylinder body of the rolling diaphragm device, said method including the steps of:

(a) placing a substantially hat-shaped rolling diaphragm of a fabric reinforced elastomer into a conforming mold and fitting a radially outer flange of said rolling diaphragm into a circular centering recess defined by said mold;

(b) superimposing upon said radially outer flange of said rolling diaphragm while in said mold an elastomer-surfaced annular reinforcement member having the same diameter as said centering recess defined by said mold, simultaneously fitting said reinforcement member into said centering recess of said mold,

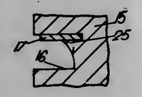


and thereafter permanently affixing said reinforcement member to said flange of said rolling diaphragm while said rolling diaphragm still is in said mold;

(c) removing said rolling diaphragm from said mold with said reinforcement member permanently affixed to said radially outer flange of said rolling diaphragm, fitting said reinforcement member into a circular centering recess of a trimming device, and thereafter trimming said reinforcement member to the exact diameter of said alignment surface on said alignment ring; and

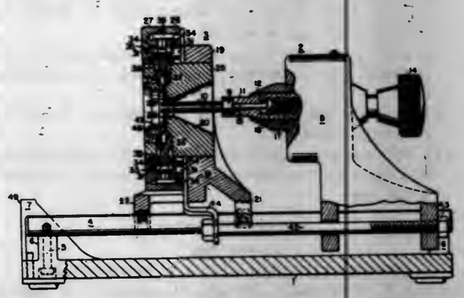
(d) establishing thereafter physical engagement between the radially outer trimmed edge of said reinforcement member and said alignment surface on said alignment ring.

3,321,824
PISTONS
Alexander Maclean Porkess, Headingley, Eric Hugh Kemp, Glinton, near Peterborough, and John Barry Matthews, Orton Longueville, England, assignors, by mesne assignments, to Perkins Engines Limited, London, England, a British company
Filed Dec. 4, 1964, Ser. No. 415,993
Claims priority, application Great Britain, Dec. 18, 1963, 49,909/63
7 Claims. (Cl. 29—156.5)



1. A method of locating a metallic, wear-resisting insert in a piston ring groove, the groove having an upper and a lower surface and an inner wall, the method including the steps of placing the insert in the groove adjacent at least one radial surface of the groove, and deforming the metal of the inner wall of the groove by the application of pressure to the inner wall of the groove adjacent the insert to cause metal to flow into contact with the insert, thereby to force the insert into a position in which it abuts against one of the surfaces of the groove, thereby clamping the insert in said position.

3,321,825
INTEGRATED CIRCUIT LEAD POSITIONER
Charles S. Cooke, Redwood City, Calif., assignor to Siliconix Incorporated, Sunnyvale, Calif., a corporation of California
Filed Nov. 10, 1966, Ser. No. 593,467
10 Claims. (Cl. 29—203)



1. In a deivce for handling components having a case and a plurality of leads extending in one general direction therefrom,

said device having means for holding said case;

lead positioning means comprising:

(a) the same plurality of fingers as the plurality of said leads,

(b) means to circumferentially position said fingers according to the configuration into which said leads are to be positioned,

(c) means to radially converge said fingers into adjacent later contact,

to position said leads individually laterally therebetween,

(d) a wedge point formed upon each side of each of said fingers to allow said convergence,

(e) a slanting surface on the tip of each of said fingers to reduce the length of the wedge point thereof, and

(f) a lubricant intrinsic with each finger to allow each said lead to slide relative to each said finger during relative motion between the two during said positioning.

3,321,826
METHOD OF MAKING METAL SANDWICH STRUCTURES
Mortimer J. Lowy, Downey, Calif., assignor to Douglas Aircraft Company, Inc., Santa Monica, Calif.
Filed Nov. 12, 1964, Ser. No. 410,641
8 Claims. (Cl. 29—423)



1. A method of producing hollow, metal sandwich structures of controlled dimensions and with a uniform continuous bond between a core member, a termination fitting and a pair of cover sheets comprising the steps of:

assembling in a metal yoke at least two different metals in contiguous relationship, one metal being said core member having a plurality of ribs and another being a plurality of spacers, said spacers being suitable for selective chemical etching and being placed between said ribs;

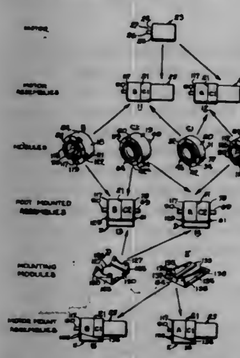
assembling in said metal yoke a metallic termination fitting, said termination fitting being placed in one end of said yoke and occupying a space normally occupied by one end of at least one of said spacers;

attaching top and bottom metal cover sheets to said yoke to form a metal sandwich;

hot rolling said metal sandwich to form a continuous bond between said core, said termination fitting and said metal sheets; and

selectively removing said spacers from between the top and bottom metal sheets.

3,321,827
METHOD OF CONSTRUCTING MAGNETIC FRICTION COUPLINGS
Hubert E. Klinkenberg and Leroy W. Simonson, both of Beloit, Wis., assignors to Warner Electric Brake & Clutch Company, South Beloit, Ill., a corporation of Delaware
Original application July 27, 1964, Ser. No. 385,190. Divided and this application Apr. 22, 1966, Ser. No. 544,599
2 Claims. (Cl. 29—469)



1. The method of constructing magnetic friction clutches or clutch-brake combinations for alternative mountings in service use including the steps of:

(a) preforming a first power input unit comprising a ring-like casing adapted at a first end to interfit closely with and for bolting to an electric motor end bell having a male pilot surface, a circle of bolt holes and a projecting shaft all of predetermined sizes and dimensions, said casing enclosing a hub for spline coupling with the shaft of said motor and carrying the driving pole ring of an axially engageable friction clutch energized by a magnet within the casing, the opposite second end of the casing having a cylindrical pilot surface concentric with the casing axis,

(b) preforming a second power input unit duplicating said first unit except for the mounting of said pole ring on the inner end of a shaft journaled intermediate its ends in said first casing end,

(c) preforming a first power output unit comprising a cup-shaped casing and a shaft journaled intermediate its ends in the bottom of the cup along the axis thereof and carrying a spline coupled to a driven armature ring adapted, when said cup is alined and abutting one of said input rings, for axial gripping engagement with the driving ring of the input unit, the open end of said cup having a cylindrical pilot surface concentric with the output shaft and adapted to telescope closely with said cylindrical pilot surface on said input unit,

(d) preforming a second power output unit duplicating the first output unit except for the addition within the cup thereof of a magnetic friction brake having an armature ring splined onto said output shaft between said driven clutch ring and the cup bottom and a magnet ring fixed to said cup and adapted for axial gripping engagement with the armature ring,

(e) selecting one of said input units according to whether a motor or base mounted transmission is to be formed,

(f) selecting one of said output units according to whether the transmission is to be a clutch or a clutch-brake combination,

(g) bringing the casings of the selected power input and output units into abutment with the cylindrical pilot surfaces thereof telescoped with each other whereby to aline the driving and driven rings of said clutch and dispose the same for axial gripping engagement,

(h) and finally bolting the abutting casings together.

3,321,828
ALUMINUM BRAZING
Clarence John Miller, Paoli, Pa., assignor to General Electric Company, a corporation of New York
No Drawing. Filed Jan. 2, 1962, Ser. No. 163,922
2 Claims. (Cl. 29—488)

1. In the operation of brazing together pieces of metal of high aluminum content in vacuo, in the absence of flux, with an aluminum brazing material, the improvement which comprises exposing the surfaces to be joined to the action of magnesium vapor during the brazing operation.

3,321,829
BRAZING FLUX AND METHOD OF BRAZING WITH SAME
John A Scott, North Haven, Conn., assignor to Olin Mathieson Chemical Corporation, a corporation of Virginia
No Drawing. Filed May 12, 1964, Ser. No. 366,916
12 Claims. (Cl. 29—495)

1. A brazing flux consisting essentially of: from 10 to 70 percent by weight of at least one alkali metal halide; from 0.4 to 10 percent by weight of a zinc halide; from 4 to 20 percent by weight of boron oxide; and from 20 to 75 percent by weight of potassium borate.

8. A process for brazing copper base alloys containing at least 5 percent aluminum which comprises:

(A) providing at least two copper base alloys to be brazed containing at least 5 percent aluminum;

(B) forming an assembly by interposing between said alloys a brazing flux consisting essentially of from 10 to 70 percent by weight of at least one alkali metal halide, from 0.4 to 10 percent by weight of a zinc halide, from 4 to 20 percent by weight of boron oxide, and from 20 to 75 percent by weight of potassium borate and a filler metal having a melting point above the melting point of the brazing flux but below the melting point of the base metal;

(C) placing said assembly into intimate contacting relationship; and

(D) heating said assembly to a temperature above the melting point of the filler metal but below the melting point of the copper base alloy.

3,321,830
HAND OPERATED SINGLE ACTION CAN OPENER
Robert E. McLean, Raytown, Mo., assignor to Rival Manufacturing Company, a corporation of Missouri
Filed Dec. 27, 1965, Ser. No. 516,544
10 Claims. (Cl. 30—9)

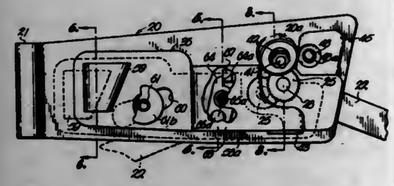
1. In a can opener, the combination of

a stationary support plate having an opening defined therein,

a movable plate on one side of said support plate and substantially parallel thereto,

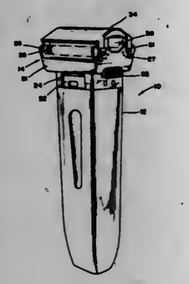
a link member between said plates and pivotally connected respectively thereto on separate axes, said

plates each having a well therein, said wells cooperating to form a substantially enclosed space,
a compression coil spring, said spring located within said space and seating on the respective plates at the opposite ends of the wells,
a feed wheel shaft journaled in said movable plate and extending through said opening defined in said main support plate,
a feed wheel mounted on one end of said shaft,
a crank arm carrier by said shaft on the opposite side of said plates from said feed wheel,
means cooperating with said crank arm and said link



member to effect substantially longitudinal shifting of the movable plate thereby to move the feed wheel shaft between two end positions within said opening in said main support in response to rotation of said crank arm,
a cutter member,
means connecting said cutter member with said main support plate so that in one of said end positions said feed wheel is in can cutting relationship with said cutter member, and
said spring located to yieldably bias said movable plate against displacement thereof in a direction resulting in separation of the feed wheel from the cutter member when said shaft is in said one end position.

3,321,831
RAZOR WITH A RECIPROCATING BLADE
Robert R. Harr, East New Market, and Otis Sterling Lloyd, Salisbury, Md., assignors to Cambridge Scientific Industries, Incorporated, Cambridge, Md., a corporation of Maryland
Filed June 29, 1965, Ser. No. 467,935
8 Claims. (Cl. 30—45)



1. An electric razor comprising a stationary support member, a blade carrier adapted to carry a blade having at least one cutting edge, said blade carrier being mounted on said stationary member for reciprocatory motion relative thereto in a direction substantially parallel to said cutting edge, said blade carrier having a central opening, a cap normally positioned above said blade carrier and having a shaft which projects downwardly through the said opening in the blade carrier, spring biased gripping means connected to said blade carrier for gripping the said shaft and urging the cap towards the blade carrier to hold a blade between the blade carrier and the cap, and a release means mounted on said stationary member, said release means including a resilient member separate from and movable relative to said spring means and resiliently movable to a position whereat it causes disengagement of said spring means from said shaft.

3,321,832
DENTAL ARTICULATOR ANALOGS AND METHOD AND APPARATUS FOR CONSTRUCTING SAME
Alex Weisberg, Beverly Hills, Calif., assignor to The Dentists' Supply Company of New York, York, Pa., a corporation of New York
Filed Aug. 26, 1963, Ser. No. 304,427
20 Claims. (Cl. 32—32)



1. A joint analog for dental articulation comprising: an element adapted to be rigidly secured to the upper frame of an articulator and having a downwardly directed pocket therein having a shape customized to the temporomandibular joint of an indivdual patient, said downwardly directed pocket being locatable over the upstanding pins of an articulator spaced at the intercondylar distance of that patient to simulate the hinge axis of the patient at the center of curvature of the end of the articulator pin; indexing means on said analog adapted to cooperate with indexing means on the other analog of a pair so that, when mounted on an articulator, the indexing means establish the predetermined intercondylar distance for the patient, said indexing means comprising a hole in the bottom wall of the analog element outside of the pocket and of a size adapted to closely receive the end of the articulator pin to locate an articulator pin at the position of the simulated condyle for the patient.

3,321,833
MANUFACTURE OF SHOES
Charles W. Mann, Framingham, Mass., assignor to Genesco, Inc., Nashville, Tenn., a corporation of Tennessee
Filed Nov. 7, 1963, Ser. No. 322,122
5 Claims. (Cl. 33—6)



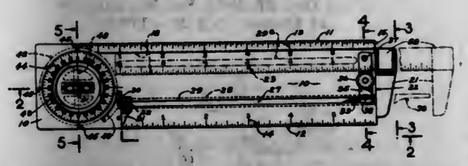
1. The method of grading lasts for the manufacture of shoes, which comprises, providing a model, grading from that model
(a) a plurality of groups of different nominal widths, the individual groups each consisting of a plurality of members all of the same nominal width, but differing from each other in length and in ball girth by increments of about 0.54 (±10%) units of ball girth to each whole unit of length,
and grading from that model
(b) a plurality of groups of different lengths, the individual groups each consisting of a plurality of members all of the same length but differing from each other in nominal width and in ball girth,
selecting the lengths and widths in the respective groups to provide a heart in which each member of an (a) group is in a (b) group and each member of a (b) group is in an (a) group; and coordinating the length increments by which the respective (b) groups differ from each other, with the ball girth increments by which the members of the (a) group differ from each other to obtain at least thirteen different ball girths within (a) groups whose lengths differ by no more than one inch.

3,321,834
GRADE STAKE AND MARKER CAP THEREFOR
Robert L. Burns, Salinas, Calif., assignor to Thomas E. Avilla, Seaside, Calif., and Clyde S. Lafitte, Monterey, Calif.
Filed Dec. 15, 1964, Ser. No. 418,471
3 Claims. (Cl. 33—74)



1. A grade marker comprising a rigid stake having a head formed thereon providing a shoulder, a disc-like cap of flexible material having a hub portion extending downwardly from its bottom surface and a lateral arm extending from said disc like cap having a spire extending upwardly therefrom in offset relation to said disc like cap, said hub portion having a cavity conforming to the shape of the head on said stake, and a flange formed on said hub portion stretchable over the head of said stake and for lodging below the shoulder on said head for securing the head of said stake to said cap.

3,321,835
TOOL FOR DIMENSIONAL AND/OR ANGULAR MEASURING
Robert E. Curtis, 5307 8th Ave., Brooklyn, N.Y. 11220
Filed July 8, 1965, Ser. No. 470,455
9 Claims. (Cl. 33—75)



2. A tool for a plurality of measurements comprising a main member having a first longitudinal edge, another longitudinal edge, an end squared with respect to the first longitudinal edge, a top and a bottom surface, the main member having substantial width between longitudinal edges, and a longitudinal slide extending from the squared end and parallel to the first longitudinal edge; a dimensional member having a width receivable in the longitudinal slide and having longitudinal edges, the dimensional member being removable from the longitudinal slide, a head on the dimensional member, having an inner surface at right angles to the longitudinal edges of the dimensional member, at least one scale carried by the dimensional member, a scale along a longitudinal edge of the main member having a zero, a circular protractor disk, mounting means carried by the main member at the other end thereof and turnably mounting the protractor disk, one of the parts including the main member and the disk having angular scale marks and cooperating marks on the other part, a zero mark on the main member being at right angles to the longitudinal edge through the center of the protractor disk and corresponding with the zero on the scale on a longitudinal edge of the main member, the disk projecting above the top surface of the main member, a protractor slide carried by the protractor disk above the top surface of the main member, the protractor slide having a cross section to slidably receive the dimensional member and one surface being in the region of the plane of the top surface of the main member, and the protractor slide having an edge on a diameter of the protractor disk.

3,321,836
RULER
Douglas D. Seely, Jr., 802 Odd Fellows Bldg., South Bend, Ind. 46601
Filed Aug. 2, 1965, Ser. No. 476,628
8 Claims. (Cl. 33—107)



1. A multiple scale ruler, comprising an elongated body of T-shaped cross section forming a flat upper surface and two laterally disposed longitudinal recesses extending the full length of said body, said body having a center groove extending the full length thereof with an enlarged inner portion, a recess in the bottom of said groove disposed near each end and spaced inwardly from the respective end, scale members of triangular cross sectional shape rotatably mounted on said body along each of said laterally disposed recesses and having a hole in each end, a member at each end of said body, each end member having pins extending into the holes in the ends of said scale members for rotatably supporting said scale members, and a tongue on each end member extending into said enlarged inner portion of said groove and having a lug thereon for seating in the respective recess in the bottom of said groove securing said member to the end of said body.

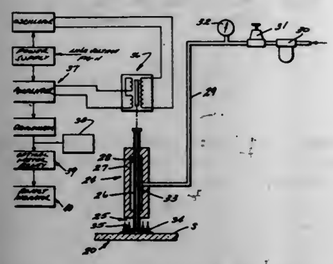
3,321,837
INSTRUMENT FOR MEASURING IRREGULAR OBJECTS
Dewey Gilleland, Jr., 4633 Pinewood Ave., Jacksonville, Fla. 32207
Filed Oct. 14, 1965, Ser. No. 496,017
2 Claims. (Cl. 33—148)



1. In a measuring instrument consisting of: two arms pivoted about an axis intermediate their ends, said arms having opposed body engaging members at one end; a transverse graduated scale on the opposite end of one arm; an indicating member on the opposite end of the other arm to traverse said scale; a third arm pivoted about said axis, said third arm having at one end an indicating member movable across the scale of said first arm;

the combination of a pointer member rotatably connected to said third arm and having a tip end so that the tip of said pointer member can be rotated in a plane containing the pivot point of said third arm, and wherein said plane is normal to the plane containing said third arm.

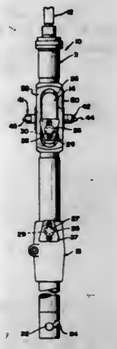
3,321,838
GAUGING METHOD AND APPARATUS
William C. Albertson, Jr., Lakewood, Ohio, assignor to Owens-Illinois, Inc., a corporation of Ohio
Filed July 29, 1965, Ser. No. 475,660
17 Claims. (Cl. 33—174)



1. An apparatus for inspecting the surface of an article which comprises
a support for said article,
a sensing nozzle,
said nozzle having an end with an outlet opening,
a housing for supporting said sensing nozzle for movement toward and away from said surface with said outlet opening of said sensing nozzle adjacent the surface of the article,
said housing having a chamber therein,
said nozzle having a hollow stem projecting into said chamber and freely movable relative to said housing,
means for supporting said housing in relatively axially fixed relation to said support during gauging,
said nozzle having an opening providing communication between said chamber and said outlet opening,
means for directing a fluid through said chamber to said nozzle and from said outlet opening against said surface,
means for applying a force to said nozzle in the direction of issuance of said fluid from said outlet opening whereby said nozzle is levitated in predetermined relation to the surface by the combined action of said force and the forces due to fluid flowing from said outlet opening and due to fluid flowing laterally between said nozzle end and said surface,
and means for sensing the position of said nozzle.

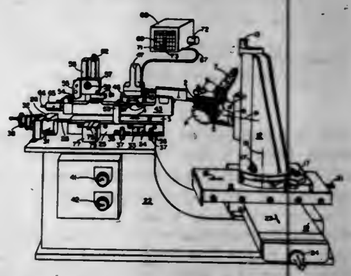
3,321,839
LINEAR MEASUREMENT DEVICE
Paul Müller, Eschweiler, Germany, assignor to Kordt & Co., Eschweiler, Germany
Filed Mar. 4, 1966, Ser. No. 531,685
Claims priority, application Germany, Oct. 15, 1962, K 47,973
7 Claims. (Cl. 33—178)

7. In a linear measurement device for measurement of the inside diameter of an internal cylindrical surface of one part and the outside diameter of an external cylindrical surface of a second part, support means, a dial gauge on said support means having a feeler pin, a first caliper head adjustably fixed on said support means, a second caliper head supported for rectilinear movement on said support means toward and away from said first head, means on said second head for engaging said feeler pin, a pair of inside caliper elements respectively projecting from said first and second heads and having caliper surfaces for engagement with diametrically opposite portions of said internal cylindrical surface, a pair of outside caliper elements respectively projecting from said first and second heads and having caliper surfaces for engagement with diametrically opposite portions of said external cylindrical surface, one of said caliper elements being adjustably mounted on its associated head to adjust



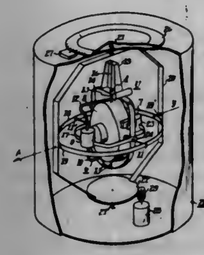
the position of the caliper surface thereof and to obtain a predetermined difference between the spacing of said caliper surfaces of said inside caliper elements and the spacing of said caliper surfaces of said outside caliper elements at which a predetermined indication is obtained on said dial gauge, and means for fixedly locking said one of said caliper elements in an adjusted position on its associated caliper head.

3,321,840
APPARATUS FOR MEASURING SURFACE FINISH OF PINION TOOTH AND LIKE CURVED SURFACES
Harry Pedersen, Rochester, N.Y., assignor to The Gleason Works, Rochester, N.Y., a corporation of New York
Filed Dec. 27, 1965, Ser. No. 516,409
12 Claims. (Cl. 33—179.5)



1. A measuring apparatus for gear tooth and like curved surfaces, comprising a support for a test part, a transducer having a stylus for following a surface of the part, a carrying slide for the transducer reciprocable relative to the support to traverse the stylus across a curved profile of said surface, a sled connected to said slide for reciprocation therewith, a flat on said support disposed in a plane parallel to the path of slide reciprocation, a spherical rider on said sled and bearing upon said flat for sliding thereon and also for rocking thereon about an axis extending through the center of said spherical rider non-perpendicularly to the flat and transversely of the path of slide reciprocation, the sled having the transducer mounted thereon and having connected thereto guidance means which act between the support and sled to rock the latter relative to the slide in such relation to the slide reciprocation that the transducer is guided in a path which is a smooth curve of varying curvature which corresponds approximately to the profile curvature of the test part.

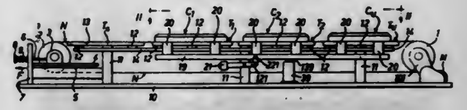
3,321,841
GYROCOMPASS
Shin-Ichi Kawada, Yokohama-shi, Japan, assignor to Kabushikikaisha Tokyo Keiki Seizosho (Tokyo Keiki Seizosho Co., Ltd.), Tokyo, Japan, a corporation of Japan
Filed June 18, 1964, Ser. No. 376,020
Claims priority, application Japan, June 19, 1963, 38/33,220
4 Claims. (Cl. 33—226)



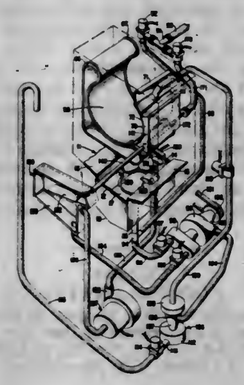
1. A gyrocompass comprising:
a case;
a rotor mounted in said case for rotation about a first horizontal axis;
a support member including means connected to said case and providing an axis of rotation of said case and said rotor mounted therein along a second horizontal axis which is perpendicular to said first horizontal axis, said case having a vertical axis passing therethrough and intersecting said first and second horizontal axes at right angles thereto; and
an integral torque generator secured to said means so as to be movable with said case and said rotor about said second axis to produce a torque with respect to time to eliminate the effects of latitudinal error which is caused by the earth rotation, said integral torque generator including a cylindrical vessel, a highly viscous liquid sealed within said cylindrical vessel, a mass positioned within said cylindrical vessel and in contact with said viscous liquid, shaft means secured to said cylindrical vessel at opposite ends thereof to provide an axis of rotation for said cylindrical vessel, and means for rotating said cylindrical vessel about said axis of rotation, whereby said viscous liquid will cause said mass to be suspended therein.

3,321,842
PROCESS AND MEANS FOR THE STEPWISE DRYING UNDER VACUUM AND SUCCESSIVE CONDITIONING, IN A CONTINUOUS OPERATION, OF TANNED SKINS AND THE LIKE
Paolo Bocciardo, 39 Via Canevari, Genoa, Italy
Filed Oct. 14, 1965, Ser. No. 496,099
Claims priority, application Italy, Nov. 6, 1962, 693,257; Sept. 20, 1965, 21,338/65
16 Claims. (Cl. 34—15)

16. Process for vacuum drying wet tanned skins, hides, or like material, comprising the steps of: slicking out each of said skins upon a movable skin-supporting member, stepwise driving said skin-supporting member through an open closure member of the first of a set of chambers, then stopping said supporting member in said chamber and closing said closure members thereof, lowering upon the supporting member and the skins thereon an elastically-deformable air pervious layer; heating said supporting member from below and forming a vacuum in the chamber; removing the vacuum and opening the chamber; passing the supporting member with the skins thereon into at least one like succeeding chamber, subjecting the skins to a like heat treatment under vacuum in the succeeding chamber, and finally removing the skins from the respective supporting members.



3,321,843
LAUNDERING MACHINES
John Z. Taran, Mendham, N.J., assignor to The Singer Company, New York, N.Y., a corporation of New Jersey
Filed July 10, 1964, Ser. No. 381,701
8 Claims. (Cl. 34—133)

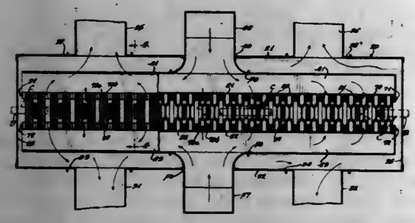


1. A laundering apparatus having a container for laundering fluid, a laundry compartment including a pair of disks, means supporting said disks in spaced relation within said container on a common substantially horizontal axis, an endless carrier belt, means supporting a portion of said carrier belt in engagement with the periphery of each of said disks beneath and along one side of said disks, and a stationary substantially vertical member disposed between the disk peripheries at the side of the disks opposite to that engaged by said carrier belt, said stationary vertical member being formed with a concave surface within said laundering compartment having a center of curvature substantially coincident with the axes of said disks, drive means for imparting movement to said carrier belt to shift said belt portion which is in engagement with said disks from beneath said disks upwardly along said one side of said disks, to elevate and tumble laundry in said laundry compartment against the concave surface of said stationary vertical member an aperture formed in said stationary vertical member terminating in an orifice opening through the lower extremity of said concave surface into said laundry compartment, and suction means communicating with said aperture.

3,321,844
HEAT TRANSFER DEVICE FOR TUBULAR MATERIAL

Robert R. Seedorf, Deerfield, Ill., assignor to The Roy M. Moffitt Company, a corporation of Illinois

Filed Aug. 31, 1964, Ser. No. 393,824
11 Claims. (Cl. 34—160)

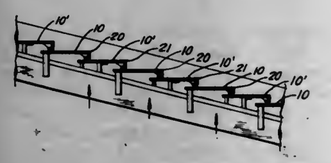


1. A heat transfer unit for tubular material comprising, an enclosed housing with an opening at opposite ends thereof to permit travel of the material through the casing along a path, means in the housing for impinging high velocity air on the tubular material comprising, a series of blocks assembled in a row along the path of travel, means formed on adjacent pairs of blocks defining an annular orifice therebetween and substantially normal to said path, means formed on each adjacent pair of blocks defining an air passage extending through said pair of blocks normal to said path and surrounding said orifice for supplying air to said orifice about the entire outer periphery thereof, manifold means within the housing extending along the row of blocks and in fluid communication with the end of said air passages and closing said air passages off from communication with the casing interior, means for supplying air under high pressure to said manifold means for delivery through said orifices at high velocity to impinge against said material, and means for exhausting air from around said material including low pressure air passages in communication with said housing.

3,321,845
COOLING GRATES

Frank J. Boron, Elyria, Ohio, assignor to Abex Corporation, a corporation of Delaware

Filed Oct. 7, 1964, Ser. No. 402,282
4 Claims. (Cl. 34—164)

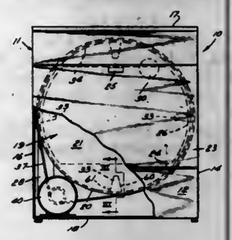


1. In a cooler for cooling material while transferring material down a series of descending grate assemblies arranged in overlapping relationship, and having movable grate assemblies alternating with fixed grate assemblies, a movable skeletal grate supporting means having spaced members for supporting and reciprocating said movable grate assemblies, said movable grate assemblies each having a pair of grate sections, said grate sections having overlapping portions with apertures therein, bracket means on said supporting means disposed beneath said overlapping portions and having apertures therein, and fastener means inserted through said apertures in said overlapping portions of said grate sections and through said aperture in said bracket means to fasten said grate assembly to said supporting means.

3,321,846
STATIONARY DRUM CLOTHES DRYER

John B. Heinicke, Benton Harbor, Mich., assignor to Whirlpool Corporation, Benton Harbor, Mich., a corporation of Delaware

Filed Jan. 4, 1965, Ser. No. 423,261
17 Claims. (Cl. 34—181)

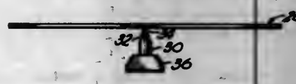


1. In a clothes dryer,
a stationary drum forming a treatment zone for receiving fabrics to be dried,
separate tumbling means mounted on said drum for movement circumferentially continuous relative thereto and having a portion thereof extending into said drum to engage and to tumble fabrics therein upon movement of said tumbling means, and
means for driving said tumbling means circumferentially relative to said drum.

3,321,847
BALANCE AID

Clarence E. Godshalk, 4SO46 Evergreen, Lisle, Ill. 60532

Filed Aug. 4, 1964, Ser. No. 387,363
20 Claims. (Cl. 35—1)



1. A kit for training the eye to appreciate balance in viewed objects, comprising model units adapted to provide surface areas of varying configuration in a single viewing plane, said model units having a predetermined weight per unit of surface area represented in said viewing plane; flat unobstructed plate means for balancing a plurality of model units in the horizontal plane at any point about a balance axis while said units provide surface areas of varying configuration in said single viewing plane; and pivot means for supporting said plate means while in a balanced positioned engaging portions of said plate means coincident with said balance axis, said pivot means having a predetermined degree of sensitivity to an out-of-balance condition of said plate means.

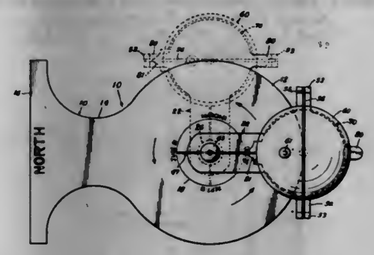
3,321,848
EDUCATIONAL SOLAR ORBIT DEVICE

Carl E. Fisk, Maywood, Ill. (Rte. 2, Wonewoc, Wis. 53968)

Filed June 2, 1965, Ser. No. 460,707
4 Claims. (Cl. 35—45)

2. A device to illustrate the position of the earth relative to the sun during different times of the solar year, which includes, in combination, a substantially planar base, a rotatable elongated arm mounted on said base, one end of the arm pivoted to a generally central portion of said planar base on an axis at right angles to said base, the other end of the arm being a supporting portion adapted to follow a circumscribed orbit on said base, a target area on said base extending outwardly of said orbit, a simulated sun positioned along said axis of said arm, an idler platform rotatably mounted on said arm

supporting portion on an axis parallel to said axis of said arm, means on said platform to manually rotate said platform independently of said arm, a pointer on the platform adapted to be directed towards the target area upon rotation of said platform, a simulated earth globe mounted on a flat, standing base on an axis inclined to said standing base to represent the axial tilt of the earth, a seating area on said platform adapted to receive said standing base in a fixed position relative to said pointer, said standing base having a substantially flat bottom surface adapted to support said globe on said platform, one of said standing base and seating area having a non-circular portion, a non-circular socket means on the other

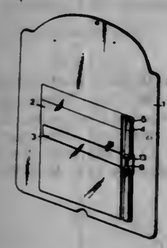


of said seating area standing base, and said standing base adapted to be directly received by said seating area so that said socket means and non-circular portion cooperate to fix the position of said globe relative to said platform pointer, whereby said arm may be rotated to be aligned with a given calendar designation, and the globe may be thereafter correctly positioned by rotating said platform until the platform pointer is directed towards said target area, and whereby said standing base and globe may be readily mounted on said seating area and be readily removed therefrom so that said globe may be used on supports other than said rotatable platform.

3,321,849
WRITING PADS OR TABLETS

Reginald V. Langbart, Northampton, England, assignor to R. V. Langbart Limited, trading as T. X. Products Co.

Filed Aug. 10, 1964, Ser. No. 388,407
2 Claims. (Cl. 35—61)

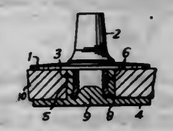


1. A writing pad of the type described having a slider extending the width of the tablet and extending between the semi-transparent sheet of material and the dark coloured adhesive layer, said slider having a pair of slots separated by finger engaging means, and a flexible band secured adjacent to either end of the pad, and extending through the slots in the slider, so that the slider may move freely from one end of the pad to the other, to separate the semi-transparent sheet from the dark coloured adhesive layer.

3,321,850
STUDS FOR BOOTS OR SHOES

Alfred Coker, 10 Ridgeway, Weston Favell, Northampton, England, and Edgar Coker, 534 Wellingborough Road, Northampton, England

Filed June 10, 1964, Ser. No. 373,913
Claims priority, application Great Britain, June 10, 1963, 23,108/63
5 Claims. (Cl. 36—67)

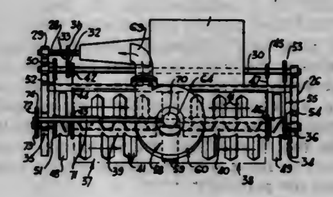


1. A stud for securement to the bottom of a shoe or like member and comprising a first part having a first portion adapted to extend through an aperture in the shoe bottom member and having a flange-like portion connected thereto and adapted to engage the inner surface of said bottom member to retain said first part from pulling through said aperture, said first part including radially recessed means in said first portion and anvil means centrally of said radially recessed means; and a second part including a head with a ground engaging projection extending from one side thereof and having an anchoring portion opposite said projection adapted to be driven against said anvil means and be spread radially outwardly into locking engagement within said radially recessed means.

3,321,851
COMBINATION ROTARY BROOM AND TURBINE

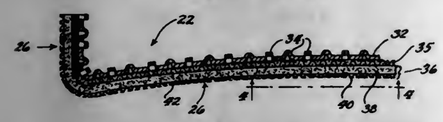
Earl H. Fisher, 630 Casgrain Ave., St. Lambert, Montreal, Quebec, Canada

Filed Apr. 29, 1964, Ser. No. 363,443
10 Claims. (Cl. 37—25)



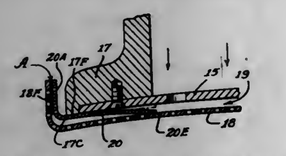
1. A rotary broom assembly for material handling including a support frame structure, an impeller assembly rotataby mounted in said support frame structure, a shroud attached to said support frame structure and extending at least partially around the periphery of said impeller assembly, said impeller assembly including an impeller shaft having flexible impeller blades extending radially outwards therefrom, the angle between said blades and the axis of said impeller shaft being adjusted such that rotation of said impeller assembly will move said material substantially axially with respect to said impeller assembly and discharge from said impeller at a substantial velocity, turbine means positioned at the discharge of said impeller assembly to increase the velocity of said discharge material, the said turbine means including a turbine shaft and flexible turbine blades extending radially outwards from said turbine shaft and including a turbine casing at least partially enclosing said turbine blades and having a discharge outlet.

3,321,852
RESILIENT PRESS COVER ASSEMBLY
Arvid B. Anderson, Park Ridge, Harvey L. Davis, Highland Park, and Roy M. Schultz, Chicago, Ill., assignors to Bishop Freeman Co., a corporation of Illinois
Filed Sept. 19, 1966, Ser. No. 580,351
13 Claims. (Cl. 38—66)



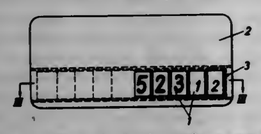
1. A heat and steam-resistant, steam-permeable press cover for a pressing member of a steam press, comprising a non-stretchable layer adapted to lie adjacent a pressing member, a pressing surface layer having a steam-permeable coating of polytetrafluoroethylene, a resilient locally compressible fibrous intermediate layer lying between said non-stretchable layer and said pressing surface layer, means peripherally securing said layers together and to each other and means connected to said press cover for attaching said press cover to a pressing member.

3,321,853
PRESS PLATE SEAL
Roy M. Schultz, Chicago, Harvey L. Davis, Highland Park, and Arvid B. Anderson, Park Ridge, Ill., assignors to Bishop Freeman Co., a corporation of Illinois
Filed Sept. 19, 1966, Ser. No. 580,491
5 Claims. (Cl. 38—66)



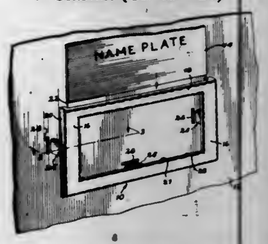
1. In a press head assembly that includes a press head having a head plate through which steam is to be emitted and bounded by a circumambient rim and a press plate spanning said head plate in close relation therebetween, an improved edge seal comprising flexible stripping positioned between the press head and the press plate, said flexible stripping being secured to said press plate and presenting an elongated movable bridging portion extending marginally inwardly of said press plate to seal against the rim of said head and to respond to steam under pressure to move into peripheral sealing engagement against said rim periphery.

3,321,854
INDICATOR
Karl Faul, 109 Gumpendorferstrasse, Vienna, Austria
Filed June 4, 1965, Ser. No. 461,423
Claims priority, application Austria, June 12, 1964, A 5,087/64
3 Claims. (Cl. 40—5)



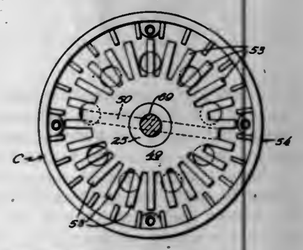
1. An indicator for displaying characters, comprising a support including a plate having a viewing opening therein and two substantially parallel bars extending from the back of said plate and disposed on opposite sides of said opening respectively, said bars having two sets of openings therein with the openings of one set disposed behind said viewing opening, pulley means mounted in the corresponding openings in said bars, and endless belts trained around the corresponding pulley means of both sets and causing characters to be viewed through said opening, the openings of each set in said bars being spaced a distance corresponding to the dimensions of a character on said belts so that said belts overlap each other and are longitudinally staggered by the dimensions of a character, whereby only one character on each belt is visible through said viewing opening.

3,321,855
LABEL HOLDER
Malcolm T. Phelps, Jamestown, N.Y., assignor to Weber-Knapp Company, Jamestown, N.Y.
Filed Apr. 28, 1964, Ser. No. 363,128
2 Claims. (Cl. 40—16)



1. In combination, a mounting plate having a slot-shaped aperture therethrough, and a label holder formed from a blank stamped in one-piece form from sheet metal,
said holder having a frame portion sectionally shaped of channel like form and thereby comprising a front web portion margined by internal and external flange portions extending rearwardly from said front web portion,
and an integrally formed mounting lug extending rearwardly from said external flange portion and slip-fitted through said plate apertured portion,
said lug being inwardly offset from the outer face of said external flange portion and said outer flange portion being formed to provide a sharp-angled shoulder extending outwardly beyond the plane of the outer surface of said lug and thereby covering from front view of the slip-fit junction between said plate apertured portion and said lug,
said lug being thinner than said external flange portion and having its inner face substantially in the plane of the inner face of said external flange portion.

3,321,856
HYDRAULIC TORQUE RELIEF MECHANISM
Mortimer J. Huber, St. Paul, Minn., assignor to Motion Products Manufacturing Company, Inc., Ramsey County, Minn., a corporation of Minnesota
Filed May 11, 1965, Ser. No. 454,780
8 Claims. (Cl. 40—33)



4. A rotatable sign including:
a gear housing including a hollow body,

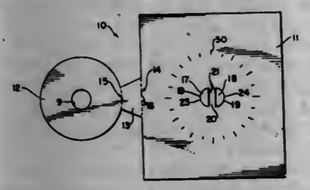
a drive shaft extending into said body,
a vertical driven shaft extending from said body,
a sign body including a vertical shaft connected to said driven shaft and with which said sign body rotates,
a hydraulic clutch connected between said drive shaft and said driven shaft in said gear housing,
said clutch including an externally vaned rotor connected to one of said drive and driven shafts,
a stator housing including an internally vaned housing enclosing said rotor and connected to the other of said drive and driven shafts,
said stator housing having apertures therethrough outwardly of said rotor, and
said gear housing including hydraulic fluid to a level above said clutch.

3,321,857
AUTOMATED SIGN
Carl E. Schroer, Evansville, Ind.
(3243 Raines Road, Memphis, Tenn. 38118)
Filed Mar. 2, 1965, Ser. No. 436,553
7 Claims. (Cl. 40—37)



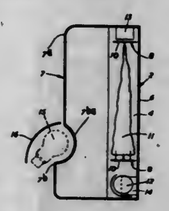
1. A sign comprising a framework, a front retaining member and a rear retaining member positioned on said framework, a plurality of sheet members disposed in superimposed relationship between said front retaining member and said rear retaining member, means urging said front retaining member and said rear retaining member together, said sheet members each having an expandible fluid receiving cavity forming a part thereof, and means introducing fluid into said receiving cavity.

3,321,858
DISPLAY WHEEL
Ernest L. Bailey, Atlanta, Ga., assignor to Riegel Paper Corporation, New York, N.Y., a corporation of Delaware
Filed Mar. 4, 1964, Ser. No. 349,406
1 Claim. (Cl. 40—70)



A folded one-piece paperboard assembly comprising
(a) a rectangular primary reference sheet;
(b) a hinge member articulated to an edge of said primary sheet along a first line of weakness;
(c) said first line of weakness being coincident with a free edge defining a side of said rectangular sheet;
(d) a secondary member connected to said hinge member along a second line of weakness spaced from said first line of weakness;
(e) said secondary member defining a circular opening therein of a predetermined diameter;
(f) a pair of spaced cut lines on said primary sheet;
(g) said lines defining a pair of foldable tab-like members;
(h) said tab-like members having root portions defining a mounting area therebetween, the center of said mounting area being spaced from said first line of weakness a predetermined distance equal to the distance from the center of said circular opening to said first line of weakness when said paperboard sheet is in a flat, unfolded condition;
(i) said hinge member being folded along said first line of weakness, thereby further weakening said first line of weakness and placing said circular opening in registry with said mounting area;
(j) said tab-like members having edges intersecting said circular opening;
(k) said tab-like members being sufficiently resilient to accommodate their out folding from the plane of said primary sheet and their subsequent return theretoward to sandwich said secondary member between said tab-like members and said primary sheet;
(l) said hinge member being separable from said primary sheet along said further weakened line and being separable along said second line of weakness from said secondary member to free said secondary member for rotation relative to said primary member.

3,321,859
ELECTRICAL ILLUMINATION DEVICES
Arthur William Moss, Walsall, England, assignor to H. Frost & Company, Limited, Walsall, England, a British company
Filed Feb. 3, 1964, Ser. No. 341,896
Claims priority, application Great Britain, Mar. 16, 1963, 10,513/63
7 Claims. (Cl. 40—106.54)



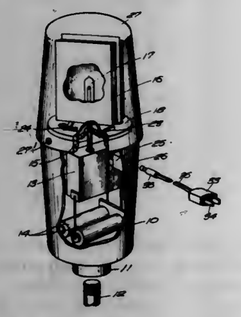
1. An electrical illumination device comprising: an air-tight casing having a central compartment flanked by two upwardly-extending side compartments, said central compartment having a translucent viewing screen and said side compartments communicating at top and bottom with said central compartent, a plurality of elongated, anchored flexible strips disposed in said central compartment behind said translucent screen, said strips having light-reflecting surfaces, lamp means operable to illuminate said strips, whereby light from the lamp means is reflected by said reflecting surfaces onto said translucent screen, and motor-driven air-moving means disposed in said central compartment, said air-moving means being operable to cause air to flow up through the central compartment past the flexible strips, and to return downwards to the air-moving means through the side compartments, said air flow past the flexible strips causing the latter to move so as to vary the lighting effect visible to a person viewing the light-reflecting surfaces of the flexible strips through the viewing screen.

3,321,860
RELIEF POSTCARD
Erwin O. Dichtl, Yorkstrasse 1c, and Friedrich H. G. Nirschl, Walter-Flex Strasse 2, both of Munich, Germany
Filed Mar. 15, 1965, Ser. No. 439,713
Claims priority, application Germany, Mar. 19, 1964, D 43,934
12 Claims. (Cl. 40—160)
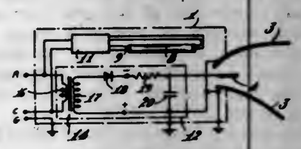


1. Relief postcard or similar relief plate comprised of a relatively stiff backing sheet and a plastic layer applied to the outside of said backing sheet and spaced from it and connected to it only at individual points, characterized by the fact that the sheet-like layer (2) consists of elastically deformable material and is shaped in relief corresponding to a raised pattern (5) which is to be represented and is so glued in the low areas (3) of the relief to the backing sheet (1) that an equalization of pressure takes place between the cavities below the relief elevations and the atmosphere through the spaces between the glue points (4).

3,321,861
BEER TAP HANDLE
Charles G. Tate, Jr., 19 S. Locust Ave., North Providence, R.I. 02911
Filed Nov. 3, 1964, Ser. No. 408,524
10 Claims. (Cl. 40—332)



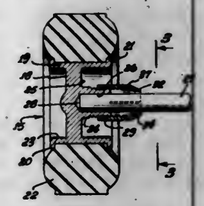
1. A beer tap handle comprising a housing having an upper transparent portion removably mounted on a lower housing portion, said lower housing portion having a threaded shank for mounting on a beer tap lever, a rechargable electric battery in said housing, an advertising member mounted in said upper housing and activated by said battery, a switch in said housing having a movable portion, said battery and said advertising member having lines to said switch normally electrically connected by said movable portion, and means for recharging said battery, said means having an element insertable into said switch to connect said recharging means to said battery line, said element actuating said movable portion to disconnect said advertising member line from said battery line when said element is inserted into said switch.

3,321,862
ELECTRICAL INSECT KILLER
Sandford C. Peek, Ipswich, Mass., assignor to Sylvania Electric Products Inc., a corporation of Delaware
Filed Dec. 28, 1964, Ser. No. 421,232
3 Claims. (Cl. 43—112)



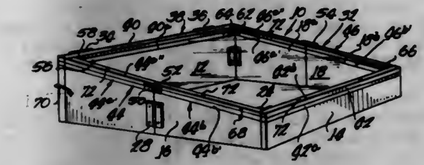
1. An electrical insect killer comprising a chassis, at least two electrodes mounted in insulated relation on said chassis and closely spaced to discharge through an insect body and the reduced air gap therebetween, a two terminal cyclic direct current supply for said electrodes, respective terminals being conected to respective electrodes, a storage capacitor across said terminals, and resistance means in series with one terminal, said resistance and capacitor being of values to extend the time to charge said capacitor beyond one cycle of said current supply so as to limit the power of discharge between electrodes and oppose drain on said power supply, whereby to prevent continuous discharge tending to fuse insects to the electrodes and to produce periodic discharges through said air gap only when an insect is therein at intervals allowing the insect to fall from the electrodes.

3,321,863
MODEL CAR WHEEL MOUNTING
Allen B. Maxam, Jr., 218 W. Palm, Burbank, Calif. 91502
Filed July 13, 1965, Ser. No. 471,541
3 Claims. (Cl. 46—221)



1. A model car wheel for mounting on an axle comprising a hub, a rim concentrically mounted on the hub, and means forming a releasable connection for said hub on said axle, said means comprising a bushing forming part of the hub, said bushing having one end attached to and integral with the hub and a free end, said bushing having a longitudinal bore therein concentric with said rim and extending from said free end to a location adjacent but not through said one end, and an inner tapered bottom for said bore adjacent said one end, said bore having a diameter providing a slip fit reception for said axle and said bottom forms a stop fixing the location of said wheel on said axle, said bushing having exterior threads thereon and a free end portion of said bushing extending beyond the threads, said free end portion having a plurality of slits extending from the free end inwardly, and a collet nut having a bore therethrough adapted to receive said axle, internal threads at one end of the nut adapted to engage the threads on said hub, one of said portions being tapered radially inwardly and endwardly and adapted to engage the other of said portions when the collet nut is attached to the bushing whereby to compress portions between the splits inwardly into engagement with the axle and thereby to hold the axle in concentrically mounted relationship with said hub.

3,321,864
PROTECTIVE ENCLOSURE
William J. Stasiuk, Chicago, Ill. (1690 State Line, Calumet City, Ill. 60409)
Filed July 6, 1964, Ser. No. 380,392
6 Claims. (Cl. 47—19)



1. An enclosure for protecting seedlings and the like from the weather comprising a back wall, a front wall, a pair of side walls each hingedly connected to said back wall and said front wall, each of said side walls comprising a pair of sections hingedly connected each to the other, and a lid hingedly connected to said back wall, said lid comprising a frame having members adapted to overlie each of said walls and adapted to move therewith, said lid being adapted to hold a sheet of transparent flexible material in stretched relation.

3,321,865
MOISTURIZING TAPES
Joseph Routon, 912 Dunlap St., Paris, Tenn. 38242
Filed June 18, 1965, Ser. No. 465,051
6 Claims. (Cl. 47—55)



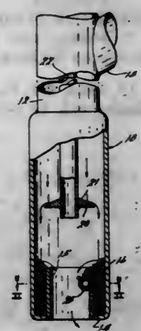
1. In combination, a flower stem having a diagonally-cut lower end, a flat paper-like tape wrapped around the lower part of the flower stem, said tape having adhesive on the inner side thereof adhered to the outer side of the tape, said tape having absorbent moisture-bearing means on its inner side in moisture-transfer contact with the cut lower end of the stem, said tape comprising a flexible strip having inner and outer sides and side edges, said moisture-bearing means being secured to the inner side of the strip and being spaced from the side edges of the strip, said strip having adhesive areas extending therealong at opposite sides of the moisture-bearing means.

3,321,866
STEPHANOTIS FLOWER HOLDER
Joseph Gallo, 938 East St., Walpole, Mass. 02081
Filed Oct. 22, 1965, Ser. No. 500,857
1 Claim. (Cl. 47—55)



A stephanotis flower holder for supporting and for supplying moisture to a stephanotis flower comprising the corolla having a corolla tube limbed with petals at its outer end and having the base apertured to receive the stephanotis flower holder, said stephanotis flower holder comprising a supporting stem, and a cylindrical corolla tube entering element comprising a water-absorbent cylindrical cotton wrapping on said stem having an external diameter of substantially 3/16" about equal to the internal wall diameter of the corolla tube, a length of substantially one inch, about equal to the length of the corolla tube, and a base portion of said cotton wrapping of larger diameter providing a supporting shoulder for the base of said corolla tube, a water sealing closure for said water absorbent tube entering element abutting the base end of the supported corolla tube, and a water sealing wax cover overlying the outer end of said water absorbent tube entering element and integral therewith closing the outer end of said corolla tube.

3,321,867
DISTRIBUTOR FOR DENSE PARTICULATE MATERIAL
John C. Singleton and Joseph P. Klinck, Lancaster, Ohio, assignors to Diamond Power Specialty Corporation, Lancaster, Ohio, a corporation of Ohio
Filed Aug. 28, 1964, Ser. No. 392,868
9 Claims. (Cl. 51—11)

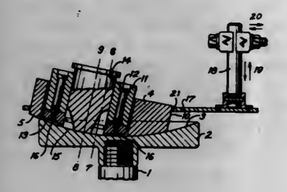


1. In a construction for distributing a plurality of solid objects over a desired area, in combination with an upright hollow casing having an upper inlet portion for objects to be distributed and having means defining a bottom outlet bounded by a wall of circular cross section, a deflector element within the casing between the inlet portion and said outlet and at least partially obstructing the flow of objects through said casing to the outlet, and means for delivering a flow of fluid through said wall and into the outlet in a generally tangential direction to impart orbital rotation to objects in said outlet, whereby centrifugal force causes lateral dispersion of objects escaping from the outlet.

3,321,868
DEVICE FOR GRINDING A GROUP OF LENS-LIKE QUARTZ RESONATORS
Mark Naumovich Kogan, Prospect Mira 3-v, Apt. 17, and Sergei Nikolaevich Klbirev, Komsomolsky Gorodok 8, Apt. 49, both of Omsk, U.S.S.R.
Filed July 16, 1964, Ser. No. 383,204
4 Claims. (Cl. 51—129)

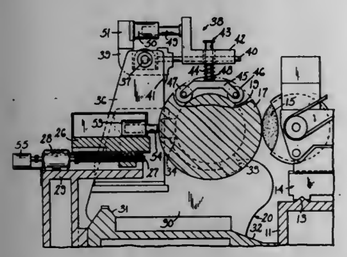
1. A device for grinding blanks to form quartz resonators, said device comprising a rotatable lap having a concave-spherical grinding surface facing upwards, a cylindrical resonator blank holder provided with an eccentrically arranged opening, said resonator having a lower convex-spherical surface in contact with the lap surface, a replaceable cylinder loosely placed in the eccentric open-

ing of the holder for pressing blanks against the lap surface, an annular part having a lower conical surface, said annular part being fastened to the cylinder and adapted for resting on the blanks to urge the same against the lap surface, said cylinder having a bore therein, a cylindrical rod mounted in the bore of the cylinder and provided with



a lower convex-spherical surface, said rod restricting the blanks to a position beneath the conical surface of said annular part, and an adapter having an opening receiving the blank holder, said adapter being adjustable vertically and horizontally to control the adapter position and that of the holder.

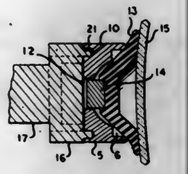
3,321,869
MACHINE TOOL
Alfred T. Parrella, Newtown, and Gene R. Gagliardi, Bethany, Conn., assignors to Farrel Corporation, Ansonia, Conn.
Filed July 13, 1964, Ser. No. 382,190
6 Claims. (Cl. 51—165)



3. In combination with roll grinding apparatus having means for supporting a roll and aligning the axis thereof with a reference axis, means for detecting the longitudinal axis of the roll, first means providing a first signal proportional to the distance from the center of the roll to the reference axis, position responsive means providing a signal of known magnitude at a predetermined distance from the reference axis, said position responsive means being effective to provide a signal proportional to its displacement and direction of displacement from said predetermined position, means for moving said position responsive means to a position where the signal therefrom bears a predetermined relationship to the signal from said first means, and means for indicating the distance between said position responsive means and said reference axis.

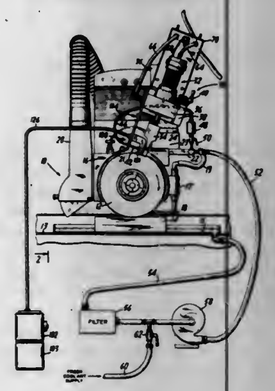
3,321,870
LENS HOLDING CHUCK
Harold E. Bolden, 2906 Maple Road, Rome, Ga. 30161
Filed Dec. 18, 1964, Ser. No. 419,417
4 Claims. (Cl. 51—235)

1. A chuck for supporting lens in a lens grinding machine comprising a block having an annular recess in one end and a transverse slot in its opposite end, the bottom of said slot having indentations adjacent each end of the said slot, an elongated collar attached to the work spindle of the grinding machine having means complementary to said slot for fitting engagement with the slot of said block, the face of said fitting means on said collar having projecting pins for engagement with the indentations in the bottom of said slot, a yieldable suction cup



seated in the recess of said block having its peripheral edge extending over the rim of the recess, and a plug attached to the bottom of said suction cup having complementary interfitting driving engagement with an opening extending between the bottom of said recess and said slot.

3,321,871
ULTRASONIC CLEANING METHODS AND APPARATUS
Lewis Balamuth, New York, and Claus Kleesattel, Forest Hills, N.Y., assignors to Cavitron Ultrasonics Inc., Long Island City, N.Y., a corporation of New York
Filed Mar. 5, 1964, Ser. No. 349,558
9 Claims. (Cl. 51—262)



5. Apparatus for maintaining the peripheral working surface of a grinding wheel substantially free of loosened abrasive grains and debris while said wheel is rotating at normal grinding speeds and performing a grinding operation comprising, a cleaning tool having a cleaning face shaped in substantial arcuate conformity to the peripheral working surface of the wheel and a pair of flanges on opposite sides of said cleaning face spaced to overlap the sides of said wheel with minimal clearance therebetween, means for mounting said cleaning tool with said cleaning face closely spaced from said wheel surface to define a gap therebetween, means for vibrating said cleaning tool at an ultrasonic frequency to alternately increase and decrease the thickness of said gap at the frequency of vibration, means mounted forwardly of said cleaning tool with respect to the direction of rotation of said wheel for establishing a reduced pressure area adjacent the path of the working surface of said wheel to draw off at least a portion of the air adhering thereto just prior to its movement into operative relationship to said cleaning tool, and means for introducing a liquid capable of supporting cavitation into said gap after the air has been removed from the wheel surface, whereby said liquid substantially fills said gap to support intense cavitation at the surface of the wheel.

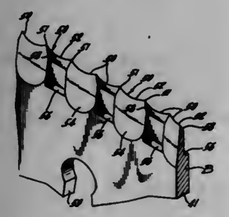
3,321,872
PROCESS FOR POLISHING CRYSTALS
George A. Lindstrom, Griffith, Ind., assignor to Union Carbide Corporation, a corporation of New York
No Drawing. Filed Aug. 3, 1964, Ser. No. 387,197
9 Claims. (Cl. 51—283)

1. A process for polishing a surface of a crystal comprising rubbing said crystal surface on an aluminum lapping surface covered with a finely divided diamond abrasive compound to polish said crystal surface to a near flatness, and thereafter rubbing said crystal surface on a tin lapping surface covered with a finer diamond abrasive compound to achieve a more nearly flat surface.

3,321,873
POLISHING PROCESS
Newton G. Leveskis, 49 Vallecito Lane, Walnut Creek, Calif. 94596
No Drawing. Filed Apr. 5, 1965, Ser. No. 445,764
13 Claims. (Cl. 51—316)

6. An improved grinding and polishing process for groups of like objects such as rocks having plural and irregular surfaces comprising tumbling a group of said objects in successive aqueous solutions containing grinding and polishing charges for preselected periods of time, at least the final polishing solution containing about 1–15 grams per quart of water of a water soluble polymer selected from polymers capable of creating a sol state aqueous solution at 2% polymer concentration of a viscosity above about 10,000 centipoises at 20°–25° C.

3,321,874
METHOD OF MAKING A CUTTING BLADE
Edward V. Henc, 302 Netherington Drive, Broomall, Pa. 19008
Original application Sept. 9, 1964, Ser. No. 395,175, now Patent No. 3,277,764, dated Oct. 11, 1966. Divided and this application June 30, 1966, Ser. No. 561,952
2 Claims. (Cl. 51—324)



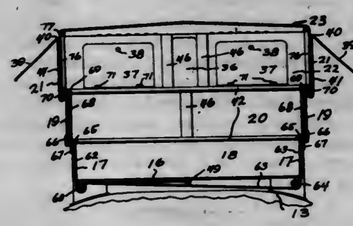
1. A method for making a cutting blade from an elongated flat bar having a shank portion and an edge consisting of the steps of deforming the edge to provide a plurality of notches and protrusions on each side forming a corrugated-like edge, grinding the corrugated-like edge at an angle to the plane of the shank on opposite sides thereof to form a cutting edge characterized by a plurality of side by side teeth, each tooth having an arcuate scallop-like cutting edge portion terminating at opposite ends in a shadp point, each tooth having a flat tapered side face portion on one side and an indenture in the opposite side having a tapered side face portion smaller in depth than said first side face portion, alternate teeth having the indenture in one side face and the teeth between alternate teeth having the indenture in the opposite side face.

3,321,875
STAIR RAIL MOUNTING POST WITH LIGHTING FIXTURES
James C. Conradt, Hamilton, Ohio, assignor to L. & J. Specialty Corp., Hamilton, Ohio, a corporation of Ohio
Filed Oct. 5, 1964, Ser. No. 401,524
6 Claims. (Cl. 52—28)



1. Building structure for a stairway having plural flights of steps around a stair well, said structure comprising,
a continuous hollow mounting post secured in said stair well and extending substantially the entire height of the stair well,
light fixtures mounted on said posts at vertically spaced intervals,
cable disposed vertically inside said hollow post and connected to said light fixtures, and
hand rails extending generally parallel to each flight of stairs and secured to said post.

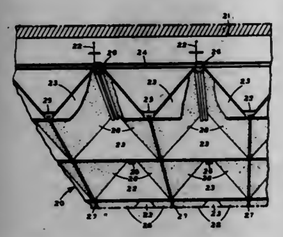
3,321,876
COLLAPSIBLE SLEEPING COMPARTMENT FOR AUTOMOBILES
Joseph K. Birkenheuer, 1720 Warren Place, Sioux Falls, S. Dak. 57105
Filed Mar. 19, 1965, Ser. No. 441,077
1 Claim. (Cl. 52—66)



A collapsible sleeping compartment for automobiles comprising an enclosed unit adapted to be secured to the top of said automobile, said unit including a plurality of downwardly collapsible sections, and a bottom section, all of said sections being progressively enclosed within each other, said sections including perimetral strips adapted to abut against each other when said sections are raised, certain of said sections including vertically positioned guide members attached thereto slidably

received in certain of said strips, said sections including a top section and an intermediate section, means for raising said intermediate section and said top section including straps passing upwardly and over said lower section and thence downwardly and being attached to the bottom of said intermediate section, further straps being attached to the top of said bottom section, and passing over the top of said intermediate section, and being attached to the bottom of said top section, means for drawing said first mentioned straps downwardly, including a rotatable screw member, a single block threadably engaged with said screw member, cables attached between said block and said first mentioned straps.

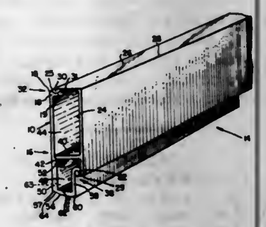
3,321,877
ACOUSTIC CEILING
Stephen T. Alexieff, Pequea Township, Lancaster County, Pa., assignor to Armstrong Cork Company, Lancaster, Pa., a corporation of Pennsylvania
Filed Feb. 24, 1964, Ser. No. 346,651
3 Claims. (Cl. 52—144)



1. An acoustic ceiling for use with a room having a main ceiling from which said acoustic ceiling is to be suspended comprising a plurality of acoustic panels, means to individually and removably support each of at least two of said acoustic panels at an angle to a plane passing through the lower portions of said removably supported acoustic panels and in spaced relationship to one another with the distance between the lower portion of each of said removably supported acoustic panels being greater than that distance between the upper portion of each of said removably supported acoustic panels whereby a downwardly opening space of increasing cross-sectional area is defined between said removably supported acoustic panels, said supporting means including runner means extending along the lower portions of said removably supported acoustic panels, said runner means including adapter means, partition means for sub-dividing said room including means cooperating with said adapter means to support said partition means, illuminating means located in the downwardly opening space between said removably supported acoustical panels, said acoustic panels including ventilating apertures therethrough and said support means individually and removably supporting all of said acoustic panels in a corrugated manner across the extent of said ceiling.

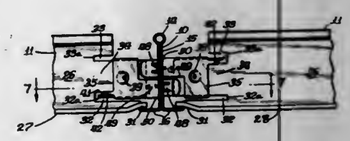
3,321,878
BASEBOARD CONSTRUCTION
Donald Lee Brown and Layle B. Barker, Henrico County, Va., assignors to Reynolds Metals Company, Richmond, Va., a corporation of Delaware
Filed Mar. 10, 1964, Ser. No. 350,743
13 Claims. (Cl. 52—211)

1. In combination: a homogeneous, uniformly cross sectioned, one piece, extruded metal relatively long continuous vertical partition contacting and attachment member including a relatively wide partition contacting wall with an upper single layer first joint forming member adjacent the upper edge of said attachment member and with an angled single layer flange at the lower edge of said attachment member with a lower second joint forming member at said angled flange edge; and a homogeneous, uniformly cross sectioned, one piece, extruded metal relatively long continuous vertical cover member including a relatively wide facing wall with a substantially horizontal single layer relatively narrow facing flange adjacent the upper facing wall edge, said facing



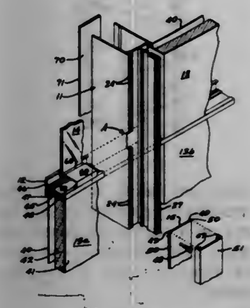
flange having an upper single layer third joint member at said upper facing flange edge which engages and forms a joint with said upper first joint member, said wide facing wall having a lower fourth joint member at its lower facing wall edge which engages and forms another joint with said lower second joint member, one of said walls having a compartment forming intermediate single layer flange engaging an intermediate horizontal extrusion formed irregularity of the other of said walls and forming a pair of electric conductor receiving compartments with one each of said compartments on opposite sides of said intermediate flange.

3,321,879
CEILING SUPPORT STRUCTURE WITH COLLAPSIBLE JOINT CLIP
Burl O. Purdy, Bensenville, Ill., assignor to W. J. Haertel & Co., Melrose Park, Ill., a corporation of Illinois
Filed Aug. 5, 1964, Ser. No. 387,736
5 Claims. (Cl. 52—232)



1. In a ceiling support structure comprising a plurality of longitudinal T's with a plurality of cross T's extending between the longitudinal T's with clips engaging the end of each cross T and connecting it to the adjacent longitudinal T, and wherein said T's have vertical webs and horizontal flanges, the improvement comprising: said end of the cross T having a nose formed as an extension of the web, said nose having an end spaced from the web of the longitudinal T and a terminus at which the nose joins the web, said cross T defining an abutment at said terminus; said clip being received on said nose and having means engaging the nose to prevent withdrawal of the clip from the nose while permitting the clip to move in the opposite direction on the nose, said clip having means extending beyond said end and engaging the web of the longitudinal T, and deformable means extending in the opposite direction into contact with said abutment to normally prevent movement of the clip in said opposite direction on said nose.

3,321,880
CURTAIN WALL CONSTRUCTION
Russell A. Ferrell, Richmond, and Norbert C. Howell, Connersville, Ind., assignors to H. H. Robertson Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Sept. 14, 1964, Ser. No. 396,220
3 Claims. (Cl. 52—235)



1. In a curtain wall having a plurality of vertical mullions secured to a building framework and a plurality of generally rectangular infill panels secured between adjacent ones of the said vertical mullion, the improvement comprising in combination:

each said vertical mullion comprising in cross-section (a) a base portion, (b) an inboard central web extended from the center of the said base portion, and (c) panel-abutting flanges extended inboard from the said base portion along the edges thereof, said central web being secured to said building framework at at least two points along the length of the said vertical mullion;

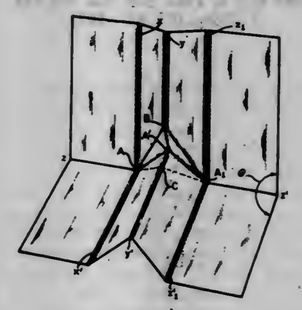
a pair of horizontally muntins each having a generally T-shaped cross-section including a horizontal web and a pair of vertical flanges, said muntins corresponding in length with the width of the said infill panels and being secured one to the top and one to the bottom of the said infill panel by separate fastening means, whereby the said vertical flanges are disposed outboard from the outer face of the said infill panel and each said panel with its top muntin and bottom muntin comprises a unitary structure;

opposed grooves in the said panel-abutting flanges of the said vertical mullion which receive the end portions of the said horizontal muntins inboard of the said base portion thereof whereby the said infill panels and horizontal muntins are retained between adjacent vertical mullions;

U-shaped panel-retaining channels having a base which is detachably secured to the said central web of the said vertical mullion and having outboard flanges which abut the inboard surfaces of the said infill panels.

3,321,881
FOLDED CORRUGATED SHEET-LIKE CORNER PIECE
Jean Alleaume, Saint-Cloud, France, assignor to Technigaz, Paris, France, a corporation of France
Filed June 16, 1964, Ser. No. 375,534
Claims priority, application France, Aug. 16, 1963, 944,844
3 Claims. (Cl. 52—276)

1. A corner piece forming a folded angular member of corrugated sheet metal stock for connecting together, at any substantially dihedral angle between 0° and 180°, two adjacent similarly corrugated sheet-like plate elements having at least one set of substantially parallel spaced corrugations extending at least endwise substantially at right angles to the edge of said dihedral angle and projecting from a same side of said elements which is the inside of said dihedral angle, said corner piece being formed with at least one set of at least one integral channel-like corrugation, each one of which has a raised substantially dihedral wave portion of substantially uniform cross-sectional contour extending substantially at right angles to the edge of said dihedral angle and projecting from the inner side thereof and adjacent, along its length, to a pair of substantially flat, smooth, uncorrugated areas located on both sides of said wave portion, respectively in substantially the same plane, whereby said corner piece is folded on the one hand along at least one set of three spaced lines substantially straight and parallel to the corrugations of said elements to define a salient dihedral surface portion forming said wave portion, thereby provided with a convex fold crest line and two concave fold base lines as viewed from the inside of said dihedral angle, on the other hand along one concave fold line substantially at right angles to the first-named lines to form a dihedron

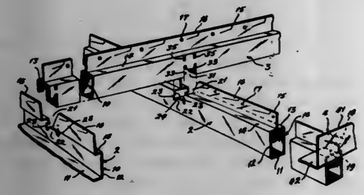


having said dihedral angle, thereby dividing said wave portion into two parts pertaining to the two lateral faces, respectively, of said dihedral angle, and further along four lines from the respective neighbouring ends of the crests of said wave parts, two on either side of the latter, each one of the pairs of said lines converging to a point where the base lines of said wave parts meet the edge fold line of said dihedral angle, so that the crest line of one wave part divides from its end into two sections falling down and away from one another along two convex folding lines and the crest line of the other wave part divides from its end into two concave folding lines falling down and away from one another, both of said ends being joined by a concave folding line, whereby said other wave part extends endwise into said one wave part to define an intersecting region forming a substantially tetrahedral re-entrant angle as viewed from the inside of said dihedral angle.

3,321,882
CEILING AND ELEMENTS THEREOF
Leo G. Stahlhut, Kirkwood, Mo., assignor to K-S-H, Inc., a corporation of Missouri
Filed May 13, 1964, Ser. No. 367,168
7 Claims. (Cl. 52—484)

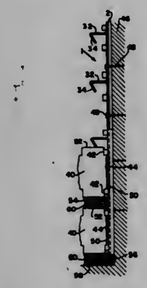
2. A ceiling comprising main rails, cross rails and rail interlocking means interconnecting said main rails and cross rails, each of said rails being hollow, formed of one piece of sheet metal, having a body of substantial width and height and a relatively thin spine, said body having panel-supporting shoulders on either side of said spine, means, connected to said spine and to an overhead support constituting the sole positive support for the ceiling,

and a wall-engaging shape having a vertical, wall-engaging back and a horizontal shelf projecting therefrom, said



horizontal shelf resting upon the shoulders of the body of a rail, and a bendable end tab integral with said spine, engaging the inboard surface of said back.

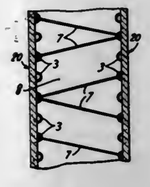
3,321,883
BRICK VENEER SUPPORT STRUCTURE
Michael Pascucci, 5 Bruce Lane, Manhasset, N.Y. 11030
Filed July 6, 1964, Ser. No. 380,548
1 Claim. (Cl. 52—502)



A support bracket in combination with veneer bricks to form an assembled veneer wall structure, said bricks having shoulders disposed longitudinally on at least one surface thereof, said shoulders being adjacent the top and bottom wall of said bricks, said support bracket comprising an elongate member having a pair of resilient members, each resilient member projecting laterally of said elongate member and including substantially flat platform means on one side and clip means on the other side thereof, the platform and clip means of said pair of resilient members being opposingly disposed whereby a brick is receivable and partially supported between said platform and clip means of said pair of said resilient members, said elongate member including a plurality of spacer members projecting outwardly of said elongate member, said spacer members being engaged with said shoulders when the brick is positioned between said resilient members to thereby further support the brick.

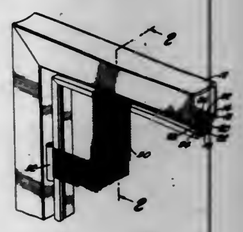
3,321,884
SPACED BUILDING PLATES WITH EMBEDDED WIRE TIES CONNECTED BY ROD MEANS
Hermann Klaue, Beyerlestrasse 1, Constance, Germany
Filed June 4, 1964, Ser. No. 372,520
3 Claims. (Cl. 52—565)

2. A construction element for a building wall comprising a facing plate, a layer of insulating concrete bonded to said facing plate, a reinforcing mesh and a wire tie member embedded in said concrete, said wire tie member being in contact with said mesh and forming a plurality of successive loops with alternate loops thereof lying substantially in separate planes which planes are mutually perpendicular to each other, the wire loops in one plane extending outwardly of the exposed surface of the insulating layer and the loops in the remaining plane extending laterally of said one plane in an opposite direction, a second plate member spaced from said first plate



member and having insulating concrete bonded thereto, and a wire-like reinforcing element in said concrete forming exposed loops on a surface disposed opposite to the surface of said plate, and reinforcing rod means connected between selected exposed loops of said plate and said second plate member.

3,321,885
SCREEN FRAME AND CORNER CONSTRUCTION
Clifford W. Pratt, 7362 E. Country Club Road, Downey, Calif. 90241
Filed June 21, 1965, Ser. No. 465,464
3 Claims. (Cl. 52—657)



1. In a metal screen frame or the like, a rolled tubular body having a seam comprising first and second longitudinal portions crimped together, one of said longitudinal portions having serrations therealong engaging the second longitudinal portion where said portions are crimped, the first of said longitudinal portions being U-shaped transversely of and offset from said hollow tubular body to provide a spline groove having exposed wall faces and hidden wall faces, a first hidden wall face defining part of the interior of the tubular body and having serrations to engage a screen frame corner connector, a second hidden wall face at an angle to said first hidden wall face and having serrations, said second longitudinal portion being crimped against the serrations of said second hidden wall face.

3,321,886
METHOD AND APPARATUS FOR ENVELOPING EXPLOSIVE CARTRIDGES
George L. Griffith, Coopersburg, and Clarence B. Koch, Allentown, Pa., assignors to Trojan Powder Company, Allentown, Pa., a corporation of New York
Filed Feb. 5, 1965, Ser. No. 432,451
11 Claims. (Cl. 53—30)

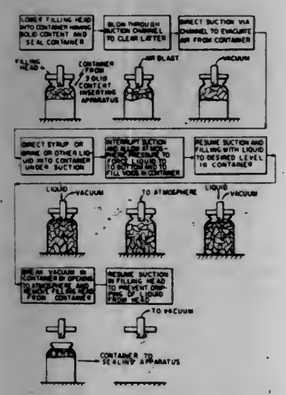
1. A process for enclosing shaped explosives in a protective envelope which comprises, disposing a shaped explosive within an envelope of heat-shrinkable material, subjecting the envelope to stretching stress in one direction by applying an axial force thereto, while simultaneously

passing the envelope and explosive contents through a heated zone to permit the envelope to shrink in a direc-



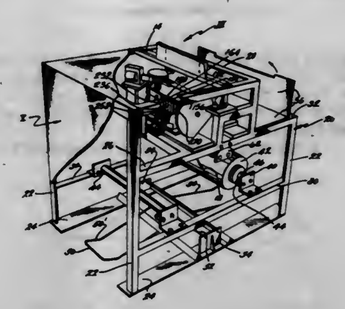
tion transverse to the first until the envelope has enclosed the shaped explosive in a snug fit, and sealing the envelope.

3,321,887
METHOD AND APPARATUS FOR ADDING LIQUID FILL TO CONTAINERS HAVING SOLIDS THEREIN
Herman D. Manas, Roslyn Estates, N.Y., assignor to M.R.M. Company, Inc., Plainview, N.Y., a corporation of New York
Filed July 8, 1964, Ser. No. 381,081
10 Claims. (Cl. 53—37)



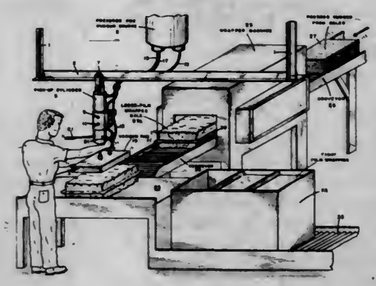
1. A process of filling the voids in containers having portions of solid fill pack therein completely with liquid comprising the steps of temporarily closing off the solid fill bearing container, subjecting the container to suction to eliminate air therefrom, introducing filling liquid into the air evacuated container to partially fill it, interrupting the suction and admitting a surge of air at atmospheric pressure into the container to force the liquid so far introduced toward the bottom of the container and into voids within the container in a tamping action, reinstating suction in the container and resuming filling with said liquid under the reinstated suction, thereafter breaking the reinstated vacuum and subsequently permanently sealing the container.

3,321,888
PLASTIC BAG FORMING MACHINE
Russel H. Kirkhof, Marne, Raymond T. Hummel, Sr., and Raymond J. Hummel, Jr., Ada, and Robert E. O'Brien, Grand Rapids, Mich., assignors to Kirkhof Manufacturing Corporation, Grand Rapids, Mich., a corporation of Michigan
Filed Feb. 19, 1964, Ser. No. 346,004
7 Claims. (Cl. 53—186)



1. A bag forming machine comprising: means for supporting an elongated sleeve of heat sealable plastic film; sleeve guide means; heat sealing means and cutting means adjacent said guide means to seal and sever a portion of said sleeve to form a bag; releasable sleeve advancing drive means; said drive means being normally out of driving engagement with the sleeve to allow the sleeve to be manually advanced desired amounts; actuator means for said heat sealing means and cutting means; and control means causing said drive means to be drivingly engaged with the sleeve after deactuation of said heat sealing means and cutter means, to advance the sleeve a small amount for convenient grasping; said control means including a weight controlled switch means shiftable with removal of a filled bag just formed to allow a new section of sheath to be advanced.

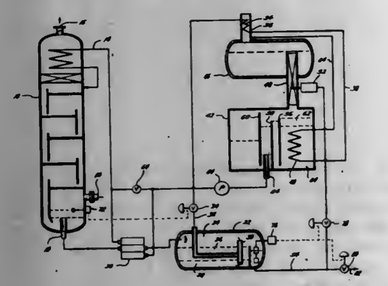
3,321,889
PACKAGING OF SYNTHETIC RUBBER BLOCKS
Arnold R. Zubick and John C. Mosley, Baytown, Tex., assignors, by mesne assignments, to Esso Research and Engineering Company, Elizabeth, N.J., a corporation of Delaware
Filed June 11, 1964, Ser. No. 374,390
2 Claims. (Cl. 53—393)



1. Apparatus for lifting a gas-pervious load enclosed in a substantially gas-impervious film wrapper, comprising: a shallow, inverted vacuum pan having a lower edge for engaging the wrapper;

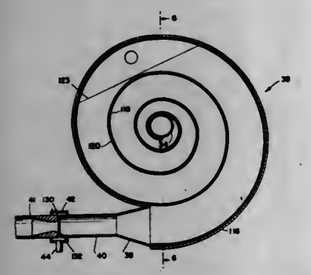
a vacuum connection through the bottom of the pan for connection to a vacuum pump;
a downwardly extending knife-edge in the pan in close proximity to the vacuum connection for slitting the film wrapper when the film wrapper is drawn up within the pan toward said vacuum connection;
a work table for supporting said gas-pervious load; and
means for vertically moving said vacuum pan relative to said work table for positioning said pan on said load.

3,321,890
METHOD FOR DRYING A FLUID STREAM AND RECONCENTRATING THE ABSORBENT
Clifford Wayne Barnhart, Tulsa, Okla., assignor to Black, Sivalls & Bryson, Inc., Kansas City, Mo., a corporation of Delaware
Filed Mar. 1, 1965, Ser. No. 435,982
12 Claims. (Cl. 55—32)



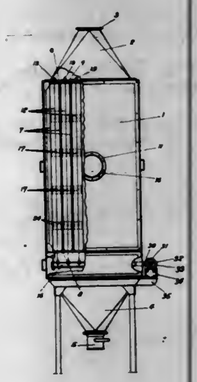
1. The method of reconcentrating a solution of water rich absorbent, and liquid hydrocarbons comprising,
separating the solution into a water rich absorbent portion and a liquid hydrocarbon portion,
heating the water rich absorbent portion to reconcentrate the absorbent by boiling off the water, said rich absorbent portion being heated sufficiently to partially vaporize the liquid hydrocarbon portion upon subsequent contact therewith and
intimately contacting the reconcentrated absorbent with the vaporized liquid hydrocarbon portion to further concentration of the absorbent.

3,321,891
APPARATUS FOR TRANSPORTING ATOMIZABLE MATERIAL
Henri Coanda, Paris, France
(777 Summer St., Stamford, Conn. 06902)
Filed July 14, 1964, Ser. No. 382,601
16 Claims. (Cl. 55—103)



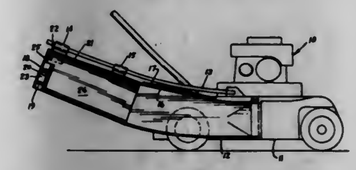
13. In apparatus for elevating atomized petroleum from a well, an electrostatic separator at the surface of said well for separating the atomized petroleum from a carrier gas, said separator comprising a housing, a spiral wall supported within said housing in spaced relationship with the bottom thereof, said wall defining a substantially spiral chamber and including an inner surface of dielectric, electrophorus material and an outer surface of electrically conductive material, first conduit means for introducing a finely divided mist of said atomized petroleum and carrier gas into said spiral chamber, the petroleum particles within said mist having a predetermined electrostatic charge, means for producing a different electrostatic charge on the inner surface of said wall, whereby said petroleum particles are attracted to said inner surface and are collected thereon, second conduit means communicating with said spiral chamber and including a Coanda nozzle for withdrawing the separated carrier gas from said chamber, and discharge means located at the bottom of said housing for receiving the petroleum particles collected on said surface.

3,321,892
DUST FILTER APPARATUS
Eugene Camille Saint-Jacques, 59 Rue Saint-Lazare, Paris, France
Filed July 31, 1963, Ser. No. 298,836
Claims priority, application France, Aug. 2, 1962, 905,893, Patent 1,390,159
8 Claims. (Cl. 55—299)



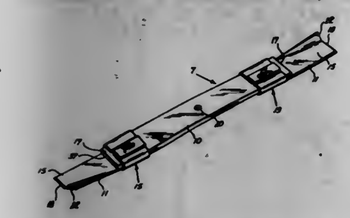
1. Dust filter apparatus comprising a casing, at least one open-ended sleeve made of filtering material stationarily supported in and extending vertically through the casing, an inlet for dust-laden gas connected with the top of the casing and communicating with the upper end of the sleeve, a gas outlet connected with a side of the casing and in communication with the zone within said casing outside of said sleeve, partition means at the top of the casing for preventing dust-laden gas bypass of the sleeve whereby gas circulating downwardly from the inlet through the sleeve and then laterally outwards through the sleeve material to the outlet will leave dust clinging to said sleeve material, and at least one wire-like element extending vertically through the sleeve and having at least one weight attached thereon between the ends of the sleeve, means suspending said wire-like element in the casing at the upper end thereof, and means disposed below the lower end of said sleeve and connected with the lower end of said element for imparting vibratory motion thereto to cause said weight to strike repeatedly the sleeve material and detach the dust therefrom, and means for collecting said dust from the lower end of said sleeve.

3,321,893
CUTTINGS AND DEBRIS CATCHER BAG ATTACHMENT FOR ROTARY TYPE LAWN MOWER
Victor Leader, Minneapolis, Minn., assignor to Leader Farms, Inc., Minneapolis, Minn., a corporation of Minnesota
Filed Aug. 2, 1965, Ser. No. 476,632
7 Claims. (Cl. 56—202)



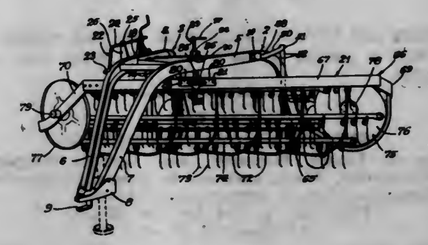
1. On a lawn mower of the rotary type having a laterally disposed passageway for the discharge of grass clippings and debris, the improvement in a grass clippings and debris collector comprising:
a rigidly elongated enclosed discharge extension secured to the mower in communication with the discharge passageway of the mower, said discharge extension being rearwardly disposed and closed at a rearward end, said discharge extension having a downwardly opening port adjacent said rearward end of said discharge extension;
baffle means transversely positioned in said discharge extension forward of and adjacent to the port in said discharge extension, said baffle means extending upwardly into proximity with the upper portion of said discharge extension, thereby providing a vertically disposed air passageway to afford free circulation of the air stream induced by the lawn mower over the upper edge of the baffle means, downwardly through the vertically disposed air passageway, and out to the atmosphere through the open port.

3,321,894
ROTARY BLADE STRUCTURE
Floyd M. Ingram, 110 Evans St., Sioux Rapids, Iowa 50585
Filed Dec. 3, 1964, Ser. No. 415,707
1 Claim. (Cl. 56—295)



A cutter assembly for a rotating blade-type mower having an upright power-operated shaft, comprising:
(a) a flat support bar having a connector section at each extremity, each connector section having a connector hole therethrough,
(b) a pair of flat elongated cutting members each having a support portion and a cutting portion,
(c) said cutting members made of a flat flexible spring steel material of a width substantially equal to the width of said support bar, each cutting member formed with a connecting hole in said support portion,
(d) each cutting member having the support portion thereof positioned against one side of a connector section and the cutter portion thereof projected radially outwardly from a connector section,
(e) a tubular clamp member surrounding each support portion and corresponding connector section, said clamp member being of a rectangular shape in transverse cross section and formed with aligned holes in opposite side portions thereof, and
(f) a pin member placed through each connecting hole, aligned holes, and connector hole to secure each support portion against radial and transverse movement relative to a corresponding connector section, whereby radially extending cutting portions are laterally deflectable relative to said connector sections.

3,321,895
RAKE BASKET SUSPENSION SYSTEM
James Morkoski, Clarendon Hills, Ill., assignor to International Harvester Company, a corporation of Delaware
Filed Mar. 9, 1964, Ser. No. 350,274
6 Claims. (Cl. 56—377)

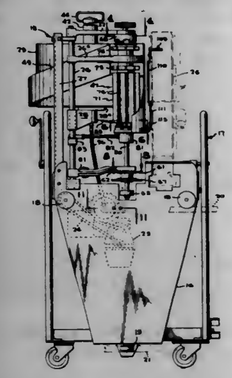


1. In a side delivery rake, a support having a pair of side frame members, a rake structure beneath the frame elongated transversely to its direction of travel, and means suspending said rake structure from the frame members including a shaft extending transversely of the frame members, means journalling the shaft from the frame members on the neutral axis of the latter, first arm means on the shaft extending generally normal thereto, suspension means extending behind said structure and connecting said arm means therewith, and actuating means for operating said shaft for vertically swinging said arm means, and other suspension means including second arm means pivoted about said shaft and means extending from said second arm to in front of the raking structure and connected therewith and means for simultaneously moving said first and second arm means at the same rate about a common axis for lifting and lowering said rake structure in a rectilinear path.

3,321,896
AUTOMATIC BOBBIN DONNING APPARATUS
James F. King, Jr., and Donald A. Sloan, Winston-Salem, N.C., assignors to The Bahnson Company, Winston-Salem, N.C., a corporation of North Carolina
Filed June 30, 1964, Ser. No. 379,079
23 Claims. (Cl. 57—53)

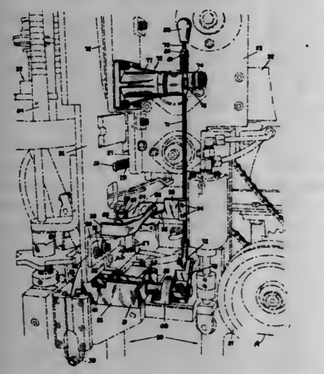
1. Apparatus for donning empty bobbins in succession onto a row of upright spindles on a textile processing machine comprising a donner unit adapted to move along a path parallel to the spindles having a bobbin discharge station to be positioned successively over the spindles, means for supplying empty bobbins in succession to said discharge station comprising an elongated flexible belt having a plurality of parallel open-bottomed bobbin storage tubes to be each loaded with a bobbin disposed in encircled coaxial relation therein, a storage station for storing the bobbin-loaded portions of said belt in a plural turn winding course about a selected axis, means for feeding said belt from said storage station through said discharge station to advance the bobbin-loaded tubes and

their bobbins in upright, axially vertical positions into said discharge station, and means at said discharge station for



donning said bobbins directly from encircled relation in at least a portion of their associated tubes onto the spindles.

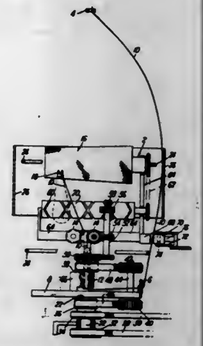
3,321,897
SPINDLE PROTECTION DEVICE
John A. Cugini, Hopedale, and Herman Haagsma, Whitinsville, Mass., assignors to Draper Corporation, Hopedale, Mass., a corporation of Maine
Filed Aug. 4, 1964, Ser. No. 387,353
4 Claims. (Cl. 57—53)

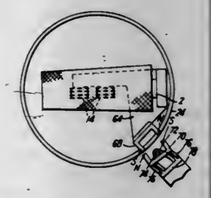


1. For a machine adapted to move along a spinning frame having mechanisms for donning empty bobbins on and doffing wound bobbins from a row of spindles supported by said spinning frame, a spindle protection device including a pivotable bobbin indicating lever adapted to be activated by the presence of an undoffed wound bobbin and a means functioning in conjunction with said pivotable indicating lever to release the donning mechanism with a further means cooperating with the latter to withdraw the same to an inactive position.

3,321,898
TEXTILE MACHINES
John Kay Pringle Mackie, Albert Foundry, Northern Ireland, assignor to James Mackie & Sons Limited, Belfast, Northern Ireland
Filed Oct. 13, 1964, Ser. No. 403,596
Claims priority, application Great Britain, Oct. 17, 1963, 41,111/63
13 Claims. (Cl. 57—58.76)

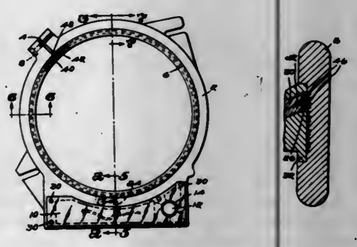
1. A two-for-one yarn twisting or spinning machine comprising a frame, a carrier bracket, a magnet carried on the bracket, a cooperating member on the frame, said magnet cooperating with said cooperating member normally to hold the carrier bracket stationary during opera-





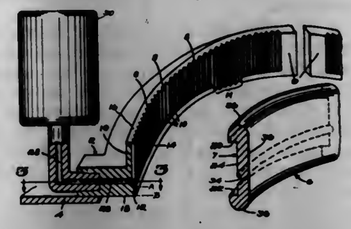
tion of the machine, said magnet being so mounted that it is capable of limited movement relatively to the bracket, and means to absorb energy during movement of the magnet relative to the bracket.

3,321,899
SPINNING RING WITH MULTIPLE CIRCUMFERENTIAL SERRATIONS AND HOLDER
Andrew J. Wayson, Needham, Mass., assignor to Merriman, Inc., a corporation of Massachusetts
Filed Oct. 2, 1964, Ser. No. 401,095
8 Claims. (Cl. 57—120)



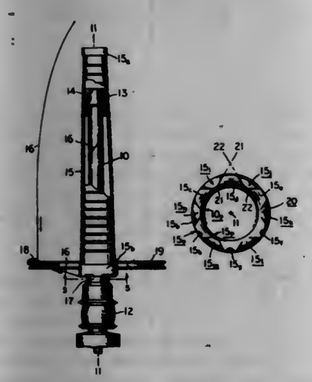
1. A vertical type spinning ring made of porous metal, said ring having a relatively wide shallow groove extending thereabout, the vertical wall of said groove comprising a plurality of circumferentially extending closely spaced teeth with sloping side walls meeting to form a continuous circumferential apex, which teeth lie in planes which are substantially at right angles to the axis of said ring, the configuration of said teeth precluding the mounting of wicks therein.

3,321,900
HOLDER FOR USE WITH VERTICAL TYPE SPINNING RING
Andrew J. Wayson, Needham, Mass., assignor to Merriman Inc., a corporation of Massachusetts
Filed Apr. 27, 1966, Ser. No. 545,745
5 Claims. (Cl. 57—120)



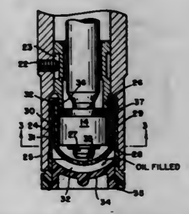
1. A split type holder for a vertical type spinning ring of porous metal, said holder including as an integral part thereof means for distributing oil vertically over the cooperating outer wall of a ring when clamped in position within said holder, said holder being made of castable metal and said oil distributing means characterized by a plurality of vertical grooves located in the inner wall of said holder, the lands between said grooves acting to engage and hold said ring against rotation with respect to said holder when the holder is clamped thereabout, said holder having a passage therethrough for delivering oil to a localized part of said ring when clamped therein that communicates with said grooves.

3,321,901
INSTANT-WIND BOBBINS
Samuel F. Adams, Greenville, S.C., and Edmond H. Guerin, Jr., Woonsocket, R.I., assignors to American Paper Tube Company, Woonsocket, R.I., a corporation of Rhode Island
Filed May 13, 1965, Ser. No. 455,526
7 Claims. (Cl. 57—131)



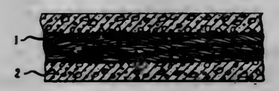
1. An instant-wind bobbin structure for mounting in combination with an elongated rotatable spindle about which turns a filamentary material pulled through a nearby guide unit are wound for starting, comprising an elongated tubular bobbin proportioned to fit in mated relationship with a spindle and having a seat therein shaped to receive driving torques from the spindle, the axial end surfaces of said bobbin which confront the filamentary material extending between the spindle and guide unit having axially-projecting surfaces adjoining axially-depressed surfaces at least at the outer periphery of said axial end surfaces, whereby upon start-up of the bobbin the filamentary material is automatically picked up by said axial end surfaces and is laid upon the exterior of the bobbin for winding thereon without substantial prior winding on the spindle.

3,321,902
VISCOUS DAMPING FOR SPINDLE
Thomas L. Barefoot, Coats, and Ivey E. Martin, Jr., Sanford, N.C., assignors to Roberts Company, Sanford, N.C., a corporation of North Carolina
Filed Oct. 22, 1965, Ser. No. 500,925
5 Claims. (Cl. 57—135)



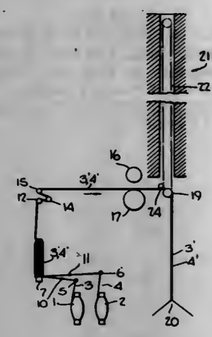
1. In a textile spindle assembly having a base housing with an axial bore for rotatably and bearingly supporting the lower end of a yarn bobbin-supporting spindle shaft having an encircling tape-engaging drive sleeve for rotating the spindle, a viscous damping boot mounted in the base housing for cooperatively receiving a bearing mounted on the end of the shaft, said boot having a sealed chamber at least partially enclosing said bearing and the shaft end, and a fluid in said chamber for reducing vibrational ampltiude and stabilizing spindle axial and lateral deflection, said boot comprising a flexible and deformable bearing-receiving inner wall and outer wall spaced from each other forming at least an annular chamber, means axially spaced from said annular chamber sealing said boot, and the fluid in said annular chamber, said inner wall having a circumferential shoulder extending inwardly therefrom for retaining the shaft-mounted bearing during the doffing operation.

3,321,903
MOP YARN
Jay Tanzer, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed July 7, 1964, Ser. No. 380,898
9 Claims. (Cl. 57—140)



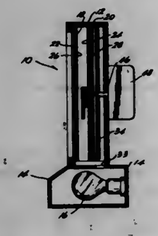
1. A mop yarn having improved flexibility and durability, said yarn comprising a strand of cellulosic sponge having a synthetic, textured, bulky yarn core, said yarn core comprising a plurality of substantially continuous filaments which are individually convoluted into coils, loops and whorls at random intervals along their lengths, said yarn core being characterized by the presence of a multitude of ring-like loops irregularly spaced along its surface.

3,321,904
YARN THREADING PROCESS
Ludwig Horvath and Manfred Kress, Wattwil, Switzerland, assignors to Heberlein Patent Corporation, New York, N.Y., a corporation of New York
Filed Oct. 12, 1964, Ser. No. 403,286
Claims priority, application Switzerland, Nov. 26, 1963, 14,477/63
7 Claims. (Cl. 57—157)



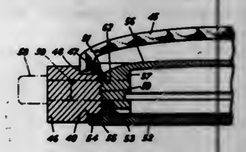
1. Process for threading two or more yarns through yarn crimping apparatus comprising, twisting together at least two yarn segments a selected number of turns, winding such segments on a cylindrical member, attaching the yarns to be treated to the ends of the yarn segments and drawing the yarn segments off over the end of the cylindrical member and into the crimping apparatus.

3,321,905
DISPLAY DEVICE
Jimmie M. Krebs, San Francisco, Calif., assignor to Display Corporation, Milwaukee, Wis., a corporation of Wisconsin
Filed Oct. 1, 1965, Ser. No. 492,188
18 Claims. (Cl. 58—50)



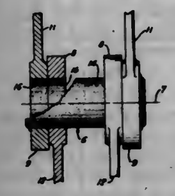
1. A display device in the form of a combination advertising copy display and clock and comprising, in combination,
a first member at least a portion of which is polarized to exhibit a defined, uniform light transmission axis throughout,
a second member at least a portion of which is polarized to exhibit a defined, uniform light transmission axis throughout,
said portions of said first and second members arranged in overlapping relation and having the transmission axes thereof arranged at an angle to each other,
means defining restricted areas in the polarized portions of said first and second portions, said restricted areas being characterized by having characteristics which are different from the characteristics of the remainder of said portions of said first and second members so that said restricted areas provide a contrast with said first and second portions,
at least a portion of said restricted areas on one of said first and second members taking the form of clock face indicia,
an analyzing member at least a portion of which is polarized to exhibit a defined, uniform transmission axis throughout,
means for providing relative movement between said analyzing member and said first and second members and with the polarized portion of said analyzing member in overlapping relation with the polarized portions of said first and second members and in a manner such that the angular relation of the transmission axis of one of said first, second and analyzing members is continuously changing with respect to the axes of the other two,
first and second clock hand members arranged operatively adjacent said clock indicia and each including an overlay of at least two layers of material each having a defined, uniform light transmission axis throughout and the light transmission axes of said layers being arranged at an angle to each other,
and clock drive mechanism connected to and driving said clock hands with respect to said clock indicia.

3,321,906
WATCH WITH A DIAL RIGIDLY CONNECTED TO THE CASING
Giuseppe Montese-Caruso, Viale Bianca Maria 22, Milan, Italy, and Ennio Bussi, Via Monte Creta 25, Rome, Italy
Continuation of application Ser. No. 218,197, Aug. 6, 1962. This application Nov. 15, 1965, Ser. No. 514,740
Claims priority, application Switzerland, Aug. 9, 1961, 9,347/61; June 22, 1962, 7,547/62
7 Claims. (Cl. 58—38)



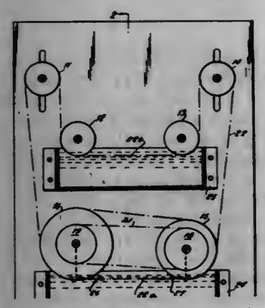
1. In a watch: an annular case member defined by inner and outer wall portions, an annular recess in one radial end face of said member between said wall portions; a glass comprising a peripheral rim which is secured in said recess; an inner member comprising a radial dial plate rigidly mounted along its outer periphery to an annular ring which extends axially from one side of said plate, said ring being removably fitted within said inner wall portion through the end of said case member opposite to the end on which is located said annular recess, the inner wall portion of said case member and the outer wall of said ring comprising complementary abutment shoulders at one axial end thereof, said shoulders abutting each other and thereby preventing movement of said ring in one axial direction relative to said case member; a watch movement mounted within the annular recess defined by said ring and secured to said ring on one side of said dial plate; the inner wall portion of said case member and the outer wall of said ring comprising complementary engaging circumferential surfaces with said surfaces comprising mutually engaging securing means for rigidly securing said ring to said case member whereby said ring and case member structurally complement each other and form an integral structural unit.

3,321,907
TAINTER GATE HOIST CHAIN AND METHOD OF PROVIDING THE SAME
Kenneth F. Dewing, Orinda, and Manuel C. Christo, Benicia, Calif., assignors to Yuba Consolidated Industries, Inc.
Filed Feb. 18, 1965, Ser. No. 433,855
7 Claims. (Cl. 59—8)



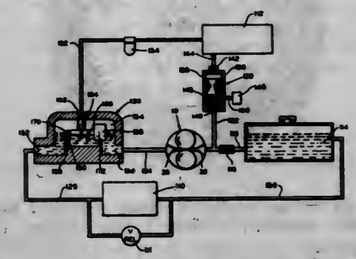
1. A tainter gate hoist chain comprising a pair of steel side links having aligned bores with interior circular cylindrical journal areas, a steel pin having an exterior circular cylindrical area adapted to be journalled in said areas of said links, all of said areas having surfaces defined by substantially uniformly distributed relatively smooth portions and relatively rough portions, said smooth portions being comparable to a finish provided by grinding and said rough portions being comparable to a finish by grit blasting, all of said surfaces having an appearance like that of emery cloth of about No. 100.

3,321,908
MECHANOCHEMICAL ENGINE
Aharon Katchalsky, Tel-Aviv, Itzhak Z. Steinberg and Avraham Oplatka, Rehovoth, and Amir Kam, Holon, Israel, assignors to Weizmann Institute of Science, Rehovoth, Israel, a company of Israel
Filed Oct. 22, 1965, Ser. No. 500,726
12 Claims. (Cl. 60—1)



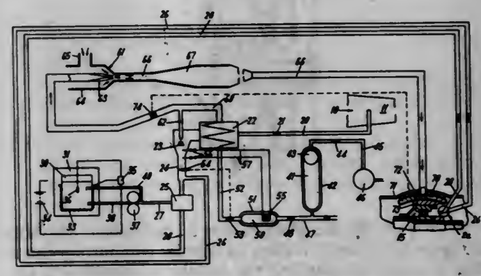
1. A device for effecting the direct conversion of chemical energy to mechanical energy, which comprises:
(a) a source of a first fluid;
(b) a source of a second fluid;
(c) a working member comprising at least one polymeric linearly oriented element constituted of a submicroscopic gel network of long chain molecules, such that when contacted by said first fluid, a first reversible dimensional change of said element is produced and, when contacted by said second fluid, a second reversible dimensional change thereof opposite in direction to said first dimensional change, is produced;
(d) means for independently and intermittently contacting said polymeric element with said first and second fluids; and
(e) means connected to said working member for converting the first and second oppositely directed dimensional changes of said polymeric element to continuous rotary motion and, conversely, for converting continuous rotary motion to said first and second dimensional changes, respectively.

3,321,909
LIQUID-GAS SYSTEM
Richard O. Gordon, Mequon, Wis., assignor to Clark Equipment Company, a corporation of Michigan
Filed Apr. 26, 1965, Ser. No. 450,978
13 Claims. (Cl. 60—6)



1. A fluid pressure system including gear pump means constructed in a manner to pressurize simultaneously liquid and gaseous fluids, liquid pressure operated means connected to the pump, gas pressure operated means connected to the pump, and means responsive to a pump generated gas pressure for controlling the volume of gas introduced into the inlet of the pump.

3,321,910
GAS TURBINE LUBRICATION
William John Davies, Spondon, Derby, Roy Allen, Long Eaton, and John Kenneth Rhodes, Littleover, Derby, England, assignors to Rolls-Royce Limited, Derby, England, a British company
Filed Aug. 23, 1965, Ser. No. 481,580
Claims priority, application Great Britain, Sept. 4, 1964, 36,435/64
11 Claims. (Cl. 60—39.08)

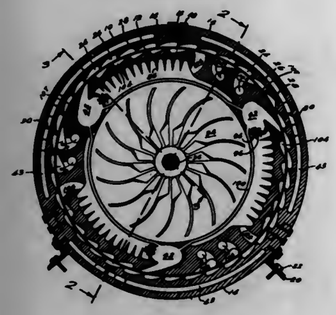


10. In a supersonic aircraft, a gas turbine jet propulsion engine including a main bearing requiring lubrication and cooling and means for lubricating and cooling the bearing, said means comprising sources of air and oil, a mixer for mixing the oil and air together to form an oil mist, a first duct for conveying said oil mist to said bearing, a second duct for conveying air to said bearing, respective nozzles at the ends of said ducts, said nozzles being disposed closely adjacent each other and arranged to cause mixing of the oil mist and air passing therethrough at the bearing to dilute the oil mist and to direct the diluted oil mist onto said bearing.

3,321,911
GAS TURBINE ENGINE WITH ROTATING COMBUSTION CHAMBER

Tommie Lynn Myles, 129 Webster St. NW.., Washington, D.C. 20011

Filed Feb. 12, 1965, Ser. No. 432,274
15 Claims. (Cl. 60—39.35)

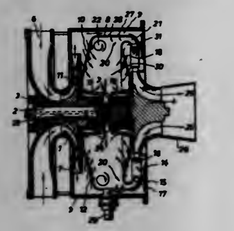


5. A jet turbine engine comprising a rotor having a combustion chamber, a stator having buckets, and an air compressor, said engine being further provided with the means for introducing into said combustion chamber a combustible mixture, means on said engine for igniting such mixture, the rotor of said jet engine being further provided with the combination of a plurality of impulse-reaction buckets that communicate with said combustion chamber via acting cooperatively with said stator buckets and exhaust ducts in said rotor for channeling the products of combustion to produce a jet thrust.

3,321,912
GAS TURBINE PLANT

Ulrich Oprecht, Wittenbach, Saint Gall, Switzerland, assignor to Adolph Saurer Ltd., Arbon, Switzerland

Filed Nov. 14, 1963, Ser. No. 323,671
Claims priority, application Switzerland, Nov. 14, 1962, 13,293/62
2 Claims. (Cl. 60—39.36)

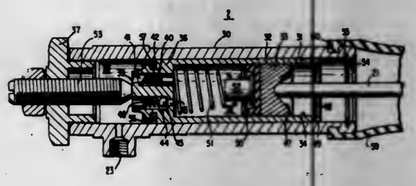


1. In a gas turbine plant having a compressor, coaxially arranged compressor blades, an annular combustion chamber, a casing surrounding the annular combustion chamber, a turbine and ring of turbine blades arranged coaxially with said compressor, first means for conveying air having a circumferential velocity component from the compressor blades into said casing, second means for dividing the air passing from said casing into said annular combustion chamber into a primary air current for combustion and into a secondary air current for cooling, said combustion chamber including substantially radial front and rear walls and outer and inner circumferential walls, the improvement comprising openings in the front wall of the combustion chamber which have a directional effect, said front wall extending at substantially right angles to the axis of the gas turbine, said openings being disposed to direct the primary air current passing through these front wall openings from the outer circumference radially inwardly towards the inner wall of the combustion chamber which is disposed coaxially with the axis of the gas turbine, further openings on the outer circumferential wall of the combustion chamber which have no directional effect and serve to admit secondary air current into the combustion chamber, said combustion chamber having an annular exhaust passage including a ring of turbine stator vanes which are hollow to permit passage of primary air therethrough, said combustion chamber having its rear wall located upstream of the ring of turbine stator vanes so that the primary air is conveyed through said stator vane ring and through openings in said rear wall with directional effect to be deflected from the outer circumference radially inwardly towards the inner wall and axially thereon in upstream direction, and an annular channel disposed between the casing and the outer wall of the combustion chamber coaxial with the axis of the chamber, the combustion gases being cooled by the secondary air before the air reaches the turbine blades.

3,321,913
SELF-ADJUSTING CLUTCH SLAVE CYLINDER

Leon A. Harrah, 814 Orchard St., Charleston, W. Va. 25302

Filed Oct. 14, 1965, Ser. No. 495,949
6 Claims. (Cl. 60—54.6)



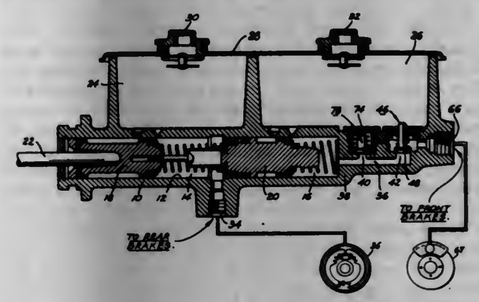
1. A fluid actuator with slack adjusting means comprising: a casing having a first bore closed at a first end and opened at a second end. a first piston carried by said bore forming a first working chamber therebetween, a fluid access port to said first chamber, said first piston having a longitudinal second bore closed at one end, a second piston carried in said longitudinal second bore of said first piston and forming a second working chamber therein, a fluid inlet in said one end for said second chamber, a check valve within said fluid inlet permitting only unidirectional flow toward said second chamber from said first chamber, a fluid outlet in said one end for said second chamber, a pressure relief valve within said fluid outlet permitting only unidirectional flow toward said first chamber from said second chamber and only when a predetermined differential pressure is reached between said chambers.

3,321,914
BRAKING SYSTEM FOR VEHICLES

Stanley I. MacDuff, South Bend, Ind., assignor to The Bendix Corporation, South Bend, Ind., a corporation of Delaware

Filed Apr. 19, 1965, Ser. No. 449,132
7 Claims. (Cl. 60—54.5)

1. In a braking system for a vehicle having first and second set of brakes, a fluid pressure generating device comprising a housing having pressure chamber means therein and fluid reservoir means communicating with said chamber means, first passage means for communicating said chamber means with said first set of brakes, second passage means for communicating said chamber means with said second set of brakes, third passage means for communicating said first set of brakes with said reservoir means, movable piston means for generating pressure in said chamber means to displace fluid into said first and second sets of brakes, first pressure responsive valve means located in said first passage means for permitting fluid flow from

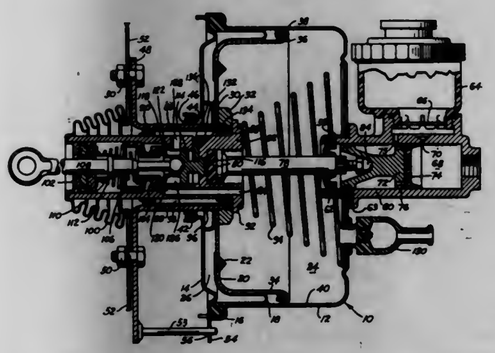


said first passage means for permitting fluid flow from said chamber means to said first set of brakes only at chamber means pressures above a first predetermined value, and second pressure responsive valve means located in said third passage means for permitting fluid flow from said first set of brakes to said reservoir means only at chamber means pressures below a second predetermined value.

3,321,915
FLUID PRESSURE SERVOMOTOR

Frederick W. Martin, South Bend, Ind., assignor to The Bendix Corporation, South Bend, Ind., a corporation of Delaware

Filed June 28, 1965, Ser. No. 467,283
9 Claims. (Cl. 60—54.5)

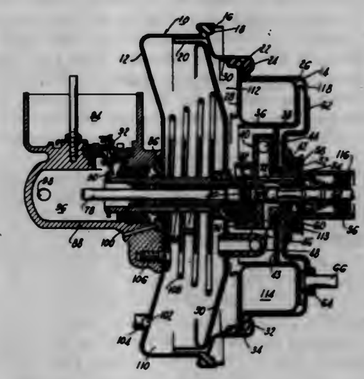


1. A fluid powered servomotor for use in a vehicle, said servomotor comprising:
- a fixed panel in said vehicle;
- a valve housing including a tubular collar affixed to said fixed panel and a tubular valve body arranged to reciprocate in said collar;
- a servomotor housing reciprocally arranged on said tubular collar;
- a wall in said servomotor housing separating the internal area of said housing into a first variable volume chamber and a second variable volume chamber, said wall being affixed to said tubular collar, said housing having bearing seal means sealing an operative connection between said housing and said tubular collar;
- a master cylinder affixed to said housing having a master cylinder piston operatively arranged in a cylinder bore, which piston operatively controls the development of a pressure in said master cylinder;
- a link operatively connecting said valve body and said piston including a means to proportion reaction pressures on said piston;
- a valve actuating member operatively connected to said valve body to control fluid flow therethrough, said valve body arranged to receive reaction forces from said means proportioning reaction pressures on said piston of said master cylinder; and
- means to communicate at least two different pressure sources to said valve body to be controlled by said valve actuating member to pull said servomotor housing and said master cylinder as a unit towards said fixed structure or release said housing while maintaining said valve body and said piston to limit travel of said valve actuating member.

3,321,916
SERVOMOTOR WITH NORMALLY STATIONARY VALVE STRUCTURE

Maxwell L. Cripe, South Bend, Ind., assignor to The Bendix Corporation, South Bend, Ind., a corporation of Delaware

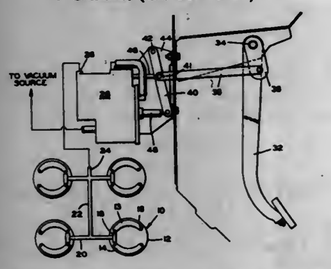
Filed June 28, 1965, Ser. No. 467,284
8 Claims. (Cl. 60—54.5)



1. A servomotor comprising:
- a housing;
- a movable wall means internally of said housing dividing said housing into a first chamber, a second chamber and a third chamber;
- a force transmitting means operatively connected to a portion of said movable wall means, which force transmitting means is arranged to project from said housing;
- an operator-operated control member operatively connected to another portion of said movable wall means, which operator-operated control member projects from the rearward side of said housing;
- a valve mechanism operatively connected to said operator-operated control means and to another portion of said movable wall means to be positioned in accordance with a pressure differential across said another portion of said movable wall means to allow for relative movement of said portion of said movable wall means and said valve mechanism; and
- a master cylinder operatively connected to said valve means and reciprocatorily receiving said force transmitting member such that upon inward movement of said force transmitting member into said master cylinder fluid is displaced therefrom; and

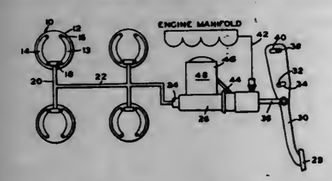
hydraulic reaction means slidably mounted in said force transmitting means and operatively connected to said valve mechanism to convey reaction forces from said master cylinder to said valve mechanism and therethrough to the operator-operated control member.

3,321,917
MOTOR VEHICLE BRAKING SYSTEM
David M. Tenniswood, Detroit, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed July 2, 1965, Ser. No. 469,263
7 Claims. (Cl. 60—54.5)



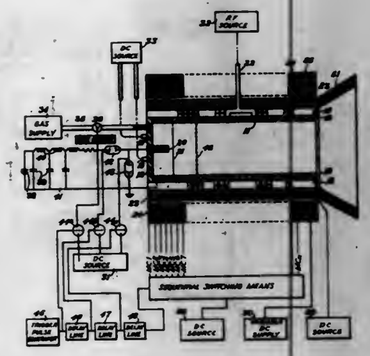
1. A hydraulic brake system for a motor vehicle having wheel cylinders for applying the vehicle brakes, comprising, a master cylinder assembly including a fluid chamber defined by a pair of spaced pistons therein having opposed chamber pressure increasing movements and each movable to transmit fluid under pressure from said chamber to said wheel cylinders, a brake pedal, force transmitting means connecting said pedal and one of said pistons, power operated means for moving the other of said pair of pistons in a chamber fluid pressure increasing direction, a source of actuating fluid connected to said power means, and flow modulating valve means axially aligned with and initially abutting said one piston for a limited movement therewith in response to movement of said force transmitting means for modulating the flow of said actuating fluid to said power means between a minimum and maximum to provide a first progressive change in the fluid pressure in said chamber and wheel cylinders between a minimum and a predetermined amount, movement of said force transmitting means beyond a position providing said predetermined chamber pressure moving said one piston to further increase the fluid pressure to said wheel cylinders.

3,321,918
MOTOR VEHICLE BRAKE PRECHARGE SYSTEM
David M. Tenniswood, Detroit, Mich., assignor to the Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed July 2, 1965, Ser. No. 469,264
10 Claims. (Cl. 60—54.6)



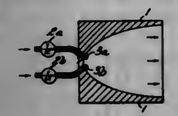
1. A precharger for a hydraulic braking system for a motor vehicle having wheel brake cylinders for applying wheel brakes, comprising, a master cylinder having a fluid chamber connected to said wheel cylinders and containing a piston movable therein to transmit fluid under pressure to said brake cylinders, a fluid reservoir, fluid port means connecting said reservoir and said master cylinder, first means for moving said piston, fluid operated motor means operable on the fluid in said reservoir to displace the same through said port means into said chamber and wheel cylinders to pressurize the same to a predetermined level preparatory to application of said wheel brakes, a source of fluid under presure, conduit means connecting said source to said motor means for operating said motor means, and second means in said conduit means operably connected to and responsive to initial movement of said first means for controlling the flow of fluid to said motor means to pressurize the fluid in said reservoir, subsequent movement of said first means moving said piston to a position increasing the pressure of the fluid to said brake cylinders to apply said vehicle brakes, said piston having means preventing return flow of fluid through said port means from said chamber upon movement of said piston in a pressure increasing direction, a brake lever pivotally connected near its midpoint to said first means and having a pedal portion adjacent one end, and primary and secondary lever pivot means between the opposite end of said lever and the point of pivotal connection to said first means, said primary and secondary lever pivot means being so constructed and arranged that said lever pivots about said primary pivot means as long as said pressurizing means is operative and said lever pivots first about said primary pivot means and subsequently about said secondary pivot means upon failure of said presusrizing means, to increase the mechanical advantage thereof.

3,321,919
APPARATUS FOR GENERATING HIGH DENSITY PLASMA
Anthony J. Marolda, Walpole, Mass., assignor to High Voltage Engineering Corporation, Burlington, Mass., a corporation of Massachusetts
Filed July 9, 1964, Ser. No. 381,394
5 Claims. (Cl. 60—202)



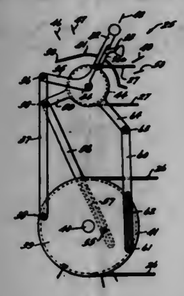
1. A high density plasma generator comprising the combination of an elongated non-magnetic container, means for injecting a quantity of gas therein, means for creating a hydromagnetic wave for the purpose of ionizing said gas to produce hydromagnetic shocks, ion cyclotron resonance heating means in operable relationship with said container and adapted to heat said ionized gas, a plurality of substantially parallel conductors longitudinally disposed adjacent the outer surface of said container, said conductors being electrically connected such that current in adjacent conductors flows in opposite directions means for causing a current to flow through said conductors, a solenoid longitudinally surrounding said container, a direct current source connected thereto and in combination therewith being adapted to establish a magnetic field in the order of twenty kilogauss, and means for superimposing a plurality of magnetic mirror fields thereon.

3,321,920
METHOD OF PRODUCING PROPULSIVE FORCES BY INTERMITTENT EXPLOSIONS USING GEM-POLYNITRO AND HYDRAZINE COMPOUNDS
Hans Walter and Benno Walter, Huntsville, Ala., assignors to Brown Engineering Company, Inc., Huntsville, Ala., a corporation of Alabama
Filed June 29, 1964, Ser. No. 378,736
2 Claims. (Cl. 60—211)



1. A method for producing thrust by detonation waves in an explophoric thrust chamber in the form of a divergent exit duct, which comprises injecting intermittently a gem-polynitro oxidizer and a hydrazinic fuel from separate sources.

3,321,921
CONTROL MECHANISM
Melvin Eugene Crifield, Cincinnati, Ohio, assignor to General Electric Company, a corporation of New York
Filed May 25, 1964, Ser. No. 369,812
10 Claims. (Cl. 60—235)



9. In an aircraft turbojet having a fuel control, means for reversing the thrust of the engine and control means therefor,

a fuel control lever, said lever being operatively connectable to said fuel control and movable between minimum and maximum fuel flow positions,

a thrust reverser lever movable in one direction from an "initial" position to a first position, said reversing control means being responsive to such movement to bring the reversing means to a full thrust reverse position, said reverser lever being movable past said first position to a second position, said fuel control means being responsive to said last named movement to increase fuel flow and provide powered thrust reversal.

3,321,922
SMALL ROCKET ENGINE
William T. Latto, Jr., Lakewood, Ohio, assignor to the United States of America as represented by the Administrator of the National Aeronautics and Space Administration
Filed Oct. 29, 1964, Ser. No. 407,595
3 Claims. (Cl. 60—260)

1. A rocket engine comprising,

a combustion chamber and a nozzle in continuation thereof,

said combustion chamber and nozzle having a wall including an outer layer of high strength material having cooling passages of variable heights therein, an intermediate liner of refractory insulating material selected from the group consisting of zirconia, zinc oxide, and alumina, and an inner layer of an alloy comprising 80% tantalum and 20% tungsten forming a heat sink,

an injector closing the end of the combustion chamber opposite to said nozzle,

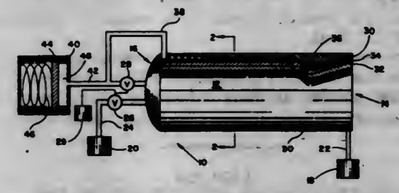
said cooling passage forming regenerative cooling means surrounding said combustion chamber and nozzle to provide a flow path for regenerative cooling flow of a propellant fluid to said injector,

a plurality of sources of supply of pressurized propellant fluid,

first conduit means connecting one of said sources to said cooling passages,

second conduit means connecting another of said sources directly to said injector,

valve means in the flow path from each of said sources to interrupt propellant flow to said injector, one of said valve means being located between said cooling passages and said injector,



an accumulator chamber for receiving a propellant,

a bypass conduit having one end in communication with the interior of said accumulator chamber and the other end in communication with said cooling passages and said one valve means,

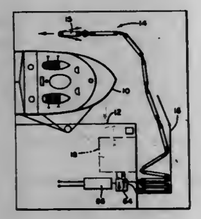
a wall mounted for reciprocable movement in said accumulator chamber between a first position remote from said one end of said bypass conduit thereby providing a maximum volume in said accumulator chamber to a second position adjacent said one end of said bypass conduit thereby providing a minimum volume in said accumulator chamber, said bypass conduit serving to transfer pressurized propellant fluid to said accumulator chamber thereby exerting a pressure on said wall to move the same to said first position whereby continued flow of propellant fluid through said cooling passages is provided for a period of time after said engine has been deactivated to cool said heat sink, and

resilient means within said accumulator chamber for biasing said movable wall from said first position to said second position, said resilient means serving to supply propellant to said injector by moving said wall to said second position when said one valve means is opened to reactivate said engine.

3,321,923
STEERABLE SELF-POWERED FLOATING STRUCTURES
Millard F. Smith, Westport, Conn. (% Fluid Solids, Inc., P.O. Box 295, Saugatuck, Conn. 06880), and Anthony V. Anusauckas, Bridgeport, Conn.; said Anusauckas assignor to said Smith
Filed Mar. 2, 1965, Ser. No. 436,502
8 Claims. (Cl. 61—1)

1. A continuous flexible floating structure comprising in combination

(A) a substantially continuous flexible elongated upright fin having upper and lower edges,
(B) ballast means mounted along the lower edge of the fin,
(C) a plurality of elongated buoyant floats mounted at spaced intervals along the upper edge of the fin,
(D) a buoyant towing unit flexibly secured to a first end of the fin and including a pair of nozzles facing the first end of the fin and mounted on the towing



unit in side-by-side diverging relationship, and
(E) flexible conduit means extending beside the fin and supported by the floats joining each nozzle via a separate control throttle to a source of pressurized driving fluid,
whereby operation of the separate control throttles governs the rate at which pressurized fluid is supplied to the individual nozzles, forming exhaust jets therefrom having velocities variable to drive and steer the structure.

3,321,924
PROTECTION OF SUBMERGED PILING
Orval E. Liddell, P.O. Box 1533, Avalon, Calif. 90704
Filed June 29, 1964, Ser. No. 378,852
3 Claims. (Cl. 61—54)



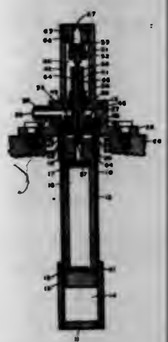
1. A method of protectively encasing a partially submerged pile in situ, comprising:
forming a sheet of synthetic plastic material into a convoluted roll having a diameter less than the diameter of said piling, said material having an inherent memory;
expanding said roll about said pile, said roll thereafter contracting into close engagement with said pile because of said inherent memory;
securing said roll to said pile;
and sealing the space between said pile and said roll from the ambient water surrounding said pile sufficiently to maintain the water in said space stagnant to prevent marine borer attack on said pile.

3,321,925
DEEP WATER LAY BARGE AND METHOD
Clarence W. Shaw, Metairie, La., assignor, by mesne assignments, to J. Ray McDermott and Co., Inc., New Orleans, La., a corporation of Delaware
Filed May 5, 1964, Ser. No. 364,933
10 Claims. (Cl. 61—72.3)



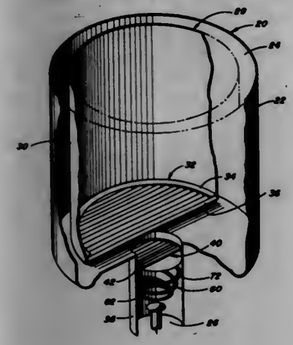
1. The method of laying continuous non-buoyant pipe in a body of deep water, from a buoyant vehicle, comprising the steps of: moving said vehicle forwardly while directing said pipe off the rear thereof and downwardly into the water; continuously applying a uniform but yieldable restraining force between said pipe and vehicle to thereby uniformly and constantly restrain movement of said vehicle relative to said pipe in a forward direction; and applying a forward propelling force to said vehicle of sufficient magnitude to overcome said yieldable restraint and to move said vehicle forwardly relative to said pipe, the extent of said restraining being sufficiently great that the rearwardly extending portion of said pipe is held under substantial and continuously uniform tension.

3,321,926
FLUID-ACTUATED CRYOGENIC REFRIGERATOR
Fred F. Chellis, Manchester, Mass., assignor to Arthur D. Little, Inc., Cambridge, Mass., a corporation of Massachusetts
Filed Dec. 3, 1965, Ser. No. 511,796
5 Claims. (Cl. 62—6)



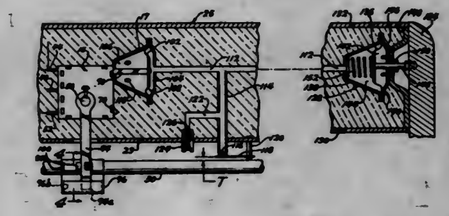
1. In a cryogenic refrigerator in which a high-pressure fluid is delivered from a high-pressure chamber of variable volume with initial cooling to at least one refrigerating chamber of variable volume for subsequent expansion and further cooling by discharge from the refrigerator, and in which said fluid is transferred through said refrigerator by the movement of displacer means controlled through the introduction of high-pressure fluid and the discharge of low-pressure fluid, the improvement which comprises a fluid-actuated driving means which forms an integral part of said refrigerator, said driving means comprising in combination
(a) an auxiliary high-pressure fluid chamber of constant volume in the upper end of said displacer;
(b) a fluid-pressure responsive piston extension integral with said upper end of said displacer and having a channel therethrough providing fluid communication between said auxiliary high-pressure fluid chamber and the low-pressure region of said refrigerator;
(c) high-pressure inlet ports communicating between said high-pressure chamber and said auxiliary high-pressure chamber; and
(d) pressure-responsive, valve means associated with said inlet ports and said channel and adapted to close said inlet ports and open said channel during that portion of the refrigeration cycle when said refrigerating chamber attains maximum volume and is thereafter decreasing in volume and to open said inlet ports and close said channel during that portion of the refrigeration cycle when said high-pressure fluid chamber attains maximum volume and is thereafter decreasing in volume.

3,321,927
SPIRAL LIQUID COOLED BAFFLE FOR SHIELDING DIFFUSION PUMPS
Charles B. Hood, Jr., 2850 Canterbury Road, Columbus, Ohio 43221
Continuation of application Ser. No. 216,084, Aug. 10, 1962. This application Feb. 12, 1965, Ser. No. 438,815
8 Claims. (Cl. 62—55.5)



1. An improved baffle apparatus for shielding the interior of a cryogenically cooled chamber from the inlet of a diffusion pump, said apparatus comprising in combination a diffusion pump; housing means forming a longitudinally extending passage for connecting the interior of said chamber with said diffusion pump; a diffusion pump inlet including an inlet conduit extending axially of the flow through said housing means and a cover member spaced from said conduit and extending laterally of the flow through said housing means; a first baffle means mounted in said housing means and comprising a plurality of laterally spaced baffle members disposed in overlapping optical tight relationship so as to optically insulate the interior of said chamber from said diffusion pump; cooling conduit means for a flow of a liquified cryogenic gas in heat exchange relationship with said first baffle means; a second baffle means mounted in said housing means between said first baffle means and said diffusion pump, said second baffle means including a spiral member and a spiral cooling conduit mounted on said spiral member, said spiral member including successive coils disposed in overlapping optical tight relationship so as to optically insulate said first baffle means from radiation from said inlet of said diffusion pump; reservoir means for a supply of cryogenic fluid connected to said cooling conduit means; and a second reservoir means for a supply of warmer coolant connected to said spiral cooling conduit, said cover member of said diffusion pump inlet being disposed across the small end of said spiral member so as to insulate the path through said spiral member to said first baffle means from vapor and radiation from said diffusion pump.

3,321,928
DEFROSTING CONTROL FOR A REFRIGERATION DEVICE
Robert H. Thorner, 8750–F W. Chicago Blvd., Detroit, Mich. 48204
Continuation of abandoned application Ser. No. 43,825, July 19, 1960. This application Feb. 3, 1964, Ser. No. 342,216
3 Claims. (Cl. 62—140)

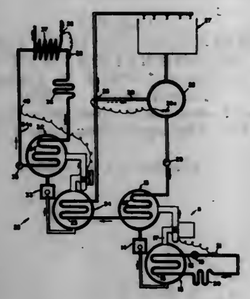


2. In a control device associated with apparatus having a surface subject to the formation of frozen substance adjacent thereto, the combination of; means to control the amount of said frozen substance, actuating means movable completely independent of said control means during one thickness condition of said substance but adapted to operate said control means during a second thickness condition of said substance, sensing means including an aperture mounted at a predetermined distance from said surface and dependent on the formation of said frozen substance and operatively associated with a fluid medium movable in response to movement of said actuating means to preclude said actuating means from operating said control means at least in said first-named condition when said formation of said frozen substance is less than a predetermined amount, said sensing means aperture being sufficiently covered by said frozen substance at said second condition thereof for enabling said actuating means to be operatively connected to said control means for operation thereof after said frozen substance has formed to substantially said predetermined amount.

3,321,929
HEATING AND COOLING SYSTEM
Philip F. Little, De Witt, N.Y., assignor to Carrier Corporation, Syracuse, N.Y., a corporation of Delaware
Filed July 8, 1965, Ser. No. 470,403
3 Claims. (Cl. 62—181)

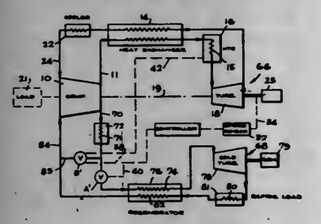
1. A heating and cooling system comprising first refrigerating means having a first centrifugal compressor for circulating a refrigerant to cool a load and having first refrigerant condenser means in circuit with said compressor for rejecting the heat evolved therein to condensing water circulated through said condenser means, second refrigerating means for heating a load and including, evaporator means for receiving said condensing water and transferring heat therefrom to refrigerant circulated through said evaporator means, a second centrifugal compressor in circuit with said evaporator for circulating refrigerant through said evaporator to receive heat from said condensing water circulated through said evaporator and for increasing the temperature of said refrigerant above the temperature of said condensing water, and condensing means in circuit with

said second centrifugal compressor for receiving said refrigerant from said second compressor and transferring heat from the last said refrigerant to fluid circulated through said condensing means, means for passing said fluid to the load to be heated and heating the load with



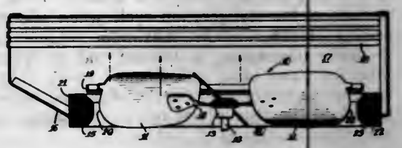
the reclaimed heat from said first refrigerating means, and means for regulating the first refrigerant condenser whereby said condensing means operates at relatively low temperature at low heating capacity so that said second centrifugal compressor operates at relatively low lift at low heating capacity thereby relieving surge problems.

3,321,930
CONTROL SYSTEM FOR CLOSED CYCLE TURBINE
James K. La Fleur, Hermosa Beach, Calif., assignor to The La Fleur Corporation, Los Angeles, Calif., a corporation of California
Filed Sept. 10, 1965, Ser. No. 486,379
11 Claims. (Cl. 62—228)



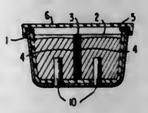
1. A speed control system for a closed cycle power turbine, which comprises closed but interconnected first and second loops for the conduct therein of a gas working medium, a compressor interconnecting said loops, a turbine in said first loop in driving relation with said compressor, a heat source in said first loop between said compressor and said turbine, for heating the gas working medium prior to introducing said gas medium into said turbine, a load in said second loop, a first valve means in said second loop in series with said load, a second valve means in said second loop connected in parallel across said load, speed sensor means for sensing the speed of said turbine, a controller means associated with said speed sensor means, said controller means being connected to said first and second valve means, and actuating said first and second valve means in response to the speed sensed by said speed sensor means, said first and second valve means being sequenced for actuation by said controller means so that if the speed of said turbine increases above a set predetermined speed and said first valve means is completely open, said controller means actuates said second valve means to open same and reduce the speed of said turbine.

3,321,931
FAN STRUCTURE
Charles C. Lehmkuhl, Evansville, Ind., assignor to Whirlpool Corporation, a corporation of Delaware
Filed May 3, 1965, Ser. No. 452,801
4 Claims. (Cl. 62—281)



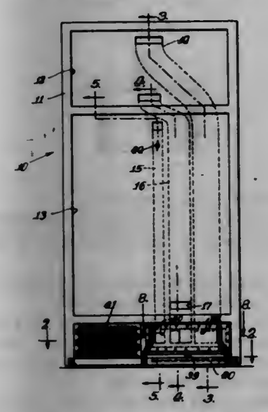
1. In a room air conditioner having a condenser coil and a base member defining a sump for collecting evaporator condensate water, structure for disposing of said evaporator condensate water comprising:
wall means for enclosing a space about the condenser coil and having a thin inturned flange portion defining an opening therethrough to said space;
an annular element formed of a liquid absorbent plastic material embracing said wall means flange to project inwardly therefrom thereby to define an orifice opening axially inwardly to said space;
fan means within said orifice having a plurality of blades for forcing air through said orifice to evaporate water from said element and deliver it as vapor to said space; and
means for delivering the evaporator condensate water from said sump to said annular element comprising an annular slinger ring carried on said fan blades downstream of said annular element and adapted to pick up evaporator condensate water in the sump and throw the water on the wall means to pass to the annular element for evaporation therefrom.

3,321,932
ICE CUBE TRAY FOR PRODUCING SUBSTANTIALLY CLEAR ICE CUBES
Robert D. Orphey, Jr., Seattle, Wash., assignor of fifty-percent to Raymond C. Stewart, Arlington, Va.
Filed Oct. 21, 1965, Ser. No. 499,381
14 Claims. (Cl. 62—340)



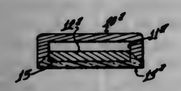
1. An ice cube tray for producing substantially gas-free ice comprising, in combination, a tray and a laterally fixed partition means, the faces of said partition means being constituted by a thermal insulator material, said partition means fitting into said tray and defining, together with said tray, a plurality of ice cube compartments, and a plurality of rigid heat conducting posts disposed on the bottom surface of said tray and extending through the bottom of said tray, said posts being made of a heat conductor material, each of said posts extending into one of said ice cube compartments to a height substantially above the bottom surface of said tray, whereby ice will be formed from the posts outwards, thereby preventing entrapment of gases in the formed ice.

3,321,933
REFRIGERATION APPARATUS
Thomas G. Scheitlin, Alan J. Koch, and William A. Hames, Evansville, Ind., assignors to Whirlpool Corporation, a corporation of Delaware
Filed Aug. 25, 1965, Ser. No. 482,478
4 Claims. (Cl. 62—419)



1. Refrigeration apparatus comprising: means defining a first chamber to be refrigerated to a first temperature; means defining a second chamber to be refrigerated to a second temperature lower than said first temperature; means exteriorly of said chambers for refrigerating air; and means for circulating air to said chambers for refrigerating the same to said temperatures including
(a) air translating means,
(b) first duct means for delivering air to said translating means,
(c) second duct means for delivering air from said air translating means into heat exchange relationship with said refrigerating means and to said second chamber,
(d) third duct means for delivering air from said air translating means to said first chamber,
(e) fourth duct means for delivering air from said second chamber to said first duct means, and
(f) fifth duct means for delivering air from said first chamber to said first duct means to be entrained in and mixed with the air from said second chamber prior to contact of the translating means by the air from said second chamber,
whereby refrigeration of said first chamber is effected substantially solely by flow therethrough of a relatively large volume mixture of refrigerated air received from said second chamber and recirculated air received from said first chamber which is passed to said first chamber prior to heat transfer association with said air refrigerating means.

3,321,934
RING CARRYING NORMALLY CONCEALED DATA
Robert L. Boyd, 1935 S. Court St., Montgomery, Ala. 36104
Filed Sept. 28, 1964, Ser. No. 399,751
3 Claims. (Cl. 63—1)



1. An ornamental ring comprising,
(a) an outer annular female member having an annular recess along the inner surface thereof,
(b) an inner annular male member projecting annularly into said annular recess in said annular female member with a portion of said annular male member being transparent,
(c) there being an annular groove between said female member and said male member,
(d) an indicia carrying member fitting within said annular groove with the indicia adjacent said transparent portion so that the indicia is visible through said annular male member but hidden by said annular female member, and
(e) means securing said annular male member to said annular female member to define a water-tight seal therebetween.

3,321,935
GEAR COUPLING
Ernest Wildhaber, Brighton, N.Y. (124 Summit Drive, Rochester, N.Y. 14620)
Filed Jan. 25, 1965, Ser. No. 427,655
5 Claims. (Cl. 64—9)



1. A gear coupling for coupling two parts for rotation together and permitting moderate shaft angularities, comprising a sleeve portion having a set of internal teeth of concave profile, a hub member having external teeth extending into the spaces between said internal teeth, and a layer of elastic deformable material bonded to at least one of said sets of teeth, so that engagement between said teeth is through said material, the thickness of said layer at the center of the intermeshing tooth sides being less than half the thickness of the teeth of said hub member in a mean cylindrical section coaxial with said hub member, the diameter of said mean cylindrical section being the average of the diameter of the sleeve teeth at their tops and of the extreme outside diameter of the hub teeth, and the thickness of said layer in the mid-plane being less than one-twelfth of the radial distance of said layer from the axis of rotation of the coupling.

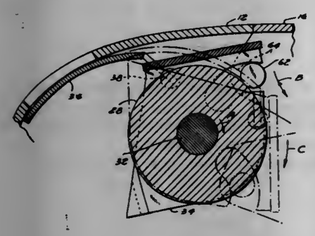
3,321,936
RATCHET TYPE TORQUE OVERLOAD DEVICE
Borge R. Reimer, St. Catharines, Ontario, Canada, assignor to Hayes-Dana Limited, Thorold, Ontario, Canada, a corporation of Canada
Filed Aug. 3, 1965, Ser. No. 477,039
9 Claims. (Cl. 64—29)



1. An overload coupling device for drivingly connecting and disconnecting a driving and driven member comprising in combination:
(a) camming means drivingly connected to one of said members,

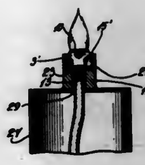
(b) cammable means for drivingly engaging said camming means in a torque transferring relationship,
(c) pressing and connecting means drivingly connecting said cammable means to the other of said members and including resilient means for reacting against said other member and pressing said cammable member into a torque transferring relationship with said camming means and for allowing said cammable means to be cammed by said camming means out of driving engagement therewith upon the attainment of predetermined level of torque transfer therebetween,
(d) said resilient means being disposed peripherally surrounding a portion of the other of said members and sealingly connected thereto and being made from an elastomeric material impervious to the passage of contaminants and lubricant,
(e) said resilient means constituting a first portion of said pressing and connecting means while the remainder of said pressing and connecting means constituting the other portion thereof,
(f) and sealing means including said resilient means and other sealing means,
(g) said other sealing means having a first and a second sealing end and being disposed in a surrounding relationship with a portion of the periphery of said one member and sealingly connected thereto at its first end and sealingly connected to said resilient means at its second end,
(h) the portion of said other sealing means intermediate its ends peripherally surrounding the other portion of said pressing and connecting means and said camming and cammable means whereby said sealing means and said resilient means effectively seal said other portion and said camming and cammable means.

3,321,937
CIGARETTE LIGHTER CONSTRUCTION
Stanley H. Newman, % Schwartz & Frohlich, 19 E. 70th St., New York, N.Y. 10021
Filed June 30, 1965, Ser. No. 468,333
Claims priority, application France, July 2, 1964, 980,448
2 Claims. (Cl. 67—7.1)



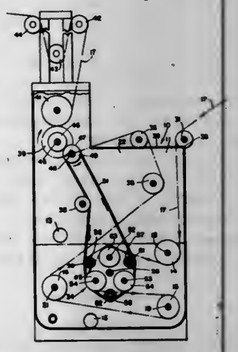
1. In a cigarette lighter of the type using liquefied gas for a fuel and including an outer case with a flame opening therein, a burner and valve combination, a pivotally mounted finger piece, a valve lifter, a spark wheel mounted on a shaft and means on the finger piece to rotate said spark wheel, the improvement comprising a curved flap member contained wholly within the case and underlying the flame opening, a U-shaped driver pivotally mounted on the spark wheel shaft, a cam slot in said driver cooperatively associated with the means on the finger piece for rotating the spark wheel, said flap pivotally connected to the driver whereby said flap is withdrawn from its position underlying the flame opening when the driver is rotated about the spark wheel shaft.

3,321,938
FLAME CONTROLLED OIL BURNER HEAD
Raymond Bureau, 2080 De Fondville, Quebec, Quebec, Canada
Filed Jan. 26, 1965, Ser. No. 428,125
5 Claims. (Cl. 67—55)



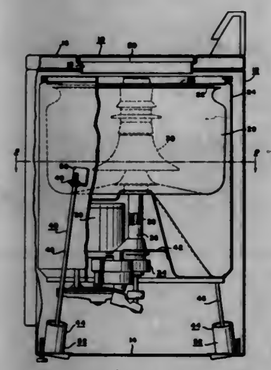
1. An oil burner head comprising:
(a) a body having an axial passage therethrough;
(b) an enlargement at the upper end of said axial passage;
(c) a wick extending through said passage and projecting out of said body at said end;
(d) a terminal holding piece for said wick formed as a tubular member through which said wick extends to project out of one end thereof a predetermined length to act as a burning tip;
(e) said holding piece crimped at one end against said wick to preserve said predetermined length;
(f) means for removably supporting said holding piece in said enlargement;
whereby the said means provide an opening to allow free return flow of excess oil from the crimped end of the holding piece to the said passage.

3,321,939
MECHANICAL FIBER FLEXING DEVICE
Herman H. Bailey, Belmont, Mass., assignor to W. R. Grace & Co., Cambridge, Mass., a corporation of Connecticut
Filed Feb. 3, 1965, Ser. No. 430,072
2 Claims. (Cl. 68—22)



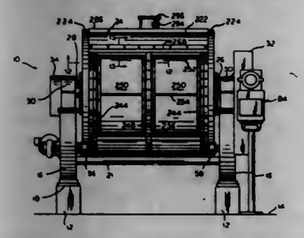
2. In a textile wet-finishing machine having a tank to hold liquid and in which the goods pass through the bath in open width, the combination of power-driven means located adjacent the exit to draw a web of textile material through the machine, a rotatable array positioned below the liquid level in said tank, including a shaft, oppositely positioned end plates on said shaft and a plurality of helically-faced rolls journalled between said end-plates in polygonal arrangement, power means to rotate the array, and power-connected means to rotate each of said helically-faced rolls in the direction of web travel at the surface speed of the web.

3,321,940
ROD SUSPENSION FOR CLOTHES WASHING APPARATUS
Byron L. Brucken, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Jan. 21, 1965, Ser. No. 426,899
5 Claims. (Cl. 68—23)



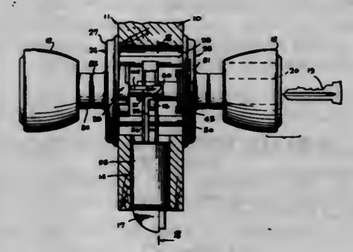
1. In a centrifuging device, the combination of, support means, movable means, a plurality of suspension units for supportingly centering said movable means with respect to said support means, means for rigidly fixing the opposite ends of said units to said movable means and to said support means, each of said units including an elongated rod directed upwardly from said support means for allowing lateral mobility of said movable means, resilient means supporting said movable means for vertical mobility, and damper means including a tubular member fixedly secured to said support means and a piston on said rod reciprocal relative to said member for snubbing predetermined movements of said movable means with respect to said support means, said tubular member including a flexible wall portion yieldable against lateral movement of said piston for producing a snubbing action in direct proportion to the amplitude of movement of said movable means.

3,321,941
LAUNDRY MACHINE
Hubert C. Ellis, Evanston, Ill., assignor to The Ellis Drier Company, Chicago, Ill., a corporation of Illinois
Filed Mar. 20, 1964, Ser. No. 353,544
8 Claims. (Cl. 68—24)



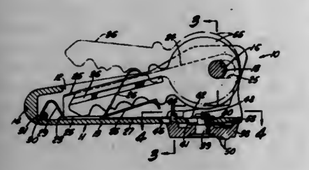
1. In a machine for laundering fabrics and the like, a laundering cylinder including two opposite end walls, a tubular side wall extending between said end walls and having a horizontally disposed axis, said side wall having a door opening therein, and an access door mounted on said side wall for movement to open and closed said door opening; first mounting means for said laundering cylinder including shafts extending axially from said end walls respectively for supporting the cylinder for rotation about said axis, flexible tubes surrounding said shafts for supporting the shafts therearound, said tubes being adapted to be internally pressurized and depressurized, and means for supporting said tubes therearound, whereby the pressure within said tubes may be adjusted to control the vibration of said laundering cylinder when rotated; a casing cylinder enclosing said laundering cylinder, said casing cylinder including a tubular side wall coaxial with said laundering cylinder side wall and having a door opening therein arranged for registering with said laundering cylinder door opening, and an access door mounted on said casing cylinder side wall for movement to open and close said door opening therein; second mounting means independent of said first mounting means for mounting said casing cylinder entirely independently of said laundering cylinder and for rotation about said axis; drive means connected to one of said shafts for rotating said laundering cylinder about said axis independently of said casing cylinder; and drive means for rotating said casing cylinder about said axis, whereby the respective cylinder door openings may be disposed in register with each other at a plurality of rotational positions for performing loading and unloading operations thereat.

3,321,942
PUSHBUTTON ACTUATED LOCK
Fred J. Russell, 8635 Otis St., South Gate, Calif. 90280, and Richard L. Armstrong, Santa Fe Springs, and Fred L. Jennie, Buena Park, Calif.; said Armstrong and said Jennie assignors to said Russell
Filed Aug. 9, 1965, Ser. No. 478,366
9 Claims. (Cl. 70—146)



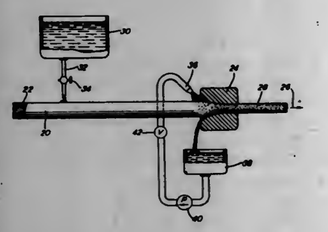
1. In a lock for a door, a stationary portion including a rose mounted nonrotatably on said door, a hand-hold rotatably mounted in said stationary portion, said hand-hold having a radially facing opening therein, said stationary portion having an arcuate groove adjacent said radially facing opening and an axially extending slot joining said arcuate groove, a slide member slidably mounted in said hand-hold, at least one projection extending from the slide member through and beyond said opening in the hand-hold, said slide member being normally spring biased to a first position wherein said projection is in alignment with and extends into said arcuate groove in said stationary portion, a crank arm rotatably mounted on said stationary portion, said crank arm having a latching end, said slide member having a transversely facing recess adjacent one end thereof having a position in alignment with said latching end of the crank arm when the slide member is in an inwardly shifted second position and wherein said projection is in a position within said axially extending slot in said stationary portion and is removed from the arcuate groove, cam means on said hand-hold having an operating engagement with said crank arm whereby to move said latching end of the crank arm out of engagement with said transversely facing recess when said hand-hold is rotated, whereby said slide member is released for movement to said first position.

3,321,943
KEY SAFE
Robert M. Reyes, 614 Forest Ave., Los Angeles, Calif. 90033
Filed Feb. 25, 1965, Ser. No. 435,749
8 Claims. (Cl. 70—456)



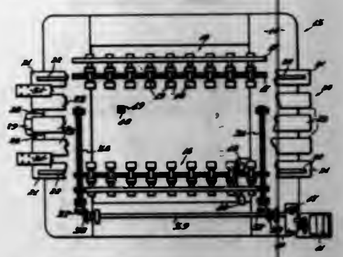
1. A key safe comprising an elongated rigid main body having first and second ends and a key-retaining pin supported crosswise of said first end by the side walls of said main body for pivotally supporting a plurality of keys thereon in side-by-side parallel relation, separate spring-pressed detent means positioned to engage and hold the forward end of each individual key at the second end of said main body, rotary key selector means confined to one side of said main body and supported at said first end on an axis extending crosswise of said main body and movable bodily relative thereto after being rotated into any particular key selector position, means normally resiliently holding said selector means in a retracted position, and means actuatable by bodily radial movement of said rotary key selector means in a predetermined direction in opposition to said resilient means normally holding the same retracted to release a selected key from said detent means for rotary movement of said selected key outwardly from said main body and about the axis of said key-retaining pin.

3,321,944
SURFACE FINISH FOR CONTINUOUS ELECTRODE
John E. Ball, Baltimore, Md., assignor to Air Reduction Company, Incorporated, New York, N.Y., a corporation of New York
Filed Dec. 31, 1964, Ser. No. 422,767
5 Claims. (Cl. 72—46)



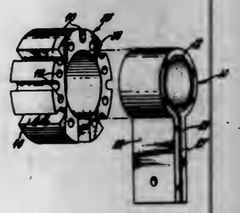
1. The method of making a fluorocarbon polymer resin coated welding wire for use in a continuous electric arc welding process, which method comprises the steps of applying the resin dispersed in a liquid as a surface coating upon a wire that is to be reduced in size and drawing the said wire through a wire drawing die wherein the wire is reduced in size and the pressure and heat are such as to dry and bond a relatively thin residual coating of the resin to the surface of the wire in the size-reduced state thereof.

3,321,945
FABRICATION OF TAPERED PIPE
Frank E. Grate, Cincinnati, Ohio, assignor to The Williamson Company, Cincinnati, Ohio, a corporation of Ohio
Filed May 5, 1964, Ser. No. 365,033
3 Claims. (Cl. 72—51)



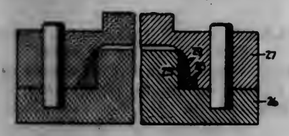
1. The method of fabricating a tapered pipe from a rectangular sheet of metal using a roll forming machine having two lines of driven rolling mills disposed in spaced parallel relation with respect to one another extending longitudinally of said machine, and with said lines adapted to progressively and simultaneously fold and crimp opposite side edges of said sheet as said sheet passes longitudinally of said machine between said lines to form interconnectable parts of a seam comprising the steps of:
providing a rectagular sheet of metal of a size to have its opposite side edges engaged by said lines,
passing said sheet between said lines longitudinally of said machine,
moving one of said lines away from the opposite line approximately one-eighth of an inch during the passage of said sheet between said lines such that the seam part formed by the moving line is displaced at an angle with respect to the axis of said rectangular sheet,
forming said sheet into a tapered cylinder,
interconnecting said interconnectable parts to form a seam, and
crimping the smaller end of the tapered pipe thus formed.

3,321,946
ELECTROMAGNETIC FORMING APPARATUS HAVING IMPROVED BACKING MEMBER OF HIGH STRENGTH AND ELECTRICAL RESISTANCE
Millard A. Ferguson, Utica, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Dec. 16, 1964, Ser. No. 418,792
6 Claims. (Cl. 72—56)



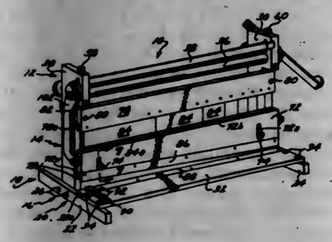
2. In apparatus for electromagnetically forming workpieces, the combination of a coil-shaped current conductor defining a workspace of a predetermined shape for the workpiece, a backing member surrounding the conductor and in electrical contact therewith, the backing member being formed of a conductive material having a high structural strength for resisting radial forces imposed upon the conductor during the magnetic forming and a high electric resistance and having current flow impedances arranged therein to combine with the high electric resistance to inhibit current stray from the conductor.

3,321,947
PIPE COUPLING AND METHOD OF MAKING
Wilbur O. Teeters, Norwood, N.J., assignors to Hoke Manufacturing Company, Inc., Cresskill, N.J., a corporation of New Jersey
Filed Sept. 13, 1965, Ser. No. 486,635
5 Claims. (Cl. 72—377)



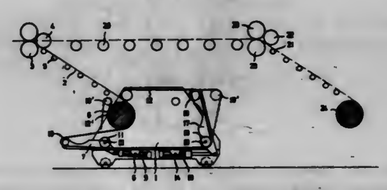
3. The method of manufacturing a ring-like ferrule for a compression coupling having a generally tapering front portion and a thicker flange-like rear portion in which the front portion of said ferrule is constricted radially inwardly and the back portion of said ferrule is expanded radially outwardly during the setting of the coupling comprising the steps of forming a cylindrical blank, thereafter shaping the blank into the ferrule in a plurality of successive coining operations including thinning and lengthening the front portions of the blank and flaring the rear portions outwardly whereby the outermost portions of both the front and rear are work hardened by the coining operations.

3,321,948
METAL WORKING MACHINE
Herbert L. Trautmann, 873A W. 15th St., Newport Beach, Calif. 92660
Filed Mar. 26, 1965, Ser. No. 442,946
6 Claims. (Cl. 72—130)



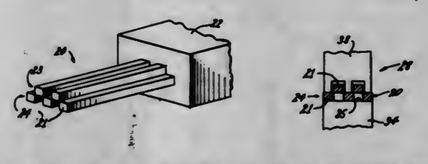
4. In a metal working machine the combination of a frame comprising a base and a pair of upstanding support members thereon, a metal roll-form comprising three juxtaposed rollers individually rotatably mounted in said support members, drive means for at least one of said rollers to effect rotation thereof, a combination metal shear and brake comprising a moveable member reciprocatably mounted on said upstanding support members and having both a moveable shear blade and a moveable angle forming member, said combination further comprising a stationary shear blade and a stationary angle forming member on said frame for cooperation respectively with said shear blade and angle forming member on said moveable member, and means for operating said metal shear and brake with said roll-form comprising at least one eccentric element mounted on said one of said rollers for rotation therewith and a lever connected to said moveable member and engaging said eccentric element, whereby rotation of said one of said rollers by said drive means operates said roll-form and causes said eccentric element and lever to operate said metal shear and brake.

3,321,949
STRIP-REELING APPARATUS COMPRISING A BELT COILER
Hans Werner Marx, Dusseldorf, Germany, assignor to Schloemann Aktiengesellschaft, Dusseldorf, Germany, a German company
Filed Feb. 15, 1965, Ser. No. 432,755
Claims priority, application Germany, Feb. 25, 1964, Sch 34,704
4 Claims. (Cl. 72—148)



1. Strip-reeling apparatus, comprising: two stationary strip reels, a reel drum rotatably mounted on each of the said strip reels, means for feeding a strip coming from a common source to the two strip reels alternately, a belt wrapper capable of traveling to and fro between the two strip reels, guiding rollers rotatably mounted on the belt wrapper, and a common endless belt passing around the said guiding rollers.

3,321,950
METHOD AND APPARATUS FOR MAKING INDIVIDUAL MEMBERS FROM A LENGTH OF STOCK
Allen D. Gettig, Phoenix, Ariz., assignor to Reynolds Metals Company, Richmond, Va., a corporation of Delaware
Filed Jan. 2, 1964, Ser. No. 335,071
19 Claims. (Cl. 72—255)

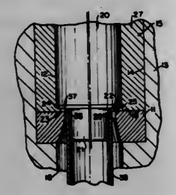


1. A method for making a plurality of individual members comprising the steps of providing a length of stock having a plurality of said members integrally joined together, and stretching said stock to untwist the same while shearing said members from each other.

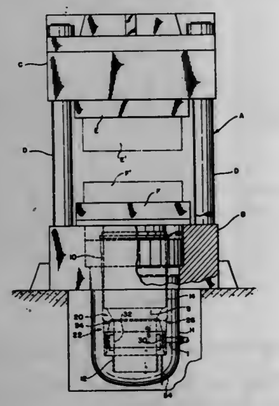
3,321,951
METHOD AND APPARATUS FOR EXTRUSION OF TUBES
Douglas W. Rowell, North Woodbury, Conn., assignor to Anaconda American Brass Company, a corporation of Connecticut
Filed Feb. 24, 1966, Ser. No. 529,756
6 Claims. (Cl. 72—265)

1. In an extrusion press for forming an extruded tube from a billet, wherein said press has a billet chamber and a ram for driving a billet through said billet chamber, the improvement in combination therewith compris-

prising a mandrel positioned partially within the billet chamber about which a tubular billet can be positioned for extrusion, a die positioned at the outlet end of the billet chamber and having a flat radial die surface extending substantially perpendicular to the axis of the press and terminating in a minimum inside sizing diameter, said mandrel having a flat radial mandrel surface extending substantially perpendicular to the axis of the press and in opposed axially spaced parallel relationship with the flat radial die surface and defining therebetween radially inwardly extending aperture sizing means for sizing the wall thickness of the tube, an axial mandrel surface joined to said radial mandrel surface which has a diameter substantially less than both the radial mandrel surface and the minimum sizing diameter of the die with the difference between the minimum sizing diameter of the die and the axial mandrel surface being greater than the axially spaced difference between the flat radial mandrel surface and the flat radial die surface with said axial mandrel surface positioned inwardly opposite said aperture sizing means to receive the material as it is extended inwardly from the aperture and size the inside diameter of the tube while deflecting it axially into a tubular member having an outside diameter less than the minimum sizing diameter of the die.



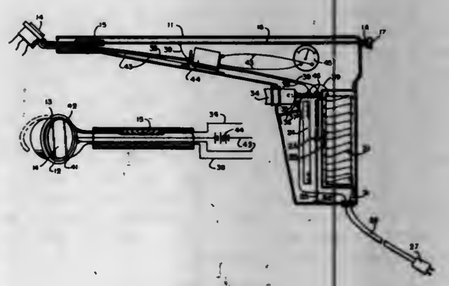
3,321,952
PRESS RAM GUIDING ARRANGEMENT
William S. Wagner, Navarre, Ohio, assignor to E. W. Bliss Company, Canton, Ohio, a corporation of Delaware
Filed Sept. 22, 1964, Ser. No. 398,266
6 Claims. (Cl. 72—418)



1. In a power press including a pair of platens, one being reciprocal relative to the other and having an axially extending cylindrical portion, a sealed main chamber within the press reciprocally receiving said cylindrical portion adapted to be connected to a fluid pressure source, the improvement comprising means for guiding the reciprocal platen along the center line of the press between raised and lowered positions including;

lower guide means concentrically surrounding the cylindrical portion positioned in the main chamber axially above the uppermost point of travel of the cylindrical portion, said lower guide means defining an interior annular chamber at reduced pressure and being operable in response to the pressure differential between said two chambers to move in radially opposite directions substantially filling the free space between the cylindrical portion and main chamber.

3,321,953
APPARATUS FOR THERMAL TESTING TRANSISTORS IN SITU
Denes Roveti, Washington, D.C., assignor of one-third to William Grobman, Washington, D.C.
Filed Apr. 30, 1963, Ser. No. 276,897
2 Claims. (Cl. 73—15)



1. An instrument for testing the heat characteristics of transistors while connected into a circuit, said instrument comprising a generally pistol-shaped housing having a handle portion and a muzzle portion, a calibrated electrical current regulating means mounted in said handle portion, means for connecting one side of said regulating means to a source of electrical energy, means for converting electrical energy into heat, means for connecting said conversion means to the other side of said regulating means so that said regulating means controls the amount of current flowing through said conversion means, means for modifying the geometrical configuration of said conversion means to cause it to fit snugly about the casing of a transistor, temperature measuring means for determining the temperature to which said transistor is raised by said conversion means, said regulating means comprising a variable transformer having a primary and a secondary manual adjustment means connected to change the ratio of turns between said secondary and said primary, and switching means for controlling the electrical energization of said primary, said heat conversion means comprising a single loop composed at least partially of electrical resistance material, said loop being split to form two separate portions, hinge means connecting said two portions so that one of said portions can swing out with respect to the other, and manually controlled means for causing one portion to swing with respect to the other.

3,321,954
CONTAMINANT DETECTION APPARATUS
Robert L. Bailey, Spokane, Wash., assignor to National Distillers and Chemical Corporation, New York, N.Y.
Filed July 20, 1966, Ser. No. 566,671
11 Claims. (Cl. 73—23)

1. An apparatus for inspecting open end containers, such as bottles, jars and the like used for packaging foodstuffs, for the presence of organic contaminants in the containers, the apparatus used with a conveyor for carrying the containers, the apparatus comprising;

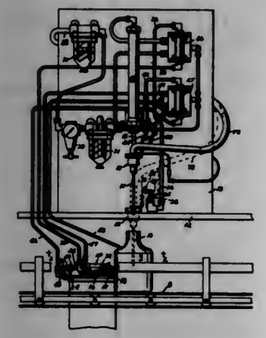
(a) an atmospheric sampler adjacent the conveyor, the sampler including a sampler tube, and tube moving means for moving the sampler tube so that one end enters the open end of each container carried by the conveyor in succession,

(b) means for removing a sample of atmosphere from each container carried by the conveyor and placing it in the sampler, these means including a source of vacuum in fluid communication with the sampler tube,

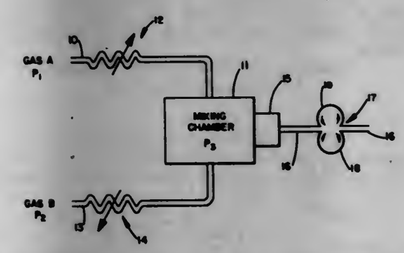
(c) an organic contaminant detecting cell in the line of fluid communication between the source of vacuum and the sampler tube, the detecting cell mounted in a fixed location adjacent the conveyor for detecting and signalling the presence of any organic vapors in any sample removed from an open ended container,

(d) means adjacent the conveyor for stopping each container adjacent the sampler tube, the stopping means intercontrolled with the tube moving means for moving the sampler tube,

(e) and a rejection mechanism connected to said cell and positioned adjacent said conveyor for rejecting any containers detected by the cell to have organic contaminant therein.

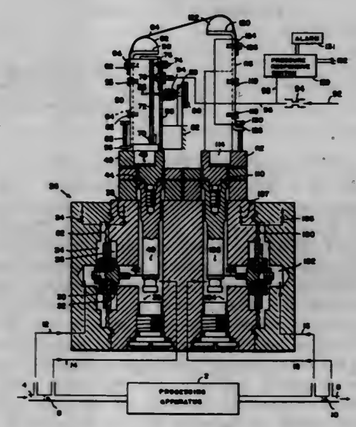


3,321,955
FLUID ANALOG TO DIGITAL CONVERTER
Richard W. Hatch, Jr., Norwell, Mass., assignor to The Foxboro Company, Foxboro, Mass., a corporation of Massachusetts
Filed June 24, 1964, Ser. No. 377,610
1 Claim. (Cl. 73—30)



A fluid analog to digital converter comprising a mixing chamber in the form of a simple enclosure without gas separating effects, a first input pipe line continuously open to said mixing chamber at one point for gas A at a predetermined pressure, a variable restrictor in said first input pipe line, a second input line continuously open to said mixing chamber at another point for gas B at a predetermined pressure, a second variable restrictor in said second input pipe line, a single output passage from said mixing chamber for receiving said gases as mixed, a pressure regulator in said output passage, and a whistle form of frequency producer in said outlet passage downstream of said pressure regulator, whereby the frequency of the output whistle of said frequency producer is a continuous function of the composition of the mixed gas continually flowing in said chamber, as established by said continuous inputs of gas A and gas B at said predetermined pressures thereof.

3,321,956
FLOW LEAK DETECTOR
Louis A. Ollivier, Los Gatos, Calif., assignor to Fischer & Porter Company, Warminster, Pa., a corporation of Pennsylvania.
Filed Aug. 6, 1964, Ser. No. 387,946
6 Claims. (Cl. 73—40.5)

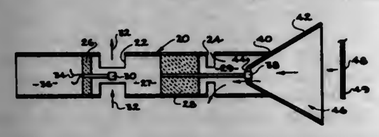


1. Apparatus for the detection of leakage in apparatus through which fluid flow is occurring comprising means providing a first output which is a function of fluid flow into the apparatus, means providing a second output which is a function of a fluid flow from the apparatus, balancing means responsive to both of said outputs and balancing one of said outputs against the other, means adjusting the magnitude of at least one of said outputs, and means responsive to the condition of said balancing means providing a signal as the result of an abnormal relationship of said outputs.

3,321,957
LEAK DETECTION APPARATUS
Milton Blander, Thousand Oaks, and William V. Johnston, Camarillo, Calif., assignors to North American Aviation, Inc.
Filed Jan. 28, 1965, Ser. No. 428,709
5 Claims. (Cl. 73—40.5)

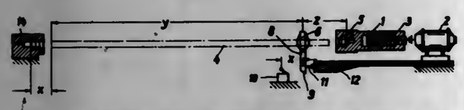
1. A leak detector comprising a housing having first and second isolated chambers, one end of one of said chambers being adapted to allow a gas to enter said one chamber, means for directing said gas out of said one chamber at a point remote from said one end, means for preventing said gas from directly entering said other chamber, resistance means disposed in each of said chambers and having the characteristics of a high negative tempera-

ture coefficient of electrical resistance, means for exposing said resistance means in said one chamber to said entering gas, means for exposing said resistance means in said other



chamber to ambient conditions, means electrically connected to each of said resistance means for comparing the electrical resistivity of said resistance means and indicating the difference in resistance.

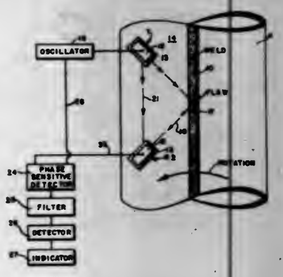
3,321,958
TUBE TESTING PRESS
Richard Gerretz, Suchteln, Germany, assignor to Mannesmann-Meer Aktiengesellschaft, Monchen-Gladbach, Germany
Filed Sept. 14, 1964, Ser. No. 396,135
Claims priority, application Germany, Sept. 12, 1963, M 58,161
4 Claims. (Cl. 73—49.5)



1. In a testing press, for use in testing tubes of different lengths at a test stand, the combination of, a fixed testing head, a movable testing head in axial alignment with said fixed head at said test stand and being axially movable for releasably engaging a tube between the testing heads, guide means operable for positioning the tube to be tested in said test stand, support means operable for supporting the tube in said test stand at one point between its ends thereby dividing the tube into two portions of unequal lengths and comprising means releasably clamping the tube, one of said lengths extending between said support means and said movable head being sufficiently small to preclude buckling of the tube, said support means being displaceable axially in opposite directions with the tube and offering resistance against being displaced in a direction from said movable towards said fixed head, said movable head being operable to move in one axial direction from the movable head towards the fixed head first to engage one end of the tube and thereafter to move the tube and said support means in said one direction to engage the other end of the tube in the fixed support, a limit switch operable to terminate the movement of said movable head in said one direction and being disposed in the path of said support means when said support means moves in said one direction, whereby said support means will operate said limit switch to terminate at predetermined position said movement of the tube in the one direction.

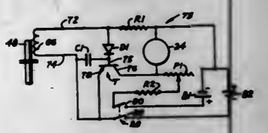
3,321,959
ULTRASONIC INSPECTION SYSTEM USING DOPPLER SHIFT
Fenton M. Wood, Sugarland, and Noel B. Proctor, Houston, Tex., assignors, by mesne assignments, to American Machine & Foundry Company, New York, N.Y., a corporation of New Jersey
Filed June 17, 1963, Ser. No. 288,319
21 Claims. (Cl. 73—67.7)

1. Ultrasonic inspection apparatus for detectng an anomaly in a region, comprising in combination:
transmitting means for transmitting ultrasonic energy into said region at an angle of incidence thereto;
receiving means responsive to ultrasonic energy reflected from an anomaly in said region and also unavoidably responsive to unwanted ultrasonic energy not reflected from an anomaly but of substantially the same frequency as some of said transmitted ultrasonic energy,
said receiving means being located at an angle of reflection with respect to said region and substantially out of the path of said ultrasonic energy transmitted to said receiving means;
means for establishing relative motion between said region and at least one of said transmitting and receiving means,
so that the path length for energy reflected from an anomaly changes continuously at a rate different from the rate of any change occurring in the path length for said unwanted energy not reflected from an anomaly,



whereby the frequency, at said receiving means, of energy reflected from an anomaly differs from the frequency, at said receiving means, of said unwanted energy not reflected from an anomaly; and
phase comparison means for comparing the phases of the energy at said receiving means and of energy bearing a constant phase relationship with said transmitted energy and providing an output signal representative of their phase difference,
whereby that portion of said received energy which is reflected from an anomaly produces an alternating output signal, and that portion of said received energy comprising said unwanted energy produces a substantially constant output signal, and means connected to said phase comparison means responsive to said alternating output signal and not responsive to said substantially constant output signal.

3,321,960
VIBRATION DETECTION GAUGE
Thomas E. Bjorn, Northbrook, Ill., assignor to Stewart-Warner Corporation, Chicago, Ill., a corporation of Virginia
Filed July 10, 1964, Ser. No. 381,665
8 Claims. (Cl. 73—71.4)



1. A vibration detection gauge having a signal pick up device for detecting vibrations and a meter for indicating the relative levels in vibration of a rotating automobile

wheel, the improvement comprising a semiconductor having a control electrode, a diode connected between one terminal of said pick up device and said control electrode with said diode adapted to pass signals of only one polarity to said control electrode, and means for biasing said diode at a potential above the knee of the conductance characteristic curve of said diode with said biasing means including a portion of said signal pickup device for superimposing said signals on said bias potential whereby the application of said bias potential and signals through said diode to said control electrode enables said semiconductor to control said meter in a relatively linear manner in response to signals from said device.

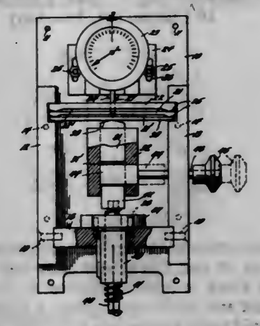
3,321,961
SPECIMEN HOLDER FOR TESTING MACHINES
Joe S. Le Boeuf, College Station, and Alfred A. Hahn, Houston, Tex., assignors to Continental Carbon Company, Houston, Tex., a corporation of Delaware
Filed Mar. 6, 1964, Ser. No. 349,866
3 Claims. (Cl. 73—103)



1. A specimen holder for testing machines which subject the specimen to a plurality of impacts for deformation measurements requiring uniform holding of said specimen; said holder comprising a generally rectangular substantially nondeformable block; one of the surfaces of said block defining a substantially flat specimen-engaging surface; a pair of spaced generally rectangular shoulders on said block; said shoulders providing substantially flat abutments adjoining and extending at approximate right-angles to, said substantially flat specimen-engaging surface; said block having an internal passage which is disposed below, and in substantial parallelism with, said substantially flat specimen-engaging surface; said internal passage communicating with the exterior of said block for the attachment thereto of a source of suction; said block having a plurality of apertures communicating with said internal passage and with said substantially flat specimen-engaging surface whereby a specimen having a substantially flat under-surface and a pair of substantially flat ends may be held against said specimen-engaging surface by suction with its substantially flat ends in contact with the substantially flat abutments provided by the adjacent surfaces of the generally rectangular shoulders on said block.

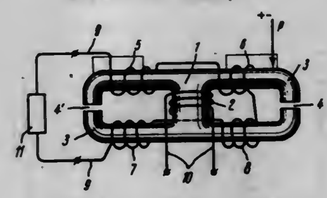
3,321,962
CALIBRATION INSTRUMENT
John H. Grady, Willimantic, Conn., assignor to Phillips Screw Company, Natick, Mass., a corporation of Delaware
Filed Mar. 15, 1965, Ser. No. 439,640
12 Claims. (Cl. 73—134)

1. A device for measuring the torque developed by rotary tools, comprising a base, a flexure member supported on said base and having front and rear parallel faces, a flexure indicator suported on said base and having a contact member engaging the front face of said flexure member, means restraining the ends of said flexure member from translation movement towards said indicator, a nonrotatable sliding member having front and rear ends and supported on said base for movement toward and in line with said contact member, said front end being adapted to engage the rear face of said flexure member,



a frictionless nut fixed on said base in line with said sliding member, a screw member having front and rear ends and extending through said frictionless nut in line with sliding member, means on the front end of said screw for engaging said sliding member, and means on the rear end of said screw for engagement with a rotary tool.

3,321,963
INDUCTION TYPE ELECTRIC DYNAMOMETER
Boris Nikandrovich Grachev, Kaliningrad, Moscow Oblast, U.S.S.R., assignor to Nauchno-Issledovatelsky i Konstruktorsky Institute Ispytateljnykh mashin, priborov isredstv izmerenia mass, Moscow, U.S.S.R.
Filed Aug. 18, 1964, Ser. No. 390,368
1 Claim. (Cl. 73—141)

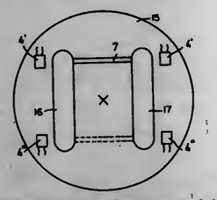


An induction type electric dynamometer comprising a one-piece body of magnetizable material, said body being formed to define a magnetic circuit with opposite poles defining a pair of air gaps, said body being resiliently deformable by the application of external force thereto to vary the relative size of said gaps and thereby the reluctance of the magnetic circuit, means sensitive to the variation of reluctance of the magnetic circuit to indicate the magnitude of external force applied to said body, said body being of H-shape with a pair of legs and a central member between said legs, said pair of legs having remote ends defining said pairs of gaps, and a magnetizing field winding on said central member for inducing magnetic flux through said body and across said air gaps, said means for indicating the magnitude of external force which is applied to said body comprising measuring windings on the legs in opposed series connection adapted for being coupled to a measuring instrument.

3,321,964
DYNAMOMETER PICK-UP

Willem Hermanus Kooman, Emmasingel, Eindhoven, Netherlands, assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware

Filed Sept. 8, 1964, Ser. No. 394,766
Claims priority, application Netherlands, Sept. 13, 1963, 297,912; Aug. 7, 1964, 6,409,067
10 Claims. (Cl. 73—141)

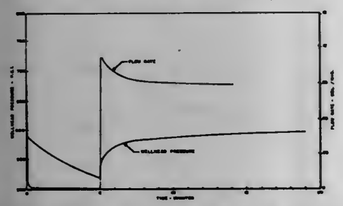


1. A force measuring device comprising a flat body having a pair of end faces, said body being arranged so that a load force is applied thereto at first and second points on said end faces which define a single line through said body, said body having two substantially symmetrical holes and a slot formed therein and extending therethrough, said holes being on opposite sides of said single line and said slot extending obliquely through the body from one end face to the other end face and interconnecting said holes at each end face and at all points therebetween, a plurality of strain responsive transducer elements mounted on the end faces of said body in pairs at points on either side of said line where moments of opposite sign are produced by the load.

3,321,965
METHOD FOR TESTING WELLS

Carlton R. Johnson and Harold L. Graham, Tulsa, Okla., Robert A. Greenkorn, Wauwatosa, Wis., and Hans O. Jahns, Tulsa, Okla., assignors, by mesne assignments, to Esso Production Research Company, Houston, Tex., a corporation of Delaware

Filed Oct. 8, 1964, Ser. No. 402,501
7 Claims. (Cl. 73—155)



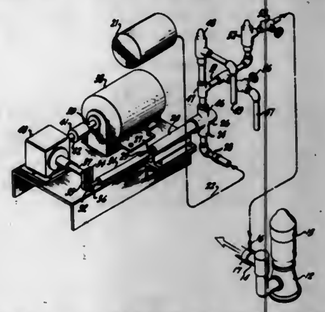
1. A method for testing a well to determine reservoir properties near the well which comprises establishing a stabilized flow rate and pressure at the well, then changing the rate of flow of the well and recording pressure changes as a function of time caused by the change in flow rate, thereafter returning the flow rate to the initial stabilized value, and continuing to record pressure changes with respect to time until the initial stabilized pressure is substantially re-established.

3,321,966
PUMPING SYSTEM FOR PROPORTIONAL ADDITION OF CHEMICAL TO IRRIGATION WATER

Abram B. Horner, Stockton, Calif., assignor, by mesne assignments, to Occidental Petroleum Corporation, Los Angeles, Calif., a corporation of California

Filed June 30, 1964, Ser. No. 379,195
2 Claims. (Cl. 73—168)

1. A pumping system comprising a tank 21 of additive, a pipeline for fluid 14, a first pump 12 pumping fluid through said pipeline, a variable rate of positive displacement discharge second pump 26 having its intake drawing additive directly and solely from said tank and having its discharge connected to a discharge line 51 leading to said pipeline at a discharge point 17 to discharge additive into said pipeline on the discharge side of said first pump, a motor for said second pump, said tank elevated above said second pump and above said discharge point to establish a static head of additive both at said second pump and at said discharge point, a pressure re-

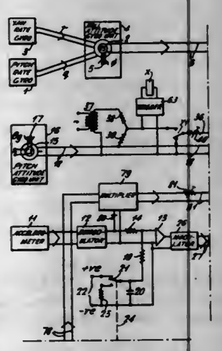


lief valve 52 in said discharge line between said second pump and said discharge point having an opening relief pressure substantially less than the discharge pressure of said second pump and substantially greater than the static head of additive at said pressure relief valve, whereby, when said second pump is inoperative, flow of additive through said dischareg line from said tank to said discharge point is stopped by said pressure relief valve, said pipeline being isolated from the intake of said second pump, said second pump being driven independently of pressure in said pipeline.

3,321,967
AIRCRAFT INSTRUMENTS

Eric Raymond Kendall, Woodmancote, Cheltenham, and Stanley Bernard Newport, Prestbury, Cheltenham, England, assignors to S. Smith & Sons (England) Limited, London, England, a British company

Filed Apr. 21, 1964, Ser. No. 361,404
Claims priority, application Great Britain, Apr. 25, 1963, 16,353/63; Nov. 28, 1963, 47,121/63
35 Claims. (Cl. 73—178)

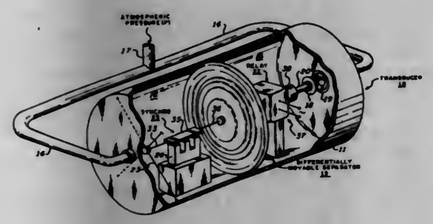


1. An aircraft instrument comprising,
first means for providing a first signal dependent upon forward acceleration of the aircraft,
second means for providing a second signal representing a predetermined value of a predetermined variable,
third means for deriving a third signal in accordance with any difference between a measured value of said predetermined variable and said predetermined value,
fourth means for providing a fourth signal dependent upon said first and third signals,
fifth means for providing a fifth signal dependent upon the rate of change of pitch attitude of the aircraft,
comparison means for comparing said fourth and fifth signals,
utilization means,
and means coupling said comparison means to said utilization means for controlling said utilization means in accordance with any difference between said fourth and fifth signals.

3,321,968
PRESSURE RATE SENSING DEVICE

Everett S. Joline, Huntington, N.Y., assignor to Sperry Rand Corporation, Great Neck, N.Y., a corporation of Delaware

Filed Apr. 2, 1965, Ser. No. 445,125
11 Claims. (Cl. 73—179)



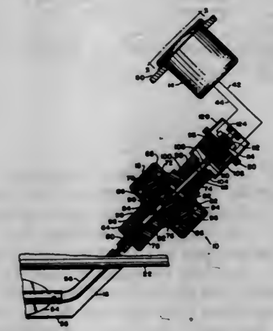
10. In a pressure rate sensing device, a transducer having a compartment with a continuously open chamber and an intermittently open chamber, a diaphragm between the chambers movable differentially between pressure limits from an equalized pressure condition of the chambers, a valve and a seat for the valve for closing the intermittently open chamber, means for unseating the valve to equalize the pressures between the chambers including a pick-off with an armature operatively connected to the diaphragm having a reversible electrical output with a null corresponding to the equal pressure condition of the chambers, and means operatively connected to the valve responsive to the output of the pick-off at one of the pressure limits of the diaphragm.

3,321,969
MARINE SPEEDOMETER

James M. Spencer, Jr., 2515 Mercedes Drive, Fort Lauderdale, Fla. 33316

Filed Apr. 19, 1965, Ser. No. 449,217
4 Claims. (Cl. 73—187)

1. In combination, a boat, a ship's log secured to the boat exterior thereof below the water line thereof, electric indicating means secured to the boat, and means positioned between the ship's log and the electric indicating means for developing an electric signal proportional to the speed of travel of the boat through the water in response to rotation of the ship's log for actuation of the electric indicating means including a watertight coupling connected to the ship's log at one end and a direct current generator connected to the coupling at the other end and to the electric indicating means, said watertight coupling comprising a lower housing member having an axial opening extending therethrough and a recess in the upper side thereof aligned with the axial opening, an upper housing member having an axial opening therethrough aligned with the axial opening in the lower housing member and including a recess in the lower side thereof concentric with the axial opening through the upper member, a generally flat center housing member sandwiched between and rigidly secured to the upper and lower housing members, a first magnetic coupling member connected to the ship's log positioned in the

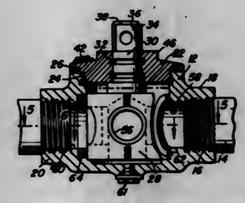


recess in the lower housing member for rotation thereabout on rotation of the ship's log and a second magnetic coupling member positioned in the recess in the upper housing member magneticaly connected to the lower magnetic coupling member for rotation therewith.

3,321,970
DUAL ORIFICE PLUG FITTING

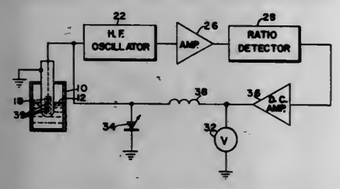
William E. Walker, Sr., Artesia Wells, and William E. Walker, Jr., Freer, Tex., assignors to Charles Wheatley Company, Tulsa, Okla., a corporation of Oklahoma

Filed Oct. 15, 1964, Ser. No. 404,016
4 Claims. (Cl. 73—211)



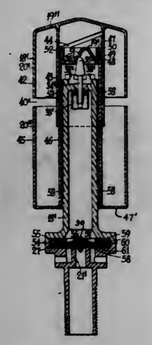
1. An orifice fitting comprising a housing adapted to be interposed in a gas line and having an internal bore interposed between an inlet and an outlet, a plug body rotatably mounted in the bore of the housing and having therein two intersecting passageways, an orifice member removably secured in each passageway, said orifices being of different sizes for selective registry with the inlet and outlet, said plug extending exteriorly of the housing, said plug including exterior means for receiving a rotating tool for adjusting the position of the plug, said plug including a pair of cams provided on the outer periphery thereof and orientated in spaced relation to each other and in opposed relation to the orifices for engaging the bore of the housing in opposed relation to the inlet thereof for sealing the orifice concentrically in relation to the inlet when an orifice is in registry therewith.

3,321,971
LEVEL INDICATING APPARATUS
Peter M. Llewellyn, Menlo Park, and Robert C. Shelton, San Mateo, Calif., assignors to Varian Associates, Palo Alto, Calif., a corporation of California
Filed May 27, 1964, Ser. No. 370,583
1 Claim. (Cl. 73—304)



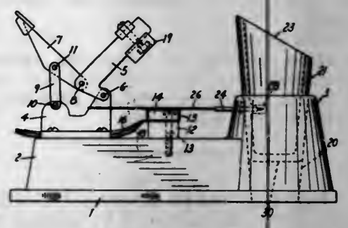
A liquid level sensing apparatus comprising: a capacitive sensing device for immersion in the liquid to be measured; an oscillator coupled to such sensing device; a ratio detector coupled to the oscillator for providing voltage change in response to change of capacitance of the sensing device; a feedback loop coupled between the output circuit of said ratio detector and the input circuit of said oscillator including a varactor diode for varying the capacitance of the input circuit of said oscillator in opposition to the variations provided by the sensing device; and an indicating means for registering said voltage change.

3,321,972
FLOAT VALVE CONTROL
Charley L. Goldtrap, Englewood, Colo., assignor to Twentieth Century Products Corporation, Denver, Colo., a corporation of Colorado
Application Jan. 7, 1963, Ser. No. 249,954, now Patent No. 3,144,875, dated Aug. 18, 1964, which is a continuation of application Ser. No. 779,739, Dec. 11, 1958. Divided and this application May 27, 1964, Ser. No. 376,287
2 Claims. (Cl. 73—322.5)



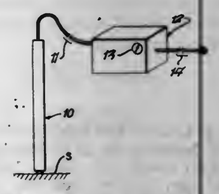
1. A float comprising inner and outer skirts defining a generally annular liquid chamber portion and a generally annular air chamber portion, said inner skirts slidably receiving a normally upright support, said outer skirts normally being spaced apart lengthwise of said support to provide an annular opening for entry of liquid into said liquid chamber and trapping of air in said air chamber, said inner skirts telescoping one within another for relative movement of said float portions lengthwise of said support to vary the height of said opening and thereby vary the level of liquid normally maintained in an associated tank.

3,321,973
TEST APPARATUS AND MOLD FOR MOLTEN METALS
Daniel M. Anderson, South Haven, Mich., assignor to Refractory Products Company, Evanston, Ill.
Filed Nov. 12, 1964, Ser. No. 410,541
10 Claims. (Cl. 73—359)



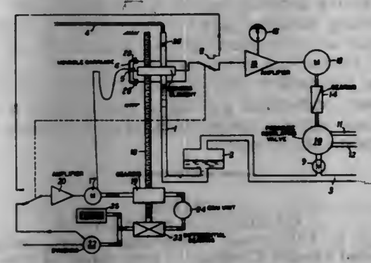
9. A test mold and stand for molten metal comprising:
a base having a mold locating surface thereon;
a bracket mounted on said base and spaced from said surface;
anvil means of electrical insulating material secured to said base near said surface thereof and having spaced, electrical contacts on a surface thereof;
clamp means mounted on said bracket and having an electrical insulating clamp block adapted for movement into and out of a position adjacent said surface of said anvil means;
a mold of refractory material adapted for support by said surface of said base;
dissimilar wires of a thermocouple projecting through the wall of said mold intermediate the top and bottom thereof, the outer ends of said thermocouple wires being adapted to extend in spaced relation over said contacts to be clamped thereagainst by said clamp block.

3,321,974
SURFACE TEMPERATURE MEASURING DEVICE
Gerald A. Sterbutzel, Depew, N.Y., assignor to Cornell Aeronautical Laboratory, Inc., Buffalo, N.Y., a corporation of New York
Filed Oct. 23, 1965, Ser. No. 519,804
20 Claims. (Cl. 73—359)



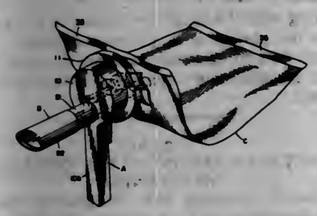
1. In a surface temperature measuring device, the combination comprising temperature sensing means including a part contactable with a surface the true temperature of which is to be measured and arranged to generate a measurable signal responsive to the temperature sensed; and means, including thermocouple means and heater means both in conductive heat exchange relation with each other through direct contacting solid bodies and similarly with said temperature sensing means, arranged to heat said temperature sensing means by thermal conduction so as to eliminate net heat flow between said temperature sensing means and said surface when the latter is contacted by said part.

3,321,975
APPARATUS FOR CONTROLLING OR MEASURING FLUID PRESSURES
John Francis Anthony Parkes, Cambridge, and Gerald Radford, Chatham, Kent, England, assignors to Elliott Brothers (London) Limited, London, England
Filed May 7, 1964, Ser. No. 365,651
Claims priority, application Great Britain, May 13, 1963, 18,937/63
5 Claims. (Cl. 73—401)



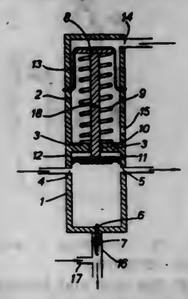
1. Apparatus for controlling and measuring liquid pressures comprising a liquid column responsive to an applied fluid pressure, a sensing element, drive means for positioning the sensing element with respect to the liquid column, the sensing element being operable to produce a first error signal corresponding to any difference between the position of said element and one end of the liquid column, a first servo loop actuated by the first error signal and including a pressure regulating element effective to adjust the pressure so as to reduce the first error signal, a second servo loop including means responsive to any difference between a preselected fluid pressure and a pressure corresponding to the actual position of the sensing element for producing a second error signal corresponding to such difference, and means responsive to the second error signal to actuate said drive means so as to position the sensing element to reduce the second error signal.

3,321,976
EXPIRED AIR COLLECTOR AND METHOD OF MAKING THE SAME
William C. Jones, 16 W. 328 Walnut Lane, Timber Trails, Elmhurst, Ill. 60126
Filed Aug. 17, 1964, Ser. No. 390,132
10 Claims. (Cl. 73—421.5)



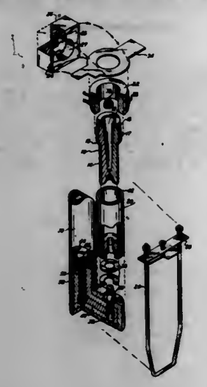
1. An expired air collector comprising a valve unit having a generally cylindrical tubular probe projecting in one direction therefrom and having a mouthpiece extending in another direction and being mounted on said unit for communication with said probe, and a plastic air-collection bag having a patch of resilient plastic secured to a wall portion thereof, said patch on said wall portion of said bag having aligned openings therethrough, said probe extending through said openings and stretching the resilient plastic of said patch to form a tensioned plastic collar projecting inwardly into said bag about said probe, said collar forming a snug frictional air-tight seal with the outer surface of said probe, said patch being secured to said wall portion of said bag along a narrow zone extending about at the opening in said patch, said patch also having peripheral portions thereof unsecured to said bag.

3,321,977
SAMPLE INJECTION VALVE
William Henry Topham, Chattenden, Rochester, England, assignor to The British Petroleum Company Limited, London, England, a corporation of Great Britain
Filed Aug. 23, 1965, Ser. No. 481,749
6 Claims. (Cl. 73—422)



1. A sample injection valve comprising a cylindrical casing, the interior of which is sealingly divided into four discrete, axially spaced chambers by transverse partitioning means, said partitioning means comprising firstly, a flexible diaphragm secured to said casing and in continuous operative connection with a piston rod which is enclosed within said casing and is movable axially therewithin, secondly, a wall extending perpendicular to said casing axis through which said piston rod extends in sealing relationship, and thirdly, a flexible resilient element secured to the end of the piston rod remote from said diaphragm and movable in sealing contact with the internal wall surface of the casing, whereby a first chamber is formed between said diaphragm and one end of the casing, a second chamber is formed between said diaphragm and said wall, a third chamber is formed between said wall and said flexible element, and a fourth chamber is formed between said flexible element and the other end of the casing; spring means in said second chamber normally biasing said diaphragm away from said wall; a first port formed in said casing into said first chamber for the supply of pressurized actuating fluid to said diaphragm; an inlet port formed in said casing between said wall and said other end of the casing for the introduction of a continuous stream of sample fluid; an outlet port formed in said casing at the same transverse level as said inlet port for the emergence of unsampled fluid; and, a further port formed in said casing into said fourth chamber at a position further from said wall than said inlet and outlet ports for the passage of samples of said fluid from the casing, wherein said flexible resilient element is movable between a first terminal position in which said third chamber is closed and said fourth chamber receives fluid through said inlet port, loses fluid through said outlet port, and has said further port closed, and a second terminal position in which said third chamber receives fluid through said inlet port and loses fluid through said outlet port and said fourth chamber is ported only by said further port, through an intermediate position in which said inlet and outlet ports are simultaneously closed off by said resilient element from said further port to define a fixed-volume sample of fluid to be expelled through said further port upon movement of said resilient element to said second terminal position.

3,321,978
MOLTEN METAL SAMPLING APPARATUS
Paul L. Jackson, Dearborn, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed July 29, 1965, Ser. No. 475,739
18 Claims. (Cl. 73—425.4)



18. Apparatus for obtaining a solidified sample of molten steel which comprises

a mold open at one end and having a sample cavity, the exterior of said mold having a lower portion and an upper portion, said mold being capable of absorbing heat sufficient to substantially solidify molten metal filling said cavity,

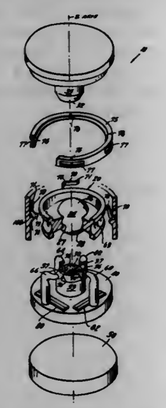
a frangible collar surrounding at least part of the upper portion of the mold,

a buoyant cover for the open end of the mold,

means for temporarily retaining the cover in position, said retaining means being capable of releasing the cover after submergence in the molten metal, and

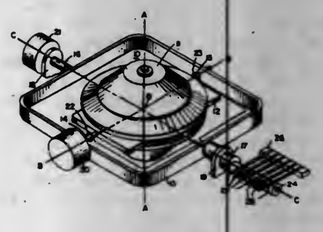
means for submerging the mold into and removing the mold from the molten metal.

3,321,979
ATTITUDE SENSOR
Henry Blazek, Nyack, and Nai-Chong Chang, New Rochelle, N.Y., assignors to Sperry Rand Corporation, Ford Instrument Company Division, Long Island City, N.Y., a corporation of Delaware
Filed Sept. 30, 1963, Ser. No. 312,462
17 Claims. (Cl. 74—5)



1. A gyroscopic apparatus comprising a rotatable mass; means rotatively supporting said mass about an axis of rotation; said means comprising a housing frame including first and second supporting members, in spaced apart relationship about the central region of said mass motivating means mounted to said housing frame for imparting rotation of said rotatable mass relative to said supporting members; said mass having an integrally formed ball-like configuration at its central region providing generally spherical first and second convex support surfaces at said central region, outwardly projecting from opposed surfaces of said mass; said first and second supporting members having generally spherical first and second concave supporting surfaces shaped to cooperatively receive said first and second support surfaces respectively; said spaced apart relationship dimensioned to provide a thin gap means intermediate said cooperatively received spherical surfaces; pressurized gas means for directing a gaseous flow into said gap means, whereby said rotatable mass is hydrostatically supported.

3,321,980
GYROSCOPE APPARATUS
George L. Hildebrand, Marblehead, Mass., assignor to General Electric Company, a corporation of New York
Filed Dec. 29, 1964, Ser. No. 421,843
7 Claims. (Cl. 74—5)



1. In a gyroscope having a gimbal member freely mounted on a support member for rotation in either direction about a gimbal axis from a normal position, apparatus for establishing an electrical connection between the gimbal member and the support comprising,

a slip ring mounted on one of said members, and

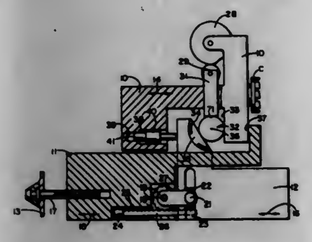
a brush member mounted on the other of said members having a resilient portion engaging said slip ring in all positions of the gimbal,

said slip ring being eccentrically mounted relative to the gimbal axis so that the point of contact of the slip ring with the brush lies closest to the gimbal axis when the gimbal is in its normal position whereby the friction torques imposed on the gimbal by the brush are minimum when the gimbal is in the normal position.

3,321,981
ADJUSTABLE-STROKE SLIDE OPERATING MECHANISM
John L. Ash II, Pittsford, N.Y., assignor to The Gleason Works, Rochester, N.Y., a corporation of New York
Filed Aug. 5, 1965, Ser. No. 477,547
7 Claims. (Cl. 74—55)

1. A mechanism for effecting feed motions between two relatively slidable members of a machine tool, comprising a roller, first and second roller engaging surfaces respectively on the first and the second of said members, said surfaces being inclined to each other and to the path of relative motion of said members, an actuator for moving the roller along said surfaces to effect such relative motion in one direction, the actuator including a cam rotatable on said first member and a plunger reciprocable on said first member transversely of said path,

said plunger having a follower for said cam and a surface engaging said roller, the latter being confined between the three surfaces, means for urging such relative motion in



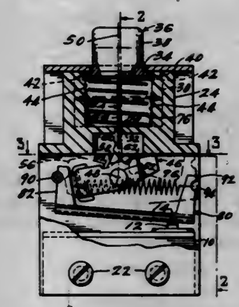
the opposite direction to the extent permitted by said cam, and means for adjusting said second surface on said second member to vary its inclination to said path.

3,321,982
INTERMITTENT DRIVE MECHANISM ESPECIALLY FOR ROTISSERIES
Aimo G. Maunus, 16 Townsend Ave., and Joe E. Dudley, 243 W. Main St., both of Norwalk, Ohio 44857
Filed Sept. 7, 1965, Ser. No. 485,342
7 Claims. (Cl. 74—84)



7. An intermittent drive mechanism for intermittently driving the spit of a rotisserie or the like comprising a drive shaft, means for causing said drive shaft to rotate at a uniform rate of speed, a coupling slidably received on said drive shaft, said coupling having a socket for receipt of the end of a spit, means establishing a friction drive between said coupling and said drive shaft, a catch lever, spring means urging said catch lever into engagement with the outer surface of said coupling, stop means carried by said coupling and catch lever to halt rotation of said coupling when said stop means are in engagement with each other, means for intermittently moving said catch lever to an inoperative position whereat said stop means are disengaged and said coupling is permitted to be rotated by said drive shaft through said friction drive means, said means for intermittently moving said catch lever to an inoperative position comprising a driving gear mounted on said drive shaft for rotation therewith, an idler gear in meshing engagement with said driving gear to be driven thereby, and a pin means on said idler gear operative to directly engage said catch lever once every revolution of said idler gear to move said catch lever to such inoperative position, said spring means promptly returning said catch lever into contact with said coupling after said pin means clears said catch lever.

3,321,983
TILTING BAR ALTERNATE ACTION SWITCH MECHANISM
Curtis R. Stevens, La Mirada, Calif., assignor to Master Specialties Company, Gardena, Calif., a corporation of California
Filed Jan. 4, 1965, Ser. No. 423,170
3 Claims. (Cl. 74—100)

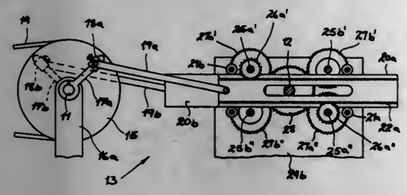


3. An alternate action switch mechanism comprising a housing, an elongate rocker arm, means pivotally supporting said rocker arm from said housing for rocking action about an axis transverse to said rocker arm, said rocker arm having a neutral position, a first tilted position wherein one end of said rocker arm is spaced to one side of said neutral position, and a second tilted position wherein said one end of said rocker arm is spaced to the opposite side of said neutral position, a push blade positioned to one side of said rocker arm and movable from an outer position along a predetermined path toward said rocker arm axis, an elongate tilt bar tiltably supported on a second axis extending parallel to and spaced from said first axis, said tilt bar being tiltable between first and second positions, said tilt bar extending transversely to the path of said push blade for all positions of said tilt bar, a line through said axes extending transversely to the path of said push blade for all positions of said tilt bar, said tilt bar having means for engaging a switch located beyond an end of said rocker arm outwardly from the path of said push blade, and spring means operatively positioned to apply biasing force to said tilt bar and to said rocker arm on a line which moves to one side of said first-mentioned axis when said tilt bar is in one position and said rocker arm is moved from its first position to its second position, and which moves to the other side of said first-mentioned axis when said tilt bar is in its other position and said rocker arm is moved from its second position to its first position.

3,321,984
ADJUSTABLE TORQUE CONVERTER
Karl Nittka, Uhlandstrasse 7, Wiesbaden, Germany
Filed Aug. 26, 1964, Ser. No. 392,137
Claims priority, application Germany, Sept. 25, 1963, N 23,661
4 Claims. (Cl. 74—117)

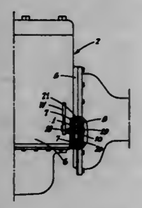
1. A transmission system for transmitting torque from a drive shaft to a driven shaft, comprising a rotatable disk member provided with a pair of parallel tracks bounding a rectangular area substantially centered thereon, a slide member reciprocable along said tracks and provided with pivot means enabling its rotation about a stationary fulcrum offset from the center of said disk member, said slide member having a slot accommodating said pivot

means and extending at right angles to said tracks, first coupling means between said drive shaft and one of said members for rotating same, thereby causing reciprocation of said slide member along said tracks to an extent determined by the spacing of said fulcrum from said



center, adjustment means for varying said spacing, and second coupling means between said slide member and said driven shaft for converting said reciprocation into rotation of said driven shaft.

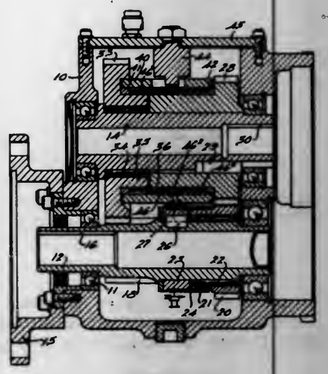
3,321,985
ENGINE TURN-OVER ATTACHMENT
Roland T. Wheeler, 744 Empire Ave., Modesto, Calif. 95351
Filed Nov. 9, 1964, Ser. No. 409,907
5 Claims. (Cl. 74—325)



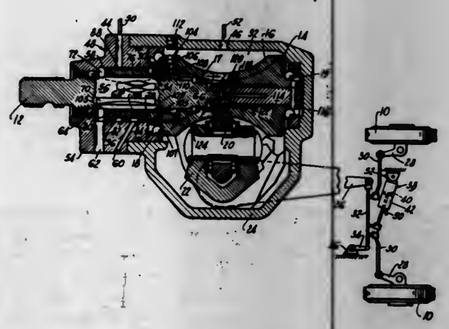
1. A turn-over attachment for an internal combustion engine, said engine having a flywheel enclosed by means which includes a transverse flange on one side of the engine, the flange having an opening therethrough, a ring gear extending about the flywheel, and a starter motor unit having a mounting plate detachably secured on the outer face of the flange and a pinion removably meshing with the gear; the attachment comprising a mounting plate adapted to be detachably secured on the flange over the opening upon removal of the starter motor unit, a sleeve formed with said plate at a right angle thereto, a spindle turnably mounted in the sleeve, a pinion on the inner end of the spindle beyond the sleeve in position to mesh with the gear, and means provided with the spindle at its outer end for engagement with a hand tool for turning the spindle and pinion.

3,321,986
BI-DIRECTIONAL TRANSMISSION
Robert E. Chappell, John E. Nelson, and John R. Saltz, Lancaster, Ohio, assignors to Diamond Power Specialty Corporation, Lancaster, Ohio, a corporation of Ohio
Filed Sept. 18, 1964, Ser. No. 397,475
10 Claims. (Cl. 74—368)

1. A transmission including a frame, input and output shafts rotatable in the frame, a first drive train interconnecting said shafts, a second drive train interconnecting said shafts at a different torque ratio, and a pair of oppositely acting one-way driving means, one incorporated in each drive train, at least one of said drive trains including a driving element and a drivable element, the one-way driving means in said last-mentioned train including a torque transmitting element automatically engageable and disengageable in response to changes in the absolute direction of rotation relative to the frame and independently of the direction of torque transmission.

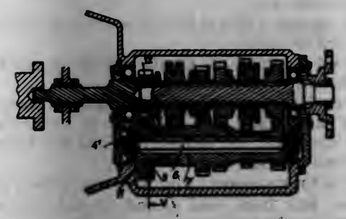


3,321,987
POWER STEERING MECHANISM
Arthur K. Brown, Jr., South Bend, Ind., assignor to The Bendix Corporation, South Bend, Ind., a corporation of Delaware
Filed Dec. 16, 1964, Ser. No. 418,626
8 Claims. (Cl. 74—388)



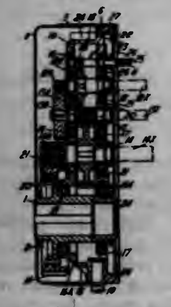
1. In a power steering mechanism including an input member, an output member, and a fluid motor operatively connected to said output member, the combination within a housing of a worm having a bore therein and groove means formed thereon, follower means operatively connected to said output member and engaging said groove means, a pair of relatively rotatable telescoped tubular elements through which fluid flow to and from said motor is controlled, one of which is a part of said input member and the other of which is connected to said worm, a spring member located within said bore and rigidly connected to said worm, said spring member having a resilient bifurcated end portion for opposing rotation of said input member, and a tongue formed on the end of said input member and located between said bifurcations for causing said bifurcations to be spread apart upon rotation of said input member.

3,321,988
ANTI-VIBRATION ELASTIC TRANSMISSION DEVICES
Lucien Péras, Billancourt, France, assignor to Regie Nationale des Usines Renault, Billancourt, France
Filed June 25, 1964, Ser. No. 377,931
Claims priority, application France, Aug. 20, 1963, 945,159, Patent 1,373,805
2 Claims. (74—411)



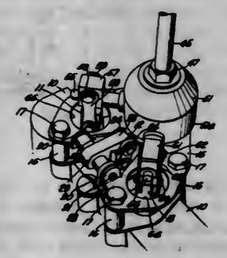
1. A gear assembly comprising a geared input shaft adapted to be driven by external means, a geared output shaft adapted to drive a differential, a geared intermediate hollow shaft radially spaced from said input shaft and said output shaft, means for selectively drivingly engaging said input shaft and said intermediate shaft, a torsion bar extending within said intermediate shaft and having one end fixed to one end of said intermediate shaft, a geared sleeve fixed to the other end of said bar, said sleeve being in operative engagement with said output shaft, a lost-motion connection between said sleeve and said intermediate shaft to limit the torsional movement of said bar, and means selectively directly connecting said input shaft and said output shaft.

3,321,989
SPEED-REDUCTION GEAR-BOXES
Edward S. Lowley, Sheffield, England, assignor to Aurora Gearing Company (Wilmot North) Limited
Filed Aug. 17, 1964, Ser. No. 390,091
Claims priority, application Great Britain, Aug. 24, 1963, 33,615/63
5 Claims. (Cl. 74—443)



1. A speed-reduction gearbox comprising a central frame having generally parallel walls, which are peripherally connected and are bored transversely, with parallel axes, to provide bearing housings (*a*) for an output sleeve by which the box can be mounted with respect to a shaft to be driven at reduced speed from an input shaft of the box (*b*) for a shaft, which can serve as an input shaft, in driving connection with the sleeve through an output stage of speed-reduction provided by a pair of gears carried, externally of the frame, by the shaft and the sleeve respectively and (*c*) for the reception of one or more further shafts to provide for one or more further stages of speed-reduction in series with the output stage, with the number of shafts necessary for the desired number of stages interconnected from the sleeve to whichever shaft serves as the input shaft by pairs of gears that are in turn external of the frame and internal of it, the respective axes of the two or more pairs of bearing housings for the shafts being spaced substantially equally from the axis of the sleeve, the frame having means for anchoring the gearbox when mounted, a resilient moulding carried by the periphery of the central frame, and a pair of covers of sound deadening material both supported from said frame solely by means of said moulding.

3,321,990
VALVE CONTROL MECHANISM
Richard M. Densmore, 9933 McNerney St., South Gate, Calif. 90280
Filed May 7, 1965, Ser. No. 454,018
4 Claims. (Cl. 74—471)

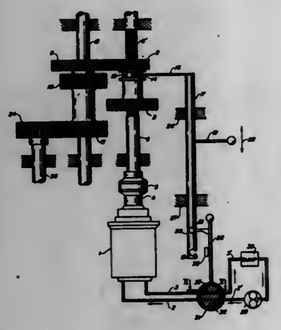


1. A lever control mechanism for three axially movable parallel valve plungers each slidably mounted in a common bock, said mechanism comprising, in combination: a base adapted to be secured to the block, a first crank member mounted to turn on said base about a vertical axis, a second crank member pivotally mounted on said base to turn about a horizontal axis, means including a link connecting said crank members for dependent turning movement, a stub shaft, a flexible joint connecting the stub shaft to said first crank member, a control lever fixed to said stub shaft, a sleeve turnably receiving said stub shaft and provided with a pair of radially projecting trunnions circumferentially spaced 90° apart, each of said trunnions extending to a position overlying one of the valve plungers, respectively, linkage means for connecting each trunnion to actuate one of the valve plungers, respectively, each of said linkage means including a universal joint, and linkage means for connecting said second crank member to operate the third valve plunger, whereby rocking movement of the stub shaft and sleeve by means of the control lever about the axis of either trunnion is effective to tilt the other trunnion to actuate either of two valve plungers, and whereby swivelling of the control lever is effective to turn the stub shaft to actuate the third valve plunger.

3,321,991
CONTROL MECHANISM FOR SHIFTABLE TRANSMISSION SYSTEM
Erhart Kammer, Stockstadt am Main, Germany, assignor to Linde Aktiengesellschaft, a corporation of Germany
Filed July 7, 1964, Ser. No. 380,867
Claims priority, application Germany, July 27, 1963, G 38,334
7 Claims. (Cl. 74—472)

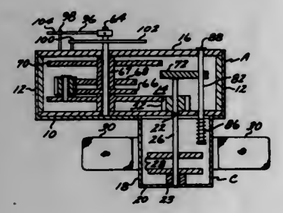
2. A transmission system for communicating the torque of a fluid-operated drive motor to a load, comprising a source of operating fluid for said motor including

a high-pressure supply conduit and a low-pressure return conduit; first gear means coupled with said motor; second gear means coupled with said load and disposed for meshing engagement with said first gear means, said first and second gear means being relatively shiftable into and out of an engaged position; control means for relatively shifting said first and second gear means; valve means in at least one of said conduits; and latch means



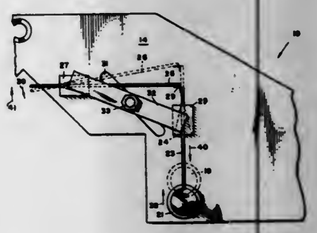
for arresting said control means in an operative position corresponding to said engaged position of said first and second gear means, said latch means being coupled with said valve means for de-energizing said motor upon disengagement of said latch means from said control means to permit relative shifting of said first and second gear means from said engaged position.

3,321,992
CLUTCH MOTOR
Toshio Kawada, 4–6 Miyashita-cho, Sakaideshi, Kagawaken, Japan
Filed June 21, 1965, Ser. No. 465,526
7 Claims. (Cl. 74—472)



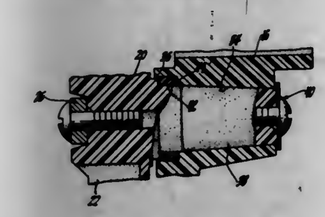
1. A clutch motor, comprising:
(a) a driving shaft;
(b) a housing that rotatably and slidably supports said driving shaft;
(c) electrical means for moving said driving shaft from a first to a second position in said housing and rotating said driving shaft when in said second position;
(d) a driven shaft rotatably supported in said housing;
(e) a reduction gear mounted on said driven shaft and disposed in said housing;
(f) a spur gear mounted on said driving shaft and disposed in said housing;
(g) gear means situated in said housing, which gear means is in engagement with said reduction gear for rotating said driven shaft and reduction gear in a first direction effected by rotary motion of said spur gear;
(h) an arm extending outwardly from said driven shaft;
(i) first spring means that at all times tends to rotate said driven shaft in a second direction opposite to said first direction;
(j) a stop against which said arm rests when said arm is in a first location;
(k) a circuit for supplying electric current to said electrical means;
(l) a normally closed spring-loaded switch forming a part of said circuit, which switch is momentarily opened when said arm moves from said first location to a second location; and
(m) second spring means for moving said driving shaft and spur gear from said second to said first position when said circuit is momentarily interrupted when said normally closed switch is opened by said arm, with said first spring means rotating said driving shaft and arm from said second to said first position prior to movement of said driving shaft from said first to said second position, with said electrical means again rotating said driving shaft to move said driven shaft and arm in said first direction upon return of said arm to said first position.

3,321,993
MICROMANIPULATOR
Daniel I. Pomerantz, Lexington, Mass., assignor to P. R. Mallory & Co., Inc., Indianapolis, Ind., a corporation of Delaware
Filed Sept. 4, 1964, Ser. No. 394,562
18 Claims. (Cl. 74—491)



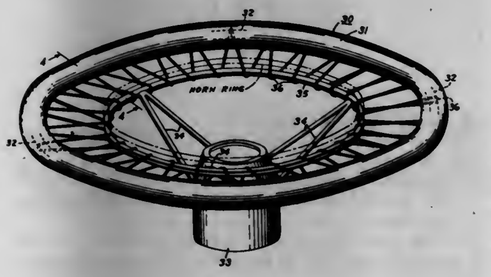
1. A micromanipulator for contacting selected areas on a workpiece, said micromanipulator comprising: a mounting frame; a plurality of probes utilized to contact said selected areas, each of said probes manipulated by means comprising an adjusting means for initiating said manipulation of said probe to said selected areas, said adjusting means including a chessman means, said chessman means including means for providing a horizontal and a vertical displacement of said probe, a first lever means fixedly coupled to said chessman means such that said first lever means follows said vertical and said horizontal displacement of said chessman means, a second lever means coupled to said first lever means by a coupling means, said second lever following said displacement of said first lever, a probe fixedly coupled to said second lever, and a plurality of adjustable guide means for variably positioning fulcrums of said first and said second lever means to thereby vary a ratio including said displacement of said probe to said displacement of said chessman means.

3,321,994
DIRECTION SIGNAL ACTUATING MECHANISM
Lloyd T. Fuqua, Fortville, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Dec. 29, 1964, Ser. No. 421,923
5 Claims. (Cl. 74—519)



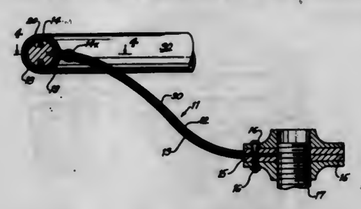
1. Semi-automatic direction signaling apparatus for use in a motor vehicle having a steering shaft and cam means movable with said shaft, said apparatus comprising an actuator member including a transversely extending hub portion, a support member including a bore and a counterbore, said hub portion extending into said bore, said actuator member and said support member being formed of a material having a relatively low coefficient of friction, a resilient elastomeric member having a relatively high coefficient of friction surrounding said hub portion and being compressed between said hub portion and said counterbore to provide a controlled friction between the surfaces of said hub portion and said counterbore during relative movement thereof, said actuator member including a body portion terminating at its end in integral flexible pawls and means connected to said actuator member for moving said pawls into the path of travel of said cam means.

3,321,995
STEERING WHEEL ASSEMBLY
Rodger E. Geller, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Original application May 18, 1964, Ser. No. 368,302, now Patent No. 3,274,851, dated Sept. 27, 1966. Divided and this application May 11, 1966, Ser. No. 549,216
1 Claim. (Cl. 74—552)



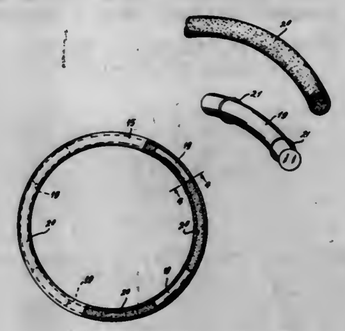
A steering wheel comprising, an outer rim, a center hub, an intermediate ring concentric to both said outer rim and center hub and substantially co-planar with said outer rim, at least two pairs of first spoke means rigidly secured to and angularly disposed relative to the planes of said center hub and said intermediate ring and second spoke means comprising a plurality of wire pairs lying in respective planes substantially parallel to the plane of said outer rim and intermediate ring interconnecting said outer rim and intermediate ring for resiliently supporting said outer rim.

3,321,996
DUAL ACTION COLLAPSIBLE STEERING WHEEL
Salvatore Cardinale, 2454 Riverside Drive, Bellmore, N.Y. 11710
Filed June 8, 1966, Ser. No. 556,089
3 Claims. (Cl. 74—552)



1. A plural stage yieldable spring return steering wheel for vehicles comprising a circular rim having a plurality of sections of curved link bicycle chain; a barrel sleeve assembly disposed between and secured to adjacent chain sections; a spring spoke secured to each barrel sleeve assembly fixedly engaging a sleeve at one end and a steering column at the other; and a pair of circular rod springs disposed in the wheel rim in opposed relationship about said chain and passing through spaced apart apertures disposed in said barrels.

3,321,997
LOAD EQUALIZER
Robert C. Peterson, Oakland, Mo.
(104 Santa Rita Drive, Odessa, Tex. 79760)
Filed Jan. 14, 1965, Ser. No. 425,551)
15 Claims. (Cl. 74—573)

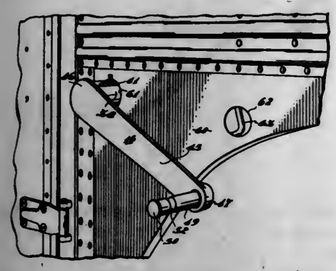


1. In a vertical spin tub automatic washing machine, a load equalizer comprising a carrier member encircling and secured to rotate with the spin tub, mass members retained by said carrier member peripherally translatable thereto and compressible, countervailing separator members disposed between mass members for urging said mass members apart.

3,321,998
CRANK FOR SEMI-TRAILER LANDING GEAR
William P. Haney, Cincinnati, Ohio, assignor to Pullman Incorporated, Chicago, Ill., a corporation of Delaware
Filed May 21, 1964, Ser. No. 369,107
5 Claims. (Cl. 74—547)

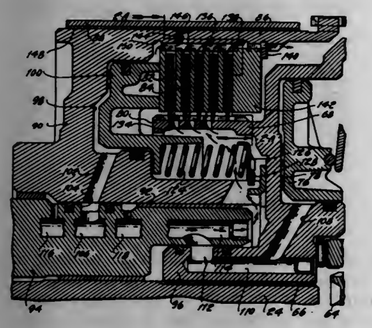
1. For a vehicle having a landing gear, a rotatable shaft for operating said landing gear and a landing gear crank storage and lock plate depending from the side of said vehicle adjacent said landing gear, storable mechanism for rotating said shaft comprising,

a crank having a central lever arm, said plate having an operating hole,
a coupling fixed at one end of said lever arm and passing through the operating hole in said plate into driving engagement with said shaft,
said coupling being slidable with respect to said shaft to permit said crank to move toward and away from said plate,



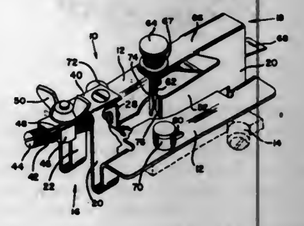
a handle slidably mounted at the other end of said lever arm and generally perpendicularly to said lever arm,
said plate having a storage hole spaced from said operating hole to receive said handle,
and means for locking said handle in said storage hole for storage of the crank lever arm adjacent the plate and the handle in an out-of-way position.

3,321,999
MULTIPLE DISC FRICTION CLUTCH AND BAND BRAKE CONSTRUCTION
John W. Greer, Birmingham, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed Oct. 24, 1965, Ser. No. 504,789
11 Claims. (Cl. 74—763)



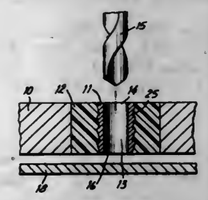
1. In a power transmission system having relatively movable gear elements adapted to establish plural torque delivery paths between a driving member and a driven member, a multiple disc clutch assembly and a brake band assembly, said clutch assembly and said brake assembly having a common drum, clutch means for delivering driving torque from said driving member to one element of said gearing, another element of said gearing being connected to said drum, an externally splined clutch element connected to said driving member, first clutch discs carried by said clutch element, internal spline grooves formed in said drum, second clutch discs carried by said splined grooves in interdigital relationship with respect to said first clutch discs, a friction brake band surrounding said drum, lubrication oil ports formed in said clutch element thereby admitting lubricating oil to the region of said discs, an oil collecting annular groove formed in said drum and establishing fluid communication between said splined grooves, and a lubrication oil port extending radially through said drum from one of said splined grooves to a central region of said brake band.

3,322,000
FILE GUIDE
Charles Newman, 429 N. Harrison, Fort Bragg, Calif. 95437
Filed Nov. 9, 1964, Ser. No. 409,729
15 Claims. (Cl. 76—36)



1. A file guide for filing a chain saw cutter, comprising: platform means; resilient means associated with said platform means and engageable with said cutter to support said platform means on said cutter; and positioning means associated with said platform means for positioning said platform means with respect to said cutter.

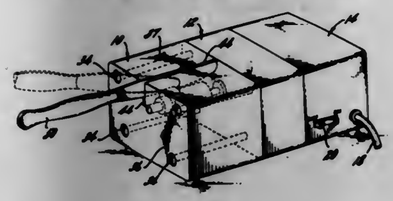
3,322,001
POTTED BUSHING
Joseph J. Mele, North Bellmore, N.Y. (188 Warner Road, Huntington, N.Y. 11743)
Filed Feb. 14, 1964, Ser. No. 345,026
5 Claims. (Cl. 77—62)



2. A drill bushing comprising:
(a) a body provided with a drill passage therethrough;
(b) the external surface of the body including at least one radially disposed annular shoulder and a generally tapered portion terminating at said annular shoulder;
(c) the junction of said radially disposed annular shoulder and tapered portion having a convex form.

3,322,002
KNIFE SERRATING DEVICE
Glenn D. Silberman, deceased, late of Muncie, Ind., by Margaret M. Silberman, administratrix, % Hall, Buckles and Stern, 108 E. Washington St., Muncie, Ind. 47305
Filed Nov. 23, 1964, Ser. No. 413,371
4 Claims. (Cl. 76—89.1)

1. A knife serrating device, comprising
a cutter housing having adjoining top and end faces and forming an elongated narrow slot open through the top face and one end face for the downward edgewise reception of the forward end portion of a knife blade to be serrated,
a drive housing fixed to the cutter housing and having an output shaft journalled therein and extending parallel to and offset from said slot,
a motor connected to drive said shaft at cutter speed,
motor housing means, said cutter, drive, and motor housings forming a substantially continuous elongated protective enclosure about the cutter, drive, and motor, with said slot extending longitudinally at one end of said enclosure,
a cutter wheel spaced forwardly from said drive housing, mounted coaxially with said output shaft, and supported by a closely-adjacent bearing in said cutter housing,
said cutter wheel having a peripheral cutting face intersecting said knife slot with the plane of the extending chordally of the cutter wheel,

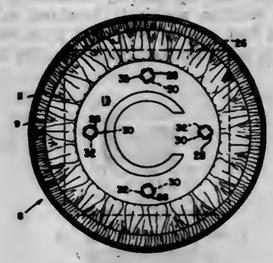


said cutting face comprising helically-arranged cutting teeth which tend to progress rearwardly of the slot along the edge of a knife being serrated and thereby to feed the knife lengthwise forwardly out of the slot,
the side walls of said slot providing knife supporting faces to hold the knife substantially in a vertical chordal plane with respect to the cutter wheel and the slot being clear and unobstructed forwardly, upwardly, and for a distance rearwardly of said intersection,
whereby any of various shapes and sizes of knives can be manually inserted edgewise into the slot and into cutting engagement with the cutter face and can be manually pressed into said upwardly open slot, will be laterally supported thereby, and may be tilted as needed to cause the cutter teeth to feed themselves along and follow the shaped edge of the knife to serrate such shaped edge.

3,322,003
METHOD OF EMBOSSING FOIL TRAYS AND THE LIKE BY PHOTOENGRAVING
Merrill A. Grogel, Henrico County, Va., assignor to Reynolds Metals Company, Richmond, Va., a corporation of Delaware
Filed Oct. 19, 1964, Ser. No. 404,593
9 Claims. (Cl. 76—107)

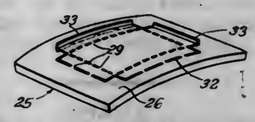
1. A method comprising: producing an original image on a background member similar to an embossed image to be embossed on an embossable sheet by a pair of mating punch and die members; reproducing a punch forming negative and a die forming negative from said original image having opaque and transparent portions; altering said punch forming negative to have transparent portions corresponding to the punch walls of said punch member; covering a punch forming member with a light sensitive etch resisting coating; photoprinting a punch wall image from said altered punch forming negative on said punch forming member; developing said photoprinted

punch member; etching punch walls on said punch forming member to produce a punch member; altering said die forming negative to have opaque portions corresponding to the cavities of said die member; covering a die forming member with a light sensitive etch resisting coating; photoprinting a die cavity image from said altered die



forming negative on said die forming member; developing said photoprinted die member; etching die cavities on said die forming member to form a die member; and securing said punch member and said die member to an embossing press.

3,322,004
METHOD OF FABRICATING STEEL RULE DIES
Edgar H. Wolfe, Winnetka, Ill., assignor to The Barrett Bindery Co., Chicago, Ill., a corporation of Illinois
Filed Nov. 17, 1965, Ser. No. 508,338
5 Claims. (Cl. 76—107)



1. The method of making a steel rule die comprising the steps of curving a base member for the die to a curvature of predetermined radius corresponding to the radius of a cylinder for carrying the die, inscribing a desired die pattern on a surface of said curved base member, straightening said base member to lie in a substantially flat plane, forming recesses in said base member conforming to the inscribed pattern on said surface thereof, again curving said base member to a curvature of said predetermined radius for mounting on said cylinder, and inserting steel rules in said recesses of said base member.

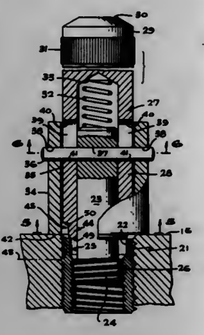
ERRATUM

For Class 77—62 see:
Patent No. 3,322,001

3,322,005
TOOL FOR INSTALLING EXPANDABLE THREADED ELEMENT
Robert Neuschotz, 1162 Angelo Drive, Beverly Hills, Calif. 90210
Filed Sept. 21, 1965, Ser. No. 489,027
16 Claims. (Cl. 81—3)

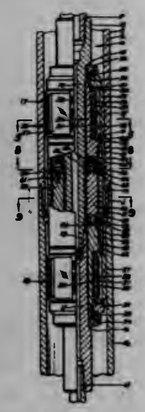
10. A tool for installing in a carrier part a fastener unit having first threads for engaging said carrier part and having second threads for engaging another member and having a locking portion drivable to a locking position for retaining the fastener unit against removal from the carrier part; comprising a first section of the tool having mounting threads engageable with said second

threads of the fastener unit in a relation connecting the fastener unit to the tool and rotatable about an axis to screw the unit into said carrier part, means forming a stop shoulder on the tool constructed and positioned to engage the carrier part and be retained by said engagement against axial advancement beyond a predetermined location and operatively connected to said first section in a relation positively blocking axial advancement of said first section beyond a predetermined position relative to said stop shoulder to thereby determine the



depth to which the unit is screwed into the carrier part, and a second section of the tool adapted to then be driven along said axis relative to said first section and said stop shoulder, while said mounting threads are connected to said second threads of the fastener unit, and having a portion operable upon said axial movement to drive said locking portion of said unit to said locking position.

3,322,006
REVERSING TOOL FOR WELL PIPES
Cicero C. Brown, % Brown Oil Tools, Inc., P.O. Box 19236, Houston, Tex. 77024
Filed Dec. 7, 1964, Ser. No. 416,308
6 Claims. (Cl. 81—57)



1. A wrench insertable in a pipe string for unscrewing or tightening threaded connections between adjacent sections of the pipe string, comprising,

(a) a mandrel,

(b) means carried by the mandrel for connecting the same to a source of torsional force,

(c) longitudinally spaced substantially identical pipe-gripping units disposed on the mandrel in position to engage sections of a pipe string on opposite sides of a threaded connection between said sections,

(d) each of said units including pipe gripping elements operable in response to a rotational force to torsionally grip said pipe sections, and

(e) reversing gear means mounted on the mandrel between the units and operably connected to the mandrel and both gripping units,

(f) said gear means being constructed and arranged to be operable by rotation of said mandrel in the clockwise direction to simultaneously transmit opposed rotational forces to the respective gripping units.

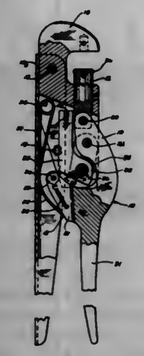
3,322,007
SPARK PLUG TOOL
Loyd L. Cunningham, 655 S. Church St., Paris, Tex. 75460
Filed Oct. 21, 1965, Ser. No. 499,152
1 Claim. (Cl. 81—125)



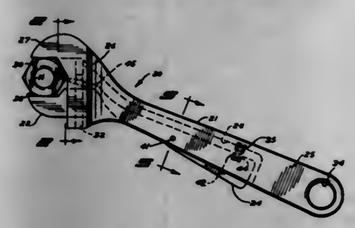
A tool for assisting in the removal and installation of spark plugs comprising an operating handle, a reduced sleeve extending axially from one end of said handle and providing a shoulder, said sleeve having an internal bore of a size to receive the upper terminal of a spark plug, a flexible tube permanently mounted at one end of said sleeve adjacent to said shoulder and disposed generally in axial alignment with said handle and forming an extension thereof, the inner surface of said tube being of a size to releasably engage the upper portion of the spark plug, and said tube providing the sole support for the spark plug, whereby said flexible tube is applied to the upper portion of a spark plug to rotate the same by manipulation of said handle.

3,322,008
TOGGLE-ACTUATED HAND TOOL WITH FULL STROKE-COMPELLING MECHANISM
George J. Filia, Shelton, Conn., assignor to Sargent & Company, New Haven, Conn., a corporation of Connecticut
Filed Apr. 26, 1966, Ser. No. 545,289
12 Claims. (Cl. 81—313)

7. In a hand tool, the combination of an elongated body including at one end thereof a handle element and having in fixed relation to the other end thereof a head provided with a work-engaging part fixed thereto, a plunger mounted for sliding movement in the body toward and away from said work-engaging part in a direction lengthwise of the body and having a work-engaging part for cooperation with the first-mentioned work-engaging part, a toggle mechanism including a second handle element swingable relatively to the first-mentioned handle element and operably connected through pivotal connections to the plunger and to the body for advancing and retracting the plunger, and coacting motion-compelling means on said body and the second handle element, for said handle elements controlling relative movements therebetween, and said pivotal connection between the toggle mechanism and the body including an elongated pivot-providing member, having a longitudinal axis, carried by the body, having a cylindrical portion thereon eccentric to said axis, which provides said pivotal connection, and pivot-providing member being angularly adjustable on its axis to thereby adjust the extent of movement by which the plunger may be advanced, said second handle element being pivoted directly to said plunger, said motion-compelling mechanism comprising a member on said eccentric portion of the pivot-providing member and self-adjustable on angular adjustment of the latter, said member of the motion-compelling means coacting with a member on said second handle element.

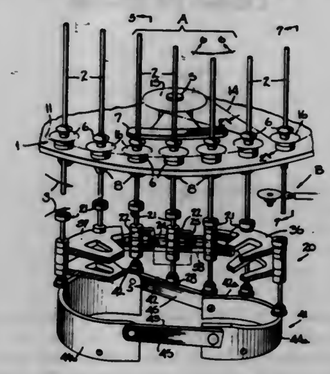


3,322,009
SELF-ADJUSTING WRENCH
Edmund W. F. Rydell, % The Rydell Co., 2328 N. 2nd St., Minneapolis, Minn. 55411
Filed Oct. 15, 1965, Ser. No. 496,416
4 Claims. (Cl. 81—359)



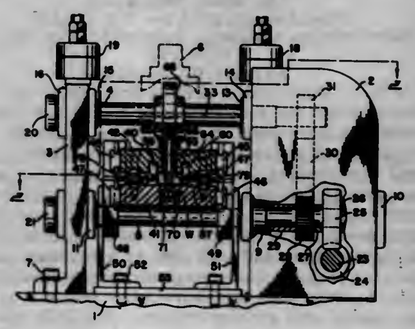
1. In a wrench, a wrench body having a head at one end of an elongated handle, an integral jaw on the head, the head having walls spaced transversely of the handle, said walls having parallel grooves therein opening toward each other to form a slide, a movable jaw longitudinally aligned with one side of the handle and arranged in opposing relation to the integral jaw and having a pair of laterally extending elongated parallel lugs disposed one in each groove for sliding movement of the movable jaw along the slide toward and away from the integral jaw, the body having an elongated recess extending along the handle and opening endwise between said walls and sidewise through said one side of the handle, an elongated lever disposed in and extending along said recess and being pivoted at a medial point to said handle on an axis perpendicular to the slide, the lever having a finger formed at one end, means providing a flexible connection betwen the movable jaw and said finger, spring means held under compression between the other end of the lever and the handle to bias the finger and movable jaw in a direction toward the integral jaw and the said other end of the lever to protrude through said sidewise opening for manual engagement, and said lugs fitting in such grooves so as to bind therein against sliding movement as pressure is applied to said movable jaw at a point thereof remote from the jaw lugs in a direction away from the integral jaw.

3,322,010
MACHINE FOR CUTTING GLASS TUBES
William T. Engel, Union, and Henry G. Heflich, Ridgefield, N.J., assignors to Kahle Engineering Co., Union City, N.J., a corporation of New Jersey
Filed Sept. 17, 1965, Ser. No. 488,072
21 Claims. (Cl. 83—170)



4. An apparatus for presenting a predetermined length of a tube to a cutting tool at a cutting station comprising the combination of means for moving a tube to a cutting station, means for releasing the tube on said moving means at a predetermined point in the travel of the tube toward the cutting station, means for engaging one end of the tube at said predetermined point and for guiding the tube to a predetermined position to adjust the length of tube to be presented to the cutting tool at the cutting station, and means for moving said engaging and guiding means in synchronism with said tube moving means.

3,322,011
FLYING PUNCH
George J. Kocian, Parma Heights, Ohio, assignor to The Yoder Company, Cleveland, Ohio, a corporation of Ohio
Filed June 15, 1964, Ser. No. 375,069
17 Claims. (Cl. 83—285)

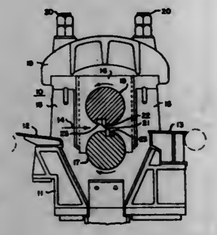


7. A punching mechanism for a roll forming machine comprising a modified roll stand having at least one

transverse roll spindle, a die mechanism having a work path therethrough mounted on said stand for short distance movement with the work, a cam mounted on said spindle, and spring means operative resiliently to hold said die mechanism in operative position adjacent to and beneath said cam.

15. A punching mechanism as set forth in claim 7 including clutch means operative selectively to rotate said cam.

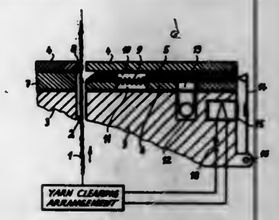
3,322,012
ROTARY CROP SHEAR KNIVES AND THE LIKE
Charles Wesley Murray, Franklin Park, Pa., assignor to Heppenstall Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Oct. 23, 1964, Ser. No. 406,112
2 Claims. (Cl. 83—341)



1. A rotary shear knife assembly and the like for metal work, comprising, in combination, a pair of rotatable drums having parallel axes, said drums being spaced apart at the bite through which a pass line for flat metal work passes, the plane of said metal work being parallel to said axes, each of said drums having a transverse groove in the surface thereof for the mounting therein of a chevron knife, one of said knives being an interior chevron and the other of said knives being an exterior chevron adapted to coact with one another to shear metal work passing along said pass line, said chevron knives having their apices in longitudinal correspondence with the center line of work passing along said pass line, the cutting edges of said respective knives being longitudinally spaced for clearance and radially overlapped to pass through said bite in juxtaposed relation without engagement, said cutting edges being straight from their apices to their outer ends and continuous from one outer end to the other, respectively.

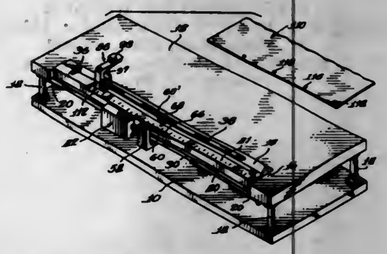
3,322,013
YARN CUTTING AND CLAMPING MECHANISM
Ernst Felix, Uster, Switzerland, assignor to Zellweger, Ltd., Uster, Switzerland
Filed Aug. 20, 1965, Ser. No. 481,359
Claims priority, application Switzerland, Aug. 28, 1964, 11,332/64
3 Claims. (Cl. 83—387)

1. In a yarn-clearing arrangement including a slot through which the yarn runs, yarn cutting and clamping mechanism comprising, in combination, a counter member positioned at one side of said slot; a relatively elongated yarn cutting knife movable across said slot to sever yarn against said counter member; a relatively elongated yarn clamping slide movable across said slot to clamp severed yarn against said counter member; means biasing said knife and said slide to a retracted position relative to said slot; electromagnetic means selectively operable to reciprocate said knife across said slot to sever yarn against said counter member; said knife and said slide being arranged in superimposed relation and each having a recess therein congruent with the recess in the other; a compression spring engaged in both recesses and normally constraining said knife and said slide to a position which said recesses are aligned; said spring, responsive to reciprocation of said knife, reciprocating said clamping slide to clamp the severed yarn against said counter member; a second recess formed in said clamping slide; and spring means mounted in said yarn-clearing arrangement and engaged in said second recess and normally constraining said clamping slide to a retracted posi-



tion; said spring means being tensioned responsive to movement of said clamping slide to the clamping position and, responsive to de-energization of said electromagnetic means, restoring said clamping slide to the retracted position; said compression spring, responsive to movement of said clamping slide to the retracted position, moving said cutting knife to the retracted position.

3,322,014
REGISTRATION DEVICE FOR SPACING AND PUNCHING REGISTRATION HOLES
Vincent Boragina, 8408 W. Madison Drive, Niles, Ill. 60648, Gerald W. Schneider, 17 W. 285 Indian Hill Drive, Bensenville, Ill. 60160, and Stephen J. Stramaglia, 5051 W. Nelson Ave., Chicago, Ill. 60641
Filed Mar. 24, 1965, Ser. No. 442,298
19 Claims. (Cl. 83—468)



1. A registration device for spacing and punching holes in a work sheet, said device including a baseboard, a punching member mounted on said baseboard and including a punch for punching holes in a work sheet, a first scale stationarily supported with respect to said baseboard, a first movable member movable with respect to said baseboard and said first scale, a second movable member secured to move with said first member, a second scale carried by said second movable member, means for adjusting said second movable member with respect to said first movable member, a pin carried by said second movable member, said pin adapted to be engaged by a previously punched hole in the work sheet to position and space the work sheet for the next punching operation so that another hole can be punched in said work sheet by said punch in a precise position.

3,322,015
ELASTIC MUTE FOR WIND INSTRUMENTS
Willie Berg, 9223 S. Clyde, Chicago, Ill. 60617
Filed Oct. 21, 1965, Ser. No. 499,942
6 Claims. (Cl. 84—400)

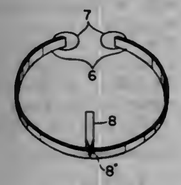
1. A mute for wind instruments having a flaring mouth

comprising a frusto-conical hollow body of flexible elastic material adapted to be distorted by external pressure of the fingers on the sides of said body and to return to its original form upon release of said pressure, the large end



of said body adapted to fit into the flare of said instrument, the small end of said body being closed, and a finger hold projecting from said small end.

3,322,016
ADDED MASS TYPE CIRCULAR TUNING FORK
Kazuo Ishikawa, Yokohama, Masakazu Hirose, Oaza-Nagano, Gyoda, Koichi Iwaki, Oaza-Wakakodama, Gyoda, and Haruhiro Fujita, Oaza-Nagano, Gyoda, Japan, assignors to Jeco Company, Limited, Tokyo, Japan, a corporation of Japan
Filed June 12, 1964, Ser. No. 374,774
Claims priority, application Japan, June 24, 1963, 38/33,310; Aug. 10, 1963 (utility model), 38/59,331
The portion of the term of the patent subsequent to Nov. 9, 1982, has been disclaimed and dedicated to the Public
6 Claims. (Cl. 84—457)



1. An added mass tuning fork comprising the combination of a circular tuning fork comprising a split circular annulus made of a resilient material with the split forming a pair of opposed curved tines adapted to vibrate alternately toward and away from each other at a predetermined natural frequency of vibration, a pair of added masses one of which is mounted on one of said curved tines and the other of which is mounted on the other of said tines, said masses being symmetrically located with respect to each other and to said fork, said tuning fork and said added masses being adapted to converge the nodal points of the vibratory motion of said tuning fork at substantially a single point midway between the ends of said tines, and a supporting member secured to said tuning fork at said point where the nodal points of the vibratory motion are converged.

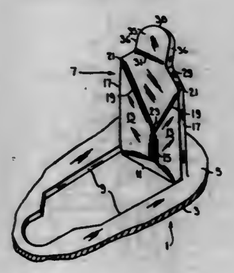
3,322,017
TRUSS CONNECTOR PLATE WITH SELF-CRIMPING TOOTH
Maurice J. Duffiey, 3205 Dow St., Pompano Beach, Fla. 33062
Filed Jan. 11, 1965, Ser. No. 424,652
8 Claims. (Cl. 85—13)

1. A connector having a plate portion defining an abutment plane from which a plurality of teeth are struck, said teeth extending in one direction at substantially right angles to said plate for penetration of a structural material against which the plate portion is flattened, each of said teeth comprising, a rigid, elastically deformable member having a relatively wide base integrally joined to the plate portion and gradually tapering to a pointed tip remote from said plate portion, said teeth being substantially V-shaped in transverse cross-section throughout their length with the concave side of the teeth being directed toward the openings from which the teeth are struck, juncture means interconnecting the base to the plate portion for curling of the tip in response to said flattening of the plate portion against the structural material, said juncture means including a bearing point on said abutment plane at the



center of said base and a load point adjacent each end of said base with the portions of said juncture means between the bearing point and each of the load points being curved to define a pair of arcuate junctures directed inwardly toward said openings, said load points being defined by portions of the plate being axially displaced from the abutment plane in a direction opposite to that in which the teeth extend, and transition body means interconnecting the base and the tip for developing an internal stress concentration at the tip relieved by curling thereof in response to said penetration of the structural material.

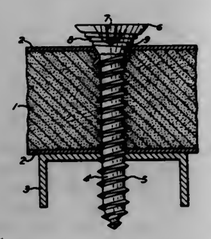
3,322,018
CONNECTOR PLATES
Walter G. Moehlenpah, Ladue, Mo., George F. Eberle, Palo Alto, Calif., and David H. Imming, Ferguson, Mo., assignors to Hydro-Air Engineering, Inc., St. Louis, Mo., a corporation of Missouri
Filed Aug. 4, 1965, Ser. No. 477,175
3 Claims. (Cl. 85—13)



1. A connector for securing together adjacent wood structural members comprising a metal plate having a plurality of upright teeth struck out therefrom, each of said teeth comprising a base portion having a central upright bend line to form a dihedral connection between lower portions of side wings to produce a cross-sectional channel shape in the base portion, a transition wall transversely connected with upper inner portions of said side wings by outwardly angled bend lines, the outside of each wing and its respective angled bend line tapering the wing upwardly and outwardly to spaced points, the surface of said transition wall being angled with respect to the tapered portions of the wings to terminate said channel

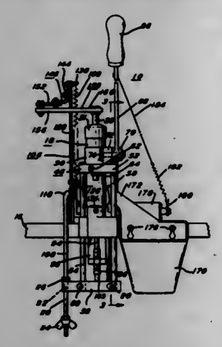
shape, a tongue connected with said transition wall by a transverse bend line located above said spaced points of the side wings, said transition wall being outlined by said angled bend lines, by said transverse bend line and by angled shoulders extending up from said spaced points to endwise points of said transverse bend line, said tongue being angled on the transverse bend line in a direction away from the concave side of the channel shape.

3,322,019
PLASTERBOARD SCREW
Louis J. Lovisek, Cheshire, Conn., assignor to Screw and Bolt Corporation of America, Pittsburgh, Pa., a corporation of Pennsylvania
Filed July 28, 1964, Ser. No. 385,718
5 Claims. (Cl. 85—46)



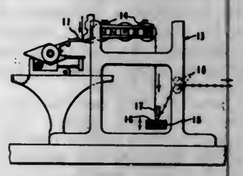
1. A screw for use in plasterboard, said screw having a shank provided with a right-hand thread, and a head at a one end of the shank having an underside tapered toward the shank, said underside of the head being provided with a left-hand spiral thread.

3,322,020
BULLET FABRICATING MEANS
Charles F. Eckert, 1109 Devereaux St., Philadelphia, Pa. 19111
Filed July 16, 1965, Ser. No. 472,635
8 Claims. (Cl. 86—19)



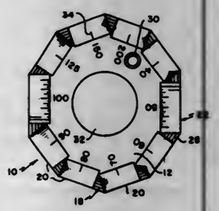
2. A bullet fabricating means comprising die means for receiving and sizing a bullet; lubricating means for supplying grease for said bullet; reciprocating means including a carriage moving between first and second positions, a lever having a first stroke for actuating said carriage between said first and second positions and a second stroke for actuating said carriage between said second and first positions, and a press element secured with said carriage for actuating said carriage between said second and first stroke of said lever; connecting means actuated by said reciprocating means during the first stroke of said lever for causing the application of grease to said bullet from said lubricating means while said bullet is received within said die means; said connecting means being actuated by said reciprocating means after the beginning of said first stroke of said lever; said reciprocating means including a retracting element actuated by said carriage for removing said bullet from said die means during the second stroke of said lever; and said connecting means having first and second terminal positions being actuated by said reciprocating means from its first to its second position during the first stroke of said lever and assuming its first terminal position during the second stroke of said lever.

3,322,021
PROCESS FOR PRODUCING A NET
Victor Samuel Van Scoy, Newark, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed Feb. 4, 1964, Ser. No. 342,377
1 Claim. (Cl. 87—1)



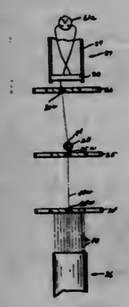
Method for producing a net of improved resistance to knot slippage and breakage comprising forming a fish net of filamentous twine in which knots are formed but not tightened, applying solely to the untightened knot, the twine which forms the knot and immediately adjacent twine portions of the net a waterproof adhesive resin to encapsulate each of the knots and the twine which forms the knot, thereafter tightening the knots before the resin solidifies and finally solidifying the adhesive resin.

3,322,022
PRISMATIC DISTANCE MEASURING INSTRUMENT HAVING A PLURALITY OF DISCRETE PRISMS
Russell E. Wood, 9113(C) Derbyshire Road, Richmond, Va. 23229
Filed Feb. 28, 1966, Ser. No. 530,461
2 Claims. (Cl. 88—2.3)



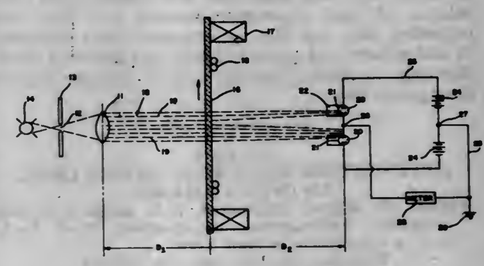
1. An instrument for measuring the distance from an observer to a distant object of known dimension perpendicular to the observer's line of sight, said instrument comprising:
- disc means having opposed generally parallel planar first and second surfaces and an edge surface extending substantially perpendicularly therebetween;
- said disc means being polygonal in shape and said edge surface hence being formed of a plurality of interconnected linear portions;
- said disc means being fabricated of optically transparent material along at least the peripheral margin thereof;
- at least said first surface including a plurality of discrete flat portions along the peripheral margin thereof, such flat portions being disposed at progressively succeeding angles to the plane of said first surface;
- each of said flat portions and the corresponding aligned portions of said second surface serving to define an optical prism means;
- each of said optical prism means deviating the image of said object in accordance with the angular disposition of said flat portions to thereby correlate the distance to the object with the known dimension thereof;
- said instrument being positioned by the observer with a selected optical prism means interposed in his line of sight to the object and with the linear portion forming the edge of that optical prism means visually intersecting said object to thereby enable said observer to compare the difference between the image of said object as seen directly and the image of said object as refracted through said selected optical prism means;
- said instrument including guide line means for each of said optical prism means, with the guide lines for any one optical prism means being visually aligned with one another when that optical prism means is disposed perpendicularly to the observer's line of sight to said object;
- each of said optical prism means having a multiplying number associated therewith and marked on the disc means, which, when multiplied by said known dimension of said object indicates the distance between the observer and said object when said image as seen directly and said image as refracted through an optical prism means are aligned.

3,322,023
DETECTION OF CHIPS IN SYRINGE CARTRIDGES
Hans R. Rottmann, Toledo, Ohio, assignor to Owens-Illinois, Inc., a corporation of Ohio
Filed Jan. 26, 1962, Ser. No. 168,989
1 Claim. (Cl. 88—14)



Apparatus for indicating the presence of chips in syringe cartridges comprising means for conveying a plurality of cartridges along a straight line in a direction normal to the longitudinal axes of the cartridges, means for simultaneously rotating said cartridges about their longitudinal axes, a source of radiation, means for converting said source into parallel rays directed normally to the direction of movement of said cartridges, a vertical shaft extending parallel to the direction of illumination of the said parallel beams, a pair of spaced, apertured discs carried by said shaft, said apertures being in vertical alignment, a third apertured disc carried by said shaft spaced vertically above said pair of discs, the aperture in said third disc being circumferentially spaced out of alignment with the apertures in said first two discs, means for rotating said shaft and said discs in synchronism with the lateral movement of said cartridges, said conveying means moving said cartridges between said pair of discs and said third disc, and photo-electric means positioned above said third disc for sensing the presence or absence of light passing through said third apertured disc.

3,322,024
OPTICAL METHOD FOR THE INSPECTION OF A TRANSPARENT OBJECT FOR DEFECTS INCLUDING COMPARING LIGHT ENERGY AT TWO STATIONS
Bruce W. Preston, Dearborn, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed Sept. 11, 1961, Ser. No. 137,316
1 Claim. (Cl. 88—14)

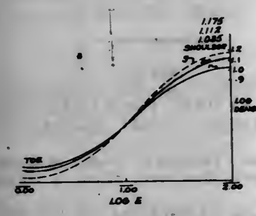


A method of inspecting a transparent object having substantially parallel faces to detect defects in the object, which method comprises the steps of:
- projecting a single, collimated beam of light against a prescribed area of a face of the object in such a direction that parallel rays of said beam of light intercept the face of the object perpendicularly;
- moving the object with respect to said beam of light so that substantially all of the face of the object is scanned by said beam of light;
- detecting by means of light sensitive devices at two stations spaced in the direction of motion of said object two separate and distinct portions of the light transmitted through separate portion of the object as a result of said single beam of light being projected against the face of the object;
- continuously comparing in a bridge circuit the output of said light sensitive devices at said stations, thus comparing any variation of light intensity between said stations, and determining from a meter connected to the bridge circuit the difference in light intensity at said stations to indicate the presence or absence of a defect.

3,322,025
COLOR CONTROL METHOD
William C. Dauser, 458 Melody Lane, North Muskegon, Mich. 49445
Filed May 17, 1962, Ser. No. 195,501
4 Claims. (Cl. 88—14)

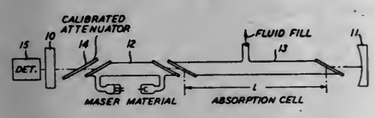
2. A method of controlling the exposure by composite light formed of three primary colors, transmitted through a film to obtain optimum color balance, comprising the steps: projecting red, green and blue light successively unto said film; measuring the density of the three colors in the light area of said film according to the amount of light transmitted therethrough; individually adjusting the

amount of projected light of two of said colors to cause the three density readings to be substantially the same; measuring the density of the three colors in the high-light area of said film according to the amount of light transmitted therethrough; adjusting the amount of two of the colors projected unto said film to shift the densities of said two colors, said two colors being those with the highest and lowest density when projected through the



high-light area and the shift being in the direction of the density of said other third color to obtain optimum color balance of light transmitted through said film; and projecting unto said film the composite light composed of said adjusted red, green and blue light projected simultaneously, to thereby transmit light of optimum balance through said film.

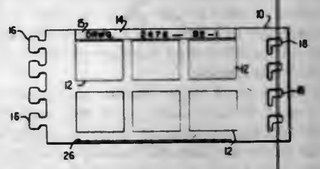
3,322,026
ATTENUATION MEASURING DEVICE USING AN OPTICAL MASER
William W. Rigrod, Millington, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Oct. 21, 1963, Ser. No. 317,698
5 Claims. (Cl. 88—14)



1. Attenuation measurement equipment comprising:
a maser including a maser material disposed within a resonant cavity;
means for housing within said cavity a sample of a material to be measured;
a variable calibrated attenuator disposed within said cavity;
said attenuator comprising two substantially identical wedges of lossy material having a common interface;
means for sliding said wedges in a direction parallel to said interface;
and means for measuring the output from said maser.

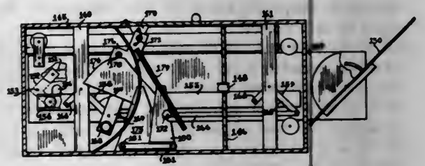
3,322,027
INFORMATION HANDLING SYSTEM AND RECORD ELEMENTS THEREFOR
Edward J. Forbes, 7 Autumn Lane, Wayland, Mass. 01778, and David P. Waite, 42 Ipswich Road, Topsfield, Mass. 01983
Original application Feb. 24, 1961, Ser. No. 91,489. Divided and this application July 7, 1964, Ser. No. 390,497
3 Claims. (Cl. 88—24)

1. An information handling system comprising: a plurality of information bearing unit record links containing quick detachable hinged couplers on opposite ends thereof, said links being assembled together to form a chain of similar links and said chain of links being folded in zig-zag fashion to form a compressed stack, a detachable edge coding on the edge of said links, a support for said compressed stack of links, means for moving said chain of links, a readout station for said links when folded out flat, said readout station allowing said compressed



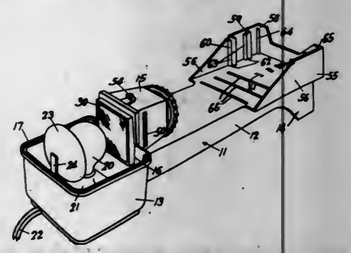
links to pass therethrough, sensing means for sensing a predetermined detectable edge coding on the edge of one of said links and fold out means responsive to said sensing means for folding out the sensed link flat for readout.

3,322,028
PHOTOGRAPHIC ENLARGER
Edwin J. Coppage, Jr., 630 Cleburne Terrace NE., Atlanta, Ga. 30307
Filed Sept. 22, 1964, Ser. No. 398,226
21 Claims. (Cl. 88—24)



1. A photographic enlarger comprising a pivotal negative carrier, a pivotal easel, a light source removed from said negative carrier, means for moving said light source curvilinearly toward said negative carrier to vary the illumination areally of said negative carrier, said means being responsive to pivoting of said negative carrier and said easel.

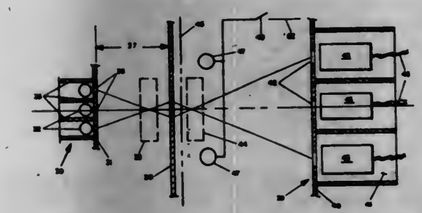
3,322,029
PHOTOGRAPHIC ENLARGER AND PRINTER
Marvin E. Palmquist and Arthur C. Haggstrom, Rockford, Ill., assignors to Cherry Valley Manufacturing Corp., Rockford, Ill., a corporation of Illinois
Filed Nov. 10, 1964, Ser. No. 410,219
10 Claims. (Cl. 88—24)



1. In an apparatus for the enlarging of photographs, the combination of a projection apparatus, which includes a light converging lens in an elongated tubular carrier that is slidably mounted in an opening provided in a substantially vertical wall on the front end of a projector housing, the rear end of which is disposed in front of a fixed light source, the lens carrier having projecting shoulders on its opposite ends for limiting its fore and aft adjustment relative to said housing wall and being

movable from one extreme pulled out position in which the lens is focused automatically for one kind of film on paper set at one predetermined distance from the front of the projector housing to another extreme pushed in position in which the lens is focused automatically for another kind of film on paper set at another predetermined distance from the front of the projector housing, the lens carrier being manually shiftable between the two extreme positions for focusing for a third kind of film on paper set at a third predetermined distance from the front of the projector housing, film holder slide means for the three kinds of film, guide means on the projector housing for selectively mounting a film holder slide at a predetermined distance from the lens between the lens and light source in transverse relation to the light beam, and other means for holding sensitized paper at the three predetermined distances from the front end of the projector housing.

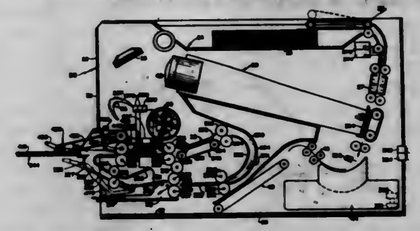
3,322,030
METHOD AND APPARATUS FOR SEARCHING AN INVERTED FILE INFORMATION SYSTEM
Daniel Silverman, 5969 S. Birmingham, Tulsa, Okla. 74105
Filed Jan. 22, 1965, Ser. No. 427,427
49 Claims. (Cl. 88—24)



1. The method of comparing spot patterns comprising
(1) creating a first pattern of spots on a record medium, said spots arranged in accordance with a predesigned matrix of possible spot positions,
(2) creating a second pattern of luminous spots arranged in accordance with the same matrix of possible spot positions,
(3) forming a facsimile of reduced size of said pattern of luminous spots superimposed on said pattern of spots on said record so that their matrices coincide, and
(4) detecting the third pattern of spots comprising those luminous spots of said second pattern which coincide with the spots of said first pattern on said record.

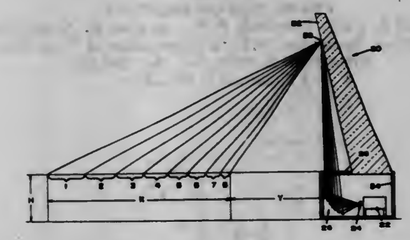
3,322,031
DUPLICATING APPARATUS
Ralph G. Ostensen, Morton Grove, Ill., assignor to SCM Corporation, New York, N.Y., a corporation of New York
Filed Feb. 23, 1965, Ser. No. 434,226
10 Claims. (Cl. 88—24)

1. In a duplicating machine, a duplicating station, guide means defining a path for routing a document to be copied through an exposure zone in said duplicating station, means for moving said document along said path and for feeding copy paper through said duplicating station in timed relation with the movement of said document therethrough to enable transfer of an image from the document to said copy paper as they pass through said duplicating station, means for feeding at least one document into said path comprising a shelf supported on the machine and adapted to support a stack of documents to be copied, rotatable motor driven roller means forming a part of said document feeding means and normally adapted to engage and move the topmost document into said path, drive means for rotating said roller means, means mounting said roller means for upward and down-



ward movement with respect to said shelf, and means effective when said roller means is raised a predetermined distance from said shelf for interrupting rotation of said roller means by said drive means.

3,322,032
IMAGE DISPLAY DEVICE
Sam L. Leach, 400 Veteran Ave., Los Angeles, Calif. 90024
Filed Mar. 26, 1965, Ser. No. 442,873
12 Claims. (Cl. 88—24)

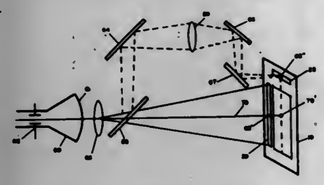


1. An image display device comprising:
a transparent screen having at least one optically polished surface thereon; and
means for transmitting a plurality of similar images at different angles to a common line along said surface whereby said surface will reflect said images at said different angles to form a viewing field wherein said image can be observed from a plurality of different angles,
said means for transmitting including a plurality of individual image reflecting surfaces;
said individual image reflecting surfaces each being disposed at a different angle;
said angles of said image reflecting surfaces being coactively arranged to focus all of said similar images at said common line along said surface.

3,322,033
METHOD AND APPARATUS FOR MAKING AND SCANNING SPOT PATTERNS
Daniel Silverman, 5969 S. Birmingham, Tulsa, Okla. 74105
Filed June 9, 1965, Ser. No. 462,679
41 Claims. (Cl. 88—24)

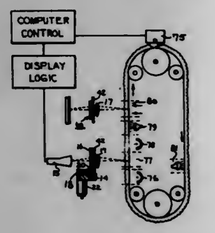
1. The method of scanning a pattern of spots on a record medium, said spots comprising areas of a character distinguishable from that of the medium itself, said spots arranged in a two-dimensional matrix of possible spot positions, said medium including, precisely placed with respect to said matrix, coordinate guide indicia parallel to

the rows and columns of said matrix, said indicia including index areas corresponding to and in alignment with each of the rows and columns, said pattern exposed to an image of a spot source of radiant energy, movable in each coordinate X and Y, in response to corresponding deflection voltages, the improvement comprising,



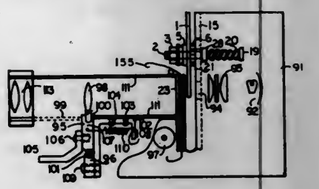
(a) determining the deflection voltages X_0 and Y_0 required to position the spot image to the intersection of the guide indicia,
(b) positioning the spot image at the said intersection,
(c) determining the additional deflection voltages X_1 and Y_1 required to move the spot image from the said intersection point to each of the index areas, in turn, and
(d) reproducibly recording the values of X_1 and Y_1.

3,322,034
FROST COLOR DISPLAY
Donald S. Cary, Pittsford, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York
Filed Sept. 2, 1965, Ser. No. 484,600
1 Claim. (Cl. 88—24)



A method for transforming a monochromatic graphic display into a corresponding graphic display colored in accord with a preselected scheme comprising:
(a) nominally identifying those portions of said monochromatic display to be imparted a particular color;
(b) sequentially displaying each of said portions for intervals of time during which the said portion is selectively imaged through those apertures of a selectable multiple aperture plate nominally color identified with the color identification of said portion and through a lens system onto a transparent Frostable lenticulated light sensitive member, said member comprising a photoconductive layer overcoated with a thin layer of a deformable thermoplastic material, the opposite face of said layer being overcoated with a thin layer of transparent conductive material, the face of said conductive layer non-adjacent to said photoconductive layer being in contact with the planar face of a transparent lenticulated substrate, said aperture plate and lens system being positioned with respect to said displayed portion and said lenticulated light sensitive member so that said portion is imaged at points on said light sensitive member behind individual lenticules in accordance with said color identified apertures selected for the particular time interval;
(c) heat developing said light sensitive member to form a visible Frost image;
(d) replacing said aperture plate by a banded color filter, said bands being colored in accord with the nominal color identification of said apertures, the space location of said bands corresponding to the exposure location of the apertures with which said bands are in color accord;
(e) light projecting said Frosted image back through said lens system and said color filter and onto a viewing screen so that points on said developed image nominally identified with said particular colors are projected through bands on said filter corresponding to said colors.

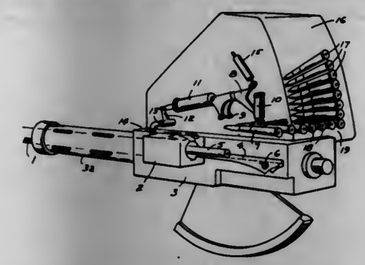
3,322,035
PROJECTION OR DISPLAY OF STILL PICTURES AND TEXTS
Jedidiah Admon, New York, N.Y., assignor to Variview Reader Corporation, New York, N.Y.
Filed Dec. 4, 1963, Ser. No. 328,450
26 Claims. (Cl. 88—27)



1. A still picture display apparatus comprising a holder for a two-dimensional subject matter carrier, a framing window, an opaque mask and means mounting said mask for selective displacements with relation to the framing window, thereby to form rectangular display sections having the width of the framing window and the height of various predetermined parts of the said window, means to move the subject matter carrier so that a unit of subject matter on the carrier is in optical alignment with the framing window, a rotatable opaque disc having circumferentially narrow apertures distant from its axis of rotation, means to position and rotate the disc so that the apertures pass successively across the framing window, thereby permitting progressive limited portions of the unit of subject matter in the framing window to be displayed, in the frame of a slot moving successively and horizontally, at a continuous pace across a said displayed section of the framing window, a pellucid image-blurring element, means mounting said element for rapid selective movements between a first position in optical alignment with the framing window and a second position out of optical alignment with the framing window thereby to permit various tachistoscopic displays of the subject matter in the said framing window.

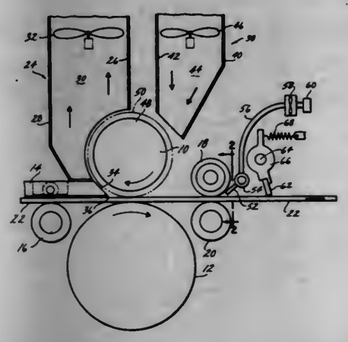
3,322,036
ROUND FEEDING MECHANISM FOR AN AUTOMATIC GUN
Erik Wilhelm Jäfwert, Karlskoga, Sweden, assignor to Aktiebolaget Bofors, Bofors, Sweden, a Swedish Company
Filed July 30, 1965, Ser. No. 475,939
Claims priority, application Sweden, Aug. 14, 1964, 9,883/64
6 Claims. (Cl. 89—45)

1. A round feeding mechanism for an automatic gun, in which the rounds are fed from a round magazine located at the one side of the vertical plane, in which the barrel of the gun is located, in a direction substantially perpendicular to said vertical plane and to the longitudinal direction of the rounds to a ready position, in which the round is substantially parallel to and located above a ramming position for the rounds in the rear prolongation of the barrel, for feeding a round located in said ready position downwards to said ramming position, comprising a bell crank lever disposed in said vertical plane above said ready position and pivoted about a non-recoiling axis perpendicular to the longitudinal direction of said barrel, whereby one arm of said bell crank lever can be brought to bear against the upper side of the cylindrical surface of a round



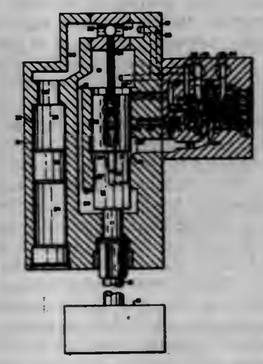
located in said ready position and to push said round downwards into said ramming position, a double-armed lever having a first arm and a second arm and being pivoted about a non-recoiling axis perpendicular to the longitudinal direction of said double-armed lever, a coil spring disposed in said vertical plane and connected between the second arm of said bell crank lever and said first arm of said double-armed lever and a recoiling cam path co-acting with said second arm of said double-armed lever so as to rotate said double-armed lever in such a direction about its axis of rotation during the recuperation movement of said barrel that said coil spring is compressed.

3,322,037
CHIP EXHAUST SYSTEM
Erman V. Cavagnero, Torrington, Conn., assignor to The Torrington Manufacturing Company, Torrington, Conn., a corporation of Connecticut
Filed May 25, 1964, Ser. No. 370,001
5 Claims. (Cl. 90—11)



1. In a chip exhaust system for a slab milling machine wherein a cutter rotatable about a horizontal axis engages and turns in a direction opposite to the movement of the upper surface of a slab or the like in continuous generally horizontal lengthwise forward movement therebeneath; the combination comprising a chip pick-up and exhaust duct having an inlet opening adjacent the entry side of the cutter and above and across the slab or the like, baffle means associated with the pick-up and exhaust duct adjacent its inlet opening and extending across the slab, said means comprising a surface having a lower and forward edge at least approximately in engagement with the slab passing therebeneath, and said surface having an inclination from said edge upwardly and rearwardly away from the cutter so as to engage chips thrown rearwardly from the cutter and to deflect the same upwardly and rearwardly into said inlet opening, air moving means operatively associated with said duct to draw air and chips into said inlet opening, an exit guide and support means engaging the slab on a side thereof opposite said chip pick-up and exhaust duct and extending across the slab but engaging the slab only at spaced intervals whereby to define a plurality of laterally spaced openings, and a means for discharging a jet stream of air through said openings in a rearward direction whereby to blow chips rearwardly and toward said pick-up and exhaust duct.

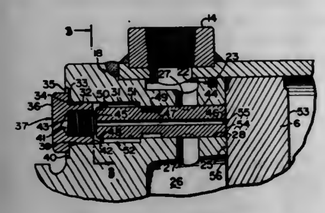
3,322,038
HYDRAULIC HAMMER
Alfred J. Dobson, Detroit, Mich., assignor to Sperry Rand Corporation, Troy, Mich., a corporation of Delaware
Filed Apr. 9, 1964, Ser. No. 358,425
7 Claims. (Cl. 91—291)



1. In a hydraulic device, the combination comprising
a housing,
said housing having a bore,
a member reciprocable in said bore,
said reciprocating member having opposed pressure areas defining first and second pressure areas,
said first pressure area having an effective cross sectional area less than said second pressure area,
a reservoir,
means forming a fluid pressure energizing source,
means for continuously applying fluid under pressure from said source to said first pressure area,
hydraulically controlled valve means for alternately connecting the fluid pressure source to said second pressure area,
outlet means providing communication between said valve means and said reservoir,
said housing having passage means extending between said bore and said valve means,
said passage means being alternately connected by movement of said reciprocating member to operate said valve means and control the application of pressure to said second pressure area,

accumulator means connected with said bore to be charged when the reciprocating member moves in a direction which is due to the application of pressure to said second pressure area,
and back pressure valve means in said outlet means providing communication between said hydraulically controlled valve means and said reservoir.

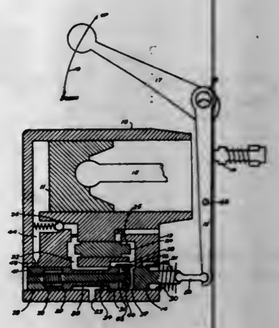
3,322,039
HYDRAULIC CUSHION
Rolf A. Madland, Arlington Heights, Ill., assignor to Parker-Hannifin Corporation, Cleveland, Ohio, a corporation of Ohio
Filed Jan. 7, 1966, Ser. No. 519,387
9 Claims. (Cl. 91—405)



1. A pressure cylinder having end closures, pressure fluid inlet and outlet porting at the ends thereof and a piston reciprocable therein between said closures, and a terminal stroke cushioning means in at least one of said closures for cushioning terminal stroke movement of the piston theretoward, said one closure having a pressure chamber therein in which to receive pressure fluid in advance of the piston when moving theretoward and said cushioning means including a longitudinal bore having one end thereof opposed to the piston, a valve plunger means including a valve plunger slidable in said bore and a spring for constantly tending to project the inner end of the plunger a predetermined distance from the bore in position for engagement by the piston, a duct traversing said bore and communicating between said chamber and the particular cylinder end porting, means for bleeding pressure fluid from the bore from behind the plunger back into the cylinder, and a cross clearance in the plunger placed to afford communication of pressure fluid from said chamber to said particular cylinder porting and presenting shoulder means for throttling said communication as the piston engages and moves the plunger outward from its inwardly projected position.

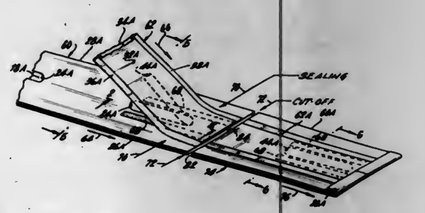
3,322,040
TRACTOR HYDRAULIC SYSTEM
Edwin C. McRae, Rte. 1, Cusseta, Ala. 36852
Filed Apr. 23, 1965, Ser. No. 450,307
7 Claims. (Cl. 91—447)

1. In a hydraulic system for controlling the flow of fluid from a fluid source to a ram cylinder, a valve housing having a valve bore therein and having a ram passageway leading from said bore to said ram cylinder, said housing also having a sump passageway therein leading from said bore to a fluid sump, and said housing having an inlet port therein which conducts fluid from said fluid source to said bore, a cylindrical valve reciprocally mounted in said bore which in a no lift position conducts fluid from said inlet port to said sump passageway and closes said ram passageway to said inlet port, and in a fast lift position closes said sump passageway and opens said ram passageway to said inlet port, and in a slow lift position leaves both said sump and ram passageways open to said inlet port, said housing also having a flutter valve bore therein the ends of which are closed, said ram passageway communicating with one end of said flutter valve bore and said sump passageway communicating with the other end of said flutter valve bore, a flutter valve reciprocally mounted in said flutter valve bore, said flutter valve being urged in one direction by fluid pressure in said ram passageway to a position where it closes said sump passageway and being urged in the opposite direction by fluid pressure in said sump passageway to a position where said sump passageway becomes unobstructed, said flutter valve rapidly reciprocating to divide the flow of fluid from said fluid source to said ram cylinder and sump, respectively, when said cylindrical valve is in a slow lift position, a control valve reciprocally mounted in said housing, said control valve being operated to move



said cylindrical valve back and forth between its fast lift position and its no lift position, means for constantly urging said cylindrical valve in one direction relative to said control valve, said control valve having valve means associated therewith which in one position of said control valve conducts fluid from said fluid source to one end of said cylindrical valve to overcome the means for constantly urging said cylindrical valve and thereby move said cylindrical valve in an opposite direction independently of movement of said control valve, said valve means in another position of said control valve exhausting fluid from adjacent to said cylindrical valve to thereby permit said means for constantly urging said cylindrical valve to move said cylindrical valve independently of movement of said control valve.

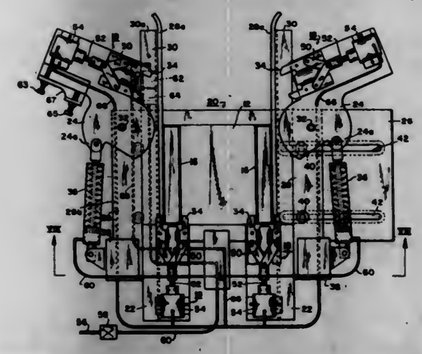
3,322,041
METHOD OF MANUFACTURING VACUUM CLEANER FILTER BAGS
John J. Fesco, Baldwin, N.Y., assignor to Studley Paper Company, Inc., a corporation of New York
Filed Nov. 12, 1964, Ser. No. 410,625
6 Claims. (Cl. 93—35)



1. The method of forming a vacuum cleaner filter bag comprising providing a first elongated tubular segment of filter material having a slot defined in one surface thereof inwardly of the opposite ends of said segment, providing a second elongated tubular segment of

air impervious material equal in longitudinal extent to said first segment and having a slot defined in one surface thereof inwardly of the opposite ends of said second segment, disposing said slots in registry, securing said surfaces together only along said slots, closing the leading ends of said segments, and closing the trailing end of said first segment.

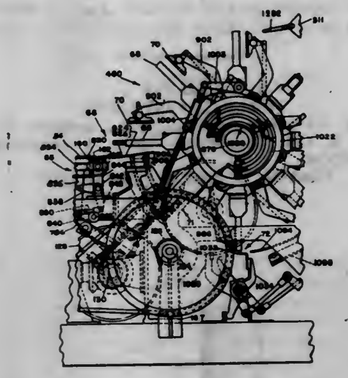
3,322,042
BOX BREAKER
Albert H. Brenner, Franklin Township, Allegheny County, Mark Kubick, Baden, and Walter W. Wilkening, Ambridge, Pa., assignors to Economy Tooling Company, Ambridge, Pa., a corporation of Pennsylvania
Filed Feb. 16, 1965, Ser. No. 433,040
7 Claims. (Cl. 93—36)



1. Apparatus for collapsing the hollow rectangular legs of U-shaped box sections comprising:
(a) a housing;
(b) an elongated member slidably mounted to said housing disposed to slide between first and second positions, one end of said member being extended beyond said housing while in said first position and retracted towards said housing while in said second position so as to force the end wall of an adjacent hollow rectangular leg inwardly when slid from said second position to said first position;
(c) arm members pivotally mounted to said housing one on either side of said elongated member, positioned to extend beyond said housing and disposed for pivoting inwardly at their extended ends towards said one end of said elongated member while in said first position so as to engage the sides of an adjacent hollow rectangular leg and urge them towards one another; and
(d) means for substantially simultaneously sliding said elongated member from said second position to said first position and pivoting said arms so that their extended ends pivot inwardly and the end wall of an adjacent hollow rectangular leg is forced inwardly and the side walls are urged together substantially simultaneously.

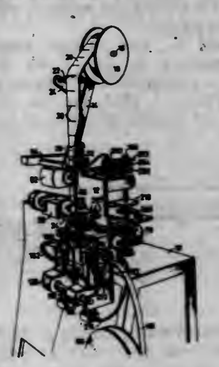
3,322,043
APPARATUS FOR PRODUCING A LINED CARTON
John G. Vergobbi, Quincy, Mass., assignor to Pneumatic Scale Corporation, Limited, Quincy, Mass., a corporation of Massachusetts
Filed Apr. 13, 1964, Ser. No. 359,312
55 Claims. (Cl. 93—36.01)

39. In a package making machine, in combination, a conveyer for continuously advancing prescored carton blanks in uniformly spaced relation, each blank having a side seam flap and two opposed bottom closing side flaps, an intermittently rotated spider having a plurality of radially extended forming blocks and rotated in a vertical plane, means for transferring successive carton blanks from said conveyer into the path of successive forming blocks, spaced stationary carton blank supporting and folding elements between which said forming blocks are moved and across which the transferred carton blanks are supported, movement of a forming block into engagement with a carton blank and between said spaced supporting and folding elements effecting folding of the



blank about three sides of the block, means for folding the remaining portions of the blank about the block to produce a carton having a side seam and a bottom closure, said last-named means including means for folding the blank about the remaining side of the block and into sealing engagement with said side seam flap, means for thereafter folding the opposed bottom closing side flaps in sealing engagement, one of said side flaps being provided with laterally extended integral end flaps, and means for folding said end flaps upwardly into sealing engagement with the adjacent end walls of the carton.

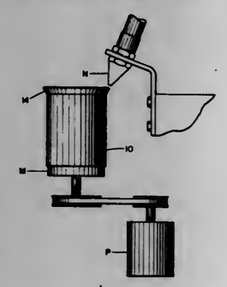
3,322,044
MACHINE FOR MANUFACTURING COIN WRAPPERS
Guy John Olof Welin-Berger, Box 228, Nacka, Sweden
Filed Nov. 7, 1963, Ser. No. 322,216
Claims priority, application Sweden, Nov. 22, 1962, 12,553/62
9 Claims. (Cl. 93—39.1)



1. A machine for manufacturing coin wrappers of sheet material, each wrapper consisting of a jacket and a bottom,

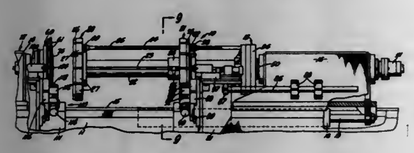
comprising in combination a mandrel having a duct opening at an end of the mandrel, said end defining an assembly place, means for feeding a continuous jacket strip in its longitudinal direction to the mandrel parallel with the axis of the mandrel, means for bending the jacket strip about the mandrel to tubular form, means for supplying wrapper bottom parts to the assembly place at said end of the mandrel, valve means adapted to admit suction to said mandrel duct to temporarily retain the bottom part, means for securing the bottom part to the continuous tubular strip, means for severing a leading part of the tubular strip with its bottom part, and valve means adapted to admit pressure to said mandrel duct to remove the finished coin wrapper from the mandrel by pressure.

3,322,045
SEALING CLOSURES
Robert V. Tanona, Lexington, Mass., assignor to W. R. Grace & Co., Cambridge, Mass., a corporation of Connecticut
Filed Oct. 5, 1964, Ser. No. 401,427
4 Claims. (Cl. 93—39.1)



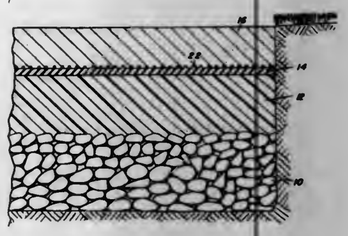
1. The method of sealing metallic can-end closures to composite can bodies, which includes forming a bead of thermo-plastic sealing composition on the flanged area of a flanged can body, cooling the bead to solidify it, heating a can end closure to a temperature sufficient to melt said sealing composition, applying the hot closure to a can body and roll-seaming the hot closure on said body while the closure remains at an elevated temperature, whereby heat derived from the hot closure is sufficient to cause the reflow of the thermo-plastic and the same is remolded into the seam area under the simultaneous conditions of heat and pressure.

3,322,046
PAPERBOARD DRUMS AND A METHOD AND APPARATUS FOR MOUNTING THE END CLOSURES THEREON
Winfield E. Hall, Jr., San Marino, Calif., assignor, by mesne assignments, to The Greif Bros. Cooperage Corporation, a corporation of Delaware
Filed Jan. 14, 1965, Ser. No. 425,388
17 Claims. (Cl. 93—39.1)



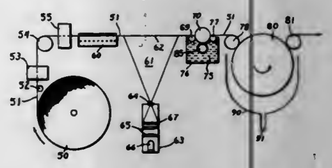
1. In an apparatus for mounting an end enclosure on a cylindrical paperboard drum with an encircling connecting band, the combination of; chuck means for internally supporting the drum, means for rotating said chuck means and drum about the axis of the drum for engaging and supporting the end closure with the drum, radial shaping means mounted for inward movement against said connecting band and drum for forming an inwardly projecting annular rib in said band and drum positioned adjacent and inward of the end closure, and axial shaping means mounted for movement toward the edge of the drum for inwardly deforming the band to encircle the edge of the drum and confine the end closure against the said annular rib.

3,322,047
COMPOSITION RACE TRACK BASE WITH ROUGHENED TOP SURFACE
Philip Bieber, Coral Gables, Fla. (69—34 180th St., Flushing, N.Y. 11365), and Allen D. Frischer, 2 Prospect Ave., Woodmere, N.Y. 11598
Filed Apr. 16, 1965, Ser. No. 448,588
2 Claims. (Cl. 94—4)



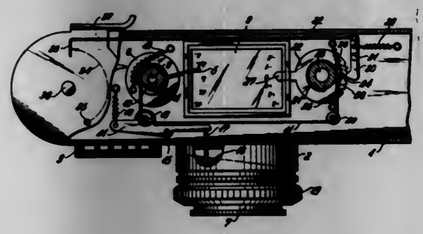
1. A race track construction comprising a supporting layer of material, a base of resilient flexible material supported thereon, and a cushion of loose dirt engaging said base whereby the flexible resilient base will receive the forces of running hooves thereon, said base including projecting means on the upper surface thereof defining a roughened surface for retaining the cushion thereon.

3,322,048
ELECTROPHOTOGRAPHY
Donald L. Fauser, Lakewood, and Edwin R. Kolb, Grafton, Ohio, assignors to Harris-Intertype Corporation, Cleveland, Ohio, a corporation of Delaware
Original application Sept. 23, 1958, Ser. No. 762,756. Divided and this application Jan. 25, 1965, Ser. No. 427,772
10 Claims. (Cl. 95—1.7)



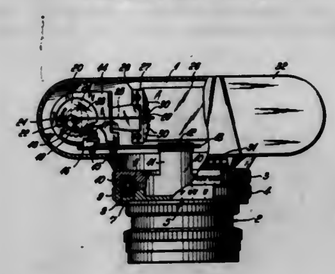
1. In apparatus of the character described for electrophotographic reproduction of images on an electrophotosensitive surface, the combination which comprises means for impressing on to selected areas of said electrophotosensitive surface an electrostatic charge, means for exposing said charge areas of said electrophotosensitive surface to a light image producing on said surface an electrostatic charge image corresponding to said light image, means for subjecting said charge image on said surface to the developing action of a liquid developing composition including a liquid vehicle and a developing agent by bringing said surface with said charge image thereon into contact with the liquid developer composition; for electrostatic deposition on said surface in accordance with said charge image thereon, said liquid developing composition including a component for fixing said deposited agent substantially permanently to said surface upon removal of said liquid vehicle, and means receiving said surface after development of said charge image for removing substantially all of the electrically insulating liquid adhering to said surface and thereby enabling the fixing component to adhere the deposited developing agent substantially without fusing the fixing component thereon whereby the electrophotosensitive surface becomes the final copy of the original.

3,322,049
PHOTOGRAPHIC CAMERA WITH EXPOSURE FACTOR CONNECTION MEANS CONTROLLED BY RESETTING OF CAMERA
Oskar Fischer, Braunschweig-Volkmarode, Germany, assignor to Voigtlander A.G., Braunschweig, Germany, a corporation of Germany
Filed Sept. 25, 1963, Ser. No. 311,477
Claims priority, application Germany, Sept. 28, 1962, V 23,090
3 Claims. (Cl. 95—10)



1. In a photographic camera, in combination, camera operating mechanism; an electric exposure meter including a meter movement having an indicator movable about an axis, said meter movement being angularly adjustable bodily about such axis; means for adjusting an exposure value in accordance with the meter indication; a correction device selectively operable from a neutral position for incorporating a correction factor into the thus adjusted exposure value; means interconnecting said correction device and said meter movement and effective, upon operation of said correction device, to adjust said meter movement angularly in accordance with the setting of said correction device; correction device control means, including coupling means interconnecting said mechanism and said device, effective, responsive to an operation of said mechanism normally occurring between successive exposures, to reset said device to its neutral position, said correction device including a disk movable therewith and having ratchet teeth; said control device including a movable pawl spring biased into engagement with said ratchet teeth; said coupling means, upon such operation of said mechanism, momentarily actuating said pawl to release said ratchet teeth; and means biasing said correction device to its neutral position, said coupling means comprising a link connected to one end of said pawl and having an abutment on its other end; said mechanism including a film advance lever and a stop movable with said lever and engageable with said abutment, when said film advance lever is operated to advance the film, momentarily to move said link to disengage said pawl from said ratchet teeth.

3,322,050
PHOTOGRAPHIC CAMERA WITH ELECTRIC EXPOSURE METER
Walter Swarofsky, Braunschweig, Germany, assignor to Voigtlander A.G., Braunschweig, Germany, a corporation of Germany
Filed Oct. 10, 1963, Ser. No. 315,264
Claims priority, application Germany, Mar. 4, 1963, V 14,896
3 Claims. (Cl. 95—10)

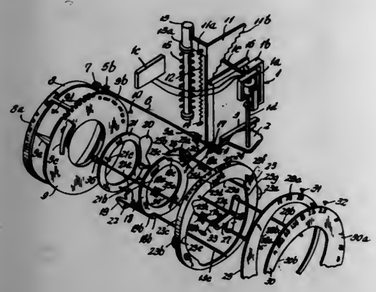


1. In a photographic camera, the combination comprising a photoelectric exposure meter including a measuring instrument, having an indicator, and a light-sensitive cell; said indicator being movable in linear increments corresponding to a scale, divided by the factor "2" of the intensities of light incident upon said cell; a fixed reference mark cooperable with said indicator; exposure time adjusting means; diaphragm aperture adjusting means; film sensitivity adjusting means; mechanism interconnecting all three of said adjusting means and said measuring instrument and effective, through said three adjusting means, to provide a normal exposure of the film when said indicator coincides with said reference mark; and at least a pair of fixed correction marks respectively situated on opposite sides of said reference mark and cooperable with said indicator for respectively providing an overexposure or an underexposure, as compared to an exposure when said indicator coincides with said reference mark, when said indicator is aligned with one or the other of said correction marks, respectively; the spacings of said correction marks from said reference mark corresponding to fixed increments of said scale, and indicia respectively situated adjacent said correction marks and indicating which of said marks will provide said overexposure and which of said marks will provide said underexposure; said fixed reference marks and said correction marks being carried by a common indicator mark plate; said fixed reference mark being in the form of an aperture through the indicator mark plate, and said correction marks comprising notches cut in an edge of the indicator mark plate.

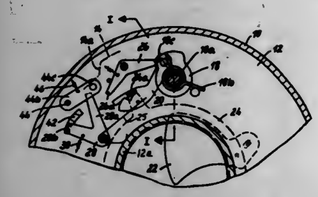
3,322,051
PHOTOGRAPHIC CAMERA WITH BUILT-IN OR ATTACHED EXPOSURE METER AND A MANUAL OR AUTOMATICALLY ADJUSTABLE DIAPHRAGM
Waldemar T. Rentschler, Calmbach (Enz), Germany, assignor to Alfred Gauthier, G.m.b.H., Calmbach (Enz), Germany, a corporation of Germany
Filed July 24, 1964, Ser. No. 384,908
Claims priority, application Germany, July 27, 1963, G 38,326
3 Claims. (Cl. 95—10)

1. A photographic camera comprising an exposure meter; a variable diaphragm capable of being set at different diaphragm aperture sizes; a diaphragm setting device controlling said diaphragm; a setting member having an "Automatic Daylight" setting position, an "Automatic

Photoflash" position, and a "Manual" setting range; a guide number setting control for adjusting the operation of the camera according to flashbulb guide numbers; a focusing control; a ring connected to said exposure meter to be controlled thereby; means controlled by said setting member to connect said ring to said diaphragm setting device when said setting member is in its "Automatic Daylight" position whereby the aperture of said diaphragm will be automatically controlled in accordance with light reaching said exposure meter; a differential mechanism connected to said focusing control and to said guide number setting control to be operated by settings of both of said last-named controls, said differential mechanism having means governed by said setting member to render said differential mechanism operable when said setting member is set to its "Automatic Photoflash" position; and means connecting said differential mechanism to said diaphragm setting device to control the operation thereof only when said setting member is set to its "Automatic Photoflash" position, whereby aperture size of said diaphragm will then be governed by said guide number setting control and said focusing control.

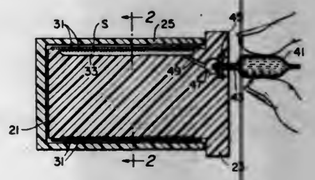


3,322,052
PHOTOGRAPHIC SHUTTER
Franz Singer and Helmut Müller, Munich, Germany, assignors to Compur-Werk Gesellschaft mit beschrankter Haftung & Co., Munich, Germany, a firm of Germany
Filed Jan. 19, 1965, Ser. No. 426,611
Claims priority, application Germany, Jan. 23, 1964, C 31,949
8 Claims. (Cl. 95—63)



1. A photographic shutter comprising a main driving member mounted for rotation in a forward direction to make an exposure and for rotation in a reverse direction to condition said member ready for a subsequent exposure, a main spring for driving said member, an auxiliary spring selectively effective to assist in driving said member, said auxiliary spring being operatively connected to a rotary bearing sleeve rotatable concentrically with said main driving member, a releasable main latch for holding said main driving member and said main spring in a tensioned position, a releasable auxiliary latch for holding said bearing sleeve and said auxiliary spring in a tensioned position, said bearing sleeve being effective, when said auxiliary latch is released, to impart torque to said main driving member to assist said main spring in turning said main driving member in said forward direction, a first driving element on said main driving member, a second driving element on said sleeve for making driving contact with said first driving element when said auxiliary latch is released, said first driving element acting on said second driving element to turn said sleeve in a reverse direction during part of the rotation of said main driving member in said reverse direction, and an auxiliary tensioning member pivotally mounted laterally of said main driving element and said bearing sleeve, said auxiliary tensioning member having one portion adapted to be engaged by said first driving element during part of the rotation of said main driving member in said reverse direction and having a second portion adapted to engage said second driving element to turn said sleeve to at least its said tensioned position through a greater angle of rotation than said main driving member.

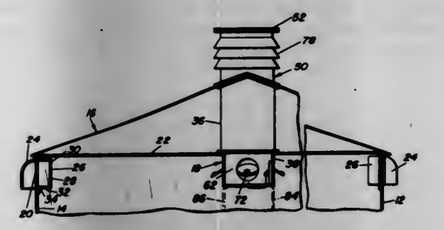
3,322,053
TREATING SURFACES WITH FLUIDS
Paul J. Good, Springwater, N.Y., assignor, by mesne assignments, to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware
Filed Apr. 30, 1964, Ser. No. 363,943
10 Claims. (Cl. 95—89)



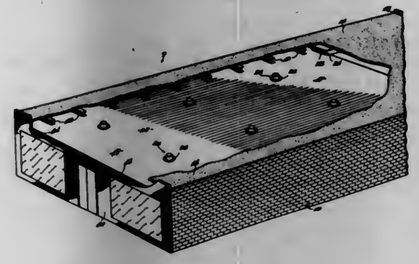
1. Apparatus for wetting a sheet with a processing fluid, comprising means forming a capillary groove structure including a substantially cylindrical convex surface shaped to provide a multiplicity of small capillary grooves extending in one direction parallel to each other in close side by side relationship, said surface being shaped to provide also a distribution channel extending transversely to the capillary grooves and communicating with all of said grooves, means substantially enclosing said convex surface for holding the sheet to be wetted in a position wrapped around a major portion of the periphery of said convex surface and in substantially stationary contact against said surface of said capillary groove structure, and means for supplying fluid to said distribution channel to flow therefrom to said capillary grooves and thence by capillary attraction along said grooves to wet the overlying surface of the sheet.

3,322,054
VENTILATION DEVICE FOR BUILDING
Dominic M. Lippi, Luverne, Minn., assignor to A. R. Wood Manufacturing Company, a corporation of Minnesota
Filed Aug. 17, 1965, Ser. No. 480,323
15 Claims. (Cl. 98—33)

11. A ventilation device comprising a tubular upstanding casing, an electric motor driven blower in said casing arranged to discharge air upwardly, said casing including air inlet means opening generally horizontally outwardly of said casing in at least two separate directions below said blower means, closure means operatively associated with the open lower end of said casing for closing the latter and shiftable relative to said casing by gravity to an open position, latch means operatively associated with said casing and said closure means and operable to retain said closure means in the closed position, electrically operated control means for said latch means, a source of electrical potential, first electrical circuit means electrically connecting said motor to said source and second electrical circuit means electrically connecting said control means to said source, said control means being operable to release said latch means in response to an inactive presence of said source so as to automatically open said closure means should the supply of electrical energy to said source be interrupted.



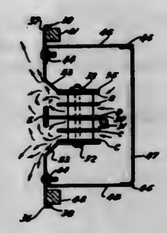
3,322,055
AIR DISTRIBUTION SYSTEM
William A. Zumbiel, South Fort Mitchell, Ky., assignor to The Kroger Co., Cincinnati, Ohio
Filed Mar. 12, 1964, Ser. No. 351,401
5 Claims. (Cl. 98—39)



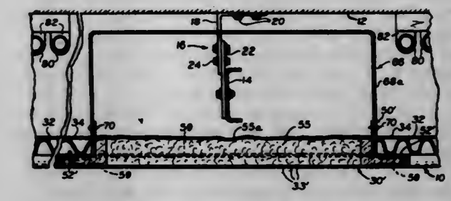
1. In a room having at least four walls, a ceiling, a heating and cooling source having an air distributing output, an air distribution system comprising, a chamber defined by said walls, said ceiling and a false ceiling spaced therefrom, said chamber having at least one air receiving opening and a plurality of air discharge openings, and a fan positioned at each of the air discharge openings, said fans having a total air distributing capacity equal to the air distributing output of said heating and cooling source, sad chamber being unsealed and of such construction that during normal operation of the air distribution system; the chamber operates at substantially atmospheric pressure.

3,322,056
AIR DIFFUSERS
Cortland N. O'Day, deceased, late of Port Washington, N.Y., by Ruth L. O'Day, executrix, Port Washington, N.Y., and George J. Sweeney, Plandome, N.Y., assignors to Air Devices, Inc., New York, N.Y., a corporation of New York
Filed Aug. 29, 1963, Ser. No. 305,550
The portion of the term of the patent subsequent to Dec. 11, 1979, has been disclaimed
8 Claims. (Cl. 98—40)

1. An elongated rectangular air diffuser construction for insertion into an elongated rectangular opening in a wall and to introduce a band of conditioned and ventilating air into an enclosure comprising elongated side frame members having outer parallel face plates spaced from each other to be positioned against the wall on each side of the elongated opening and each face plate having inturned transverse side walls integral with said face plates and at right angles to the wall and to the face plates and said transverse walls being spaced apart within the elongated rectangular wall opening, a plurality of elongated intermediate plates spaced from each other and between and parallel to the transverse side walls to form a series of closely spaced elongated rectangular air outlet channels between said transverse walls and an outside narrow plate in the plane of face plates and means to connect said walls and intermediate plates together, said narrow plate extending centrally over and obstructing the flow from between the intermediate plates and being mounted on a central intermediate plate and said narrow plates and the adjacent ends of said intermediate plates being spaced from each other so as to form open spaces adjacent the face plates so that release of the air from between the intermediate plates will cause it to flow into open wells and recesses beyond the intermediate plates and inside of the plane of the wall.



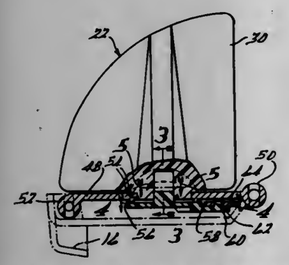
3,322,057
HUNG LUMINOUS CEILING WITH AIR CONDITIONING DUCTS
Maurice C. Rosenblatt, 23 W. 73rd St., New York, N.Y. 10023
Filed Oct. 21, 1965, Ser. No. 499,789
14 Claims. (Cl. 98—40)



1. A luminous ceiling for a room including a plenum with an overhead structure at the top thereof; purlins for connection with the overhead structure, a plurality of horizontally extending ceiling elements for connection with the lower portions of the purlins at a distance below the overhead structure, some of the ceiling elements extending longitudinally of the room and others transversely at substantially the same level, light-transmitting panels supported at their edges by the longitudinal and transverse ceiling elements and forming with said ceiling elements a hung ceiling for closing off the plenum between the hung ceiling and said overhead structure, means in the plenum for supporting lights above the light-transmitting panels, continuous air ducts extending across the ceiling along the upper side of at least some of the horizontally extending ceiling elements, the ceiling elements below each air

duct forming the bottom side of the air duct, openings through the bottom of each horizontally extending element which forms the bottom of an air duct for the discharge of air from the duct and through a part of the ceiling between the light-transmitting panels that are supported by the horizontally extending ceiling elements that form the bottoms of the air ducts, said continuous air ducts formed by the ceiling elements being parallel, and another air duct across one end of the room and into which the parallel air ducts open to connect them with the end duct which serves as a header.

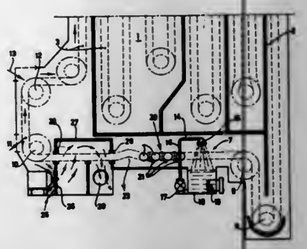
3,322,058
AIR VANE ASSEMBLY
Joseph S. Jessee, Jr., Dayton, Ohio, assignor to Chrysler Corporation, Highland Park, Mich., a corporation of Delaware
Filed Oct. 13, 1965, Ser. No. 495,489
5 Claims. (Cl. 98—94)



1. Apparatus for controlling the discharge of air from a cabinet having an air outlet passage formed therein, said apparatus comprising a support structure having upper and lower surfaces, and a plurality of air vane assemblies, said support structure being carried by said cabinet in registry with the above-mentioned passage and having a plurality of openings therethrough, said air vane assemblies each being carried by said support structure in registry with one of the above-mentioned opening and comprising first and second sections, said first section comprising a journal portion and an air vane portion extending from said journal portion, said journal portion having an aperture therein extending through said journal portion and into said air vane portion so as to form a second aperture extending transversely through said air vane portion, said second section comprising a head portion and a pin provided with retaining portions extending from the head, said first section being carried by one of said surfaces of the support structure and journaled with an opening therein, said first section having a laterally projecting portion overlying a portion of said support structure in the vicinity of the associated opening to serve as bearing surface in cooperation with the support surface, said second section being carried by the opposite surface of said support structure, and said first and second sections being detachably interconnected by insertion of the pin of the second section into the aperture of the first section so that said retaining portions can project from said second aperture.

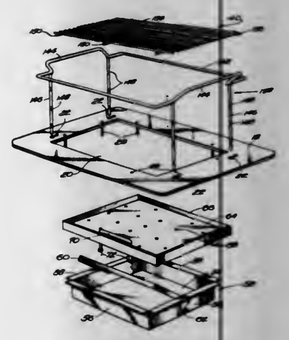
3,322,059
DEVICE FOR THERMAL TREATMENT OF COMMODITIES PACKED IN TINS
Johannes B. van der Winden, Amstelveen, Netherlands, assignor to Gebroeders Stork & Co's Apparatenfabriek N.V., Amsterdam, Netherlands
Filed Dec. 20, 1965, Ser. No. 515,079
4 Claims. (Cl. 99—249)

2. A device for thermal treatment, such as pasteurization or sterilization of commodities packed in tins, the said device comprising an overpressure steam chamber having a discharge section with cooling fluid, an endless conveyor being advanceable through this chamber and discharge section, said conveyor consisting of a plurality of pivotally interconnected links provided with carriers for a row of adjacent tins, the said conveyor in an area beyond the discharge section following a substantially horizontal track part, means being provided in said horizontal track part for spraying or clouding a heating liquid



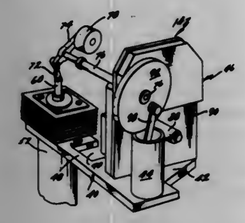
and directing these liquid particles towards the tin advancing along the track, means for subsequently jogging the adjacent tins in an upward direction, each carrier being constituted by a pair of adjacent profilated bars which are mutually spaced in the direction of transport, said jogging means being constituted by at least one obliquely situated rod over which the profilated bars slidingly advance.

3,322,060
CHARCOAL GRILL AND THE LIKE
William A. Gilbert, Main St., North Scituate, R.I. 02857
Filed Sept. 14, 1964, Ser. No. 396,246
15 Claims. (Cl. 99—421)



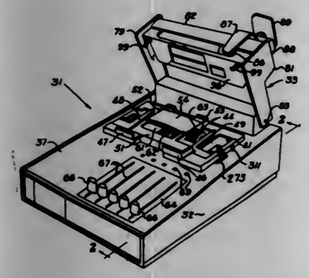
1. A charcoal grill comprising a horizontal top plate having a central opening therein, means for supporting charcoal and the like below said opening, a rack frame comprising a plurality of vertical legs, each of said legs having a plurality of spaced reduced portions in horizontal alignment with the reduced portions of the other legs, and a plurality of cutouts in said top plate receiving said legs, each of said cutouts comprising a first portion large enough to freely receive said vertical legs and a second portion in communication therewith large enough to receive the reduced portions of each leg but smaller than the remaining portions of the legs, whereby the height of said rack frame above said top plate may be readily adjusted by laterally moving said legs so that preselected reduced portions thereof are located in the aforesaid second portions of said cutouts.

3,322,061
HOT AIR ROTISSERIE ENGINE ATTACHMENT
Orville Z. Frazier, 732 Sherman, Grand Rapids, Mich. 49503
Filed June 23, 1965, Ser. No. 466,401
5 Claims. (Cl. 99—421)



1. An integral, self-contained, rotisserie powering, hot air engine attachment unit comprising: a support; a displacer cylinder on one end of said support; a power cylinder on the opposite end of said support; a displacer piston in said displacer cylinder, having a connecting rod extending therefrom; a power piston in said power cylinder having a connecting rod extending therefrom; a rotatable output spindle; fly wheel means; interconnecting drive means between said connecting rods, said fly wheel means, and said spindle, to rotate said spindle; said support being configurated to fit around the housing cowl of a rotisserie, and having bracket mount means attachable to a housing cowl to mount said attachment unit.

3,322,062
VARIABLE DATA PRINT CONTROL AND INTERLOCK MEANS IN PRINTING MACHINES
John A. Maul, Lyndhurst, Ohio, assignor to Addressograph-Multigraph Corporation, Cleveland, Ohio, a corporation of Delaware
Filed Aug. 12, 1965, Ser. No. 479,156
5 Claims. (Cl. 101—45)



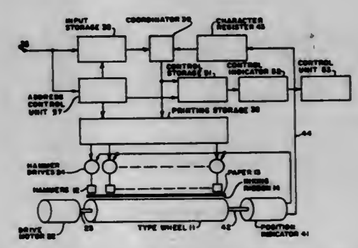
1. In a variable data printing machine of the kind comprising a plurality of individual type devices each settable to a plurality of different positions to present different type characters at a printing position and each including a plurality of spaced index elements aligned with similar index elements of the remaining type devices whenever said type devices are set for a printing operation, and imprinting means movable in a predetermined direction along a predetermined path in association with an imprinting operation of the machine to imprint a recording sheet engaging said type characters, a reset signalling device comprising:

a print sensing element interposed in said path and displaceable from an initial position to a second position each time said imprinting means moves in said predetermined direction along said path;

a type set sensing element engaging said index elements and displaceable from a first position to a second position whenever one of said type devices is set to a different type setting;

and a bi-stable signalling device, associated with both of said sensing elements, actuatable upon displacement of said print sensing element to its second position to a first stable position indicating that a printing operation should not proceed without resetting of the type devices, and actuatable upon displacement of said type set sensing element to its second position to a second stable position indicating that a printing operation may proceed.

3,322,063
LINE PRINTER CONTROL CIRCUIT
Makoto Hida, Yokohama-shi, Atsuo Tanaka, Fujisawa-shi, and Toshiyuki Hatanaka, Kawasaki-shi, Japan, assignors to Fujitsu Limited, Kawasaki, Japan, a corporation of Japan
Filed May 11, 1965, Ser. No. 455,671
Claims priority, application Japan, May 14, 1964, 39/27,124
8 Claims. (Cl. 101—93)



1. In line printing apparatus comprising a type wheel, hammer means, paper and inking means interposed between said type wheel and said hammer means and driving means coupled to said type wheel for rotating said type wheel incrementally from an initial position, a line printer control circuit for controlling the operation of said line printing apparatus to print a line of data having a determined number of characters from said initial position of said line printing apparatus, said line printer control circuit comprising,

control indicating means for indicating by binary means the completion of printing of said determined number of characters; and

control means connected to said control indicating means and coupled to the driving means said line printing apparatus for halting the operation of said line printing apparatus upon the completion of printing of said determined number of characters and directly returning the type wheel of said line printing apparatus to its initial position.

3,322,064
PRINT DRUM TYPE MATRIX AND SEQUENTIAL LINE PRINTING CONTROL
John C. Sims, Jr., Sudbury, Mass., assignor to Anelex Corporation, Boston, Mass., a corporation of New Hampshire
Filed June 2, 1966, Ser. No. 554,793
3 Claims. (Cl. 101—93)

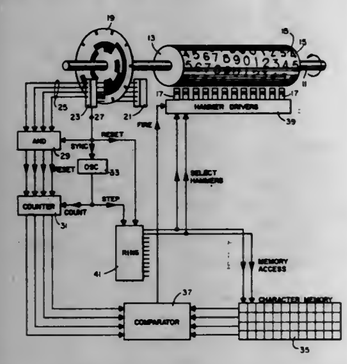
1. A printer comprising, in combination:

a print drum having type faces arranged in a matrix having rows which are generally parallel to the axis of the drum and having columns around the periphery of the drum, at least one complete set of

type faces being present in each column, wherein similar type faces in adacent rows and columns are displaced by at least one row and wherein type faces differ from their neighbors along rows;

means for rotating the drum to cause the rows of type faces to pass a printing line that is substantially parallel to the rows;

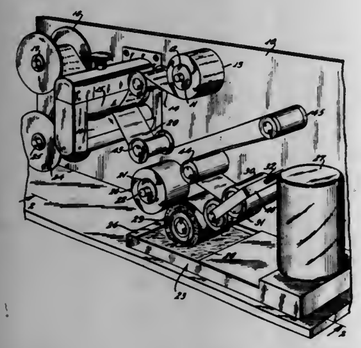
and means for providing an indication of the identity



of the type face in a predetermined column which has reached a predetermined position with respect to the printing line during rotation of the drum;

wherein the indication providing means comprises a counter under the control of a timing signal generator which is mechanically coupled to the print drum, the counter being incremented once for each column across each row.

3,322,065
ROTARY SPIRIT DUPLICATOR ADDRESSING MACHINE
Edward E. Procter and Bernice E. Procter, both of P.O. Box 268, Winter Haven, Fla. 33880
Filed June 22, 1965, Ser. No. 465,878
3 Claims. (Cl. 101—132.5)



1. Apparatus for printing varying indicia comprising a support means on which is mounted each of the following:

a first feed reel for carrying a master carrier web having indicia thereon in a soluble copying ink,

a takeup reel for receiving said master web,

a second feed reel for carrying a roll of blank web,

a second takeup reel for receiving said blank web,

each of said reels being rotatably mounted on a shaft rotatably mounted on the support means, and tension washer means connecting each shaft and each reel for moving the reel with the shaft while providing slippage between the shaft and the feed reel when the torque therebetween exceeds a predetermined value,

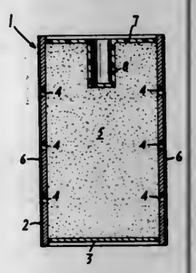
a pair of opposed compressor rollers for pressing said master and said blank webs together as they move therebetween,

means for applying a liquid solvent for the copying ink to the blank web at a point between the second feed reel and the opposed compressor rollers,

slip belt means entrained about both takeup reels and one of the compressor rollers for driving said reels and compressor rollers together and providing slippage between the belts, reels, and compressor rollers, and

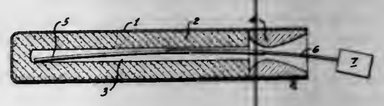
drive means for driving the takeup reels and the said compressor roller.

3,322,066
SELF-DESTRUCTIVE EXPLOSIVE CARTRIDGE FOR UNDERWATER SEISMIC EXPLORATION
George L. Griffith, Coopersburg, and William L. K. Schwoyer and Stephen L. Mayer, Allentown, Pa., assignors to Trojan Powder Company, Allentown, Pa., a corporation of New York
Filed Feb. 8, 1966, Ser. No. 525,913
12 Claims. (Cl. 102—24)



1. An explosive cartridge that exposes an explosive charge contained therein to water after immersion in water comprising in combination a container defining a compartment, an opening extending through the container into the compartment for flow of water thereinto and escape of explosive charge therefrom when the cartridge is immersed in water, and an explosive charge in the compartment including in admixture therewith a water-activatable inert dissipator which when contacted with water changes in volume in a manner to facilitate the circulation of water through the compartment.

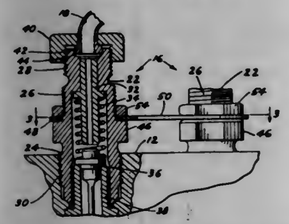
3,322,067
APPARATUS FOR IGNITING MINIATURE ROCKETS
Bert B. Gould, Berkeley, Calif., assignor, by mesne assignments, to MB Associates, San Ramon, Calif.
Continuation of application Ser. No. 95,391, Mar. 13, 1961. This application Feb. 4, 1965, Ser. No. 431,780
10 Claims. (Cl. 102—70)



1. A miniature rocket engine embodying an ignition device comprising in combination a rocket engine having

an elongate casing, a solid propellant grain within said casing, said solid propellant grain having a central burning port extending substantially the entire length thereof, and an ignition device comprising an elongate combustible support formed of a high heat conductive material and unconnected to the grain and having a cross-section which is a small fraction of the cross-section of the port and which extends substantially throughout the length of the burning port from the forward end to the rearward end thereof, and a pyrotechnic coating on at least that portion of the support which lies within the burning port to provide an ignition device having a burning rate of 1 to 10 inches per second, and means for ignition of the coated support adjacent the rearward end of the burning port, ignition of the propellant grain occurring when the pyrotechnic coated support has burned from the rearward end to the forward end portion of the central burning port.

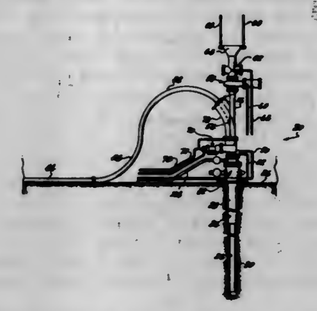
3,322,068
DIESEL FUEL SYSTEM
Paul W. Stankovich, Romeo, Mich., assignor to Holley Carburetor Company, Warren, Mich., a corporation of Michigan
Filed Dec. 30, 1965, Ser. No. 517,627
4 Claims. (Cl. 103—2)



1. A fuel injection system for a multi-cylinder diesel engine, comprising a fuel injection pump housing containing a plurality of fuel delivery means, a threaded opening in the wall of said housing adjacent each of said means, a delivery means retainer having a fuel passage therethrough screwed into each of said openings under a predetermined torque, the portion of each of said retainers extending from said housing having a shoulder extending radially therefrom, a strap having an opening at each end thereof positioned on each adjacent pair of said retainers, one of said retainers being received in each of said end openings, means co-operating with each of said pair of retainers to clamp said strap against said shoulder, a fuel conduit for each of said retainers for delivering fuel therefrom to one cylinder of said engine and means operable by rotation thereof co-operating with the free end of each of said retainers for sealing said conduits against fuel leakage, each of said straps serving to retain said adjacent pair of retainers in their originally torqued condition when said last named means are tightened or loosened under a torque greater than that required to turn said retainers in said housing.

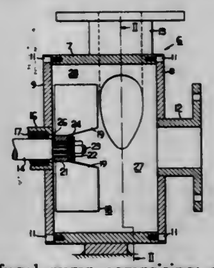
3,322,069
FLUID OPERATED WELL PUMPING APPARATUS
Clarence J. Coberly, San Marino, Calif., assignor to Kobe, Inc., Huntington Park, Calif., a corporation of California
Filed Sept. 7, 1965, Ser. No. 485,345
21 Claims. (Cl. 103—46)

1. A fluid operated well pumping apparatus hydraulically movable through a tubing system, including any bends therein, between an operating position in a well and a control station whereat said pumping apparatus can be inserted into or removed from the tubing system, said pumping apparatus being articulated and comprising at least two elongate units and means articulately interconnecting same in end-to-end relation, and said pumping apparatus including fluid operated engine means and



pump means connected to and operable by said engine means, said engine means and pump means including housing means having movable, interconnected engine and pump elements therein.

3,322,070
VORTEX PUMP
Kenneth E. Glass, Fort Thomas, Ky., assignor to Allis-Chalmers Manufacturing Company, Milwaukee, Wis.
Continuation of application Ser. No. 446,515, Apr. 8, 1965. This application Mar. 11, 1966, Ser. No. 542,980
2 Claims. (Cl. 103—103)



1. A centrifugal pump comprising; a casing having a peripheral wall, said wall having a single continuously smooth inner surface; a pair of axially spaced end walls defining with said peripheral wall a pumping chamber; an axial inlet of preselected diameter in one of said end walls; a tangential outlet in the peripheral wall adjacent the end wall having said inlet; and a pump impeller having a plurality of blades rotatably supported in said pumping chamber coaxial with said inlet, said blades having open end edges facing said inlet and axially spaced therefrom a distance not less than the diameter of said inlet, said outlet being located entirely axially forward of said open end edges of said blades, and said blades having outer radial ends spaced a substantial radial distance inwardly of said single continuously smooth inner surface whereby said impeller produces an annulus of rotating fluid between the radial outer ends of said blades and said smooth inner surface and said outlet.

3,322,071
PUMP
Robert K. Teter, Port Chester, N.Y., assignor to Textron Inc., Byram, Conn., a corporation of Rhode Island
Filed June 10, 1965, Ser. No. 462,837
10 Claims. (Cl. 103—113)

1. A self priming liquid pump adapted to be mounted on a motor having a housing and a shaft, comprising a dished back plate having an annular peripheral edge por-

tion and a central opening, means for mounting said back plate on said motor housing with said shaft received in said opening, said back plate having on its inner side a central impeller cavity and a volute passage around said cavity and defined by a peripheral wall and a scroll having a leading end adjacent said cavity, and spiriling out to said peripheral wall, said volute passage having an entry portion communicating with said cavity and a discharge portion separated radially from said cavity by scroll, an impeller on said shaft and in said cavity, a end plate having an annular peripheral edge portion conforming substantially to and facing said peripheral edge portion of said back plate, said end plate defining a liquid storage chamber, a discharge outlet at the upper part of said chamber and an inlet passage extending through said chamber and having a central outlet end, a wear plate having an annular peripheral edge portion interposed between said peripheral edge portion of said back

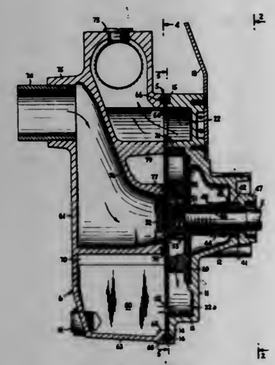
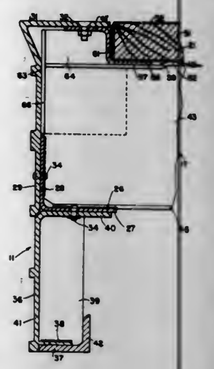


plate and end plate, said wear plate having a central inlet opening providing communications between said inlet passage and said impeller cavity, at least one discharge opening providing communication between the discharge portion of said volute passage and an upper portion of said chamber and at least one priming opening providing passage between said impeller cavity and a lower portion of said chamber, said wear plate being a sheet metal stamping of substantially uniform thickness with said openings punched therein, means for securing said wear plate between said end plate and back plate and means providing a seal between said peripheral portions of said end plate, wear plate and back plate, whereby during the priming of said pump, liquid flows through said priming opening from said chamber to said impeller cavity and is discharged through said discharge opening from said volute passage to said chamber.

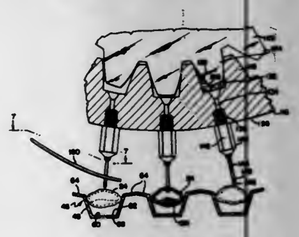
3,322,072
RAILWAY VEHICLE UNDERFRAME CONSTRUCTION
Jack W. Borger, Chicago, and William Van Der Sluys, Homewood, Ill., assignors to Pullman Incorporated, Chicago, Ill., a corporation of Delaware
Filed Feb. 23, 1965, Ser. No. 434,517
1 Claim. (Cl. 105—422)

A railway vehicle underframe comprising two transversely spaced side sills extending lengthwise of said vehicle, lengthwise spaced bolsters fixed between said side sills inwardly of the ends thereof, end sills fastened across the respective ends of said side sills, said side sills each including an inner sill member and an outer sill member, said inner sill member having an inwardly extending horizontal leg and an upwardly extending vertical leg, said outer sill member including a downwardly depending web overlying and fixed to said upwardly extending vertical leg of said inner sill member, said outer sill further including a horizontal web projecting inwardly from the upper end



of said vertical web, a floor support structure including a plurality of cross-bearers spaced lengthwise of said vehicle, said cross-bearers being fixed at the ends thereof to said inner sill members of said side sills, and floor planks supported on said cross-bearers, said floor planks being of a thickness to lie substantially coplanar with said horizontal webs of said outer sill member.

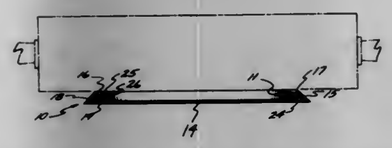
3,322,073
MATERIAL APPLYING APPARATUS
William L. McKown, St. Louis Park, and Murray E. Ball, Rockford, Minn., assignors to General Mills, Inc., a corporation of Delaware
Filed May 28, 1965, Ser. No. 459,774
10 Claims. (Cl. 107—1)



1. An apparatus for applying a flowable material to a plurality of units, said apparatus comprising:
(a) a first gear member having a plurality of interiorly facing gear teeth, proximate pairs of which define respective material carrying recesses, said gear member being mounted for rotation about a first generally tranverse axis,
(b) said first gear member being provided with a plurality of discharge means, each of which defines a respective discharge outlet which opens to the exterior of said first gear member and communicates with a related one of said recesses,
(c) a pinion gear member disposed within said first gear member in meshing engagement therewith and mounted for rotational movement about a second generally transverse axis offset from said first transverse axis, so that teeth of said pinion gear force material from said recesses out said discharge outlets

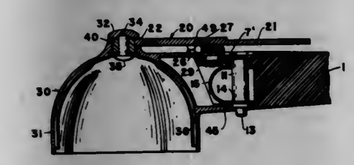
as they mesh with the gear teeth of said first gear member,
(d) means to rotate said gear members at a predetermined rate of travel, and
(e) conveying means to carry said units in a predetermined arrangement corresponding to that of the discharge outlets of said first gear member and to move said units at a predetermined rate of travel corresponding to the linear peripheral rate of travel of said first gear member and in timed relationship therewith along a path proximate to said first gear member at a location thereof where said first gear member meshes with said pinion gear member.

3,322,074
DOUGH MOLD
Madeline A. Malnory, 6411 W. Arthur Ave., West Allis, Wis. 53214
Filed Jan. 20, 1964, Ser. No. 338,838
2 Claims. (Cl. 107—46)



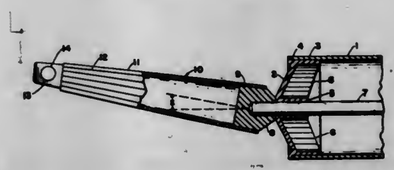
1. In a mold for shaping the dough that forms the crust for pies; a bottom panel; a rim extending about the periphery of said bottom panel and cooperating with the latter for forming a cavity to receive the dough that is to be molded into the shape of the bottom of the pie crust with the inner surface of said rim being shaped into a decorative design that defines the perimeter of the cavity to provide the pie crust that is formed in said cavity with a pleasing appearance; a cutting edge extending along the entire top of said rim in a path corresponding substantially to the path of the inner surface of said rim; an insert adapted to fit within the cavity of the mold and resting upon said bottom panel for changing the configuration of the dough that is to be shaped with the inner surface of said insert being shaped into a decorative design and cooperating with said bottom panel to form a cavity of such configuration as to form the top of the pie crust; having a decorative outline to improve its appearance; and a cutting edge extending along the top of said insert in a path corresponding substantially to the path of the inner surface of said insert.

3,322,075
ICE CREAM DIPPERS
Richard B. Cronheim, 411 N. 7th St., St. Louis, Mo. 63101
Filed Jan. 15, 1965, Ser. No. 425,901
6 Claims. (Cl. 107—48)



1. A dipper for dispensing table sized portions of foods prepared in bulk quantities; said dipper comprising a handle, a boss provided on one end of said handle, a scoop provided with a cup, said cup having a hollow channel portion, said boss being telescopically received within said channel portion, said boss and said channel portion having registering openings, a detachable locking member extending through said openings, and means for urging said locking member in locked condition, a blade operatively mounted in said scoop for wiping the inwardly presented surface thereof, said blade being pivoted in the center of the cup of said scoop, and a means for rotating said blade about its pivot point.

3,322,076
ROLLING PINS
Richard B. Cronheim, 411 N. 7th St., St. Louis, Mo. 63101
Filed Feb. 3, 1965, Ser. No. 430,015
3 Claims. (Cl. 107—50)

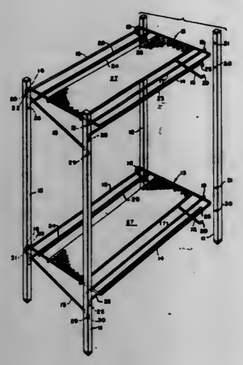


1. A rolling pin comprising:
(a) a tubular cylindrical roller;
(b) an end cap mounted within each end of said roller, said end cap comprising:
(1) an end wall,
(2) a cylindrical side wall, the outer surface of which fits snugly within, and bears against the confronting inner surface of said roller,
(3) a circumferential flange formed integrally with and projecting outwardly from the end wall of said end cap, said flange abutting against the proximate end margin of said roller,
(4) means defining a sleeve centrally within said cap and co-axial with said roller,
(5) a plurality of reinforcing webs formed within said cap and connecting said sleeve with the side and end walls thereof;
(c) a shaft journaled in said end cap sleeve and extending longitudinally through said roller, said shaft projecting at its ends beyond said end caps;
(d) a pair of frusto-conical, hollow handles and;
(e) means for mounting each of said handles on the proximate projecting end of said shaft for presenting the longitudinal axis of said container handles at an angle of not less than 7° and not more than 30° to the axis of said shaft.

3,322,077
TABLE STAND
Henry Kovacik, New York, N.Y. (1300 Viele Ave., Bronx, N.Y. 10074)
Filed Apr. 27, 1966, Ser. No. 545,717
4 Claims. (Cl. 108—111)

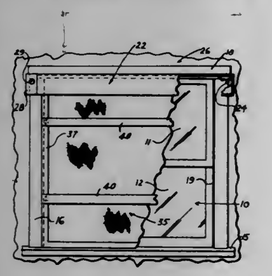
1. A foldable table stand comprising a pair of front legs and a pair of rear legs, top and bottom shelves supported by the legs, each shelf comprising a horizontal member having side extensions at the rear adapted to pivotally engage said rear legs and side extensions at the front adapted to pivotally engage the front legs, means for holding the front legs in fixed parallel relation, means for holding the rear legs in fixed parallel relation, and means for selectively preventing pivotal action of the shelf members relative to the legs when the shelves are disposed at right angles to the legs, at least one of the shelves comprising a horizontal U-shaped portion pivotally engag-

ing the legs, said portion having reversely bent extension arms forming with the U-shaped portion on either side, a generally V-shaped portion in a plane at right angles



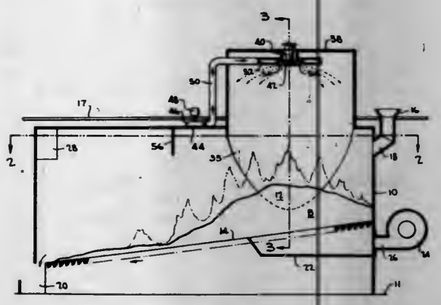
to the plane of the U-shaped portion, the said arms having end sections adapted to be releasably attached to an adjacent leg.

3,322,078
INTRUDER REPELLER FOR SCREENED OPENINGS
Albert James MacDonald, Van Nuys, Calif., assignor to The Allen and MacDonald Corp., Los Angeles, Calif., a corporation of California
Filed Oct. 24, 1965, Ser. No. 504,791
8 Claims. (Cl. 109—31)



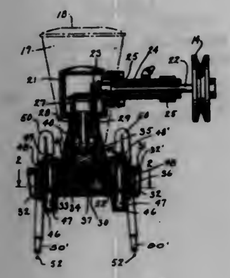
1. An intruder repeller for use with an opening covered by a framed screen movable with respect to the opening and comprising a closed box spanning the opening horizontally, a door in the box accessible from within the opening, a gas cartridge within the box containing a gas under pressure, said gas being of a kind calculated to repel a human coming in contact therewith, a valve on the outlet of the gas cartridge, a valve implementing lever, a horizontal control rod supported for rotation within the box, means for imparting rotation to the rod, a catch in the box preventing rotation of the rod, an actuating arm on the framed screen securing the catch in locked position when the screen is in normal closed position with respect to the opening, said actuating arm releasing the catch from locked position when the screen is moved from the opening, means for selectively connecting the means for imparting rotation to the control rod to the valve implementing lever, and means for guiding gas discharged from the cartridge into the area exterior of the box adjacent the opening.

3,322,079
SLUDGE INCINERATION
Thomas R. Komline, Gladstone, and Walter H. Sanderson, Greenbrook, N.J., assignors to Komline-Sanderson Engineering Corp., Peapack, N.J., a corporation of New Jersey
Filed Oct. 22, 1965, Ser. No. 502,149
14 Claims. (Cl. 110—8)



1. An incinerator for sewage sludge, and solid fuel, comprising an enclosed incinerator housing defining a horizontally elongated enclosed combustion chamber and a drying chamber over the forward portion of said combustion chamber, a conveying grate within said combustion chamber for supporting a bed of ignited solid combustible material, and for moving said bed of material longitudinally from the front to the rear of said combustion chamber in a generally horizontal direction for progressive discharge of the ashes from said grate from the rear thereof, said housing being formed with a charging opening for solid combustible material over the front end portion of said grate, and a flue opening therefrom above the rear end portion of the grate, air supply means beneath said grate and said drying chamber for forcing air upwardly through said drying chamber, said air supply means comprising a plenum beneath said grate having an open upper side communicating with the grate, and means for supplying air at super-atmospheric pressure to the plenum, said drying chamber being cylindrical with one axial end opening downwardly into the combustion chamber, the upper end of said drying chamber being closed, a centrifugal atomizer supported in the upper end of said drying chamber for delivering fine particles of sludge therein, and distributing them radially of the drying chamber, a recirculating blower having an intake located over said solid fuel bed between said spray drying chamber and the flue for withdrawing heated gases from said combustion chamber and delivering same into the upper portion of the spray drying chamber, said means including an annular manifold encircling said centrifugal atomizer concentrically to the axis of said cylindrical drying chamber and having a plurality of gas discharge orifices directed tangentially to and around said axis for drying and supplementing the centrifugal spreading of the particles discharged from said atomizer, while also causing a downwardly-spiraling gas flow in said chamber to prolong the path of descent of said particles and the length of their stay in the drying chamber, said downwardly-spiraling gas flow from the drying chamber merging with the upwardly-moving gases above said solid fuel bed for rearward longitudinal movement above the solid fuel bed to said flue and beneath said intake for the recirculating blower, said blower producing an updraft of super-heated gases from the maximum temperature portion of the fuel bed to mix with and act on the entrained particles, and a depending baffle between the said intake and said flue and over said maximum temperature portion of the solid fuel bed to downwardly deflect said gases with their entrained particles and thereby to expose said particles to increased amounts of radiated heat from the fuel bed.

3,322,080
METHOD AND APPARATUS FOR HYDRAULIC SEED METERING AND PLANTING
Harold E. Gatzke, Rte. 1, Berlin, Wis. 54923; Mando S. Ariens, 120 Reid St., West De Pere, Wis. 54178; and Vernon G. Doty, 147 E. Ryan, Brillion, Wis. 54110
Filed May 19, 1965, Ser. No. 456,988
8 Claims. (Cl. 111—1)



4. In a seed planter of a type adapted to advance along a furrow for delivering into the furrow individual plantings of segregated seeds in mutually spaced increments and in a convection current of water, a metering device comprising:

(a) means including a water line and a source of water for establising a flow of water through said line,

(b) a water-containing metering chamber in which substantial quantities of the seeds to be planted are commingled with water,

(c) a rotor having a peripheral portion exposed to the seeds in said chamber and having in said peripheral portion successive pockets each adapted when exposed in said chamber to receive seed for a single planting, and to segregate such seed from other seed in said chamber,

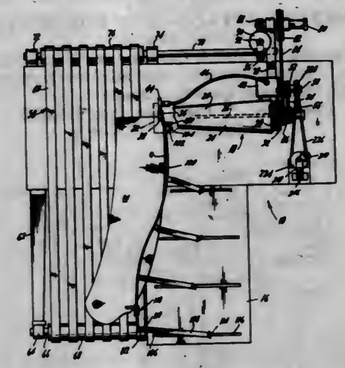
(d) means for rotating the rotor,

(e) said chamber having means lubricated by the water for wiping excess seed from the rotor to leave only a metered quantity of seed in each such pocket,

(f) said chamber having spaced ports in series in said line and with which the successive cavities register in the course of rotor rotation for delivery of metered seed from successive cavities into the flow of water in said line and entrainment of said seed in mutually spaced components of the water flow transversing said line.

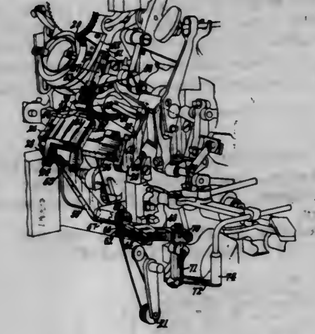
3,322,081
MATERIAL STITCHING AND GUIDING MACHINE
Ragnar W. Winberg, Floral Park, N.Y., assignor to O & W Sewing Machine Attachments, Inc., Mineola, N.Y., a corporation of New York
Continuation of application Ser. No. 275,297, Apr. 24, 1963. This application May 20, 1966, Ser. No. 556,535
17 Claims. (Cl. 112—2)

1. A machine for stitching material along a stitch line coextensive with and spaced from an edge thereof comprising a support, sewing mechanisms on said support including a reciprocating needle operable at a stitching location for stitching said material along said stitch line, elongated flexible guide means projecting forwardly of said needle and contoured along its length to guide said material as the same is advanced through said stitching location for stitching said material along said stitch line, means adjustably mounting said flexible guide means on said support for releasably securing said flexible guide means in a prescribed contour, and a material clamp



movably mounted on said guide means and engageable with said material, said material clamp being movable along said guide means during stitching to continuously orient successive edge-adjacent portions of said material in relation to said sewing mechanisms for stitching of said material along said stitching line.

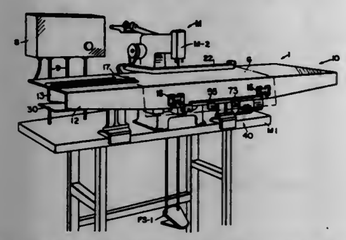
3,322,082
SHOE SEWING MACHINES
Edward Quinn, Peabody, Mass., assignor to United Shoe Machinery Corporation, Boston, Mass., a corporation of New Jersey
Filed Mar. 25, 1963, Ser. No. 267,608
5 Claims. (Cl. 112—38)



1. A machine for forming an upper tensioning inseam along the break line in a flat lasted upper of a shoe, said machine having stitch forming and work feeding devices including a curved work penetrating instrument, and a work support of substantial length along the line of work feed and of a width transversely to the line of feed at least half that of the tread surface of the shoe at its narrowest point, said work support having a work engaging surface acting to support the shoe in opposition to the thrust of the work penetrating instrument, in combination with a gage disposed at an angle to the work supporting surface of the work support for pressing against the last supported side of the upper in line with the path of the penetrating instrument in an area spaced from the crease line leaving an area of the upper within the path of the penetrating instrument free to produce

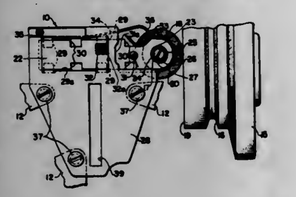
a bulging rib in the upper between the lines of the seam appearing along the side of the upper and along the tread surface of the shoe.

3,322,083
INDEXING ATTACHMENT FOR SEWING MACHINES
Guido Perrella, Montreal, Quebec, and Frank Picker, St. Bruno, Quebec, Canada, assignors to Dynacast Ltd. Canada, Montreal, Quebec, Canada
Filed Dec. 5, 1963, Ser. No. 328,312
15 Claims. (Cl. 112—67)



1. An indexing attachment for buttonhole sewing machines for automatically effecting a plurality of sequential, spaced buttonhole sewing operations to a garment, said attachment including a rail member adapted to be mounted adjacent to and associated with said sewing machine; a work-piece table slidably mounted on said rail member; drive means mounted on said rail member adapted to reciprocate said table back and forth on said rail from a first sewing position to a plurality of predetermined sewing positions and back to said first position; indexing means cooperating with the drive means for stopping and starting said table at the sewing positions along the rail member; garment clamping means secured to said table including a member cooperating with the surface of said table to clamp a work-piece thereon throughout the length of the operational sewing area; and locking means associated with said rail adapted, when released, to allow pivotal movement of said indexing attachment away from said sewing machine whereby the latter may be operated independently of said attachment.

3,322,084
BOBBIN WINDERS FOR SEWING MACHINES
Louis F. Daman, Martinsville, N.J., assignor to The Singer Company, New York, N.Y., a corporation of New Jersey
Filed Oct. 22, 1964, Ser. No. 405,798
4 Claims. (Cl. 112—218)



1. A bobbin winder for a sewing machine having a frame, a shaft mounted in the frame, a rotatable wheel mounted on the shaft and a driving face on said rotatable wheel, said bobbin winder comprising a mounting plate removably connected to the frame, a plurality of tabs on one side of the mounting plate forming a slideway, a slide bar slidably mounted in said slideway, a bobbin-accommodating rotatable spindle carried by the slide bar, a drive wheel mounted on the spindle with the axis of the drive wheel substantially parallel to the plane of the driving face of said rotatable wheel when the rim of the drive wheel is in contact with the face of said rotatable wheel, frictional means between the face of said rotatable wheel and the rim of the drive wheel for driving the drive wheel by said rotatable wheel, a camming surface on said slide bar, a spring cantilevered on said mounting plate, a curved portion on said spring adapted to bear against the camming surface on the slide bar to positively bias the rim of the drive wheel into and out of frictional contact with the face of said rotatable wheel, and operator-accessible means connected to the slide bar for shifting the slide bar.

3,322,085
TUFTING NEEDLE
Warren Weiss, Richmond, Va., assignor to Allied Chemical Corporation, New York, N.Y., a corporation of New York
Filed Sept. 20, 1965, Ser. No. 488,436
2 Claims. (Cl. 112—222)



1. A tufting machine needle comprising a shank portion, shaft portion and a point portion, said shaft portion having a thread groove along the length thereof and forming parallel longitudinal edges along its length, a needle eye formed within said groove adjacent said point portion, one of said formed edges being sufficiently sharp adjacent said eye to cut stray filaments of a thread adapted to pass through said eye and lie within said groove as said filaments pass over said edge.

3,322,086
METHOD AND APPARATUS FOR FORMING SCREW THREADS
Walter J. Pentesco, St. Catharines, Ontario, Canada, assignor to American Flange & Manufacturing Co. Inc., a corporation of Delaware
Filed Apr. 10, 1964, Ser. No. 358,812
9 Claims. (Cl. 113—1)



1. The method of imparting a continuous helical screw thread to a straight relatively thin cylindrical wall which comprises forming a continuous helical surface portion of said wall inwardly with respect to the original contour thereof to form a half thread therein and forming a continuous helical surface portion of said wall intermediate said inwardly formed portion outwardly to form the remaining half thread therein, whereby said wall has a full screw thread formation imparted thereto.

3,322,087
BARGE WITH LIQUID LEVEL CONTROL SYSTEM
Augustine John Tucker, 911 S. Post Oak Lane, Houston, Tex. 77027
Filed Apr. 21, 1966, Ser. No. 544,157
10 Claims. (Cl. 114—.5)

1. A barge with a liquid level control for accumulating and storing a water immiscible liquid having a specific gravity less than water, comprising in combination:

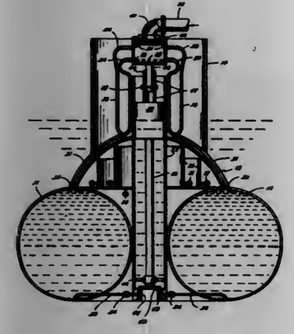
a first tank adapted to be initially filled with water and substantially submerged and having outlet means near the bottom thereof and inlet means near the top thereof;

a second tank attached to and supported above said first tank and adapted to be initially substantially empty of any liquid;

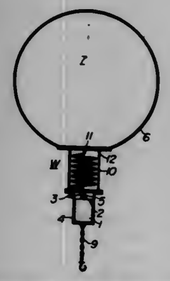
a third tank attached to at least one of said first and second tanks and extending above the water line for providing said barge with reserve buoyancy to prevent complete submergence of said third tank;

independently floating receiver means associated with said first and second tanks for receiving said liquid; and,

conduit means interconnecting said reeciver means and said first and second tanks for flowing said liquid from said receiver means into said first tank initially to displace water therefrom, and to alternately divert said liquid to said second tank when said first tank rises a predetermined distance relative to said receiver means as said liquid displaces said water from said first tank.

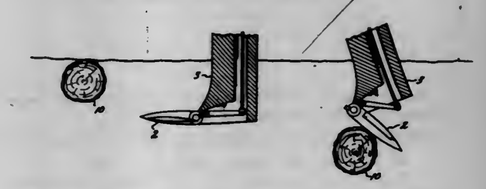


3,322,088
APPARATUS FOR REFLOATING SUBMERGED BODIES
Ikuo Harada, Tokorozawa-shi, and Takeshi Ishimoto, Oita-ken, Japan, assignors to Asahi Kasei Kogyo Kabushiki Kaisha, Osaka, Japan, a corporation of Japan
Filed June 15, 1965, Ser. No. 464,172
Claims priority, application Japan, Nov. 7, 1964, 39/86,339
2 Claims. (Cl. 114—54)



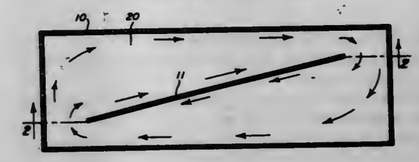
1. An apparatus for refloating a submerged body comprising gas generator means containing propellants therein so as to generate gas by the combustion or pyrolysis of the propellants, a collapsible gas vessel spaced above said gas generator means and having a bottom opening for collecting therethrough the gas generated in said gas generator means, means connecting said gas vessel with said gas generator means in spaced apart relation from each other, and conduit means defining an indirect tortuous path for the flow of gases from the generator means to the gas vessel, said conduit means being in heat exchange relation with the ambient fluid whereby the generated gas can directly be cooled by surrounding water during its upward movement into said gas vessel.

3,322,089
HYDROFOIL CRAFT
Christopher Hook, % Hydrofin Design Centre, Yateley Hill, Yateley, England
Filed June 7, 1965, Ser. No. 461,777
Claims priority, application Great Britain, June 11, 1964, 24,231/64; July 8, 1964, 28,046/64
10 Claims. (Cl. 114—66.5)



1. A variable-incidence hydrofoil assembly for a hydrofoil craft comprising a strut adapted to be attached to a hull of the craft for pivotal movement about an athwartships axis, means adapted to locate the strut in a generally vertical position and yieldably to restrain it from movement from that position, a hydrofoil pivotally mounted on the strut about an athwartships axis, a control rod passing down the strut, and means connecting the hydrofoil to the control rod to vary the angular location thereof in relation to the strut and for releasing the hydrofoil from the control rod when the angle of incidence assumes an effective negative value beyond a predetermined limit.

3,322,090
SHIP STABILIZATION SYSTEM
Frans V. Pangalila, Staten Island, N.Y., assignor to John J. McMullen Associates, Incorporated, New York, N.Y., a corporation of New York
Filed Feb. 7, 1966, Ser. No. 525,426
18 Claims. (Cl. 114—125)

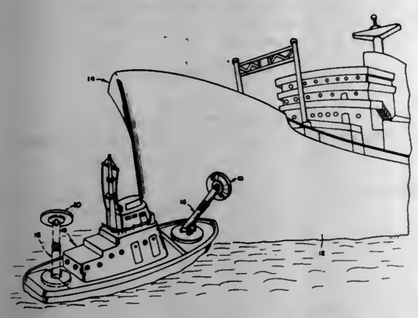


1. A passive stabilization system for a ship comprising a tank having a bottom, first and second sides, and two ends and having its longitudinal axis mounted transversely to the roll axis of said ship, said tank partially filled with a predetermined amount of liquid, an elongated upstanding plate means having a first and second end, said plate means mounted in said tank with its longitudinal dimension extending generally longitudinally in said tank and with said ends terminating short of said tank ends, said first end of said plate spaced closer to said first side of said tank than to said second side, and said second end of said plate spaced closer to said second side than to said first side so that an oblique angle is formed between said plate and either of said tank sides.

3,322,091
METHOD AND APPARATUS FOR MANEUVERING SHIPS

Tad Stanwick, Washington, D.C., assignor to The Stanwick Corporation, Washington, D.C., a corporation of Delaware

Filed Oct. 1, 1965, Ser. No. 492,097
13 Claims. (Cl. 114—235)



1. Method for maneuvering a first vessel with respect to a second vessel, comprising the steps of:

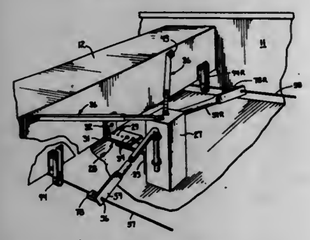
(A) differentiating pressure between an integral portion of said second vessel which is in contact with said first vessel by means of a rigid boom and ambient,

(B) controlling movement of said integral portion of said second vessel about said first vessel through said boom.

3,322,092
FOOT OPERATED BOAT MOTOR GUIDING APPARATUS

Byrel A. Landon, R.R. 1, Redkey, Ind. 47373

Filed Oct. 4, 1965, Ser. No. 492,654
7 Claims. (Cl. 115—18)



6. Guiding apparatus comprising:

seating means for an individual and adapted to mounting in a boat;

a mounting member connected to said seating means;

an L-shaped foot lever bar;

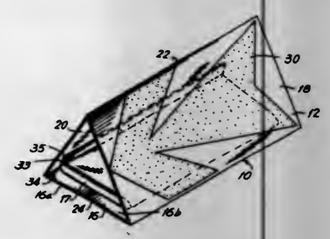
eye bolts mounted in said mounting member and pivotally supporting said foot lever bar ahead of said seating means and facilitating operation of said foot bar by the foot of an individual seated on said seating means.

3,322,093
HIGHWAY DIRECTIONAL DEVICE

Marc B. Goland, 390 West End Ave., New York, N.Y. 10024, and Lew B. Goland, 80 Wright Ave., Malverne, N.Y. 11565

Filed Sept. 13, 1966, Ser. No. 579,103
6 Claims. (Cl. 116—63)

1. A highway directional device comprising an elongated, plastic tube having opposed open ends and divided by a full length fold line into a plurality of walls foldable about said fold lines into a flattened condition of the device and into an erected condition thereof, said walls in the erected condition of the device including a bottom ground-engaging wall and a pair of opposite side walls extending upwardly from said bottom wall to intersection to form a crest edge, said bottom wall being formed with a further fold line situated substantially midway between the opposite side edges of said bottom wall to divide it into two bottom wall panels, at least one of said side walls carrying externally visible information, and a substantially flat weight hingedly secured

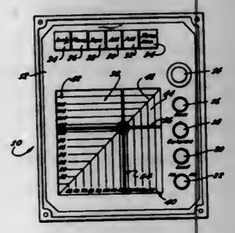


along one of its edges to the inside face of one of said side walls adjacent to the fold line of said one side wall and said ground-engaging wall whereby said device when in the folded condition is automatically rendered into the erect condition by grasping said crest edge thereby allowing said weight to pivot about its hingedly secured edge to fall on said bottom wall to thereby render said bottom wall panels coplanar for engagement with the ground.

3,322,094
INDICATOR MEANS

James W. Kelso, Pacific Palisades, Calif., assignor to Packard-Bell Electronics Corporation, Los Angeles, Calif., a corporation of California

Continuation of abandoned application Ser. No. 300,740, Aug. 8, 1963. This application Aug. 27, 1965, Ser. No. 491,475
27 Claims. (Cl. 116—124.4)



1. Indicator means for providing on a display area indications in a first direction of a first parameter and for providing on the display area indications in a second direction substantially perpendicular to the first direction, including the combination of:

means including a first array of indicia disposed in the first direction,

means including a second array of indicia disposed with respect to said first array in the second direction substantially perpendicular to the first direction,

a first indicator positioned adjacent said first array of indicia in a direction substantially perpendicular to the first array of indicia, said indicator being movable along said first array of indicia to individually register with the indicia in said first array,

a second indicator positioned adjacent said second array of indicia in a direction substantially perpendicular to the second array of indicia, said second indicator being movable along said second array of indicia to individually register with the indicia in said second array,

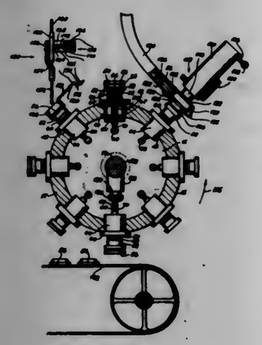
a plurality of bearing means each disposed at a different corner of the display area, and

means connected to the first and second indicators and extending around the bearing means in the plurality and extending diagonally between particular bearing means in the plurality for simultaneously obtaining a movement in the first direction of the first indicator along the first array of indicia and a movement in the second direction of the second indicator along the second array of indicia.

3,322,095
MACHINE FOR APPLYING A COATING TO THE INNER SIDE OF CAPS AND THE LIKE DISHED OBJECTS

Per Gelbjerg-Hansen, Copenhagen, and Holger Meyendorff, Lyngfy, Denmark, assignors to F.G.M. & Co., Copenhagen, Denmark, a Danish firm

Filed Dec. 4, 1962, Ser. No. 242,117
Claims priority, application Denmark, Dec. 4, 1961, 4,830/61
17 Claims. (Cl. 118—2)

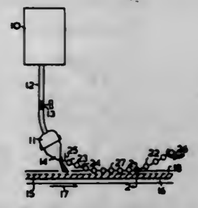


1. A machine for applying a coating to the inner side of caps and the like dished objects which are rotated during the introduction of a liquid coating composition into said objects so that said coating composition is by centrifugal forces distributed over the portions to be coated of said inner surfaces of said objects; comprising in combination; a machine frame; a drum rotatably mounted in said frame; a drum driving device connected to said drum for periodical rotation thereof through an angle of not more than 120° a time between at least three stopped positions of said drum; at least three rows of cap receiving members on said drum, each said row extending in the axial direction of said drum, each said receiving member being rotatably mounted on said drum and being provided with an outwardly open dished portion for receiving one of said objects, each of said rows taking up at one of said stopped positions of said drum, a cap receiving position, at another of said stopped positions of said drum a coating composition dripping position, and at a third of said stopped drum positions of said drum a cap ejection position, said cap receiving position being the same for all said three rows, said dripping position being the same for all said three rows, and said cap ejection position being the same for all said three rows; a series of cap feeding devices stationarily arranged in said frame outside said drum opposite said cap receiving position of said rows and adapted each time one of said three rows occupies the said cap receiving position to force one of said objects into each of said receiving members of last said row; a series of coating composition dripping devices stationarily arranged in said frame outside said drum opposite said dripping position of said rows and adapted each time one of said three rows occupies the said dripping position to drip a portion of said coating composition into such of said objects which are carried by the said receiving members of the last said row; ejection means arranged in said frame opposite said ejection position of said rows; actuating means connected to said ejection means for actuating the same to eject when one of said rows occupies the said cap ejection position from said cap receiving members of last said row such of said objects which are carried by last said receiving members; for each said row a cap driving device arranged on said drum and adapted to rotate said receiving members of the corresponding one of said rows; rotation control means cooperating with said cap driving devices and adapted to actuate each said cap driving device before the corresponding one of said three rows during said periodical driving of said drum arrives at said dripping position and said cap driving device to remain actuated until last said row has been moved away from said dripping position, and to inactivate each said cap driving device before the corresponding one of said three rows arrives to said cap extraction position.

3,322,096
APPARATUS FOR COATING A SCORELINE IN A BOARD

Joseph L. Stokes and George Attle, Sault Ste. Marie, Ontario, Canada, assignors to Abitibi Power & Paper Company, Limited, Sault Ste. Marie, Ontario, Canada

Filed June 4, 1964, Ser. No. 372,466
Claims priority, application Canada, Apr. 3, 1964, 899,490, Patent 740,806
13 Claims. (Cl. 118—105)



1. Apparatus for coating a scoreline in a board comprising means for depositing liquid coating material in said scoreline, an elongated flexible spreader suspended at each end and having a central portion extending into the scoreline and being adapted to spread the liquid coating material to cover the surface of the scoreline at least such central portion comprising a series of circular beads and means for moving the board relative to said spreader so that the spreader travels along the scoreline and spreads said liquid coating material.

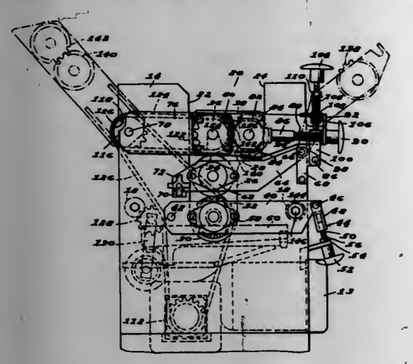
3,322,097
ROLLER COATING APPARATUS

Bernard J. Wallis, % Livernois Engineering Co., 25200 Trowbridge Ave., Dearborn, Mich. 48124

Filed Dec. 8, 1965, Ser. No. 512,441
14 Claims. (Cl. 118—227)

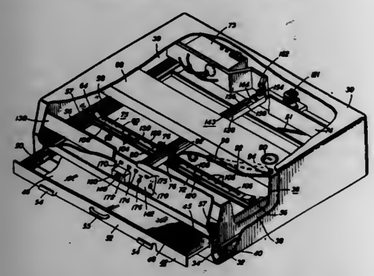
12. In a roller coating apparatus, the combination comprising a frame including a pair of laterally spaced side supports, a first roller mounted on said frame and extending between said side supports, a pair of arms pivotally supported at one end, one on each of said side

supports, for movement in a generally vertical plane, a pair of rollers journalled on said arms, said arms being pivotable upwardly to an out-of-the-way position wherein the rollers thereon may be cleaned and otherwise serviced and downwardly to an operative position wherein one of the rollers thereon is positioned vertically above said first roller, the other roller on said arms being mounted for movement toward and away from said one roller, adjusting screws interconnecting said arms and the ends of said other roller for adjusting said other roller toward and



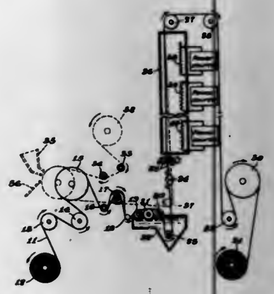
away from said one roller, nut means anchored on said frame, screw means on said arms in threaded engagement with said nut means and adapted when rotated to pivotally adjust the arms to raise and lower said pair of rollers relative to the first roller, and means for anchoring the nut means on said frame, said anchoring means being adapted to release said nut means from said frame independently of said screw means and said adjusting screws, whereby said arms and the rollers thereon can be pivoted from the operative position to the position for servicing without affecting the adjustment of said rollers.

3,322,098
ELECTROSTATIC APPARATUS
Dewey W. Pegram, Jr., Burlington, N.C., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Original application Nov. 6, 1964, Ser. No. 411,177. Divided and this application Apr. 13, 1965, Ser. No. 447,738
14 Claims. (Cl. 118—637)



1. An electrostatic powder image transfer and fixing apparatus comprising:
an electrically conducting work surface; and
a carriage movable over the work surface, the carriage including means for generating a corona discharge as the carriage moves over the work surface whereby a powder image may be transferred from a powder image carrier to a sheet of transfer material and the carriage including means for generating a solvent vapor discharge as the carriage moves over the work surface whereby the powder image may be fixed to the sheet of transfer material.

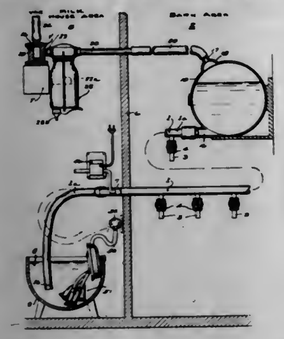
3,322,099
MACHINE FOR IMPREGNATING AND COATING WEB MATERIAL
Pierre Valle, Lyon, Rhone, France, assignor to Societe Industrielle des Silicones, Paris, France
Filed Dec. 4, 1964, Ser. No. 415,991
Claims priority, application France, Dec. 6, 1963, 956,335
2 Claims. (Cl. 118—642)



1. A machine for coating or impregnating a web, comprising:
a pair of spaced web supply means,
a web entry drum spaced from said web supply means, positioned between said web supply means, and being mounted for rotation in both clockwise and counter-clockwise directions;
guiding means interposed between said web supply means and said web entry drum for feeding the web from one of said pair of web supply means onto said drum in a clockwise direction and for feeding the web from the other of said web supply means onto said drum in a counter-clockwise direction,
a treatment bath for impregnating said web,
guide means for feeding said web from said web entry drum through said treatment bath for impregnation,
a curing station,
guide means for feeding said web from said treatment bath through said curing station,
web coating means,
means for selectively placing said web coating means in an operative position with respect to the outer surface of said web as it passes over said web entry drum, whereby one surface of said web is coated,
means for feeding said coated web from said web entry drum into and through said curing station without any physical contact to said coated surface of said web, and
web storage means for receiving said web from said curing oven.

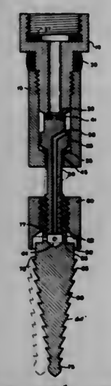
3,322,100
FLUID ACCUMULATOR FOR MILK LINE EQUIPMENT
Lloyd F. Bender, Hayward, Wis. 54843
Original application Mar. 26, 1965, Ser. No. 443,055. Divided and this application June 13, 1966, Ser. No. 557,138
4 Claims. (Cl. 119—14.46)
1. For use in a milk line system, a fluid accumulator

comprising a generally spherical and transparent container, a fluid opening in the bottom of said container, a generally semi-spherical enlargement formed adjacent the upper end of said container so as to form a generally semi-



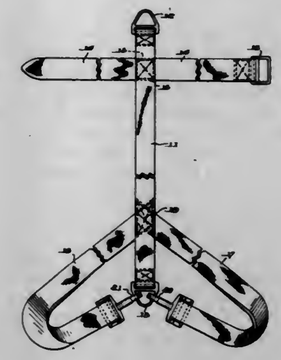
spherical recess on the inside of the upper end of said container, and a suction inlet in said recess which is adapted to be connected to a vacuum source for subjecting said container to vacuum.

3,322,101
NOZZLE
Robert P. Eagles and Ronald W. Southward, Richmond, Va., assignors to A. H. Robins Company, Incorporated, Richmond, Va., a corporation of Virginia
Filed Dec. 30, 1965, Ser. No. 517,535
5 Claims. (Cl. 119—72.5)



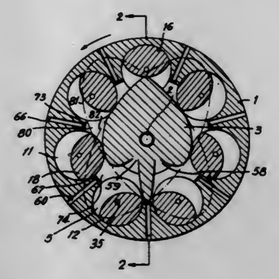
1. An animal feeding nozzle comprising a nozzle body with means at one end thereof for attaching said body to a source of liquid, a nipple member fixed at one end thereof to said body member and having a licking portion on said other end and said licking portion including a plurality of crosswise serrations on the surface thereof and channel means in the body and nipple members for guiding said liquid through said body member to the exterior surface of the licking portion of said nipple member.

3,322,102
RESCUE HARNESS
Robert W. Windle, Front Royal, Va., assignor to Mine Safety Appliances Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Nov. 16, 1965, Ser. No. 508,107
3 Claims. (Cl. 119—96)
1. A harness comprising a vertical strap member having an upper end and a lower end, a horizontal chest strap secured to the upper portion of said vertical strap member having free end portions and means for adjustably and releasably connecting said free end portions, a pair of opposed leg straps extending outwardly and downwardly from said vertical strap member, each said leg strap



secured at one end to the lower portion of said vertical strap member and having on the other end means for releasable connection to said lower end, and means secured to said upper end adapted for connection to a safety line.

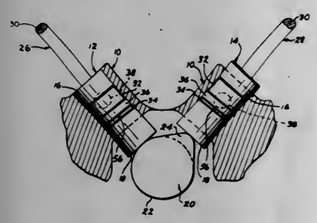
3,322,103
ROTARY PISTON ENGINES
Georg Dirnberger, 8331 Unterrohrbach, Lower Bavaria, Germany
Filed June 11, 1965, Ser. No. 463,182
Claims priority, application Germany, June 13, 1964, D 44,687
11 Claims. (Cl. 123—8)



1. A rotary piston engine comprising a supporting ring with cylindrical bores opening toward the cylindrical inner wall of said supporting ring, at least four rotors, each of said rotors being mounted for rotation about the central axis of the cylinder coinciding with the wall surface of the bore remaining between the intersection lines of the peripheral surface of said cylinder and the cylindrical inner surface of said supporting ring, a sealing member within said ring and with its outer peripheral surface substantially spaced from the cylindrical inner peripheral surface of said supporting ring; gear means for rotating said rotors at each rotation of said ring relative to said sealing member in a planet wheel fashion about said cylinder axis in such a manner that in each relative angular position between said supporting ring and said sealing member each rotor will be in a predetermined position of

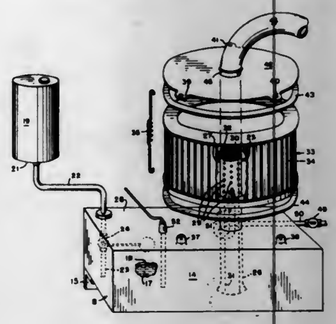
rotation, each rotor being part of a cylinder and with a partly cylindrical section of its outer peripheral surface in constantly sealing engagement with the wall of the associated bores in said supporting ring, said sealing member having an outer peripheral surface which in dependence on the rotational position of said rotors caused by said gear means sealingly bears, at least over a substantial portion of the relative range of rotation between said sealing member and said supporting ring, with a generatrix (generating line) against a generatrix of each rotor, the outer peripheral surfaces of said sealing member and of said rotors being so configurated that the volume of the chambers partitioned off by the rotors in the interspace between the outer peripheral surfaces of said sealing member and the cylindrical inner surface of said supporting ring periodically increases and decreases, during the relative rotation between said sealing member and said supporting ring, according to the desired compression ratio, temporarily closable passages for feeding a combustible gas mixture into each of said chambers partitioned off by said rotors in the space between said supporting ring and said sealing member, temporarily closable exhaust passages for the combustion gases from said chambers in said supporting ring and/or said sealing member, and means for igniting said combustible gas mixture in a predetermined relative position between said sealing member and the corresponding rotor.

3,322,104
TAPPET
Roy F. Abell, Jr., Saginaw, Mich., assignor to Eaton Yale & Towne Inc., Cleveland, Ohio, a corporation of Ohio
Filed May 27, 1966, Ser. No. 553,548
9 Claims. (Cl. 123—90)



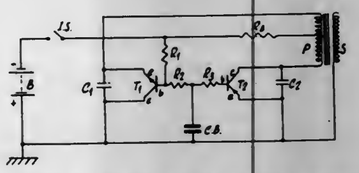
1. In a lubricating system for an engine or the like including a reciprocatedly actuated tappet, a rocker, and a hollow push rod drivingly connecting said rocker to the tappet and constituting an oil conductor between said rocker and said tappet, the combination of:
- an engine block having a wall provided with at least one cylindrical tappet guide means therein,
- a fluid passageway in said engine block,
- a cylindrical tappet disposed within said guide means, said tappet including,
- a bearing surface to receive a hollow push rod,
- a cam engaging face to abut a valve actuating cam,
- a first groove on the exterior surface of said tappet,
- a second groove on the exterior surface of said tappet separated from said first groove by a flow metering means,
- first communication means between said second groove and said hollow push rod,
- second communication means between said fluid passageway and said first groove for providing direct communication only between said fluid passageway and said first groove, while providing indirect communication to said second groove only via said flow metering means.

3,322,105
EQUIPMENT FOR AUGMENTING THE FUEL SUPPLIED TO INTERNAL COMBUSTION ENGINES
Archibald McIntyre, 297 9th Ave. NW., Swift Current, Saskatchewan, Canada
Filed Aug. 9, 1965, Ser. No. 478,484
4 Claims. (Cl. 123—127)



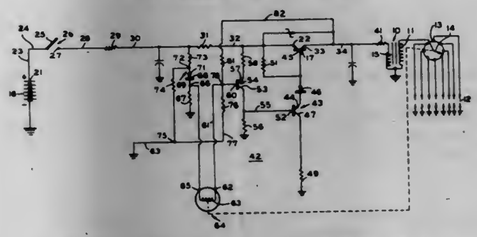
1. Equipment for supplying auxiliary fuel to an internal combustion engine having a gaseous fuel intake passageway and an exhaust gas passageway, said equipment comprising a container for a vaporizable liquid, means for heating said container, a riser pipe having a perforated portion projecting upwardly from said container, a wick disposed in said riser pipe and having an end portion immersed in said liquid, means conducting exhaust gas from said exhaust gas passageway into said riser piper, and a conduit connecting the projecting portion of said riser pipe to the gaseous fuel intake passageway, said perforated portion of the riser pipe admitting atmospheric air thereby to supply additional oxygen to said intake passageway.

3,322,106
ELECTRONIC IGNITION SYSTEM FOR INTERNAL COMBUSTION ENGINES
William Adams Earp, "Glenthorne," 34 Chapel Road, Pawlett, Bridgwater, England
Filed Dec. 14, 1964, Ser. No. 417,879
Claims priority, application Great Britain, Dec. 14, 1963, 49,493/63
7 Claims. (Cl. 123—148)



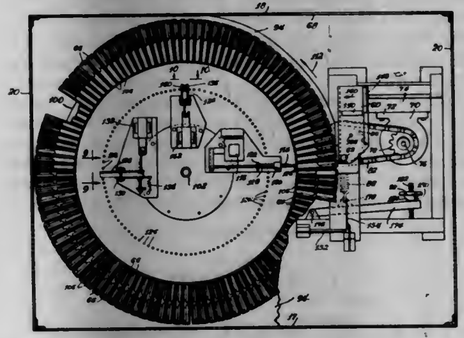
1. In an ignition system for an internal combustion engine, an ignition coil having a primary winding and a secondary winding, a source of uni-directional current, a first supply circuit connecting the primary winding to the source to provide for current flow in one direction in the primary winding, a second supply circuit connecting the primary winding to the source to provide for current flow in the opposite direction in the primary winding, an NPN transistor in the first supply circuit and a PNP transistor in the second supply circuit, a two-state bias-potential controlling circuit interconnecting the source and the transistors, and a two-state switch connected to the controlling circuit to change the state of the controlling circuit at each change of state of the switch, the switch being closed in one state and open in the other state, the NPN transistor being in conductive condition and the PNP transistor being in non-conductive condition in one state of the controlling circuit and those conditions of the transistors being reversed in the other state of the controlling circuit, whereby in the primary winding the direction of current flow from the source is reversible by each change of state of the switch.

3,322,107
IGNITION SYSTEM
Laurence F. Mieras, Livonia, and Frank Skay, Detroit, Mich., assignors to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed Apr. 14, 1965, Ser. No. 448,061
14 Claims. (Cl. 123—148)



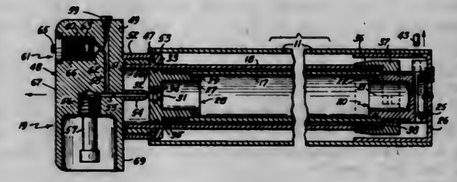
1. An ignition system for an internal combustion engine comprising a plurality of spark plugs, an ignition coil having a primary and a secondary winding, means operated in synchronism with the engine for sequentially coupling said secondary winding of said ignition coil to said spark plugs, a source of electrical energy, and means driven by said engine and operated in synchronism with said first means for periodically coupling said source of electrical energy to said primary winding of said ignition coil, said means including means for increasing the period that said source of electrical energy is coupled to said primary winding of said ignition coil in terms of mechanical degrees of rotation of the engine as the speed of said engine increases up to a predetermined speed and for maintaining said period substantially constant for all speeds above said predetermined speed.

3,322,108
AUTOMATIC TARGET THROWING APPARATUS WITH ROTARY MAGAZINE
Charles R. Hoag, 420 W. Branch Road, Glenview, Ill. 60025
Filed Feb. 5, 1964, Ser. No. 342,763
3 Claims. (Cl. 124—8)



3. In target throwing apparatus, a target throwing member fixed to turn with a shaft, an annular target supporting member having an opening through which targets are successively discharged to said target throwing member, a rotatable member having means for advancing said targets over said target supporting member to said opening, means for advancing said rotatable member step by step, spring means for actuating said target throwing member to propel the target received from the target supporting member into the air, a motor for turning said target throwing member to tension said spring means and to position where said spring means is released to turn said target throwing member and to propel the target therefrom, said rotatable member supporting additional targets, means for moving the targets from said rotatable member to said annular target supporting member following the movement of the targets on said annular target supporting member to said opening for discharge to said target throwing member, first solenoid means controlling said advancing means, first switch means in circuit with said first solenoid means, second solenoid means controlling the movement of targets from said rotatable member to said target supporting member, second switch means in circuit with said second solenoid means, means on said target throwing member controlling said first and second switch means and positioned to operate said first solenoid first and to operate said second solenoid after said rotatable member is advanced by said first solenoid means, and a light lighted by said second switch means as the target is about to be thrown into the air.

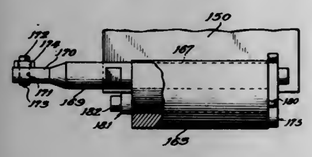
3,322,109
PARACHUTE DEPLOYMENT APPARATUS
Walter R. Peck and Richard R. Higgins, Asheville, N.C., assignors to Stencel Aero Engineering Corporation, Arden, N.C., a corporation of North Carolina
Filed Apr. 19, 1965, Ser. No. 449,134
10 Claims. (Cl. 124—11)



1. In apparatus of the type described, the combination of
- support means;
- a first tubular member having a closed end adapted to engage said support means;
- a second tubular member having a closed end,
  - said first and second tubular members being slidably engaged telescopically to define an expansible chamber for receiving a charge of compressed gas and being relatively movable between an initially telescopically collapsed position and a telescopically extended position,
  - said first and second tubular members having cooperating abutment means disposed to limit telescopic extension thereof and thereby determine said telescopically extended position;
- valved means carried by one of said tubular members whereby compressed gas can be admitted to said chamber; and
- a release member,
  - said support means and one of said tubular members having cooperating means for receiving said release member, and said release member being initially releasably engaged with said cooperating means to secure said first and second tubular members to said support means in said initially telescopically collapsed position,

withdrawal of said release member freeing said tubular members for relative movement to said extended position and also freeing the telescopically engaged combination of said first and second tubular members for movement away from said support means.

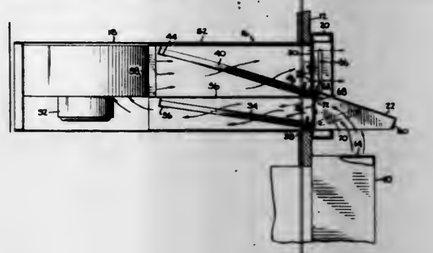
3,322,110
DRESSING DEVICE FOR SHARPENING APPARATUS GRINDING WHEEL
Axel Anderson, Rockford, Ill., assignor to Sundstrand Corporation, a corporation of Illinois
Filed Aug. 19, 1963, Ser. No. 302,963
3 Claims. (Cl. 125—11)



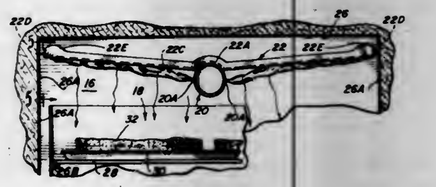
1. A dressing device for a grinding wheel having first and second tangent arcuate portions, comprising: a sleeve having opposite ends and having an axially extending first bore; a first member pivotally mounted in said first bore and having opposite ends; a longitudinally extending axially offset second bore in said member, said member being substantially the same length as said sleeve and said second bore extending from end-to-end of said member; a second member pivotally mounted in said second bore and having opposite ends; a stop projecting outwardly from one end of said sleeve; a first handle secured to one end of said first member and movable in a plane perpendicular to the axis of said bores, said first handle having a surface engageable with said stop; an abutment projecting outwardly from the opposite end of said first member; a second handle secured to one end of said second member and movable in a plane parallel to the plane of movement of said first handle, said second handle having a surface engageable with said abutment for rotating said first member; a dressing member secured to the opposite end of said second member; said stop being located on said sleeve in a position whereby said dressing member is moved through a first arc as said first member is rotated by engagement of said second handle surface with said abutment when said second handle is pivoted in one direction until said first handle surface engages said stop, and said dressing member is moved through a second arc tangent to said first arc when said second handle is pivoted in an opposite direction to pivot said second member while said first handle surface is held against said stop.

3,322,111
DOOR-HOOD ARRANGEMENT
Donald C. Simpson, Drums, and Paul Ballots, Hazleton, Pa., assignors to Nautilus Industries, Inc., Freeland, Pa., a corporation of Pennsylvania
Filed Aug. 13, 1965, Ser. No. 479,503
6 Claims. (Cl. 126—21)

1. An oven exhaust unit comprising a generally flat rectangular box like outer housing formed with internal ductwork and rectangular inlet and outlet openings located respectively immediately below and above the other at one end of said housing, said outer housing being adapted to be mounted flatwise above a wall oven with said openings extending in a common vertical plane immediately above and behind the front of such oven, fan means located within said outer housing and operative to move oven exhaust through said internal ductwork, in said inlet opening and out said outlet opening, a door-hood member shaped to lie flat against and to cover said one end of said outer housing including both said inlet and outlet openings, mounting means arranged to secure said door-hood member to said outer housing in a manner allowing movement between a first position flat against said one end of said outer housing and a second position extending outwardly from between said openings and slanted downwardly over said inlet opening to provide a hood effect therefor.



3,322,112
INFRARED GAS BURNER
Norman M. Huff and Marvin A. Kruse, Chicago, Ill., assignors to Harper-Wyman Company, Chicago, Ill., a corporation of Illinois
Filed Apr. 13, 1965, Ser. No. 447,739
6 Claims. (Cl. 126—41)

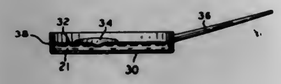


2. An infrared cooking unit comprising a cooking compartment having a top, an infrared gas burner in said compartment adjacent said top and including an elongated tubular burner element having a series of small ports at each side thereof disposed in a substantially horizontal plane relative to the burner, and a radiation plate secured to the upper side of said burner element, said plate having a central arcuate portion encircling approximately the upper ninety degrees of the tubular element, said plate having also oppositely disposed imperforate side portions extending laterally and upwardly from the central portion at an angle of about five degrees from the horizontal and along which the flames move outwardly with a scrubbing action during operation of the burner, said plate having upwardly extending corner portions normally spaced from the top of said compartment but engageable with the top upon some warpage of the plate, thereby to minimize further and undesirable warpage.

3,322,113
COOKING VESSEL
Luther G. Simjian, Laurel Lane, Greenwich, Conn. 06830
Filed Nov. 13, 1964, Ser. No. 411,037
4 Claims. (Cl. 126—390)

1. A cooking appliance having in combination:
a bottom panel and upstanding side surface extending therefrom;

a flexible diaphragm made entirely of Teflon sheet material spaced from said bottom panel;
a heat conducting deformable filter medium filling the space between said bottom panel and said diaphragm, and



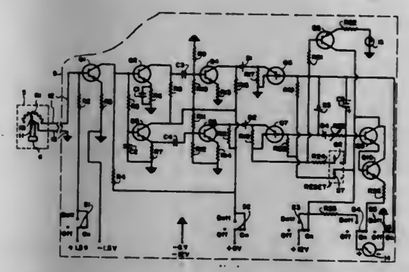
said diaphragm being sufficiently thin and compliant to follow substantially the contours of an article supported thereupon.

3,322,114
APPARATUS FOR SECURING A SAMPLE OF BLOOD PLASMA FOR TESTING
Joseph Portnoy and George S. Warner, Baltimore, Md., assignors to Hynson, Westcott & Dunning, Incorporated, a corporation of Maryland
Filed July 1, 1964, Ser. No. 379,498
3 Claims. (Cl. 128—2)



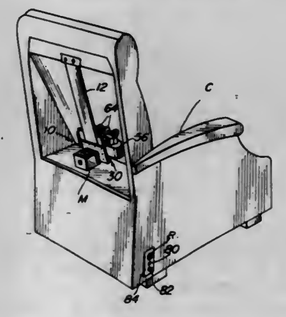
1. A device for drawing a sample of blood and separating plasma therefrom comprising a bottle having a transparent or translucent, flexible and resilient side wall capable of being collapsed by the pressure exerted by the thumb and finger of the operator and of returning to its normal shape when said pressure is released, a hypodermic needle attached to said bottle for aspirating blood from a vein of a person or animal into said bottle and an anticoagulant and a lectin in said bottle of a kind and in quantity sufficient to prevent clotting and to cause agglomeration of the cells of the kind and quantity of blood to be delivered into said bottle and to cause the separation of plasma from the collected blood.

3,322,115
ACHILLES REFLEX TEST APPARATUS
Joseph M. Richards, Tulsa, Okla., assignor to Medco Products Co., Inc., Tulsa, Okla., a corporation of Oklahoma
Filed July 6, 1964, Ser. No. 380,214
6 Claims. (Cl. 128—2)



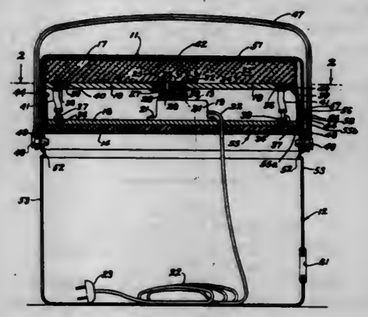
1. Apparatus for measuring a reflex action comprising a sensor adapted for engagement with that portion of a patient's body where the reflex action occurs, said sensor having means therein for producing an electrical pulse during the reflex action, a timing circuit, a meter which is actuated by the timing circuit and having an indicating means therein movable from an initial reference position to another position commensurate with the value of a voltage placed upon said meter by said timing circuit, means for conducting a pulse from said sensor to said timing circuit for initiating a continuously increasing charge in said timing circuit in response to the beginning of said pulse from said sensor thereby producing said voltage, and means for interrupting the charging of said timing circuit at the end of said pulse.

3,322,116
VIBRATORY MASSAGE APPARATUS
Frank M. Murphy, Chicago, and William I. Sturm, Niles, Ill. (both of 935 N. Damen Ave., Chicago, Ill. 60622)
Filed Feb. 13, 1964, Ser. No. 344,725
9 Claims. (Cl. 128—33)



1. Vibratory massage apparatus comprising a track, a carriage mounted on said track, a plurality of massage rollers, a pair outwardly bowed spring members connected at on end thereof to said carriage, said rollers being connected to the opposite ends of said spring members and in spaced relationship with said track, means connected to said rollers for vibrating said rollers and springs, drive means, and means coupled with said drive means and carriage for reciprocating said carriage along said track.

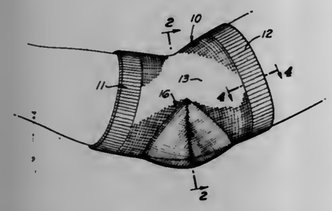
3,322,117
ORBIT CIRCULATION ACTIVATOR AND MOUNT THEREFOR
Earl McCaw, 525 Stockton St., San Francisco, Calif. 94108
Filed Oct. 18, 1963, Ser. No. 317,381
9 Claims. (Cl. 128—33)



1. An orbit circulation activator and mount therefor comprising a cylindrical pad consisting of a rigid base and a resilient section movably mounted on said base, a bearing in said section, a shaft eccentrically mounted in said bearing, actuatable means mounted on said base and

connected to said shaft for driving the same upon actuation of said means to effect orbital movement of said section relative to said base, and a mount for said cylindrical pad consisting of a cylindrical portable container, and an annular flange within said container on which said pad is removably seated, said flange forming means for supporting the top of said pad above the container.

3,322,118
PROTECTIVE SLEEVE FOR ELBOW OR HEEL
Lois Sotherlin, 607 W. 5th St., San Bernardino, Calif. 92410
Filed July 13, 1964, Ser. No. 382,073
1 Claim. (Cl. 128—149)



A protective sleeve for use by a patient confined to wheel chair or bed, for the purpose of cushioning the elbow or heel, comprising:

a tubular knit sleeve of a size to fit snugly over the arm or foot of the patient, said sleeve being stretchable in either direction and being knit of a moisture-absorbent yarn;

said sleeve being formed with a double thickness and having an inner layer and an outer layer;

the ends of said sleeve being formed with rib-knit cuffs for maximum stretchability and snug fit;

at least the outer layer of said sleeve being knit to provide an outwardly bulged generally spherically curved portion on one side thereof corresponding to the heel of a sock, said outwardly bulged portion being formed approximately midway between the ends of said sleeve;

a generally round, slightly cupped pad of foam rubber disposed within said sleeve between said inner and outer layers thereof, and positioned with the convex side of the pad facing outwardly and contacting the inner surface of said outwardly bulged portion of said sleeve, said convex side having substantially the same spherical curvature as said outwardly bulged portion;

the concave side of said pad being inwardly faced to receive the point of the patient's elbow or heel, and the edges of said pad tapering to feather edges; and

cement means securing said pad to said outer layer only of said sleeve, whereby said pad is prevented from a slipping or shifting out of place and said inner layer of said sleeve may move relative to said pad.

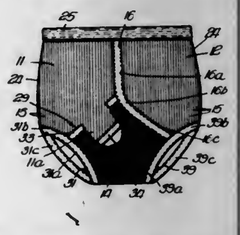
3,322,119
SURGICAL DRESSING
Laszlo G. Sziics, 6 Ackermannstrasse, Zurich, Switzerland
Filed Dec. 17, 1962, Ser. No. 245,098
Claims priority, application Switzerland, Dec. 18, 1961, 14,683/61
7 Claims. (Cl. 128—156)

1. A surgical dressing comprising a portion to be applied to a wound and portions adapted to adhere to the skin surrounding said wound, said portions adapted to adhere to the skin consisting of yarn threads and of a film of adhesive material bonding said yarn threads to each other, at least part of said yarn threads being stretchable whereby said thread structure is extensible in at least one direction, the extensibility of said yarn threads as



measured by their ultimate elongation being greater than that of said film of adhesive material whereby the latter is adapted to become disintegrated by application of a pull to said thread structure in said at least one direction.

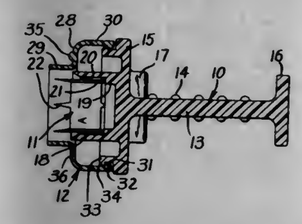
3,322,120
SUPPORT TYPE UNDERGARMENT
John H. Wyss and William A. Testard, Kenosha, Wis., assignors to Cooper's Incorporated, Kenosha, Wis., a corporation of Wisconsin
Filed Feb. 17, 1965, Ser. No. 438,167
6 Claims. (Cl. 128—159)



1. A man's support-type undergarment comprising a pair of front panels secured together along adjacent edge portions, a back panel of two layers of jersey knit fabric tuck-stitched together at predetermined intervals, said back panel having a stretch characteristic transversely of said undergarment, said back panel being secured along its respective side edges to corresponding adjacent side edges of said front panels, the top edges of said front panels and said back panel defining a waist opening in said undergarment, and a support panel of mesh material having relatively large apertures each having an elongated configuration in the longitudinal direction when said mesh material is unstressed such that said mesh material has a stretch characteristic in both the transverse and longitudinal direction but greater in the transverse direction than in the longitudinal direction, the upper portion of said support panel being secured to said front panels and in overlapping cooperation with one of said front panels to form a fly opening, said support panel being secured at its lower edge to said back panel, said support panel further having curvilinear side edges which cooperate respectively with the lower edge portions of said back panel and said front panels to define a pair of leg openings in said undergarment.

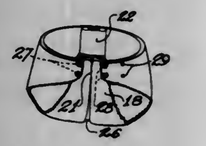
3,322,121
SKIN-PUNCTURING UNIT WITH A COLLAPSIBLE PROTECTIVE COVER
Oscar H. Banker, 261 Breezewood Drive, Bay Village, Ohio 44140
Filed Nov. 26, 1965, Ser. No. 509,755
3 Claims. (Cl. 128—253)

1. A device for use in introducing a substance under the skin of a patient, said device comprising a rigid holder having a substantially flat portion adapted to be held between the fingers and a head portion disposed transversely to the general plane of the substantially flat portion, a tined element secured to said head portion with the tines thereof extending generally in a direction parallel with the flat portion, and a generally cylindrical guard for the tines, said guard comprising a flexible sleeve having a reduced end encircling and extending axially beyond the tines, its opposite end expanded over the head portion and supported resiliently thereon, and an axially expansible and contractible intermediate section, and means on the head for guiding said reduced end of the guard, said guide means comprising an extension surrounding and



extending generally parallel to said tines with a maximum outside transverse dimension slightly smaller than the internal transverse dimension of said reduced end, said guide terminating short of the outer ends of the tines adjacent said reduced end, said tines being adapted to carry the substance to be introduced under the skin of a patient, and said sleeve contracting with axial pressure upon the reduced end thereof, whereby the reduced end is telescopically guided by said guide means to prevent contact with the tines and to expose the tines and the substance carried thereby.

3,322,122
DIAPER WITH PLEAT FOR FORMING A FECES BAG
Emily M. Daniel, Rte. 1, Box 49, Gardendale, Ala. 35071
Filed Jan. 22, 1964, Ser. No. 339,444
3 Claims. (Cl. 128—284)



1. A diaper comprising:

(a) a sheet of material of a width adjacent one edge thereof to substantially encircle the waist of a baby with the sides of said sheet tapering toward the opposite edge thereof to define a relatively narrow front portion for the diaper adjacent said opposite edge and a relatively wide portion for the diaper adjacent said one edge,

(b) an intermediate portion of said sheet of material being folded on itself to define a continuous pleat on the inner side of the diaper extending from a point adjacent the center of said one edge to a point adjacent the center of said opposite edge,

(c) means securing the folds of said pleat to each other at the juncture of said pleat with said sheet of material adjacent said one edge and adjacent said opposite edge to define a pleat having secured end portions and an open unsecured intermediate portion whereby said intermediate portion is adapted to expand, and

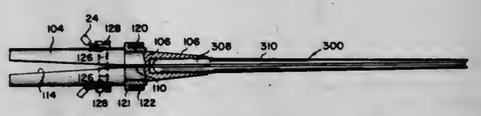
(d) means detachably connecting the ends of said wide portion to said front portion with said pleat positioned inwardly of said sheet of material.

3,322,123
TAMPONS
Earle A. Griswold, Palmer, Mass., and John R. McLaughlin, Rutland, Vt., assignors to Tampax Incorporated, New York, N.Y.
Filed June 17, 1964, Ser. No. 375,764
6 Claims. (Cl. 128—285)



1. In a compressed tampon the improvement comprising a pad of substantially transversely oriented absorbent resilient staple fibers, a liquid-pervious overwrap for said pad, stitches sewn longitudinally along the length of said pad binding together said fibers and the pad to said overwrap.

3,322,124
METHOD AND APPARATUS FOR RETRIEVING METALLIC OBJECTS FROM TEETH, FLESH, BONE AND THE LIKE
Donald W. Ireland, R.D. 2, Newark, Del. 19711
Filed Nov. 25, 1964, Ser. No. 413,714
11 Claims. (Cl. 128—303)



1. An electrical probe for removing metal objects from the body, comprising:

(a) a holder to which positive and negative electrical leads are connected,

(b) an elongated probe mounted at one end on said holder and having a recess at its other free end for receiving part of the metal object to be removed from the body,

(c) said probe having a plurality of conductors insulated from each other which extend the length of said probe and terminate with an exposed conductive end in said recess to form welding electrode tips, and

(d) some of said conductors being connected to a positive electrical lead, and the remaining conductors being connected to a negative electrical lead, whereby the exposed conductor ends can engage said metal body and on supply of electric current to said conductors fixedly weld the conductor ends and said metal objects together to enable the metal object to be withdrawn with said probe.

3,322,125
SUTURES AND METHOD OF MAKING SAME
Leonard D. Kurtz, Woodmere, N.Y., assignor to Sutures Inc., Coventry, Conn.
No Drawing. Filed Apr. 4, 1966, Ser. No. 539,619
4 Claims. (Cl. 128—335.5)

1. A method imparting attributes of a monofilament to a polyfilament suture comprising the steps of immersing a hydrophobic polyfilamentary polyester suture in an aqueous dispersion of solid polytetrafluoroethylene particles,

the particles being of a size sufficiently small to enter within the interstices of the polyfilament suture, maintaining the immersion to impregnate the suture with the polytetrafluoroethylene particles to substantially fill the dead spaces of the polyfilament suture, drying the suture to remove the fluid carrier to provide a polyfilament suture having the dead spaces therein filled by said particles of polytetrafluoroethylene.

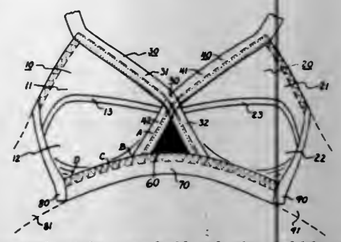
3,322,126
ENDOTRACHEAL CATHETER
Werner Rüsch, Rommelshausen, Wurttemberg, and Heinz Rüsch, Waiblingen, Wurttemberg, Germany, assignors to Firma Willy Rusch, Rommelshausen, Wurttemberg, Germany
Filed Apr. 13, 1964, Ser. No. 359,132
Claims priority, application Germany, Apr. 19, 1963, R 34,983
4 Claims. (Cl. 128—351)



1. An endotracheal catheter for insertion through and into the trachea of a patient after a tracheotomy and for remaining in the trachea, comprising: a main catheter tube having radially inflatable bulb means axially fixed to said main tube on the section insertable in the trachea for expansion into sealing engagement with the trachea, and control bulb means for selectively inflating said inflatable bulb means; support disc means for engagement with the outer portion of the patient's neck and frictionally surrounding said main catheter tube for axial adjustment to define the main trachea tube section insertable in the trachea on one side and the main trachea tube section outside of the patient on the opposite side; apertured means in said support disc means for securing said support disc means to the patient with holding means; aperture means in the side wall of said main catheter tube at said outside section for receiving a suction catheter to be inserted within said main catheter tube for removing fluids from the patient without interfering with the operation of said main catheter tube; and valve means for selectively opening said aperture means for receiving the suction catheter and closing said aperture means for preventing interference with the operation of said main catheter when the suction catheter is removed.

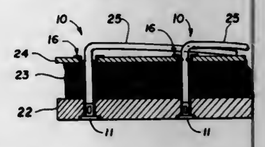
3,322,127
ANTI-CREEP BRASSIERE
Charles M. Sachs, Fort Lee, N.J., assignor to International Playtex Corporation, a corporation of Delaware
Filed Feb. 23, 1965, Ser. No. 434,292
6 Claims. (Cl. 128—483)

1. A brassiere in which:
(a) two inelastic cups are provided;
(b) two crossed tapes are respectively secured to the inner edges of the brassiere cups and are secured to each other at their crossing point, said tapes having upper branches above their crossing point and lower branches below it;
(c) an elastic underbust band extending under the cups from substantially the outside edge of one cup to substantially the outside edge of the other cup and is secured to the lower edges of the cups, said underbust band having essentially uniform construction throughout its length; and
(d) a triangular piece of elastic fabric is positioned in the space between the lower branches of the crossed tapes and the underbust band, with the three edges of said triangular fabric being respectively secured along the inner edges of the lower branches of said crossed tapes and along the upper edge of said underbust band; and



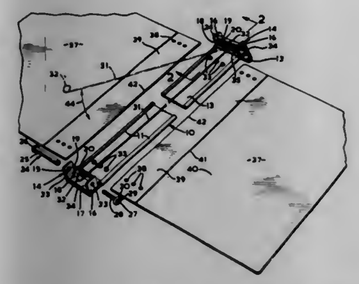
(e) approximately one-half of the width of each crossed tape above said crossing point overlaps the upper-inner edge of one of said cups with the remaining width thereof extending away from the upper half of said cup; and
(f) approximately one-half of the width of each crossed tape below said crossing point both overlaps and is secured to the lower-inner edge of the other cup with the remaining width thereof extending free of the lower-half of said other cup; and
(g) said overlapping portions of each crossed tape are secured to said cups in a continuous line, the bottom ends of said lower branches extend to the underbust band and are secured to it.

3,322,128
LOOSE LEAF BINDER POST ASSEMBLY
James G. Monahan, 434 Long Drive, Pittsburgh, Pa. 15241, and David A. Rauscher, 2941 Applegate Court, Glenview, Ill. 60025
Filed Apr. 1, 1966, Ser. No. 539,485
2 Claims. (Cl. 129—12)



1. A loose leaf binder comprising a pair of covers for holding a stack of sheets therebetween, a plurality of holes through an edge portion of said covers and sheets, a plurality of binding post assemblies extending through said holes, each binding post assembly comprising a head portion serving as a stop by resting in a well portion on the outer surface of one cover, a stranded wire cable extending through one of said holes and integrally secured and swaged inside a sleeve portion of one of said heads, a plastic jacket extruded on and substantially integral with said cable so as to prevent said jacket from being pulled longitudinally relative to said cable so as to strip or peel from said cable, said cable including a plurality of wires wound around in a helical manner, said plastic jacket being forced into the interstices of the cable during extrusion to prevent the tendency of the jacket from being pulled longitudinally relative to the cable, and a cup-shaped nut resting in a well portion on the outside surface of the other of said covers and having flexible, one-way acting spring elements formed in the bottom of said cup-shape snugly surrounding said plastic jacket for freely permitting the nut to slide toward the head, but not away from it as a consequence of digging into the plastic coating by said spring elements, whereby said sheets are securely held tightly between said covers, the end of each post being within the confines of the cup-shape of said nut.

3,322,129
BINDER
James L. Drysdale, Montreal West, Quebec, Canada, assignor to The Bell Telephone Company of Canada, Montreal, Quebec, Canada
Filed Sept. 30, 1965, Ser. No. 491,766
3 Claims. (Cl. 129—38)

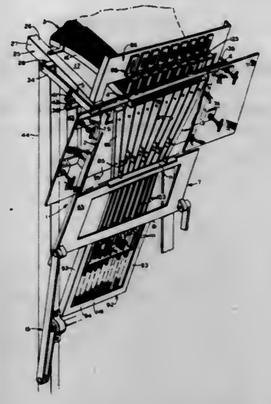


2. A binder for releasably holding books, directories and the like comprising an elongated rectangular supporting plate, a pair of U-shaped brackets fixed to one face of the plate one at each end thereof and having arms upstanding therefrom, a pair of axially aligned apertures located in the arms of each of the brackets, a pin slidably mounted on each of the brackets in said apertures, said pins being positioned transverse to the longitudinal axis of the plate and parallel thereto, a pair of locating members comprising upstanding flanges secured to respective ones of said brackets and positioned adjacent each of said pins, each of the upstanding flanges having a free edge lying substantially in the common axial plane of the pins, and at least one retaining rod looped at each end to engage slidably with said pins, said free edges of the upstanding means being crenelated to receive the rod when engaged with the pins, at least one of the pins being removable from its supporting bracket whereby the rod may be pivoted about the other of said pins in a direction away from the supporting plate and the upstanding flanges.

3,322,130
TOBACCO COMPOSITION
Hans W. P. Panzer, Stamford, and Andrew E. Carmellini, Brookfield, Conn., assignors to American Machine & Foundry Company, a corporation of New Jersey
No Drawing. Filed Mar. 3, 1964, Ser. No. 349,139
1 Claim. (Cl. 131—17)

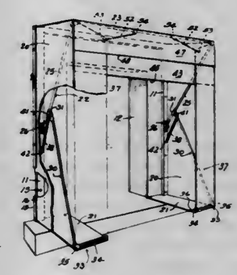
A smoking composition comprising finely divided tobacco and an adhesive therefor comprising a minor portion of a methylcellulose derivative which is rendered less hydrophilic by the substitution of one or more of the reactive groups, said substituted methylcellulose derivative being selected from the group consisting of acetylmethylcellulose, methylhydroxyethylacetylcellulose, methylhydroxypropylacetylcellulose, ethylmethylcellulose, n-propylmethylcellulose, and benzylmethylcellulose.

3,322,131
COIN GROUPING METHOD AND APPARATUS
George H. Warfel, Menlo Park, Calif., assignor to Bank of America National Trust and Savings Association, San Francisco, Calif.
Filed Nov. 26, 1965, Ser. No. 509,696
14 Claims. (Cl. 133—1)



1. A method of grouping a predetermined number of coins in a compact body for packaging, comprising:
(a) supporting said number of coins on their edges in a relatively loosely arranged, axially extending row of a plurality of smaller separate groups of coins with spaces between adjacent groups;
(b) progressively axially urging the coins in each of said groups and said groups together and, at the same time,
(c) combining said groups into a single group of said number of coins.

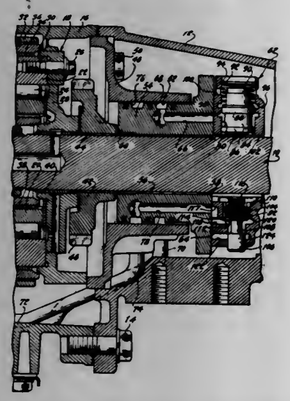
3,322,132
LOADING DOCK SHELTER
Paul A. Rieder, James M. Lindsley, and John E. Edkins, all of Fond du Lac, Wis., assignors to J. M. Nash Company, Inc., a corporation of Wisconsin
Filed May 13, 1964, Ser. No. 367,068
8 Claims. (Cl. 135—5)



8. An extensible loading dock shelter for mounting on a warehouse or the like in enclosing relation to a doorway thereof comprising: an extensible frame, a cover mounted on the frame and adapted to be connected to the warehouse about said doorway to form an enclosure extending outwardly from the warehouse, said frame comprising: a first set of arms having corresponding first ends adapted to be pivotally connected to the warehouse at fixed points at the sides of the doorway and corresponding second ends engaged with a portion of the cover, a

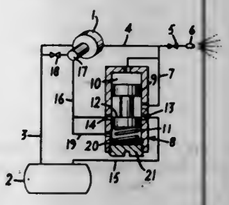
second set of arms having corresponding first ends slidably and pivotally connected with said first arms intermediate the first and second ends thereof and corresponding second ends engaged with another portion of the cover, the said first ends of the second set of arms being slidable along said first set of arms and toward the said first ends of the first set of arms as the shelter is moved toward extended position.

3,322,133
COMPOUND FLUID PRESSURE GOVERNOR VALVE ASSEMBLY
John J. Searles, Garden City, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed Dec. 14, 1964, Ser. No. 418,085
8 Claims. (Cl. 137—56)



1. In a compound fluid pressure governor adapted to establish a pressure signal that is an indicator of the driven speed of a driven member, a valve body mounted for rotation with said driven member, a first valve chamber and a second valve chamber formed in said valve body, a primary governor valve element and a secondary governor valve element disposed respectively in said first and second valve chambers and adapted for radial shifting movement with respect to the axis of rotation of said driven member, a fluid pressure supply passage in fluid communication with said governor assembly, a governor pressure delivery passage communicating with said secondary valve chamber, said secondary governor valve element being formed with a differential area that is in fluid communication with said delivery passage, each valve element being adapted to be urged radially outwardly under the influence of centrifugal force, said secondary governor valve element being adapted to modulate the control pressure made available to said assembly to produce a resultant pressure signal in said governor pressure delivery passage that is proportional in magnitude to the driven speed of said driven member, a cross-over passage interconnecting portions of said primary governor valve chamber and portions of said secondary governor valve chamber whereby said primary governor valve element may influence the regulating characteristics of said secondary governor valve element by controlling distribution of pressure to said cross-over passage; and means for opposing radially outward movement of said primary governor valve element under the influence of centrifugal force, said primary governor valve element being adapted to establish distribution of control pressure through said primary governor valve chamber to said cross-over passage when it assumes one radial position and to exhaust said cross-over passage when it assumes another radial position.

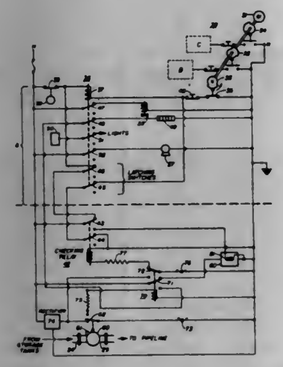
3,322,134
PRESSURE-REGULATING VALVE
Arne F. Enemark, Sonderborg, Denmark, assignor to Danfoss ved ing. M. Clausen, Nordborg, Denmark, a company of Denmark
Filed Feb. 11, 1964, Ser. No. 343,974
Claims priority, application Germany, Feb. 20, 1963, D 40,941
9 Claims. (Cl. 137—108)



1. For use in a fluid pressure system having a source of fluid and a source of fluid under pressure connected in operation for taking a suction from the first-mentioned source, an improved pressure-regulating valve connected in operation in a portion of said system which is to be controlled and the pressure maintained constant therein and downstream of said source of fluid under pressure on a discharge side thereof comprising, means defining a bore comprising a valve chamber and having an inlet in communication with said chamber for receiving fluid under pressure from the second mentioned source and two outlets in a same plane in communication with said chamber for connection in operation with said first mentioned and second mentioned fluid sources respectively to return fluid under pressure to a suction side of said second mentioned source and to allow fluid under pressure to flow directly to said first mentioned source, said outlets being disposed on different sides of said chamber and having equal flow areas, a valve member in said bore responsive to fluid under pressure and actuatable in response to fluid under pressure in said chamber for opening said two outlets simultaneously an equal amount in direct proportion to fluid pressure increases over a given selected pressure, and means for causing said valve member to close said two outlets in dependence upon the pressure in said chamber and for causing complete closing of said two outlets when said fluid pressure in said chamber is below said selected pressure.

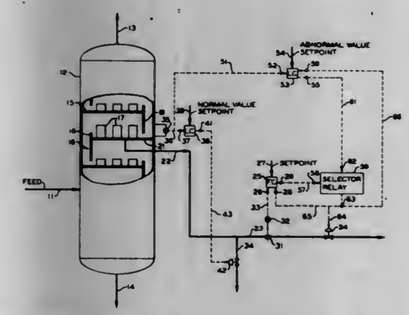
3,322,135
SYSTEM FOR ENSURING ACCURATE MEASUREMENT ALLOCATION OF FLUID
Walter Thomas Watson, Tulsa, Okla., assignor to Combustion Engineering, Inc., New York, N.Y., a corporation of Delaware
Filed Sept. 23, 1964, Ser. No. 398,542
6 Claims. (Cl. 137—113)

1. A system for controlling and manifesting the metering of flowing material from a source of supply to a point of use, including,
a set of relay contacts operative to direct flow of the material from the source and move the material to the point of use,
a first circuit arranged to apply power to position the set of relay contacts, the circuit being initially completed through a switch responsive to the amount of material at the source and a switch operated in accordance with a program for moving the material from the source,
a set of latching contacts in the set of relay contacts through which the set of relay contacts is powered to be maintained in its operative position regardless of the subsequent positions of the source switch and program switch,
a meter receiving the material from the source as it flows to the point of use,
a second circuit attached to the meter and arranged to establish an electrical pulse for a predetermined length of time for each unit of material flowing through the meter,
a third circuit connected to the second circuit and arranged to estabilsh an electrical pulse for a predetermined length of time after each pulse of the second circuit,



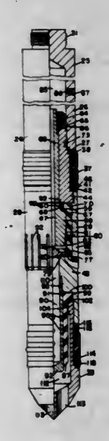
and a checking relay operated by the third circuit to interrupt the power through the latching contacts for the predetermined length of time of the pulse of the third circuit to return the first circuit to control of the source switch and program switch immediately after the unit measured by the meter has been manifested and before appreciable flow through the meter can occur.

3,322,136
FLUID TRANSFER CONTROL SYSTEM
Romeo Matta, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Dec. 30, 1964, Ser. No. 422,258
12 Claims. (Cl. 137—118)



1. Apparatus comprising a source of a fluid, first conduit means communicating with said source of fluid for withdrawing a first stream of fluid therefrom; second conduit means communicating with said source of fluid for withdrawing a second stream of fluid therefrom; a first valve means operatively positioned in said first conduit means; a second valve means operatively positioned in said second conduit means; a flow controller having a flow measurement signal input, a setpoint signal input and an output; a flow sensing means operatively associated with said first conduit means for producing an output signal representative of the flow rate of said first stream of fluid through said first conduit means; means connecting said output signal of said flow sensing means to said flow measurement signal input of said flow controller; a selector relay having first and second inputs and an output; means connecting said output of said flow controller to said first input of said selector relay; means operatively associated with said source of fluid for determining a characteristic of the fluid contained therein and for establishing an output signal representative thereof; a first controller having a setpoint input, a measurement signal input and an output; a second controller having a setpoint input, a measurement signal input and an output; means for connecting said output signal of said means for determining to the measurement signal inputs of said first and second controllers; means connecting said output of said second controller to said second valve means to regulate the rate of flow of said second stream of fluid through said second conduit means responsive to the output of said second controller; means connecting said output of said first controller to said second input of said selector relay; and means connecting said output of said selector relay to said first valve means to regulate the rate of flow of said first stream of fluid through said first conduit means responsive to the output of said selector relay.

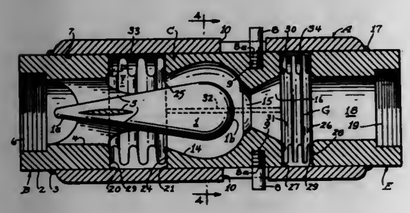
3,322,137
AIR OR GAS LIFT VALVES
Carlos R. Canalizo, Dallas, Tex., assignor to Otis Engineering Corporation, Dallas, Tex., a corporation of Delaware
Filed Oct. 9, 1963, Ser. No. 314,914
13 Claims. (Cl. 137—155)



1. A valve including: a tubular body having a longitudinal bore; a closure member secured in said longitudinal bore and dividing said bore into a closed pressure chamber and a flow passage, said body having inlet port means communicating with said flow passage adjacent said closure member and outlet port means communicating with said flow passage at a point spaced longitudinally from said closure member; said body having an internal annular seat in said flow passage between said ports; said closure member being engageable with said

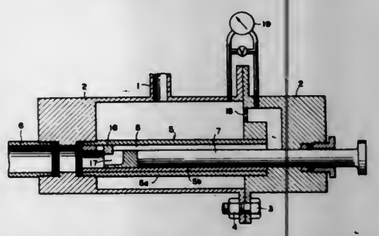
seat to close off flow through said flow passage between said ports; said closure member comprising a rubber-like resilient flexible tubular section secured at one end to said body and having its other end free for movement in said body, and having a rigid inflexible center section closing said free end of said tubular section, said rigid section and the adjacent annular resilient portion of said closure member engaging said seat means and having a surface of predetermined area exposed to fluid pressure in said flow passage, whereby said fluid pressures in said flow passage act on said closure member to move said closure member out of sealing engagement with said seat to permit fluid flow in said flow passage between said inlet and outlet ports; and fluid pressure charge means confined in said closed pressure chamber biasing said free end portion of said closure member into sealing engagement with said seat in opposition to said fluid pressures in said flow passage to close off said flow passage to fluid flow between said ports.

3,322,138
PACKINGLESS IN-LINE VALVE
William O. Backman, P.O. Box 158, Fair Oaks, Calif. 95628
Filed June 1, 1964, Ser. No. 371,528
3 Claims. (Cl. 137—219)



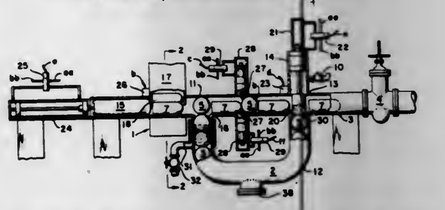
2. In a packingless in-line valve comprising:
a cylindrical casing;
a valve plug member fixedly mounted in one end of said casing;
a valve coupling member fixedly mounted in the other end of said casing in spaced relation to said valve plug member, each of said valve plug member and valve coupling member having a longitudinally extending bore formed therein;
a valve plug positioned in said casing and having one end connected to and carried by said valve plug member with the other end positioned in spaced relation to said valve coupling member;
a valve seat member slidably mounted in said casing intermediate said valve plug member and said valve coupling member;
said valve seat member having a fluid passage therethrough with a portion of said passage being in concentric relation with respect to said other end of said valve plug at all times, said valve seat member having a valve seat for engaging said other end of said valve plug;
sealing means carried by said valve seat member and connected to said valve plug member and said valve coupling member for sealing said casing with respect to the bores formed in said valve plug member and valve coupling member and the passage in said seat member; and
means for moving said valve seat member toward said valve plug member for causing said valve plug to engage said seat and close the valve and for unseating said valve plug upon moving said valve seat member toward said valve coupling member.

3,322,139
DEVICE FOR DISTRIBUTING LIQUID WITH MECHANICAL CLEANING MEANS
Tadashi Asano, Senichi Masuda, and Tsutomu Ito, Tokyo, Japan, assignors to Onoda Cement Company Limited, Yamaguchi, Prefecture, Japan
Filed Feb. 28, 1964, Ser. No. 348,201
Claims priority, application Japan, Mar. 3, 1963, 38/10,334; June 5, 1963, 38/29,476, 38/29,477
2 Claims. (Cl. 137—242)



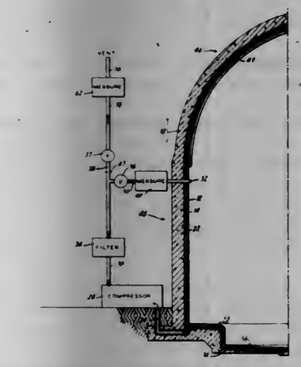
1. A device for distributing a liquid, comprising a housing, a single main supply duct connected to said housing, a plurality of double-walled communication tubes disposed within said housing, each of said communication tubes including on its inner wall portion a longitudinal groove, one distribution pipe connected to each of said communication tubes, a control rod telescopically inserted into said each communication tube for controlling a flow rate of the liquid flowing through the associated distribution pipe, a radially directed scraper pawl disposed on that end of said control rod near said distribution pipe and complementary in shape to said groove, a recess formed on said end of said control rod and opening into the groove, to provide communication between said groove and the associated distribution pipe, said longitudinal groove presenting a resistance to a flow of liquid therethrough at least five times higher than a resistance presented by the associated distribution pipe to a flow of liquid therethrough.

3,322,140
PIPELINE CAPSULE LAUNCHER
Paul R. Scott, Houston, Tex., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware
Filed July 16, 1965, Ser. No. 472,526
8 Claims. (Cl. 137—268)



1. A capsule launcher for continuously inserting solid to semi-solid capsules into pressurized pipelines comprising:
(a) a circulating loop;
(b) a length of conduit connecting said circulating loop and a pressurized pipeline for fluid communication therebetween;
(c) a plurality of ball valve means positioned in the bore of said circulating loop, said ball valve means being larger in diameter than the diameter of said bore thereby effecting a fluid tight seal between the periphery of said ball valve means and the walls of said bore;
(d) capsule-loading means communicating with a low pressure portion of said circulating loop which is operable to introduce capsules into said circulating loop in said portion; and
(e) means for circulating said ball means through said circulating loop so capsules inserted in said low pressure portion of said loop are carried by the circulation to a high pressure portion of said loop communicating with said pressurized pipeline where they are discharged into said length of conduit and thence into said pipeline.

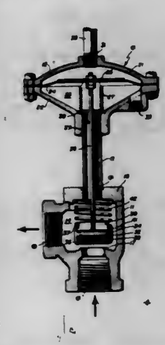
3,322,141
CONTAINMENT VESSELS
Daniel Gans, Jr., Milton, Walter C. Woodman, Watertown, Robert A. De Luca, Newton Center, and Norman B. Cleveland, Swampscott, Mass., assignors to Stone & Webster Engineering Corporation, Boston, Mass., a corporation of Massachusetts
Filed July 27, 1962, Ser. No. 212,862
11 Claims. (Cl. 137—312)



1. In a containment vessel system, the new and useful result characterized by containment and control of all leakage from the interior of the containment vessel and physically attained by: a containment vessel comprising an outer, relatively thick, pressure-containment shell, a relatively thin, continuous, inner liner disposed within the space enclosed by the outer shell and providing an interior compartment for the vessel, and a continuous formed sheet located between the liner and the shell and surrounding the liner, for transferring high pressures exerted upon the liner from said compartment, to said shell, said continuous formed sheet being attached intermittently to said liner and running back and forth between the inner surface of the outer shell and the outer surface of the inner liner, said sheet forming with the liner an annular space around said compartment between the liner and the formed sheet; means for evacuating and compressing gases and vapors from the annular space; a first conduit means for conducting gases and vapors from the annular space to the evacuating and compressing means; and a second conduit means for conducting the compressed gases and vapors to said interior compartment of the vessel, whereby any gas or vapor leakage from the interior compartment of the vessel to the annular space is returned to the interior compartment of the vessel.

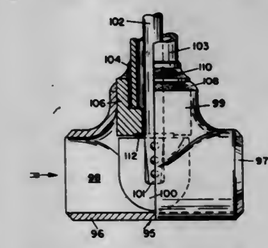
3,322,142
VALVE FOR LOW TEMPERATURE SERVICE
Hans D. Baumann, Decatur, Ill., assignor to A. W. Cash Company, Decatur, Ill., a corporation of Illinois
Filed Aug. 25, 1964, Ser. No. 391,965
4 Claims. (Cl. 137—334)

1. A valve, comprising
(a) a main housing having a chamber with inlet and outlet ports and with a valve seat, the housing having a valve stem opening,
(b) a control housing having a chamber with a diaphragm with a regulating port entering the chamber on one side of the diaphragm and with a valve stem opening on one side of the diaphragm,
(c) an elongated valve stem having one end connected to the diaphragm, extending through the valve stem opening of the control housing and through the valve stem opening of the main housing, and having its other end located adjacent the valve seat,
(d) an elongated tube of low-heat transfer material joining the valve stem openings of the housings and surrounding the valve stem,



(e) a coil spring lying in the chamber of the main housing concentrically of the valve stem and having one end pressing against the inner surface of the main housing concentrically of the valve stem opening, and
(f) a seat-contacting member attached to the said other end of the valve stem, the other end of the coil spring pressing against the seat-contacting member, the valve stem being supported only by the diaphragm in the control housing and by the coil spring in the main housing.

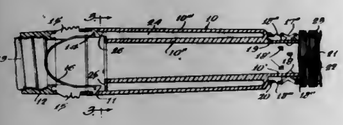
3,322,143
VALVE
Herman F. Buschow, Hillsdale, N.J., assignor to Hydrocarbon Research, Inc., New York, N.Y., a corporation of New Jersey
Filed Aug. 24, 1966, Ser. No. 575,494
5 Claims. (Cl. 137—375)



1. A valve for internal mounting within a cold box and operation external of the cold box, said valve comprising a body of a low density metal from the class of aluminum and aluminum alloys having a relatively high coefficient of heat transfer, said body having interconnecting ports and adapted to be welded to associated piping, a valve element movable to and from a position to close the passage between the ports, a valve stem

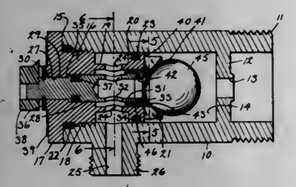
operably connected to said valve element, a tubular shield of a high density metal from the class of stainless steel having a relatively low coefficient of heat transfer, said shield being connected to said valve body and being substantially coextensive with said valve stem and normally covered by insulation and thereby protecting said valve stem from interference from turning due to said insulation, said shield having a low density metal nipple from the class of aluminum and aluminum alloys surrounding and integrally secured to the portion of the shield adjacent the valve body, said nipple acting as a transition piece to permit field welding of the high density metal shield to the low density metal valve body.

3,322,144
HAIR DRYER CURLING ATTACHMENT
Herman O. De Boer, Jr., Wheaton, and Frederick J. Ritter, Chicago, Ill., assignors to Sunbeam Corporation, Chicago, Ill., a corporation of Illinois
Filed June 30, 1965, Ser. No. 468,301
7 Claims. (Cl. 137—375)



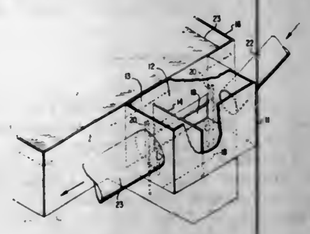
1. A hair dryer curling attachment, comprising a tubular member, means at one end of said tubular member adapting said one end for removable connection to a hair dryer hose, means at the other end of said tubular member adapting said other end for removable connection to any one of a plurality of different size tubular hair curling forms, and means for heat insulating the portion of said tubular member between said ends to the sense of touch.

3,322,145
ADJUSTABLE CONSTANT FLOW VALVE
David G. Prosser, Milwaukee, Wis., assignor to Autotrol Corporation, Milwaukee, Wis., a corporation of Wisconsin
Filed Nov. 2, 1964, Ser. No. 408,055
13 Claims. (Cl. 137—517)



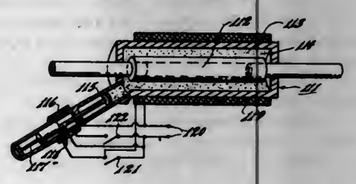
1. An adjustable constant flow valve comprising: a valve body including an inlet and an outlet; means forming discrete control passage means within said valve body; a fluid pressure responsive member disposed within said valve body and responsive to the flow of incoming fluid to seat against said control passage means, said control passage means having an open cross sectional area for the flow of fluid from said inlet to said outlet when said member is seated thereagainst, one of said control passage means and said member being deformable whereby said open cross sectional area is reduced in direct proportion to the pressure of incoming fluid; and means for obstructing a selectable portion of said open cross sectional area to adjust the rate of fluid to be maintained.

3,322,146
FLUID FLOW CONTROLLING DEVICE
Floyd J. Clawson, Nashville, Tenn., and Michael C. De Stefano, Lakeland, Fla.; said Clawson assignor to Unifab, Inc., Camden, Tenn., a corporation of Tennessee
Filed Oct. 14, 1964, Ser. No. 403,730
2 Claims. (Cl. 137—576)



1. A fluid flow controlling device for automatically maintaining a constant level of fluid in a receptacle comprising
a flow box positioned adjacent the receptacle, said flow box being constructed as a separate element apart from the receptacle,
weir means dividing said box into a delivery chamber and an overflow chamber, said weir means being of a height substantially equal to the level at which the fluid in the receptacle is to be maintained,
fluid inlet means communicating with said delivery chamber through a sidewall thereof,
fluid outlet means communicating with said overflow chamber,
said delivery chamber having an orifice communicating with the receptacle at a lesser height than the top of said weir means to permit fluid from the delivery chamber to flow into the receptacle, and
said fluid inlet means being capable of providing a fluid pressure head greater than the pressure head created by the fluid in the receptacle to cause said fluid to flow into the receptacle until the level of the fluid therein is substantially equal to the height of said weir means and to preclude said fluid in the receptacle from returning to said delivery chamber to thereby maintain the level of the fluid in the receptacle constant.

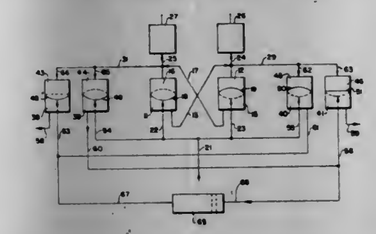
3,322,147
FLUID PRESSURE ACTUATED TUBE COMPRESSOR VALVE
Martin R. Barrows, North Wales Road, North Wales, Pa. 19454
Filed Apr. 15, 1964, Ser. No. 359,974
2 Claims. (Cl. 137—595)



1. A valve consisting essentially of: a body; a pressure chamber in the body; a magnetically hardenable hydraulic liquid in the pressure chamber; at least one flexible tube immersed in the hydraulic liquid, each tube having the resiliency to return to normal dimensions after being squeezed; means for making selected increases and selected decreases in the pressure of the hydraulic liquid, whereby each flexible tube may be squeezed in sphincter valve

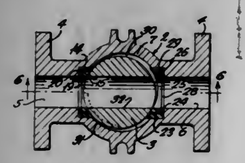
action to constrict the flow through a flexible tube and whereby such squeezing may be released; an electromagnet positioned to impart a magnetic field to the magnetically hardenable hydraulic liquid; and switching means for the electromagnet.

3,322,148
BISTABLE PNEUMATIC LOGIC ELEMENT AND VALVES
Jerry E. Rochte, Long Beach, Calif., assignor to Beckman Instruments, Inc., a corporation of California
Filed Nov. 12, 1963, Ser. No. 322,879
13 Claims. (Cl. 137—596.14)



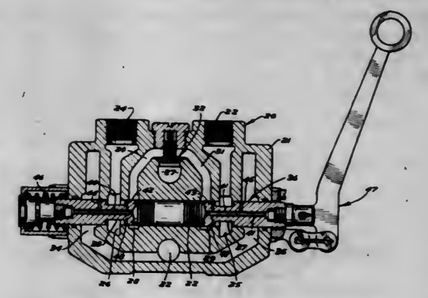
3. A pneumatic bistable element having first and second chamber means;
first and second input means for connecting a source of pneumatic pressure to each of said chamber means, said first input means having a larger flow capacity than said second input means;
pressure responsive means separating said chamber means and deflectable to a set position and a reset position, said pressure responsive means closing said first input means connected to one of said chamber means in said set condition and closing said first input means connected to the other of said chamber means in said reset position;
means connected to each of said chamber means for obtaining a pneumatic pressure output from each of said chamber means; and
means for connecting each of said chamber means to a control means whereby a differential pressure may be created between said chamber means by the control means for deflecting said pressure responsive means to said set condition or said reset condition, said pressure responsive means maintaining said differential pressure in said chambers after operation of said control means.

3,322,149
VALVE HAVING SMALL QUANTITY FLOW PASSAGES
Norman H. Haenky, 4418 S. Sandusky, Tulsa, Okla. 74135
Filed Nov. 6, 1963, Ser. No. 321,778
7 Claims. (Cl. 137—625.12)



1. In a valve having a body with inlet and outlet passages communicating with a plug chamber in which a plug having a through port is mounted for rotation to position the plug port in and out of registry with the inlet and outlet passages of the body, the improvement comprising, a seal of deformable material at the end of the inlet passage adjacent the plug chamber, the inlet passage having a seat to receive the seal, the seal being an annular ring having a concave face to engage and seal against the rotatable plug, and means for forcing the plug into sealing engagement with the seal at said inlet passage end to prevent flow from the inlet passage to the plug port when the plug occupies a selected out of registry position, said seal has a plurality of holes extending therethrough, opening to the seal seat and the concave face of the seal, and arranged in a path related to the cross-sectional shape of the plug port to dispose different numbers of said holes in registry with said port at different angular positions of the port in an intermediate zone of the range of movement of said plug, and said plug being shaped to dispose said seal so as to admit seepage flow of fluid from said inlet passage between said seat and seal and through said holes into said plug port and thence to said outlet passage when said plug occupies said intermediate zone to provide controlled small quantity flow through said valve.

3,322,150
VALVE
Ronald K. Getman, Minnetonka Village, Minn., assignor to Gresen Manufacturing Company, Minneapolis, Minn., a corporation of Minnesota
Filed Dec. 10, 1964, Ser. No. 417,379
3 Claims. (Cl. 137—625.38)

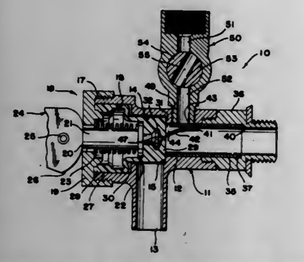


1. In combination with a closed center hydraulic system, a control valve comprising in combination;
(a) a body member;
(b) inlet, exhaust and control ports in said body member; and
(c) valving means having a neutral position and being operable to selectively connect said control port to said inlet and exhaust ports, said valving means including unobstructed bypassing means extending intermediate a groove in said valving means disposed adjacent said inlet port and said exhaust port when said valving means is in said neutral position.

3,322,151
FLUID MIXING VALVE HAVING A FLOW METERING INSERT
Elroy J. Giese, Cleveland, and Gilbert T. Delly, Maple Heights, Ohio, assignors to Tomlinson Industries, Inc., Cleveland, Ohio, a corporation of Ohio
Filed Apr. 23, 1964, Ser. No. 362,139
6 Claims. (Cl. 137—625.4)

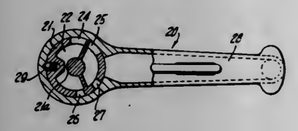
1. A valve comprising:
a valve body having inlet and outlet passages;
a fluid passageway in the valve body interconnecting said passages;

a seal chamber in the passageway;
a sealing seat defined by the seal chamber transverse the axis of the passageway;
resilient sealing means disposed in the seal chamber and adapted to abut said sealing seat;
manually operable means secured to said resilient sealing means for controlling the movement of said resilient sealing means toward and away from abutment with said sealing seat;
an auxiliary passageway in said valve body opening into said inlet passage;
a sleeve received in the inlet passage;
said sleeve extending longitudinally of the inlet pas-



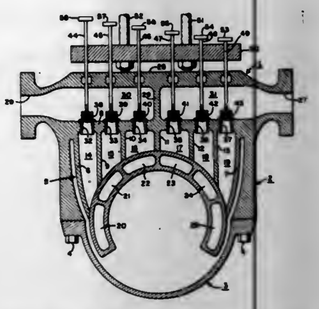
sage to a point adjacent the sealing seat with one end coplanar with said seat;
an axially extending recess defining a channel in a portion of the periphery of said sleeve;
said channel extending from at least the point of intercommunication of said auxiliary passageway and said inlet passage to said one end of the sleeve;
the other end of said sleeve being in sealing engagement with said inlet passage whereby fluid passing through said inlet passage flows only through the interior of said sleeve and fluid in the auxiliary passage flows through said channel.

3,322,152
SWINGABLE FAUCET
Christian Aechter, Possenhofener Strasse 37, Starnberg, Germany
Filed Oct. 14, 1963, Ser. No. 316,093
Claims priority, application Germany, Oct. 16, 1962, A 41,399
5 Claims. (Cl. 137—625.41)



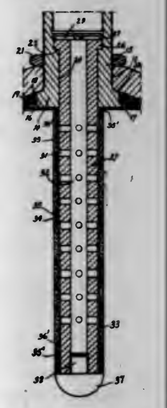
1. A swingable faucet adapted to supply liquids to two adjacent locations having different liquid requirements, comprising a swingable faucet portion having a bore therethrough, adapted to discharge said liquids and having a substantially median inoperative position and two lateral operative positions, stopcock means connected between said faucet portion and a liquid inlet conduit, means for discharging a predetermined liquid quantity per unit of time when said faucet portion is moved to one of said lateral positions and another different liquid quantity when the same is moved to the other lateral position, and means for throttling the liquid flow when said faucet portion is in said median position, further comprising mixing means associated with said stopcock means for selectively supplying liquids from said inlet conduit and from another inlet conduit upon operation of said discharging means.

3,322,153
MULTIPLE PRESSURE CONTROL VALVE
Andrew W. Rankin, Leominster, Mass., assignor to General Electric Company, a corporation of New York
Filed June 9, 1964, Ser. No. 373,680
6 Claims. (Cl. 137—630.19)



1. A control valve assembly for controlling the flow of elastic fluid from more than one pressure source to a plurality of admission nozzles inside a turbine casing, comprising:
valve casing means defining at least first and second chambers having first and second inlets respectively and having respectively first and second groups of discharge outlets,
first and second groups of valves disposed in the first and second chambers respectively, each valve being arranged to control the flow of elastic fluid from a respective one of said outlets to a respective nozzle, and
common actuating means connected to lift each valve of the first valve group in sequence followed by each valve of the second group in sequence.

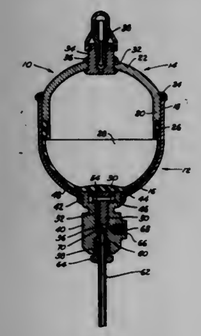
3,322,154
PRESSURE VESSEL
Jacques H. Mercier, New York, N.Y., assignor to Mercier Olaer Patent Corporation, Wilmington, Del., a corporation of Delaware
Filed Jan. 13, 1965, Ser. No. 425,271
Claims priority, application France, Jan. 24, 1964, 961,441
7 Claims. (Cl. 138—30)



1. A pressure vessel comprising a rigid container having a deformable partition therein defining two chambers

for fluid, each having a fluid passageway leading thereinto, an elongated central guide member for said partition in one of said chambers, said central guide member comprising a rigid tube having a plurality of perforations therein and porous means encompassing at least a portion of said tube, said partition encompassing said central guide member, the latter having a substantially continuous surface with respect to said partition to restrain passage therethrough of the partition, said surface permitting passage therethrough of the fluid flowing through one of said fluid passageways, said central tube and said porous means each having a different coefficient of expansion and means to take up the differences in the coefficients of expansion of the central tube and the porous means to prevent cracking of said porous means.

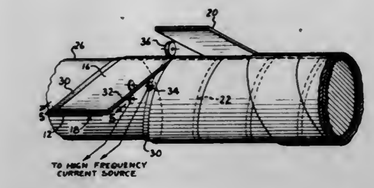
3,322,155
ACCUMULATOR SAFETY VALVE
Thomas M. Julow, South Bend, Ind., assignor to The Bendix Corporation, South Bend, Ind., a corporation of Delaware
Filed Jan. 15, 1965, Ser. No. 425,802
3 Claims. (Cl. 138—30)



1. An accumulator for storage of liquid which comprises, in combination:
a rigid container having means connected to a source of liquid under pressure, which means includes a valve chamber having an axial opening, a radial opening and a radially off-set axial opening;
a bladder operatively arranged in said container to be fixed at one end thereto and filled with a gas under pressure to confine the liquid space in said container between said bladder and the walls of said container, which liquid space is communicable with the radially off-set axial opening of said means; and
deformable valve means in said valve chamber overlying said axial opening to be between it and said radially displaced axial opening at the other end of said valve chamber, said deformable valve being sized to be slightly greater in diameter than the axial opening such that upon being subjected to a predetermined pressure from the liquid space said valve may be extruded through said axial opening.

3,322,156
CAN AND METHOD OF MAKING SAME
Robert Stuart, Chicago, Ill., assignor to National Can Corporation, Chicago, Ill., a corporation of Delaware
Filed May 3, 1963, Ser. No. 277,788
7 Claims. (Cl. 138—143)

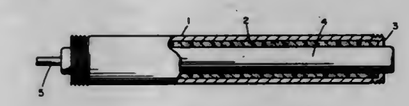
1. A container body comprising a helically wound web having an outer layer and having an inner layer of metallic foil laminated therewith and with the foil being of insufficient strength to sustain the shape of the body, the foil having a strip projecting laterally of one longitudinal edge of the outer layer continuously for the full length of the outer layer, adjacent turns of the foil being overlapped and secured together by a continuous helical seam that is formed by the overlapped face to face engagement of the strip and the foil adjacent to the edge of the successive turn, said seam being backed by the helically wound outer layer, and a continuous weld securing the seam from one end of the body to the other, there being a helical seam of the web that is substantially co-



incident with the welded seam and overlying the same.

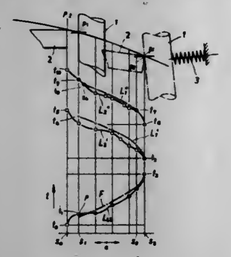
5. A method of making a helically wound container body, which method comprises winding helically on a mandrel a non metallic web one surface of which has laminated thereto a metallic foil wherein a continuous strip part of the foil extends laterally of one longitudinal edge of the web, forming a helical seam during the winding by overlapping engagement of the laterally extended strip part of the web and the adjacent facing portion of the foil of the preceding turn of the web, and welding the overlapped parts by a weld extending continuously along the seam.

3,322,157
CEMENT-LINED PIPES OF INCREASED FLEXIBILITY AND METHOD OF MAKING SAME
Farris Mitchell, Dallas, Tex., assignor to Mobil Oil Corporation, a corporation of New York
Filed Aug. 19, 1963, Ser. No. 302,890
11 Claims. (Cl. 138—172)
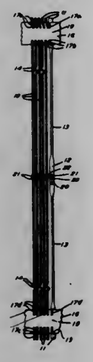


6. A method of providing a metal pipe having a continuous interior wall with a liner of hydraulic cement, comprising the steps of:
(a) lining the interior wall of said pipe with said hydraulic cement in a plastic condition,
(b) thereafter and while said cement is in a plastic condition inserting an expansible sleeve having closed ends in the interior of said pipe and connecting the ends of said sleeve to said pipe at longitudinally spaced positions thereof,
(c) thereafter applying sufficient pressure inside said sleeve to cause transverse and longitudinal elastic enlargement of said pipe,
(d) maintaining said pressure until said cement has set sufficiently to render it essentially nondeformable, and
(e) thereafter releasing said pressure whereby the elastic restoring force of said pipe places said cement in compression.

3,322,158
METHOD AND MEANS FOR ACTUATING AN ELEMENT OF A WEAVING MACHINE
Erwin Pfarrwaller, Winterthur, Switzerland, assignor to Sulzer Brothers Limited, Winterthur, Switzerland, a corporation of Switzerland
Filed Apr. 8, 1964, Ser. No. 358,260
7 Claims. (Cl. 139—1)



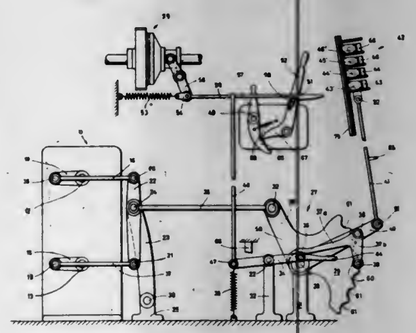
1. A weaving machine comprising:
a moving element,
a power means connected to said moving element for moving said moving element in a path at a predetermined rate of speed,
a supporting means for contacting said moving element at a mutual point of contact in a non-positive connection,
means operatively connected to said supporting means for moving said supporting means in said path simultaneously with said moving element and against the action of said power means, said operatively connected means and in the opposite direction having accelerating means for moving said supporting means in said path out of contact with said moving element during simultaneous movements thereof through said power means whereby said supporting means is separated from said moving element before said moving element reaches a position of action near the end of said path.

3,322,159
HEDDLES
Frank H. Kaufmann, Huntingdon Valley, Pa., assignor to Steel Heddle Manufacturing Company, Philadelphia, Pa., a corporation of Pennsylvania
Filed Oct. 13, 1965, Ser. No. 495,527
7 Claims. (Cl. 139—96)



1. Loom harness comprising plurality of heddles arranged side by side on supporting rods, each of said heddles comprising a strip of material having mortised end sections provided with rod eyes for mounting on the supporting rods and a central section with a warp eye, at least one of said end sections having a side shank portion on one side of a supporting rod with an offset out of the main plane of the end section and the opposite side shank portion having a cutout for free end to end movement of the heddles on the heddle supporting rods and separating inner and outer side shank fingers, at least one of said shank fingers extending out of the main plane of the end section.

3,322,160
DEVICE FOR CONTROLLING MOVEMENT OF A DROP BOX ON A LOOM
Friedrich Lutz, Rothaus, Durnten, Zurich, Switzerland, assignor to Ruti Machinery Works Ltd., formerly Casper Honegger, Ruti, Zurich, Switzerland, a corporation of Switzerland
Filed June 17, 1965, Ser. No. 464,737
Claims priority, application Switzerland, June 18, 1964, 8,015/64
14 Claims. (Cl. 139—182)

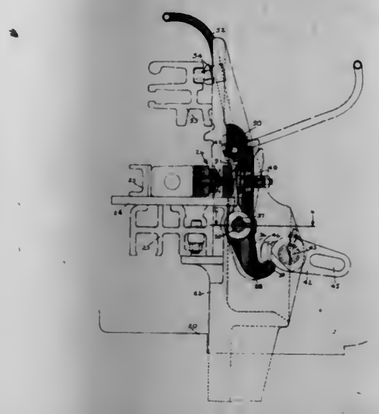


1. In a loom, a device for controlling movement of a drop box adapted to be positioned in various picking positions by movement of a drop box motion, which comprises coupling means operably associated with said drop box motion for positioning said drop box, said coupling means having a working position in which it is normally coupled to said drop box operation of said loom and also having positioning positions on both sides of said working position, the number of positioning positions corresponding to the maximum number of possible picking positions into which the drop box can be changed, the working position and the positioning positions forming stable coupling states and the locations between these positions forming unstable coupling states, means for allowing said coupling means to shift to one of said positioning positions when movement of said drop box is hindered, and an indicator means which supplies an indication for actuating a shutoff mechanism for stopping the loom when the coupling means is coupled to said drop box in one of said positioning positions.

3,322,161
SHUTTLE BINDER CONTROL MECHANISM
Joseph R. Evans, Milford, Mass., and Gordon S. Robinson, Woonsocket, R.I., assignors to Draper Corporation, Hopedale, Mass., a corporation of Maine
Filed Dec. 30, 1965, Ser. No. 517,605
7 Claims. (Cl. 139—187)

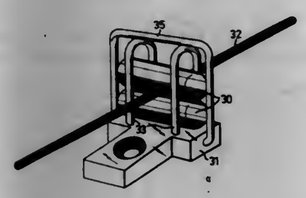
1. A tension control mechanism for a shuttle binder of a loom comprising
(a) a supporting shaft oscillatably fixed adjacent said binder,

(b) a lever fixed to said supporting shaft for pivotal movement therewith,



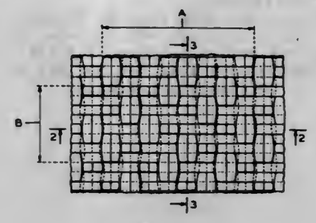
(c) binder pressure relieving means fixed to said supporting shaft, and
(d) manually driven camming means for pivoting said lever.

3,322,162
LOOM WEFT STOP MOTION DEVICES
Sten-Åke Olaus Rydborn, Almhult, Sweden
Filed Feb. 11, 1966, Ser. No. 526,745
4 Claims. (Cl. 139—371)



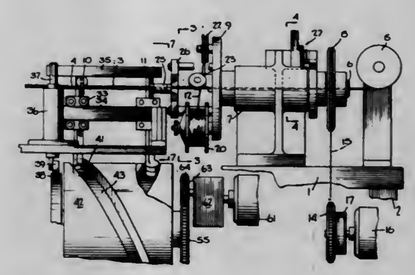
1. A stop motion device which is responsive to the unwinding of a thread from a shuttle during the passage thereof along a shuttle race in a loom and which comprises transmitter means disposed in the shuttle and contracting the thread being unwound, said transmitter means being adapted, under the influence of the movement of the thread, to change a magnetic field, and sensing means located along the entire shuttle race and adapted to deliver an induced electrical signal under the action of the changing magnetic field, said transmitter means comprising two rotatably mounted elements of magnetic material arranged on either side of the thread to be unwound from the shuttle, at least one of said elements being a permanent magnet and at least one of said elements being movable in relation to the other such that the elements are attracted by the magnetic force therebetween to provide for said changing of the magnetic field and braking of the thread during unwinding from the shuttle, said sensing means including an electrically conductive coil extending along the entire length of the shuttle race and adapted to deliver said electrical signal by induction as a result of the changes of the magnetic field, said electrical signal being supplied to an electronic device for stopping the operation of the loom upon stoppage of the passage of the thread and resulting disappearance of the electrical signal.

3,322,163
LOW ELONGATION SEAT BELT WEBBING
Osbert C. H. Hughes, Hopewell, Va., assignor to Allied Chemical Corporation, New York, N.Y., a corporation of New York
Filed Feb. 25, 1965, Ser. No. 435,129
4 Claims. (Cl. 139—383)



1. A woven fabric having a width between about 1½ to 3 inches comprising warp elements spaced about 20 to 66 per inch and weft elements spaced at a frequency of between 25% and 70% of the frequency of said warp elements, said warp elements comprising 2 to 5 contiguous strands lying in essentially untwisted juxtaposition, said strand comprised of continuous multifilament synthetic yarn of .25 to 3.0 turns per inch twist having a tenacity of at least 8 grams per denier and an elongation up to 16%, said warp elements having a denier of at least 1680 and skipping between 20% and 70% of the weft elements in the course of their traversal of the fabric, said weft elements having a denier between 840 and 2600, and said fabric having an elongation of not above 18% under a tensile load of 2500 pounds.

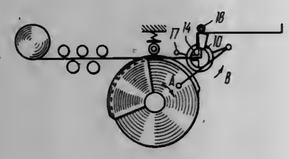
3,322,164
METHOD AND MEANS FOR WINDING COILS
James B. Lindsay, Millburn, N.J., assignor to Kahle Engineering Company, Union City, N.J., a corporation of New Jersey
Filed Nov. 10, 1964, Ser. No. 410,087
13 Claims. (Cl. 140—71.5)



1. Coil winding apparatus comprising the combination of support means for an elongated mandrel wire, means for supporting coil wire for rotation about the longitudinal axis of the mandrel wire, means for guiding the coil wire to the mandrel wire surface, drive means for intermittently rotating said coil wire support means, first mandrel wire gripping means movably mounted for motion longitudinally of the mandrel wire, drive means for advancing the first gripping means in engagement with the mandrel wire as the coil wire is rotated about the mandrel wire whereby the coil wire is wound around the advancing mandrel wire, second movably mounted mandrel wire gripping means, and drive means for alternately advancing said second mandrel wire gripping means intermediate the rotational movement of said coil wire support

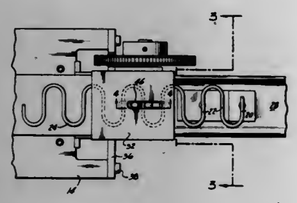
whereby said coil wire is a periodically drawn longitudinally along said mandrel wire forming straight leg portions.

3,322,165
MACHINE FOR AUTOMATICALLY MANUFACTURING A HOOK ARTICLE FROM WIRE OR STRIP MATERIAL
Kliment Nikolaevich Kan, Ligovsky Prospect 162, Apt. 15, and Nikolai Alexandrovich Jakovlev, Perekopskaja St. 5, Apt. 67, both of Leningrad, U.S.S.R.
Filed July 16, 1964, Ser. No. 383,203
9 Claims. (Cl. 140—80)



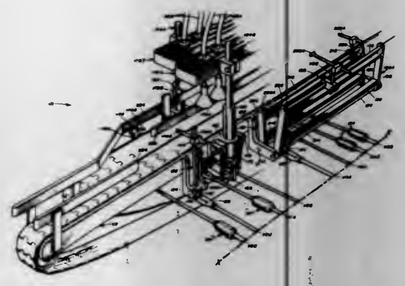
1. An automatic machine for manufacturing wire articles comprising means for feeding a continuous length of wire along a prescribed path, a ring coupled to the latter means and driven thereby in oscillatory angular movement, said ring including bending and cutting means thereon, and tool means located in the path of the wire and rotatably supporting the ring for cooperating with the bending and cutting means thereon when the ring is rotated in one direction first to bend the wire and form a bent wire article and then to cut the thus bent wire.

3,322,166
WIRE BENDING MACHINE CONTROL APPARATUS
Ronald S. Presley, Georgetown, Ky., assignor to Hoover Ball and Bearing Company, Saline, Mich., a corporation of Michigan
Filed Aug. 17, 1964, Ser. No. 389,988
3 Claims. (Cl. 140—105)



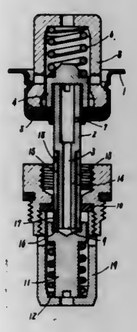
1. In a machine in which sinuous wire having evenly spaced substantially parallel cross wire portions is moved along a predetermined path substantially perpendicular to said cross wire portions, a wheel mounted for rotation about an axis substantially parallel to said cross wire portions, said wheel having evenly spaced teeth thereon the circumferential spacing of which corresponds substantially to the spacing of said cross wire portions, said wheel being positioned so that said teeth extend into said path on rotation of said wheel so that said wheel is rotated by engagement of said cross wire portions with said teeth during movement of said sinuous wire along said path, and means operatively associated with said wheel for discontinuing operation of said machine in response to predetermined interruption in the rotary movement of said wheel.

3,322,167
HIGH SPEED STRAIGHT LINE FILLING MACHINE
Sidney Rosen, 4119 Fordleigh Road, Baltimore, Md. 21215
Filed July 2, 1964, Ser. No. 379,885
6 Claims. (Cl. 141—131)



1. Apparatus for filling containers with fluid, comprising structure defining a filling area having two filling lines, means alternately positioning at least one of said containers in each of said lines, double-acting means continuously and alternately filling the containers in one of said lines and then the containers in the other of said lines, and means removing the filled containers from said one line while said containers in said other line are being filled, whereby containers are constantly being filled in said filling area while empty and filled containers are constantly being positioned in and removed from, respectively, said filling area.

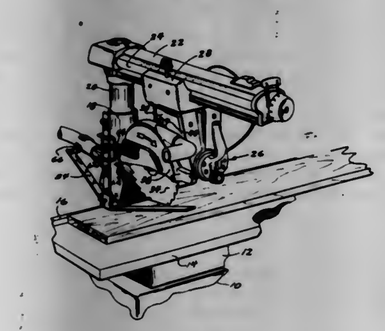
3,322,168
FUEL FEED DEVICE FOR GAS LIGHTER
Seiichi Kitabayashi, 2—2246 Nishisugamo, Toshima-ku, Tokyo, Japan
Filed Feb. 26, 1965, Ser. No. 435,629
Claims priority, application Japan, Feb. 27, 1964, 39/10,582
4 Claims. (Cl. 141—293)



1. A device for supplying fuel to a reservoir of a gas type lighter comprising in combination a container for liquified gas fuel under pressure, a discharge valve mounted in said container including a spring normally retaining said valve closed to the passage of the fuel from said container, a discharge nozzle having an end portion slideably extending through said container against said valve for at times opening said valve against said valve

spring when slid into said container, said discharge nozzle having an axial bore and a side opening in said end portion communicating with said axial bore for receiving the fuel from said container when said discharge valve is opened, tubular means mounted on said discharge nozzle providing a restricted passageway for exhausting said reservoir extending longitudinally of the opposite end portion of said discharge nozzle with the ends of said passageway opening laterally of said discharge nozzle, and a fill valve to be mounted in the lighter communicating with the lighter fuel reservoir including a spring relatively weaker than said discharge valve spring for normally closing said fill valve and an opening detachably and slideably receiving said nozzle to open said fill valve against said fill valve spring.

3,322,169
SAWDUST COLLECTING MEANS FOR RADIAL SAWS
Lester E. Hilliard, Des Moines, Iowa, assignor of one-half to Floyd T. Hilliard, Des Moines, Iowa
Filed Aug. 3, 1964, Ser. No. 386,939
10 Claims. (Cl. 143—6)



1. In combination with a radial saw means having a horizontal cutting table, a vertical support means extending upwardly from the rearward portion thereof, a horizontal arm extending outwardly over said cutting table from the upper end of said support means, a motor means movably mounted on said arm, a saw blade operatively secured to said motor means, and a saw blade guard secured to said motor means over the upper portion of said saw blade, and a sawdust collecting means comprising,

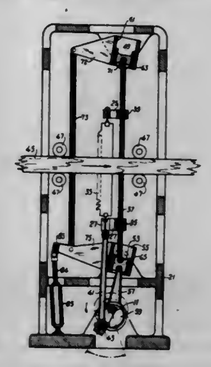
a funnel means movably secured by securing means to said saw guard rearwardly of said saw blade and being adapted to receive sawdust deflected rearwardly from said blade,

said securing means permitting vertical movement of said funnel means at times but rigidly holding said funnel means against rearward movement with respect to said saw guard,

said funnel means being in communication with a collecting receptacle for any such sawdust.

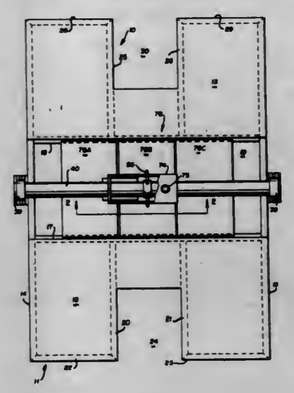
3,322,170
GANG SAWS
Gustaf Adolf Persson, Per Hallstroms vag 2, Nacka, Sweden
Filed Mar. 19, 1965, Ser. No. 441,251
12 Claims. (Cl. 143—81)

1. A gang saw for cutting horizontally fed timber, in which a main drive shaft by means of a crank reciprocates a sash carrying saw blades, relatively to a sash guiding system by means of which the sash when approaching its lower turning point, is given a slight motion in the direction of feed of the timber, characterised in that the sash guiding system is driven by means of a crank and pitman drive directly from the main drive shaft in an essentially vertical reciprocating motion that is phase-displaced relatively to the vertical reciprocating motion



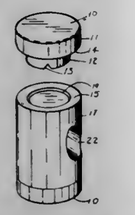
of the sash, and in that the sash guide system is itself guided in a path which is mainly vertical but forms a comparatively small angle to the path in which the sash guiding system guides the sash.

3,322,171
APPARATUS FOR GROOVING LAMINAR SHEET MATERIAL
Richard R. Cornell, Newcomerstown, Ohio, assignor to Groovfold Fabricators, Inc., Newcomerstown, Ohio, a corporation of Ohio
Filed July 19, 1963, Ser. No. 296,221
6 Claims. (Cl. 144—136)



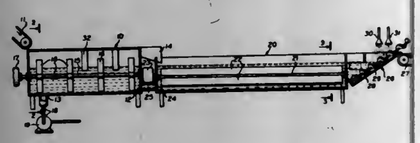
1. Apparatus for grooving flexible sheet material comprising, a work table having feed and receiving portions, a hiatus separating said feed and receiving portions, a yielding support means spanning said hiatus, a rabbet cutting means positioned within said hiatus generally beneath said work table and extending upwardly through said yielding support means, a control shoe dependingly mounted above said table in opposition to said rabbet cutting means, said work table, rabbet cutting means and control shoe being vertically adjustable with respect to each other to provide selective positioning of said rabbet cutting means with respect to both said work table and said control shoe.

3,322,172
RENEWABLE FACE HAMMER
Donald E. Small, 522 W. Ave. J-9, Lancaster, Calif. 93534
Filed May 24, 1965, Ser. No. 458,309
1 Claim. (Cl. 145—36)



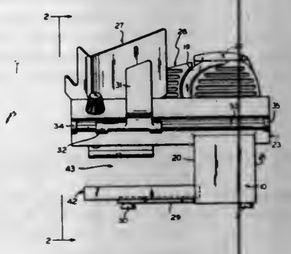
A hammer comprising a head portion of relatively hard metal and a renewable striking tip of relatively soft metal and disposed at each end of the head, said head having a socket extending axially inward from each end, each socket being cylindrical and having an annular channel in the innermost portion thereof extending inward of a central face, said channel being of V-shaped configuration with the apex thereof being at the innermost portion, said channel extending radially outward at an angle to the longitudinal axis of said head, a plurality of dividers at the base of said channel having surfaces converging in the direction of said ends, said renewable tip having a stem defined by a central recess circumscribed by a projecting flange terminating in an annular edge, said flange having a plurality of V-shaped notches which cooperate with said dividers to first preclude rotation of said tip when said stem is forcibly inserted in said socket, with said notches and dividers in alignment, to cause said stem to expand into locking engagement with said channel, and second to assist in removal of said tip by camming action of the surfaces of said notches and dividers.

3,322,173
APPARATUS FOR WASHING AND PEELING FRUITS AND VEGETABLES
Harold F. Snow, Pine Point, Maine, assignor to The Borden Company, New York, N.Y., a corporation of New Jersey
Filed May 26, 1964, Ser. No. 370,196
3 Claims. (Cl. 146—47)



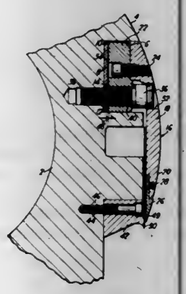
1. Apparatus for the counter-current washing of vegetables and fruit products, comprising a tank having inlet an doutlet ports, resiliently yieldable panels mounted on a rotatable shaft set in the tank and extending therethrough, a vat having a receiving section and discharging section, means connecting the said outlet port with said receiving section for conveying the products from said tank to the said vat, resiliently yieldable vanes mounted on a shaft extending through said vat, means positioned at said discharge section of said vat for removing the products from the vat, means positioned over the said removal means to spray water onto the products, and a sump in said tank connected to pumping means acting to remove wash water from said tank and cause the water to flow counter-current to the movement of the products.

3,322,174
GRAVITY FEED FOOD SLICING MACHINE
Bernardus O. N. Tenwolde, Schiedam, Netherlands, assignor to Maatschappij Van Berkel's Patent N.V., Rotterdam, Netherlands, a limited-liability company of the Netherlands
Filed Nov. 16, 1964, Ser. No. 411,427
Claims priority, application Germany, Nov. 23, 1963, M 59,025
7 Claims. (Cl. 146—102)



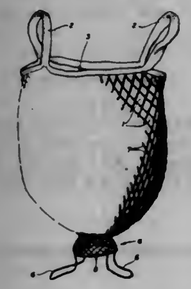
1. A gravity feed food slicing machine comprising, an upstanding main frame, an inclined circular knife journaled on said frame and extending over at least one side thereof to define a slicing station, an arm extending along an axis parallel to the slicing plane and laterally from said main frame in the direction that the knife extends over the side of the frame and being spaced above the supporting surface of the frame to define a free slice-receiving space below the slicing station, said arm being supported and connected solely at one end thereof by said main frame, an inclined food table reciprocably mounted on said arm and having a food supporting surface extending perpendicular to said knife, and a gauge plate coacting with said table and knife to control the slice thickness.

3,322,175
MACHINE FOR CUTTING LEAF TOBACCO
Harry Ward, London, England, assignor, by mesne assignments, to AMF International Limited, London, England
Filed Mar. 30, 1964, Ser. No. 355,801
Claims priority, application Great Britain, Mar. 28, 1963, 12,375/63
5 Claims. (Cl. 146—121)



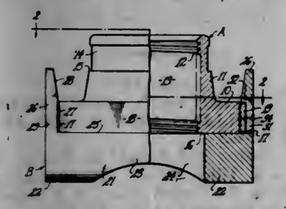
1. A rotating cutter comprising a drum rotatable about an axis, first and second clamping surfaces associated with said drum and approximately parallel to each other, an outer plate capable of flexure and having a heel portion with a third clamping surface seatable on said first clamping surface and having a toe portion with a fourth clamping surface, said third and fourth clamping surfaces being approximately parallel to said second clamping surface, a knife gripped between the second and fourth clamping surfaces, and means clamping the heel portion to said drum for flexing said outer plate and seating said third surface hard against said first surface and forcing said toe portion with said fourth surface against said knife with a predetermined pressure independent of the pressure between the first and third surfaces.

3,322,176
EXPANDABLE SHOPPING BAG
Helen Geller, 990 Geary St., San Francisco, Calif. 94109
Filed Aug. 21, 1964, Ser. No. 391,148
4 Claims. (Cl. 150—1.7)



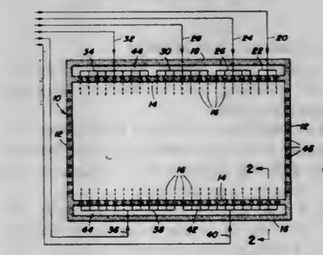
1. An expandable shopping bag comprising:
a large principal section of crocheted open net construction;
a small auxiliary section of tightly crocheted construction,
said auxiliary section being fastened to said principal section so that said principal section may be folded up and inserted into said auxiliary section;
means positioned for carrying said principal section;
means positioned for carrying said auxiliary section, said last named means comprising a drawstring for closing said auxiliary section, having portions projecting at each side of said auxiliary section, providing handles.

3,322,177
BARREL NUT WITH LATCHING RETAINER MEANS
Charles S. Phelan, Tustin, Calif., assignor, by mesne assignments, to Shur-Lok Corporation, Santa Ana, Calif., a corporation of California
Filed Aug. 9, 1965, Ser. No. 478,121
7 Claims. (Cl. 151—41.76)



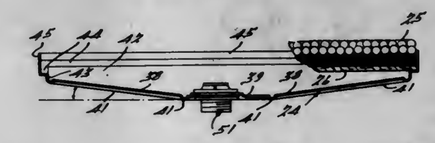
1. A barrel nut assembly comprising: a one piece metal cradle comprising a segmental cylindrical body receivable in a mounting bore, said cradle having a chordal nut seat and including, at opposite extremities thereof, integral spaced thin, flexible retainer ears projecting above said seat, and having a bolt hole intersecting said nut seat normal thereto; and a nut including a base having a seating face adapted to rest on said seat and having at opposite extremities thereof, holding faces engageable with said ears with a rotation preventing engagement; said ears having opposed recesses and said opposite extremities of the base having low latching projections extending radially from said holding faces and receivable in said recesses to provide coupling connections operable to hold said nut base in seating relation to said seat and providing for limited transverse shifting of said nut base between said ears for self-alignment of the nut with reference to a bolt inserted through said bolt hole; said ears being relatively thin, flexible and elastic so as to permit said nut base to be forced between them with said latching projections in opposed engagement with said ears and with the ears yielding apart to permit said projections to be moved into said recesses.

3,322,178
FLARE APPARATUS FOR COMBUSTIBLE GASES
Robert S. Nahas, Englewood, N.J., assignor to The Lummus Company, New York, N.Y., a corporation of Delaware
Filed Aug. 12, 1965, Ser. No. 479,187
7 Claims. (Cl. 158—7)



1. A flare for combustible gases comprising:
a plurality of Venturi burner sets, said sets being capable of burning 100% of the design flaring load of said gas;
a plurality of Venturi burners in each of said sets;
means for providing air to each of said burners; and
control means for operating said burners, said control means being responsive to the total pressure of the gas to be flared, said means operating an additional set of burners when there is sufficient flare gas pressure to aspirate the required quantity of air into said additional set of burners and the burners already operating to effect smokeless burning of the flare gas in said burners, said sufficient flare gas pressure being a flare gas pressure that exceeds about 60% of the cumulative design capacity of the burners operating and the burners in said additional set.

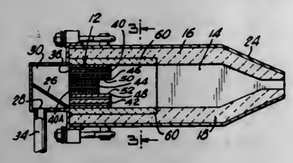
3,322,179
FUEL BURNER HAVING POROUS MATRIX
Paul H. Goodell, 21655 Cottonwood Drive, Rocky River, Ohio 44116
Filed Apr. 9, 1963, Ser. No. 271,772
5 Claims. (Cl. 158—99)



1. In a burner, a hollow shell, a matrix being constructed from layers of substantially spherical particles, and means for bonding the particles of the layers at their

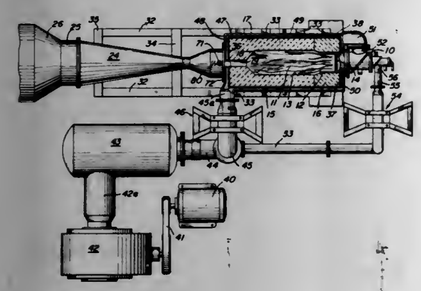
points of engagement, the particles of the matrix adjacent to the intake face being small to provide an insulating area and the particles on the heated face being substantially larger to form the emitting face, the ratio of the diameter of the small particles to that of the large particles being in the order of substantially three to one.

3,322,180
BURNER APPARATUS
Walter M. Perry, Darien, Conn., assignor to Johns-Manville Corporation, New York, N.Y., a corporation of New York
Filed June 14, 1965, Ser. No. 463,584
12 Claims. (Cl. 158—116)



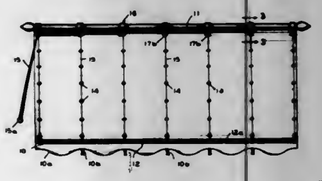
1. Burner apparatus, comprising:
(a) a refractory lined tunnel having a laterally elongated inlet opening and a laterally elongated discharge opening; and
(b) a grid of refractory material positioned across said inlet opening having generally parallel front and rear faces and defining a plurality of passages extending generally axially therethrough,
(c) said grid also having therein a laterally elongated recessed portion of rectangular cross-section in its front face extending transversely substantially across the grid face from one tunnel side wall to the other tunnel side wall,
(d) said recessed portion defining a surface catalyst zone within said grid in an area laterally displaced from the top and bottom walls of said tunnel, and
(e) at least a portion of said passages discharging into said recessed portion.

3,322,181
DIRECT HEAT EXCHANGE APPARATUS WITH REFRACTORY-LINED COMBUSTION CHAMBER
Arthur Williams, Munster, Ind., assignor to Selas Corporation of America, Dresher, Pa., a corporation of Pennsylvania
Filed Nov. 3, 1965, Ser. No. 506,248
4 Claims. (Cl. 159—4)



1. Apparatus adapted for the concentration of liquids by direct heat exchange with hot combustion gases comprising a burner for burning air or oxygen and a combustible fuel, a combustion shell on the downstream end of said burner, a refractory lining in said shell, said shell and lining having a hot combustion gas discharge opening at the downstream end thereof, a direct heat exchange tube at the downstream end of said shell and coaxial therewith and in communication with said opening for feed of hot combustion gases into said tube, means adjacent said opening for feeding a liquid to be concentrated into the hot combustion gases flowing through said tube to provide direct heat exchange therewith, a second shell extending about and in spaced relationship to said combustion shell to define an annular passage therebetween, means for feeding air or oxygen to the end of said passage adjacent the downsteram end of said combustion shell, means adjacent the upstream end of said combustion shell for withdrawing said air or oxygen after flow through said annular passage and for feeding the withdrawn air or oxygen to said burner, and means to supply a combustible fuel to said burner.

3,322,182
DRAPERY AND DRAPERY HANGING DEVICE
Gloria Palella, 5 Piper Court, White Plains, N.Y. 10607
Filed Sept. 8, 1964, Ser. No. 394,784
3 Claims. (Cl. 160—344)



1. In a drape of the character described, a horizontally disposed supporting rod, a flexible curtain suspended by its upper edge from said supporting rod, a plurality of vertical rows of uniformly spaced pull cord guide rings secured to the rear surface of said flexible curtain, a plurality of pull cords associated with said vertical rows of guide rings and the lower extremity of each of said pull cords being connected to said curtain adjacent the lower edge thereof for raising and lowering said drape, each of said pull cords extending through the adjacent vertical row of guide rings, and combined curtain suspending and cord guiding means comprising a plurality of clamps positioned upon said rod at longitudinally spaced points in vertical alignment with said rows of guide rings, and fastening elements securing said clamps to said supporting rod and simultaneously attaching the upper edge of said curtain to said clamps, each of said fastening elements including an eye-like portion, said pull cords passing slidably through said eye-like portions to a side edge of said drape.

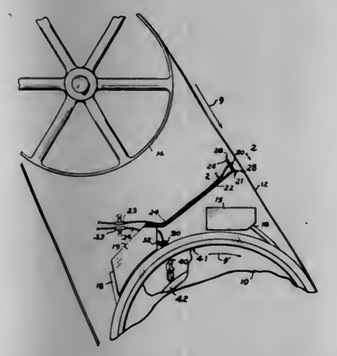
3,322,183
PROCESS FOR PRODUCING NUCLEATION AND FOR CONTROLLING GRAIN SIZE IN INGOTS AND CASTINGS
William C. Johnston and Gerald R. Kotler, Pittsburgh, and William A. Tiller, Export, Pa., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Air Force
Filed June 9, 1964, Ser. No. 373,890
4 Claims. (Cl. 164—49)

1. The process for producing nucleation and for controlling grain size in ingots and in castings by positioning a container of powdered solid metal substantially centrally of a plurality of split ring stirring coils between upper and lower ambient heaters, liquefying the metal in the container by the energization of the ambient heaters, electromagnetically stirring the liquid metal in the container by the energization of the stirring coils to produce small radio oscillations in the liquid melt volume during the formation throughout the liquefied metal of



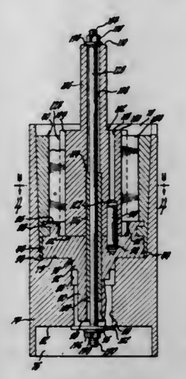
nucleating centers, and rigidizing the distribution of the nucleating centers throughout the metal by abruptly reducing the temperature of the metal in the container.

3,322,184
THERMAL BARRIER FOR CASTING METALS
Daniel B. Cofer, Dale D. Proctor, and George C. Ward, Carrollton, Ga., assignors to Southwire Company, Carrollton, Ga., a corporation of Georgia
Filed Sept. 4, 1964, Ser. No. 394,631
5 Claims. (Cl. 164—72)



1. In a process of continuously casting metal by the substantially complete solidification of said metal in a mold defined by the peripheral groove in a casting wheel and by a belt which closes a length of said groove, the steps of applying a thermal coating to a surface of said mold and of subsequently pouring said metal into said mold, cooling said metal in said mold to obtain the substantially complete solidification of said metal and removing said metal from said mold; the thickness of said thermal coating being controlled during the step of applying said thermal coating to a surface of said mold so that said thermal coating retards that initial transfer of heat from said metal to said mold which is a result of the initial difference in temperature between said metal and said mold and so that said thermal coating does not substantially increase the time required for the substantially complete solidification of said metal in said mold relative to the time required for the substantially complete solidification of said metal in said mold in the absence of said thermal coating.

3,322,185
METHOD OF MAKING ELECTRICAL DISCHARGE MACHINING ELECTRODES
Jack D. Christenson, Brookfield, Wis., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Apr. 22, 1963, Ser. No. 274,672
2 Claims. (Cl. 164—111)

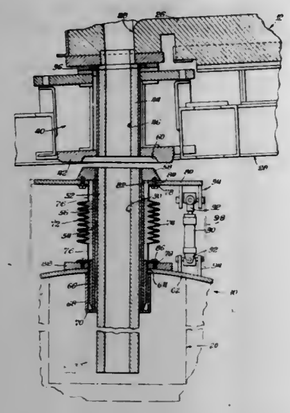


1. A method of forming a composite electrode by a casting process for use in an electrical discharge machining device, said method comprising the steps of providing a reusable metal shank, said shank having a generally cylindrical base section and a stem portion extending from one end of said base section for selective insertion of said electrode into said device, providing a plurality of expendable copper base alloy tool parts, providing a mold sleeve having a casting cavity therein, providing a reusable metal mandrel to aid in positioning said parts within said casting cavity, said mandrel being formed with contoured surfaces to which the working face of the electrode is to be conformed, positioning said parts and said mandrel in said cavity so that the surfaces of said parts abut said surfaces of said mandrel in the desired spaced relationship to form the desired working face configuration of said electrode and portions of said parts to extend into said cavity, positioning said shank within said cavity, lubricating said surfaces of said mandrel and the surfaces of said sleeve defining said casting cavity with a mold release agent, melting an alloy material, said alloy having a melting temperature in the range of 150° F. to 500° F. so that said alloy may be easily melted for reuse in forming new electrodes, pouring said molten alloy into said cavity, cooling said alloy to form a cast body which bonds said base section of said member and said portions of said parts extending into said cavity to form an integral electrode assembly, removing said electrode from said cavity, and subsequently removing said mandrel from said electrode to expose said working face of said electrode.

3,322,186
PRESSURE POURING APPARATUS
John Takacs, Jr., Cleveland, and Alan G. Stebner, Parma, Ohio, assignors to Amsted Industries Incorporated, Chicago, Ill., a corporation of New Jersey
Filed July 13, 1966, Ser. No. 569,546
9 Claims. (Cl. 164—306)

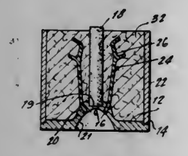
1. Pressure casting apparatus comprising a sealed tank, means for developing gas pressure in said tank, a ladle in said tank, a vertical pouring tube extending through a top wall element of the tank and having its lower end adjacent the bottom of the ladle and its upper end exterior to the tank, said tube being vertically slidable in said tank, means interposed between said pouring tube

and tank operative for raising and lowering the pouring tube, and means for sealing said tank against escape of



gas through spaces between the pouring tube and the opening in the tank in which it is disposed.

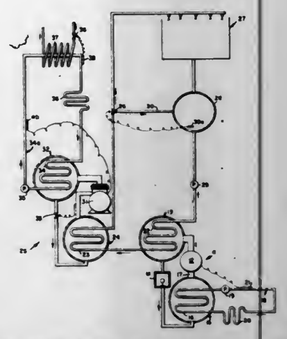
3,322,187
APPARATUS FOR CASTING BY THE LOST WAX PROCESS
Bernard Weissman, 3406 Poplar St., Oceanside, N.Y. 11572
Filed Mar. 1, 1965, Ser. No. 435,862
11 Claims. (Cl. 164—376)



1. Apparatus for improving the burnout and casting characteristics of a refractory investment mold, said apparatus comprising a crucible base member formed of a gas pervious material which is capable of withstanding the mold processing temperatures involved and is adapted to be disposed along one end of said mold, said base member comprising a disklike element provided with a concave cavity in one face thereof and at least one aperture extending through said base member and in communication with said cavity, said one face of said element being free of investment material and being exposed to the atmosphere, thereby providing a path for heat exchange with the investment mass and for venting of gases therefrom.

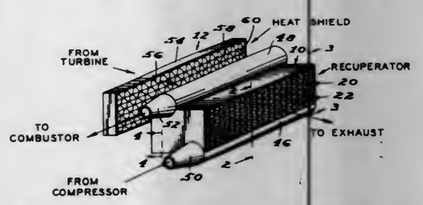
3,322,188
HEATING AND COOLING APPARATUS AND METHOD
William S. Ostrander, Fayetteville, N.Y., assignor to Carrier Corporation, Syracuse, N.Y., a corporation of Delaware
Filed July 8, 1965, Ser. No. 470,404
4 Claims. (Cl. 165—2)

1. A method of operating a heating and cooling system including first and second refrigerating machines, comprising operating the first refrigerating machine for cooling a load and rejecting the heat evolved therein to condensing water, passing said condensing water to the second refrigerating machine, operating the second refrigerating machine for transferring to refrigerant circulated therethrough sufficient heat from said condensing water for heating a load, increasing the temperature of said refrigerant above the temperature of said condensing water, and transferring heat from said refrigerant to other



water, and passing the last said water to the load to be heated, thereby heating the load with the reclaimed heat from said first refrigerating machine.

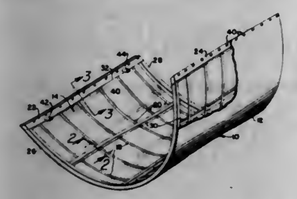
3,322,189
HEAT EXCHANGE ASSEMBLY
Armenag Topouzian, Detroit, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed Dec. 21, 1965, Ser. No. 515,357
9 Claims. (Cl. 165—8)



1. A heat exchange assembly comprising, in combination, a heat transfer member consisting of a housing having contiguous independent fluid passages for a flow of different temperature fluids under pressure therethrough between an inlet and an outlet for the transfer of heat between said fluids through the walls of said passages, said heat transfer providing a temperature varient between the entrance and exit passage portions of said housing, and heat absorbing means formed from a material of essentially high thermal absorption characteristics in the path of flow of the higher temperature fluid and upstream of the inlet to its housing passage for minimizing the initial temperature gradient across said heat exchanger unit passages in response to initial flow of a high temperature fluid through said unit at a time when said unit is at ambient temperature conditions, continued flow of said high temperature fluid rendering said heat absorption means inoperative.

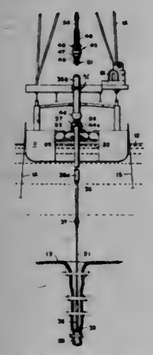
3,322,190
RADIATOR AND METHOD OF MANUFACTURE THEREFOR
Alfred L. Johnson, Jr., Hermosa Beach, Calif., assignor to The Garrett Corporation, Los Angeles, Calif., a corporation of California
Filed Mar. 1, 1962, Ser. No. 176,546
11 Claims. (Cl. 165—46)

1. A radiator which comprises:
(a) a heat conductive membrane having a first surface for absorbing heat and a second surface for radiating said heat, said membrane being pre-stressed in tension;
(b) a supporting frame disposed biaxially of said mem-



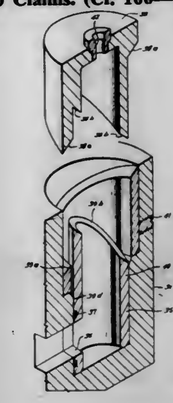
brane and fixedly attached thereto for maintaining said tension; and
(c) passage means disposed superficially of said membrane for circulating fluid in heat exchange relation with said first surface thereof.

3,322,191
UNDERWATER WELL DRILLING METHOD
Billy Jack Bullard, Oklahoma City, Okla., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware
Filed May 27, 1963, Ser. No. 283,427
6 Claims. (Cl. 166—.5)



1. In a method of drilling an underwater well from a vessel at the surface of a body of water, the operation of running a casing string down into axial register with the well already containing a drill string movably positioned therein, said operation comprising the steps of:
forming hole in the ground beneath said body of water with a drill string and leaving said drill string in said hole;
raising the drill string partially out of the well so that its upper end is above water in the vicinity of the vessel and its lower end is off the bottom of the well a distance at least greater than the depth of water under the vessel;
hanging the upper end of said drill string at the vessel from the interior of a casing string supported at the vessel so that the pipe string is adapted to be moved upwardly within said casing string;
lowering the combined casing string and drill string hanging therefrom into the well until at least the lower end of the casing string has entered the top of the well,
guiding and lowering a retrieving tool from the vessel down through the casing string;
engaging the upper end of said drill string with said retrieving tool; and,
pulling the retrieving tool and drill string up through said casing string to the vessel.

3,322,192
OFFSHORE WELL APPARATUS
Albert E. Woelfel and Marvin R. Jones, Houston, Tex., assignors to Cameron Iron Works, Inc., Houston, Tex.
Filed Feb. 16, 1965, Ser. No. 433,149
10 Claims. (Cl. 166—.5)

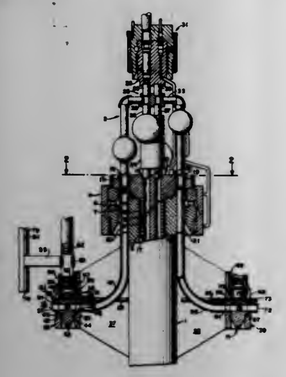


1. Offshore well apparatus, comprising a wellhead at the upper end of a well below the water level and having three passages therethrough, a line providing a continuation of the upper end of each of said passages for extension to a remote location, a service tubing extending downwardly from one of said passages, a valve body in the well beneath the wellhead and having three chambers therein, a first of said chambers connecting with said service tubing and the second and third chambers communicating with conduits within the well which separately communicate with the other two passages through said wellhead, means including a valve member movable between positions within the first chamber for connecting the service tubing selectively with one or the other of said conduits and sealing said conduits from one another, and plug means pumpable through said service tubing and line for moving the valve member between said positions.

3,322,193
UNDERWATER WELL INSTALLATIONS
William W. Word, Jr., Houston, Tex., assignor to Armco Steel Corporation, Middletown, Ohio, a corporation of Ohio
Filed Mar. 9, 1965, Ser. No. 438,263
13 Claims. (Cl. 166—.6)

1. In an underwater well installation, the combination of
a rigid submerged wellhead structure including at least one upright wellhead body member;
a Christmas tree assembly supported by said body member and including production flow conduit means communicating with tubing suspended in the well;
a flow line receptacle including an axial passage and a lateral port, said receptacle being rigidly mounted on said wellhead structure and spaced laterally from said body member, with said axial passage opening upwardly and said lateral port directed horizontally;
flow confining means interconnecting said lateral port and said flow conduit means of said Christmas tree assembly;
a flow line connector body dimensioned for downward insertion into said axial passage of said flow line receptacle and having a transverse passage, said receptacle and said connector body having cooperating means supporting said connector body in said receptacle with one end of said transverse passage in communication with said lateral port of said receptacle;

a flow line attached to said connector body in communication with the other end of said transverse passage; and



means carried by said connector body for releasable attachment to a handling device for landing said connector body in said receptacle after the latter has been installed at the submerged site of said wellhead structure.

3,322,194
IN-PLACE RETORTING OF OIL SHALE
Malcolm K. Strubhar, Irving, Tex., assignor to Mobil Oil Corporation, a corporation of New York
No Drawing. Filed Mar. 25, 1965, Ser. No. 442,779
10 Claims. (Cl. 166—11)

1. A method for the in-place retorting of an oil shale formation having natural fractures comprising the steps of:

(a) forming input and outlet well means for conveying fluids which means extend from the earth's surface into an oil shale formation,

(b) placing the well means into fluid communication with natural fractures in the oil shale formation,

(c) introducing through at least one of the well means into the oil shale formation a solvent mixture comprised of a low molecular weight alkyl monocarboxylic acid having not over 5 carbon atoms and a hydrocarbon solvent, said constituents of said solvent mixture being substantially vaporized at temperatures above 500° F. in said oil shale formation, said mixture introduced in sufficient quantity to extend substantially as a continuous fluid between the input and outlet well means,

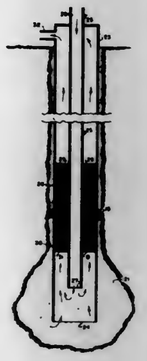
(d) maintaining the solvent mixture in the oil shale formation for a period of time until said solvent mixture has rotted the formation along planes of weakness, including bedding planes, resulting in a network of paralleling and interconnecting horizontal and vertical fractures therein to increase the degree of permeability to gases flowing between wells and to reduce the aggregate sizes of the oil shale between fractures with an increase in the surface-to-volume ratios of the oil shale subsequently exposed to a heating fluid,

(e) after said period of time, removing the solvent mixture from the oil shale formation through at least one of the well means,

(f) passing a heating fluid through the input well means to flow through the rotted oil shale formation and exiting through the outlet well means, said heating fluid introduced into the mentioned formation under conditions effecting in-place retorting at temperatures above 500° F. to drive hydrocarbons from the oil shale formation, and

(g) removing the fluids driven from the oil shale by retorting from the outlet well means for recovery of hydrocarbons.

3,322,195
PROCESS AND APPARATUS FOR RECOVERY OF ADDITIONAL FUELS FROM OIL AND GAS WELLS
John A. Brown, Berkeley Heights, and Henry Berk, Westfield, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware
Filed Jan. 20, 1964, Ser. No. 338,828
11 Claims. (Cl. 166—38)



1. Method of forming and recovering a gas product of enriched methane content from natural gas hydrocarbon components in a subterranean reservoir, which comprises reacting steam with C_2+ hydrocarbon components of natural gas containing principally methane, ethane, propane, and butane in the presence of a highly active nickel catalyst at temperatures in the range of 600° to 925° F. so that the paraffins heavier than the methane are decomposed to form H_2, CO, CO_2, and H_2O as intermediates with CH_4 as a principal end product in the subterranean natural gas reservoir, and recovering the resulting gas product of increased methane content.

7. Apparatus for recovery of hydrocarbons from oil and gas wells, comprising in combination a steam inlet duct means for passing steam into gaseous hydrocarbons in a subterranean oil and gas reservoir so as to produce a flowing mixture of the steam with the gaseous hydrocarbons, means holding a bed of catalyst solids in the path of said flowing mixture as it is produced in the reservoir, said means holding the catalyst having an inlet for flowing the mixture of the steam with the gaseous hydrocarbons into contact with the catalyst solids and an outlet for gaseous reaction products leaving the catalyst bed, and a duct means for withdrawing hydrocarbons forced to flow with said gaseous reaction products from the subterranean reservoir to above ground.

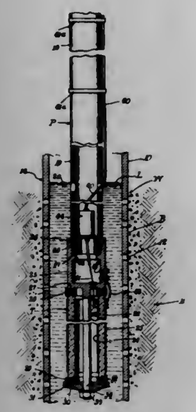
3,322,196
ELECTRO-ACOUSTIC TRANSDUCER AND PROCESS FOR USING SAME FOR SECONDARY RECOVERY OF PETROLEUM FROM WELLS
Albert G. Bodine, Jr., 7877 Woodley Ave., Van Nuys, Calif. 91406
Filed Nov. 5, 1963, Ser. No. 321,463
16 Claims. (Cl. 166—45)

1. The method of increasing the production rate from oil producing formation in a production oil well in an oil field, which comprises:

installing an electro-acoustic transducer element in said well in the region of the producing formation,

orienting the major effective radiating surfaces of said transducer element substantially vertically so as to provide horizontal radiation,

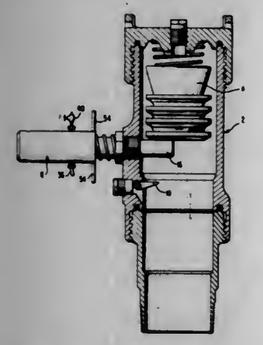
acoustically coupling said vertically oriented transducer in energy transmitting relationship with said formation,



installing production tubing in said well so as to maintain the fluid level in said well above said transducer element,

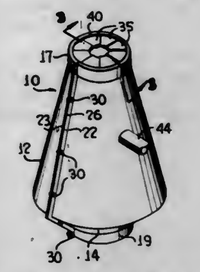
and operating said transducer element so as to radiate acoustic energy into surrounding well fluid which is acoustically coupled to the producing formation therearound.

3,322,197
CEMENTING PLUG APPARATUS
Eugene E. Baker and Gail M. Boehm, both of Duncan, Okla., assignors to Halliburton Company, Duncan, Okla., a corporation of Delaware
Filed June 11, 1965, Ser. No. 463,272
11 Claims. (Cl. 166—75)



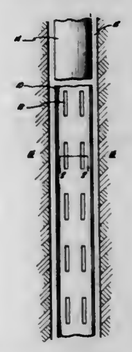
1. In a plug container, plug release apparatus comprising a plunger, means for mounting said plunger in position for supporting a cementing plug in said plug container, said plunger being longitudinally movable in said mounting means, latch means for locking said plunger in a projected position, and fluid pressure responsive means for releasing said latch means and retracting said plunger, whereby a cementing plug may be released into a well casing when the plunger is retracted.

3,322,198
SAFETY HOOD APPARATUS FOR DRILLING HEADS
William L. McHenry, 701 Vicnaire St., New Iberia, La. 70560
Filed Feb. 25, 1965, Ser. No. 435,246
7 Claims. (Cl. 166—81)



1. A safety device for enclosing the blowout preventer in the drilling head of well drilling apparatus and for removing particles escaping into the atmosphere from said drilling head, said device comprising a split closable hood adapted to be mounted on said drilling head; said hood having a pair of open end portions; one of said end portions including means for clamping said hood in substantially sealed relation about a portion of said head; the other of said end portions including a collar, a flexible baffle inwardly directed from the interior surface of said collar, said baffle having a hole therein for accepting the drill string of said well drilling apparatus and for permitting entry of air into said hood; and means for withdrawing said air and said particles from the interior of said hood for controlled disposal thereof.

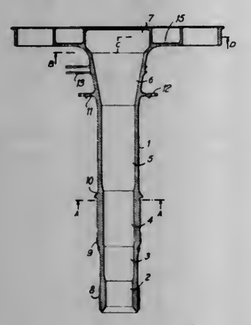
3,322,199
APPARATUS FOR PRODUCTION OF FLUIDS FROM WELLS
Charles O. Van Note, Jr., Rolling Hills, Calif., assignor to The Servco Company, Long Beach, Calif., a corporation of Nevada
Filed Feb. 3, 1965, Ser. No. 430,060
3 Claims. (Cl. 166—205)



3. A well liner comprising an elongate tubular member having a plurality of slots disposed longitudinally and circumferentially of, and extending from the outer surface to the inner surface of, the tubular member, said slots having a first portion diverging inwardly from the outer surface to define a shoulder at the point of maximum divergence intermediate said inner and outer surfaces, and a second portion extending from the inner surface to open into the first portion and having a width

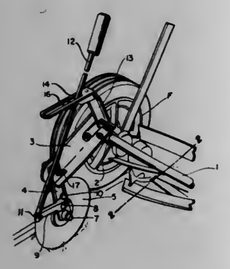
at said opening less than the width of the first portion at maximum divergence; and particulate material packed within the slots and considated with a binding agent to provide a permeable matrix filling both portions of each of the slots.

3,322,200
HELICOPTER ROTOR MASTS
Charles Henry Tresch, Eguilles, France, assignor to Sud-Aviation Societe Nationale de Constructions Aeronautiques, Paris, France
Filed May 11, 1965, Ser. No. 454,823
Claims priority, application France, June 15, 1964, 978,276, Patent 1,419,635
7 Claims. (Cl. 170—160.25)



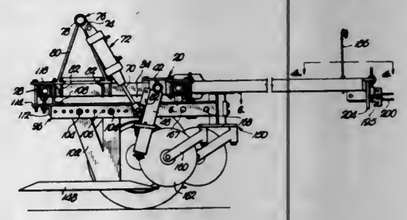
1. A rotor mast for a helicopter having the configuration of a single hollow part forming simultaneously a shaft and upper blade attaching flange for attaching the blades of the rotor, comprising in combination, situated immediately beneath said upper flange, a portion flared upwardly toward said flange, a blade attaching base nearly adjacent the narrowest part of said flared portion, a nearly cylindrical surface blending with said narrowest part of said flared portion, said nearly cylindrical surface including an abutment receiving collar and a threaded part at distance from said collar, and power take-off means at a lower end of said nearly cylindrical surface.

3,322,201
LAWN EDGE TRIMMER ATTACHMENT
Thomas F. Ballister, 305 E. Cook St., Santa Maria, Calif. 93454
Filed Sept. 28, 1964, Ser. No. 399,635
7 Claims. (Cl. 172—14)



1. In combination a lawn mower having a frame, a thrust bar secured to the frame at one side of the frame, said thrust bar extending forwardly and downwardly at an angle to the horizontal no less than 20 degrees, and means securing a lawn edge trimmer to the thrust bar forwardly of the point of attachment of said thrust bar with said frame, said securing means comprising a support arm secured to the forward end of the thrust bar, said support arm extending downwardly from the thrust bar, said trimmer comprising a cutter member rotatably secured to the lower end of the support arm, said support arm being pivotally secured to said thrust bar, said thrust bar being an angle iron having an inwardly extending flange along its lower edge, said flange having a longitudinally extending slot at its forward end in which the upper end of said support arm rides, the rear end of said slot serving as a stop to limit the rearward swing of said support arm.

3,322,202
MULTIPLE SWEEP IMPLEMENT HAVING VERTICALLY ADJUSTABLE SWEEP SUPPORT STRUCTURE
James D. Van Sickle, Topeka, and Burchard Symmonds, Salina, Kans., assignors to Richardson Manufacturing Company, Inc., Cawker City, Kans., a corporation of Kansas
Original application Apr. 10, 1964, Ser. No. 358,785, now Patent No. 3,256,942, dated June 21, 1966. Divided and this application Apr. 27, 1966, Ser. No. 545,662
5 Claims. (Cl. 172—139)



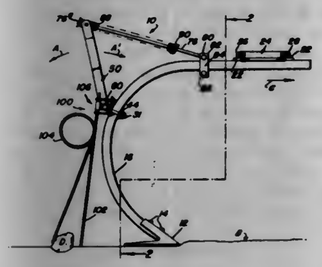
1. In a sweep blade plow including a generally horizontally disposed frame unit having a pair of spaced end members, hitch means secured to the unit and adapted to be coupled with a prime mover, and a V-shaped sweep blade carried by the unit and adapted to engage the soil for tilling the latter, the combination with said plow of means for adjusting the position of the sweep with respect to the unit and comprising:

a generally upright shank, said blade being mounted on the shank adjacent one end thereof with the apex of the blade disposed forwardly of the diverging legs thereof;

an elongated beam rigidly secured to the other end of said shank, said beam including a pair of elongated, generally parallel, horizontally, spaced, fore and aft members having respective, opposed, upright sides presenting a slot therebetween receiving said shank therein; and

bolt and nut means adjustably securing the beam to said end members in fore and aft disposition with respect to the plow, there being a cross member rigidly secured to the fore and aft members adjacent the trailing end thereof, said bolt and nut means including a bolt received in said slot and secured to the beam adjacent the longitudinal axis and proximal the leading end thereof and a bolt secured to the cross member on each side of said longitudinal axis proximal the trailing end of said beam whereby the blade may be adjusted vertically or the forward inclination of the blade may be adjusted by shifting said leading bolt and the lateral inclination thereof may be adjusted by shifting at least one of said trailing bolts.

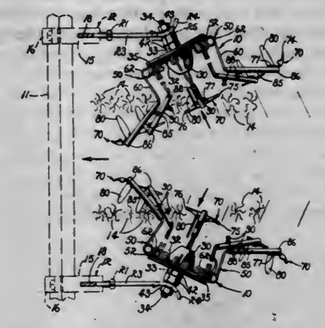
3,322,203
HARROW DEVICE
Wendell J. Johnson, Corinth, N. Dak. 58841
Filed July 20, 1966, Ser. No. 572,869
15 Claims. (Cl. 172—142)



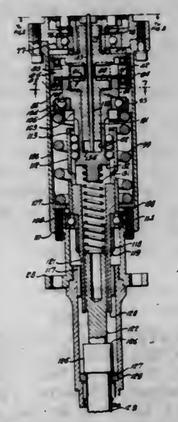
1. For use with a chisel plow mounted on a chisel plow shank, a harrow device comprising a tool bar, means adapted for rotatably mounting the tool bar on the chisel plow shank, at least one harrow tooth, means for mounting the tooth on said tool bar, resilient means adapted to be mounted on the chisel plow shank and operatively connected to said tooth to hold the tooth resiliently in contact with the earth to be worked but to permit deflection of the tooth by an obstacle encountered by the tooth to allow the tooth to pass over the obstacle without damage to the tooth, said means for mounting the tooth on said tool bar comprises a tooth holder on the tool bar, cooperating means on the tooth holder and the tooth for retaining the tooth in a preselected vertical position, said tooth being provided with an earth engaging working end portion and an end portion opposite to said working end portion, said tool holder comprising a tubular member through which the opposite end portion of the tooth extends, means engaging said opposite end portion of the tooth for wedging said opposite end portion against tubular member, a pair of eyebolts through the eyes of which the opposite end portion of the tooth extends, a first retaining plate on said tubular member, a flat plate having an aperture adjacent each end thereof through which the eyebolts extend, a second retaining plate on said flat plate, said retaining plates having a shape conforming to the shape of the tool bar for firmly gripping opposite faces of the bar, and locking means received by the extended end of the eyebolts and bearing against the flat plate to hold the retaining plates in tight frictional engagement with the tool bar.

3,322,204
PLANT THINNER
Paul A. Bezzerides, P.O. Box 1303, and Arthur A. Bezzerides, P.O. Box 211, both of Orosi, Calif. 93647
Filed Nov. 9, 1964, Ser. No. 409,720
6 Claims. (Cl. 172—543)

1. A plant thinner adapted for earth traversing movement in a predetermined forward direction of travel longitudinally along rows of plants comprising a hub mounted for rotation about an axis disposed in oblique relation to said forward direction of travel, a plurality of circumferentially spaced resiliently flexible arms mounted on the hub providing outer ends radially extended and axially offset from the hub, and a plurality of elongated earth engaging blades individually rotatably and axially adjustably mounted on said outer ends of the arms having cutting edges disposed in substantially facing relation to the hub in axially and radially spaced relation thereto for successive movement through the rows in directions substantially parallel to said axis and flexing during said movement in lagging relation to the hub to form spaced swaths through the rows.



3,322,205
AUTOMATIC RECYCLING NUT RUNNER
Lester A. Amtsberg, Utica, and William K. Wallace, Barneveld, N.Y., assignors to Chicago Pneumatic Tool Company, New York, N.Y., a corporation of New Jersey
Filed Apr. 7, 1965, Ser. No. 446,315
20 Claims. (Cl. 173—12)

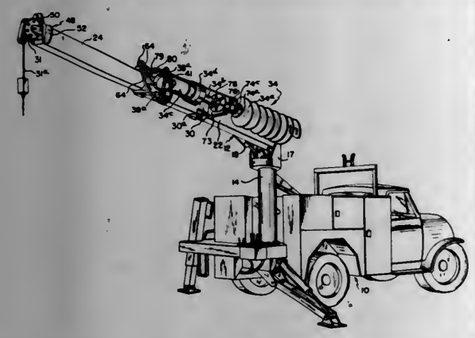


3. A torque clutch controlled nut runner comprising a pneumatic motor, an output spindle, a torque releasable cam clutch coupling the motor to the spindle, means responsive to releasing action of the clutch to shut off pneumatic power so as to stop the motor, mechanical means responsive to stopping of the motor to briefly rotate the motor in a reverse direction to cause re-engagement of the clutch and to cause resumption of pneumatic power to restart the motor.

3,322,206
EARTH BORER
Paul D. Gernhardt, Overland Park, Kans., assignor to The Ohio Brass Company, Mansfield, Ohio, a corporation of New Jersey
Filed Oct. 9, 1964, Ser. No. 402,853
14 Claims. (Cl. 173—28)

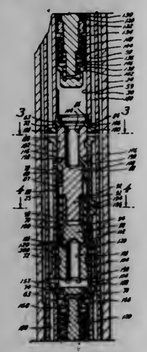
1. In a derrick comprising, a vertically pivotal boom, said boom being of the selectively extensible type including an inner boom section and an outer boom section telescoped within said inner boom section for movement

lengthwise thereof, a work mechanism supporting member mounted on said boom, said supporting member comprising a collar-like portion generally encompassing said boom and arm means extending outwardly from said collar-like portion for attaching a work mechanism thereto, said collar-like portion being provided with a cylindrical opening therethrough providing for rotation of said supporting member about the lengthwise axis of the boom in a direction generally transverse of the boom, whereby said arm means and associated work mechanism may be disposed beneath the boom for work operations or laterally to a side of the boom for storage, retainer means on said outer boom section adapted to receive said collar-like portion thereon in generally encompassing relation, said re-



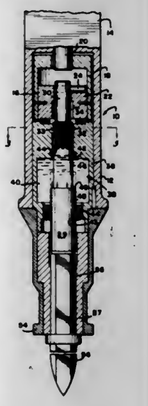
tainer means having generally laterally extending wings thereon adapted for supporting said collar-like portion and for interlocking coaction with lengthwise spaced flange means on said collar-like portion, for coupling said collar-like portion to said outer boom section, and rotatable roller means on said inner boom section off-set vertically with respect to said wings and adapted to be received in the opening through the collar-like portion in generally vertically oriented relationship with respect to said wings, for locking said supporting member to said inner boom section upon rotation of said collar-like portion to dispose said arm means laterally of the boom, said roller means being oriented obliquely with respect to the boom.

3,322,207
FLUID OPERATED PERCUSSION DRILL OR HYDRAULIC HAMMER
Hubert L. Foster, Houston, Tex., assignor to Foster-Gardner Tool Company, Houston, Tex., a partnership
Filed Nov. 12, 1964, Ser. No. 410,430
8 Claims. (Cl. 173—73)



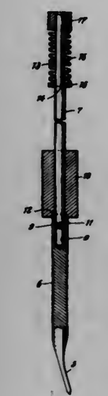
1. In a pressure fluid operated hammer for use in the drilling of wells, a tubular casing, means for connecting the casing into a string of drill pipe for rotation with the string in a well bore and through which fluid may flow through the casing, means forming an upper and a lower anvil in the casing, a tubular hammer movably disposed in the casing for longitudinal movement into and out of engagement with the anvils, means on the casing extending into and slidably engagable with the hammer in position to form therewith a chamber in the hammer whose opposite ends are closed, upper and lower ports in the hammer through which fluid may flow into and out of said chamber, means in said hammer positioned for coaction with said ports to prevent the inflow of fluid to and allow the outflow of fluid from said chamber through said upper ports and to prevent the outflow of fluid from and allow the inflow of fluid to said chamber through said lower ports upon downward movement of the hammer to cause the hammer to move upwardly and to prevent inflow of fluid to and allow outflow of fluid from the chamber through said lower ports and prevent outflow of fluid from and allow inflow of fluid to said chamber upon upward movement of the hammer to cause the hammer to move downwardly.

3,322,208
IMPACT TOOL
Donald K. Skoog, Mountainside, N.J., assignor to Ingersoll-Rand Company, New York, N.Y., a corporation of New Jersey
Filed Oct. 19, 1965, Ser. No. 497,982
8 Claims. (Cl. 173—123)



1. An impact tool comprising:
a housing;
a cam disposed in said housing, said cam being provided with a cam bore;
a piston slidably disposed in said cam bore;
said housing and said piston being provided with means for allowing linear motion between said housing and said piston while preventing rotational relative motion therebetween;
said piston being provided with at least two different diameter sections, the smaller of which is located closest to said cam;
means for rotatably driving said cam;
a cam follower disposed on said piston and driven by said cam for converting the cam rotating motion to piston reciprocating linear motion;
a hydraulic tank disposed around said piston containing portions of each of said different diameter sections;
said hydraulic tank being privided with essentially incompressible fluid so that when said piston is reciprocated upwards the reduction in volume of said fluid within said hydraulic tank stores energy in said fluid; and
means for imparting said energy to said piston.

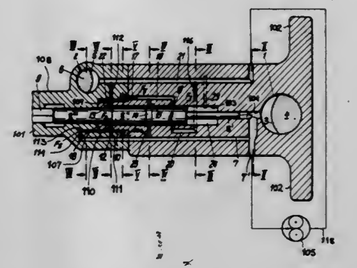
3,322,209
CARPET LAYING TOOL
George J. Cavanaugh, 1809 Washburn St., Scranton, Pa. 18504
Filed Aug. 6, 1964, Ser. No. 387,908
2 Claims. (Cl. 173—132)



1. A carpet stretching and laying tool including in combination an operating head having a carpet contacting blade formed at the outer end thereof for engagement with a piece of carpet to be laid, said operating head being formed integrally with a shank portion at one end and said operating head disposed at an angle to the longitudinal axis of said shank portion, said shank portion having at its other end a socket portion formed therein, a shaft having a slidable hammer supported thereon, said shaft being mounted at one end in said socket portion so as to form a shoulder extending outwardly from said shaft adjacent the end of said shank portion, said shoulder forming a movement limiting means for said hammer, a spring mounted at the other end of said shaft and remote from said shank portion to obstruct the outward shifting of said hammer along the shaft thereby limiting the movement of said hammer on said shaft.

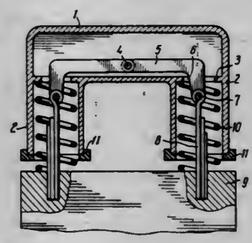
3,322,210
IMPACT TOOL
Friedrich-Karl Arndt, Essen, Germany, assignor to Beteiligungs- und Patentverwaltungsgesellschaft, m.b.H., Essen, Germany, a corporation of Germany
Filed Sept. 3, 1964, Ser. No. 394,290
Claims priority, application Germany, Sept. 6, 1963, B 73,403
9 Claims. (Cl. 173—134)

1. An impact device for the generation of percussive force, comprising:
a housing formed with an axially extending bore;
an impact piston axially reciprocable within said bore between a rearward position wherein said piston is withdrawn from an impact-receiving element and a forward position wherein said piston transfers energy to said element, said piston defining in said bore at least one working chamber;
high-pressure inlet means in said housing for supplying said bore with a fluid medium under an elevated pressure;
low-pressure outlet means in said housing for leading fluid away from said chamber, said inlet and outlet means each being provided with a respective force-storing fluid-pressure accumulator;
and an annular slide valve in said housing surrounding said piston and said chamber while being axially



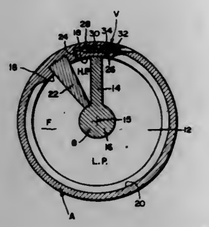
shiftable in said housing for alternately connecting said chamber with said inlet and outlet means to reciprocate said piston, said impact piston having a surface exposed to the inlet pressure of said medium unvalved by said slide valve and effective to shift said piston in a forward direction, one of said fluid-pressure accumulators communicating with said inlet means close to said surface.

3,322,211
ELASTIC HANDLE FOR VIBRATING-IMPACT MECHANISMS
Petr Mikhailovich Alabuzhev, Anatoly Kuzmich Zuev, Gennady Konstatinovich Rezanov, and Jury Prokopjevich Talvinsky, all of Novosibirsk, U.S.S.R., assignors to Novosibirsky elektrotekhnichesky Institute
Filed May 6, 1964, Ser. No. 365,323
6 Claims. (Cl. 173—162)



1. An elastic handle for hand held vibrating impact mechanisms, said handle comprising a hollow housing including a central portion, a pair of projecting portions, and a partition between said central portion and said projecting portions; a pair of levers hingeably supported in said central portion and extending through slots provided in said partition into respective projecting portions; elastic members each having one end pivotally secured to a respective of said levers in said projecting portion and an opposite end adapted for being fixedly secured with a vibratable impact mechanism; and a coil spring in each projecting portion adapted for contacting the impact mechanism to be compressed between said partition and the impact mechanism.

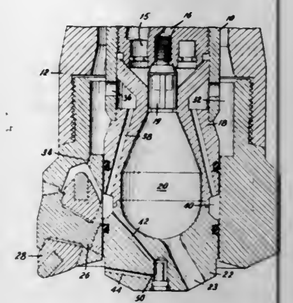
3,322,212
OSCILLATORY DRIVEN IMPULSE TOOL
Reginald W. Pauley, Somerville, N.J., assignor to Ingersoll-Rand Company, New York, N.Y., a corporation of New Jersey
Filed Apr. 13, 1965, Ser. No. 447,855
3 Claims. (Cl. 173—163)



1. An impulse tool for applying a torque to an object, said imulse tool comprising:
a driven member;
a driving member;
one of said members including housing means provided with a cavity for sealingly containing a fluid;
the other of said members including spindle means mounted in said cavity and in said fluid for relative oscillation therebetween;
drive means operatively connected to said driven member to oscillate it in the forward and backward directions and, thus, cause relative oscillatory movement between said housing means and said spindle means;
said driving member being adapted to engage said object;
spindle blade means on said spindle means and mounted in said housing means in a manner restricing it from moving axially relative to the housing means;
a first sealing portion on said housing means;
housing blade means on said housing means and in said cavity and in said fluid;
said first sealing portion and said spindle blade means being disposed in sealing relation during a relatively small portion of each partial revolution of said relative oscillating movement in the forward direction;
said first sealing portion, said spindle blade means and said housing blade means being operable during said relatively small portion of each partial revolution of said relative oscillatory movement to dynamically seal off said fluid into a high pressure portion and a low pressure portion so that the pressure in said high pressure portion of the fluid and on said housing means and said spindle means increases thereby causing said driving member to rotate with said driven member and to apply a torque to said object acting in the forward direction.

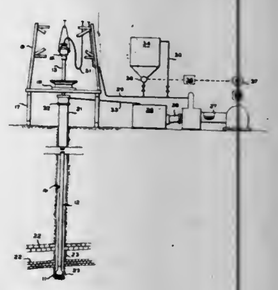
3,322,213
THERMAL MECHANICAL MINERAL PIERCING
Cornelius S. Arnold, Cranford, and Harold C. Rolseth, New Brunswick, N.J., assignors to Union Carbide Corporation, a corporation of New York
Filed Mar. 31, 1964, Ser. No. 356,301
3 Claims. (Cl. 175—14)

1. Method of thermal mechanical piercing an elongated vertical hole in a mineral body, which comprises applying flames to heat the mineral surface to an elevated temperature sufficiently high to cause said surface to spall or melt, thereby forming a hole solely by the action of said flames and the ejection of mineral particles so formed with the gaseous products exhausted from the hole, and removing any more resistant mineral from the



wall of the hole by subjecting said resistant mineral to rolling contact mechanical impact.

3,322,214
DRILLING METHOD AND APPARATUS
William B. Buck, Guymon, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Dec. 26, 1963, Ser. No. 333,305
5 Claims. (Cl. 175—66)

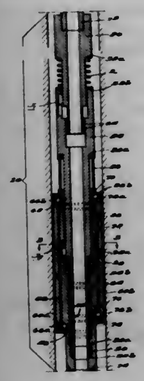


1. A method for drilling a bore hole which comprises:
rotating a diamond bit in contact with the formation being penetrated to form said bore hole;
circulating drilling fluid through a drill pipe supporting said diamond bit and across the face of said bit;
determining the drilling rate; and
adding a particulate scouring agent to said drilling fluid when said drilling rate is slowed to an undesired value to scour said bit face and alleviate loss of drilling efficiency due to the accumulation of cuttings thereon.

3,322,215
ART OF WELL DRILLING
Elbert E. Warrington, 9862 Meadowdale St., Baton Rouge, La. 70811
Filed Aug. 8, 1966, Ser. No. 574,876
11 Claims. (Cl. 175—72)

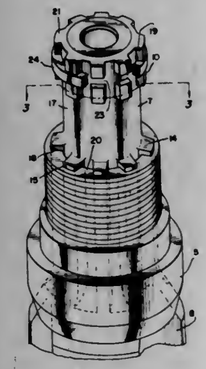
1. The method of controlling formation conditions in a well hole having a drill string with a drill bit on the lower end thereof positioned therein and which is adapted for circulation of a drilling fluid therethrough, comprising the steps of:
closing off the drill string bore and the annulus between the drill string and the well hole wall at positions spaced above the drill bit,

circulating drilling fluid through the drill string bore and the annulus through a bypass point spaced above the annulus and drill string bore close-off positions, and



subsequently opening the bore and annulus and resuming the flow of drilling fluid through the drill bit at the bottom of the drill string.

3,322,216
ANVIL FOR PERCUSSIVE DRILL
Ewald H. Kurt, Phillipsburg, N.J., assignor to Ingersoll-Rand Company, New York, N.Y., a corporation of New Jersey
Filed Nov. 18, 1964, Ser. No. 412,134
5 Claims. (Cl. 175—293)



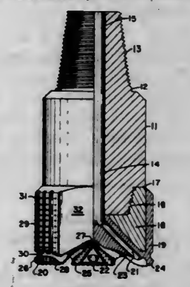
1. A bit for a downhole drill, comprising:
(a) an elongated body;
(b) an earth cutting surface on one end of said body;
(c) an intermediate shank on said body carrying longitudinal splines circumferentially spaced by longitudinal flutes;
(d) an anvil on the other end of said body containing a series of longitudinal notches having a spacing corresponding to the longitudinal flutes between said splines so that an internally grooved chuck can slide over said anvil to a position circling said shank and splines;
(e) said anvil also containing a circumferential groove circling it and extending through said notches, said groove having a depth which is at least as deep as said notches; and
(f) a removable seal ring mounted in said circumferential groove to fill it and to close said notches so that said anvil serves as the equivalent of an anvil having a cylindrical shape.

3,322,217
TWO PIECE STABILIZING AND REAMING TOOL FOR BORE HOLES
De Orr Cook, 1555 Callens Road, Ventura, Calif. 93003
Filed Dec. 24, 1964, Ser. No. 420,919
3 Claims. (Cl. 175—323)



1. A two piece stabilizing tool comprising, in combination: a mandrel including lower end threads for connection in a drill pipe string and having external threads of a pitch equal to the pitch of said lower threads along a portion of its body for a given length greater than the length of said lower threads; and a stabilizing sleeve having spiral blades formed on its external surface and including a threaded bore for threaded engagement with said eternal threads, all of said threads being of the same hand, whereby said mandrel may be counter rotated when said sleeve is in threaded position on said external threads and held rotationally stationary in said bore hole to separate said lower threads from their connection to said drill pipe string prior to complete unthreading of said sleeve from said external threads, the diameter of said external threads being at least as large as the largest diameter of said lower threads, so that said sleeve may be completely unthreaded and separated from said mandrel.

3,322,218
MULTI-PORT DIAMOND BIT
Alexander B. Hildebrandt, Tulsa, Okla., assignor to Esso Production Research Company, a corporation of Delaware
Filed May 4, 1965, Ser. No. 453,053
9 Claims. (Cl. 175—330)

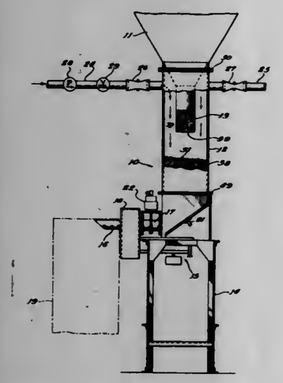


8. A diamond core bit comprising:
(a) a body member containing longitudinal passageways for receiving a core and transmitting drilling fluid through said member;

(b) an annular crown connected to the lower end of said body member, said crown including (i) a lower surface containing an axial core opening and a plurality of discharge ports communicating with said passageways in said body member; (ii) a plurality of lands extending downwardly below the adjacent crown surface around said discharge ports, each of said lands enclosing a discharge port whereby fluid discharged from said port must pass beneath said land to reach the borehole annulus and each land being of substantially uniform width at all points about the port enclosed therein; and (iii) gage surfaces extending upwardly on the crown periphery; and

(c) a plurality of diamonds embedded in the lower faces of said lands.

3,322,219
BAG FILLING MACHINES
John M. Van Pernis, Chicago, Ill., assignor to Black Products Co., a corporation of Illinois
Filed June 11, 1965, Ser. No. 463,151
8 Claims. (Cl. 177—114)



1. A bag filling machine comprising a closed conditioning chamber, a bag filling spout communicating with the lower end of said chamber for filling a bag suspended therefrom, a cut off valve located between said filling spout and said conditioning chamber, means operative for closing said cut off valve at a predetermined time, a vertically disposed inlet pipe extending through the top wall of said chamber and terminating substantially below said top wall to provide a means for determining the initial level of material within said conditioning chamber, air supply means communicating with said chamber and including a constant delivery pump, a pressure relief valve therefor, and a normally open air supply valve, means for closing said air supply valve when said cut off valve is closed, a vent pipe leading from the upper portion of said chamber, a normally closed vent valve for said vent pipe, and means for opening said vent valve at the time that said cut off valve is closed, whereby the release of pressure within said conditioning chamber will permit material to flow through said inlet pipe into said chamber.

3,322,220
ELECTRICAL LOAD-MEASURING DEVICE FOR VEHICLES
Robert P. Bash, Rte. 1, Box 846B, Cottage Grove, Oreg. 97424
Filed Oct. 7, 1965, Ser. No. 493,694
5 Claims. (Cl. 177—137)

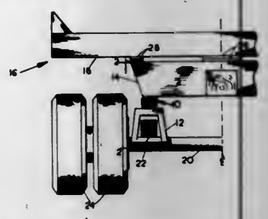
1. A load-cell transducer device for placement between an upper frame portion and a lower frame portion of a vehicle for transmitting loads between said frame portions and measuring changes in said loads, said device comprising:

an upper elongate beam portion for engaging said upper frame portion,

a lower beam portion spaced beneath said upper beam portion for engaging said lower frame portion,

a pair of rigid end portions separating and rigidly interconnecting said beam portions at the opposite ends of the latter,

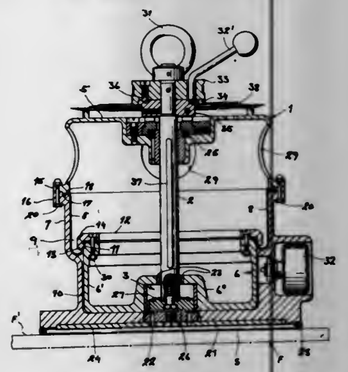
said end portions each being of sufficient strength and rigidity to support a predetermined proportion of the weight of said upper frame portion and the loads



thereon on said lower frame portion without deforming beyond the proportional limit of strength of each end member, such that the strains imposed on said end members will bear a proportional relationship to the stresses thereon due to the loading of said upper frame portion,

and a pair of electrical resistance strain gauges affixed to each said end member including, one attached to an inwardly facing surface of each end portion so as to measure strains in bending compression induced by loading of said upper beam portion, and the other for measuring strains on said end portion caused by variations in temperature.

3,322,221
PNEUMATIC LIFTING DEVICE AND WEIGHER FOR FLAT GOODS
Heinz Engelen, Dusseldorf, Helmut Discher, Neuss-Udesheim, and Günter Albert, Dusseldorf, Germany, assignors to Maschinenfabrik Hasenclever A.G., Dusseldorf, Germany, a corporation of Germany
Filed Oct. 22, 1965, Ser. No. 504,294
Claims priority, application Germany, Oct. 24, 1964, M 62,879
16 Claims. (Cl. 177—208)



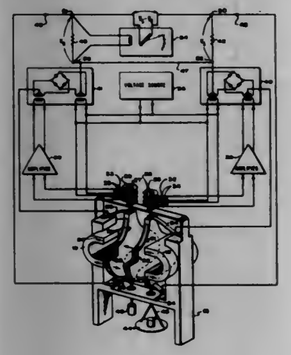
1. A lifting device for flat goods, comprising:
a cylinder with a substantially vertical axis;
a piston head axially movable in said cylinder;

suspension means at an upper end of said cylinder for elevating same;

means for axially drawing said piston head upwardly within said cylinder for generating a partial vacuum therebelow, said cylinder being provided at its lower end with a suction head and an opening communicating between said suction head and said cylinder below said piston head; and

an annular flexible seal within said cylinder in all-around fixed peripheral engagement therewith and in all-around fixed peripheral engagement with said piston head, thereby forming a seal between said piston head and said cylinder whereby a partial vacuum is developed in said suction head and maintained upon elevation of said piston head within said cylinder away from said suction head.

3,322,222
COMPENSATED ELECTROMAGNETIC BALANCE
Fritz Baur, Denver, Colo. (2275 Sharon Road, Menlo Park, Calif. 94025)
Filed Nov. 12, 1964, Ser. No. 410,490
7 Claims. (Cl. 177—210)



1. Electromagnetic apparatus comprising:

means producing a magnetic flux field in a selected region;

a signal conductor and a reference conductor each disposed within said selected region to move parallel to an axis in response to the interaction of the magnetic flux field in said region with electrical signals applied to said signal and reference conductors;

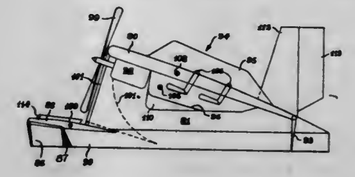
means coupled to said signal conductor for exerting a force to be measured thereon in the direction parallel to said axis to alter the position thereof within the magnetic flux field;

a transducer coupled to each of said signal and reference conductors for producing an output indicative of the position of the corresponding conductor in the magnetic flux field;

circuit means connected to each of said signal and reference conductors for applying a signal thereto with proper direction and with amplitude related to the output of the transducer coupled to the corresponding conductor for maintaining each of the signal and reference conductors in a selected position within the magnetic flux field; and

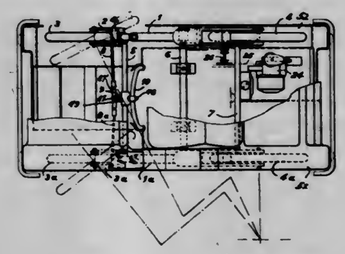
means connected to said signal and reference conductors and responsive to the combination of the signals applied thereto for providing an indication of the force to be measured applied to said signal conductor.

3,322,223
GROUND EFFECT MACHINES
William R. Bertelsen, 113 Commercial St., Neponset, Ill. 61345
Filed May 16, 1963, Ser. No. 280,948
5 Claims. (Cl. 180—7)



1. Aircraft for flying over and adjacent a surface on a cushion of pressurized air supplied beneath same thereby comprising, in combination; an upper wing set at a first predetermined angle of attack and having depending ends forming side walls of the aircraft, a lower wing spaced forwardly of said upper wing and being joined with said side walls, said lower wing having a second predetermined angle of attack less than said upper wing, said upper and lower wings forming a duct having an exit adjacent said surface and in part under said lower wing, aerodynamically upwardly operated normally downwardly extended vane means underlying the leading edge of said lower wing forming a front lower edge of said duct when extended downwardly, at least one engine-powered propeller having a tip path describing a circle substantially entirely above said lower wing and partially over said upper wing, said propeller being adapted to create thrust for propulsion and provide air into said duct to create said cushion of pressurized air beneath the aircraft, said cushion of air being maintained in part during flight by a jet-air effect acting beneath said upper and lower wings, attitude control means adjacent the trailing edge of said upper wing in the slip-stream of said propeller, means in said aircraft for positioning said attitude control means, means for modifying the shape and effective position of the outlet of said duct for stabilizing said aircraft under different flight conditions, and means for controlling said modifying means.

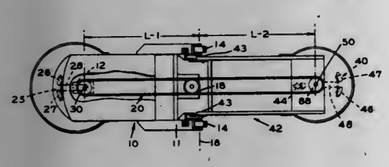
3,322,224
AUTOMOTIVE VEHICLE
Jacques Muller, 123 Ave. du General de Gaulle, La Garenne-Colombes, France
Filed July 14, 1964, Ser. No. 382,598
Claims priority, application France, July 30, 1963, 943,071
4 Claims. (Cl. 180—54)



1. An automotive vehicle comprising a pair of bicycle frames, each of said frames having a substantially vertical

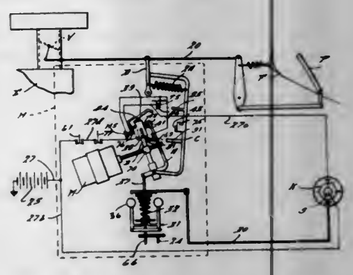
sleeve at the front thereof, a shaft rotatably mounted in each of said sleeves, a yoke having a cross piece, each of said shafts being secured to an associated cross piece, each of said frames having a front and rear wheel, means rotatably mounting each of said wheels, said front wheels being rotatably mounted between the legs of an associated yoke, a plurality of cross braces extending transversely between said frames to retain the latter in spaced parallel relation, one of said cross braces being secured at opposed ends to said sleeves, means resiliently connecting each of said cross braces to the frames for independent vertical movement of each of said wheels, a rigid member secured to each of said yokes and extending forwardly therefrom, connector means extending between said rigid members and pivotally secured at each end thereto, a rigid actuating arm pivotally affixed at one end to said connector means between its ends and depending therefrom at right angles thereto, a steering shaft rigidly secured to the other end of said actuating arm, means carried by the cross braces secured to the sleeves rotatably to mount said shaft, whereby upon rotation of said shaft said front wheels will be pivoted to steer the vehicle and means to drive at least one of said wheels to effect movement of the vehicle.

3,322,225
FORWARD AND REVERSE GUIDANCE CONTROL FOR VEHICLES
James P. Kohls, Detroit, Mich., assignor to Jervis B. Webb Company, Detroit, Mich., a corporation of Michigan
Filed Feb. 5, 1965, Ser. No. 430,664
9 Claims. (Cl. 180—79.1)



1. A forward and reverse steering control for use with a vehicle having a main frame; longitudinally spaced dirigible and non-dirigible wheels supporting the frame; a power steering mechanism connected to the dirigible wheel; said steering control including an auxiliary frame; means connecting the auxiliary frame to the main frame for relative pivotal movement on a transverse axis, the auxiliary frame extending oppositely of the axis of the non-dirigible whel relative to the placement of the dirigible wheel with respect to such axis; wheel means for supporting the extending end of the auxiliary frame; forward and reverse direction sensing units; means mounting the forward direction sensing unit on the main frame for movement about a vertical pivotal axis spaced longitudinally of the vehicle in one direction from the non-dirigible wheel axis and mounting the reverse direction sensing unit on the auxiliary frame for movement about a vertical pivotal axis spaced longitudinally in the opposite direction from the non-dirigible wheel axis; driving means connecting the forward and reverse direction sensing units to the power steering mechanism; and circuit means selectively including one of the forward and reverse direction sensing units for regulating the operation of the power steering mechanism in accordance with any deviation of the vehicle from a defined path of travel; said mounting means, driving means and circuit means being arranged so that the forward and reverse sensing units are capable of an equal and opposite deviation detecting and anticipating effect about a vehicle turning center on the non-dirigible wheel axis.

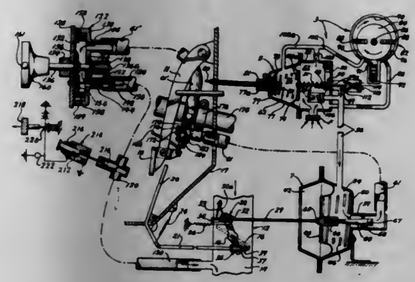
3,322,226
VEHICLE AUTOMATIC SPEED WARNING AND SPEED CONTROL DEVICE
Richard G. Marshall, Madison Heights, and Joseph C. Littmann, Grosse Pointe Woods, Mich., assignors to Chrysler Corporation, Highland Park, Mich., a corporation of Delaware
Filed Sept. 22, 1960, Ser. No. 57,751
11 Claims. (Cl. 180—106)



1. A device for controlling the speed of an automotive vehicle having a driver-operated throttle control member, said device comprising power-operated means responsive to vehicle speed for establishing a resistance to advancing movement of said control member at a predetermined vehicle speed, means activable to drivingly interconnect said driver-operated throttle control member and said power-operated means with said power-operated means thereby being operable to advance and retard said control member when the vehicle speed is below and above said predetermined speed respectively whereby said power-operated means constitutes an automatic control of the speed of the vehicle and maintains it at said predetermined speed, and driver-operated means for rendering said power-operated means inoperable to actuate said control member and thereby disabling said automatic control with said power-operated means remaining operable for establishing said resistance at said predetermined speed, said driver operable means for establishing said automatic control of said vehicle speed including a control circuit with driver-operated means capable of activation at any speed below said predetermined speed so that said automatic control of said vehicle speed will be automatically established and maintained, in the absence of driver override, whenever the vehicle attains the predetermined speed, said means for activating said automatic control means comprising a manually operable switch means and a vehicle speed responsive switch means arranged in series and connected to a power source.

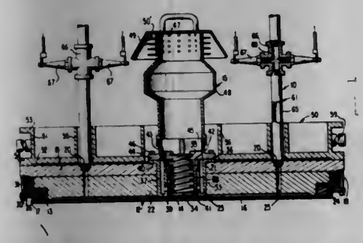
3,322,227
AUTOMOTIVE SPEED CONTROL SYSTEM
Robert H. Thorner, 8750 W. Chicago Blvd., Detroit, Mich. 48206
Filed Oct. 17, 1963, Ser. No. 316,987
38 Claims. (Cl. 180—108)

1. In a speed control device for an automotive vehicle including an engine having control means therefor, said vehicle also including a source of fluid subjected to pressure produced as a result of operation of the vehicle, the combination comprising; mechanism including a member operated by at least a portion of said pressure to regulate the position of said control means for establishing the speed of the vehicle, rigid pressure-sensitive means subjectable to said source pressure for producing forces to maintain the transmission of said pressure portion to said pressure-operated member, manual means operated by the vehicle-driver to subject said pressure-sensitive member to said source pressure, valve means operatively connected to said manually operated means for movements thereby independent of said pressure sensitive means to vent said last-named pressure to fluid at atmospheric pressure for dissipating said last-named pressure, and means acting on said pressure-sensitive means upon said



dissipation of said source pressure to preclude said pressure from acting on said pressure-operated member until said pressure-sensitive means is again subjected to said source pressure upon deliberate operation of said manual means by the vehicle-driver.

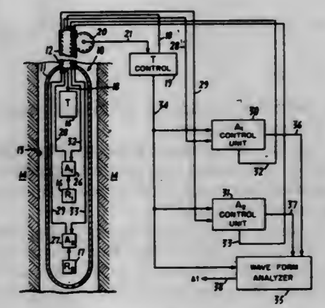
3,322,228
METHOD OF IMPROVING THE IMPULSE CHARACTERISTICS OF SEISMIC GAS EXPLODERS
Lauren G. Kilmer, Tulsa, Okla., assignor to Sinclair Research, Inc., New York, N.Y., a corporation of Delaware
Filed May 8, 1964, Ser. No. 366,094
7 Claims. (Cl. 181—.5)



1. In a method for propagating a seismic wave at the surface of the earth by the explosion of an approximately stoichiometric mixture of a hydrocarbon fuel gas and oxygen in a chamber having a rigid bottom coupled to the ground and a rigid top, the improvement of incorporating in said mixture hydrogen in an amount sufficient to increase the rate of the explosion reaction but insufficient to substantially decrease the heat of said explosion reaction.

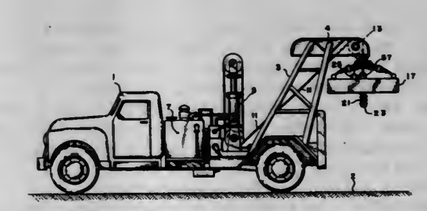
3,322,229
SIGNAL TRANSMISSION SYSTEM FOR WELL LOGGING MAINTAINING AMPLITUDE INFORMATION
John S. Smith, Ridgefield, Conn., assignor, by mesne assignments, to Schlumberger Technology Corporation, Houston, Tex., a corporation of Texas
Filed Sept. 1, 1964, Ser. No. 393,514
12 Claims. (Cl. 181—.5)

1. In a sonic logging system including an instrument adapted to be lowered into a well bore to determine the characteristics of the surrounding earth formations, a sonic wave transmitter and a sonic wave receiver within the instrument, sonic signal analyzing apparatus at the surface of the earth, and electrical cable means connecting the instrument to the apparatus at the surface of the earth, the improvement comprising variable attenuator means within the instrument for attenuating sonic signals from the receiver in accordance with a control signal before transmission of the sonic signals through the cable means and adapted to provide output signals having amplitude proportional to the input signals, attenuator control means



responsive to variations in an amplitude level of sonic signals for generating a control signal, and means for applying the control signal to the variable attenuator means to attenuate the sonic signals in accordance therewith.

3,322,230
APPARATUS FOR PRODUCING SEISMIC WAVES AND RECORDING SEISMIC SIGNALS
Tobias Flatow, Houston, Tex., assignor to Esso Production Research Company
Filed Apr. 14, 1965, Ser. No. 448,027
5 Claims. (Cl. 181—.5)

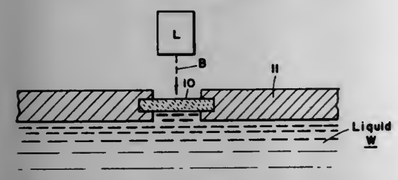


2. Apparatus for generating a seismic impulse and recording resulting seismic waves, comprising:
- a seismic wave recorder including a recording medium transport means and an electrical motor for driving said transport means;
- a heavy weight having a substantially plane lower surface;
- detecting means engaging said weight for detecting a predetermined separation between said plane lower surface and the earth's surface, and for producing a signal thereupon;
- electrical terminals for connection to a source of electrical power; and
- electrical circuit means connected to said detecting means, said electrical terminals, and said motor for connecting said terminals to said motor to start said motor responsive to production of said signal by said detecting means.

3,322,231
METHODS AND SYSTEMS UTILIZING LASERS FOR GENERATING SEISMIC ENERGY

Luke S. Gournay, Dallas, Tex., assignor to Mobil Oil Corporation, a corporation of New York

Filed Dec. 29, 1964, Ser. No. 421,814
11 Claims. (Cl. 181—.5)

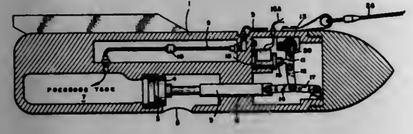


11. A system for producing seismic-frequency energy in a body of liquid comprising:
a laser system for producing electromagnetic energy,
means for programming the system to produce electromagnetic radiation energy of predetermined envelope and time duration, and
means for applying the electromagnetic radiation to the body of liquid for conversion in the liquid to seismic energy whose frequency is a function of the time duration of the envelope of electromagnetic energy.

3,322,232
SEISMIC EXPLORATION

Franklin L. Chalmers and Tobias Flatow, Houston, Tex., assignors to Esso Production Research Company, a corporation of Delaware

Filed Oct. 18, 1965, Ser. No. 496,760
4 Claims. (Cl. 181—.5)



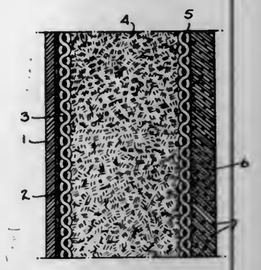
1. A submarine seismic source comprising:
a housing including a reservoir for pressurized gas;
port means opening to the exterior of said housing;
means including valve means for selectively connecting the interior of said reservoir to said port;
said valve means including a valve seat and a valve piston for seating on said valve seat to close fluid communication between the interior of said reservoir and said port;
a piston rod connected to said valve piston;
electrically actuatable solenoid means having a movable armature; and
an overtravel locking linkage means connected to said piston rod and to said housing for holding said valve piston on said valve seat against the pressure of gas in said reservoir when in he overtravel position thereof and to collapse to open said valve means when pushed away from said overtravel position, said armature being positioned to push said linkage away from said overtravel position.

3,322,233
SOUND CONTROL PRODUCT

John D. McCluer, Charlotte, N.C., and Robert C. Roy, Oakdale, Pa., assignors to H. K. Porter Company, Charlotte, N.C., a corporation of North Carolina

Filed Dec. 3, 1964, Ser. No. 415,577
11 Claims. (Cl. 181—33)

1. A flexible acoustical product comprising a reinforced plastic film from about 0.0015 to about 1 mil thick characterized by being substantially sound transparent at low frequencies and substantially sound reflective at high

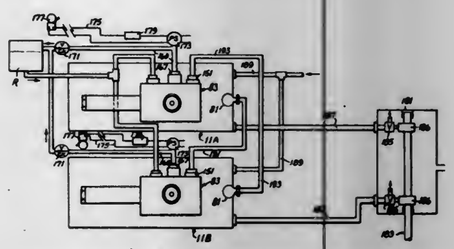


frequencies bonded to the surface of a loosely woven fabric base, said fabric base taking up from about 60% to about 20% of the total area of the film.

3,322,234
LUBRICATING APPARATUS

Carl H. Mueller, Pasadena Hills, Lutwin C. Rotter, Ladue, Jerome B. Wegmann, Florissant, and George Weitzel, Bridgeton, Mo., assignors to McNeil Corporation, Akron, Ohio, a corporation of Ohio

Filed Jan. 15, 1965, Ser. No. 425,707
26 Claims. (Cl. 184—6)



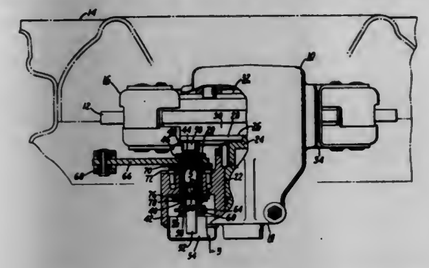
1. Lubricating apparatus comprising a lubricant injector, said injector comprising a cylinder having a lubricant inlet supplied with lubricant from a reservoir and a series of outlet ports spaced at intervals along its length and a plunger working in the cylinder adapted on a pressure stroke thereof to force a metered volume of lubricant out through each outlet port in succession, and means connected to the last outlet port of the series for signalling a failure in the operation of the injector in response to failure of delivery of lubricant through said last outlet port, said means being conditioned for signalling only after failure of delivery for a plurality of strokes of the plunger.

3,322,235
SELF-ADJUSTING DISC BRAKE

Lothrop M. Forbush, Birmingham, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Feb. 14, 1966, Ser. No. 527,303
7 Claims. (Cl. 188—73)

1. In a disc brake mechanism having a disc and a caliper and a shoe and a primary brake actuator,
a self adjusting secondary brake actuator comprising:
a pair of concentrically threaded elements rotatably supported by said caliper one of which is engageable with said shoe,
first means rotating and axially advancing said elements in unison in one direction to apply said shoe to said disc in braking relation and rotating and axially retracting said elements in the other direction to permit retraction of said shoe from said disc,
and second means actuated upon a predetermined rotation of said elements in said other direction

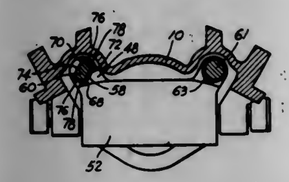


inhibiting the further rotation of one of said elements in said other direction to cause a differential rotation between said concentrically threaded elements, thereby adjusting said secondary brake actuator.

3,322,236
BRAKE

Richard T. Burnett, South Bend, Ind., assignor to The Bendix Corporation, a corporation of Delaware

Original application May 7, 1962, Ser. No. 192,857, now Patent No. 3,268,034, dated Aug. 23, 1966. Divided and this application Apr. 18, 1966, Ser. No. 543,383
14 Claims. (Cl. 188—73)



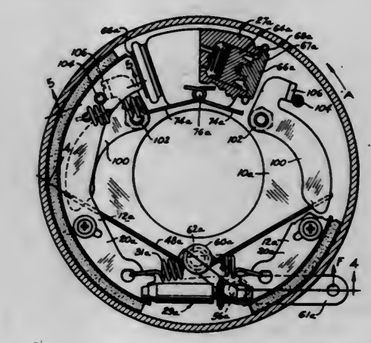
1. In a disk brake comprising: a rotor; a housing; actuating means; a friction member engageable with said rotor and provided with two circumferentially spaced openings formed therein radially outwardly from the periphery of said rotor; a rod for each opening and extending therethrough radially outwardly from the periphery of said rotor and being connected to said housing; one of said openings and one of said rods defining coacting anchoring surfaces therebetween, at least one of said surfaces being substantially straight and at an angle relative to the resultant frictional force exerted by said rotor on the friction member so that the reaction force exerted by said one rod on said friction member will be inclined to said resultant frictional force when said rotor is rotating in one direction, said one opening being constructed relative to said one rod so that the other of said surfaces may freely contact said straight surface.

3,322,237
PARKING BRAKE MECHANISM

Clarence Keller, Burton M. Tincher, and Robert A. Wagner, South Bend, Ind., assignors to The Bendix Corporation, a corporation of Delaware

Filed Sept. 10, 1965, Ser. No. 486,355
9 Claims. (Cl. 188—78)

9. A brake assembly comprising:
a support member;
a brake means operatively connected to said support member, said brake means including a pair of brake linings;
a first lever operatively arranged on said support member for applying one of said pair of brake linings;
a second lever operatively arranged on said support member for applying another of said pair of brake linings;
a cable whose ends are affixed to said first and second

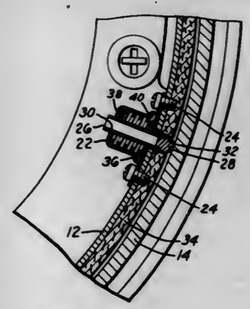


levers such that said cable extends across said support member in a plane of said levers, which plane is parallel to said support member; and
a bellcrank operatively connected to said support member having an actuating lever end in the plane of said levers, and an input lever end, said actuating lever end having a point of connection with said cable which shifts along said cable.

3,322,238
BRAKE SHOE CENTERING DEVICE

Robert H. Bauman, Dayton, Ohio, assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

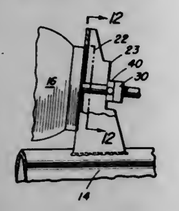
Filed Oct. 12, 1964, Ser. No. 403,034
6 Claims. (Cl. 188—79.5)



1. A device for maintaining a preset clearance between opposed surfaces, said device comprising: first and second opposed surfaces, at least one of which moves relative to the other; friction means carried by a first of said opposed surfaces and having a portion maintaining contact with a second opposed surface; biasing means carried by said first opposed surface and arranged to urge

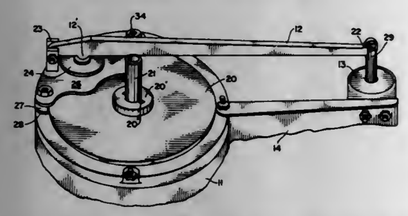
said friction means toward said second opposed surface; and means carried by said friction means for limiting an urging motion induced in said friction means by said biasing means.

3,322,239
METHOD AND SYSTEM FOR ADJUSTING VEHICLE BRAKES
Leonard Troy, 611 N. Webster Ave., Scranton, Pa. 18510
Filed Sept. 7, 1965, Ser. No. 485,187
5 Claims. (Cl. 188—79.5)



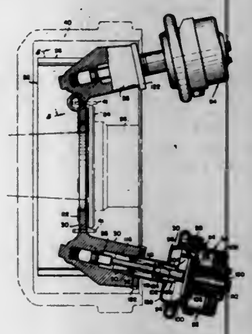
3. In a vehicle brake shoe adjusting system including a brake-shoe actuator, a brake drum, at least one brake shoe mounted on said drum and normally having an adjustable brake-shoe-to-drum clearance with respect to said drum, and a break-shoe actuator linkage operatively connected between said brake-shoe actuator and said brake shoe, the improvement wherein said actuator has a fixed abutment, said linkage has an integral abutment movable therewith in a path of travel relative to and in intersecting relation with respect to said fixed abutment on said actuator, and a brake-shoe-to-drum clearance gauge having a shim gauge portion removably interpositionable between said abutments for preventing said brake shoe from returning to a normal off position when said shoe is adjusted into contact with said drum and subsequently establishing the normal brake-shoe-to-drum clearance when said shim gauge portion is removed from between said abutments.

3,322,240
DISC BRAKE FOR WASHING MACHINE
Gianni A. Dotto, Dayton, Ohio, assignor to P. R. Mallory & Co. Inc., Indianapolis, Ind., a corporation of Delaware
Filed Mar. 19, 1965, Ser. No. 441,022
6 Claims. (Cl. 188—163)



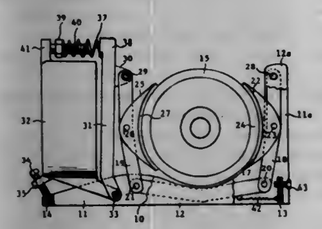
1. In a brake for preventing further rotational deplacement of the rotor of an electric motor when said electric motor is de-energized, a shaft fixedly connected to and rotatably displaced by said rotor, said shaft carrying a pin, an apertured disc means slidably interfitting with said shaft and said pin, said disc rotating with said shaft, support means including a pair of plates retained in spaced parallel relationship carried by said electric motor, said plates forming a channel therebetween through which a portion of said disc passes, friction means seated in each of said plates so that said disc is positioned therebetween, one of said friction means being displaceable, the other of said friction means being stationary, solenoid means carried by said electric motor and activated when said electric motor is de-energized, said solenoid means including a displaceable means, and an actuator means having one end connected to said displaceable means and having another end connected to said support means, said actuator means overlaying said displaceable friction means, de-energization of said electric motor causing activation of said solenoid means and displacement of said displaceable means, said displaceable means displacing said actuator means so that said actuator means engages with and displaces said displaceable friction means, displacement of said displaceable friction means causing said disc means to be frictionally engaged between said friction means thereby preventing further rotational displacement of said rotor of said electric motor.

3,322,241
BRAKE SYSTEM
Frank T. Cox and William J. Williams, both of Ashtabula, Ohio, assignors to Rockwell-Standard Corporation, Pittsburgh, Pa., a corporation of Delaware
Continuation of application Ser. No. 286,038, June 6, 1963, now Patent No. 3,269,492. This application Jan. 24, 1966, Ser. No. 522,478
1 Claim. (Cl. 188—170)



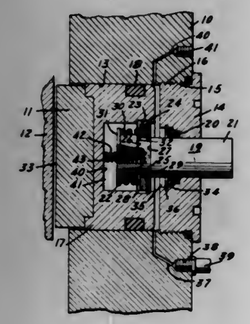
A brake assembly comprising a pair of brake shoes having linings adapted to engage a surrounding brake drum, a pair of opposed plungers adapted, when urged apart, to urge said linings into contact with said drum, a wedge operator adapted, when advanced, to urge said plungers apart, a combined service and emergency actuator for said wedge operator comprising a housing member having a wall portion dividing said housing into a service chamber and an emergency chamber, a first pressure responsive member in said service chamber operatively connected to said wedge operator, a second pressure responsive member within said emergency chamber having a portion extending through a sealed opening in said wall portion of said housing member into abutting engagement with said first pressure responsive member, a fluid pressure connection for normally urging said second pressure responsive member away from said first pressure responsive member, a spring compressed between the side of said second pressure member and an end wall of said emergency chamber by fluid pressure within said emergency chamber at a predetermined value, said spring expanding to advance each of said pressure responsive members and said wedge operator to move said linings into engagement with said drum when said fluid pressure falls below said predetermined value, said pressure responsive members and said wedge operator moving through a stroke of predetermined length when said brake linings are unworn, and means for automatically adjusting the length of at least one of said plungers to compensate for wear in the linings of said brake shoes so that said brake shoes will be urged into firm pressure contact with said drum by advancement of said first and second pressure responsive members through said stroke of predetermined length under the influence of said spring despite wear of said linings.

3,322,242
ELECTROMAGNETIC BRAKE
James G. Copland, Roanoke, Va., assignor to General Electric Company, a corporation of New York
Filed Feb. 9, 1965, Ser. No. 431,356
2 Claims. (Cl. 188—171)



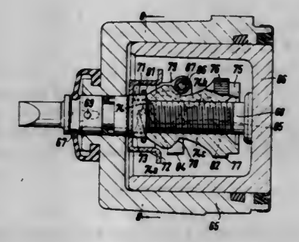
1. An electromagnetic brake comprising, a rotatable drum, a pair of brake shoes therefor, an electromagnet having a floating armature, an operating linkage interconnecting said brake shoes including said armature connected to one of said shoes for clamping the drum between the shoes upon movement of said armature to engage the one shoe with said drum, means to control the movement of both shoes out of engagement with the drum upon opposite movement of said armature, and structural members supporting said brake shoes fabricated from ferritic ductile iron with less than 10% pearlite structure.

3,322,243
ANTI-KNOCK-BACK VEHICLE BRAKE MECHANISM
Marvin Brawerman, Pacoima, Calif., assignor to Airheart Products, Inc., Van Nuys, Calif., a corporation of California
Filed Dec. 21, 1964, Ser. No. 419,695
3 Claims. (Cl. 188—196)



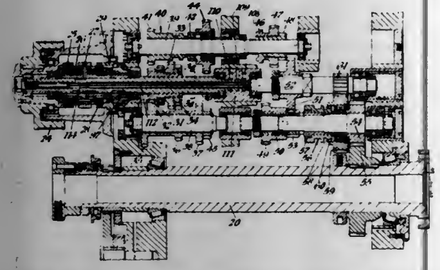
1. Braking mechanism, comprising:
(a) cooperable braking elements mounted for relative movements into braking and non-braking relation;
(b) a cylinder;
(c) a main piston reciprocable in said cylinder for relatively moving said braking elements into said braking relation;
(d) an auxiliary piston having a longitudinal axis coaxial with the main piston axis;
(e) a friction holding device for releasing said auxiliary piston for axial movement with a predetermined holding force is exceeded;
(f) a spring acting between said auxiliary piston and said main piston for returning the main piston to a normal brake clearance position with the braking elements in non-braking relation;
(g) a spring acting between said auxiliary piston and said main piston for returning said main piston to said normal brake clearance position, upon movement of said main piston by an extraneous force to an above-normal clearance position; and
(h) abutment means operative between said pistons each time an actuating fluid pressure is applied to said pistons to move said auxiliary piston in one direction to overcome the holding device and establish said normal clearance position, and under over-normal brake application movement to overcome the holding device and advance the auxiliary piston in an opposite direction to a new position.

3,322,244
AUTOMATIC ADJUSTING MEANS FOR LIQUID-PRESSURE OPERATED BRAKES
Leslie Cyril Chouings, Leamington Spa, England, assignor to Automotive Products Company Limited, Leamington Spa, England
Filed Aug. 27, 1965, Ser. No. 483,097
Claims priority, application Great Britain, Sept. 2, 1964, 35,964/64
5 Claims. (Cl. 188—196)



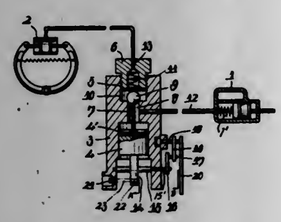
1. Automatic adjusting means for liquid pressure operated brakes comprising, in combination with a liquid pressure motor cylinder for applying a brake pad to the surface of a brake disc, an externally screw-threaded stem fixed to the piston of said motor cylinder so as to project axially into the cylinder, an internally screw-threaded sleeve mounted on said stem and co-operating with an abutment on said motor cylinder to limit inward movement of said piston relative to said cylinder, said sleeve being formed with a peripheral series of ratchet teeth and with a surface facing in the direction of forward movement of the piston, pawl means pivotally mounted on a member which is held against forward movement with the piston caused by liquid pressure acting in the motor cylinder, said pawl means cooperating with the said surface on the sleeve so as to be rocked in a direction to move idly over the ratchet teeth by forward movement of the piston, and spring means acting on the pawl to return it through an operative stroke when the liquid pressure is released, to rotate the screw-threaded sleeve relative to the stem.

3,322,245
FLUID PRESSURE CONTROLS FOR TRANSMISSION, CLUTCH AND BRAKE
Duncan James Keith Stuart, Solihull, Peter Edward Fraser, Droitwich, Worcester, John Michael Payne, Kings Norton, Birmingham, and Douglas Ralph Shotter, Marton, Rugby, all of England, assignors to Edward Williams Holdings Limited, Birmingham, England
Filed June 21, 1965, Ser. No. 465,323
Claims priority, application Great Britain, June 24, 1964, 26,075/64
21 Claims. (Cl. 192—.09)



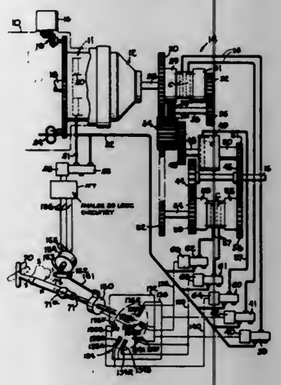
1. A change-speed power transmission mechanism comprising an input member, a driving shaft, means for drivingly interconnecting the input member and the driving shaft and including a clutch, a driven shaft, means drivingly connecting said driven shaft to an output member, a toothed control member on one of said shafts and axially movable between first and second positions to provide first and second speed ratios respectively, a fluid operable motor connected to the output side of said clutch, through the intermediary of a unidirectional drive device arranged so that, in use, no drive is transmitted from said clutch to said motor, a pump for supplying operating fluid to said motor to drive the latter, means sensitive to the pressure at which fluid is supplied to the motor and means operable by said pressure-sensitive means for moving said toothed control member when the clutch is disengaged and the pressure of the fluid supplied to the motor rises above a predetermined value owing to the resistance offered thereto by the decelerating mechanism.

3,322,246
LOCKING DEVICE FOR AN AUTOMOTIVE HYDRAULIC BRAKE
Yoshisuke Noguchi, Urawa-shi, Japan, assignor of one-half to Shozo Takase, Kamakura-shi, Japan
Filed Oct. 19, 1964, Ser. No. 404,821
Claims priority, application Japan, May 22, 1964, 39/28,616
5 Claims. (Cl. 192—.049)



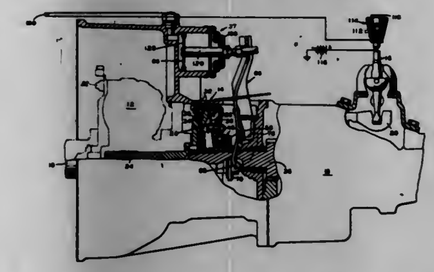
1. In combination with a hydraulic brake system for automotive vehicles, a means for retaining the fluid in said brake system, the latter comprising
a brake master cylinder and brake wheel cylinders,
a fluid line between said brake master cylinder and said brake wheel cylinders,
means for retaining fluid under pressure in said fluid line, including a chack valve member,
said check valve member comprising a cylinder the longitudinal axis of which is vertically oriented,
said cylinder having an upper and lower portion,
said lower portion having an open bottom end,
a piston disposed in said lower portion and axially and vertically movable freely therein and through said open bottom end of said lower portion of said cylinder so that said piston can be removed from said open bottom end,
said upper portion of said cylinder defining a chamber and the latter forming a valve seat at its bottom,
said cylinder defining further a vertical recess providing communication between said lower portion of said cylinder and said chamber,
a spring biased ball sitting on and urged onto said valve seat,
said fluid line feeding from said brake master cylinder to said vertical recess,
a pushing piston rod secured to the top of and axially movable with said piston, and extending axially through said vertical recess for engagement with the bottom surface of said ball,
cam means engaging the bottom face of said piston providing a sole means for supporting and retaining said piston in position within said lower portion of said cylinder and providing a lower abutment for supporting said piston,
said piston being moved downwardly solely by gravity and fluid pressure against said cam means,
said cam means operable for lifting said piston and, thereby, by means of said pushing piston rod lifting said ball from its valve seat in the open position of said check valve member, and
said pushing piston rod thus lifting said ball from its seat by moving axially.

3,322,247
TRANSMISSION AND CLUTCH WITH SINGLE CONTROL
Samuel Luzaich, Rockford, Ill., assignor to Twin Disc Clutch Company, Racine, Wis., a corporation of Wisconsin
Filed July 19, 1965, Ser. No. 473,123
7 Claims. (Cl. 192—3.5)



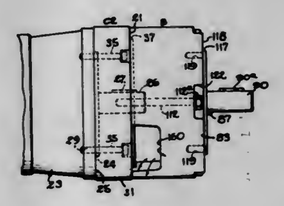
1. A control mechanism for manual operation to regulate a power system for driving a load, said power system including a prime mover drivingly connected to the load through a tandem connected modulated clutch and a multi-drive ratio reversible-drive transmission, said transmission including a first plurality of clutches adapted to be engaged and set said transmission in the various drive ratios and a second plurality of clutches adapted to be engaged and set said transmission in forward and reverse drive direction, said control mechanism comprising, a control rod, means supporting said rod for longitudinal movement between predetermined limits and swivel movement to a plurality of positions each corresponding to a different drive ratio of the transmission and rotary movement between first and second positions, a handle attached to said rod and positioned to be manually pushed, pulled, rotated, and moved to move said rod into said plurality of positions, a modulating actuator for engaging said modulated clutch to a degree proportional to the energization thereof, a potentiometer connected to energize said modulating actuator and including means connected to said rod for adjusting the voltage output therefrom in proportion to the longitudinal positioning of the rod, a first plurality of actuators adapted when energized in patterns to engage said transmission drive-ratio clutches and set the transmission in the various drive ratios, a first plurality of reed switches positioned adjacent position of swivel movement of the end of said rod, opposite the handle, a magnet supported to move with said opposite end of said rod and close the reed switches at each position of swiveled movement of said rod when positioned adjacent thereto, circuit means connecting said reed switches and said first actuators for energizing the actuators in patterns when predetermined reed switches are closed to set said transmission in the drive ratio corresponding to the pivotal positioning of said rod, a second plurality of actuators adapted to be energized in patterns to engage said transmission drive direction clutches, a second plurality of reed switches adjacent each position of swivel movement of said rod with selected ones of said second reed switches positioned to close as said rod is rotated to said first and second rotary positions while at that swiveled position, circuit means connecting said second reed switches and said second actuators for energizing the actuators in patterns when predetermined reed switches are closed to set said transmission in forward and reverse drive directions, and spring means to hold said rod in each swivel and rotary position it is moved whereby the clutch engagement is varied by pushing and pulling on the handle, the drive ratio of the transmission is set by swiveling the handle and the drive direction is set by rotating said handle.

3,322,248
MOTOR AND GEARING CONTROLS OPERATE THE CLUTCH FLUID CONTROLS
Robert E. Kaptur, Birmingham, and Larry A. Kepner, Dearborn, Mich., assignors to Ford Motor Company, Dearborn, Mich., a corporation of Delaware
Filed July 27, 1965, Ser. No. 475,117
25 Claims. (Cl. 192—3.5)



1. A fluid pressure control system, comprising, an actuatable means biased to one position and movable by fluid under pressure acting thereon to a second position, a fluid supply line, a rotatable source of fluid under pressure providing an output fluid pressure that varies as a function of its speed of rotation, first and second conduit means connecting said source to said supply line and actuatable means, respectively, and control means in said conduit means for controlling the flow of fluid to said supply line and actuatable means, said control means including first and second movable open-close flow control means in said first and second conduit means, respectively, said first control means being responsive to a predetermined source pressure acting thereon to open said first conduit means, means moving said second control means, to open said second conduit means, and means operably connecting said first and second control means whereby movement of said second control means effects movement of said first control means to close said first conduit means until the attainment of a higher predetermined source pressure again opens said first conduit means.

3,322,249
MAGNETIC FRICTION COUPLINGS
Hubert E. Klinkenberg and Leroy W. Simonson, Beloit, Wis., assignors to Warner Electric Brake & Clutch Company, South Beloit, Ill., a corporation of Delaware
Continuation of application Ser. No. 385,190, July 27, 1964. This application Oct. 18, 1966, Ser. No. 595,288
11 Claims. (Cl. 192—18)

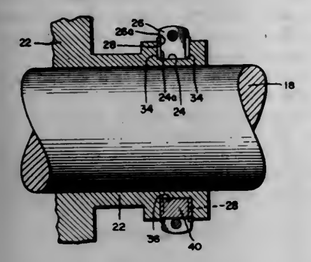


10. A drive transmission assembly having, in combination, a casing ring having an outer end adapted for rigid abutment with and bolting detachably to a support, a cylindrical pilot surface formed around the other end of said ring concentric with the ring axis, a second casing ring in the form of a cup, a second cylindrical pilot surface around the cup lip telescoped closely with said first surface and holding the rings positively in precise alinement, means detachably clamping said rings together with said outer end and said cup lip in rigid abutment, a rotary input shaft disposed in a fixed axial position in said first casing ring, a magnetic friction clutch housed within the unitary casing defined by said rings including driving and driven friction rings having opposed faces and a magnet winding mounted within said first casing ring and selectively energizable to control the axial gripping engagement of said friction rings, means mounting said driving friction ring on said shaft in a position axially fixed relative to said first casing ring, an output shaft extending through and journaled intermediate its ends in the bottom of said cup, and means on the inner end of said output shaft supporting said driven friction ring for movement axially along the shaft into gripping engagement with said driving ring while providing a friction resisting movement of the driven ring along the output shaft with a force which is less than the attractive force exerted on the driven ring by said magnet when activated but which is sufficient to maintain the axial position of the driven ring when said magnet is inactive.

3,322,250
CLUTCH SHIFTING COLLAR

Lorenzo P. Joncas, Sherbrooke, Quebec, Canada, assignor to Canadian Ingersoll-Rand Company Limited, Montreal, Quebec, Canada, a corporation of Canada

Filed Sept. 17, 1965, Ser. No. 488,034
8 Claims. (Cl. 192—98)



3. In combination with a clutch mechanism including a rotatable shaft, a first clutch member adjacent said shaft, a second clutch member operatively connected to said shaft for movement into driving engagement with said first clutch member, and a sleeve having an annular slot therein slidable upon said shaft to move said second clutch member into driving engagement with said first clutch member; the combination of:

a collar within said annular slot in said sleeve having a groove in each of its opposing sides communicating with said annular slot;

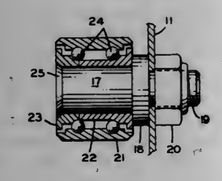
said collar cooperating with the walls of said annual slot to enclose each of said grooves within said annular slot; and

a wearing ring including a plurality of arcuate segments disposed within each of said grooves intermediate said collar and the walls of said annular slot.

3,322,251
FLEXIBLE GRAVITY CONVEYOR

Homer G. Whitfield, Northville, Mich., assignor to Condeco Automation, Incorporated, Novi, Mich., a corporation of Michigan

Filed Apr. 19, 1965, Ser. No. 449,106
7 Claims. (Cl. 193—25)

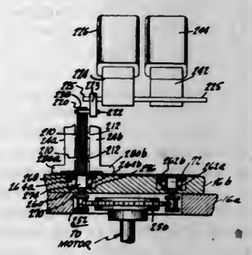


1. In a gravity chute conveyor of the class wherein flexible pretempered spring metal strip side rails are joined at installation by spacer bolts defining an enclosed chute path and wherein each of said side rails is provided with inwardly extending antifriction rollers located above the level of said connecting spacer bolts adapted to supportingly engage parts conveyed on said chute; the combination of an antifriction roller construction comprising a shouldered stem, a two-piece inner case, bearings balls and an outer race, said stem extending through and being adapted to retain said two-piece inner race in assembled relation.

3,322,252
SIDE MEMBER STRUCTURE FOR PRINT HEAD

Everett J. West, Collingswood, N.J., assignor to Radio Corporation of America, a corporation of Delaware

Filed Aug. 6, 1965, Ser. No. 477,871
8 Claims. (Cl. 197—1)



1. In a printer, the combination of:

a document path;

a platen on one side of said path having a flat surface adjacent said path;

a print head located on the opposite side of said path and including first and second spaced side members extending in a direction along the width of said path, and a plurality of printer elements disposed between said side members;

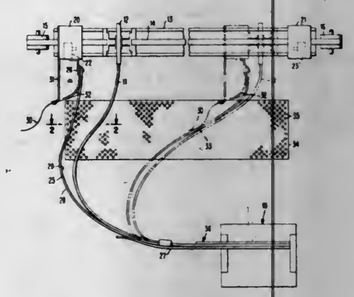
said first and second side members each terminating at one end in an elongated, flat surface facing said document path, the flat surfaces of the respective side members lying in the same plane; and

means biasing said print head toward said platen with the flat surfaces of said side members pressed firmly against said flat surface of said platen.

3,322,253
VIBRATION CONTROL APPARATUS FOR A MATRIX PRINTER

Robert C. Burns, Conklin, Tatsuo Hasegawa, Endwell, and Victor R. Simpson, Owego, N.Y., assignors to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Oct. 18, 1965, Ser. No. 497,386
11 Claims. (Cl. 197—1)



1. In a machine having an elongate printing member movable from an extended position to a retracted position, vibration control apparatus comprising:

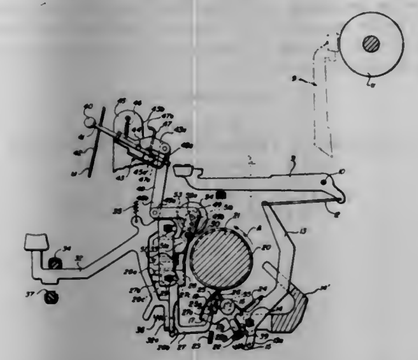
an elongate, flexible element in juxtaposition with said member when in said retracted position and having a surface which is engaged by said member upon retraction; and

a damping material secured to said element for absorbing vibrations occurring therein.

3,322,254
CAM OPERATED REPEAT MECHANISM

Leo P. Frechette, West Hartford, and Edgar G. Lizotte, Winsted, Conn., assignors to Royal Typewriter Company, Inc., Hartford, Conn., a corporation of Delaware

Filed Aug. 17, 1966, Ser. No. 573,081
3 Claims. (Cl. 197—17)



1. In a repeat mechanism for an electric typewriter having a continuously rotating power roll, and a power unit connected to drive a selected typewriter function when coupled to said power roll,

a rockable trip lever adapted when rocked to effect the coupling of said power unit with said power roll,

a depressible key lever for rocking said trip lever once for each depression, and

alternate means for rocking said strip lever at a controlled cyclic rate comprising,

cam means,

a rockable support,

means for rotatably mounting said cam means on said rockable support,

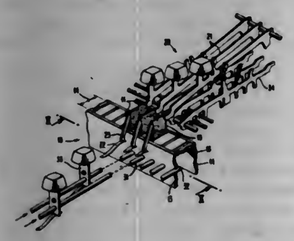
manually operable means for rocking said support thereby to couple said cam means to said power roll whereby said cam means is rotated,

said trip lever including a cam follower operable by said rotating cam means for repeatedly rocking said trip lever for as long as said manually operable means is held operative.

3,322,255
MULTI-ELEMENT PNEUMATIC ACTUATOR

John Earle Jones, Lexington, Ky., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York

Filed Jan. 24, 1966, Ser. No. 522,614
7 Claims. (Cl. 197—19)



1. An operator for a plurality of independently operable load devices and including a plurality of operably independent, pressurizeable, expansible boundary chambers and fluid inlet means coperating therewith, wherein the improvement comprises:

a plurality of independent flexible tapes, each defining a loop having a surface portion bounded by substantially parallel side edges and each defining a portion of one of the chamber boundaries,

means for operatively connecting each of said tapes in force transmitting relationship to respective ones of said plurality of load devices,

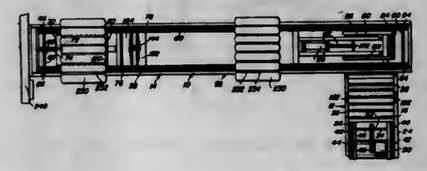
a pair of substantially parallel sidewalls common to all said tape loops and embracing the side edges thereof, said pair of sidewalls forming additional portions of the chamber boundaries, and

a stationary reaction member slidably engaging said surface portion of each of said tape loops to enclose the chamber boundary portion defined thereby.

3,322,256
BALE CONVEYOR WITH BALE ORIENTATING MEANS

Gay W. Roach, 521 Locus St., Trumann, Ark. 72472

Filed Oct. 5, 1965, Ser. No. 493,146
10 Claims. (Cl. 198—33)

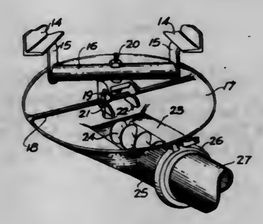


1. A cotton bale conveyor comprising a first elongated section including inlet and outlet ends and means operative to support and move a bale positioned thereon from the inlet end to the outlet end thereof, said first section including means operative to selectively rotate a bale positioned thereon 180 degrees about a horizontal axis extending transversely of said first section and also means operative to selectively rotate a bale positioned thereon 180 degrees about a vertical axis, said means being spaced longitudinally of said elongated section.

3,322,257
BULK MATERIAL TRANSFER UNIT

Dwight L. Phillips, P.O. Box 224, Damascus, Ohio 44619

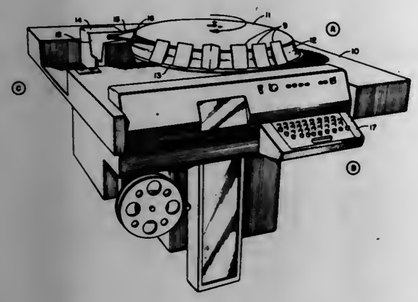
Filed Mar. 16, 1966, Ser. No. 534,914
5 Claims. (Cl. 198—119)



1. A bulk material transfer unit for use with a bulk material carrier having a discharge opening and support means below said discharge opening for holding one end of said bulk material transfer unit, said bulk material transfer unit including conveyor means having a receiving hopper on said one end thereof, said receiving hopper comprising a relatively large conical member disposed in angular relation to said conveyor unit and communicating

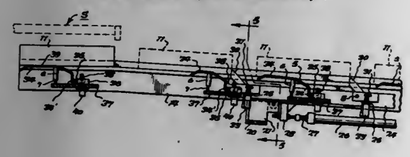
therewith, a transverse bar on said conical member, a freely rotatable member mounted on said support means and pivotally attached to said transverse bar on said hopper and means for imparting motion to said conveyor means.

3,322,258
CARD TRANSPORTING AND STACKING APPARATUS
Robert G. Wampach, Roselle, and Edward J. Zasada, Evanston, Ill., assignors to Teletype Corporation, Skokie, Ill., a corporation of Delaware
Filed Sept. 23, 1964, Ser. No. 398,602
3 Claims. (Cl. 198—209)



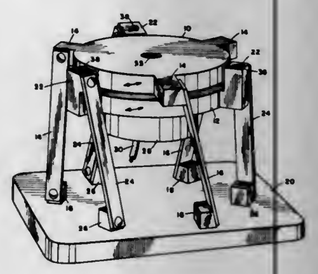
1. A rotary card transporting and stacking device including:
a rotary conveyor drum;
a lower support member mounted on the conveyor drum and including means for supporting the bottom of a card and for preventing the bottom of the card from slipping inwardly toward the center of the conveyor drum;
an upper support member positioned above and at a lesser distance from the center of the conveyor drum than the lower support member for preventing cards supported on the lower support member from falling inwardly toward the center of the conveyor drum;
an endless belt carried by the conveyor drum; and
means for causing the belt to extend outwardly from the drum along a chord of the circle formed by the outer periphery of the lower support member so that a card carried on the lower support member is rotated about its bottom surface away from the upper support member to a point at which the center of gravity of the card is farther from the center of the conveyor drum than the lower support member causing the card to fall off the lower support member under the action of gravity.

3,322,259
ACCUMULATING TRANSFER CONVEYOR
Carl J. Milazzo, Tonawanda, N.Y., assignor to Hohl Machine & Conveyor Co., Inc., Buffalo, N.Y.
Filed Feb. 1, 1966, Ser. No. 524,320
10 Claims. (Cl. 198—219)



1. An accumulating transfer conveyor comprising a conveyor frame adapted to support articles at a plurality of positions therealong, transfer means associated with said positions for advancing articles from a first position to successive next adjacent positions, means including article sensing means associated with said positions and operable in response to the presence of an article blocking one of said positions to disable the transfer means associated with the immediately preceding position, the transfer means associated with each of the remaining preceding positions being operable to advance articles to successive next adjacent positions during such disablement so long as there is a vacant position preceding the blocked position.

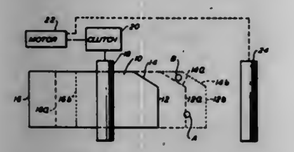
3,322,260
BALANCED VIBRATORY PARTS FEEDER
Otto K. Schwenzfeier, 171 K St., Chula Vista, Calif. 92011
Filed Feb. 7, 1966, Ser. No. 525,648
8 Claims. (Cl. 198—220)



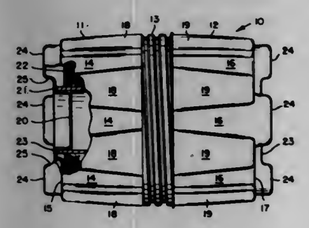
1. A balanced vibratory parts feeder comprising:
a base;
a vibrating head and a driving head adjacent thereto at least one of said heads having a parts carrying element connected thereto to move therewith;
resilient mounting means connecting both of said heads to said base for limited movement relative thereto and relative to each other;
said driving head having an electromagnetic driving unit thereon and thus spaced from said base by the resilient mounting means of the driving head, said driving head having magnetic coupling to said vibrating head;
and means to pulsate said driving unit oscillating said heads in 180 degrees out of phase relationship, said resilient mounting means accommodating such opposite oscillation so that the vibrations are not transmitted to said base.

3,322,261
ARTICLE SENSING APPARATUS
Alan K. Jensen, Livingston, N.J., assignor to Monroe International Corporation, Orange, N.J., a corporation of Delaware
Filed Feb. 14, 1966, Ser. No. 527,285
12 Claims. (Cl. 198—232)

1. An article sensing apparatus for sensing the orientation of an article as it is moved along the path of an article handling device, said article capable of bearing indicia in a predetermined location thereon, said article sensing apparatus comprising: article advancing means mounted adjacent said path for advancing said article through said article handling device; selectively operable drive means coupled to said article advancing means to selectively operate said article advancing means; first sensing means mounted adjacent said path and aligned with a first predetermined portion of said article; second sensing means mounted adjacent said path and aligned with a second predetermined portion of said article, said second sensing means displaced from said first sensing means along said path opposite to the direction of the article movement; logic means coupled to said first and second sensing means; said logic means producing a first signal after a first predetermined time when said article is sensed first by said first sensing means and then by said second sensing means indicating that the article has the desired orientation and a second signal after a second predetermined time when said article is sensed first by said second sensing means and then by said first sensing means indicating that said article has an undesired orientation; and control means coupled to said logic means and said selectively operable drive means and responsive to said second signal to stop the operation of said drive means and prevent the further advancing of said article.

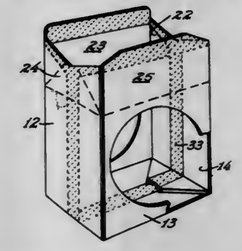


3,322,262
MOISTURE-TIGHT CONTAINER
Jose R. Puente, Rochester, N.Y., assignor to Leaming Plastics, Inc., a corporation of New York
Filed June 1, 1965, Ser. No. 460,405
8 Claims. (Cl. 206—1)



1. A moisture-tight container adapted for enclosing and supporting a hollow core on which strand material is wound, said container comprising:
(a) a pair of hollow, generally cylindrical members each of which has an open end and a closed end, and each of which is formed of thermoplastic material;
(b) a female one of said members being configured to define female threads adjacent its open end;
(c) a male one of said members being configured to define male threads adjacent its open end;
(d) said male and female threads being configured to interfere so as to form a moisture-tight seal when said members are screwed together;
(e) each of said closed ends being configured to define an internally projecting trunnion adapted to fit closely inside the respective ends of said core; and
(f) each of said closed ends being configured to define a plurality of symmetrically disposed, external projections arranged to interlock rotationally and laterally with corresponding projections on any of said members to facilitate stacking of one of said containers atop another and to prevent relative motion between any of said members of any of said stacked containers.

3,322,263
CARTONS FOR FRAGILE ARTICLES
Richard F. Gulliver, St. Paul, Minn., assignor to Waldorf Paper Products Company, St. Paul, Minn., a corporation of Minnesota
Filed Oct. 22, 1965, Ser. No. 501,555
8 Claims. (Cl. 206—45.14)



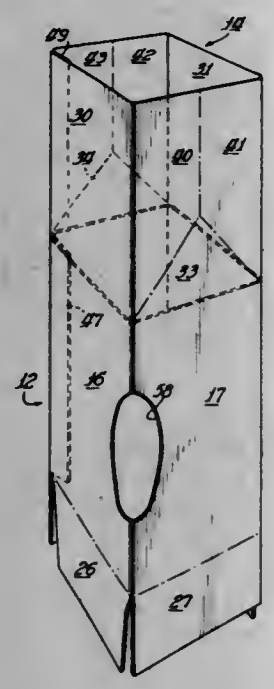
6. A carton including
a sheet of paperboard cut and creased to provide tubularly arranged side and end walls, and end closure flaps foldably connected thereto and adapted to form parallel closure walls,
a sheet of shrink film in face contact with said side and end walls as well as said closure flaps, and
means securing said film to said end walls and to said side wall closure flaps along strips of adhesion which lie completely between two spaced planes which are spaced apart a distance which is short relative to the width of said end walls, said planes being parallel to and spaced between said side walls when said closure walls are formed.

3,322,264
CARTON
William E. McNair, Atlanta, and Raymond A. Cote, Doraville, Ga., assignors to Riegel Paper Corporation, New York, N.Y., a corporation of Delaware
Filed May 20, 1965, Ser. No. 457,382
15 Claims. (Cl. 206—45.25)



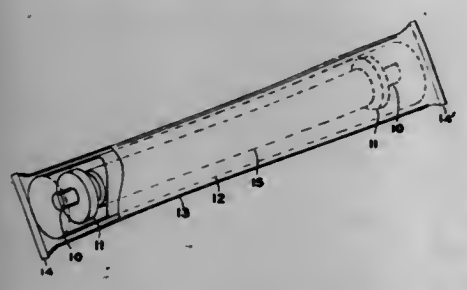
1. A condensable carton formed from a one-piece paperboard blank, comprising
(a) consecutively articulated first partial rear wall, first side wall, front wall, second side wall, and second partial rear wall panels arranged to define a rectangular tube,
(b) bottom closing means articulated to said tube at the lower extremities thereof,
(c) pairs of bellows panels formed in the front and rear of the walls of said rectangular tube,
(d) said bellows panels being collapsible to shorten the effective length of said tube, and
(e) upper and lower locking means included in one of said front and rear walls and adapted to be interlocked when said bellows are fully contracted and to maintain said tube in said effectively shortened condition.

3,322,265
RECLOSABLE PACKAGE
Peter C. Collura, Waltham, Mass., assignor to Container Corporation of America, Chicago, Ill., a corporation of Delaware
Filed Apr. 27, 1966, Ser. No. 545,716
6 Claims. (Cl. 206—45.31)



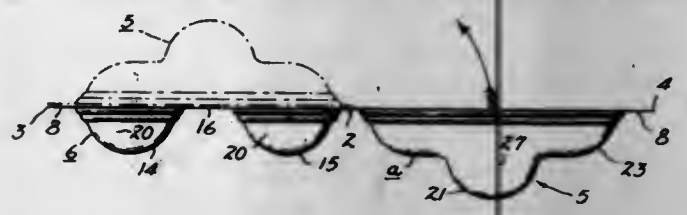
1. A reclosable package, comprising:
(a) a tubular paperboard body open at one end;
(b) an overwrap of material such as paper, film, or the like that is relatively flexible as compared to the paperboard completely covering and being bonded to the paperboard body and extending beyond the open one end thereof to define a flexible tubular extension for the paperboard body;
(c) said flexible tubular extension being adapted to be folded or rolled on itself to provide a reclosable closure for the one open end of the paperboard body;
(d) the other end of the paperboard body being closed by overlapping paperboard flaps integral with the tubular body and hinged to the corresponding end edge of said body.

3,322,266
FILM PACK FOR HEMODIALYZING MEMBRANES
John F. Lontz, Wilmington, Del., and Michael N. La Torra and John V. Petriello, North Babylon, N.Y., assignors to Kumlon Crafts, Incorporated, Arden, Del.
Filed Dec. 8, 1964, Ser. No. 416,717
3 Claims. (Cl. 206—63.2)



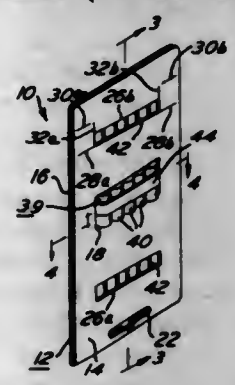
1. A packaged form of semipermeable membranes, pre-cut and pre-treated to pre-determined dimensions, comprising in combination a spool with limiting ends approximating the width of the membranes thereon in convolute form and emplaced in an inner rigid case which is in turn enclosed in a thin flexible, heat-sealable tube, said packaging containing a sterilizing fluid.

3,322,267
MULTIPLE-CAVITY COOKIE CONTAINER
Hugh R. Weiss, Montclair, N.J., assignor to The Pantasote Company of New York, Inc., New York, N.Y., a corporation of New York
Filed June 12, 1964, Ser. No. 374,636
4 Claims. (Cl. 206—65)



1. A stackable three-compartment container for packaging a multiplicity of generally circular articles of the same size comprising a single molded sheet of resinous material which may be folded back upon itself to provide two container halves of different shape that are united by an integral hinge and that fit together at the margin to define a closed container having three parallel axially-elongated compartments, the upper one of said two halves having a central generally semi-cylindrical wall portion which projects upwardly midway between the ends of the container and corrugated wall portions of lesser height on opposite sides of said central portion, said wall portions terminating in rounded trianguloidal end walls at opposite ends of the container, the lower one of said halves having two generally semi-cylindrical wall portions at opposite ends of the container which project downwardly and which have axes parallel to the axis of said first-named semi-cylindrical wall portion and spaced apart a distance greater than 3 times the radius of each of said wall portions such that, when two of such closed containers are stacked vertically, the bottom surfaces of both of the two downwardly projecting semi-cylindrical wall portions of one container engage and interlocked with the underlying container on opposite sides of the central upwardly projecting semi-cylindrical portion of said underlying container, each of said semi-cylindrical wall portions having corrugations with at least five annular grooves of a size to receive the marginal edge portions of said circular articles, said two halves being engageable with the top and bottom edge portions of said articles to hold them in place in three parallel rows when the container is closed.

3,322,268
PACKAGE FOR ELECTRICAL COMPONENTS
Joseph F. Larkin, Holland, Pa., assignor to International Resistance Company, Philadelphia, Pa.
Filed Nov. 9, 1965, Ser. No. 506,930
4 Claims. (Cl. 206—65)



1. A package of electrical components of the type having a central body portion and terminal wires extending longitudinally from the ends of the body portion comprising:
A pair of rectangular flaps of the same size and shape arranged in overlapping relation and having a pair of end edges and a pair of side edges;

said flaps having overlapping rectangular openings therethrough between the end edges of the flaps with a pair of the edges of the openings being parallel to the end edges of the flaps;

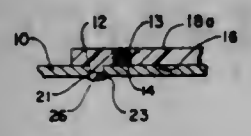
one of said flaps having a pair of tear lines therein extending from the side edges of the opening in said one flap toward one end edge of said flaps and substantially parallel to the side edges of said flaps, and a second pair of tear lines extending from said first mentioned tear lines to the side edges of said flaps;

the other of said flaps having two additional rectangular openings therein of the same width as said first openings and at opposite sides of said first openings, a first pair of tear lines therein extending from the side edges of one of said additional openings toward said one edge of said flaps parallel to and overlapping a portion of the first pair of tear lines in said one flap, and a second pair of tear lines therein parallel to and overlapping the second pair of tear lines in said one flap;

a plurality of said electrical components sandwiched between said flaps with the body portion fitting in and extending through the openings in the flaps and the terminal wires extending toward the end edges of the flaps and extending across the additional openings in said other flap; and

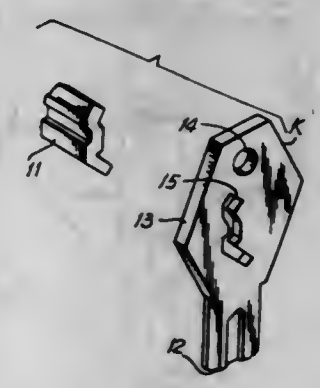
means securing the flaps together in contacting relation with the electrical components held therebetween, said tear lines permitting the package to be opened by bending the one end of the flap along said second pairs of tear lines to tear the other flap along its first pair of tear lines and then tearing the one flap along its first pair of tear lines to remove the portions of the flaps between the first pair of tear lines.

3,322,269
HOLDER FOR CYLINDRICAL OBJECTS AND PACKAGE THEREOF
Charles W. Neyer, % Dome Chemical Corporation, 3474 Cardiff Ave., Cincinnati, Ohio 45209
Filed Sept. 13, 1965, Ser. No. 486,688
1 Claim. (Cl. 206—80)



A package of cylindrical objects which comprises a one-piece resilient plate-like holder having a plurality of elongate apertures therein arranged in a row with their longitudinal axes parallel, each elongate aperture holding one object, each elongate aperture having an opening at one face of the holder of lesser width than the diameter of the object and an opening at an opposite face of the holder of greater width than the diameter of the object and greater length than the length of the object, means at said opposite face of the holder projecting inwardly from a side of said opening to retain the objects in the elongate apertures and being movable from over said objects to release the same upon flexing said holder, and a pair of spaced lugs on the first face of the holder, each of the lugs having an outwardly extending projection spaced from said first face, and a card supporting the holder, the card having openings therein receiving the lugs, the projections engaging the side of the card remote from the side engaged by said first face of the holder and the card's resistance to flexing supplementing the resistance of the holder to flexing and the card linkingly and bracingly cooperating with the lugs to hold same in predetermined relative orientation to provide mechanical linkage cooperation between the holder and the card further resisting flexing of the holder, whereby the holder is mounted on the card to retain the objects in the package.

3,322,270
KEY MERCHANDISING ASSEMBLY AND KEY BLANK THEREFOR
Mark T. Basseches, Pleasantville, and Paula T. Basseches, Scarsdale, N.Y., assignors to Independent Lock Company, Fitchburg, Mass., a corporation of Massachusetts
Filed May 5, 1966, Ser. No. 547,846
3 Claims. (Cl. 206—80)



1. An article of manufacture comprising a key blank display member, a plurality of key support means extending from said display member, said support means each having a different cross sectional configuration from the cross sections of the other said support means, a plurality of groups of lock key blanks having head portions and blade portions, the blade portions of the blanks of each said group having a cross sectional configuration which matches the configuration of one of said support means, and a keyway aperture formed in the head portions of said key blanks, the aperture in each said blank being configurated closely to match the cross sectional outline of the blade portion of said blank, said blanks being supported on said display member with a different support means extending through the keyway apertures of each group, said keyway apertures of the keys of any said group being of a size to prevent the passage through said apertures of all but a selected one of said supports, whereby key blanks may not be inadvertently mounted on support means, the cross-sectional configuration of which does not match the cross-sectional configuration of the blade portion of such blank.

3,322,271
REMOVAL OF STALK FROM MANUFACTURED TEA
Harold Douglas Edwards, 2 Minehead Road, London, England
No Drawing. Filed Apr. 20, 1964, Ser. No. 361,227
Claims priority, application Great Britain, May 16, 1963, 19,508/63
14 Claims. (Cl. 209—2)

1. A process for producing a residual tea fraction enriched in leaf content from a manufactured tea consisting of a mixture of fired tea leaf and stalk in which the particles of the tea mixture are of various densities and one fraction of the tea mixture which is less than a predetermined density is predominantly stalk, which comprises

immersing the mixture in a volatile organic liquid medium of said predetermined density whereby said one fraction preferentially floats therein, and said residual tea fraction sinks therein,

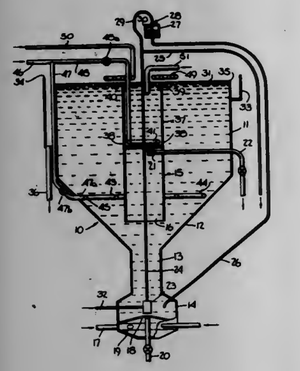
separating said one fraction and the liquid in contact therewith from the residual tea fraction and the liquid in contact therewith,

and recovering the two solid fractions from the portions so separated.

3,322,272
FLOATATION AND SIZE CLASSIFICATION OF SOLIDS

Robert D. Evans, Pierce, and Harvie W. Breathitt, Jr., Lakeland, Fla., assignors to Continental Oil Company, Ponca City, Okla., a corporation of Delaware

Filed June 24, 1964, Ser. No. 377,569
4 Claims. (Cl. 209—12)



1. Apparatus for classifying a liquid flotation reagentized pulp of mineral value particles admixed with waste particles into a floated portion highly enriched in one kind of said particles and a non-floated portion highly enriched in the other kind of said particles, the non-floated portion being further classified into fractions on a particle size basis, comprising means adapted to accommodate a single body of liquid, feed well means provided in the upper portion of said body of liquid, said feed well means being provided with a bottom outlet, means for introducing said reagentized pulp into said feed well means, means for creating turbulence and fluid shear in the region of introduction of said reagentized pulp within said feed well means, first means for producing a supply of fine air bubbles within said feed well means below the region of introduction of said reagentized pulp for flotation of said reagentized floatable particles, hydraulic classifying means located at a lower portion of said body of liquid comprising upwardly open lower column means, spaced opposed downwardly open upper column means, said columns defining therebetween means for the entrance of non-floated particles descending from above, second means producing a supply of fine air bubbles in the portion of said body of liquid surrounding said upper column means and positioned intermediate said first means for producing a supply of fine air bubbles and the opening of said upper column means, liquid supply means at said lower column means for moving liquid from said lower column means to said upper column means, means for removing faster-settling particles from said lower column means, and means for removing slower-settling particles from said upper column means.

3,322,273
ROTARY BIN SORTER

Russell O. Bailey, Houston, Tex., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Filed Mar. 24, 1964, Ser. No. 354,210
5 Claims. (Cl. 209—74)

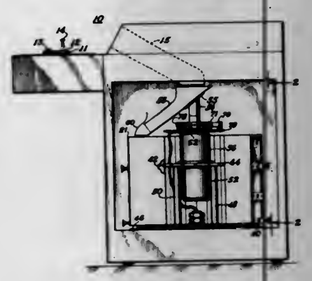
1. A multiple-bin sorter system responsive to any one of a plurality of categorizing signals which comprises:

(a) a plurality of bins disposed in a circular array,

(b) a motor mounted at the axis of said array with a drive shaft extending above said array,

(c) a spout supported on said driveshaft extending radially over the zone occupied by the tops of said bins and rotatable upon energization of said motor to move sequentially into registration with said bins to direct articles thereto,

(d) a fixed support mounted adjacent to said spout having normally open switches mounted thereon in a circular array and in number corresponding with the number of said bins,



(e) a control and energizing circuit for said motor which includes de-energization means operable upon the closure of one of said switches,

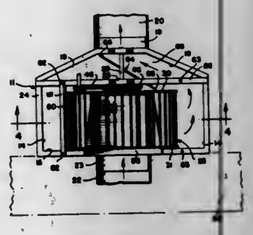
(f) means supported on said driveshaft for rotation therewith in proximity to said switches for closing said switches sequentially as said spout is rotated, and

(g) means responsive to a categorizing signal for energizing a circuit leading to said one of said switches to de-energize said motor when said one of said switches is closed.

3,322,274
SIZE GRADER FOR EASILY BRUISED ARTICLES

Reed F. Fox, Bryan, Ohio, assignor to Fox Bros. Mfg., Bryan, Ohio, a partnership

Filed June 28, 1965, Ser. No. 467,507
10 Claims. (Cl. 209—86)

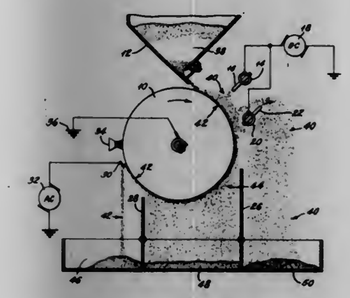


10. A size grader for easily bruised globular articles, comprising uniformly spaced members providing a wall having openings permitting the passage of smaller than grade size articles but slightly smaller than grade size articles, means conducting a moving stream of water carrying said articles in suspension through said wall at such velocity as to cause grade size articles suspended therein to become wedged in said openings, means elevating said walls to lift said wedged in grade size articles above said stream of water and to cause said wedged in articles to fall from said wall and means for catching such fallen articles.

3,322,275
HIGH TENSION SEPARATION OF MATERIALS

Robert L. Breakiron and William P. Dyrenforth, Jacksonville, Fla., assignors to Carpco Research & Engineering, Inc., Jacksonville, Fla., a corporation of Florida

Filed July 10, 1964, Ser. No. 381,772
14 Claims. (Cl. 209—127)

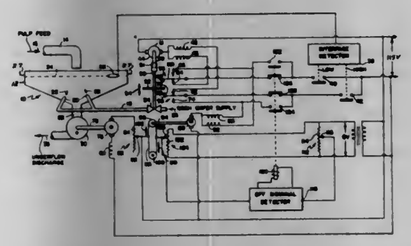


1. A method for effecting the separation of a particulate mixture containing particles of varying conductivity a substantial quantity of which are of a mesh size of —200 which comprises subjecting the mixture while disposed on a grounded conductive surface to a spray of mobile ions produced by a corona discharge pulsed at a rate of between about 150 to about 800 pulses per second, removing the mixture from the spray of mobile ions, and separately collecting the particles pinned to the grounded conductive surface by the mobile ions and the particles not pinned to the grounded conductive surface by the mobile ions.

3,322,276
INTERFACE CONTROL SYSTEM FOR HYDROSEPARATORS

John R. Riede, White Bear Lake, and John L. Hill, North St. Paul, Minn., assignors to Ramsey Engineering Company, St. Paul, Minn., a corporation of Minnesota

Filed Apr. 14, 1964, Ser. No. 359,591
8 Claims. (Cl. 209—158)



1. A control system for maintaining a desired interface level in hydroseparators comprising:

(a) means for detecting the interface level in a hydroseparator;

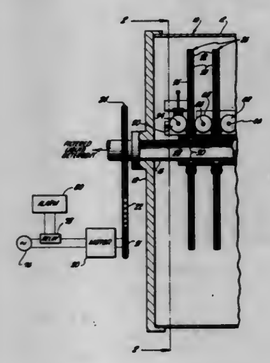
(b) means responsive to said detecting means for increasing the rate of flow of wash water to said hydroseparator when the interface has fallen below said desired level and decreasing the rate of flow of wash water to said hydroseparator when the interface has risen above said desired level between predetermined upper and lower limits, respectively, and

(c) means controlled by said increasing and decreasing means for decreasing the rate of underflow from said hydroseparator when said upper limit is reached and increasing said underflow when said lower limit is reached.

3,322,277
METHOD AND APPARATUS FOR FILTERING A LIQUID CONTAINING CAKE-FORMING SOLIDS

Arthur E. Pearson, Jr., Anaheim, Calif., and Herbert N. Haberstroh, Cleveland, Ohio, assignors, by mesne assignments, to Central Hadley Corporation, Los Angeles, Calif.

Filed Oct. 29, 1963, Ser. No. 319,878
2 Claims. (Cl. 210—77)



1. A method for filtering a liquid with cake-forming solids suspended in it, the method comprising disposing a rotatable filter leaf in the liquid with the suspended solids, disposing an antibridging bar across at least one face of the filter leaf, the bar extending from the periphery of the leaf to a point closely adjacent the axis of rotation of the leaf, the bar being substantially parallel to and spaced from the said face of the leaf a distance equal to the desired thickness of a filter cake on the face at the end of a filtering run, forcing liquid into the filter leaf to build up a filter cake on the said face of the leaf, rotating the leaf relative to the bar with an electric motor while the liquid is forced into the leaf so that substantially all of the said face of the leaf sweeps past the bar to prevent the buildup of an undisturbed filter cake of a thickness greater than the distance between said face and the bar, and sensing the power delivered to the motor to determine when the filter cake is of a thickness substantially equal to the distance between the bar and the said face of the leaf.

3,322,278
METHOD AND APPARATUS FOR CHANGING SPEED RATIOS IN LAUNDRY MACHINES

Albert D. Ishoy, Hartford, and Raymond M. Goodman, Benton Harbor, Mich., assignors to Whirlpool Corporation, Benton Harbor, Mich., a corporation of Delaware

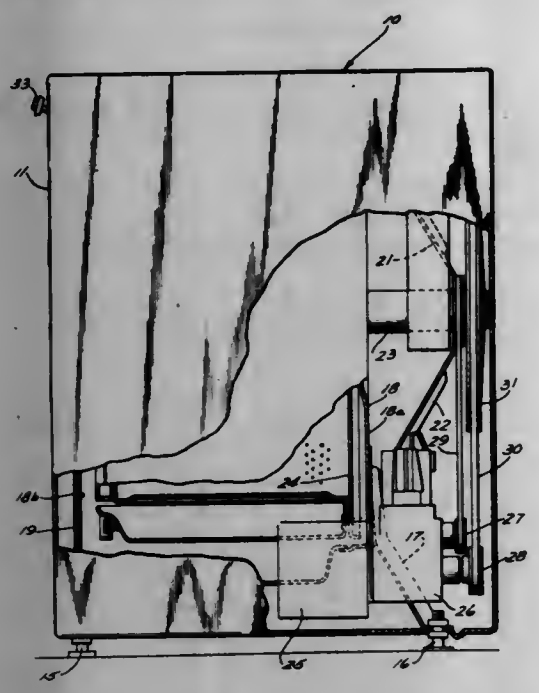
Filed June 9, 1964, Ser. No. 373,776
9 Claims. (Cl. 210—78)

1. The method of changing drum speeds in a multiple speed laundry device which includes a driven drum, a multiple speed transmission, a pneumatic clutch in said transmission, a motor powering said drum through said transmission, and a pneumatic compressor supplying air to said clutch, said method comprising:

rotating said drum at a low extraction speed to effect spinning of fabrics within said drum,

de-energizing said pneumatic clutch to interrupt the power supplied from said motor to said drum,

changing said transmission to a higher speed ratio while said clutch is disengaged,
re-energizing said pneumatic clutch, and



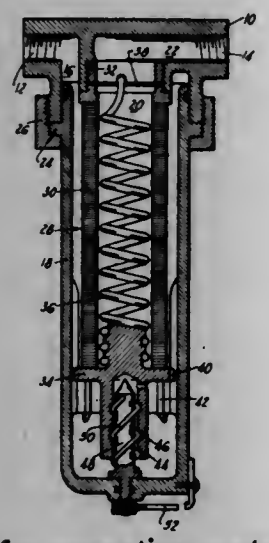
gradually increasing pneumatic pressure to gradually transfer power to said high speed ratio.

3,322,279

FILTER CONDITION INDICATOR DEVICE

Walter Kasten, Madison Heights, Mich., assignor to The Bendix Corporation, Madison Heights, Mich., a corporation of Delaware

Filed July 15, 1965, Ser. No. 472,134
8 Claims. (Cl. 210—90)



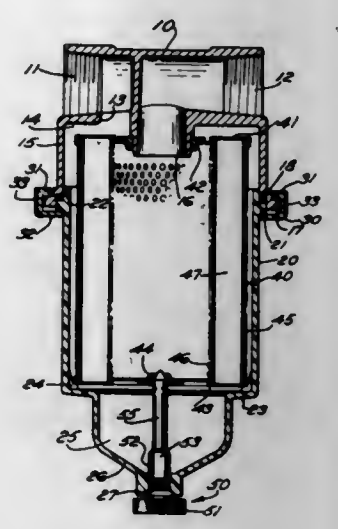
1. A filter unit for separating contaminants from a fluid flowing therethrough comprising a housing having inlet and outlet passage means, an edge-type compressible tubular filtering element located in said housing between said inlet and outlet passage means so that the outside thereof communicates with said inlet passage means and the inside thereof communicates with said outlet passage means, said filtering element having one end thereof abutting said housing, an endplate for closing the other end of said element, said endplate having one side thereof communicating with said inlet passage means and the other side thereof communicating with said outlet passage means so that increases in the pressure differential across said tubular filtering element will cause compression of said element from a first length to a shorter second length, and indicating means operatively connected to and responsive to movement of said endplate for indicating compression of said filtering element to said shorter second length.

3,322,280

LIQUID FUEL FILTER AND WATER SEPARATOR

Wilfred Taylor, Stratford, Ontario, Canada, assignor to Fram Corporation, Providence, R.I., a corporation of Rhode Island

Filed June 18, 1964, Ser. No. 376,192
1 Claim. (Cl. 210—94)



A filter and water separator for liquid fuels comprising

a supporting body having an inlet and outlet thereto,
a bowl removably seated and sealed against and depending from said body, said bowl providing a main vertical internal surface and having at its bottom a water collection portion, said portion having an opening through a lower wall thereof,
a filter and water separating cartridge removably carried within said bowl with its outer wall spaced from said main surface to provide a vertical flow space, said flow space communicating with said inlet and with said water collection portion, the inner wall of said cartridge communicating with said outlet, said cartridge having an opening at its bottom through which said inner wall communicates with said water collection portion, and
a plug movably disposed in said bowl and having first and second portions for respectively closing said openings in said cartridge and bowl, said plug having a first position in which said openings are completely closed, and at least a second position in which said openings are open, said plug in said second position having said first portion adjacent said opening in said cartridge and said second portion partially closing said opening in said bowl, said plug having a path of continuous movement in said bowl between its said position.

3,322,281

FILTER ASSEMBLY HAVING PLURAL CHECK VALVES

William K. Gulick, Glendale, Ohio, assignor to General Electric Company, a corporation of New York

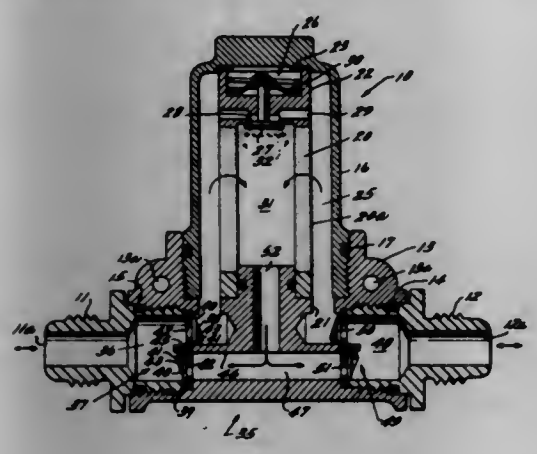
Filed Aug. 7, 1964, Ser. No. 388,160
1 Claim. (Cl. 210—134)

A filter assembly for use in a bidirectional fluid flow system, said filter assembly comprising:

a casing having a pair of openings for bidirectional passage of fluid therethrough, one being an upstream opening and the other being a downstream opening, dependent on the direction of fluid flow through the system,
a chamber formed in said casing,
a filter element disposed in said chamber and separating inlet and outlet chambers therein,

inlet passageways respectively providing flow paths from said openings to said inlet chamber,

check valves respectively disposed in each of said inlet passageways for selectively permitting flow from the upstream opening to the inlet chamber and preventing flow from the inlet chamber to the downstream opening whereby fluid selectively flows from the upstream opening to said inlet chamber and through said filter element to said outlet chamber thereby causing a decrease in pressure as the fluid flows through said filter element,



outlet passageway means providing flow paths from said outlet chamber to said openings,

check valves respectively disposed in said outlet passageways, selectively permitting flow only from said outlet chamber to said openings, the check valve in the outlet passageway leading to the upstream opening being positively maintained closed by the pressure drop across said filter element,

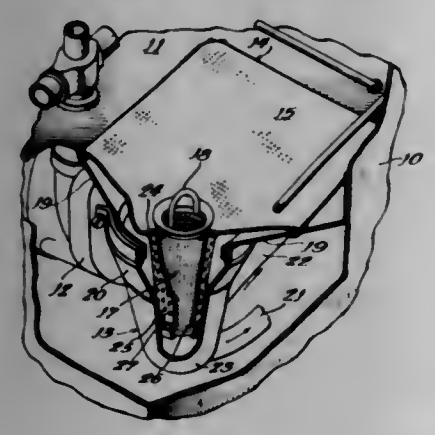
whereby there is unidirectional flow of fluid through said filter element regardless of the direction of fluid flow through the system.

3,322,282

FILTERING APPARATUS

John B. Lyman, Minneapolis, Minn., assignor to Whirlpool Corporation, a corporation of Delaware

Filed Mar. 6, 1963, Ser. No. 263,241
3 Claims. (Cl. 210—137)



1. Filtering apparatus comprising:

means for containing a liquid carrying entrained solids;

means defining a collecting space;

means forming a first path for conducting liquid from said containing means to said space and having an inlet opening to said containing means and a preliminary filter across said inlet;

means forming a second path for conducting liquid from said containing means to said space in parallel with said first path and having an inlet which opens to said containing means for receiving the liquid carrying entrained solids from the containing means including liquid flowed over said preliminary filter to wash solids filtered from the liquid flowed in said first path and collected on said filter into said second path means inlet, said second path means further including

a secondary filter thereacross spaced from said second path means inlet and defining therebetween a filter chamber portion, and

foraminous pressure drop means between said secondary filter and said collecting space for reducing the velocity of liquid flow through the secondary filter thereby to prevent excessive wedging of filtered solids into said secondary filter, said secondary filter means defining the smallest size openings in said second path thereby substantially precluding filtering by said pressure drop means; and

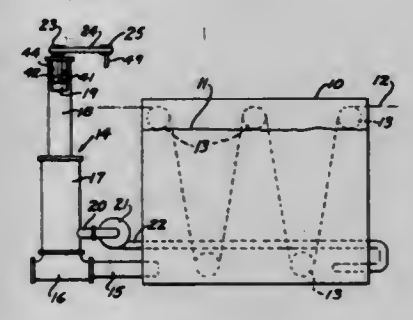
means for selectively causing flow of liquid through said chamber over said filter to a drain outlet thereby to selectively wash the retained filtered solids from the secondary filter.

3,322,283

SEPARATOR APPARATUS FOR FLUID ENTRAINED SOLIDS

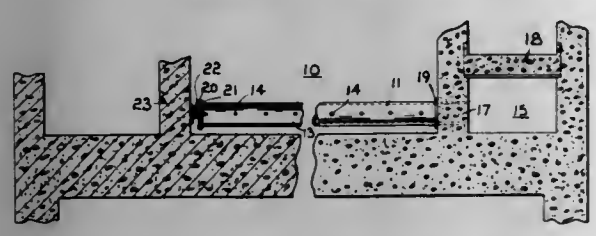
Momir Babunovic, Kirkwood, and Virgil Melvin Stapf, St. Louis, Mo., assignors to Barry-Wehmiller Company, a corporation of Missouri

Filed Mar. 26, 1964, Ser. No. 354,899
5 Claims. (Cl. 210—167)



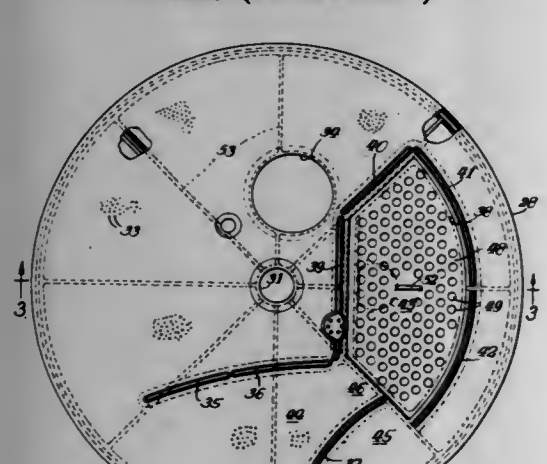
2. A system for separating insolubles from fluid including: a tank for the fluid in which insolubles collect; means forming a fluid flow conducting passage exterior of said tank and having a lower inlet end connected to said tank adjacent the bottom and a higher end above the level of the fluid in the tank formed with a discharge opening, said flow conducting means having a section adjacent its lower inlet end which is perforated; casing means enclosing said perforated section and having an outlet above said lower inlet end; conduit means connected between said casing outlet and said tank; baffle means mounted in said casing adjacent said perforated section in position to divide said casing into at least two spaces, one of said spaces being remote from said perforated section and another of said spaces being occupied by said perforated section and acting to collect fluid passed through the perforations of said perforated section and maintain a body of fluid submerging said perforated section, said baffle means having an upper end which is free of engaging said casing to provide direct communication between said spaces so that fluid freed of insolubles can flow over said upper end of said baffle means and into said remote space for return to said tank in said conduit means; and power means operable in said passage forming means to engage insolubles moved with the fluid into said perforated section and move the same toward said higher discharge opening beyond the reach of the fluid.

3,322,284
FILTER FLOORS
Richard P. Moore, Argosy House, Spilsbury St., Germiston, Transvaal, Republic of South Africa
Filed Feb. 18, 1964, Ser. No. 345,695
Claims priority, application Republic of South Africa, Feb. 22, 1963, 63/755
2 Claims. (Cl. 210—274)



1. A filter floor having distributing laterals traversing the plan area of the filter and performing the dual function of air and water distribution by means of suitably spaced orifices, wherein each lateral consists of a single pipe having the water orifices arranged along its underside and the air orifices arranged along each of its side walls and on the horizontal centre plane of the pipe.

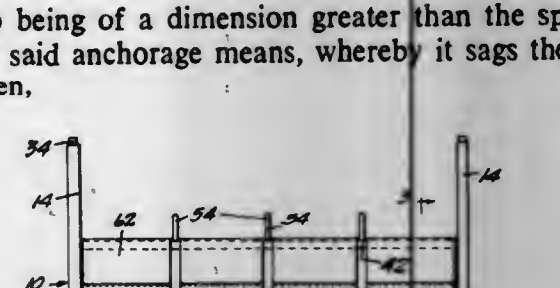
3,322,285
FILTER FOR WASHING APPARATUS
Charles R. Lopp, White Bear Lake, Minn., assignor to Whirlpool Corporation, a corporation of Delaware
Filed Jan. 5, 1965, Ser. No. 423,468
7 Claims. (Cl. 210—314)



1. In a washing apparatus having foraminous means for filtering from washing liquid matter larger than a preselected size and providing controlled delivery of said matter, said foraminous means having a first portion provided with openings having a size smaller than said preselected size, and a second portion provided with openings having a size larger than said preselected size, the improvement comprising upstanding wall means carried by said foraminous means and extending across at least a portion of said foraminous means for guiding a major portion of the washing liquid carrying said matter from over said first portion indirectly to over said second portion and a minor portion of the washing liquid carrying said matter from said first portion directly to over said second portion for directing said matter through the openings of said second portion.

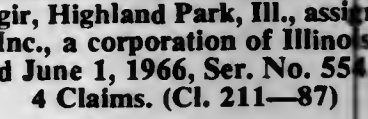
3,322,286
GREEN TIRE TRUCK
Rowland L. Sylvester, 962 Riverside Drive, South Bend, Ind. 46616
Filed Mar. 29, 1965, Ser. No. 443,570
6 Claims. (Cl. 211—24)

1. A green tire carrier comprising
a rigid frame having a bed and a superstructure,
a flexible web anchored to said superstructure adjacent opposite margins thereof by spaced rigid means to define a tree-supporting sling spaced above said bed,
said web being of a dimension greater than the spacing of said anchorage means, whereby it sags therebetween,



at least one web anchoring means being removably mounted on said superstructure, and
anchor positioning means on said superstructure defining a plurality of seats selectively engageable by said removable anchoring means.

3,322,287
FLEXIBLE APERTURED PANELS
Meyer J. Ragir, Highland Park, Ill., assignor to Selfix, Inc., a corporation of Illinois
Filed June 1, 1966, Ser. No. 554,521
4 Claims. (Cl. 211—87)

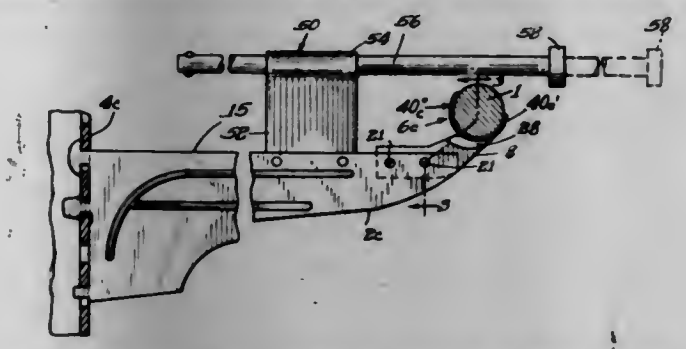


1. A flexible apertured panel adapted for mounting on a surface and designed to support articles on hook elements attached thereto, said panel being formed from a thin sheet of flexible material having front and rear faces whereby said panel is adapted to conform to the shape of a surface on which it is mounted, and adhesive means provided on said rear face for mounting said panel on a surface, said panel defining a plurality of raised spaced apart hollow rectilinear embossments arranged in rows and columns and projecting out from said front face, the edges defining the longer sides of any one such embossment being perpendicular to edges defining the longer sides of next adjacent embossments in the row and column in which said one embossment is located.

3,322,288
CLOTHING DISPLAY RACK ASSEMBLY
Albert Mayer, Chicago, Ill., assignor to Capitol Hardware Mfg. Co., Chicago, Ill., a corporation of Illinois
Filed Apr. 25, 1966, Ser. No. 544,723
9 Claims. (Cl. 211—176)

1. A hangrod adapter to be secured to the forward end of a horizontally extending bracket to be supported from an upright, the adapter comprising: a base portion including means for securing the base portion to a bracket and a flexible hangrod receiving portion including flexible confronting front and rear sections forming a horizontally extending upwardly facing channel open for its entire length, the upper portions of said confronting front and rear sections defining the upper extremity of the channel adapted to overlap the widest portion of a hangrod to lock the same in place thereon, and at least one of said confronting sections being engageable by the hangrod as the hangrod is being inserted into said channel and being

flexed outwardly thereby to widen the opening into the channel to form clearance for the reception of the hang-



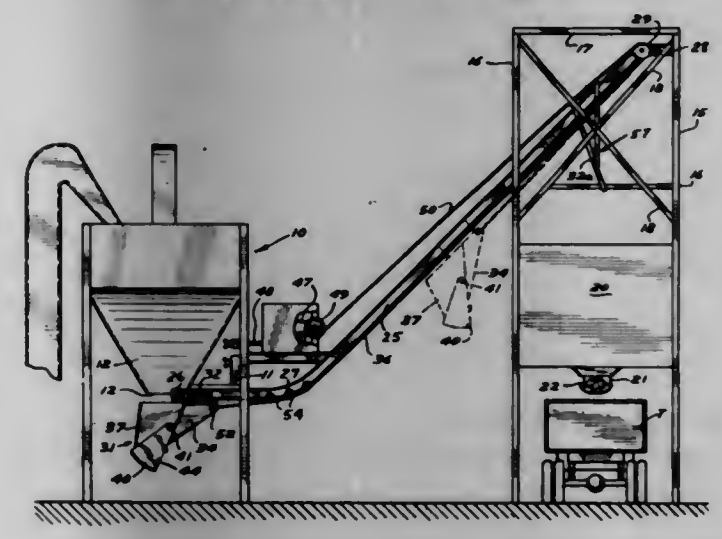
rod, said flexed section then snapping snugly against the hangrod to hold the same immovably in the channel.

3,322,289

LOADING, STORAGE AND DISPENSING APPARATUS FOR USE WITH A BITUMINOUS MIXING PLANT

Elmer R. Wendell, 7515 Auto Club Road, Bloomington, Minn. 55431, and Palmer G. Peterson, 2406 Hayes Court, Burnsville, Minn. 55378

Filed June 30, 1965, Ser. No. 468,264
6 Claims. (Cl. 214—41)



1. In a storage and dispensing apparatus for a bituminous mixing plant having a downwardly opening discharge chute spaced above the ground for movement of a transport vehicle into a first loading station thereunder, a storage hopper supported over the ground in spaced relation to the plant and having a second loading station thereunder, an elongated track having one end disposed adjacent the open end of the chute and then extending outwardly and upwardly over the storage hopper in spaced relation thereabove, a mix carrier bucket mounted on the track for movement therealong between a first position under the chute to receive mix therefrom and a second position over the hopper, power means connected to the bucket for moving the bucket from said first to said second position, and means for dumping the bucket in said second position to discharge the contents thereof into the hopper.

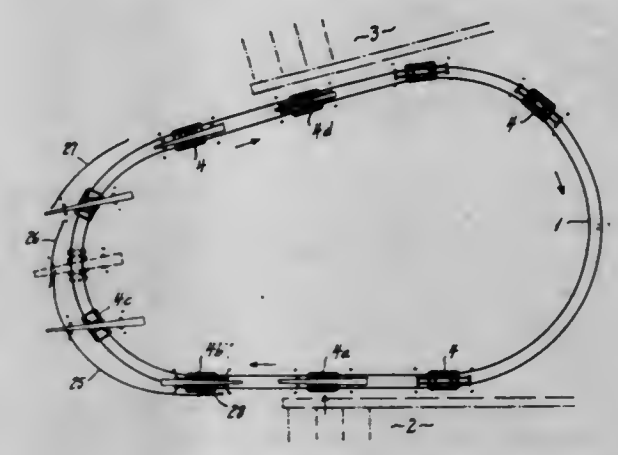
3,322,290

CONVEYING AND ORIENTING APPARATUS

Gunnar Lennart Ahlstedt, Alfredshem, Sweden, assignor to Mo och Domsjo Aktiebolag, Ornskoldsvik, Sweden, a corporation of Sweden

Filed Feb. 24, 1965, Ser. No. 435,007
Claims priority, application Sweden, Feb. 24, 1964, 2,206/64
6 Claims. (Cl. 214—62)

1. An apparatus for orienting objects conveyed from a loading station to a delivery station comprising, in combination, a track leading from the loading station to the delivery station; a relatively long fixed guide disposed in proximity to the track; a conveyor running on the track and having a portion rotatably mounted about a generally vertical axis relative to the track and adapted to carry an object along the track from the loading station to the delivery station; retaining means extending



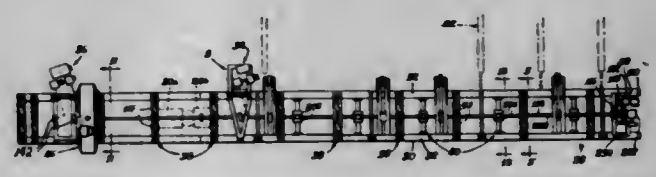
from the conveyor and operatively connected to the rotatably mounted portion thereof for engaging the guide to retain the rotatably mounted portion in a selected orientation relative to the track; and a movable deflector for selectively controlling engagement of the guide and the retaining means to thereby control such selected orientation.

3,322,291

PIPE HANDLING CONVEYOR

Carl K. Smith, Mathis, Tex., assignor to Amsted Industries Incorporated, Chicago, Ill., a corporation of New Jersey

Filed Aug. 22, 1966, Ser. No. 574,174
23 Claims. (Cl. 214—339)



1. Apparatus of the character disclosed for conveying pipe helically along an axis, comprising means for so moving the pipe and supporting rollers including a plurality of pairs of rollers spaced along said axis, those rollers of each pair being on opposite sides of the vertical plane containing the axis of the pipe, whereby the rollers form means for supporting the pipe, and means for adjusting the rollers of each pair toward and from each other, and consequently thereto, adjusting the rollers about axes perpendicular to the axis of the pipe and thereby aligning the rollers according to different predetermined helical paths.

3,322,292

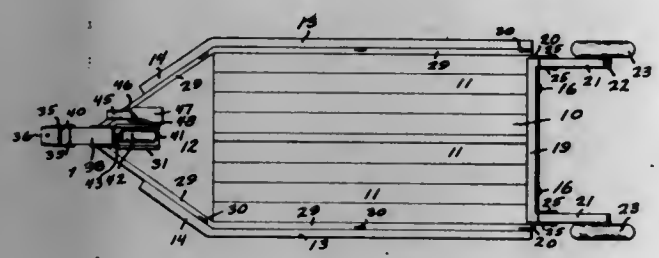
PORTABLE HYDRAULIC LIFTING DEVICE

Keith R. Bogh and Billy R. Bogh, Le Mars, Iowa 51031

Filed Aug. 30, 1965, Ser. No. 483,437
2 Claims. (Cl. 214—512)

1. A portable hydraulic lifting device comprising a flat horizontally positioned platform, a hydraulic lifting unit mounted at the rear of said platform, said hydraulic lifting unit including a pair of support members attached

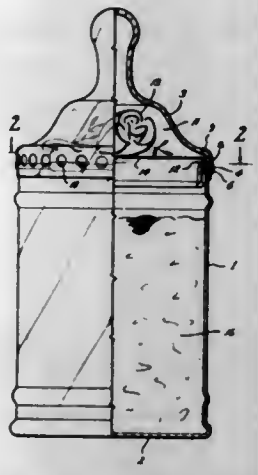
to said platform, arms pivotally attached to said support members, said arms including portions positioned coplanar with said arms and substantially at right angles thereto, wheels journalled at the outer ends of said arms, a transverse bar attached to the ends of said portions, a pair of hydraulic cylinders pivotally attached to the rear of said platform and being positioned substantially adjacent to said arms, piston rods operated by said cylinders, said piston rods being pivotally attached to said transverse bar, whereby movement of said piston rods outwardly will raise said arms and lower said wheels to ground engaging position to thereby raise said platform, sloping side members attached to said platform over which devices to be transported can be driven onto said platform,



a further hydraulic lifting unit mounted at the forward end of said platform said further hydraulic lifting unit including a rigid member attached to said platform, a lower substantially triangular member pivoted to said rigid member, a hydraulic piston unit pivotally attached to a corner portion of said triangular member, a channel member pivotally attached to said rigid member and parallel to said substantially triangular member, a hitching member pivotally attached at the ends of said substantially triangular member and said channel member, said hitching member having a horizontally positioned slot for receiving hitching portions of a drawing vehicle.

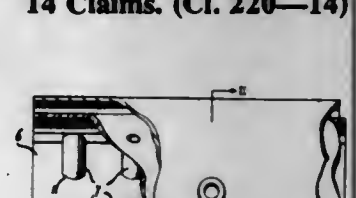
3,322,293
CONTAINER FOR INSTANT OR PRECOOKED RICE AND THE LIKE
Lawrence Lynn and Roy M. Anderson, both of Houston, Tex., assignors to Riviana Foods Inc., a corporation of Delaware
Filed May 24, 1965, Ser. No. 458,021
8 Claims. (Cl. 215—56)

1. A container for instant rice and the like comprising,
a hollow upwardly extending lower member closed at its lower end,
an upper lid member having a downwardly-facing shoulder adapted to engage the upper end of said lower member,
each of said members being made of an impervious material,
a plurality of spacers carried by said upper end of said lower member and circumferentially spaced from each other thereon,
each of said spacers including a downwardly-extending portion adjacent the exterior surface of said lower hollow member,
said shoulder of said upper member resting on said spacers,
whereby a plurality of spaces are defined by said shoulder, upper end and spacers, and
a length of tape wrapped around said upper and lower members, with the upper edge of said tape overlying and secured to a portion of said upper member and the lower edge of said tape overlying said portions of said spacers and secured to said lower member for a portion of the distance between at least two of said spacers,
whereby a plurality of spacers are defined by said spacer portions, tape and lower member, and air



may pass between the interior and exterior of said container through said pluralities of spaces.

3,322,294
ANTI-COMBUSTION CONTAINER
Gyula Nemeth, 89 Wilcox St., Toronto, Ontario, Canada
Filed Jan. 25, 1965, Ser. No. 427,812
14 Claims. (Cl. 220—14)

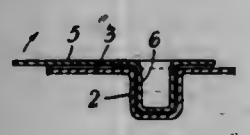


1. An anti-combustion container for preventing the combustion of combustible fluid comprising a pair of normally non-communicating inner and outer chambers in spaced relation to one another, the inner chamber normally containing said combustible fluid therein, and the outer chamber normally containing a non-combustible fluid about at least a portion of said inner chamber, said inner chamber being frangible and adapted upon said container being subjected to impact to permit said non-combustible fluid to mix with said combustible fluid to render the latter non-combustible, said inner chamber including an interior assembly of mutually intersecting partitions defining a plurality of cells, all of said partitions being foraminous to provide intercommunication between adjacent cells to ensure the free flow of said fluid within said container, said partitions being formed of substantially rigid, non-inflammable, non-corrosive, non-absorbing, heat-conducting and substantially chemically inert or chemically compatible materials.

3,322,295
SHEET METAL JOINT AND PULL TAB CONNECTION
Derek Walter Jones, Blackwater, near Camberley, Frederick David Miles, Beaconsfield, and Orlebar Malcolm Bruce Payne, Radlett, England, assignors to The British Aluminium Company Limited, London, England, a British company
Filed Dec. 18, 1964, Ser. No. 419,300
Claims priority, application Great Britain, Dec. 23, 1963, 50,667/63
4 Claims. (Cl. 220—54)

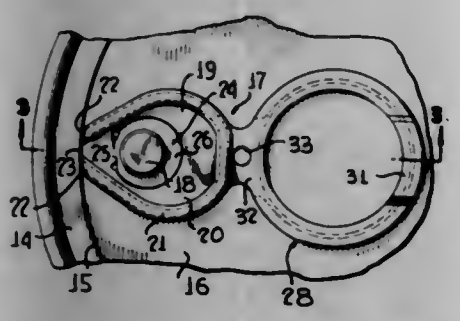
3. A metal container having an end wall with a first hollow boss deformed out of the general plane of said end wall without interrupting the continuity of said end wall, a

pair of spaced weakened line portions formed in said end wall to embrace said first hollow boss and define a tear strip, a tab overlying said end wall and carrying a second hollow boss, one of said first and second hollow bosses extending as a relatively close fit into the other of said first and second bosses and said bosses being relatively dimensioned such that displacement of said tab about an



axis parallel to the general plane of said end wall and substantially normal to the direction of said tear strip produces mechanical engagement of said first and second bosses tending to lift said first boss and tear said weakened line portions and an adhesive bond uniting said first and second hollow bosses.

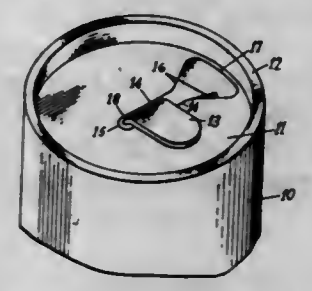
3,322,296
EASY OPENING CONTAINER
Nick S. Khoury, Chicago, Ill., assignor to Continental Can Company, Inc., New York, N.Y., a corporation of New York
Filed Feb. 19, 1965, Ser. No. 434,058
21 Claims. (Cl. 220—54)



1. An easy opening container member comprising a panel having a weakening line defining a removable panel portion, and a pull tab for facilitating the initial rupture of said panel and the tearing out of said panel portion, said pull tab including a tab body, a mounting ear attached to said tab body, and means permanently securing said mounting ear to said panel portion with one end of said tab body aligned with an adjacent portion of said weakening line whereby when the opposite end of said tab is moved away from said panel portion said one tab end will exert a pressure on said panel portion along said weakening line, said tab having an uninterrupted peripheral reinforcing rib extending along each side thereof from said one end beyond said mounting ear, said reinforcing rib having terminal ends disposed at said one tab body end in spaced relation and defining at said one end a stiffened nose for applying a localized pressure on said panel portion.

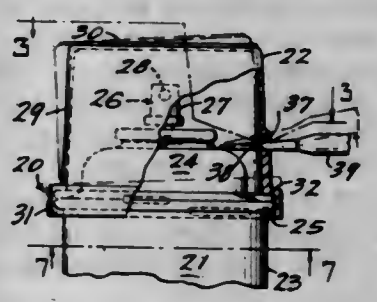
3,322,297
CAN WITH INTEGRAL PULL TAB
Ralph J. Stolle, Lebanon, and Elton G. Kaminski, Sidney, Ohio, assignors to The Stolle Corporation, Sidney, Ohio, a corporation of Ohio
Filed Mar. 15, 1965, Ser. No. 439,559
2 Claims. (Cl. 220—54)

1. A can for beverages and the like, having an end, a score line in said end defining a tear strip adapted to be torn out to open said can, said tear strip having a relatively wide portion conforming substantially and lying closely adjacent to each of said can ends, then tapering together in the direction of the center of said can end, and terminating in a relatively narrow parallel portion extending across the center of said can end, and a pull tab integral with said can end, the base of the said pull tab being



disposed substantially centrally of said can end within the said parallel portion of said tear strip, and the body of said pull tab lying flat closely adjacent said can end and extending in a generally radial direction.

3,322,298
TAMPERPROOF REPLACEABLE CAP
Peter P. Gach, Evansville, Ind., assignor to Sunbeam Plastics Corporation, Evansville, Ind., a corporation of Indiana
Filed June 11, 1965, Ser. No. 463,194
7 Claims. (Cl. 220—60)

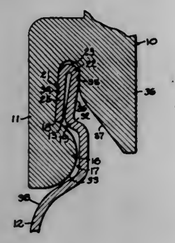


1. A tamperproof replaceable cap for use on a dispensing container having an upright body and a horizontally protruding bead around such body near the upper end thereof, said tamperproof replaceable cap being constructed of a semi-flexible plastic material and comprising, a generally cylindrically shaped body, a top integrally mounted on the upper end of said body, said body having an annular skirt portion adjacent its lower edge, said annular skirt portion having an interior surface, holding means integral with said skirt portion for retaining said cap on such dispensing container, said holding means including a plurality of inwardly directed and circumferentially spaced retainers positioned on said interior surface adjacent the lower edge of said skirt portion, said retainers extending inwardly beneath such bead on such dispensing container when said cap is in position on such dispensing container, a plurality of inwardly directed and circumferentially spaced expanders positioned on said interior surface in vertically spaced relationship to said retainers, said expanders engaging such bead when said cap is in position on such dispensing container, and disengagement means on said cap for removing said cap from such container, said disengagement means including a tool access opening defined by said body.

3,322,299
SHEET METAL CONTAINER WITH PLASTIC CLOSURE
John A. Foster, Rockford, Ill., assignor to J. L. Clark Manufacturing Co., Rockford, Ill., a corporation of Illinois
Filed Sept. 2, 1965, Ser. No. 489,787
13 Claims. (Cl. 220—60)

1. A container having, in combination, a body comprising a sheet metal tube, a cover of resilient plastic

substantially abutting one end of the tube and having a preformed laterally flexible depending peripheral skirt telescoped with the end portion of said tube, and means securing the cover and tube together comprising a preformed relatively flat metal hem at said tube end including a peripheral flange bent laterally and then reversely to project along and lie closely adjacent one side surface of the tube and terminating in an edge spaced longitudinally from the tube end, the portion of said body below said hem being offset radially from said hem so as to expose the hem edge and thus increase the effective width



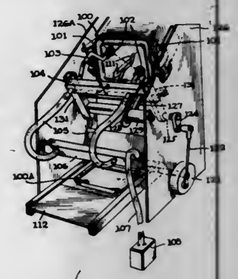
of the shoulder formed thereby and facing longitudinally of the tube, a bead integral with said skirt adjacent the lower edge thereof and level with said offset portion and urged, by virtue of the resiliency of said skirt, laterally across said hem edge and toward said offset portion, said bead having an upper frusto-conical surface engaging and interlocking with said exposed hem edge, and a second peripheral skirt shorter than said first skirt depending from said cover on the side of the hem opposite said first skirt and engaging the closed end portion of the hem to hold the hem edge in permanent biting engagement with said bead surface.

3,322,300
VESSEL HAVING STACKING CONSTRUCTION
Richard T. Cornelius, Minneapolis, Minn., assignor to The Cornelius Company, Anoka, Minn., a corporation of Minnesota
Filed Feb. 28, 1964, Ser. No. 348,005
3 Claims. (Cl. 220—97)



1. A vessel assembly, comprising:
(a) a cylindrical tank;
(b) a pair of generally annular skirts respectively secured to opposite ends of said tank, said skirts comprising flexible material arranged in a deflection-resistant configuration;
(c) means integral with one of said skirts and defining a pair of angularly spaced hand-receiving apertures, each extending radially therethrough, said means including a pair of arcuate handles respectively bridging said apertures, said handles being flush with that end of said one skirt which end is axially remote from said tank, the material of said handles being of a flexible configuration; and
(d) a pair of rigid generally U-shaped members each having a bight portion with a curvature corresponding to that of said handles and respectively embedded therein, and each having a pair of generally parallel leg portions embedded in said skirt in said deflection-resistant configuration thereof at opposite sides of said apertures, respectively, said rigid members each being operative to prevent deflection of said handles in response to any handling force applied thereto and in response to any stacking force applied thereto by the other of said skirts of a similar assembly.

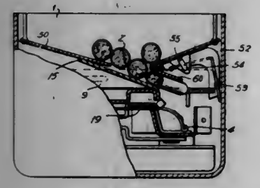
3,322,301
METHOD AND APPARATUS FOR DENESTING ARTICLES BY SUCTION MEANS
George N. Bliss, Franklin, Mich., assignor to Diamond International Corporation, New York, N.Y., a corporation of Delaware
Filed Mar. 15, 1966, Ser. No. 534,476
3 Claims. (Cl. 221—1)



3. A method of denesting a stack of temporarily bendable perimetrically defined articles supported in clamped position which comprises the steps of
contacting and gripping the surface of the article to be denested with the place of contact within the perimeter of the article being contacted, and the gripping on opposed sides of a line parallel to the general surface of the article to be denested which line passes through the place of contact,
unclamping of the support of said stack of articles,
effecting a limited temporary bending of the article to be denested in the area from its perimeter to said line passing through said place of contact with a simultaneous peeling of portions of said article to be denested on opposite sides of said line in a direction from the perimeter of said article toward a place within the perimeter until the peeling exposes said place of contact on more than one side by released area of said article to be denested,
clamping said stack of articles to resupport the stacked articles in clamped position,
and removal of the article to be denested from all remaining contact with the remainder of the stack.

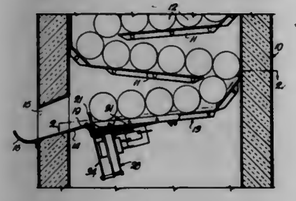
3,322,302
JAM RELEASE FOR CIGARETTE DISPENSER
Walter Beha and Wilhelm Bender, both of Frankfurt am Main, Germany, assignors to Schoeller & Co. Elektrotechnische Fabrik, Frankfurt, Germany
Filed Jan. 18, 1966, Ser. No. 521,344
Claims priority, application Germany, Jan. 19, 1965, Sch 36,410
6 Claims. (Cl. 221—15)

1. In a cigarette dispenser having a cigarette magazine chamber including first and second bottom walls pivotally suspended adjacent their outer edges and sloping downwardly and inwardly toward each other normally to define a gap between their inner edges having a width sufficient to permit one cigarette at a time to fall into a substantially horizontal trough from which it may be displaced laterally into a reciprocable claw for transport to an igniter and delivery, when ignited, to an access opening in the dispenser; the first bottom wall being swung upwardly and the second bottom wall being swung downwardly, during such displacement of the cigarette from the trough, to substantially close the gap therebetween to an extent sufficient to prevent movement of a cigarette from said chamber into the gap, to prevent mutual bracing or edging of the cigarettes in the magazine chamber; one of said walls having an extension extending downwardly



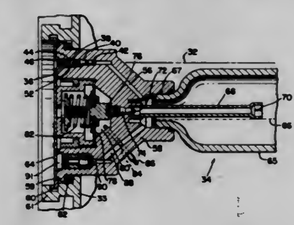
from the inner edge of its cigarette support surface and forming part of the means defining the gap, the extension and the inner edge of the other wall, during closing of the gap, crushing any cigarette extending transversely or inclinedly of the trough into the gap: the improvement comprising means mounting said extension of the innner edge of said one wall for displacement outwardly relative to said gap only upon engagement with a cigarette projecting from said trough into said gap, said means operating said extension to force a jammed cigarette out of the gap into the trough upon return of said bottom wall portions to their normal positions.

3,322,303
RELEASE MECHANISM FOR VENDING MACHINES
Robert E. Grindinger, Shawnee Mission, Kans., and Samuel M. Waas, Kansas City, Mo., assignors to Selectivend Corporation, a corporation of Missouri
Filed July 22, 1966, Ser. No. 567,150
5 Claims. (Cl. 221—298)



1. In a can vending machine, the combination of
a slant shelf for supporting a series of cans and having a lower discharge end over which cans can roll by gravity,
a pair of pivotal gate members positioned at said discharge end of said shelf with first distal portions normally extending above the level of the shelf to intercept a first can, the pivot axes for said gate members located below said discharge end,
operating means operable intermittently to pivotally displace said gate members in opposed directions whereby to move said first distal portions from the path of said can to a can release position and back to the can intercept position,
stop means connected with said operating means and operable to engage and hold the can behind said first can when said gate members are pivoted to said release position and to disengage therefrom upon return of said gate members to the can intercept position.

3,322,304
BEVERAGE DISPENSER WITH CENTRAL CHARGING GAS CONNECTOR AND LATERALLY SPACED LIQUID FILLING OPENING
John B. Wilson, Richmond, Va., assignor to Reynolds Metals Company, Richmond, Va., a corporation of Delaware
Filed Aug. 11, 1965, Ser. No. 478,833
8 Claims. (Cl. 222—52)

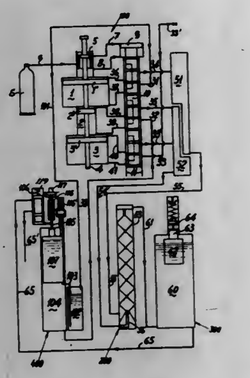


1. In combination:
liquid charged, approximately cylindrical dispenser (20) having a longitudinal central dispenser axis (32), a first dispenser end wall (26) and a second dispenser end wall (33);
a charging gas container (34) having a container end (59) located in a first dispenser opening (61) in said second dispenser end wall (33), said gas container end (59) having a first gas container opening (36) for receiving a charging needle, said first gas container opening (36) being coaxial with said dispenser axis (32) and being substantially surrounded by said second dispensing end wall (33);
said second dispenser end wall (33) having a second dispenser opening (92) for filling said dispenser with liquid, said second dispenser opening (92) being laterally spaced from said first dispenser opening (61);
an inwardly directed charging needle receiving check valve construction in said first gas container opening (36), said check valve construction including a resilient plug (46) with a self sealing slit (48), a perforate needle arresting disc (52) inside said plug, and a tire inflation type of check valve (40) inside said disc;
a removable cover (94) for said second dispenser opening (92);
and a faucet (22) in said first dispenser end wall (26).

3,322,305
APPARATUS FOR DISPENSING GAS-CHARGED BEVERAGES
Goffredo Tremolada, Via Console Marcello 10, Milan, Italy
Filed June 21, 1965, Ser. No. 465,450
Claims priority, application Italy, June 26, 1964, 14,165/64; Feb. 20, 1965, 3,580/65
20 Claims. (Cl. 222—61)

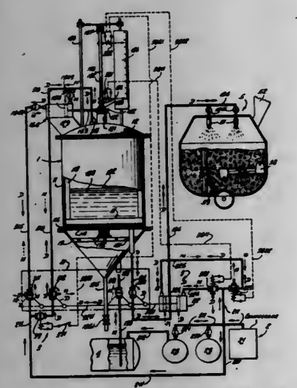
18. An apparatus for dispensing a gas-charged beverage, comprising a source of a liquid component of said beverage; a source of charging gas; proportioning means connected with said sources for separately metering predetermined quantities of said charging gas and said liquid component; mixing means connected with said proportioning means for introducing said gas into said liquid

component; and discharging means connected with said mixing means for dispensing the resulting mixture; said proportioning means including a receptacle in said discharging means for storing a quantity of said mixture under pressure of the evolving gas, and delivery means



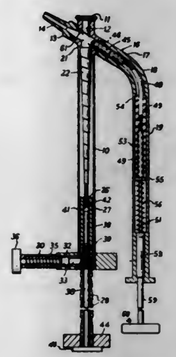
differentially connected to said source of charging gas and to said container for operation upon the pressure of said charging gas exceeding the fluid pressure of said container.

3,322,306
MEASURING AND DOSING APPARATUS
Paul Munderich, Rothenbergen, Kreis Gelnhausen, Germany, assignor to Wibau Westdeutsche Industrie- und Strassenbau-Maschinen-Gesellschaft m.b.H., Rothenbergen, Kreis Gelnhausen, Germany
Filed Apr. 28, 1965, Ser. No. 451,410
Claims priority, application Germany, Oct. 20, 1964, W 37,792
15 Claims. (Cl. 222—67)



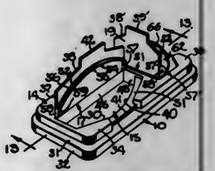
1. A measuring and dosing apparatus for handling thermoplastic and bituminous substances difficult to convey, comprising, in combination, a hermetically sealed measuring vessel, means for introducing a predetermined quantity of a liquid substance into said vessel, means for discharging the liquid of measured quantity from said vessel, and a source of compressed fluid for assisting at least one of the aforementioned means, said vessel comprising a cylindrical measuring zone, further including inlet means and outlet means for said liquid, as well as filter means between seaid inlet means and said measuring zone, said outlet means communicating with said measuring zone.

3,322,307
DEVICES FOR SUPPLYING MATERIALS
Frank Fraser, 84 Kensington Park Road, London, England
Filed Aug. 19, 1965, Ser. No. 480,865
Claims priority, application Great Britain, Aug. 25, 1964, 34,733/64
8 Claims. (Cl. 222—207)



1. A device for supplying quantities of a flowable material comprising a substantially rigid tubular member, a collapsible tapering volute spring to contain the material, and means for injecting material into one end of the spring and for compressing the spring, said spring having walls which slide into one another so as to eject the material only from the other end of the spring.

3,322,308
PLASTIC CONTAINER COVER WITH HINGED CLOSURES
John A. Foster, Rockford, Ill., assignor to J. L. Clark Manufacturing Co., Rockford, Ill., a corporation of Illinois
Filed May 24, 1966, Ser. No. 552,549
7 Claims. (Cl. 222—480)



1. A single piece closure of molded resilient plastic for covering one end of a container and having, in combination, a generally flat top defining an opening of generally segmental shape through which material may be dispensed, said opening being defined by elongated straight and curved upright walls depending from said top, said curved wall being disposed opposite said straight wall and curving arcuately and horizontally, laterally spaced end wall sections depending from said top and each integrally joined at opposite ends to the corresponding ends of said straight and curved walls, said end sections having parallel inner flat surfaces intersecting the inner faces of said straight and curved wall and disposed perpendicular to the straight wall, an imperforate and flat closure flap integrally joined to said straight wall along the upper edge thereof to form a hinge for swinging of the flap into and out of a closed position in which the top of the flap is substantially flush with the upper edges of said end wall surfaces, opposite side edges of the flap adjacent said hinge being straight, substantially parallel and laterally spaced to fit closely within and between said end wall surfaces in said closed position of the flap and the remaining free edge portion of said flap projecting over and covering the curved edge of said opening, a laterally yieldable rib of narrow radial width integral with and depending from the underside of said flap and curved and located to telescope within said curved wall with a tight press fit around the full circumferential length of the wall in the closed position of the flap, and laterally yieldable lugs depending from said flap and integrally joined to the flap and the ends of said curved rib, said lugs extending along said straight edges of said flap and presenting oppositely facing and substantially parallel outer surfaces flush with such side edges and adapted to telescope closely and with a wedge fit in between said flat surfaces of said end wall sections whereby to extend and seal said opening between the ends of said rib and said hinge when the flap is in said closed position.

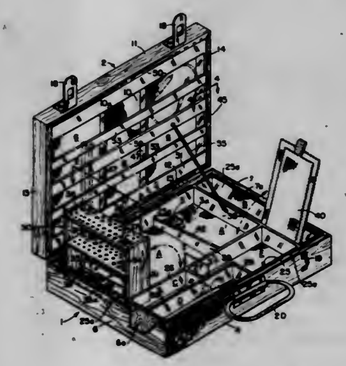
3,322,309
DRESS FORM WITH RETRACTIBLE SHOULDERS
Ann Baldwin, 334 E. 53rd St., New York, N.Y. 10022
Filed June 14, 1965, Ser. No. 463,700
2 Claims. (Cl. 223—68)



1. A dress form fabricated of flexible sheet material and comprising a hollow torso-shaped body, said body including shoulders extending outwardly from each other and terminating in armhole openings, a closure piece secured across each of said openings, and stiffener means secured interiorly of said shoulders adjacent to and spaced from said closure pieces to afford relatively greater flexibility to the shoulder portions adjacent to said closure pieces, said closure pieces being depressible inward upon flexure of said adjacent shoulder portions for reducing the width of said body across the shoulders, an internal lip secured along the periphery of each closure piece closely underlying and unsecured to the adjacent relatively flexible shoulder portion, for reinforcing said shoulder portions without impairing flexibility thereof, said lips each extending circumferentially about the respective closure piece, and an extension on each lip depending interiorly along the adjacent body side for reinforcing said body sides without impairing flexibility thereof, the bottom end of said extension being secured to said body, the remainder of said lip being otherwise free from the adjacent body side.

3,322,310
KIT FOR KNITTING AND ALLIED EQUIPMENT
James R. Higgs, 20896 Mastick Road, Fairview Park, Ohio 44126
Filed Aug. 27, 1965, Ser. No. 483,095
2 Claims. (Cl. 223—107)

1. In a knitting kit comprising a case for receiving and storing knitting accessories in a selected arrangement and consisting of a bottom wall and front, rear and end walls rising from the edges of the bottom wall, a lid hingedly attached to said case for closing the same, and a divider secured within the case, said divider having a peripheral wall enclosing a plurality of accessory compartments, a plurality of partitions formed within the peripheral wall of said divider, one of said partitions arranged to provide a compartment with first portions of said peripheral wall of the divider to receive long double point needles, a second partition extending from a second portion of said peripheral wall to said one portion to form a second compartment for receiving a knitting needle rack, a knitting needle rack disposed in said second compartment, said second partition forming with a third portion of said peripheral wall of the divider and with said one portion a third compartment area for receiving a variety of knitting accessories, a fourth partition having an inclined top edge transversely disposed within said second compartment, said rack including a pair of spaced apart end walls, a top wal, a bottom wall and an intermediate wall supported between said end walls, said top and intermediate walls being provided with two groups of axially aligned openings, one group being graduated in decreasing diameter in one direction away from one of said rack side walls, the other group being graduated in decreasing diameter in one direction

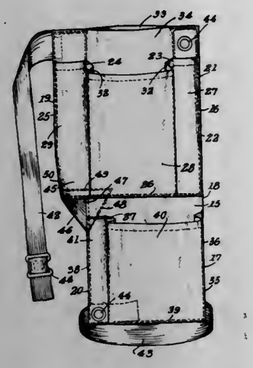


away from said other of said rack side walls, one of said groups of openings being adapted to receive relatively long knitting needles to permit said longer needles to overlie and rest upon the inclined top edge of said fourth partition when said rack is disposed in a lowermost flat position in said second compartment, the other group adapted to receive relatively short knitting needles, said lid having peripheral walls extending therefrom and, when in closed position, mating with the peripheral walls of said case, a divider within the lid and having a peripheral wall secured to the peripheral walls of the lid, partitions disposed in the space within the peripheral wall of the lid divider to provide compartments for circular and jumper knitting needles, said lid partitions consisting of at least one partition disposed transversely of the lid divider and another partition disposed longitudinally of the lid divider forming a plurality of lid compartments therein, said lid divider having top and bottom flanges disposed downwardly and upwardly respectively from the top and bottom portions of the divider peripheral wall, and a strip having portions overhanging opposite sides of said longitudinal portion to retain articles placed in the lid compartments.

3,322,311
ARTICLE HOLDER
John H. Homer, P.O. Box 84, Edison, Calif. 93220
Filed Nov. 22, 1965, Ser. No. 508,889
3 Claims. (Cl. 224—5)

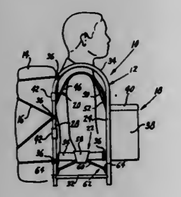
1. An article holder adapted for mounting on the leg below the knee and flatly against the shin and the flattened area of the leg between the shin and the inside of the calf, comprising:

(a) a pliable back provided with pockets for holding articles, said pockets being arranged in two tiers,
(b) leg-encircling means at the upper and lower edges of the pocket-provided back, and
(c) means intermediate said leg-encircling means to bias an intermediate portion of the back in a direction toward the leg,
(d) said back comprising an upper rectangular part and a lower narrower rectangular part, said parts having one common aligned edge and the opposite



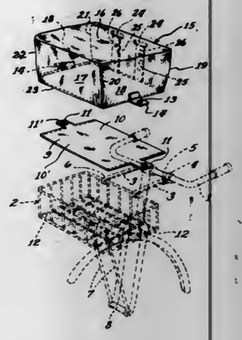
edges being offset to provide the upper part with an overhanging corner beyond the opposite edge of the lower part,
(e) the mentioned biasing means comprising a gusset extending across the inside corner formed by said overhang and stitched to the adjacent portions of the back while under stretch, and
(f) the gusset, when contracted to normal, producing the mentioned bias.

3,322,312
LOAD CARRYING FRAME
Victor I. Mitchell 10860 Scotsman Way, Rancho Cordova, Calif. 95670
Filed Feb. 2, 1966, Ser. No. 524,445
9 Claims. (Cl. 224—26)



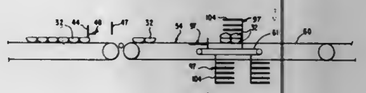
1. A frame for helping an individual to carry a load comprising
four supports, each support having its lower end spaced at the corner of an imaginary regular quadrilateral, the supports being separated a sufficient distance to receive the body of an individual within the space bounded by the supports;
at least one rigid brace securing each support to each of the two nearest supports, the supports and braces cooperating to form a rigid quadrilateral framework;
a pair of substantially parallel shoulder straps spaced apart sufficiently to receive the individual's head therebetween, the straps being secured to opposite sides of the framework for transmitting a substantial part of the load to the individual's shoulders;
a body encircling belt for surrounding the individual's waist and for carrying a substantial part of the load to be transported; and
at least three spaced apart elongate members connecting the belt to the framework.

3,322,313
BICYCLE CARRIER BASKET COVER
Leona A. Giondi, P.O. Box 304, Warrenville, Ill. 60555
Filed Jan. 21, 1966, Ser. No. 522,117
7 Claims. (Cl. 224—35)



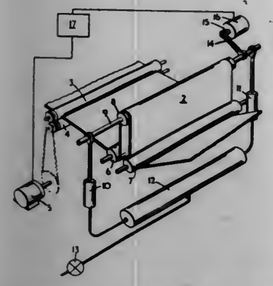
4. The combination comprising:
(a) a wire carrier basket mounted on the front end of a bicycle and fastened to the handle bars thereof by at least one bracket,
(b) an open-bottom flexible weather resistant covering element covering the top and sides of said basket,
(c) openings in said covering element through which said brackets pass in close-fitting relationship,
(d) a weather-resistant bottom element resting on the bottom of said basket and extending to the side walls thereof,
(e) and means on said covering element to hold the bottom thereof snugly around the bottom of said basket.

3,322,314
STACK FORMER
Frank M. Irving, Jr., York, Albert S. Schmidt, Sr., Wormleysburg, and Harry F. Potter, Lewistown, Pa., assignors to Alto Company, York, Pa., a partnership
Filed July 23, 1965, Ser. No. 474,281
16 Claims. (Cl. 225—1)



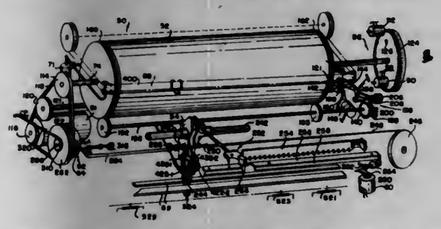
1. A method of arranging bakery product units comprising conveying rows of said units to a marshaling station, laterally aligning a forward group of said units, propelling the resultant aligned forward group from said marshaling station, restraining the next rearward group during said propelling action, and stacking a unit from one row of the propelled group onto a transversely adjacent unit in an adjacent row whereby pairs of units are stacked.

3,322,315
APPARATUS FOR CONTROLLING THE TENSION IN A WEB
Edgar Anthony Eberlin, Birmingham, England, assignor to James Halley & Sons, Limited, West Bromwich, England, a British company
Continuation of application Ser. No. 303,816, Aug. 22, 1963. This application June 2, 1966, Ser. No. 554,912
Claims priority, application Great Britain, Sept. 6, 1962, 34,130/62
8 Claims. (Cl. 226—44)



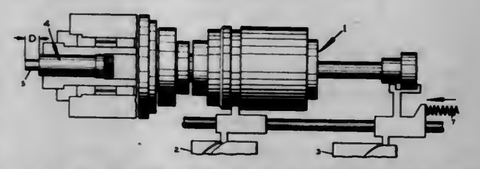
1. A web tensioning apparatus comprising a pair of web feed rollers, an electric motor driving said rollers, a pair of parallel idle rollers having fixed axes, a rotatable loop roller mounted on a shaft for vertical movement between and parallel to said idle rollers, a pair of piston and cylinder units supporting opposite ends of said shaft, a large capacity reservoir connected to supply constant fluid pressure to both of said cylinders, the relative capacities of said reservoir and said cylinder units being such that changes in position of the loop roller with changes in size of the loop during changes in rate of feed of said web do not significantly change said fluid pressure, an adjustable pressure regulating valve for maintaining a desired fluid pressure in said reservoir, an angularly displaceable element operably connected to be responsive to the vertical movement of said shaft caused by a variation in size of said loop due to variation in the rate of feed of said web, an error signal generator driven by said element in proportion to said shaft movement, and a servo system under the control of said generator for compensatively varying the speed of drive between said motor and feed rollers to maintain said desired web tension.

3,322,316
LINE FEED MECHANISM
Clayton H. Clark, Mundelein, and Donald J. Stefanik, Berwyn, Ill., assignors to SCM Corporation, a corporation of New York
Original application Oct. 25, 1962, Ser. No. 233,109, now Patent No. 3,291,909, dated Dec. 13, 1966. Divided and this application May 2, 1966, Ser. No. 546,917
7 Claims. (Cl. 226—141)



1. For use in a page record printer, a line feed mechanism for feeding a page record stepwise one or more lines spaces at a time including: page record engaging and feeding means; a ratchet wheel drivingly connected to said record engaging and feeding means; a ratchet wheel advancing pawl means pivotally mounted adjacent and in engagement with the teeth of said ratchet wheel; a selectively operable, power driven cycling means for imparting a power and a return stroke to said pawl means; and means to selectively vary the magnitude of return stroke of said pawl means to thereby control the magnitude of power stroke and work applied to said pawl means by said power driven cycling means and change the magnitude of line feed.

3,322,317
MECHANISM FOR SEQUENTIALLY FEEDING BARS OF UNIFORM CROSS SECTION IN A MACHINE
Paul Ducanis, 1520 NE. 103rd St., Miami Shores, Fla. 33153
Filed Sept. 23, 1965, Ser. No. 489,689
10 Claims. (Cl. 226—167)



1. A mechanism for feeding bar stock of uniform cross section in an axial direction in sequential like distances in a metal cutting machine comprising a cylindrical housing means dimensioned and adapted to be secured in said machine for reciprocation thereby,
a coaxial bore through said housing means for slidably guiding said stock therethrough,
a counter-bore in one end of said housing means of predetermined diameter,
means forming an oblique planar shoulder at the inner end of said counter-bore at a predetermined angle with respect to a plane normal to the axis of said bore,
a plurality of like circular rings in said counter-bore canted against each other at said angle with the innermost one thereof positioned against said shoulder,
each of said rings having a predetermined inside diameter greater than said first mentioned bore and a predetermined outside diameter less than the diameter of said counter-bore,
circular spring means in said counter-bore positioned against the outermost one of said rings for urging the latter in like said canted position,
fastening means secured in the outer end of said housing means for holding said spring means and said rings in tensioned position against said shoulder whereby said bar stock moved through said housing means in sequential predetermined distances in one direction will be prevented from reverse movement by the locking engagement of the opposite inner edges of said rings on said stock.

3,322,318
CELLULOSE FIBER CANS
Joseph B. Felton, Jr., Mount Pleasant, John F. Turner, North Charleston, and Archie D. Duncan, Jr., and William J. Funderburk, Charleston, S.C., and Roger Bart, Weston, Conn., assignors to West Virginia Pulp and Paper Company, New York, N.Y., a corporation of Delaware
Filed Nov. 12, 1963, Ser. No. 322,705
6 Claims. (Cl. 229—3.5)

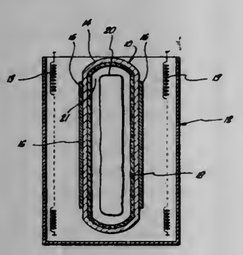
1. A can suitable for use in thermal processing of foods which comprises a pre-stressed thin-wall cylindrical body member having a thickness equal to from 1/100

to 1/200 of the diameter of said can and an end closure hermetically sealed to one end of said body member, said body member being composed of a cylindrically formed single unitary web whose opposite edges are adhesively secured together at an axially oriented seam extending from one end of the body member to the opposite end, said web comprising a non-woven cellulose fiber sheet impregnated with from 15 to 60% by weight



of a thermoset resin which has been cured under pressure in said sheet while said sheet is flat and being characterized by its ability to retain at least 65% of its modulus of elasticity in flexure following conditioning in saturated steam at 212° F. for 5 minutes and by having a residual modulus of elasticity in flexure after such conditioning of at least 500,000 p.s.i.

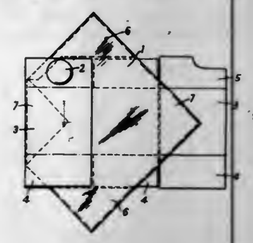
3,322,319
FOOD PACKAGE ADAPTED FOR HEATING
Edward E. Sweeney, 6252 Drexel Ave., Los Angeles, Calif. 90048, and Kenneth E. Stroup, 10201 Louise Ave., Northridge, Calif. 91324
Filed Dec. 14, 1964, Ser. No. 418,160
5 Claims. (Cl. 229—3.5)



1. A food holding and cooking package comprising an envelope of a material of relatively good heat conductivity, the envelope enclosing a space adapted to hold a food to be heated, a layer of relatively good heat-absorbing material on the exterior surface of a portion of the envelope, a layer of porous material on the interior surface of the portion of the envelope, and an evaporable material in the porous layer, the layer of porous material being at least substantially coextensive with the layer of heat-absorbing material whereby heat applied to the exterior surface of the package is transmitted to the porous layer to vaporize the evaporable material for rapid cooking of the food.

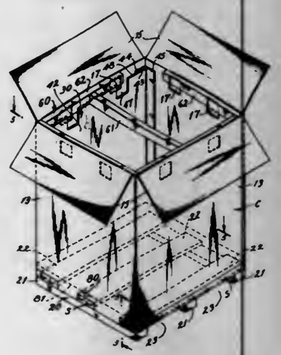
3,322,320
PACKAGING CONTAINER
Chasse Beadle, Radstock, Somerset, England, assignor to Gerald V. Forrest, Thurlaston, Leicestershire, England
Filed June 27, 1966, Ser. No. 560,500
Claims priority, application Great Britain, July 1, 1965, 28,006/65
3 Claims. (Cl. 229—14)

1. A packaging container comprising an inner closed bag or envelope, of a flexible sheet material, which collapsed flat is of rectangular or substantially rectangular outline, an outer carton comprising four hingedly-connected side wall panels, and a filling and dispensing spout secured to said bag or envelope and accessible through said carton in the erected and closed container, said bag or envelope being assembled in said carton with one pair of opposite corners of the bag or envelope projecting beyond the



upper and lower edges of the carton side wall panels, and with the remainder of the bag or envelope overlying the whole, or substantially the whole, area of the adjacent side wall panels and secured by adhesive to latter so as to move in unison with the respective side walls during erection or collapse of the container.

3,322,321
CONTAINER
Thomas C. Nurre, Downers Grove, Ill., William W. McFarland, Wooster, Ohio, and Dale L. Ritter, St. Louis, Mo., assignors to International Paper Company, New York, N.Y., a corporation of New York
Filed Apr. 12, 1965, Ser. No. 447,350
14 Claims. (Cl. 229—23)

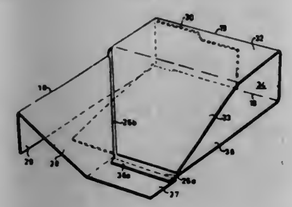


1. In combination, a container, an article carrying skid, and a lifting frame, said container having side walls and top flaps, means to secure said container to said skid, said lifting frame being positioned within said container, said top flaps being folded perpendicularly to said side walls to retain said lifting frame within said container, and said container having means under said lifting frame defining openings adapted to accommodate the fingers of a lift truck.

3,322,322
CARTON TRAY
Karl Rune Persson, Halmstad, Sweden, assignor to Sprinter-Pack AB, Halmstad, Sweden, a corporation of Sweden
Filed Aug. 2, 1965, Ser. No. 476,298
Claims priority, application Sweden, Aug. 7, 1964, 9,604/64
9 Claims. (Cl. 229—34)

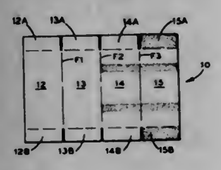
1. A carton tray made of a single blank comprising a bottom, two side walls and two end walls, said bottom

comprising a central longitudinal portion tangentially connected with two inclined side panels extending between the side edges of said central bottom portion and the upper edges of the side walls, a transverse slit at each end of said bottom and spaced from the adjacent end wall to leave a transverse top wall portion extending between the upper edges of the side walls and hingedly connected therewith along fold lines which are offset upwardly relative to the fold lines between said side panels



and the upper edges of the side walls, each end wall being at its upper edge hingedly connected with the adjacent transverse top wall and at its lower edge extended with a locking tongue having its free end snapped over the slit edge at the end of said central bottom panel, the end walls and the side walls having at their meeting ends cooperating flaps to lock the tray in erected position when said locking tongue engages said slit edge.

3,322,323
BOX CONSTRUCTION
Abbot Greene, 24 Carter Road, and Paul Densen, 27 Colony Drive E., both of West Orange, N.J. 07052
Filed June 24, 1965, Ser. No. 466,751
15 Claims. (Cl. 229—37)

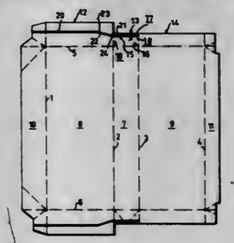


1. In a box construction comprising a foldable blank defining a plurality of side panels disposed in side-by-side relationship and said side panels being readily adapted to be folded about a foldline disposed between the respective contiguous sides of adjacent panels to define a closed quadrilateral figure adapted to be folded between a knocked-down inoperative position and an erected box-forming position, and including top and bottom flaps connected to the opposed ends of each panel to define the end walls of said box in the erected position thereof, the improvement of;

(a) a layer of pressure sensitive adhesive covering an external portion of at least one panel of said box whereby similarly coated boxes may be adhesively secured together in side-by-side relationship to form a cluster of boxes which may be readily handled as a unit, and

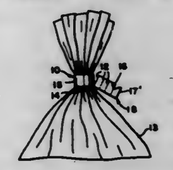
(b) a coating of pressure-sensitive material applied to the external surface portion of the exposed flap extending from the ends of one of said coated side panels so that in the collapsed position of said blank, all the coated portions thereof are disposed on the same side of the collapsed blank so that similar collapsed blanks may be readily stacked one on the other without adhering to one another and in the erected position of said blank, a plurality of similarly erected boxes may be clustered in either side-by-side relationship or stacked relationship one on the other.

3,322,324
BLANK FOR MAKING A CARDBOARD BOX AND BOX ERECTED THEREFROM
Karl Rune Persson, Halmstad, Sweden, assignor to Sprinter-Pack AB, Halmstad, Sweden
Filed May 23, 1966, Ser. No. 552,197
Claims priority, application Sweden, June 2, 1965, 7,227/65
2 Claims. (Cl. 229—38)



1. A blank for making a cardboard box in the form of a parallelepiped comprising two opposite side walls having end tabs and a bottom having end tabs which together with the end tabs of the side walls from a continuous wing flap at each end of opposite edges of the box blank, wherein each of the end tabs of the bottom has two triangular side panels located one on each side of an intermediate triangular panel bounded by two fold lines each of which extends at an angle of 45° to the longitudinal direction of the end tab of the bottom and the intersectional point of which lies at the edge of the end tab of the bottom, and wherein the width of the end tab of one side wall and the width of the end tab of the bottom are substantially equal to half the width of the bottom, whereas the end tab of the other side wall is wider and is provided with an adhesive stripe for gluing together the end tabs of said side walls whereby to form the end walls of the box during erection thereof, characterized in that the adhesive stripe on the wide end tab extends over the end tab of the bottom and that said stripe on the wide end tab passes through a point thereon located such that during erection of the box the apex of the intermediate triangular panel comes into contact with said point whereby to have adhesive fill up a gap, if any, between the opposing free edges of the side panels at and in the proximity of the apex of the intermediate triangular panel.

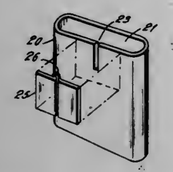
3,322,325
BAG SEAL UTILIZING PRESSURE SENSITIVE TAPE HAVING WEAKENED TRANSVERSE ZONES
Roy L. Bush, 260—04 58th Ave., Little Neck, N.Y. 11362
Filed Jan. 30, 1962, Ser. No. 169,796
3 Claims. (Cl. 229—62)



1. In a bag of flexible material open at one end, sealing means therefor adapted for engagement with a neck portion of the bag formed by gathering the latter near

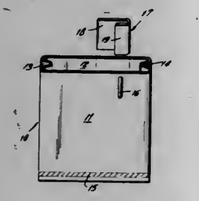
the open end thereof, the sealing means including a flexible tape having a pressure sensitive adhesive coating on one side thereof and having spaced transverse weakened zones, the intermediate part of said tape encircling the neck portion of the bag, the terminals of said tape being adhered together, whereupon the exertion of stress along a weakened zone at the locus of the neck portion causes the tape to break and permits opening of the bag.

3,322,326
SIFT-PROOF PATCH VALVE FOR PLASTIC SHIPPING BAGS
John J. Quackenbush, Monroe, Conn., assignor to National Distillers and Chemical Corporation, New York, N.Y., a corporation of Virginia
Filed Feb. 21, 1966, Ser. No. 528,961
5 Claims. (Cl. 229—62.5)



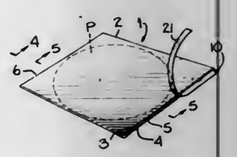
1. A patch valve for a plastic bag; said plastic bag having front and rear panels joined together; said front panel having an opening therethrough; said patch valve comprising a single elongated sheet disposed on the exterior of said front panel and overlying said opening; said patch valve secured to said front panel along a line only partially enclosing said opening and defining a closed channel bounded by the exterior surface of said front panel, the interior surface of said patch valve and said partially enclosed sealing line which extends from said opening to the region of said patch valve which is unsecured to said exterior surface; said patch valve having a rolled section interposed between said opening and unsecured region; said rolled section terminating at either end on said partially enclosed sealing line.

3,322,327
INTERNAL J-SHAPED VALVE FOR FLEXIBLE BAGS
George M. Prall, Barrington, Ill., assignor to National Distillers and Chemical Corporation, New York, N.Y., a corporation of Virginia
Filed June 2, 1966, Ser. No. 554,709
3 Claims. (Cl. 229—62.5)



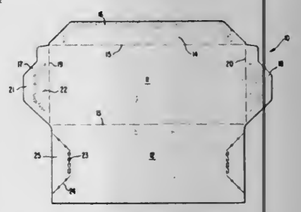
1. A valve for a flexible plastic bag; said plastic bag having a front panel having an interior surface; said front panel having a slot therein; said valve comprising a relatively long flexible plastic sheet and a relatively short flexible plastic sheet; first, second and third heat seals connecting said relatively short and relatively long plastic sheets to said interior surface of said front panel and across said valve; said first heat seal extending parallel to said slot and laterally displaced therefrom and extending through said front panel and one end region of each of said relatively short and relatively long sheets; said second and third heat seals extending perpendicular to said slot and passing across regions adjacent the ends of said slot; said second and third heat seals extending through said front panel and through opposite side edges of each of said relatively long and relatively short sheets; said relatively short sheets interposed between said interior surface of said front panel and a portion of said relatively long sheet; said relatively short sheet having a free edge extending beyond said slot; said relatively long sheet having a free edge extending beyond said free edge of said relatively short sheet.

3,322,328
CONTAINER
Rudolph A. Froehlig, Little Neck, N.Y., assignor to Modern Album and Finishing Inc., College Point, N.Y., a corporation of New York
Filed Oct. 4, 1965, Ser. No. 492,690
3 Claims. (Cl. 229—68)



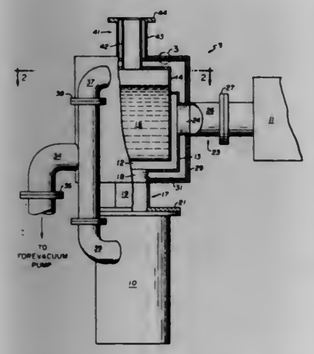
1. A flat, thin container for phonograph records and the like comprising an outer jacket and an inner liner jacket mounted within the outer jacket and adhered thereto, said outer jacket comprising a pair of opposed flat, thin panels superimposed on each other and unattached to each other at one end to form an open mouth, said inner liner jacket comprising a pair of flat, thin inner panels superimposed on each other, each inner panel having an extending portion protruding out of the mouth of the outer jacket, the extending portions of the inner liner panels being sealed to each other and being tearable along a tear area to permit access to the interior of said inner jacket.

3,322,329
ENVELOPE
Federico L. Castaneda and David Castaneda, both of 2144 SW. 23rd Terrace, Miami, Fla. 33145
Filed Oct. 20, 1965, Ser. No. 498,568
2 Claims. (Cl. 229—85)



1. In an envelope, a front panel, a back panel, an end flap on each end of said front panel and adapted to overlie said back panel, and means to facilitate the opening of the envelope for the extraction of the contents thereof, said means comprising three parallel closely spaced rows of generally vertical die-cut perforations on said back panel spaced from one end of said back panel, the perforations in adjacent rows being offset with respect to each other, a row of perforations on said back panel extending from the extremities of said series of vertical perforations to said one end to define a tear-off portion, a glued area on one of said end flaps received and adhesively secured entirely within said tear-off portion, and a tab portion on said one end flap extending beyond said series of vertical perforations, and a closure flap extending from the top of said front panel and being adhesively secured to said back panel.

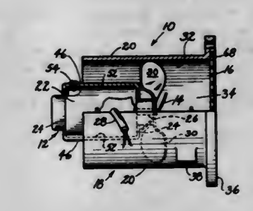
3,322,330
DUAL PASSAGE COLD TRAP
Claire E. Miner, Walnut Creek, and Richard M. Reimers, Berkeley, Calif., assignors to the United States of America as represented by the United States Atomic Energy Commission
Filed Jan. 26, 1965, Ser. No. 428,261
2 Claims. (Cl. 230—101)



1. A cold trap for use with a diffusion pump in a vacuum system comprising, in combination, a first tubulation having means for connecting one end thereof to the input of the diffusion pump and the other end to a vessel to be evacuated and providing a non-linear gas passage therebetween, a container holding liquid gas disposed to cool the central portion of said first tubulation, said container having an opening for filling and venting thereof, and a housing surrounding said container and the central portion of said tubulation and having a heat insulating lining covering all the interior surfaces thereof, said housing further having conduits sealingly connected thereto for connecting said housing with the output of said diffusion pump and with the input of a forevacuum pump whereby gas molecules contact a refrigerated surface both before entering and after leaving said diffusion pump.

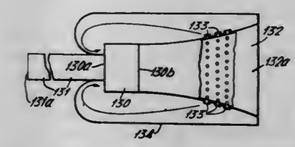
3,322,331
AIR IMPELLER AND HOUSING UNITS
Robert J. Kenny, Litchfield, and Donald F. White, Torrington, Conn., assignors to The Torrington Manufacturing Company, Torrington, Conn., a corporation of Connecticut
Filed Aug. 31, 1966, Ser. No. 591,938
17 Claims. (Cl. 230—117)

1. In an air impeller unit the combination comprising a motor including a casing and a shaft, at least one air impeller mounted upon said shaft and having air moving blades, and a housing comprising two half sections adapted to be joined together in assembly to define a chamber for receiving the impeller, at least one of said housing half sections including an inner wall surface adapted to be spaced radially from the impeller, a motor clamping means on each half section adapted to engage an associated portion of the motor, said clamping means and the motor portion engaged thereby being constructed and arranged to secure the motor against relative axial, radial



and rotational movement, and said clamping means coming into clamping engagement with the motor when the housing half sections are joined together in assembly whereby the impeller is maintained in coaxial alignment with the motor within the chamber and in spaced relationship with said inner wall surface.

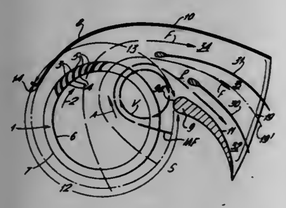
3,322,332
CROSS FLOW MACHINE
Nikolaus Laing, Stuttgart, Germany, assignor, by mesne assignments, to Laing Vortex, Inc., New York, N.Y.
Original application, Sept. 5, 1962, Ser. No. 221,621, now Patent No. 3,232,522, dated Feb. 1, 1966. Divided and this application Jan. 3, 1966, Ser. No. 518,137
Claims priority, application Germany, Dec. 7, 1956, E 13,333, E 13,334
5 Claims. (Cl. 230—125)



1. A fluid flow machine comprising a cylindrical rotor mounted for rotation about its axis in a predetermined direction and defining an interior space, guide means extending the length of the rotor and defining therewith a suction region and a pressure region the guide means comprising a guide body between pressure and suction regions going in said predetermined direction and guide wall opposite the guide body and defining therewith said pressure region, the guide means and rotor cooperating on rotation of the latter in said predetermined direction to set up a vortex of Rankine character having a core region eccentric of the rotor axis and adjacent the guide body and a field region wherein fluid is guided from the suction region through the path of the rotating blades of the rotor to the interior space within the rotor and thence again through the path of the rotating blades of the rotor to the pressure region, flow taking place through the rotor in planes transverse to the rotor axis and as seen in such planes being strongly curved about the vortex core, said pressure region leading to an outlet for the machine and said guide body including parts to define an opening upstream of the outlet for recirculation of fluid from the pressure region to the suction region and thence again through the rotor whereby the fluid throughput of the rotor-exceeds the throughput through said outlet; the parts of said body comprising a movable part and a fixed

part with the parts of said guide body in one position defining a substantially smooth imperforate wall and in another position defining said opening.

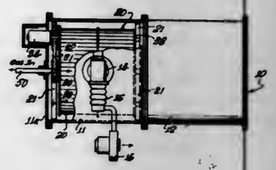
3,322,333
CROSS FLOW MACHINE
Nikolaus Laing, Stuttgart, Germany, assignor, by mesne assignments, to Laing Vortex, Inc., New York, N.Y.
Original application Sept. 5, 1962, Ser. No. 221,621, now Patent No. 3,232,522. Divided and this application Jan. 3, 1966, Ser. No. 518,259
Claims priority, application Germany, Dec. 7, 1956, E 13,333, L 26,389
7 Claims. (Cl. 230—125)



1. A multi-stage flow machine comprising a housing defining an inlet adjacent one end and an outlet adjacent the other, a rotor assembly mounted within said housing for rotation about an axis and comprising a plurality of constituent rotors, one for each stage and each having longitudinally disposed blades arranged in a ring about the axis to define an interior space, wall means dividing the housing into a plurality of compartments one for each constituent rotor, guide means defining with the rotor in each compartment an entry and a discharge region, the guide means in each compartment co-operating with the rotor therein on rotation of the latter in said predetermined direction to set up a vortex of Rankine charatcer having a core region eccentric of the rotor axis and adjacent the guide body and a field region wherein fluid is guided from the entry region through the path of the rotating blades of the rotor to the interior space within the rotor and thence again through the path of the rotating blades of the rotor to the discharge region flow taking place through the rotor in planes transverse to the rotor axis and as seen in such planes being strongly curved about the vortex core, said guide means also defining a diffuser between each pair of adjacent compartments said diffuser having a centre line which is continuously curved in the same sense as flow through the rotor and leading flow from the rotor nearer the inlet to the entry region of the rotor nearer the outlet the rotor nearest the inlet having its entry region communicating therewith and the rotor nearest the outlet discharging therethrough.

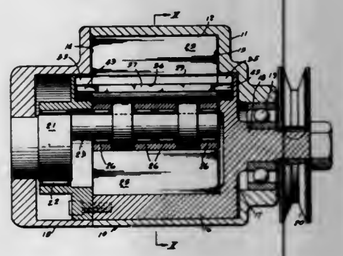
3,322,334
RADIAL-FLOW MOLECULAR PUMP
Eldon L. Knuth, Pacific Palisades, and Sam F. Iacobellis, Woodland Hills, Calif., assignors to The Regents of the University of California, a corporation of California
Filed July 14, 1964, Ser. No. 382,463
7 Claims. (Cl. 230—131)

1. The method of pumping gas from a first zone in which free molecular flow conditions exist to a second zone of higher pressure, that includes the steps of:
producing a source of rarefied gas;
supplying gas from said source to a first zone to be maintained under conditions of free molecular flow at pressures less than 10^{-4} mm. of mercury;
and moving a series of spaced, substantially flat blades in a direction at an agle of about 20° to the principal surfaces of the blade and in contact with gas from said first zone whereby the blades encounter



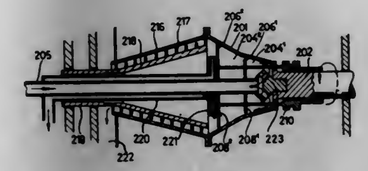
the molecules with a higher probability of the molecules rebounding from the blades from the first zone into the second zone than back into the first zone.

3,322,335
VANE SEAL AND BEARING FOR ROTARY COMPRESSORS
Donald W. Partain, Rocky River, Ohio, assignor to TRW Inc., Cleveland, Ohio, a corporation of Ohio
Filed Sept. 3, 1965, Ser. No. 484,812
7 Claims. (Cl. 230—157)



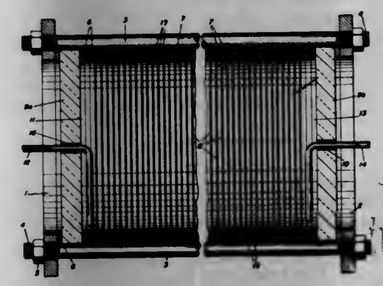
1. In a rotary vane compressor,
a housing having an interior cylindrical wall and parallel spaced end walls,
an annular rotor journalled within said housing for rotation about an axis eccentric of the axial center thereof,
a plurality of vanes extending radially of the axial center of said housing and mounted for pivotal movement about said axis,
vane seal bearings pivotally mounted in said rotor and each having a vane guide slot extending therethrough forming a guide and seal for an associated vane,
said vane seal bearings each having reduced diameter opposite end portions pivotally mounted in said rotor and each having
a radial slot on the leading side thereof opening to said vane guide slot,
said reduced diameter end portions having recessed portions extending diametrically along the ends thereof and inwardly along opposite sides thereof,
one of said recessed portions opening to said radial slot,
a wear take-up bar slidably mounted in said radial slot and U-shaped springs recessed within said recessed portions of said reduced diameter ends of said vane seal bearings,
and having engaging end portions extending into said radial slot and having bearing engagement with opposite ends of said wear take-up bar for yieldably biasing said wear take-up bar into sealing engagement with said vane.

3,322,336
CLARIFYING CENTRIFUGE
Wilhelm Lohse, Vorberg, Post Ettishofen, Kreis Ravensburg, and Peter Geue, Kressbronn am Bodensee, Germany, assignors to Escher Wyss Aktiengesellschaft, Zurich, Switzerland, a corporation of Switzerland
Filed June 16, 1965, Ser. No. 464,315
Claims priority, application Switzerland, June 24, 1964, 8,258/64
9 Claims. (Cl. 233—7)



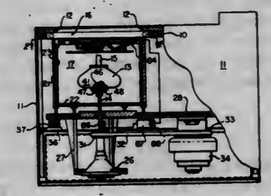
1. A centrifuge rotor for separating a suspension into liquid and solid comprising a shaft; a flaring solid surface drum mounted on said shaft coaxially therewith; at least two annular partitions arranged within said drum coaxially therewith; said partitions forming consecutive separating chambers for the suspension within said drum; each of said partitions leaving between its outer boundary and the drum a gap for the discharge of deposited solid along the inner drum surface toward the wider end of the drum and having an overflow for the liquid at a point situated closer to the drum axis than said discharge gap; means for supplying the suspension to the separating chamber situated nearest to the other end of said drum; and means for discharg-clarified liquid from the separating chamber situated nearest to the other end of said drum; and means for discharging the deposited solid from the wider end of the flaring drum.

3,322,337
PROCESS AND DEVICE FOR SEPARATING MIXTURES
Rudolf Signer, Gumligen, near Bern, Switzerland, assignor to Ciba Limited, Basel, Switzerland, a Swiss company
Filed Sept. 21, 1965, Ser. No. 489,015
Claims priority, application Switzerland, Sept. 25, 1964, 12,504/64
16 Claims. (Cl. 233—18)



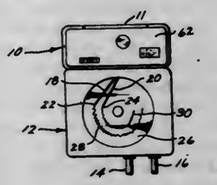
2. Apparatus for separating the components of a mixture by repeated distribution of the mixture between two immiscible liquids comprising
a tube inclined to the horizontal means for rotating said tube about its longitudinal axis, an end plate at each end of said tube, a plurality of walls transversely positioned in said tube and thereby subdividing said tube into a plurality of chambers including an upper chamber and a lower chamber, an inlet pipe for introducing liquid into said upper chamber, an outlet pipe for removing liquid from said lower chamber and portions of each transverse wall defining an opening therein, said opening being spaced from the longitudinal axis of the tube and the openings in adjacent walls being angularly displaced relative to each other.

3,322,338
CENTRIFUGE STABILIZING ASSEMBLY WITH HEAT PROBE
Richard C. Stallman, San Carlos, and James F. Woodall, Palo Alto, Calif., assignors to Beckman Instruments, Inc., a corporation of California
Filed Apr. 15, 1963, Ser. No. 273,166
9 Claims. (Cl. 233—23)



1. An apparatus, including a bearing assembly, for stabilizing a centrifuge rotor about its true axis of rotation through low speeds and for damping lateral movement of the rotor with respect to a supporting frame, said apparatus comprising
a member, rototably mounted in said bearing assembly, for engaging said rotor whereby said rotor is held for rotation about said true axis of rotation, said member having an axis substantially coincident with said true axis of rotation;
means mounted in said bearing assembly for carrying said member, said carrying means being movable with yielding resistance within predetermined limits laterally of said axis of rotation whereby said axis of said member is movable in an orbit about said true axis of rotation and whereby said lateral movement of said rotor is damped;
means connected to said member and being responsive to the transition of said rotor from one speed range to another for moving said member between a rotor-engaging position and a rotor-releasing position.

3,322,339
FLOW METER INTEGRATOR
Claude B. Nolte, Placentia, Calif., assignor to Kingmann-White, Inc., Placentia, Calif., a corporation of Texas
Filed July 19, 1965, Ser. No. 472,847
15 Claims. (Cl. 235—61)

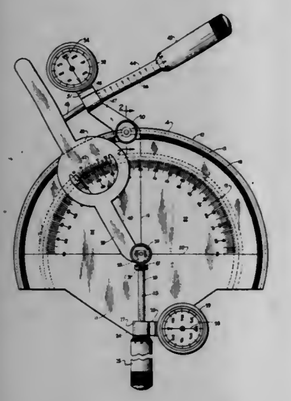


1. In a metering device for integrating a varying quantity with respect to time, apparatus comprising:
a cam mounted for rotation about its center of rotation, and having a spiral cam surface varying in position relative to a reference point linearly with respect to rotational angles of said cam about said center of rotation;

means to position said cam at rotative angles between limits about said center of rotation in accordance with a predetermined function of said varying quantity;

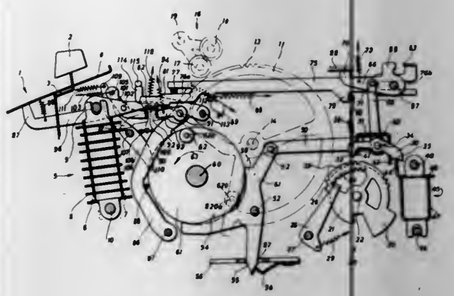
feeler means including means for periodically imparting movement of said feeler means along a fixed path from a predetermined position into a position of contact with the said cam surface and return to said predetermined position, the distance between said predetermined position and such position of contact for each such movement of said feeler means along said path being determined by the position of said cam surface at the angular position of said cam at the instant of such contact, whereby said distance for each such movement bears a substantially linear relationship with such angular positions of said cam; and means responsive to such linear movements of said feeler means for producing an output quantity which is substantially the square root of the total of said distances of such linear movements over a given interval of time.

3,322,340
INSTRUMENT FOR COMPUTING UNKNOWN MEASUREMENTS OF TRIANGULATIONS
Henry V. Grantland, Rte. 3, Box 105, Arlington, Tex. 76010
Filed July 27, 1966, Ser. No. 568,250
4 Claims. (Cl. 235—61)



1. An instrument for computing unknown measurements of one side of a triangle, and the like, comprising a protractor plate having a 180 degree scale thereon and having an annular channel formed peripherally thereof in one face, an angle scale pivotally attached at its inner end centrally of said plate and having a vernier scale thereon alignable with said protractor scale, the said angle scale being movable with respect to the axis of said protractor scale, a first micrometer adjustably attached to the outer periphery of said protractor and slidable along said annular channel, the said first micrometer having a scaled stock and a stem in said stock extensible and retractable in response to the rotation of the handle of said micrometer to engage said angle scale, a second micrometer secured to said protractor plate opposite said scale thereon and having a scaled stock and a stem in said stock extensible and retractable in response to rotation of the handle of said second micrometer, whereby the angle of said angle scale can be micromatically adjusted with respect to the axis of said protractor scale and its angle measured by said first micrometer.

3,322,341
APPARATUS FOR STORING THE QUOTIENT OF A DIVISION
Paul Thevis, Oberndorf (Neckar), Germany, assignor to Olympia Werke AG, Wilhelmshaven, Germany
Filed Sept. 27, 1965, Ser. No. 490,233
Claims priority, application Germany, Mar. 16, 1965, O 10,713
13 Claims. (Cl. 235—63)



1. In a calculator, in combination, apparatus for storing the quotient of a division, comprising register means including a series of ordinal register elements movable between a plurality of digital positions for storing the quotient of a division; means stepwise movable during the formation of a quotient along said series of register elements to successive ordinal positions registering with successive register elements; control means including an ordinal series of control elements respectively registering with said register elements, and being movable between an inoperative position and a control position, the one control element which registers with said stepwise movable means being coupled by the same in said control position with the respective register element, said control elements being mounted for movement in said control position to and from an actuating position; cyclically operating rotary drive means connected with said control means for moving said series of control elements during each revolution to and from said actuating position; and lost-motion timing means connecting said drive means with said control means for actuating said control means only after two revolutions of said drive means to move from said inoperative position to said control position so that said one coupled control element, when moved to said actuating position, moves said register element coupled therewith to successive digital positions during the third and the following revolutions of said drive means.

3,322,342
SENSOR-CONTROLLED MEANS FOR REGULATING THE TEMPERATURE OF A FLUID FLOW
Charles Clifford Veale, 950 Canyon View Drive, Laguna Beach, Calif. 92651
Filed Mar. 7, 1966, Ser. No. 541,422
17 Claims. (Cl. 236—12)

1. Temperature control means for fluid flow comprising:

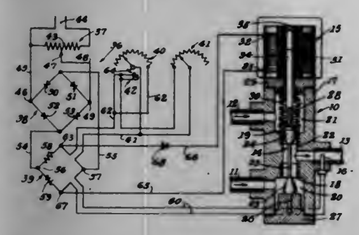
(a) a valve having a body with two inlets, each for water at different temperatures, and an outlet with a temperature sensor in the path of water flow through the outlet and having an electrical resistance that varies in response to changes of the level of temperature of the water passing through said outlet,

(b) a valve seat in the valve between said inlet and the outlet,

(c) a poppet provided with two spaced seat-closing elements, said seats and elements being relatively spaced so that, upon movement of the poppet, one said element moves in seat-closing direction while the other moves in seat-opening direction, thereby proportioning the flow from the inlets to the outlet according to the positions of the poppet elements,

(d) solenoid means which, when electrically energized, moves said poppet,

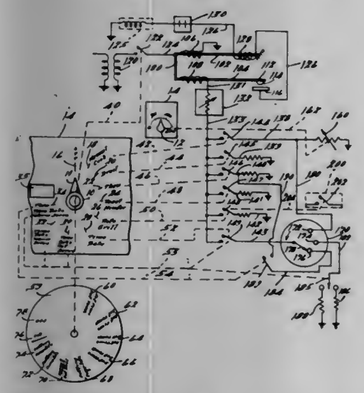
(e) A Wheatstone bridge connected to a source of electric current and provided, in two of its legs, with fixed reference resistors, a sensor leg of said bridge



being in circuit with said sensor, and a control leg thereof being provided with control rheostat means, the output terminals of the bridge being connected to the solenoid means, and

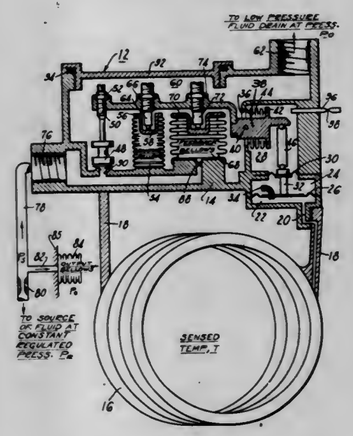
(f) an electric system, including the Wheatstone bridge, that energizes the solenoid means in response to resistance changes in the sensor to adjust the position of the poppet and its elements relative to the valve seats to proportion the flow reaching the valve outlet from the two valve inlets.

3,322,343
OVEN PROGRAMMER
Tore Hanssen and Robert Alexander Grant, both of Ann Arbor, Mich., assignors to King-Seeley Thermos Co., Ann Arbor, Mich., a corporation of Michigan
Continuation of application Ser. No. 212,245, July 25, 1962. This application Jan. 25, 1966, Ser. No. 532,494
1 Claim. (Cl. 236—15)



An oven controlling system for obtaining a plurality of cooking results comprising: a heat control means, an energy source, a bimetal control means having a compensating leg and a control leg, said heat control means being connected to said energy source through said bimetal control, a temperature sensor means connected in series to said energy source through said bimetal control to control actuation of said heat control means, a plurality of resistance circuit means, switch means to selectively alternately connect said plurality of resistance circuit means to said sensor means and said bimetal control to vary the temperature at which said heat control means is actuable to supply heat to said oven, one of said resistance circuit means comprising a manually operable rheostat for selecting oven temperatures for baking operations and the rest of said resistance circuit means providing single fixed resistances for obtaining set oven temperatures for particular cooking results, an operation selector knob, a timer means provided to control connection of some of said resistance circuit means to said sensor means and said bimetal control, said timer means being operably connected in said system only at selectable positions by movement of said operation selector knob to the certain positions representing timed cooking operations, thus forming a program selector, said program selector comprising a rotatable control knob, a plurality of switching positions provided around the rotative path of said control knob, switch mechanism operable by said control knob at each of said selector positions to switch in varying control circuitry for particular functions, an instruction plate associated with said control knob and being operable thereby, an instruction viewing area provided adjacent said control knob, and instruction indicia provided on said instruction plate and located relative to said control settings and said viewing area so that particular instructions are placed in said viewing area for certain control settings.

3,322,344
TEMPERATURE SENSOR HAVING RATE OF CHANGE OF TEMPERATURE SENSING MEANS
Joseph L. Peczkowski and David C. Thoman, South Bend, Ind., assignors to The Bendix Corporation, South Bend, Ind., a corporation of Delaware
Filed Mar. 17, 1965, Ser. No. 440,477
3 Claims. (Cl. 236—86)



1. Temperature responsive control apparatus comprising:

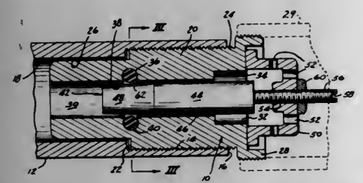
temperature probe means having an internal volume filled with a pressurized gas and being exposed to a variable temperature condition to be sensed whereby the pressure of the gas varies as a function of the sensed temperature;

a first chamber vented to the interior of said probe means;

a second chamber;

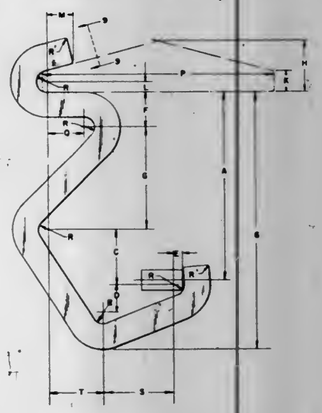
an evacuated gas filled third chamber;
a capillary passage connecting said first and second chambers;
a first fluid pressure responsive member separating said first and second chambers and responsive to a fluid pressure differential generated therebetween as a result of the flow restricting effect of said capillary passage;
a second fluid pressure responsive member separating said third and said second chambers and responsive to the fluid pressures therein;
means operatively connected to said first and second pressure responsive means for producing a useable output control signal in response to the forces derived from said fluid pressures acting upon said first and second pressure responsive members;
said first fluid pressure responsive member being responsive to the fluid pressure differential created across said capillary tube in response to a change in gas pressure in said first chamber resulting from a change in the sensed temperature;
said fluid pressure differential varying in magnitude at a rate proportional to the rate of change of the sensed temperature thereby providing a corresponding temporary lead force;
said gas filled third chamber defining a substantially constant pressure source under varying envirnomental temperature conditions of said third chamber to thereby render the fluid pressure differential across said second fluid pressure responsive means variable only as a function of the gas pressure in said second chamber.

3,322,345
TEMPERATURE REGULATED FLOW CONTROL VALVE
John E. Getz, Jackson, Mich., assignor to Sparton Corporation, Jackson, Mich., a corporation of Ohio
Filed Feb. 15, 1965, Ser. No. 432,534
2 Claims. (Cl. 236—93)



1. Temperature regulated fluid flow control apparatus comprising, in combination;
(a) a body,
(b) a fluid passage defined in said body,
said passage having a cylindrical wall portion,
(c) an annular recess defined in said body circumscribing and intersecting said passage,
said recess having a substantially circular transverse cross section in axial alignment with and annularly intersecting said passage cylindrical wall portion to define a slot therein,
(d) a thermally expandable and contractible annular control element closely received within said recess and adapted to extend into said passage, the extended distance of said control element being a function of control element temperature,
said annular control element being of circular transverse cross section, and
(e) a projection located within said passage concentric to said cylindrical wall portion and in axial alignment with said recess,
said projection having a circular cross section portion,
said circular cross section portion having a conical surface adapted to cooperate with said annular control element to define a fluid flow regulating constriction.

3,322,346
RAIL ANCHOR MEANS
Franklin Chapman, Mexico City, Mexico, assignor, by mesne assignments, to Julio Serrano Segovia
Filed July 13, 1965, Ser. No. 471,619
13 Claims. (Cl. 238—315)

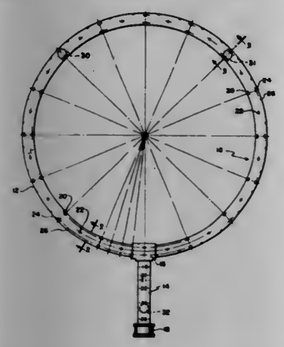


1. Rail anchor means comprising:
a rail having a base with a first flange and an opposite second flange, each flange having a flat flange bottom surface, a flange top surface, and an edge surface joining said bottom and top surfaces;
a rail tie with opposite side walls transverse to said rail and with a top surface below said flat flange bottom surfaces;
a rigid tie bar in said tie below and parallel to said rail, said tie bar having opposite protruding ends extending outwardly beyond said side walls, and having opposite tie bar edges;
a first rail anchor adjacent one side wall, said anchor including an anchor bar having an upper hook hooked over said first flange with an upper hook portion over a respective flange top surface, with a lower hook portion below said flange bottom surface, and with a hook joining portion joining said upper hook portion and said lower hook portion, having an outward intermediate bend, and having an inward and slightly upward lower bend, said upward lower bend terminating in an upward hook portion hooked around one edge of the adjacent protruding end of said tie bar;
a second rail anchor adjacent the other side of said tie, said second rail anchor being a mirror image of said first rail anchor and having its upper hook hooked over said second flange and having its upward hook portion hooked around the other edge of the other protruding portion of said tie bar.

3,322,347
DUAL PURPOSE ROTARY MOWER WASHER AND SPRINKLER DEVICE
Carroll L. Pierce, 7608 S. Drew, Hinsdale, Ill. 60521
Filed Aug. 2, 1965, Ser. No. 476,575
2 Claims. (Cl. 239—73)

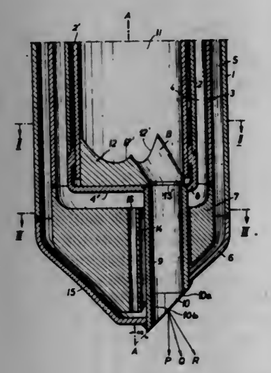
1. A combination rotary mower washer and lawn sprinkler device comprising a tubular, substantially circular shaped ring having a lead-in tube for conveying a source of water to said ring and a plurality of orifices

formed therein, said orifices being radially positioned about said ring and positioned so as to define four spaced circumferences, the orifices on one of said circumferences being formed at an angle within a range of 55° to 65° from the upper extremity of a vertical axis through said ring, the orifices on a second one of said circumferences being formed on the top of said ring and in alignment with said vertical axis, said orifices on a third one of said



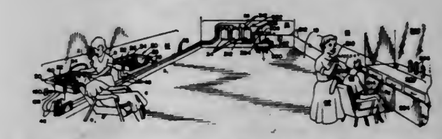
circumferences being formed at an angle within a range of 25° to 35° from the upper extremity of said vertical axis, and the orifices on the fourth one of said circumferences being formed at an angle within a range of 55° to 65° from the upper extremity of said vertical axis, and numerical indications on said lead-in tube for indicating the proper position for said device beneath a rotary mower.

3,322,348
APPARATUS FOR THE TREATMENT OF METAL MELTS WITH GASES
Rudolf Vonnemann, Dortmund-Wellinghofen, Germany, assignor to Dortmund-Horder Huttenunion Aktiengesellschaft, Dortmund, Germany, a corporation of Germany
Filed Dec. 30, 1964, Ser. No. 422,188
Claims priority, application Germany, Jan. 9, 1964, D 43,314
5 Claims. (Cl. 239—132.3)



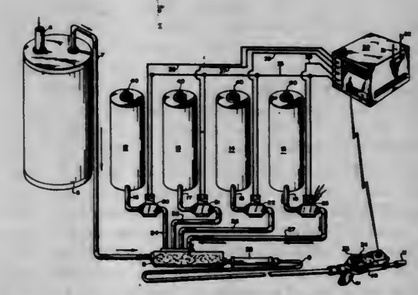
1. An apparatus for the treatment of a bath of molten metal with a gas, comprising a blast pipe with a central vertical axis above the surface of said bath, said pipe having an upper part with a central bore connected to a source of treatment gas under pressure; a plurality of downwardly open vertical nozzle ducts with individual axes parallel to said central vertical axis in a lower part of said pipe arrayed around said axis; and conduit means connecting said ducts with said bore, each of said ducts having a bottom opening forming an outlet for said treatment gas, said opening being formed with a relatively low-lying edge portion proximal to said central vertical axis and with a relatively high-lying edge portion remote from said central vertical axis, thereby defining a discharge port inclined at an acute angle to its individual axis.

3,322,349
APPARATUS AND SYSTEM FOR DISPENSING HAIR PREPARATIONS
Leroy H. Knibb, 181 E. Lake Shore Drive, Chicago, Ill. 60611
Filed Oct. 19, 1964, Ser. No. 404,664
11 Claims. (Cl. 239—135)



1. In a beauty parlor distribution system for supplying a plurality of different kinds of liquid shampoo to each of a series of operating stations disposed within a shampoo-applying zone, means establishing a supply station remote from said zone, a compressed air tank at said supply station, a compressor having its outlet side operatively connected to the tank for delivering air under pressure to the latter, a prime mover operatively connected to the compressor in driving relationship, a plurality of hermetically sealed containers at said supply station, one for each kind of liquid shampoo, said tank being provided with an outlet fitting having a plurality of outlets, one for each container, a conduit connecting each outlet to one of said containers, a dip tube within each container, a manifold conduit connected to each dip tube and extending through said zone, a plurality of portable shampoo-dispensing heads, one for each container, at each of the operating stations, and a branch conduit connecting each manifold conduit to one of said dispensing heads at each operating station in said zone.

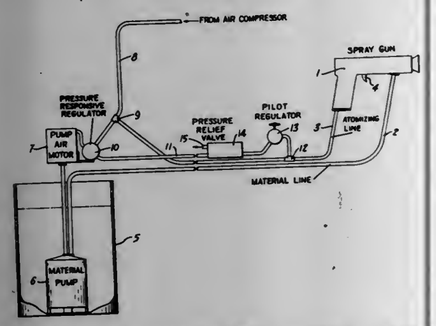
3,322,350
MOBILE WASHING APPARATUS FOR VEHICLES OR AIRCRAFT HAVING CHEMICAL MIXING MEANS THEREIN
Kurt J. Heinicke and Gerald A. McDonnell, both of Hollywood, Fla., assignors to Heinicke Instruments Company, Hollywood, Fla., a corporation of Florida
Filed Dec. 14, 1964, Ser. No. 417,921
2 Claims. (Cl. 239—172)



1. A washing apparatus for cleaning relatively large vehicles or aircraft that is supported upon a mobile conveyance, the apparatus including a main water supply tank

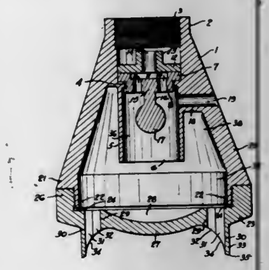
that is pressurized and with the main tank having a take-off pipe that is connected to a mixing chamber at one end, the mixing chamber at its opposite end being connected to a flexible hose that is coupled to a hand controlled nozzle, a plurality of chemical containing tanks for containing various chemicals to be mixed with the washing fluid and with each of the chemical tanks having a take-off pipe at their lower ends that are coupled to the mixing chamber, each of the take-off pipes being provided with a solenoid valve for controlling the flow of chemical from any selected tank to the mixing chamber, a remote control apparatus supported within the conveyance and means associated with the hand nozzle for remotely controlling any selected solenoid valve in accordance with the particular chemical to be employed in the washing fluid, the remotely controlled apparatus being actuated by a knob carried upon the hand nozzle and whereby the knob actuates the remotely controlled device to energize either of the solenoid valves and cut-off means carried by the nozzle for interrupting the flow of fluid from the hose, the hose permitting a jet spray of washing fluid to remote parts of the vehicle or aircraft and whereby the knob of the nozzle may remotely control the movement of either of the solenoid valves regardless of the position of the operator with respect to the conveyance and an impulse device disposed within the hose line and whereby to vibrate and also rotate the fluid passing through the hose line for discharge from the nozzle and to impart a push-pull action upon the fluid from the nozzle and to facilitate the removal of deposits upon the vehicle or aircraft.

3,322,351
APPARATUS FOR SPRAYING FLUENT MATERIALS
Joseph E. Hackel, 721 W. Montclaire Ave., Milwaukee, Wis. 53217
Continuation of application Ser. No. 348,014, Feb. 28, 1964. This application May 9, 1966, Ser. No. 548,802
12 Claims. (Cl. 239—332)



1. In apparatus for spraying fluent material, a spray applicator for directing the atomized material against the surface being coated and having on-off control means, a source of fluent material, a supply line connecting the material source and the spray applicator, a pump in said supply line to force the material through the supply line to the spray applicator, an air motor to drive the pump, a source of air under pressure, an air supply line connecting the air pressure source and the air motor to drive the motor, an atomizing air line connecting the air pressure source and the spray applicator, a pressure responsive air flow regulator valve disposed in the air supply line and having a regulation chamber to regulate the air pressure through the air motor to control the pump and thereby the flow of material through the supply line, an air pressure line placing the regulation chamber of the pressure responsive air flow regulator valve in communication with the atomizing air line at a location adjacent to and spaced rearwardly from the on-off control means on the spray applicator, and control means adjacent to the spray applicator in the air pressure line to regulate the pressure in the regulation chamber of the pressure responsive air flow regulator valve.

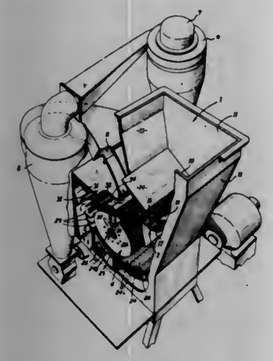
3,322,352
SPRAYER FOR SHOWER BATH
Jose Maria Araluce Alcantara, Mendez Nunez 10, Barcelona, Spain
Filed Feb. 1, 1965, Ser. No. 429,237
7 Claims. (Cl. 239—428.5)



1. Sprayer for shower bath comprising a conduit, an intake mouth, said conduit being axially aligned with the intake mouth, a hollow casing, said conduit extending up to the inside of the casing forming the surface of the sprayer, the said conduit having an inner rim in its upper half, a disk-shaped part resting on said rim and having transverse perforations, a shank in the center of its lower face and a sphere at the end of the shank, said sphere remaining inside the conduit without reaching its lower end, another similar part located upon said disk-shaped part and having a central hole facing the perforations in the first disk-shaped part, said sprayer body having a hole reaching and contacting the tubular extension in a place comprised between the inner rim and the sphere, a convex-shaped plate closing the lower side of the sprayer body and having holes of tetragonal section located in the peripheral zone of the plate.

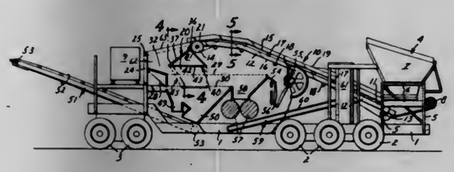
3,322,353
PULVERIZER
Leslie Palyi, Toronto, Ontario, Canada, assignor to Toronto Grinding & Milling Machinery Limited, Toronto, Ontario, Canada
Filed Feb. 3, 1964, Ser. No. 342,307
Claims priority, application Great Britain, Feb. 4, 1963, 4,448/63
10 Claims. (Cl. 241—49)

9. A pulverizer comprising a casing including opposed side walls, a rotor extending transversely between the side walls and having spaced apart hammers projecting from its periphery, a pulverizer element positioned adjacent the rotor and extending between the side walls, the side walls with the pulverizer element and the periphery of the rotor together defining a passage which converges downstream relative to the direction of rotor rotation, means to induce a flow of air through the passage, the pulverizer element including stepped crusher plates having discontinuities in their surfaces and also including a plate which is hinged on an axis parallel with the rotor axis and adjacent the downstream edge of the crusher plates for limited pivotal movement so that the effective distance between the hinged plate and the periphery of the rotor may be varied, spaced apart teeth projecting from the hinged plate, the hammers of the rotating rotor meshing in the spaces between the teeth and the teeth correspondingly meshing in the spaces between the hammers, a series of classifier plates arranged side by side adjacent the downstream edge of the hinged plate and being hinged on axis which are parallel to the rotor axis so that their



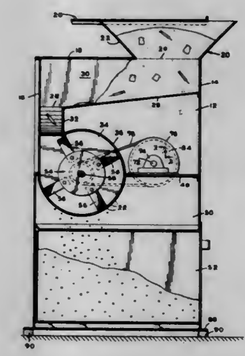
orientation may be varied thus to vary the amounts of pulverized material which they deflect, and diverter plates downstream of the classifier plates to create turbulence in the flow of air through the passage.

3,322,354
AGGREGATE PROCESSING PLANT
Milton D. Ostermann and Alvin C. Ostermann, both of Turtle Lake, Wis. 54889
Filed Mar. 18, 1964, Ser. No. 352,808
8 Claims. (Cl. 241—81)



5. In an aggregate processing plant having an elongated frame:
(a) a feeding hopper into which aggregate material of various size particles is fed,
(b) a multi-deck main screen assembly floated for vibration with respect to said frame, said main screen assembly having vertically spaced screen decks of various mesh sizes which become smaller with each succeedingly lower deck and with the lowermost deck passing particles of a finished size,
(c) vibratory means mounted on said frame and attached to said main screen assembly for imparting vibratory movement to said screen decks in a direction intersecting the plane of said screen decks at an oblique angle thereto,
(d) a main aggregate feeding conveyor extending outwardly from said hopper,
(e) a skimming screen mounted in a declining position generally parallel with the direction of vibration of said main screen assembly below the discharge end of said conveyor to receive material therefrom, said skimming screen being connected to an upper portion of said main screen assembly for vibration therewith in the generally same direction so as to separate the finer particles therefrom by a shearing action of the screen against material gravitating down said declining screen,
(f) a diverter plate structure disposed below said skimming screen and adapted to direct the material passing through said skimming screen to opposite sides of said main screen assembly,
(g) a pair of spaced and generally tubular chutes disposed at said opposite sides of said main screen assembly and depending therefrom to bypass said main screen assembly and receive and conduct from said diverter plate structure the finer particles passing through said skimming screen,
(h) the oversize material from said skimming screen passing into said main screen assembly for further processing,
(i) crushing apparatus for reducing the material not passed by the upper deck of said main screen assembly,
(j) means for returning the material discharged from said crushing apparatus to said main conveyor for recirculation, and
(k) a delivery conveyor for receiving the material of a finished size from said chutes and also from said lowermost deck of the main screen assembly.

3,322,355
DISINTEGRATING MACHINE
James G. Bryant, 1504 10th Ave., Port Huron, Mich. 48060
Filed Mar. 1, 1965, Ser. No. 436,003
14 Claims. (Cl. 241—186)

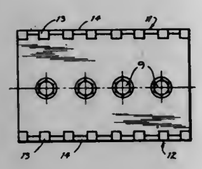


1. A machine for disintegrating or grinding materials comprising a housing having a hopper at its upper end, the lower end of said hopper being defined by a shelf inclined slightly downward in a direction away from the upper end of said hopper and defining an outlet opening adjacent the lower end thereof, means forming a hammermill chamber into which a batch of material on said shelf is adapted to gravitate through said outlet opening, a hammermill rotor journalled for rotation in said chamber, a motor for driving said rotor and a vibrator mounted on the housing and driven by said motor for vibrating said housing whereby to cause material on said shelf to gravitate to said outlet opening and discharge into said rotor chamber at a slow uniform rate.

3,322,356
ROTARY CRUSHER HAMMER WITH ALTERNATE THICK AND THIN WEAR STRIPS
Leonard E. Toews, Willowdale, Ontario, Canada (% Letco Limited, 1212 Bishop St. N., Preston, Ontario, Canada)
Filed June 16, 1964, Ser. No. 375,468
2 Claims. (Cl. 241—197)

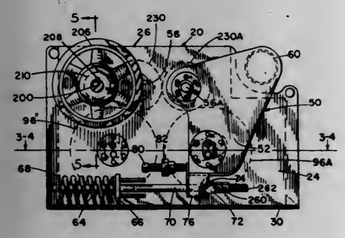
1. A rotary hammer head comprising a head having alternate thick and thin strips of tungsten carbide brazed

to the face of said head, said head having alternate grooves formed in its face to receive the thicker strips



so that the hammer surface of the strips constitute a planar or smooth surface.

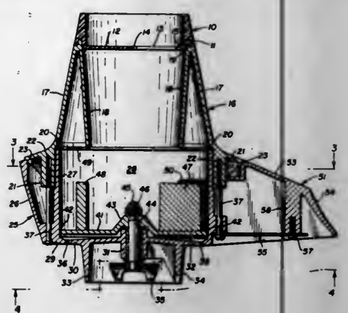
3,322,357
ROLL TYPE ROCK CRUSHER
Harold J. Miller, Galion, Ohio, assignor, by mesne assignments, to Harsco Corporation, Harrisburg, Pa.
Filed Nov. 18, 1963, Ser. No. 324,328
18 Claims. (Cl. 241—232)



1. A crushing machine comprising, in combination, frame means including spaced side members provided with slots, a top material intake opening, and a bottom material outlet opening; a stationary crusher roll rotatably mounted between said side members; torque means including a right arm portion pivotally mounted on one of said side members, a left arm portion pivotally mounted on the other of said side members, and a connecting portion forming a rigid connection between outer ends of said arm portions; shaft means mounted between said arm portions eccentric of said pivotal mountings and extending through said slots; a yieldable crusher roll rotatably mounted on said shaft means; and means for biasing said yieldable crusher roll towards said stationary crusher roll.

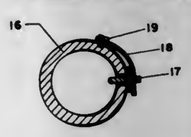
3,322,358
ICE CRUSHER ATTACHMENT FOR MOTOR DRIVEN POWER UNITS
Thomas W. Heermans, Racine, Wis., assignor to Scovill Manufacturing Company, Waterbury, Conn., a corporation of Connecticut
Filed Sept. 23, 1963, Ser. No. 310,820
12 Claims. (Cl. 241—275)

12. An ice crusher attachment for motor driven power units for producing uniformly coarse ice particles comprising a housing having a cylindrical wall and an exit opening in said wall, means for guiding ice cubes into the housing, and means comprising a rotatable disc of a diameter substantially equal to the diameter of the housing and a plate on the disc extending along a radius thereof within the housing for receiving the ice cubes from the guiding means and throwing said cubes against the housing wall with sufficient force to shatter the cubes



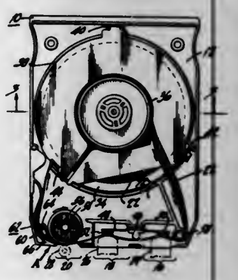
into coarse ice particles and for sweeping the particles through the opening.

3,322,359
CORE SPACER FOR DIFFERENTIAL WINDING MACHINE
Nicholas G. Dales, Scarsdale, N.Y., and Roger W. Young, Montclair, N.J., assignors to John Dusenbery Company, Inc., Clifton, N.J., a corporation of New Jersey
Filed Jan. 11, 1965, Ser. No. 424,562
2 Claims. (Cl. 242—68)



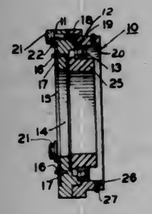
1. For use on a differential rewinding machine, the combination of a core spacer having a radial hole extending through the wall thereof, a key slidably disposed in said hole, spring means normally biasing the key so that an end thereof extends beyond the inner wall of the spacer, and a mandrel having an axial keyway formed therein, said mandrel having a tapered end which engages the end of said key as the mandrel is inserted through the core spacer, said key thereafter engaging said keyway to couple said spacer to said mandrel.

3,322,360
ENDLESS TAPE CARTRIDGE
Henry E. Roys, Indianapolis, Ind., assignor to Radio Corporation of America, a corporation of Delaware
Filed Aug. 2, 1965, Ser. No. 476,510
8 Claims. (Cl. 242—55.19)



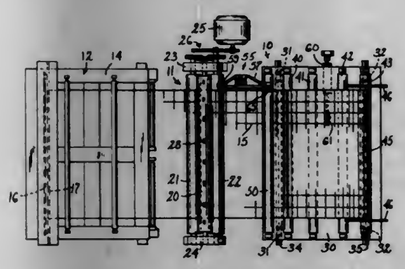
1. In an endless loop tape cartridge of the type including a pressure roller operably arranged to effect transport of a magnetic tape in cooperation with mechanism including a capstan drive means, the combination of:
- means in said cartridge to guide tape from an endless loop past said pressure roller; and
- tape stripping means pivotally mounted in said cartridge in a position to bear against said pressure roller and extend in a direction opposite to the direction of tape travel and pressure roller rotation toward a location adjacent the area of pressure contact of the tape.

3,322,361
LOW TENSION CORE ADAPTER
Roger W. Young, Upper Montclair, N.J., assignor to John Dusenbery Company, Inc., Clifton, N.J., a corporation of New Jersey
Filed Sept. 3, 1965, Ser. No. 484,865
9 Claims. (Cl. 242—56.9)



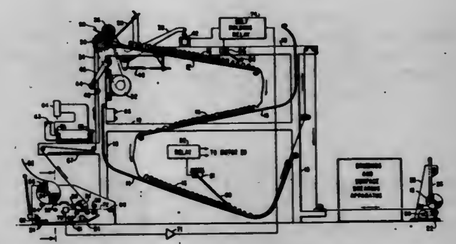
1. An adapter for use in supporting a tubular core on a mandrel, which adapter comprises,
(a) a cylindrical outer member having a portion insertable into an end of the core,
(b) holding means carried by said outer member, said holding means cooperating with the core to prevent relative rotation between the core and said member,
(c) a tubular inner member concentric with said outer member and insertable over the mandrel, and
(d) bearing means positioned between the said outer and inner members to afford relative rotation therebetween.

3,322,362
ALIGNING APPARATUS
Alfred Alling Nordgren, New Britain, Conn., assignor to The Leonard Concrete Pipe Company, Inc., Hamden, Conn., a corporation of Connecticut
Filed July 6, 1965, Ser. No. 469,497
4 Claims. (Cl. 242—57.1)



1. A system for providing wire mesh material having a plurality of elongated wire strands joined together by a plurality of wire cross strands which are spaced apart from each other on said elongated wire strands to a utilization device from a rotating reel of said material, said system comprising support means for holding the reel, said support means movable substantially parallel to the axis of rotation of the reel, means for moving the support means, sensing means responsive to the position of an edge of the material for controlling the means for moving the support means, said sensing means including a pivotally supported plate for continuously engaging an edge of the material as the material is expelled from the reel, said plate portion in contact with the edge of the material having a dimension greater than the distance between adjacent cross strands of the material, and a plurality of electrical switch means controlled by the position of said plate to control said moving means.

3,322,363
APPARATUS FOR PREPARATION OF TEXTILE FABRICS FOR PROCESSING
Ralph L. Davidson, Southboro, and Stanley A. Schmidt, Northboro, Mass., assignors to Curtis & Marble Co., a corporation of Massachusetts
Filed Feb. 24, 1965, Ser. No. 434,855
11 Claims. (Cl. 242—58.1)



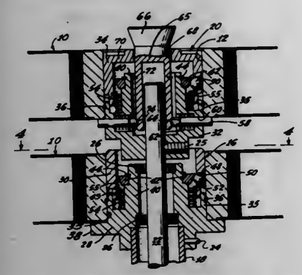
1. In apparatus for expediting the joining of the tail edge of a strip of web fabric of limited length to the lead edge of a similar strip to form a strip of extended length suitable for subsequent processing in order that such processing of the extended strip may proceed without interruption, a feeder cradle for supporting a roll of web, wrapped about a core, a sewing bench above said cradle, a smooth surfaced drive roller above said bench, means for continuously rotating said drive roller, a friction-surfaced idler roller disposed adjacent to said drive roller and normally engaged with said drive roller to nip said web between said rollers and advance it steadily, a photoelectric cell disposed on one side of said web, a light source disposed on the other side of said web and oriented to direct a light beam toward said cell, said beam being normally obstructed by said web, electromagnetic means for withdrawing said idler roller from engagement with said drive roller in response to current output of said cell which occurs when the tail edge of said web is lifted above the path of said light beam, thereby to stop the roller-driven advance of said web and to relieve said web of tension, and web-catching means between said bench and said driver roller for preventing fall of said web under the influence of its weight.

3,322,364
DUAL HUB FOR REELS
Frank Dekker, Inglewood, Calif., assignor to Minnesota Mining and Manufacturing Company, St. Paul, Minn., a corporation of Delaware
Filed Mar. 15, 1965, Ser. No. 439,808
18 Claims. (Cl. 242—68.3)

1. In an apparatus for rotatably mounting two closely spaced coaxial reels having axial openings with longitudinal grooves therein, the combination of:
closely spaced inner and outer axially aligned hub

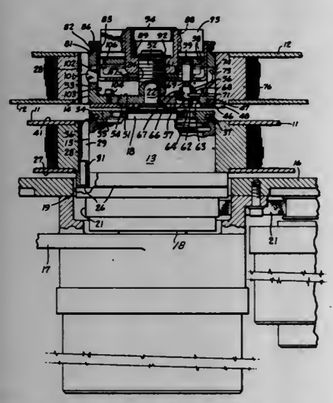
structures to mount an inner reel and an outer reel respectively;

radially extending support means on the two hub structures respectively to abut the inner faces of the two reels respectively, and



the support means on the outer hub structure being radially retractable to permit the inner reel to pass over the outer hub structure.

3,322,365
COAXIAL REEL MOUNT
William J. Martin, Sunnyvale, and Leonard T. Harris, Redwood City, Calif., assignors to Ampex Corporation, Redwood City, Calif., a corporation of California
Filed June 7, 1965, Ser. No. 461,850
13 Claims. (Cl. 242—68.3)



1. Apparatus for mounting a pair of reels on a pair of independently rotatable concentric inner and outer shafts, the inner shaft having a portion extendinging axially beyond the outer shaft, comprising:

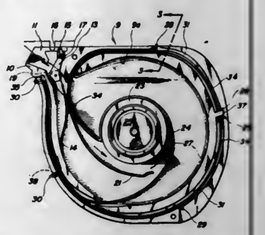
first means on the outer shaft for mounting and securing a first of the reels thereon; and

second means for mounting and securing the second of the reels on the extending portion of the inner shaft;

said second means including third means operable to operate said first means to secure the first reel on said outer shaft.

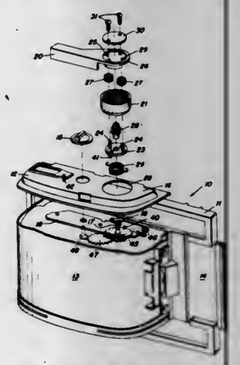
3,322,366
AUTOMATIC TAKE-UP CARTRIDGE
James F. Hayden, Rochester, N.Y., assignor to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
Filed Aug. 25, 1965, Ser. No. 482,519
13 Claims. (Cl. 242—71.1)

1. In a device for receiving and winding a flexible strip material, said device having a casing provided with an opening for the passage of the material thereinto and having a rotatably driven take-up core, the improvement comprising retractable guide means disposed adjacent said core for guiding the leading end of said strip ma-



terial around said core, and means for retracting said retractable guide means away from said core when said strip material has been wound a sufficient number of times around said core to assure a firm grip thereon.

3,322,367
ROLL FILM HOLDERS
Charles R. King, East Rochester, N.Y., assignor to Graflex, Inc., Rochester, N.Y., a corporation of New York
Filed Aug. 6, 1965, Ser. No. 477,693
6 Claims. (Cl. 242—71.4)



1. In a holder for photographic roll film including a supply spool, a take-up spool, means for winding said take-off spool to advance a strip of photographic film for a sequence of exposures, and means enclosed within a housing at one end of said holder for indicating the position of said strip in said holder, the improvement comprising: a ring gear having internal teeth and being mounted adjacent said housing; a film-advancing lever mounted closely over said housing for pivotal motion about the axis of said ring gear; a plurality of rotatable planet gears mounted within said ring gear and meshed with said ring gear; means cooperable with said lever for moving said planet gears relative to said ring gear to rotate said planet gears; a sun gear disposed in meshed relation with said planet gears for rotation therewith; and means extending through said housing for transmitting said rotation of said sun gear to said indicating means and to said winding means.

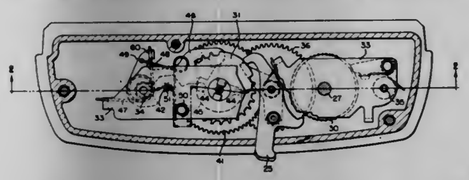
3,322,368
FILM-WINDING AND INDICATING CONTROL
Charles R. King, East Rochester, N.Y., assignor to Graflex, Inc., Rochester, N.Y., a corporation of New York
Filed Mar. 7, 1966, Ser. No. 532,399
9 Claims. (Cl. 242—71.4)

1. In a device for advancing a leader for photographic roll film and advancing said film through a metered sequence of positions for a succession of exposures, said device including a rotatable indicator for said exposures, and a mechanism for driving said film and said indicator, and wherein said drive mechanism includes a drive gear, a driven index wheel with which said indicator is rotated, a lock lever cooperating with said index wheel for stopping said drive mechanism in successive positions corresponding to said sequence of film positions, a cam rotated with said index wheel, and a follower for said cam, the improvement comprising:

(a) a pair of superposed counter gears, the teeth of each of which are disposed for meshing with said drive gear, and predetermined sectors of each of which are toothless;

(b) means for rotating said cam and said index wheel with a first one of said counter gears;

(c) means for rotating said counter gears together through a predetermined rotation during which said



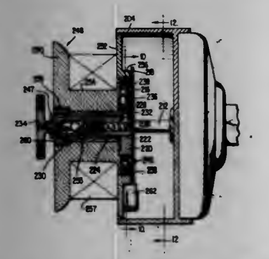
teeth of only one of said counter gears are in mesh with said drive gear;

(d) means for disposing said counter gears in respective starting positions for each roll of said film;

(e) said second counter gear being advanceable from its starting position independently of said first counter gear through an initial predetermined rotation corresponding to said advancement of said leader; and

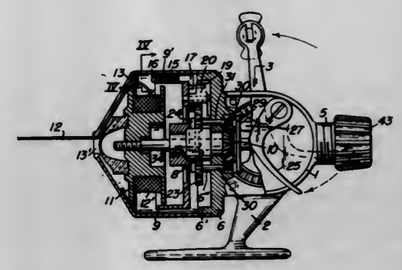
(f) said rotating means being arranged for advancing said first counter gear with said second counter gear during a terminal portion of said initial predetermined rotation of said second counter gear to a position from which said first counter gear is advanceable through said successive positions.

3,322,369
HYDRAULICALLY ACTUATED TENSION CONTROL FOR FISHING REELS
Edwin M. Haenelt, Jr., 71 Sproat St., Middletown, N.Y. 10940
Filed June 29, 1965, Ser. No. 480,539
15 Claims. (Cl. 242—84.5)



6. A fishing reel of the spinning type dimensioned to be attached to a fishing rod and the like, comprising in combination, a shaft, means mounting said shaft for reciprocating movement, a line spool rotatably mounted about said shaft and reciprocable therewith, and hydraulically operated tension control means including a friction member engageable with said spool to control rotation thereof.

3,322,370
LINE CONTROL MECHANISM FOR A SPINNING REEL
Karl Siegrist, Bombachhalde 22, Zurich, Switzerland
Filed May 12, 1964, Ser. No. 366,859
Claims priority, application Switzerland, June 21, 1963, 7,711/63
6 Claims. (Cl. 242—84.21)

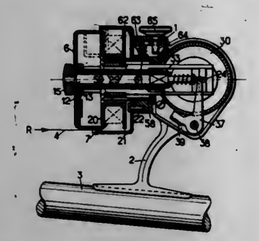


1. A spinning reel for fishing rods, comprising a housing provided with an outlet, an axially fixed hollow shaft rotatably journaled in said housing in substantial alignment with said outlet, a spindle slidably received in said shaft, a brake member on said spindle confronting a part of said housing in the vicinity of said outlet, a spool fixed to said spindle, a rotor surrounding said spool and fixed to said shaft, a control member in said housing positioned for axial movement between an advanced and a retracted position, line-catching means carried on said rotor and operatively coupled with said control member for movement between a first position in the path of a line running from said spool through said outlet and a second position withdrawn from said path, a manually operable actuator on said housing for axially displacing said spindle from a normal withdrawn position to an offnormal forward position whereby said brake member is brought into proximity with said part for clamping said line therebetween, a lost-motion coupling connecting said spindle with said control member for movement of said control member to said advanced position whereby said line-catching means begins to move toward said second position upon partial forward displacemeent of said spindle, and mechanism for rotating said shaft to wind said line on said spool and to reciprocate said spindle and said spool within the limits of the idle stroke length of said lost-motion coupling whereby said line-catching means remains in said first position.

3,322,371
SPINNING REEL WITH FRICTION BRAKE
Michel Rouanet, 27 Rue des Girondins, Saint-Cloud, France
Original application Apr. 29, 1960, Ser. No. 25,607, now Patent No. 3,141,629, dated July 21, 1964. Divided and this application Apr. 27, 1964, Ser. No. 362,606
Claims priority, application France, June 9, 1959, 796,976
1 Claim. (Cl. 242—84.5)

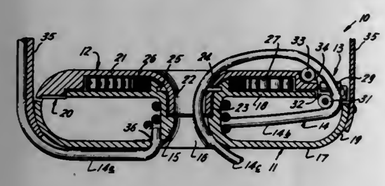
A brake for a fishing reel of the type including a frame, a rotatable spool arranged to hold a line and mounted on said frame for free delivery of the line therefrom substantially axially of the spool, said brake comprising a hollow drum rotatably mounted on said frame co-axially of said spool for free rotation relative to said frame, said spool being mounted on and carried by said drum to rotate therewith, adjustable brake means mounted on said frame and disposed to exert a braking pressure on said drum to normally hold said spool against rotation, whereby the

spool is allowed to rotate and the line to pay off only as may be necessary to keep the pull force exerted by a fish from breaking the line, a bell-like member including a flange encircling said spool, said bell-like member being



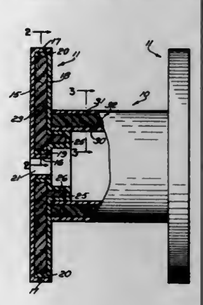
mounted on said frame and including an aperture through which said drum extends, said spool being mounted in said bell-like member, and said adjustable brake means being mounted outside of said bell-like member.

3,322,372
CABLE WINDING DEVICE
Gösta Ludvig Hellström, Stockholm, Sweden, assignor to Aktiebolaget Electrolux, Stockholm, Sweden, a corporation of Sweden
Filed Apr. 12, 1965, Ser. No. 447,332
6 Claims. (Cl. 242—107)



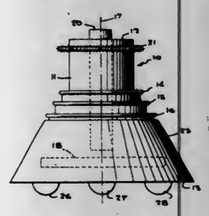
1. A cable winding device comprising a fixed drum including a barrel portion and having a central opening extending axially through said barrel portion, an annular winding control member having a tubular, central hub rotatably mounted in said central opening of the drum, said control member being yieldably urged to rotate in one direction relative to said drum about the axis of said opening and carrying cable guiding means spaced radially outward from said barrel, a cable extending outwardly from said barrel into engagement with said guiding means and, from the latter, inwardly over said annular control member to and axially through said hollow hub and said opening of the drum so that rotation of said control member in said one direction causes winding of the cable on said barrel and a pull exerted on the cable passing through said opening causes rotation of said control member in the opposite direction for unwinding the cable from said barrel, said drum having substantially radially directed walls extending outward from the ends of said barrel portion to contain the cable wound on the latter and the outer periphery of one of said walls being turned toward the other of said walls to define an annular slot around the periphery of said other wall, said annular control member extending over said other wall and having its outer periphery closely adjacent to said outer periphery of said one wall, said control member further having an aperture adjacent its outer periphery to register with said annular slot, and said guiding means being mounted adjacent said aperture to engage the cable passing therethrough.

3,322,373
LIGHTWEIGHT REINFORCED REEL
John A. Wilson, Jr., Warwick, R.I., and Edward J. Boyer and Charles M. Vander Pyl, Attleboro, Mass., assignors to Wanskuck Company, a corporation of Rhode Island
Continuation of application Ser. No. 443,556, Mar. 29, 1965. This application Oct. 12, 1966, Ser. No. 586,168
3 Claims. (Cl. 242—118.7)



1. A reel comprising a barrel with heads at the ends of the barrel, said heads each comprising spaced plastic plates reinforced with glass fibers with an opening at the axial center, a supporting core between said plates and contacting both of said plates, lips at said center opening and at the outer periphery of each head extending from one plate to the other plate enclosing said core, said barrel comprising spaced concentric tubes with a supporting core between said tubes and contacting said tubes, said supporting cores for said heads and barrel being of foam plastic material of less density than the material of said plates and tubes.

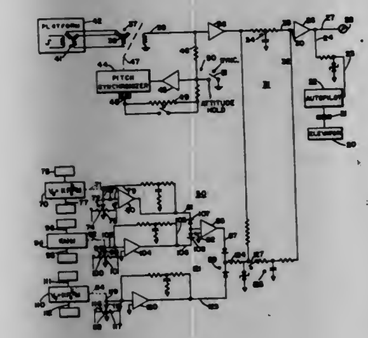
3,322,374
MAGNETOHYDRODYNAMIC PROPULSION APPARATUS
James F. King, Jr., 925 Goodwood Road, Winston-Salem, N.C. 27106
Filed Sept. 30, 1964, Ser. No. 400,456
9 Claims. (Cl. 244—62)



1. A magnetohydrodynamic effects craft adapted to travel through a surrounding fluid medium wherein the zone of the medium adjacent the craft is responsive to magnetic fields to conduct mutually induced eddy currents, comprising a plurality of electrically conductive coil means capable of producing magnetic fields surrounding the craft upon conduction of electric current therethrough arranged serially along an axis of the craft paralleling a desired direction of travel, means for applying polyphase alternating current electric voltages to said coil means to produce a plurality of magnetic fields fluctuating responsive to alternating currents in said coil means which are phased and magnetically superimposed to produce a collective driving magnetic field surrounding said

craft whose point of maximum flux density repetitively progresses from a leading end position relative to said direction of travel to a trailing end position and switches back to said leading end position, said driving magnetic field being of sufficient strength to induce eddy currents in the adjacent zone of said fluid medium and thereby constitute the fluid medium an equivalent electrical conductor interacting with said driving magnetic field to be driven in the direction of travel of the driving magnetic field and effect propulsion of said craft in the selected direction of travel.

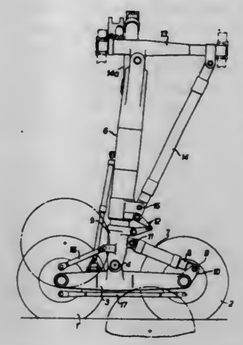
3,322,375
CONTROL APPARATUS
John C. Larson, Minneapolis, Minn., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware
Filed Sept. 21, 1964, Ser. No. 397,960
12 Claims. (Cl. 244—77)



1. An apparatus for following a desired flight profile for an aircraft which may be delineated by two curves which cross at an acute angle, comprising: means for developing at an altitude a first air speed error signal corresponding to the difference between the craft actual air speed and a lower equivalent airspeed delineated by one curve; means for developing a second air speed error signal corresponding to the difference between the actual air speed of the craft at the altitude and a joint function of both Mach and altitude delineated by the second curve; and means for comparing said two air speed error signals and selecting the one calling for greater increase in airspeed whereby to follow one of said two curves.

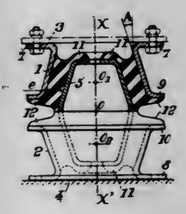
3,322,376
RETRACTABLE UNDERCARRIAGES FOR AIRCRAFT
Christopher Bernard Vere Neilson, Frodsham, and Jack Perdue, Warrington, England, assignors to Electro-Hydraulics Limited, Warrington, England, a corporation of the United Kingdom
Filed Oct. 5, 1964, Ser. No. 401,534
Claims priority, application Great Britain, Oct. 8, 1963, 39,710/63
7 Claims. (Cl. 244—102)

1. A retractable undercarriage for an aircraft, said undercarriage comprising a principal suspension leg including a cylinder and a tube slidable therein, a bogie frame pivotally attached to the slidable tube at the lower end thereof, at least one pair of ground-engaging wheels rotatably mounted on the bogie frame, a principal shock absorber for absorbing substantially all the vertical kinetic energy on landing located between the sliding tube and the bogie frame and adapted to tilt the bogie frame so that the landing loads are taken by one only of said pair of wheels, and auxiliary means acting between said



bogie frame and said slidable tube for tilting the bogie frame, so that in the free-in-air position one wheel is lower than the other.

3,322,377
ANTI-VIBRATION RESILIENT SUPPORTS
Jean Morlon, Bourg-la-Reine, France, assignor to Paulstra
Filed Mar. 24, 1965, Ser. No. 442,405
Claims priority, application France, Apr. 9, 1964, 970,404
3 Claims. (Cl. 248—10)



1. A resilient support comprising a fixed first rigid armature having flange means for securement to a supporting surface, a moveable second rigid armature having flange means for securement to a supported object, a moveable third rigid armature and at least one block of elastomer interposed between said first and third armatures and between said second and third armatures and adherent to said armatures, said third armature and said elastomer block constituting, together, the only connection between said two first mentioned armatures, wherein,

(a) said fixed first rigid armature has a vertical axis of symmetry, the sections of said first armature taken in planes perpendicular to said axis consisting of closed curves symmetrical about said axis, the vertical sections of said first armature taken in planes passing through said axis consisting of pairs of substantially straight lines oblique to said axis, and symmetrical with respect to each other and with respect to said axis,

(b) said movable second rigid armature is disposed in opposed spaced relation to said first armature and has an axis of symmetry normally in coincidence

with said first mentioned axis of symmetry, the sections of said second armature taken in planes perpendicular to said second mentioned axis of symmetry consisting of closed curves symmetrical about said second mentioned axis, the vertical sections of said second mentioned armature taken in planes passing through said second axis consisting of pairs of substantially straight lines oblique to said second axis and symmetrical with respect to each other and with respect to said second axis, the obliquity of the lines of the said second armature in the vertical sections being opposed to those of the lines in the said first armature vertical sections,

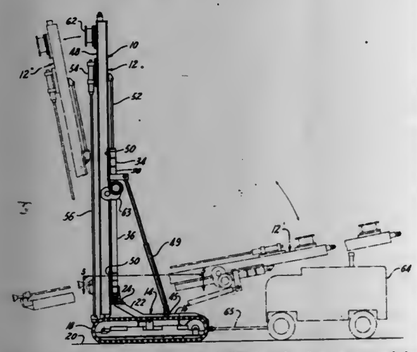
(c) said movable third rigid armature normally is disposed in opposed spaced relation to both said first and second armatures about said vertical axis and is symmetrical thereabout, every section of said third armature taken in a plane passing through its axis consisting of two pairs of substantially straight lines, the lines of one pair making an angle with each other substantially equal to that angle made with the two lines in the vertical section of said first armature located in the same axial plane, the lines of the other pair making an angle with each other substantially equal to that angle made by the two lines in the vertical section of said second armature located in the same axial plane,

(d) said elastomer block is arranged so that the side wall of said third armature located opposite said first armature is normally substantially parallel thereto and the side wall of said third armature located opposite said second armature is normally substantially parallel thereto,

(e) most of the horizontal sections of said elastomer block intersect either both said first and said third armatures or both said second and said third armatures, and

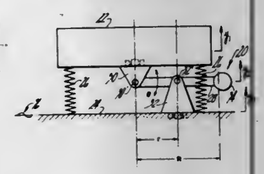
(f) the length of said vertical section lines of each portion of said elastomer block located between said third armature and each of said first and second armatures taken in the direction of the said armature lines taken in the vertical planes is several times the thickness of said elastomer block measured transversely to said lines.

3,322,378
TRIPOD DRILL SUPPORT
Charles T. Thompson, Claremont, N.H., assignor to Joy Manufacturing Company, Pittsburgh, Pa., a corporation of Pennsylvania
Filed Jan. 13, 1965, Ser. No. 425,307
4 Claims. (Cl. 248—13)



1. A tripod support for a drilling device comprising: a mobile support having an elongated generally horizontal frame; an elongated trunnion member having a bottom end thereof universally pivotably mounted on a forward portion of said frame and extending upwardly therefrom; a pair of extensible leg members having respective one ends universally pivotably secured to rearward portions of said frame transversely spaced from each other, other ends of said leg members being universally pivotably secured to said trunnion member at points upwardly spaced from said frame; an elongated guide frame means for slidably mounting said guide frame on said trunnion member for longitudinal movement therealong.

3,322,379
DYNAMIC ANTIRESONANT VIBRATION ISOLATOR
William G. Flannelly, South Windsor, Conn., assignor to Kaman Aircraft Corporation, Bloomfield, Conn., a corporation of Connecticut
Filed Nov. 3, 1964, Ser. No. 408,543
2 Claims. (Cl. 248—20)



1. The combination with a body and a base of a vibration isolator for reducing the transmission of vibrations between said body and said base at one frequency of vibration occurring generally parallel to a given reference axis, said isolator comprising spring means interposed between said body and base providing a resilient resistance to movement of said body relative to said base in either direction parallel to said given axis from a given static position, a weighted lever, means connecting said weighted lever to said body for pivotal movement relative thereto about a first pivot axis common to said body and said weighted lever and located in a plane generally perpendicular to said given axis, and means connecting said weighted lever to said base for pivotal movement relative thereto about a second pivot axis common to said base and said weighted lever and located in a plane generally perpendicular to said given axis, said first and second pivot axes being parallel to one another and spaced from one another along a second reference axis generally perpendicular to said given axis, and said spring means, weighted lever and connecting means being further so constructed and arranged that

$$m_1 \neq m_2(R-r)$$

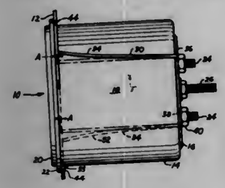
and that at one frequency of vibration

$$\frac{K}{\frac{I}{r^2}-m_2\frac{R}{r}\left(1-\frac{R}{r}\right)}=\omega^2$$

where

ω=said one frequency of vibration,
K=the spring constant of said spring means,
m_1=the mass of said body,
m_2=the mass of said weighted lever,
R=the spacing along said second reference axis from said first pivot axis to the center of gravity of said weighted lever,
r=the spacing along said second reference axis between said first and second pivot axes, and
I=the moment of inertia of said weighted lever about its center of gravity in a plane perpendicular to said pivot axis.

3,322,380
METER BAYONET LOCK
John Joe Affel and Josef von Nemeth, Chicago, Ill., assignors to Stewart-Warner Corporation, Chicago, Ill., a corporation of Virginia
Filed Sept. 1, 1964, Ser. No. 393,666
5 Claims. (Cl. 248—27)



3. An assembly comprising a panel having an opening therein with notches in said panel adjacent said opening, a meter having a housing adapted to pass through said opening and carrying a flange adjacent one end for engaging said panel about said opening and adapted to act as a stop, a pair of wire legs each having one end fixedly engaged with said housing and a free end extending parallel to the axis of said housing and terminating at a position spaced from said flange by a distance less than the thickness of said panel, each leg having a cross sectional dimension permitting flexure of the respective leg in a direction transverse to a radial line from the axis of said opening whereby the passage of said legs through a respective one of said notches and the rotation of said housing engages the free ends of said legs against the back surface of said panel under pressure along the elongate axis of said legs to force said flange against the front surface of said panel.

3,322,381
DISPLAY DEVICE
Max Bubb, Chur, Switzerland, assignor to Designa G.m.b.H., Chur, Switzerland
Filed Apr. 26, 1966, Ser. No. 545,397
Claims priority, application Germany, Apr. 27, 1965, D 47,131; Dec. 21, 1965, D 48,976
6 Claims. (Cl. 248—121)

1. A display device comprising, in combination:

(a) an elongated support member having a longitudinal axis and being of substantially circular cross section about said axis;

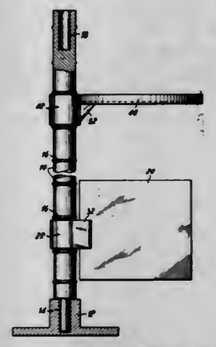
(b) a clamping member having two integrally joined leg portions jointly defining an axially open channel for receiving said support member, said clamping member constituting a resilient wall of said channel conformingly engaging said support member about more than 180°, but substantially less than 360° of the circumference thereof, respective terminal parts of said leg portions defining therebetween a radial entrance to said channel, said terminal parts being resiliently movable relative to each other in a substantially circumferential direction between a relaxed position in which said entrance is narrower than the cross sectional width of said support member and a distended position in which said entrance is at least as wide as said cross sectional width; and

(c) securing means for securing a substantially plate-shaped display element to said clamping member,

(1) said securing means including two prong portions respectively attached to said leg portions and extending therefrom transversely of said axis in a direction away from said entrance,

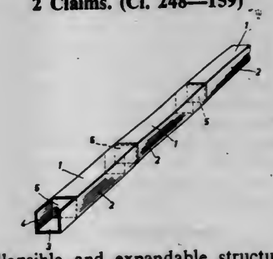
(2) said prong portions defining an axially elongated slot therebetween, said prong portions moving apart to widen said slot when said terminal parts move from said distended to said relaxed position, and

(3) said prong portions urging said terminal parts to move from said distended position toward



said relaxed position when the prong portions are moved toward each other to narrow said slot.

3,322,382
ELONGATED, UPRIGHT SUPPORTING ELEMENT
Bernd Rohrbach, Kettenhofweg 80, Frankfurt am Main, Germany
Filed Nov. 2, 1964, Ser. No. 408,204
Claims priority, application Germany, Feb. 21, 1964, R 37,270
2 Claims. (Cl. 248—159)

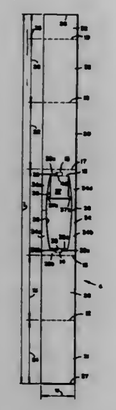


1. A collapsible and expandable structural assembly comprising a plurality of elements joined together and at least two of said elements each consisting of a plurality of side panels intreconnected by longitudinally extending fold lines with said side panels being collapsible and expandable about the fold lines and the expanded side panels defining a hollow tubular body having two open ends and tapering along its entire length between said open ends so that said body has at one end a cross section smaller than at the other of its ends, a flap in the region of said one end of said body connected to one of the side panels by a fold line and said flap being shaped to extend across the hollow body into contact with the other side panels at said region of said one end of said body when said flap is bent inwardly so as to lend rigidity to said hollow body, and said one end of one of said two elements being inserted and telescopically wedged into the other of said ends of the other of said elements, so that said two elements of said assembly form a substantially rigid portion thereof.

3,322,383
PACKAGING DEVICE
Kurt A. Weinberg, 2530 27th Ave., San Francisco, Calif. 94131
Filed Oct. 21, 1965, Ser. No. 499,932
12 Claims. (Cl. 248—174)

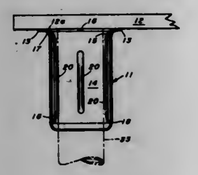
6. A container enclosure comprising in combination: first and second parallel, spaced apart, vertical side panels having the lower edges thereof in alignment with each

other; first and second U-shaped panels facing each other and each having a pair of legs connected to a cross member with the cross member of said first U-shaped panel secured to the bottom of said first side panel, the cross member of said second U-shaped panel secured to the bottom of said second side panel, and the legs of each of said U-shaped panels inclined toward each other; means securing the tips of the legs of said first U-shaped panel



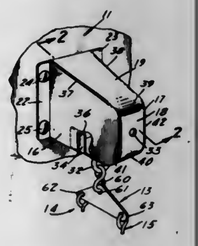
to the tips of the legs of said second U-shaped panel, support means located between the legs of said first and second U-shaped panels to form at least a portion of a surface between said legs, said surface lying in a plane parallel to the lower edges of said vertical side panels; and means secured to the upper edge of said first and second side panels to form an arched closure therebetween adapted to cover a container placed between the side panels and supported on said support means.

3,322,384
FURNITURE-LEG CONSTRUCTION
Stanley W. Rodwell, Carrollton, Ga., assignor to Crucible Steel Company of America, Pittsburgh, Pa., a corporation of New Jersey
Filed June 29, 1965, Ser. No. 467,951
1 Claim. (Cl. 248—188)



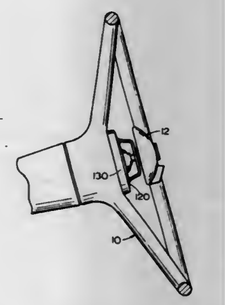
A device for use in connection with leg-supported articles comprising a stainless steel sleeve-like portion designed to be secured to the underside of the article and a stainless steel insert piece secured to and within said sleeve-like portion, said insert piece having a plurality of resilient, deformable, inwardly projecting ribs extending along and for substantial portion of the length of the inner walls of said insert piece for grasping and holding a leg forced thereinto, the interior of said insert piece and the exterior of the upper end of said leg being both substantially cylindrical and of such dimensions that said leg fits within said insert piece in such fashion that the maximum clearance between it and said sleeve-like portion does not exceed 1/32 inch, and said ribs formed in said insert piece being deformed, when said leg is forced thereinto, to such an extent that said leg is grasped securely and said ribs are deformed in such manner that they will hold said leg securely if it is removed and then reinserted.

3,322,385
PHONE BOOK HANGER
Frank M. Larrabee, Los Angeles, Calif., assignor to Knapp Mfg. Co., Los Angeles, Calif., a corporation of California
Filed July 16, 1965, Ser. No. 472,620
4 Claims. (Cl. 248—207)



1. A book supporting hanger comprising a housing having walls forming a relatively closed chamber, and a supporting flange means on said housing, one of said walls having an access opening for said chamber, one of said walls having a hole extending therethrough, an eye bolt extending slidably through the hole in said one wall into said chamber for supporting a book, a coil spring surrounding the portion of said eye bolt within said chamber and bearing at one end on the inside face of said one wall, a spring keeper secured to said eye bolt in engagement with the other end of the spring, and a yoke attached to said eye bolt intermediate opposite ends of said yoke and hangers for supporting books at the side ends of said yoke.

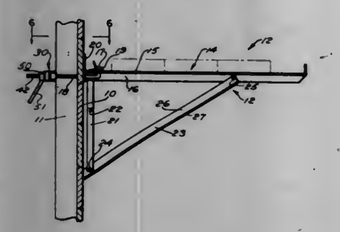
3,322,386
ROTARY AUTO ASH TRAY
Ralph F. Kunkle, Jr., 11114 Westover Road, Omaha, Nebr. 68154
Filed May 10, 1965, Ser. No. 454,378
4 Claims. (Cl. 248—206)



1. In combination: an ash tray, having a housing provided with spaced forward and rearward sides, an axle extending through said forward side of said housing,

means rotatably mounting said spaced forward and rearward sides on said axle for the rotation of said housing about said axle with at least portions of the weight of said housing being carried by said axle at said forward and rearward walls, and means for attaching said axle to the steering wheel of an automobile.

3,322,387
SCAFFOLD BRACKET ANCHOR
Joseph A. Fortin, Sr., Somerset, Mass. (48 Winter St., Fall River, Mass. 02720)
Filed June 28, 1965, Ser. No. 467,305
6 Claims. (Cl. 248—235)



1. A scaffold bracket comprising a horizontal arm to project from the siding of a building and a vertical leg to extend downwardly therefrom along the outer surface of a building there being a juncture of said arm and leg, a rod having a threaded free end extending from a location adjacent the juncture of said arm and leg for passing through a siding of the building between spaced studs on the inner surface of the building and an anchor of length to extend from stud to stud of the building and having an opening through which said rod extends, a nut on said rod to force the anchor against the building studs and draw the bracket against the outer surface of the siding, said anchor comprising a channel member having spaced side walls and a spanning bridging wall extending from end to end thereof, said side walls having the widest lateral dimension adjacent the center thereof and tapering from the mid portion toward each end, a block at the center portion of said anchor with a hole therethrough receiving said bracket rod and spaced webs extending between said side walls.

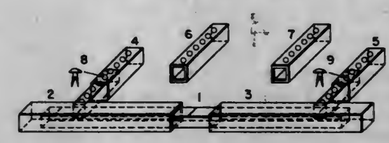
3,322,388
HINGED JOINT SUPPORT FOR A REAR VISION MIRROR MOUNTING
Frances Budreck, Chicago, Ill., assignor to Monarch Tool & Machinery Co., Chicago, Ill., a corporation of Illinois
Filed Oct. 11, 1965. Ser. No. 494,756
10 Claims. (Cl. 248—289)

1. A hinged joint support for relatively turnable supporting and supported members as for a rear vision mirror mounting on a vehicle, in combination, a supporting member, a bracket fixedly secured to the supporting member and having a first flat detent plate portion provided with a hole therein, a supported member having a second flat detent plate portion likewise provided with a hole therein, said plate portions being in substantial contiguity and the holes therein in axial register, a hinge pin projecting through said holes and constituting a main hinge joint between the plate portions, one of said detent plate portions being provided with a circular row of spaced detent recesses concentric with the hole therein, said recesses being pressed in the material of the associated plate portion so as to provide corresponding projections on the side of the plate portion remote from the recesses, said recesses, and consequently, the projections, being disposed in diametrically opposed pairs, the other detent plate portion being provided with a pair of diametrically disposed detent protuberances on opposite sides of the hole therein and designed for selective register and cooperation with the pairs of detent recesses of said one detent plate portion upon relative turning movement between the supporting and supported members, means establishing an enlarged head at each end of the hinge pin, a first flexible dished compression ring formed of spring material, surrounding the hinge pin and interposed between one of



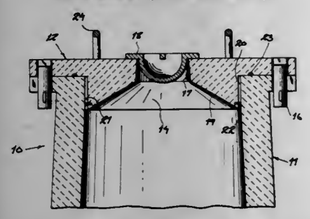
said heads and said one plate portion, having its apex region effectively bearing against said latter head, and having its rim region bearing against said one plate portion, and a second and similar dished compression ring surrounding the hinge pin, interposed between the other head and the other plate portion, having its apex region effectively bearing against said latter head, and having its rim region bearing against said other plate portion, said compression rings being under axial compression with the hinge pin being floatingly biased thereby in opposite axial directions.

3,322,389
WALL AND FURNITURE GUARD
Andre C. Janin, 2710 Macomb St. NW., Washington, D.C. 20008
Filed June 15, 1965, Ser. No. 464,086
1 Claim. (Cl. 248—345.1)



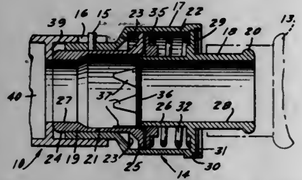
A wall and furniture guard specifically designed to be placed on the floor between the wall base board and furniture to prevent contact between said wall and furniture, said guard comprising a main supporting horizontal bar with a central dividing line and a limit of maximum horizontal extension line on each end, two hollow horizontal bars each half the length of said main supporting bar slideably engaging said main supporting bar, each of said hollow bars having a flat bottom surface adapted to rest on a floor, each of said hollow horizontal bars having a short perpendicularly affixed solid bar with evenly spaced perforations on top, two short hollow bars with evenly spaced perforations on top slidably engaging said short perpendicularly affixed bars, each of said short hollow bars having a flat bottom surface adapted to rest on a floor, pressure pins engaging one of said perforations in each of said short hollow bars and registering perforations in each of said solid bars.

3,322,390
INGOT MOLD FOR EFFERVESCENT STEEL
Ernest Glaesener, Dudelange, Luxembourg, assignor to ARBED, Acieries Reunies de Burbach-Eich-Dudelange, S.A., a corporation of Luxembourg
Filed Apr. 1, 1965, Ser. No. 444,684
Claims priority, application Luxembourg, Apr. 2, 1964, 45,801
12 Claims. (Cl. 249—174)



1. An ingot mold for effervescent steel, comprising an upwardly open shell; a lid removably overlying said shell, said lid being provided with at least one inlet opening for the pouring of a molten steel mass; and plug means for closing said inlet opening.

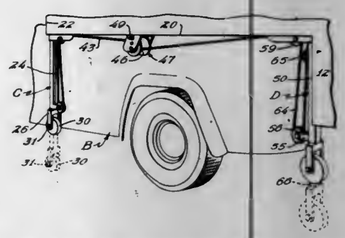
3,322,391
WARNING DISCONNECTOR-CONNECTOR
Orland W. Wilcox, Sierra Madre, Calif., assignor to Sierra Engineering Company, Sierra Madre, Calif., a corporation of California
Filed Mar. 1, 1965, Ser. No. 436,260
4 Claims. (Cl. 251—149)



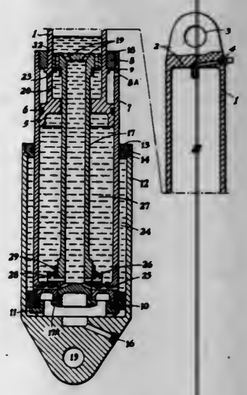
1. In a breathing supply system comprising a supply fitting and a mask hose for attachment thereto, the combination of a connector comprising a housing, a pair of sleeves moveable to respective engaged and disengaged positions with respect to each other and mounted in said housing, a diaphragm having a position retained between said sleeves, said diaphragm having a relatively small opening therein and extending across the interior of said sleeves in one relative position of said sleeves providing limited flow through said sleeves, said diaphragm being expandable by action of said sleeves in another relative position thereof whereby to enlarge the size of said opening to permit free flow through said sleeves, and means acting between said fitting and one of said sleeves when the connector is attached to the fitting to move said sleeves to the position which expands the diaphragm.

3,322,392
CAMPER JACK HAVING CABLE HOIST MEANS
Richard E. Hoffman, 2784 E. Margaret St., St. Paul, Minn. 55119
Filed Sept. 30, 1965, Ser. No. 491,641
4 Claims. (Cl. 254—47)

4. A camper jack for use in conjunction with a trailer adapted to be supported on the open topped body of a pickup truck, the trailer being generally rectangular in plan and extending beyond the sides of the truck, a pair of hollow tubular members supported in vertical relation extending downwardly from said trailer near opposite ends thereof and spaced apart a distance greater than the width of the truck body, a leg slidably supported in each of said hollow tubular members and engageable with the ground, an elongated vertical slot on each of said tubular members, operating means on the upper end of each leg extending through a corresponding one of said slots, resilient means normally urging each said leg upwardly in said tubular member, a pulley at the lower end of each said tubular member beneath said operating means, a winch supported on said trailer between the hollow tubular members on each side thereof, a flexible member extending from each said operating means downwardly about said pulley therebeneath, and to the winch positioned between said tubular members by means of which said legs may be drawn downwardly in said tubular members.



3,322,393
HYDRO-PNEUMATIC SHOCK ABSORBER AND JACKING DEVICE
Christopher Bernard Vere Neilson, Frodsham, and Jack Perdue, Warrington, England, assignors to Electro-Hydraulics Limited, Warrington, England, a corporation of the United Kingdom
Filed Oct. 1, 1965, Ser. No. 492,005
Claims priority, application Great Britain, Nov. 27, 1964, 48,426/64
9 Claims. (Cl. 254—93)



1. A hydro-pneumatic shock absorber comprising a first tube and a second tube, said first tube being closed at one end and slidable in said second tube, a fluid connection between said first and second tubes, energy conversion damping means included in said fluid connection, a third tube closed at one end and having said second tube slidable therein, a chamber for relatively compressible fluid and a chamber for relatively incompressible fluid both within said first tube, a chamber for relatively incompressible fluid within said second tube and a chamber formed between said second and third tubes, said latter chamber being in communication with said chamber for relatively incompressible fluid within said second tube.

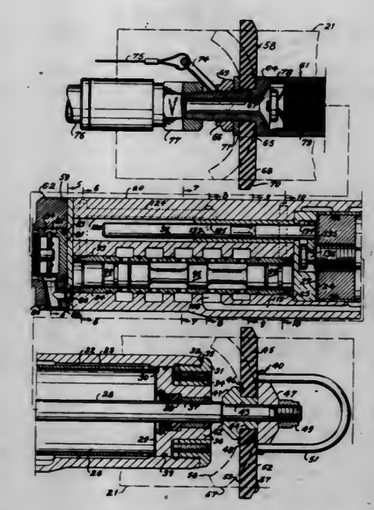
3,322,394
SELF-PROPELLED BORE TRAVERSING DEVICE
Archie R. Gagne, Naperville, Ill., assignor to Chicago Pneumatic Tool Co., New York, N.Y., a corporation of New Jersey
Filed Oct. 4, 1965, Ser. No. 492,392
7 Claims. (Cl. 254—134.6)



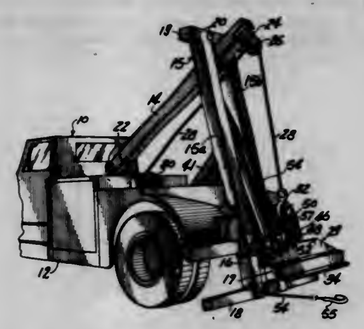
1. In a device of the class described for traversing the length of a bore in a conduit or the like, a first abutment member having means thereon engaging the wall of said bore, a porting structure connected to said first abutment member, said porting structure having a plurality of ports therein, means connecting one of said ports to a supply of motive fluid under pressure, a valve member movable with respect to said porting structure to connect a second of said plurality of ports in said porting sleeve to said one port and said supply of motive fluid, a second abutment member having a lost motion connection with respect to said valve member and adapted to move with respect to said porting structure, means on said second abutment member adapted to engage the wall of said bore, means on said second abutment member adapted at times to be subject to pressure from said supply of motive fluid when said valve member is in a position to connect said second port to said supply of motive fluid to move said porting structure with respect to said abutment member while the latter is stationary in said bore, said movement of said porting structure causing said lost motion connection between said second abutment member and said valve member to be taken up and cause said valve member to move to a position connecting said supply of motive fluid with a third of said plurality of ports in said porting structure to subject the pressure means on said second abutment member with pressure of a different sense to move said second abutment member in said bore with respect to said porting structure and said first abutment member while the latter is stationary in said bore.

3,322,395
POWER OPERATED DUCT RODDER
Howard R. Fischer, New Hartford, and Livio F. Marcantonio, Utica, N.Y., assignors to Chicago Pneumatic Tool Company, New York, N.Y., a corporation of New Jersey
Filed June 22, 1965, Ser. No. 465,990
19 Claims. (Cl. 254—134.6)

1. A duct rodder for use in advancing step by step a lead line through a duct, comprising: an elongated housing of smaller cross dimension than the duct in which it is to be received having an axially extending piston chamber, a pneumatically operable piston movable in the chamber relative to the housing having a piston rod projecting externally of the forward end of the housing, a first duct gripping means mounted to the forward end of the rod for gripping the wall of the duct and holding the piston stationary when operating air is applied to the piston chamber forwardly of the piston so as to allow a forward advance of the housing relative to the piston, a second duct gripping means mounted to the rear end of the housing for gripping the wall of the duct and holding the housing stationary when operating air is applied to the piston chamber rearwardly of the piston so as to allow a forward advance of the piston relative to the housing, an operating air supply line connected to the rear end of the housing, a distributing valve chamber in the housing having intermediately of its ends a main passage connection with the supply line, a distributor valve pneumatically shiftable in the valve chamber for causing flow of operating air from the latter alternately to opposite ends of the piston chamber, and a drag valve movable as a unit with the piston controlling pneumatic shifting of the distributor valve.



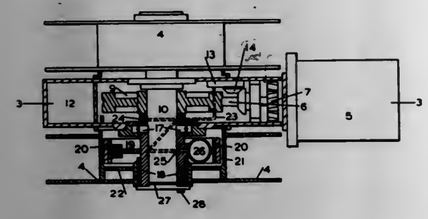
3,322,396
TOWING VEHICLE
John S. Hubbard, Parker, Ind. 47368
Filed Jan. 7, 1966, Ser. No. 519,377
10 Claims. (Cl. 254—139.1)



1. A vehicle for towing a load comprising: a base adapted to move along a surface; a support mounted on said base and extending upwardly therefrom; means for engaging and elevating a portion of the load disposed adjacent said support, said means being adapted for vertical movement with respect to said support; means for raising and lowering said elevating means; a cable carried by said support, one end of said cable being engageable with said elevating means and other end being engageable with a portion of the load remote from said support; a pair of vertically spaced cable bearing members carried by said support, the distance between said cable bearing members and the length of said cable being such that the cable will be maintained under tension when in engage-

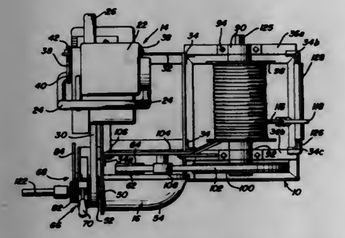
ment with said elevating means and with said load and the portion of said load in engagement with said elevating means will be maintained in an elevated position.

3,322,397
SCRAPER WINCH
Arthur H. Pillman, Primrose Hill, Germiston, Transvaal, Republic of South Africa
Filed Mar. 28, 1966, Ser. No. 537,875
Claims priority, application Republic of South Africa, Apr. 9, 1965, 65/1871
5 Claims. (Cl. 254—185)



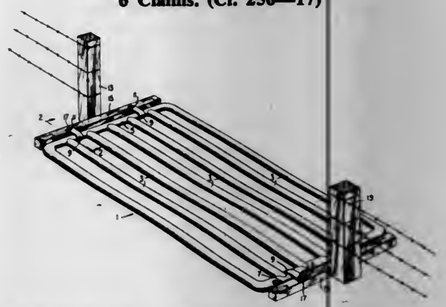
1. A winch for a haulage drum comprising a central compartment, an oil reservoir in said compartment, a driving shaft passing transversely therethrough and carrying a main gear wheel mounted in said compartment, a driving gear meshing with the main gear wheel and carried on a shaft driven by a motor, a haulage drum releasably mounted on said shaft outside the central compartment, said haulage drum having an axial bore extending therethrough, the inner portion of said bore being of enlarged diameter, a radially acting hydraulically operated clutch assembly inside said inner portion of said bore and securing in driving relation said drum to said shaft, and means internally of said drum supplying oil under pressure to said clutch directly from said compartment.

3,322,398
PORTABLE POWER-DRIVEN WINCH DEVICE
Edward A. Smith, Tupper Lake, N.Y., assignor of fifty percent to Hayward H. Plumadore, Saranac Lake, N.Y.
Filed Dec. 30, 1965, Ser. No. 517,621
6 Claims. (Cl. 254—186)



1. A portable power-operated winch comprising a base including opposite end portions and opposite sides, a chain saw motor including a rearwardly disposed handle and a forwardly disposed drive shaft journaled for rotation about an axis extending transversely of said motor, means removably securing said motor to one end portion of said base at one side thereof with said axis extending longitudinally of said base, said handle disposed adjacent one side of said base, and said shaft spaced from said handle toward the other side of said base, a right-angle reducing gear box secured to said one end portion of said base adjacent the other side thereof and including an input shaft extending longitudinally of said base adjacent said one side thereof having an exposed end portion adjacent said one end portion of said base on which a first driven wheel is mounted, said drive shaft including a first drive wheel aligned with said driven wheel, an endless drive member entrained about said drive and driven wheels, said gear box including an output shaft journaled for rotation about an axis extending transversely of said base and spaced toward the other end thereof from said drive member, said output shaft having a second drive wheel mounted thereon, a winding member journaled on said other end portion of said base for rotation about an axis extending transversely of said base and including a second driven wheel aligned with said second drive wheel, and an endless drive member entrained about said second drive and driven wheels.
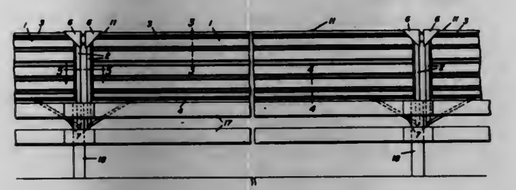
3,322,399
CATTLE GUARD
James D. Sawyers and Otis Jeff Dorsey, both of YP Ranch, Tuscarora, Nev. 89834
Filed May 18, 1962, Ser. No. 195,874
6 Claims. (Cl. 256—17)



5. Apparatus for confining cattle, comprising
a pair of fence posts extending upright from the surface of the earth and defining an opening in a fence line;
a cattle guard including
a plurality of elongated, flexible, hollow, airtight inflatable members in generally coplanar, side-by-side relationship generally parallel to each other and to the fence line, the inflatable members resting on the surface of the earth,
the inflatable members being spaced apart from each other a sufficient distance and having sufficient height when inflated to provide a surface which is so uneven as to ordinarily discourage cattle from crossing, the spaces between adjacent inflatable members being open to the atmosphere,
hollow, airtight means in open fluid communication with the inflatable members and interconnecting the inflatable members at each end portion of the inflatable members, the inflatable members being unattached other than by the interconnecting means, and
valve means for inflating the inflatable members; and
releasable means for fixedly securing the cattle guard between the fence posts.

3,322,400
ANTI-DAZZLING PANEL
Giovanni Trucillo, Naples, Italy, assignor to P.V.R. Plastici Vetro Rinforzati, S.p.A., Milan, Italy
Filed Mar. 15, 1965, Ser. No. 439,677
Claims priority, application Italy, Mar. 18, 1964, 6,022/64
1 Claim. (Cl. 256—24)

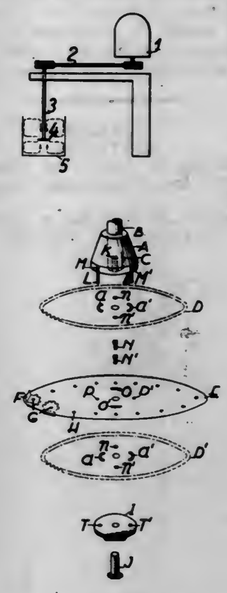
A panel for anti-dazzling barriers for road use comprising a rigid rectangular frame having horizontal and vertical elements, an anti-dazzling screen mounted in said frame, a lower portion of said vertical elements of said frame extending beyond said screen to be anchored to means fixed into the ground, said screen comprising a plate having suitable opaque characteristics, preferably of polyester resin reinforced with glass fibers, said plate of plastic material being provided with a plurality of rectilinear undulations along a horizontal plane, said frame elements having a section in the form of a substantially rectangular box having greater and minor sides, the greater sides of said rectangle being disposed in the sense of the panel thickness, one of said greater sides of each said element having a continuous opening therein, the opening in the greater sides of the section of said horizontal elements having a width less than the height of said undulations in said plate, said elements being assembled with said openings being inwardly directed to provide means for containing and fastening the screen therein, a wall member se-



cured in and to one side of said opening of each said horizontal element of the frame, one edge of said wall member being fixedly mounted on the inside of said element and the opposite edge extending outwardly from said opening towards the area of the screen for a height nearly equal to that of the minor side of said element, at least one wall member being secured to each side of the opening of each said vertical element, each said wall member having one edge secured at the bottom of said element and the opposite edge extending outwardly towards the area of the screen, said wall members in said vertical elements defining therebetween a channel symmetrically disposed with respect to the mid line of each said element, an angular member detachably fastened to the other side of said opening of each said horizontal element, said screen being anchored between said wall member and said angular member, and a hood-shaped angle means detachably mounted for securing the upper horizontal element to the vertical elements.

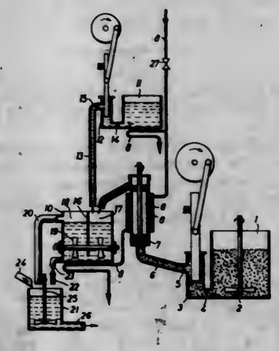
3,322,401
IMPELLERS AND MIXING APPARATUS
Georges Mersch, Luxembourg, Luxembourg, assignor to Societe Anonyme Colortex, a corporation of Luxembourg
Filed July 13, 1965, Ser. No. 471,569
Claims priority, application Luxembourg, Apr. 10, 1961, 39,997; Mar. 2, 1962, 41,320
20 Claims. (Cl. 259—108)

1. In mixing apparatus having container means for holding materials to be mixed and a shaft extending into said container means and driven rotationally undirectionally in operation the improvement which comprises a mixing impeller comprising a support plate mounted concentrically on said shaft and rotating undirectionally therewith, said support plate being positioned in operation in material held in said container to be mixed, a plurality of vanes each having a rectilinear upstanding face portion and a gear portion, said vanes being swivelly mounted by said gear portions on said support plate and spaced circumferentially therearound adjacent the periphery of said support plate with said rectilinear upstanding face portions projecting from said support plate and said gear portions approximately parallel to said support plate swivelling means located above said support plate, said swivelling means engaging the gear portions of said vanes for simultaneously pivoting all of said vanes to secured selected angles to respective tangents to the periphery of the support plate at



each vane position, whereby said vanes are adjustable to secure desired mixing characteristics for the material being mixed.

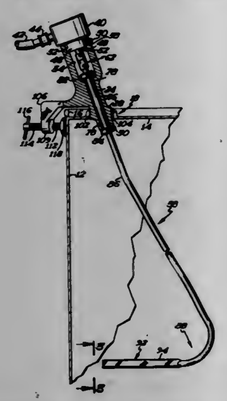
3,322,402
APPARATUS FOR CONTINUOUS PREPARATION OF A SOLUTION CONTAINING MILK, FAT AND SUGAR
Gerhard Anders, Viersen, Germany, assignor to Hamac-Hansella Aktiengesellschaft, Viersen, Germany, a corporation of Germany
Filed Nov. 19, 1963, Ser. No. 324,747
Claims priority, application Germany, July 2, 1963, H 49,621
12 Claims. (Cl. 259—6)



1. An apparatus for continuous preparation of a candy solution containing milk and fat constituents, comprising a vessel for a supply of milk, a vessel for a supply of fat, a first mixing chamber, a milk pump for transferring milk from the milk supply to said mixing chamber, a separate fat pump for transferring fat from the fat supply to said mixing chamber, a second mixing chamber

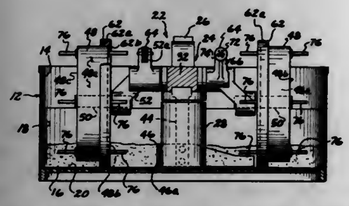
adapted to receive a sugar-glucose solution separately produced, means for transferring the milk-fat mixture from said first mixing chamber to said second mixing chamber, means in the latter chamber for blending the ingredients therein to produce the desired final candy solution, and means for independently regulating the outputs of said pumps so that the proportions of milk and fat in said final solution can be accurately controlled.

3,322,403
AGITATOR
Charles F. Murphy, St. Louis Park, Minn., assignor to Gray Company, Inc., Minneapolis, Minn., a corporation of Minnesota
Filed Nov. 15, 1965, Ser. No. 507,925
10 Claims. (Cl. 259—106)



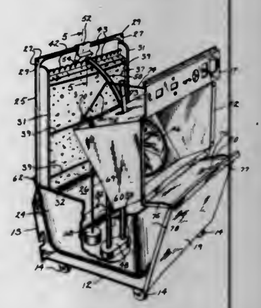
1. An improved agitator particularly adapted for use with a container of liquid having a threaded opening in the top thereof, said agitator comprising: a body including a portion which has a maximum transverse dimension less than the diameter of the threaded opening and which is adapted to be positioned within the threaded opening and engage a part of the threads of the threaded opening and including means for engaging a side wall of the container for urging said portion of the body into engagement with the part of the threads of the threaded opening; paddle means supported by said body and adapted to extend within the container; and motor means supported by said body and operatively connected with said paddle means for rotating said paddle within the container.

3,322,404
MIXER INCLUDING MULLING WHEEL WITH RESILIENT TIRE MEANS TO FACILITATE WHEEL ROTATION
Robert L. McIlvaine, Winnetka, Ill., assignor, by mesne assignments, to National Engineering Company, Chicago, Ill., a corporation of Delaware
Filed Apr. 22, 1965, Ser. No. 450,029
8 Claims. (Cl. 259—112)



1. Apparatus for conditioning material, said apparatus comprising a mixing chamber having a bottom wall, a mixing head mounted for rotation in said chamber about a central axis, at least one mulling wheel outwardly of said axis carried by said head for free rotation on an axle movable toward and away from said bottom wall, said mulling wheel including an outer peripheral mulling surface encircling said axle and having an arcuate portion thereof in continuous facing relation with said bottom wall for mulling contact with material in said chamber and resilient tire means encircling a portion of said mulling surface and having an outer tractive surface engageable with said bottom wall to rotate said wheel about said axle when said mixing head is rotated.

3,322,405
HUMIDIFIER
Robert F. Knudson, Concord, Harold N. Minick, Marshall, and Klp J. Hoag, Albion, Mich., assignors to McGraw-Edison Company, Milwaukee, Wis., a corporation of Delaware
Filed Sept. 1, 1965, Ser. No. 484,317
5 Claims. (Cl. 261—27)

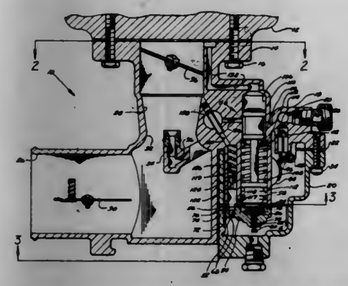


5. In an evaporator device having a housing with inlet and outlet openings and means for inducing a flow of air through said housing; a water reservoir in said housing; a filter panel carrying an air permeable filter and disposed in the path of said flow of air to pass air through said filter; a water distributing means associated with said filter panel in water delivering relation to said filter; a water delivery fitting releasably secured to said filter panel in water delivering relation to said water distribution means, said water delivery fitting comprising an extruded portion having a generally U-shaped first wall portion adapted to be received over a portion of the top marginal edge of said filter panel to releasably interconnect said fitting and filter panel and a second wall portion projecting inwardly and downwardly in the assembled condition from the leg of the U-shaped wall portion facing the interior of the cabinet, a pair of end panels each secured to marginal edges of said U-shaped portion leg and said second wall portion to form an enclosure having an elongated opening in the lower portion thereof, and a delivery tube extending through and secured to said second wall portion to communicate with said enclosure above said elongated opening; and means for delivering water from said reservoir to said fitting.

3,322,406
CARBURETOR
Frederick J. Marsee, Hazel Park, and Raymond A. Soeters, Royal Oak, Mich., assignors to Holley Carburetor Company, Warren, Mich., a corporation of Michigan
Filed Nov. 24, 1964, Ser. No. 413,423
8 Claims. (Cl. 261—34)

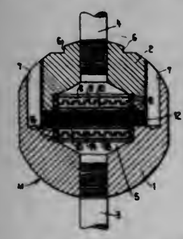
1. An internal combustion engine carburetor, comprising an induction passage having a choke plate, a fuel nozzle, a venturi and a throttle plate therein, an idle

fuel system, a main fuel metering system for supplying fuel through said fuel nozzle in response to vacuum, and isolated systems operated by a common means and including individual accelerating fuel and power enrichment fuel chambers separated by a common imperforate movable wall, each chamber having separate fuel inlet and outlet



passages, for simultaneously supplying accelerating fuel to said induction passage and adding power enrichment fuel to said main fuel metering system, and valve means to control flow through said power enrichment fuel chamber and actuated in response to movement of said movable wall.

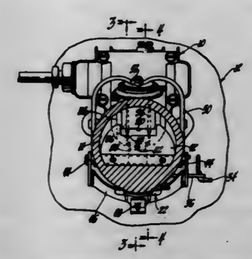
3,322,407
FUEL FEEDING INSTALLATION FOR INTERNAL COMBUSTION ENGINE
Elias Brucar, Paris, France, assignor to Fortissimo Etablissement, Vaduz, Liechtenstein
Filed Oct. 20, 1964, Ser. No. 405,066
Claims priority, application Switzerland, June 11, 1964, 7,632/64
7 Claims. (Cl. 261—34)



1. A fuel mixing device for insertion in a fuel supply line in advance of a carburetor for an internal combustion engine, said mixing device comprising a body with a cavity opening through one side thereof, a plug closing said cavity opening and defining a chamber in said body, said body having at least one air admitting hole in communication with said chamber and a fuel passageway through said body and opening into opposite sides of said chamber, and mixing means in said chamber between said passageway openings and including a pair of sieves with a homogenizing plate having radial and vertical passages between said sieves, whereby the carburetor is fed with a foam consisting of air and fuel.

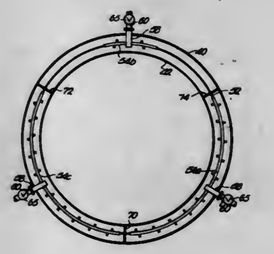
3,322,408
CARBURETOR
Donald D. Stoltman, Henrietta, N.Y., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Sept. 1, 1965, Ser. No. 484,267
7 Claims. (Cl. 261—44)

1. An internal combustion engine carburetor comprising a downdraft mixture conduit, a throttle valve pivotally disposed in said mixture conduit and having a recess in the downstream edge thereof to permit flow of an idling air-fuel mixture when said throttle valve is closed, a downwardly inclined fuel delivery nozzle extending into said mixture conduit and having a discharge end centered above said throttle valve, fuel delivery passage means connected to said nozzle to supply fuel thereto, a fuel metering orifice in the discharge end of said nozzle, a metering rod in said mixture conduit associated with said orifice to vary the effective area thereof and control fuel



flow therethrough, an air valve pivotally disposed in said mixture conduit, means to position said air valve in accordance with air flow through said mixture conduit, said air valve being contoured to fit closely about said fuel delivery nozzle and having a recess adjacent said metering orifice to permit flow of idling air when said air valve is closed, and means connecting said metering rod to said air valve to support and position said metering rod whereby fuel flow is controlled in accordance with air flow.

3,322,409
WATER CONTROL APPARATUS FOR CROSSFLOW COOLING TOWER
Forrest B. Reed, Kansas City, Mo., assignor to The Marley Company, Kansas City, Mo., a corporation of Delaware
Filed Sept. 8, 1964, Ser. No. 394,917
5 Claims. (Cl. 261—71)



1. In a crossflow water cooling tower provided with an air inlet and an air outlet, and a fill assembly having an outer, generally upright face adjacent the air inlet, and located within the path of air flowing from the air inlet to the air outlet, the combination with said fill assembly of:

hot water distribution means overlying the fill assembly for receiving and distributing hot water over a substantial area of the adjacent portion of the fill assembly;

structure on said distribution means dividing the latter into first and second sections with the first section located in closer relationship to said outer face of the fill assembly than the second section;

means for delivering hot water to said first and second sections respectively for distribution onto the fill assembly and including control components operable to selectively vary the rate of delivery of hot water

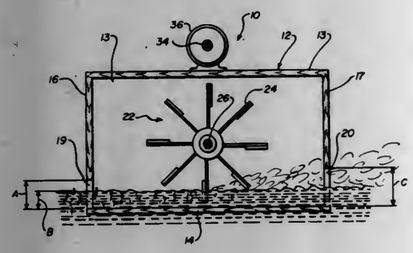
to corresponding first and second sections whereby the quantity of water delivered to the first section with respect to the amount delivered to the second section may be increased as required to provide optimum water loading of the fill assembly under varying environmental conditions and to preclude icing of the outer face of the fill assembly under ambient operating temperatures below the freezing point of the water,

said distribution means including a horizontal deck provided with a series of water distribution openings therein and upright walls projecting upwardly from the deck adjacent the outer and inner margins of the fill assembly, said walls and the deck cooperating to present a water-receiving basin,

said structure comprising a third upright wall on the deck between the first-mentioned walls to thereby divide the basin into said first and second sections; and

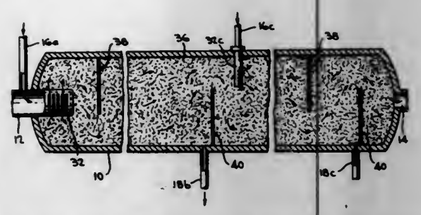
a series of horizontal inlet louvers located adjacent said outer face of the fill assembly and positioned in vertically staggered relationship with the lowermost margin of each louver located above an area of the louver there next below intermediate the longitudinal margins thereof, said series of louvers being inclined in the direction of air flow and the uppermost louver of the series thereof being located below the outer wall of the distribution means whereby upon selective control of the components to cause an excess of hot water to be directed into said first section, the hot water overflows said outer wall and then cascades down the series of inlet louvers.

3,322,410
WATER PURIFICATION UNIT
Marie A. Ahlenius, 7450 N. Greenview Ave., Chicago, Ill. 60626
Filed Feb. 23, 1966, Ser. No. 529,584
9 Claims. (Cl. 261—92)



1. A water purification unit for use on a small body of water such as a pond or lake comprising a substantially closed box-like structure having top, bottom, side and end walls, a water inlet and a water outlet in respective ones of said end walls extending upwardly from the bottom wall of said structure and across substantially the entire width of said end walls, paddle wheel means rotatably mounted within said structure, and motor means secured to the top wall of said structure and coupled to said paddle wheel means for rotating it, and means for adjustably mounting said unit so that the water level is established at least at the midpoint of said water inlet, said paddle wheel means extending into said water and being operated at a rotational speed sufficient to draw said water into said unit for agitating said water to provide an admixture of water and air and for expelling the admixture through said water outlet.

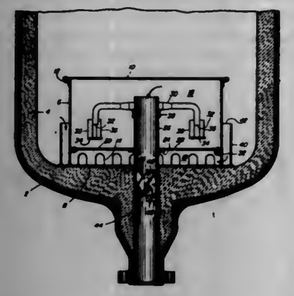
3,322,411
GAS AND LIQUID CONTACT APPARATUS
Lester P. Moore, P.O. Box 1762, Corpus Christi, Tex. 78403
Filed Mar. 29, 1965, Ser. No. 443,334
4 Claims. (Cl. 261—96)



1. A gas and liquid contact apparatus, comprising a casing defining a generally horizontally-extending continuous fluid flow path having an inlet communicating with its interior adjacent one horizontal end of said flow path, means for introducing a mixture of gases into the casing through said inlet, a source of liquid of a type which is capable of absorbing at least one of the gases from said mixture but which is also substantially incapable of absorbing at least one of said gases from the mixture, means communicating with said source for delivering said liquid into the upper portion of said casing for injecting said liquid into the casing, a porous material of a chemically inert nature in the presence of said gas mixture and said liquid, said porous material occupying the interior of said casing along said flow path for reception of said injected liquid for creating an increased surface area of contact between said mixture of gases and the liquid, and for impeding the downward flow of the liquid in order to maintain the liquid in prolonged contact with the mixture of gases as the mixture moves along said flow path, said casing being formed with an outlet opening through its bottom for discharge of said liquid, said casing further being formed with a gas outlet above its bottom adjacent the other horizontal end of said flow path for discharge of gas, and a plurality of upper and lower baffle plates disposed in said casing in alternating relation along said flow path for defining a plurality of vertical undulations in the flow path to discourage the laminar flow of fluid through said porous material and to impede the downward flow of liquid through said material at locations along said flow path in which the said vertical undulations produce predominately upward flow of the said gases.

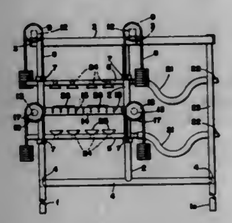
3,322,412
HIGH TEMPERATURE QUENCH METHOD
Malvin M. Yurko, Whippany, N.J., Vernon O. Bowles, Bedford, and Alphonse A. Corona, Jr., Hempstead, N.Y., and Walter F. Read, Westfield, N.J., assignors to Mobil Oil Corporation, a corporation of New York
Filed Feb. 1, 1963, Ser. No. 255,569
5 Claims. (Cl. 261—128)

1. In a process for the reaction of materials in the gaseous phase at high temperatures in a confined reaction zone within an enclosed reaction vessel followed by the quenching of the resulting hot gaseous effluent of said reaction, the improvement which comprises introducing a vaporizable quenching liquid above a permeable member having openings of predetermined number and size into a separate confined quenching zone within said vessel at a rate sufficient to quench the gaseous effluent of said reaction to a substantially lower temperature upon the evaporation of said liquid in contact with said effluent, quenching the hot gaseous reaction effluent within said quenching zone by passing said gaseous effluent upwardly through said permeable member into contact with said liquid at a sufficiently high flow rate with respect to the number and size of the openings through said permeable



member to retain at least a major portion of the vaporizing quench liquid above said permeable member and withdrawing the quenched effluent from said vessel.

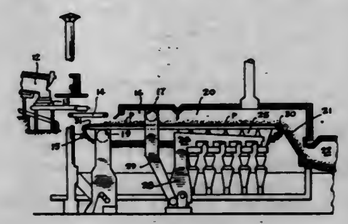
3,322,413
FURNACES FOR FAST-FIRING CERAMIC WARE, AND FAST-FIRING PROCESS
William Henry Orth, Baltimore, Md., assignor to The Glidden Company, Cleveland, Ohio, a corporation of Ohio
Filed Oct. 1, 1965, Ser. No. 492,256
13 Claims. (Cl. 263—6)



1. A fast-firing ceramic furnace comprising a generally planar hearth having fast heating and fast cooling times for supporting ceramic articles, first heat source means disposed above said hearth and providing substantially planarly-uniform firing heat, second heat source means disposed beneath said hearth and providing substantially planarly-uniform firing heat, and means (a) for relatively moving said first and second heat source means quickly toward each other while providing substantially planarly-uniform firing heat to bring said first and second heat source means to predetermined parallel firing locations above and beneath said hearth to simultaneously heat the articles on said hearth substantially equally and uniformly from the opposite sides thereof, and (b) for relatively moving said first and second heat source means quickly away from one another to predetermined locations spaced from said hearth to allow the fired articles to cool off quickly, said first and second heat source means and the area between them comprising a firing zone, said firing zone being unshrouded by any substantial heat retention mass.

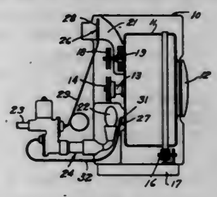
3,322,414
CONVEYOR APPARATUS
Frank J. Boron, Elyria, Ohio, assignor to Abex Corporation, a corporation of Delaware
Filed Mar. 1, 1965, Ser. No. 436,044
8 Claims. (Cl. 263—8)

6. In a sectionalized grate assembly for pivotal mounting on a conveyor mechanism, said grate assembly adapted for transporting ore or the like under high temperatures, a plurality of grate elements abutted together and each having an upper surface for carrying the ore, an elongated rib extending downwardly from said upper supporting surface of each of said grate elements, each of said grate elements having an integral and downwardly extending flange attaching portion extending normal to



said rib, a separate retainer adapted to extend across the assembled grate elements to secure said grate elements in an assembled relationship, cooperating projection and recess means on said retainer and attaching portion to hold said grate elements in an assembled relationship, and fastener means for securely joining the retainer to each attaching portion.

3,322,415
METHOD OF DRYING AND INITIAL INPUT CONTROL FOR MODULATED GAS DRYER
Joseph P. Lux, St. Joseph, Mich., assignor to Whirlpool Corporation, Benton Harbor, Mich., a corporation of Delaware
Filed Jan. 5, 1965, Ser. No. 423,447
6 Claims. (Cl. 263—10)



4. A heating system for a laundry appliance comprising means forming an air flow drying circuit including

a treatment zone,

air translating means including air inlet and outlet means for driving a stream of air flowing through said treatment zone and

a burner associated with said air inlet means for adding heat energy to the air stream,

conduit means forming a fuel circuit through which a supply of gas fuel is driven to the burner for combustion,

valve means in said fuel circuit including a valve seat forming an opening through which the gas fuel flows and a valve head cooperable with said seat for controlling the flow of gas fuel to the burner,

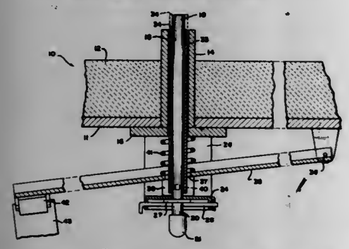
continuous biasing means loading said valve head towards an open position,

a control device connected to said valve head and operable as a function of the treatment zone exhaust temperature to counteract said continuous biasing means and to progressively decrease the rate of supplying heat energy to the treatment zone, and

a second control device connected to said valve head and having means producing a force to counteract said continuous biasing means temporarily at the

start of a drying cycle to prevent opening of said valve head,
thereby to prevent excessive temperature build up in the treatment zone before said first control device is effective,
said second control device comprising,
a temperature sensor in the air inlet means,
and translation means between said sensor and said valve head to transmit from said sensor to said valve head as a function of variations of said air inlet temperature forces which are opposite to said counteracting means force.

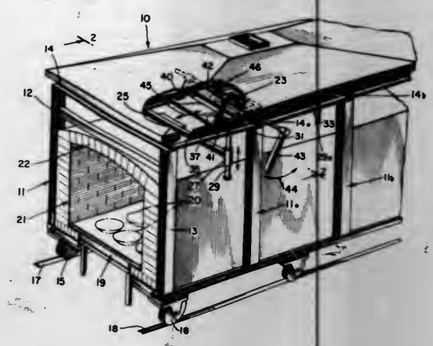
3,322,416
DEVICE FOR REMOVING CLINKER FROM THERMOCOUPLE PROBE
Werner Ostberg, Milan, Mich., assignor to Dundee Cement Company, Dundee, Mich.
Filed Dec. 27, 1963, Ser. No. 333,959
2 Claims. (Cl. 263—33)



1. In a rotating kiln containing hot clinker material and having a temperature measuring elongated probe extending through an opening formed in the kiln wall with a probe inner end portion located within the kiln and a probe outer end portion located outside of the kiln; the improvement comprising: an elongated tube closely surrounding said probe and extending through the opening in the kiln wall, with an outer end located outside the kiln and an inner end normally located at, but not covering, said probe inner end portion; an elongated lever arranged parallel to the axis of rotation of the kiln and having one end pivotally secured to the outside of the kiln wall and an opposite end formed as a cam; an opening formed in the lever between its ends and the tube and probe extending through said lever opening, with the tube being secured to the lever adjacent said lever opening; a coil spring surrounding the tube and being positioned between and in contact with the lever and the kiln wall for spring urging the lever away from the kiln wall; a U-shaped bracket arranged transversely of the lever at said lever opening and having its legs secured to the kiln wall, with the lever fitted within the base of the U-shaped bracket; an opening formed in the base of the bracket and the probe outer end passing through said base opening and being removably secured to the bracket; and a striker means permanently positioned adjacent the kiln in the path of the lever cam end to strike said cam end at each rotation of the kiln for rapidly forcing the lever and its attached tube in a direction inwardly of the kiln so that the tube momentarily telescopes over the probe inner end for removing clinker adhered thereto, with said spring returning the lever and tube to their normal position after the lever passes the striker means.

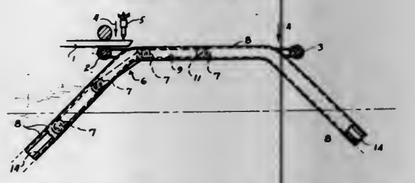
3,322,417
DAMPER SYSTEM
John Mitchell, 3639 Emily St., San Pedro, Calif. 90731
Filed May 24, 1965, Ser. No. 458,210
9 Claims. (Cl. 263—46)

7. A damper system for kilns or ovens having flue openings and a roof, said damper system comprising pier members constructed on said roof, rigid framework means suspended on said pier members above said kiln roof, means adapted to guide said framework means so that its plane remains parallel to the plane of the said roof even though said roof expands or contracts causing similar movement in said pier members and thereby causing said



framework means to correspondingly rise or descend, damper means adapted to move along said rigid framework means, and actuating means for moving said damper means individually or collectively over or away from said flue openings.

3,322,418
DEVICE FOR SUPPORTING THE STRAND IN THE CUTTING AREA IN CONTINUOUS CASTING PLANTS
Horst K. Lotz, Neu Isenberg, Germany, assignor, by mesne assignments, to Messer Griesheim G.m.b.H., Frankfurt am Main, Germany, a corporation of Germany
Filed June 2, 1964, Ser. No. 372,044
7 Claims. (Cl. 266—23)

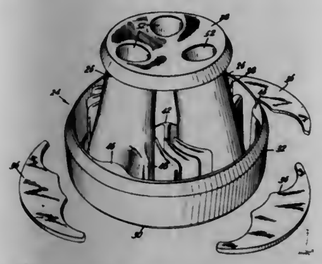


1. A device which supports the strand in the cutting range of a flame cutting machine for continuous strand casting apparatus, said machine having a cutting torch and horizontal work table, comprising a chain roller train, guided in rails, and having a drive synchronous with the torch of the flame cutting machine, said chain roller train being arranged with the flame cutting range between two rollers of the chain roller which supports the strand.

3,322,419
OXYGEN JET DEVICES
George H. Smith, New Providence, N.J., and Leslie C. Kun, Williamsville, N.Y., assignors to Union Carbide Corporation, a corporation of New York
Filed Dec. 24, 1964, Ser. No. 420,869
1 Claim. (Cl. 266—34)

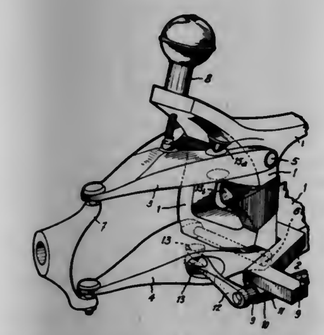
A metallurgical lance comprising a tip composed of a metal having an end wall that merges into an annular side wall, and a transverse wall spaced inwardly and upwardly with respect to said end wall and with the inner annular surface of said annular side wall, a plurality of inclined hollow posts connected at one end to said transverse wall and at the other end to said end wall, said

posts having oxygen gas outlet passages the longitudinal axes of which are inclined downwardly and outwardly, an inner oxygen supply pipe connected to the upper rim of said transverse wall, an outer pipe connected to the upper rim of the annular side wall of said tip, and an intermediate pipe connected to the tip below and between said other pipes, the annular space between the inner and intermediate pipes providing a tubular cooling water inlet passage, and the annular space between the intermediate and outer pipes providing a tubular water outlet passage, and means for positively directing cooling water circumferentially around the lower portions of said posts, including a plurality of integral cusps on the inner surface



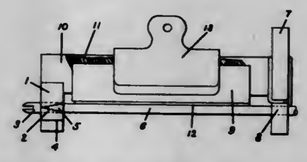
of said end wall in the form of a central pyramid, curved vanes radiating therefrom, and a curved protuberance on the downstream side of the lower portion of each post, each cusp functioning not only to change the direction of flow of the water, thereby effectively causing a scrubbing and scouring action on the adjacent metal surfaces, thereby ever-bringing relatively colder water into intimate contact with such surfaces, but also increasing the heat transfer surface area over which the cooling water flows, and thus improving the over-all heat transfer, effectively keeping the tip relatively cool in use, especially at the critical areas including those adjacent the outer face of said end wall.

3,322,420
ANTI-SWAY DEVICE FOR AUTOMOTIVE VEHICLE
Edmond Henry-Biabaud, Paris, France, assignor to Societe Anonyme Andre Citroen, Paris, France, a corporation of France
Filed Feb. 25, 1965, Ser. No. 435,253
Claims priority, application France, Feb. 25, 1964, 3,110
7 Claims. (Cl. 267—11)



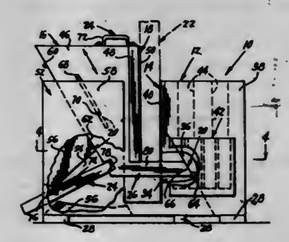
1. In an automotive vehicle having a first member which is movable in opposite directions in response to upward and downward movement of a wheel of the vehicle relative to the vehicle chassis, an anti-sway device comprising;
a rotor mounted for rotation on a fixed axis,
a plurality of radial arms on said rotor,
means connecting said rotor to said first member to rotate said rotor in response to movement of said first member,
a torsion tube disposed on the axis of said rotor,
means on said torsion tube defining a pair of abutments disposed on opposite sides of each radial arm of the rotor, and
a plurality of resilient pads having a rigidity which increases with deformation thereof, said pads being disposed on oppoiste sides of each of said radial arms between the radial arm and the corresponding abutments to convert rotary movement of the rotor into torsional movement of said torsion tube.

3,322,421
FLETCHING JIG
Edwin J. Sisty, 400 E. 50th St., New York, N.Y. 10022
Filed Aug. 17, 1964, Ser. No. 390,129
5 Claims. (Cl. 269—38)



1. A fletching jig comprising in combination an indexing cylinder with attached stationary jig plate and shaft holding clamp, said fletching jig having means to admit and support all diameter arrow shafts for the indexing and positioning of feathers on said arrow shaft, and an offsetting plate positionable between the arrow shaft and holding clamp for offsetting of said feathers on said arrow shafts.

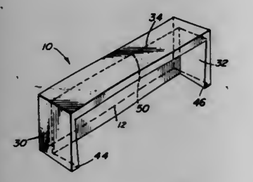
3,322,422
VISE DEVICE
Clarence A. Harvill, 4463 55th St., Sacramento, Calif. 95820
Filed July 17, 1964, Ser. No. 383,343
2 Claims. (Cl. 269—133)



1. A vise device comprising a fixed jaw means including portions defining a fixed jaw surface, a movable jaw means including portions defining a movable jaw surface, guide means slidably supporting said movable jaw means for movement between a gripping position and a released position, said guide means including portions constraining said movable jaw means to movement with said movable jaw surface parallel to said fixed jaw surface at all times, means for moving said movable jaw means from said gripping position to said released position, and means for moving said movable jaw means from said released position to said gripping position, said last-mentioned means being actuated by the weight of an article to be gripped between said fixed and movable

jaw surfaces, said guide means including portions of said movable jaw means defining an edge surface angularly disposed with respect to, and extending on one side of, said movable jaw surface, additional portions of said movable jaw means including an additional edge surface angularly disposed with respect to, and extending on an opposite side of, said movable jaw surface, said edge surface and said additional edge surface being parallel with respect to each other, a first angularly disposed fixed surface parallel to, and slidably engaging, said edge surface, and a second angularly disposed fixed surface parallel to, and slidably engaging, said additional edge surface.

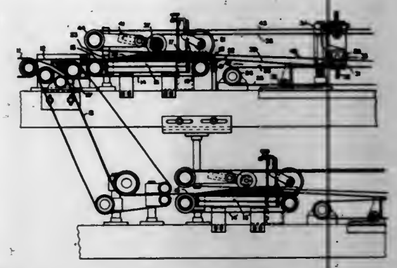
3,322,423
VISE JAW COVER PLATE
Anatoliy Popow, R.R. 1, Box 57, Crystal Lake, Ill. 60014, and Glenn A. Porter, Rte. 1, Box 262, Cary, Ill. 60013
Filed June 24, 1964, Ser. No. 377,574
4 Claims. (Cl. 269—274)



1. A vise jaw covering comprising:
a semi-resilient unitary assembly having a longitudinally extending vertical plate positionable against a work-engaging face of a vise jaw in contiguous abutting relationship thereto,
an integral flange extending rearwardly and transversely from a top peripheral edge of said plate and adapted to be supported upon and to cover a top wall of said vise jaw,
and a pair of generally parallel end walls integrally joined to said plate and to said flange at opposite ends of said plate and said flange,
said end walls having inner surfaces converging downwardly and rearwardly, and said end walls being resiliently deformable to bring said inner surfaces into substantially perpendicular relationship with respect to said plate and said flange upon placement of said covering over a vise jaw in resilient gripping engagement therewith.

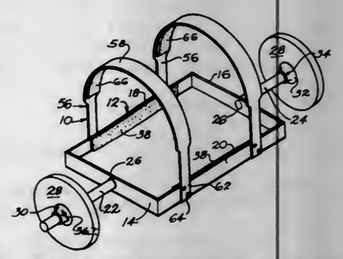
3,322,424
APPARATUS AND METHOD FOR SHEET TRANSPORT AND CONTROL
Ruel E. Taylor, Jr., South Windham, Maine, assignor to S. D. Warren Company, Boston, Mass., a corporation of Massachusetts
Filed Jan. 25, 1965, Ser. No. 427,663
10 Claims. (Cl. 271—68)

1. A flexible sheet transport system comprising:
(a) a low speed conveyor,
(b) a high speed conveyor positioned to project sheets over said low speed conveyor to form an overlapped stream of sheets on said low speed conveyor,
(c) roller means in contact with said low speed conveyor and adjustably positioned downstream from the discharge end of said high speed conveyor to provide a head catching nip between said roller means and said low speed conveyor,
(d) a set of tapes above said high and low speed conveyors with a bottom run extending through said nip and running at the speed of said low speed conveyor to provide a converging guide into said nip for the head end of sheets discharged from said high speed conveyor, and
(e) means for imparting a temporary transverse deformation in said sheet to provide longitudinal stiffening of said sheet, said roller means located at a



distance from said discharge end approximately equal to the length of said sheet to convert the kinetic energy of said sheet at high speed into a transverse wave propagated from the arrested head end toward the tail end to lay the projected sheet progressively onto the low speed conveyor.

3,322,425
WEIGHTLIFTING EXERCISE DEVICE
James E. Moore, 2010 Manchester St. NE., Atlanta, Ga. 30324
Filed Mar. 26, 1964, Ser. No. 355,125
4 Claims. (Cl. 272—84)

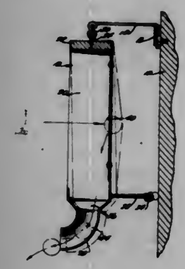


1. In a weightlifting exercise apparatus to be placed on the shoulders of a weightlifter's body which has arms and armpits and a front and a back: a shoulder support on each shoulder having a respective side frame member suspended thereon and each respective side frame member extending on a respective opposite side of the body, said respective side frame members each being located respectively below the respective armpits and normally beneath the respective arms so that the arms may selectively be lowered or raised outside said frame members, and removable weights attached on each of a respective side frame member and extending from said respective side frame member outwardly on opposite sides of the body and below said armpits and beneath said arms.

3,322,426
BALL CATCHER WITH SHOCK ABSORBING BUMPERS
Bruno P. Zulkoski, 1317 Barone Drive Extension, Weirton, W. Va. 26063
Filed June 19, 1964, Ser. No. 376,330
2 Claims. (Cl. 273—103)

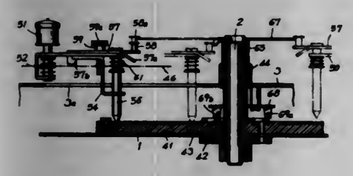
1. Ball-catching apparatus comprising a U-shaped supporting rod, a pair of supporting brackets for mounting the ends of the supporting rod on a wall, rectangularly

disposed ball-receiving means having resiliently stiff material formed about a ball impact area thereof, said ball-receiving means being mounted upon and from said U-shaped rod by S-shaped hooks, means supporting pliable material from the resiliently stiff material of said ball-receiving means, said pliable material being disposed about the ball impact area and for receiving the impact of a thrown ball, the resiliently stiff material forming the bottom thereof being sloped to form a chute for allowing the ball to roll therefrom after it has lost its impact velocity, shock dispensing rods mounted from the rear



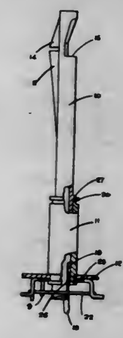
of the ball-receiving means and extending toward said wall having its free ends thereof forming a gap of small dimension from said wall but not contacting said wall except upon impact of the ball on the ball-receiving means for then closing said gap for transferring and absorbing said impact from the ball to said wall, rubber cups being provided and mounted upon the free ends of said shock dispensing rods, and snap means marginally disposed about the pliable material for securing thereon by said snaps other complementary snaps for supporting target means.

3,322,427
MAGNETIC SHEET RECORDING AND REPRODUCING APPARATUS
Sakae Fujimoto, Chofu, Japan, assignor to Kabushiki Kaisha Ricoh and Nihon Denki Bunka Kogyo Kabushiki-Kaisha, both of Tokyo, Japan, both corporations of Japan
Filed July 25, 1961, Ser. No. 126,567
Claims priority, application Japan, July 26, 1960, 35/32,982
1 Claim. (Cl. 274—4)



A magnetic recording and reproducing apparatus comprising, an electrically energized electromagnetic recording and reproducing transducer head for recording on a magnetizable record medium, means for immovably holding a flat magnetizable record medium for recording thereon and for reproducing the recording therefrom with said transducer head, means comprising a disk for transporting said transducer head while recording and reproducing and for causing in operation said transducer head to travel along a spiral path relative to said record medium while recording and reproducing, means to automatically restore said transducer head directly to a start position when the transducer head reaches a terminal position of its spiral travel corresponding substantially with the center of a spiral along which said transducer head travels, and means comprising a single operating member actuatable manually for initiating energization of said transducer head and operable in the same direction for initiating deenergization of said transducer head.

3,322,428
DETACHABLE SPINDLE FOR AUTOMATIC RECORD PLAYERS
Norman Lane, Halesowen, England, assignor to BSR Limited, Old Hill, England, a British company
Filed Dec. 29, 1964, Ser. No. 421,782
2 Claims. (Cl. 274—10)

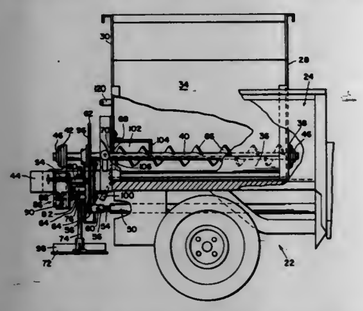


1. In an automatic record player having a long centre spindle for supporting a setback of records detachably connected to the base plate of the record player and projecting upwardly through the centre of the rotatable turntable, the arrangement of detachable mounting of the spindle comprising; a sleeve having open ends fixed to the base plate and extending upwardly therefrom, a centre spindle slidably engageable in said sleeve, a straight spring wire fixed below the base plate extending across the opening at the bottom of the sleeve and to one side of the axis thereof, a chordal groove formed in the external wall of said spindle, adjacent the lower end thereof, said groove extending at right-angles to the axis of the spindle and said wire being engaged within said groove, a lug projecting radially inwardly and fixed inside said sleeve adjacent the lower end thereof, a chordal recess formed in the external wall of said spindle at the lower end thereof said recess extending upwardly from the bottom of the spindle to form a flat co-operating with said lug to approximately locate the spindle in a correct angular position inside the sleeve, said lug and flat being of a form to permit limited angular rotation of the spindle within the sleeve to partly dis-engage the chordal groove, from the spring wire to enable upwards withdrawal of the spindle.

3,322,429
HOPPER ATTACHMENT FOR TRUCK BODY
Peter Cervelli, 602 Plainview Road, Plainview, N.Y. 11803
Filed June 23, 1965, Ser. No. 466,151
6 Claims. (Cl. 275—8)

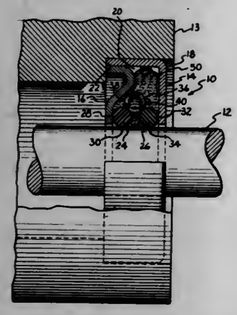
1. A hopper body for dispersing material adapted to be attached to a truck having main drive means, said hopper body comprising a dispersing disc in combination with feed means for feeding material from the hopper to the disc, said feed means comprising driven wheel means driven by drive means off the main drive means

of the truck, and shaft means driven by said driven wheel means, said dispersing disc being mounted on second shaft means positioned substantially at right angles to said first mentioned shaft means, said second mentioned shaft means being mounted on spring actuated



clapper box means mounted on said hopper body, said second mentioned shaft means including wheel means, mounted thereon, being spring pressed against a side of said first mentioned wheel means by the action of said clapper means.

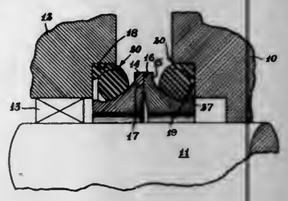
3,322,430
GREASED "O" RING CARTRIDGE
Robert M. Voitik, Glenview, Ill., assignor to Continental Illinois National Bank and Trust Company of Chicago
Filed Aug. 4, 1965, Ser. No. 477,218
4 Claims. (Cl. 277—41)



1. In an assembly having a rotatable shaft passing through an opening in a housing, a rotary seal comprising, in combination, a casing mounted on said housing and defining an annular inwardly opening space surrounding said shaft, an O-ring fitted on said shaft within said space, a spring disposed in said space and bearing on said O-ring so as to urge it against both said casing and said shaft and a quantity of light grease in said space surrounding and in heat transmitting contact with said O-ring and said spring so that friction resulting from rotation of said shaft generates heat that is transmitted to said grease thereby causing grease to flow and lubricate the friction-producing rubbing parts.

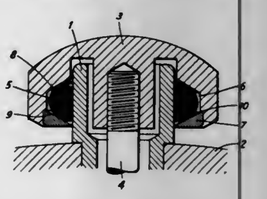
3,322,431
SEALING ELEMENT FOR ROTARY MECHANICAL SEAL
Archie J. Solari, Chicago, Ill., assignor to Crane Packing Company, Morton Grove, Ill., a corporation of Illinois
Filed Nov. 29, 1963, Ser. No. 326,915
5 Claims. (Cl. 277—92)

1. A mechanical seal assembly comprising a sealing washer, a housing and an annular sealing element of elastomeric material for effecting a seal between the sealing washer and housing, said sealing washer being axially movable relative to said housing and said sealing washer and housing having opposed radially spaced walls defining in part an annular cavity having an original radial dimension in which said sealing element is disposed, said sealing element in radial cross section comprising a first part contacting one of said opposed walls, a sleeve part contacting the other of said opposed walls, and a flexible connection between the first part and the sleeve part, said sleeve part being of progressively greater thickness



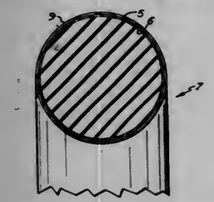
in an axial direction away from said flexible connection and having a cylindrical wall and a tapered wall radially removed from said cylindrical wall, said sleeve part being substantially fixed relative to the wall contacted thereby and said first part having a substantially circular surface rolling upon said tapered wall of said sleeve, the combined radial dimension of the first and sleeve parts becoming greater than the original radial dimension of the cavity as the circular surface of the first part rolls upon the sleeve part.

3,322,432
WATERTIGHT SEALING MEANS FOR A CONTROL DEVICE EXTENDING THROUGH THE CASING OF AN INSTRUMENT
René Soguel, Rue de la Chapelle 10, Les Hauts-Geneveys, Switzerland
Filed Oct. 29, 1963, Ser. No. 319,793
5 Claims. (Cl. 277—171)



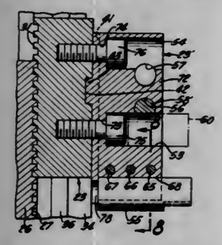
1. A sealing means for an instrument control device, for example, for the winding and hand setting stem of a watch, wherein an instrument is enclosed in a casing and a control device therefor is mounted externally of said casing, and wherein said control device is rotatable and axially reciprocable relative to said casing, comprising: a tubular member adapted to be rigidly attached to an instrument casing with said member extending outwardly of said casing, a control member within said tubular member substantially coaxial therewith and having a portion thereof spaced from said tubular member, a first of said members having a straight surface and the other having a surface radially spaced from said first member surface whereby an annular space is defined between said surfaces, an annular watertight sealing gasket fitted within said space having an inner straight side contacting said straight surface and an outer arcuate side facing said surface of said other member, the surface of said other member including spaced abutment portions contacting said gasket on its outer side in substantially point-to-point contact therewith along respective spaced apart lines extending the full circumferential extent of said gasket outer side, said gasket forming respective spaced apart watertight seals along said spaced apart lines relative to the surface of said other member, a clearance space being defined radially between said gasket outer side and said other member surface and axially between said abutment portions, said gasket being tightly pressed between said abutment portions and said surface on said first member, said abutment portions being so positioned relative to the gasket outer side as to exert pressing forces thereagainst in a radial direction relative to the axis of said control member, said gasket being of a resilient material such that under the action of the pressing forces exerted thereon it is deformable, said clearance space providing an opening into which said gasket is free to expand when so deformed, said control member being axially reciprocable relative to said tubular member with the inner side of said gasket being axially slidable along said surface of said first member, and said control member being rotatable relative to said tubular member with said abutment portions sliding circumferentially along the outer side of said gasket.

3,322,433
SEALING RING AND METHOD OF MAKING SAME
John H. Rentschler, Minneapolis, Minn., assignor to Minnesota Rubber Company, Minneapolis, Minn., a corporation of Minnesota
Filed Mar. 10, 1964, Ser. No. 350,747
2 Claims. (Cl. 277—228)



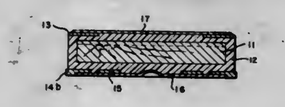
1. A sealing ring constructed principally of vulcanized solid organic carbon chain elastomeric material and having at least one working face, and a homogeneous coating bonded directly to said working face and covering the same, said coating being comprised of a polyurethane resin having an anti-friction filler of less than 25% by volume therein and having a radial thickness of from 0.5 mil to 10 mil, said coating being comprised of a plurality of cured laminations of said resin and filler each lamination of which is no greater than 3 mils in radial thickness.

3,322,434
TOP JAW HOLDERS AND TOP JAWS THEREFOR
Jack P. McClung, 12728 Foster Road, and Henry R. Barnes, 14634 Pioneer Blvd., both of Norwalk, Calif. 90650
Filed July 16, 1964, Ser. No. 383,172
5 Claims. (Cl. 279—123)



1. In a lathe having a chuck with at least three jaws, each of said jaws having a longitudinal key, transverse keyways, and two radially spaced tapped holes, the combination comprising: a top jaw holder for each of said jaws, each holder having two axial bores therein, a counterbore for each of said bores to provide a flange, a cap screw in each of said bores holding each of said flanges tight against each corresponding jaw, said cap screws being threaded into said tapped holes, each of said holders having a body with keys and a keyway fitting in and around said jaw keyways and key, each of said holders having two transverse holes, each of said transverse holes partially intercepting a corresponding one of said bores, a bolt having a keyway therein, said bolt extending through one of said transverse holes, said keyway being positioned to engage a top jaw in a corresponding one of said bores.

3,322,435
SKI
Howard William Kirschner, Rte. 2, Box 160, Vashon, Wash. 98070
Filed Jan. 29, 1965, Ser. No. 428,968
15 Claims. (Cl. 280—11.13)

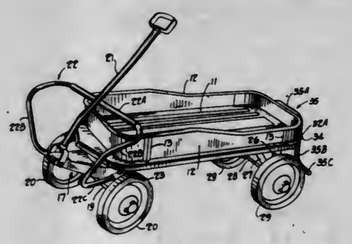


1. A ski comprising, an elongated core of low density material, top and bottom layers of high density, resinous, fibrous material bonded to the upper and lower faces of said core, protective strips secured along the upper longitudinal edges of said top layer, running-edge strips secured along the bottom longitudinal edges of said bottom layer, and compensating means secured to said bottom layer and extending longitudinally thereof for balancing stresses created by temperature changes in said upper protective strips.

ERRATUM

For Class 280—79.2 see:
Patent No. 3,322,916

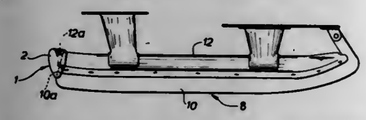
3,322,436
COASTER WAGON
Alexander B. Musichuk, Parma, Ohio, assignor to The M. T. & D. Company, a corporation of Ohio
Filed Oct. 1, 1965, Ser. No. 491,943
10 Claims. (Cl. 280—87.01)



1. In a wagon having a body, rear wheels journaled on a rear axle carried by a rear bolster, and front wheels journaled on the front axle carried by a front bolster, said front bolster being pivotable about a kingpin axis for determining the direction of travel for the wagon, said front bolster having side portions extending on the opposite sides of said axis toward said front wheels, the improvement of a tiller structure having free end portions secured to said side portions, respectively, of the front bolster at substantially equal distances from said axis, a bight por-

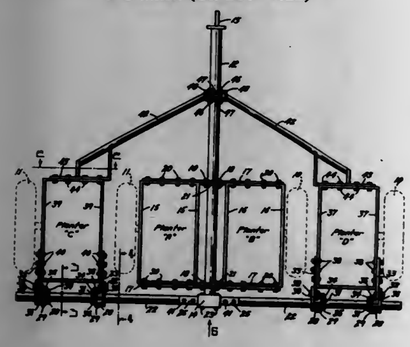
tion being disposed in a generally horizontal plane and extending above said body generally parallel to said front axle, said bight portion being generally over the said front axle, and connecting portions joining the said free end portions and the opposite ends of said bight portion, said connecting portions extending forwardly from said free end portions, thence upwardly and rearwardly to the opposite ends of said bight portion to clear said wagon body in the swinging of said bight portion about said kingpin axis, said tiller structure providing for the steering of said wagon by the operator swinging said bight portion about said axis and the corresponding swinging of said front bolster.

3,322,437
SAFETY GUARD FOR SKATES
Roy C. Bauer, Waterloo, Ontario, Canada, assignor to Canada Skate Manufacturing Company Limited, Kitchener, Ontario, Canada, a corporation of Ontario, Canada
Filed Mar. 16, 1965, Ser. No. 440,142
17 Claims. (Cl. 280—11.17)



15. A guard assembly for the substantially coterminous rear tips of the tube and blade of a skate comprising:
a guard superposable on said rear tube and blade tips to cover and shield them;
a mounting for said guard;
formations on said guard and on said mounting permitting mating engagement thereof, and
a coupling operable to disconnectably connect said guard in mating engagement with said mounting;
said mounting being integrally attachable to said tube in telescoped relation therewith and in an orientation and disposition permitting connection of said guard by said coupling in mating engagement with said mounting and with said guard superposed as aforesaid on said rear tube and blade tips.

3,322,438
MULTIPLE PLANTER FRAMES
Lester M. Cooley, Gering, Nebr., assignor, by mesne assignments, to Sellon, Inc., Toledo, Ohio, a corporation of Delaware
Filed Aug. 6, 1965, Ser. No. 477,757
5 Claims. (Cl. 280—412)



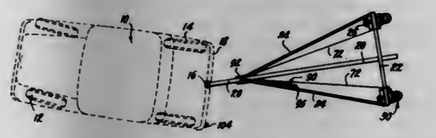
1. A multiple planter frame for supporting a plurality of crop planters in transverse alignment comprising: an elongated tongue member; means for attaching the forward extremity of said tongue member to a towing vehicle; means for supporting a first and a second crop planter on opposite sides of said tongue member intermediate the extremities of the latter; elongated outriggers secured to the rear extremity of said tongue member and extending oppositely outward therefrom; a planter frame adjustably mounted on each outrigger and extending forwardly therefrom to a position alongside of, but laterally beyond, said first and second crop planters for supporting a third and fourth crop planter; braces extending between said tongue and the forward extremities of said planter frames to maintain the latter in parallel relation to said tongue member, said braces being pivotally mounted on said tongue member so that said planter frames may move vertically and independently of said first and second crop planters; mounting sleeves surrounding said outriggers and being slidable longitudinally of the latter; means for securing said planter frames to said sleeves; and anchor means for locking said sleeves in desired positions along said outriggers.

3,322,439
TRACTOR-TRAILER STEERING COMBINATION
Carl F. Le Mmon, Long Beach, Calif., assignor of one-half to Andrew M. Le Mmon, Pacoima, Calif.
Filed Oct. 4, 1965, Ser. No. 492,729
6 Claims. (Cl. 280—426)



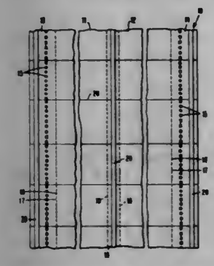
1. In a tractor-trailer wherein said tractor includes a fifth wheel, the combination of:
a trailer frame connected at its front portion to said fifth wheel;
ground-engaging wheels;
right and left axle means for said ground-engaging wheels pivotally supported by the rear portion of said trailer frame whereby said wheels may be steered;
tie rod means connecting said right and left axle means for concurrent pivotal movement about a vertical axis;
a slider member supported on said trailer frame for longitudinal movement therealong;
a force-transfer element interposed between said tie rod means and said slider member whereby longitudinal movement of said slider member will effect concurrent pivotal movement of said axle means;
a steering rod having its rear portion slidably connected to said slider member and its front end pivotally connected to said fifth wheel of said tractor whereby said rod undergoes longitudinal movement relative to said trailer frame when said tractor is steered out of alignment with said trailer;
and lock means operatively interposed between said trailer frame and said steering rod and slider member, said lock means being actuable to lock said slider member to said steering rod while permitting said slider member to move longitudinally relative to said frame to thereby effect concurrent movement of said steering rod, slider member and force-transfer member whereby said trailer wheels will be steered in the opposite direction as the front wheels of said tractor, and said lock means being alternatively actuable to secure said slider member against movement relative to said trailer frame while disconnecting said steering rod from said slider member whereby said trailer wheels will be locked in a longitudinally extending position relative to said trailer.

3,322,440
TRAILER WITH CASTER WHEELS AND VEHICLE THEREFOR
William M. Breithaupt, 265 E. Elmwood, Shreveport, La. 71104
Filed Aug. 16, 1965, Ser. No. 480,026
11 Claims. (Cl. 280—456)



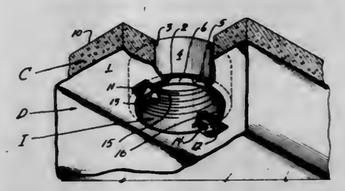
1. In combination, a vehicle and a trailer, first pivot means pivotally connecting said trailer to said vehicle, casters on said trailer and detent means to lock said casters against swivelling movement, second pivot means on the trailer, a control bar pivoted to said second pivot means, said second pivot means being offset from the first pivot means, connections between said control bar and the detent means whereby swinging of said control bar from a first position wherein the casters are free to swivel to a second position enables the caster to become locked against swivelling, and means on the vehicle offset from the first pivot means, engageable by the control bar in its second position to form a rigid structure of the trailer and vehicle.

3,322,441
CONTINUOUS CARD FORMS
Robert N. Eichorn, Endicott, N.Y., assignor to International Business Machines Corporation, Armonk, N.Y., a corporation of New York
Filed Dec. 22, 1965, Ser. No. 515,557
2 Claims. (Cl. 281—5)



1. A web of continuous form stationery comprising:
a series of precut tabulating cards arranged so that clean cut card edges which extend transversely across the web are in butt-to-butt relationship,
each card comprising a pair of marginal side strips detachably connected thereto by lines of tear perforations and each marginal strip being provided with longitudinally spaced pin-feed perforations disposed between the outer edges of the strip and the line of tear perforations,
the marginal side strips and pin-feed perforations of said series of cards being in alignment and continuous along the longitudinal edges of the web, and
a plurality of continuous film strips joining said cards in butt-to-butt relationship, said film strips extending along the longitudinal edges of the web and being secured to the front and back of said marginal side strips and between the pin feed perforations and the outer edges of the strips with alternate sides of said film strips being heated at the hinge points of the web to facilitate folding of the continuous card forms.

3,322,442
SERVICE INSERT FOR UNDERFLOOR DISTRIBUTION SYSTEMS
Charles T. Flachbarth, Wynnewood, Pa., assignor to Textron, Inc., Providence, R.I., a corporation of Rhode Island
Filed Mar. 27, 1964, Ser. No. 355,311
2 Claims. (Cl. 285—208)

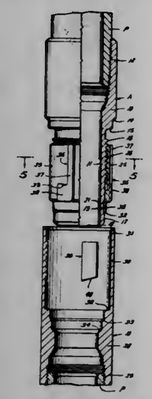


1. For an underfloor electrical distribution system, an afterset insert device for mounting in an access hole cut in the distribution duct and in the covering concrete floor to provide a means to connect a service fitting to the duct, the improvement in securing the insert to the duct comprising:
support means on the body for engaging the top of the duct in the area around the access hole;
a foot on the inside of the body of the duct and disposed adjacent one end thereof, the foot being formed with an axially extending aperture;
a screw in said aperture, the screw being mounted in said aperture so that it can be freely rotated by a screw driver extending through the interior of said body to engage and turn the head of the screw;
a clamp threaded on said screw and rotatable therewith; and
slotted lip means on said body disposed adjacent said support means for engaging the edge of an access hole, the portions of the lip forming the respective sides of the slot extending different axial lengths, the shorter side being free from the rotational path of the clamp and the longer side extending into the rotational path of the clamp and forming an abutment for engaging the clamp the width of the slot being greater than the width of the clamp, engagement of the clamp and the abutment holding the clamp against rotation, and when so held the clamp being adapted to move along the screw when the same is rotated, and the free end of said screw being enlarged to provide for the screw and the clamp to become tightly engaged whereby the clamp is rotatable with the screw;
the clamp being rotable in one direction to a first position wherein it engages said abutment and extends on the inside of said body so that the insert can be placed in an access hole without interference from the clamp, and while the clamp is in the first position rotation of the screw in said one direction causing the clamp to move along the screw in a direction to contact the enlarged portion and become tightly engaged therewith, and rotation of the screw in the opposite direction causing the clamp to rotate with the screw to a second position wherein it engages said abutment means and extends underneath the duct, and continued rotation of the screw in said opposite direction relieving said tight engagement and causing the clamp to move along the screw in a direction to engage the bottom of the

duct and tightly clamp the duct against the support means and thereby fixedly hold the insert on the duct; and

when the insert is fixedly held on the duct, a force rotating the insert in said opposite direction causing relative rotation of the clamp in said one direction, the width of said slot permitting last said relative rotation, and the rotation causing the clamp to move along the screw in a direction to more tightly clamp the duct against the support means.

3,322,443
QUICK COUPLING DEVICE FOR TUBULAR BODIES
Cicero C. Brown, % Brown Oil Tools, Inc., P.O. Box 19236, Houston, Tex. 77024
Filed Apr. 17, 1964, Ser. No. 360,612
6 Claims. (Cl. 285—332)



1. A quick coupling device for tubular bodies, comprising, a male member having a pin portion, a female member having a tubular socket for telescopically receiving said pin portion, a section of threads on said pin portion, a nut threadably disposed about said thread section and insertible therewith entirely within said socket, cooperating cam elements carried on the exterior of said nut and on the interior of said socket initially engageable to stop relative rotation between said nut and said female member, said cam elements having inter-engaging cam surfaces shaped to urge said members axially toward each other in response to relative rotation between said male member and said nut after initial engagement of said cam elements, and annular shoulder means carried by said members in longitudinally spaced relation to their respective end faces, said shoulder means being engageable by the related annular end faces of the respective members in response to said last-mentioned relative rotation whereby to provide metal-to-metal sealing between said shoulders and the respective end faces on opposite sides of said nut.

3,322,444
ELECTRICAL TRANSMISSION LINE COUPLING STRUCTURE
Donald N. Sewell, Acton, Mass., and Charles D. Brown, Raymond, Maine, assignors to Dielectric Products Engineering Company, Inc., Littleton, Mass., a corporation of Michigan
Continuation of application Ser. No. 461,591, May 21, 1965. This application June 9, 1966, Ser. No. 556,525
7 Claims. (Cl. 285—352)

1. An electrical transmission line assembly comprising a pair of electrically conductive transmission line sections, each said section being of uniform cross-sectional configuration over its entire length,

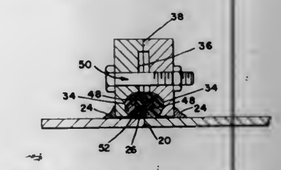
a radially extending flange member positioned over each said transmission line section adjacent the end surface of the section in secured relation with the end of the transmission line section protruding a predetermined distance beyond the axially outer face of said flange member,

each said flange member having an inner peripheral surface of the same configuration as the outer peripheral surface of said transmission line section and an axially extending lip portion in the axially outer face of the flange member adjacent the outer periphery thereof,

said lip portion having an axially extending height equal to said predetermined distance,

each said flange member having a recess in its outer face adjacent its inner periphery that extends entirely around said transmission line section,

plastic material disposed in said recess and in the space between said flange and the outer surface of said



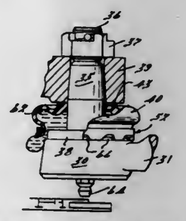
transmission line section so that a fluid tight seal is provided between said flange and the outer surface of said transmission line section,

a channel formed in said plastic material adjacent the axially outer face of each said flange member adjacent the outer wall of the transmission line section and extending entirely around said transmission line section, each said channel being of the same dimensional configuration,

resilient sealing means disposed in each said channel with a portion of said resilient sealing means protruding above the plane defined by the axially outer surface of the lip portion and the end surface of the corresponding transmission line section,

and securing means acting on said flanges intermediate said transmission line sections and said lip portions to couple said flanges together and maintain said transmission line end surfaces and said lip portions respectively in contact with one another.

3,322,445
BALL JOINT SEAL
Morris Hassan, Trenton, Mich., assignor to Chrysler Corporation, Highland Park, Mich., a corporation of Delaware
Filed Oct. 13, 1964, Ser. No. 403,498
8 Claims. (Cl. 287—90)



1. A ball joint assembly comprising:

(A) a ball joint stud having a ball head at one end;

(B) a support member fixedly receiving the other end of said stud;

(C) a ball joint housing rotatably journaled on said ball head;

(D) a resilient, thin-walled cup shaped element of rubber-like material including

(1) a bottom end wall portion having an opening therein sealingly engaging the shank of said stud adjacent said support member,

(2) a peripheral flange portion adjacent the cup open end, sealingly engaging said ball joint housing, and

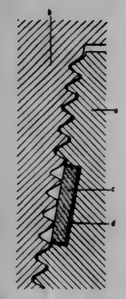
(3) side wall portions extending between said bottom wall portion and said flange portion to sealingly interconnect said support member and said ball joint housing; and

(E) a washer embedded in said flange portion and including

(1) a cylindrical main body portion holding said flange portion against said housing and concentric with the axis of said stud, and

(2) teeth portions extending axially from one end of said main body portion to define a plurality of openings therebetween and thereafter extending radially inwardly from said main body portion to assist in the sealing engagement of said housing, the rubber-like material of said cup shaped element being sufficiently flexible to allow it to be bulged radially outwardly through said openings to provide self-closing bleed passageways for lubricant.

3,322,446
METHOD OF SCREW CONNECTING CARBON OR GRAPHITE ELECTRODES
Konrad Koziol and Gregor Klier, Rothenbach an der Pegnitz, Germany, assignors to C. Conradty, Nurnberg, Germany
Filed July 30, 1964, Ser. No. 386,318
Claims priority, application Germany, Aug. 16, 1963, C 30,708
18 Claims. (Cl. 287—127)



10. As a new article of manufacture: a body for securing threadedly interengaging electrode elements against loosening, especially of carbon, and of graphite, which comprises from 20 to 95% by weight of a difficulty fusible, swellable, heat-hardenable, and cokable resin and of from 5 to 80% by weight of filler substance selected from the group consisting of graphite, coke, and silicon carbide.

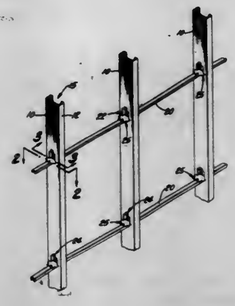
3,322,447
STIFFENING-BAR MOUNTING FOR METAL WALL STUDS
Ariel C. Biggs, Whittier, Calif., assignor to Angeles Metal Trim Company, Los Angeles, Calif., a corporation of California
Filed Apr. 7, 1964, Ser. No. 358,008
10 Claims. (Cl. 287—189.36)

7. In combination:

a metal wall stud having a main wall provided with an opening therein;

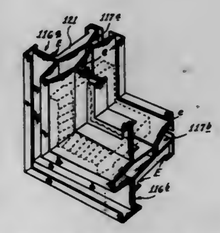
a stiffening bar received in said opening; and

an anchor plate fixed on said bar and received in said opening in anchoring relation; said anchor plate be-



ing provided with a kerf at an edge thereof receiving and holding a portion of said wall at a side of said opening.

3,322,448
STRUCTURAL ELEMENT AND JOINING MEANS THEREFOR
Robert C. Rolland, 7 Place Stanislas, Cannes, France
Filed May 12, 1964, Ser. No. 366,791
Claims priority, application Great Britain, May 14, 1963, 18,953/63
5 Claims. (Cl. 287—189.36)

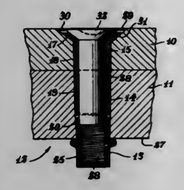


1. A structural element comprising a pair of sub-elements each of trapezoidal cross sectional shape with an end web defining the smaller base of the trapezoid and symmetrically diverging side webs defining the sides of the trapezoid, inturned flange portions projecting from the free ends of the side webs of each sub-element, outturned flanges extending from the ends of the inturned flange portions of at least one of the sub-elements and projecting beyond the sides of said sub-element to provide coplanar lateral webs, and means joining both sub-elements with the larger bases of said trapezoids directed towards each other so that said inturned flange portions define internal ribs projecting toward each other, said joining means comprising a member insertable into the trapezoidal recesses of both sub-elements and having opposite side grooves engageable with said inturned ribs to retain the sub-elements in assembly.

3,322,449
BLIND FASTENER SYSTEM
George J. Becker, Sepulveda, Calif., assignor to VSI Corporation, Pasadena, Calif., a corporation of Illinois
Filed June 18, 1964, Ser. No. 376,120
7 Claims. (Cl. 287—189.36)

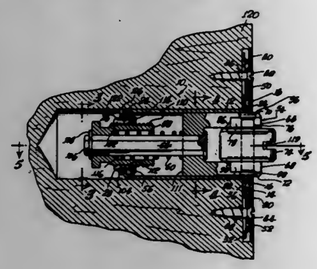
7. A blind fastener system comprising at least two members to be joined said members having a tapered hole therethrough with the taper converging towards the blind

side of the members, a tapered nut at the smaller end of said tapered hole and having a circumferential portion in interference engagement therewith, a portion of said nut extending beyond the blind side of the members from said hole and being expanded to a diameter greater than the



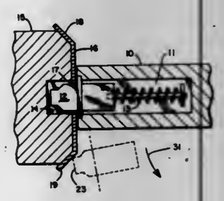
diameter of the hole from which said nut emerges, a tapered sleeve fitted within said hole and in close fitting engagement therewith and a headed fastener extending through said sleeve into threaded engagement with said nut to join said members.

3,322,450
ADJUSTABLE ROLLER LATCH
Fred J. Russell, 8635 Otis St., South Gate, Calif. 90280, and Richard L. Armstrong, Santa Fe Springs, and Harold W. Falk, Los Angeles, Calif.; said Armstrong and said Falk assignors to said Russell
Filed Sept. 21, 1964, Ser. No. 397,904
4 Claims. (Cl. 292—75)



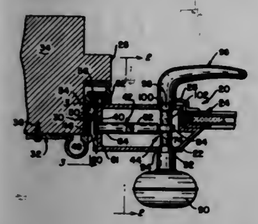
1. A latch assembly, comprising:
a hollow tubular case having a forward end opening and a rear end opening;
an inwardly projecting, annular, rear flange formed on the rear end of said case;
an outwardly projecting, annular, front flange formed on the forward end of said case;
a first plate member having a central opening encircling the forward end portion of said case, in abutment with the rearward surface of said front flange;
a second plate member positioned adjacent to and parallel with said first plate member, in abutment with the forward surface of said front flange, said front flange being thereby adapted to be fixedly clamped between said first and second plate members;
a plunger assembly axially reciprocably slidably contained in said tubular case, said plunger assembly having an inwardly extending plunger shaft having a first non-round cross sectional form and a forwardly extending plunger portion having a second non-round cross sectional form;
an outer opening formed in said second plate member coaxial with said tubular case and having a non-round shape conforming to said second non-round cross section, whereby said plunger is axially movable but prevented from rotation thereby when said plunger portion is in extended position through and in engagement with said outer opening;
an annular nut coaxially fixed to said rear flange, within the rear end portion of said tubular case;
an adjustment sleeve coaxially threaded through said annular nut and having a coaxial guide passage therethrough through which said plunger shaft extends and having a non-round shape conforming to said first non-round shape, whereby said adjustment sleeve and said shaft are axially slidable but non-rotatable relative to one another and whereby said sleeve is adjustable in axial position relative to said tubular case by rotation thereof relative to said annular nut, and said sleeve is rotatable relative to said annular nut by rotation of said plunger assembly;
stop means on said plunger shaft engageable with the inner end of said adjustment sleeve, limiting the outward sliding movement and determining the maximum extended position of said plunger assembly relative to said adjustment sleeve;
resilient means engaging said plunger assembly and constantly urging said plunger assembly in an outward direction relative to said tubular case to the limit determined by the engagement of said stop means with said inner end of said adjustment collar;
said plunger assembly being retractable rearwardly in said tubular case, by application of axial force to said plunger assembly in opposition to said resilient means, to a retracted position in which said plunger portion is disengaged from said outer opening, thereby freeing said plunger assembly for rotation relative to said tubular case, whereby said adjustment sleeve may be adjustably rotated.

3,322,451
LATCHING MECHANISM FOR DOUBLE SWING DOORS
Leonard N. Bredemus, 80 Hatch Ave., St. Paul, Minn. 55117
Filed June 28, 1965, Ser. No. 467,461
6 Claims. (Cl. 292—137)



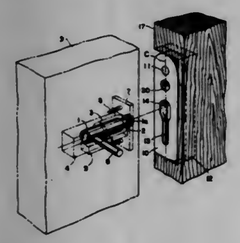
1. Latching apparatus for a double swinging door, a combination: a strike plate mounted on a doorway frame having a hole coextensive with a latching recess in the frame, said strike plate having side beveled portions approaching said hole; a latch bolt slidably mounted within the door and normally urged to an extended position away from the door for seating in said latching recess; the extended portion of said bolt consisting of a front end section having sides parallel to the plane of the door defining a bolt-face width which is substantially less than the width of the strike hole, a rearward section having sides parallel to the plane of the door defining a width which is only slightly less than the width of said strike hole and a section intermediate said front and rearward sections having at least one tapered side defining a width that ranges between the other two defined widths.

3,322,452
SIMPLIFIED STORM DOOR LATCH
Walter M. Krantz, 2355 Lake Shore Blvd., Mimico, Toronto, Ontario, Canada
Filed June 4, 1964, Ser. No. 372,467
8 Claims. (Cl. 292—254)



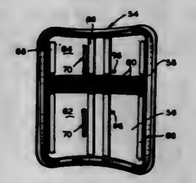
3. A latch mechanism for storm or like hollow metal frame doors comprising a spring metal plate-like catch having a marginal edge portion attached to an encircling doorway defining framing and an angularly related portion extending away from said marginal edge portion into the path of movement of the free edge framing of a door hinged to said encircling doorway defining framing and catch release mechanism directly mounted in and solely encased by said free edge framing of said door comprising a shaft, having its opposite ends fixedly fitted to hand hold knobs, journalled in aligned apertures in the opposite faces of said free edge framing of said door, a plunger slidably mounted in an aperture formed in the edge framing face of said free edge framing of said door and disposed with one end adjacently related to said shaft and a plunger actuating arm fixed to said shaft between its opposite ends and connected to said one end of said plunger to reciprocate said plunger from a normal retracted position to an extended position to depress said angularly related catch portion upon rotation of said shaft and said hand hold knobs.

3,322,453
DOOR CHECK MEANS
Kiyoshi Nagai, 267 Kugahara-machi, Ota-ku, Tokyo, Japan
Filed June 1, 1965, Ser. No. 460,447
1 Claim. (Cl. 292—269)



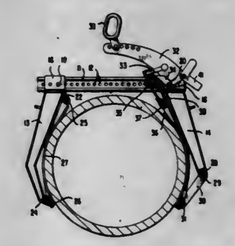
For use with a door and jamb having opposed faces, a door check comprising a bolt including a head encircled by an annular slot, means supporting the bolt in said door such that said head can be extended towards said jamb, a flat base plate set in said jamb, a flat check plate, a pin pivotally supporting said check plate in face-to-face relationship with said base plate and check plate retaining said relationship throughout all pivotal movements of said check plate, said base plate being provided with a hole having a rectilinear keyway extending therefrom, said hole being aligned with said bolt to receive said head, said keyway receiving said head with play upon pivoting of said check plate whereby pivotal displacement of said door is accommodated, said check plate including a free end portion having a radius equal to the distance between the axis of said pin and the corresponding extremity of said base plate.

3,322,454
CONTROL VALVE FOR VACUUM LIFT DEVICE
Kenneth H. Mindrum, Battle Creek, Mich., assignor to Clark Equipment Company, a corporation of Michigan
Filed Aug. 18, 1965, Ser. No. 480,651
7 Claims. (Cl. 294—64)



1. A vacuum actuated article handling device comprising load engaging means, flexible sealing means secured to said load engaging means and forming therewith a chamber which is adapted to be sealed from the atmosphere when the sealing means is moved into sealing relationship with the article to be engaged, a valve port opening into said chamber, vacuum producing means connected to said port, and control valve means for opening and closing said port, said control valve means including a valve element adapted to be held in a port closing position with a force which is proportional to the vacuum at said port and spring means connected to said valve element deflectible by an article engaged by the load engaging means to impose a valve opening force on the valve element, said valve element snap-opening at a certain deflection of said spring means to communicate substantially full port vacuum substantially instantaneously to said chamber upon or following sealing of the chamber from the atmosphere by said sealing means.

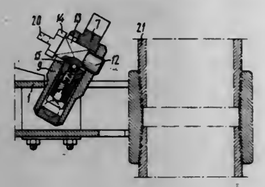
3,322,455
LIFTING MECHANISM
Arthur Gressbach, Staatsstrasse 297, Eisenbach, Germany
Filed Oct. 23, 1965, Ser. No. 503,643
Claims priority, application Germany, Nov. 13, 1964, G 42,010; Sept. 21, 1965, G 44,732
16 Claims. (Cl. 294—81)



1. In an improved grappling device, the combination comprising, plural spacedly-arranged plates having means defining a series of correlated transversely aligned openings therein, plural sleeve means adapted to be associated with said apertured plates and including body portions having depending relatively rigid jaw means and relatively movable jaw means, means defining openings in said sleeve means whereby they may be adjusted longitudinally relative to said spaced plates intermediate thereof upon

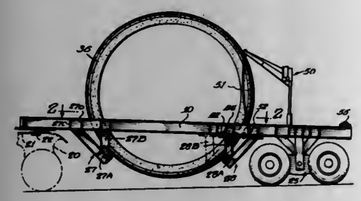
insertion of pin means therethrough, and pivotally mounted means associated with at least one of said depending jaw means for transmitting angular motion thereto when a lifting force is applied to said pivotal means.

3,322,456
PIPE-GRIPPING DEVICE USED FOR PULLING AND RUNNING OPERATIONS IN THE BORING OF WELLS
Vladimir Alexandrovich Strakhal, 4 ulitsa Oktyabrskogo Polya 9, kv. 50; Jury Borisovich Zitser, ulitsa Vorovskogo 29/36, kv. 8; and Boris Mikhailovich Rebrik, Leninsky prospect 86, kv. 2II, all of Moscow, U.S.S.R.
Filed May 17, 1965, Ser. No. 456,407
3 Claims. (Cl. 294—88)



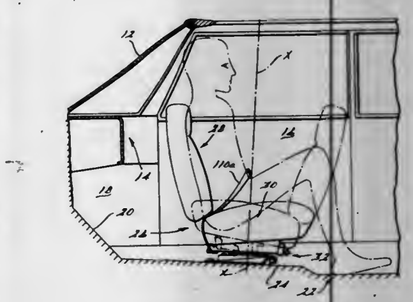
1. A pipe-gripping device which comprises a frame, levers hingeably attached to said frame, a drive connected to said levers at one of the ends thereof for pivotally moving said levers; mandrels having segments with surfaces of different curvature, an axle supporting each mandrel at the other end of a respective lever to selectively allow relative rotation therebetween, each axle including three sections in axial arrangement, one end section being of a cylindrical shape, the opposite end section being in the form of a polyhedral prism and the middle section being in the form of a square prism and having two recesses in one of its sides, and a stop mounted in each mandrel and including a ball resiliently urged into engagement in one of the recesses in said axle, each said axle being axially displaceable in the associated mandrel between two positions in which said ball is engaged in respective recesses, the mandrel being rotatable relative to the associated lever with the axle in one of said positions, and being locked against rotation with the axle in the other of said positions.

3,322,457
VEHICLE FOR TRANSPORTING CONCRETE PIPE
Glen W. Toadvine, Miamisburg, Ohio, assignor to Price Bros. Company, Dayton, Ohio, a corporation of Michigan
Filed Oct. 21, 1965, Ser. No. 500,113
3 Claims. (Cl. 296—4)



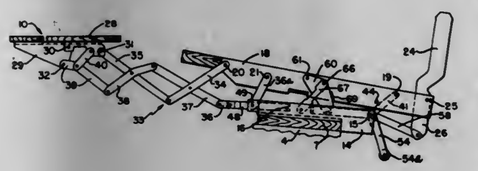
1. A vehicle for transporting a length of large diameter concrete pipe, said vehicle comprising two laterally offset parallel generally horizontal beams forming the longitudinal portion of said vehicle, a plurality of transverse beams adjacent the two ends of said first named beams secured thereto to provide in plan view a generally rectangular vehicle frame, means extending below said frame for supporting said frame on wheels for transport, said frame having a clear region between said beams for accommodating a length of pipe therein with the pipe axis horizontal and transverse of said vehicle and adapted to have a portion of said pipe extending below the level of said beams and the remainder of said pipe extending above said beams, cradle means carried by said frame and extending downwardly therefrom for supporting the pipe, said cradle means including a pair of front assemblies and a pair of rear assemblies, each assembly including two depending support portions below the longitudinal beams and a transverse cross portion between the support portions for a pair of assemblies for engaging an outer area longitudinally of the pipe length, said two pipe engaging portions being spaced apart along the length of said vehicle a distance less than the diameter of said pipe so that said pipe can rest upon said pipe support cross portions, means for joining one pair of said cradle assemblies to said frame beams, said remaining pair of assemblies including base plates forming part of said assemblies and to which said depending portions are secured, and means for adjustably securing said base plates to the longitudinal beams for controlling the longitudinal spacing between the pairs of assemblies to provide adjustment for different diameter pipes, a pipe length being carried so that the bottom of said pipe has a small predetermined clearance above ground during transport, said vehicle and load having a low center of gravity, said longitudinal beams being detachably secured to the transverse beams to accommodate different lengths of pipe.

3,322,458
SWIVEL SEAT FOR MOTOR VEHICLE
William V. Bachmann, St. Clair Shores, Mich., assignor to Chrysler Corporation, Highland Park, Mich., a corporation of Delaware
Filed Dec. 8, 1965, Ser. No. 512,351
14 Claims. (Cl. 296—65)



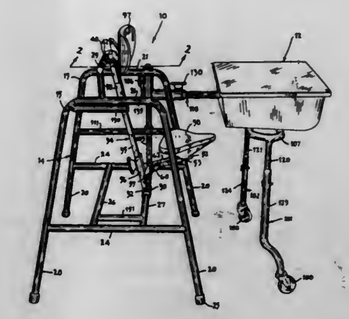
1. In a seat assembly comprising a fixed base structure, a seat bottom mounted for movement on said base structure, and latch means for releasably securing said seat bottom on said base structure in at least one position; the improvement wherein said latch means includes;
(A) a first member mounted on said seat bottom for pivotal movement about a first axis and having
(1) an elongated main body portion carrying said first axis and
(2) a prong portion projecting generally laterally from said main body portion
(a) at a location thereon spaced longitudinally from said first axis and
(b) in a direction generally normal to said first axis;
(B) means on said base structure defining at least one aperture extending, with said seat bottom in said one position, across a portion of the arcuate path of said prong portion so that the latter is moved selectively into and out of said aperture as said first member is selectively pivoted about said first axis; and
(C) a second member mounted on said seat bottom for pivotal movement about a second axis spaced from but generally parallel to said first axis and having
(1) a handle portion projecting in a direction generally normal to said second axis to a location accessible to an occupant of said seat bottom,
(2) a first surface spaced radially from said second axis and
(3) a second surface spaced radially beyond said first surface to define an open area therebetween loosely and slidably receiving an end section of said main body portion spaced longitudinally from said first axis, whereby pivotal movement of said handle portion in one direction brings a point of one of said surfaces into contact with a point on an edge surface of said end section to move said prong portion into a position of latching coaction with said aperture and pivotal movement of said handle portion in the opposite direction brings the other of said surfaces into engagement with an opposite edge surface of said end section to move said prong portion out of latching coaction with said aperture,
(4) said first and second surfaces being so arranged relative to said second axis that the line of action of the force transmitted to said second member upon application of a force to said prong portion tending to move the latter out of said aperture passes generally adjacent said second axis.

3,322,459
MULTIPLE POSITION ROCKER-RECLINER
Edward L. Hampton, Louisville, Ky., assignor, by mesne assignments, to Lear Siegler, Inc., Santa Monica, Calif., a corporation of Delaware
Filed June 21, 1965, Ser. No. 465,262
9 Claims. (Cl. 297—85)



1. A multiple position rocker-recliner comprising; a platform, a rocker assembly mounted on said platform and including a rockable base disposed for rocking movement about a transverse rocking axis, a seat assembly including a seat and a backrest, and hardware means operatively interconnecting said seat assembly and said rockable base for providing two-phase reclining movement of said seat assembly relative to said rockable base between first, second and third positions which respectively correspond to upright semi-reclined and fully reclined positions, said hardware means and said seat assembly being rockable with said rockable base about said transverse rocking axis, said hardware means including a base-seat link pivotally connected to said seat, pivotally connected to said rockable base, and having an arm extending beyond the pivotal connection to said rockable base to engage said platform substantially throughout reclining movement between said second and said third positions for preventing rocking movement.

3,322,460
CHAIR
Gerald Benedict Leverman, 9 Brightwood Ave., Dartmouth, Nova Scotia, Canada
Filed Dec. 27, 1965, Ser. No. 516,618
Claims priority, application Canada, June 10, 1965, 932,929
6 Claims. (Cl. 297—156)

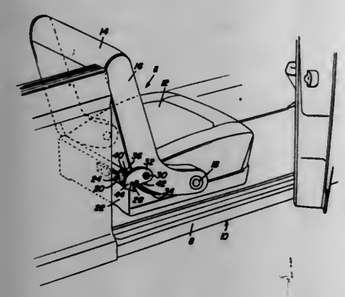


4. A chair for the rehabilitation of invalids, said chair comprising support members arranged so as to provide a broad base, an upstanding member spaced from the plane of the leading edge of the base and secured to said support members, a saddle type seat secured to said upstanding member so as to provide a substantially unobstructed area vertically below and at each side of said seat to facilitate seating of said invalid, the seat being so arranged with respect to the base that the center of gravity of a person seated thereon acts within the confines of said base and means providing for vertical adjustment of said seat with respect to said upstanding member, a work surface, means for mounting said work surface on said chair for relative swinging movement away from said seat so as to facilitate seating of said invalid, and means for locking said work surface in a selected position relative to said seat.

3,322,461
LOCK FOR AUTOMOBILE SEATS
Mark H. Goldman, 6 Bailey Lane, Uniontown, Pa. 15401; Edward V. Kapel, R.D. 1, Brownsville, Pa. 15417; and Lawrence E. Luda, Box 92, 2 Legion St., Republic, Pa. 15475; said Kapel and said Luda assignors jointly of one-sixth to said Goldman
Filed Dec. 7, 1964, Ser. No. 416,378
3 Claims. (Cl. 297—379)

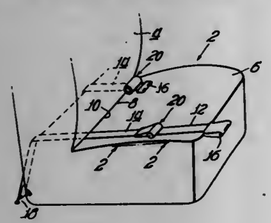
1. For a vehicle seat including a seat unit and a backrest hingedly mounted thereon for forward swinging movement from an operative position, a lock comprising a keeper mounted on the rear portion of the seat unit, a hook pivotally mounted on the backrest and, in response to rearward swinging movement of the backrest to operative position, engageable with the keeper for anchoring said backrest in said operative position, and means for shielding the keeper from the hook for rendering said hook inoperative, said means including a guard on the keeper positionable in the path of the hook for engaging said hook and retaining same out of engagement with the keeper when the backrest is swung to its operative position, said keeper comprising a bar secured on the seat unit and including a laterally projecting end portion engageable by the hook, said hook comprising a generally cam-shaped bill adapted to ride over the bar and engage therebehind, said guard including an elongated plate having one end portion pivotally secured to the bar for swinging movement between

operative and inoperative positions, said guard further including a flange on the free end portion of the plate



engageable by the hook bill in the operative position and engageable with the bar in both positions.

3,322,462
BELT GRIPPER
Raymond J. Boedigheimer, Chicago, Ill., assignor to Borg-Warner Corporation, Chicago, Ill., a corporation of Illinois
Filed Jan. 2, 1964, Ser. No. 341,474
13 Claims. (Cl. 297—388)



1. A belt gripper means for attachment of a seat belt to a seat belt retractor of the reel type whereby the belt is rolled up on the retractor in a double ply superimposed coil, said gripper means comprising an elongated bar portion adapted to be disposed longitudinally of the reel, a pair of resilient belt clip portions superimposed in longitudinally spaced relation over the bar portion in close proximity thereto and defining therewith a pair of a belt engaging and grasping means, and a pair of clasp portions depending in longitudinally spaced relation under the clip portion and from the bar portion and having reel fastening means adapted to secure the clasp portions on the reel.

3,322,463
ARMREST FOR AUTOMOTIVE SEATS
Colin G. Neale, Dearborn, and Paul M. Malasky, Grosse Ile, Mich., assignors to Chrysler Corporation, Highland Park, Mich., a corporation of Delaware
Filed Mar. 3, 1966, Ser. No. 531,472
9 Claims. (Cl. 297—417)

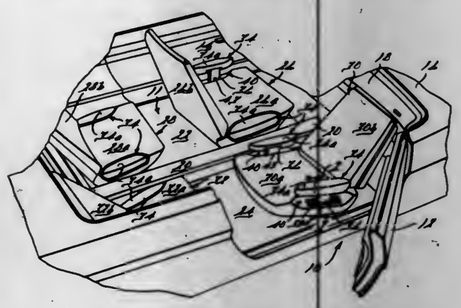
1. In a motor vehicle seat assembly of the type including a seat bottom having a front, a back, and spaced sides, and a seat back extending upwardly from said seat bottom adjacent the back thereof;

(A) an armrest member defining an elongated, generally horizontal arm support surface; and

(B) means mounting said armrest member for generally translatory movement between

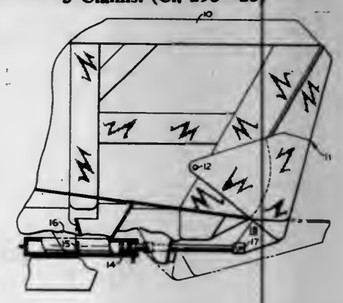
(1) a stowed position in which said elongated arm support surface extends along one side of said seat bottom in a position adjacent and generally parallel to the upper surface of said seat bottom and

(2) a working position in which said elongated arm support surface remains extended along said



one side of said seat bottom in a position generally parallel to said seat bottom upper surface but is spaced thereabove to comfortably support the forearm of an occupant of said seat assembly.

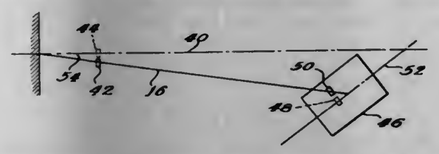
3,322,464
DOOR MECHANISM AND HYDRAULIC CONTROL THEREFOR
Donald E. Merritt, Peoria Heights, Ralph H. Kress, Peoria, and Jackson C. Medley, East Peoria, Ill., assignors to Caterpillar Tractor Co., Peoria, Ill., a corporation of California
Filed June 23, 1965, Ser. No. 466,177
3 Claims. (Cl. 298—23)



1. A tailgate for a vehicle dump body comprising a closure panel at the rear end of the body, forwardly extending brackets on said panel, and pivotal connections between the brackets and the body at points forwardly on the body and above the bottom but closer to the bottom than the top permitting the gate to swing to an open position with a substantial portion of the gate panel disposed beneath the body.

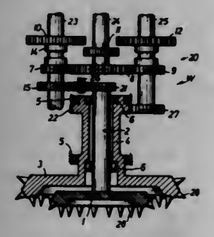
3,322,465
GUIDANCE SYSTEMS FOR CONTINUOUS MINING MACHINERY
Russell C. W. Crom, Clinton, Iowa, and David M. Williams, Arlington Heights, Ill., assignors to International Minerals & Chemical Corporation, a corporation of New York
Filed Nov. 23, 1964, Ser. No. 412,933
15 Claims. (Cl. 299—1)

1. In a guidance system for a self-propelled vehicle, a flexible line, means for suspending said line under tension between a first point on said vehicle and a second fixed point remote from said vehicle, whereby said line determines an initial bearing, first means remote from said vehicle which is responsive to angular deviation of said line from said initial bearing in a first plane substantially parallel to the ground plane of said vehicle for producing a first electrical signal having a sense indicative of the direction of deviation, second means on said



vehicle which is responsive to an angular deviation of the heading of said vehicle from said line in said first plane for producing a second electrical signal having a sense indicative of the direction of deviation, and means responsive to said first and second signals for urging said vehicle to a heading which intercepts said initial bearing, and then urging said vehicle toward a bearing corresponding to the direction of said line.

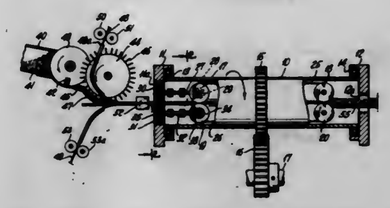
3,322,466
MINING MACHINE WITH CONCENTRIC RELATIVELY VARIABLY ROTATED HEADS
Werner Mennekes, Weidenkamp, Germany, assignor to Gewerkschaft Eisenhutte Westfalia, Wethmar, near Lunen, Westphalia, Germany, a corporation of Germany
Filed Dec. 18, 1964, Ser. No. 419,329
Claims priority, application Germany, Dec. 30, 1963, G 39,495
3 Claims. (Cl. 299—60)



1. A winning machine comprising a machine frame, a pair of concentrically rotatable cutter heads supported by said machine frame, a variable transmission ratio gear drive having an input shaft connectable to a prime mover for rotation thereby, a pair of output shafts each connected to a corresponding cutter head to transmit rotary power thereto from said input shaft to counterrotate said cutter heads, and gear ratio change means operable to vary the rotation speeds of said cutter heads to maintain a selected rotary speed ratio between said cutter heads to correspondingly regulate the net reaction force and moment transmitted to the machine frame through said cutter heads.

3,322,467
BRUSH MAKING APPARATUS
Theodore Marks, Hartsdale, and Joseph T. Gelardi, Yonkers, N.Y., assignors to American Technical Machinery Corp., Mount Vernon, N.Y., a corporation of New York
Filed Mar. 15, 1965, Ser. No. 439,824
5 Claims. (Cl. 300—2)

1. A brush twisting device comprising a rotatably mounted hollow shaft, rotatably mounted means within said rotatable shaft for continuously gripping and drawing therethrough a pair of adjacently arranged wires with bristles therebetween, transmission means associated with said hollow shaft for rotating said rotatably mounted means for gripping and drawing said wires, said transmis-



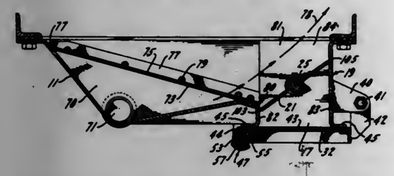
sion means being actuated as the shaft rotates, and means for rotating said hollow shaft such that the wires are drawn through said hollow shaft and leave said shaft twisted about each other with the bristles locked therebetween.

3,322,468
WHEEL COVER
Edward G. Spisak, Wayne, Mich., assignor to Gar Wood Industries, Inc., Wayne, Mich., a corporation of Michigan
Filed Oct. 23, 1965, Ser. No. 503,201
3 Claims. (Cl. 301—37)



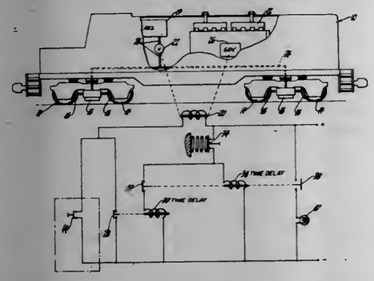
1. In a wheel assembly comprising a vehicle wheel having an axially extending terminal flange, a circular wheel cover of substantially the same diameter as the terminal flange of the wheel, and a plurality of spring clips disposed at intervals around the periphery of said cover for gripping the terminal flange of said wheel, an improved means for securing said clips to said wheel cover comprising a generally T-shaped shank portion on each of said clips, and a pair of radially extending juxtaposed annular rings, the T-shaped shank portion of said clips being interposed between said rings, said rings being welded to one another on circumferentially opposite sides of the T-shaped shank portion of said clips and radially inwardly spaced from the T-shaped shank portion of said clips to preclude both circumferential and radially inward movement of said clips relative to said rings, said cover having a peripheral flange folded radially inwardly about the radially outer periphery of said rings to both retain said rings and to preclude radially outward movement of said clips relative thereto.

3,322,469
SYSTEM FOR DISCHARGING FINELY DIVIDED MATERIAL FROM A CONTAINER
William E. Fritz, Hinsdale, Ill., assignor to Union Tank Car Company, a corporation of New Jersey
Original application Aug. 26, 1963, Ser. No. 304,445. Divided and this application Sept. 13, 1965, Ser. No. 486,800
2 Claims. (Cl. 302—52)



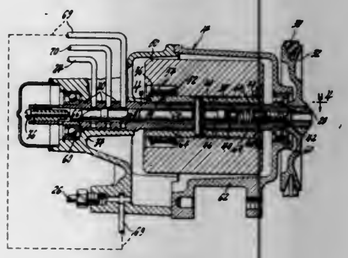
1. In a system for discharging a finely divided material from a container comprising:
(A) means defining an outlet port and means venting said container to the atmosphere,
(B) a source of fluidizing gas adjacent said port, and
(C) valve means for opening and closing said port comprising a pivotable member,
the improvement in means facilitating opening of said valve by pivoting said member against the weight of said material comprising;
(1) the pivot axis of said member being located above said source but below said vent means, and
(2) said member slanting downwardly toward said source at an angle intersecting the horizontal when said member is in closed position so that said member is generally aligned with but below the path of gas flowing from said source to said vent means,
whereby fluidizing gas traveling toward said vent means passes over said member and fluidizes finely divided material thereon.

3,322,470
ATTENTIVENESS CONTROL
Norman L. Macdonald, Chicago, Ill., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed June 24, 1964, Ser. No. 377,712
3 Claims. (Cl. 303—19)



1. An electrical control for use with operating equipment requiring the presence of attentive operating personnel, said control requiring periodic physical action thereupon to indicate attentiveness of such personnel and adapted in the absence of such action to affect operation of such equipment, said control comprising an electrical circuit connectable across a voltage source and including a first relay of the time-delay type which picks up after an interval following energization and which cuts out immediately following de-energization, signal means, means to actuate said signal means in response to pickup of said relay, a second relay of the time-delay type which cuts out after a predetermined interval following de-energization and which picks up immediately following energization, means to de-energize said second relay in response to pickup of said first relay and to energize said second relay in response to cutout of said first relay, control means adapted to affect operation of the equipment, means to actuate said control means in response to cutout of said second relay, and physically actuated means to energize and de-energize said first relay which must be acted upon by the operating personnel to sequentially de-energize and energize said first relay within said predetermined interval following pickup of said first relay and actuation of said signal means and de-energization of said second relay to energize and prevent cutout of said second relay whereby actuation of said control means is avoided.

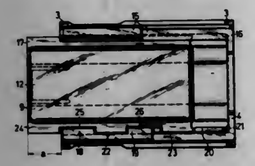
3,322,471
ANTI-SKID BRAKE DEVICE
Kenneth E. Faiver and Andrew K. Watt, Lansing, Mich., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Filed Oct. 6, 1965, Ser. No. 493,495
7 Claims. (Cl. 303—21)



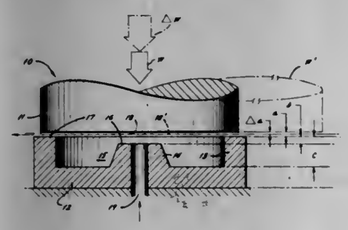
1. A brake anti-lock device for a vehicle having fluid actuated wheel brakes, said device comprising: a brake master cylinder for developing a fluid pressure; brake actuation and output line therefor; a fluid pressure source driven by a vehicle engine; first valve means driven rotationally at a speed proportional to wheel rotation; second valve means interposed in said output line and responsive to pressure from said fluid pressure source; a housing having portions therein in which said first and second valve means are slidably disposed; inlet means in said housing from said brake master cylinder and from said fluid pressure source; and inertia means rotatably carried by said first valve means and arranged to be rotatable and slidable relative thereto, said inertia means being responsive to a predetermined change in rotational velocity of said first valve means to reposition said first valve means in said housing thereby communicating pressure from said fluid pressure source to said second valve means to shut off braking to at least one vehicle wheel, said inertia means being responsive to vehicle deceleration to slide on said first valve means to modify the response of said inertia means to rotational velocity of said first valve means.

3,322,472
CHAIN LINK FOR TRACK LAYING VEHICLES
Otto Ley, Remscheid, Germany, assignor to Diehl K.G., Remscheid, Germany
Filed Oct. 1, 1965, Ser. No. 491,959
Claims priority, application Germany, Oct. 2, 1964, D 45,546
4 Claims. (Cl. 305—36)

1. A chain link structure for endless track chains, which includes: two spaced substantially parallel tubular means, chain link means supporting the end portions of said tubular means, track means connected to said tubular means and forming two spaced oppositely arranged channel means open toward each other and extending in axial direction of said tubular means, at least one of said channel means having that side thereof which faces the other channel means provided with means protruding and receding with regard to said other channel means, and insert means including plate means detachably and slidably fitting in said channel means, at least one of the longitudinal edges of said plate means being provided with protruding means and with recess means corresponding to and respectively movable about and into said protruding and receding means and into and out of the respective adjacent channel means, whereby at least the major portion of said plate means can be inserted into and removed from said track means without sliding said plate means along its entire length into and out of said track means.

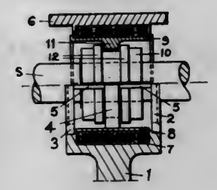


3,322,473
HYDROSTATIC BEARING UNIT FOR ANTENNA STRUCTURE
John L. Lebach, Los Altos, Calif., assignor to Philco-Ford Corporation, a corporation of Delaware
Filed Nov. 12, 1964, Ser. No. 410,360
3 Claims. (Cl. 308—9)



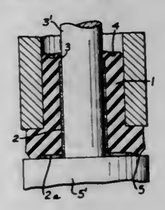
1. In a hydrostatic bearing unit for heavy, horizontally rotatable equipment exposed to transient loads, such as an antenna of the radar and radio astronomy type: a lower bearing member comprising a bottom, an annular outer sill upstanding from said bottom to a generally horizontal top surface, and an inner sill upstanding from said bottom and inwardly spaced from said outer sill to provide a pool area therebetween, said inner sill having generally horizontal top surface slightly below the horizontal top surface of said outer sill and having an upwardly extending aperture to provide an inlet for viscous liquid; and an upper bearing member overlying said sill surfaces and pool to provide for substantially direct flow of said liquid over the top surface of said inner sill across the pool area, and over the top surface of said outer sill, thereby to provide a hydrostatic bearing effect to support said equipment and a dashpot effect to absorb said transient loads.

3,322,474
SHOCK ABSORBING BEARING STRUCTURE
Pierre Destival, Paris, France, assignor to Cie Electro-Mecanique, Paris, France, a corporation of France
Filed Oct. 30, 1964, Ser. No. 407,776
Claims priority, application France, Nov. 14, 1963, 953,734, Patent 1,380,813
4 Claims. (Cl. 308—26)



1. In a shock-absorbing bearing structure for a rotatable shaft enabling said shaft to be rotated in excess of a critical speed, and to also damp vibration incurred at any speed, the combination comprising a bearing support body, a bush surrounding said shaft, an elastic bush spring comprised of at least three half-ring means united by elastic bars, said bush resting directly upon and being supported by at least one of said half-ring means and the entire weight of said shaft being transmitted from said bush supporting half-ring means through a flexure of said elastic bars to the remaining half-ring means which rest directly upon said bearing support body, and a vibration damping element comprising a cylindrical pack of thin plates inserted between said bearing support body and said bush supporting half ring means, said pack of plates being free from any stress imposed solely by the weight of said shaft and serving only to absorb and damp shaft vibrations.

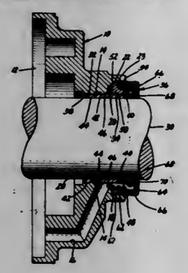
3,322,475
BEARING BUSHING
Joachim Schick, Hannover, Germany, assignor to Continental Gummi-Werke Aktiengesellschaft, Hannover, Germany
Filed Jan. 13, 1964, Ser. No. 337,468
Claims priority, application Germany, Jan. 18, 1963, C 28,936
1 Claim. (Cl. 308—36.1)



In combination with a shaft having a first section and a second section with a larger diameter than said first section so as to define therewith a step including a radially extending surface facing in the direction toward said first section: a bearing bushing of rubber elastic material having a bore directly receiving said first section, the surface of said bore being provided with axially extending groove means having the ends thereof spaced in axial direction of said bushing from the end faces of said bushing for receiving and storing a lubricant, two annular grooves respectively arranged near the end faces of said bushing and communicating with said groove means while extending transverse to the axis of said bushing, a first annular sealing strip arranged at one end of said bushing and integral therewith and partially defining the annular groove adjacent to said one end of said bushing, said first sealing

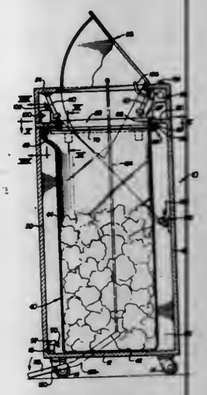
strip extending radially inwardly in sealing engagement with said first shaft section, and a second annular sealing strip arranged at and integral with the other end of said bushing and partially defining the annular groove adjacent thereto, said second sealing strip having an extension extending in axial direction of said bushing in sealing engagement with said radially extending surface.

3,322,476
BUSHING AND SEAL REPAIR KIT AND METHOD FOR INSTALLING THE SAME
Jess A. Lewis, 1230 Dell Cove Drive, Fort Wayne, Ind. 46804
Filed Apr. 2, 1965, Ser. No. 445,185
8 Claims. (Cl. 308—36.1)



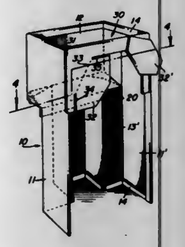
1. The combination of an automatic transmission torque converter pump housing having a step-diametered opening therein, said opening having an interior portion of a constant first diameter, an exterior portion of a constant second diameter and a step therebetween, said second diameter being larger than said first diameter thereby defining an annular cavity in said housing surrounding said opening which is accessible from the exterior of said housing and is bounded on one side by said step, said housing having an oil drain communicating with the interior of said housing and said exterior portion of said opening, a bearing support ring having opposite ends, a constant diametered and coaxial aperture therein with a diameter substantially equal to said housing opening first diameter and an exterior surface portion having a diameter substantially equal to said housing opening second diameter, said ring being positioned and frictionally secured in said housing cavity with one of said ends thereof positioned adjacent said step, said support ring aperture being in registry with said interior portion of said housing opening thereby forming a continuation thereof, said ring having a second opening therein communicating with said ends of said ring and in registry with said oil drain, thereby forming a continuation of said oil drain, a cylindrical bushing having an exterior diameter substantially equal to said housing opening first diameter, said bushing being positioned in said housing interior opening and said support ring aperture and being frictionally secured therein with said bushing being supported by said housing and said ring, and an annular oil seal having an outer rigid ring and an inner flexible ring secured coaxially together, said outer ring having a cylindrical surface defining the outer peripheral surface of said seal, said outer seal surface having a diameter substantially equal to said housing opening second diameter, said seal being positioned and frictionally secured in said cavity with one end thereof adjacent said other end of said ring, thereby providing access from the interior of said bushing and seal to said passageway, whereby a converter shaft can be journaled in said bushing and the oil lubricating said bushing and the shaft is retained within said pump housing and the excess oil returned to the interior of said pump housing by said oil drain.

3,322,477
SANITARY RECEPTACLE CONSTRUCTION
David A. Armijo, 845 Domingo Drive, San Gabriel, Calif. 91775
Filed June 22, 1965, Ser. No. 465,858
9 Claims. (Cl. 312—223)



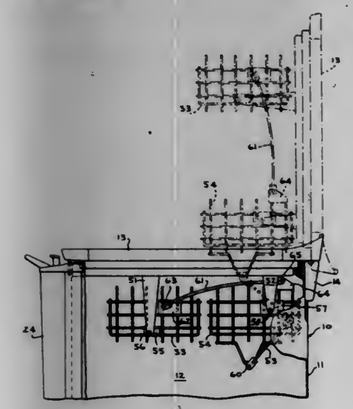
1. In a sanitary receptacle for waste items, in combination:
- a housing comprising a cabinet having a bottom floor, walls extending upwardly from the floor and a horizontal top provided with an openable access cover, one of said walls being provided with a service door;
- an open-mouthed bag of flexible impermeable material within the cabinet, the bag being positionable with its mouth immediately beneath the access cover when the bag bottom rests upon said floor;
- releasable clamping means in the upper part of the cabinet for releasably receiving and clamping the upper edge portion of said bag defining the bag mouth, including electrically operated means for releasing the clamping means;
- and means actuated by the opening of said service door electrically energizing said releasing means.

3,322,478
CARDBOARD VOTING BOOTH AND BLANK
Robert J. Brown, Little Rock, Ark., assignor to Election Research Council, Inc., a corporation of Arkansas
Filed Feb. 12, 1965, Ser. No. 432,363
7 Claims. (Cl. 312—239)



1. A voting booth of the class described comprising a booth having two sides and a back, said booth being made from a single sheet of cardboard, a shelf and a curtain, said shelf and curtain being made from separate sheets of cardboard, said booth being folded along the outermost edges thereof and said folds being stapled, said shelf having slots therein which are interlockably engageable with said booth to make the back of said booth rigid, said curtain having doors thereon which are swingable in either direction along fold lines in said curtain, said curtain having folds at each side thereof connected to the top of said sides of said booth.

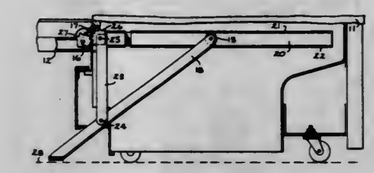
3,322,479
RACK SYSTEM FOR AUTOMATIC DISHWASHER
Don E. Payton and Wesley S. Pattison, both of Louisville, Ky., assignors to General Electric Company, a corporation of New York
Filed Mar. 26, 1965, Ser. No. 442,953
6 Claims. (Cl. 312—269)



3. In an automatic dishwasher having a cabinet defining therein a wash chamber with an access opening at the top and a closure member for said access opening pivotal about a hinge means from a substantially horizontal closed position to a substantially vertical open position, a rack system comprising:
- (a) first and second bracket means secured to the closure member,
- (b) said first bracket means being positioned farther from the hinge means than said second bracket means,
- (c) a first rack member pivotally carried by said first bracket means,
- (d) a second rack member pivotally carried by said second bracket means,
- (e) said first rack member being secured to said first bracket means at a point remote from the closure member than the point at which said second rack member is secured to said second bracket means, and
- (f) a rigid link pivotally secured at one end to the dishwasher cabinet and pivotally secured at its other end to said first rack member and pivotally secured intermediate its ends to said second rack member.

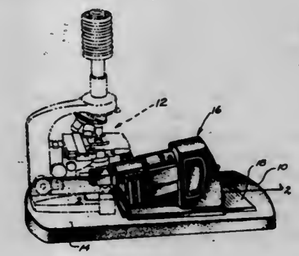
3,322,480
ANTI-TIP DEVICE
John W. Barnstead, Brazil, Ind., and Robert C. Pressley, Jr., Louisville, Ky., assignors to General Electric Company, a corporation of New York
Filed Apr. 25, 1966, Ser. No. 545,013
5 Claims. (Cl. 312—276)

1. A free-standing structure comprising:
- (a) a cabinet,
- (b) a closure member in one side wall of said cabinet movable from a closed position to an open position,
- (c) a track carried by said cabinet,
- (d) an anti-tip arm having means at one end to move along said track,
- (e) said anti-tip arm being movable to a tip-preventing position,



- (f) at least one link pivotally interconnecting said anti-tip arm and said cabinet, and
- (g) means interconnecting said link and said closure member to pivot said link as said closure member is moved whereby said anti-tip arm is moved to said tip-preventing position upon opening of said closure member.

3,322,481
POSITIONALLY ADJUSTABLE MICROSCOPE ILLUMINATOR
William E. Foley, Buffalo, N.Y., assignor to American Optical Company, Southbridge, Mass.
Filed Oct. 1, 1962, Ser. No. 227,317
3 Claims. (Cl. 350—87)



1. An illumination mechanism for microscopes, comprising in combination,
- a platform adapted to support a microscope at one end and a light source assembly at the opposite end, the latter being guidably movable toward and away from the former for movement into and out of alignment with the substage condenser of a microscope,
- guide means rigid with said platform,
- a light source assembly engaged with said guide means for guided movement longitudinally of the platform, as aforesaid,
- said light source assembly including a depending skirt portion at that end thereof remote from said one end of the platform,
- stop means rigid with said platform and projecting upwardly therefrom above the elevation of said skirt portion, and
- abutment means adjustably carried by said skirt portion for engagement with said stop means when the light

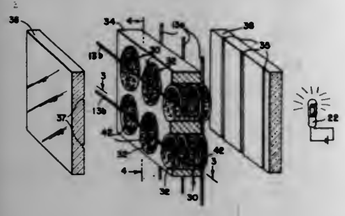
source assembly is moved toward said one end of the platform.

3,322,482

PANEL FOR CONTROLLING LIGHT TRANSMISSION BY THE SELECTIVE ORIENTATION OF FREE PARTICLES

James V. Harmon, 227 Emerald Ave., New Brighton, Minn. 55100

Filed Apr. 12, 1965, Ser. No. 450,239
11 Claims. (Cl. 350—267)



2. A display panel including a plurality of light control cells comprising:

(a) a sheet of rigid material having

(1) a front and rear surface and a plurality of spaced openings therethrough from the front to the rear surface thereof,

(b) a coil formed from a conductive material positioned in each opening with the axis thereof extending between the front and rear surfaces for establishing a magnetic field within said openings along said axis,

(1) the walls of the opening defining the bounds of said cells and

(2) said coils abutting said walls and being supported thereby,

(c) a fluid in each opening,

(d) a plurality of elongated ferromagnetic particles responsive to a magnetic field suspended in said fluid in each opening for normally obstructing light from passing through said openings in the absence of a magnetic field and for concentrating the flux in said field within said opening when said coil is energized,

(e) conductor means connected to the coil for supplying energizing current thereto, and

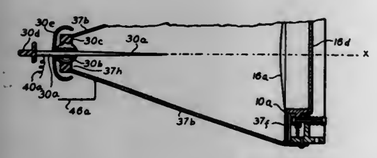
(f) light transmissive walls at the ends of the openings adjacent the front and rear surfaces of the sheet.

3,322,483

ELECTROSTATICALLY-CURVED MEMBRANE TYPE MIRROR

Harry S. Jones, 933 Hudson St., Hoboken, N.J. 07030

Filed June 28, 1965, Ser. No. 467,415
6 Claims. (Cl. 350—295)



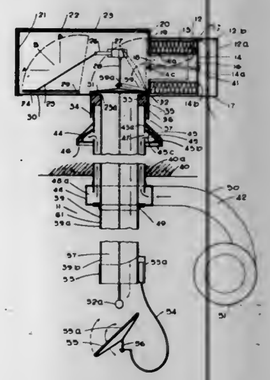
1. In an electrostatically controllable mirror assembly comprising an electrode, an electrode mounting, a conductive flexible membrane mirror surface, an annular mirror support and a conductive housing extending from said electrode mounting and contacting said mirror support; the improvement which comprises said mirror being mounted on said mirror support on the side thereof facing said electrode, and the internal surface of said housing being a regular geometric surface of revolution having the end thereof proximate said electrode of a smaller diameter than the end thereof proximate said mirror; said mirror having greater reflective accuracy than a substantially similar mirror having a cylindrical housing.

3,322,484

SOLARVENTASCOPE

Francis Delmar Groos, 206 American Bank of Commerce Bldg.; and John T. Price, 1411 E. 36th St., both of Odessa, Tex. 79760; and Mertis Gene Hopkins, 6123 Ariel, Houston, Tex. 77036

Filed Dec. 26, 1961, Ser. No. 162,128
2 Claims. (Cl. 350—301)



1. Periscopic means for viewing the entire horizon and sky from within an enclosed space, comprising: a first vertical tubular housing, first mirror means located beneath and attached to said housing in said enclosed space to permit a vertical view through said housing; second mirror means adjustably mounted above said first mirror means for providing a view within said enclosed space of that without said enclosed space having an elevation approximating the elevation of said second mirror means; third mirror means, laterally displaced from said second mirror means, adjustably mounted for providing a view within said enclosed space of the entire sky; and adjusting means coupled to said second and third mirror means for altering the attitude of said second and third mirror means to provide said views of the horizon and sky.

3,322,485

ELECTRO-OPTICAL ELEMENTS UTILIZING AN ORGANIC NEMATIC COMPOUND

Richard Williams, Princeton Junction, N.J., assignor to Radio Corporation of America, a corporation of Delaware

Filed Nov. 9, 1962, Ser. No. 236,546
9 Claims. (Cl. 350—160)

1. An electro-optical display device comprising two spaced plates, the first said plate being transparent, the second said plate being reflecting;

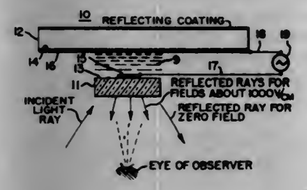
at least one transparent electrically conductive film on one face of said first plate;

at least one electrically conductive film on one face of said second plate;

said two plates being spaced with said faces bearing said conductive films adjacent and parallel and less than 500 microns apart;

electrically conductive leads attached to said conductive films on said first and second plates;

an organic nematic mesomorphic compound filling the space between said two plates, said compound having a threshold electric field which when exceeded causes said compound to scatter light;



means for applying a voltage gradient between said leads to establish between said conductive films on said first and second plates an electric field which exceeds said threshold field; and,

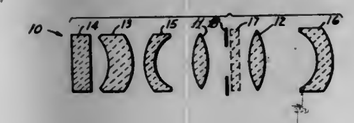
a light source and means for directing unpolarized collimated light rays from said source through said first plate and said compound toward said second plate, said rays making an incident angle of less than 45° to said first plate.

3,322,486

ANAMORPHOSING LENS SYSTEM

Richard H. Vetter, 1260 Las Lomas Ave., Pacific Palisades, Calif. 90272

Filed Aug. 15, 1963, Ser. No. 302,424
3 Claims. (Cl. 350—181)



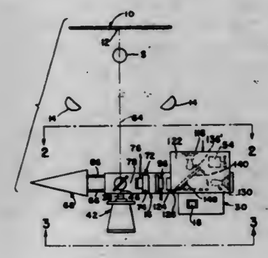
1. An anamorphosing lens having unit magnification in a vertical plane, and a magnification increasingly less than unity in a horizontal plane as a function of the angle from the central axis of the lens, comprising from its objective end: a first and a second cylindrical lens of weak power, with the cylindrical axis of the first cylindrical lens in a vertical plane, and with the cylindrical axis of the second cylindrical lens in a horizontal plane, the first cylindrical lens serving to create the desired distortion, and the second cylindrical lens serving to bring the equivalent focal length of the system perpendicular to the distortion plane into substantial equality with that in the distortion plane; a first steeply bent spherical negative meniscus lens of weak power; a first and a second spherical lens, each of said spherical lenses having a net positive power, said spherical lenses serving to relay the image from the object to the image plane; and a second steeply bent spherical negative meniscus lens of weak power, the meniscus lenses being bent away from each other and serving to reduce coma and to reduce image surface curl introduced by the first cylindrical lens.

3,322,487

APPARATUS FOR TAKING COMPOSITE PICTURES BY PHOTOGRAPHY WITH BACKGROUND PROJECTION AND ILLUMINATION OF THE OBJECT

Eduard Renner, Feuerbach Strasse 12, Frankfurt am Main, Germany

Filed Sept. 13, 1966, Ser. No. 579,107
Claims priority, application Germany, Sept. 15, 1962, E 23,530
7 Claims. (Cl. 352—89)



1. In a system for producing composite pictures in combination with an autocollimating screen having a reflecting surface for reflecting light rays substantially in the direction of incidence,

a stand including an optical platform for disposition in front of said reflecting surface;

camera lens means on said platform having a focal axis for direction toward said reflecting surface;

semi-transparent, mirror means on said platform having a reflection axis substantially intersecting the focal axis of said camera lens means and adopted to permit a picture to be viewed therethrough by said camera lens means;

projection lens means on said platform having a focal axis adapted to intersect the intersection of the focal axis and reflection axis of said respective camera lens means and mirror means;

light-projection means on said platform adjacent said projection lens means and having an opening for projecting light rays through said projection lens means;

transparency holder means on said platform between said light-projection means and said projection lens means whereby a transparency background in said holder means will be projected through said projection lens means onto said mirror means for transmission onto the screen to provide a background for an object disposed before said screen when a composite scene is being composed;

said light projection means comprising a housing, including pilot-light means, flash-light means and second semi-transparent mirror means therein, said pilot-light and flash-light means positioned on opposite sides of said second mirror means and having intersecting light-emission axes, said second mirror means including a reflection axis adapted to substantially coincide with the focal axis of said projection lens means and the intersection of said light emission axes;

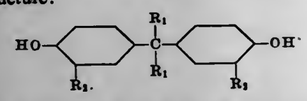
whereby pilot-light means energization is used for initially adjusting said projection lens means at optimum focus to attain optimum transparency projection and subsequent flash-light means energization attains optimum transparency projection, and all adjusted components remain in substantially adjusted interrelation for subsequent transparency projection.

3,322,488
SULFOMETHYLATED BISPHENOL-FORMALDEHYDE CONDENSATION PRODUCTS USED AS DYE RESISTS FOR POLYURETHANE AND SYNTHETIC POLYAMIDE FIBERS

James F. Feeman, Wyomissing, Pa., assignor to Crompton & Knowles Corporation, Worcester, Mass., a corporation of Massachusetts

No Drawing. Filed Jan. 6, 1966, Ser. No. 518,975
6 Claims. (Cl. 8—115.5)

1. The method of reserving synthetic polyamide and polyurethane fibers to render them resistant to acid and to direct dyes which comprises applying to the fiber a water soluble sulfomethylated condensation product obtained from about 2 moles of a bis-phenol condensed with about 1 to 1.8 moles of formaldehyde first under alkaline conditions and then under acid conditions; and then the resulting product is reacted under alkaline conditions with sufficient formaldehyde-bisulfite adduct to introduce an average of from 1 to 2 sulfomethyl groups for each four benzene nuclei in the total structure, said bis-phenol having the structure:

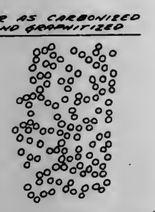


wherein R_1 represents the same or different low molecular weight alkyl groups and R_2 represents the same or different substituents selected from the group —H and —CH_3.

3,322,489
PROCESS OF GRAPHITIZING "POLYNOSIC" REGENERATED CELLULOSE FIBROUS TEXTILE AND RESULTING FIBROUS GRAPHITE TEXTILE

Gilberte Michelline Moutaud, Neuilly-sur-Seine, and Jacques L. Duflos, Paris, France, assignors of one-half to Societe le Carbone-Lorraine, Paris, France, and Etablissements Pierre Genin, Villeurbanne, France, both French companies

Filed July 28, 1964, Ser. No. 385,726
4 Claims. (Cl. 8—116)



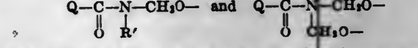
1. A process for the manufacture of fibrous graphite textile comprising graphitizing viscose regenerated cellulose textile fibers having a substantially round cross-section, a smooth surface, a homogeneous internal structure, with a fine and stable microfibrillar structure which is resistant to the action of 8% sodium hydroxide solution down to 0° C., minimum wet strength of 2.2 grams per denier and a wet elongation of less than 3.5% at a stress of 0.5 gram per denier, by heating said viscose regenerated cellulose textile fibers in an inert gas atmosphere contained in an electric furnace by a slow and uniform increase in the temperature of the furnace from room temperature to a maximum temperature between about 2,500° C. to about 2,900° C. for a total heating period of from about 230 to about 250 hours.

3,322,490
TEXTILES REACTED WITH METHYLOL PERFLUOROALKANAMIDES

Domenick Donald Gagliardi, East Greenwich, R.I., assignor to Colgate-Palmolive Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Aug. 12, 1963, Ser. No. 301,597
7 Claims. (Cl. 8—116.3)

1. Oil repellent and oily particulate-soil repellent textile comprising a textile polymer having as part of the polymer molecule reactive hydrogens for which there has been chemically substituted a plurality of radicals selected from the group consisting of



where Q is a perfluoroalkyl group having three to twenty-one carbon atoms and at least two to fifteen fluorine atoms in said alkyl chain and the terminal group in the perfluoroalkyl chain is selected from —CHF_2 and —CF_3, and R′ is a member of the group consisting of hydrogen, alkyl group having one to six carbon atoms and a cycloalkyl group having five to six carbon atoms.

3,322,491
METHOD OF TREATING EXHAUST GASES

Wayne T. Barrett, Severna Park, Leonard V. Triggiani, Hyattsville, and John S. Magee, Baltimore, Md., assignors to W. R. Grace & Co., New York, N.Y., a corporation of Connecticut

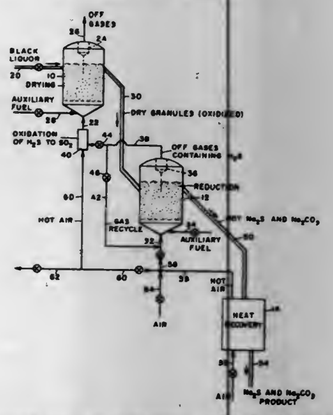
No Drawing. Filed July 31, 1963, Ser. No. 299,063
1 Claim. (Cl. 23—2)

A method of treating exhaust gases of internal combustion engines to oxidize the air pollutants therein which comprises mixing said gases with air, passing said mixture through a catalyst bed consisting essentially of 7 to 10% cerium oxide and up to 10% cobalt on a nodular gamma alumina support and passing the thus treated gases to the atmosphere.

3,322,492
KRAFT BLACK LIQUOR RECOVERY

Harold William Flood, South Acton, Mass., assignor to Arthur D. Little, Inc., Cambridge, Mass., a corporation of Massachusetts

Filed July 31, 1964, Ser. No. 386,591
8 Claims. (Cl. 23—46)

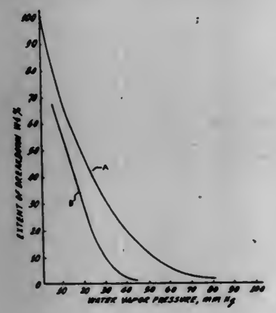


1. A process for the treatment of kraft black liquor to recover values therefrom, comprising the steps of feeding said liquor to a drying and reacting zone, subjecting said liquor in said zone to the action of a fluidizing drying gas containing sulfur dioxide, under the conditions of a fluid bed, to provde a particulate dry product consisting essentially of sodium sulfate, sodium carbonate and organic material, conveying said dry product into a reducing zone, subjecting said product, while in said zone, to fluidizing conditions and to heat sufficient to decompose said organic material and reduce the sodium sulfate to sodium sulfide, together with the production of some hydrogen sulfide but without substantial effect on the sodium carbonate, and removing said hydrogen sulfide from said second zone and oxidizing it to produce the aforementioned sulfur dioxide.

3,322,493
SODIUM TRIPOLYPHOSPHATE PRODUCT

Raimond Pals, Farmingdale, N.J., assignor to FMC Corporation, New York, N.Y., a corporation of Delaware

Filed Oct. 16, 1963, Ser. No. 316,642
4 Claims. (Cl. 23—106)



1. A process for producing granular sodium tripolyphosphate containing at least about 17% by weight Form I sodium tripolyphosphate, which is formed by heating a mixture of monosodium orthophosphate and disodium orthophosphate at temperatures above about 350° C. which is not subject to decrepitation, comprising cooling said hot granular sodium tripolyphosphate in an atmosphere containing water vapor in an amount sufficient to yield a partial pressure of at least about 40 mm. of Hg, during that stage of the cooling operation from about 170° C. to 70° C.

3,322,494
PROCESS FOR PREPARING ALUMINA HAVING A NARROW PORE SIZE DISTRIBUTION

John S. Magee, Baltimore, and Warren S. Briggs, Silver Spring, Md., assignors to W. R. Grace & Co., New York, N.Y., a corporation of Connecticut

Filed June 2, 1964, Ser. No. 371,928
1 Claim. (Cl. 23—143)

A process for preparing alumina having a narrow pore size distribution within the range of 1000 to 2000 Angstroms which comprises preparing an aluminum nitrate solution containing 28 grams per liter of aluminum calculated as aluminum oxide, preparing a 2.2 molar ammonia solution in which is dispersed 15 to 70% of microcrystalline cellulose, based on the amount of Al_2O_3 present, having a particle size of about 150–300 A., adding said aluminum nitrate solution to said ammonia solution to precipitate aluminum hydroxide, aging the mixture for 16 to 20 hours, separating the precipitate from excess solution, drying for 20 to 30 hours at 110° C., calcining at 650° C., for 4 to 8 hours, and finally recovering the alumina product.

3,322,495
PROCESS FOR PREPARING ALUMINA HAVING A NARROW PORE SIZE DISTRIBUTION

John Storey Magee, Baltimore, Md., assignor to W. R. Grace & Co., a corporation of Connecticut

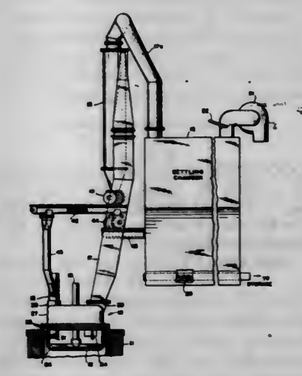
Filed Apr. 30, 1964, Ser. No. 363,745
3 Claims. (Cl. 23—143)

1. A process for preparing alumina having a narrow pore size diameter distribution within the range of from 150 to 400 Angstroms, which comprises preparing an aqueous sodium aluminate solution, adding an aqueous formaldehyde solution so that the ratio of formaldehyde to sodium aluminate is 1:1 to 5:1, allowing the reaction to proceed for 1 to 3 hours to precipitate alumina, aging the mixture for about 14 to 18 hours at ambient temperature, separating the precipitate from the solution, washing the precipitate to remove sodium salts, drying for about 14 to 18 hours at 110° C., calcining for about 4 to 6 hours at 650° C. and finally recovering the alumina product.

3,322,496
PROCESS FOR PRODUCING LEAD OXIDES

George J. Vahrenkamp, Stewart Manor, and Frederick M. Coppersmith, Queens Village, N.Y., assignors to National Lead Company, New York, N.Y., a corporation of New Jersey

Filed May 10, 1965, Ser. No. 454,370
5 Claims. (Cl. 23—146)

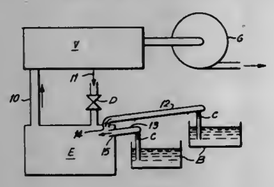


1. In a process of producing litharge, employing a Barton type of oxide pot, the steps which include introducing a stream of air into the lower portion of the pot, concurrently feeding molten lead into the pot in a continuous stream at a rate which maintains the contents of the pot at an average temperature of at least about 621° F. up to about 900° F. as a result of the exothermic reaction of the lead and air, vigorously agitating the pot contents by periodically dashing them against a large fixed baffle, continuously maintaining a dross of a powdered litharge in said pot, said dross being present at all times in a substantial amount and said amount of dross being sufficient to maintain the pot free from any pool of metallic lead, the said molten lead directed into the pot being dispersed into the dross, and conveying the litharge product from the pot by the aforesaid stream of air.

3,322,497
PROCESS FOR THE PRODUCTION OF DILUTED CHLORINE DIOXIDE

Hans Martin, Kiel, Germany, assignor to Paul Henseler, Kiel, Germany

Filed May 18, 1960, Ser. No. 29,977
5 Claims. (Cl. 23—152)



1. In a system for the production and substantially immediate consumption of explosive chlorine dioxide in which the chlorine dioxide is diluted with an inert gas so as to provide a non-explosive mixture thereof, said system being of the type having a generating stage and an absorption stage with the mixture of the chlorine dioxide and diluent passing directly from the generating stage to the absorption stage; steps of providing a liquid reaction mixture for producing chlorine dioxide in the generating stage, drawing the chlorine dioxide from the generating stage and through absorption stage by application of a suction to draw off residual gases at the end of the absorption stage and thus applying a subatmospheric pressure to the system supplying the gaseous diluent to the generating stage by causing it to flow into said stage by application of the subatmospheric pressure to dilute the chlorine dioxide while restricting the supply of the diluent gas so as to maintain the subatmospheric pressure, providing a supply of reagents to make up the reaction mixture, causing said reagents to flow into said reaction mixture by said subatmospheric pressure and causing discontinuance of said production of chlorine dioxide by releasing subatmospheric pressure in said generating stage.

3,322,498
PRODUCTION OF SILICA LAMELLAE

Patrick D. Quinn, St. Louis, Mo., George R. Waitkins, Ossining, N.Y., and Harlan A. Depew, Glendale, Mo., assignors to American Zinc Company, St. Louis, Mo., a corporation of Maine

Filed Aug. 26, 1964, Ser. No. 392,090
6 Claims. (Cl. 23—182)

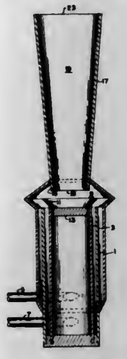
3. In the art of making silica lamellae, the process comprising, providing a silica sol containing a cationic surfactant, foaming the sol to increase its volume by at least 30%, maintaining the foam while periodically determining its filtration rate, and then, when the filtration rate undergoes a sharp increase, recovering crystallized silica.

3,322,499
APPARATUS AND PROCESS FOR THE PRODUCTION OF METAL OXIDES

Clifford Le Roy Carpenter, Wellesley, and Charles B. Wendell, Canton, Mass., assignors to Cabot Corporation, Boston, Mass., a corporation of Delaware

Filed Jan. 13, 1964, Ser. No. 337,383
5 Claims. (Cl. 23—202)

4. A process for producing a pyrogenic metal oxide which comprises providing at least one spinning stream comprising carbon monoxide, and at least one spinning stream comprising oxygen, introducing to one of said streams vapors of a metal compound, at least partially mixing said streams by causing them to flow a circuitous path through a mixing zone and flowing the resulting spinning mixture into the small base end of a frusto-conical reaction zone at a minimum linear velocity of about 75 feet per second, and at a pressure drop at the entrance of said small base end greater than the pressure drop in said mixing zone.

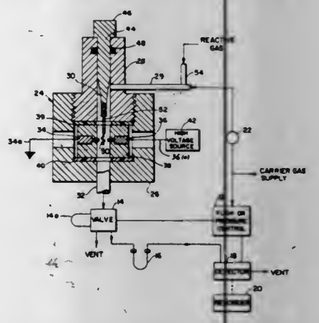


5. The process of claim 4 wherein said metal compound is a titanium halide.

3,322,500
FRAGMENTATION APPARATUS FOR CHARACTERIZATION OF SAMPLE COMPOSITIONS

James C. Sternberg, Fullerton, Calif., assignor to Beckman Instruments, Inc., a corporation of California

Filed Feb. 27, 1964, Ser. No. 347,744
19 Claims. (Cl. 23—253)



1. In an apparatus for characterization of a sample, the combination comprising:

means forming a cavity having inlet and outlet openings;

means connected to said inlet and outlet openings for flowing a stream of carrier fluid through said cavity;

means for introducing an organic sample into said cavity;

means for creating an electrical glow discharge in said cavity for fragmenting at least a portion of said sample into a plurality of individual volatile fragmentation products at least some of which retain characteristic structural features of the parent molecule of said sample;

at least one chromatograph column for separating components of a mixture passed therethrough;

means for passing a stream of carrier fluid through said column;

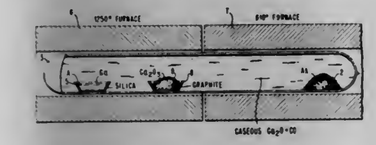
means for introducing said volatile fragmentation products from said electrical discharge into said stream of carrier fluid flowing through said chromatograph column for separating said individual fragmentation products; and

a detector for identifying and measuring individual fragmentation products as they emerge from said column.

3,322,501
PREPARATION OF GALLIUM ARSENIDE WITH CONTROLLED SILICON CONCENTRATIONS

Jerry M. Woodall, Putnam Valley, N.Y., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York

Filed July 24, 1964, Ser. No. 384,877
9 Claims. (Cl. 23—204)



1. A method for producing single crystals of gallium arsenide having reduced silicon concentrations comprising the steps of, heating gallium in a silica vessel within a closed system to a temperature above the melting point of gallium arsenide at which gallium and arsenic react to produce gallium arsenide and at which silica reacts with gallium to give gallous oxide and silicon, simultaneously heating arsenic within said closed system in a temperature range near the sublimation temperature of arsenic (613° C.) to vaporize said arsenic, reacting carbon from a graphite boat with a quantity of gallic oxide disposed therein in a temperature range of 900° to 1250° C. to produce carbon monoxide and an atmosphere of gallous oxide to suppress the formation of silicon and, varying the pressure of said gallous oxide atmosphere by varying the reaction temperature of said carbon and said gallic oxide to control the amount of silicon in said gallium arsenide crystal produced by controlling the reaction between gallium and silica.

3,322,502
MAGNESIUM HYDROXIDE AND METHOD OF PREPARATION

Philip Westwood Trubey, Hull, Quebec, Lawrence Hanna, Wakefield, Quebec, Arthur D. Gordon, Montreal, Quebec, and Arthur C. Turney, Richelieu, Quebec, Canada, assignors to Aluminium Laboratories Limited, Montreal, Quebec, Canada, a corporation of Canada

No Drawing. Filed Sept. 24, 1963, Ser. No. 311,245
6 Claims. (Cl. 23—201)

1. In a method of preparing an aggregate of magnesium hydroxide particles from an ore containing granules of brucite, the steps of calcining said ore at a temperature of at least about 1500° F., hydrating the calcined material under pressure to yield dry exfoliated magnesium hydroxide particles finer than about 325 mesh, and separating and recovering as product from said hydrate, by size classification, a fraction of particles finer than about 325 mesh, said fraction comprising said magnesium hydroxide particles.

3,322,503
SILICON PRODUCTION PROCESS

Harry Bloom, Hobart, Tasmania, Australia, and William L. Jolly, El Cerrito, Calif., assignors to the United States of America as represented by the United States Atomic Energy Commission

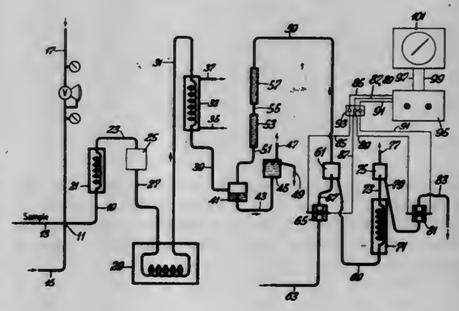
No Drawing. Filed May 20, 1964, Ser. No. 369,025
5 Claims. (Cl. 23—223.5)

1. In a process for reducing silica to silicon, the steps comprising forming an anhydrous eutectic melt of metallic halides having a fusion temperature of about 350° C. to about 375° C., dissolving calcium in said melt, bubbling an inert carrier gas through said melt, adding hydrogen to said carrier gas at a controlled rate thereby forming calcium hydride in said melt, and adding said silica to the liquid melt whereby the silica is reduced to silicon by reaction with the calcium hydride.

3,322,504
ORGANIC CARBON DETERMINATION AND MEASUREMENT

Italo A. Capuano, Orange, Conn., assignor to Union Carbide Corporation, a corporation of New York

Filed Oct. 17, 1963, Ser. No. 316,887
2 Claims. (Cl. 23—230)



1. A method for continuous qualitative and quantitative determinations of concentrations of organic carbon constituents in an aqueous solution which also contains inorganic carbon constituents, nitrogen, sulfur and chloride constituents which method comprises the steps of continuously admixing flowing streams of said aqueous solution, a barium hydroxide solution and gaseous oxygen; removing precipitated reaction products of said barium hydroxide solution and said inorganic carbon constituents; heating the admixed flowing stream after such removal to oxidize said organic carbon constituents to carbon dioxide; separating and removing water from said admixed stream; passing those constituents remaining after the water removal through manganese dioxide to remove nitrogen and sulfur impurities; passing those constituents remaining after the water removal and the nitrogen and sulfur impurities removal through powdered antimony metal to remove chlorine impurities; reacting said stream with a constant flow of dilute potassium hydroxide solution to produce an increase in conductivity of said potassium hydroxide solution proportional to carbon concentration therein; and differentially conductometrically analyzing the reaction product of said carbon dioxide and said potassium hydroxide solution, said potassium hydroxide solution alone being used as a comparison base, to determine the concentration of organic carbon constituents in the aqueous solution analyzed.

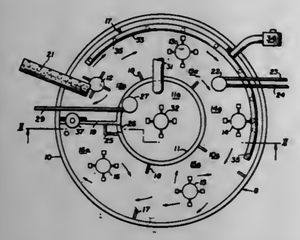
3,322,505
APPARATUS FOR TREATING SUBSTANCES IN SEVERAL STAGES

William C. Weber, Westport, Conn., assignor to Dorr-Oliver Incorporated, Stamford, Conn., a corporation of Delaware

Original application Feb. 19, 1962, Ser. No. 173,919, now Patent No. 3,181,931, dated May 4, 1965. Divided and this application Jan. 6, 1965, Ser. No. 435,768
Claims priority, application Great Britain, Feb. 17, 1961, 5,887/61
16 Claims. (Cl. 23—259.1)

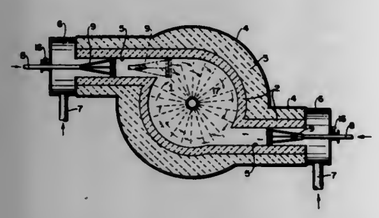
1. A treatment vessel having a bottom surrounded by a substantially upright outer cylindrical wall and a substantially upright inner cylindrical wall upstanding from

said bottom and substantially concentric with said outer wall to define an inner compartment surrounded by an annular outer compartment between said inner and outer walls; agitation devices arranged at spaced intervals in said outer compartment and operable to provide a series of agitation zones surrounding said inner compartment; partition means in said outer compartment extending between said inner and outer walls; means for introducing at least one substance to be treated into a first agitation



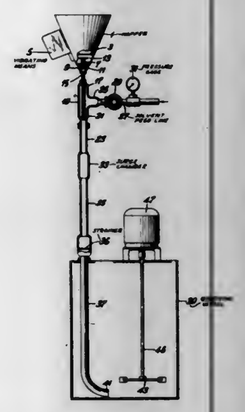
zone adjacent one face of said partition means; a final agitation zone in said outer compartment adjacent the face of said partition remote from said first agitation zone; a flow transfer passage leading into said inner compartment from said final agitation zone of said outer compartment; and means for withdrawing treated material from said inner compartment, whereby a unidirectional circular flow pattern is established in said outer compartment around said inner compartment from said first agitation zone to the final agitation zone of said outer compartment.

3,322,506
CARBON BLACK APPARATUS
Albert L. Wempe, Franklin, La., and Earl J. Estopinal, Jr., Conroe, Tex., assignors to Columbian Carbon Company, New York, N.Y., a corporation of Delaware
Filed Mar. 19, 1963, Ser. No. 266,235
8 Claims. (Cl. 23—259.5)



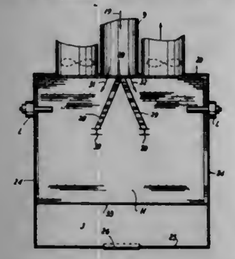
1. Apparatus for producing carbon black by the thermal decomposition of hydrocarbons comprising an elongated heat-insulated reaction chamber, said chamber having an inlet end where reaction materials are introduced into the chamber and an outlet end where combustion gases and products of thermal decomposition are removed from the chamber, means positioned at the inlet end of said chamber for establishing and maintaining therein a turbulent flowing stream of hot combustion gases, means at said inlet end of said reaction chamber for separately injecting the hydrocarbon into said hot combustion gases, the first said means comprising at least one mixing conduit leading tangentially into the inlet end of said reaction chamber, means for preliminarily forming a stream of a combustible mixture of a fluid fuel and a free oxygen-containing gas in said conduit, a mixing grid positioned in the path of said stream and arranged as to effect uniform thorough mixing of said fluid fuel with substantially all of the free oxygen-containing gas and means for adjusting the position of said mixing grid in relation to the discharge outlet of the mixing conduit.

3,322,507
APPARATUS FOR DISSOLVING SOLID POLYMERIC SUBSTANCES IN A SOLVENT
Keith L. Smith, Charleston, W.Va., assignor to Union Carbide Corporation, a corporation of New York
Filed June 11, 1963, Ser. No. 286,968
2 Claims. (Cl. 23—267)



1. An apparatus for dissolving solid resinous materials which comprises, in combination, a conical resin feed hopper, means for vibrating said hopper, a resin feed valve disposed at the apex of said hopper and attached thereto, said resin feed valve comprising a generally vertical tubular member having at least one aperture circumferentially located near the upper end thereof, and an umbrella-like member disposed horizontally across said vertical tubular member, an elongated vertical tubular member attached to and downwardly extending from the apex of said hopper and communicating with said resin feed valve, a tee member comprising a leg and two arms, said leg being horizontally disposed and integrally attached to and communicating with said arms and adapted to introduce solvent therein, one of said arms extending generally vertically below and the other extending generally vertically above said leg, said arms being arranged concentrically about and adapted to receive said downwardly extending elongated tubular member which passes substantially centrally through said arms and terminates adjacent the lower end of said lower arm, said upper arm being sealed at its upper end about said downwardly extending elongated tubular member, a conduit connected to said leg of said tee member and adapted for the passage of solvent therethrough, a second conduit connected to the lower arm of said tee member, said second conduit having a length-to-inside diameter ratio of from about 30:1 to about 60:1 and terminating into a receiving vessel at the bottom thereof, a surge chamber located in said second conduit, said surge chamber having an inside diameter-to-length ratio of at least about ½ and being disposed below the upper end of said second conduit a distance of from about 2 to about 15 times the inside diameter of said second conduit, the inside diameter of said second conduit above the surge chamber being substantially the same as the inside diameter of said second conduit below the surge chamber and the ratio of the inside diameter of said surge chamber to the inside diameter of said second conduit above and below said surge chamber being at least about 1.6:1.

3,322,508
SECONDARY BURNER FOR REMOVING AND BURNING ANY SOLID COMBUSTIBLES RESULTING FROM A PRIMARY MUNICIPAL GARBAGE OR TRASH BURNER
Hugh J. Ungerleider, Louisville, Ky., assignor to American Compressed Steel Corporation, Louisville, Ky., a corporation of Kentucky
Filed Apr. 15, 1964, Ser. No. 359,888
2 Claims. (Cl. 23—277)



2. A secondary burner arrangement for assuring combustion and destruction of solid combustibles resulting from a primary trash combustion operation comprising an elongated rectangular housing having top, side, end and bottom walls of refractory brick, a plurality of vertical overlapping baffles equally spaced from and parallel to each other and alternately connected to and extending downwardly from the top wall and upwardly from the bottom wall to about mid height of the housing and perpendicular to the major elongated axis of the housing, said baffles forming a series of compartments of approximately equal volume and an inlet to one compartment serving as an inlet compartment at one end and oblique downwardly and outwardly diverging baffles below said inlet extending downwardly from the top wall and terminating mid height of the inlet compartment and transverse horizontal burners mounted in the side walls of the inlet compartment and creating a combustion zone on top of said oblique baffles.

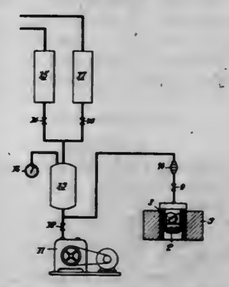
3,322,509
METHOD OF REPROCESSING AND/OR SEPARATING NUCLEAR FUELS
Hubert Heinrich Vogg, Karlsruhe, Germany, assignor to Gesellschaft für Kernforschung m.b.H., a corporation of Germany
No Drawing. Filed May 15, 1964, Ser. No. 367,923
Claims priority, application Germany, May 15, 1963, K 49,749; July 6, 1963, K 50,148
17 Claims. (Cl. 23—325)

1. A method of reprocessing nuclear fuels which comprises decomposing a nucelar fuel in a fused alkaline salt system containing oxidizing agents, and separating said fuel from said salt system.

14. A method of reprocessing nuclear fuels which comprises decomposing in an alkaline salt system containing an oxidizing agent, a nuclear fuel containing at least one member selected from the group consisting of molybdenum; and cesium, cerium, ruthenium, zirconium and niobium fission products, obtaining a cooled melt of said salt, said oxidizing agent and said fuel in said decomposing step, leaching said melt with at least one member selected from the group consisting of water and caustic soda solution, and separating the precipitate thereby obtained from the mother liquor which contains at least one member selected from the group consisting of dissolved molybdenum and dissolved Cs–137.

16. A nuclear fuel prepared by the steps comprising decomposing a processed nuclear fuel in a fused alkaline salt system containing oxidizing agents and separating said fuel from said salt system.

3,322,510
PROCESS FOR THE PREPARATION OF METALLIC NITRIDES
Francois Anselin, Paris, and Roger Pascard, Issy-les-Moulineaux, France, assignors to Commissariat à l'Energie Atomique, Paris, France
Filed Mar. 2, 1964, Ser. No. 348,405
Claims priority, application France, July 4, 1962, 902,271
4 Claims. (Cl. 23—347)



1. Process for the preparation of metallic nitrides wherein the nitriding operation is carried out with N_2 on massive elements of metal selected from the group consisting of uranium, plutonium, yttrium and the rare earth metals, the step of nitriding uranium and plutonium at approximately 400° C. and nitriding the rare earth metals from approximately 600 to 800° C., with the prior step of surface hydriding with a quantity of hydrogen substantially less than stoichiometrically required of uranium and plutonium at approximately 230° C. and prior surface hydriding of yttrium and the rare earth metals at above 350° C. whereby the initiation and development of nitriding towards the center of said elements is facilitated.

3,322,511
REARRANGEMENT OF CHLOROSILANES
Donald R. Weyenberg, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich., a corporation of Michigan
No Drawing. Filed Oct. 4, 1962, Ser. No. 228,272
2 Claims. (Cl. 23—366)

1. A method for preparing silanes having two hydrogen atoms bonded to silicon consisting essentially of heating in the absence of silicon-bonded fluorine at a temperature of 50° to 250° C. at least one silane selected from the group consisting of $HSiCl_3$ and $RSiHCl_2$ where R is a monovalent hydrocarbon radical free of aliphatic unsaturation and containing 1 to 6 carbon atoms in contact with a catalyst consisting of amides of the formulae

$$R'_2NCH$$

and

$$R'_2NCCH_3$$

where R′ is a monovalent radical selected from methyl and ethyl radicals.

3,322,512
BERYLLIUM-ALUMINUM-SILVER COMPOSITE
Richard H. Krock, Peabody, Mass., Earl I. Larsen, Indianapolis, Ind., and Clintford R. Jones, Arlington, Mass., assignors to P. R. Mallory & Co. Inc., Indianapolis, Ind., a corporation of Delaware
Filed Apr. 21, 1966, Ser. No. 544,182
3 Claims. (Cl. 29—182.2)

2. A ternary metal composite containing about 50–85 percent, by weight, beryllium and the remainder an alloy of aluminum-silver, said alloy containing about 70 percent, by weight, aluminum and the remainder silver.

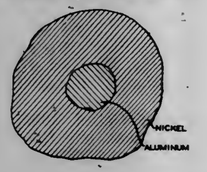
3,322,513
SINTERED CARBIDES
Robert B. Corbett, Mars, Pa., assignor to Metaltronics, Inc., Pittsburgh, Pa.
No Drawing. Filed Oct. 4, 1965, Ser. No. 493,307
8 Claims. (Cl. 29—182.7)

1. A precipitation hardenable sintered carbide, consisting essentially of about 60 to about 94% of refractory carbides in a binder of a cobalt group metal selected from the group consisting of cobalt and nickel, said binder containing about 0.05 to about 0.35% carbon and several precipitation hardening elements from the group of refractory metals consisting of tungsten, columbium, titanium, molybdenum, chromium, and vanadium; said carbide containing about 6 to 40% of combined cobalt plus nickel.

3,322,514
BERYLLIUM-SILVER-COPPER COMPOSITE
Richard H. Krock, Peabody, and Clintford R. Jones, Arlington, Mass., and Earl I. Larsen, Indianapolis, Ind., assignors to P. R. Mallory & Co. Inc., Indianapolis, Ind., a corporation of Delaware
Filed May 31, 1966, Ser. No. 553,927
3 Claims. (Cl. 29—182.2)

1. A ternary metal composite containing about 70 percent, by weight, beryllium and the remainder an alloy of silver-copper wherein said alloy contains about 72 to 92 percent, by weight, silver and the remainder copper.

3,322,515
FLAME SPRAYING EXOTHERMICALLY REACTING INTERMETALLIC COMPOUND FORMING COMPOSITES
Ferdinand J. Dittrich, Bellmore, and Arthur P. Shepard, Flushing, N.Y., assignors to Metco, Inc., a corporation of New Jersey
Filed Mar. 25, 1965, Ser. No. 442,727
28 Claims. (Cl. 29—191.2)



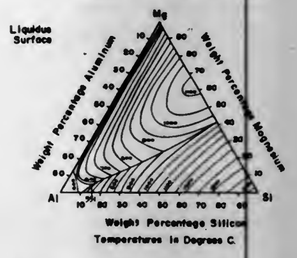
1. A flame spray material comprising a composite in a form suitable for flame spraying, formed of at least two metal components which exothermically react with each other when melted, forming an intermetallic compound and characterized by the ability of generating heat during flame spraying which aids in bonding to the surface being sprayed.

3,322,516
METHOD OF COATING p-TYPE GERMANIUM WITH ANTIMONY, LEAD OR ALLOYS THEREOF BY ELECTRODEPOSITION AND PRODUCT THEREOF
Clara Henderina de Minjer, Emmasingel, Eindhoven, Netherlands, assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
Filed Mar. 3, 1964, Ser. No. 349,182
Claims priority, application Netherlands, Mar. 5, 1963, 289,818
5 Claims. (Cl. 29—194)

1. A method of providing a coating selected from the group consisting of antimony, lead and mutual alloys thereof on p-type germanium comprising first electrolytically depositing on the surface of said p-type germanium a layer of a thickness of about 0.1–1μ of black antimony, said electrodeposition being carried out at a cathode potential at which the saturation current of antimony is reached but at which no gas is evolved, and then electrolytically depositing on said layer of black antimony an outer layer of a metal selected from the group consisting of lead, gray antimony and mutual alloys of said metal.

5. A semiconductor device prepared by the method of claim 1.

3,322,517
ALUMINUM BRAZED ARTICLE
Clarence John Miller, Paoli, Pa., assignor to General Electric Company, a corporation of New York
Filed Dec. 12, 1963, Ser. No. 330,027
1 Claim. (Cl. 29—197.5)



An article comprising:
(a) a portion of alloy consisting, by weight, of
3 to 15 percent silicon
0.4 to 10 percent magnesium
0 to 25 percent copper
remainder aluminum plus impurities and substantially free of boron and fluorine;
(b) members of metals selected from the group consisting of aluminum and its alloys,
having melting points higher than that of the said portion of alloy,
joined together by the said portion of alloy in a fusion bond free of inclusions of boron and fluorine compounds and of other residues of conventional aluminum brazing fluxes.

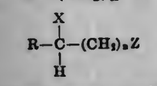
3,322,518
PRODUCTION OF INGOTS
Roderic Hugh Hammerton, Birmingham, England, assignor to Foseco International Limited, Birmingham, England, a British company
No Drawing. Filed July 21, 1965, Ser. No. 473,816
Claims priority, application Great Britain, Nov. 2, 1964, 44,596/64
6 Claims. (Cl. 44—7)

1. An ignitable gel composition for use in treatment of metal moulds used in the production of ingots of steel and slabs and billets of copper, nickel and their alloys which consists essentially of (1) a material selected from polynuclear hydrocarbons, resorcinol, hydroquinone, alpha-naphthol, beta-naphthol, anthraquinone, quinol, pentaerythritol, glycerol esters of rosins, terpenes, phenol-formaldehyde resins, copal, alpha-naphthylamine and aminoanthraquinones, (2) an inflammable liquid solvent, and (3) a gelling agent for said inflammable liquid solvent in a quantity sufficient to render said composition into gel form.

3,322,519
ANTISTATIC ADDITIVES
Eric O. Forster, Scotch Plains, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware
No Drawing. Filed June 24, 1963, Ser. No. 290,192
7 Claims. (Cl. 44—56)

1. A petroleum distillate fuel boiling in the range between about 75° F. and about 750° F. to which has been added from about 10 to about 800 parts per million of a bifunctional compound having one of the following formulae:

(1) $X—(CH_2)_n—Z$

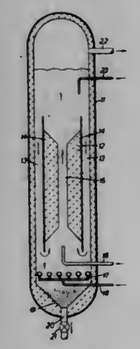
(2)


wherein X is a functional member selected from the group consisting of cyano and hydroxy and Z is a functional member selected from the group consisting of cyano, hydroxy, chloro and bromo, X and Z being different, R is selected from the group consisting of alkyl of from 1 to 3 carbon atoms and n is an integer of from 1 to 8 in Formula 1 and n is an integer of from 0 to 7 in Formula 2.

3,322,520
GASOLINE INHIBITOR
Marshall R. Brimer and Howard C. McCulley, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey
No Drawing. Filed Mar. 23, 1964, Ser. No. 354,137
2 Claims. (Cl. 44—74)

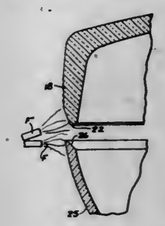
1. Gasoline containing, as a stabilizer against deterioration by formation of gummy decomposition products, from .0001 to 0.01 percent by weight of N-xylyl-N'-isopropyl-p-phenylenediamine.

3,322,521
PROCESS AND APPARATUS FOR THE GASIFICATION OF ASH-CONTAINING FUEL
Robert George Cockerham, Solihull, England, assignor to The Gas Council, London, England, a statutory British corporation
Filed June 28, 1963, Ser. No. 291,510
Claims priority, application Great Britain, July 5, 1962, 25,340/62
15 Claims. (Cl. 48—63)



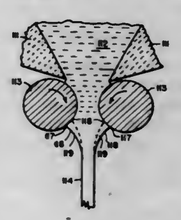
14. Apparatus for the gasification of particulate solid ash-containing carbonaceous fuel, which comprises a reaction vessel having in its upper part a region to accommodate a fluidised bed of the particulate material, two gas inlet means below the said region for supplying gas thereto, one of the said gas inlet means being disposed below the other at a distance sufficient to permit the formation of an ash-separating zone between the two inlet means, an upriser passage of which the lower end is above the upper gas inlet means and the upper end communicates with the region of the fluidised bed, a downcomer passage of which the upper end communicates with the said region and lower end communicates with the lower end of the upriser passage, an inlet for supplying the carbonaceous fuel to the said region, an outlet for product gas above the said region, an ash-collecting chamber below the lower gas inlet means, and an ash discharge outlet at the base of the ash-collecting chamber.

3,322,522
SEALING GLASS PARTS TO FORM CATHODE RAY TUBE ENVELOPES
Arthur C. Meiresonne, Columbus, Ohio, assignor to Owens-Illinois, Inc., a corporation of Ohio
Continuation of application Ser. No. 257,458, Feb. 11, 1963. This application Aug. 24, 1966, Ser. No. 579,448
8 Claims. (Cl. 65—40)



1. The method of thermally fusing two hollow glass parts which comprises
positioning said parts with annular wall portions thereof in juxtaposed overlapping relation,
each said part having a sealing edge on the wall portion thereof,
the cross-sectional area of the sealing edge of the wall portion of said second part being unsymmetrical such that the major portion of the area thereof lies radially inwardly of a center line extending axially through the cross section of the wall portion,
heating the sealing edges of the two parts by application of flame thereto,
forcing the heated sealing edges of the two parts together axially,
continuing the application of heat by flame and simultaneously applying an electric current into the heated edges.

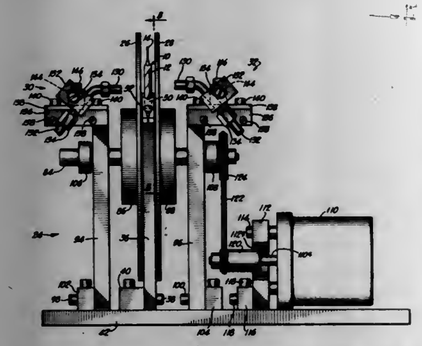
3,322,523
DRAWING SHEET GLASS
Meryle D. W. Adler, Painted Post, and Raphael A. Simon, Corning, N.Y., assignors to Corning Glass Works, Corning, N.Y., a corporation of New York
Filed Sept. 17, 1964, Ser. No. 397,160
11 Claims. (Cl. 65—101)



1. A method of forming sheet glass having virgin surfaces as formed which comprises, flowing molten glass over a movable surface, moving such surface in the direction of flow, to transpose the parting line between the molten glass and such surface in the direction of such movement from a normal stationary position to a new parting line position, maintaining such parting line in a transposed position while continuously removing molten

glass from such surface, to form a surface formation zone in the removed molten glass in spaced-apart relationship from the transposed parting line, and drawing new glass surface at such surface formation zone to provide virgin surface sheet glass having fire polished quality.

3,322,524
METHOD OF AND AN APPARATUS FOR MAKING SEALED SWITCHES
Harry Chanowitz, Skokie, Ill., assignor to C. P. Clare & Company, Chicago, Ill., a corporation of Delaware
Filed Oct. 28, 1963, Ser. No. 319,383
15 Claims. (Cl. 65—110)

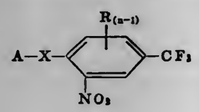


1. An apparatus for forming a depression in a predetermined area of the glass housing of a sealed switch comprising a rotatably mounted member having an opening therein movable through a given path, holding means for supporting a sealed switch with the predetermined area on the housing in the path of movement of the opening, heating means disposed adjacent the switch with the member interposed therebetween, and drive means for moving the member so that the opening passes between the heating means and the housing to permit heat to be applied to the housing to form a depression in the predetermined area.

11. A method of forming depressions in the glass housing of a switch including a pair of magnetic elements sealed at least partially within the housing at a subatmospheric pressure, which method comprises the steps of heating the switch to increase the pressure within the sealed housing without rendering the glass housing plastic, and then applying localized heat to an area of the housing to soften the glass in this area to permit it to move inwardly an amount determined at least in part by the pressure within the housing.

3,322,525
METHOD OF COMBATING WEEDS
Henry Martin, Basel, Hans Aebi, Riehen, and Ludwig Ebner, Stein, Aargau, Switzerland, assignors to Ciba Limited, Basel, Switzerland, a company of Switzerland
No Drawing. Filed Jan. 18, 1966, Ser. No. 521,448
Claims priority, application Switzerland, Feb. 8, 1962, 1,567/62
10 Claims. (Cl. 71—2.3)

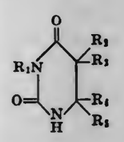
1. The method of combating weeds which comprises applying to the area where the weed-combating effect is desired, a weed-killing amount of a compound of the formula



in which A represents a member selected from the group consisting of the phenyl radical and a phenyl radical substituted in at most 3 places by a member selected from the group consisting of the chlorine atom, the bromine atom, a lower alkyl group, a lower alkoxy group, the CF_3— group, the nitro group, the cyano group, the thiocyano group and the sulfonamide group, R represents a member selected from the group consisting of the chlorine atom, the bromine atom, a lower alkyl group, a lower alkoxy group, the CF_3— group, the nitro group, the cyano group, the thiocyano group and the sulfonamide group, and *n* represents a whole number of at most 2 and X represents a member selected from the group consisting of oxygen and sulfur.

3,322,526
HERBICIDAL COMPOSITION AND METHOD
Harvey M. Loux, Hockessin, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington Del., a corporation of Delaware
No Drawing. Filed June 17, 1964, Ser. No. 375,958
9 Claims. (Cl. 71—2.5)

9. A herbicidal composition comprising, in an amount sufficient to exert herbicidal action, at least one compound selected from the group consisting of compounds of the formula



wherein:

R_1 is selected from the group consisting of
alkyl of 3 through 6 carbon atoms,
cycloalkyl of 3 through 12 carbon atoms,
substituted cycloalkyl of 3 through 13 carbon atoms wherein said substituent is selected from the group consisting of bromine, chlorine, methoxy, and alkyl,
cycloalkyl alkyl of 4 through 13 carbon atoms, and
(substituted cycloalkyl)alkyl of 5 through 14 carbon atoms wherein said substituent is selected from the group consisting of bromine, chlorine, methoxy, and alkyl;

R_2 is selected from the group consisting of chlorine, bromine, fluorine, nitro, methyl, ethyl, hydroxymethyl, methoxymethyl, ethoxymethyl, methoxy, and hydrogen;

R_3 is selected from the group consisting of chlorine and bromine;

R_4 is selected from the group consisting of alkoxy of 1 through 6 carbon atoms, and halo alkoxy of 1 through 6 carbon atoms; and

R_5 is selected from the group consisting of methyl and ethyl; and an adjuvant.

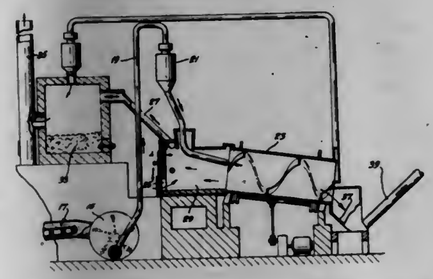
3,322,527
HERBICIDAL COMPOSITIONS AND METHODS EMPLOYING 3-(3,4-DICHLOROPHENYL)-1-METHYL-1-METHOXYUREA WITH 3-AMINO-1,2,4-TRIAZOLE
Rayner S. Johnson, Carrcroft, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Apr. 30, 1965, Ser. No. 452,371
2 Claims. (Cl. 71—2.5)

1. A herbicidal composition comprising a herbicidally effective amount of a mixture of 10 parts by weight of 3-(3,4-dichlorophenyl)-1-methyl-1-methoxyurea and from 2.5 to 40 parts by weight of 3-amino-1,2,4-triazole.

3,322,528
FERTILIZER COMPOSITIONS CONSISTING OF ISOBUTYLIDENE-DIUREA AND METHOD OF USING
Masao Hamamoto, 173–7 Tamagawaseta-cho, Setagaya-ku, Tokyo, Japan, and Yasuhiro Sakaki, 61 2-chome, Fukasawa-cho, Setagaya-ku, Tokyo, Japan
No Drawing. Filed Aug. 22, 1961, Ser. No. 134,047
Claims priority, application Japan, Aug. 30, 1960, 35/36,282
8 Claims. (Cl. 71—29)

5. A method of fertilizing the soil which comprises distributing over said soil the condensation reaction product of isobutyl aldehyde with urea in which the ratio of urea to the aldehyde is at least 2 to 1.

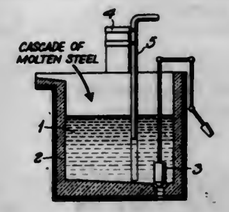
3,322,529
PRODUCTION OF GRANULAR ALUMINUM
Henry F. Pollock, 575 Carlyle Ave., Mount Royal, Quebec, Canada
Filed Jan. 17, 1964, Ser. No. 338,403
Claims priority, application Canada, Jan. 19, 1963, 866,974
5 Claims. (Cl. 75—.5)



1. A process for recovering aluminum powder in finely divided free-flowing granular form from foil, comprising:
(a) passing aluminum foil waste or scrap pieces and carrying extraneous combustible material through a combustion zone while agitating and burning it at a temperature within the range of about 800° F. to about 1100° F. thereby to continuously remove the major portion of the said extraneous material while annealing the aluminum and maintaining its oxidation substantially at a minimum and continuously removing the resulting mass from said zone,
(b) reducing the size of the mass,
(c) then passing the reduced mass through an externally heated zone in the presence of air under continuous agitation at a temperature within the range from about 950° F. to about 1050° F. thereby to remove carbonaceous material and residual combustible material while further annealing the aluminum and maintaining its oxidation substantially at a minimum and providing it in the form of free-flowing granules adapted for grinding to smaller sizes.

3,322,530
METHOD FOR ADDING ADDITIVES TO MOLTEN STEEL
Hajime Nakamura, Tokyo, Japan, assignor to Ishikawajima-Harima Jukogyo Kabushiki Kaisha, Tokyo, Japan, a corporation of Japan
Filed Aug. 23, 1963, Ser. No. 304,019
Claims priority, application Japan, Aug. 24, 1962, 37/35,065
13 Claims. (Cl. 75—53)

1. A method comprising adding a nitrogen enrichment agent to molten steel which is being tapped into a receptacle and which thereby has a continuously rising surface by supplying the agent to the molten steel by a consumable pipe which is placed in said steel and is consumed by the steel at a rate to supply said agent thereto at a lower



discharge end of the pipe which continuously rises and remains at a depth of 5–75 cm. relative to said rising surface of the molten steel.

3,322,531
PRODUCTION OF CESIUM
Frederick Tepper, Butler, Pa., assignor to Mine Safety Appliances Company, a corporation of Pennsylvania
No Drawing. Filed Sept. 8, 1960, Ser. No. 54,571
1 Claim. (Cl. 75—66)

A method of producing cesium which comprises the steps of reacting sodium and pollucite at a temperature between about 900° F. and 1300° F. and in the absence of atmosphere reactive with alkali metals, using at least about 5 moles of sodium for each molecular weight of cesium contained in said pollucite, said pollucite being in the form of lumps of at least about ⅜ inch size, and recovering by filtration the cesium produced thereby admixed with sodium.

3,322,532
PROCESS FOR RECOVERING THE METAL CONTENT OF MIDDLINGS, SLAGS, LOW-GRADE ORES, AND CONCENTRATES
Nándor Wieder, Miskolc, Hungary, assignor to Chemolimpex Magyar Vegyiaru Kulkereskedelmi Vallalat, Budapest, Hungary
No Drawing. Filed Dec. 27, 1963, Ser. No. 333,997
4 Claims. (Cl. 75—108)

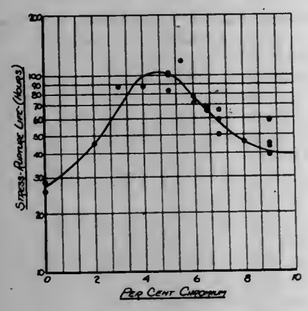
1. A process for recovering the metal content of material consisting of sulfide middlings, low-grade ores and concentrates containing a metal selected from the class consisting of copper, cobalt, nickel, zinc, iron, manganese and mixtures thereof, comprising
(1) grinding a said material,
(2) sulfate roasting the ground material with gases containing oxygen,
(3) dissolving the sulfated material in an aqueous solution of a member selected from the class consisting of alkali metal sulfates and ammonium sulfate in an amount at least about stoichiometrically equivalent to the amount of metal to be recovered,
(4) separating said solution from insoluble residue,
(5) adding to said solution an aqueous solution of a polysulfide selected from the class consisting of alkali metal polysulfide and ammonium polysulfide having a molarity about that of the alkali metal sulfate and ammonium sulfate in said sulfate solution, in an amount sufficient to precipitate the metal to be recovered in the form of metal sulfides,
(6) removing the metal sulfide precipitate from the solution,
(7) dividing the solution in two portions one of which is about equal in volume to said solution of step (3) and the other of which is about equal in volume to said added solution of step (5),

(8) recycling said one portion from step (7) to step (3),
(9) reacting said other portion from step (7) with alkaline earth sulfide in an amount sufficient to convert the sulfate of said other portion to the corresponding polysulfide, and
(10) recycling said other portion from step (9) to step (5),
the liquids of the process passing through the steps of the process in a repeating cycle and substantially undiminished in volume.

3,322,533
ALUMINUM BASE CASTING ALLOYS
Wayne Martin, Fort Wayne, Ind., assignor to William F. Jobbins Incorporated, Aurora, Ill., a corporation of Illinois
No Drawing. Filed Sept. 30, 1964, Ser. No. 400,546
2 Claims. (Cl. 75—146)

1. An aluminum base casting alloy consisting of from 5.5 to 8.5 percent by weight zinc, from 0.55 to 0.95 percent by weight magnesium, at least one of the members of the group consisting of titanium in an amount from 0.07 to 0.2 percent by weight, boron in an amount from 0.0005 to 0.002 percent by weight, and zirconium in an amount from 0.05 to 0.25 percent by weight, and the balance aluminum, chromium being excluded from said alloy so as not to exceed 0.02 percent by weight, silicon being excluded from said alloy so as not to exceed 0.15 percent by weight, iron being excluded from said alloy so as not to exceed 0.15 percent by weight, and other impurities comprising less than 0.75 percent by weight of said alloy.

3,322,534
HIGH TEMPERATURE NICKEL-CHROMIUM BASE ALLOYS
Stuart Walter Ker Shaw, Sutton Coldfield, and Reginald Massey Cook, Birmingham, England, assignors to The International Nickel Company, Inc., New York, N.Y., a corporation of Delaware
Filed Apr. 30, 1965, Ser. No. 457,240
Claims priority, application Great Britain, Apr. 26, 1963, 16,561/63; Aug. 19, 1964, 33,908/64
21 Claims. (Cl. 75—171)



8. A nickel-base alloy characterized by good stress-rupture properties at temperatures of 1800° F. and above, said alloy consisting essentially, in weight percent, of about 2% to about 10% chromium, from 5% to 19% tungsten, up to 5% molybdenum, from 0.5% to 7% tantalum with the sum of the contens of tungsten and tantalum being at least 7% and the sum of these two elements plus twice the percentage of molybdenum plus two-thirds the percentage of chromium being from 17.5% to 24%, from 2% to 8% aluminum, up to about 4% titanium, up to about 0.5% carbon, up to 2.5% columbium with the proviso that the columbium content is not greater than the tantalum content, up to 0.05% boron, up to about 1.5% zirconium, up to a total of 3% of iron, manganese and silicon, and the balance nickel.

3,322,535
ADDITION AGENTS FOR EXOTHERMIC SINTERING PROCESSES
Mlarur L. B. Rao, Burlington, Mass., assignor to P. R. Mallory & Co. Inc., Indianapolis, Ind., a corporation of Delaware
Filed June 1, 1965, Ser. No. 460,044
12 Claims. (Cl. 75—201)

1. The process of fabricating a porous metal structure from metal powder having an impurity oxide film by powder metallurgy techniques comprising the steps of:
(a) selecting a sintering agent from the group consisting of the halides of ammonia, aluminum and zinc, hydrazine hydrochloride and ammonium acid oxalate and selecting metal powder having an impurity oxide film from the group consisting of aluminum, zinc, zirconium, magnesium and titanium;
(b) mixing a determined by weight portion of said sintering agent with said metal powder to be sintered thereby initiating a chemical reaction between said sintering agent and said oxide film carried on the surface of said metal particles;
(c) pressing said mix to form a compact, said pressure accelerating said chemical reaction between said sintering agent and said oxide film of said metal particles, said chemical reaction cleaning said metal particles in situ and liberating heat sufficient to sinter said compact to thereby form a porous structure; and
(d) removing the resulting reaction products and the excess of said sintering agent to prevent further sintering of said sintered compact thereby leaving a porous structure.

3,322,536
TUNGSTEN SLIP CASTING METHOD
Stephen D. Stoddard and Donald E. Nuckolls, Los Alamos, N. Mex., assignors to the United States of America as represented by the United States Atomic Energy Commission
No Drawing. Filed June 17, 1963, Ser. No. 288,568
13 Claims. (Cl. 75—212)

1. The method of forming a slip casting slurry which comprises the steps of carbonizing a tungsten powder and adding to said tungsten powder, an aqueous solution of a neutral sodium salt of aryl sulfonic acid.

13. The method of forming and using a slip casting slurry which comprises the steps of oxidizing the surface of a tungsten powder and adding water to said tungsten powder, applying the resulting slurry to a Mo-UO_2 surface, drying, and then firing to form a cermet-metal seal.

3,322,537
ELECTROPHOTOGRAPHIC REPRODUCTION PROCESS INCLUDING REMOVAL OF ELECTROSCOPIC PARTICLES FROM DEVELOPED ELECTROSTATIC IMAGE
Edward C. Giaimo, Jr., Princeton, N.J., assignor to Radio Corporation of America, a corporation of Delaware
Filed Nov. 29, 1963, Ser. No. 326,866
8 Claims. (Cl. 96—1.1)

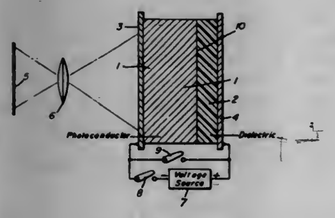
1. A method of producing an image, said method comprising the sequential steps of
(a) charging a thermoplastic photoconductive layer with an electrostatic charge,
(b) exposing said charged layer to an image of electromagnetic radiation to discharge said layer selectively, whereby to produce an electrostatic latent image thereon,

(c) adding a toner comprising electroscopic particles to said exposed layer to render said latent image visible, the softening temperature of said particles being higher than the softening temperature of said layer,
(d) applying heat to said layer to soften said layer only, said heat being of a temperature sufficient to soften said layer but insufficient to melt said particles, whereby depressions are formed in said layer beneath said particles, and
(e) removing said particles from said layer, whereby to leave an image comprising depressions in said layer.

3,322,538
ELECTROPHOTOGRAPHIC PROCESS
Rowland W. Redington, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York
Filed Nov. 30, 1962, Ser. No. 241,377
4 Claims. (Cl. 96—1.1)

1. A process of electrophotography comprising the steps of:
(a) disposing a thin dielectric layer in contact with a photoconductor to form a laminate wherein the thin dielectric layer has the higher capacity and further disposing electrodes on the remaining side of said photoconductor and the remaining side of said layer and applying a voltage between said electrodes,
(b) exposing said photoconductor in said laminate to a light image to cause a differential transfer of charge through said photoconductor to establish a latent electrostatic image corresponding to said light image,
(c) intercoupling said electrodes during said exposure whereby said charge distributes itself between said photoconductor and said dielectric layer such that said dielectric layer receives a larger portion of charge than said photoconductor,
(d) separating said dielectric layer and said photoconductor,
(e) applying to said dielectric layer further means capable of differential attraction and arrangement in response to the latent electrostatic image formed,
(f) while at the same time applying a field assisting development voltage between said dielectric layer and said further means, whereby to increase the sensitivity of said electrophotographic process.

3,322,539
ELECTROPHOTOGRAPHIC PROCESS
Rowland W. Redington, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York
Filed Nov. 30, 1962, Ser. No. 241,370
5 Claims. (Cl. 96—1.1)



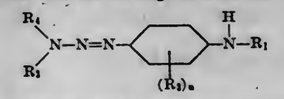
1. A process of electrophotography comprising the steps of:
forming a laminate of a thin dielectric layer and a photoconductive layer to provide a common interface,
providing the exposed surfaces of said laminate with electrodes, at least one of which is optically transparent,
uniformly exposing said photoconductive layer to light while simultaneously applying a voltage source across said electrodes,
terminating said uniform light exposure and disconnecting said voltage source from said electrodes,
exposing said photoconductive layer to a light image while simultaneously intercoupling said electrodes to cause a differential transfer of charge through said photoconductive layer to establish a latent electrostatic image corresponding to said light image whereby said charge distributes itself between said photoconductive layer and said dielectric layer such that said dielectric layer receives a larger portion of charge than said photoconductive layer,
separating said layers at said common interface,
reducing the capacity of said dielectric to increase the energy of the charge pattern thereon, and
applying to said dielectric layer further means capable of differential attraction and arrangement in response to the latent electrostatic image carried by said dielectric layer to develop said electrostatic image.

3,322,540
ELECTROPHOTOGRAPHIC DEVELOPING METHOD UTILIZING A THERMOPLASTIC PHOTOCONDUCTIVE LAYER HAVING ENTRAPPED SOLVENT THEREIN
Edward C. Giaimo, Jr., Princeton, N.J., assignor to Radio Corporation of America, a corporation of Delaware
Filed Apr. 16, 1964, Ser. No. 360,212
10 Claims. (Cl. 96—1.1)

4. A method of recording on a layer of thermoplastic photoconductive material, said layer having entrapped therein a solvent soluble in said material, said method comprising the steps of
(a) electrostatically charging said layer with a uniform electrostatic charge,
(b) exposing said charged layer to a light image to provide a latent electrostatic image thereon, and
(c) heating said exposed layer to at least the softening temperature thereof until the portion of said layer exposed by said light image becomes frosted and the unexposed remaining area of said layer becomes depressed with respect to said frosted portion.

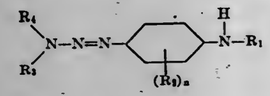
3,322,541
LIGHT SENSITIVE COATINGS WITH TANNING PROPERTIES
Maximilian Karl Reichel, Wiesbaden-Biebrich, Germany, assignor, by mesne assignments, to Azoplate Corporation, Murray Hill, N.J.
No Drawing. Filed Sept. 24, 1964, Ser. No. 399,106
Claims priority, application Germany, Sept. 26, 1963, K 50,933
24 Claims. (Cl. 96—33)

1. Light-sensitive material comprising a carrier and a colloid layer, the latter including at least one aldehyde and at least one triazene having the formula



in which R_1 is selected from the group consisting of alkyl, aryl, aralkyl, cycloalkyl and heterocyclic groups, R_2 is selected from the group consisting of hydrogen, halogen, alkyl, alkoxy, nitro, and carboxyl groups, n is an integer from 1 to 2, and R_3 and R_4 are selected from the group consisting of alkyl, cycloalkyl, aralkyl, aryl, and alkylene groups forming a heterocyclic ring when linked together through a member selected from the group consisting of carbon, oxygen, sulfur and nitrogen.

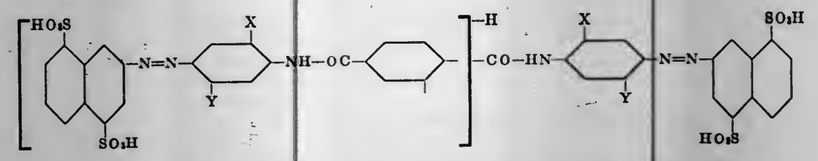
12. A process for developing light-sensitive material which comprises exposing a supported colloid layer to a light image and removing from the support those portions of the colloid layer which were not struck by light by treatment with a solvent, the colloid layer including at least one aldehyde and at least one triazene having the formula



in which R_1 is selected from the group consisting of alkyl, aryl, aralkyl, cycloalkyl and heterocyclic groups, R_2 is selected from the group consisting of hydrogen, halogen, alkyl, alkoxy, nitro, and carboxyl groups, n is an integer from 1 to 2, and R_3 and R_4 are selected from the group consisting of alkyl, cycloalkyl, aralkyl, aryl, and alkylene groups forming a heterocyclic ring when linked together through a member selected from the group consisting of carbon, oxygen, sulfur and nitrogen.

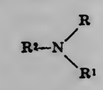
3,322,542
STABILIZATION ADDITIVES FOR PHOTOCHROMIC COMPOUNDS
Edwin Fisher Ullman and William Arthur Henderson, Jr., Stamford, Conn., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine
No Drawing. Filed Nov. 14, 1963, Ser. No. 323,592
18 Claims. (Cl. 96—90)

1. A method for the stabilization of photochromic compounds capable of being stabilized against molecular



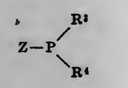
deterioration which comprises intimately blending with the photochromic compound a stabilizing amount of a compound selected from the group consisting of

(1) a compound having the formula



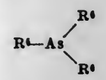
wherein R is selected from the group consisting of hydrogen and an alkyl (C_1–C_6) radical and R^1 and R^2 are, individually, selected from the group consisting of an aryl (C_6–C_{10}) and an alkyl (C_1–C_6) radical, and when R is hydrogen, R^1 and R^2 are selected from the group consisting of alkyl, aryl radicals and a 5 to 6 membered alkylenimine ring formed together with the nitrogen and when R is an alkyl radical, R^1 and R^2 are selected from the group consisting of alkyl radicals and aryl radicals, no more than one of R^1 and R^2 being an aryl radical,

(2) a phosphine having the formula



wherein R^3 and R^4 are, individually, selected from the group consisting of an alkyl radical (C_1–C_6) and an aryl radical (C_6–C_{10}) and Z is an aryl radical (C_6–C_{10}),

(3) an arsine having the formula



wherein R^6 is an aryl radical (C_6–C_{10}),

(4) a nitroxide,

(5) a nitro compound having the formula

$$Ar—(NO_2)_n$$

wherein Ar is selected from the group consisting of a monocyclic aryl radical and a monocyclic alkoxy substituted aryl radical and n is a whole positive integer of from 2 to 3, inclusive, and

(6) mixtures thereof.

3,322,543
PHOTOGRAPHIC LAYERS FOR THE SILVER DYESTUFF BLEACHING PROCESS
Walter Anderau, Aesch, Switzerland, assignor to Ciba Limited, Basel, Switzerland, a Swiss company
No Drawing. Filed Nov. 19, 1963, Ser. No. 324,858
Claims priority, application Switzerland, Dec. 11, 1962, 14,492/62
7 Claims. (Cl. 96—99)

1. Photographic material for the silver dyestuff bleaching process which contains on a support a layer containing silver halide and at least one dyestuff of the formula

in which X represents a member selected from the group consisting of a hydrogen atom, a lower alkyl group, a lower alkoxy group and a lower hydroxyalkoxy group, and Y represents a member selected from the group consisting of a hydrogen atom and a lower alkyl group.

3,322,544
METHOD OF PREPARING FISH BAIT
Stanley Yakstis, 131 S. 17th St., Pittsburgh, Pa. 15203
Filed Sept. 17, 1963, Ser. No. 309,441
2 Claims. (Cl. 99—3)

1. The method of preparing fish bait comprising the steps of:

(a) mixing ingredients comprising corn meal, flour, sugar, and vanilla extract to form a dry mixture capable of storage for indefinite periods of time without refrigeration;

(b) placing said dry mixture in a liquid permeable container for storage in a dry state for indefinite periods of time;

(c) thereafter placing said liquid permeable container in boiling water for a period of at least ten minutes to boil said dry mixture;

(d) opening said container to expose the boiled mixture therein; and

(e) thereafter utilizing the boiled mixture from within said container as fish bait by separating and shaping portions of said boiled mixture into dough balls and placing said dough balls over the fish hooks.

3,322,545
METHOD OF MAKING AND ADJUSTING THE COLOR OF A POWDERED FOOD PRODUCT
Arthur E. Siehrs, Chicago, Ill., assignor to Krim-Ko Corporation, a corporation of Illinois
No Drawing. Filed Jan. 7, 1966, Ser. No. 519,303
10 Claims. (Cl. 99—148)

1. The method for adjusting the color intensity of a water soluble dye in a soluble powdered food product concentrate intended for use by dissolving in an aqueous medium to produce a colored liquid food product, which method comprises admixing a dry mix of particles containing said dye, treating said dry mix with water insoluble color masking material, and agglomerating the treated mix, said masking material being present in a proper amount for imparting the desired decreased color intensity to the particles.

3,322,546
ALLOY POWDER FOR FLAME SPRAYING
Daniel P. Tanzman, Far Rockaway, and Charles E. Rogers, Bayside, N.Y., assignors to Eutectic Welding Alloys Corporation, Flushing, N.Y., a corporation of New York
Filed Apr. 27, 1964, Ser. No. 362,877
11 Claims. (Cl. 106—1)



1. An alloy powder composition for flame spraying comprising between 15 and 70 percent by weight of a high carbon iron powder, said high carbon iron powder containing from 2 to 4.3 percent by weight carbon, and between 85 and 30 percent by weight of a cobalt base alloy powder, said cobalt base alloy powder containing the following constituents in the following percents by weight:

Constituents:	Weight percent
Cobalt	42 to 75
Chromium	22 to 34
Tungsten	2 to 20
Boron	1 to 4
Carbon	1 to 3

the amount of boron present in the cobalt base alloy being sufficient to provide from between 0.5 and 3 percent by weight of the alloy powder composition.

3,322,547
ALLOY POWDER FOR FLAME SPRAYING
Joseph F. Quaas, Island Park, and Daniel P. Tanzman, Far Rockaway, N.Y., assignors to Eutectic Welding Alloys Corporation, Flushing, N.Y., a corporation of New York
No Drawing. Filed Mar. 27, 1964, Ser. No. 355,497
12 Claims. (Cl. 106—1)

1. A metal alloy composition for flame spraying comprising from 2 to 40 percent by weight of a powdered tin-bronze alloy and from 98–50 percent by weight of a powdered copper-phosphorus alloy.

3,322,548
STOP-LEAK COMPOSITION FOR AUTOMOBILE COOLING SYSTEMS AND THE LIKE
Tull C. Lasswell and John L. Monier, Clarkston, Mich., assignors to TRI-X Corporation, Oxford, Mich., a corporation of Michigan
No Drawing. Filed Oct. 20, 1965, Ser. No. 499,061
7 Claims. (Cl. 106—33)

1. A stop-leak composition for the cooling system of an internal combustion engine consisting essentially of ginger rhizome flour, ground nut shells and boric acid powder.

3,322,549
INORGANIC MOLDING COMPOSITIONS OF THE ASBESTOS - ORTHOPHOSPHORIC ACID - TYPE AND PRODUCTS PRODUCED THEREFROM
Visvaldis Abolins and Robert M. Lukes, Erie, Pa., assignors to General Electric Company, a corporation of New York
No Drawing. Filed Nov. 29, 1963, Ser. No. 327,109
3 Claims. (Cl. 106—38.3)

1. The method of making a hot molding thermosetting molding composition having an extended working life at room temperature which comprises the steps of:

(a) mixing one part by weight of chrysotile asbestos fibers with from one to four parts by weight of orthophosphoric acid having a concentration exceeding 60%;

(b) reacting said mixture of asbestos fibers and orthophosphoric acid at room temperature for at least two hours to provide a reaction product;

(c) mixing chrysotile asbestos fibers with the reaction product so produced in the proportion of ¼ to 1½ parts by weight of chrysotile asbestos fibers per part by weight of said reaction product.

3,322,550
PROCESS FOR TREATING PETROLEUM COKE
Richard M. Murphy, 359 Mansfield Ave., Darien, Conn. 06820
No Drawing. Filed June 11, 1965, Ser. No. 463,388
11 Claims. (Cl. 106—56)

11. A compacted, tempered and coked mixture of petroleum coke particles provided with activated exterior surfaces and about 10 to 25% of an agglutinating carboneaceous binder by weight of said particles, and having a crushing strength in excess of about 1,500 pounds per square inch and a real density of about 1.10 to 1.30 grams per cubic centimeter, said compacted, tempered and coked mixture being specially adapted for use in metallurgical and chemical processes.

3,322,551
REFRACTORY AND METHOD
Jan Bowman, Los Gatos, Calif., assignor to Kaiser Aluminum & Chemical Corporation, Oakland, Calif., a corporation of Delaware
No Drawing. Continuation of application Ser. No. 383,962, July 20, 1964. This application Aug. 29, 1966, Ser. No. 576,188
9 Claims. (Cl. 106—58)

8. A refractory shape resistant to erosion in an oxygen converter consisting essentially of sized basic refractory grains, a bonding amount of pitch having a softening point of at least 200° F., and from 0.5% to 1.5% of the total weight of the refractory of at least one element chosen from the group consisting of finely divided aluminum and finely divided magnesium.

3,322,552
INORGANIC PHOTOCHROMIC MATERIALS AND PROCESS FOR PRODUCING SAME

George L. Roberts, Jr., Lynchburg, Va., and John A. Chopoorian, Stamford, Conn., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

Filed Nov. 21, 1962, Ser. No. 239,159
6 Claims. (Cl. 106—288)

1. A process for the production of photochromic inorganic materials which comprises reacting (I) an aqueous alkaline solution of a compound selected from the group consisting of (1) those having the formula

$$YO_3$$

wherein Y is selected from the group consisting of molybdenum and tungsten and (2) those having the formula

$$X_2YO_4$$

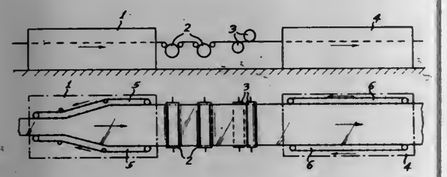
wherein Y is as defined above and X is selected from the group consisting of (a) an alkali metal, and (b) NH_4^+ with (II) a compound selected from the group consisting of the halides, oxides, hydrous oxides, sulfates, and nitrates of a metal selected from the group consisting of Ti, Ge, Ce, Nb, Zr, Sn and Zn, in water, the reaction being carried out at a temperature ranging from about 50° C. to about 100° C. and at a pH of less than about 7.0 and in a mole ratio of 20 to 4:1, respectively, recovering the resultant product.

2. Product produced by the process of claim 1.

3,322,553
CONTINUOUS PROCESS FOR COATING THERMOPLASTIC POLYESTER FILMS WITH VINYLIDENE HALIDE COPOLYMERS

Walter Selfried and Herbert Braunisch, Wiesbaden-Biebrich, and Helga Lenhart, Wiesbaden, Germany, assignors to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany, a corporation of Germany

Filed Nov. 12, 1964, Ser. No. 410,402
Claims priority, application Germany, Nov. 14, 1963, K 51,366
5 Claims. (Cl. 117—7)



1. A process which comprises coating a thermoplastic polyester film with at least one vinylidene halide copolymer, which copolymer contains a predominant amount of vinylidene chloride, and heating the coated film to a temperature in the range of 150 to 220° C., to thereby anchor the coating to the film and to heat-set the film.

3,322,554
PROCESS FOR PREPARING ELECTRICALLY CONDUCTIVE FLOCK FOR ELECTROSTATIC FLOCKING

Daniel Wyss and Walter Wyss, Emmenbrucke, Lucerne, Switzerland, assignors to Societe de la Viscose Suisse, Lucerne, Switzerland, a corporation of Switzerland

No Drawing. Filed July 30, 1963, Ser. No. 298,568
Claims priority, application Germany, Aug. 11, 1962, S 80,884
19 Claims. (Cl. 117—17)

7. Process for preparing pile fabrics which comprises (1) treating flock fibres made of polymers selected from the group consisting of cellulose esters, polyamides, polyesters, and polyacrylonitriles, first with an acidified aqueous solution containing an alum and then with an acidified aqueous solution containing tannin, adding potassium antimonyl tartrate to the said solution of tannin and continuing the said treatment, the amount of said tannin and the amount of said potassium antimonyl tartrate in said solution being sufficient to confer antistatic properties on said flock fibres so that said flock fibres possess good electrical conductivity and excellent spring capacity in an electrostatic field, separating the flock fibres and treating them with an aqueous solution of an anionic finishing agent, and drying the flock fibres, and (2) securing the flock fibres thus obtained to an adhesive-coated base under the influence of a high tension electrostatic field.

3,322,555
WATER-INSOLUBLE PROTECTIVE COATINGS FOR PHOTOGRAPHIC MATERIALS

Wolfgang Himmelmann and Walter Krauss, Cologne-Stammheim, and Alexander Riebel, Leverkusen, Germany, assignors to Agfa Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed Apr. 9, 1963, Ser. No. 271,567
Claims priority, application Germany, May 2, 1962, A 40,115
4 Claims. (Cl. 117—33.3)

1. A processed photographic material containing a photographic image in a gelatine layer supported on a substrate, and a protective layer externally coated on the said gelatine layer, and having as essentially the sole film-forming binding agent a ternary copolymer of

(I) vinyl chloride units in an amount of between 80–92%;

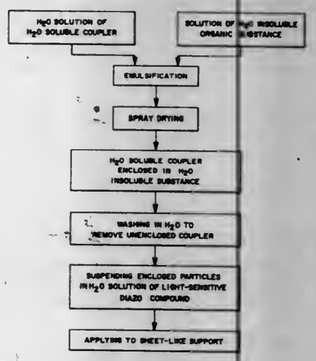
(II) vinyl acetate units in an amount of between 3–19.5% and

(III) units selected from the class consisting of maleic acid, maleic anhydride and vinyl alcohol in an amount of 0.5–5%.

3,322,556
METHOD FOR PREPARING HEAT-DEVELOPABLE TWO-COMPONENT DIAZOTYPE REPRODUCTION SHEET

Johannes Munder, Wiesbaden-Biebrich, and Hellmut Ziegler, Wiesbaden-Schierstein, Germany, assignors, by mesne assignments, to Keuffel & Esser Company, Hoboken, N.J.

Filed Dec. 20, 1963, Ser. No. 332,288
Claims priority, application Germany, Dec. 22, 1962, K 48,553
4 Claims. (Cl. 117—34)

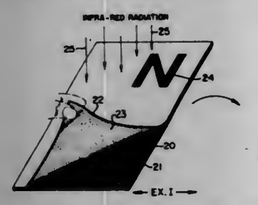


1. A method for the preparation of a heat-developable two-component diazotype reproduction material comprising the steps of: emulsifying an aqueous solution of a coupler in a solution of water-insoluble organic substance melting between 50 and 200° C., said coupler being a salt of a base of the group consisting of alkali metals, alkaline earth metals, ammonia and amines, and are acid organic hydroxy compound of the group consisting of phenols and enols; spray-drying the emulsion at a temperature below the boiling point of water to form fine moist particles of coupler enclosed in said substance, said particles of enclosed coupler having a maximum particle size of 30 microns; washing said particles with water to remove unenclosed coupler from the surface of said particles; suspending said particles in an aqueous solution of light-sensitive diazo compound capable of coupling with said said coupler under the influence of heat; coating a sheet-like support uniformly with the suspension; and drying the coated support at 30 to 40° C. to produce a heat-developable two-component diazotype reproduction material.

3,322,557
THERMO-COPY SYSTEM

Helmut Schwab, Dayton, Ohio, assignor to The National Cash Register Company, Dayton, Ohio, a corporation of Maryland

Filed May 11, 1964, Ser. No. 366,515
15 Claims. (Cl. 117—36.2)



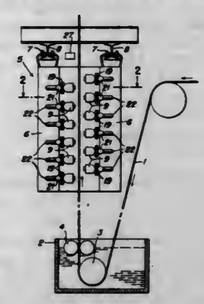
1. A mark-forming unit comprising at least one liquid mark-forming component, protectively retained from flow by a pressure-rupturable barrier material, and at least one other mark-forming component, which is a solid, producing a vapor at elevated temperature and having a relatively low vapor pressure at ambient temperatures, said barrier material permitting movement of the vapor into reaction contact with the liquid without rupture of the barrier material, said mark-forming components being supported by a sheet material and disposed therewith so that relative to each other the mark-forming components are in contiguous juxtaposition and so that the vapor of the solid mark-forming component, upon production of vapor, will contact and react with at least one liquid mark-forming component protectively retained from flow by unruptured barrier material and produce a mark at the zone of contact, while maintaining the protectively-retained mark-forming component from flow; said components also producing a mark by rupture of the barrier to allow flow of the retained liquid mark-forming component for reaction contact with at least one other mark-forming component.

3,322,558
GALVANIZING

Charles A. Turner, Jr., Flourtown, Pa., assignor to Selas Corporation of America, Dresher, Pa., a corporation of Pennsylvania

Filed June 14, 1963, Ser. No. 287,887
5 Claims. (Cl. 117—46)

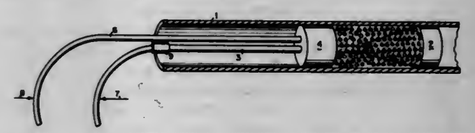
1. The method of treating the surface of an unenclosed galvanized steel strip to produce an iron-zinc alloy on the surface thereof which comprises moving the strip into a galvanizing pot and upwardly from the pot through a path, heating the strip as it is moving through the path substantially solely by convection heat produced by rows of flames directed entirely against and across the width of the strip from opposite sides thereof as it travels through said path to produce alloying of the zinc, and the iron of the strip, removing the strip from the flames, and cooling the strip when the iron on the suface thereof has reached from 8% to 12%.



3,322,559
MECHANICAL PROCESS FOR COATING INTERIOR AT ENDS OF TUBES

Luther Eskijian, Altadena, Calif. (% Specialties Engineering Corp., 340 W. Washington Blvd., Pasadena, Calif. 91103)

Filed Oct. 19, 1965, Ser. No. 497,938
5 Claims. (Cl. 117—47)



1. The process of coating the interior of a tube near an end thereof which includes the steps of:

(a) inserting a spreader plunger upon a rod within the end of said tube,

(b) placing an amount of viscous material between said spreader plunger and the end of said tube,

(c) moving a pressure plunger upon said rod within said tube toward said spreader plunger to position said viscous material in front of said spreader plunger,

(d) positioning said spreader plunger, said rod, said material and said pressure plunger within said tube until said spreader plunger has reached the depth to which said tube is to be coated,

(e) withdrawing said thus positioned elements from the same end of said tube while directly maintaining a force between said pressure plunger and said spreader plunger to urge said viscous material beyond said spreader plunger,

whereby said viscous material is deposited upon the interior of said tube behind said spreader plunger to coat said tube.

2. The process of coating a tube according to claim 1 in which:

(a) said force is minimal at the start of said withdrawing step, is increased to a greater value during said step, and is reduced to a minimal value at the end of the step,

whereby said coating is feathered in thickness at both ends thereof to minimize turbulence during subsequent use involving liquid flow.

4. The process of coating a tube according to claim 1 which additionally includes as an initial step;

(a) axially traversing a unidirectionally whirling piece of sandpaper within the interior of the tube to be coated

to clean and circumferentially score said interior.

3,322,560
CONTROL OF SPANGLE IN HOT DIP GALVANIZING

Michael Monaco, Dolton, Ill., assignor to Inland Steel Company, Chicago, Ill., a corporation of Delaware

Filed Feb. 13, 1963, Ser. No. 258,337
9 Claims. (Cl. 117—51)

1. In a hot dip galvanizing process wherein a heated ferrous metal base is passed through a molten zinc bath containing a small amount of lead and having a temperature of from about 850° F. to about 870° F., the improvement which comprises maintaining the lead content of the bath within the range of from about .05 wt. percent to about .10 wt. percent, said bath being free of other elements in amounts having any significant effect on spangle, and controlling the temperature of said base so that it enters the bath at a temperature not greater than about 750° F., whereby to reduce spangle formation in the galvanized product and whereby a product having increased spangle can be obtained when desired by raising the entry temperature of the base without altering the bath composition.

3,322,561
PROCESS FOR TEXTILE DECORATING AND TEXTILE WEBS DECORATED THEREBY

Charles A. Kumins, Chappaqua, N.Y., Vernon Lindsay Chase, Butler, N.J., Jerome Fine, Oceanside, N.Y., and Ernest Messmer, Fair Lawn, N.J., assignors to Interchemical Corporation, New York, N.Y., a corporation of Ohio

No Drawing. Filed July 17, 1963, Ser. No. 295,813
8 Claims. (Cl. 117—62.2)

1. A process for decorating textiles consisting essentially of (1) applying a slightly alkaline anionic, pigment-containing textile-coloring composition containing polymeric material containing carboxyl groups to a textile web, (2) applying to the so-treated textile web a suitable quantity of a slightly acidic aqueous solution of a water-soluble cationic thermosetting polymeric material that is reactive with said polymeric material containing carboxyl groups which is made by reacting a polyalkylene polyamine having two primary amine groups and at least one secondary amine group with a dicarboxylic acid selected from the group consisting of diglycollic acid and C_3 to C_8 saturated aliphatic dicarboxylic acids to form a water-soluble long chain polyamide containing secondary amine groups, the mole ratio of polyalkylene polyamine to dicarboxylic acid being from about 0.8 to 1 to about 1.4 to 1, and then reacting the polyamide in aqueous solution with epichlorohydrin in a mole ratio of from about 0.5 to 1 mole of epichlorohydrin to about 1.8 to 1 mole of secondary amine groups of said polyamide to form an aqueous solution of a water-soluble cationic thermosetting resin, and (3) subsequently drying the treated textile web.

3,322,562
PROCESS FOR TEXTILE DECORATING AND TEXTILE WEBS DECORATED THEREBY

Charles A. Kumins, Chappaqua, N.Y., V. Lindsay Chase, Butler, N.J., Jerome Fine, Oceanside, N.Y., and Ernest Messmer, Fair Lawn, N.J., assignors to Interchemical Corporation, New York, N.Y., a corporation of Ohio

No Drawing. Filed July 17, 1963, Ser. No. 295,834
12 Claims. (Cl. 117—62.2)

1. A process for decorating textiles consisting essentially of (1) applying to a textile web an anionic, pigment-containing, textile-coloring composition at a pH of about 8–9 containing a polymeric material containing carboxyl groups to which has been added a minor amount of a cationic, water-soluble thermosetting polymeric material made by reacting a polyalkylene polyamine having two primary amine groups and at least one secondary amine group with a dicarboxylic acid selected from the group consisting of diglycollic acid and C_3 to C_8 saturated aliphatic dicarboxylic acids to form a water-soluble long chain polyamide containing secondary amine groups, the mole ratio of polyalkylene polyamine to dicarboxylic acid being from about 0.8 to 1 about 1.4 to 1, and then reacting the polyamide in aqueous solution with epichlorohydrin in a mole ratio of from about 0.5 to 1 mole of epichlorohydrin to about 1.8 to 1 mole of secondary amine groups of said polyamide to form an aqueous solution of a water-soluble cationic thermosetting resin which resin is reactive with said polymeric material containing carboxyl groups, (2) applying to the so-treated textile web an aqueous solution of an acid suitable for acidifying the applied liquors to a pH of about 6, and (3) subsequently drying the treated textile web.

3,322,563
PROCESS OF PREPARING AN ADSORBENT

Raymond H. Moore, Kennewick, Wash., assignor to the United States of America as represented by the United States Atomic Energy Commission

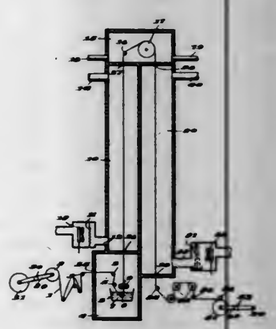
No Drawing. Filed Aug. 30, 1963, Ser. No. 305,899
2 Claims. (Cl. 117—100)

1. A process of preparing an adsorbent comprising preparing an aqueous slurry of uranyl phosphate, contacting silica particles with said slurry, separating the impregnated particles from the supernatant, and heating said particles at from 130 to 175° C.

3,322,564
PROCESS FOR MINIMIZING PELLICLE FOULING

Gordon W. Thompson, Clinton, Iowa, assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Feb. 10, 1964, Ser. No. 343,850
6 Claims. (Cl. 117—102)

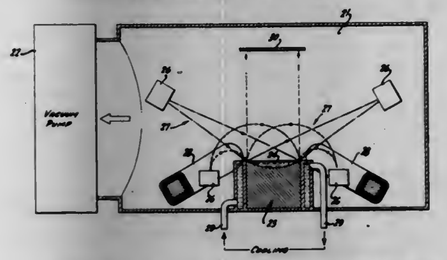


1. In a continuous process for coating a pellicle, wherein when flying mends are employed to thread successive rolls of pellicle through coating apparatus and newly coated pellicle contacts a spreader roll upon passing from the drying chamber of said apparatus, more than the usual amount of coating is carried through said drying chamber by said pellicle in the vicinity of said mend and said spreader roll becomes fouled with partially dried coating; the improved method for minimizing fouling which consists in driving said spreader roll at a speed of about 10% to 100% faster than the speed of said pellicle for the period of time starting between just before and just after the mend passes over said spreader roll and continuing until such time that substantially all of the coating adhering to said spreader roll has been removed therefrom.

3,322,565
POLYMER COATINGS THROUGH ELECTRON BEAM EVAPORATION

Hugh R. Smith, Jr., Piedmont, Calif., assignor to Temescal Metallurgical Corporation, Berkeley, Calif., a corporation of California

Filed Sept. 8, 1965, Ser. No. 492,969
10 Claims. (Cl. 117—106)

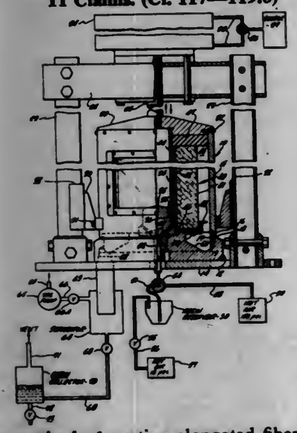


1. A method of coating a substrate with a synthetic organic polymer coating comprising, maintaining a synthetic organic polymer at a pressure of not more than about 1 millitorr of mercury absolute, said synthetic organic polymer having the characteristics of (1) being able to withstand bombardment by an electron beam without decomposition of the polymer and without formation of excessive amounts of noncondensible gaseous material, (2) being capable of sublimation under bombardment of the electron beam at temperatures below the decomposition temperature of the polymer, (3) the sublimed polymer vapors being capable of condensing upon the surface of a substrate at a temperature below the decomposition temperature of the polymer in the form of a uniform coherent film; bombarding the polymer with an electron beam having a power density at the surface of the polymer of at least about ½ kw./sq. inch while maintaining the temperature of the polymer below its decomposition temperature to cause sublimation of the polymer, and condensing the sublimed vapors on the surface of a substrate maintained at a temperature below the decomposition temperature of the polymer in the form of a uniform coherent polymer coating.

3,322,566
RESIN COATING

Elvin M. Bright, Encino, Calif., assignor to Air Logistics Corporation, Los Angeles, Calif., a corporation of California

Filed Jan. 14, 1963, Ser. No. 251,088
11 Claims. (Cl. 117—119.8)



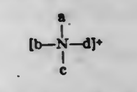
1. The method of coating elongated fibers with a fluid plastic resin, the fibers being disposed in a volume to define a porous barrier, the method including the steps of disposing the barrier of fibers in a chamber, evacuating the chamber to remove gas from it and the barrier of fibers, introducing the fluid resin into the evacuated chamber, forcing the resin through the barrier to coat the fibers, and expelling with heated gas resin from the barrier of fibers in excess of that coating the fibers.

3,322,567
METHOD FOR IMPARTING ANTISTATIC PROPERTIES TO ELECTRICALLY NON-CONDUCTIVE SUBSTANCE AND THE RESULTING PRODUCT

William J. Shibe, Jr., Riverton, N.J., and Marcus Sittenfield, Philadelphia, Pa., assignors to Hollichem Corporation, Camden, N.J., a corporation of New Jersey

No Drawing. Original application Jan. 16, 1962, Ser. No. 166,699, now Patent No. 3,133,072, dated May 12, 1964. Divided and this application Apr. 3, 1964, Ser. No. 357,257
2 Claims. (Cl. 117—121)

1. A method of providing antistatic properties in electrically non-conductive substances that are normally subject to the accumulation of static electricity which comprises physically combining with said electrically non-conductive substance an antistatically effective amount of a quaternary ammonium aromatic cyclic imide wherein the quaternary ammonium cation has the formula:



wherein *a* and *b* are members of the group consisting of alkyl and cyclic constituents of pyridinium, isoquinolinium, picolinium, imidazolinium and morpholinium, *c* is a member of the group consisting of alkyl, alkylaryl, aryl and cyclic constituents of pyridinium, isoquinolinium and picolinium, *c*, when it is a cyclic constituent, being a member of the same ring as *a* and *b*, and *d* is a member of the group consisting of alkyl and alkylaryl, and wherein the aromatic cyclic imide anion is a member of the group consisting of phthalimide, naphthalimide, benzoxazoninone and benzothiazolinone, the aromatic portion of said anion being substituted by a member of the group consisting of hydrogen, halide, lower alkyl and lower alkoxy, there being a direct electro-valent linkage between the quaternary ammonium cation and the aromatic cyclic imide anion.

3,322,568
COMPOSITION AND METHOD FOR PRODUCING LEATHER SUBSTITUTE

Marcos M. Golodner, West Orange, N.J., assignor to Interchemical Corporation, New York, N.Y., a corporation of Ohio

No Drawing. Filed Mar. 15, 1963, Ser. No. 265,369
9 Claims. (Cl. 117—135.5)

1. A coating composition comprising clay dispersed in a mixture of water having dissolved therein a gum selected from the group consisting of gum tragacanth, gum karaya and gum arabic and a solution in a solvent selected from the group consisting of methyl ethyl ketone, tetrahydrofuran and cyclohexanone of polyesterurethane elastomer produced by heating a mixture comprising as essential polyesterurethane forming ingredients (1) one mol of an essentially linear hydroxyl terminated polyester of a saturated aliphatic glycol having from 4 to 10 carbon atoms and having hydroxyl groups on its terminal carbon atoms and a material selected from the group consisting of a dicarboxylic acid of the formula

HOOC—R—COOH

where R is an alkylene radical containing from 2 to 8 carbon atoms and its anhydride, said polyester having an

average molecular weight between 600 and 1200 and having an acid number less than 10, and (2) from about 1.1 to 3.1 mols of a diphenyl diisocyanate having an isocyanate group on each phenyl nucleus in the presence of (3) from about 0.1 to 2.1 mols of a saturated, aliphatic free glycol containing from 4 to 10 carbon atoms and having hydroxyl groups on its terminal carbon atoms, the molar amount of said polyester and said free glycol combined being essentially equivalent to the molar amount of said diphenyl diisocyanate whereby there are essentially no unreacted groups of the class consisting of isocyanate and hydroxyl groups in said elastomer said clay having a weight from 10% to 60% the weight of said polyesterurethane.

3. A method for making a water vapor permeable coated fabric comprising dispersing (A) clay in a mixture of (B) water having dissolved therein a gum selected from the group consisting of gum tragacanth, gum karaya and gum arabic and (C) a solution in a solvent selected from the group consisting of methyl ethyl ketone, tetrahydrofuran and cyclohexanone of an essentially linear polyesterurethane elastomer which is the reaction product obtained by heating a mixture comprising as essential polyurethane ingredients (1) one mol of an essentially linear hydroxyl terminated polyester of a saturated aliphatic glycol having from 4 to 10 carbon atoms and having hydroxyl groups on its terminal carbon atoms and a material selected from the group consisting of a dicarboxylic acid of the formula

HOOC—R—COOH

where R is an alkylene radical containing from 2 to 8 carbon atoms and its anhydride, said polyester having an average molecular weight between 600 and 1200 and having an acid number less than 10, and (2) from 1.1 to 3.1 mols of a diphenyl diisocyanate having an isocyanate group on each phenyl nucleus in the presence of (3) from about 0.1 to 2.1 mols of a saturated aliphatic free glycol containing from 4 to 10 carbon atoms and having hydroxyl groups on its terminal carbon atoms, the molar amount of said polyester and said free glycol combined being essentially equivalent to the molar amount of said diphenyl diisocyanate whereby there are essentially no groups of the claims consisting of isocyanate and hydroxyl groups in said reaction product said clay having a weight from 10% to 60% the weight of said polyesterurethane, then applying said dispersion to the surface of a textile substrate and leaching said coated textile with water to remove the solvent.

3,322,569

TREATMENT OF CELLULOSIC TEXTILES WITH A CREASE RESISTING FINISH AND A COPOLYMER OF A N-METHYLOLAMIDE OF AN ACRYLIC ACID FOR THE PURPOSE OF REDUCING WET SOILING

Gerhard Faulhaber and Dieter Voges, Mannheim, and Ernst Penning, Hans Wilhelm, and Norbert Goetz, Ludwigshafen (Rhine), Germany, assignors to Badische Anilin- & Soda-Fabrik Aktiengesellschaft, Ludwigshafen (Rhine), Germany

No Drawing. Filed Nov. 5, 1963, Ser. No. 321,415
Claims priority, application Germany, Nov. 10, 1962, B 69,575
8 Claims. (Cl. 117—139.4)

1. In a process of finishing a textile fabric which contains at least 25% by weight of cellulosic fibers wherein said fabric is treated with

(a) up to about 15% by weight of a finishing compound which improves the crease resistance of said fabric, and

(b) up to about 10% by weight of an addition copolymer of a N-methylolamide of an acrylic acid and at least one other monoolefinically unsaturated compound, said percentages being with reference to the dry weight of the celluloisic fabric being treated,

and said treated cellulosic fabric is then cured at a temperature and for a period of time sufficient to fix components (a) and (b) thereto, the improvement for reducing wet soiling of the finished fabric which comprises:

carrying out said process while using as component (b) an addition copolymer formed from

(1) about 1 to 10% by weight of a N-methylolamide of a compound selected from the class consisting of acrylic acid and methacrylic acid,

(2) about 0.5 to 10% by weight of a compound selected from the class consisting of divinylbenzenes, glycol diacrylates, glycol methacrylates, glycerol triacrylate, vinyl methacrylate, allyl acrylate and methylene bis-acrylamide, and

(3) about 80 to 98.5% by weight of a compound selected from the class consisting of the methyl, ethyl, propyl and butyl esters of acrylic and methacrylic acid.

3,322,570

PHOTOSENSITIVE ELECTRODES AND METHOD OF MAKING SAME

Mikio Ashikawa, Tokyo, Hideki Umezawa, Hachioji-shi, Tokyo, and Kazuo Ozawa, Tokyo, Japan, assignors to Hitachi, Ltd., Tokyo, Japan, a corporation of Japan

Filed May 21, 1963, Ser. No. 281,959
Claims priority, application Japan, May 25, 1962, 37/20,917
7 Claims. (Cl. 117—211)

4. A method of making a photoconductive electrode which comprises placing a transparent substrate having a transparent, electrically conductive layer in an evaporation unit with a photoconductive material, and heating the photoconductive material to evaporate it while varying the pressure in said evaporation unit gradually from a first predetermined value to a second predetermined value which is higher or lower than said first predetermined value, to cause deposition of a single layer of photoconductive material on the surface of said electrically conductive layer, said photoconductive material having a porosity varying continuously through the thickness of the photoconductive layer.

3,322,571

METHOD OF MAKING AN ELECTRICALLY CONDUCTIVE NET-LIKE METAL COATING

Charles M. De Woody and Roscol L. Pearce, Cumberland County, N.J., assignors to Ace Glass Incorporated, Vineland, N.J., a corporation of New Jersey

Filed July 18, 1963, Ser. No. 296,044
8 Claims. (Cl. 117—212)

1. A method of making an electrically conductive element, comprising admixing with a solution of an organometallic resin, an incompletely compatible diluent of higher boiling point than the solvent of said solution, applying a film-like coating of said mixture to the surface of a nonconducting base, evaporating the solvent to set the film, leaving a series of randomly dispersed globules of said diluent, heating said dispersion to vaporize said globules, leaving a continuous porous network of molecularly bonded electrically conductive metal, and fusing said network to said base.

3,322,572

PROCESS FOR APPLYING AN OLIGOMERIC BIS-(CYCLOPENTADIENYL) RESIN ON A WIRE

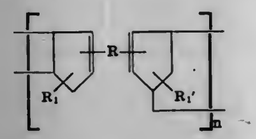
Alfred Renner, Allschwil, and Franz Rudolf Widmer, Basel, Switzerland, assignors to Ciba Limited, Basel, Switzerland, a Swiss company

No Drawing. Filed Dec. 10, 1962, Ser. No. 243,607
4 Claims. (Cl. 117—232)

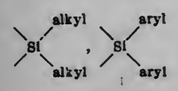
1. Process for encapsulating an electrical conductor

which comprises applying to the conductor a composition comprising

(1) an oligomeric bis(cyclopentadienyl) compound which is soluble in organic solvents and which corresponds to the general formula



where R is a member selected from the group consisting of



divalent aliphatic hydrocarbon radical, divalent cycloaliphatic hydrocarbon radical and divalent araliphatic hydrocarbon radical, R_1 and R_1' are members selected from the class consisting of hydrogen atom and the methyl group, and n is an integer of at least 2 and at the most 20, and

(2) a polymer which is soluble in organic solvents and is selected from the group consisting of homopolymers of butadiene, homopolymers of isoprene, copolymers of butadiene with a member selected from the group of ethylene, propylene and styrene, and copolymers of isoprene with a member selected from the group consisting of ethylene, propylene and styrene, and directly converting said composition by heating to the cured, insoluble and infusible state.

3,322,573

METAL CLEANING COMPOSITIONS AND METHOD AND BATHS THEREFOR

Clarence Bremer, Rutherford, and Samuel S. Frey, Elizabeth, N.J., assignors to Oakite Products, Inc., New York, N.Y., a corporation of New York

No Drawing. Filed Jan. 19, 1965, Ser. No. 426,674
12 Claims. (Cl. 134—1)

4. The method of removing dirt and soil incrustations, including even those of buffing compounds, from recesses as well as grooves on rigid articles, which method comprises submerging such articles in an aqueous alkaline bath solution containing dissolved therein from about two to about four ounces by weight per gallon of said bath solution of an alkaline water-soluble composition comprising as its essential cosntituents for said dirt and soil incrustations removal:

(i) at least one lower aliphatic straight chain polyamine member of the class consisting of ethylene diamine, propylene diamine, and diethylenetriamine; and

(ii) a soap made from reacting the recovered mixed fatty acids from tall oil and at least one of said polyamines, with said mixed acids used in such ratio to the polyamine reactant to leave an excess of the latter to be the said polyamine constituent (i) and to the extent of less than a mole thereof per mole of said soap constituent, whereby said bath solution has a pH from about 9 to about 11; and subjecting such so submerged articles to the influence of waves of ultrasonic frequency, of the order from about fifteen to about forty kilocycles per second, transmitted to the articles through said aqueous alkaline bath, and for a time within a few minutes sufficient completely to clean the incrustations from said articles.

3,322,574

PROCESS AND APPARATUS FOR REMOVING REACTION WATER FROM GALVANIC FUEL CELLS

Eduard Justi and August Winsel, Braunschweig, Germany, assignors to Varta Aktiengesellschaft, Hagen, Westphalia, Germany, and Siemens-Schuckert-Werke A.G., Berlin and Erlangen, Germany, a corporation of Germany

Filed May 14, 1962, Ser. No. 196,547
Claims priority, application Germany, May 15, 1961, R 30,344
24 Claims. (Cl. 136—86)



1. Process for operating a fuel cell using an aqueous electrolyte and reactants which electrochemically produce energy as well as water as reaction product, with the periodic electrochemical separation of said reaction water, which comprises carrying out the fuel cell operation continuously and, upon the reaching of a predetermined volume increase in the aqueous electrolyte due to the reaction water produced, passing a first perdetermined excess volume portion of the electrolyte during further fuel cell operation to an electrolytic dialysis cell having anode and cathode electrodes and electrolyte ion-selective dialysis membrane means separating the anode and cathode electrodes of the electrolytic dialysis cell and then passing a second predetermined excess volume portion of the electrolyte during further fuel cell operation to a part of the electrolytic dialysis cell separated by said membrane means from at least one of said electrodes and the first excess portion, then conducting current between the anode and cathode electrodes of the electrolytic dialysis cell through the said first excess portion and the said second excess portion and the membrane means to cause the migration of the corresponding electrolyte ions present in said second excess portion through the membrane means selective therefor to the counter electrode of opposite polarity and the first excess portion, and recycling the first excess portion enriched with the electrolyte ions electrochemically separated from the second excess portion back to the aqueous electrolyte of the fuel cell while withdrawing the second excess portion for the reception of fresh second excess portion during the further operation of the fuel cell.

22. In a fuel cell arrangement having an electrolyte compartment and a pair of opposing electrodes positioned for the generation of electrical energy, the improvement which comprises providing an electrolytic dialysis cell in partial flow communication therewith, said dialysis cell containing anode and cathode electrodes separated by electrolyte ion-selective dialysis membrane means, said fuel cell electrolyte comparement having an overflow conduit communicating directly with the portion of said dialysis cell on one side of said membrane means arranged for passing electrolyte from said electrolyte compartment thereto upon the reaching of a predetermined maximum volume of electrolyte in said electrolyte compartment, said overflow conduit having an overflow

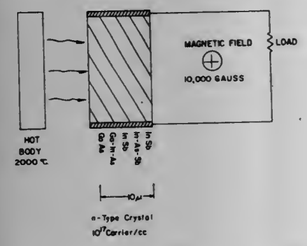
channel means indirectly communicating said overflow conduit with the portion of said dialysis cell on the other side of said membrane means and arranged for passing excess electrolyte from said electrolyte compartment thereto upon the reaching of a predetermined maximum volume of electrolyte in the portion of said dialysis cell on said one side of the membrane means, and means for recycling electrolyte from said one side of the membrane means of said dialysis cell back to said electrolyte compartment of the fuel cell and for withdrawing spent electrolysis products from the other side of the membrane means of the dialysis cell.

3,322,575

GRADED ENERGY GAP PHOTOELECTROMAGNETIC CELL

Robert A. Ruehrwein, Dayton, Ohio, assignor to Monsanto Company, a corporation of Delaware

Filed July 31, 1961, Ser. No. 128,237
2 Claims. (Cl. 136—89)



1. A photovoltaic cell comprising a crystal comprising a light receptive front surface base layer of crystalline material selected from the class consisting of Group III—Group V compounds, Group II—Group VI compounds, Group I—Group VII compounds, silicon and germanium, an epitaxial layer deposited on the back thereof, the said epitaxial layer being composed of merging regions of composition $M_xR_{(1-x)}T_yZ_{(1-y)}$ wherein M is of smaller atomic weight than R and both M and R are elements of group III–B having an atomic weight of from 10 to 119 and T is of smaller atomic weight than Z and both T and Z are elements of Group V–B having an atomic weight of from 29 to 133, wherein at least one of x and y continually decreases in the aforesaid epitaxial layer from a maximum value of one to a minimum value of zero in the direction from front to back of the crystal whereby the forbidden energy gap decreases from front to back across the profile of the said epitaxial layer, and said crystal being disposed in a magnetic field oriented in a direction different from the direction of said variation of the compositon of said epitaxial layer, and electrical leads in contact with two opposite side edges of the said crystal whereby the normal to the direction between the two contacts and to the direction of said variation of the composition of said epitaxial layer is at least partly in the direction of the magnetc field.

3,322,576

PLURAL COATED FUEL CELLS ELECTRODE AND ELECTROPLATING METHOD FOR MAKING SAME

George J. Young, Trucksville, Pa., assignor to Studebaker Corporation, South Bend, Ind., a corporation of Michigan

Filed Oct. 28, 1963, Ser. No. 319,396
5 Claims. (Cl. 136—121)

1. An electrode for a fuel cell comprising
(a) a porous metal support member in sheet form of a metal selected from the group consisting of tantalum and titanium,
(b) a first coating for said support including graphite and a highly fluorinated polymer binder, said graphite being present in from 80 to 90 parts by weight and said binder being present in from 10 to 20 parts by weight,
(c) a second coating on at least one surface of said first coating of platinum black in a quantity of from 0.1 to 20 mg./cm.².

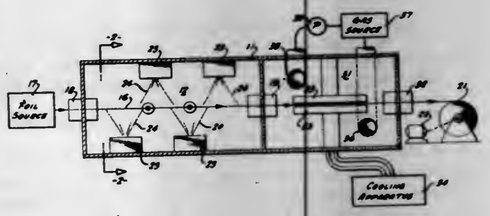
5. The method of forming an electrode for a fuel cell comprising,
(a) forming a mixture of finely divided graphite and a highly fluorinated polymer binder wherein said graphite is present in from 80 to 90 parts by weight and said binder is present in from 10 to 20 parts by weight,
(b) coating a porous metal sheet with a film of said mixture,
(c) baking said coating at a temperature of from 130° to 200° C.,
(d) electrolytically depositing a layer of metal of the platinum group on said coating in an amount of from 0.1 to 20 mg./cm.² by first depositing a "strike" at a current density of from 5 to 50 ma./cm.² and then plating at a current density of from 0.02 to 0.05 ma./cm.²
(e) baking the assembly at a temperature of from 130° to 200° C. for about one hour.

3,322,577

METHOD AND APPARATUS FOR THE CONTINUOUS PRODUCTION OF OXIDE COATINGS

Hugh R. Smith, Jr., Piedmont, Calif., assignor to Temescal Metallurgical Corporation, Berkeley, Calif., a corporation of California

Filed May 3, 1963, Ser. No. 277,841
9 Claims. (Cl. 148—6.3)



1. A continuous process for oxidizing surfaces of metal comprising:
(a) highly evacuating a region;
(b) continuously passing metal to be oxidized through the evacuated region while maintaining the vacuum therein;
(c) raising the surface of temperature of metal within the evacuated region by electron bombardment heating of the metal therein;
(d) establishing a low pressure oxygen atmosphere adjacent the surface of metal in the evacuated region; and
(e) cooling the metal.

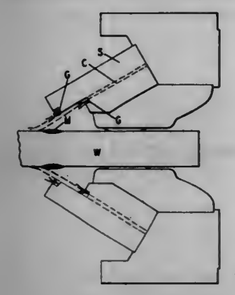
3,322,578

THERMOCHEMICAL DESURFACING METHOD

Ivan P. Thompson, Hillside, N.J., assignor to Union Carbide Corporation, a corporation of New York

Filed Feb. 10, 1964, Ser. No. 343,726
7 Claims. (Cl. 148—9.5)

1. In a method of thermochemical scarfing a metal body wherein sheet-like preheat flames are first directed from a scarfing unit against a localized area of the surface to be scarfed at a point in from the end of the body until a puddle of molten metal is formed upon the surface thereof, and thereafter a sheet-like stream of scarfing oxygen is directed against said puddle and the metal body is moved relative to said stream of scarfing oxygen, the



improvement which compirses shifting the relative horizontal position between said body and said scarfing unit, after said molten metal puddle has been formed but before said stream of scarfing oxygen has been directed at said molten puddle, so that said molten metal puddle is repositioned further upstream of said scarfing unit.

3,322,579

MAGNETIC HYSTERESIS ALLOY MADE BY A PARTICULAR PROCESS

Stanley H. Leblang, Plainview, N.Y., assignor to Permag Corporation, Jamaica, N.Y., a corporation of New York

Original application Sept. 18, 1963, Ser. No. 309,838. Divided and this application Mar. 4, 1966, Ser. No. 531,828
1 Claim. (Cl. 148—31.57)

A magnetically anisotropic element for use in a hysteresis torque device, which element exhibits a hysteresis loss of from 0.03 to 1.5 joules/in.³/cycle when subjected to a magnetizing force of from 50 to 350 oersteds, a peak efficiency of from 0.310 to 0.345, an energy factor in excess of 0.75 and a small coercive force of from 50 to 300 oersteds, said element being produced by:
(a) heating a composition consisting essentially of from 20 to 26 weight percent cobalt, from 11 to 17 weight percent nickel, from 7 to 9 weight percent aluminum, from 0.3 to 3 weight percent silicon, up to 3 weight percent zirconium, up to 3 weight percent copper, up to 0.3 weight percent titanium, and the balance substantially iron, at a temperature sufficient to melt each of such constituents;
(b) casting the molten alloy into a predetermined shape and cooling the casting to ambient temperature;
(c) heating the casting to a temperature above the Curie point of the alloy;
(d) cooling the casting to ambient temperature while simultaneously subjecting it to a magnetic field to effect magnetic hardening thereof; and
(e) subjecting the hardened, magnetically anisotropic casting to a double aging treatment comprising sequentially heating the casting at a temperature in excess of 650° C. for a period of from ½ to 1½ hours, and subsequently heating said casting at a temperature of from 550° to 600° C. for a period of from 1 to 10 hours.

3,322,580

HARD FACING METALS AND ALLOYS

Alan George Haynes, Badgers Mount, Sevenoaks, Kent, England, assignor to The International Nickel Company, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Sept. 22, 1964, Ser. No. 398,435
Claims priority, application Great Britain, Sept. 24, 1963, 37,543/63
2 Claims. (Cl. 148—142)

1. In the process of hard facing metals and alloys to obtain a readily machinable surface which can be aged to develop the properties of wear and abrasion resistance and toughness the steps comprising, providing a metallic member having at least one surface upon which a hard facing is desired, depositing upon at least said one surface at least one adherent layer of a steel containing about 18% to about 30% nickel and about 1.5% to about 9% of metal selected from the group consisting of aluminum and titanium, said steel being characterized by a hardness below about 450 D.P.N. in the solution heat treated condition and being further characterized by the capability of being aged to a hardness above about 500 D.P.N., solution heat treating said adherent layer, machining said adherent layer while in the solution heat treated condition and thereafter aging said adherent layer to a hardness above about 500 D.P.N.

3,322,581

FABRICATION OF A METAL BASE TRANSISTOR

Gene R. Hendrickson, Richardson, Don W. Shaw, Garland, and Edward W. Mehal, Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Filed Oct. 24, 1965, Ser. No. 504,534
6 Claims. (Cl. 148—175)

1. In a method of making a semiconductor device, the steps of:
(a) selectively removing a portion of a single crystalline semiconductor body to form a pocket therein,
(b) selectively locating a metal layer to cover the bottom of said pocket, the walls of said pocket remaining exposed single crystalline semiconductor material, and
(c) epitaxially growing a region of single crystalline semiconductor material over said metal layer within said pocket, said epitaxial growth proceeding from the exposed single crystalline walls of the said pocket and extending substantially laterally over the metal layer.

3,322,582

PROCESS FOR CONTROLLED SURFACE OXIDATION OF BERYLLIUM POWDERS

Simon J. Morana, Hazleton, Pa., assignor to The Beryllium Corporation, Reading, Pa., a corporation of Delaware

No Drawing. Filed July 23, 1964, Ser. No. 385,556
6 Claims. (Cl. 149—5)

1. A process for controlled surface oxidation of beryllium metal powders of a weighted average particle size below 25 microns which comprises oxidizing the said metal particles with a stochiometric amount of chemically pure water.

3,322,583

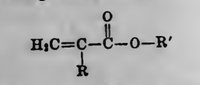
SOLID PROPELLANT COMPOSITION CONTAINING COPOLYMER BINDER OF ACRYLONITRILE-ACRYLATE

Donald A. Guthrie, Erie, Pa., and James F. Black, Convent, and John F. Kunc, Jr., Union, N.J., assignors to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Filed July 20, 1964, Ser. No. 383,951
9 Claims. (Cl. 149—19)

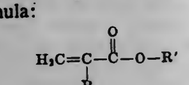
1. A solid propellant comprising in combination a

tough, rubbery copolymer binder and a comminuted solid inorganic oxidizer salt, said oxidizer being from 60 to 90% by weight of the total propellant composition, said copolymer binder consisting essentially of 20 to 30 wt. percent acrylonitrile and 70 to 80 wt. percent unsaturated ester having the formula:



wherein R is selected from the group consisting of hydrogen and a methyl group and R' is an alkyl group having 3 to 20 carbon atoms, and said copolymer binder having a tensile strength of at least 50 p.s.i. and an elongation of at least 20%.

7. A method of making solid propellants comprising mixing in the absence of a solvent, a monomer mixture consisting essentially of 20 to 30 wt. percent acrylonitrile with 70 to 80 wt. percent of an unsaturated ester having the formula:



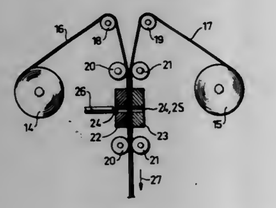
wherein R is selected from the group consisting of hydrogen and a methyl group and R' is an alkyl group having 3 to 20 carbon atoms with a comminuted solid oxidizer salt, exposing said mixture to high energy ionizing radiation of 10,000 to 10,000,000 roentgens/hr. for a total dosage of 13.5 to 30 mr.

3,322,584

METHOD OF BONDING WEBS OF PLASTIC THREADS BY MEANS OF GAS JETS

Guy John Olof Welin-Berger, Box 228, Nacka, Sweden

Filed Sept. 30, 1963, Ser. No. 312,682
Claims priority, application Sweden, Oct. 3, 1962, 10,625/62
3 Claims. (Cl. 156—82)



1. A method of bonding together a plurality of layers of fabric composed of woven thermoplastic threads, comprising superposing a plurality of said fabric layers so that they touch each other, passing hot gas through all said layers at a plurality of discontinuous spaced points in a line so as to fuse together the layers at said points, said line having some of said points therealong disposed a substantial distance from all edges of the fabric, and masking the fabric from the hot gas between said points so as to prevent the hot gas from destroying the thermoplastic threads between said points.

3,322,585

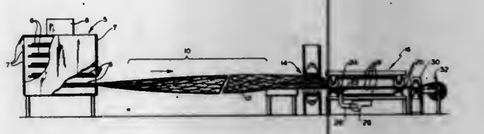
METHOD OF MAKING A CONDENSED FILAMENTOUS MAT

George K. Weber, Louisville, and John E. Copenhefer, Anchorage, Ky., assignors to American Air Filter Company, Inc., Louisville, Ky., a corporation of Delaware

Filed Feb. 27, 1963, Ser. No. 261,386
9 Claims. (Cl. 156—174)

1. The method of making a filamentous product, comprising:

(a) winding filaments back and forth upon a rotating drum to form a cylindrical mat;
(b) applying a polyester resin-silane finish composition to said cylindrical mat as it is being formed;
(c) severing said cylindrical mat axially and removing it from said drum to form a planar mat of compact character;
(d) heating said planar mat to a temperature below the curing temperature of said composition to soften said



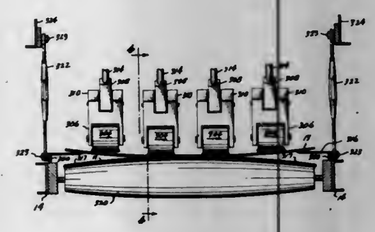
composition and then stretching said mat in a diameter generally transverse to the lay of said filaments to form an expanded thickness, elongated pad;
(e) heating said expanded thickness, elongated pad momentarily to a temperature below the curing temperature of said composition to re-soften said composition;
(f) then compressing said pad; and
(g) cooling said pad to harden said composition while maintaining said pad in said compressed condition.

3,322,586

METHOD AND APPARATUS FOR JOINING LAMINAE AT THE POINT OF CONVERGENCE OF THEIR RESPECTIVE CONVEYORS

Earl D. Hasenwinkle and Henry M. Preusser, Seattle, Wash., assignors to Weyerhaeuser Company, Tacoma, Wash., a corporation of Washington

Filed June 11, 1963, Ser. No. 286,981
13 Claims. (Cl. 156—201)



1. During manufacture of laminated products on a continuously operating production line, the method of joining respective laminae while both laminae are in motion coming from independent sources following coating by adhesives of at least one lamina, comprising steps of:

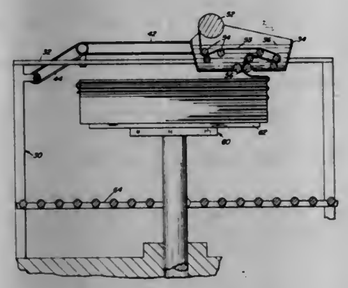
(a) feeding laminae positively toward and into a jointure locale;
(b) bending at least one lamina so that it defines a curve in the horizontal plane transverse to the direction it is moving;
(c) causing initial contact of laminae between respective central surfaces of laminae;
(d) phasing out feeding of one lamina and continuing feeding of the other lamina;
(e) phasing out bending of one lamina; and
(f) completing contact of laminae.

3,322,587

PROCESS OF BONDING PLYWOOD VENEERS

Don Burnet, Camas, Wash., Russell V. Harkema, Portland, Oreg., and David A. Strause, Camas, Wash., assignors, by mesne assignments, to Weyerhaeuser Company, Tacoma, Wash., a corporation of Washington

Continuation of application Ser. No. 53,517, Sept. 1, 1960. This application Mar. 29, 1966, Ser. No. 538,924
11 Claims. (Cl. 156—216)



1. A method of manufacturing plywood which comprises:

(a) impregnating an absorbent fibrous sheet with a liquid adhesive,
(b) placing said impregnated sheet while wet between veneer sheets, and
(c) treating said assembled sheets to set said adhesive and bond said veneer sheets to one another.

2. The method of claim 1 wherein said fibrous sheet is a continuous web.

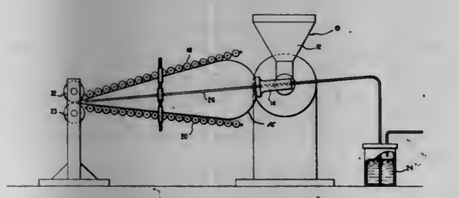
8. The method of claim 2 wherein said placing is accomplished by overfolding said impregnated web upon itself a plurality of times so as to form a plurality of horizontally disposed layers of said impregnated web and, as said web is overfolded, feeding at least one veneer sheet between adjacent pairs of said layers.

3,322,588

METHOD FOR MAKING HEAVY GAUGE PLASTIC SHEETS

Frederick B. Schelhorn, Savannah, Tenn., assignor to Owens-Illinois, Inc., a corporation of Ohio

Filed Dec. 30, 1963, Ser. No. 334,276
3 Claims. (Cl. 156—244)



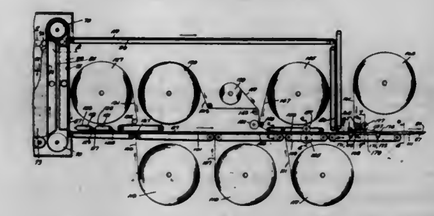
1. A process for preparing a heavy gauge, laminated, thermoplastic sheet which comprises the steps of extruding cellular thermoplastic tubing, inflating the tubing to a selected diameter, applying an adhesive material to the inner wall of the tubing, and subsequently flattening the tubing to form a bonded laminated sheet having a thickness double the wall thickness of the inflated extruded tubing.

3,322,589

SANITARY NAPKIN OR THE LIKE AND A METHOD OF MANUFACTURE THEREOF

Curt G. Joa, Ocean Ridge, Fla.
(P.O. Box 1121, Boynton Beach, Fla. 33435)

Filed Apr. 2, 1962, Ser. No. 184,105
8 Claims. (Cl. 156—250)



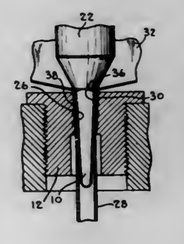
8. A method of making a pad for a sanitary napkin which method includes pressing together webs of tissue and elastically compressible fluff between the tissue webs to provide a composite web in which the fluff is enveloped by tissue, connecting tissue components of the composite web about the fluff, severing from the composite web pads elongated transversely of the composite web and having relatively wide and narrow ends at each of which the fluff is enveloped in tissue, and releasing the pressure whereby to permit the fluff to expand to produce a pad of fluff tightly wrapped endwise in tissue.

3,322,590

METHOD FOR MAKING A SEALED CONNECTION BETWEEN A TUBE AND A CONTAINER

James L. Clark, Whitefish Bay, Wis., assignor, by direct and mesne assignments, to Plastronics, Inc., Milwaukee, Wis., a corporation of Wisconsin

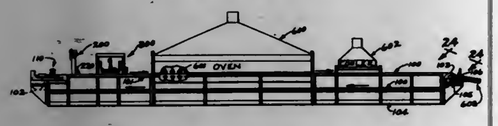
Filed Mar. 9, 1964, Ser. No. 350,492
5 Claims. (Cl. 156—273)



1. The method of making a sealed connection between a plastic tube and a plastic bag having a nipple formed therein comprising the steps of:

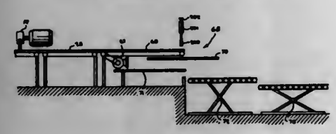
inserting the end of the tube over the end of a tapered probe electrode;
inserting the nipple portion of the bag over both the tube and the probe so that the wall of the nipple portion lies adjacent the end portion of the tube;
inserting the probe into a tapered opening in a second electrode; and
passing an electronic welding current between said electrodes to weld the end of the tube to the nipple portion of the bag.

3,322,591
MACHINE AND METHOD FOR AUTOMATICALLY FABRICATING MULTIPLE UNIT ASSEMBLIES OF INDIVIDUAL PIECES
Robert B. Cleverly, Zanesville, Ohio, assignor to The Mosaic Tile Company, Cleveland, Ohio, a corporation of Ohio
Filed Apr. 17, 1963, Ser. No. 273,665
The portion of the term of the patent subsequent to May 25, 1982, has been disclaimed
17 Claims. (Cl. 156—297)



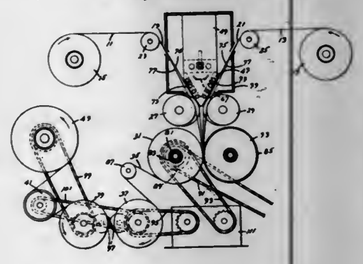
1. A method for fabricating a multiple unit assembly of individual pieces in a desired pattern and with selected spacing therebetween, said method comprising, repetitively depositing a number of spaced parallel rows of masses settable resin on a planar assembly surface in a spaced pattern such that each of said masses is positioned for engaging portions of the rear faces and the adjacent edge surfaces of at least two adjacent ones of said pieces in said pattern and spacing, moving said planar assembly surface intermediate each deposition of said masses for moving said masses of resin thereon along a path normal to the said rows of masses of resin and to an assembly station, arranging a number of spaced parallel rows of said pieces on a generally flat surface with their front faces uppermost and in said pattern and spacing, the number of rows of said pieces being a whole number multiple of the number of rows of said masses of resin deposited on said assembly surface at each deposition thereof, engaging all of the front faces of the pieces in said group with a planar transfer surface upon the completion of a number of depositions of resinous masses equal to said whole number multiple, moving said planar transfer surface and the group of pieces engaged thereby to said assembly station in registry with said plurality of masses of resin and with the front faces spaced therefrom a distance only slightly greater than the maximum thickness of the pieces in said group, disengaging said planar transfer surface from said group of pieces and setting up the resin in said masses.

3,322,592
METHOD AND APPARATUS FOR COMPLETING STACKS OF LAMINATES
Henry M. Preusser and Earl D. Hasenwinkle, Seattle, and Robert L. Bridges, Edmonds, Wash., assignors to Weyerhaeuser Company, Tacoma, Wash., a corporation of Washington
Filed June 10, 1963, Ser. No. 286,556
5 Claims. (Cl. 156—297)



1. In a method of manufacturing laminated products wherein the products are formed by stacking modules of one lamina having at least one surface coated with an adhesive film with other uncoated lamina, the process of placing the topping uncoated lamina on such a stack comprising:
conveying the last module to one stack with the adhesive film exposed,
conveying adjacent to said stack an assembly having as its lowest member the topping lamina for said one stack with the first module of the next stack superimposed above it,
separating said topping lamina from said first module by causing relative motion between said topping lamina and the co-traveling lamina of said first module by said first step of lowering a contacting member into an interference position with respect to the module above said topping lamina, thereby allowing the unrestricted topping lamina to proceed at substantially the conveyor speed while the above module is held back, and
placing said separated topping lamina on said one stack in contact with said exposed adhesive film.

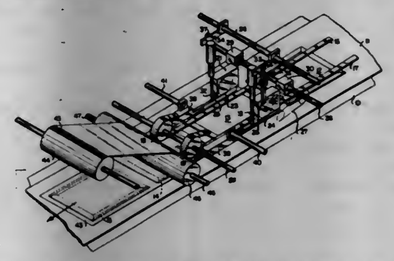
3,322,593
METHOD AND APPARATUS FOR LAMINATING FILMS
John D. Conti, Elkins Park, Pa., assignor to FMC Corporation, Philadelphia, Pa., a corporation of Delaware
Filed Oct. 8, 1965, Ser. No. 498,201
9 Claims. (Cl. 156—307)



1. A method of laminating a pair of continuous films formed of non-fibrous cellulosic materials and having a substantially dry coating of thermoplastic material on at least one side of the opposing sides thereof including the steps of continuously advancing the films relative to and in spaced relationship with the opposite sides of a stationary member which is heated to within the softening temperature of the thermoplastic material forming the coating on such one side thereof, impinging moist steam directly against the opposing sides of the continuously advancing films concomitantly with the heating thereof to thereby rapidly humidify the same, pressing the films together while maintaining the same at a temperature not greater than that to which they are originally heated to thereby provide a composite product and cooling the composite product.

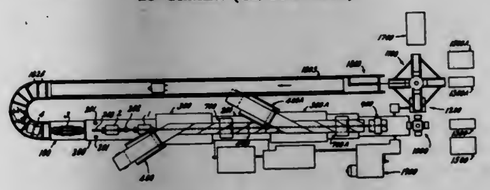
3,322,594
METHOD OF CONTROLLING THE BOND BETWEEN A PAD AND A PLASTIC SHEET
Malcolm B. Lucas, Cincinnati, Robert C. Duncan, Wyoming, and Leonard H. Sedlin, Springfield Township, Hamilton County, Ohio, assignors to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio
Filed Mar. 8, 1963, Ser. No. 263,950
4 Claims. (Cl. 156—308)

1. The process for bonding a plastic film to an absorbent pad comprising the steps of applying a narrow molten bead of a plasticized polyethylene adhesive to the pad, subjecting said bead to a fine, atomized water spray to rapidly reduce the temperature of the adhesive bead to a temperature in the range of from about 110° F. to about 140° F., thereafter and pressing together the plastic film and the absorbent pad in the area of the adhesive to produce a bond between the plastic film and the absorbent pad which has a shear strength of at least 400 grams per inch and an initial peel strength of from about 20 to about 50 grams per bead which is reduced to a peel



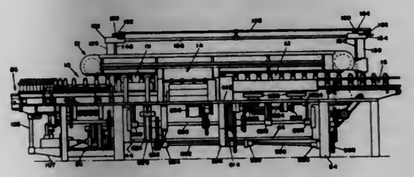
strength of from about 10 to about 20 grams per bead after peeling has been initiated.

3,322,595
TIRE CARCASS REMOVER
Sheppard A. Black, Wayne, and John D. Heide, Ramsey, N.J., assignors to Uniroyal, Inc., a corporation of New Jersey
Original application Dec. 4, 1962, Ser. No. 242,116. Divided and this application Mar. 25, 1966, Ser. No. 537,415
13 Claims. (Cl. 156—351)



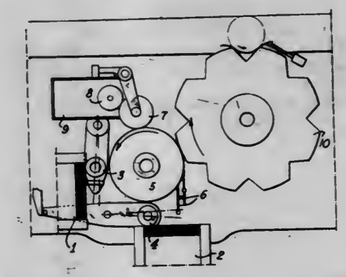
4. For use in a tire-building machine employing cylindrical drums about which tire carcasses having beaded ends are formed, a carcass remover comprising: a frame; a carriage movably supported on said frame and adapted, when moved in a first direction, to engage a beaded end of the tire carcass disposed on a fixedly supported drum; means for moving said carriage in said first direction; means for clamping said beaded end of the carcass to said carriage; and means for moving said carriage in a second direction, substantially axially away from the drum, while the beaded end of the carcass is clamped to said carriage, to thereby remove the carcass from the drum.

3,322,596
LABELING MACHINE WITH MEANS TO FEED AND LABEL ARTICLES IN GROUPS
Robert W. Vergobbi, Braintree, Arthur C. Everett, Wollaston, and Douglas R. Egles, Holbrook, Mass., assignors to Pneumatic Scale Corporation, Limited, Quincy, Mass., a corporation of Massachusetts
Filed Feb. 19, 1963, Ser. No. 259,587
52 Claims. (Cl. 156—363)



1. In a cyclically operated labeling machine, in combination, a conveyer for continuously advancing containers in predetermined spaced relation, labeling mechanism for applying labels to successive groups of a predetermined number of continuously moving spaced containers each cycle of operation, a container supply conveyer for supplying containers in a line, means for releasing successive foremost containers in the line onto said first conveyer, and means for driving said releasing means arranged to assure release of a predetermined number of containers each cycle of operation equal to the number in the group to be labeled.

3,322,597
LABELING MACHINE
Romuald R. Della Vite, Nogent-sur-Marne, France, assignor to Societe Anonyme dite: Société Francaise d'Etiquetage Virey & Garnier, Nogent-sur-Marne, France, a corporation of France
Filed Nov. 4, 1963, Ser. No. 321,054
Claims priority, application France, Nov. 8, 1962, 914,797, Patent 1,347,745
9 Claims. (Cl. 156—364)

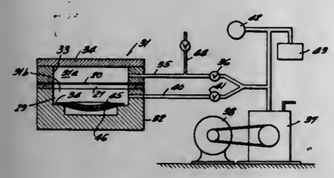


1. In a labeling machine, a device for receiving a succession of labels from a magazine and delivering them after gumming to a label-applying head, comprising:
(a) a gumming-transfer roller rotatable about an axis and adapted to deliver gummed labels to said head, said roller having at least one circumferential groove flanked by at least one pair of lands;
(b) gum-applicator means engaging the lands of said roller for coating same with a film of gum;
(c) pick-up means for receiving labels from the magazine and delivering them to said roller whereby the labels adhere to the gum-coated lands; and
(d) pressing means engageable with the labels carried by said roller prior to its delivery to said head for holding it against said lands, said pressing means including sensing means responsive to the presence of a label on said roller, pressure means juxtaposed with at least one of said lands, and mechanism coupling said sensing means with said pressure means for urging said pressure means against a label carried by said roller upon the sensing of the label.

3,322,598
LAMINATOR FOR SECURING CONTINUOUS FLEXIBLE FILM TO A BASE
Alvin M. Marks and Mortimer M. Marks, both of 153—16 10th Ave., Whitestone, N.Y. 11357
Filed Oct. 2, 1963, Ser. No. 313,299
6 Claims. (Cl. 156—382)

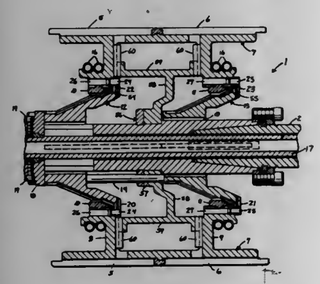
1. A laminator for securing a flexible film to a base having a concave surface, comprising a hollow support for holding the base comprising an upper hollow portion and a lower hollow portion, film holding means for securing and supporting the film at a position beyond the area to be applied to the base, means to clamp the film and its holding means in fluid tight contact between the upper and lower portion of the base support and means to apply a pressure differential across the unsupported surfaces

of the film whereby the film is first distended into tangential contact with the concave surface of the base and thereafter further distended to complete the lamination,



said pressure applying means comprising a source of vacuum attached to the upper and lower portion of the base support and means for introducing a fluid under pressure into the volume above the film.

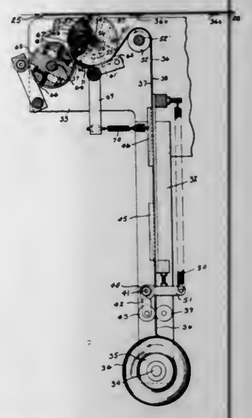
3,322,599
TIRE BUILDING DRUM
Earl L. Bishop, Cuyahoga Falls, Ohio, assignor to The Akron Standard Mold Company, Akron, Ohio, a company of Ohio
Filed Sept. 10, 1963, Ser. No. 307,830
9 Claims. (Cl. 156—417)



1. In a tire building drum having a plurality of collapsible segments adapted to be radially expanded and collapsed comprising, cam means mounted for axial movement relative to said segments, each segment including detachable, block-like cam follower elements mounted thereon and slidably engageable with said cam means, said cam follower elements being comprised of an antifriction material for free sliding coaction on said cam means, said cam follower elements being detachably connected to said segments, said cam means having a plurality of inclined, recessed keyway slots, and said cam follower elements each having correspondingly inclined key portions disposed for sliding engagement in said keyway slots, whereby axial movement of said cam means in one direction radially expands said segments and vice versa upon movement of said cam means in the opposite direction.

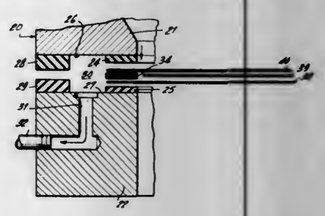
3,322,600
APPARATUS FOR APPLYING CLOSURE TAPE TO PACKAGE FORMING WEBS
Thomas L. Harrison, Menomonee Falls, and Alfred J. Backus, Oshkosh, Wis., assignors to Pratt Manufacturing Corp., Milwaukee, Wis., a corporation of Wisconsin
Filed Nov. 19, 1963, Ser. No. 324,773
10 Claims. (Cl. 156—461)

6. Apparatus for applying spaced strips of closure tape to a moving web of packaging material comprising: a tape-applying roll rotatably mounted in a position adjacent the moving web so that a peripheral portion is only partly overlapped by the edge of the web and rotatable against a portion of the web and in the same general direction, a rotatably mounted supply roll for tape, a rotatably driven feed roll positioned to feed tape to a portion of said tape-applying roll which is remote from the web with the adhesive side of the tape facing outwardly, means between said supply roll and said feed roll for folding at least one edge of the tape inwardly against the adhesive side, means for temporarily holding tape fed from said feed roll against the periphery of said tape-applying roll in a position with the folded edge portion facing outwardly and extending circumferentially of the latter roll and in a position where only part of the trans-



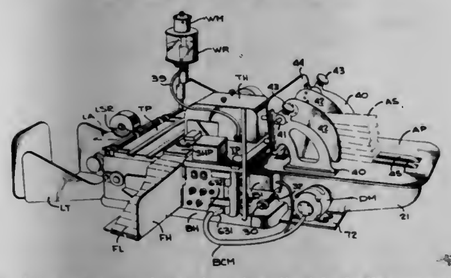
verse dimension of the tape on the applying roll will be overlapped by the web with the remaining part adapted to project laterally from the web, means positioned adjacent said tape-applying roll for periodically severing the tape transversely to provide severed strips extending transversely of the periphery of the tape-applying roll and each having an infolded end, means for temporarily holding each severed strip against the roll as it is being moved toward the web, and a control for said holding means operable to release each strip from the roll as the outwardly-facing adhesive unites with the web and with the folded end of the tape facing outwardly of the roll and extending longitudinally of the web.

3,322,601
MACHINE FOR PRODUCING LIGHT POLARIZING PANELS AND METHOD
Herbert K. Wong and John G. Yee, San Francisco, Calif., assignors to Polarized Panel Corporation, Sherman Oaks, Calif., a corporation of Delaware
Filed Aug. 31, 1962, Ser. No. 220,834
5 Claims. (Cl. 156—499)



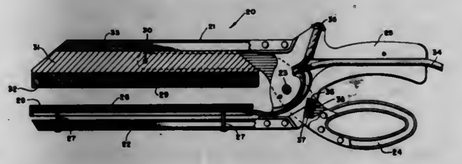
1. A machine for laminating a light transmitting top sheet, a light transmitting bottom sheet and an intermediate light polarizing member into a light polarizing panel comprising in combination a top frame member, a bottom frame member, spaced inner and outer gasket means carried by said top and bottom frame members to form a substantially air tight enclosure between the frame and members, an elongated bar disposed between the top and bottom sheets and received between the inner gasket means, a plurality of transverse bores in the said bar connecting the space between the top and bottom sheets and the space between the inner and outer gaskets, means to apply a vacuum source to the frame to substantially remove the air from between the sheets and light polarizing member, and means to apply heat to the assembly while subjected to vacuum to form a laminated light polarizing panel.

3,322,602
ARTICLE DELIVERING MACHINE
Kurt Rudolf Schneider, Bainbridge, N.Y., assignor to Eureka-Carlisle Company, a corporation of Delaware
Filed Jan. 9, 1963, Ser. No. 250,393
16 Claims. (Cl. 156—571)



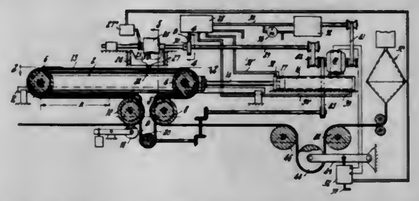
1. An apparatus of the class described including means for treating articles, means for moving the same individually along a predetermined path to the treating means, a first support for said treating and moving means, a second support for removable association with said first support, means on said second support including devices for advancing and guiding a stack of articles whereby the articles can be delivered one by one to said moving means, interengaging parts on said support for fixing their relative position when brought together, means connecting said article treating and moving means and said advancing and guiding devices to procure operation thereof in unison, said second support is shiftable transversely relative to said path while said parts are interengaged, means for shifting the second support and fixing it at a selected position relative to said path, said means includes a screw member and a half-nut member engageable with the screw member, one member being on the first support and the other member being on the second support, said members being positioned and arranged so that they are engaged when the said interengaged parts are brought together.

3,322,603
HEAT SEALING HAND TOOL
Joseph R. Grasso, 8458 Wuest, Cincinnati, Ohio 45239
Filed Apr. 20, 1964, Ser. No. 360,997
3 Claims. (Cl. 156—579)



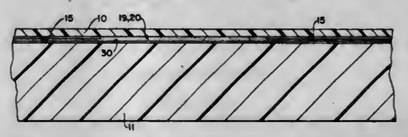
1. A heat sealing hand tool comprising a pair of pivotally mounted members respectively having handle portions which cause said members to be drawn toward each other when said handle portions are moved toward each other, a first of said members carrying a heating element, a second of said members pivotally carrying a resilient pad which cooperates with said heating element to heat seal material therebetween when said members are moved toward each other by said handle portions, said second member having guide means holding said pivotally mounted pad in a fixed position relative to said second member when said members are in an opened position and spring means tending to hold said first and second members and said handle members in an opened position.

3,322,604
MACHINE FOR ALTERING MOVING WEBS
Charles M. Schott, Jr., Gloucester, Mass., assignor, by mesne assignments, to Gloucester Engineering Co., Inc.
Filed Jan. 14, 1963, Ser. No. 251,327
14 Claims. (Cl. 156—583)



1. A machine for heat-forming articles from a running length of plastic including a die adapted to heat soften and form the plastic, at least one gathering and payout shuttle device, said shuttle device located in advance of said heating die, said shuttle device having a path sufficient in length to enable the heating die to remain in contact with the plastic for the necessary forming time, a drive nip adapted to engage and pull said plastic through the machine, and a shuttle drive means adapted to move said shuttle device in a generally straight line at a prolonged constant speed relative to the speed of the plastic, the speed relation adapted to prevent detrimental relative movement between said heating die and said plastic during the formation of said article.

3,322,605
DECORATED SHELVING FILM
Everett Bryant Frech, Charlotte, N.C., assignor to Riegel Paper Corporation, New York, N.Y., a corporation of Delaware
Filed Jan. 16, 1963, Ser. No. 251,890
9 Claims. (Cl. 161—6)



1. A printed, laminated permanently coiled shelving material comprising

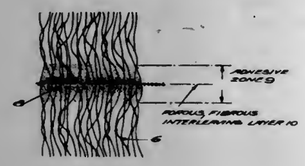
(a) a first film formed of a clear, transparent thermoplastic material,

(b) a first and discontinuous colored coating adhesively bonded to the back surface of said first film and visible from the front surface thereof,

(c) a substantially continuous coating, of a color distinctively different from the first colored coating, adhesively bonded to the discontinuously coated back surface of the first film, whereby the color of the continuous coating is exposed in predetermined uncoated areas of said discontinuous coating, from the front surface of said first film, while the back

surface of the first film is continuously covered by and generally of the color of the continuous coating,
(d) a second film formed of a clear, transparent thermoplastic material, and,
(e) a coating of adhesive bonding material interposed between said substantially continuous coating and said second film and serving to bond said films in laminated relation,
(f) said adhesive bonding material being visible from the back surface of said second film,
(g) said shelving material being permanently but elastically set in the form of coils which, when partly uncoiled, simultaneously expose both sides of the lamination.

3,322,606
DOUBLE-FACED PILE ARTICLE
Charles Richard Koller, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
Filed June 24, 1963, Ser. No. 290,213
12 Claims. (Cl. 161—67)

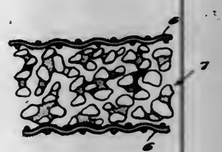


1. A breathable and drapable double-faced, pile fabric comprising a laminate of two superposed, non-woven, fibrous pile layers joined to a porous, fibrous, interleaving layer disposed between said pile layers at an interface, each of said pile layers being flexible and porous, having a fiber density of 0.3 to 8 pounds/ft.^{3}, and being composed of substantially parallelized, crimped, synthetic organic, polymeric fibers which are attached by a binder composition at a plurality of contact points throughout the three dimensions of each of the said pile layers, the density of fibers in each said pile layer exceeding the density of binder composition therein, the two faces of each of said pile layers being composed essentially of opposite ends of said fibers, said interface comprising a fiber end face of each of said pile layers in direct contact with the said interleaving layer and being secured thereto by a non-fugitive adhesive composition dispersed in a discontinuous manner within a zone running parallel to and adjacent to each of said fiber end faces and acting to bond fibers of said pile layers to said interleaving layer at a plurality of contact points.

3,322,607
LUBRICATED POLYPROPYLENE POLYETHYLENE SELF-BONDED NONWOVEN CARPET BACKING
Shee Lup Jung, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Aug. 17, 1964, Ser. No. 390,199
10 Claims. (Cl. 161—67)

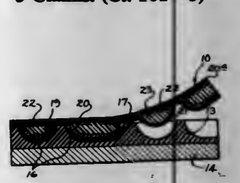
1. A lubricated self-bonded nonwoven sheet of randomly dispersed, overlapping and intersecting highly crystalline and oriented synthetic continuous filaments of polymers of the group consisting of isotactic polypropylene, linear polyethylene, crystalline copolymers of at least 75% propylene or ethylene with up to 25% by weight of other copolymerizable monomers and mixtures of isotactic polypropylene or linear polyethylene with up to 25% by weight of other polymers, said filaments having a denier between 3 and 15 and being substantially separate and independent from each other throughout the sheet except at crossover points, the said filaments being self-bonded at a multiplicity of such intersection points and possessing a birefringence that is at least 40% of the maximum birefringence, said sheet having an average edge bond count of between about 30 and 80 bonds per 100 filaments and containing from about 0.3% to about 5% by weight of a lubricant that is inert to the filaments, said lubricant being selected from the group consisting of methyl hydrogen polysiloxane, dimethyl polysiloxane, 2-ethylhexyl silicate, 2-ethylhexyl sebacate, dioctyl sebacate, acetyl 2-ethylhexyl citrate, refined coconut oil, potassium oleate, potassium n-octyl phosphates, diethanolamine salts of C_8–C_{12} alkyl hydrogen phosphates and mixed n-octyl β-hydroxy-ethyl esters of phosphoric acid.

3,322,608
AERATING MEDIA
John F. Mason and Robert B. Emery, both of Duncan, Okla., assignors to Halliburton Company, Duncan, Okla., a corporation of Delaware
Filed Sept. 16, 1965, Ser. No. 487,794
2 Claims. (Cl. 161—57)



1. A gas permeable aeration plate comprising a plurality of sand grains, polytetrafluoroethylene resin interspersed between and bonding the sand grains to give a coherent gas permeable plate having minute interconnected passages formed therethrough, said sand grains being randomly distributed throughout said plate and occupying at least half of the combined volume of sand and resin and a metal screen bonded to at least one side of said permeable plate.

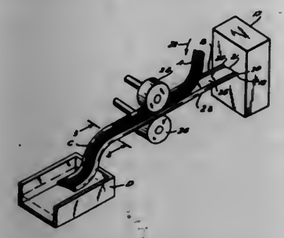
3,322,609
BUILDING FACING MATERIAL
Alex Vida, 537 Kansas St., San Francisco, Calif. 94107
Filed Mar. 7, 1963, Ser. No. 263,548
3 Claims. (Cl. 161—5)



1. A decorative sheet building material comprising:
an integral backing layer of plastic material having a plurality of spaced apart raised portions on its upper side arranged in a predetermined pattern, said portions being separated by and extending above simulated grout areas having a substantially uniform layer thickness;
an exposed outer layer of a relatively uniform thickness comprising a hard, relatively clear plastic material covering each of said raised portions but not said grout areas, said clear plastic material having a rough and absorbent interior surface;

and a relatively thin intermediate layer of colored resin material on said rough interior surface between said exposed plastic material and said backing layer distributed on at least some of said raised portions, whereby said building material has a hard durable embossed surface with said raised portion providing a non-repeating color pattern separated by simulated grout areas of uniform color.

3,322,610
REINFORCED PLASTIC STRIPPING AND METHOD FOR MAKING SAME
Charles Brooks and Thomas A. Sutton, Forest Hills, N.Y., assignors to Cee-Bee Manufacturing Company, Inc., Brooklyn, N.Y., a corporation of New York
Filed July 23, 1962, Ser. No. 211,748
10 Claims. (Cl. 161—118)



1. A reinforced extruded shaped plastic polyethylene sheet material in hot extruded plastic softened condition at about 400 to 500° F. and substantially devoid of plasticizers and containing 10 to 35% of synthetic rubber polymer, having laminated on the hot extruded surface a thin plastic metallized sheet of polyethylene terephthalate.

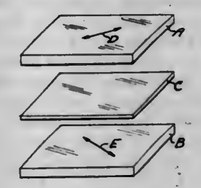
3,322,611
POROUS FIBERS AND PROCESSES OF PREPARING SAME
Halsey Bidwell Stevenson, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Oct. 19, 1962, Ser. No. 231,856
6 Claims. (Cl. 161—178)

1. An opaque filament of small cross-section composed of a hydrophobic dimethylformamide-soluble vinyl chloride addition polymer containing a major amount of vinyl chloride, said filament
(a) having an open cell structure characterized by microscopic open cell voids intercommunicating and communicating with the surface of the filament, and
(b) having an apparent density of 0.15 to 0.35.

3,322,612
LAMINATE ADHERED BY THERMOPLASTIC FIRE-RETARDANT SULFOCHLORINATED LINEAR POLYETHYLENE
Richard Henry Burd, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware
No Drawing. Filed Sept. 11, 1962, Ser. No. 222,947
5 Claims. (Cl. 161—227)

1. In a structure wherein a solid substrate layer of polyethylene terephthalate, polyolefin, polyamide or cotton is laminated to a coating layer of a sulfochlorinated polyethylene containing, per 100 parts of the latter, about 4 to 8 parts of magnesium oxide, about 30 to 40 parts of titanium dioxide, about 3 to 5 parts of polyalkyleneether glycol having a molecular weight of about 4,000, and about 20 to 35 parts of soft clay, *the improvement* wherein (I) said sulfochlorinated polyethylene is linear and thermoplastic containing from 23% to 28% chlorine and 0.9% to 1.1% sulfur, and (II) the following combination of ingredients is also present in said coating layer: about 30 to 40 parts of antimony silico oxide pigment, and about 3 to 5 parts of tris(2,3-dibromopropyl)phosphate.

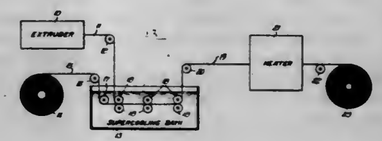
3,322,613
LAMINATED SHEET MATERIAL
Ole-Bendt Rasmussen, Birkerod, Denmark, assignor to Phillips Petroleum Company, a corporation of Delaware
Filed Feb. 11, 1963, Ser. No. 257,669
5 Claims. (Cl. 161—234)



1. A laminated film, comprising at least two unilinearly oriented layers of a material selected from the group of the linear, saturated, highly crystalline and spherolite-forming superpolymerisates, consisting of nylon, terephthalic acid polyesters, polyethylene, isotatic polypropylene and polyvinylidene chloride, the orientation of which has been carried out by stretching at a temperature far below the crystal melting point, and the directions of orientation of adjacent layers forming an angle with one another, said layers being flexibly bonded together by means of a pressure-sensitive adhesive.

3. The laminated film of claim 1, in which the layers are made from 90% by weight of polyethylene and 10% by weight of polyisobutylene, and the adhesive is a mixture of a polyvinylbutyl ether with 20 to 30% by weight of a microcrystalline mineral wax.

3,322,614
LAMINATED PACKAGING MATERIAL AND METHOD OF FORMING SAME
Oscar E. Selferth, Paul E. Grisdrod, Forrest D. Hamm, Robert L. Goller, and Maurice J. Gifford, Madison, Wis., assignors to Oscar Mayer & Co., Inc., Chicago, Ill., a corporation of Illinois
Filed Mar. 21, 1963, Ser. No. 267,026
7 Claims. (Cl. 161—254)



1. Laminated stock for packaging use, said stock comprising at least one laminant of flexible polyvinylidene chloride film adhered to another laminant of dissimilar plastic material, said polyvinylidene chloride film having been adhered to said other laminant while said film is in an amorphous condition without any substantial attendant stretching, said polyvinylidene chloride film being crystallized with substantially random crystal distribution throughout, said laminants being adhered through a thin film of plasticizer extending between the same and compatible with said laminants.

3,322,615

DISAGGREGATING AGENTS DERIVED FROM UNSATURATED HYDROCARBONS OF PETROLEUM FRACTIONS FOR MANUFACTURING PAPER AND PULP

Shoichi Kamiya, 257—56 Kamoecho, Hamamatsu-shi, Japan

No Drawing. Filed Oct. 31, 1963, Ser. No. 320,513
Claims priority, application Japan, Feb. 26, 1963, 38/8,485; Mar. 15, 1963, 38/12,424
3 Claims. (Cl. 162—72)

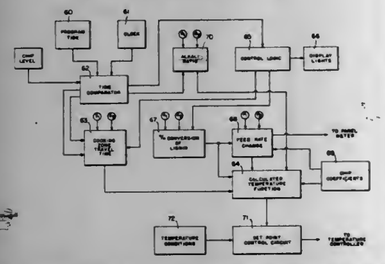
3. A wood-digesting agent comprising compositions of matter obtained by reacting petroleum fractions higher than middle oil with concentrated sulfuric acid to form a mixture of sulfide, sulfinic acid, and sulfonic acid of hydrocarbons, neutralizing the resultant solution with sodium hydroxide solution, separating oily matter from neutral solution, adding sodium sulfide in an amount from 10 to 15 percent by weight of the sodium hydroxide used in neutralization, ammonium sulfate in an amount 2 percent by weight of the sodium hydroxide used in neutralization and sodium sulfite in an amount 1 percent by weight of the sodium hydroxide used in neutralization, further controlling pH at higher than 8 by addition of sodium hydroxide solution and drying at reduced pressure.

3,322,616

PULP DIGESTER CONTROL APPARATUS

Robert M. Hutchinson, Havertown, and Daniel S. Hoag, Lionville, Pa., assignors to Honeywell Inc., a corporation of Delaware

Filed July 12, 1963, Ser. No. 294,582
6 Claims. (Cl. 162—238)



1. A continuous digester process system for cellulosic chips comprising a digester having an input for receiving material to be digested and digesting liquor and an output for continuously delivering digested pulp, a heat exchange apparatus for heating and circulating said digesting liquor, a temperature controller operative to control said heat exchange apparatus to produce a desired temperature of circulated liquor in response to a temperature set-point signal, and controller means operative to compute a set-point signal for said controller and operating with input signals corresponding to the desired digester operating characteristics, timing means for indicating an operation duration and supplying such indication as an input signal to said controller means, delignification indicating means supplying an input signal to said controller means, and means for supplying a signal indicative of a permanganate number of said cellulosic chips as an input signal to said controller means.

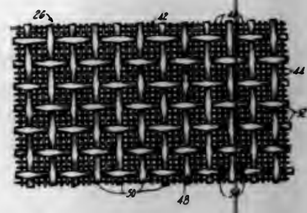
3,322,617

PAPER MAKING APPARATUS TO FORM PAPER WITH A SIMULATED WOVEN TEXTURE

Fay H. Osborne, Windsor Locks, Conn., assignor to The Dexter Corporation, a corporation of Connecticut

Filed May 22, 1964, Ser. No. 369,420
8 Claims. (Cl. 162—296)

7. In a papermaking machine for forming a nonwoven fabric by the deposition of an aqueous dispersion of fibers on a screen assembly, the combination wherein the fiber-receiving screen assembly comprises a first base screen member adapted to permit the passage therethrough of a dispersing medium and to accumulate thereon substantially all of the dispersed fibers coming in contact therewith, and a second substantially coarser molding screen



member superimposed on and in intimate physical contact with said first screen member, said second screen being positioned closer to the dispersion than the first screen during fiber accumulation and being configured to facilitate both the deposition thereon of a portion of the accumulated fibers and the passage therethrough of the remainder of said fibers for accumulation by said first screen member.

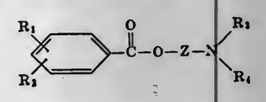
3,322,618

FUNGICIDAL COMPOSITIONS AND METHODS

Harold M. Taylor, Indianapolis, Ind., assignor to Eli Lilly and Company, Indianapolis, Ind., a corporation of Indiana

No Drawing. Filed Apr. 16, 1963, Ser. No. 273,282
11 Claims. (Cl. 167—30)

1. A method for protecting plants from attack by fungi which comprises contacting a fungus-susceptible plant with a fungicidal amount of a substance selected from the group consisting of a compound having the following formula and the acid-addition salts thereof:



wherein R_1 and R_2 are halogen; R_3 and R_4 when taken separately are selected from the group consisting of C_1–C_8 alkyl and C_1–C_4 alkenyl; R_3 and R_4, when taken together with the nitrogen atom to which they are attached, represent a radical selected from the group consisting of morpholino, C_4–C_5 polymethyleneimino, and lower-alkyl substituted C_4–C_5 polymethyleneimino; and Z is selected from the group consisting of C_2–C_{10} saturated alkylene, C_2–C_{10} unsaturated alkylene, C_2–C_{10} oxaalkylene, and C_2–C_{10} thiaalkylene.

3,322,619

METHOD FOR KILLING INSECTS WITH ALKYL CYCLOHEXANONE

David E. Graham, Westfield, N.J., and Abdul Munim Nashu, New Haven, Conn., assignors to General Aniline & Film Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed June 19, 1963, Ser. No. 288,912
5 Claims. (Cl. 167—30)

1. A method for killing insects which comprises contacting said insects with a compound selected from the group consisting of ortho- and para-alkyl cyclohexanone containing from 8 through 12 carbons in the alkyl group.

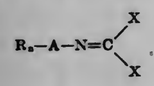
3,322,620

COMPOSITIONS AND METHODS FOR CONTROLLING FUNGI WITH ISOCYANIDE DIHALIDES

Paul-Ernst Frohberger, Burscheid, Bezirk, Dusseldorf, and Engelbert Kühle, Cologne-Stammheim, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a German corporation

No Drawing. Filed July 30, 1963, Ser. No. 298,563
Claims priority, application Germany, Aug. 1, 1962, F 37,483
20 Claims. (Cl. 167—30)

19. A method for controlling fungi, which comprises applying to said fungi a fungicidal amount of a compound of the formula

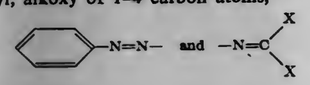


wherein

X is a member selected from the group consisting of chloro and bromo;

A is a member selected from the group consisting of phenyl, naphthyl and cyclohexyl;

R is a member selected from the group consisting of chloro, bromo, fluoro, nitro, alkyl of 1–4 carbon atoms, haloalkyl of 1–4 carbon atoms, phenyl, halophenyl, alkoxy of 1–4 carbon atoms,



and

n is an integer of 0–5.

3,322,621

THIXOTROPIC QUATERNARY AMMONIUM AROMATIC CYCLIC IMIDES

William J. Shibe, Jr., Riverton, N.J., and Marcus Sittenfield, Philadelphia, Pa., assignors to Hollichem Corporation, Camden, N.J., a corporation of New Jersey

No Drawing. Original application Jan. 16, 1962, Ser. No. 166,699, now Patent No. 3,133,072, dated May 12, 1964. Divided and this application Apr. 3, 1964, Ser. No. 357,301
3 Claims. (Cl. 167—33)

1. A method of increasing the viscosity of an aqueous composition which comprises incorporating into the composition a quaternary ammonium aromatic cyclic imide wherein the quaternary ammonium cation has the formula:



wherein a is a long-chain alkyl having at least 14 carbon atoms in the chain and b, c and d are lower alkyls having from 1 to 5 carbon atoms in the chain, and wherein the aromatic cyclic imide anion is a member of the group consisting of phthalimide, naphthalimide, benzoxazolinone and benzothiazolinone, the aromatic portion of said anion being substituted by a member of the group consisting of hydrogen, halide, lower alkyl and lower alkoxy, there being a direct electro-valent linkage between the quaternary ammonium cation and the aromatic cyclic imide anion.

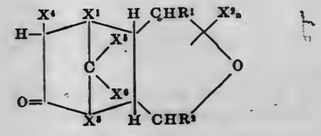
3,322,622

METHODS FOR CONTROLLING INSECTS WITH TRICYCLIC KETONES

Paul E. Hoch, Youngstown, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York

No Drawing. Filed Nov. 26, 1965, Ser. No. 510,072
12 Claims. (Cl. 167—33)

1. A method for the control of insects which comprises applying to the locus to be treated an insecticidal amount of a compound of the formula



wherein X^1, X^3, X^5, and X^6 are selected from the group consisting of hydrogen, halogen, alkyl, alkenyl, halogenated alkyl, and halogenated alkenyl; said alkyl, alkenyl, halogenated alkyl, and halogenated alkenyl containing from 1 to about 18 carbon atoms;

X^4 is selected from the group consisting of hydrogen and halogen;

X^2 is a halogen atom; R^1 and R^2 are selected from the group consisting of hydrogen, alkyl of from 1 to about 18 carbon atoms, and halogenated alkyl of from 1 to about 18 carbon atoms;

n is a number from 0 to 4;

at least two of said X^1, X^3, X^5, and X^6 substituents being halogen.

3,322,623

METHOD OF INHIBITING ROACH INFESTATION IN WASTE DISPOSAL SYSTEMS WITH ELECTROSTATIC BENTONITE-PESTICIDE COMPOSITION

Peter P. Doakley, 500 W. Georgia Ave., Phoenix, Ariz. 85013

Filed Nov. 12, 1964, Ser. No. 410,370
4 Claims. (Cl. 167—39)

1. A method of inhibiting roach infestation in waste disposal systems comprising contacting interior surfaces and interstices of said systems with a lyophobic extrinsic colloidal aerosol comprising air as the continuous phase and a disperse phase of electrostatically charged particles of a composition comprising bentonite dust on which has been adsorbed 2–20% of a pesticide selected from the class consisting of

1-naphthyl-N-methyl carbamate,
1,1-bis(chlorophenyl)-2,2,2-trichloroethanol,
diethyl - mercaptosuccinate - O,O - dimethyl - phosphorodithioate,
2-(p-tert-butyl-phenoxy)isopropyl 2-chloroethyl sulfite, and
2,4,5,4'-tetrachlorodiphenylsulfone.

3,322,624

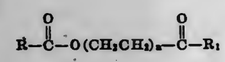
LOW TEMPERATURE RESISTANT AEROSOL ANESTHETIC PREPARATION CONTAINING BENZOCAINE

Raymond A. Stone, Chicago, Ill., assignor to Arnar-Stone Laboratories, Inc., Mount Prospect, Ill., a corporation of Illinois

No Drawing. Filed Oct. 1, 1964, Ser. No. 400,949
11 Claims. (Cl. 167—52)

1. A liquid anesthetic preparation in an aerosol container, said preparation consisting essentially of a single phase mixture of a liquefied chlorofluoroalkane propellant and a solution of benzocaine in a polyethylene glycol diester solvent, said propellant being selected from the group consisting of dichlorodifluoromethane, and mixtures of dichlorodifluoromethane with trichlorofluoromethane, at least 1.5 parts by weight of said propellant being employed per part of said solvent, said propellant containing at least 70% by weight of dichlorodifluoromethane, said solution of said benzocaine in said solvent containing at least 10% benzocaine by weight, said

solvent consisting essentially of polyethylene glycol diesters at least 90% by weight of which diesters are represented by the formula



wherein *n* is an integer from 7 to 15 and R and R_1 are alkyls containing from 7 to 11 carbons.

3,322,625

COMPOSITIONS AND METHODS FOR RELIEVING BRONCHIAL CONGESTION

Roy E. Shimmin, 30 Derwent Drive, Maidenhead, England

No Drawing. Filed Nov. 15, 1965, Ser. No. 507,701
Claims priority, application Great Britain, Nov. 19, 1964, 47,105/64
6 Claims. (Cl. 167—54)

1. An aerosol composition comprising a dispersion of a bronchodilator drug and an acid addition salt of a lower alkyl ester of cysteine in a liquid medium comprising a nontoxic volatile halogenated lower alkane propellant.

3,322,626

MEDICINAL COMPOSITION FOR TREATING ACNE AND METHOD OF USING SAME

Russell N. D'Argento, Waltham, Mass., assignor to Pannett Products Inc., New York, N.Y., a corporation of New York

No Drawing. Continuation of application Ser. No. 746,338, July 3, 1958. This application June 13, 1963, Ser. No. 287,480
8 Claims. (Cl. 167—55)

1. A medicinal composition useful in the treatment of acne when taken internally by oral administration thereof, comprising: a vitamin agent mixture of vitamin A and vitamin C, said vitamin agent being releasable in the stomach for maintaining the normal vitality of epithelial tissue, and an agent for improving the digestion of fats and fatty proteins which comprises pancreatin and bile salts, said pancreatin and bile salts being enteric coated so as to be releasable in the intestine.

3,322,627

METHOD OF TREATING HERPES SIMPLEX INFECTIONS WITH 5-METHYLAMINO-2'-DEOXYURIDINE, AND COMPOSITIONS THEREFOR

Tsung-Ying Shen, Westfield, N.J., assignor to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed Sept. 3, 1964, Ser. No. 394,336
17 Claims. (Cl. 167—59)

1. The method for treating herpes simplex eye infections which comprises contacting a host animal affected with a herpes simplex eye infection at the infected site with a chemotherapeutically effective amount of a compound selected from the group consisting of 5-methylamino-2'-deoxy uridine, its 3',5'-di-O-acylated derivatives, and opthalmically acceptable acid addition salts thereof.

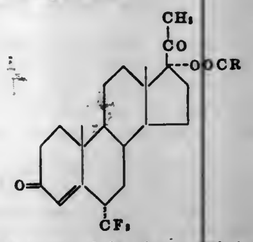
3,322,628

METHOD OF TREATMENT OF HEADACHES

Helge Lund-Rasmussen, Gentofte, Denmark, assignor to Løvens Kemiske Fabrik, Produktionsaktieselskab, Ballerup, Denmark

No Drawing. Filed June 1, 1964, Ser. No. 371,743
Claims priority, application Great Britain, Jan. 27, 1964, 3,457/64
6 Claims. (Cl. 167—65)

1. The method of treating migraine in men and women, which comprises administering into the body from 5 to 50 mg. per day of a member of the group selected from 17-esters of 6α-trifluoromethyl-17α-hydroxyprogesterone having the following formula:



in which R is a group of the class consisting of hydrogen and non-cyclic lower alkyl containing less than 7 carbon atoms.

3,322,629

INJECTABLE AQUEOUS SOLUTIONS CONTAINING A PROTAMINE-ACTIVE COMPOUND

Wilfred James Cecil Dyke, Upton-by-Chester, England, assignor to Evans Medical Limited, Liverpool, Lancashire, England, a British company

No Drawing. Filed June 8, 1964, Ser. No. 373,518
Claims priority, application Great Britain, June 14, 1963, 23,827/63
13 Claims. (Cl. 167—65)

1. A pharmaceutical composition comprising a sterile aqueous solution containing at least 1.0% by weight calculated as free base of a protamine-active compound selected from the class consisting of protamine and its physiologically compatible acid addition salts and also containing a water-soluble physiologically compatible hydroxy compound selected from the group consisting of mono- and di-saccharides and sugar alcohols derived from monosaccharides as solubilising agent.

3,322,630

METHOD OF POTENTIATING CATECHOLAMINE DEPLETION

Curt C. Porter, Glenside, Pa., assignor to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed June 30, 1965, Ser. No. 468,631
7 Claims. (Cl. 167—65)

1. A method of more effectively depleting catecholamines in mammalian tissues which comprises the coadministration of at least 30 mg./kg., based on the body weight of the mammal, of d-α-methyl-p-tyrosine and at least a minimal effective dose for the tissue to be depleted of a catecholamine depleting compound selected from the group consisting of l or dl-α-methyl-3,4-dihydroxyphenylalanine, l or dl-α-methyl-m-tyrosine and 2-(2,4,5-trihydroxyphenyl)ethylamine.

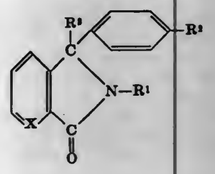
3,322,631

METHOD OF TREATMENT OF HYPERTENSION

James M. Sprague, Gwynedd Valley, Frederick C. Novello, Berwyn, and Albert A. Deana, Lansdale, Pa., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed June 30, 1965, Ser. No. 468,632
7 Claims. (Cl. 167—65)

1. A method of reducing mammalian blood pressure which comprises administration to a mammal of 50 to 500 mg. three to four times a day of a compound of the structure



in which

X is one of the group consisting of —CH= or —N=;
R^1 is one of the group consisting of hydrogen, lower alkyl or di(lower alkyl) amino lower alkyl;
R^2 is one of the group consisting of halogen, di(lower alkyl) amino or CF_3; and
R^3 is one of the group consisting of hydrogen, anilino, piperidino, pyrrolidino, benzylamino, morpholino, hydroxy, lower alkoxy, phenoxy, benzyloxy, or halogeno lower alkoxy;

together with a pharmaceutically acceptable carrier.

3,322,632

PROCESS FOR STABILIZING BIOLOGICALLY ACTIVE MATERIALS WITH MODIFIED COLLAGEN HYDROLYZATE

Hans Gerhard Schwick and Hans Schweinsberg, Marburg (Lahn), Germany, assignors to Behringwerke Aktiengesellschaft, Marburg (Lahn), Germany, a corporation of Germany

No Drawing. Filed Dec. 20, 1963, Ser. No. 332,994
Claims priority, application Germany, Dec. 21, 1962, B 70,095
6 Claims. (Cl. 167—78)

4. A biologically active material stabilized with 0.5 to 5.0 percent of modified collagen hydrolyzate containing cross-linking urea-alkylene-urea groups and having a molecular weight in the range of about 15,000 to 60,000.

3,322,633

PHARMACEUTICAL PREPARATIONS

Johan R. A. Simoons, Sao Paulo, Brazil, assignor to N. V. Koninklijke Pharmaceutische Fabrieken v/h Brocades-Stheeman & Pharmacia, Amsterdam, Netherlands

No Drawing. Filed Jan. 11, 1965, Ser. No. 424,844
Claims priority, application Netherlands, Feb. 24, 1961, 261,631
3 Claims. (Cl. 167—82)

1. A process for the preparation of a prolonged acting pharmaceutical composition which comprises the steps of (1) intimately admixing a pharmacologically active material with (a) an inert, insoluble matrix-forming substance selected from the group consisting of

$$CaSO_4 \cdot \tfrac{1}{2}H_2O$$

anhydrous calcium phosphate, and a mineral mixture consisting essential of 70–75% Al_2O_3, 3–4% Fe_2O_3, 11–12% SiO_2, 3–4% TiO_2 and 4–6% volatile material, and mixtures of $CaSO_4 \cdot \tfrac{1}{2}H_2O$ and said mineral mixture; (b) a hydrophobic substance selected from the group consisting of non-hydrophilic salts of metals selected from the group consisting of alkaline earth metals and aluminum; (c) a binding agent selected from the group consisting of methyl cellulose, ethyl cellulose, polyvinyl acetate, polyvinyl pyrrolidone, cellulose acetate, zein, kafirin, hordenine, gliadin and mixtures thereof, said active material and ingredients (a) to (c) all having substantially the same particle size, (2) wetting said intimate admixture with a granulating agent comprising an alcoholic solution of a member selected from the group consisting of colophonium, a mixture of colophonium and polyvinyl pyrrolidone, and a mixture of colophonium and polyethyleneglycol, whereby a mixture of said inert, insoluble substance is formed having embedded therein the other ingredients, and (3) drying and recovering the matrix so obtained in a pharmaceutically useful form.

3,322,634

METHOD OF BONDING PROTEIN ANTIGEN TO MAMMALIAN RED BLOOD CELLS

Arthur James Fulthorpe, London, England, assignor to Burroughs Wellcome & Co. (U.S.A.) Inc., Tuckahoe, N.Y., a corporation of New York

No Drawing. Filed May 29, 1963, Ser. No. 283,980
Claims priority, application Great Britain, June 6, 1962, 21,976/62; Aug. 22, 1962, 32,345/62; Republic of South Africa, Jan. 7, 1963, 63/72
3 Claims. (Cl. 167—84.5)

1. The method of bonding a protein antigen to a mammalian red blood cell, comprising treating the red blood cells with a bonding agent selected from the class consisting of phenols and quinones of molecular weight under 200, and then adding a protein antigen to the red blood cells thus treated by the bonding agent.

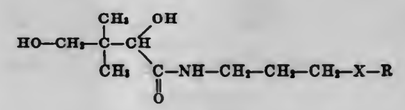
3,322,635

COSMETIC COMPOSITION EXHIBITING PANTOTHENIC ACID ACTIVITY

Gustav Erlemann, Riehen, Waldemar Guex, Vandoeuvres, Geneva, and Otto Schnider, Basel, Switzerland, assignors to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey

No Drawing. Original application Apr. 16, 1963, Ser. No. 273,271, now Patent No. 3,230,228, dated Jan. 18, 1966. Divided and this application Nov. 10, 1964, Ser. No. 410,293
Claims priority, application Switzerland, Mar. 30, 1961, 3,803/61
4 Claims. (Cl. 167—90)

1. A cosmetic composition exhibiting pantothenic acid activity comprising (a) as the active ingredient a compound having the formula



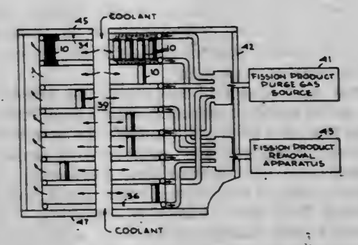
wherein X is a member selected from the group consisting of oxygen and sulfur atoms and R is a member selected from the group consisting of straight chain C_1–C_{18} alkyl, C_1–C_{20} alkenyl, diloweralkylaminoloweralkyl, tetrahydrofurfuryl, β-pyridylmethyl, menthyl, and guaiacyl, and (b) cosmetic excipients.

3,322,636

BREEDER NUCLEAR REACTOR

Glendon M. Benson, Danville, Calif., assignor to Physics International Company, Berkeley, Calif., a corporation of California

Filed July 22, 1964, Ser. No. 384,358
10 Claims. (Cl. 176—18)



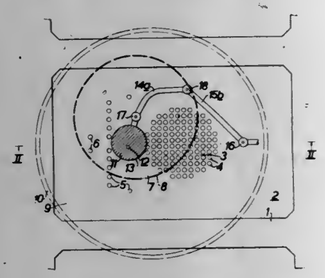
1. A breeder nuclear reactor comprising a plurality of fuel elements, each fuel element being rod shaped and

having a hole extending through the longitudinal axis thereof, each fuel element having homogenously dispersed therethrough a fissile fuel and a fertile fuel, means for holding said plurality of fuel elements substantially parallel, spaced from one another and in several layers comprising a plurality of spaced plates having an axis of symmetry and a hole through all of said plates through said axis of symmetry, said plurality of spaced plates having a plurality of aligned openings therein for supporting therebetween said plurality of fuel elements, a source of a coolant gas, means for circulating said coolant gas from said source up through the axis of symmetry and outward between the plurality of spaced plates to the outside edges of said spaced plates for return therefrom to said source of coolant gas, said fuel element holes having a non-communicating relationship with said coolant gas source, an inner container comprising a compressive graphite fiber wound shell enclosing said plurality of spaced plates, and a high density concrete shield enclosing said compressive graphite fiber wound shell.

3,322,637
NUCLEAR REACTOR REFUELLING INSTALLATION

John Ernest Middleton, Culcheth, Warrington, and David Colin Emerson, Appleton, Warrington, England, assignors to United Kingdom Atomic Energy Authority, London, England

Filed Apr. 12, 1965, Ser. No. 447,312
Claims priority, application Great Britain, May 13, 1964, 20,024/64
1 Claim. (Cl. 176—30)

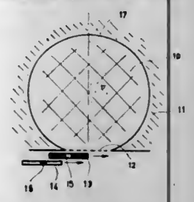


A nuclear reactor installation comprising:
a nuclear core having access openings for insertion and withdrawal of fuel elements,
a refuelling machine disposed above said core and adapted to be connected to said access openings,
a first rotatable circular shield member for supporting said refuelling machine eccentrically to the rotational axis of said member,
a second rotatable circular shield member having an aperture disposed eccentrically to the rotational axis of said second member and within which aperture said first member is rotatable,
at least one linked fluid flow connection extending from a sealed pivotal connection with a fluid flow conducting pipe at a fixed point outside the perimeter of the second circular shield member to a sealed pivotal connection with a fluid flow conducting pipe at a fixed point on said first circular shield member, said linked fluid flow connection consisting of first and second links interconnected by a sealed pivotal connection defining an elbow, at least said second link being deflected from the straight line between said elbow and said fixed point on said first circular shield member in the plane of movement of said second link.

3,322,638
NEUTRON SOURCE FORMED AS A FAST PULSED REACTOR

Gustav Kistner, Gavirate, Herbert Meister, Ispra, and Victor Raievski, Varese, Italy, assignors to European Atomic Energy Community—Euratom, Brussels, Belgium

Filed July 10, 1964, Ser. No. 381,637
Claims priority, application Germany, Aug. 15, 1963, E 25,344
4 Claims. (Cl. 176—33)

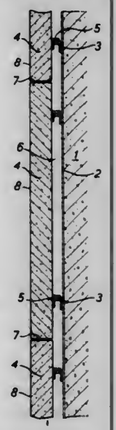


1. In a fast reactor used as a pulse neutron source wherein the reactor core is located in a reflector, said reflector provided with a neutron outlet window, a pre-pulse screen and an excess-pulse screen having synchronized movements and movable in overlapping relationship in front of the window, said screens composed of reactivity increasing materials for pulsing the reactivity, means to operate the pre-pulse screen to bring the reactivity up to the vicinity of the critical point and simultaneously to pulse the reactivity above the prompt critical point by movement of the excess-pulse screen; the improvement comprising means defining at least one small slot through the pre-pulse screen for the passage of the neutrons projecting through said window, the excess-pulse screen being formed of said reactivity increasing material only in the zone on said excess-pulse screen defined by the slot when the screens overlap.

3,322,639
NUCLEAR REACTORS

Ian Davidson, Appleton, Warrington, England, assignor to United Kingdom Atomic Energy Authority, London, England

Filed Aug. 12, 1965, Ser. No. 479,246
Claims priority, application Great Britain, Aug. 20, 1964, 34,065/64
2 Claims. (Cl. 176—44)



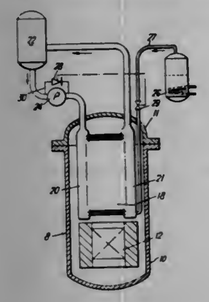
1. In a liquid moderated, liquid cooled nuclear reactor, a prestressed concrete pressure vessel containing the reactor core and with the liquid moderator/coolant in contact with the internal surface of the vessel, the vessel

having an internal metal lining in contact with the internal surface of the concrete thereof, thermal insulation members disposed adjacent to but spaced from said metal lining, said thermal insulation members being separated from one another by gaps of such width as to allow restricted communication between that part of the vessel interior which contains the reactor core and the space between the thermal insulation members and the metal lining of the vessel, whereby liquid moderator/coolant is allowed, by virtue of said restricted communication, to occupy said space without said thermal insulation members being subjected to differential pressure, the restricted communication being such as substantially to prevent heat transfer by convection between the main body of moderator/coolant liquid and the moderator/coolant liquid in said space.

3,322,640
INTEGRATED STEAM GENERATING NUCLEAR REACTOR SYSTEM

John Heathcote, London, England, assignor to United Kingdom Atomic Energy Authority, London, England

Filed June 29, 1965, Ser. No. 468,037
Claims priority, application Great Britain, June 29, 1964, 26,820/64
4 Claims. (Cl. 176—53)



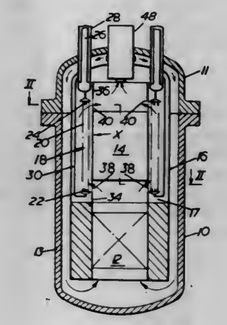
1. An integrated steam generating nuclear reactor system of the type wherein heating surfaces at which the steam is generated are housed in the same vessel as a core of the reactor and are heated by a primary coolant passed through the core, said system comprising steam generating tubes constituting the heating surfaces, inlet and outlet headers between which the steam generating tubes extend, said headers being connected to a steam circuit external to the vessel, and circulating pump means for circulating steam through the system, an auxiliary boiler means for providing a store of steam under pressure, and means for selectively introducing a flow of the steam stored in the auxiliary boiler means into the said outlet header to promote flow through the steam generating tubes in the event that the circulating pump means fails to circulate steam through the system.

3,322,641
INTEGRATED NUCLEAR REACTOR-STEAM GENERATOR

Malcolm Richard Williamson, Slough, England, and Albert Geoffrey Wood, Montreal, Quebec, Canada, assignors to United Kingdom Atomic Energy Authority, London, England

Filed June 29, 1965, Ser. No. 468,039
Claims priority, application Great Britain, June 29, 1964, 26,821/64
7 Claims. (Cl. 176—54)

1. An integrated nuclear reactor/steam generator system of the type wherein heating surfaces at which the steam is generated are housed in the same vessel as a core of the reactor and are heated by a primary coolant passed through the core, said system comprising chamber-defining means situated internally in the upper part of the vessel to form a chamber having a vertical axis, radially extending partitions dividing the chamber into several compartments, steam generating tube banks disposed respectively in the compartments and collectively constituting the heating surfaces at which the steam is gen-

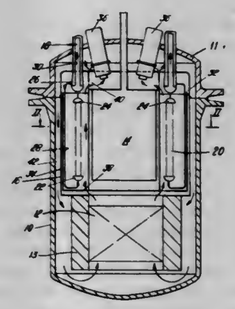


erated, the tubes of said banks extending straight and substantially parallel to the chamber axis, and primary coolant inlet and outlet openings respectively adjacent opposite extremities of each compartment for directing primary coolant over the tubes in the compartments, the inlet and outlet openings of each compartment being offset relative to one another when viewed in the direction of the chamber axis to give the primary coolant a cross flow component over the steam generating tubes.

3,322,642
INTEGRATED NUCLEAR REACTOR-STEAM GENERATOR

Malcolm Richard Williamson, Slough, England, assignor to United Kingdom Atomic Energy Authority, London, England

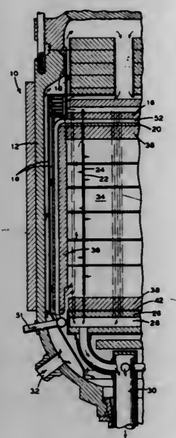
Filed June 29, 1965, Ser. No. 468,063
Claims priority, application Great Britain, June 29, 1964, 26,822/64
2 Claims. (Cl. 176—54)



1. An integrated nuclear reactor-steam generator system of the type wherein heating surfaces at which the steam is generated are housed in the same vessel as a reactor core and are heated by a primary coolant passed

through the core, said system comprising chamber-defining means situated internally in the upper part of the vessel to form with walls of the vessel an annular chamber having primary coolant inlet and outlet openings for directing primary coolant through the chamber, steam generating modules closely and uniformly positioned in the chamber, said modules collectively constituting the heating surfaces at which the steam is generated and individually including a tube bundle exposed to the primary coolant directed through the chamber, and downcomers for the modules located in the chamber to occupy spaces left vacant between the modules whereby substantially no low resistance flow paths for the primary coolant are left in the chamber.

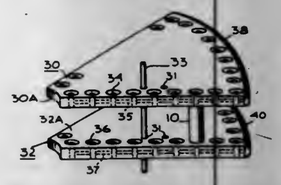
3,322,643
HEAT TRANSFER APPARATUS ARRANGEMENT
Theodore S. Sprague, Hudson, and John H. Ammon, Akron, Ohio, assignors to the Babcock & Wilcox Company, New York, N.Y., a corporation of New Jersey
Filed Apr. 20, 1964, Ser. No. 361,123
10 Claims. (Cl. 176—59)



1. Heat transfer apparatus comprising an elongate tube, a heating element disposed and extending longitudinally within said tube and forming a substantially annular fluid flow path between said heating element and the inner surface of the wall of said tube, means defining a fluid flow opening in one end of said tube, said fluid flow opening providing direct communication between said fluid flow path and the exterior of said tube, means for passing a fluid over and in contact with the outer surface of the wall of said tube in one direction and thence through said fluid flow opening and thence through said annular path in a direction opposite to said one direction in heat exchange relationship to said heating element and in contact with the inner surface of the wall of said tube, and means for effecting transpiration cooling of the wall of said tube along substantially its entire length to inhibit heat transfer from the fluid within said annular path to the fluid outside said tube, said last named means including means forming a multiplicity of pores along the length of said tube, whereby a portion of said fluid passes through said pores to thereby maintain the wall of the tube below the average temperature of the fluid within said fluid flow path and to effect the establishment of a thin boundary layer of relatively cool fluid on the inner surface of said tube.

3. A nuclear reactor comprising means defining a core area, a tube extending through said core area, a fissionable material bearing fuel element disposed and extending longitudinally within said tube and being laterally spaced from the inner wall of said tube to form a fluid flow path between said fuel element and the inner surface of the wall of said tube, means defining a fluid flow opening in one end of said tube, means for passing a fluid through said core area over and in contact with the outer surface of the wall of said tube in one direction and thence through said opening and thence through said fluid flow path in a direction opposite to said one direction in heat exchange relationship with said fuel element and in contact with the inner surface of the wall of said tube, and means for inhibiting heat transfer from the fluid within said fluid flow path to the fluid outside said tube, said last named means including means for forming a thin boundary layer of relatively cool fluid along the inner surface of said tube, said layer forming means including means forming a multiplicity of small openings along substantially the entire length of said tube, said openings being of such a size and arrangement that a portion of said fluid flows directly through the wall of said tube effecting cooling thereof and tends to remain in close proximity to the inner surface of said tube.

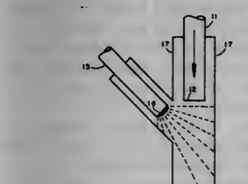
3,322,644
CORE ELEMENT FOR A BREEDER NUCLEAR REACTOR
Glendon M. Benson, Danville, Calif., assignor to Physics International Company, San Leandro, Calif., a corporation of California
Original application July 22, 1964, Ser. No. 384,358. Divided and this application Apr. 5, 1965, Ser. No. 445,509
5 Claims. (Cl. 176—69)



1. A fuel sub-element for a breeder nuclear reactor comprising a graphite body having substantially a cylindrical shape, the two opposed end surfaces of said cylinder being concave, a hole along the axis of said cylinder, a plurality of randomly dispersed micropores scattered through said cylinder and extending parallel to the axis of said cylinder, and a fissile fuel and a fertile fuel homogeneously dispersed throughout the graphite material of said graphite cylinder.

3,322,645
SHEATHED FUEL PLATE ASSEMBLIES FOR A NUCLEAR REACTOR
Allan Barker, Chester, Alan Gilbert Bool, Tarvin, Chester, and Ronald Tunstall Ackroyd, Upton-by-Chester, England, assignors to United Kingdom Atomic Energy Authority, London, England
Filed Sept. 3, 1965, Ser. No. 484,963
Claims priority, application Great Britain, Sept. 4, 1964, 36,353/64; Sept. 18, 1964, 38,294/64
7 Claims. (Cl. 176—75)

1. An assembly of sheathed fuel plates for a nuclear reactor comprising plates whereof the sheathing presents an external profile composed of a series of swellings intermeshed with the swellings of adjacent plates, said profile also having complementary profiled webs alternating between the swellings thereby to define between the plates a gap of constant width for coolant flow, nuclear fuel being contained in said swellings and the sheathing being



unitary between the swellings in respect of each plate whereby the fuel in each plate is separated into discrete masses.

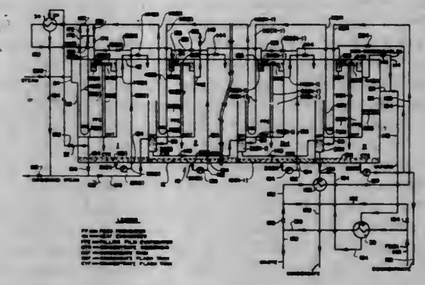
3,322,646
METHOD FOR PREPARING L-GLUTAMIC ACID
Yoshio Kawai, Zushi-shi, Teijiro Uemura and Yasuo Kawai, Tokyo, and Shinji Okumura, Yokohama, Japan, assignors to Sanko Co., Inc., Kanagawa-ken, Japan, a corporation of Japan
No Drawing. Filed Oct. 30, 1964, Ser. No. 407,863
Claims priority, application Japan, Nov. 2, 1963, 38/58,580
4 Claims. (Cl. 195—29)

1. A method for preparing L-glutamic acid biochemically, comprising contacting at least one pyrrolidonecarboxylic acid selected from the group consisting of D-pyrrolidonecarboxylic acid and DL-pyrrolidonecarboxylic acid with enzymes of microorganisms in an aqueous medium at a pH of 5 to 10 at a temperature of 25–60° C. under aeration, said microorganisms being one from the family selected from the group consisting of Achromobacteriaceae, Micrococcaceae, Brevibacteriaceae, Corynebacteriaceae, Enterobacteriaceae, Pseudomonadaceae, Bacillaceae and Rhizobiaceae and having the capacity of producing at least 0.5 mg. of L-glutamic acid in the reaction mixture when 1 ml. of suspension of intact cells corresponding to 0.5–10 mg. of dried cells is mixed with 1 ml. of buffer solution of potassium phosphate at a pH of 6 to 9 and containing 20 mg. of D-pyrrolidonecarboxylic acid supplied as its ammonium salt and shaken at 30° C. for 12 to 72 hrs.

3,322,647
QUENCHING APPARATUS
Lloyd R. Calaway, Galveston, Tex., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware
Filed July 27, 1964, Ser. No. 385,150
6 Claims. (Cl. 196—140)

1. An apparatus for quenching high temperature fluids by contacting with a quench liquid, said apparatus comprising a tubular quench chamber, a spray nozzle for introducing said quench liquid in the form of a conical spray to contact at least a portion of the lateral walls of said quench chamber, an injection tube coaxially extending into said tubular quench chamber for introducing a stream of high temperature fluid to be quenched into said conical spray of quench liquid so that a substantial portion of said stream of fluid to be quenched intersects a portion of the outer lateral surface of said conical spray of quench liquid at an angle approximating 90 degrees, said injection tube being surrounded by an annular space provided with one or a plurality of purge inlets for introducing a purge medium into said annular space, said injection tube being arranged upstream from the point where said quench liquid contacts the lateral walls of said quench chamber and out of contact with said conical spray of said quench liquid but adjacent thereto, and an outlet means for withdrawing quench fluid from said chamber.

3,322,648
MODULAR MULTIPLE-EFFECT FALLING-FILM EVAPORATOR
David D. Kays, Denver, Claude G. Rogers, Golden, and Ronald W. Akerlow, Denver, Colo., assignors to The Stearns-Roger Corporation, Denver, Colo., a corporation of Colorado
Filed Apr. 29, 1966, Ser. No. 546,278
18 Claims. (Cl. 202—174)



1. The modular multiple-effect falling-film evaporator which comprises: an elongate insulated unitary pressure vessel having sidewalls, front and rear endwalls, a bottom and a top; at least two first transverse vertical partial partition walls arranged in longitudinally-spaced relation to the vessel endwalls and to one another, said partition walls terminating in spaced relation beneath the top of the vessel while extending all the way to the bottom thereof, and said partition walls cooperating with the adjoining vessel walls to divide the lower portion of the latter into a plurality of liquid-tight compartments arranged in end-to-end relation and adapted to receive progressively richer concentrated liquors beginning at the front end; a second transverse vertical partial partition wall corresponding to each of the first partial partition walls positioned in longitudinally spaced relation therebehind, each of said second partition walls extending from the top of the vessel to a level considerably below the upper margin of the adjacent first partition wall; a vertical longitudinal partition wall bridging the space between each set of adjacent first and second partition walls; a horizontal longitudinal partition wall joined to the vertical longitudinal partition wall and bridging the gap between each set of adjacent first and second partition walls in spaced relation beneath the top edges thereof and spaced above the bottom of the vessel, said vertical and longitudinal partition walls cooperating with one another, the adjacent vessel walls and said first and second partition walls to compartmentalize the space

between the latter into an open-topped liquid-tight flash tank and an open-topped liquid-tight condensate tank arranged in side-by-side relation, and said horizontal partition wall further cooperating with the adjoining wall members to seal off the interior of the vessel into a plurality of separate vapor compartments adapted to receive hot condensable processing vapors generated in the preceding vapor compartment nearer the front end of said vessel and maintain same at a slightly reduced pressure; means comprising enclosed concentrated liquor reservoirs mounted in the top of the vessel in spaced relation above each of the condensate tanks sealed off from the vapor compartments therebeneath; means including a pump connected to withdraw the concentrated liquors from each compartment except the last and deliver same to the concentrated liquor reservoir of the subsequent effect; means comprising a plurality of open-ended evaporator tubes arranged in vertically-disposed spaced parallel relation to one another mounted within each vapor compartment in the path of hot processing vapors passing over the top of the adjacent first partial partition wall and down into the condensate tank, the upper open ends of the tubes being fastened in liquid-tight sealed relation within the corresponding concentrated liquor reservoir in position to continuously receive concentrated liquors therefrom and allow same to gravitate down the inside thereof, and the lower open ends of said tubes being connected through the horizontal longitudinal wall member in liquid-tight sealed relation thereto so as to deliver the hot processing vapors generated therein along with the more highly-concentrated liquor fraction directly into the subsequent concentrated liquor compartment and next lower-pressured vapor compartment; means connectable to a source of liquid evaporatable feed adapted to preheat same prior to introduction thereof into the concentrated liquor reservoir of the highest-pressured chamber, said means including at least two serially-interconnected multiple-pass heat exchangers mounted vertically within adjacent vapor compartments in position to extend downwardly into the condensate tank alongside the evaporator tubes, the colder feed entering the heat exchanger nearest the rear end of the pressure vessel and flowing therefrom through the remainder of said heat exchangers in counter-current flow relation to the flow of hot processing vapors, and the pre-warmed feed entering the first of the concentrated liquor reservoirs being taken from the heat exchanger located nearest the front end of the pressure vessel; means connected into the interior of the condensate tank of the highest-pressure vapor compartment adapted to withdraw vapors condensing out of the evaporator tubes therein and deliver same to the flash tank within the next lower-pressured vapor compartment; means opening into the interior of each of the remaining condensate tanks adapted to receive the vapors condensing on the outside surfaces of the respective evaporator and heat exchanger tubes therein and pass same to the flash tank alongside thereof; means connected to withdraw the condensate from the last-mentioned flash tank within each vapor compartment except the lowest-pressured one and deliver same to the flash tank in the next lower-pressured vapor compartment where a portion thereof vaporizes and joins the vapors generated within the evaporator tubes; vented means connected to receive the non-condensable gases from each of the vapor compartments and vent same; means connected into the interior of the highest-pressured vapor compartment and connectable to a source of hot processing vapors adapted to introduce the latter under pressure; condensing means connected into the interior of the lowest-pressured vapor compartment adapted to withdraw the condensable vapors therefrom and condense same; means connected to withdraw condensate from the flash tank of the lowest-pressured compartment; and means connected to withdraw the concentrated liquor from the concentrated liquor compartment in the lowest-pressured vapor compartment.

3,322,649

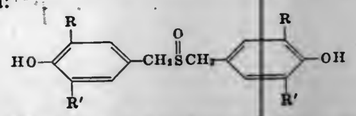
PROTECTION OF ORGANIC MATERIAL FROM OXIDATIVE DETERIORATION WITH BIS-(3,5-DIHYDROCARBYL-4-HYDROXYBENZYL) SULFOXIDES

Francis X. O'Shea, Wolcott, Conn., assignor to Uniroyal, Inc., a corporation of New Jersey

No Drawing. Original application May 25, 1960, Ser. No. 31,542, now Patent No. 3,272,869, dated Apr. 13, 1966. Divided and this application Nov. 1, 1960, Ser. No. 66,404

3 Claims. (Cl. 202—404)

1. A composition consisting essentially of about 0.01 to 5 parts by weight of an antioxidant selected from the group consisting of bis-(3,5-dihydrocarbyl-4-hydroxybenzyl) sulfoxides as represented by the structural formula:



wherein R and R' are selected from the group consisting of alkyl, cycloalkyl and aralkyl radicals containing less than 13 carbon atoms, in admixture with 100 parts by weight of organic material normally subject to oxidative deterioration.

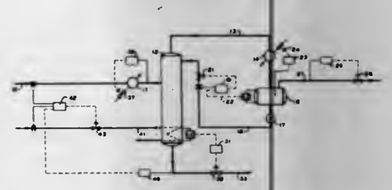
3,322,650

CONTROL OF RATIO OF RATE OF HEAT FLOW TO RATE OF FEED IN DISTILLATION RESPONSIVE TO BOTTOMS ANALYSIS

Thell L. Hillburn, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

Filed Jan. 3, 1964, Ser. No. 335,619

4 Claims. (Cl. 203—1)



3. A method for controlling the operation of a fractional distillation column, comprising the steps of:

passing a feed into said column;

controlling the temperature of said feed;

passing a heating fluid in heat exchange relation with said column;

measuring the flow of said feed and producing a first signal proportional thereto;

measuring the flow of said heating fluid and producing a second signal proportional thereto;

controlling the flow of said heating fluid in response to said first and second signals to maintain a predetermined ratio of the flow of said heating fluid to the flow of said feed;

analyzing kettle product of said column and producing a third signal proportional to the concentration of a selected component therein; and

adjusting said ratio in response to said third signal.

3,322,651

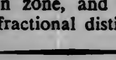
PURIFICATION OF PHENOL

Earl A. Nielsen, Lombard, Ill., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

No Drawing. Filed Mar. 12, 1964, Ser. No. 352,426

10 Claims. (Cl. 203—38)

1. A process for the purification of phenol containing acetone condensation products as impurities therein, which process comprises adding to the phenol from about 0.02% to about 0.2%, based on the weight of the phenol, of a nitrogen compound hereinafter described, reacting said acetone condensation products with said nitrogen compound and thereafter distilling phenol from the resultant reaction products, the aforesaid nitrogen compound being represented by the formula



wherein R_1 and R_2 are selected from the group consisting of hydrogen, alkyl, cycloalkyl, aryl, alkaryl, aralkyl, hydroxyalkyl and polymethylene radicals, said polymethylene radicals together forming a heterocyclic ring in combination with the nitrogen atom to which they are attached.

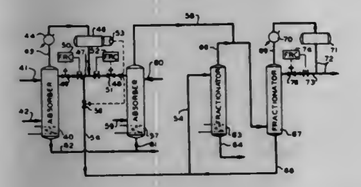
3,322,652

MULTI-STAGE SEPARATION APPARATUS AND PROCESS FOR TREATING HYDROCARBON MIXTURES

Lee R. Huval, Borger, Tex., assignor to Phillips Petroleum Company, a corporation of Delaware

Filed Mar. 27, 1963, Ser. No. 268,332

4 Claims. (Cl. 203—62)



1. A process for separating close boiling hydrocarbon fractions which comprises passing a fluid hydrocarbon mixture to a first and second absorption zones, passing a solvent to each of said first and second absorption zones, said solvent selective to a constituent of said fluid hydrocarbon mixture, withdrawing a vapor from said first absorption zone, withdrawing a vapor from said second absorption zone, withdrawing solvent containing said constituent from each of said first and second absorption zones, condensing said vapor withdrawn from said first absorption zone, passing a portion of said condensed vapor to each of said first and second absorption zones as reflux, passing the remainder of said condensed vapor to a fractional distillation zone, passing said vapor withdrawn from said second absorption zone to said fractional distillation zone, withdrawing a first fraction from said fractional distillation zone, and withdrawing a second fraction from said fractional distillation zone.

3,322,653

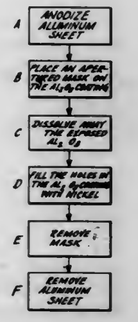
METHOD OF MAKING A TWO SIDED STORAGE ELECTRODE

Charles H. F. Morris, Allentown, N.J., assignor to Radio Corporation of America, a corporation of Delaware

Original application Mar. 17, 1958, Ser. No. 721,904, now Patent No. 3,109,954, dated Nov. 5, 1963. Divided and this application Feb. 28, 1963, Ser. No. 261,598

10 Claims. (Cl. 204—3)

1. The method of making a two-sided storage electrode comprising the steps of: forming an oxide coating on a sheet of a first metal by anodizing said metal, placing an apertured mask on the oxide coating, dissolving away the portions of said oxide coating exposed by the apertures of said mask to uncover portions of said metal sheet, filling in the dissolved-away portions of said oxide coating with a second metal, and separating said metal sheet from said oxide to leave a sheet of said oxide having metal inserts extending therethrough.



3,322,654

METHOD OF MANUFACTURING TWO-SIDED MOSAIC PLATES FOR CATHODE RAY TUBES

Johannes Josephus Antonius Jonkers and Edward Fokko de Haan, Emmasingel, Eindhoven, Netherlands, assignors to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Sept. 11, 1963, Ser. No. 308,054

Claims priority, application Netherlands, Oct. 26, 1962, 284,803

6 Claims. (Cl. 204—12)

1. A method of manufacturing a two-sided mosaic electrode for an electrical discharge tube comprising the steps of anodically oxidizing an aluminum foil to form a porous aluminum oxide coating thereon, filling the pores of the aluminum oxide with a material which is insoluble in a solvent which dissolves aluminum, dissolving the subjacent aluminum in said solvent, pickling the surface of the aluminum oxide originally adjacent the aluminum metal until the pores extend from one surface to the other, removing said insoluble substance from the pores, and depositing a conductive material in said pores.

3,322,655

METHOD OF MAKING TERMINATED MICRO-WAFERS

Domenick J. Garibotti, Longmeadow, Mass., and Kalmar O. Olson and James E. Taylor, Windsor Locks, Conn., assignors to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware

Filed Aug. 12, 1963, Ser. No. 301,422

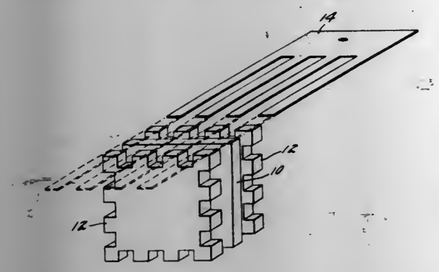
17 Claims. (Cl. 204—15)

1. A method of forming conductive pads on a circuit board comprising the steps of:

stacking a micro-circuit board between spacer masks having notches along at least one edge thereof to mask all but discrete areas of both face surfaces of the board, said discrete areas adjoining an edge of the board and being aligned on opposite sides of the board;

positioning a comb mask over a side of the board and spacer mask stack with the teeth of the comb mask in registration with the areas of the spacer masks between the notches to mask all but discrete areas on the edge of the board, which areas communicate with the unmasked areas of the face surfaces of the board; and

depositing conductive material on the discrete unmasked areas of the face surfaces and edge of the board



whereby conductive pads extending from surface to surface over the edge of the board are formed.

3,322,656
METAL SURFACE OF IMPROVED BONDING QUALITY

Donald W. Dahringer, Glen Ridge, Sanford Spector, Bayonne, and James L. Sweet, New Monmouth, N.J., assignors, by mesne assignments, to Pittsburgh Plate Glass Company, Pittsburgh, Pa., a corporation of Pennsylvania

No Drawing. Filed Mar. 6, 1962, Ser. No. 177,732
4 Claims. (Cl. 204—38)

1. The method of treating a surface of copper sheet material to improve its bonding quality which comprises

(a) employing a cyanide-free alkaline copper electrolytic bath consisting essentially of an aqueous solution of copper sulfate and a complexing agent selected from the group consisting of Rochelle salts and alkali metal salts of citric acid, lactic acid, glycollic acid, salicylic acid, glycerol, pyrophosphoric acid and tetraboric acid;

(b) electrolyzing said bath using said surface as the cathode at a temperature of from about 50° F. to about 180° F., a cathodic current density of from about 10 to about 150 amperes per square foot and a treatment time of from about 2 to about 120 seconds, whereby there is formed on said surface a thin adherent micro-rough layer of substantially greater surface area than the original surface;

(c) rinsing said surface after removal from said bath;

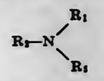
(d) exposing the freshly prepared micro-rough surface from step (c) to a member of the group consisting of solutions of compounds which form a sulfide, telluride or selenide with copper and weakly acidic solutions of compounds which form a chromate, molybdate, tungstate or vanadate with copper.

3,322,657
ELECTRODEPOSITION OF BRIGHT COPPER

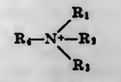
Karl-Wilhelm Sassenroth, Dusseldorf, Georg Jansen, Neuss (Rhine), and Robert Brugger, Bernhausen, near Stuttgart, Germany, assignors to Langbein-Pfanhauser Werke A.G., Neuss (Rhine), Germany

No Drawing. Filed May 11, 1964, Ser. No. 366,628
6 Claims. (Cl. 204—52)

6. A method of producing a bright, smooth, pore-free, and ductile copper coating on a conductive object which comprises making said object a cathode in an aqueous electrolyte containing copper sulfate or copper fluoborate as a source of copper ions, sulfuric acid or fluoboric acid as a source of hydrogen ions, a primary brightening agent, and a secondary brightening agent, said sources and said agents being dissolved in said solution, said primary agent being a N-(tetrahydropyranyl-2) amide of a carboxylic or thiocarboxylic acid, or an N-(tetrahydropyranyl-2-)-N-(propane-ω-sulfonic acid) amide of a carboxylic or thiocarboxylic acid, said secondary brightening agent being an amine of the formula



or an ammonium ion of the formula

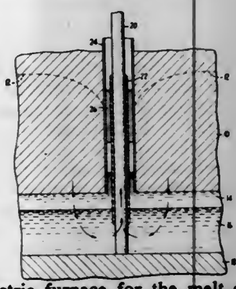


in said formulas R_1 being tetrahydropyranyl or tetrahydrofuryl; R_2 and R_3 being hydrogen, lower alkyl, phenyl, 2-carboxyphenyl, 4-hydroxyphenyl, 4-sulfophenyl, p-diphenylyl, 2-pyridyl, 6,8-disulfo-2-naphthyl, or a sulfonic acid radical $-(CH_2)_n-SO_3H$ wherein n is an integer not greater than 4; said R_3 being different from said R_2 when said R_2 is different from lower alkyl; and R_4 being lower alkyl, the concentration of said primary brightening agent in said electrolyte being between 0.2 and ten millimoles per liter, the concentration of said secondary brightening agent in said electrolyte being between 0.05 and 2.0 grams per liter, and the temperature of said electrolyte being between 10° C. and 50° C.

3,322,658
ALUMINUM ELECTROLYTIC CELL AND METHOD OF USE

Mathias O. Sem, Smestad, Oslo, Norway, assignor to Elektrokemisk A/S, Oslo, Norway, a corporation of Norway

Filed Feb. 28, 1963, Ser. No. 261,619
Claims priority, application Norway, Mar. 5, 1962, 143,498
12 Claims. (Cl. 204—67)



1. In an electric furnace for the melt electrolysis of aluminum of the type in which liquid aluminum metal is collected in the bottom of the furnace beneath a molten cryolite bath, the structure which comprises a continuous self-baking anode, cathode rods that extend down through the anode and into the liquid aluminum metal in the bottom of the furnace and electric insulating means which insulate said rods from the anode and molten cryolite bath.

10. In the operation of an electrolytic aluminum smelting furnace which includes a furnace pot having a pool of molten aluminum on the bottom thereof, a molten electrolytic bath with dissolved alumina therein resting upon said pool and a self-baking anode suspended above and in contact with said bath, the method comprising supplying direct electric current to said anode, flowing said current from said anode to and through first said electrolytic bath and then said pool of molten aluminum, returning said current to its source along a plurality of paths insulated from and leading up through said electrolytic bath and the body of said anode, and passing said return flow of current through each said return path at a density not exceeding about 5,000 amperes.

3,322,659
TREATING OF ELECTROLYTIC ALUMINUM REDUCTION CELL GASES TO RECOVER FLUORINE VALUES

Jean Louis Paquet, 306 Begin, Arvida, Chicoutimi County, Quebec, Canada

No Drawing. Filed June 17, 1964, Ser. No. 375,941
13 Claims. (Cl. 204—67)

1. A process of treating waste-gas from an electrolytic aluminum reduction cell having a fused cryolite-alumina bath which process comprises:

treating said waste-gas stream with ammonia gas at a temperature such that a solid ammonia reaction product is formed; and

filtering said treated gas stream to remove said solid reaction product.

3,322,660
PRODUCTION OF HYDRAZINE

William H. Johnston, Baltimore, Md., and Fred W. Lampe, State College, Pa., assignors to the United States of America as represented by the United States Atomic Energy Commission

No Drawing. Filed Feb. 18, 1963, Ser. No. 259,468
7 Claims. (Cl. 204—157.1)

1. A process for the manufacture of hydrazine comprising irradiating a mixture of gaseous ammonia and a rare gas with an ionizing radiation of sufficient energy to ionize said rare gas, said rare gas having an ionic recombination energy of less than 15 electron volts.

3,322,661
GRAFT COPOLYMERIZATION OF A VINYL MONOMER ONTO A POLYOLEFIN WITH IRRADIATION IN THE PRESENCE OF OXYGEN AND A REDUCING AGENT

Etsuro Yoshikawa and Takashi Morita, Yokohama, Japan, assignors to Chisso Corporation, a corporation of Japan

No Drawing. Filed Sept. 16, 1963, Ser. No. 309,312
Claims priority, application Japan, Sept. 18, 1962, 37/40,467
7 Claims. (Cl. 204—159.17)

1. A method for producing a graft copolymer from a homopolymer or copolymer of an olefin having a tertiary carbon atom which comprises;

(1) radiating said olefin in the presence of an oxygen-containing gas, a hydroperoxide, and a light sensitizer, and

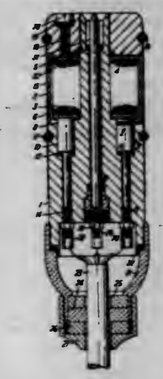
(2) contacting the same with a vinyl monomer in the presence of an oxygen containing gas, a solvent, water, and a reducing agent selected from the group consisting of ferrous sulfate, ferrous ammonium sulfate, cuprous chloride, cerous nitrate, cerous ammonium nitrate, chromous chloride, and low valent cobalt chloride.

3,322,662
ELECTROLYTIC OXYGEN SENSOR

Frederic John Haines Mackereth, Bowness-on-Windermere, England, assignor to National Research Development Corporation, a British company

Filed May 9, 1963, Ser. No. 279,187
Claims priority, application Great Britain, May 18, 1962, 19,294/62
9 Claims. (Cl. 204—195)

1. An electro-chemical cell for measuring oxygen concentrations of a fluid in which the cell is in use immersed, said cell comprising, an enclosure adapted to contain a mass of aqueous electrolyte, said enclosure being substantially completely formed by a first wall portion and a second wall portion, the first wall portion being substantially completely impermeable to gas and liquid, and the said second wall portion being cylindrical and formed by a membrane having an internal and external surface and being permeable to gaseous or dissolved oxygen but impermeable to liquids or dissolved ions, the said external surface of the said membrane being adapted to be brought into communication with a fluid the oxygen concentration of which is to be measured, the said internal surface of said membrane being in contact with said aqueous electrolyte within said enclosure, an inner electrode within said enclosure in contact with said electrolyte, a perforated cylindrical outer electrode within said enclosure in contact with said electrolyte and which surrounds said inner electrode to form a barrier between

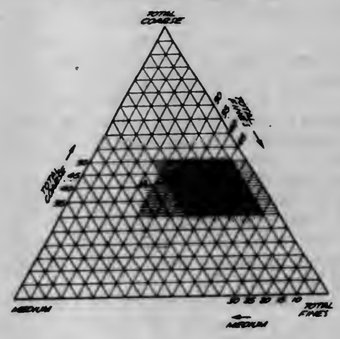


said inner electrode and said membrane wherein the reaction surface of said outer electrode is closely surrounded by said membrane over substantially the whole of said internal surface of said membrane in contact with said electrolyte, and means connecting said inner and outer electrodes to an external electrical circuit, whereby when said cell is immersed in an oxygen carrying fluid, oxygen that passes inwards through said membrane reacts with said aqueous electrolyte on said reaction surface to produce hydroxyl ions which are consumed in the total cell reaction and the current flowing in said external circuit is proportional to the rate of influx of oxygen through said membrane.

3,322,663
FLUID COKE AGGREGATE AND ELECTRODE

Hirsch Loevenstein, Los Angeles, Calif., assignor to Harvey Aluminum, Torrance, Calif., a corporation of California

Filed Aug. 1, 1962, Ser. No. 214,137
8 Claims. (Cl. 204—294)



1. A fluid coke aggregate comprising ground calcined briquetted fluid coke particles, said particles being bound together with a binder; said aggregate having a particle

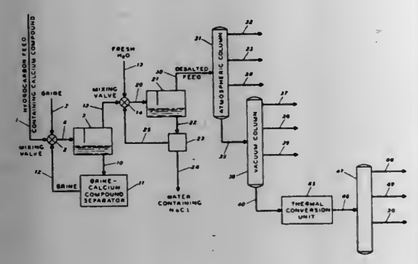
size distribution wherein 33–46% by weight of the particles have a particle size less than about −65 mesh, 14–26% of the particles have a particle size greater than −65 mesh and less than about −14 mesh and 37–47% by weight of the particles have a particle size greater than about +14 mesh, and less than ¼ inch, and wherein about 60–70% by weight of the particles having a particle size less than about −65 mesh have a particle size less than about −200 mesh.

3,322,664

METHOD OF REMOVING CALCIUM SULFATE FROM A HYDROCARBON FEED STOCK

Norman J. Paterson and James N. Sullivan, San Rafael, Calif., assignors to Chevron Research Company, a corporation of Delaware

Filed June 26, 1964, Ser. No. 378,362
7 Claims. (Cl. 208—48)



1. A process for removing calcium sulfate from a hydrocarbon feed stock which comprises forming an intimate mixture of said feed stock with an aqueous solution, capable of dissolving calcium sulfate, of a water-soluble inorganic salt, whereby said calcium sulfate is dissolved in said solution, and separating a relatively calcium sulfate-free hydrocarbon feed stock from said mixture.

3,322,665

HIGH CONVERSION HYDROGENATION OF HEAVY GAS OIL

Michael C. Chervenak, Pennington, and Percival C. Keith, Peapack, N.J., assignors to Hydrocarbon Research, Inc., New York, N.Y., a corporation of New Jersey

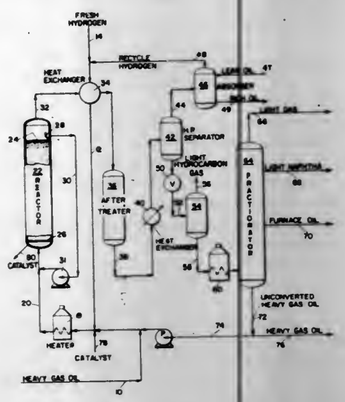
Filed May 18, 1965, Ser. No. 456,727
2 Claims. (Cl. 208—97)

1. The method of conversion of a heavy virgin gas oil to produce at least 60 percent (weight) of naphtha and furnace oil wherein the ratio of furnace oil to naphtha is in excess of 2:1 which comprises the steps of:

(a) passing a hydrogen containing gas at a rate of in excess of 5000 s.c.f./bbl., together with the gas oil at temperatures in the range of 750° F. and 900° F. and pressures in the range of 1000 to 2500 p.s.i.g. upwardly through a reaction zone containing a bed of low acidity catalyst at an upward velocity to place the catalyst in random motion in the liquid and for a time to obtain at least a 40% conversion of all gas and oil boiling above 650° F. to a fraction boiling below 650° F.;

(b) hydrotreating the effluent of said step (a) in a separate zone under substantially the temperature and pressure of the said step (a) with the hydrogen from said step (a) and in the presence of a catalyst containing nickel-molybdenum on alumina at a suitable space velocity;

(c) separating a gaseous fraction from said separate zone;



(d) fractionating the net effluent from said separate zone into a premium grade furnace oil, lighter products, and an unconverted heavy gas oil.

3,322,666

CHEMICAL PROCESS FOR HYDROCRACKING AND HYDROREFINING OF HYDROCARBON OILS

Harold Beuther, Gibsonia, and Stephen L. Peake and Bruce K. Schmid, Pittsburgh, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware

No Drawing. Filed Aug. 25, 1964, Ser. No. 392,026
19 Claims. (Cl. 208—112)

1. A process for hydrogen treatment of heavy petroleum hydrocarbons containing sulfur, asphaltic and metalliferous compounds as contaminants, containing substantial amounts of hydrocarbon components boiling above 300° F. and containing residual materials, which process comprises contacting the hydrocarbons with hydrogen at a hydrogen partial pressure from about 300 to about 3000 p.s.i., a space velocity from about 0.1 to about 10.0 volumes of heavy hydrocarbon per volume of catalyst per hour, a hydrogen consumption rate from about 1 to about 40 mols of hydrogen per gram atom of sulfur removed from the heavy hydrocarbons and at a temperature from about 700° to about 900° F. in the presence of a catalyst comprising essentially a minor amount of a hydrogenating catalyst composited with a major amount of an activated alumina having less than 5 percent of its pore volume that is in the form of pores having a radius of 0 to 300 A. in pores larger than 100 A. radius and having less than 10 percent of said pore volume in pores larger than 80 A. radius prepared by drying and calcining an aluminum sol having the formula $Al(OH)_xZ_y$, wherein Z is the anion of a water soluble aluminum salt, $x+y=3$ and y is less than 1, said alumina sol being prepared by the reaction of said salt and another source of aluminum ions in the presence of water at a temperature above about 120° F. and at a pH below about 4.5.

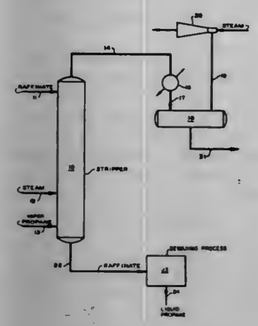
3,322,667

HYDROCARBON STRIPPING PROCESS

Shelby D. Lawson, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

Filed May 11, 1964, Ser. No. 366,581
8 Claims. (Cl. 208—356)

1. A process which comprises contacting a mixture comprising a hydrocarbon and a component selected from phenol and furfural with steam in a stripping zone, and contacting the resultant steam-stripped hydrocarbon with a vaporous drying agent selected from butane, propane,



methylethyl ketone, mixtures of ketones, and a mixture of methylethyl ketone and toluene.

3,322,668

DRILLING FLUIDS AND ADDITIVE THEREFOR

Ison G. Fontenot and Ernest F. Snyder, Lafayette, La., assignors to International Minerals & Chemical Corporation, a corporation of New York

No Drawing. Filed Oct. 22, 1962, Ser. No. 232,285
1 Claim. (Cl. 252—8.5)

The process of preparing a drilling mud additive which comprises: heating an air-blown asphalt having a softening point in the general range of 240° F. to 340° F. to a temperature higher than its melting point; incorporating therein a minor proportion of substantially petroleum hydrocarbon insoluble, aromatic hydrocarbon solvent soluble resinous pine wood extract, and a minor amount of an alkali chosen from the group consisting of calcum hydroxide, sodium hydroxide, potassium hydroxide, and mixtures thereof; said resinous pine extract comprising between about 1% and 4% of the total weight of the composition, said alkali being present in an amount of between 0.3 to 15 parts for each part by weight of said pine wood extract, computed stoichiometrically as calcium hydroxide; agitating the mixture so formed until it is homogeneous; thereafter cooling said mixture until it solidifies; and thereafter fragmenting said solidified mixture into particles such that 90% pass 100 mesh.

3,322,669

SULFUR SUBSTITUENTS OF PROPENE/BUTENE COPOLYMERS AS V.I. IMPROVERS

Louis de Vries, Richmond, Calif., assignor to Chevron Research Company, a corporation of Delaware

No Drawing. Filed Feb. 3, 1965, Ser. No. 430,185
11 Claims. (Cl. 252—47)

1. Copolymers consisting essentially of two olefins of the group consisting of ethylene, propylene and 1-butene, wherein one of the olefins is present in from 15 to 85 mole percent, wherein said copolymers are of a molecular weight in the range of 1 to 20×10^5 and are prepared by using a Ziegler catalyst comprising in combination an organo-aluminum compound and a titanium or vanadium halide, and wherein sulfur, as sulfide linkages from the copolymer to organic radicals, is present in an amount of from 2 to 25 weight percent, the organic radicals being selected from the group consisting of hydrocarbyl of from 1 to 20 carbon atoms, carboalkoxy substituted hydrocarbyl of from 1 to 20 carbon atoms, hydroxy substituted hydrocarbyl of from 1 to 12 carbon atoms, aminohydrocarbyl radicals of from 1 to 20 carbon atoms and having from 1 to 2 amino groups and acyl radicals of the formula:

$$\begin{matrix} X \\ \| \\ TCS- \end{matrix}$$

wherein X is chalcogen of atomic number 8 to 16, and T is amino or of from 1 to 19 carbon atoms and hydrocarbyl, hydrocarbylamino or dihydrocarbylamino.

10. An oil of lubricating viscosity having a composition according to claim 1 in an amount sufficient to provide viscosity index improvement.

3,322,670

DETERGENT-DISPERSANT LUBRICANT ADDITIVE HAVING ANTI-RUST AND ANTI-WEAR PROPERTIES

Gerald D. Burt, Hammond, and Randel Q. Little, Jr., Munster, Ind., assignors to Standard Oil Company, Chicago, Ill., a corporation of Indiana

No Drawing. Filed Aug. 26, 1963, Ser. No. 304,693
8 Claims. (Cl. 252—49.6)

1. An oil-soluble lubricant additive which comprises the reaction product of reactants consisting essentially of mono-alkenyl substituted succinic anhydride, a boron compound selected from the class consisting of boric acid and boric anhydride and an ethylene amine having the formula $H_2N(CH_2CH_2NH)_xH$ wherein x is a number from 1 to about 10, wherein said alkenyl group of the substituted succinic anhydrides has from 30 to 200 carbon atoms and said reactants are employed in the mole ratio of 0.3 to 2.0 moles of an ethylene amine per mole of said monoalkenyl succinic anhydride and an amount of boron compound to provide a molar ratio of boron of 0.4 to 1.5 per mole nitrogen in said ethylene amine reactant and said oil-soluble lubricant additive is prepared by combining said substituted succinic anhydride and said boron compound in the proportions to provide the foregoing mole ratios at a temperature in the range of from 120° to 400° F. to form a first product and then reacting this first product with said ethylene amine in the proportion to provide 0.3 to 2.0 moles of said amine per mole of said substituted succinic anhydride at a temperature in the range of 175 to 500° F. to split out water to obtain a product having a maximum of water not exceeding 2.0%.

6. A lubricant oil composition comprising a major amount of a lubricant oil and a minor amount sufficient to impart detergency of the product of claim 1.

3,322,671

HIGH TEMPERATURE OXIDATIVE DEGRADATION RESISTANT FLUIDS AND THE PREPARATION THEREOF

Roland E. Dolle, Jr., Dayton, Ohio, assignor to the United States of America as represented by the Secretary of the Air Force

No Drawing. Filed Oct. 6, 1964, Ser. No. 402,036
6 Claims. (Cl. 252—49.7)

1. A lubricant resistant to oxidation at high temperatures on the order of 350° F. comprising

(a) a base fluid in an amount of about 95 to 99.9% by weight selected from the group consisting of 2-n-heptyl - 6 - (5-tridecyl)pyrazine, 2-n-heptyl-5-(5-tridecyl)pyrazine, 2-(2-octyl)-6-(2-decyl)pyrazine, 2-n-heptyl-6-n-nonylpyrazine, 2-phenoxy - 3 - (5-nonyl) pyrazine, octadecyl tri-n-decylsilane, and 2,6,10,14-tetramethylpentadecane;

(b) an amine additive combination selected from the group consisting of phenyl-alpha-naphthylamine and p,p'-dioctyldiphenylamine; and

(c) aryl tin compounds selected from the group consisting of tetraphenyltin, perfluorotetraphenyltin, bis-(p-phenoxyphenyl)diphenyltin, and 5-ethyl-5,10-dihydro-10,10-diphenylphenazastannine.

3,322,672

CHLORINATED POLYMERS AS V.I. IMPROVERS

Garth M. Stanton, Pinole, Calif., assignor to Chevron Research Company, a corporation of Delaware

No Drawing. Filed Apr. 6, 1965, Ser. No. 446,080
5 Claims. (Cl. 252—58)

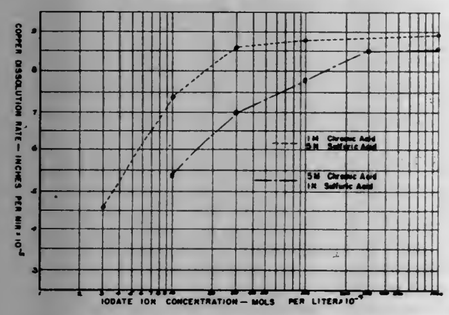
1. A lubricating oil composition having in an amount sufficient to provide viscosity index improvement, a copolymer of propylene and 1-butene, wherein said copolymer is characterized by being prepared using a catalyst comprising in combination a titanium or vanadium halide with an organoaluminum compound, having a molecular weight in the range of 100,000 to 500,000, having the mole percent of any one olefin in said copolymer in an amount not to exceed 75, and having chlorine in an amount of from 10 to 17 weight percent.

3,322,673

COMPOSITION FOR AND METHOD OF DISSOLVING COPPER AND COPPER ALLOYS BY CHEMICAL ACTION

Leo J. Slominski, Bristol, Conn., assignor to MacDermid, Incorporated, Waterbury, Conn., a corporation of Connecticut

Filed Apr. 1, 1964, Ser. No. 356,405
11 Claims. (Cl. 252—79.2)



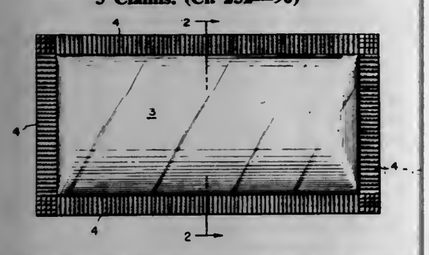
1. A solution for dissolving copper and predominantly copper-base alloys free of substantial amounts of gold, nickel; and alloys of tin, consisting essentially of a mixture of chromic and sulfuric acids, wherein the concentration of chromic acid is from about 0.5 to 10.0 mols per liter and the normality of the sulfuric acid is from about 0.5 to 10.0, and a compound providing a small but effective amount of iodate ions in solution to catalyze the dissolution of the metal.

3,322,674

LAUNDRY PACKAGE

Jack Friedman, 3830 St. Ambroise St., Montreal, Quebec, Canada

Filed June 26, 1964, Ser. No. 378,285
5 Claims. (Cl. 252—90)



1. A laundry package comprising a washing compound containing a bleaching compound having releasable chlorine contained therein,

and means containing said compound comprising a bag having multilayer walls,

one of said layers formed of a water soluble film forming material normally reactive with chlorine and having a thickness of from about .001 inch to about .003 inch,

a second layer intermediate said first layer and said material comprising a water dispersible film nonreactive with chlorine,

said walls adapted to disperse and dissolve in water at a temperature between room temperature and 212° F. to release said washing compound whereby a predetermined amount of said washing compound is available for use.

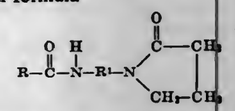
3,322,675

COOL WATER DETERGENT COMPOSITION CONTAINING ACYLAMIDOALKYL PYRROLIDONES

Francis L. Diehl, Wyoming, Ohio, assignor to The Procter & Gamble Company, Cincinnati, Ohio, a corporation of Ohio

No Drawing. Filed Dec. 30, 1963, Ser. No. 334,555
11 Claims. (Cl. 252—137)

1. A detergent composition having superior cleaning ability in aqueous solutions having a temperature within a range of from about 40° F. to about 100° F. consisting essentially of a detergent compound of the following general formula



wherein R is an aliphatic radical containing from about 9 to about 13 carbon atoms and R^1 is an alkylene radical containing from 2 to about 4 carbon atoms and a builder material which is sodium tripolyphosphate, the ratio by weight of said detergent compound to said builder material being in the range of about 4:1 to about 1:20.

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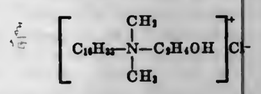
SHAMPOOS

Armin Hiestand, Binningen, Switzerland, assignor to Ciba Limited, Basel, Switzerland, a Swiss company

No Drawing. Filed June 22, 1965, Ser. No. 466,061
Claims priority, application Switzerland, Oct. 25, 1961, 12,333/61
14 Claims. (Cl. 252—152)

1. A hair shampoo preparation which consists essentially of

(1) the cationic compound of the formula



(2) a nonionic water-soluble reaction product of a saturated branched-chain alcohol with 6 to 11 carbon atoms, whose main-chain consists of at least 5 carbon atoms, with 5 to 15 mols of ethylene oxide,

(3) water, and

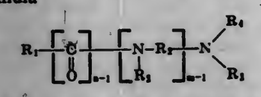
(4) a cosmetically acceptable acid selected from the group consisting of acetic acid, phosphoric acid, adipic acid, tartaric acid, malic acid, nitrilotriacetic acid, ethylenediamine-tetraacetic acid, citric acid, lactic acid, glycollic acid and mixtures thereof, in an amount which is sufficient to effect in the aqueous shampoo preparation a pH-value of 3.0 to 7.0,

and in which shampoo preparation the weight ratio of component (1) to component (2) ranges from 1:1 to 1:100.

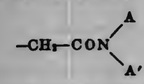
10. A hair shampoo preparation which consists essentially of

(1) a cationic compound selected from the group consisting of

(a) a tertiary amine salt of a compound of the formula



in which n represents a number of at most 2, m represents a number of at most 3, R_1 represents alkyl with 11 to 18 carbon atoms, R_2 represents alkylene with 2 to 6 carbon atoms, R_3, R_4 and R_5 each represent a member selected from the group consisting of hydrogen, alkyl with at most 2 carbon atoms, hydroxyalkyl with at most 3 carbon atoms,



where A and A′ each represents a member selected from the group consisting of hydrogen, methyl and hydroxyethyl, with a cosmetically acceptable acid selected from the group consisting of acetic acid, phosphoric acid, adipic acid, tartaric acid, malic acid, nitrilotriacetic acid, ethylene-diamine-tetraacetic acid, citric acid, lactic acid, glycollic acid and mixtures thereof, and

(b) a quaternary ammonium salt of a compound of the formula set forth above under (a) with a member selected from the group consisting of methyl iodide, dimethyl sulfate, benzyl chloride, a polyglycol chloride containing at most 6 carbon atoms and ethylenechlorohydrine,

(2) a nonionic watersoluble reaction product of a saturated branched-chain alcohol with 6 to 11 carbon atoms, whose main-chain consists of at least 5 carbon atoms, with 5 to 15 mols of ethylene oxide,

(3) water, and

(4) a cosmetically acceptable acid, as defined above in this claim under (a) in an amount which is sufficient to effect in the aqueous shampoo preparation a pH-value of 3.0 to 7.0,

and in which shampoo preparation the weight ratio of component (1) to component (2) ranges from 1:1 to 1:100.

3,322,677

ETHYLENEDIAMINE-ANISOLE PAINT-STRIPPING COMPOSITIONS

Myer Rosenfeld, Baltimore, Md., assignor to the United States of America as represented by the Secretary of the Army

No Drawing. Filed July 2, 1964, Ser. No. 380,101
4 Claims. (Cl. 252—153)

1. A paint-stripping composition consisting essentially of ethylenediamine and anisole in a volume ratio in the range of about 90:10–38:62, respectively.

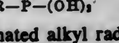
3,322,678

VARIABLE TRANSMISSION COMPOSITIONS

George Henry Dorion, New Canaan, Guenter Willi Nachtigall, Norwalk, and John Joseph Cerreta, Monroe, Conn., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

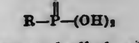
Filed June 17, 1964, Ser. No. 375,757
16 Claims. (Cl. 252—300)

1. A method for shifting the absorption wavelength of a composition of matter comprising (1) a thermoplastic resin and (2) 1′,3′,3′-trimethyl-6-nitro-spiro[2H-1-benzopyran-2,2′-indoline] to a lower wavelength which comprises acidifying said composition with from about 0.1 to about 10 equivalents, based on said indoline, of a phosphonic acid having the formula



wherein R is a halogenated alkyl radical of from 1 to 4 carbon atoms, inclusive.

9. A composition of matter comprising a thermoplastic resin having dispersed throughout the body thereof (1) a photochromic amount of 1′,3′,3′ - trimethyl - 6 - nitrospiro[2H-1-benzopyran-2,2′-indoline] and (2) from about 0.1 to 10 equivalents, based on (1), of a phosphonic acid having the formula



wherein R is a halogenated alkyl radical of from 1 to 4 carbon atoms, inclusive.

3,322,679

PROCESS FOR REPROCESSING BURNED URANIUM FUEL USING MOLTEN BATH CONTAINING AMMONIUM NITRATE

Yuichiro Kamemoto and Shigeru Yamagishi, both of Tokaimura, Naka-gun, Japan, assignors to Japan Atomic Energy Research Institute, Tokyo, Japan

Filed Sept. 2, 1965, Ser. No. 484,688
Claims priority, application Japan, Sept. 9, 1964, 39/51,801
5 Claims. (Cl. 252—301.1)

1. A method for reprocessing burned nuclear fuel in the form of metallic uranium, uranium carbides, UO_2, UO_2-graphite or U_3O_8 pellet, comprising dissolving the fuel pellets in a molten salt bath heated higher than 210° C., said bath being selected from the group consisting of NH_4NO_3 and NH_4NO_3 with alkali metal nitrates or chlorides or mixtures thereof, filtering said molten salt through a glass or quartz fibre filter, glass powder and γ-alumina or calcium oxalate packed in a column, heating the filtrate at least at about 300° C. or more in order to expel gaseous fission products, thereby obtaining uranium as a uranium compound precipitate.

5. A method of separating radiologically pure Zr-Nb from burned uranium nuclear fuel comprising: collecting the glass powder which has selectively retained Zr-Nb in the process described in claim 1, mixing said glass powder with a molten salt mixture comprising KNO_3 and $LiNO_3$ (50:50 by weight) and containing at least 1% by weight oxalic acid, said oxalic acid being contained in an amount of 1% at least, and separating the radiologically pure Zr-Nb from the glass powder.

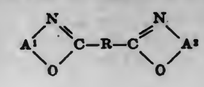
3,322,680

POLYMERIC COMPOSITIONS CONTAINING A FLUORESCENT BRIGHTENING AGENT

David G. Hedberg, Melvin S. Bloom, and Marshall V. Otis, Kingsport, Tenn., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed Mar. 8, 1963, Ser. No. 263,742
Claims priority, application Great Britain, Dec. 17, 1962, 47,527/62
The portion of the term of the patent subsequent to July 12, 1983, has been disclaimed
20 Claims. (Cl. 252—301.2)

1. A normally solid, fiber and film-forming polymeric material having incorporated therein about 0.005 to about 0.5 weight percent, based upon the weight of said polymeric material, of a fluorescent compound of the formula:



in which R is a bivalent 4,4'-stilbene radical and each of A^1 and A^2 is an o-phenylene radical.

3,322,681
PROCESS FOR PREPARING LANTHANUM, YTTRIUM OR LUTETIUM PHOSPHATE PHOSPHORS

Arthur L. Smith, Lancaster, Pa., assignor to Radio Corporation of America, a corporation of Delaware

No Drawing. Filed Dec. 9, 1963, Ser. No. 329,226
1 Claim. (Cl. 252—301.4)

A process for preparing a phosphor comprising:

(1) preparing a first aqueous solution containing x mol part cerium, as a cerous salt thereof where x is between 0.0001 and 0.1, and 1.0 mol part of at least one member of the group consisting of lanthanum, yttrium and lutetium,

(2) adding to a quantity of said first solution a second aqueous solution containing a soluble carbonate in sufficient quantity to coprecipitate all of the cerium, lanthanum, yttrium, and lutetium in said quantity of said first solution,

(3) drying said coprecipitate,

(4) mixing between greater than 2.0 and 2.25 mol part dry ammonium hydrogen phosphate with said dry coprecipitate for each of said 1.0 mol part, and then

(5) heating said mixture to between 1050 and 1150° C. until said phosphor is formed.

3,322,682
RARE EARTH OXIDE AND VANADATE PHOSPHORS

George L. Thompson, Geneva, Ill., assignor to American Potash & Chemical Corporation, Los Angeles, Calif., a corporation of Delaware

No Drawing. Filed Apr. 23, 1965, Ser. No. 450,542
9 Claims. (Cl. 252—301.4)

1. A phosphor consisting essentially of:

(1) a matrix selected from at least one of the group consisting of yttrium oxide, lanthanum oxide, gadolinium oxide, yttrium vanadate, lanthanum vanadate, and gadolinium vanadate, and

(2) a dopant consisting of from 1 to 10 weight percent of europium and from 10 p.p.m. to 1,000 p.p.m. of at least one of cerium, praseodymium, neodymium, samarium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium, lutetium and lanthanum ions, each of said dopant ions being different from the metallic ion of said matrix.

3,322,683
AQUEOUS BARIUM CARBONATE DISPERSIONS, PROCESS FOR THEIR PRODUCTION, AND DRY PRE-MIX

Fred F. Lester, Cartersville, Ga., assignor to Chemical Products Corporation, Cartersville, Ga., a corporation of Georgia

No Drawing. Filed Nov. 2, 1961, Ser. No. 149,507
15 Claims. (Cl. 252—313)

1. A stable, fluid, highly dense composition of matter particularly adapted for use in clay mixes, semi-solid plastic systems and other media to which the addition of large volumes of water is objectionable, said composition exhibiting the property of remaining "pumpable" for long periods without agitation, said composition containing as essential active ingredients

(1) a major amount of barium carbonate, having

(a) an average particle size of from about 0.25 to about 2.0 microns as determined according to the dye absorption method, and

(b) a "reactivity" of at least about 75%, "reactivity" being defined as the percentage of said barium carbonate which will react with an excess of calcium sulfate, present as an 80% saturated solution at room temperature, within a 24-hour period when subjected to a gentle boil under reflux;

(2) a minor amount of water, and

(3) an amount sufficient to disperse the barium carbonate in said water, but not exceeding about 2% by weight of the barium carbonate present, of a dispersant characterized by a markedly hydrophilic behavior in aqueous systems.

7. A substantially dry solid pre-mix containing as essential ingredients

(1) barium carbonate having

(a) an average particle size of from about 0.25 to about 2.0 microns as determined according to the dye absorption method, and

(b) a "reactivity" of at least about 75%, "reactivity" being defined as the percentage of said barium carbonate which will react with an excess of calcium sulfate, present as an 80% saturated solution at room temperature, within a 24-hour period when subjected to a gentle boil under reflux, and

(2) an amount sufficient to disperse the barium carbonate in a minor amount of water, but not exceeding about 2% by weight of the barium carbonate present, of a dispersant characterized by a markedly hydrophilic behavior in aqueous systems,

said pre-mix having the property, when admixed in major amount with a minor amount of water and agitated of forming a stable, fluid, highly dense dispersion, said dispersion being particularly adapted for use in clay mixes, semi-solid plastic systems and other media to which the addition of large volumes of water is objectionable, said dispersion further exhibiting the property of remaining "pumpable" for long periods without agitation.

11. A process for producing a stable, fluid, highly dense composition of matter particularly adapted for use in clay mixes, semi-solid plastic systems and other media to which the addition of large volumes of water is objectionable, which composition exhibits the property of remaining "pumpable" for long periods without agitation, which process comprises the essential steps of admixing

(1) a major amount of barium carbonate, having

(a) an average particle size of from about 0.25 to about 2.0 microns as determined according to the dye absorption method, and

(b) a "reactivity" of at least about 75%, "reactivity" being defined as the percentage of said barium carbonate which will react with an excess of calcium sulfate, present as an 80% saturated solution at room temperature, within a 24-hour period when subjected to a gentle boil under reflux;

(2) a minor amount of water, and

(3) an amount sufficient to disperse the barium carbonate in said water but not exceeding about 2% by weight of the barium carbonate present, of a dispersant characterized by a markedly hydrophilic behavior in aqueous systems,

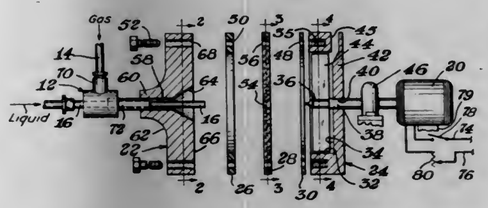
and agitating the mixture so formed.

3,322,684
APPARATUS FOR MAKING FROTH

Dennis L. Gibson and Douglas S. Chisholm, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

Filed Nov. 26, 1963, Ser. No. 326,017
8 Claims. (Cl. 252—359)

1. Apparatus for making froths, comprising an enclosed cylindrical chamber having opposed, spaced-apart, parallel end walls, side walls joining said end walls, a porous, parallel plate intermediate said end walls, means for introducing liquid into said chamber thru one end wall, means for withdrawing froth from said chamber, a rotatable bladed impeller being disposed on a shaft in said chamber with its blades generally closely adjacent to and



coaxially aligned with said side walls, porous plate and other end wall, means for rotating said impeller, said one end wall comprising means including a cover plate spaced from said porous end wall for introducing gaseous foaming material into said chamber through the pores of said porous plate.

ERRATUM

For Class 252—404 see:
Patent No. 3,322,649

3,322,685
CATALYST FOR MANUFACTURE OF TETRAMETHYLLEAD

Paul Kobetz and Francis M. Beaird, Baton Rouge, La., assignors to Ethyl Corporation, New York, N.Y., a corporation of Virginia

No Drawing. Original application Aug. 31, 1962, Ser. No. 220,881, now Patent No. 3,192,240, dated June 29, 1965. Divided and this application Apr. 28, 1965, Ser. No. 451,636
12 Claims. (Cl. 252—429)

1. A catalyst system for the preparation of tetramethyllead compounds from a sodium-lead alloy and an alkyl chloride consisting of methyl aluminum sesquichloride and at least one co-catalyst which is an organic compound consisting of carbon, hydrogen and oxygen, said at least one co-catalyst being an organic compound having at least one glycol diether type group and being at least one selected from the class consisting of,

(a) dihydrocarbon ethers of lower polyethylene glycols having from two to seven glycol groups,

(b) dihydrocarbon ethers of ethylene glycol,

(c) lower alkyl ethers of 1,4-dioxane,

(d) 1,4-dioxane,

(e) dioxolane,

(f) lower alkyl dioxolane,

(g) hydrocarbon ethers of methyl tetrahydrofuran, and

(h) mixtures thereof,

the hydrocarbon radicals of the said co-catalysts being radicals selected from the group consisting of alkyl, phenyl, cyclohexyl, and mixtures thereof.

3,322,686
HYDROGENATION OF CHEMICAL COMPOUNDS AND CATALYSTS THEREFOR

Herbert C. Brown and Charles A. Brown, both of 1840 Garden St., West Lafayette, Ind. 47906

No Drawing. Filed Feb. 5, 1963, Ser. No. 256,230
8 Claims. (Cl. 252—432)

1. The method for preparing a hydrogenation catalyst which comprises reacting a water-soluble borohydride with a water-soluble nickel salt in the proportion of about 0.25 mole to about 1 mole of borohydride for each mole of nickel salt in a liquid medium consisting essentially of water containing a complexing agent for the nickel salt in an amount not substantially more than that required to complex the nickel salt to cause precipitation of a nickel catalyst, and separating the precipitated catalyst, said borohydride being selected from the group consisting of sodium borohydride, lithium borohydride, potassium borohydride, magnesium borohydride, calcium borohydride, and a quaternary ammonium borohydride, said complexing agent being selected from the group consisting of ammonia, methylamine, ethylamine, isopropylamine, dimethylamine, diethylamine, triethylamine, morpholine, N-methylmorpholine, ethanolamine, diethanolamine, triethanolamine, aniline, pyridine, piperidine, tartaric acid, citric acid, and catechol.

3,322,687
CATALYST AND METHOD FOR PREPARING ACRYLONITRILE

Jamal S. Eden, Akron, Ohio, and Charles E. Ziegler, Therwil, Basel-Land, Switzerland, assignors to The B. F. Goodrich Company, New York, N.Y., a corporation of New York

No Drawing. Filed Jan. 27, 1964, Ser. No. 340,533
4 Claims. (Cl. 252—437)

2. A composition consisting essentially of (1) 100 mols bismuth phosphomolybdate, (2) about 30 mols TeO_2 and (3) from about 1 to 2 mols $HReO_4$.

3,322,688
LOW TEMPERATURE ISOMERIZATION CATALYST AND PROCESS

William C. Starnes, Cabot, Pa., assignor to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Pennsylvania

No Drawing. Filed Apr. 9, 1964, Ser. No. 358,628
7 Claims. (Cl. 252—439)

1. The method of activating a composite catalyst comprising a major proportion of alumina and containing a minor proportion of a metalliferous material having hydrogenating activity, comprising providing a system containing said composite catalyst, sulfur monochloride, introducing into said system said introduction of sulfur monochloride being carried out while maintaining said system at nonreducing conditions at an elevated temperature in the range of about 300° to 1000° F. that is effective to promote a substantial increase in the chlorine content of the composite catalyst.

3,322,689
ISOMERIZATION CATALYSTS AND METHOD OF PREPARATION

Joseph P. Giannetti, Allison Park, Alfred M. Henke, Springdale, Robert E. Kline, Pittsburgh, and Raynor T. Sebulsky, Verona, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware

No Drawing. Filed Aug. 10, 1964, Ser. No. 388,678
16 Claims. (Cl. 252—441)

1. The method of activating a composite catalyst comprising a major proportion of alumina and containing a minor proportion of a metalliferous material having hydrogenating activity, where the metal component of said metalliferous material is selected from the group consisting of metals of Group VIII and the left-hand column of Group VI of the Mendelyeev Periodic Table, comprising pretreating said composite material to improve its susceptibility for activation with a sulfur chloride by contacting the same with hydrogen chloride at a temperature in the range of about 950° to 1250° F., activating the pretreated catalyst by contacting the same with a sulfur chloride having the generic formula $S_nO_aX_bY_c$, where S is sulfur, O is oxygen, X is chlorine, Y is a halogen other than chlorine, n is 1 or 2, a is 0, 1, 2, 3 or 5, b is 2, 4 or 7, c is 0 or 1 and the sum of b and c is 2 to 8, said contacting being carried out at nonreducing conditions at an elevated temperature in the range of about 205° to

1000° F. that is effective to promote a substantial increase in the chlorine content of the catalyst, further promoting the activity of the pretreated, activated catalyst by subjecting the same to an aftertreatment with hydrogen chloride at a temperature in the range of about 60° to 900° F.

3,322,690

SYNTHETIC CRYSTALLINE ZEOLITE COMPOSITIONS AND PREPARATION THEREOF

Julius Philip Bilisoly, Baton Rouge, La., assignor to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Filed Dec. 10, 1963, Ser. No. 329,366
18 Claims. (Cl. 252—455)

1. A process for preparing a synthetic crystalline alumino-silicate zeolite product having improved high temperature stability, which comprises crystallizing said zeolite at an elevated temperature from an aqueous reaction mixture containing alkali metal oxide, silica, alumina, and an inorganic metal oxide capable of improving the high temperature stability of said zeolite and selected from the group consisting of oxides of rare earth metals and metals in Group II of the Periodic Table, said inorganic metal oxide being present in said reaction mixture at the time crystallization of said zeolite is initiated in an amount within the range of from about 1 to about 20 wt. percent based on the weight of said product, and recovering a crystalline zeolite product containing said inorganic metal oxide firmly held in its crystal framework.

3,322,691

CATALYST PROCESS AND PRODUCT

William J. Craven, Passaic, N.J., assignor to W. R. Grace & Co., a corporation of Connecticut

No Drawing. Filed July 23, 1963, Ser. No. 296,941
4 Claims. (Cl. 252—458)

1. In the process for the formation of a catalyst containing chromium oxide on a silica base, the improvement which comprises the addition of at least a portion of the chromium oxide to the base as CrO_2Cl_2 and heating the said catalyst at a temperature of at least about 650° F. for at least about ½ hour to activate the catalyst.

3,322,692

CATALYST COMPOSITION CONSISTING OF THE OXIDES OF COBALT, IRON AND RARE EARTH

Jared W. Clark, Charleston, W. Va., assignor to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Aug. 30, 1963, Ser. No. 305,830
2 Claims. (Cl. 252—462)

1. A novel catalyst composition consisting essentially of from about 30 weight percent to about 90 weight percent cobalt oxide, from about 1 weight percent to about 85 weight percent iron oxide and from about 5 weight percent to about 40 weight percent rare earth oxide.

3,322,693

COBALT MOLYBDATE CATALYST FOR THE PRODUCTION OF ACRYLIC OR METHACRYLIC ACID

James Robert Bethell and David James Hadley, Epsom Downs, England, assignors to The Distillers Company Limited, Edinburgh, Scotland, a British company

No Drawing. Original application Aug. 29, 1961, Ser. No. 134,592. Divided and this application Feb. 18, 1965, Ser. No. 433,777
Claims priority, application Great Britain, Feb. 17, 1959, 5,396/59; Apr. 15, 1959, 12,881/59, 12,882/59; June 13, 1959, 20,304/59; Sept. 8, 1960, 30,923/60; Sept. 29, 1960, 33,411/60
1 Claim. (Cl. 252—470)

A catalyst for the production of acrylic or methacrylic acid, said catalyst consisting essentially of cobalt, molybdenum and oxygen, said catalyst being the heat-treated precipitate of the addition of a nitrogenous base to an aqueous composition of a cobalt salt and a molybdenum compound selected from the group consisting of (1) a molybdic acid and (2) a molybdate of said nitrogenous base, the proportion of cobalt to molybdenum in said aqueous composition being not substantially greater than 1:1, to obtain from the addition of said nitrogenous base to said aqueous composition a pH less than about 7 and wherein the heat treatment of said precipitate is carried out at about 600° C.

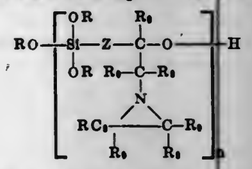
3,322,694

N-CONTAINING ORGANOSILICON POLYMER

George E. Ham, Lake Jackson, Tex., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Dec. 5, 1963, Ser. No. 328,200
11 Claims. (Cl. 260—2)

1. A macromolecular compound of the formula



wherein:

(a) each R_0 is selected from the group consisting of the hydrogen atom and a lower alkyl group of from 1 to 4 carbon atoms,

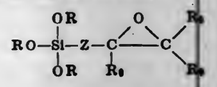
(b) each R represents a lower alkyl group of from 1 to 4 carbon atoms,

(c) Z is an inert divalent hydrocarbon or hydrocarbon ether group of up to about 20 carbon atoms, and

(d) n is an integer of from 1000 to 5000.

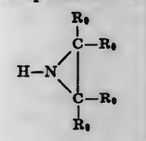
9. A process of preparing a macromolecular compound which comprises reacting at a temperature of 40 to 100° C.:

(1) a compound of the formula



with

(2) an aziridinyl compound of the formula



wherein:

(a) each R_0 is selected from the group consisting of the hydrogen atom and a lower alkyl group of from 1 to 4 carbon atoms,

(b) each R represents a lower alkyl group of from 1 to 4 carbon atoms, and

(c) Z is a divalent group selected from the group consisting of a hydrocarbon of from 1 to 10 carbon atoms and an ether group of the formula $-(R'OR'')_x-$ wherein x is an integer of from 1 to 6 and each of R' and R'' is an alkylene group of from 1 to 4 carbon atoms.

3,322,695

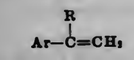
PREPARATION OF POROUS STRUCTURES

Turner Alfrey, Jr., Midland, Mich., and William G. Lloyd, Dover, N.J., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

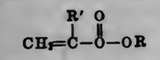
Filed July 1, 1966, Ser. No. 563,634
6 Claims. (Cl. 260—2.5)

1. The method of preparing a porous polymer comprising polymerizing polymerizable organic material which is

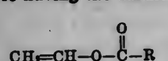
a member selected from the group consisting of an alkenyl aromatic compound having the general formula



wherein Ar represents an aromatic hydrocarbon radical, or an aromatic halohydracarbon radical of the benzene series, and R is hydrogen or the methyl radical; acrylate-type monomers include monomers of the formula



wherein R is selected from the group consisting of hydrogen and an alkyl radical containing from about 1 to 12 carbon atoms and R' is selected from the group consisting of hydrogen and methyl; copolymers of vinyl chloride and vinylidene chloride, acrylonitrile and vinyl chloride, vinyl bromide, vinyl esters having the formula



wherein R is an alkyl radical containing from 2 to 18 carbon atoms; acrylic acid, methacrylic acid, itaconic acid, citraconic acid, maleic acid, fumaric acid, oleic acid, vinylbenzoic acid; the synthetic polyester resins which are prepared by reacting terephthalic acid and dialkyl terephthalics or ester-forming derivatives thereof, with a glycol of the series $HO(CH_2)_nOH$, wherein n is a whole number within the range of 2–10 and having reactive olefinic linkages within the polymer molecule, the hereinabove described polyesters which include copolymerized therein up to 20 percent by weight of a second acid or ester thereof having reactive olefinic unsaturation and mixtures thereof, and at least 10 mole percent of a cross-linking agent selected from the group consisting of divinylbenzene, diethylene glycol dimethacrylate, diallyl fumarate, diallyl phthalate and mixtures thereof, to a rigid cross-linked polymer body having a plurality of interconnecting pores therein in a solvent, the solvent being in a proportion of from about one-half to about twenty times the weight of the polymerizable mixture wherein the following relationship exists: $\delta=\delta_0\pm0.8$, where δ is the solubility parameter of the solvent and δ_0 is the solubility parameter of the polymer.

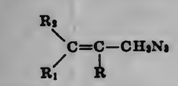
3,322,696

FOAMED POLYLACTAMS

Charles F. Fisher, Wilmington, Del., and Mack F. Fuller, Wenonah, N.J., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed May 6, 1964, Ser. No. 365,497
10 Claims. (Cl. 260—2.5)

1. In a process for the production of polyamide foams by the anionic cocatalyzed polymerization of lactam having 3 to 12 carbon atoms in the lactam ring, the improvement comprising conducting the polymerization reaction in the presence of a blowing agent which comprises at least one aliphatic hydrocarbon having from 2 to 7 carbon atoms and an allylic azide having the structure



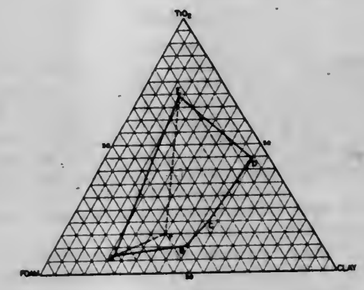
in which at least one azidomethyl group is directly attached to a carbon atom which in turn is attached to another carbon atom by a double bond and wherein R, R_1 and R_2 are selected from the group consisting of hydrogen, alkyl and aryl, and R and R_1 when taken together represent the carbon atoms of a benzenoid ring.

3,322,697

FILLER COMPRISING FIBROUS FOAMED AMINOPLAST RESIN

Thomas P. Czepiel, Waterville, Maine, assignor to Scott Paper Company, Philadelphia, Pa., a corporation of Pennsylvania

Filed May 1, 1964, Ser. No. 364,136
1 Claim. (Cl. 260—2.5)



An improved combination of fillers comprised of angulate fibrous fragments of foamed aminoplast resins, clay and titanium dioxide, said combination being suitable for inclusion as fillers in a furnish of cellulosic fibrous materials, the proportion of each filler in said combination represented by the area ABCD and E in the figure.

3,322,698

CELLULAR URETHANES

Robert A. Wiles and Edward R. Degginger, Syracuse, N.Y., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Nov. 1, 1962, Ser. No. 234,841
6 Claims. (Cl. 260—2.5)

1. A rigid cellular urethane prepared by reacting in the presence of a blowing agent an organic polyisocyanate and a polyether derived from the reaction of an epihalohydrin and a polyol having the formula

$$HOCH_2—(CHOH)_n—CH_2OH$$

wherein n is an integer from 1 to 4, said polyether having a hydroxyl number of at least about 100 and being characterized by containing the group

$$—CH—(CH_2X)—CH_2—O—$$

wherein X is a member selected from the group consisting of fluorine, chlorine and bromine, said group being present in a ratio of about 0.5 to 6 times the number of hydroxyl groups present in said polyol, a portion of said polyl being substituted by orthophosphoric acid.

3,322,699

CELLULAR POLYURETHANES AND PROCESS FOR PREPARING SAME

Rudolf Merten, Cologne, Flittard, and Otto Bayer, Leverkusen, Bayerwerk, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a German corporation

No Drawing. Filed Jan. 30, 1964, Ser. No. 341,439
Claims priority, application Germany, Feb. 1, 1963, F 38,893
10 Claims. (Cl. 260—2.5)

1. In the process for the preparation of polyurethane plastics by the reaction between organic compounds containing at least two active hydrogen containing groups as determined by the Zerewitinoff method, an organic polyisocyanate, a blowing agent, a catalyst and a stabilizer, the improvement which comprises reacting a polyhydric alcohol with a halogented polycarboxylic acid in the

preparation of said organic compound containing active hydrogen containing groups, said polycarboxylic acids having been obtained by the substitution addition reaction of an α,β-unsaturated polycarboxylic acid with a halogen and an aliphatic hydrocarbon having at least four carbon atoms, an araliphatic hydrocarbon having at least four carbon atoms in the aliphatic chain or a carboxylic acid having only one carboxyl group as the sole hydrogen containing group.

3,322,700

METHOD OF FOAMING A RESIN COMPOSITION COMPRISING AN EPOXY RESIN, A VAPOR GENERATING FLUID, BORON TRIFLUORIDE CATALYST AND AN AMMONIUM HALIDE

Robert T. Dowd, Pasadena, Tex., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Apr. 22, 1964, Ser. No. 361,898
3 Claims. (Cl. 260—2.5)

1. In the method of producing foamed epoxy resin compositions wherein there are blended

(A) a liquid polyepoxide composition comprising

(a) a polyepoxide capable of being cured to a thermoset resin; and

(b) a vapor generating fluid which is completely soluble in said composition at ambient temperatures and atmospheric pressure but volatilizes therefrom at elevated temperatures; and

(B) a liquid curing composition comprising a curing agent selected from the group consisting of boron trifluoride and coordination complexes of boron trifluoride;

the improvement which comprises controlling the time interval between blending of said liquid compositions and foam rise by incorporating in said curing composition, prior to said blending step, an amount of an ammonium halide in the range from 10 to 150 percent by weight, based on boron trifluoride.

3,322,701

PROCESS FOR IMPROVING FOAMED POLYURETHANE PLASTICS BY TREATING WITH AN ALKALI SOLUTION OF A WATER FREE ALIPHATIC MONOHYDRIC ALCOHOL

Johann Bauer, Essen, and Aloys Zenz, Essen, Steele, Germany, assignors to Johann Bauer, Essen, Germany and Bernard Reisgies, Essen, Germany

No Drawing. Filed May 4, 1964, Ser. No. 364,823
4 Claims. (Cl. 260—2.5)

1. A process for improving foamed polyurethane plastics, comprising subjecting a foamed polyurethane plastic product to the action of a solution of an alkali in a water-free lower aliphatic monohydric alcohol until a decrease in weight ranging from about 10% to about 70% of the original weight of the foamed plastics product is achieved and subjecting the thus obtained foamed plastics product to the action of a neutralization bath until neutralization is completed.

3,322,702

PHENOLIC RESOLE-BONE GLUE-UREA-DILUENT EXTENDER BINDER COMPOSITION FOR BONDED MAT

Clayton A. Smucker and Joseph P. Stalego, Newark, Ohio, assignors to Owens-Corning Fiberglas Corporation, a corporation of Delaware

No Drawing. Filed Oct. 23, 1965, Ser. No. 504,172
5 Claims. (Cl. 260—7)

1. A hardenable, aqueous binder composition containing from 5 to 35 percent solids consisting essentially of from 20 to 30 percent of a heat-hardenable phenolic resole, 3 to 30 percent of a diluent extender selected from the group consisting of extracted pinewood pitch and polymerized unsaturated fatty acids having a chain length of from about 10 to 22 carbon atoms, from 35 to 57 percent bone glue and from 5 to 15 percent urea, said composition having a pH ranging from about 7 to 8.5.

3,322,703

REMOISTENABLE ADHESIVES ADMIXED WITH VINYL ACETATE-ALKOXY POLYALKYLENE GLYCOL COPOLYMERS

Martin K. Lindemann, Somerville, N.J., assignor, by mesne assignments, to Cumberland Chemical Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Jan. 28, 1963, Ser. No. 254,435
20 Claims. (Cl. 260—8)

1. Compositions comprising a water soluble-organic solvent insoluble remoistenable adhesive and a water insoluble-organic solvent soluble polymeric material, the weight ratio of said adhesive to said polymeric material being within the range of from about 1:2 to about 100:1, said polymeric material being selected from the group consisting of vinyl acetate-alkoxy polyalkylene glycol unsaturated dicarboxylic acid half ester copolymers, and vinyl acetate-alkoxy polyalkylene glycol unsaturated monocarboxylic acid ester copolymers.

3,322,704

POLYOLEFIN-METAL SALT-LUBRICANT COMPOSITIONS HAVING IMPROVED DYE RECEPTIVITY

Richard S. Berger and Carl W. Schroeder, Orinda, Calif., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Dec. 16, 1963, Ser. No. 330,647
13 Claims. (Cl. 260—23)

1. A dyed polyolefin stable to washing, dry cleaning and fading, which is uniformly impregnated with (a) from 0.2% to 4.0% of an organic dyeability improving compound which does not per se impart dyeability to the polyolefin but which has the ability to form a solution or colloidal suspension of the metal salt, which is mutually soluble with a polyolefin at temperatures above the polyolefin melting point, and which remains homogeneously distributed in the polyolefin after it is cooled, said dyeability improving compound being selected from the group consisting of naphthenic hydrocarbons containing at least two naphthene rings, paraffinic hydrocarbons of at least 16 carbon atoms per molecule, and diethers of poly(alkylene oxides); and (b) the colored reaction product of a metal of valence at least 2, originally present in said polyolefin in the form of from 0.5% to 5% of a polyolefin-compatible metal salt of a monocarboxylic acid having at least 8 carbon atoms per molecule, with a water insoluble dyestuff which contains a chromophore group and a carbonyl group in ortho position to a hydroxy group.

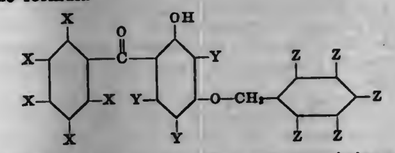
3,322,705

POLYOLEFINS STABILIZED WITH MIXTURES COMPRISING A 2-HYDROXY, 4-BENZYLOXY BENZOPHENONE, THIODIPROPIONATE AND METAL SALT OF A MONOCARBOXYLIC ACID

Otto S. Kauder, Jamaica, N.Y., and Aaron Rosenbaum, Orange, N.J., assignors to Argus Chemical Corporation, a corporation of Delaware

No Drawing. Filed Feb. 15, 1966, Ser. No. 527,524
20 Claims. (Cl. 260—23)

1. A stabilizer composition for use in improving the resistance of polyolefins produced from monomers containing from about two to about six carbon atoms to deterioration in physical properties comprising an amount within the range from about 0.1 to about 500 parts by weight of a benzophenone compound and an amount within the range from about 0.4 to about 500 parts by weight of another polyolefin stabilizer selected from the group consisting of phenols, organic phosphites, salts of organic non-nitrogenous monocarboxylic acids, thiodipropionic acid esters, organic mercaptans and organic polysulfides, the benzophenone compound being characterized by the formula



wherein X is selected from the group consisting of hydrogen, halogen, nitro groups, and alicyclic, heterocyclic, and saturated aliphatic radicals of from one to thirty carbon atoms, and Y and Z are selected from the group consisting of hydrogen, halogen, and alicyclic, heterocyclic, and saturated aliphatic radicals of from one to thirty carbon atoms.

3,322,706

ASPHALT COMPOSITIONS AND METHOD OF IMPROVING SPOT TESTING TO SELECT ASPHALTS

Homer C. McAninch, Ponca City, Okla., assignor to Continental Oil Company, Ponca City, Okla., a corporation of Delaware

No Drawing. Filed June 11, 1962, Ser. No. 201,323
5 Claims. (Cl. 260—28.5)

1. A paving composition comprising straight run, uncracked asphalt which exhibits a positive test when subjected to Oliensis spot testing and an ethylene-vinyl acetate copolymer having an ethylene to vinyl acetate ratio of from about 60:40 to about 90:10, a melt index of between 3 and 200, and a molecular weight of between about 200,000 and about 600,000, the copolymer being dispersed in the asphalt in an amount between about 0.01 and 15.0 percent by weight.

3,322,707

COATING COMPOSITIONS

Raffaele W. Annonio and John P. Gilvary, Plainfield, N.J., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Filed June 11, 1964, Ser. No. 374,278
20 Claims. (Cl. 260—28.5)

1. A vinyl polymer coating composition for coating cellophane consisting essentially of:

(a) vinyl chloride polymer containing at least 60% vinyl chloride polymerized therein;

(b) from about 0.1 to 10% of an ethylene copolymer based on the weight of the vinyl chloride polymer said ethylene copolymer being selected from the group consisting of ethylene-vinyl ester copolymers containing from about 10 to 50 percent by weight of vinyl ester polymerized therein, and ethylene-alkyl acrylate copolymers containing from about 5 to 50 percent by weigh of alkyl acrylate polymerized therein;

(c) from about 2 to 25% of a polymethyl ether of hexamethylol melamine based on the weight of the vinyl chloride polymer;

(d) from about 0.1 to 3% of an organic acid based on the weight of the vinyl chloride polymer; and

(e) from 0 to about 6% of paraffin wax based on the weight of the vinyl chloride polymer.

3,322,708

POLYPROPYLENE COMPOSITIONS

Ernest V. Wilson, Cranford, N.J., assignor to Esso Research and Engineering Company, a corporation of Delaware

No Drawing. Filed May 17, 1965, Ser. No. 456,473
12 Claims. (Cl. 260—28.5)

1. A solid homogeneous composition of matter comprising a major proportion of a solid polypropylene resin having a molecular weight in the range of about 100,000 to 500,000 Staudinger, a minor proportion, in the range of about 1 to about 35 percent by weight, of petroleum wax having a melting point in the range of about 120° to about 200° F., said wax being selected from the group consisting of paraffin waxes and microcrystalline waxes, and a minor proportion, in the range of from about 0.5 to about 15 weight percent of a co-solvent for said wax, said wax being dissolved in said polypropylene resin but normally tending to crystallize from said resin and form a wax bloom, said co-solvent being effective to prevent said wax bloom, said co-solvent being a copolymer of ethylene and an unsaturated ester selected from the group consisting of vinyl alcohol esters of saturated C_1 to C_{12} aliphatic monocarboxylic acids, acrylic acid esters of C_1 to C_{12} saturated aliphatic monohydric alcohols, and methacrylic acid esters of C_1 to C_{12} saturated aliphatic monohydric alcohols, said copolymer having a molecular weight in the range of about 3,000 to 500,000 and a molar ratio of ethylene to unsaturated ester in the range of 1:1 to 15:1.

3,322,709

COATING COMPOSITIONS

Irving P. Hammer, Nutley, N.J., assignor to Mobil Oil Corporation, a corporation of New York

No Drawing. Filed Jnly 28, 1964, Ser. No. 385,764
16 Claims. (Cl. 260—28.5)

1. A coating composition comprising in approximate percent by weight

Paraffin wax	32–62.5
Microcrystalline wax	15–25
An interpolymer containing from about 70 to about 75 percent by weight of ethylene and from about 30 to about 25 percent by weight of vinyl acetate and having a melt index between about 275 and about 450	10–20
A solid polymer of ethylene having a molecular weight of from about 1,000 to about 10,000	1–4
A polyterpene resin	7.5–15
and	
A polyisobutylene having a molecular weight of from about 5,000 to about 15,000	1–4

3,322,710

PROCESS FOR PREPARING UNIFORM DISPERSIONS OF FIBRILLATED POLYTETRAFLUOROETHYLENE PARTICLES IN A THERMOSETTING RESIN

Purnal L. McWhorter, Odessa, Robert S. Mercer, Newark, and David C. Trimble, Yorklyn, Del., assignors, by mesne assignments, to Haveg Industries, Inc., a wholly-owned subsidiary of Hercules Powder Company, New Castle, Del., a corporation of Delaware

Filed July 20, 1964, Ser. No. 384,289
9 Claims. (Cl. 260—29.2)

1. A process for preparing a uniform dispersion of fibrous solid polytetrafluoroethylene in a thermosetting resin selected from the group consisting of phenol formaldehyde resin and furfuryl alcohol-formaldehyde resin comprising mixing an aqueous dispersion of polytetrafluoroethylene polymer particles with an aqueous dispersion of said thermosetting resin to produce a uniform dispersion of said polytetrafluoroethylene particles in said thermosetting resin, thickening said mixture, releasing water therefrom and fibrillating said polytetrafluoroethylene particles by agitating said mixture.

3,322,711

POLYMER OXIDATION PROCESS AND EMULSION THEREFROM

Richard W. Bush, Takoma Park, and Clifton L. Kehr, Ednor, Md., assignors, by mesne assignments, to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed Feb. 7, 1964, Ser. No. 343,205
6 Claims. (Cl. 260—29.6)

1. An aqueous emulsion composition comprising (a) emulsifiable oxidized α-olefin polymeric material, said material prepared by oxidizing in the solid particulate state as essentially the sole solid hydrocarbon material an α-olefin polymeric material selected from the group consisting of ethylene homopolymers and copolymers of ethylene and other α-olefins wherein said copolymers containing at least 50 mole percent ethylene, said homopolymer and copolymers being at least 40% crystalline by weight and having a reduced specific viscosity of 1.0 to 30 deciliters/g., in an atmosphere containing free oxygen at a temperature ranging from 90° C. up to the crystaline melting point of the α-olefin polymeric material for a period sufficient to form oxidized α-olefin polymeric material containing 0.1 to 2.0 milliequivalents carboxyl/g. and having a reduced specific viscosity of 0.1 to 1.5 deciliters/g. (b) from 40–200% by weight of the theoretical amount of a base required to neutralize the carboxylic acid groups in said material, (c) 1–50% by weight of said material of an emulsifier, (d) said aqueous emulsion containing 10 to 50% total solids by weight.

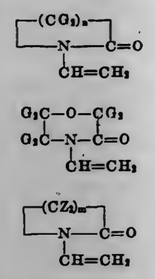
3,322,712

BACTERIA RESISTANT LATICES OF GRAFT COPOLYMERS OF N-VINYL HETEROCYCLIC MONOMERS ON POLYMERIC BACKBONES

John B. Gardner and Billy G. Harper, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Mar. 20, 1963, Ser. No. 266,477
5 Claims. (Cl. 260—29.6)

1. A composition comprising a non-discolored aqueous dispersion of a bactericide selected from the group consisting of iodine and bromine and a graft copolymer of a minor amount by weight of an N-vinyl heterocyclic monomer and a major amount by weight of a polymer of an ethylenically unsaturated monomer; said heterocyclic monomer being selected from the group consisting of the N-vinyl cyclic amides, the N-vinyl cyclic carbamates, and mixtures thereof having the formulae:



wherein each G is independently selected from the class consisting of hydrogen and alkyl radicals of from 1 to 4 carbon atoms; each Z is independently selected from the class consisting of hydrogen, alkyl radicals of from 1 to 4 carbon atoms and aryl radicals containing from 6 to 10 carbon atoms; *n* is an integer from 3 to 5; and *m* is an integer from 2 to 3; said bactericide and said graft copolymer being combined as an odorless complex.

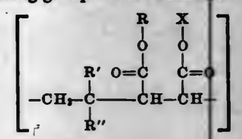
3,322,713

DISPERSION OF PIGMENTS USING SALTS OF ALKYL ESTERS OF OLEFIN-MALEIC ANHYDRIDE COPOLYMERS

Charles R. Williams, Longmeadow, Mass., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

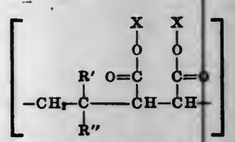
No Drawing. Filed June 4, 1964, Ser. No. 372,708
6 Claims. (Cl. 260—29.6)

1. In a process for preparing dispersions of water-insoluble organic pigments in an aqueous medium; the improvement which comprises incorporating in the aqueous medium a salt of an alkyl ester of an olefin-maleic anhydride copolymer in the amount of 0.1–7.0 weight percent based on the weight of the organic pigment dispersed therein; said salt of an alkyl ester of an olefin-maleic anhydride copolymer having a weight average molecular weight of up to about 10,000 and having in its structure recurring groups of the formulae:



(A)

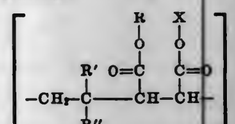
and



(B)

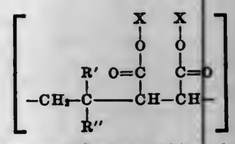
with the total number of groups (A) and (B) being 3–20 of which total (A) constitutes 50–100%; wherein R is an alkyl radical having 3–18 carbon atoms; R′ is selected from the group consisting of hydrogen, methyl and ethyl, R″ is selected from the group consisting of hydrogen and methyl, providing that when R′ is ethyl, R″ is hydrogen; and X is selected from the group consisting of ammonium, substituted ammonium and alkali metal ions.

5. In an aqueous latex surface coating composition which comprises a water-insoluble organic pigment dispersed in an aqueous latex of a film-forming polymer; the improvement which comprises incorporating therein a salt of an alkyl ester of an olefin-maleic anhydride copolymer in the amount of 0.1–7.0 weight percent based on the weight of the organic pigment dispersed therein; said salt of an alkyl ester of an olefin-maleic anhydride copolymer having a weight average molecular weight of up to about 10,000 and having in its structure recurring groups of the formulae:



(A)

and



(B)

with the total number of groups (A) and (B) being 3–20 of which total (A) constitutes 50–100%; wherein R is an alkyl radical having 3–18 carbon atoms; R′ is selected from the group consisting of hydrogen, methyl and ethyl; R″ is selected from the group consisting of hydrogen and methyl, providing that when R′ is ethyl, R″ is hydrogen; and X is selected from the group consisting of ammonium, substituted ammonium and alkali metal ions.

3,322,714

VINYL ACETATE-CONTAINING COMPOSITIONS FOR SPLICING SHEET MATERIALS

Wilhelm N. Martin, Grand'Mere, Quebec, Canada, assignor to Consolidated Paper (Bahamas) Limited, Nassau, Bahamas

No Drawing. Filed Aug. 31, 1964, Ser. No. 393,352
6 Claims. (Cl. 260—31.8)

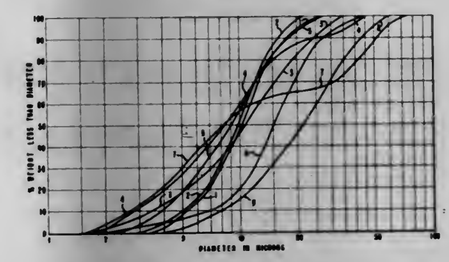
1. A composition for splicing sheet material which consists essentially of a solution of a copolymer of vinyl acetate and crotonic acid, a plasticizer, and a curing agent selected from the group consisting of aluminum acetate, aluminum nitrate, aluminum sulphate, ammonium bichromate, chromium acetate, chromium chloride, chromium nitrate, chromium trioxide, ferric oxalate, ferric chloride, and ferric citrate, said composition containing 15% to 50% total non-volatile material.

3,322,715

PROCESS FOR MAKING CALCIUM CARBONATE FILLED POLYAMIDE COMPOSITIONS

Miles Charles Kumnick, Fairfax, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Oct. 16, 1963, Ser. No. 316,565
13 Claims. (Cl. 260—37)



1. A casting process comprising the steps of mixing calcium carbonate particles with an ω-lactam containing anionic polymerization catalyst, to form a first liquid casting solution, mixing calcuim carbonate particles with an ω-lactam containing an anionic lactam polymerization cocatalyst to form a second liquid casting solution and commingling said first and second casting solutions in a mold maintained at from 75 to 220° C. to effect polymerization of said ω-lactam, the total mass of said first and second casting solutions containing from 30 to 70 weight percent of the polymerization mixture which contains ω-lactam, from 0.5 to 5 mole percent based on the ω-lactam of an anionic polymerization catalyst, from 0.01 to 2 mole percent based on the lactam of a lactam anionic polymerization cocatalyst, and from 30 to 70 weight percent of calcium carbonate particles which particles have a median size of from 7 to 45 microns in diameter.

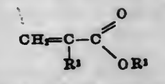
3,322,716

FLAME RETARDANT COMPOSITIONS CONSISTING ESSENTIALLY OF A THERMOPLASTIC MATERIAL AND A PHOSPHINIC ACID

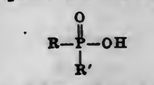
Harvey Gerald Klein and Helen Currier Gilliam, Stamford, Conn., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Aug. 19, 1963, Ser. No. 303,156
12 Claims. (Cl. 260—45.7)

1. A flame-retardant composition consisting essentially of a thermoplastic material selected from the group consisting of a polymer, and blends of polymers produced from at least one vinyl monomer selected from the group consisting of (1) a butadiene, (2) an acrylonitrile, (3) an α-olefin, (4) a styrene and (5) a compound having the formula



wherein R^2 is selected from the group consisting of hydrogen and a methyl radical and R^3 is selected from the group consisting of hydrogen and an alkyl radical of from 1 to 6 carbon atoms, inclusive, and from about 5% to about 35%, by weight, based on the weight of said material, of a phosphinic acid having the formula



wherein R is selected from the group consisting of (a) an aryl radical containing from 6–10 carbon atoms, (b) an alkyl radical containing from 1–8 carbon atoms, and (c) a substituted alkyl radical containing from 1–8 carbon atoms and being substituted with a member selected from the group consisting of (I) cyano, (II) hydroxy, (III) carboxy and (IV) carboxy and hydroxy and R′ is selected from the group consisting of (w) hydrogen, (x) said (a), (y) said (b), and (z) said (c).

3,322,717

POLYURETHANES STABILIZED WITH XANTHOGEN DISULFIDES

Charles Edwin Kendall, Downer, Canberra, Australian Capital Territory, Australia, and Douglas Wynne Huke, Grimsby, England, assignors to Dunlop Rubber Company Limited, London, England, a British company

No Drawing. Filed June 30, 1964, Ser. No. 379,399
Claims priority, application Great Britain, July 2, 1963, 26,121/63
9 Claims. (Cl. 260—45.7)

1. A polyurethane composition being a reaction product of a polyether polyol and a liquid diisocyanate containing as an anti-oxidant a compound having the general formula RXCS—SS—SCXR$_1$ wherein R and R$_1$ each represents a group selected from the class consisting of alkyl groups, alicyclic groups, aralkyl groups and aryl groups, and X represents a member selected from the class consisting of oxygen atoms and sulphur atoms.

3,322,718

POLYOLEFINS STABILIZED WITH PHOSPHITES, PHENOLS, AND BENZOTRIAZOLES

Carl N. Jacob, Cincinnati, Ohio, assignor to National Distillers and Chemical Corporation, New York, N.Y., a corporation of Virginia

No Drawing. Filed Aug. 23, 1963, Ser. No. 304,215
1 Claim. (Cl. 260—45.8)

Polypropylene stabilized with a synergistic combination of about 0.05 to 0.5 percent by weight based on the polymer of 2,2′-methylene-bis(4-ethyl-6-tert-butyl phenol); about 0.05 to 0.5 percent by weight based on the polymer of tris(laurylmercaptoethyl) phosphite; and about 0.1 to 0.5 percent by weight based on the polymer of 2(2′-hydroxy-5′-methylphenyl)benzotriazole.

3,322,719

POLYCARBONATES STABILIZED BY ADDING A BENZOPHENONE OR A BENZOTRIAZOLE TO ACIDIFIED POLYMER

Günter Peilstöcker, Krefeld-Bockum, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed Nov. 12, 1964, Ser. No. 410,704
Claims priority, application Germany, Nov. 19, 1963, F 41,315
6 Claims. (Cl. 260—45.8)

1. A method for stabilizing polycarbonate polymers against the degradative effects of ultraviolet radiation

which comprises acidifying the polymer by adding from about 0.001 to about 0.5 part by weight of a co-stabilizer which will impart acidity to the polycarbonate, said co-stabilizers being selected from the group consisting of o-phosphoric acid, m-phosphoric acid, boric acid, monophenyl phosphate, diphenyl phosphate, triisooctyl phosphate, tridecyl phosphate, phenyl metaphosphate, boron phosphate and mixtures thereof, and then adding a stabilizing amount of a member selected from the group consisting of 2-hydroxy-4-methoxy-benzophenone, 2,2'-dihydroxy - 4-methoxy-benzophenone, 2,2'-dihydroxy-4-n-octoxy-benzophenone and a 2-(2'-hydroxy-5'-lower alkylphenyl)-benzotriazole.

3,322,720

PROCESS FOR ALTERING THE PARTICLE SIZE DISTRIBUTION OF ALPHA MONO-OLEFIN POLYMERS

James F. Dempsey, Claymont, Del., Habet M. Khelghatian, Springfield, Pa., and Richard P. Maloney, New Castle, Del., assignors to Avisun Corporation, Philadelphia, Pa., a corporation of Delaware

Filed Aug. 12, 1964, Ser. No. 389,124
20 Claims. (Cl. 260—45.85)

20. A method of incorporating polymer improving additives into particles of alpha olefin polymer powders obtained by polymerization of C_2 to C_8 alpha olefins in the presence of an inert organic polymerization liquid and a coordination catalyst complex which comprises adding to a wet cake of finely divided solid polyolefin polymer containing 20 to 80 percent by weight of the inert polymerization liquid selected from the group consisting of C_5 to C_7 liquid saturated hydrocarbons from about 1 to 10 volumes of water and a polymer-improving additive, heating said slurry in a closed autoclave within the range of 100 to 300° F., and maintaining autogenous pressure within said autoclave, agitating said slurry for a period of time necessary to condition said polymer to agglomerate a part thereof and form a varied distribution of particle sizes by flashing off the polymerization liquid, whereby a polymer powder having a different particle size distribution in the range of 70 to 250 microns is recovered.

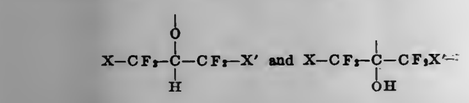
3,322,721

ESSENTIALLY SATURATED PREFORMED POLYMERS MODIFIED WITH POLYFLUOROKETONES

Edward George Howard, Jr., Hockessin, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

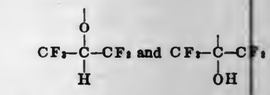
No Drawing. Filed Apr. 13, 1964, Ser. No. 359,436
24 Claims. (Cl. 260—46.5)

1. A polymer having a molecular weight of at least 1000, which contains aliphatic carbon-carbon unsaturation in no more than 10 percent by weight of the recurring monomeric units making up the polymer, and having pendant from aliphatic carbon the groups



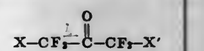
wherein X and X' are selected from the group consisting (1), individually, of hydrogen, fluorine, chlorine and bromine, perfluoroalkyl, ω-hydro-, ω-chloro-, ω-bromo and ω-alkoxyperfluoroalkyl all of up to 18 carbons and (2), jointly, of haloperfluoroalkylene of 1–3 carbons said pendant groups contributing at least 0.5% by weight of fluorine.

9. A silicone polymer of a molecular weight of at least 1000, which contains aliphatic carbon-carbon unsaturation in no more than 10 percent by weight of the recurring monomeric units making up the polymer, and having pendant from aliphatic carbon the groups



said pendant groups contributing at least 0.5% by weight of fluorine.

17. The process of modifying a polymer of a molecular weight of at least 1000 which contains carbon-hydrogen bonds and not more than 10 percent by weight of aliphatic carbon-carbon unsaturation in the recurring monomeric units making up the polymer, which comprises reacting the said polymer with a ketone of the formula



wherein X and X' are selected from the group consisting (1), individually, of hydrogen, fluorine, chlorine and bromine and perfluoroalkyl, ω-hydro-, ω-chloro-, ω-bromo- and ω-alkoxyperfluoroalkyl of up to 18 carbons and (2), jointly, of haloperfluoroalkylene of 1–3 carbons, under free radical generating conditions until at least 0.5% by weight of fluorine has been added thereto.

3,322,722

ACIDIC INTERCHANGE OF SILOXANE BONDS WITH SILICON-BONDED ALKOXY AND ACYLOXY BONDS

Benjamin A. Eynon, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich., a corporation of Michigan

No Drawing. Filed Oct. 18, 1965, Ser. No. 497,531
11 Claims. (Cl. 260—46.5)

1. The process of reacting at a temperature of 20° to 150° C., in the presence of a catalyst selected from the group consisting of strong acids having dissociation constants for their most acidic hydrogen atom of no less than 0.05 in a 0.1 N water solution at 25° C., and acidic salts thereof which have a pH of less than 7 when tested as a 0.1 N water solution at 25° C., a silicone reactant comprising at least one organosilicon compound, said silicone reactant containing (1) siloxane bonds and (2) bonds selected from the group consisting of silicon-bonded lower alkoxy and silicon-bonded lower acyloxy, the other bonds in said silicone reactant consisting essentially of those selected from the group consisting of ≡SiH, Si-monovalent hydrocarbon, Si-monovalent halohydrocarbon, Si-divalent hydrocarbon-Si, and Si-divalent halohydrocarbon-Si, whereby an exchange reaction occurs between said bonds (1) and (2).

5. The process of reacting at a temperature of 50° to 150° C., in the presence of a catalyst selected from the group consisting of strong acids having dissociation constants for their most acidic hydrogen atom of no less than 0.05 in a 0.1 N water solution at 25° C., and acidic salts thereof which have a pH of less than 7 when tested as a 0.1 N water solution at 25° C., from 40 to 95 mol percent of a cyclic polysiloxane of the formula $(R_2SiO)_n$ where R is selected from the group consisting of monovalent hydrocarbon and halohydrocarbon radicals and n has a value of 3 to 8 with from 5 to 60 mol percent of organosilicon compound of the average formula

$$R_mSiR'_{4-m/2}$$

where R' is selected from the group consisting of lower alkoxy radicals and lower acyloxy radicals, and m has an average value of 0 to 1.9, whereby a composition which is curable to a rubbery gel upon exposure to moisture is formed.

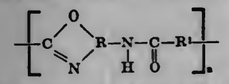
3,322,723

POLYOXAZOLE/AMIDES

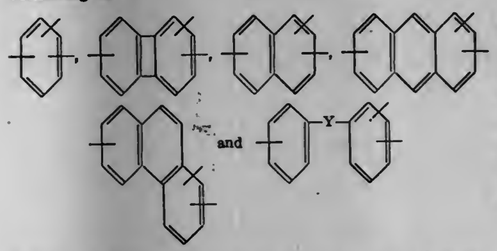
Rudolph J. Angelo, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed June 17, 1963, Ser. No. 288,472
3 Claims. (Cl. 260—47)

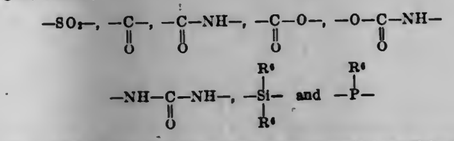
1. A polymer composed of the structural formula



wherein R is an aromatic trivalent radical, each nitrogen atom being attached directly to a carbon atom of a ring of said aromatic trivalent radical and one of said nitrogen atoms being ortho or peri to the oxygen atom, said aromatic trivalent radical being selected from the group consisting of



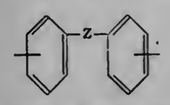
where Y is selected from the group consisting of alkylene, alkylidene, perfluoroalkylene, perfluoroalkylidene, oxygen, sulfur,



where R^0 is selected from the group consisting of hydrogen and lower alkyl R^1 is selected from the group consisting of



and



where Z is selected from the group consisting of alkylene of 1–3 carbons, oxygen, —S—, and —SO_2; and n is an integer sufficiently high to provide an inherent viscosity of at least 0.1 when measured at 30° C. as an 0.5% by weight solution in concentrated sulfuric acid.

3,322,724

RECOVERY PROCESS FOR POLYCARBONATES

Hermann Schnell, Krefeld-Urdingen and Hans Helmut Schwarz, Krefeld-Bockum, Germany, and Alois M. Gemassmer, Pittsburgh, Pa., assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed July 25, 1963, Ser. No. 297,690
Claims priority, application Germany, Aug. 18, 1962, F 37,625
5 Claims. (Cl. 260—47)

1. A process for the production of substantially solid polycarbonate having a high bulk density which comprises mixing a solid polycarbonate having a bulk density up to about 0.2 gram/cc. with a dilute solution of polycarbonate substantially free of non-solvent and having a polycarbonate concentration of up to about 25% to convert said dilute solution into a concentrated solution having a polycarbonate concentration of at least about 30% by weight, allowing said concentrated solution to stand until it forms a substantially solid, crumbly mass, and thereafter removing the remaining liquid components therefrom.

3,322,725

PROCESS FOR PREPARING POLYMERS HAVING A HIGH PERCENT OF FREE CARBONYL AND RESULTING PRODUCTS

Leon Hunter, Walnut Creek, and Alan C. Nixon, Berkeley, Calif., assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Aug. 7, 1962, Ser. No. 215,296
10 Claims. (Cl. 260—67)

6. A process for preparing addition polymers of acrolein having a free aldehyde carbonyl value of at least 25% as determined by infrared analysis which comprises adjusting the pH of an addition polymer of acrolein having a free aldehyde carbonyl value of not greater than about 10% as determined by infrared analysis and an intrinsic viscosity of between 0.9 dl./g. and 3.0 dl./g., to make the pH of the polymer substantially neutral and then heating the polymer to a temperature above 80° C. but below about 200° C. until the polymer reaches substantially constant weight.

3,322,726

AMPHOTERIC RESINOUS CONDENSATION PRODUCTS PREPARED BY REACTING HCHO WITH THE REACTION PRODUCT OF A WATER-SOLUBLE ANIONIC LINEAR COPOLYMER AND DICYANDIAMIDE COMPOUNDS

Lucien Sellet, Saddle River, N.J., assignor to Nopco Chemical Company, Newark, N.J., a corporation of New Jersey

No Drawing. Original application Oct. 5, 1960, Ser. No. 60,576, now Patent No. 3,223,751, dated Dec. 14, 1965. Divided and this application Feb. 23, 1965, Ser. No. 434,668
2 Claims. (Cl. 260—69)

1. The condensation product of

(A) from three to four mols of formaldehyde, and

(B) one mol of a condensate of molar proportions of

(1) dicyanidiamide, and

(2) a member selected from the group consisting of the free acid form of, the partially neutralized ammonium salt form of and the partially neutralized alkali metal salt form of water soluble anionic linear copolymers, said copolymers containing approximately equimolar amounts of at least one member of the group consisting of maleic anhydride, maleic acid and itaconic acid and at least one other ethylenically unsaturated monomer copolymerizable therewith with the proviso that when said copolymer contains acrylamide copolymerized with a comonomer selected from a group consisting of itaconic acid and salts of itaconic acid, there are from 1 to 3 mols of acrylamide per mol of said monomer.

3,322,727

POLYPYRROLIDONES CONTAINING A MIXTURE OF N-METHYLOL AND N-METHOXYMETHYL GROUPS AND PROCESS FOR PREPARATION

Max Eugene Chiddix, Easton, Pa., and James Louis McPherson, Midlothian, Ill., assignors to General Aniline & Film Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed June 10, 1964, Ser. No. 374,149
14 Claims. (Cl. 260—72)

11. As a new composition of matter, polypyrrolidone soluble in 95% aqueous ethyl alcohol to the extent of 1

to 50 grams per 100 cc., said polypyrrolidone containing a percentage of N substitution of 1 to 80% N-methylol and 80 to 1% N-methoxymethyl.

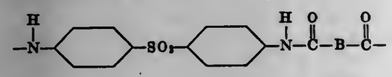
3,322,728

SULFONYL AROMATIC POLYAMIDES

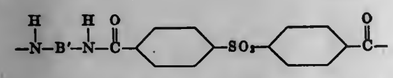
Harold Wayne Hill, Jr., Bartlesville, Okla., and Stephanie Louise Kwolek and Wilfred Sweeny, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed June 17, 1963, Ser. No. 288,540
5 Claims. (Cl. 260—78)

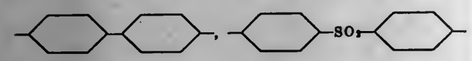
1. A linear fiber-forming, synthetic polycarbonamide wherein recurring carbonamide linkages are an integral part of the polymer chain from the class consisting of a homopolymer and a copolymer, the said homopolymer and copolymer consisting essentially of recurring units of the class consisting of



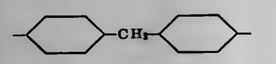
and



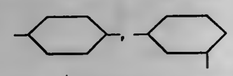
wherein B is a member of the class consisting of



and



B' is a member of the class consisting of



and B and the hexagon represents the benzene nucleus.

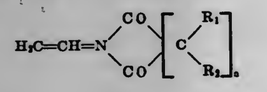
3,322,729

METHOD OF MAKING INSOLUBLE POLYMERS OF N-VINYL IMIDES

Frederick Grosser, Midland Park, and Eugene V. Hort and Arthur Schwartz, Metuchen, N.J., assignors to General Aniline & Film Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Oct. 23, 1963, Ser. No. 318,192
10 Claims. (Cl. 260—78)

1. In the method for the production of polymers which are not soluble in water by the polymerization of N-vinyl imides corresponding to the formula:



wherein R_1 and R_2 represent a member of the group consisting of hydrogen and alkyl groups and n represents a whole positive integer of 1 through 4 and wherein all carbon atoms are tetravalent, at an elevated temperature in the presence of a catalyst selected from the group consisting of the oxides and hydroxides of alkali and alkaline earth metals, the improvement in said method which comprises carrying out the polymerization in the presence of water in an amount of from 1.0 to 70 weight percent based on the weight of the N-vinyl imide.

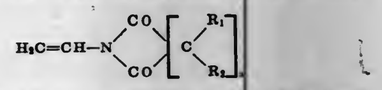
3,322,730

PROCESS FOR PRODUCING WATER INSOLUBLE POLYMERS OF N-VINYL IMIDES

Frederick Grosser, Midland Park, and Eugene V. Hort and Arthur Schwartz, Metuchen, N.J., assignors to General Aniline & Film Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Oct. 23, 1963, Ser. No. 318,181
22 Claims. (Cl. 260—78)

1. An improved method for the polymerization of N-vinyl imides to produce polymers thereof which are not soluble in water, which comprises heating a mixture comprising an N-vinyl imide corresponding to the formula:



wherein R_1 and R_2 represent hydrogen and alkyl groups and n represents a whole positive integer of 1 through 4 and wherein all carbon atoms are tetravalent, in the presence of a catalyst selected from the group consisting of the oxides and hydroxides of alkali metals and alkaline earth metals and water in an amount of from 1.0 to 70 weight-percent based on the weight of the N-vinyl imide, at a first elevated temperature and forthwith cooling said mixture to a second temperature lower than said first temperature and maintaining said mixture at said second temperature until polymerization is complete.

3,322,731

INTERPOLYMERS OF CAPROLACTAM, HEXAMETHYLENE DIAMINE, ADIPIC ACID AND SEBACIC ACID

Donald Bowker Cook, Hockessin, and Ronald Frederick Lange, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

Filed Apr. 23, 1963, Ser. No. 275,162
11 Claims. (Cl. 260—78)

1. An oriented filament consisting essentially of an interpolymer composition selected from the group consisting of:

(1) the copolymer of from 10% to 20% of ε-amino caproic acid and from 80% to 90% of hexamethylene diammonium adipate, and

(2) the terpolymer of from 5% to 20% of ε-amino caproic acid, up to 20% of hexamethylene diammonium sebacate and from 75% to 90% of hexamethylene diammonium adipate, all percentages expressed being by weight, the said filament being characterized by a shrinkage tension to shrinkage ratio of less than 0.7 and a boil-off shrinkage of 8–15%, wherein the shrinkage tension is determined by immersing a given length of yarn into water at a temperature of 90° C.±1° C. for about five minutes, restraining the yarn to prevent shrinkage, withdrawdrawing the sample and allowing it to dry at room temperature for about five minutes, and measuring the yarn tension in grams/denier.

3,322,732

SELF-COPOLYMERIZABLE ESTERS OF UNSATURATED DIBASIC ACIDS AND 6-HYDROXY-3α,4,5,6,7,7α-HEXAHYDRO-4,7-METHANOINDENE

Shiro Tsuruta, Wataru Koga, Masahiro Abo, and Shokichi Abe, Hitachi-shi, Japan, assignors to Hitachi Kasei Kogyo Kabushiki Kaisha, Tokyo, Japan, a corporation of Japan

No Drawing. Filed June 27, 1963, Ser. No. 290,949
Claims priority, application Japan, June 28, 1962, 37/26,525
19 Claims. (Cl. 260—78.5)

1. A self-copolymerizable composition comprising a mixture of a monoester or polyester containing as its constituents at least one α,β-unsaturated dibasic acid and at least one 6-hydroxy-3 ,4,5,6,7, α-hexahydro-4,7-methanoindene in the same molecule and a curing catalyst.

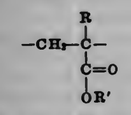
3,322,733

CROSS-LINKING ACRYLIC POLYMERS

David S. Breslow and Frank E. Piech, Wilmington, Del., assignors to Hercules Incorporated, a corporation of Delaware

No Drawing. Filed May 17, 1962, Ser. No. 195,415
14 Claims. (Cl. 260—79.3)

1. A process of cross-linking a polymer containing at least about 25 mole percent of a component having the formula



where R is a radical selected from the group consisting of hydrogen and methyl radicals and R' is an aliphatic radical containing at least 2 carbon atoms, which comprises heating said polymer in the presence of a polysulfonazide cross-linking agent having the formula

$$R(SO_2N_3)_x$$

where x is an integer greater than 1 and R is an organic radical selected from the group consisting of alkylene, arylene, aralkylene and alkarylene radicals.

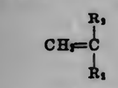
3,322,734

IONICALLY LINKED COPOLYMERS

Richard Watkin Rees, Graylyn Crest, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed May 19, 1965, Ser. No. 457,164
10 Claims. (Cl. 260—79.3)

1. A thermoplastic addition copolymer consisting essentially of monomer units selected from the group of monomer units having the structure $CH_2{=}CHR_1$, wherein R_1 is selected from the group consisting of aromatic radicals, ester radicals, amide radicals, acyloxy radicals, alkoxy radicals, halogens, acyl radicals, nitriles, and mono units having the structure



wherein R_2 is selected from the group consisting of halogens, and methyl, and R_3 is selected from the group consisting of halogens, the phenyl radical, ester radicals, amide radicals, and nitriles, and from 0.2 to 25 mole percent of an acid group containing monomer, from 10 to 90 percent of which acid groups are neutralized with metal ions having an ionized valence state of 1 as an ionic linking agent.

3,322,735

RUBBERY TERPOLYMER OF ETHYLENE AND PROPYLENE WITH CYCLOOCTATETRAENE DIMER

Frederick C. Loveless, Oakland, and Demetreos N. Matthews, Bloomfield, N.J., assignors to Uniroyal, Inc., a corporation of New Jersey

No Drawing. Filed Sept. 8, 1964, Ser. No. 395,004
2 Claims. (Cl. 260—80.5)

1. Unsaturated, sulfur-vulcanizable, rubbery terpolymer of ethylene, propylene and heptacyclo [5.4.0.$1^{2,5}$.$2^{6,12}$.$2^{8,11}$.$0^{13,16}$.$0^{14,15}$] - 3,9 - hexadecadiene, the terpolymer containing from 1 to 10% by weight of said diene and the balance of the terpolymer being ethylene and propylene in weight ratio of from 20/80 to 80/20, the terpolymer being devoid of trans unsaturation.

3,322,736

SHORTSTOP FOR EMULSION POLYMERIZATION

Walter Nudenberg, West Caldwell, Leonard T. Pappalardo, Morris Plains, and Hsiao-Jun Li, Morristown, N.J., assignors to Texas-U.S. Chemical Company, Parsippany, N.J., a corporation of Delaware

No Drawing. Continuation of application Ser. No. 202,092, June 13, 1962. This application July 21, 1965, Ser. No. 473,856
6 Claims. (Cl. 260—82.7)

1. In the aqueous emulsion polymerization of synthetic rubber forming monomeric material selected from the group consisting of butadiene-1,3 hydrocarbons and mixtures of butadiene-1,3 hydrocarbons with compounds which contain a $CH_2{=}C<$ group and are copolymerizable with butadiene-1,3 hydrocarbons, the improvement which comprises adding to the reaction mixture during polymerization of the synthetic rubber forming monomeric material, the combination of alkali metal hydrosulfite, hydroxide and nitrite to terminate the polymerization reaction, the amount of added alkali metal hydrosulfite being from 0.1 to 1 part by weight per 100 parts by weight of polymerizable monomeric material originally present, the added alkali metal hydroxide being from 0.5 to 3 mols per mol of added alkali metal hydrosulfite and the added alkali metal nitrate being from 0.1 to 2 mols per mol of added alkali metal hydrosulfite.

3,322,737

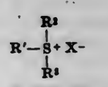
PREPARATION OF WATER-RESISTANT POLYMERS EMPLOYING SULFONIUM SALTS

Donald A. Kangas, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Jan. 2, 1964, Ser. No. 335,362
7 Claims. (Cl. 260—83.7)

1. A method for preparing a water resistant polymeric product comprising the steps of

(1) subjecting a polymerizable, non-ionic, ethylenically unsaturated monomeric material to conditions conducive to emulsion polymerization in aqueous media at a pH of from about 2 to about 8 and containing a dispersion stabilizer consisting essentially of a sulfonium salt having the formula



wherein R' is a monovalent hydrocarbon radical of from 8 to 20 carbon atoms having an aliphatic carbon atom bonded to the sulfur; R^2 and R^3 are individually selected from the class consisting of alkyl groups having from 1 to 4 carbon atoms and monosubstituted alkyl groups of from 2 to 4 carbon atoms having a hydroxy substituent and a bond to the sulfur atom on different carbon atoms; and X^- is a water-soluble anion having a nucleophilicity at least as great as about the nucleophilicity of the sulfate ion; whereby an aqueous colloidal dispersion of a water-insoluble polymer is obtained;

(2) subjecting the colloidal dispersion obtained thereby to conditions conducive to removal of the water from said colloidal dispersion until a substantially dry product is produced;

(3) heating the resulting substantially dry product at a temperature above about 95° C. and below the decomposition temperature of the water-insoluble polymer until a desired degree of water-resistance is obtained.

3,322,738
PROCESS FOR TERMINATING THE ORGANOLITHIUM CATALYSIS OF DIENE POLYMERIZATION AND PRODUCT RESULTING THEREFROM

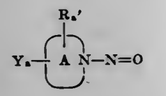
Carl A. Uraneck, James N. Short, Robert P. Zelinski, and Henry L. Hsieh, Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed Mar. 9, 1964, Ser. No. 350,599
18 Claims. (Cl. 260—84.7)

1. A process for the termination of the catalyst polymerization of a monomer selected from the group consisting of (1) a conjugated diene having from 4 to 12 carbon atoms per molecule and (2) a mixture of (1) and a vinyl-substituted aromatic compound having from 8 to 16 carbon atoms per molecule, inclusive, said polymerization occurring under polymerization conditions in the presence of a catalyst comprising RLi_x wherein R is a hydrocarbon radical selected from the group consisting of alkyl, cycloalkyl and aryl radicals and x is an integer from 1 to 4, comprising introducing into the polymerization zone a terminating agent having a formula selected from the group consisting of

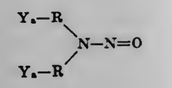
(1) $Y_a—R—Z_b$

(2)



and

(3)



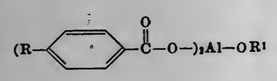
wherein Z in selected from the group consisting of $—NO_2$ and —N=O radicals, b is an integer of 1 to 4, each Y is selected from the group consisting of halogen, R'O— and R'_2N—, each a is an integer of 0 to 3, each R is selected from the group consisting of aliphatic, cycloaliphatic and aromatic hydrocarbon radicals and combinations thereof having 1 to 20 carbon atoms, ring A in Formula 2 is a 5- to 6-membered heterocyclic ring having 4 to 5 carbon atoms and a nitrogen atom, and R' is an alkyl radical having 1 to 4 carbon atoms, said polymerization conditions being maintained for a period of time of at least about 1 minute after introduction of said terminating agent.

3,322,739
NUCLEATED POLYMERS

Hugh J. Hagemeyer, Jr., and William A. Ames, Longview, Tex., assignors to Eastman Kodak Company, Rochester, N.Y., a corporation of New Jersey

No Drawing. Filed Mar. 20, 1964, Ser. No. 353,606
14 Claims. (Cl. 260—88.2)

6. A composition comprising a normally solid crystallizable propylene-butene copolymer having an inherent viscosity in tetralin at 145° C. in the range of about .25 to about .5 and about .15 to about 2%, by weight, of a compound having the formula:



where R is an alkyl radical containing 4–18 carbon atoms and R^1 is an alkyl radical containing 1–14 carbon atoms.

3,322,740
ALKYLENE OXIDE-POLYOL POLYETHER MODIFIED ACETAL RESINS

Ben W. Kiff, Ona, and Joe T. Adams, St. Albans, W. Va., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Filed July 25, 1963, Ser. No. 297,676
15 Claims. (Cl. 260—88.3)

1. The resinous heat reaction product of diallylidene-pentaerythritol, pentaerythritol, and the polyether adduct of a lower alkylene oxide and a saturated aliphatic polyol containing from 3 to 12 carbon atoms and from 3 to 8 hydroxyl groups per molecule, said polyether having a hydroxyl number of from about 200 to about 800, the proportion of diallylidene-pentaerythritol to pentaerythritol being in the range of from about 2.5 to about 8 moles of diallylidene-pentaerythritol per mole of pentaerythritol, and the proportion of said polyether being in the range of from about 10 to about 50 percent by weight based upon the total weight of the reactants.

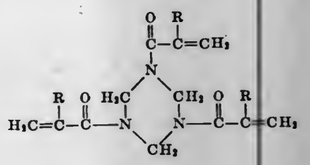
8. A process for producing a resinous composition comprising heating in the presence of an acidic catalyst a mixture of (1) diallylidene-pentaerythritol, (2) pentaerythritol, and (3) a polyether adduct of a lower alkylene oxide and a saturated aliphatic polyol; said polyol containing from 3 to 12 carbon atoms and from 3 to 8 hydroxyl groups per molecule, said polyether having a hydroxyl number of from about 200 to about 800, the proportion of diallylidene-pentaerythritol to pentaerythritol being in the range of from about 2.5 to about 8 moles of diallylidene-pentaerythritol per mole of pentaerythritol, and the proportion of said polyether being in the range of from about 10 to about 50 percent by weight based upon the total weight of the reactants.

3,322,741
COMPOSITIONS COMPRISING THE HEAT REACTION PRODUCT OF 1,3,5-TRIACRYLYLHEXAHYDROTRIAZINE AND A POLYFUNCTIONAL AROMATIC AMINE

Richard Elliot Thornton Spalding, South Norwalk, Conn., assignor to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Oct. 1, 1964, Ser. No. 400,884
8 Claims. (Cl. 260—88.3)

1. A resinous composition comprising the heat reaction product of (A) a compound selected from the group consisting of 4,4'-diaminodiphenylmethane, m-phenylenediamine and 2,6-dimethyl piperazine and (B) a cross-linking compound having the formula:



wherein R is selected from the group consisting of hydrogen, a methyl group and chlorine wherein the mol ratio of (A) to (B) is between about 0.5 to 2 of (A) per mol of (B).

3,322,742
POLYMERIZATION OF α-CYANOSTYRENE USING ANIONIC CATALYSTS

Eli Perry, Raleigh, N.C., assignor to Monsanto Company, a corporation of Delaware

No Drawing. Filed Dec. 26, 1963, Ser. No. 333,665
4 Claims. (Cl. 260—88.7)

1. A homopolymer of α-cyanostyrene having a number average molecular weight above 1,000.

3,322,743
MONOMER RECOVERY FROM CHLORATE/SULFOXY CATALYZED SYSTEMS COMPRISING ADDING AN OXIDIZING AGENT AND ADJUSTING THE pH

Takashi Shibukawa and Akiyoshi Uchida, both of Saidaiji, Japan, assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed May 28, 1964, Ser. No. 371,084
Claims priority, application Japan, June 22, 1963, 38/33,248
6 Claims. (Cl. 260—88.7)

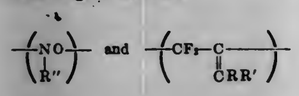
1. In a method of recovering monomeric material comprising acrylonitrile from aqueous slurries obtained upon polymerization of such monomeric material in the presence of a chlorate ion-reducing sulfoxy ion catalyst system; the improvement comprising oxidizing the reducing sulfoxy compound and adjusting the pH of the slurry to between 4 and 6 prior to recovering the monomers.

3,322,744
POLYMERS CONTAINING POLYFLUORONITROSO COMPOUNDS AND 1,1-DIFLUOROALLENES

Robert Neville Haszeldine, Windyridge, Lyme Road, Disley, England; Ronald Eric Banks, 187 Kingsway, Burnage, Manchester, England; and David Robin Taylor, 52 Adelaide Road, Bramhall, England

No Drawing. Filed Aug. 20, 1964, Ser. No. 390,990
6 Claims. (Cl. 260—92.1)

1. Fluorine-containing polymers having a backbone essentially consisting of the units



where R and R' is a member selected from the group consisting of hydrogen, halogen, nitro, cyano, carboalkoxy, alkoxy, carboxy, alkyl, aryl, polyfluoroalkyl, and polyfluoroaryl, said member having up to ten carbon atoms and R'' is a member selected from the group of perfluoroalkyl, chlorofluoroalkyl, hydrofluoroalkyl, hydrochlorofluoroalkyl and polyfluoroaryl, said R'' containing up to ten carbon atoms and having at least one halogen atom of said R'' group attached to the carbon atom adjacent the nitroso group.

3,322,745
POLYMER RECOVERY METHOD

Fred Hederhorst, Baytown, Tex., assignor to Esso Research and Engineering Company

Filed June 28, 1965, Ser. No. 467,547
31 Claims. (Cl. 260—93.7)

1. A process which comprises

in an elongated precipitation zone having an antisolvent inlet end and a fluid outlet end

continuously introducing a liquid stream of an antisolvent into said antisolvent inlet end of said zone,

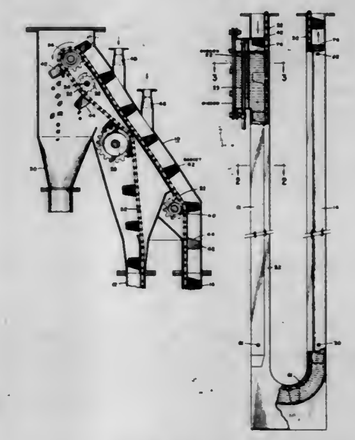
continuously passing said antisolvent stream through said zone,

introducing a liquid stream containing a solvent and a dissolved solid into said zone at a point intermediate said antisolvent inlet end and said fluid outlet end of said zone,

whereby a portion of said dissolved solid is precipitated from said liquid stream, yielding precipitated solid and lean solvent,

passing said lean solvent in concurrent flow and in admixture with said antisolvent stream to said fluid outlet end of said zone, whereby further precipitated solid will be obtained,

passing all of said precipitated solid through said zone countercurrent to said antisolvent stream whereby any



residual solvent is displaced from said precipitated solid by said antisolvent,

and recovering said solid from said zone.

3,322,746
EMULSION POLYMERIZATION OF POLYBUTADIENE

Walter Nudenberg, West Caldwell, Herbert Jay Goldstein, Rockaway, and Peter Paul Salatiello, Morris Plains, N.J., assignors to Texas-U.S. Chemical Company, Parsippany, N.J., a corporation of Delaware

Filed Apr. 29, 1964, Ser. No. 363,575
4 Claims. (Cl. 260—94.3)

1. An emulsion polybutadiene polymerization process comprising

(i) dissolving about
- 2 to 10 parts of soap, and
- 0.30 to 0.60 part of potassium chloride in 140 to 200 parts of water, and adjusting the pH to 10.2–10.8 with caustic;

(ii) dissolving about
- 0.30 to 1 part of a mono nitro aromatic compound,
- 0.0315 to 0.090 part of p-menthane hydroperoxide, and
- 0.1 to 0.275 part of tert-dodecylmercaptan, in 100 parts of liquified butadiene,

(iii) adding said butadiene solution to the water solution and agitating until an emulsion is formed,

(iv) cooling said emulsion to between 41° F. and 55° F. and adding an aqueous solution of about
- 0.1050 to 0.0300 part of ferrous sulfate $.7H_2O$
- 0.0291 to 0.0830 part of sodium formaldehyde sulfoxylate, and
- 0.0365 to 0.1040 part of tetrasodium ethylenediamine tetraacetate,

(v) agitating said emulsion while maintaining it within said temperature range until polymerization has proceeded to about 55% to 70% conversion of monomer.

(vi) shortstopping said polymerization by adding an aqueous solution containing about
- 0.1 to 1 part of sodium hydrosulfite,
- 0.5 to 3 mols of sodium hydroxide per mol of sodium hydrosulfite, and
- 0.1 to 2 mols of sodium nitrite per mol of sodium hydrosulfite, and

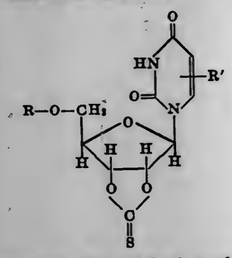
(vii) separating the polybutadiene from said emulsion.

3,322,747
THIONOCARBONATE NUCLEOSIDES

Tsung-Ying Shen, Westfield, and William V. Ruyle, Scotch Plains, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed Apr. 1, 1965, Ser. No. 444,808
20 Claims. (Cl. 260—211.5)

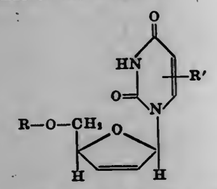
11. Compounds of the formula:



(I)

wherein R is an acyl radical of the formula R^2CO— where R^2 is lower alkyl or phenyl; lower alkyl; or methyl substituted by at least one phenyl group; R' is hydrogen, halogen, lower alkyl, amino, lower alkylamino, di(lower alkyl)amino or trifluoromethyl.

13. Compounds of the formula:



(IV)

wherein R is an acyl radical of the formula R^2CO— where R^2 is lower alkyl or phenyl; lower alkyl; or methyl substituted by at least one phenyl group; R' is fluoro, trifluoromethyl, amino, loweralkylamino, di(loweralkyl)amino, or lower alkyl having more than one carbon atom.

3,322,748
PROCESS FOR PRODUCING CELLULOSE DERIVATIVES

Kenji Tokimatsu, Marugame-shi, and Hachiro Yamashita, Urawa-shi, Japan, assignors to Shikoku Kasei Kogyo Company Limited, Marugame-shi, Japan

Filed Feb. 20, 1962, Ser. No. 174,525
13 Claims. (Cl. 260—212)

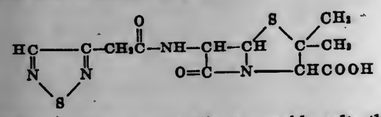
1. A process for mixing pulverized cellulose material with a reacting material for the subsequent production of a cellulose derivative, said process comprising centrifugally flinging said materials in the form of sprays of mist radially outwards of a determinable axis and guiding the movement of at least one of said sprays so that the sprays contact one another and intimately mix together.

3,322,749
DERIVATIVES OF PENICILLANIC ACID AND CEPHALOSPORANIC ACID

Leonard Bruce Crast, Jr., North Syracuse, N.Y., assignor to Bristol-Myers Company, New York, N.Y., a corporation of Delaware

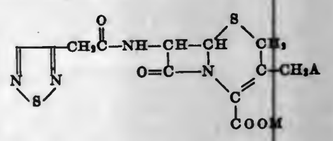
No Drawing. Filed July 21, 1965, Ser. No. 473,834
10 Claims. (Cl. 260—239.1)

1. The acid of the formula



and nontoxic, pharmaceutically acceptable salts thereof.

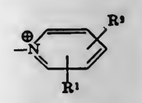
5. A compound having the formula



wherein

A is a member selected from the group consisting of hydrogen, hydroxyl, (lower)alkanoyloxy, benzoyloxy, a quaternary ammonium radical

of the formula



wherein each of R^1 and R^2 is hydrogen or methyl and when taken together with M, a mono-valent carbon-oxygen bond; and

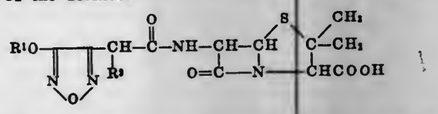
M is a member selected from the group consisting of hydrogen, a pharmaceutically acceptable nontoxic cation, an anionic charge when A is said quaternary ammonium radical and when taken together with A, a monovalent carbon-oxygen bond.

3,322,750
3 - SUBSTITUTED - 7 - (4' - FURAZANALKANOYL) AMINOCEPHALOSPORANIC ACIDS AND 3-SUBSTITUTED - 6 - (4' - FURAZANALKANOYL)AMINOPENICILLANIC ACIDS

Leonard Bruce Crast, Jr., North Syracuse, N.Y., assignor to Bristol-Myers Company, New York, N.Y., a corporation of Delaware

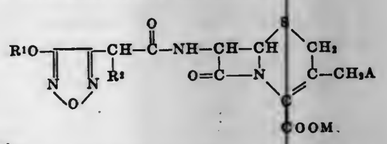
No Drawing. Filed Aug. 2, 1965, Ser. No. 476,685
10 Claims. (Cl. 260—239.1)

1. A compound selected from the group consisting of an acid of the formula



wherein R^1 and R^2 are each a member selected from the group consisting of hydrogen and (lower)alkyl; and nontoxic, pharmaceutically acceptable salts thereof.

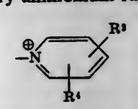
6. A compound having the formula



wherein

R^1 and R^2 are each hydrogen or (lower)alkyl;

A is hydrogen, hydroxyl, (lower)alkanoyloxy, benzoyloxy, a quaternary ammonium radical of the formula



wherein R^3 and R^4 are each hydrogen or methyl or, when taken together with M, a monovalent carbon-oxygen bond; and

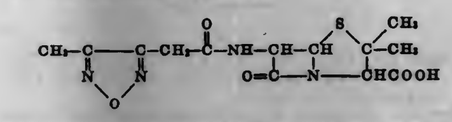
M is a hydrogen, a pharmaceutically acceptable nontoxic cation, an anionic charge when A is a quaternary ammonium radical or, when taken together with A, a monovalent carbon-oxygen bond.

3,322,751
7 - (3' - METHYL-4'-FURAZANACETAMIDO)-CEPHALOSPORANIC ACID AND 6 - (3' - METHYL - 4'-FURAZANACETAMIDO)PENICILLANIC ACID AND RELATED SALTS AND DERIVATIVES

Leonard Bruce Crast, Jr., North Syracuse, N.Y., assignor to Bristol-Myers Company, New York, N.Y., a corporation of Delaware

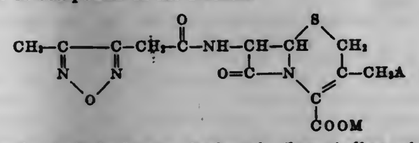
No Drawing. Filed Mar. 30, 1966, Ser. No. 538,611
5 Claims. (Cl. 260—239.1)

1. The acid of the formula

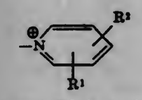


and nontoxic, pharmaceutically acceptable salts thereof.

2. A compound of the formula



wherein A is hydrogen, hydroxyl, (lower)alkanoyloxy, benzoyloxy, a quaternary ammonium radical of the formula



wherein each of R^1 and R^2 is hydrogen or methyl or, when taken together with M, a monovalent carbon-oxygen bond; and

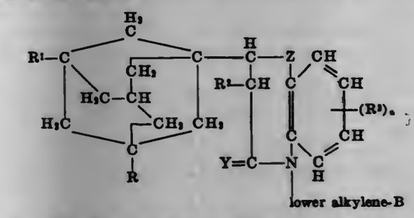
M is hydrogen, a pharmaceutically acceptable nontoxic cation, an anionic charge when A is a quaternary ammonium radical or, when taken together with A, a monovalent carbon-oxygen bond.

3,322,752
2-(1-ADAMANTYL)-5-AMINO LOWER ALKYL BENZOTHIAZEPINS AND BENZOXAZEPINS

Jack Bernstein, New Brunswick, N.J., assignor, by mense assignments, to E. R. Squibb & Sons, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed June 15, 1965, Ser. No. 464,225
14 Claims. (Cl. 260—239.3)

1. A compound selected from the group consisting of bases of the formula



wherein R and R^1 each is a member of the group consisting of hydrogen, halo, lower alkyl, phenyl, hydroxy and lower alkoxy, R^2 is a member of the group consisting of hydrogen and lower alkyl, R^3 is a member of the group consisting of hydrogen, lower alkyl, lower alkoxy, nitro, halo and halo-lower alkyl, Y is a member of the group consisting of H_2 and oxygen, Z is a member of the group consisting of oxa, thia, sulfinyl and sulfonyl, B is a basic nitrogen containing radical of less than fourteen carbon atoms of the group consisting of amino, lower alkylamino, di(lower alkyl)amino, (hydroxy-lower alkyl)amino, di(hydroxy-lower alkyl)amino, phenyl(lower alkyl)amino, N-(lower alkyl)-N-phenyl(lower alkyl)amino, piperadino, (lower alkyl)piperadino, di(lower alkyl)piperadino, (lower alkoxy)piperadino, pyrrolidino, (lower alkyl)pyrrolidino, di(lower alkyl)pyrrolidino, (lower alkoxy)pyrrolidino, morpholino, (lower alkyl)morpholino, di(lower alkyl)morpholino, (lower alkoxy)morpholino, thiamorpholino, (lower alkyl)thiamorpholino, di-(lower alkyl)thiamorpholino, (lower alkoxy)thiamorpholino, piperazino, (lower alkyl)piperazino, di(lower alkyl)piperazino, hydroxy-lower alkylpiperazino, hexamethyleneimino and homopiperazino and *n* is an integer from one to three, and acid-addition salts of said bases.

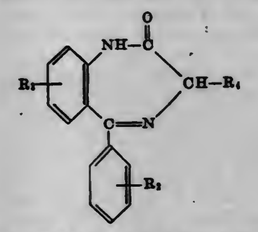
2. 2-(1 - adamantyl)-2,3 - dihydro-5-(di-lower alkylamino-lower alkyl)-1,5-benzoxazepin-4-(5H)-one.

3,322,753
OXIDATION OF CERTAIN 5-PHENYL-1,4-BENZODIAZEPINONES

Rodney Ian Fryer, North Caldwell, and Leo Henryk Sternbach, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J.

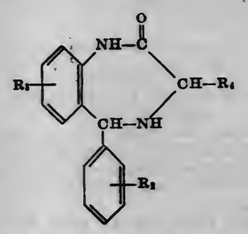
No Drawing. Filed June 18, 1965, Ser. No. 465,159
5 Claims. (Cl. 260—239.3)

1. A method for the preparation of a compound of the formula



wherein R_2 and R_3 are each selected from the group consisting of hydrogen, trifluoromethyl, lower alkyl, halogen and nitro; and R_4 is selected from the group consisting of hydrogen and lower alkyl;

which comprises the oxidation of a compound of the formula



wherein R_2, R_3 and R_4 have the same meaning as above.

3,322,754
13 - ALKYL - GONA - 4,8(14),9(10) TRIEN-3-ONE-17α HALOGENATED HYDROCARBON 17β-ETHERS

Thomas B. Windholz, Westfield, and Arthur A. Patchett, Cranford, N.J., and John Fried, Palo Alto, Calif., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed Oct. 18, 1965, Ser. No. 497,480
23 Claims. (Cl. 260—239.5)

1. 13 - alkyl - gona - 4,8(14),9(10)-trien - 3 - one-17α-substituted-17β-substituted amino alkyl ether wherein the alkyl moiety at C17β contains from 1 to 6 carbon atoms, and wherein the substituent at C17α is an unsaturated halogenated hydrocarbon group having from 2 to 3 carbon atoms.

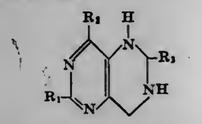
9. 13 - methyl - 17α - trifluorovinyl - gona - 4,8(14), 9(10)-trien-3-one-17β-pyrrolidylethyl ether.

3,322,755
BASIC-SUBSTITUTED 1,2,3,4-TETRAHYDROPYRIMIDO[5,4-d]-PYRIMIDINES

Josef Roch and Heinz Scheffler, Biberach an der Riss, Germany, assignors to Boehringer Ingelheim G.m.b.H., Ingelheim am Rhine, Germany, a corporation of Germany

No Drawing. Filed Mar. 10, 1964, Ser. No. 350,688
8 Claims. (Cl. 260—246)

1. A compound selected from the group consisting of basic substituted 1,2,3,4-tetrahydro-pyrimido-[5,4-d]-pyrimidines of the formula



wherein

R_1 and R_3 are each selected from the group consisting of hydrogen, halogen, lower alkoxy, lower alkoxy-lower alkoxy and basic groupings selected from the group consisting of amino, mono-lower alkyl-amino, di-lower alkyl-amino, lower alkenyl-amino, anilino, lower alkyl-hydroxy lower alkyl-amino, mono-(hydroxy lower alkyl)-amino, di-(hydroxy lower alkyl)-amino, benzylamino, morpholino, piperidino, 4-lower alkyl-piperidino, tetrahydropyridino, pyrrolidino and N'-lower alkyl-piperazino, and

R_2 is selected from the group consisting of lower alkoxy, lower alkoxy-lower alkoxy and basic groupings selected from the group consisting of amino, mono-lower alkyl-amino, di-lower alkyl-amino, lower alkenyl-amino, anilino, lower alkyl-hydroxy lower alkyl-amino, mono-(hydroxy lower alkyl)-amino, di-(hydroxy lower alkyl)-amino, benzylamino, morpholino, piperidino, 4-lower alkyl-piperidino, tetrahydropyridino, pyrrolidino and N'-lower alkyl-piperazino, and

provided that at least one of R_1, R_2 and R_3 is one of said basic groupings, and that only one of R_1 and R_3 may be halogen, and their non-toxic, pharmocologically acceptable acid addition salts.

5. 2,6,8 - trimorpholino - 1,2,3,4 - tetrahydro-pyrimido-[5,4-d]-pyrimidine.

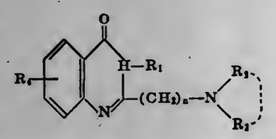
3,322,756
2-AMINOALKYL-3-HYDROCARBON QUINAZOLONES-(4)

Heinrich Ruschig, Bad Soden, Taunus, and Hans Hilmer, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany

No Drawing. Filed May 14, 1964, Ser. No. 367,568
Claims priority, application Germany, May 18, 1963, F 39,784; Feb. 28, 1964, F 42,147
14 Claims. (Cl. 260—247.2)

5. 2-morpholinomethyl-3-methyl-7-chloroquinazolone-(4).

14. A quinazolone compound of the formula



and the acid addition salts of said compound with physiologically tolerable acids, wherein R_1 is a member selected from the group consisting of alkyl having up to 4 carbon atoms; phenyl; and phenylalkyl in which the alkyl group has up to 2 carbon atoms; R_2 and R_3, taken alone, are each selected from the group consisting of hydrogen; alkyl and alkenyl having up to 4 carbon atoms; and phenylalkyl in which the alkyl group has up to 2 carbon atoms; R_3 and R_3, taken together with the nitrogen atom, form a member selected from the group consisting of pyrrolidino; piperidino; piperazino; N-methyl piperazino; morpholino; azetidino; and dimethyl azetidino; R_4 is a member selected from the group consisting of chlorine and bromine in the 6- or 7-position and alkoxy having up to 4 carbon atoms; and n is an integer from 1 to 3.

3,322,757
PROCESS FOR THE PREPARATION OF ESTER AMIDES OF CARBOCYCLIC AROMATIC DICARBOXYLIC ACIDS

Hans-Leo Hülsmann, Witten-Rudinghausen, and Gustav Renckhoff, Witten (Ruhr), Germany, assignors to Chemische Werke Witten GmbH, Witten (Ruhr), Germany

No Drawing. Filed July 31, 1964, Ser. No. 386,777
11 Claims. (Cl. 260—247.2)

1. A process for the preparation of alkyl ester amides of carbocyclic aromatic dicarboxylic acids which comprises reacting an alkyl aryl ester of a carbocyclic aromatic dicarboxylic acid having the carboxyl groups thereof positioned meta or para with respect to each other, said alkyl group of said alkyl aryl ester being saturated and having from 2 to 5 carbon atoms and said aryl group of said alkyl aryl ester being derived from a monohydric phenol or naphthol, with a nitrogen compound selected from the group consisting of ammonia and primary and secondary mono- and diamines in an inert organic solvent at temperatures of from 0° to 150° C.

3,322,758
CERTAIN DERIVATIVES OF β-AMINO-PROPIOPHENONES

Kurt Thiele, Frankfurt am Main, and Klaus Posselt, Bergen-Enkheim, Germany, assignors to Deutsche Gold- und Silber-Scheideanstalt vormals Roessler, Frankfurt am Main, Germany

No Drawing. Filed Dec. 18, 1964, Ser. No. 419,593
Claims priority, application Germany, Dec. 21, 1963, D 43,235
8 Claims. (Cl. 260—247.5)

1. A compound selected from the group consisting of

1-N[3-phenyl-3-hydroxypropyl-(2)]-β-amino-3-(2-hydroxy-ethoxy)-propiophenone hydrochloride,

1-[3-(2-dihydroxy-propoxy)-phenyl]-{2-[3-phenyl-3-hydroxy-propyl-(2)-amino]-ethyl}-ketone hydrochloride,

1-N-[3-phenyl-3-hydroxy-propyl-(2)]-β-amino-3-(2-dimethylamino-ethoxy)-propiophenone dihydrochloride,

1-3-(2-diallylamino-ethoxy)-phenyl-{2-[3-phenyl-3-hydroxy-propyl-(2)-amino]-ethyl}-ketone dihydrochloride,

1-N-[3-phenyl-3-hydroxy-propyl-(2)]-β-amino-3-(3-dimethylamino-propoxy)-propiophenone dihydrochloride,

1-N-[3-phenyl-3-hydroxy-propyl-(2)]-β-amino-3-(1-dimethylamino-isopropoxy)-propiophenone dihydrochloride,

1-N-[3-phenyl-3-hydroxy-propyl-(2)]-β-amino-2-(3-diethylamino-propoxy)-propiophenone dihydrochloride,

1-N-[3-phenyl-3-hydroxy-propyl-(2)]-β-amino-3-(3-piperidino-propoxy)-propiophenone dihydrochloride,

1-N-[3-phenyl-3-hydroxy-propyl-(2)]-β-amino-3-(2-morpholino-ethoxy)-propiophenone dihydrochloride,

1-N-[3-phenyl-3-hydroxypropyl-(2)]-β-amino-3-methoxy-5-(3-dimethylamino-propoxy)-propiophenone dihydrochloride,

1-N-[3-phenyl-3-hydroxy-propyl-(2)]-β-amino-3-methoxy-4-(2-dimethylamino-ethoxy)-propiophenone dihydrochloride, and

{2-[3-phenyl-3-hydroxy-propyl-(2)-amino]-ethyl}-{4-[3-dimethylamino-propoxy]-naphthyl-(1)}-ketone dihydrochloride

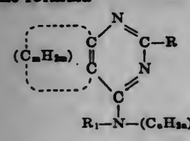
and the corresponding free base.

3,322,759
BICYCLIC DIAZA COMPOUNDS

Richard William James Carney, Murray Hill, N.J., Herbert Morton Blatter, Basel, Switzerland, and George De Stevens, Summit, N.J., assignors to Ciba Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed Mar. 2, 1966, Ser. No. 531,079
6 Claims. (Cl. 260—247.5)

1. A member selected from the group consisting of a compound of the formula



in which the group Am stands for a member selected from the group consisting of di-lower alkylamino, N-cycloalkyl-N-lower alkylamino and N-cycloalkyl-lower alkyl-N-lower alkylamino in which cycloalkyl has from 5 to 7 carbon atoms, N-phenyl-lower alkyl-N-lower alkylamino, N,N-di-hydroxy-lower alkylamino in which hydroxy is separated from the nitrogen by at least 2 carbon atoms, alkyleneimino of 4 to 8 carbon atoms, piperazino, 4-lower alkyl-piperazino, 4-morpholino and 4-thiamorpholino, $-(C_nH_{2n})-$ stands for alkylene of 2 to 7 carbon atoms separating Am from the nitrogen atom by at least 2 carbon atoms, R_1 stands for a member selected from the group consisting of hydrogen, lower alkyl, phenyl-lower alkyl and lower alkanoyl, R stands for a member selected from the group consisting of hydrogen, lower alkyl, phenyl, (lower alkyl)-phenyl, (lower alkoxy)-phenyl, (halogeno)-phenyl, pyridyl, thienyl, furyl and phenyl-lower alkyl and $-(C_mH_{2m})-$ stands for alkylene of 3 to 5 carbon atoms separating the 5 and 6 position of the pyrimidine nucleus by at least 3 carbon atoms, its N-oxide, lower alkyl quaternary, phenyl-lower alkyl quaternary and acid addition salt thereof.

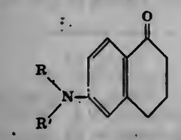
5. A compound as claimed in claim 1 and being the 4-N-[2-(4-morpholino)-ethyl]-amino - 2 - phenyl-5,6,7,8-tetrahydro-quinazoline.

3,322,760
6-(SUBSTITUTED-AMINO)-1-TETRALONES

Raphael Pappo, Skokie, Ill., assignor to G. D. Searle & Co., Chicago, Ill., a corporation of Delaware

No Drawing. Filed Oct. 10, 1966, Ser. No. 585,287
Claims priority, application Germany, Sept. 28, 1965, S 99,711
6 Claims. (Cl. 260—247.7)

1. A compound of the formula



wherein R is an Alk-OH radical and R' is selected from the group consisting of hydrogen and an Alk-OH radical, Alk being a lower alkylene radical, or R and R' together with the nitrogen atom form a morpholino radical.

6. As in claim 1, the compound which is 6-morpholino-1-tetralone.

3,322,761
PURIFICATION OF TRIALLYL ISOCYANURATE

Edwin D. Little, Hopewell, Va., assignor to Allied Chemical Corporation, New York, N.Y., a corporation of New York

No Drawing. Filed July 14, 1965, Ser. No. 472,004
9 Claims. (Cl. 260—248)

1. A method of preparing purified triallyl isocyanurate which comprises treating crude triallyl isocyanurate containing color and other impurities with hydrogen under conditions to effect absorption of hydrogen by the crude triallyl isocyanurate in an amount less than that required to produce any significant hydrogenation of the triallyl isocyanurate itself so as to substantially eliminate said impurities, and thereafter distilling the hydrogen treated crude triallyl isocyanurate so as to separate substantially pure triallyl isocyanurate distillate therefrom without any substantial loss of triallyl isocyanurate normally resulting from polymerization during said distillation.

3,322,762
PRODUCTION OF HEXAMETHYLOL-MELAMINE AND HEXAKIS (METHOXY-METHYL) MELAMINE

J. Alden Erikson, Gibsonia, Pa., and Alexander N. Salem, Brecksville, Ohio, assignors to Pittsburgh Plate Glass Company, Pittsburgh, Pa., a corporation of Pennsylvania

No Drawing. Filed Apr. 8, 1964, Ser. No. 358,376
9 Claims. (Cl. 260—249.6)

1. A process of methylolating melamine which comprises reacting melamine with formaldehyde at a pH of from about 7 to about 9.5 in a reaction mixture containing at least about 6.5 moles of formaldehyde per mole of melamine and from about 4 to about 12 moles of methanol per mole of melamine.

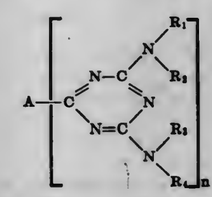
6. A process of producing substantially hexakis(methoxymethyl)melamine which comprises reacting melamine with formaldehyde by heating a reaction mixture comprising from about 4.5 to about 6 moles of methanol and from about 9 to about 11 moles of formaldehyde per mole of melamine at a pH between about 7 and about 9.5 to form a clear solution, maintaining said pH until a precipitate is formed, adding more methanol to provide at least about 20 moles of methanol per mole of melamine, adjusting the pH to between about 1 and about 3, and heating until the reaction mass is essentially clear.

3,322,763
N,N',N''-SUBSTITUTED MELAMINE DERIVATIVES

Joachim Dazzi, Riehen, and Ernst Keller, Binningen, Basel-Land, Switzerland, assignors to Geigy Chemical Corporation, Greenburgh, N.Y., a corporation of Delaware

No Drawing. Filed Oct. 12, 1965, Ser. No. 495,302
Claims priority, application Switzerland, July 7, 1961, 8,131/61
9 Claims. (Cl. 260—249.6)

1. A compound of the formula



wherein:

A is the n-valent radical of a saturated aliphatic hydrocarbon polyamine having a total of from 2 to 5 nitrogen atoms all of which are acylatable and are separated

from each other by at least two carbon atoms, the total number of carbon atoms of which polyamine is at least 2 and at most 20.

n is a positive integer ranging from 2 to 5,

each triazine moiety in the above formula being linked to one of said acylatable nitrogen atoms of A,

each of R_1 and R_3 is, independently of the other, a member selected from the group consisting of hydrogen and alkyl of maximally 18 carbon atoms, and

each of R_2 and R_4 is, independently of the other, a member selected from the group consisting of alkyl with maximally 18 carbon atoms, monocyclic aralkyl in which the alkyl part has maximally 4 carbon atoms, phenyl, chlorophenyl, fluorophenyl, bromophenyl, and alkylphenyl in which alkyl has maximally 12 carbon atoms, and each of the pairs

R_1 and R_2 taken together, as well as R_3 and R_4, taken together is a member selected from the group consisting of tetramethyleno, pentamethyleno, hexamethyleno, morpholino and N-methylpiperazino.

3,322,764

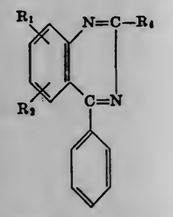
PROCESS FOR PREPARING N-SUBSTITUTED 2-AMINOBENZOPHENONES UTILIZING 4-PHENYLQUINAZOLINES

Werner Metlesics, Clifton, and Leo Henryk Sternbach, Upper Montclair, N.J., assignors to Hoffmann-La Roche Inc., Nutley, N.J., a corporation of New Jersey

No Drawing. Filed July 10, 1963, Ser. No. 294,158

5 Claims. (Cl. 260—251)

1. A process for forming N-substituted 2-aminobenzophenones which comprises reacting at a temperature of from about 25° C. to about 200° C. a 4-phenylquinazoline of the formula



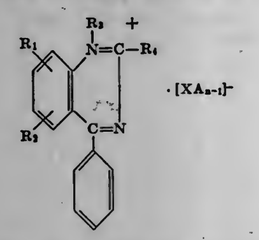
wherein

R_1 and R_2 are selected from the group consisting of hydrogen, lower alkyl and halogen; and

R_4 is selected from the group consisting of hydrogen, lower alkyl and phenyl,

with a quaternizing agent selected from the group consisting of lower alkyl sulfates, lower alkyl halides, benzyl halides, halobenzyl halides, lower alkyl-benzyl halides, lower alkyl phosphates and lower alkyl esters of toluene sulfonic acid, and hydrolizing the resulting quaternary ammonium compound.

4. A compound having the formula of



wherein R_1 and R_2 are selected from the group consisting of halogen, lower alkyl and hydrogen; R_3 is selected from the group consisting of lower alkyl, phenyl-lower alkyl, halo-phenyl-lower alkyl and lower alkyl-phenyl-lower alkyl; R_4 is selected from the group consisting of hydrogen, lower alkyl and phenyl; A is selected from the group consisting of lower alkyl; X is the anionic moiety of an acid selected from the group consisting of hydrohalic acids, sulfuric acid, phosphoric acid and toluene sulfonic acid and *n* is an integer identical to the valence of the anionic moiety.

3,322,765

2,4-DIAMINO-6-BENZYLPYRIDO-(2,3-d) PYRIMIDINES AND METHOD

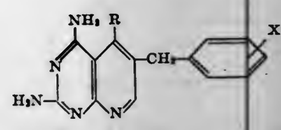
George H. Hitchings, Yonkers, and Bernard S. Hurlbert, Tarrytown, N.Y., assignors to Burroughs Wellcome & Co. (U.S.A.) Inc., Tuckahoe, N.Y., a corporation of New York

No Drawing. Filed Oct. 28, 1964, Ser. No. 407,230

Claims priority, application Great Britain, Jan. 8, 1964, 808/64

6 Claims. (Cl. 260—256.4)

1. A compound represented by the formula



wherein R is selected from the class consisting of hydrogen and methyl and X is selected from the class consisting of hydrogen, halogen, lower alkyl, lower alkoxy, nitro and amino.

3,322,766

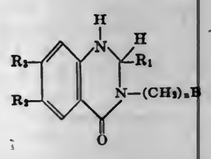
3 - β - (4 - PYRIDYL)ETHYL - 2,3 - DIHYDRO - 4(1H)-QUINAZOLINONES

Edgar S. Schipper, Clifton, N.J., assignor to Shulton, Inc., Clifton, N.J., a corporation of New Jersey

No Drawing. Filed Nov. 13, 1964, Ser. No. 411,098

2 Claims. (Cl. 260—256.4)

1. A compound selected from the class consisting of basically substituted 2,3-dihydro-4(1H)-quinazolinones and pharmaceutically acceptable acid addition salts thereof, said basically substituted 2,3-dihydro-4(1H)-quinazolinones having the formula:



in which B is pyridyl, *n* is 2; R_1 is selected from the class consisting of halo-lower alkyl, phenyl and substituted phenyl containing at least one substituent selected from the class consisting of halogen, lower alkyl and lower alkoxy; and R_2 and R_3 are selected from the class consisting of hydrogen and halogen.

3,322,767

THAM SALTS

Gabriel G. Nahas, 114 Chestnut St., Englewood, N.J. 07631

No Drawing. Continuation of application Ser. No. 284,845, June 3, 1963. This application Apr. 25, 1966, Ser. No. 545,168

5 Claims. (Cl. 260—258)

1. A THAM salt or metal complex selected from the group consisting of THAM barbital, THAM thiopental, THAM ascorbate and THAM aluminum.

2. A THAM salt according to claim 1 which is selected from the group consisting of THAM barbital.

3,322,768

ARALKYL PIPERAZINES AND SALTS THEREOF

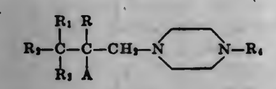
Manfred Schorr, Rudolf Fussgänger, and Georg Nesemann, Frankfurt am Main, and Fritz Bauer, Bad Soden, Taunus, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Brüning, Frankfurt am Main, Germany, a corporation of Germany

No Drawing. Filed July 13, 1965, Ser. No. 471,731

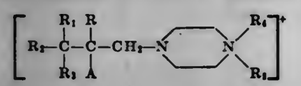
Claims priority, application Germany, Dec. 28, 1959, F 30,184

6 Claims. (Cl. 260—268)

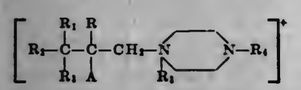
1. A compound of the formula



physiologically compatible acid addition salts thereof, or quaternary salts thereof in which the cations are of the formulas



or



wherein R is hydrogen, halophenyl or halobenzyl; R_1, R_2 and R_3 are hydrogen or halophenyl, at least two of R_1, R_2 and R_3 being halophenyl when R is hydrogen and at least one of R_1, R_2 and R_3 being halophenyl when R is halophenyl or halobenzyl; A is hydrogen or lower alkyl; R_4 is hydrogen, alkyl of 1–4 carbon atoms, hydroxyalkyl of 1–4 carbon atoms or dialkylaminoalkyl, the alkyl groups of which have 1–4 carbon atoms; R_5 is hydrogen or alkyl of 1–4 carbon atoms; or R_4 and R_5 together with the nitrogen atom form a piperidino or N-methylpiperazino ring.

3,322,769

THIO PERINONE DYESTUFFS

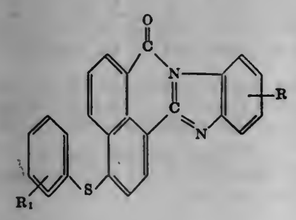
Otto Fuchs, Heinrich Sieber, and Helmut Troster, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany

No Drawing. Filed July 10, 1964, Ser. No. 381,904

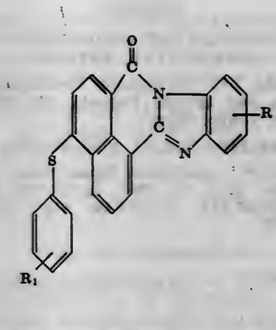
Claims priority, application Germany, July 11, 1963, F 40,212; Feb. 29, 1964, F 42,162

11 Claims. (Cl. 260—282)

1. Dyestuffs consisting of a mixture of isomeric compounds of the general formulae



and



wherein R represents a member of the group consisting of a hydrogen atom, a chlorine atom, a lower alkoxy, a lower alkyl, a cyano, a nitro and a carboxy lower alkoxy group and R_1 represents a member selected from the group consisting of a hydrogen atom, a chlorine atom, a lower alkyl, a lower alkoxy and a carboxy lower alkoxy group.

3,322,770

HYDROGENATION OF QUINOLINE

Alfred F. D'Alessandro, Havertown, Pa., and Max B. Mueller, Morristown, N.J., assignors to Allied Chemical Corporation, New York, N.Y., a corporation of New York

Filed Feb. 12, 1964, Ser. No. 344,331

5 Claims. (Cl. 260—283)

1. A process for producing bz-tetrahydroquinoline, which comprises hydrogenating quinoline at a temperature of at least 300° C. in the presence of a noble metal catalyst.

3,322,771

INTERMEDIATES FOR PREPARING THEBAINE DERIVATIVES

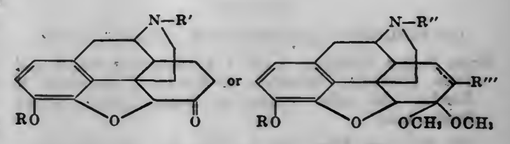
James Richard Bartels-Keith, Brookline, Mass., assignor to Smith Kline & French Laboratories, Philadelphia, Pa., a corporation of Pennsylvania

No Drawing. Continuation of application Ser. No. 313,793, Oct. 4, 1963. This application Nov. 3, 1966, Ser. No. 591,678

Claims priority, application Great Britain, Oct. 10, 1962, 38,444/62, 38,445/62

8 Claims. (Cl. 260—285)

1. A chemical compound of the structure:



in which R is hydrogen, methyl or diethylcarbamyl; R′ is cyano, cyclopropylcarbonyl, cyclobutylcarbonyl, tert.-butoxycarbonyl, benzyloxycarbonyl or, when R is diethylcarbamyl, hydrogen; R″ is cyclopropylmethyl, cyclopropylcarbonyl, cyclobutylmethyl, cyclobutylcarbonyl, benzyloxycarbonyl or tert.-butoxycarbonyl; and R‴ is, when —— is a double bond, hydrogen or, when —— is a single bond, bromo.

5. A chemical compound of the structure of claim 1 in which R is methyl and R′ is tert.-butoxycarbonyl, said compound being N-(tert.-butoxycarbonyl)-dihydronorcodeinone.

3,322,772
PROCESS FOR THE PRODUCTION OF CARBOXYLIC ESTERS

Shigeo Togashi, 555 Miyamacho, Funabashishi, Chiba-ken, Japan, and Hiroshi Yamada, 329 Okamotocho, Setagayaku, Tokyo, Japan

No Drawing. Filed Dec. 23, 1963, Ser. No. 332,883

Claims priority, application Japan, Dec. 28, 1962, 37/59,106; June 25, 1963, 38/33,349; Sept. 11, 1963, 38/47,917, 38/47,918; Sept. 12, 1963, 38/48,025

11 Claims. (Cl. 260—287)

1. In the process for the production of a carboxylic acid ester by the esterification of a carboxylic acid selected from the group consisting of aliphatic carboxylic acids, aromatic carboxylic acids, and heterocyclic carboxylic acids with an alcohol by heating the said carboxylic acid in the presence of a catalytic amount of a catalyst selected from the group consisting of inorganic acid catalyst, organic acid catalyst and cation-exchange resin catalyst, the improvement of adding peroxide to the reaction system in a mole ratio of peroxide to carboxylic acid of from 0.01 to 0.5:1.

3,322,773
TETRAHYDRO-1,10-PHENANTHROLINES

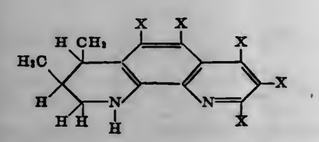
Brian Colwell Ennis, Ripponlea, Victoria, Australia, assignor to Monsanto Chemicals (Australia) Limited, West Footscray, Victoria, Australia, a company of Australia

No Drawing. Filed Sept. 8, 1964, Ser. No. 395,072

Claims priority, application Australia, Sept. 12, 1963, 35,322/63

8 Claims. (Cl. 260—288)

1. A compound of the formula,



wherein each X is selected from the group consisting of hydrogen, methyl and ethyl.

8. 1,2,3,4 - tetrahydro - 3,4,5,6,7,8-hexamethyl-1,10-phenanthroline.

3,322,774
1-(4-PIPERIDYL)-HYDRAZINE DERIVATIVES

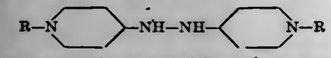
Ernst Jucker, Ettingen, Adolf J. Lindenmann, Basel, and John Gmünder, Muttenz, Switzerland, assignors to Sandoz Ltd. (also known as Sandoz A.G.), Basel, Switzerland

No Drawing. Filed Jan. 6, 1964, Ser. No. 336,024

Claims priority, application Switzerland, Jan. 11, 1963, 359/63

11 Claims. (Cl. 260—293)

1. A compound selected from the group consisting of a hydrazine derivative of the formula



wherein R is a member selected from the group consisting of lower alkyl, and lower dialkyl-amino, and inorganic and organic acid addition salts thereof.

6. 1-dipropylamino-piperidyl-(4)-hydrazine.

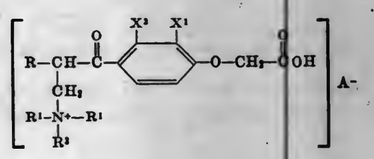
3,322,775
QUATERNARY AMMONIUM SALTS OF [4-(3-AMINOALKANOYL)PHENOXY] ALKANOIC ACIDS

Edward J. Cragoe, Jr., Lansdale, Pa., assignor to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed Nov. 26, 1963, Ser. No. 326,252

11 Claims. (Cl. 260—294)

1. A compound of the formula



where R is a member selected from the group consisting of lower alkyl and trifluoromethyl-lower alkyl, R^1 and R^2 each represents lower alkyl, X^1 and X^2 each represents a member selected from the group consisting of hydrogen, halogen, lower alkyl, trifluoromethyl and, X^1 and X^2, taken together, form 1,3-butadienylene and A^- is a non-toxic, pharmacologically acceptable anion.

6. [3-chloro-4-[2 - (1-benzylpiperidiniummethyl)-butyryl]phenoxy]acetic acid chloride.

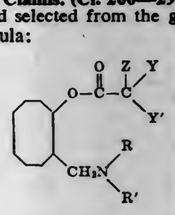
3,322,776
2-SUBSTITUTED AMINO METHYLCYCLOOCTYL ESTERS OF ALKYL SUBSTITUTED ACETIC ACID

Edward J. Pribyl, Metuchen, and Jack Bernstein, New Brunswick, N.J., assignors to E. R. Squibb & Sons, Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed Nov. 15, 1963, Ser. No. 323,880

10 Claims. (Cl. 260—294.3)

1. A compound selected from the group consisting of bases of the formula:



wherein Y and Y′ each is a member of the group consisting of phenyl, halophenyl, lower alkylphenyl, lower alkoxyphenyl and 3 to 6 carbon cycloalkyl, Z is a member of the group consisting of hydrogen, hydroxy and lower alkoxy, and R and R′ each is a member of the group consisting of hydrogen, lower alkyl, phenyl-lower alkyl and conjointly form a 5 to 7 atom monocyclic heterocyclic of less than 12 atoms in the group with the attached nitrogen, and pharmacologically acceptable salts of said bases.

6. 2-piperidinomethylcyclooctyl 2-phenyl-2-cyclopentyl acetate.

3,322,777
ETHYL 2,2-DIMETHYL-3-(4-n-NONYLPIPERIDINO)CARBONYL CYCLOBUTANO ACETATE

Evald L. Skau, Robert R. Mod, and Frank C. Magne, New Orleans, La., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Original application Feb. 5, 1964, Ser. No. 354,190, now Patent No. 3,222,203, dated Dec. 7, 1965. Divided and this application June 1, 1964, Ser. No. 396,449

1 Claim. (Cl. 260—294.3)

Ethyl 2,2 - dimethyl - 3 - (4 - n - nonylpiperidino)carbonylcyclobutanoacetate.

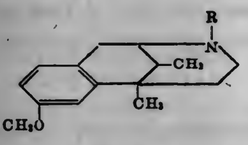
3,322,778
NOVEL ETHER DERIVATIVES OF BENZMORPHANS

Solomon M. Kupchan, Madison, Wis., and Alan F. Casy, London, England, assignors to Smith Kline & French Laboratories, Philadelphia, Pa., a corporation of Pennsylvania

No Drawing. Filed May 26, 1964, Ser. No. 370,332

5 Claims. (Cl. 260—294.7)

1. A chemical compound selected from the group consisting of a free base and its nontoxic, pharmaceutically acceptable acid addition salts, said free base having the formula:



in which R is a member selected from the group consisting of cyclopropylmethyl and an aralkyl moiety, said aralkyl moiety having 2 to 4 carbon atoms in the alkyl portion and an aryl portion attached to said alkyl portion at an aryl carbon atom and selected from the group consisting of phenyl, thienyl, furyl, pyridyl, methylthiophenyl, nitrophenyl, methoxyphenyl, aminophenyl and dimethylaminophenyl.

3,322,779
DI- AND TRIPHENYLLEAD SULFIDES HAVING SUBSTITUENT RADICALS JOINED TO THE SULFUR ATOM

Malcolm C. Henry, Harvard, Mass., and Adolf W. Krebs, New York, N.Y., assignors, by direct and mesne assignments, to International Lead Zinc Research Organization, Inc., New York, N.Y., a membership corporation of New York

No Drawing. Filed Apr. 1, 1963, Ser. No. 269,771

1 Claim. (Cl. 260—299)

Organolead compounds selected from the group consisting of thiobenzthiazolyl triphenyllead, dithiobenzthiazolyl diphenyllead and thiobenzoxazoyl triphenyllead.

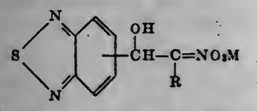
3,322,780
α-(ACINITROMETHYL)- AND α-(NITROMETHYL)-2,1,3 - BENZOTHIADIAZOLE - METHANOL COMPOUNDS

Richard Y. Wen, Midland, Mich., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Sept. 3, 1965, Ser. No. 485,076

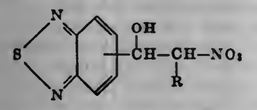
7 Claims. (Cl. 260—304)

1. Compound of the formula



wherein R represents hydrogen, primary loweralkyl being of from 1 to 5, both inclusive, carbon atoms, or secondary loweralkyl being of from 3 to 5, both inclusive, carbon atoms and M represents alkali metal.

5. Compound of the formula



wherein R represents hydrogen, primary loweralkyl being of from 1 to 5, both inclusive, carbon atoms, or secondary loweralkyl being of from 3 to 5, both inclusive, carbon atoms.

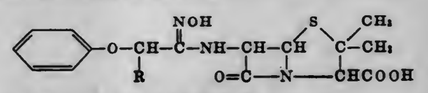
3,322,781
6-(SUBSTITUTED-HYDROXYAMIDINO)-PENICILLANIC ACIDS

John Carl Godfrey, Syracuse, N.Y., assignor to Bristol-Myers Company, New York, N.Y., a corporation of Delaware

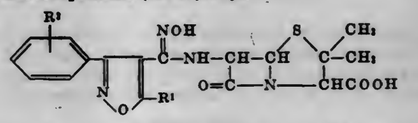
No Drawing. Filed Oct. 18, 1963, Ser. No. 317,118

23 Claims. (Cl. 260—306.7)

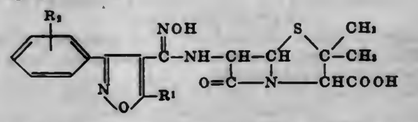
23. A member selected from the group consisting of the compounds of the formulae



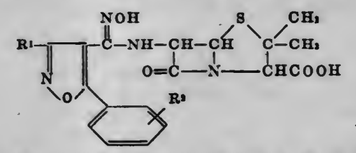
wherein R represents (lower)alkyl;



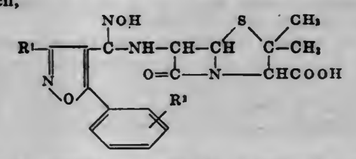
wherein R^1 represents (lower)alkyl and R^2 represents hydrogen;



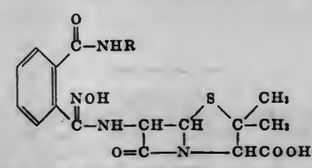
wherein R^1 represents (lower)alkyl and R^2 represents chloro;



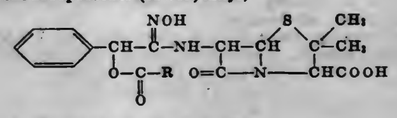
wherein R^1 represents (lower)alkyl and R^2 represents hydrogen;



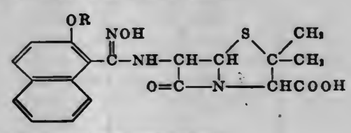
wherein R^1 represents (lower)alkyl and R^2 represents chloro;



wherein R represents (lower)alkyl;



wherein R represents (lower)alkyl;



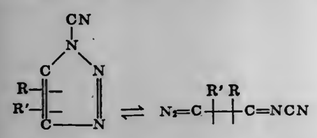
wherein R represents lower(alkyl).

3,322,782
1-CYANO-1,2,3-TRIAZOLES AND THEIR MIXTURES WITH α-DIAZO-N-CYANOIMINES

Frank Dennis Marsh, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Oct. 9, 1964, Ser. No. 402,961
6 Claims. (Cl. 260—308)

1. A composition of matter of the formula



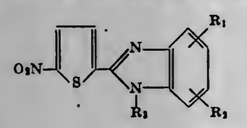
wherein R and R' are selected from the group consisting of hydrogen, alkyl, haloalkyl, nitroalkyl, cyanoalkyl and alkoxyalkyl of up to 12 carbons, cycloalkyl of up to 7 carbons, aryl of up to 8 carbons and butadienylene.

3,322,783
SUBSTITUTED 2-(5-NITRO-2-THIENYL)-BENZIMIDAZOLES

George L. Dunn, Willingboro, N.J., assignor to Smith Kline & French Laboratories, Philadelphia, Pa., a corporation of Pennsylvania

No Drawing. Filed July 14, 1964, Ser. No. 382,663
4 Claims. (Cl. 260—309.2)

1. A chemical compound of the class consisting of a free base and its nontoxic pharmaceutically acceptable acid addition salts, the free base having the formula:



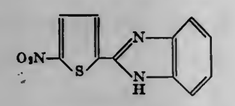
in which:

R_1 is a member selected from the group consisting of hydrogen, lower alkyl, lower alkoxy, halogen, alkoxycarbonyl and trifluoromethyl,

R_2 is a member selected from the group consisting of hydrogen, lower alkyl, lower alkoxy and halogen, and

R_3 is a member selected from the group consisting of hydrogen, lower alkyl and hydroxy lower alkyl.

2. A chemical compound of the formula:

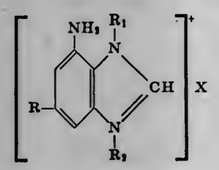


3,322,784
BENZIMIDAZOLIUM COMPOUNDS

Reinhard Mohr, Offenbach (Main), and Rolf Bender, Obertshausen, near Offenbach, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Brüning, Frankfurt am Main, Germany, a corporation of Germany

No Drawing. Filed Dec. 8, 1964, Ser. No. 416,921
Claims priority, application Germany Dec. 13, 1963, F 41,530; Oct. 23, 1964, F 44,294
6 Claims. (Cl. 260—309.2)

1. A compound of the formula



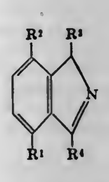
wherein R represents chlorine, methyl, ethyl and methoxy, R_1 represents alkyl containing 1 to 4 carbon atoms and R_2 represents alkyl containing 1 to 12 carbon atoms and X stands for a $ZnCl_3$, alkylsulfate, sulfate, or arylsulfonic acid anion.

3,322,785
SUBSTITUTED ISOINDOLENINE DERIVATIVES

Henry Fletcher, Moston, Manchester, England, assignor to The Aliphatic Research Company Limited, Simonsway, England

No Drawing. Filed Nov. 16, 1964, Ser. No. 411,597
Claims priority, application Great Britain, Nov. 19, 1963, 45,548/63, 45,549/63, 45,550/63
18 Claims. (Cl. 260—326.1)

1. A member selected from the group consisting of substituted isoindolenines having the formula:



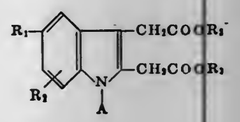
and salts thereof with a member selected from the group consisting of sulphuric acid, phosphoric acid, hydrochloric acid, nitric acid, thiocyanic acid, acetic acid, picric acid and p-toluene sulphonic acid, wherein the groups R^1, R^2, R^3 and R^4 are the same or different and each is a member selected from the group consisting of lower alkyl, phenyl and lower alkylphenyl.

3,322,786
3-INDOLYL ALIPHATIC ACIDS

Meyer Sletzinger, North Plainfield, and Raymond A. Firestone, Fanwood, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed Oct. 7, 1965, Ser. No. 493,885
6 Claims. (Cl. 260—326.12)

1. A novel compound of the formula



wherein

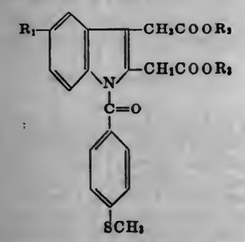
A is selected from the group consisting of benzoyl, substituted benzoyl wherein said substitutent is selected from the group consisting of N,N-dilower alkylsulfonamido, halo, lower alkylamino, nitro, lower alkylthio, lower alkanoyloxy, benzyloxy, trifluoromethyl, lower alkoxy and phenoxy; naphthoyl, thiazole carbonyl, oxazole carbonyl, 1-methylimidazole carbonyl and 2-benzylmercaptothiazole carbonyl;

R_1 is selected from the group consisting of hydrogen, lower alkyl, lower alkoxy, halo, trifluoromethyl, amino, benzylmercapto, benzyloxy, cyclohexyl, di(lower alkyl) amino, bis(β-hydroxy lower alkyl)amino, 1-pyrrolidino, 1-piperazino, 1-morpholino, lower alkenyl, hydroxy and mercapto;

R_2 is selected from the group consisting of hydrogen, lower alkyl, lower alkoxy cyclohexyl, and halogen; and

R_3 is t-butyl.

2. A compound of the formula



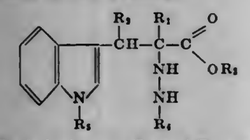
wherein R_1 is lower alkoxy and R_3 is t-butyl.

3,322,787
ALPHA-HYDRAZINO-BETA-(3-INDOLYL) ALKANOIC ACID DERIVATIVES

Meyer Sletzinger, North Plainfield, George Gal, Summit, and Edward J. Glamkowski, Plainfield, N.J., assignors to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed Sept. 25, 1964, Ser. No. 399,347
4 Claims. (Cl. 260—326.14)

4. A compound selected from the group consisting of (1) compounds of the formula:



wherein R_1 is hydrogen; R_2 and R_3 are each selected from the group consisting of hydrogen and lower alkyl; R_4 is selected from the group consisting of hydrogen, lower alkanoyl and carb(lower)alkoxy; and R_5 is selected from the group consisting of hydrogen, lower alkyl, lower alkanoyl, benzoyl, chlorobenzoyl, toluyl, benzyl, phenethyl, halobenzyl, lower alkylbenzyl and loweralkoxybenzyl; and

(2) non-toxic salts of the above compounds.

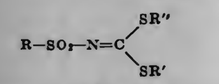
3,322,788
SULPHONYLIMINO-DITHIOCARBONIC ACID ESTERS AND A PROCESS FOR THEIR PRODUCTION

Rudolf Gompper, Stuttgart, Richard Wegler and Karlfried Dickoré, Leverkusen, and Wolfgang Hägele, Magstadt, Kreis Goppingen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a German corporation

No Drawing. Filed Aug. 7, 1963, Ser. No. 300,688
Claims priority, application Germany, Sept. 14, 1962, F 37,808
21 Claims. (Cl. 260—327)

4. N-benzene-sulphonyl - 1,3 - dithia - cyclopentanone-(2)-imine.

13. A sulphonylimino-dithiocarbonic acid ester having the formula



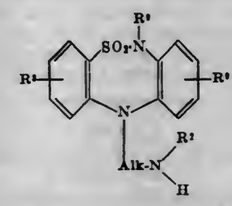
wherein R is a member of the group consisting of lower alkyl, phenyl, lower alkyl phenyl, chlorophenyl, nitrophenyl, p-acetanilide, and di-lower alkyl amino, R' is a member of the group consisting of lower alkyl, lower alkenyl, lower alkylphenyl, lower alkyl chlorophenyl, ethoxyethyl and acetonyl, R'' is a member of the group consisting of hydrogen, lower alkyl, lower alkenyl, lower alkylphenyl, lower alkylchlorophenyl, ethoxyethyl, and acetonyl, and wherein R' and R'' may represent a polymethylene chain having 2 carbon atoms.

3,322,789
5,5-DIOXODIBENZO[1,2,5]THIADIAZEPINES AND PROCESS

William E. Kreighbaum, Evansville, Ind., assignor to Mead Johnson & Company, Evansville, Ind., a corporation of Indiana

No Drawing. Filed Dec. 6, 1963, Ser. No. 328,506
10 Claims. (Cl. 260—327)

1. A compound selected from the group having the formula



and the acid addition salts thereof, wherein

R^3 is from one to two substituents selected from the group consisting of hydrogen, halogen, methyl, trifluoromethyl, alkoxy, alkylthio, and alkylsulfonyl, and contains up to four carbon atoms;

R^6 is selected from the group consisting of lower alkyl having 1 to 4 carbon atoms and benzyl;

R^9 is selected from the group consisting of hydrogen, halogen, methyl, trifluoromethyl, dimethylamino, dimethylsulfamyl, carboxy, carbalkoxy, alkylthio, alkylsulfonyl, alkoxy, and alkanoyl, and contains up to four carbon atoms;

Alk is selected from the group consisting of ethylene and trimethylene having up to one alkyl substituent containing up to two carbon atoms;

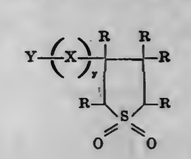
R^2 contains up to four carbon atoms and is selected from the group consisting of alkyl.

3,322,790
NONIONIC SURFACTANTS

Henry E. Fritz, Charleston, and Harry T. Zika and Edmund C. Steinle, Jr., South Charleston, W. Va., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Nov. 1, 1962, Ser. No. 234,835
9 Claims. (Cl. 260—332.1)

1. A non-ionic surface active compound of the formula:



where Y is an alkyl phenoxy radical said alkyl having from 4–22 carbon atoms, X is a hydrophilic alkyleneoxy chain containing individually one or more alkyleneoxy members selected from the group consisting of methyleneoxy, ethyleneoxy, propyleneoxy and butyleneoxy and mixtures of said ethyleneoxy, methyleneoxy and propyleneoxy members where the atomic ratio of carbon to oxygen is from about 1.5:1 to about 2.1:1, in said mixture, X may be a hydrophilic styreneoxy moiety containing one or more styreneoxy repeating units, R is a member selected from the group consisting of hydrogen or 1–4 carbon atom alkyl radical and *y* a lower case may vary from 1 to 6.

3,322,791

PREPARATION OF OPTICALLY ACTIVE LACTIDES

Stanley Selman, Wilmington, Del., assignor, by mesne assignments, to Ethicon, Inc., a corporation of New Jersey

No Drawing. Filed Sept. 26, 1963, Ser. No. 311,668
3 Claims. (Cl. 260—340.2)

1. Process for the preparation of substantially pure optically active lactides from optically active lactic acids, which comprises heating an optically active lactic acid at a temperature of 100° to 250° C. in the presence of 0.01 to 5 weight percent, based on the acid, of a titanium alkoxide containing up to 12 carbon atoms in the alkoxide radical and recovering an optically active lactide.

3,322,792

PRODUCTION OF DICHLOROACETALDEHYDE CYCLIC TRIMER

David D. Centola, Rockville, Md., assignor to FMC Corporation, New York, N.Y., a corporation of Delaware

No Drawing. Filed July 12, 1963, Ser. No. 294,743
6 Claims. (Cl. 260—340)

1. Process of producing dichloroacetaldehyde in the form of a solid cyclic trimer which comprises heating a liquid dichloroacetaldehyde monomer to temperatures of from about 10° C. to about 70° C. in the presence of both a Lewis acid and chlorine, said dichloroacetaldehyde reagent containing monochloroacetaldehyde as an impurity in amounts less than about 1% by weight, and recovering a solid dichloroacetaldehyde trimer substantially free of impurities.

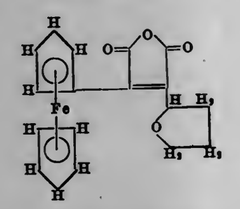
3,322,793

FERROCENE, MALEIC ANHYDRIDE, CYCLIC ETHER ADDUCTS

Richard E. Bozak, Walnut Creek, Calif., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Apr. 9, 1964, Ser. No. 358,640
2 Claims. (Cl. 260—340.6)

1. A compound of the formula:



3,322,794

PROCESS FOR THE PREPARATION OF 7-AMINOCOUMARINS

Jorg Haeberli, Warwick, R.I., assignor to Geigy Chemical Corporation, Greenburgh, N.Y., a corporation of Delaware

No Drawing. Filed Aug. 31, 1964, Ser. No. 393,369
10 Claims. (Cl. 260—343.2)

1. A process for the production of 7-amino-3-phenylcoumarin which comprises condensing in an inert solvent 3-aminophenol with a member selected from the group consisting of ethyl β-hydroxy-α-phenylacrylate, β-hydroxy-α-phenylacrylonitrile, ethyl β-methoxy-α-phenylacrylate, β-methoxy-α-phenylacrylonitrile, ethyl β-(m-hydroxyphenylamino)-α-phenylacrylate, β-(m-hydroxyphenylamino)-α-phenylacrylonitrile, in the presence of a condensing agent selected from the group consisting of aluminum chloride, aluminum bromide, hydroxy aluminum dichloride, boron trifluoride and boron fluoride ethyl ether and at a temperature between the range of about 60 and 200° C.

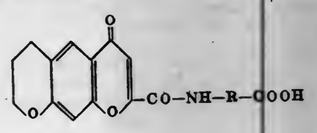
3,322,795

2-CARBOXYALKYLAMINOCARBONYL DIHYDROPYRANO CHROMONES

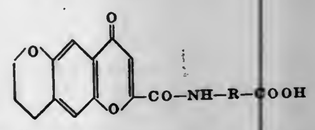
Gwynn Pennant Ellis, Heath, Cardiff, Wales, and Arthur Hedley Wragg, Middlewich, England, assignors to Benger Laboratories Limited, Cheshire, England

No Drawing. Continuation of application Ser. No. 261,209, Feb. 26, 1963. This application May 24, 1966, Ser. No. 552,633
Claims priority, application Great Britain, Mar. 7, 1962, 8,730/62
5 Claims. (Cl. 260—345.2)

1. A member selected from the group consisting of compounds of the formulae:



and



and alkali metal and ammonium salts thereof, wherein R is alkylene of from 1 to 4 carbon atoms inclusive.

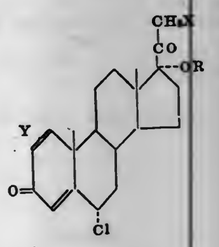
3,322,796

6α-CHLORO-17α-HYDROXYPROGESTERONE AND INTERMEDIATES OBTAINED IN THE PRODUCTION THEREOF

Howard J. Ringold, Enrique Batres, George Rosenkranz, Octavio Mancera, and Albert Bowers, all of Mexico City, Mexico, assignors, by mesne assignments, to Syntex Corporation, a corporation of Panama

No Drawing. Filed Oct. 31, 1958, Ser. No. 770,916
Claims priority, application Mexico, Nov. 4, 1957, 49,286; Nov. 27, 1957, 49,487; Feb. 25, 1958, 50,220; June 25, 1958, 51,373
27 Claims. (Cl. 260—397.4)

1. A compound of the following formula:



wherein Y is selected from the group consisting of a double bond between C–1 and C–2 and a saturated linkage between C–1 and C–2, X is selected from the group consisting of hydrogen and fluorine and R is selected from the group consisting of hydrogen and a hydrocarbon carboxylic acyl group of less than 12 carbon atoms.

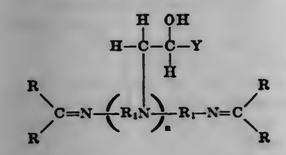
3,322,797

HYDROXY CONTAINING IMINE COMPOUNDS

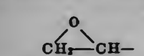
Roy T. Holm, Orinda, Calif., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed Sept. 22, 1965, Ser. No. 489,377
13 Claims. (Cl. 260—404.5)

1. A compound of the formula:



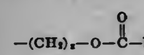
wherein Y is a member of the group consisting of: hydrogen; OH; hydrocarbon radicals; $-(CH_2)_xOR_2$ radicals wherein R_2 is a hydrocarbon, halosubstituted hydrocarbon, hydroxyl-substituted hydrocarbon radical or



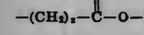
substituted hydrocarbon and x is 0 to 6;

$$-(CH_2)_xOR_1OR_2$$

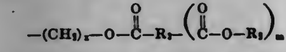
wherein R_2 and x are as described above;



wherein R_2 and x are as described above;



wherein R_2 and x are as described above;



wherein m is an integer of 1 to 3, R_3 and x are as described above and R_3 is a polyvalent hydrocarbon radical; R is a member of the group consisting of hydrogen and hydrocarbon radicals; R_1 is a bivalent hydrocarbon radical; and n is an integer of 1 to 6.

3,322,798

PROCESS FOR OBTAINING PURE METHYL AZELAALDEHYDATE FROM OZONOLYSIS OF COMMERCIAL METHYL OLEATE

William R. Miller and Danny Joe Moore, Peoria, Ill., assignors to the United States of America as represented by the Secretary of Agriculture

No Drawing. Filed May 14, 1964, Ser. No. 367,600
1 Claim. (Cl. 260—410.9)

In a distillation process for obtaining methyl azelaaldehydate from the heterogenous product formed by subjecting commercial methyl oleate to ozonization followed by reductive decomposition of the ozonized intermediates, the improvement comprising the steps of distilling to remove a first fraction boiling at 28–94° C./3 mm. and isolate a fraction boiling at 65—118° C./0.5 mm., treating the latter fraction with a saturated aqueous-methanolic solution of sodium bisulfite, isolating the resulting crystals of bisulfite addition compound, dissolving the crystals in 10 percent NaOH solution, extracting the methyl azelaaldehydate regenerated therein with successive additions of ether, washing the pooled ether fractions with water to remove residual alkali, stripping off the ether solvent, and distilling at 85–86° C./0.2 mm. to obtain methyl azelaaldehydate having a purity of about 99.8 percent.

3,322,799

PROCESS FOR PREPARING MOLYBDENUM CARBONYL COMPLEXES

Thomas H. Coffield and Robert P. M. Werner, Farmington, Mich., assignors to Ethyl Corporation, New York, N.Y., a corporation of Virginia

No Drawing. Filed Aug. 22, 1961, Ser. No. 133,027
4 Claims. (Cl. 260—429)

1. A process for the preparation of organometallic complexes of molybdenum, said process comprising reacting a donor molecule selected from the class consisting of ammonia, alkyl, cycloalkyl, aryl, and heterocyclic primary, secondary, and tertiary amines, nitriles, triphenylphosphine, triphenylarsine, and triphenylstibine with a compound having the formula $P'Mo(CO)_3$ wherein P' is a saturated tridentate ether, and P' is bonded to the molybdenum atom through an oxygen linkage.

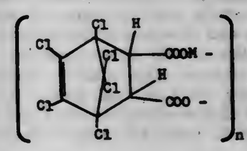
3,322,800

POLYMERIC POLYVALENT METAL SALTS OF CHLORENDIC ACID

Richard B. Tideswell, Buffalo, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York

No Drawing. Filed July 2, 1962, Ser. No. 207,048
17 Claims. (Cl. 260—429)

1. A process for the preparation of a polymeric metal salt of the formula



wherein n is an integer from three to eight and M is a metal selected from the group consisting of manganese, copper, lead, and mixtures thereof, which comprises reacting a metal selected from the group consisting of copper, lead, manganese and mixtures thereof and a compound selected from the group consisting of chlorendic acid, chlorendic anhydride, and mixtures thereof, in a solvent for said compound under oxidizing conditions.

3,322,801

METHOD OF PREPARING NOVEL ORGANOTIN COMPOUNDS

Albert K. Sawyer, Durham, N.H., assignor to M&T Chemicals Inc., New York, N.Y., a corporation of Delaware

No Drawing. Filed July 31, 1963, Ser. No. 299,105
11 Claims. (Cl. 260—429.7)

1. The method of preparing compounds $(R_aSnSnR'_a)_x$ which comprises reacting as reactants equivalent proportions of R_aSnH_{4-a} and R'_aSnY_{4-a} wherein Y is a portion acceptor selected from the group consisting of ½O, OH, and OR''; R, R', and R'' are each a hydrocarbon radical, free of olefinic and acetylenic unsaturation, selected from the group consisting of alkyl, alkaryl, aralkyl, aryl, and cycloalkyl; a is an integer greater than 1 and less than 4, x is 1 when a is 3, and 2–5 when a is 2; maintaining said reactants together in a reaction mixture; and separating $(R_aSnSnR'_a)_x$.

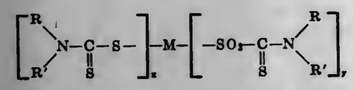
9. The method of preparing di-n-butyltin which comprises reacting as reactants equivalent proportions of dibuntyltin dihydride and dibutyltin dimethoxide, maintaining said reactants together in a reaction mixture, and separating di-n-butyltin.

3,322,802
METAL SALTS OF ORGANODITHIOCARBAMATE-ORGANOTHIOCARBAMOYL SULFINATES AND THE PREPARATION THEREOF

Lester A. Brooks and Robert T. O'Shaughnessy, East Norwalk, Conn., assignors to R. T. Vanderbilt Company, Inc., New York, N.Y., a corporation of New York

No Drawing. Filed May 27, 1963, Ser. No. 283,523
23 Claims. (Cl. 260—429)

1. Compounds having the general structural formula



wherein M is a metal selected from the group consisting of the divalent metals copper, zinc, manganese, nickel, lead, cadmium, cobalt, tin(II), barium, and mercury, the trivalent metals iron(III) and bismuth and the tetravalent metal tin(IV), x and y are 1 to 2, their sum being the valence of M, and the moiety



is the residue of a secondary amine which will react with carbon disulfide to form a dithiocarbamate, R and R′ are groups of the class consisting of saturated hydrocarbon groups and saturated hydrocarbon groups joined through a radical of the class consisting of —CH_2—, oxygen and sulfur to form with the amine nitrogen a heterocyclic ring, each of said groups R and R′ containing 1 to 12 carbon atoms, the total number of carbon atoms in R and R′ being not greater than 24.

3,322,803
PROCESS FOR THE PRODUCTION OF COMPLEX COMPOUNDS OF DIVALENT TITANIUM

Friedrich Vohwinkel, Hanau, and Gerhard Preusser, Frankfurt am Main, Germany, assignors, by mesne assignments, to Vickers-Zimmer Aktiengesellschaft Planung und Bau von Industrieanlagen, Borsigallee, Frankfurt am Main, Germany, a corporation of Germany

No Drawing. Filed Feb. 15, 1963, Ser. No. 258,916
Claims priority, application Germany, Mar. 6, 1962, Z 9,271
6 Claims. (Cl. 260—429.5)

1. A process for the production of titanium (II) aluminum halide aromatic complexes which comprises heating a mixture of an aluminum halide and a metal selected from the first to the third main group and second subgroup for a short period of time at a temperature of between 100 and 250° C. in an inert gas atmosphere in the absence of organic solvents, thereafter heating the resulting mixture containing said metal in active form with at least one member selected from the group consisting of titanium (III) and titanium (IV) halide and an aromatic solvent at a temperature of between 50 and 180° C.

3,322,804
ALIPHATIC POLYETHER SUBSTITUTED FERROCENE

Roy L. Pruett, Charleston, W. Va., assignor to Union Carbide Corporation, a corporation of New York

No Drawing. Filed June 11, 1963, Ser. No. 286,947
6 Claims. (Cl. 260—439)

1. Methylcyclopentadienyl cyclopentadienyl iron compound having a radical bonded to the methyl group from the class consisting of alkoxyalkoxy, cycloalkoxyalkoxy, alkoxypolyalkyleneoxy and cycloalkoxypolyalkyleneoxy.

3,322,805
PROCESS FOR THE MANUFACTURE OF LOWER ALKYL ARSINIC ACIDS AND ALKALI METAL SALTS THEREOF

Louis Robert Schanhals, Marysville, Ohio, assignor to The O. M. Scott & Sons Company, Marysville, Ohio, a corporation of Ohio

Filed Aug. 8, 1963, Ser. No. 300,848
20 Claims. (Cl. 260—442)

1. The process of producing dialkyl arsinic acid compounds with not more than two carbon atoms in the alkyl radicals, comprising the steps of:

(a) reacting an alkyl arsonate in which the alkyl radical contains not more than two carbon atoms with sulfur dioxide to convert the arsonate to an alkyl arsine oxide;

(b) reacting the alkyl arsine oxide with an alkali metal hydroxide to convert the oxide to an alkyl arsenite; and

(c) reacting the alkyl arsenite with an alkyl halide in which the alkyl radical contains not more than two carbon atoms an aqueous solution to convert the arsenite to a dialkyl arsinate.

3,322,806
ALUMINUM ALKYLS FROM NON-ALPHA OLEFINS

Friedrich Asinger, Merkstein, Bernhard Fell and Rainer Janssen, Aachen-Laurensberg, Guenter Zoche, Beuel, Ernst Willi Mueller, Saint Augustin, and Friedrich W. A. G. K. Korte, Hangelar, Germany, assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

No Drawing. Filed May 13, 1963, Ser. No. 280,098
Claims priority, application Great Britain, May 16, 1962, 18,856/62; Dec. 19, 1962, 48,024/62
10 Claims. (Cl. 260—448)

1. A process for the preparation of an aluminum n-alkyl which comprises reacting a linear non-α-olefin with a relatively low molecular weight aluminum alkyl compound in the presence of a catalyst comprising a compound of a metal of Group IV–B, V–B, or VI–B of the periodic table of the elements in an amount of 0.05 to 10 mole percent, based on the amount of said relatively low molecular weight aluminum alkyl compound employed.

3,322,807
1,4-BIS- AND 2,4-BIS-DI-(TRIORGANOSILYL) BUT-1-ENES

William K. Johnson, Dayton, Ohio, assignor to Monsanto Company, a corporation of Delaware

No Drawing. Filed July 13, 1960, Ser. No. 42,472
5 Claims. (Cl. 260—448.2)

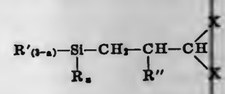
1. As a compound, 1,4-bis(triphenylsilyl)but-1-ene.

3,322,808
NOVEL SILANES AND PROCESS FOR THEIR PRODUCTION

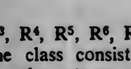
Götz Koerner, Mulheim (Ruhr), Germany, assignor to Th. Goldsmidt A.-G., Essen, Germany.

No Drawing. Filed July 30, 1963, Ser. No. 298,582
Claims priority, application Germany, Aug. 3, 1962, G 35,632
21 Claims. (Cl. 260—448.2)

1. A silane of the general formula



wherein R is a monovalent hydrocarbon selected from the group consisting of alkyl and aryl, R′ is halogen, R″ is selected from the group consisting of methyl and hydrogen, X stands for the group



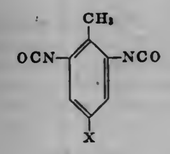
wherein R has the above-indicated meanings, and a is a number between 0 and 2.

3,322,809
4-SUBSTITUTED-2,6-TOLYLENE DIISOCYANATE

Gilbert H. Swart, Akron, Ohio, assignor to The General Tire & Rubber Company, Akron, Ohio, a corporation of Ohio

No Drawing. Original application Aug. 5, 1959, Ser. No. 831,703, now Patent No. 3,203,931, dated Aug. 31, 1965. Divided and this application Mar. 15, 1963, Ser. No. 265,359
6 Claims. (Cl. 260—453)

1. An aromatic diisocyanate having the formula:



where X is an alkyl radical of from 3 to 5 carbon atoms, —O—R,



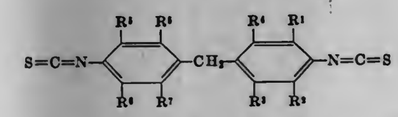
—C≡N, —$N(R)_2$ or a halogen radical, where R is an alkyl radical of from 1 to 5 carbon atoms and where R′ is hydrogen or an alkyl radical of from 1 to 5 carbon atoms.

3,322,810
HINDERED ISOTHIOCYANATES, AND THE METHOD OF PREPARING THE SAME

John F. Olin, St. Louis, Mo., assignor to Monsanto Company, a corporation of Delaware

No Drawing. Filed Sept. 19, 1963, Ser. No. 310,121
11 Claims. (Cl. 260—454)

1. A compound of the general formula



where R^1, R^2, R^3, R^4, R^5, R^6, R^7 and R^8 is a member selected from the class consisting of hydrogen, alkyl radicals up to 10 carbon atoms, chlorine, bromine, iodine and fluorine, and at least one of R^1, R^2, R^5 and R^6 is a tertiary alkyl radical of from 4 to 10 carbon atoms.

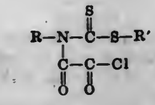
8. A process for preparing and hindering the chemical reactivity of phenyl isothiocyanates, said process comprising introducing a tertiary alkyl radical of from four to ten carbon atoms onto a nuclear carbon atom of a primary aromatic amine in the ortho-position with respect to the amino radical of said aromatic amine, reacting in the absence of an oxidizing agent and at elevated temperatures the alkylated aromatic amine with carbon disulfide to form an unstable intermediate dithiocarbamic acid, and permitting the dithiocarbamic acid to break down to convert the amino radical to an isothiocyanate radical.

3,322,811
DITHIO OXAMYL CHLORIDES

Paul J. Stoffel, St. Louis, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed Sept. 23, 1963, Ser. No. 310,855
20 Claims. (Cl. 260—455)

1. A compound of the structure

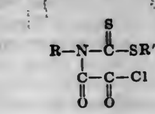


wherein R and R′ are each selected from the group consisting of

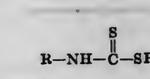
(A) aliphatic hydrocarbon and substituted aliphatic hydrocarbon having up to four substituents wherein the aliphatic hydrocarbon is selected from the group consisting of alkyl of not more than 12 carbon atoms, alkenyl of not more than 12 carbon atoms, cycloalkyl having at least 4 and not more than 8 carbon atoms, wherein the substituents on the aliphatic hydrocarbon are selected from the group consisting of chlorine, bromine, nitro, and alkoxy of not more than four carbon atoms, and

(B) aromatic hydrocarbon and substituted aromatic hydrocarbon having up to four substituents wherein the aromatic hydrocarbon is selected from the group consisting of phenyl and benzyl and wherein the substituents on the aromatic hydrocarbon are selected from the group consisting of chlorine, bromine, nitro, alkyl of not more than four carbon atoms and alkoxy of not more than four carbon atoms.

11. The method of preparing a compound of the structure:



which comprises contacting at a temperature between 30° C. and 100° C. oxalyl chloride and a compound of the structure:



wherein R and R′ are each selected from the group consisting of

(A) aliphatic hydrocarbon and substituted aliphatic hydrocarbon having up to four substituents wherein the aliphatic hydrocarbon is selected from the group consisting of alkyl of not more than 12 carbon atoms, alkenyl of not more than 12 carbon atoms, cycloalkyl having at least 4 and not more than 8 carbon atoms, wherein the substituents on the aliphatic hydrocarbon are selected from the group consisting of chlorine, bromine, nitro, and alkoxy of not more than four carbon atoms, and

(B) aromatic hydrocarbon and substituted aromatic hydrocarbon having up to four substituents wherein the aromatic hydrocarbon is selected from the group consisting of phenyl and benzyl and wherein the substituents on the aromatic hydrocarbon are selected from the group consisting of chlorine, bromine, nitro, alkyl of not more than four carbon atoms and alkoxy of not more than four carbon atoms.

3,322,812
ALKYL ISOCYANATOALKYL CARBONATES

Thomas K. Brotherton and John W. Lynn, Charleston, W. Va., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Nov. 14, 1963, Ser. No. 323,616
3 Claims. (Cl. 260—463)

1. Alkyl isocyanatoalkyl carbonate wherein the alkyl moiety has from 1 to 8 carbon atoms, and wherein the isocyanatoalkyl moiety has from 2 to 12 carbon atoms.

3,322,813
HALOPROPARGYL ARYL ETHER COMPOUNDS

Shigeo Seki, Bunzo Nomiya, and Hiroshi Ogawa, Tokyo, Japan, assignors to Meiji Seika Kaisha, Ltd., Tokyo, Japan, a corporation of Japan

No Drawing. Filed June 6, 1963, Ser. No. 285,871
Claims priority, application Japan, June 30, 1962, 37/26,896; Mar. 7, 1963, 38/10,431
13 Claims. (Cl. 260—465)

1. Iodopropargyl aryl ether compounds represented by the general formula:

$$Ar—O—CH_2—C\equiv C—I$$

wherein Ar stands for substituted phenyl and naphthyl groups which carry on the aromatic nucleus substituents selected from the group consisting of halogen, nitro, cyano, lower alkyl, lower alkoxy, lower alkynyloxy, hydroxy lower alkoxy, phenyl and acetyl radicals.

3,322,814
PURIFICATION OF NITRILES

Vincent J. Iappelli, Lodi, N.J., assignor to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

No Drawing. Filed Sept. 10, 1964, Ser. No. 395,612
4 Claims. (Cl. 260—465.1)

1. A process for removing acrylonitrile from a solution containing the same in admixture with at least one water-soluble nitrile selected from the group consisting of acetonitrile, propionitrile, butyronitrile and valeronitrile, which comprises treating said solution in liquid phase with potassium permanganate or sodium permanganate and reacting the permanganate in liquid phase with a major portion, at least, of said acrylonitrile to form with the latter a material which is insoluble in the nitrile solution, separating the resultant insoluble material from the solution, and recovering the liquid portion of the treated solution of reduced acrylonitrile content.

3,322,815
AMINOALKANENITRILES AND PROCESS FOR PREPARING THE SAME

Julian Feldman and Martin Thomas, Cincinnati, Ohio, assignors to National Distillers and Chemical Corporation, New York, N.Y., a corporation of Virginia

No Drawing. Filed July 27, 1964, Ser. No. 385,500
8 Claims. (Cl. 260—465.5)

1. 2-methyl-5-aminovaleronitrile.

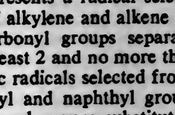
2. A process for preparing 2-methyl-5-aminovaleronitrile which comprises reacting 2-methylene glutaronitrile with hydrogen at a temperature between about 50° and 150° C. and a pressure of at least 75 atms. in the presence of liquid phase ammonia or tertiary alkyl amine having from 3 to 18 carbon atoms, the molar ratio of ammonia or tertiary alkyl amine to 2-methylene glutaronitrile ranging from 1:1 to 10:1, a low molecular weight alkanol and nickel, cobalt or ruthenium metal hydrogenation catalyst.

3,322,816
PROCESS FOR PREPARING DICYANOACETYLENE

Engelbert Ciganek, Chadds Ford, Pa., and John R. Roland, Wilmington, Del., assignors to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Nov. 16, 1964, Ser. No. 411,604
6 Claims. (Cl. 260—465.8)

1. Process for preparing dicyanoacetylene which comprises pyrolyzing in the vapor phase a compound of the formula



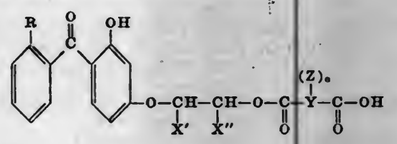
where X is a member of the class consisting of oxygen and sulfur, at a temperature in the range of 500 to 1200° C., the internal pressure in the pyrolysis system being in the range of about 0.1 to 1500 mm. of mercury, with the proviso that when the pyrolysis temperature exceeds 650° C. the internal pressure is below 200 mm. of mercury.

3,322,817
AROMATIC AND ALIPHATIC ESTERS OF HYDROXY BENZOPHENONE DERIVATIVES

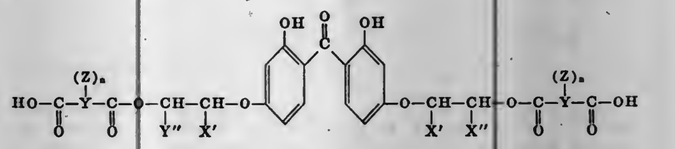
Albert I. Goldberg, Berkeley Heights, N.J., and Joseph Fertig, New York, N.Y., assignors to National Starch and Chemical Corporation, New York, N.Y.

No Drawing. Filed Mar. 15, 1963, Ser. No. 274,366
7 Claims. (Cl. 260—475)

1. A carboxylic acid ester derivative of a C_2–C_{18} beta-hydroxyalkoxy benzophenone ether which has a formula corresponding to one of the following:



and



wherein:

Z represents a carboxy group;
wherein *n* represents any integer from 0 to 2 inclusive;
wherein R represents a radical selected from the class consisting of hydrogen and hydroxy radicals;
wherein Y represents a radical selected from the class consisting of alkylene and alkene radicals having said attached carbonyl groups separated from one another by at least 2 and no more than 3 carbon atoms, and aromatic radicals selected from the class consisting of phenyl and naphthyl groups having said attached carbonyl groups substituted thereon in positions which are ortho with respect to one another; and,

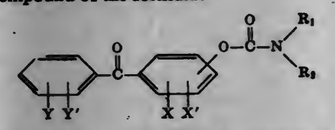
wherein X′ and X″ are radicals selected from the class consisting of hydrogen and alkyl radicals such that the sum total of carbon atoms in the equation X′+X″+2, when applied to one hydroxyalkoxy side chain moiety, equals any integer from 2 to 18 inclusive.

3,322,818
NEW BENZOYLPHENYL CARBAMATES

Arthur R. Hanze, Kalamazoo, Mich., assignor to The Upjohn Company, Kalamazoo, Mich., a corporation of Delaware

No Drawing. Filed Mar. 4, 1963, Ser. No. 262,325
2 Claims. (Cl. 260—479)

1. A compound of the formula:



(I)

wherein R_1 and R_2 taken individually represent a member selected from the group consisting of hydrogen, alkyl of from 1 to 4 carbon atoms, inclusive, and alkenyl of from 3 to 4 carbon atoms, inclusive, and taken together with —N< represent saturated heterocyclic amino selected from the group consisting of unsubstituted and mono- and polyalkyl substituted piperidino, morpholino, thiamorpholino, pyrrolidino, hexamethyleneimino, heptamethyleneimino, octamethyleneimino, and homomorpholino wherein each alkyl is of from 1 to 4 carbon atoms, inclusive; and X, X′, Y, and Y′ are selected from the group consisting of hydrogen, halogen, nitro, alkyl and alkenyl of from 1 to 4 carbon atoms, inclusive, and alkoxy and alkenyloxy of from 1 to 4 carbon atoms, inclusive.

3,322,819
HYDRODIMERIZATION OF METHACRYLIC ACID ESTERS

Ralph C. Schreyer, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed May 21, 1963, Ser. No. 282,165
7 Claims. (Cl. 260—485)

1. A process with comprises contacting a methacrylic acid ester with 0.5 to 30 moles of water per mole of water per mole of methacrylic acid ester and a catalytic amount of a carbonyl compound selected from the group consisting of cobalt carbonyl hydride and ruthenium carbonyl, in the presence of carbon monoxide at a pressure of at least about 1000 p.s.i. ga. and at a temperature within the range of about 130° C. to about 300° C. and recovering the corresponding diester of 2,2,4-trimethylglutaric acid thus obtained from the reaction mixture.

3,322,820
PROCESS FOR THE CONTINUOUS PRODUCTION OF ANTHRANILIC ACID

Erich Lehmann, Burscheid, and Walter Rapp, Rudolf Fingado and Herbert Nordt, Leverkusen, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

Filed Dec. 2, 1963, Ser. No. 327,382
Claims priority, application Germany, Dec. 1, 1962, F 38,439
3 Claims. (Cl. 260—518)

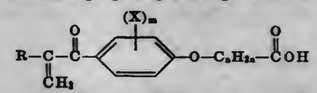
1. Process for the production of anthranilic acid from phthalamic acid alkali metal salt by oxidation with alkali metal hypochlorite, that comprises continuously introducing aqueous solutions of said phthalamic acid alkali metal salt and said alkali metal hypochlorite separately in predetermined substantially stoichiometric quantities through a suitable mixing system into a reaction column, said reaction column consisting of an initial stage including a cooling system for effecting a first-phase reaction for the production of the corresponding isocyanate, having a second stage for effecting the exothermic hydrolysis of said isocyanate to the desired alkali metal anthranilic acid salt and carbon dioxide, the reaction temperature at the output end of the second stage of said reaction column being controlled to a value not in excess of 70° C., and continuously withdrawing a solution of alkali metal carbonate and the desired anthranilic acid alkali metal salt from said second stage.

3,322,821
PROCESS FOR CONVERTING [4-[2-(ORGANOSULFINYLMETHYL)ALKANOYL]PHENOXY]ALKANOIC ACIDS AND [4-[2-(ORGANOSULFONYLMETHYL)ALKANOYL]PHENOXY]ALKANOIC ACIDS TO THEIR [4-(2-METHYLENEALKANOYL)PHENOXY]ALKANOIC ACID DERIVATIVES

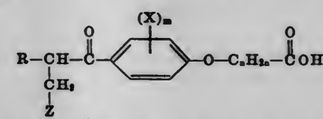
Edward J. Cragoe, Jr., Lansdale, Pa., assignor to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed Dec. 23, 1963, Ser. No. 332,905
20 Claims. (Cl. 260—520)

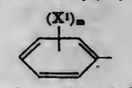
1. A process for preparing a compound of the formula



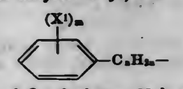
which comprises the treatment of a compound of the formula



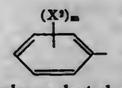
with sodium bicarbonate, followed by acidification, where R is a member selected from the group consisting of lower alkyl, halo-lower alkyl, cycloalkyl,



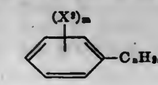
wherein X^1 is a member selected from the group consisting of hydrogen, halogen, lower alkyl, lower alkoxy, carboxy and lower alkylsulfonyl, and



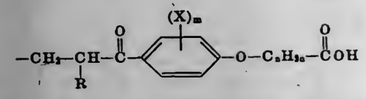
wherein X^1 is as defined above, X is a member selected from the group consisting of hydrogen, halogen, trifluoromethyl, lower alkyl, nitro and lower alkoxy and, when substituted on adjacent carbon atoms of the benzene ring, two X radicals are combined to form a 1,3-butadienylene chain, Z is a member selected from the group consisting of —SO—R^2 and —SO_2—R^2 wherein R^2 is a member selected from the group consisting of lower alkyl, 2-amino-2-carboxy-lower alkyl, halo-lower alkyl, alkoxycarbonyl-lower alkyl, carboxy-lower alkyl, cycloalkyl, cycloalkylalkyl,



wherein X^2 is a member selected from the group consisting of hydrogen, halogen, lower alkyl, trifluoromethyl, lower alkoxy, carboxy and lower alkylsulfonyl,



wherein X^2 is as defined above,



wherein R and X are as defined above and $-C_nH_{2n}-Z$ wherein Z is as defined above, *m*, in each occurrence, is an integer having a value of 1–4 and *n*, in each occurrence, is an integer having a value of 1–5.

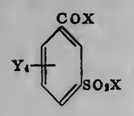
3,322,822

PREPARATION OF HALOSULFONYL BENZOYL HALIDES

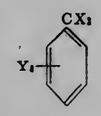
Samuel Gelfand, Niagara Falls, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York

No Drawing. Filed May 27, 1963, Ser. No. 283,573
6 Claims. (Cl. 260—544)

1. A process for the preparation of a compound of the formula



comprising reacting a compound of the formula



with sulfur trioxide at a temperature of about 50 to 200 degrees centigrade wherein X is a substituent selected from the group consisting of chlorine and bromine, and Y is a substituent independently selected from the group consisting of chlorine, bromine, fluorine, alkyl, halo-substituted alkyl, and hydrogen, and at least one of said Y substituents of the starting reactant is hydrogen.

3,322,823

METHOD OF PREPARING CARBONYL FLUORIDE

Horst G. Langer, Cochituate, Mass., assignor to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed June 5, 1964, Ser. No. 373,069
5 Claims. (Cl. 260—544)

1. A method for preparing carbonyl fluoride which comprises, providing a reaction mixture of (1) an inorganic metal fluorine-containing salt from the group consisting of calcium fluoride, sodium fluoride, potassium fluoride, sodium fluoroaluminate, sodium fluorosilicate or fluoroapatite, (2) carbon, and (3) an oxygen-containing scavenging agent from the group consisting of boron oxide, zirconium oxide, hafnium oxide, thorium oxide, manganese dioxide, titanium dioxide, lead oxide, potassium metaborate, potassium tetraborate, aluminum oxide, beryllium aluminate, iron aluminate, iron phosphate, ferrous metatitanate, and Ilmenite, said meal fluorine-containing salt, carbon, and scavenging agent being reacted in molar proportions such to provide at least a 1 to 1 oxygen-to-fluorine ratio and at least a 1 to 2 carbon-to-fluorine ratio, reacting said mixture at a temperature sufficient to melt the reactants but below the boiling point of the reaction mass, thereby to form gaseous carbonyl fluoride therefrom, and recovering said gaseous carbonyl fluoride.

3,322,824

COMPOSITIONS CONTAINING A POLYTEREPHTHALAMIDE AND A HYDROCARBON-SUBSTITUTED SULFONIC ACID, AND PROCESS UTILIZING THE SAME IN MAKING SHAPED ARTICLES

William J. Roberts, Bernardsville, N.J., assignor to Celanese Corporation of America, New York, N.Y., a corporation of Delaware

No Drawing. Filed July 2, 1964, Ser. No. 380,037
15 Claims. (Cl. 260—30.8)

1. A composition consisting essentially of a high-molecular-weight polyterephthalamide dissolved in a solvent the major weight proportion or substantially all of which consists essentially of (a) a hydrocarbon-substituted sulfonic acid represented by the general formula $R—SO_3H$ wherein R represents a radical selected from the group consisting of alkyl, aralkyl, aryl and alkaryl radicals each of which has not more than about 12 carbon atoms, and any remaining weight proportion of said solvent consists essentially of (b) concentrated sulfuric acid.

3,322,825

PROCESS FOR THE MANUFACTURE OF SORBIC ACID HALIDES

Hans Fernholz, Bad Soden, Taunus, Hermann Neu, Neu-Isenburg, and Hans-Joachim Schmidt, Frankfurt am Main, Germany, assignors to Farbwerke Hoechst Aktiengesellschaft vormals Lucius & Bruning, Frankfurt am Main, Germany, a corporation of Germany

No Drawing. Filed Sept. 1, 1964, Ser. No. 393,732
Claims priority, application Germany, Sept. 4, 1963, F 40,665; May 13, 1964, F 42,862; July 18, 1964, F 43,488
7 Claims. (Cl. 260—544)

1. A process for preparing a sorbic acid halide which comprises reacting a polyester obtained by reaction of crotonaldehyde with ketene in the presence of a fatty acid salt of a bivalent metal with an inorganic or organic acid halide at a temperature below 120° C.

3,322,826

POLYMERIZATION OF HEXAFLUOROPROPYLENE EPOXIDE

Earl Phillip Moore, Wilmington, Del., assignor to E. I. du Pont de Nemours and Company, Wilmington, Del., a corporation of Delaware

No Drawing. Filed Apr. 13, 1965, Ser. No. 447,879
12 Claims. (Cl. 260—544)

1. A process for the preparation of polymer of the formula

$$CF_3—CF_2—CF_2—O[CF(CF_3)CF_2O]_nCF(CF_3)—COF$$

wherein *n* is the number of repeat units, comprising contacting hexafluoropropylene epoxide at a temperature of −80 to +50° C. with a catalyst/solvent system selected from:

(a) monovalent metal fluoride in an inert organic polar solvent which is capable of dissolving potassium perfluoropropoxide to a concentration of at least 0.01 weight percent, and

(b) a quaternary salt of nitrogen, phosphorus, or arsenic in which the quaternary groups are hydrocarbon in

(1) the solvent of (a),

(2) a hydrocarbon solvent having from 5 to 12 carbon atoms, or

(3) a halogenated solvent having the structure R_1R_2CHCl wherein R_1 is H or Cl and R_2 is H, Cl, or a halogenated alkyl radical of 1 to 12 carbon atoms.

3,322,827

PROCESS FOR RENDERING UREA NON-CAKING

William M. James, Jr., Memphis, Tenn., assignor to W. R. Grace & Co., a corporation of Connecticut

Filed June 16, 1964, Ser. No. 375,553
1 Claim. (Cl. 260—555)

Continuous process for rendering commercial grade unconditioned urea prills and micro prills consisting of urea analyzing not more than about 0.35% moisture, by weight, and not more than about 2.0% biuret, by weight, substantially non-caking, said process comprising continuously feeding said urea into a first agitating device, retaining a mass of said urea in said device and continuously agitating said mass while positioning a high temperature zone in said device whereby the thus agitated mass of urea is heated and substantially all individual urea particles are passed through said zone, thereby incipiently fusing the surfaces of said particles as indicated by the sticky condition of said particles, continuously withdrawing urea particles from said first agitating device before said urea is completely fused and while the mass temperature of the urea particles in the first agitating device is about 93–127° C., transferring said urea to a second agitating device, continuing to agitate said prills in said second device until said prills are cooled to a temperature below about 82° C., continuously removing the thus cooled urea from said device, continuously screening said cooled urea, thereby removing oversize particles and fines, and bagging the resulting product consisting of urea analyzing not more than about 0.3% moisture, by weight, and not more than about 2.5% biuret, by weight, said product being bagged at a temperature below about 82° C.

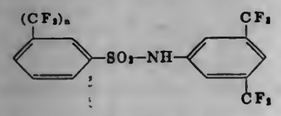
3,322,828

TRIFLUOROMETHYL-SULPHONIC ACID-TRIFLUOROMETHYLPHENYL AMIDES AND PROCESS FOR THEIR PRODUCTION

Friedrich Muth, Leverkusen-Bayerwerk, Günter Unterstenhöfer, Opladen, and Heinz Herlinger, Cologne-Flittard, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany

No Drawing. Filed Nov. 22, 1963, Ser. No. 325,765
Claims priority, application Germany, Dec. 17, 1962, F 38,576
4 Claims. (Cl. 260—556)

1. A compound of the formula



wherein *n* is a whole number of 1–3, the sum of the trifluoromethyl substituents being at least a total of 3.

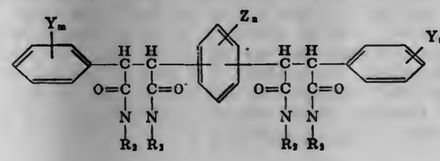
3,322,829

DIPHENETHYLBENZENE TETRACARBOXAMIDES

Ferdinand B. Zienty, Warson Woods, and Myron J. Holm, Olivette, Mo., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Original application June 5, 1964, Ser. No. 373,065. Divided and this application Mar. 24, 1966, Ser. No. 537,020
3 Claims. (Cl. 260—558)

1. A diphenethylbenzene-$\alpha,\alpha',\beta,\beta'$-tetracarboxamide of the formula



3,322,830

2-BROMO-4,5-DIMETHOXYBENZOIC ACID HYDRAZIDE

Tetsuji Kametani, 85 Kitayobancho, Sendai, Japan

No Drawing. Filed Dec. 9, 1963, Ser. No. 329,204
1 Claim. (Cl. 260—559)

2-bromo-4,5-dimethoxybenzoic acid hydrazide.

3,322,831

PREPARATION OF α,β-UNSATURATED KETONES

Lawrence J. Hughes, Hitchcock, Tex., assignor to Monsanto Company, a corporation of Delaware

No Drawing. Filed Sept. 23, 1963, Ser. No. 310,891
8 Claims. (Cl. 260—590)

1. A process for producing an α,β-unsaturated ketone which comprises reacting an α-phenyl olefin selected from the group consisting of styrene, α-methylstyrene and 1-phenylcyclopentene-1 with an acid anhydride of the formula

$$(RCO)_2O$$

wherein R is an alkyl group in the presence of a salt of perchloric acid selected from the group consisting of the alkali metal and alkaline earth metal salts and recovering an α,β-unsaturated ketone from the reaction mixture.

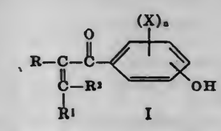
3,322,832

ACRYLOYLPHENOLS AND A METHOD FOR THEIR PREPARATION

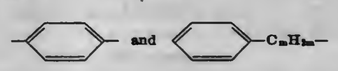
Edward J. Cragoe, Jr., Lansdale, Pa., assignor to Merck & Co., Inc., Rahway, N.J., a corporation of New Jersey

No Drawing. Filed Apr. 20, 1964, Ser. No. 361,932
17 Claims. (Cl. 200—592)

1. A compound of the formula:



wherein R is a member selected from the group consisting of lower alkyl, trifluoromethyl-lower alkyl, cycloalkyl, containing 3–6 nuclear carbon atoms,



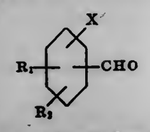
wherein *m* is an integer having a value of 1–5, R^1 and R^2 each represents a member selected from the group consisting of hydrogen and lower alkyl, X represents similar or dissimilar radicals selected from the group consisting of halogen, lower alkyl and, when substituted on adjacent carbon atoms of the benzene nucleus, two X radicals are combined to form a hydrocarbylene chain selected from the group consisting of 1,3-butadienylene and tetramethylene and *n* is an integer having a value of 1–4.

3,322,833
PREPARATION OF AROMATIC ALDEHYDES

Edward J. McNeils, Wallingford, Pa., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey

No Drawing. Filed Jan. 24, 1963, Ser. No. 253,764
11 Claims. (Cl. 260—599)

1. Method for preparing aromatic aldehydes having the general formula



wherein R_1 and R_2 are selected from the group consisting of hydrogen, alkyl radicals containing from 1 to 18 carbon atoms and alkoxy radicals containing from 1 to 18 carbon atoms, and X is a nuclear substitutent selected from the group consisting of halogen, nitro and hydrogen, which comprises contacting the corresponding aromatic alcohol in an inert solvent with lead dioxide in an inert atmosphere and thereafter recovering said aromatic aldehyde product.

3,322,834
PROCESS FOR PRODUCTION OF DIARYL AND DI(ALKARYL) SULFIDES

Harold Wayne Hill, Jr., and James T. Edmonds, Jr., Bartlesville, Okla., assignors to Phillips Petroleum Company, a corporation of Delaware

No Drawing. Filed Nov. 27, 1963, Ser. No. 326,389
8 Claims. (Cl. 260—609)

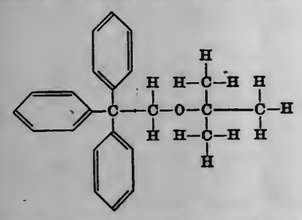
1. A process for the preparation of at least one of diaryl sulfide, di(alkaryl) sulfide and aryl alkaryl sulfide which comprises reacting at an elevated temperature at least one of aryl monohalide and alkaryl monohalide with an alkali metal monosulfide in a polar organic compound solvent reaction medium selected from amides and lactams which are solvents for the reactants and then recovering a sulfide thus formed from the reaction mass thus obtained.

3,322,835
t-BUTYL 2,2,2-TRIPHENYLETHYL ETHER

William H. Starnes, Jr., Baytown, Tex., assignor, by mesne assignments, to Esso Research and Engineering Company, Elizabeth, N.J., a corporation of Delaware

No Drawing. Filed Dec. 16, 1963, Ser. No. 330,629
1 Claim. (Cl. 260—611)

A composition of matter having the formula:



characterized by being crystalline and having a melting point of 106–107° C.

3,322,836
MANUFACTURE OF 2,4,5-TRICHLOROANISOLE

William R. Udell, Overland, Mo., assignor to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed Feb. 8, 1963, Ser. No. 257,107
2 Claims. (Cl. 260—612)

1. The method of making 2,4,5-trichloroanisole which comprises reacting in an anhydrous system at a temperature in the range of from about 140° C. to about 160° C. and at atmospheric pressure 1,2,4,5-tetrachlorobenzene and added solid anhydrous sodium methylate in the presence of a liquid aliphatic polyether of the formula

$$RO—(C_nH_{2n}O)_m—R'$$

wherein n is a whole number from 2 to 4, wherein m is a whole number from 2 to 4, and wherein R and R′ are alkyl radicals having from 1 to 3 carbon atoms, said polyether having a boiling point above about 160° C., the molar ratio of said reactants being 1 to 1.2 moles of anhydrous sodium methylate per mole of 1,2,4,5-tetrachlorobenzene.

3,322,837
PERHALOCYCLOPENTENYL CARBINOLS

Edward D. Weil, Lewiston, and Hans L. Schlichting, Grand Island, N.Y., assignors to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York

No Drawing. Filed June 28, 1961, Ser. No. 122,380
6 Claims. (Cl. 260—617)

1. New halogenated cyclopentenylcarbinols of the structure:



wherein X is selected from the group consisting of bromine, chlorine, fluorine and CRR′OH, and R and R′ are selected from the group consisting of hydrogen and lower alkyl.

3,322,838
COUPLING OF SUBSTITUTED ARENES

Wayne L. Carrick, East Brunswick, and George L. Karapinka, Irvington, N.J., assignors to Union Carbide Corporation, a corporation of New York

No Drawing. Filed Sept. 30, 1963, Ser. No. 312,346
8 Claims. (Cl. 260—619)

1. A method for preparing bis(hydroxyarenes) which comprises contacting as the sole reactant, an aryl hydroxide having from 6 to 14 aromatic ring carbon atoms and at least one unsubstituted ortho-para carbon atom, with an oxidizing amount of a chlorine containing transition metal oxidizer selected from the class consisting of chlorides of Group IV*b* metals, chlorides of Group V*b* metals, and oxychlorides of V*b* metals, in order to effect aromatic ring coupling of said aryl hydroxide.

3,322,839
PROCESS FOR TREATING PENTACHLOROPHENOL

Robert Dean Cooper, Goddard, Kans., assignor to Frontier Chemical Company, Division of Vulcan Materials Company, Wichita, Kans., a corporation of New Jersey

No Drawing. Filed Nov. 22, 1963, Ser. No. 325,751
3 Claims. (Cl. 260—623)

1. A process for treating crude pentachlorophenol which tends to bloom or dust during storage which comprises: introducing solid particles of crude pentachlorophenol into a treating zone maintained at a temperature above the melting point of tetrachlorophenol but below the melting point of pentachlorophenol, introducing a hot gas into said zone at a temperature in the range of about 95° to about 135° C. at a rate of about 0.04 to about 0.25 cubic feet per minute per pound of pentachlorophenol, the residence time in said zone being at least about one hour and sufficient to effect a substantial reduction in the tetrachlorophenol content of the material undergoing treatment.

3,322,840
METHOD OF PREPARING TERTIARY ALKYL CHLORIDES AND OLEFINS

Eldon E. Frisch, Midland, Mich., assignor to Dow Corning Corporation, Midland, Mich., a corporation of Michigan

No Drawing. Filed Sept. 28, 1962, Ser. No. 227,033
13 Claims. (Cl. 260—653.5)

10. The method which comprises in sequence,
(A) reacting a Grignard reagent of the formula

$$R_2CHMgY$$

wherein R is selected from the group consisting of hydrogen atoms, alkyl radicals, cycloalkyl radicals having from 4 to 6 carbon atoms and perfluoroalkylmethyl radicals, Y is selected from the group chlorine, bromine and iodine with
(1) a ketone of the formula

$$C_nX_{2n+1}(C_{n-1}X_{2n-1}CXCl)C{=}O$$

wherein X is selected from the group consisting of fluorine and chlorine and n has a value from 1 to 10 inclusive to produce upon hydrolysis
(2) a tertiary alcohol of the formula



wherein R, X and n as above defined and,
(B) reacting alcohol (2) with (3) sulfur tetrafluoride, whereby there is obtained (4) a compound of the formula



wherein R, X and n are as above defined.

3,322,841
POLYBENZYL AROMATICS

Emil J. Geering, Grand Island, N.Y., assignor to Hooker Chemical Corporation, Niagara Falls, N.Y., a corporation of New York

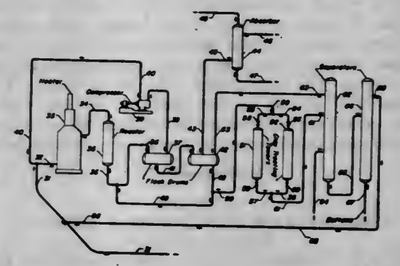
No Drawing. Filed Mar. 22, 1963, Ser. No. 267,332
16 Claims. (Cl. 260—668)

1. The process of producing compositions of aromatic rings joined by methylene groups wich comprises: heating (I) a halomethyl-substituted aromatic compound with (II) a member of the group consisting of (a) a halomethyl-substituted aromatic compound, and (b) an aromatic reactant; both the halomethyl-substituted aromatic compound and the aromatic reactant having at least one position occupied by a member selected from the group consisting of hydrogen, aryl, alkaryl, aryloxy, carboaryloxy, carboalkaryloxy, and an aromatic acyloxy radical, the remainder of the positions of the halomethyl-aromatic compound being occupied by a member selected from the group consisting of hydrogen, halogen, alkyl, aryl, alkaryl, alkoxy, aryloxy, carboalkoxy, carboaryloxy, carboalkaryloxy and acyloxy, and the remainder of the positions of the aromatic reactant being occupied by a member selected from the group consisting of hydrogen, halogen, alkyl, aryl, alkaryl, alkoxy, aryloxy, carboalkoxy, carboaryloxy, carboalkaryloxy, acyloxy and hydroxy; in the presence of solution of (III) a solute selected from the group consisting of zinc chloride, zinc bromide, bismuth trichloride and bismuth tribromide dissolved in (IV) a solvent comprised of a carboxylic acid.

3,322,842
RECYCLE OF HYDRODEALKYLATION PRODUCT FOR HYDROGEN ENRICHMENT

George J. Czajkowski and Peter E. Liakakos, Chicago, Ill., assignors to Universal Oil Products Company, Des Plaines, Ill., a corporation of Delaware

Filed May 24, 1965, Ser. No. 463,453
The portion of the term of the patent subsequent to Jan. 3, 1984, has been disclaimed
7 Claims. (Cl. 260—672)



1. A conversion process which comprises:
(a) catalytically converting hydrocarbons in a reaction zone in the presence of hydrogen and a conversion catalyst which undergoes loss of activity by carbon deposition thereon,
(b) removing from the reaction zone the resultant reaction zone effluent comprising normally liquid hydrocarbons, normally gaseous hydrocarbons and hydrogen,
(c) separating said effluent into a hydrogen-rich gaseous phase and a liquid hydrocarbon phase,
(d) recycling at least a portion of the gaseous phase to the reaction zone,
(e) separating light hydrocarbons from said liquid hydrocarbon phase,
(f) commingling a portion of the remaining liquid hydrocarbon phase with the total reaction zone effluent prior to the separation of said effluent into said phases, in an amount to yield said hydrogen-rich gaseous phase enriched to at least 60 mol percent hydrogen, and
(g) recovering another portion of the remaining liquid hydrocarbon phase as the product of the process.

3. A process which comprises
(a) hydroealkylating an alkylaromatic hydrocarbon in a reaction zone in the presence of hydrogen and a dealkylation catalyst,
(b) removing from the reaction zone the resultant reaction product effluent comprising normally liquid hydrocarbons, normally gaseous hydrocarbons and hydrogen,
(c) separating said effluent into a hydrogen-rich gas and a liquid hydrocarbon phase containing normally gaseous hydrocarbons,
(d) recycling at least a portion of said hydrogen-rich gas to the reaction zone,
(e) separating light hydrocarbons from said liquid hydrocarbon phase,
(f) commingling a portion of the remaining liquid phase with the total reaction zone effluent prior to the aforesaid separation thereof in an amount to yield a recycle ratio with respect to the alkylaromatic hydrocarbon charge in the range of from about 25:1 to about 50:1, and
(g) recovering another portion of the remaining liquid phase as a product of the process.

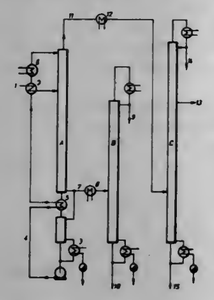
3,322,843
TREATMENT OF PARAFFINIC FRACTIONS
John E. Frandolig and John C. Staton, Baytown, Tex., assignors, by mesne assignments, to Esso Research and Engineering Company, Elizabeth, N.J., a corporation of Delaware
No Drawing. Filed Apr. 13, 1964, Ser. No. 359,483
15 Claims. (Cl. 260—676)

1. A method for obtaining a substantially pure normal paraffin fraction which comprises treating a paraffinic hydrocarbon fraction containing paraffins and isoparaffins with a molecular sieve to separate and recover from said paraffinic hydrocarbon fraction a normal paraffin fraction which is contaminated with phenols, carbonyls, olefins, nitrogen, sulphur, color bodies, and aromatics, and then contacting said normal paraffin fraction with a catalyst selected from the group consisting of Group VI and Group VIII metals and mixtures of Group VI and Group VIII metals in the presence of free hydrogen under suitable temperature conditions to substantially remove said contaminants and to form a purified product.

3,322,844
PROCESS FOR PURIFYING A NORMAL ALPHA OLEFIN
William H. Clement, Cincinnati, Ohio, Howard M. Peters, Palo Alto, Calif., and Charles M. Selwitz, Pitcairn, Pa., assignors to Gulf Research & Development Company, Pittsburgh, Pa., a corporation of Delaware
No Drawing. Filed May 20, 1964, Ser. No. 368,986
21 Claims. (Cl. 260—677)

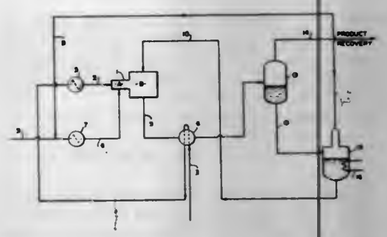
1. A process for treating a mixture of normally liquid olefins containing predominantly at least one normal alpha olefin and lesser amounts of at least one substituted olefin selected from the group consisting of trisubstituted monoolefins and vinylidenes which comprises contacting said mixture with sulfuric acid having a concentration of about 80 to about 88 percent, separating the resulting olefinic mixture from said sulfuric acid, said resulting olefinic mixture containing substantially all of said normal alpha olefin and a reduced content of said substituted olefin.

3,322,845
PROCESS FOR WORKING UP C_4-HYDROCARBON MIXTURE CONTAINING n-BUT-1-ENE
Hans-Walther Brandt, Cologne-Flittard, and Bruno Engelhard, Cologne-Stammheim, Germany, assignors to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a corporation of Germany
Filed Dec. 1, 1964, Ser. No. 415,047
Claims priority, application Germany, Dec. 19, 1963, F 41,587
2 Claims. (Cl. 260—677)



1. Process for the separation of n-but-1-ene from C_4 hydrocarbon mixtures containing both n-but-1-ene and iso-butene, which comprises contacting such a C_4-hydrocarbon mixture with an aqueous silver nitrate solution having a concentration of from 50–60% at a temperature of from −5 to 25° C., whereby the n-but-1-ene is separated by selective absorption into the aqueous silver nitrate solution.

3,322,846
THERMAL CONVERSION OF HYDROCARBONS
Werner F. Dreier, Grand-Lancy, Geneva, Switzerland, assignor to Mobil Oil Corporation, a corporation of New York
Filed Apr. 23, 1964, Ser. No. 361,994
9 Claims. (Cl. 260—679)



1. A method for thermal conversion of hydrocarbons to less saturated hydrocarbons which comprises separately introducing into a thermal conversion zone (1) a hydrocarbon feed, at a temperature below its thermal conversion temperature, to be thermally converted and (2) carbon disulfide in a sufficient quantity at a temperature higher than said conversion temperature to provide in said reaction zone upon mixing with said hydrocarbon feed a mixture having a temperature sufficient to convert said hydrocarbon, and withdrawing from said reaction zone a reaction product comprising hydrocarbons less saturated than said feed hydrocarbon.

3,322,847
OXIDATIVE DEHYDROGENATION OF MONOOLEFINS
James L. Callahan, Bedford, and Joseph J. Szabo, Chagrin Falls, Ohio, and Berthold Gertisser, New York, N.Y., assignors to The Standard Oil Company, Cleveland, Ohio, a corporation of Ohio
No Drawing. Application Aug. 19, 1964, Ser. No. 395,978, now Patent No. 3,280,166, dated Oct. 18, 1966, which is a division of application Ser. No. 197,932, May 28, 1962, now Patent No. 3,186,955, dated June 1, 1965. Divided and this application Sept. 2, 1965, Ser. No. 498,176
7 Claims. (Cl. 260—680)

1. The process for the dehydrogenation of monoolefins to diolefins which comprises contacting the olefin and oxygen in the vapor phase at a temperature at which dehydrogenation proceeds with a catalyst consisting essentially of oxides of bismuth and molybdenum as the essential catalytic ingredients, the bismuth oxide being present in an amount to furnish a bismuth to molybdenum Bi:Mo atomic ratio of above 1:3, promoted by a mixture of oxides of barium and silicon, in the proportion of about 1 to about 5%, calculated as barium, and about 1 to about 10%, calculated as silicon.

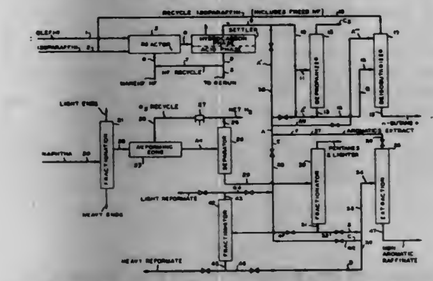
3,322,848
PRODUCTION OF LUBRICATING OILS
William E. Garwood, Haddonfield, and Claude G. Myers, Pitman, N.J., assignors to Mobil Oil Corporation, a corporation of New York
No Drawing. Filed Aug. 20, 1962, Ser. No. 218,110
6 Claims. (Cl. 260—683.15)

1. A method for manufacturing lubricating oils having a high viscosity index and low pour points from a normal alpha mono-olefin having between 10 and 18 carbon atoms per molecule, which comprises heating said monoolefin at a temperature in the range from about 350° F. to about 590° F. in the presence of a crystalline aluminosilicate which has uniform pore openings in excess of 6 angstrom units and has an alkali metal content below about 2 weight percent.

3,322,849
DEHYDROGENATION PROCESS
John M. McEuen, Detroit, Mich., assignor to Ethyl Corporation, New York, N.Y., a corporation of Virginia
No Drawing. Filed Jan. 3, 1966, Ser. No. 517,923
7 Claims. (Cl. 260—683.3)

1. A process for the dehydrogenation of n-paraffins having from 6 to 24 carbon atoms to the corresponding monoolefins, said process comprising contacting a feed containing at least one n-paraffin with a catalyst consisting substantially of from 30 to 100 weight percent of an active ingredient consisting of a mixture of 20 to 70 percent by weight chromium oxide, 0.5 to 25 percent by weight cupric oxide, and 5 to 45 percent by weight manganese dioxide, and from 0 to 70 weight percent of a catalytic support selected from the group consisting of alumina and magnesia; said process being carried out at a temperature from about 400 to about 560° C.

3,322,850
PURIFICATION OF ALKYLATE USING AROMATICS OR CYCLOPARAFFINS
Roy M. Waldby and George R. Short, Sweeny, Tex., assignors to Phillips Petroleum Company, a corporation of Delaware
Filed Apr. 17, 1964, Ser. No. 360,603
6 Claims. (Cl. 260—683.42)



1. A unitary process comprising forming an isoparaffin-olefin alkylate product using an HF acid catalyst, separating said alkylate product into an acid catalyst layer and a hydrocarbon alkylate layer contaminated with thermally decomposable hydrocarbon-acid compounds, separating out said contaminated hydrocarbon layer, fractionating a naphtha feed material, separating from said naphtha feed fractionation operation an intermediate hydrocarbon fraction boiling in the range of from about 150 to about 400° F., reforming said intermediate fraction to form a reformate containing substantial amounts of aromatic hydrocarbon, separating said aromatic hydrocarbon from said reformate, adding said separated aromatic hydrocarbon and no additional catalyst to said separated contaminated hydrocarbon layer in amounts effective to form at least some additional alkylate notwithstanding no additional catalyst is used, and subjecting the mixture of aromatic hydrocarbon and said contaminated hydrocarbon layer to thermal conditions sufficiently elevated to cause both freeing of acid catalyst from said hydrocarbon-acid compounds for separation and reuse in forming more of said alkylate product and forming additional alkylate, thereby purifying said contaminated hydrocarbon layer.

3,322,851
NOVEL AMINO-POLYSULFIDE POLYMERS AND THEIR REACTION PRODUCTS WITH POLYEPOXIDES
Morris B. Berenbaum, Levittown, Pa., assignor to Thiokol Chemical Corporation, Bristol, Pa., a corporation of Delaware
No Drawing. Filed June 16, 1964, Ser. No. 375,624
19 Claims. (Cl. 260—830)

1. The solid resinous reaction products of polyepoxides and amino-functional polysulfide polymers, said polyepoxides having an epoxide functionality of at least approximately 2 and said polysulfide polymers having a structure corresponding to the formula

$$R^{I}\text{—}L\text{—}\left(\text{—}RSS\text{—}\right)_x R\text{—}L\text{—}R^{II}$$

wherein R^{I} and R^{II} are the alkylamino group

$$\left(\begin{array}{c} R^{iv} \\ | \\ CH \end{array}\text{—}\begin{array}{c} R^{iii} \\ | \\ CH \end{array}\text{—}\begin{array}{c} H \\ | \\ N \end{array}\right)_z \text{—}\begin{array}{c} R^{iv} \\ | \\ CH \end{array}\text{—}\begin{array}{c} R^{iii} \\ | \\ CH \end{array}\text{—}NH_2,$$

and wherein z is a number being one of 0, 1, 2, 3, and 4, R^{iii} and R^{iv} are radicals selected from the group of radicals consisting of hydrogen, normal and branched alkyl radicals, and substituted and unsubstituted aromatic and alicyclic radicals, R is an intervening polyvalent organic radical, x is a number greater than one, and —L— is a radical selected from the group of radicals consisting of —O— and —S— radicals.

3,322,852
POLYBLENDS CONTAINING A GRAFT COPOLYMER OF HYDROXYLATED DIENE RUBBER, A COPOLYMER CONTAINING A MONOETHYLENICALLY UNSATURATED CARBOXYLIC ACID WITH ACRYLONITRILE, AND A POLYEPOXIDE
Quirino A. Trementozzi, Springfield, Mass., Stanley E. Gebura, Overland Park, Kans., and Frederic J. Locke, East Longmeadow, Mass., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware
No Drawing. Filed June 19, 1964, Ser. No. 376,562
13 Claims. (Cl. 260—837)

1. A blend comprising

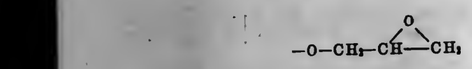
(A) from about 1 to 250 parts by weight of a graft copolymer comprising a diene rubber substrate polymer and a hydroxylic superstrate polymer in proportion of from about 15 to 200 parts by weight of superstrate polymer per 100 parts by weight of substrate polymer; said substrate polymer being a rubbery polymer of from about 40 to 100% by weight of a conjugated diene selected from the group consisting of butadiene, isoprene, and mixtures thereof, and, correspondingly, from about 60 to zero percent by weight of at least one vinylidene monomer copolymerizable with said conjugated diene; said superstrate polymer being a polymer of (1) from about 1 to 100% by weight of an ethylenically unsaturated alcohol, (2) from zero to about 50% by weight of an ethylenically unsaturated nitrile, and (3) from zero to about 95% by weight of at least one vinylidene monomer interpolymerizable therewith;

(B) 100 parts by weight of a substantially homogeneous interpolymer of (1) from about 2 to 30% by weight of at least one acid monomer of the formula:

$$CH_2{=}\underset{\displaystyle R}{\overset{|}{C}}\text{—}COOH$$

wherein R is selected from the group consisting of hydrogen, a halogen atom and alkyl groups containing 1–4 carbon atoms, (2) from about 2 to 40% by weight of a nitrile monomer selected from the group consisting of acrylonitrile, methacrylonitrile and mixtures thereof, and (3) the balance at least one vinylidene monomer interpolymerizable with said acid monomer and said nitrile monomer; and

(C) an epoxy compound containing a plurality of epoxy groups of the structure:



in proportion so as to provide an average of at least 0.4 epoxy group per carboxyl group of said component (B).

3,322,853

POLYBLENDS CONTAINING A GRAFT COPOLYMER OF HYDROXYLATED DIENE RUBBER, A COPOLYMER CONTAINING A POLYBASIC ETHYLENICALLY UNSATURATED CARBOXYLIC ACID WITH ANOTHER VINYLIDENE MONOMER, AND A POLYEPOXIDE

Quirino A. Trementozzi, Springfield, Mass., Stanley E. Gebura, Overland Park, Kans., and Frederic J. Locke, East Longmeadow, Mass., assignors to Monsanto Company, St. Louis, Mo., a corporation of Delaware

No Drawing. Filed June 19, 1964, Ser. No. 376,589

14 Claims. (Cl. 260—837)

1. A blend comprising

(A) from about 1 to 250 parts by weight of a graft copolymer comprising a diene rubber substrate polymer and a hydroxylic superstrate polymer in proportion of from about 15 to 200 parts by weight of superstrate polymer per 100 parts by weight of substrate polymer; said substrate polymer being a rubbery polymer of from about 40 to 100% by weight of a conjugated diene selected from the group consisting of butadiene, isoprene, and mixtures thereof, and correspondingly, from about 60 to zero percent by weight of at least one vinylidene monomer copolymerizable with said conjugated diene; said superstrate polymer being a polymer of (1) from about 1 to 100% by weight of an ethylenically unsaturated alcohol, (2) from zero to about 50% by weight of an ethylenically unsaturated nitrile, and (3) from zero to about 95% by weight of at least one vinylidene monomer interpolymerizable therewith;

(B) 100 parts by weight of a substantially homogeneous interpolymer of (1) from about 20 to 45 mol percent of an acid monomer selected from the group consisting of alpha,beta-ethylenically unsaturated polybasic acids, anhydrides of alpha,beta-ethylenically unsaturated polybasic acids, and mixtures thereof, and, correspondingly, (2) from about 80 to 55 mol percent of at least one vinylidene monomer interpolymerizable with said acid monomer; said interpolymer having a Parr-Bar softening point of less than about 225° C. and an intrinsic viscosity of less than about 0.5 as determined in pyridine at 30° C., and

(C) an epoxy compound containing a plurality of epoxy groups in proportion so as to provide an average of from about 0.2 to 1.2 epoxy groups per carboxyl group of said component (B).

3,322,854

METHOD OF MIXING POLYSTYRENE WITH LINEAR POLYESTERS

Takeshi Yasui, Takaakira Tsuji, and Osamu Fukushima, Kurashiki, Japan, assignors to Kurashiki Rayon Company Limited, Kurashiki, Japan, a corporation of Japan

No Drawing. Filed Mar. 30, 1964, Ser. No. 355,939

Claims priority, application Japan, Apr. 6, 1963, 38/18,393

5 Claims. (Cl. 260—873)

1. A method of manufacturing resin blend compositions comprised of an A-condensate consisting essentially of a saturated linear fiber forming polyester selected from the group consisting of polyesters obtained from terephthalic acid or esters thereof and ethylene glycol, copolyesters obtained from terephthalic acid or esters thereof, isophthalic acid or esters thereof and ethylene glycol, copolyesters obtained from terephthalic acid or esters thereof and cyclohexane-1,4-dimethanol, and polyesters obtained from p-β-hydroxybenzoic acid; and a B-substance selected from the group consisting of monomers of styrene, α-methylstyrene, p-methoxystyrene, vinyltoluene, styrene chloride, styrene dichloride, acenaphthylene, and homopolymers thereof; comprising adding the B-substance to the A-condensate prior to the completion of polycondensation of said A-condensate, and thereafter completing said polycondensation.

3,322,855

SHAPED ARTICLES FROM BLENDS OF A POLYVINYL ACETAL AND A POLYMER OF AN ALPHA-METHYL STYRENE

Osamu Fukushima and Yutaka Sakuruda, Kurashiki, Japan, assignors to Kurashiki Rayon Company Limited, Kurashiki, Japan, a corporation of Japan

No Drawing. Filed May 24, 1961, Ser. No. 112,195

Claims priority, application Japan, May 30, 1960, 35/25,671

3 Claims. (Cl. 260—874)

1. A shaped article of mixed polymers having excellent physical and dyeing properties comprising (1) from about 50% to about 70% by weight of polymer consisting of vinyl alcohol units, said polymer having been rendered insoluble in water but soluble in an organic solvent by reacting 10% to 90% of said vinyl alcohol units with an aldehyde selected from the group consisting of formaldehyde, butyraldehyde and benzaldehyde and (2) from about 30% to about 50% by weight of a hydrophobic polymer having a second order transition temperature higher than 100° C. and a softening temperature higher than 150° C., said latter polymer being a polymer of a monomer consisting essentially of α-methyl styrene or a polymer of a monomer consisting essentially of α-methyl styrene containing an alkyl substituent in the aromatic ring.

3,322,856

METHOD OF PREPARING DIENE ELASTOMER/BLOCK COPOLYMER COMPOSITION

Geoffrey Holden, Anaheim, Calif., and Ralph Milkovich, Stow, Ohio, assignors to Shell Oil Company, New York, N.Y., a corporation of Delaware

Filed Nov. 7, 1963, Ser. No. 322,174

3 Claims. (Cl. 260—876)

1. The process for recovering a conjugated diene homopolymeric elastomer composition comprising the steps of forming a cement of said elastomer, the elastomer having an intrinsic viscosity of 2–4 dl./g., forming a cement of a block copolymer having the general configuration

A—B—A

wherein each A is a polymer block of a monoalkenyl-substituted aromatic hydrocarbon, said block having an average molecular weight of 2000–100,000 and B is a polymer block of a conjugated diene, said block having an average molecular weight of 25,000–1,000,000; mixing the two cements, coagulating the mixture of elastomer and block copolymer by contacting the cement mixture with a hot aqueous medium whereby the cement solvent is vaporized, and drying the coagulated mixture.

3,322,857

POLYMERIC BLENDS CONTAINING A GRAFT COPOLYMER OF VINYL CHLORIDE ONTO CHLORINATED OR CHLOROSULFONATED POLYOLEFIN

Antony William M. Coaker, Wilbraham, Oscar P. Cohen, Longmeadow, and John W. Ryan, Northampton, Mass., assignors to Monsanto Company, a corporation of Delaware

No Drawing. Filed Mar. 4, 1964, Ser. No. 349,490

16 Claims. (Cl. 260—876)

1. A composition of matter comprising: (1) 40–90 parts by weight of a graft blend prepared by polymerizing 60–98% by weight of monomeric material with 2–40% by weight of a chlorinated polymer of an alpha-monoolefin of about 2 to 3 carbon atoms; said monomeric material comprising 80–100% by weight of vinyl chloride and 20–0% by weight of other ethylenically unsaturated monomers copolymerizable therewith, (2) 5–50 parts by weight of a rubber-like copolymer of acrylonitrile and a conjugated diene and (3) 5–40 parts by weight of a chlorinated polymer of an alpha-monoolefin of about 2 to 3 carbon atoms.

10. A composition of matter comprising: (1) 40–90 parts by weight of a graft blend prepared by polymerizing 60–98% by weight of a monomeric material with 2–40% by weight of a chlorosulfonated polymer of an alpha-monoolefin of about 2 to 3 carbon atoms; said monomeric material comprising 80–100% by weight of vinyl chloride and 20–0% by weight of other ethylenically unsaturated monomers copolymerizable therewith, (2) 5–50 parts by weight of a rubber-like copolymer of acrylonitrile and a conjugated diene and (3) 5–40 parts by weight of a chlorinated polymer of an alpha-monoolefin of about 2 to 3 carbon atoms.

3,322,858

MULTICOMPONENT BLENDS CONTAINING GRAFT COPOLYMER OF VINYL CHLORIDE ONTO ETHYLENE-VINYL ACETATE COPOLYMER

Antony William M. Coaker, Wilbraham, and Oscar P. Cohen, Longmeadow, Mass., assignors to Monsanto Company, a corporation of Delaware

No Drawing. Filed Mar. 4, 1964, Ser. No. 349,462

10 Claims. (Cl. 260—876)

1. A composition of matter comprising (1) 40–90 parts by weight of a graft blend prepared by polymerizing 59–99 parts by weight of a monomeric material containing 1–50 parts by weight of an ethylene-vinyl acetate copolymer; said monomeric material comprising 80–100 percent by weight of vinyl chloride and 20–0% by weight of other ethylenically unsaturated monomers copolymerizable therewith, (2) 5–50 parts by weight of a rubber-like copolymer of acrylonitrile and a conjugated diene having an acrylonitrile content of between about 20–50 percent by weight of the copolymer and (3) 5–40 parts by weight of a chlorinated polymer of an alpha-monoolefin of about 2 to 3 carbon atoms.

3,322,859

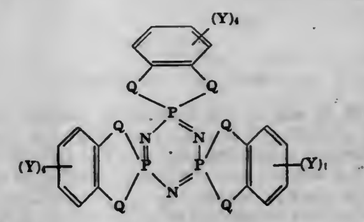
THERMOPLASTIC RESINOUS PRODUCTS CONTAINING FLAME RETARDANTS

Allan Ellis Sherr, Norwalk, and Helen Currier Gillham, Stamford, Conn., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Dec. 26, 1963, Ser. No. 333,652

8 Claims. (Cl. 260—893)

1. A flame-retardant composition comprising a thermoplastic polymer of an ethylenically unsaturated monomer and a flame retarding amount of a compound having the formula



wherein Q is selected from the group consisting of oxygen and sulfur and Y is selected from the group consisting of hydrogen, bromine and chlorine.

6. A flame-retardant composition according to claim 1 wherein the thermoplastic polymer is a mixture of (A) a butadiene-acrylonitrile copolymer and (B) an acrylonitrile-styrene copolymer, the amount of A and B ranging from about 10–75% to 90–25%, by weight, respectively.

3,322,860

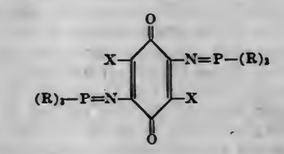
FLAME RETARDANT THERMOPLASTIC RESINS CONTAINING DIHALO-PHOSPHORANYLIDENE-AMINO BENZOQUINONES

William Lindsay Mosby, North Plainfield, N.J., and Helen Currier Gillham, Stamford, and Allan Ellis Sherr, Norwalk, Conn., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed Feb. 17, 1964, Ser. No. 345,075

9 Claims. (Cl. 260—893)

1. A flame retardant composition comprising a thermoplastic polymer of an ethylenically unsaturated monomer and a flame retarding amount of a compound having the formula



wherein X is selected from the group consisting of chlorine, bromine and iodine radicals and R is selected from the group consisting of phenyl, naphthyl, substituted phenyl and substituted naphthyl radicals, said substituents being selected from the group consisting of halogen, lower alkyl and lower alkoxy radicals.

6. A flame retardant composition according to claim 1 wherein the thermoplastic polymer is a mixture of (A) a butadiene-acrylonitrile copolymer and (B) an acrylonitrile-styrene copolymer, the amount of A and B ranging from about 10–75% to 90–25%, respectively.

3,322,861

VINYL RESINS CONTAINING DIPHOSPHONIUM HALIDES AS FLAME-RETARDANTS

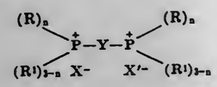
Helen Currier Gillham, Stamford, and Allan Ellis Sherr, Norwalk, Conn., assignors to American Cyanamid Company, Stamford, Conn., a corporation of Maine

No Drawing. Filed June 12, 1964, Ser. No. 374,841

13 Claims. (Cl. 260—893)

1. A flame-retardant composition comprising a thermoplastic polymer of an ethylerically unsaturated monomer

and a flame-retarding amount of diphosphonium halide having the formula



wherein R and R¹ are individually selected from the group consisting of aryl (C_6–C_{10}), alkyl (C_1–C_8), cyano and hydroxy substituted alkyl (C_1–C_8) and alkenyl radicals, Y is selected from the group consisting of saturated alkylene (C_2–C_8), arylene (C_8–C_{16}), unsaturated alkylene (C_2–C_{10}), and oxoalkylene (C_3–C_{10}) radicals, *n* is a whole positive integer of from 1 to 3, inclusive, and X and X′ are individually selected from the group consisting of a bromine, chlorine and iodine radical.

5. A flame-retardant composition according to claim 1 wherein the thermoplastic polymer is a mixture of (A) a butadiene-acrylonitrile copolymer and (B) an acrylonitrile-styrene copolymer, the amount of A and B ranging from about 10–75% to 90–25%, respectively.

3,322,862

VINYLIDENE CHLORIDE POLYMER COMPOSITIONS CONTAINING ETHYLENE/VINYL ALKANOATE COPOLYMER

Carl B. Havens, Rocky River, Robert A. Yurcisin, Seven Hills, and George H. Lacy, Rocky River, Ohio, assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed June 24, 1964, Ser. No. 377,491

11 Claims. (Cl. 260—897)

1. A polymeric composition comprising a blend of (I) a normally crystalline polymer selected from the group consisting of polyvinylidene chloride and interpolymers of at least about 70 percent by weight of vinylidene chloride with up to about 30 percent by weight of at least one other monoethylenically unsaturated comonomer and (II) from 0.1 to 30 percent by weight of the composition of an ethylene-vinyl alkanoate copolymer consisting of (1) from about 67 to 72 percent by weight of ethylene and (2) between about 28 and 33 percent by weight of a vinyl alkanoate wherein the acid portion of said vinyl alkanoate contains from 2 to about 8 carbon atoms said copolymer having a melt index of between about 3 and about 25 as determined by ASTM test No. 1238–57T.

3,322,863

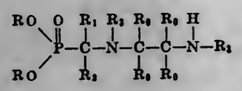
AMINOALKYL PHOSPHONATES AND PREPARATION THEREOF

Warren J. Rabourn and Elvis E. Jones, Lake Jackson, Tex., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware

No Drawing. Filed Sept. 9, 1963, Ser. No. 307,285

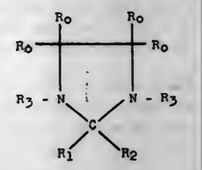
7 Claims. (Cl. 260—944)

1. A compound of the formula



wherein each R is a lower alkyl group, each R_3 is independently selected from the group consisting of the hydrogen atom and a lower alkyl group, and each of R_0, R_1 and R_2 is independently selected from the group consisting of the hydrogen atom, the phenyl group and an alkyl group of from 1 to 6 carbon atoms.

6. A process for the preparation of aminoalkyl phosphonates which comprises reacting at a temperature of 5–65° C. stoichiometric amounts of a di(lower alkyl) ester of phosphonic acid and an imidazolidine of the formula



wherein each R_3 is independently selected from the group consisting of the hydrogen atom and a lower alkyl group and each of R_0, R_1 and R_2 is independently selected from the group consisting of the hydrogen atom, the phenyl group and an alkyl group of from 1 to 6 carbon atoms.

3,322,864

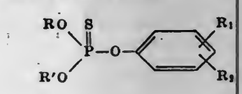
THIONOPHOSPHORIC ACID ESTERS

Gerhard Schrader, Wuppertal-Cronenberg, Germany, assignor to Farbenfabriken Bayer Aktiengesellschaft, Leverkusen, Germany, a German corporation

No Drawing. Filed Aug. 8, 1963, Ser. No. 300,933
Claims priority, application Germany, Aug. 14, 1962, F 37,585

11 Claims. (Cl. 260—954)

1. Compounds of the formula



wherein

R stands for straight chain lower alkyl having up to 4 carbon atoms,

R′ stands for a member selected from the group consisting of branched chain alkyl having 3 to 6 carbon atoms and cyclohexyl,

R_1 stands for a member selected from the group consisting of chloro and nitro,

R_2 stands for a member selected from the group consisting of hydrogen, chloro, methyl and methoxy.

3,322,865

PROCESS OF MANUFACTURING REFRACTORY FIBERS

Joseph E. Blaze, Jr., Alliance, Ohio, assignor to The Babcock & Wilcox Company, New York, N.Y., a corporation of New Jersey

No Drawing. Continuation of application Ser. No. 345,855, Feb. 19, 1964. This application Nov. 10, 1966, Ser. No. 593,585

7 Claims. (Cl. 264—.5)

1. The method of making crystalline fibers which comprises concentrating an aqueous solution consisting of a water soluble inorganic metal salt and water, capable of decomposing to a metallic oxide when calcined to a temperature in the range of 800–2500° F., to a viscosity in the range of 1–1000 poises, fiberizing the viscous solution while at a solids concentration equivalent to less than 50% by weight of the metal oxide and in a space having a relative humidity of 20–30%, drying the fibers so formed, and heating the dried fibers at a temperature in the range of 800–2500° F. until the solvent is eliminated, the salt residue decomposed to a crystalline metallic oxide, and the density of the calcined fibers substantially increased.

3,322,866

METHOD OF EXTRUDING CARBON ARTICLES

Jacques Bentolila and Leon Dubief, Chedde, France, and Michael Stuart Thomas Price, Weymouth, England, assignors to United Kingdom Atomic Energy Authority, London, England

Filed July 21, 1964, Ser. No. 384,085
Claims priority, application Great Britain, July 22, 1963, 28,835/63

5 Claims. (Cl. 264—29)

1. A method of forming an extruded graphite component of nuclear grade graphite of high density which resides in selecting as the major portion of the starting material a raw coke of petroleum origin, the remainder constituting binder material, heat treating the coke at a temperature below 750° C., grinding the treated product and mixing it with pine resin, extruding the component and baking the extruded component to produce a carbonaceous artifact having the majority of its open pores greater than 1 micron diameter, subjecting the component to an impregnation process to fill its open pores and then heating the impregnated component to graphitizing temperature.

3,322,867

METHOD OF MAKING POROUS REFRACTORY PRODUCTS

Pierre Leroy, St. Germain-en-Laye, and Roger Simon, Boutheon, France, assignors to Compagnie des Ateliers et Forges de la Loire (St. Chamond, Firminy, St. Etienne, Jacob-Holtzer), Paris, France

No Drawing. Filed Apr. 9, 1964, Ser. No. 358,639
Claims priority, application France, Apr. 10, 1963, 931,171, Patent 83,454; Jan. 29, 1964, 961,933, Patent 85,172

7 Claims. (Cl. 264—30)

1. A method of preparing a porous refractory element which comprises,

(1) preparing a homogeneous mix of a high-temperature sinterable aggregate constituent of a particle size ranging from about 0.5 mm. to about 2.0 mm., a refractory binder constituent capable of imparting adequate cohesion to the mix at relatively low temperatures until a subsequent heating step has been performed and a divided non-metal oxidizable constituent which constituent is uniformly distributed throughout said aggregate,

(2) molding the mix into the desired shaped porous element,

(3) heating the said element to a temperature approaching the range of sintering temperatures of the aggregate, and

(4) circulating oxidizing gas through the pores of the element at elevated temperature to oxidize said oxidizable constituent to create a multiplicity of point heat-sources distributed throughout the element ensuring that substantially all the particles of sinterable aggregate are effectively sintered at high temperature.

3,322,868

THREE DIMENSIONAL REINFORCED STRUCTURE

William E. Kruse, Culver City, and Dante Rossello, Long Beach, Calif., assignors to Douglas Aircraft Company, Inc., Santa Monica, Calif.

Filed July 2, 1963, Ser. No. 294,788

6 Claims. (Cl. 264—45)

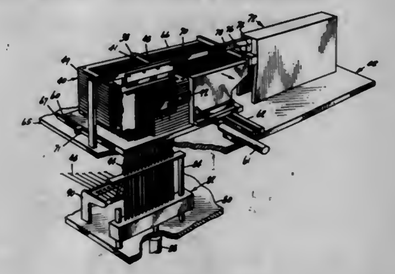
1. A method for obtaining a structure useful in insulation applications comprising:

establishing and maintaining several sets of threads, each set including a multiplicity of substantially coplanar, uniformly spaced, parallel threads,

making a stack of said sets whereby adjacent sets in said stack are prependicular,

forming and repeatedly inserting narrow loops of a third thread into a first end of said stack at points on said first end spaced a distance equal to the spacing of said threads in at least one of said sets;

projecting each of said narrow loops through said stack and catching and holding them near the end of said stack opposite said first end, whereby to obtain a uniform arrangement of threads extending in substantially perpendicular directions,



immersing said uniform arrangement of threads in a bath of foamable, solidifiable insulation material and allowing said insulation material to harden; removing said arrangement from said bath; and

cutting said insulation material into panels wherein faces of said panels are substantially perpendicular to one of said groups of threads and substantially parallel to said other two groups.

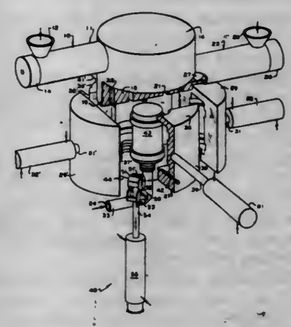
3,322,869

PROCESS AND APPARATUS FOR MAKING MULTIWALLED ARTICLE

John N. Scott, Jr., Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

Filed July 11, 1963, Ser. No. 294,298

3 Claims. (Cl. 264—90)



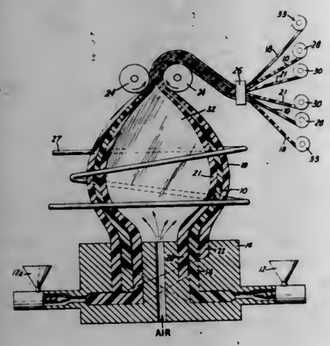
1. A method of forming multiwalled plastic containers which comprises the steps of extruding a parison of molten plastic material, closing a molding means around said parison, injecting a fluid into said parison to form the

container, removing the container from said mold, extruding a second parison about said formed container, closing said second parison airtight about said container, evacuating the space between said parison and container to cause intimate contact and fusion bonding therebetween, and cooling said second parison while in airtight relationship with said formed container to cause shrinkage of said second parison.

3,322,870
METHOD OF PRODUCING CLEAR, CRYSTALLINE, HIGH-GLOSS THERMOPLASTIC FILM

William Sacks, Gillette, N.J., assignor to Union Carbide Corporation, a corporation of New York

Filed Apr. 6, 1965, Ser. No. 445,931
5 Claims. (Cl. 264—95)



1. A method of producing clear, crystalline, high-gloss, self-supporting thermoplastic film which comprises continuously extruding molten thermoplastics through a multiple orifice film-forming extrusion die in the form of seamless tubing, continuously withdrawing the tubing from the point of extrusion, flattening the tubing at a predetermined distance from the point of extrusion, maintaining a substantially constant continuous isolated bubble of a gaseous medium in the section of the tubing between the point of extrusion and the point of flattening, and which method further comprises:

(a) extruding as one of said thermoplastics a molten crystallizable thermoplastic material through the center orifice of said die;

(b) extruding simultaneously with said crystallizable thermoplastic material smooth surface-forming thermoplastic films through the innermost and outermost orifices of said die;

(c) intimately contacting both surfaces of said crystallizable thermoplastic film without said smooth surface-forming films adhering thereto immediately upon egress of said films from said die and simultaneously cooling the composite films while in said contacting relationship;

(d) maintaining sufficient pressure within said bubble while said composite films are cooling to maintain said composite films in said contacting relationship, and

(e) thereafter slitting and stripping off the non-adhering smooth surface-forming thermoplastic films from both surfaces of the crystallizable thermoplastic film thereby recovering a clear, crystalline, high-gloss, self-supporting thermoplastic film.

3,322,871
METHOD OF FORMING A PATTERN

Robert L. Noack, Neshanic, and Chandler Wentworth, Princeton, N.J., assignors to Radio Corporation of America, a corporation of Delaware

Filed Aug. 29, 1963, Ser. No. 305,250
3 Claims. (Cl. 264—104)



1. A method of forming a pattern on a substrate comprising the steps of:

laying a resilient metal mask on a silicone rubber substrate whereby said mask adheres to said substrate;

forcing a slurry through the mask onto the substrate; and

peeling away the mask to leave on the substrate a pattern formed of said slurry.

3,322,872
PLASTIC FLOOR COVERING

David K. Slosberg, Yardley, Pa., assignor to Bonafide Mills, Inc., New York, N.Y., a corporation of Maine

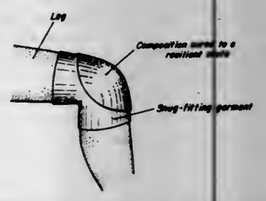
No Drawing. Filed Oct. 4, 1961, Ser. No. 142,759
1 Claim. (Cl. 264—115)

The method of producing a plastic sheet having a surface for display which comprises the steps of coating both surfaces of a solid polyvinyl chloride member with a liquid coating comprising a polymer selected from the group consisting of polyvinyl chloride, polyvinyl chloride-acetate copolymer, polymers of acrylic esters, butadiene-acrylonitrile copolymerized with styrene, granulating the coated polyvinyl chloride member to provide chips having coated and uncoated sides, applying pressure to a mass of said chips to reduce them to sheet form, and heating said sheet while maintaining it under pressure until said chips under the influence of said heat and said pressure have been deformed and said chips have randomly bonded together to form an integrated, substantially self-supporting sheet.

3,322,873
METHOD OF MAKING A RESILIENT CUSTOM-FIT BODY PROTECTOR

Paul F. Hitchcock, Coleman, Mich., assignor to Dow Corning Corporation, Midland, Mich., a corporation of Michigan

Filed Sept. 30, 1963, Ser. No. 312,445
10 Claims. (Cl. 264—222)



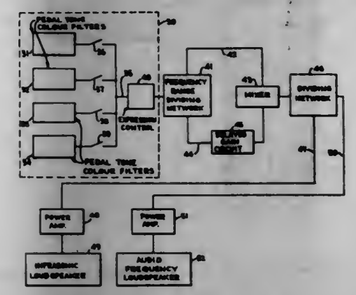
1. A method for making a custom-fitting body protector which comprises putting on a snug fitting garment which at least covers the area of the body to be protected, applying a layer of a composition that will cure to a resilient state on the garment and over the area of the body to be protected and then curing said composition at least to a sufficient degree that it will retain the shape of the body area over which it was applied when the garment is removed.

ELECTRICAL

3,322,874
PIPE ORGAN SIMULATION CIRCUITS

Daniel W. Martin and Alexander B. Bereskin, Cincinnati, Ohio, assignors to D. H. Baldwin Company, a corporation of Ohio

Filed Mar. 27, 1962, Ser. No. 182,788
20 Claims. (Cl. 84—1.13)

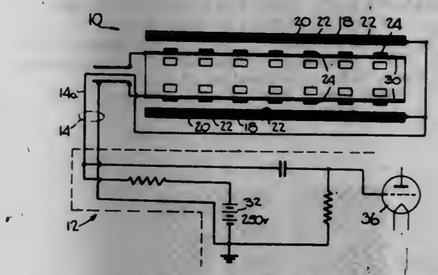


8. The method of simulating pipe organ tones electronically, which includes the steps of: keying the electrical output of audio-frequency signal generators, applying the keyed signals to the inputs of both a control circuit and a variable amplification circuit, deriving from the control circuit a resulting control voltage gradually changing in time to a new fixed value, applying the control voltage to the variable amplification circuit to increase its gain gradually to a new fixed value, thus simulating the delayed build up of tones from organ pipes.

3,322,875
HARMONICA ELECTRONIC AMPLIFICATION

John B. Roll, 819 Park Ave., Plainfield, N.J. 07060, and John A. Herr, 154 Locust Ave., Garwood, N.J. 07027

Filed Oct. 9, 1964, Ser. No. 402,835
3 Claims. (Cl. 84—1.14)



3. In a harmonica having reeds mounted on a side plate and having a cover, the improvement which adapts said harmonica to electronic amplification, comprising:

a capacitor plate mounted along the inside of said cover spaced from and facing said reeds, said plate being electrically insulated from said cover, and

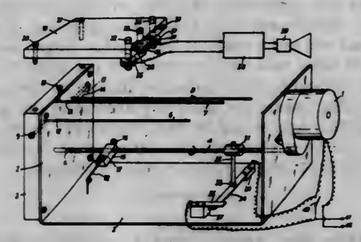
means for grounding said side plate and for applying a D.C. voltage to said capacitor plate,

whereby the vibration of said reeds will modulate said D.C. voltage thereby providing an electrical signal adapted to electronic amplification.

3,322,876
ELECTRO-ACOUSTIC GENERATOR ADAPTED TO PRODUCE LOW FREQUENCY SIGNALS TRANSFORMABLE INTO MUSICAL SOUNDS BY MEANS OF ANY AMPLIFIERS

Constant Martin, 36 Ave. de Saint-Cloud, Versailles, France

Filed Feb. 20, 1964, Ser. No. 346,241
Claims priority, application France Feb. 26, 1963, 925,962, Patent 1,357,713
4 Claims. (Cl. 84—1.15)

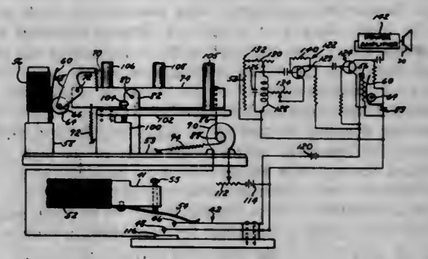


1. An electro-acoustic generator of low frequency signals adapted to produce through amplification musical sounds, comprising an elastic elongated member, an electric motor, a shaft controlled by said motor and driving the elastic elongated member along a circular path, vibratory members engaging the path of said elongated member and each adapted to vibrate immediately after they have been shifted out of their inoperative position by the passage of the elastic elongated member in registry with them, electric collecting means located in proximity with said vibratory members and adapted to transform the vibrations of the latter into weak electric currents, and means amplifying said currents and transforming them into musical sounds.

3,322,877
ELECTRICAL MUSICAL INSTRUMENT HAVING FINGERBOARD WITH CONTINUOUSLY VARIABLE FINGER TONE SPACING

Alvin S. Hopping, Nolan's Point, Lake Hopatcong, N.J. 07849

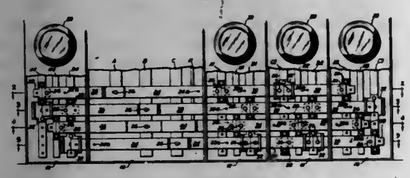
Filed Dec. 13, 1965, Ser. No. 513,489
3 Claims. (Cl. 84—1.16)



1. A string-type electronic musical instrument having a fingerboard with variable tone spacing which comprises a transistorized L–C oscillator tone generator adapted to oscillate at a fundamental frequency, a variable resistance load on said tone generator which increases the frequency of oscillation thereof to a frequency above said fundamental frequency, said load including a pivoted bar resistor

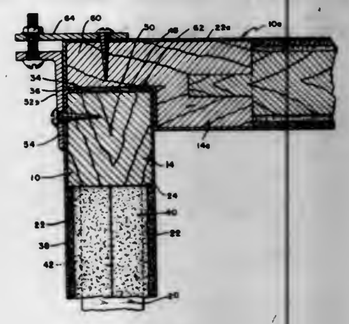
adapted to be tapped by contact with an electrically conductive string on application of finger-pressure thereto, said string being mounted on a fingerboard above said pivoted bar, normally open switch means for the application of power to said generator, a transistorized audio amplifier for amplifying the output of said generator, normally open switch means for the application of electric power to said generator, an electrically driven gain control for increasing the gain of said amplifier on application of electric power thereto, normally open switch means for the application of power to said electrically driven gain control, said pivoted bar being adapted, on application of finger pressure thereto through said string, to determine the tone generated by said generator, on the application of further finger pressure thereto, to close said switch means for the application of power to said generator and amplifier, thereby energizing said tone generator and amplifier, and on application of yet further finger pressure thereto, to close said switch means for the application of power to said gain control, thereby increasing the gain of said amplifier, means for manually overriding the gain of said amplifier determined by said electrically driven gain control, and an electromechanical transducer for converting the output of said amplifier into audible sound.

3,322,878
SYSTEM OF THREE-PHASE SUPPLY BUS TO SINGLE-PHASE BRANCH BUS CROSS CONNECTIONS
Paul M. Christensen, Milwaukee, Wis., assignor to Cutler-Hammer, Inc., Milwaukee, Wis., a corporation of Delaware
Filed Dec. 24, 1964, Ser. No. 420,991
6 Claims. (Cl. 174—72)



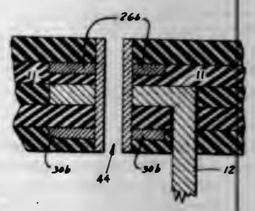
1. For effecting cross connections between a plurality of sets of parallel electrical buses which are spaced apart at uniform intervals, in combination, a plurality of U-shaped electrical connectors, each having outwardly depending end portions adjacent the ends of its legs with bolt receiving openings formed therein, said connectors each further having lateral wing portions on both sides of the bight thereof in which are formed threaded bolt openings, said connectors having their depending end portions bolted to the buses at points at which cross electrical connections thereto are to be made, a plurality of U-shaped insulating support members, each having a bolt receiving opening formed in its bight and having alined rectangular openings adjacent the ends of its legs, said supports having their bights bolted on bus bars at points at which no cross electrical connections thereto are to be made, a plurality of cross connector bars of uniform length having bolt receiving openings formed adjacent both ends thereof, said bars being bolted in end-to-end relation on said wings of said connector members or alternatively abutting end-to-end between the legs of said support member on which they are supported against their ends in the rectangular openings formed in said support members, and a plurality of splice bars of uniform length in which are formed threaded bolt openings, which overlap the cross connector bars between the legs of said insulated supports and to which the cross connector bars are bolted.

3,322,879
SOUNDPROOF SCREEN ROOM
Erik A. Lindgren, 4515 N. Ravenswood Ave., Chicago, Ill. 60640
Filed Jan. 12, 1965, Ser. No. 425,029
6 Claims. (Cl. 174—35)



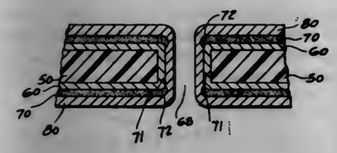
1. In a shielded enclosure a rectangular panel comprising a frame of predetermined thickness defining a central open space having cross members of a thickness appreciably less than said predetermined thickness traversing and dividing said central open space into compartments, a sheet of metallic shielding material covering each side of the frame and having marginal flanges turned over the corner edges of the frame and extending inwardly from the respective panel faces to cover minor portions of the edge faces of the frame and provide a space between terminal edges of the sheets that are on opposite sides of the frame to electrically isolate the sheets from each other, a coating of weighting material adhered to said sheets within the confines of said central open space, and compressible elements filling in the compartments defined by said cross members, said compressible elements and said coatings combined having a normal thickness greater than said predetermined thickness, and a strip of compressible material in said space between said terminal edges of a normal thickness greater than the thickness of said sheet of shielding material.

3,322,880
CONNECTION POST INTEGRATION FOR PRINTED CIRCUIT SYSTEMS
John R. Bedell, Smithtown, and George Messner, Sea Cliff, N.Y., assignors to Photocircuits Corporation, Glen Cove, N.Y., a corporation of New York
Filed June 2, 1964, Ser. No. 372,012
4 Claims. (Cl. 174—68.5)



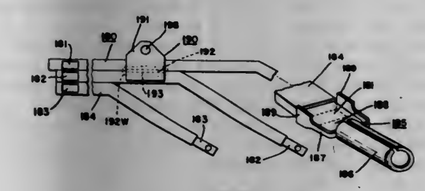
1. A printed circuit board comprising an insulative plate having opposed surfaces adapted to receive printed circuit conductors thereon, said board having a printed circuit conductor pattern on at least one of said opposed surfaces, at least one terminal post mounted integral with said board having a portion thereof extending at least to one of said opposed surfaces for external electrical connections, and at least one plated-through hole passing through a portion of said terminal post and said printed circuit conductors, said plated-through hole thereby electrically interconnecting said printed circuit conductors and said terminal post.

3,322,881
MULTILAYER PRINTED CIRCUIT ASSEMBLIES
Frederick W. Schneble, Jr., 200 Lexington Ave., Oyster Bay, N.Y. 11771; Joseph Polichette, 9 Hitchcock Lane, South Farmingdale, N.Y. 11735; and Edward J. Leech, Center Island, Oyster Bay, N.Y. 11771
Filed Aug. 19, 1964, Ser. No. 390,646
10 Claims. (Cl. 174—68.5)



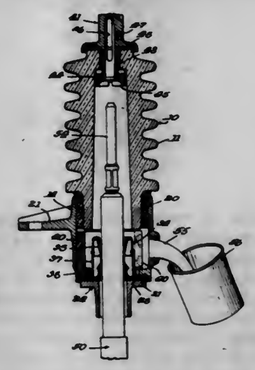
6. A metallized multilayer assembly comprising an insulating base provided with at least one hole; a first metal layer adhered to at least one surface of said base and extending into and adhered to the wall surrounding the hole; an insulating layer superimposed on the first metal layer so as to leave at least a portion of the first metal layer extending into the hole exposed; at least a portion of the exposed surface of said insulating layer being catalytic to the reception of electroless metal; and a layer of electroless metal tenaciously adhered to the catalytic surface of said insulating layer and to said exposed portion of the first metal layer, thereby establishing a metallic connection between the first metal layer and the layer of electroless metal.

3,322,882
RECTANGULAR CONDUCTOR HARNESS MEANS AND ATTACHMENTS
Donald G. Baer, Girard, Allan S. Van Slyke, Southington, and Robert C. Woofter, Cortland, Ohio, assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware
Original application Sept. 28, 1961, Ser. No. 141,483, now Patent No. 3,226,668, dated Dec. 28, 1965. Divided and this application Mar. 15, 1965, Ser. No. 439,847
4 Claims. (Cl. 174—72)



1. On a flattened wiring harness means having at least a pair of flat conductors each covered with corresponding insulation material in juncture along contiguous edging except for predetermined opening therebetween, the combination therewith which comprises a clamp-like retainer means including a substantially flat body portion for panel mounting and transverse flange means carried thereby, said flange means having a passage therethrough which is located remote from said body portion upon insertion of said flange means through the opening, and locking arm means complementary to the passage through said flange means that maintains assembly of said clamp-like retainer means to the flattened wiring harness means.

3,322,883
PREFILLED CABLE TERMINATION SYSTEM
George E. Lusk, Downers Grove, Ill., assignor to G & W Electric Specialty Company, Blue Island, Ill., a corporation of Illinois
Filed May 3, 1966, Ser. No. 547,261
6 Claims. (Cl. 174—73)



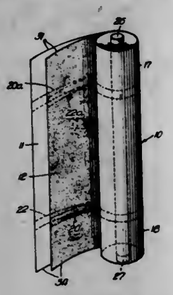
1. A terminator device which is factory assembled, in combination, a cylindrical shell of insulating material having a cylindrical base portion of metal fixedly secured to one end thereof, a sealing plate secured to the base portion and having a central opening for accommodating the end of a power cable adapted to be inserted through the sealing plate and through the base portion and insulator shell, a diaphragm having a central opening which is confined between the base portion and sealing plate so as to form a seal with the parts, the opening in the diaphragm having axial alignment with the opening in the sealing plate, a plastic film located between the diaphragm and to the base portion and which is confined in the same manner as the diaphragm, said plastic film sealing the opening in the diaphragm and thus sealing the entrance end of the terminator device, a hoodnut fixed to the opposite end of the terminator device, and sealing this end of the device, a stress relief contact shield located within the base portion and being fixed to the base portion in axial alignment with the opening in the diaphragm, and an insulating compound of a plastic nature filling the interior of the terminator device so as to eliminate all voids and being free of air bubbles.

5. In a method of terminating a power cable, which consists in the steps of preparing the terminal end of the power cable for insertion in a factory assembled terminator device prefilled with an insulating compound and which is sealed within the device, inserting the prepared end of the cable within the device by rupturing the seal at the entrance end, continuing the insertion of the cable end so that the same passes through a stress relief contact shield located within the device and fixedly supported in axial alignment with the entrance opening, whereby the contact shield will have telescoping relation on the prepared end of the cable, allowing the excess compound to discharge from the device through an opening provided for the purpose, continuing the insertion of the cable until the end of the same makes electrical contact with a hoodnut at the sealed end of the pothead device opposite the entrance end, and then closing and sealing the discharge opening to retain the remainder of the compound within the terminator device.

3,322,884
DOUBLE ENDED PERFORATED PAPER ROLL WITH PLASTIC FILM LAMINATIONS

James H. Nicholas, Flossmoor, Ill., assignor to G & W Electric Specialty Co., Blue Island, Ill., a corporation of Illinois

Filed July 1, 1966, Ser. No. 562,346
7 Claims. (Cl. 174—73)

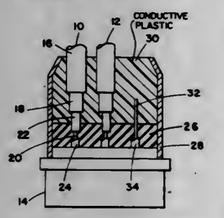


1. An article of manufacture comprising a roll of flexible sheet material formed of paper and plastic laminations and having perforations therein to form weakened lines of cleavage, said weakened lines of cleavage being duplicated in the half sections of the sheet on the respective sides of a longitudinal center line, said weakened lines of cleavage comprising two lines in each half section of the sheet only one of which extends for the full length of the sheet, and said weakened lines of cleavage permitting separation of certain selected areas of the laminated sheet material whereby to so shape the exterior surface of the roll as to form a stress relief cone.

3,322,885
ELECTRICAL CONNECTION

James J. May and Edward A. Winkowski, Burlington, Vt., assignors to General Electric Company, a corporation of New York

Filed Jan. 27, 1965, Ser. No. 428,579
5 Claims. (Cl. 174—78)



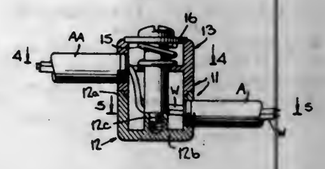
1. An electrical connection for a plurality of shielded wires comprising:
a mass of conductive plastic in contact with the shields of said wires; and
an uninsulated portion of a ground wire in contact with said mass of conductive plastic.

3,322,886
SWIVEL JOINT COUPLING FOR LAMP ARMS

Jerome Warshawsky, 3285 Bertha Drive, Baldwin, N.Y. 11510

Filed Feb. 9, 1966, Ser. No. 526,094
4 Claims. (Cl. 174—86)

1. A swivel joint coupling comprising a pair of hollow cylindrical mating members axially mounted in end-to-end abutment at a friction joint therebetween for relative rotation, an opening in the side of each member for mounting a hollow arm therein, a first of said members having an end wall closure and an opposite open end facing an open end of the second of said members at said joint, said second member having a second open end opposite said end wall closure formed with an interior shoulder, a washer closing said second open end seated on said interior shoulder, a headed stud extending axially through said washer and anchored to said first member end wall

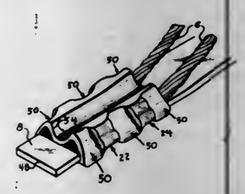


closure, an interior transverse wall in said second member spaced from said washer and having an axial opening through which said stud extends, and a compression spring interposed between said washer and interior transverse wall exerting friction pressure between the members at said joint through said stud, said stud retaining said washer in position free of locking engagement with said interior shoulder.

3,322,887
ELECTRICAL CONNECTION AND METHOD OF MAKING THE SAME

Mario Polidori, Pennsauken, N.J., assignor to AMP Incorporated, Harrisburg, Pa.

Filed June 22, 1964, Ser. No. 376,941
6 Claims. (Cl. 174—94)



4. An electrical connection comprising a flat support member having a substantially rectangular cross-section and provided with a first surface, a second surface and opposing sides, an electrical conductor means having a first portion and a second portion, said first portion being in engagement with said first surface, and a ferrule member having a first section in snug engagement along said second surface, side sections extending along respective sides and a second section extending inwardly toward said first surface and securing said first portion of said conductor means therebetween with said second portion extending outwardly from said first portion, said side sections having first and second depressions at spaced intervals therealong with said second depressions being disposed between said first depressions, said depressions being directed inwardly toward said opposing sides of said support member thereby securing said ferrule member on said support member.

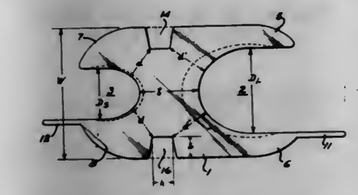
3,322,888
COMPRESSION CONNECTOR

Carl G. Zemels, St. Louis, Mo., assignor to Kearney-National Inc., St. Louis, Mo., a corporation of Delaware

Filed May 12, 1966, Ser. No. 549,667
9 Claims. (Cl. 174—94)

1. In a compression connector of the character described having oppositely disposed conductor-receiving sockets, one of said sockets being of larger cross-sectional dimension than the other, and a body of ductile

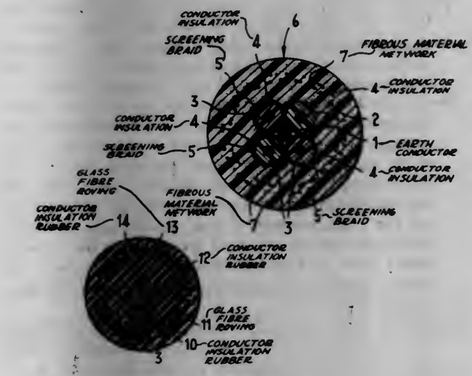
metal extending crosswise of said connector between said sockets, the improvement which comprises, said crosswise extending body of metal having a void therein for accommodating compression of said body to shorten the distance between said sockets, said void being located in spaced relation with both sockets and substantially closer to the smaller socket than to the larger socket.



3,322,889
ELECTRIC TRAILING CABLES WITH FAILURE LIMITING MEANS

Dennis Walter Bird, Bexley, Oliver Sanders Johnson and Harold Roy Bennett, Gravesend, and George Daniel Leeder, Northfleet, England, assignors to Associated Electrical Industries Limited, London, England, a British company

Filed Sept. 14, 1964, Ser. No. 396,195
Claims priority, application Great Britain, Sept. 19, 1963, 36,945/63
8 Claims. (Cl. 174—113)

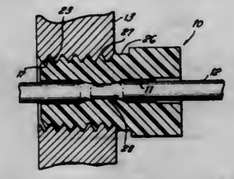


1. An electric cable comprising:
(a) a number of conductors,
(b) respective insulation coverings of elastomeric material for individual ones of said conductors,
(c) a flexible outer sheath of elastomeric material surrounding said conductors as a whole,
(d) fibrous material reinforcing said outer sheath to enhance its circumferential strength, and
(e) fibrous material reinforcing each individual conductor insulation covering to enhance its circumferential strength,
the reinforcing fibrous material for the sheath having a high percent elongation at break and the reinforcing fibrous material for each individual conductor insulation covering having a low percent elongation at break so that, under arcing conditions at a break in an insulated conductor of the cable, the energy released into the inter-sheath space on rupture of the insulation covering of that conductor can be reliably contained, at least temporarily by the reinforced cable sheath.

3,322,890
BUSHING-SEAL

John C. Kennedy, Orange, and Girard S. Haviland, West Hartford, Conn., assignors to The Jacobs Manufacturing Company, West Hartford, Conn., a corporation of New Jersey

Filed Mar. 31, 1966, Ser. No. 539,066
6 Claims. (Cl. 174—152)



4. A bushing-seal having an axial bore for slidable reception of an element, comprising a shank terminating at one end in a wrench head, the shank having a smooth cylindrical surface adjacent the head and an externally threaded area extending from the cylindrical surface to the opposite end of the shank, said axial bore being of uniform diameter and extending from the opening of the seal at the threaded end for a distance at least equal to the length of the externally threaded area, the smooth cylindrical surface extending for a linear distance allowing selective extension of the threaded area for a plurality of additional threads, the threaded area comprising a main section of complete threads and a terminal section of incomplete threads vanishing into the cylindrical surface, the bushing-seal being formed of deformable material adapted to deform radially inward to contract the axial bore upon forcefully screwing the shank over the area of the incomplete threads into a threaded opening of a relatively harder material, and the cylindrical surface being adapted to deform radially inward to further contract the axial bore upon forcefully screwing the shank into the said threaded opening beyond the incomplete threads; characterized in that the linear distance of the smooth cylindrical surface corresponds to the pitch of a predetermined number of threads and that when a visually determinable portion of the cylindrical surface less than the whole thereof has been forcefully screwed into the threaded opening the axial bore will have contracted to a selected predetermined degree.

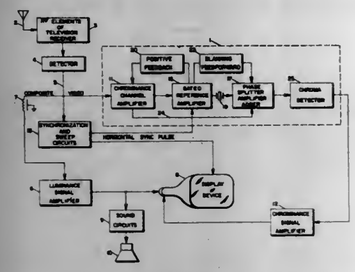
3,322,891
COLOR SEPARATOR WITH POSITIVE FEEDBACK TO CHROMINANCE AMPLIFIER DURING FLY-BACK

Richard E. Williams, Fairfax, Va., assignor to Scope, Incorporated, Falls Church, Va., a corporation of New Hampshire

Filed Jan. 29, 1964, Ser. No. 341,019
10 Claims. (Cl. 178—5.4)

1. In a color television receiver, a chrominance amplifier, a gated reference amplifier in cascade with said chrominance amplifier, a phase splitter amplifier in cascade with said gated reference amplifier, said gated amplifier being normally disabled and responsive to enabling sync pulses, a ringing circuit connected intermediate said gated reference amplifier and said phase splitter amplifier for phase coherently extending in time signal received from

said gated amplifier, and means responsive to said sync pulses for concurrently completing a positive feedback



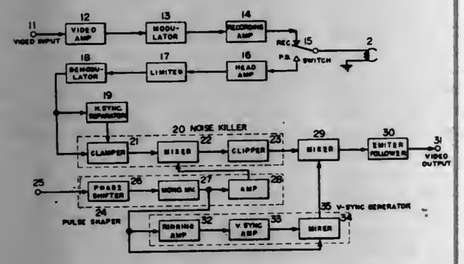
loop for said chrominance amplifier, to increase the gain and decrease the bandwidth thereof, and for cutting off said phase splitter amplifier.

3,322,892

TELEVISION SIGNAL RECORDING AND REPRODUCING WITH SYNC SIGNAL REGENERATION

Shine Yasuoka and Tomio Oyama, Toyonaka-shi, Shozo Aratani, Osaka, and Hiromu Tanaka, Moriguchi-shi, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan, a corporation of Japan

Filed Dec. 24, 1963, Ser. No. 333,144
Claims priority, application Japan, Dec. 27, 1962, 37/59,302; Dec. 28, 1962, 37/59,708, 37/59,713; Oct. 26, 1963, 38/57,837
7 Claims. (Cl. 178—6.6)



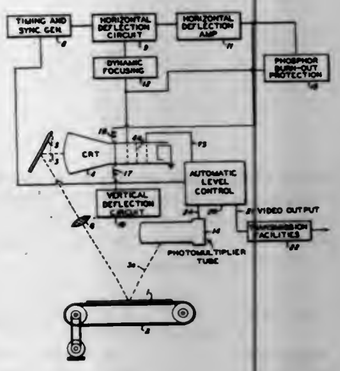
1. A device for recording and reproducing a television signal comprising a magnetic tape, a rotary head including a magnetic transducer, said magnetic transducer being adapted to successively sweep diagonally across said magnetic tape, means for holding said magnetic transducer in disengagement from said magnetic tape for a constant range from the end of one sweep by said magnetic transducer on said magnetic tape to the beginning of the succeeding sweep, said range being effective to produce a non-recorded period, means for rotating said rotary head in synchronism with a cycle of a vertical synchronizing signal in said television signal, said non-recorded period being disposed in a vertical blanking period of said television signal, means for recording a video signal including a horizontal synchronizing signal in said television signal on said magnetic tape by said rotary head, means for recording said vertical synchronizing signal on one edge of said magnetic tape, means for reproducing said recorded vertical synchronizing signal from said magnetic tape so as to obtain a synchronizing signal responsive to said reproduced vertical synchronizing signal, and means for reproducing said recorded video signal from said magnetic tape for combining said reproduced video signal with said synchronizing signal.

3,322,893

BACKGROUND SCANNING SYSTEM FOR FACSIMILE COMMUNICATION

Stephen E. Townsend, Rochester, N.Y., assignor to Xerox Corporation, Rochester, N.Y., a corporation of New York

Filed Dec. 11, 1963, Ser. No. 329,641
6 Claims. (Cl. 178—6.8)



1. In a facsimile communication system for transmitting video signals representative of the light values of intelligence on a document, a transmitter comprising:

a light source image scanning means for repeatedly scanning successive parallel line paths across the document with a light spot,

photomultiplier means responsive to the reflected light from the document for producing video signals in accordance with the reflected light values indicative of the intelligence and the background on the document during each scan of said scanning means,

background reader circuit means coupled to said photomultiplier means for establishing a background level voltage in response to the video signals indicative of the background light values on the document, said background reader circuit means comprising first storage means for storing said background level voltage for a predetermined time, second storage means for storing said background level voltage for a period longer than said predetermined time to retain said voltage during correspondingly longer scans of intelligence, and

brightness control circuit means coupled to said background reader circuit means and said scanning means for varying the brightness of said light spot in response to variations in the background on said document from lighter to darker backgrounds and from darker to lighter backgrounds.

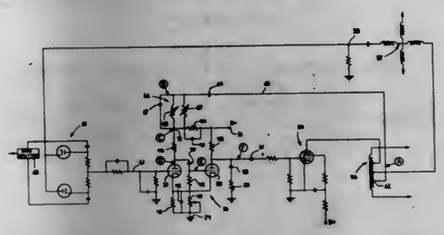
3,322,894

HORIZONTAL OSCILLATOR FOR TELEVISION RECEIVERS

Emerald Eugene Keith, Fort Wayne, Ind., assignor to The Magnavox Company, Fort Wayne, Ind., a corporation of Delaware

Filed Nov. 22, 1963, Ser. No. 325,605
10 Claims. (Cl. 178—7.3)

1. In an automatic frequency control system, the combination comprising: an oscillator adapted to produce a periodic output signal; pulse producing means coupled to said oscillator and producing pulses in response to said output signal; a ringing circuit independent of said oscillator and external thereto and coupled to said oscillator; and means coupling said pulses from said pulse producing means to said ringing circuit thereby shock exciting said ringing circuit into oscillation independent of currents in said oscillator and at a predetermined frequency, said ringing circuit thereupon applying to said



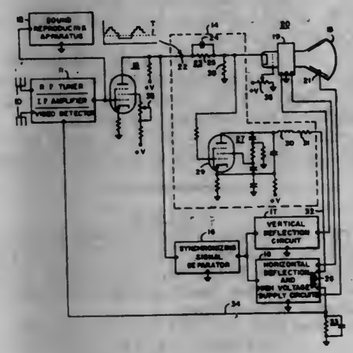
oscillator a sine wave voltage with said pulses superimposed thereon and thereby stabilizing the oscillation frequency of said oscillator at the oscillation frequency of said ringing circuit.

3,322,895

TELEVISION RECEIVER CIRCUIT FOR STABILIZING BLACK LEVEL AND LIMITING CRT BEAM CURRENT

Bernard D. Loughlin, Huntington, N.Y., assignor to Hazeltine Research Inc., a corporation of Illinois

Filed Sept. 18, 1963, Ser. No. 309,773
7 Claims. (Cl. 178—7.5)



1. In a television receiver having a cathode-ray tube and an energy supply connected thereto for purposes of image reproduction, picture control apparatus comprising:

means for supplying a video signal having a blanking level which may vary with changes in received signal intensity, having a D.-C. component representative of average scene brightness which may vary from scene to scene, said supply means including control means for varying the magnitude of the video signal; means for translating the supplied video signal to an input of said cathode-ray tube, wherein said translation causes the blanking level of said translated video signal to undesirably vary at said input with changes in average scene brightness, in addition to varying with changes in received signal intensity;

a keyed automatic-gain-control circuit coupled to the input of said cathode-ray tube and responsive to the blanking level of said translated video signal for developing an output signal jointly representative of variations in received signal intensity and of variations in average scene brightness;

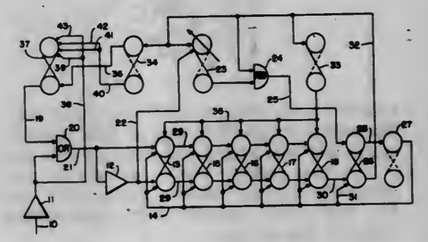
and means for coupling said output signal to the control means for varying the magnitude of the supplied video signal to limit the amount of beam current flowing in said cathode-ray tube on scenes of high average brightness and to stabilize blanking level at the input of said cathode-ray tube, thereby maintaining black level constant in the reproduced image.

3,322,896

RESYNCHRONIZER CIRCUIT FOR PRINTING TELEGRAPH RECEIVER

Frank D. Biggam, Deerfield, Ill., assignor to Teletype Corporation, Skokie, Ill., a corporation of Delaware

Filed Sept. 20, 1963, Ser. No. 310,344
10 Claims. (Cl. 178—53.1)



1. The method of controlling the cyclic restarting of a start-stop receiving instrumentality comprising the steps of:

(a) causing the stopping of the receiving instrumentality at the end of a cycle of operation of the instrumentality,

(b) maintaining the receiving instrumentality in the stopped condition beyond the duration of a normal stop signal in the absence of such signal, and

(c) restarting the instrumentality only in response to a transition of the incoming signal from the signal condition used for a stop signal to another signal condition occurring no earlier than the end of a normal stop signal.

4. In a start-stop telegraph receiver,

(a) an interval timer activated incident to reception of the last signal of a code combination,

(b) means enabled by said interval timer upon activation thereof for impressing a stop signal on said receiver, and

(c) means responsive to receipt of a start signal condition by the receiver at the end of the time determined by the interval timer to prolong said stop signal beyond the interval of activation of said interval timer.

3,322,897

COIL PICK-UP AND TUBE RECORDER SYSTEM

El G. Vozeolas, 86 Pentucket Ave., and Arthur G. Vozeolas, 17 Lawn Ave., both of Lowell, Mass. 01852

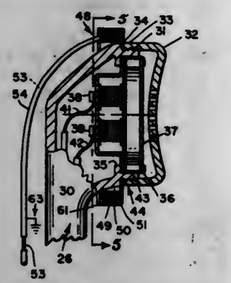
Filed Feb. 25, 1963, Ser. No. 260,728
4 Claims. (Cl. 179—1)

1. In combination with an electrically operated sound reproducer of the type having a housing with a central, longitudinal axis, magnetic pole means symmetrically disposed relative to said axis within said housing, a diaphragm normal to said axis and an electric conductor for enabling said means to receive incoming electric signals and actuate said diaphragm;

an annular, air core, induction, pick-up coil formed of multiple convolutions of a magnetic wire terminating in a flexible conductor leading therefrom and adapted to be connected to the input of a recorder or amplifier, the air core of said coil being of sufficient

diameter to receive, surround and completely encircle the exterior of said housing intermediate of the opposite poles of said magnetic pole means and

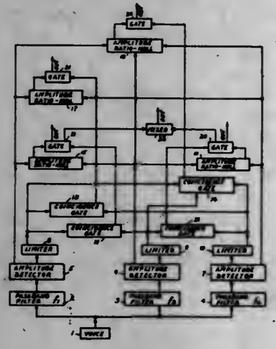
mounting means detachably securing said coil in 360° encirclement position on, and closely fitting around, said housing, the plane of said coil being substantially



parallel to the plane of said diaphragm, normal to the central longitudinal axis of said magnetic pole means and intercepting said magnetic pole means,

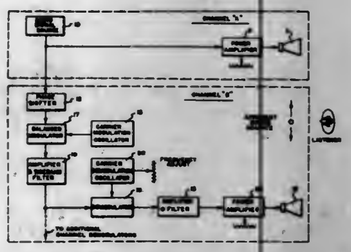
said coil being entirely within, centrally of, and symmetrically disposed relative to, the 360° magnetic flux, and closed magnetic loop, sourrounding said magnetic pole means.

3,322,898
MEANS FOR INTERPRETING COMPLEX INFORMATION SUCH AS PHONETIC SOUNDS
Meguer V. Kalfaian, 962 Hyperion Ave., Los Angeles, Calif. 90029
Filed May 16, 1963, Ser. No. 280,938
2 Claims. (Cl. 179—1)



1. In complex combination of numeric order where identifiable information is represented by a group of simultaneously occurring component parts having certain numeric ratio relations with respect to the component part of the lowest numeric order and having in conjunction certain quantity ratio relations with respect to the quantity of the component part having the lowest numeric order, the system of identifying said information comprising the following: A source of said complex combination having component parts of information bearing quantities arranged is positions of certain numerical ratio with respect to each other; means for selecting a group of component parts from said source, having certain numerical relations with respect to the selected part located in the lowest numerical position; means for measuring the quantity ratios of the selected group with respect to the part located in the lowest numerical position to determine if such measured ratios agree with predetermined ratios of said identifiable information; and means for translating the agreed ratio measurements into an identifiable signal of the information aforesaid.

3,322,899
SIMULATING STEREOPHONIC SOUND REPRODUCTION
Erle B. Renwick, Jr., Denville, N.J. (267 Mossman Road, Sudbury, Mass. 01776)
Filed Sept. 9, 1963, Ser. No. 307,402
8 Claims. (Cl. 179—1)



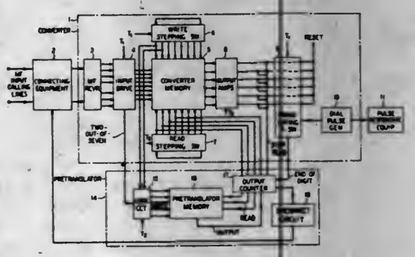
1. In a sound reproducing system having a monaural audio reproducer energized with an audio signal by a power amplifier, apparatus for simulating stereophonic reproduction of said signal comprising,

a second sound reproducer separated in space from said monaural reproducer,

circuit means for translating the frequencies of said audio signal by a predetermined amount in frequency with respect to the frequencies of the audio signal supplied to said monaural reproducer,

and means for supplying the audio signal having translated frequencies to said second sound reproducer.

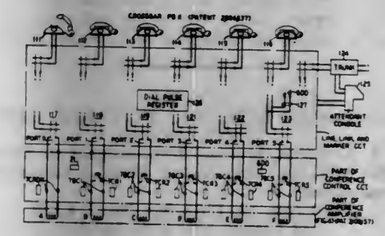
3,322,900
PRETRANSLATION CIRCUIT FOR MULTIFREQUENCY TO DIAL PULSE CONVERTER
Harry Winter, New Brunswick, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Mar. 25, 1964, Ser. No. 354,618
14 Claims. (Cl. 179—18)



1. In a telephone system having a plurality of stations for transmitting sequences of first type coded signals having digital significance and converter means for receiving said signals and for translating said signals into predetermined sequences of second type coded signals, a pretranslator connectable with said stations comprising memory means, logic means responsive to at least one of said first type coded signals for selectively storing said one first type coded signal in said memory means, means

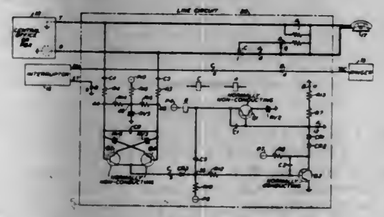
for counting the number of said second type coded signals, means controlled by said counting means for selectively interrogating said memory means, and output means coupled to said memory means and responsive to said interrogating means for disconnecting said converter circuit from said one of said stations.

3,322,901
PBX DIAL CONFERENCE TRUNK CIRCUIT
Daniel R. Trimmer, Los Angeles, Calif., assignor to American Telephone and Telegraph Company, New York, N.Y., a corporation of New York
Filed Mar. 31, 1964, Ser. No. 356,150
24 Claims. (Cl. 179—27)



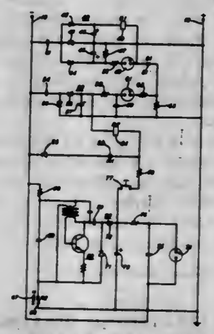
1. In an automatic telephone switching system, a private branch exchange, an attendant's position and a plurality of customer stations associated with said private branch exchange, a conference circuit also associated with said private branch exchange and having a plurality of conference ports, said conference ports normally being accessible only through connection of selected ones of said customer stations, means under control of an initial one of said customer stations for connecting said station to a first of said conference ports and for connecting other selected stations to others of said conference ports in turn, a central office trunk terminating at said private branch exchange, connection of said central office trunk being controlled through said attendant's position to the exclusion of said customer stations, and means controlled by said initial one of said customer stations for rendering one of said conference ports temporarily accessible for connection of said central office trunk under control of said attendant's position.

3,322,902
TELEPHONE SUBSCRIBER'S LINE CIRCUIT
Adam C. Carney, Matawan, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Dec. 23, 1963, Ser. No. 332,599
8 Claims. (Cl. 179—84)



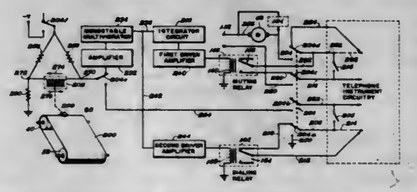
1. In a communication system, a subscriber's line comprising a pair of line conductors, a subscriber's line circuit connected to said line for detecting ringing signals over said line conductors, a point of reference potential, impedance means at said line circuit individually connecting each of said line conductors to said point of reference potential, a difference gating arrangement having two inputs and an output, means for interconnecting said impedance means and said inputs of said difference gating arrangement, and means connected to said output of said difference gating arrangement for initiating local station ringing.

3,322,903
TELEPHONE SIGNALING SYSTEM
Daryl M. Chapin, Basking Ridge, N.J., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Mar. 12, 1964, Ser. No. 351,353
6 Claims. (Cl. 179—84)



1. A coded ringing signal detector comprising detection means for detecting said ringing signals, means responsive to said detector for providing a time-out indication a fixed length of time after said ringing signals have terminated, counting means for counting the number of ringing signal bursts received, and indicating means responsive to said counting means for indicating the reception of a preselected number of ringing signal bursts when said time-out indication is provided.

3,322,904
TELEPHONE DIALING DEVICE
Thomas E. McCay, James D. Warren, and Laddie M. Adams, all of Norman, Okla., assignors to AVO Corporation, Norman, Okla., a corporation of Oklahoma
Filed Dec. 23, 1963, Ser. No. 332,725
5 Claims. (Cl. 179—90)



1. A device for selectively dialing any one of a plurality of telephone numbers comprising:

support means;

an endless magnetic record belt connected to the support means;

a magnetic record-playback head means slidably connected to the support means for movement transversely of the record belt in operative position adjacent the record belt;

electrically-operated drive means for moving the endless record belt one complete revolution past the record-playback head means upon actuation; and,

circuit means operatively connected to the record-playback head means for interrupting a telephone circuit in accordance with a program recorded on the record belt, said circuit means comprising pulse forming means for producing an electrical pulse of uniform amplitude and duration each time the telephone circuit is to be interrupted, integration circuit means connected to receive the pulses from the pulse forming circuit means for producing a single electrical pulse having a duration corresponding to the duration of pulses representative of a single digit, a muting relay the coil of which is driven by the output of the integrator circuit means and the contacts of which are connectable in parallel with the muting contacts of the telephone, and a dialing relay the coil of which is connected to the pulse forming circuit means and the contacts of which are connectable in parallel with the dialing contacts of the telephone where a series of pulses are reproduced, the muting contacts will be closed for the duration of each series of pulses corresponding to a digit and the dialing contacts will be closed only during each individual pulse,

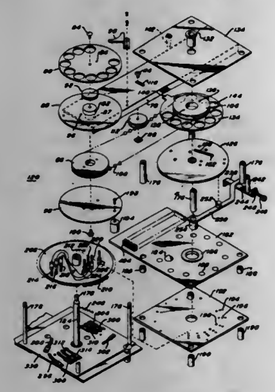
whereby any one of a plurality of telephone numbers recorded on transversely spaced program tracks on the record belt can be selectively reproduced by moving the record-playback head to the selected track and actuating the electrically-operated means for moving the endless record belt.

3,322,905

AUTOMATIC TELEPHONE DIALING AND CALLING APPARATUS

Hank Klumb and Henry E. Rogers, Philadelphia, Pa., assignors to The Teleminder Company, Philadelphia, Pa., a corporation of Delaware

Filed Feb. 12, 1965, Ser. No. 432,200
14 Claims. (Cl. 179—90)



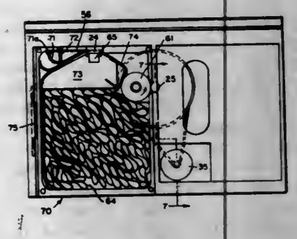
1. Automatic telephone calling apparatus comprising a dialing head, connecting means for connecting said head with a rotatable dial to rotate said dial, a free-floating clutch plate rotatably mounted for driving said connecting means, a driven member fixedly secured to a shaft, said driven member being spaced from said free-floating clutch plate, selectively operable clutch means for selectively engaging said driven member with said free-floating clutch plate at variable relative angular positions of said driven member and said clutch plate, a commutator switch rotatively connected with said driven member for energizing said selectively operable clutch means at a variable predetermined position during a cycle of rotation of said driven member, limit means positioned to declutch said free-floating clutch plate from said driven member at the end of a cycle of rotation of said driven member, a commutator switch control head, said commutator switch control head having means thereon for determining the sequence of relative angular positions between said free-floating clutch plate and driven member at which said clutch means is energized by said commutator switch, said control head including indexing means for sequential index movement of said head, contact means providing sequential electrical connection between said control head and said commutator switch, a control system, said control system including means to start and stop rotation of said shaft, said control system including a program wiper plate sequentially movable with said indexing means, said program wiper plate providing pre-selected electrical connection between rotation means for said shaft and said means for starting and stopping said rotation means.

3,322,906

MAGAZINE UTILIZING INTERNAL TAPE DRIVE MEANS

Jules A. Rothman, Boston, Mass., assignor to Automatic Radio Mfg. Co., Inc., Boston, Mass., a corporation of Massachusetts

Filed Apr. 19, 1963, Ser. No. 274,230
14 Claims. (Cl. 179—100.2)



1. A cassette for use in conjunction with a sound reproducing apparatus,

said cassette comprising an enclosing casing,

an elongated, thin, endless recording medium contained within said casing,

a backing member within said casing and means for tensioning a portion of said recording medium whereby said medium may be properly positioned against a reproducing head,

and a roller within said casing having a cylindrical outer surface with a portion of said outer surface positioned adjacent an opening defined by said casing so as to coact with an external drive means and a second portion of said outer surface positioned adjacent a roller backing means, a portion of said endless recording medium being gripped between said second portion and said roller backing means and being constantly fed adjacent and over said backing member when said roller is actuated.

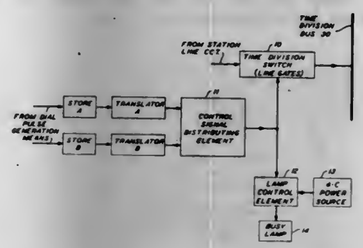
3,322,907

VISUAL SIGNALING APPARATUS FOR ELECTRONIC SWITCHING SYSTEM

Thomas E. Browne, Red Bank, and Karl Goldschmidt, New Shrewsbury, N.J., and Oscar H. Williford, Bronxville, N.Y., assignors to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York

Filed Apr. 1, 1964, Ser. No. 356,421
10 Claims. (Cl. 179—175.2)

1. In a telephone switching system, a plurality of line circuits, a time division bus, means for generating and storing repetitively a set of signal indicia corresponding to a selected one of said line circuits, means for deriving a train of relatively low duty cycle gating pulses at a relatively high pulse repetition rate from said set of repetitively stored signals, means responsive to said gating pulses for connecting that one of said line circuits corresponding to said set of signal indicia to said bus for the duration of each of said pulses, a signal lamp, a source of alternating current having a frequency substantially lower than said rate, and means jointly responsive to one of said pulses and to a voltage of a particular polarity



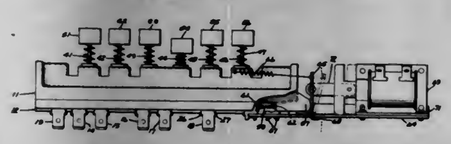
from said source for applying lighting current from said source to said lamp for at least a part of the half cycle of current from said source having said particular polarity, said last named means being inoperative during half cycles of current of an opposite polarity from said source whereby said lamp is extinguished during said last named half cycles, said last named means being further responsive to the termination of said gating pulses during one of said last named half cycles for maintaining said lamp in the extinguished condition.

3,322,908

PUSH-BUTTON SLIDER SWITCH HAVING PUSHROD RETAINING MEANS AND EXTERNALLY OPERABLE PUSHROD RETURN MEANS

Stewart A. Woodward, Stratford, Conn., assignor to General Electric Company, a corporation of New York

Filed Dec. 6, 1965, Ser. No. 511,666
8 Claims. (Cl. 200—5)



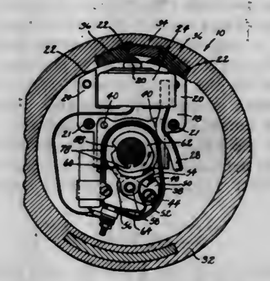
1. An improved push-button slider switch comprising a housing having a base of electrical insulating material, a first contact means including at least one movable contact disposed on said housing, at least one elongated actuating slider carried by said housing for reciprocating movement between first and second positions for actuating said movable contact, pushrod means mounted to said housing for reciprocating movement between an outer position and a depressed position in relation to said housing, actuating recess means on said contact actuating slider to receive said pushrod means for moving said actuating slider from said first position to said second position in response to depression of said pushrod means, an elongated retaining slider carried by said housing for retaining said pushrod means in a depressed position, a second contact means including at least one movable contact disposed on said housing, said retaining slider having a contact actuating means for actuating said second contact means, and means operatively connected to said retaining slider for applying a longitudinal force thereto in response to actuation of said second contact means thereby moving said retaining slider longitudinally in said housing and releasing said pushrod means from said depressed position.

3,322,909

BREAKER POINT MECHANISM AND CAM THEREFOR

Stanley M. Terry, Hampden, Mass., assignor to R. E. Phelon Co., Inc., East Longmeadow, Mass., a corporation of Massachusetts

Filed July 16, 1965, Ser. No. 472,575
7 Claims. (Cl. 200—24)



1. A generally annular cam for a breaker point mechanism which mechanism includes a shaft over which said cam is fitted, a fixed breaker point, a movable breaker point movable between open and closed positions relative to said fixed breaker point, means for biasing said movable breaker point toward said closed position, and a cam follower cooperating with said cam for moving said movable breaker point relative to said fixed breaker point in response to the rotation of said cam with said shaft, said cam comprising a body having an annular wall defining a radially inner surface and a radially outer peripheral cam surface including at least one lobe, said lobe during a portion of each revolution of said cam being engageable with said cam follower to hold open said movable breaker point, said wall having a short angular and axially extending portion along which its radial thickness is substantially less than elsewhere so as to provide a weakened zone along which said wall will fracture to produce an axially extending fracture line as a result of radially outwardly directed pressure applied over said radially inner surface, said radially inner surface defining an opening sufficiently smaller in size than said shaft so that said cam during assembly with said shaft is fractured along said weakened zone by the pressure exerted by said shaft on said radially inner surface and so that said cam is thereafter held in a slightly spread condition by said shaft to cause it to tightly grip the latter.

3,322,910

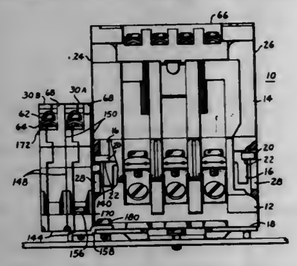
REVERSIBLE ROTARY SWITCH UNIT

Allin W. Schubring, Milwaukee, Wis., assignor to Square D Company, Park Ridge, Ill., a corporation of Michigan

Filed July 20, 1965, Ser. No. 473,295
14 Claims. (Cl. 200—50)

1. A switch unit comprising in combination: a switch housing having a pair of parallel spaced side walls and a flat front wall extending perpendicular to a bottom wall for selectively mounting a pair of the switch units side by side, end to end and two pairs of the switch units side by side and end to end in either of two reversible positions adjacent either of two side walls of a device which has portions of a movable member exposed through an opening in each of the side walls of the device as the member moves between two positions in a linear path along an axis perpendicular to the bottom wall of the switch unit, a recess in the front wall extending into the

side walls of the switch unit to provide an entry into a cavity within the housing, an actuator rotatably mountable in either of two selectable invertible positions on a pivot within the cavity, a resilient means engaging the actuator for constantly urging the actuator toward one of two rotatable positions in the cavity when the actuator is mounted on the pivot in either of the two invertible positions, a pair of engageable contacts within the cavity with one of the contacts being stationary and the other of the contacts being biased to be separated from the stationary contact and provide an open contact condition and movable to engage the stationary contact and provide a closed contact condition, means on the actuator located to engage the movable contact and maintain the movable contact in the closed contact condition when the actuator is mounted in one of its two inverted positions and is in the said one of its two rotatable positions, said means being located on the actuator to be separated from the movable contact whereby the movable contact is in the open contact condition when the actuator is moved to the other of the said two rotatable positions, a second means on the actuator located to be separated from the movable contact whereby the movable contact is in the



contact open condition when the actuator is in the said one rotatable position and is mounted on the pivot in the other of the said two invertible positions, said second means also being located to be engageable with the movable contact for moving the movable contact to the closed contact condition when the actuator is moved from the said one rotatable position toward the other of the said two rotatable positions on the pivot, a projection on the actuator extending through the opening to present an end which is disposed in the recess of the housing and a member having a central portion detachably mountable in either of two positions on the end, said member having a pin and a socket extending in opposite directions from the central portion along an axis normal to the linear path of movement of the movable member of the device, said socket being formed to be entirely within the recess when the member is in either of the said two positions on the end of the projection, and said pin being formed to extend beyond either one of the two side walls of the switch unit to engage a socket of an adjacent switch unit and to extend into the opening of the device and engage the portion of the movable member exposed to the side wall of the device adjacent to the said one side wall of the switch unit.

3,322,911

DIRECTION SIGNAL SWITCH INCLUDING UNITARY FLEXIBLE CONTACTS

Lloyd T. Fuqua, Fortville, Ind., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Oct. 20, 1965, Ser. No. 498,691
2 Claims. (Cl. 200—61.34)

1. A switch comprising electrically non-conductive support means,

first, second, third, fourth, fifth, sixth, seventh, eighth and ninth stationary terminals mounted in said support means,

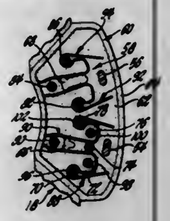
first, second, third and fourth unitary flexible contacts supported by said support means,

each of said contacts being provided with opposite end portions and first and second immediate curve portions to form a substantially S-shaped configuration,

one of said curved portions of each of said contacts being dimensioned to snugly receive said first, fifth, seventh and ninth stationary contacts respectively,

the other curved portions of said first and second contacts normally engaging said third terminal,

first and second stop means extending from said support means between said first and second and said third and fourth contacts respectively,



said first stop means normally biasing one end portion of said first and second contacts out of engagement with said sixth terminal and said second stop means normally biasing one end portion of said third and fourth contacts out of engagement with said ninth terminal,

first and second manually operable electrically non-conductive spaced apart actuator fingers normally extending between said first and second and said third and fourth contacts respectively,

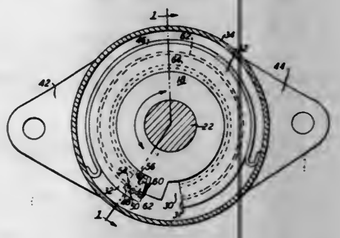
the opposite end portions of said contacts extending into the path of movement of said fingers.

3,322,912

SELF-ADJUSTING ROTARY ELECTRICAL SWITCH

Anthony S. Kuchta, Dearborn, Mich., assignor to Ford Motor Company, Dearborn, Mich., a corporation of Delaware

Filed Jan. 11, 1966, Ser. No. 519,882
5 Claims. (Cl. 200—61.39)



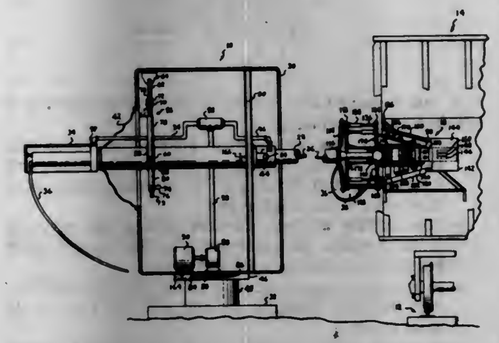
1. A self-adjusting electrical switch including a rotatable actuating shaft, a rotatable hollow annular member partially surrounding said shaft, a tab protruding radially from said shaft, said member having formed therein proximate said shaft an opening of greater width than said tab, said tab being located in said opening and causing unitary rotation of said shaft and said member after permitting limited rotation of said shaft, a pair of electrical contacts, one of said contacts carried by said member so that rotation of said shaft will open and close said contacts, two electrically conductive bands carried by said member and in circuit with said contacts, and a pair of conductors, each of said conductors being in constant contact with one of said bands.

3,322,913

POWER COUPLING MECHANISM

Robert B. Bradstock, Erie, and Hjalmar A. Olson, North East, Pa., assignors to General Electric Company, a corporation of New York

Filed Feb. 17, 1965, Ser. No. 433,427
10 Claims. (Cl. 200—61.42)



1. Apparatus for coupling power to a movable object temporarily stationed and nominally positioned at a location adjacent thereto comprising:

(a) a ram having a major axis;

(b) a ram mount for supporting said ram to allow movement thereof in a direction along said major axis as well as in both vertical and horizontal directions perpendicular to said major axis;

(c) a first coupling member mounted on one end of said ram to allow movement of said member independent of said ram in both vertical and horizontal directions perpendicular to said major axis;

(d) a second coupling member carried by said object and adapted to receive said first coupling member in close mating engagement; and

(e) means for extending and retracting said ram in a direction along said major axis operative to engage and disengage said first and second coupling members, alignment of said first and second coupling members being effected by a combination of the allowable and independent motions of said ram and the first coupling member mounted thereon.

3,322,914

ELECTRIC SWITCH EMPLOYING NON-TEASABLE MOVABLE CONTACT MECHANISM

Richard E. Puccini, Taunton, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Filed Apr. 26, 1965, Ser. No. 450,752
9 Claims. (Cl. 200—67)

1. An electric switch comprising:

(a) a base of electrically insulative material;

(b) three spaced terminal means mounted in said base;

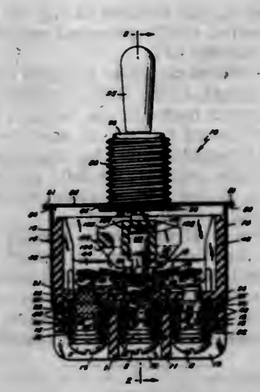
(c) an electrically conductive U-shaped frame, the bight portion of which is mounted in electrically conductive relation on one of said spaced terminal means;

(d) an elongated flexible electrically conductive contact arm having two opposite ends;

(e) two movable contacts, one mounted on each of said two opposite ends;

(f) a stiff actuator element having free end portions intermediate said U-shaped frame and said two opposite ends of said contact arm overlaying said movable arm;

(g) said contact arm supported in electrically conductive relation on the distal portions of said U-shaped frame, said contact arm and actuator element movable so that each movable contact mates with a respective one of the other two spaced terminal means;



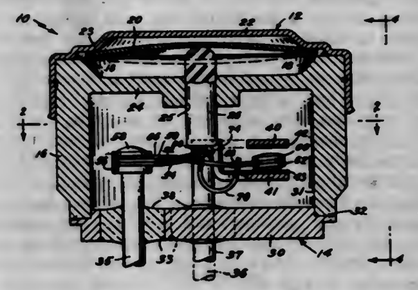
(h) actuator means biasing said contact arm and actuator element against said U-shaped frame, said actuator means movable from an at-rest, open-contact position where the extended line of biasing force passes within the distal portions of said U-shaped frame to an at-rest, closed-contact position where the extended line of biasing forces passes without the distal portions of said U-shaped frame.

3,322,915

SNAP ACTING OVERCENTERING MOTION TRANSFER MEANS FOR ELECTRICAL SWITCH

Carl N. Johnson, Braintree, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware

Filed Jan. 3, 1966, Ser. No. 518,360
4 Claims. (Cl. 200—67)



1. A snap-acting electrical switch comprising in combination:

(a) a base;

(b) a stationary electrical contact mounted on the base;

(c) a first resilient member cantilever mounted at one of its ends on the base;

(d) a movable electrical contact mounted on the first other end of the cantilever mounted resilient member in position for movement into and out of engagement with the stationary electrical contact;

(e) a second resilient member cantilever mounted at one of its ends on the base;

(f) a U-shaped compression spring, one end of which is connected with the free end of the second cantilever mounted resilient member and the other end of which is connected with a portion of the first resilient cantilever mounted member at a point intermediate its ends;

(g) a motion transfer member having one end thereof abutting the free end of the second resilient cantilever mounted member; and

(h) a third resilient cantilever mounted member lying along the length of the second resilient member in intimate contact therewith and having a first portion thereof protruding through an aperture in the first cantilever mounted member for engagement with the motion transfer member; the third resilient member including a further portion connected to a portion of the second resilient member;

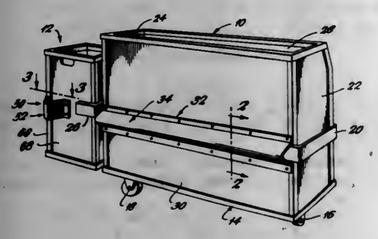
whereby movement of the motion transfer member is transmitted to the U-shaped spring through the second and third resilient cantilever mounted members to cause the U-shaped spring to move through an overcentering position thereby causing the first resilient member to snap move the contacts into and out of engagement.

3,322,916

DOFF TRUCK BOXES AND THE LIKE AND RUB GUARDS AND BUMPERS THEREFOR

James Glenn Fisher, Hartwell, Ga., assignor to NVF Company, Wilmington, Del.

Filed Mar. 21, 1966, Ser. No. 543,467
7 Claims. (Cl. 280—79.2)



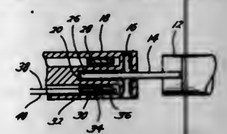
1. Equipment for use in association with textile machinery having a horizontal rail, said equipment comprising an elongate truck supported package box having a front end and a rear end, a pair of fixed supporting rollers adjacent to and spaced apart transversely of one end of said box, a single swivelling caster roller beneath and supporting the other end of said box, an elongate triangular shaped rub guard secured to and extending longitudinally of a side of said package box and having a transversely rounded apex portion extending laterally outwardly from the said side of the package box for engaging the said machinery rail, a bobbin box attached to and supported by said one end of said package box, a bumper fender secured on a side of said bobbin box corresponding to said side of said package box and at a corresponding elevation to said rub guard, said bumper fender having a substantially triangular structural form and including a base means secured against the said one side of the bobbin box, the apical portion of the triangle extending laterally outwardly from said side of the bobbin box, the said bumper fender having a vertical dimension and having in the apical portion thereof a transversely rounded laterally outwardly directed surface located at a greater distance laterally outwardly from the said side of the bobbin box than the said machine rail engaging rounded apex surface of the rub guard and providing a vertical line contact surface with the machinery rail.

3,322,917

FLOAT SWITCH

Dale B. Furlow, Tulsa, Okla., assignor to Black, Sivalls & Bryson, Inc., Kansas City, Mo., a corporation of Delaware

Filed Jan. 25, 1966, Ser. No. 522,942
3 Claims. (Cl. 200—84)



1. An improved float switch for control of liquid level within a vessel including,

an enclosed support member adapted to be secured to the vessel and having an axial recess at one end, the enclosure of the support member extending along both sides of the axial recess,

a float having an arm member at one end pivotally secured within the axial recess of the support member for movement in a vertical plane,

a permanent magnet secured within the enclosed support member adjacent to and on one side of the axial recess,

reed switch means secured within the enclosed support member adjacent to the axial recess on the side of the support member opposite the permanent magnet for actuation by the permanent magnet to control the liquid level,

shield means integrally formed of the float arm for vertical movement through the axial recess of the support member, the reed switch means being shielded from lines of force of the permanent magnet when the float arm and shield means are in a substantially horizontal position, and

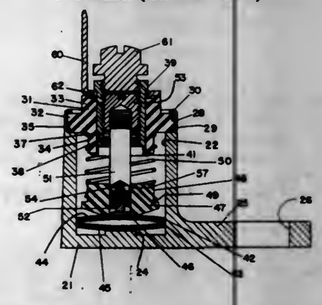
lug means secured to the support member for preventing movement of the float downward beyond a substantially horizontal position.

3,322,918

SURFACE SENSING BIMETAL THERMOSTATIC SWITCH

Herman Ulanet, Maplewood, N.J. (% George Ulanet Co., 413 Market St., Newark, N.J. 07105)

Filed Oct. 14, 1965, Ser. No. 495,828
3 Claims. (Cl. 200—113)



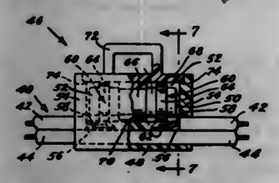
1. A thermostatic switch comprising an electrically and thermally conductive hollow body closed at one end, and said body having an integral flat extension of substantial area for mounting to an object, the temperature of which is to be sensed or controlled, one or more pairs of opposed concave-convex bimetals, the center of one of said bimetals seated at the closed end of the body and resiliently engaged with the other of said bimetals, a movable insulator seated within the hollow body resiliently engaged with one of the bimetals, the movable insulator having a bore, means within the hollow body for maintaining the movable insulator in resilient engagement with the bimetal, a stationary insulator seated within the opposite end of the body, the stationary insulator having a bore, an electrically conductive, internally threaded annular collar seated within the bore in the stationary insulator, a threaded calibration screw positioned within the collar, an electrically conductive rod mounted within the hollow body having one end secured to the calibration screw and the opposite end slidably positioned within the bore in the movable insulator, and provided with a resilient contact to prevent permanent set of bimetals and consequent calibration drift, for electrical engagement with opposed contact on adjacent bimetal in response to thermally induced changes in the curvature of the bimetals, and an external electrical contact member electrically connected to the collar but electrically insulated from the body.

3,322,919

INTEGRATED FUSE AND WIRE

Abraham Grober, Providence, R.I., assignor to Victor Electric Wire & Cable Corp., Coventry, R.I., a corporation of Rhode Island

Filed Mar. 15, 1965, Ser. No. 439,680
1 Claim. (Cl. 200—133)



A cable for carrying electric current from a source of electricity to an electric device in order to energize the latter, said cable comprising an insulated conductor, a casing constructed of electrical insulating material having a continuous, undivided wall surrounding a portion of said conductor and fused thereon to form a unitary, one-piece construction, said casing comprising a solid bottom portion and a hollow upper portion, said insulated conductor extending into and being fused to opposite ends of said solid bottom portion and terminating therein adjacent said opposite ends, a pair of resilient clamp members constructed of electrical conductive material mounted in said solid bottom adjacent the opposite ends thereof and extending upwardly into said hollow upper portion, the aforesaid terminal portions of said conductor each being connected to the adjacent clamp member, and a fuse detachably mounted in said clamp members and establishing electrical continuity through said cable, said cable further comprising a second insulated conductor, said second conductor extending continuously through and being fused to said casing solid bottom portion.

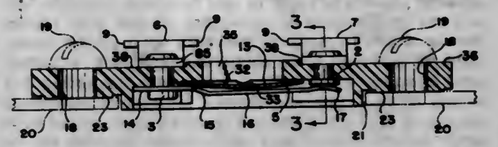
3,322,920

THERMOSTATIC CONTROL HAVING MAGNIFIED MOVEMENT OF SNAP MEMBER

Rexford M. Morris, Mansfield, Ohio, assignor to Therm-O-Disc, Incorporated, Mansfield, Ohio, a corporation of Ohio

Filed Sept. 9, 1963, Ser. No. 307,719
4 Claims. (Cl. 200—138)

4. In a thermostatic control assembly, a base plate having a pair of electrical terminals and a cantilever-mounted spring arm for connecting said terminals to effect flow of electric current between said terminals, said spring arm having a movable contact portion at its free end for engaging a stationary contact at one of said terminals, and means for moving said arm in a direction to separate said contacts comprising a bimetallic thermostatic disc located in a recess in said base plate and sandwiched between said arm and the bottom of said recess, said disc having its peripheral edge portion engageable with said arm near the free end thereof and a diametrically opposed edge portion confined at the bottom of said recess, said one edge portion of the disc moving toward and away from



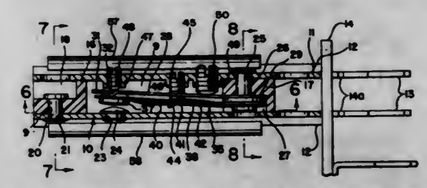
the bottom of the recess to effect separation of said contacts and a small projection at the bottom of the recess at the center of said disc upon which the disc pivots to effect said separation of the contacts and opening of the circuit through the control.

3,322,921

THERMAL SNAP SWITCH WITH OPERATION ON ONLY ONE SIDE OF THE OVER-CENTER POSITION

Howard W. Bletz, Mansfield, Ohio, assignor to Therm-O-Disc, Incorporated, Mansfield, Ohio, a corporation of Ohio

Filed July 29, 1965, Ser. No. 475,805
3 Claims. (Cl. 200—138)



1. A temperature control device of the class described comprising longitudinally spaced parallel supporting frames, spaced electrical insulating blocks positioned between said supporting frames, said supporting frames and blocks defining a switch chamber, a stationary electrical contact on one of said supporting frames and a mobile electrical contact, both of which are mounted within the switch chamber, a cantilever mounted snap-acting element for supporting the mobile electrical contact, said mobile electrical contact being mounted upon the free end of the snap-acting element and arranged to engage the fixed contact, means for confining the movement of the snap-acting element between two predetermined points on on side of its over-center position, said snap-acting element being biased to apply force in one direction only between its limits of movement, and an elongated bimetal member cantilever mounted on one said blocks directly engaging the contact carrying end of the snap-acting element to apply pressure thereon in response to temperature change and cause the snap acting element to move from one predetermined point to the other.

3,322,922

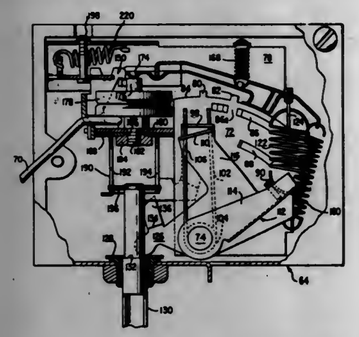
PROGRAM SWITCH FOR A CONTROL SYSTEM

Francis S. Genbauffe, Irwin, Pa., assignor to Robertshaw Controls Company, a corporation of Delaware

Original application Nov. 2, 1961, Ser. No. 149,738. Divided and this application Oct. 6, 1965, Ser. No. 545,174
5 Claims. (Cl. 200—140)

1. A temperature responsive program switch assembly comprising a frame, a switch operating cam mounted on said frame for movement between a rest position and a ready position, means biasing said cam toward said rest position, a plurality of spaced ratchet teeth mounted on said cam for movement therewith along a predetermined

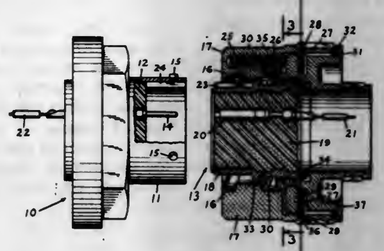
path upon movement of said cam between said rest position and said ready position, a first pawl lever, first pivotal support means supporting said first lever at one end thereof for pivotal movement relative to said frame about a first axis, a first pawl tooth on said first lever adjacent the opposite end of said first lever movable into and out of the path of movement of said first ratchet teeth at a first location on said path upon pivotal movement of said first lever about said first axis, a second pawl lever, second pivotal support means supporting said second lever at one end thereof for pivotal movement relative to said frame about a second axis, a second pawl tooth on said second lever adjacent the opposite end of said second lever movable into and out of the path of movement of said ratchet teeth at a second location on said path upon pivotal movement of said second lever about said second axis, means interconnecting said first and said second pawl levers for pivotal movement relative to each other about a third axis extending parallel to said first and said second axes at a location between said axes and the respective pawl teeth, first spring means on said frame resiliently biasing said first pawl lever about



said first axis in a direction urging said first pawl tooth into the path of movement of said ratchet teeth, second spring means on said frame resiliently biasing said second pawl lever about said second axis in a direction urging said second pawl tooth away from the path of said ratchet teeth, stop means on said frame engageable with each pawl tooth when the pawl tooth is located in the path of movement of said ratchet teeth to limit further pivotal movement of the associated lever toward the path of movement of said ratchet teeth, means for maintaining one of said pivotal support means at a stationary location relative to said frame, and temperature responsive means for shifting the other of said pivotal support means relative to said frame in response to variations in temperature to swing one of said pawl teeth about said third axis into engagement with said stop means and subsequently shift said third axis to withdraw the other pawl tooth the path of said ratchet teeth upon a continued increase in temperature and to swing said other pawl tooth about said third axis into engagement with said stop means and subsequently shift said third axis to withdraw said one of said pawl teeth from the path of said ratchet teeth upon a continued decrease in temperature.

3,322,923
ELECTRICAL CONNECTOR WITH AUTOMATIC DISCONNECT
Robert W. Brush, Unadilla, N.Y., assignor to The Bendix Corporation, Sidney, N.Y., a corporation of Delaware
Filed Sept. 1, 1964, Ser. No. 393,634
23 Claims. (Cl. 200—142)

1. An electrical connector comprising two shells, cooperable pin and socket contacts mounted in said shells, and coupling means cooperable with said shells locking the same together with said contacts in mating relationship, said coupling means comprising a nut detachably connected with one of said shells, an annular member rotatable relative to said nut and mounted on the other of said shells for axial movement therewith and heat-



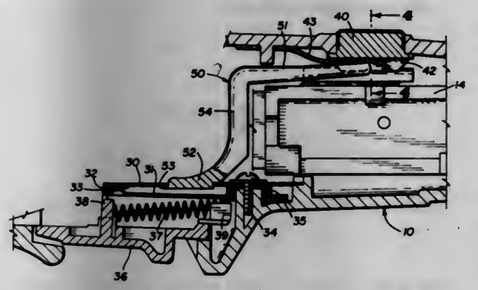
responsive means for normally limiting relative axial movement of said member and nut in one direction and for automatically releasing said other shell and member for axial movement relative to said nut and said one shell in said one direction to disengage said contacts.

3,322,924
TRANSLATORY MECHANICAL MEMBER WITH MOLDED HINGE PORTION FOR USE IN ELECTRIC SWITCHES AND OTHER APPLICATIONS
Martin I. Shepe, Baltimore County, Md., assignor to The Black and Decker Manufacturing Company, Towson, Md., a corporation of Maryland
Filed Mar. 4, 1965, Ser. No. 437,029
5 Claims. (Cl. 200—157)



1. In an electric tool or appliance, the combination of:
(a) a handle having an aperture formed therein;
(b) an electric switch housed completely within the tool, isolated from exposure externally of the tool, and having alternate "on" and "off" positions; and
(c) a switch actuator member mounted within the handle, the actuator member being molded from a plastic material having a degree of inherent resiliency, and comprising:
(1) trigger portion protruding through the aperture in the handle;
(2) a translatory actuator portion operatively connected with the switch for actuating the same between its alternate positions; and
(3) an intermediate portion joining the trigger and actuator portions;
(d) whereby inward depression of the trigger within the handle causes a responsive movement of the actuator portion within the handle and thereby moves the switch into its "on" position; and
(e) whereby, during said movement, the intermediate portion of the actuator member flexes due to the inherent resiliency of its material;
(f) thereby providing for economical trigger operation of the tool by facilitating the use of a relatively inexpensive switch.

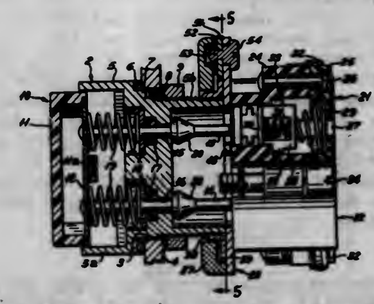
3,322,925
BLADE RELEASE AND SWITCH INACTIVATING MEANS FOR POWER OPERATED KNIFE
Harvey Korshak, Skokie, Ill., assignor to Scovill Manufacturing Company, Waterbury, Conn., a corporation of Connecticut
Filed Oct. 4, 1965, Ser. No. 492,641
7 Claims. (Cl. 200—157)



1. In a power operated knife, blade release and switch inactivating means comprising
(a) a housing,
(b) carriers in the housing in which blade tangs are releasably mounted,
(c) a blade release button means depressibly mounted in the housing for separating the blade tangs and carriers,
(d) electric switch mechanism including a pair of spaced apart contact carrying springs and a switch button means depressibly mounted in the housing for moving one of said contact carrying springs relatively to the other into switch closing position, and
(e) a pivotal lever having a first arm engaged by the blade release button and a second arm engaging one of said contact carrying springs, actuation of said lever arms by depression of the release button causing movement of said arm-engaged contact carrying spring into open switch position during depression of the blade release button for inactivating the switch regardless of whether the other contact carrying spring is in switch closing position.

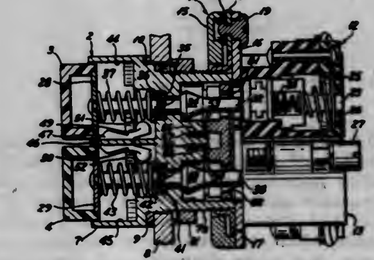
3,322,926
MOUNTING MEANS FOR ELECTRICAL APPARATUS
Roy A. Mukai, Milwaukee, Allan P. Charbonneau, Wauwatosa, Joseph F. Waldorf, New Berlin, and Robert Pearson, Milwaukee, Wis., assignors to Cutler-Hammer, Inc., Milwaukee, Wis., a corporation of Delaware
Filed Jan. 13, 1966, Ser. No. 520,444
15 Claims. (Cl. 200—168)

1. An electrical device of the panel mounted type comprising:
a first portion for engaging the front of a panel and having a cylindrical bushing for extending rearwardly through an aperture in said panel to the back of said panel and said bushing having threads on the outer diameter thereof;
fastening means comprising a nut engaging the threads on said bushing for being tightened against the back of said panel to fasten said first portion to said panel;
a second portion comprising electrical apparatus mounted on the rear of said first portion; and
mounting means to which said second portion is fastened and which is removably fastened to the rear of said first portion comprising:
a housing to which said apparatus is attached, and latching means comprising a latch member rotatably held in said housing having means thereon for en-



gaging the rearward end of said bushing upon rotation of said latch member for fastening said mounting means to said bushing.

3,322,927
PUSHBUTTON ADAPTER FOR ELECTRICAL SWITCH ASSEMBLY HAVING MULTIPLE PUSHBUTTON OPERATORS
Joseph F. Waldorf, New Berlin, Marian M. Rzepecki, Milwaukee, and Allan P. Charbonneau, Wauwatosa, Wis., assignors to Cutler-Hammer, Inc., Milwaukee, Wis., a corporation of Delaware
Filed Feb. 24, 1966, Ser. No. 529,821
5 Claims. (Cl. 200—172)



1. A unitary compact pushbutton adapter of the one-hole mounting variety for operating a plurality of reciprocally actuable electrical switching means attached thereto comprising:
a retainer member having a front side and a rear side and adapted to be mounted in a hole in a mounting panel with first and second reciprocally actuable electrical switching means attached to the rear side thereof;
first pushbutton means extending through and reciprocally supported within said retainer and having a released position and a depressed position, said first pushbutton means being manually operable from the front side of said retainer, for engaging and actuating said first switching means when depressed;
means biasing said first pushbutton means to its released position;
second pushbutton means extending through and reciprocally supported within said retainer and having a released position and a depressed position, said second pushbutton means being manually operable from the front side of said retainer, for engaging and actuating said second switching means when depressed;
means biasing said second pushbutton means to its released position;
first latching means supported by said retainer for latching said first pushbutton means in its depressed position;

second latching means supported by said retainer for latching said second pushbutton means in its depressed position; and

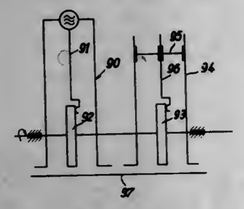
latch releasing means releasing said first and second latching means and allowing said first and second pushbutton means to return from their depressed positions to their released positions comprising release pushbutton means reciprocally supported within said retainer and manually operable from the front side of said retainer between a normal position and a depressed position for engaging and moving said first and second latching means when depressed to thereby release said first and second pushbutton means.

3,322,928

CONTINUOUS DI-ELECTRIC HEATING OF ELECTRICALLY NON-CONDUCTIVE MATERIAL

Leo Pungs, 7 Hoehenblick, and Kurt Lamberts, 14 Liebermannstrasse, both of Braunschweig, Germany, and Bernd Griesbach, Braunschweig, Germany; said Griesbach assignor to said Pungs and said Lamberts

Original application Sept. 1, 1959, Ser. No. 837,554, now Patent No. 3,109,080, dated Oct. 29, 1963. Divided and this application Oct. 11, 1963, Ser. No. 327,569
Claims priority, application Germany, Sept. 2, 1958, P 21,288
5 Claims. (Cl. 219—10.53)



1. In a device for the continuous dielectric heating and interwelding of progressively moved electrically non-conductive material, in combination with a source of high frequency electric energy of at least 60×10^6 c.p.s., a coaxial high frequency conductor system connected to said source, which conductor system comprises two inner conductors, two roller electrodes each terminating one of said inner conductors and having contacting edges adapted to form a gap when the non-conductive material is inserted therebetween thereby including between one another said working condenser, two outer conductors co-axially surrounding said inner conductors and roller electrodes, respectively, and including between one another a slot in alignment with the said gap of the inner conductors, and tuning element means included in the co-axial conductor system and being in series with the working condenser in said system, one of the inner conductors and the associated outer conductor being connected to said source of high frequency energy.

3,322,929

METHOD OF ERODING CAVITIES BY ELECTRIC DISCHARGE MACHINING

William J. Mayer, Roselle, and Carl E. Nordstrom, Skokie, Ill., assignors to Teletype Corporation, Skokie, Ill., a corporation of Delaware

Filed June 27, 1963, Ser. No. 291,196
1 Claim. (Cl. 219—69)

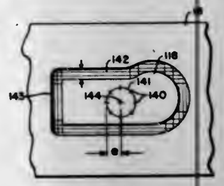
A method of forming mating male and female die set members in which the female member is operatively larger than the male member including the steps of:

attaching a body of electric discharge machining electrode material to a body of male die set material to form a composite structure;

machining the composite structure to a predetermined cross-sectional configuration thereby simultaneously forming a male die set member and an electric discharge machining electrode having identical cross-sectional configurations;

mounting the composite structure in an electric discharge machining tool;

electric discharge machining a hole in a female die set member by means of the electrode portion of the composite member;



enlarging the hole in the female die set member by moving the composite structure orbitally with respect to the female die set member without rotation while continuing the electric discharge machining of the hole; and

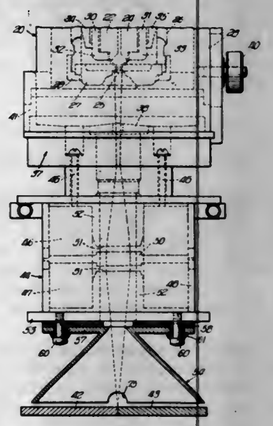
seperating the electrode portion of the composite structure from the male die set member thereby providing a male die set member and a female die set member having a hole formed in it which is identical in shape to the male die set member but which is larger in size.

3,322,930

PROTECTIVE SHIELD FOR ELECTRON GUN

David Sciaky, Chicago, Ill., assignor to Welding Research, Inc., Chicago, Ill., a corporation of Illinois

Original application May 12, 1961, Ser. No. 109,575, now Patent No. 3,187,216, dated June 1, 1965. Divided and this application July 7, 1964, Ser. No. 380,746
1 Claim. (Cl. 219—121)



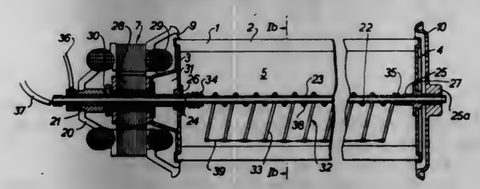
The combination with an electron gun for directing a stream of electrons onto a workpiece for welding the same, of a shield in the shape of a cone secured to the lower end of the electron gun and depending from the same, said shield having a relatively small opening at its top end through which pass the electron stream and said shield having a relatively large bottom opening disposed above and in minimum spaced relation with respect to the workpiece, said cone-shaped shield being formed of metal and being secured to and insulated from the electron gun, and means in electrical connection with the shield so that the shield has a negative potential with respect to the grounded workpiece, whereby said shield serves to collect any metallic vapors created during the welding process, said shield also providing an absorbing medium for X-rays such as may be produced during the welding process, and said shield additionally functioning as an ion trap by attracting positive ions formed in the area under the shield and between the same and the workpiece.

3,322,931

FANS

Nikolaus Laing, Hofener Weg 35, Aldingen, near Stuttgart, Germany

Filed Sept. 28, 1965, Ser. No. 490,794
Claims priority, application Germany, Dec. 31, 1956, L 26,542
16 Claims. (Cl. 219—369)



9. A fan comprising a motor, a bladed cylindrical rotor coaxial with and directly driven by the motor in one direction, means for closing both ends of the rotor and guide means external to the rotor including end walls extending generally in the planes of the ends of the rotor and a pair of guide walls extending between the end walls and defining an entry region and a discharge region, said guide walls cooperating with the rotor when rotated by said motor to induce a flow of air from the entry region through the path of the rotating blades to the interior of the rotor and thence again through the path of the rotating blades to the discharge region, an electric heating element mounted within the rotor; said rotor being mounted on bearings at either end, and support means being provided for the heating element which comprise a stationary member extending axially of the rotor through the motor and through said rotor bearings and forming at least one electrical connection to the element.

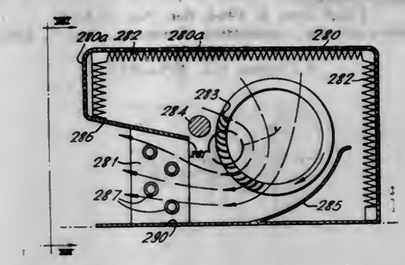
3,322,932

PORTABLE ELECTRIC FAN HEATER

Nikolaus Laing, Stuttgart, Germany, assignor, by mesne assignments, to Laing Vortex, Inc., New York, N.Y.

Original application Sept. 5, 1962, Ser. No. 221,621. Divided and this application July 26, 1965, Ser. No. 474,874
Claims priority, application Germany, Dec. 7, 1956, L 26,388
7 Claims. (Cl. 219—370)

1. A fan heater comprising a substantially rectangular casing having a top wall, a flat bottom wall, a rear wall and a front wall, an air inlet in said front, top and rear walls, a rectangular outlet in said front wall, an electric motor driven cylindrical bladed rotor of the cross-flow type extending the length of and disposed in alignment with and parallel to said outlet, said rotor defining an interior space clear of stationery guides, a pair of guide walls extending the length of the rotor and spaced exteriorly thereof and at opposite sides thereof with one of said guide walls extending upwardly from said bottom wall, heater means positioned between the rotor and the outlet and extending across the width of said outlet with the rotor and guide walls being positioned directly opposite the outlet and disposed for direct ejection of air



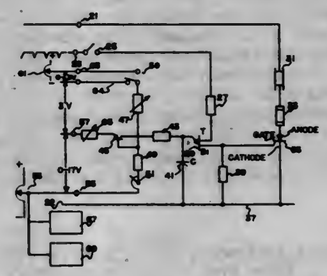
from the rotor past said heater means and through said outlet in the form of a flat jet without any substantial change of direction.

3,322,933

SYNTHETIC FIBER PROCESSING MACHINE

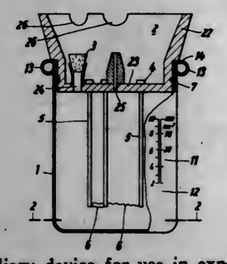
John D. Harnden, Jr., Schenectady, and Donald L. Watrous, Scotia, N.Y., assignors to General Electric Company, a corporation of New York

Filed Jan. 16, 1964, Ser. No. 338,209
1 Claim. (Cl. 219—501)



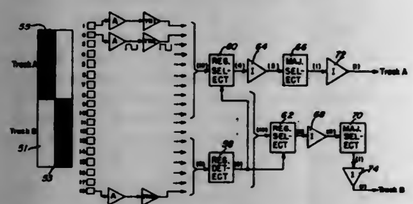
In a synthetic fiber processing machine for closely controlling the temperature of fibers during the draw process, means for heating a fiber, an A.C. power supply for said heating means, a silicon controlled rectifier connected between said A.C. power supply and said heating means, a bridge circuit having a thermistor in one leg therein for sensing the temperature of the fiber heated by said heating means and a variable resistance in another leg for indicating a desired predetermined value, said bridge circuit producing an error signal varying according to the difference between the sensed temperature and a predetermined value, a transistor tuned in by an error signal from said bridge circuit, a capacitor charged to a positive potential through said transistor, a unijunction transistor fired to produce a voltage pulse when the potential across said capacitor reaches a predetermined value, means for applying the voltage pulse from said unijunction transistor to the gate electrode of said silicon controlled rectifier to fire said silicon controlled rectifier so that power from said A.C. source is applied to said heating means during a portion of a half cycle to maintain the temperature of said predetermined value, means for indicating if a fiber breaks, and means responsive to an indication of a broken fiber for applying a bias signal into said bridge circuit so that said bridge circuit balances at a lower indicated temperature.

3,322,934
AUXILIARY APPARATUS FOR EXPERIMENTAL ARRANGEMENTS
Albert Lindberg, Cologne-Marienburg, Germany, assignor, by mesne assignments, to Leybold Holding A.G., Zug, Switzerland
Filed June 8, 1964, Ser. No. 373,380
Claims priority, application Germany, June 7, 1963, L 45,051
5 Claims. (Cl. 219—523)



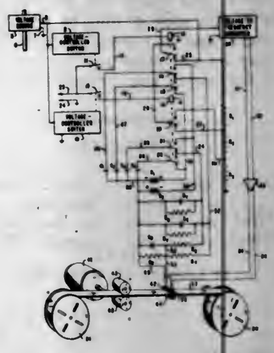
1. An auxiliary device for use in experimentation arrangements particularly for use with a beaker-like container, comprising a beaker-like container having a volume graduation and a length graduation thereon, a closure element arranged to be placed into the beaker-like container and having a circumferential cord seal for sealing it in place, a sealable opening provided in said closure member, connecting sockets on said closure member, holding rods fastened to the connecting sockets and at least one resistance heating element suspended between the ends of said holding rods, said closure member, in the region of insertion into the beaker-like container, being cylindrical, open on one side and having a bottom, and having adjoining to it a truncated cone-shaped body open on one side, at least one lead recess open on one side provided in the region of the section in the shape of a truncated cone, said sealable opening being in the bottom of the closure member, a removable stopper removably disposed therein for sealing the opening, and a second opening in said bottom and adapted to be connected to a hose line.

3,322,935
OPTICAL READOUT DEVICE WITH COMPENSATION FOR MISREGISTRATION
Albert A. Wyke, Needham, and Damond V. Ryer, Cambridge, Mass., assignors to Honeywell Inc., a corporation of Delaware
Filed July 8, 1963, Ser. No. 293,455
17 Claims. (Cl. 235—61.11)



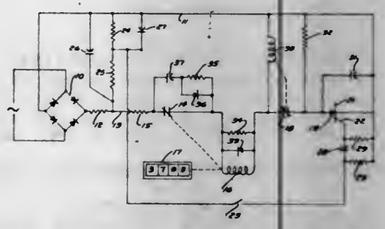
1. Apparatus for reading out a storage medium, comprising a plurality of data scanning means adapted to bracket a track of relevent information on said storage medium during the readout of the latter, reference means for sensing any misregistration of said track from a normally neutral position, said reference means being coupled to be energized only by said data scanning means and means responsive to said reference means for selecting from said plurality a group of scanning means substantially centered over said track under the prevailing conditions of misregistration.

3,322,936
PREPARING AND READING FREQUENCY-MODULATED TAPE RECORDS
Henry Wilson Johnson, Jr., Walnut Creek, Calif., assignor to Shell Oil Company, New York, N.Y., a corporation of Delaware
Filed Oct. 31, 1962, Ser. No. 234,502
8 Claims. (Cl. 235—61.11)



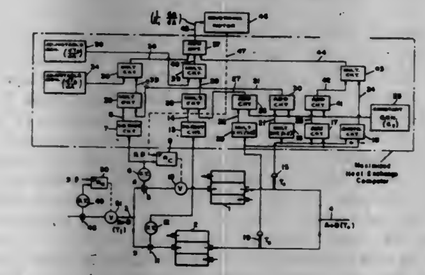
1. In apparatus for preparing a tape record carrying a frequency-modulated signal in machine-sensitive form, the combination of:
(a) an input circuit for a source analog signal,
(b) an analog-to-frequency converter means for converting said source signal to a frequency having a controlled, variable ratio to the amplitude of said source signal,
(c) means for generating a signal indicating the said ratio,
(d) first means for recording on a first channel of an elongated record a plurality of signal elements corresponding in number to the converted frequency, and
(e) second means for recording on at least one other channel of said record the said ratio signal.

3,322,937
ELECTRIC PULSE COUNTER
Michael O'Brien, Grayslake, Ill., assignor to Mangood Corporation, a corporation of Illinois
Filed Sept. 30, 1963, Ser. No. 312,599
1 Claim. (Cl. 235—92)



An electrical pulse counter comprising a silicone controlled rectifier having an anode, a cathode and a control electrode, a counter actuating coil in circuit with the anode and cathode to be energized when current flows in the circuit, counting means actuated by said coil, a capacitor and resistor in parallel with each other connected in shunt across the anode-cathode path of the rectifier, a resistor and a rectifier connected in parallel with each other across the coil, the rectifier being poled to oppose flow therethrough of energizing current for the coil, a pulse supply circuit for the control electrode including a D.C. source, a capacitor in series between the positive side of the source and the control electrode, a resistor connected between each side of the capacitor and the negative side of the D.C. source, a switch in the first named circuit connected to the coil to be opened when the coil is energized, a rectifier and a resistor in parallel with each other and in series with a capacitor connected across the switch, a second switch in the first named circuit in series with the first named switch, and a relay connected across the first named circuit in series with the first named switch and connected to the second switch to close it when the relay is energized, the relay being de-energized if the first switch stays open or stays closed with the rectifier conducting for a period of time longer than the normal time of operation of the coil and first switch.

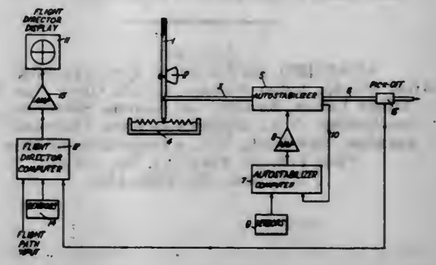
3,322,938
AUTOMATIC CONTROL SYSTEMS FOR OPTIMIZING HEAT TRANSFER TO A FLUID FLOWING THROUGH PARALLEL CONNECTED HEAT EXCHANGERS
Eric A. Weiss, Springfield, Pa., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of New Jersey
Filed Feb. 15, 1963, Ser. No. 258,843
7 Claims. (Cl. 235—150.1)



1. A control system for maximizing the total heat transferred to a fluid flowing through two parallel-connected heat exchanger assemblies one of which may comprise a plurality of exchangers connected in parallel, said system comprising separate means for measuring the individual rate of flow through each exchanger assembly, means for measuring the fluid outlet temperature of each exchanger assembly, means combining, in accordance with a predetermined mathematical formula, the aforesaid measurements with the predetermined fluid outlet temperature vs. fluid flow characteristics of the two exchanger assemblies to develop a control signal proportional to the rate of change of the total heat transferred with a change in the fluid flow through the first exchanger assembly, and means acting in response to said control signal for controlling the fluid flow through one of said exchanger assemblies.

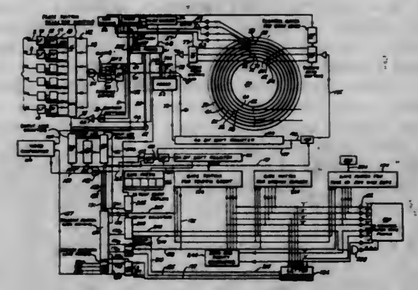
3,322,939
FLIGHT AID SYSTEM FOR INDICATING FAILURE OF THE STABILIZING SYSTEM
Maurice Cecil Curties, Lightwater, and Oliver Beauchamp St. John, Farnborough, England; said Curties assignor to Ferranti Limited, Hollinwood, Lancashire, England, a company of Great Britain and Northern Ireland
Filed Apr. 8, 1963, Ser. No. 271,395
Claims priority, application Great Britain, Apr. 13, 1962, 14,300/62
10 Claims. (Cl. 235—150.2)

1. A flight aid system for an aircraft having a member to be controlled while the aircraft is in flight including a limited authority autostabilizer, an autostabilizer computer for controlling the operation of said autostabilizer, an output control member operatively connected to the member to be controlled and actuated by said autostabilizer, a flight director display, a flight director computer for controlling said flight director display, said flight director computer being designed to incorporate stabilizing control equations similar to those of said autostabilizer



computer in addition to its flight path error functions, and feedback means responsive to the movement of said output control member for applying to said flight director computer during correct operation of said autostabilizer a negative feedback for cancelling the stabilizing information from the output of said flight director computer.

3,322,940
CENTRALIZED DIGITAL TRAFFIC COUNTING SYSTEM FOR RECORDING AND CONTROL
John L. Barker, Norwalk, Conn., Fred W. Hannula, Medfield, Mass., and Ludwig R. Pallat, Rowayton, Conn., assignors to Laboratory for Electronics, Inc., Boston, Mass., a corporation of Delaware
Filed Jan. 7, 1963, Ser. No. 249,810
15 Claims. (Cl. 235—150.24)

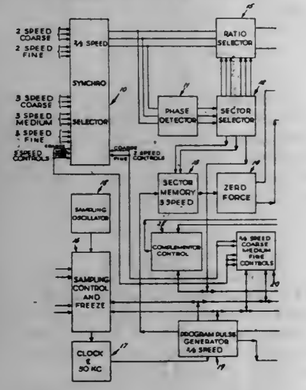


10. Apparatus at a centralized location for computing data on traffic flow at a plurality of dispersed locations including at said centralized location
input storage units individual to respective dispersed locations and adapted to receive one bit of information at a time from said respective dispersed locations and to store same,
cyclic memory means for storing in binary bit form a plurality of times in a plurality of positions the total information received from each of said dispersed locations,
means for scanning said input storage units sequentially to derive one bit of said information at a time therefrom,
means coupling said scanning means to said memory means to apply said derived bits for a particular dispersed location to said total information in each of said plurality of positions corresponding to that location to up-date the latter to give a plurality of totals for so storing in said memory means,

means for reading out the stored information in said memory means,

a timer adapted to control said readout, said timer periodically causing at times said readout to erase the data stored in one of said plurality of positions for each of said dispersed locations and to record same, while not erasing or recording the data stored in another of said plurality of positions.

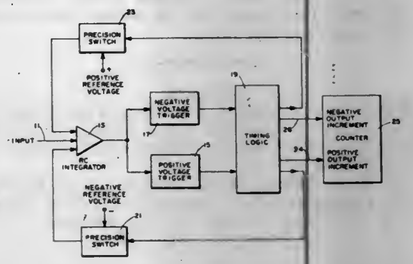
3,322,941
SYNCHRO TO DIGITAL CONVERTOR
Alvin Brooks, Valley Cottage, Gerald Glatt, New York, Arthur Lehrer, Bayside, and Gordon Silverman, Jackson Heights, N.Y., assignors to Loral Electronics Corporation, New York, N.Y., a corporation of New York
Filed Feb. 24, 1964, Ser. No. 346,682
2 Claims. (Cl. 235—154)



1. In a synchro digital converter, including a multi-speed synchro transmitter having coarse and fine speed synchros, transmission gates disposed in the stator leads of said transmitter, a phase detector connected to each of said stator leads, ratio decoding means, sector selector circuitry, and means for digitizing the output of said sector selector circuitry and said ratio decoding means as a multi-speed function, said ratio decoding means including a plurality of resistive taps, each corresponding to an attenuation point indicative of instantaneous rotational position of said synchro transmitter, the improvement comprising means for selecting one of said taps based upon the detection of ambiguity existing between said fine and coarse speed synchros; said last-mentioned means including means for examining the position of the coarse synchro to determine whether it has passed through an index designating a submultiple corresponding to a complete rotation of said fine synchro, means for subsequently examining the position of the fine synchro to determine whether it has passed the index indicating a complete rotation thereof, and means for selecting a resistive tap corresponding to the position of said fine synchro.

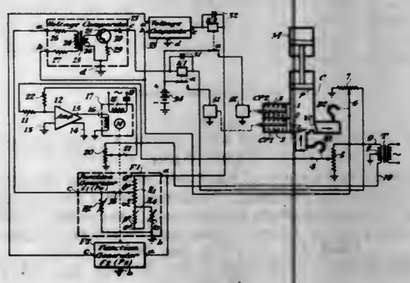
3,322,942
RESET INTEGRATOR USING DIGITAL AND ANALOG TECHNIQUES
Allan Gerard, Fort Lee, N.J., Murray S. Goldstein, Spring Valley, N.Y., and Harold Lerman, Paramus, N.J., assignors to General Precision Inc., Little Falls, N.J., a corporation of Delaware
Filed May 10, 1963, Ser. No. 279,422
8 Claims. (Cl. 235—183)

1. An integrating device comprising an analog integrator, a first source of reference voltage, a second source of reference voltage having the same magnitude as and the opposite polarity from said first reference voltage, a pulse generator for producing pulses in precise time intervals, a first precision switch operable when closed to connect said first reference voltage to the input of said analog integrator, a second precision switch operable when closed to connect said second reference voltage to the input of said analog integrator, means coupled to said integrator and to said pulse generator and being responsive to a positive output signal voltage of said analog integrator when said output signal reaches a predetermined trigger magnitude to close said first precision switch for the duration of a specific number of pulses of said pulse generator to establish a precisely predetermined



time interval, and means coupled to said integrator and to said pulse generator and being responsive to a negative output signal of said analog integrator when said output signal reaches said predetermined trigger magnitude to close said second precision switch for the duration of a specific number of pulses of said pulse generator to establish said precisely predetermined time interval, said time interval being related to said magnitude of said first and second reference voltages and said trigger magnitude and said first and second reference voltages having polarities so that the output signal of said analog integrator is reduced by said predetermined trigger magnitude when one of said first and second precision switches is closed for said time interval.

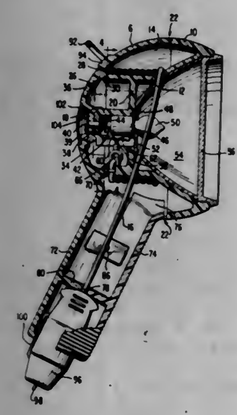
3,322,943
NON-LINEAR FUNCTION GENERATOR WHICH UTILIZES A POTENTIOMETER CONNECTED IN CIRCUIT WITH LOAD RESISTANCES
Robert R. Hartley, Niantic, Conn., assignor to Westinghouse Air Brake Company, Swissvale, Pa., a corporation of Pennsylvania
Original application May 13, 1960, Ser. No. 28,870, now Patent No. 3,088,656, dated May 7, 1963. Divided and this application Dec. 27, 1962, Ser. No. 247,603
2 Claims. (Cl. 235—197)



1. A function generator for generating a function of a variable defined over a range and having a minimum value within said range, comprising, in combination, a potentiometer including a wiper adjustable on a resistance

element, a tap point dividing said resistance element into portions having values related in accordance with the location of said minimum value in said range, source of voltage having first and second terminals, means for connecting said first terminal of said source of voltage to both ends of said resistance element, a first resistor having one end connected to said tap point, means for connecting the other end of said first resistor to said second terminal of said source, a second resistor connecting said wiper to said second terminal of said source and means for adjusting said wiper in accordance with said variable, whereby a voltage appears between said wiper and said second terminal which is proportional to said function in said range.

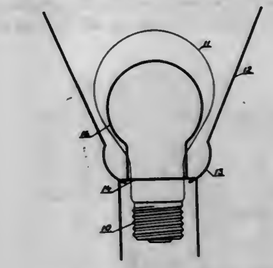
3,322,944
PORTABLE AUTOMOBILE SPOTLIGHT
Lawrence P. Mellyn, Chepachet, R.I., assignor to General Electric Company, a corporation of New York
Filed Mar. 8, 1965, Ser. No. 439,138
4 Claims. (Cl. 240—8.18)



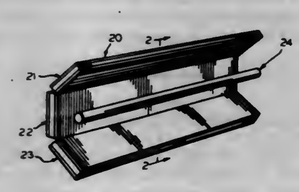
1. A portable automobile spotlight comprising:
(a) a housing member having a forward edge defining a circular open forward end thereof,
(b) a rotatably mounted cordwinder including:
(1) an annular rim having a mating edge abutting said forward edge of said housing member, said edges forming bearing surfaces during rotation of said cordwinder, and
(2) a reel disposed within said housing member coaxially with said circular open forward end thereof,
(c) means rotatably mounting said cordwinder within said housing member,
(d) a reflector ensconced within the forward end of said reel,
(e) a lamp within said reflector, and
(f) fixed electrical connections to the terminals of said lamp.

3,322,945
DEVICE FOR FIXING A BULB IN A REFLECTOR
Max Laser, Tunnelgatan 20B, Stockholm, Sweden
Filed June 15, 1964, Ser. No. 375,123
1 Claim. (Cl. 240—41.35)

In combination with a reflector having a bulb socket and reflecting surfaces having a lower circular curved portion attached to said socket and an upper conical portion constituting a continuation of said lower portion; a bulb fixing device comprising a circular member fitting around the top of said socket within said lower portion and two opposed resilient shanks carried by said circular member, each of said shanks having two parallel leg portions and an integral circular portion joining said leg portions and extending upwardly therefrom, the circular portions of the two shanks being located within said conical portion and engaging from opposite sides a bulb being inserted into said socket.



3,322,946
REFLECTOR FOR REFLECTING COLOR CORRECTED LIGHT AND HEAT
George D. Cooper, 1136 Vista Place, Edmonds, Wash. 98020
Filed Nov. 27, 1964, Ser. No. 414,102
8 Claims. (Cl. 240—41.35)

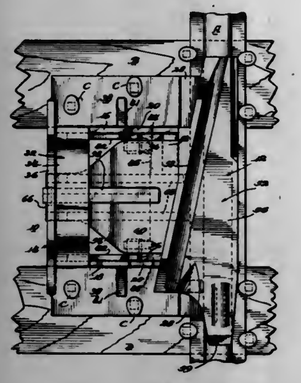


1. In combination with a source of visible and infrared radiant energies, a reflector arranged adjacent thereto coacting therewith to define a light column for reflecting substantially all of said infrared energies and substantially all of said visible energies impinging thereon except a predetermined portion of the visible energies so that the light column is color corrected, said reflector including a transparent substrate of high-heat resisting material, and coating means on the substrate reflecting at least substantially all infrared radiant energies in the general range of .80 to 1.5 microns and substantially all visible radiant energies in the general range of .40 to .75 micron except such preselected visible energies that the resultant reflected visible energies produce a light column having a predetermined color temperature.

3,322,947
DERAIL
Stanley W. Hayes, deceased, late of Wayne Township, Wayne County, Ind., by Brice E. Hayes, executor, Richmond, Ind., assignor to Hayes Track Appliance Company, Richmond, Ind., a corporation of Indiana
Continuation of application Ser. No. 858,732, Dec. 10, 1959. This application Mar. 10, 1964, Ser. No. 350,915
3 Claims. (Cl. 246—163)

1. A derail, including in combination, a derail guide box including a pair of side walls, a front brace connecting the front ends of the side walls and guiding means between said side walls, a slidable derail block movably

mounted upon said guide box including a derail shoe having oppositely extending bearing means cooperating with said guiding means, said guiding means and bearing means being so located relative to the box and block that said block is slidable substantially horizontally and transversely of the associated rail between a derailing position in which the derail shoe is seated on the top of the rail and an in-



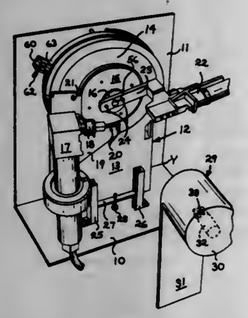
active position in which the block and derail shoe are located to the side of the rail, said guiding means including a separate single front cross brace extending between and secured to the inner sides of said side walls in spaced relation to the front brace, and the underside of said derail block being adapted to seat upon said cross brace as it is slidably moved between its inoperative and derailing positions.

3,322,948

X-RAY DIFFRACTION GONIOMETER WHEREIN THE SPECIMEN IS STATIONARY AND THE SOURCE AND DETECTOR ARE MOVABLE

Nils Tryggve E. A. Baak, Waterville, and Robert H. Simmons, Toledo, Ohio, assignors to Owens-Illinois Inc., a corporation of Ohio

Filed Dec. 21, 1964, Ser. No. 419,962
5 Claims. (Cl. 250—51.5)



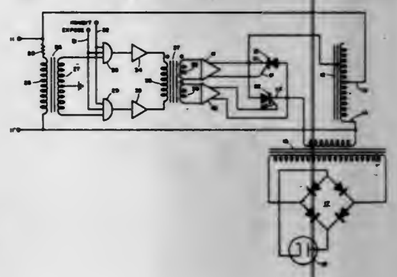
1. Apparatus for the diffraction of X-rays on the horizontal surface of specimens and for taking the diffraction spectrum thereof comprising, a base, a stationary specimen support mounted on said base, an X-ray radiation source, a detector for receiving X-rays diffracted from said specimen, a pair of co-axial mounting members carried by said base for rotation with respect thereto about a horizontal axis, means interconnecting said mounts for concurrent rotation about a common axis in opposite directions at equal angular velocities, means connecting the X-ray source to one of said mounting members, means connecting the detector to the other of said mounting members, and means positioned between said specimen support and base for adjusting the elevation of said specimen support relative to the base, whereby the X-rays will impinge on the specimen surface at all angles of rotation.

3,322,949

HIGH VOLTAGE POWER SUPPLY

Bruce K. Smith, Waltham, Mass., assignor to Gordon Engineering Corporation, Watertown, Mass., a corporation of Massachusetts

Filed Aug. 19, 1964, Ser. No. 390,588
3 Claims. (Cl. 250—100)



1. In an X-ray system, the combination comprising an X-ray tube, a high voltage transformer having a secondary winding coupled to said X-ray tube and a primary winding adapted to induce high voltage in said secondary winding, a pair of oppositely poled rectifiers, each having gate means to enable it to conduct current selectively in response to a control signal, said rectifiers being disposed in parallel between a source of alternating current and the primary winding of said high voltage transformer, means to produce synchronizing signals representative of the alternations of the current from said source, means to produce timing signals defining the beginning and the end of a time period of pre-determined duration corresponding to a desired X-ray exposure time, a saturable transformer having a primary winding and a secondary winding, means to produce current alternations in the primary winding of said saturable transformer in synchronism with said synchronizing signals for a period defined by said timing signals, and means to derive from said saturable transformer secondary, control signals for alternately enabling said rectifiers to conduct current from said source to said high voltage transformer primary.

3,322,950

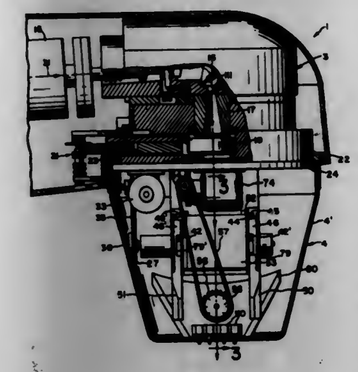
LINEAR ACCELERATOR RADIOTHERAPY DEVICE AND ASSOCIATED BEAM DEFINING STRUCTURE

John S. Bailey, Sunnyvale, and Jacob Halmson, Palo Alto, Calif., assignors to Varian Associates, Palo Alto, Calif., a corporation of California

Continuation of application Ser. No. 239,567, Nov. 23, 1962. This application Sept. 1, 1964, Ser. No. 394,391
31 Claims. (Cl. 250—105)

1. A radiotherapy linear accelerator comprising, means for producing and directing a charged particle beam along a first axis, means for bending said charged particle beam substantially 90° from said first axis to thereby define a second axis, means for producing an X-ray beam directed along said second axis, rotatable means for defining said

X-ray beam to a predetermined field about said second axis, said rotatable beam defining means being rotatably mounted for rotation about said second axis, said means



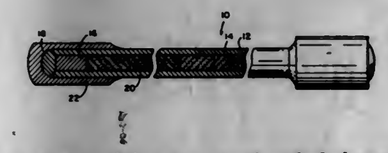
for producing said X-ray beam being disposed on said second axis at a position which is axially removed along said second axis from said rotatable beam defining means.

3,322,951

EFFICIENT BETA-RAY EMISSION SOURCE FOR IRRADIATION APPLICATIONS

Paul M. Yavorsky, Monongahela, Pa., assignor to the United States of America as represented by the United States Atomic Energy Commission

Filed Aug. 28, 1964, Ser. No. 392,975
1 Claim. (Cl. 250—106)



A beta ray emitting chemo-nuclear fuel element comprising;

(a) a tightly compacted cylindrically shaped core consisting of fine particles of strontium-90 titanate, said core having a helical shape and a core diameter of less than 119 mils;

(b) a thin tubularly shaped stainless steel sheath having a thickness of less than 6 mils, encapsulating said core and being in intimate contact with the outer surface of the core.

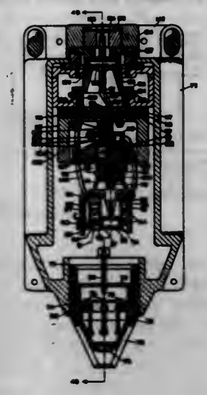
3,322,952

PHOTOSENSITIVE LINE TRACER SCANNING HEAD

George S. Jewell, Ancaster, Ontario, Canada, assignor to Canadian Westinghouse Company Limited, Hamilton, Ontario, Canada, a company of Canada

Filed Apr. 15, 1964, Ser. No. 363,349
7 Claims. (Cl. 250—202)

6. A photosensitive scanning device comprising an arm mounted for rotation about a first axis, photosensitive means mounted adjacent one end of said arm, a permanent magnet mounted adjacent the other end of said arm, a shaft on said arm supporting said arm for rotation about said axis, an eccentric member on said shaft, resilient means bearing on said eccentric member to urge it into a predetermined stable position, an electromagnet having at least two poles mounted adjacent said other end of said arm with said poles on each side of said permanent magnet when said eccentric is in its stable position and means to adjust the stiffness of said resilient means, said scanning



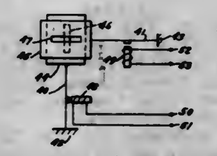
device being mounted for rotation about a steering axis perpendicular to said first axis and parallel to the plane of motion of said arm wherein said scanning device is adjustable in position transverse to said steering axis, and means to indicate the position of said scanning device relative to said axis.

3,322,953

CROSSED SLOT SCANNER FOR DEVELOPING A LISSAJOUS SCANNING PATTERN

Jacob S. Zuckerbraun, New York, N.Y., assignor to Kollsman Instrument Corporation, Elmhurst, N.Y., a corporation of New York

Filed Dec. 11, 1961, Ser. No. 158,335
1 Claim. (Cl. 250—203)



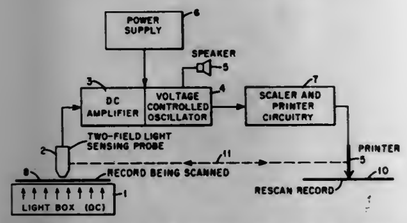
A scanning system for a light tracking device; said light tracking device including a telescope for forming the image of a light source to be tracked, means for scanning the image of said light source, photosensing means positioned to receive the scanned image of said light source, and servo means connected between the output of said photosensing means and said telescope to retain said telescope pointed at said light source; said scanning means including an aperture movable with respect to said image of said light source; said aperture being moved in a Lissajous scanning pattern whereby signal information for both azimuth and altitude of said light source is continuously produced in said photosensitive means; said scanning means including a pair of crossed slots movable perpendicular to one another; the first slot of said pair of crossed slots moved at a first frequency; the second slot of said pair of crossed slots moved at a second frequency distinct from said first frequency; said first and second slots moving with simple harmonic motion.

3,322,954

AVERAGING LIGHT SENSOR AND RECORDING SYSTEM USING DOUBLE PHOTOCELL STRUCTURE

Persa R. Bell and Cecil C. Harris, Oak Ridge, Tenn., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Apr. 16, 1965, Ser. No. 448,897
16 Claims. (Cl. 250—209)



1. A system for rescanning an original scan record of radioactive deposits in a body organ of a medical patient for determining the statistical significance of small variations in said scan record comprising a light source; a two-field light sensor positioned for receiving light from said source via said record placed therebetween; means for moving said sensor with respect to said scan record; said sensor including a central viewing field area and a first photodiode associated therewith, and an annular viewing field area surrounding said central viewing field area and at least one second photodiode associated with said surrounding viewing field area; said first photodiode providing a first output signal as a function of the amount of light received thereby, said second photodiode providing a second output signal as a function of the amount of light received thereby; first circuit means for combining said output signals in such a manner that said second output signal is utilized to automatically set the threshold for said first output signal; further circuit means connected to said first circuit means for amplifying said combined output signals to provide a rescan output signal therefrom; and means connected to said rescan output signal for recording thereof.

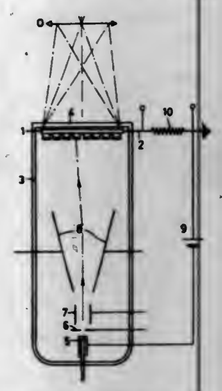
3,322,955

CAMERA TUBE OF THE KIND COMPRISING A SEMI-CONDUCTIVE TARGET PLATE TO BE SCANNED BY AN ELECTRON BEAM

Francois Desvignes, Bourg-la-Reine, France, assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware

Continuation of application Ser. No. 73,879, Dec. 5, 1960. This application Jan. 24, 1966, Ser. No. 522,743
Claims priority, application France, Dec. 24, 1959, 814,093
8 Claims. (Cl. 250—209)

8. An electron discharge device comprising an electron gun having a cathode for producing an electron beam along a given axis and a target plate responsive to radiant energy transversely disposed in the path of said electron beam, means for scanning said electron beam over the surface of said target plate, said target plate of a semiconductive material having a zone of a first conductivity type having a given cross-sectional area and forming a discontinuous surface facing said electron beam, a second zone of semi-conductor material of a different conductivity type of equal cross-sectional area positioned behind and contiguous to said first zone and shielded from said electron beam by said first zone, a third zone of semiconductor material of said first conductivity type positioned behind and contiguous to said second zone and forming a second surface of said target plate, said first and second zones and said second and third zones each forming a P-N junction transverse to said electron beam axis, said second zone having a thickness dimension in the direction of said beam axis which is less than the effective diffusion length of the minority carriers therein, an electrical contact on said third zone, an impedance element and a source of direct current operating voltage,



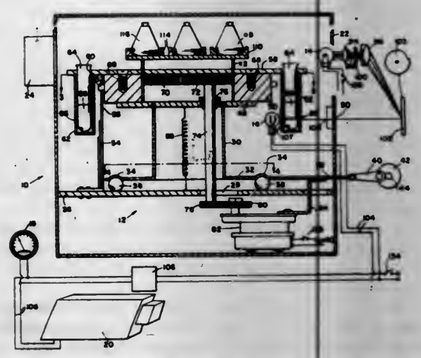
means for connecting said voltage source and said impedance element in series circuit between said cathode and said third zone electrical contact, and means for illuminating one surface of said target plate with said radiant energy.

3,322,956

METHOD AND APPARATUS FOR PHOTOELECTRICALLY MEASURING AND RECORDING THE GROWTH OF MICRO-ORGANISMS IN BACTERIAL PREPARATIONS

Ramesh M. Shah, 743 Packard, Ann Arbor, Mich. 48104

Filed May 14, 1963, Ser. No. 280,373
7 Claims. (Cl. 250—218)



1. The method of aerating a plurality of bacterial preparations to promote growth of micro-organisms therein and for measuring and recording such growth, said method comprising the steps of

(a) providing a source of light rays and a photoelectric cell positioned in the path of said light rays for energization proportional to the intensity of the light transmitted thereto;

(b) simultaneously shaking at timed intervals said plurality of bacterial preparations in transparent containers therefor to effect aeration thereof;

(c) positioning one of said preparations while in its container and immediately following shaking thereof in the path of said light rays at a position between said source and said cell so that energization of the cell is proportionate to the extent of growth of the micro-organisms in said preparation;

(d) measuring the energization of said cell;

(e) recording the extent of said energization of said cell; and

(f) in sequence after succeeding shakings of said plurality of bacterial preparations, repeating steps (c), (d) and (e) with respect to each of the other of said plurality of bacterial preparations.

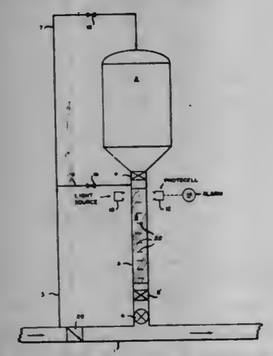
4. In apparatus for measuring and recording data with respect to the potency of bacterial preparations, an enclosure, means for maintaining said enclosure at a substantially constant temperature, a stationary plate in said enclosure, a plurality of roller balls on said plate, an upright hollow column support having a flange at its lower end, said flange having a plurality of ball retainer cups formed therein each of which is supported on one of said balls, a test tube support mounted on the upper end of said column support, a shaker arm connected to said column support, means including a motor and a shaft driven thereby connected to said test tube support for rotating said column support on said balls, means connected to said arm for imparting back and forth shaking movement thereto so as to reciprocate said column support on said balls, a plurality of test tubes containing specimens of a bacterial preparation arranged in a circular formation and mounted on said support so as to depend therefrom, a window in said enclosure alignable with each of said test tubes on rotation of said test tube support, a light source for directing monochromatic light through said window, a photoelectric cell within said enclosure in alignment with said window and located in said housing so that rays from said light source pass through said window and the test tube in alignment therewith to effect energization of the photoelectric cell proportionate to the concentration of the preparation in the test tube, means electrically connected to said cell for measuring the degree of energization thereof, and recording means operatively associated with said measuring means for recording the measurements thereof.

3,322,957

DEVICE WITH PHOTOELECTRIC FAILURE ALARM

Jack S. Scoggin, Bartlesville, Okla., assignor to Phillips Petroleum Company, a corporation of Delaware

Filed Dec. 20, 1963, Ser. No. 332,175
2 Claims. (Cl. 250—218)



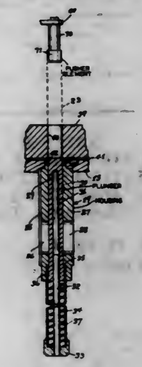
1. Apparatus for introducing a solids catalyst-solvent mud to a polymerization reaction zone having solvent inlet means which comprises a closed hopper, a downcomer conduit communicating with said hopper and said inlet means, means in said downcomer conduit adjacent said inlet means for controlling the flow of said mud, a transparent section in said downcomer conduit bounded at each end by plug valves, a light source and photoelectric cell positioned across said downcomer conduit near the top of said transparent section, an alarm means operatively connected to said cell, and hopper pressure equalizing means comprising an additional conduit means connecting said inlet means with the upper portion of said hopper.

3,322,958

PHOTOMETER AUTOMATIC SAMPLE CHANGER

Louis R. Heiss, Silver Spring, Md., assignor to American Instrument Company, Inc., Silver Spring, Md.

Filed May 7, 1964, Ser. No. 365,585
15 Claims. (Cl. 250—218)



1. In a photometer having a source of radiation and a photosensitive receiver, a sample changer mounted on the photometer, said sample changer comprising a base, a housing depending from said base and having respective exposure apertures facing said source and receiver, a plunger member in said housing, means biasing said plunger member upwardly to a position covering said apertures, a turret rotatably mounted on said base and having a plurality of sample tube-receiving openings selectively registrable with said plunger member, an upstanding support on said base, an arm slidably and rotatably mounted on said support, a depending pusher element on said arm registrable with said plunger member in a first position of said arm and being engageable with a sample tube registering with said plunger member to move the sample tube downwardly adjacent said exposure apertures responsive to depression of said arm, and means to rotate said turret stepwise responsive to rotation of said arm between said first position thereof and a second position thereof.

3,322,959

PHOTOELECTRIC LEVEL CONTROL SYSTEM WITH LAMP OPERATED AT ALTERNATE BRIGHTNESSES

Jerome L. Lorenz, Columbus, Ohio, assignor to Ranco Incorporated, Columbus, Ohio, a corporation of Ohio

Filed May 9, 1963, Ser. No. 279,241
8 Claims. (Cl. 250—218)

1. A photoelectric control means comprising in combination:

(a) a light source,

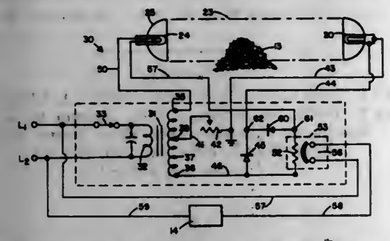
(b) means for normally energizing said light source to provide a beam of first intensity,

(c) a light activated switch mounted to receive said beam and having a threshold of activation below said first intensity,

(d) load means connected to be energized by activation of said light activated switch, and

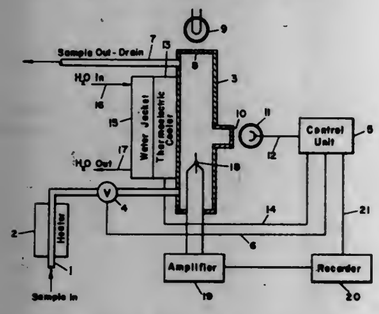
(e) means to control the intensity of said light source in response to activation of said light activated switch to increase the intensity of said beam and responsive to deactivation of said switch to reduce the intensity of said beam to said first intensity, whereby an ap-

preciable change in interference with said light beam is necessary to change the state of activation of said



light activated switch and energization of said load means.

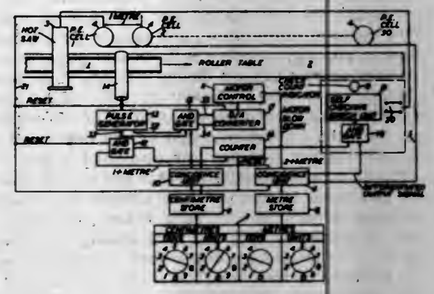
3,322,960
HAZE POINT MEASURING SYSTEM WITH AUTOMATIC COOLING MEANS
Donald J. Geniesse, West Chester, Pa., assignor to Sun Oil Company, Philadelphia, Pa., a corporation of Pennsylvania
Filed Feb. 18, 1963, Ser. No. 259,231
12 Claims. (Cl. 250—218)



1. Apparatus for determining the saturation temperature of a material dissolved in a fluid, comprising a vessel, means including a controllable valve for supplying a fluid containing dissolved material to said vessel, the fluid supplied being at a temperature higher than any saturation temperature expected; means for cooling said vesesl to thereby also cool the fluid therein, said cooling means being constructed and arranged for automatic enabling and disabling thereof; means for indicating the temperature of the fluid in said vessel, means acting automatically upon the lape of a preset, constant time interval which begins with the occurrence of a certain condition, to cause closing of said valve and to enable said cooling means, and means acting automatically in response to the reaching by the dissloved material of its saturation temperature to cause opening of said valve and to disable said cooling means, the said reaching of saturation temperature establishing said certain condition.

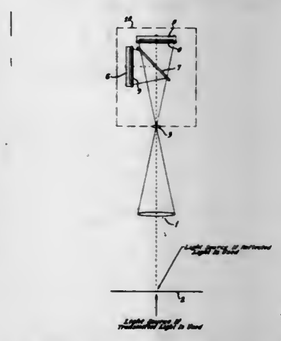
3,322,961
METHOD AND APPARATUS FOR CONTROLLING THE LENGTH OF STRIP MATERIAL
James Arthur Harrison and Brian Quartermain, Chesterfield, England, assignors to Davy and United Engineering Company Limited, Sheffield, England
Filed Dec. 13, 1962, Ser. No. 244,512
Claims priority, application Great Britain, Dec. 13, 1961, 44,611/61
15 Claims. (Cl. 250—219)

1. Apparatus for controlling driving means for advancing elongated material past a fixed point, said apparatus comprising a pulse generator for generating a pulse for each unit of distance travelled by said material, a counter for counting said pulses, storage means for storing an indication of a desired count corresponding to the passage of a preselected length of said elongated material past said point, a comparing circuit for comparing the count of the pulses generated by said counter with said indicated count, means controlled by said comparing circuit



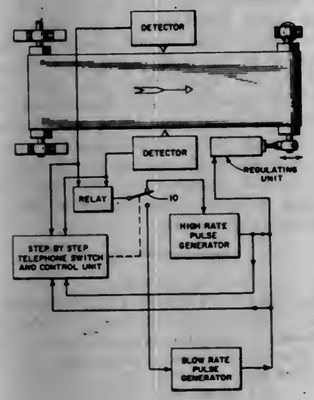
for generating from the time that only a predetermined portion of said preselected length remains to pass said fixed point a controlling signal which varies as the portion of said preselected length yet to pass said point decreases, and speed regulating means controlled by said controlling signal to gradually reduce the speed at which said drive means is driven and finally stop it when said preselected length of material has passed said point.

3,322,962
METHOD AND APPARATUS FOR CONTINUOUSLY MEASURING APPLIED COATINGS EMPLOYING PHOTOELECTRIC MEANS
Herbert Müller, Wiesbaden, Germany, assignor to Kalle Aktiengesellschaft, Wiesbaden-Biebrich, Germany
Filed Sept. 28, 1964, Ser. No. 399,458
Claims priority, application Germany, Oct. 1, 1963, K 50,961
9 Claims. (Cl. 250—219)



5. An apparatus for use in the continuous measurement of the quantity of material deposited on a carrier web which comprises means for impinging electromagnetic radiation having at least two spectral regions on the coated web, means for dividing the impinged rays, photoelectric receiver means responsive substantially only to radiation of the type absorbed by the material for receiving one fraction of the rays, photoelectric receiver means responsive substantially only to residual radiation for receiving a second fraction of the rays, means for measuring the difference in generated photocurrents, and means for indicating the difference in generated photocurrents.

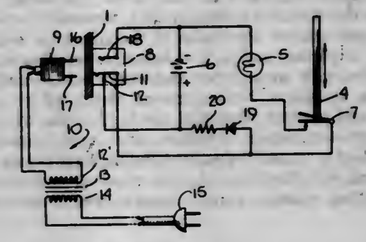
3,322,963
INTERMITTENTLY OPERATED CONTROLLER FOR MAINTAINING A REGULATED PARAMETER AT A DESIRED VALUE
Jacques H. L. Pages, Villeurbanne, France, assignor to Rhone Poulenc S.A., Paris, France, a French body corporate
Filed Nov. 21, 1962, Ser. No. 239,282
Claims priority, application France, Nov. 22, 1961, 879,740
7 Claims. (Cl. 250—219)



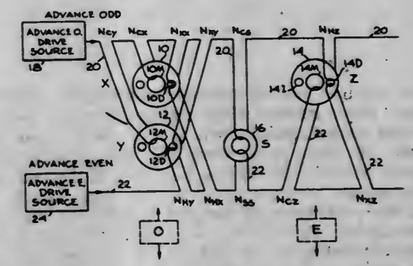
1. An intermittently operated controlling means for maintaining a parameter of an element in a system at a desired value comprising means for moving the position of the element, detector means for detecting a deviation of the element from the desired parameter, pulse generating means responsive to said detector detecting a deviation of said element from said parameter, regulator means responsive to said pulse generating means and operatively connected to said means for effecting lateral displacement of said element, an initial deviation of said element from said desired parameter causing an initial correction to laterally displace said element towards the desired parameter, storage means connected to said pulse generating means to record therein the action of said controlling means, and control circuit means responsive to the return of said element to within the desired parameter to cause said regulating means to apply a subsequent correction, of opposite direction to the initial correction, to said element, said subsequent correction being on the order of $1/K$, where K is greater than 1.

3,322,964
SELECTABLE POWER SOURCE FOR LAMP INCLUDING RECHARGEABLE BATTERY
Henry J. Walter, Bethpage, and Torulf F. Aasen, Little Neck, N.Y., assignors to Airequipt Inc., New Rochelle, N.Y., a corporation of New York
Filed Sept. 29, 1964, Ser. No. 400,134
2 Claims. (Cl. 307—66)

1. An illuminated slide viewer comprising the combination of a slide illuminating lamp, a voltage step down transformer having its secondary removably coupled across said lamp by a separable connector comprising a two contact plug and two cooperating socket terminals, a battery, a rectifier connected in series with said battery, said serially connected battery and rectifier being connected across said lamp, a switch means connected across said rectifier positioned to be opened by coupling movement of the transformer to the lamp through said connector and prior to engagement of said plug contacts with both of said socket terminals.



3,322,965
MAGNETIC LOGIC CIRCUIT
David R. Bennion and William K. English, Menlo Park, and David Nitzan, Palo Alto, Calif., assignors to AMP, Incorporated, Harrisburg, Pa.
Filed Aug. 22, 1963, Ser. No. 303,826
19 Claims. (Cl. 307—88)

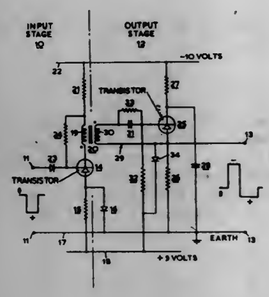


1. A logical circuit arrangement for obtaining a predetermined output function of input variables, comprising a plurality of magnetic cores each having a first state of magnetic remanence and being drivable therebetween, first means for applying a first input to a first of said magnetic cores for affecting its state of magnetic remanence in response thereto, second means for applying a second input to a second of said magnetic cores for affecting its state of magnetic remanence in response thereto, means for driving said first, second and a third core to their first state of magnetic remanence, and transfer winding means coupled to each of said cores and to a fourth core for affecting the state of magnetic remanence of said fourth core in response to outputs from said first, second and third cores induced in said transfer winding upon operation of said means for driving, the sense of the winding of said transfer winding means on said cores being determined in accordance with the predetermined output function to be obtained.

3,322,966
TRANSISTOR PULSE AMPLIFIER CONTROLLED BY LIGHTLY DAMPED OSCILLATORY CIRCUIT
Reginald Hugh Allmark, Stroke-on-Trent, England, assignor to The English Electric Company Limited, London, England, a British company
Filed Dec. 12, 1963, Ser. No. 332,993
5 Claims. (Cl. 307—88.5)

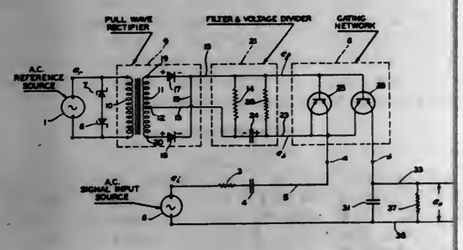
1. An electric pulse amplifier including a first electric circuit for connection to a source of steady potential and including a transistor having emitter, base, and collector

electrodes, and a resistor connected in series with the emitter-collector path of the transistor, a lightly-damped series type oscillatory electric circuit (hereafter referred to as the second electric circuit) connected between the base and emitter electrodes of the transistor and including a capacitor and a first inductive winding connected in series with one another and with the base-emitter path of the transistor, biasing means connected between the base and emitter electrodes for biasing the transistor to the non-conductive condition, and input circuit means including a second inductive winding electro-magnetically coupled with the first inductive winding, and input signal controlled electric current supply means connected in



series with the second inductive winding for supplying thereto direct current which changes abruptly between first and second spaced levels in response to input pulse signals of rectangular waveform and predetermined nominal duration, the natural frequency of the said oscillatory circuit having a quarter cycle time slightly less than the predetermined nominal duration of the input pulse signals, and the change in current in the second inductive winding at the beginning of an input pulse signal being great enough to induce a state of substantial saturation in the transistor, and output circuit means connected to said resistor for presenting as an output signal a voltage developed across the resistor.

3,322,967
QUADRATURE REJECTION CIRCUIT UTILIZING BILATERAL TRANSISTOR GATE
Gunter J. Gessner, Maywood, N.J., assignor to The Bendix Corporation, Teterboro, N.J., a corporation of Delaware
Filed Mar. 6, 1964, Ser. No. 349,907
3 Claims. (Cl. 307—88.5)



1. A quadrature rejection circuit, comprising:
means for providing an input signal, said input signal having an inphase component and a component in quadrature with the inphase component;
signal generating means for providing a signal having a substantially square waveform with a predetermined rise and fall time;
a gate comprising first and second bilateral transistors each of which has a base, a first emitter and a second emitter;
means including a resistor and a capacitor connected in series, said means being connected to the second emitter of the first bilateral transistor and to the input signal means for applying the input signal to the gate;
the base and the first emitter of each of the first and second bilateral transistors being connected to the signal generating means so that the gate is opened by the signal therefrom for providing at the second emitter of the second transistor the inphase component of the input signal, and the gate being closed by the signal from the signal generating means for preventing said quadrature component of said input signal from being provided at the second emitter of the second transistor; and
means connected to the second emitter of the second transistor and responsive to the signal thereat for providing a signal proportional to the amplitude of the inphase component.

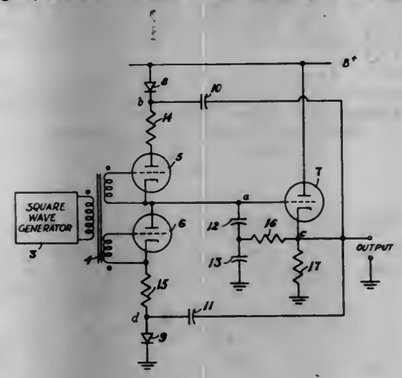
3,322,968
NOISE BLANKER CIRCUIT COMPRISING OPPOSITELY WOUND SECONDARY WINDINGS
John L. Dennis, Lexington, Ky., assignor to Avco Corporation, Cincinnati, Ohio, a corporation of Delaware
Filed Mar. 12, 1964, Ser. No. 351,500
9 Claims. (Cl. 307—88.5)

7. A signal blanking circuit comprising:
a source of signal;
a load connected across said source;
a first high impedance inductor connected across said load;
a second substantially identical inductor inductively coupled to said first inductor;
a gate; and
means at controlled periods of time for connecting said second inductor through said gate in phase opposition with said first inductor, whereby the effective impedance of said inductors is reduced towards zero to shunt said source from said load.

3,322,969
TRIANGULAR VOLTAGE WAVEFORM GENERATOR
Raymond G. Callahan, Manchester, Mass., assignor to High Voltage Engineering Corporation, Burlington, Mass., a corporation of Massachusetts
Filed May 7, 1964, Ser. No. 365,739
4 Claims. (Cl. 307—88.5)

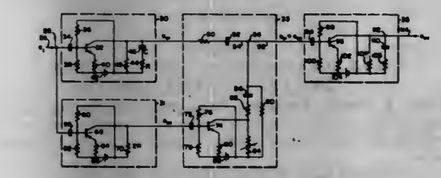
1. A triangular waveform generator comprising an electron tube having an anode, a cathode and a control grid connected as a cathode follower, capacitor means

effective to control the output of said cathode follower connected between said control grid and ground, a plate supply voltage source, a first circuit means for charging said capacitor means including a first diode connected to said plate supply voltage source, and a first switching means for interrupting the charging current serially connected between said first diode and said control grid, a second circuit means for discharging of said capacitor means including a second diode connected to ground and a second switching means for interrupting the discharge current serially connected between said second diode and said control grid, a first feedback circuit including a first substan-



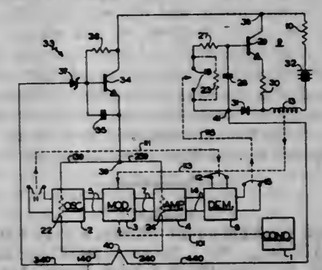
tially constant voltage source connected between the output of said cathode follower and the junction of said first diode and said first switching means for interrupting the capacitor charging current, a second feedback circuit including a second substantially constant voltage source connected between the output of said cathode follower and the junction of said second diode and said second switching means for interrupting the capacitor discharge current, and means for alternately activating the first switching means for interrupting the capacitor charging current and the second switching means for interrupting the capacitor discharge current to alternately charge and discharge said capacitor.

3,322,970
ZERO PHASE SHIFT ACTIVE ELEMENT FILTER
Dwight W. Batteau, Cambridge, Mass., assignor to United Research, Inc., Cambridge, Mass., a corporation of Massachusetts
Filed May 28, 1964, Ser. No. 370,827
6 Claims. (Cl. 307—88.5)



1. A signal transmission system having input and output terminals and characterized by a minimum shift in the phase of the voltage at the output terminal with respect to the phase of the voltage at the input terminal with changes in frequency comprising a first filter section, said input terminal providing the input to said first section, a second filter section the output of the first filter section serving as the input to the second filter section, said first filter section having transmission characteristics which may be characterized by a resistive and a reactive component, said second filter section having transmission characteristics which may be characterized by a resistive and a reactive component, the reactive components of said first and second filter section characteristics being equal in magnitude and comprising a reactive group, and the resistive components of said first and second filter section transmission characteristics being equal in magnitude and comprising a resistive group, and the components of one of said groups being opposite in sign, the output of said second filter section serving as the output to the output terminals.

3,322,971
TRANSDUCTION SYSTEM INCLUDING CURRENT REGULATION
Chung Chuan Liu, Rochester, Minn., assignor to Taylor Instrument Companies, Rochester, N.Y., a corporation of New York
Filed Nov. 23, 1964, Ser. No. 413,110
10 Claims. (Cl. 307—88.5)

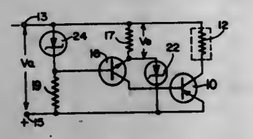


1. A transduction system having a load circuit including a D.C. power source, a load resistance, and a transistor; said transistor having said load resistance and said source connected in series between its emitter and its collector, and being arranged so that current flows through said load resistance as a function of the voltage between said emitter and the base of said transistor; circuitry connected in parallel with said load resistance to receive current from one side of said source, and a diode connected to said circuitry and arranged to return the last said current to said source; said diode being so poled as to be forward biased with respect to the said last said current, the source side of said diode being connected to said emitter, and there being resistance connecting the other side of said diode to the base of said transistor, whereby the bias on said base differs from the bias on said emitter by the forward voltage drop of said diode; and means applying a signal voltage across the last said resistance, said transistor having material polarity such that for zero value of said signal voltage, the said forward voltage drop biases said transistor into conduction, whereby for a given signal voltage range including both positive and negative values, the current through said load resistor has a corresponding range of values but does not change its sense in response to change in sign of said signal voltage.

3,322,972
HIGH CURRENT NEGATIVE RESISTANCE TRANSISTOR CIRCUITS UTILIZING AVALANCHE DIODES
Geza Csanky, Mesa, Ariz., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed Oct. 8, 1964, Ser. No. 402,469
9 Claims. (Cl. 307—88.5)

1. A negative resistance circuit including in combination, a first transistor having input, output and control

electrodes, input terminal means, means for connecting the input and output electrodes of said first transistor in series between a load and said input terminal means, a second transistor having input, output and control electrodes, means connecting the output electrode of said second transistor to the control electrode of said first transistor, a first avalanche diode and a first resistance means connected in series between said input terminal means and a reference point, with the junction of said first avalanche diode and said first resistance means connected to the control electrode of said second transistor, second



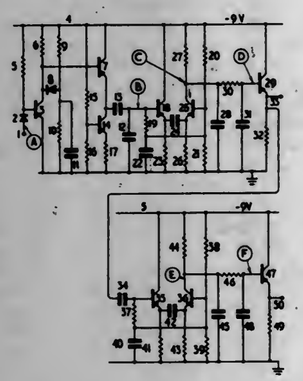
resistance means and a second avalanche diode connected in series between said input terminal means and a reference point, and means connecting the junction of said second resistance means and said second avalanche diode means to the input electrode of said second transistor, with a voltage applied to said input terminal means exceeding the breakdown voltage of said first and second avalanche diodes changing the biasing of said second transistor, thereby to control said first transistor so that decreasing current flows through said load for an increasing voltage applied to said input terminal means.

3,322,973

VOLTAGE GENERATOR PRODUCING CONSTANT AMPLITUDE, 90° PHASE-DISPLACED SAWTOOTH WAVEFORMS OVER WIDE RANGE OF OUTPUT FREQUENCIES

John Lewis Edwin Baldwin, Croydon, England, assignor to Rank-Bush Murphy Limited

Filed Jan. 12, 1965, Ser. No. 424,968
Claims priority, application Great Britain, Jan. 31, 1964, 4,185/64
7 Claims. (Cl. 307—88.5)



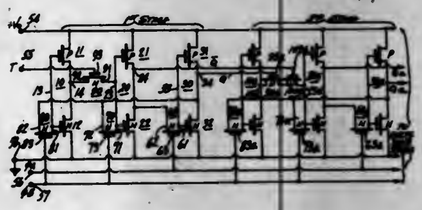
1. A two-phase voltage generator comprising in combination: means generating a first voltage of rectilinear, time-symmetric waveform, varying cyclically between extreme values, trigger means responsive to the passage of an applied voltage through predetermined threshold levels to develop a two-valued signal; means applying said first voltage to said trigger means, said threshold levels being such that transitions from each said value to the other in said output signal occur at times differing substantially equally from the times at which said first voltage attains said extreme values; integrating means producing an output signal representing the time-integral of an applied voltage; and means applying said two-valued signal to said integrating means, whereby said integrating means produces a second cyclically repetitive signal of rectilinear time-symmetric waveform similar to said first voltage but displaced in phase with respect thereto by 90°.

3,322,974

FLIP-FLOP ADAPTABLE FOR COUNTER COMPRISING INVERTERS AND INHIBITABLE GATES AND IN COOPERATION WITH OVERLAPPING CLOCKS FOR TEMPORARILY MAINTAINING COMPLEMENTARY OUTPUTS AT SAME DIGITAL LEVEL

Richard W. Ahrons, Somerville, and Stanley Katz, East Brunswick, N.J., assignors to Radio Corporation of America, a corporation of Delaware

Filed Mar. 14, 1966, Ser. No. 534,058
12 Claims. (Cl. 307—88.5)



1. A triggerable flip-flop comprising
first, second and third inverters each having input and output means,
first normally enabled gate means for coupling the output means of said third inverter to the input means of said first and second inverters,
second normally enabled gate means for coupling the output means of said second inverter to the input means of said third inverter, whereby said second and third inverters are operable as a bistable pair,
third normally inhibited gate means for coupling the output means of said first inverter to the input means of said second inverter,
trigger signal means for enabling said third gate means for a portion of a switching interval, and
control signal means for inhibiting said second gate means when said third gate means is enabled for at least said switching interval portion and for inhibiting said first gate means for the entirety of said switching interval, whereby said bistable pair is switched from one to the other of its stable states.

3,322,975

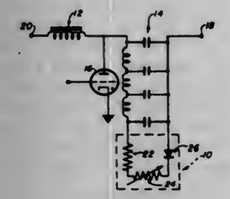
NON-LINEAR END-OF-LINE CLIPPER CIRCUIT FOR PULSERS

William I. Smith, Palmyra, N.J., assignor, by mesne assignments, to the United States of America as represented by the United States Atomic Energy Commission

Filed June 9, 1964, Ser. No. 373,892
4 Claims. (Cl. 307—93)

1. A non-linear end-of-line clipper circuit for protecting against load arcs a line-type pulser having a pulse-forming network comprising: resistor means coupled at one end thereof to the output end of one side of said pulse-forming network; said resistor means including a linear resistor serially connected to a variable non-linear thyrite resistor; low impedance diode assembly means including an anode and a cathode electrode, wherein said cathode

is connected to the second end of said resistor means, and said anode is connected to the output end of the other side of said pulse-forming network, whereby said resistor



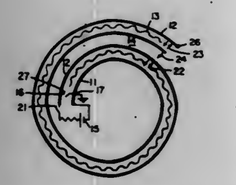
means and said diode means are serially connected together in parallel relation across said pulse-forming network.

3,322,976

CAPACITATIVE HIGH VOLTAGE PULSE GENERATING APPARATUS

Edward Blank, Sharon, Mass., assignor to Tobe Deutschmann Laboratories, Canton, Mass., a corporation of Massachusetts

Filed Mar. 31, 1965, Ser. No. 444,160
6 Claims. (Cl. 307—109)



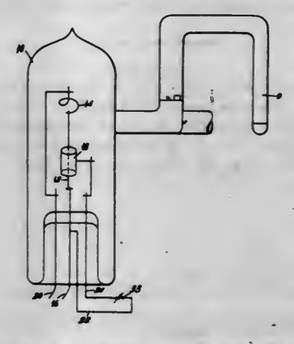
1. Apparatus for converting a relatively low potential to a much higher potential comprising,
input, output and common terminals,
means defining a plurality of adjacent transmission line portions,
means for direct coupling said transmission line portions to said input and common terminals for initially establishing an electrostatic field in all said transmission line portions so that the electrostatic fields in adjacent transmission line portions are oppositely sensed and vectorially combined between said common terminal and said output terminal,
and means for selectively inverting the electrostatic field in alternate ones of said transmission line portions to provide an impulse between said output and common terminals having a potential many times greater than the potential provided by the means for initially establishing said electrostatic field,
wherein said transmission line portions comprise a first conducting strip insulatedly separated from a common conducting strip to define a parallel plate capacitor,
said input and common terminals being respectively connected to said first strip and said common strip at the input end of said first and said common strips,
said output terminal being connected to one of said first and common strips at the output end thereof,
and further comprising, a storage conducting strip adjacent to and insulatedly separated from said common strip to define a storage capacity therebetween,
and means interconnecting said first strip and said storage strip together only at the output ends thereof.

3,322,977

THERMIONIC CONVERSION PROCESS AND APPARATUS

Ralph Forman, Rocky River, John A. Ghormley, Bay Village, and Robert L. Cummerow, Lakewood, Ohio, assignors to Union Carbide Corporation, a corporation of New York

Filed Mar. 20, 1962, Ser. No. 182,707
7 Claims. (Cl. 310—4)



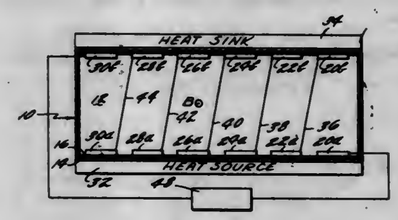
1. A thermionic converter comprising a cathode and an anode disposed in a gas emitting at least one type of ionizing radiation selected from the group consisting of beta particles, high energy electrons, protons, deuterons, tritons, and alpha particles, said cathode having a thermionic work function greater than the thermionic work function of said anode and being electrically connected to said anode through an external load circuit, the pressure of said gas and the dose rate of said ionizing radiation being sufficiently high to make the anode current-anode voltage characteristic temperature dependent; the temperature of said cathode being sufficiently high to effect thermionic emission therefrom and the temperature of said anode being below the temperature of said cathode and sufficintly low that the thermionic emission from said anode is negligible in comparison with the thermionic emission from said cathode.

3,322,978

HALL EFFECT THERMIONIC CONVERTER BATTERY

Edmund C. Lary, Vernon, Robert H. Bullis, West Hartford, and Russell G. Meyerand, Jr., Glastonbury, Conn., assignors to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware

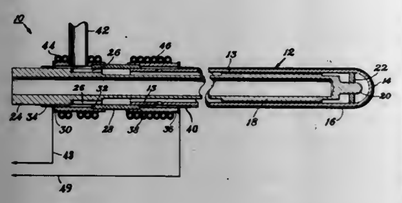
Filed Nov. 29, 1963, Ser. No. 326,876
11 Claims. (Cl. 310—4)



1. A thermionic converter battery comprising
a closed compartment containing a gas vapor in a relatively static condition,
a plurality of electron emissive electrodes within said compartment along one wall thereof,
a plurality of electron collector electrodes positioned within said compartment opposite said electron emissive electrodes,

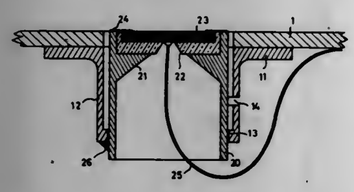
means for establishing a temperature difference between said electron emissive electrodes and said electron collector electrodes to generate a flow of electrons therebetween,
means for establishing a magnetic field at least partially crossed with said flow of electrons,
means for electrically connecting at least one electrode of each type to an electrode of the other type,
a pair of output electrodes within said compartment, and means connecting said output electrodes across a load.

3,322,979
THERMIONIC ENERGY CONVERTER
William R. Clendinning and Foster L. Gray, both of Dallas, Tex., assignors to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Filed Mar. 31, 1964, Ser. No. 358,971
3 Claims. (Cl. 310—4)



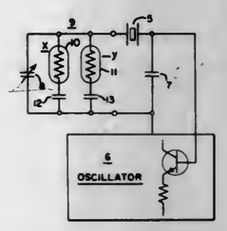
1. A thermionic diode comprising
(a) an emitter member comprised of a laminated body having one surface of dense, fluid-impervious silicon carbide and a generally opposite surface of an emitter material having a relatively high work function, said emitter member having a layer of graphite between said silicon carbide and said emitter material, the surfaces of said graphite layer mating with said silicon carbide and said emitter material, and a thermally conductive braze material bonding the mating surface of said emitter material with the graphite,
(b) a collector member having a relatively low work function disposed adjacent to, but spaced from, the surface of said emitter material, and
(c) means for controlling the atmosphere between the emitter material and the collector member.

3,322,980
SUBMINIATURE PRESSURE TRANSDUCER
Gerard M. Faure, Paris, France, assignor to The Office National d'Etudes et de Recherches Aerospatiales, Chatillon-sous-Bagneux, France, a body corporate of France
Filed Mar. 8, 1965, Ser. No. 437,715
Claims priority, application France, Mar. 6, 1964, 966,505; Mar. 1, 1965, 7,508
8 Claims. (Cl. 310—8.7)



1. A piezoelectric transducer for measuring variable pressures prevailing on the outer surface of a wall of a structure provided with an orifice of a given diameter, said transducer comprising a thin tubular support having at one end a collar for fixing to the inside surface of said wall coaxially to said orifice, said collar having an inside diameter equal to said given diameter, at the other end a guiding reinforcement of inside diameter slightly smaller than said given diameter; a sleeve adapted to slide coaxially in said guiding reinforcement and internally reinforced near one of its ends by a diaphragm; a thin piezoelectric flake mounted at said end of said sleeve and supported by said diaphragm through the medium of an insulating annular support, whereby said flake can be accurately guided and fixed in line with the outside surface of said wall without contact between said wall and said flake which is thus relieved of all bending stresses.

3,322,981
CRYSTAL TEMPERATURE COMPENSATION
Theodore Brenig, Lynchburg, Va., assignor to General Electric Company, a corporation of New York
Filed Apr. 29, 1964, Ser. No. 363,550
10 Claims. (Cl. 310—8.9)



1. In a temperature-compensated crystal oscillator, the combination including a frequency-determining crystal, the resonance frequency of which varies as a function of temperature:
(a) a network in circuit with said crystal for varying the load capacitance in circuit with said crystal as a function of temperature over a desired temperature range to produce crystal resonance frequency variations with temperature which counteract the effects of temperature on the crystal, including
(b) a fixed, linear capacitance means,
(c) first and second branches, each including temperature-sensitive resistance beams effective respectively over first and second portions of an operative temperature range to vary the capacitance across the output of the network as a function of temperature, the temperature coefficients of said resistance means being so chosen as to provide capacitance-temperature characteristics with slopes of predetermined sines and magnitudes over said first and second portions.

3,322,982
TEMPERATURE CONTROL OVEN
Robert L. Craiglow, Cedar Rapids, Iowa, and William C. Post, San Diego, Calif., assignors to Motorola, Inc., Chicago, Ill., a corporation of Illinois
Filed Apr. 16, 1963, Ser. No. 273,331
9 Claims. (Cl. 310—8.9)

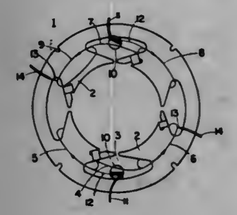
1. A crystal oven including in combination, an outer housing, said outer housing having a removable closure portion, a first metallic cup insulatingly supported in said housing to form a cavity therein having an opening facing said closure portion, a second metallic cup insulatingly supported by said closure portion and having extending wall portions adapted to fit coaxially with said first cup portion to form an enclosed oven chamber, said second cup further having

socket means to receive a piezoelectric crystal, a heating coil supported by and in thermal contact with the exterior surface of said first cup, a temperature control circuit for applying current to said heating coil, a bridge circuit in said temperature control circuit, heat sensing means disposed on the exterior surface of said first cup, said heat sensing means being connected as one arm of said bridge



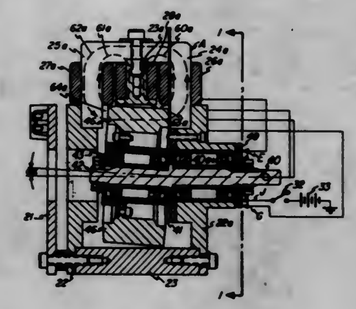
circuit, and heat conducting means in thermal contact with said outer housing and extending in close thermal proximity to said heat sensing means, with the proximity of said heat conducting means to said heat sensing means being adjustable to thereby provide balancing of heat loss paths of said heat sensing means and of said heating coil to the ambient temperature of said outer housing.

3,322,983
DYNAMOELECTRIC MACHINE WITH IMPROVED WINDING PROTECTION ARRANGEMENT
Irvine E. Ross, Fort Wayne, Ind., assignor to General Electric Company, a corporation of New York
Filed Jan. 2, 1964, Ser. No. 335,042
6 Claims. (Cl. 310—68)



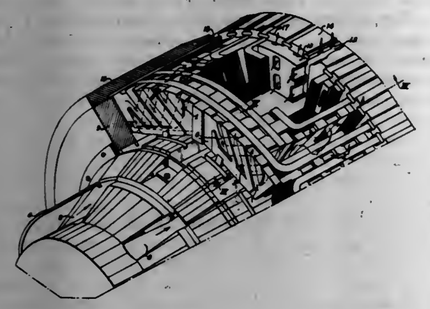
1. In a thermally protected, single phase alternating-current induction electric motor adapted to operate selectively at first and second voltages, a single phase stator having one circuit means adapted for energization including at least two winding sections each in series circuit with a first heat sensing circuit-interrupting device and in primary heat transfer relation therewith, said first heat sensing device being primarily responsive to a predetermined heat condition of the at least two winding sections; another circuit means adapted for energization including at least two other winding sections each in series circuit with a second heat sensing circuit-interrupting device and in primary heat transfer relation therewith, said second heat transfer circuit-interrupting device being primarily responsive to a predetermined heated condition of the at least two other winding sections and generally insensitive to the predetermined heated condition of the at least two winding sections of said one circuit means; said one circuit means and said other circuit means being connected in series relation for a first voltage operation and in parallel relation for a second voltage operation, said first and second heat sensing circuit-interrupting devices being independently operative to deenergize all of the winding sections in both said one and said other circuit means when the predetermined heat condition is reached in either of the associated at least two winding sections during said first voltage operation to interrupt operation of the motor; and one of the heat sensing circuit-interrupting devices being operative for deenergizing only its associated at least two winding sections when the predetermined heated condition is reached in the vicinity of such winding sections thereby changing the electrical impedance of the stator without interrupting operation of the motor during said second voltage operation, whereby the motor may be operated at least temporarily at the second voltage with the remaining winding sections still being energized until the predetermined heated condition is reached in the vicinity of the other heat sensing circuit-interrupting device to operate that device for deenergizing its associated at least two winding sections to interrupt operation of the motor.

3,322,984
NUTATION MOTOR OR GENERATOR
Douglas G. Anderson, Ferndale, Mich., assignor to The Bendix Corporation, a corporation of Delaware
Original application May 10, 1963, Ser. No. 279,559. Divided and this application Feb. 28, 1966, Ser. No. 553,589
3 Claims. (Cl. 310—82)



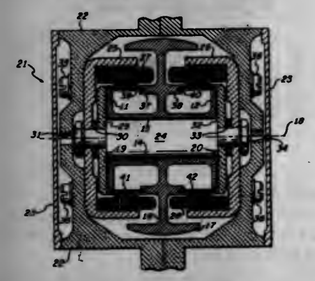
1. Apparatus comprising
a shaft mounted for rotation about a first axis,
said shaft having an extension thereof which is non-coaxial with said first axis,
said shaft and extension being in fixed relationship,
means for establishing a magnetic field,
a nutating member mounted for nutational motion within said magnetic field,
said nutating member being mounted on said shaft extension whereby one complete nutational cycle of the nutating member and shaft extension will rotate the shaft about its axis one complete revolution,
electrical conductor means spatially associated with the magnetic field to convert between the energy of nutational motion and electrical energy,
means for connecting said electrical conductor means to an external circuit.

3,322,985
GAS-COOLED ROTOR OF ELECTRIC GENERATOR
Jury Ivanovich Azbukin, Seliverstov pereulok 16, kv. 85, Moscow; Nikolai Mikhailovich Portnov, St. Malakhovka, ulitsa Sverdlova, 13, Moskovskaya Oblast; Vladimir Jurievich Avrukh, Ozernaya ulitsa, 24, kv. 25, Moscow; Vladimir Dmitrievich Kozorezov, Reutovo, ulitsa Gagarina, 7, Moskovskaya Oblast; and Mikhail Isaakovich Miteinman, Lomonosovsky prospect 23, kv. 400, Moscow, all of U.S.S.R.
Filed May 5, 1965, Ser. No. 453,283
6 Claims. (Cl. 310—61)



1. A rotor of a dynamoelectric machine comprising a rotor core with slots distributed along its circumference; a plurality of windings arranged in said slots and having end turns extending axially beyond the slots; and insulating cleats and spacers between said end turns of adjacent windings, said windings, cleats and spacers defining intercommunicating grooves which provide a spiral system of ventilation passages for circulation of the cooling gas around the end turns of said windings.

3,322,986
GYROSCOPIC ROTOR
Robert J. Benatti, East Northport, N.Y., John C. Dieselman, Norwood, Mass., and Henry W. Rappuhn, East Norwich, and Harold C. Vance, Jr., New York, N.Y., assignors to Sperry Rand Corporation, Great Neck, N.Y., a corporation of Delaware
Filed Apr. 3, 1964, Ser. No. 357,081
2 Claims. (Cl. 310—162)



1. A gyroscopic rotor, bearing and electrical armature assembly adapted to be hydrodynamically supported for spinning about a spin axis comprising
(a) a thin walled cylindrical member having its major axis coincident with said spin axis, the interior surface thereof providing a radial support surface for a hydrodynamic bearing,
(b) radially extending, thin walled flange members at each end of said cylindrical member and concentric with said spin axis, the end surfaces of said flange members providing an axial support surface for said hydrodynamic bearing,
(c) a momentum rim radially spaced from said cylindrical member,
(d) a web member connected between said cylindrical member and said rim intermediate the ends of said cylindrical member, and
(e) a pair of thin walled electrical armature rings each concentric with said spin axis and extending substantially parallel with said spin axis, said rings extending between and being rigidly secured to the periphery of said end flange and to said web member radially intermediate said cylindrical member and said momentum rim.

3,322,987
SELF-STARTING ROTORS FOR SYNCHRONOUS REACTION MOTORS
Walter Kohlhagen, 818 Oakley Ave., Elgin, Ill. 60120
Filed Sept. 14, 1964, Ser. No. 396,333
19 Claims. (Cl. 310—164)



1. In a self-starting synchronous motor, the combination with a field having two sets of field poles arranged circularly about an axis of which successive poles of one set alternate with successive poles of the other set, and an associated field coil adapted on energization to produce opposite instantaneous polarities in said pole sets, of a permanent-magnet rotor turnable about said axis and having on its periphery polarized and non-polarized areas of peripheral widths of which said polarized areas are pole faces at least part of which are of larger peripheral width than the field poles, with successive ones of said pole faces being of opposite polarities and the number of pole faces of one polarity being equal to the number of pole faces of the opposite polarity, and said non-polarized areas divide said pole faces into spaced groups, with said areas having an overall pitch relation different from that of the field poles and being of such peripheral widths that successive pole faces of each group confront successive field poles in any rotor position and said pole faces have in any rotor repose position adequate overall unbalance relative to the field poles for a self-start of the rotor on reenergization of said coil.

3,322,988
DIRECT CURRENT ARMATURE WITH CONDENSERS
Kazuo Ishikawa and Yoshio Namiki, Kohoku-ku, Yokohama, and Toshisato Koyamada, Tokyo, Japan, assignors to Jeco Company, Limited, Tokyo, Japan, a corporation of Japan
Filed Dec. 23, 1964, Ser. No. 420,493
Claims priority, application Japan, Dec. 25, 1963, 38/96,543
3 Claims. (Cl. 310—220)

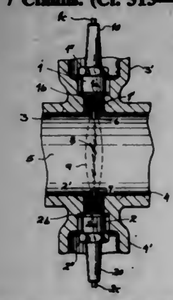
1. A direct current armature with a condenser comprising a shaft;
spaced radial cores arranged around said shaft providing respective core gaps therebetween;

winding coils wound on each of said cores;
a commutator secured to said shaft;
a plurality of segments forming said commutator;



at least one condenser arranged in at least one of said core gaps;
said condenser being fixed to an armature and having lead wires, and
the lead wires of said condenser being respectively connected to said segments.

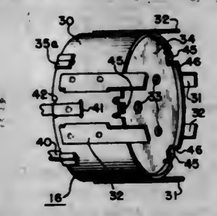
3,322,989
IGNITION DEVICE
Hans-Christof Klein, Hattersheim am Main, Germany, assignor to Alfred Teves Maschinen- und Armaturenfabrik KG, Frankfurt am Main, Germany, a corporation of Germany
Filed Nov. 27, 1963, Ser. No. 326,616
Claims priority, application Germany, Nov. 28, 1962, T 23,085
7 Claims. (Cl. 313—54)



1. A device for the ignition of combustible fluids comprising:
an elongated body of insulating material;
an electrode extending longitudinally through said body and projecting therebeyond at one extremity of said body for juxtaposition with a counterelectrode to generate an electrical discharge in the region of said extremity to ignite said fluid;
a radioemissive source imbedded in said body at said extremity for ionizing at least some of said fluid in the region of said discharge; and a metallic casing surrounding said electrode and receiving said radioemissive source, said casing being sinter-bonded to said body therewithin, said electrode being provided with a transverse radiation-absorbing annular flange spaced from said discharge extremity within said body and disposed rearwardly of said radioemissive source with respect to said extremity, said casing being seated against said flange.

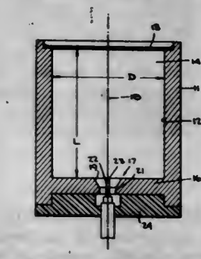
3,322,990
CONVERGENCE SUBASSEMBLY WITH INDEXING PROVISIONS IN CYLINDRICAL SUPPORT FOR ELECTRON GUNS
Joseph P. Fiore, Des Plaines, Ill., assignor to The Rauland Corporation, a corporation of Illinois
Original application June 22, 1964, Ser. No. 376,829. Divided and this application Oct. 17, 1966, Ser. No. 587,108
6 Claims. (Cl. 313—70)

1. A gun-mount assembly for a multi-beam cathode-ray tube comprising:
a plurality of electron guns disposed in a predetermined array, individually having a cathode and a plurality of electrodes, for developing a plurality of electron beams directed generally along the axis of the tube;
a convergence subassembly disposed across the paths of said beams in juxtaposition to the final electrodes of said electron guns, said subassembly including a cylindrical support member of non-magnetic material



for positioning beam-convergence elements for said electron beams and having indexing provisions located about the periphery of said support in an array corresponding to that of said electron guns;
and indexing provisions on said electron guns for engagement with said indexing provisions of said support member to orient said convergence subassembly relative to said electron guns.

3,322,991
POINT RADIATION DETECTOR
Andrew A. Sterk, Arlington, Va., and Placido William Zingaro, Hartsdale, N.Y., assignors to Philips Electronics and Pharmaceutical Industries Corp., New York, N.Y., a corporation of Maryland
Filed Oct. 18, 1963, Ser. No. 317,311
7 Claims. (Cl. 313—93)

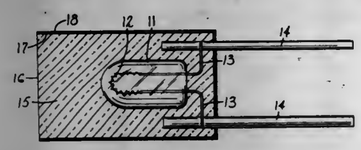


1. A proportional counter comprising a hollow conductive cylinder having an internal diameter D; a first, radiation-permeable wall across said cylinder; a second wall across said cylinder spaced from said first wall and having a central aperture therethrough; a cylindrical anode located in said aperture and concentric therewith and with said cylinder, said anode having a substantially hemispherical end facing the enclosed portion of said cylinder between said walls and spaced from said radiation-permeable wall by a distance substantially equal to the diameter D; insulating means sealing the space between said anode and said second wall; and rare gas filling the enclosed volume within said cylinder between said walls.

3,322,992
RESIN ENCAPSULATED LAMP ASSEMBLY
Edward M. Parker, New Canaan, and Robert E. Ginter, Milford, Conn., assignors to Penn Keystone Corporation, Ansonia, Conn., a corporation of Pennsylvania
Filed Feb. 5, 1964, Ser. No. 342,628
6 Claims. (Cl. 313—111)

1. A lamp assembly having at least one baseless bulb having a filament encapsulated therein and a plurality of leads which extend from the filament and out through the

bulb, a bus electrically connected to each of said leads, the improvement characterized in that a cured thermosetting resin translucent capsule completely encases said bulb, said leads and a porton of said buses, said capsule having a plurality of external surfaces, a cured thermo-

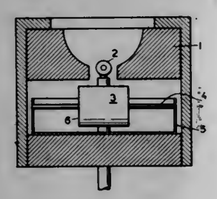


setting resin reflecting coating covering and adhering to all but a portion of said external surfaces of said capsule, and a cured thermosetting resin radiating coating covering and adhering to said reflecting coating, whereby said uncovered surface portion of said capsule permits light to be emitted from the bulb.

3,322,993
GETTER BODY MOUNTED ON LOW THERMAL CONDUCTIVITY SUPPORTS

Miroslav Vinopal, Prague, Czechoslovakia, assignor to Chirana Praha, narodni podnick, Prague, Czechoslovakia, a corporation of Czechoslovakia

Filed May 19, 1964, Ser. No. 368,674
Claims priority, application Czechoslovakia, May 23, 1963, 2,967/63
3 Claims. (Cl. 313—174)



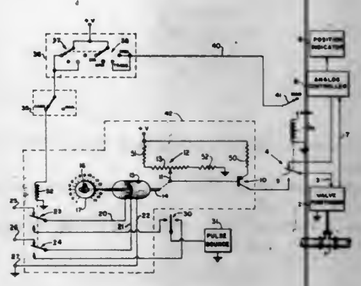
1. In a high-vacuum tube particularly an X-ray tube the improvement comprising in combination a cathode body (1) including a directly heated cathode (2); a getter body (3) inside the tube close to but heat-conductively detached from the cathode (2) to be heated therefrom exclusively by radiated heat; and a support (4, 5) for the getter body at least practically heat-conductively separating the getter body from the cathode body (1) and thus saving the getter body from loss of heat received by radiation and maintaining its temperature at least at about 600° C.

3,322,994
ELECTRICAL APPARATUS INCLUDING ANALOG AND DIGITAL CONTROL FOR AN ELEMENT

John A. Dever and William F. Newbold, Springfield Township, Philadelphia, Pa., assignors to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware

Filed June 8, 1964, Ser. No. 373,162
5 Claims. (Cl. 313—267)

1. A supervisory control apparatus comprising an analog control means operative to provide a control signal to a controlled element to produce a desired operation of said element, digital control means responsive to digital computer output signals to produce a corresponding control signal for said controlled element, manual control means for said digital control means to produce an initial correspondence between the output signals from said digital control means and said analog control means, and switch means operative to selectively apply an output signal from said analog control to said controlled element

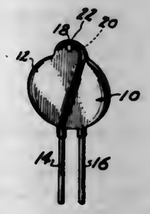


in an analog mode of operation and an output signal from said digital control means to said controlled element in a digital mode of operation.

3,322,995
ELECTRONIC COMPONENT AND METHOD OF MANUFACTURE THEREOF

Arne Carl Hansen, Arthur Painter Colburn, and Carl William Uebelherr, Milwaukee, Wis., assignors to Globe-Union Inc., Milwaukee, Wis., a corporation of Delaware

Filed Apr. 26, 1965, Ser. No. 450,584
7 Claims. (Cl. 313—325)



1. A component for use in an electrical circuit comprising a nonconducting base, two generally cylindrical elongated conductors supported by said base at positions intermediate their ends, said conductors having first distal ends facing one another and displaced slightly from said nonconducting base and from one another to form a spark gap, the distance between said support positions and said first ends of the conductors being small enough to provide a relatively rigid structure in the vicinity of said spark gap.

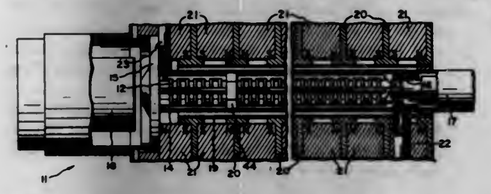
3,322,996
ELECTRON DISCHARGE DEVICES AND MOLYBDENUM SLOW WAVE STRUCTURES, THE MOLYBDENUM SLOW WAVE STRUCTURES HAVING GRAIN ALIGNMENT TRANSVERSE TO THE ELECTRON PATH

Hubert I. Schrager, San Francisco, Calif., assignor to Varian Associates, Palo Alto, Calif., a corporation of California

Continuation of application Ser. No. 245,259, Dec. 17, 1962. This application Oct. 18, 1966, Ser. No. 587,619
4 Claims. (Cl. 315—3.5)

4. A slow wave circuit for high frequency electron discharge devices comprising an elongated cylindrical ring and bar configuration made of a single metal member

made of annealed molybdenum having anistropic ductility properties with the axis of highest ductility lying

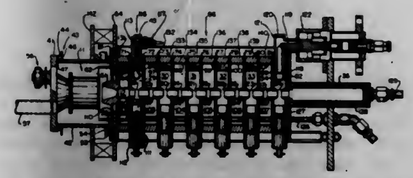


parallel to the external peripheral surface defined by said slow wave circuit and transversely oriented with respect to the longitudinal axis of the slow wave circuit.

3,322,997
PERMANENT MAGNET FOCUSED KLYSTRON

George Caryotakis, Los Altos, Calif., assignor, by mesne assignments, to Varian Associates, a corporation of California

Filed June 14, 1963, Ser. No. 287,916
9 Claims. (Cl. 315—5.35)

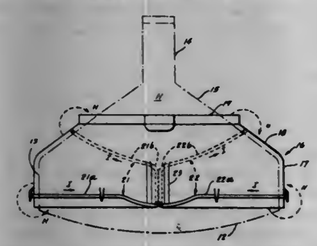


1. A klystron including means for projecting an electron beam, at least three drift tube sections surrounding said beam and forming at least two interaction gaps, a resonant cavity surrounding each of said gaps, magnetic means for maintaining said beam in focus including at least two annular axially magnetized permanent magnets, a disc of magnetic material providing a low reluctance path for magnetic flux between said permanent magnets and the intermediate one of said drift tube sections whereby the magnetic field of said permanent magnets is concentrated adjacent the beam, said disc of magnetic material additionally forming a portion of the resonant cavity surrounding the gap associated with said one of said drift tube sections.

3,322,998
COLOR PURITY CORRECTING APPARATUS FOR COLORED TELEVISION PICTURE TUBES

Ronald Richard Norley, Indianapolis, Ind., assignor to Radio Corporation of America, a corporation of Delaware

Filed Aug. 31, 1964, Ser. No. 393,200
11 Claims. (Cl. 315—8)



1. Color purity correcting apparatus for a multi-color television picture tube having a relatively large end housing a viewing screen and a relatively small end housing electron gun means, said tube ends being joined by means including a frusto-conical section, said apparatus being adapted for energization periodically by alternating current of a magnitude which initially is appreciable and which diminishes effectively to zero, comprising in combination:

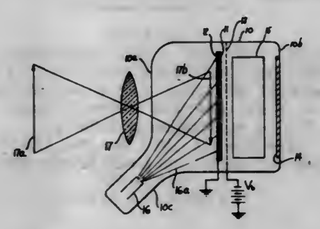
a shield of permeable material enveloping said large tube end and at least a portion of said frusto-conical tube section;

and coil means extending at the front around said large tube end and extending rearwardly toward said small tube end around said frusto-conical tube section.

3,322,999
IMAGE-INTENSIFIER TUBE

Benjamin Kazan, Los Angeles, Calif., assignor to Electro-Optical Systems, Inc., Pasadena, Calif.

Filed Nov. 18, 1963, Ser. No. 324,499
7 Claims. (Cl. 315—12)



1. In an image-intensifier tube having transparent front and rear face plates, apparatus mounted in said tube between said face plates, said apparatus comprising: a target element including photoconductive and electrically conductive layers back-to-back, and means for bombarding said conductive layer with a uniform beam of electrons; radiation energy focusing means for forming an image of an external scene on said conductive layer; a reference grid spaced from and in face-to-face relationship with said photoconductive layer; a phosphor layer on the faceplate of said tube facing said reference grid; and a secondary emission image-amplifying section mounted between said reference grid and said phosphor layer.

3,323,000
ELECTROSTATIC DEFLECTION SYSTEM

Lloyd Mancebo, Livermore, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission

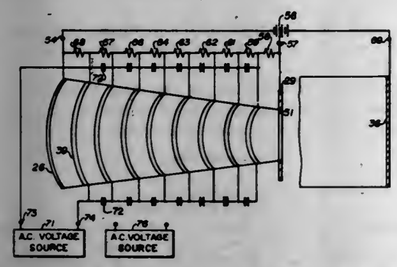
Filed Jan. 6, 1964, Ser. No. 336,081
13 Claims. (Cl. 315—26)

1. In a multibeam deflection tube including a spherical electrostatic lens having a cathode means and anode, said cathode means disposed to define a surface segment of a sphere, an improved electrostatic deflection system for deflecting beams of charged particles comprising in combination with said spherical electrostatic lens,

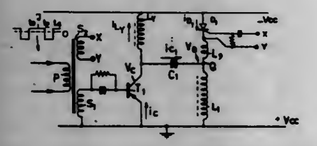
(A) a plurality of spaced rings of electrically resistive material disposed between said anode and cathode means coaxially along a radius normal to the center of the surface of said cathode means, each of said rings having a different diameter, said rings disposed progressively along said radius such that the locus of the inner edges of the series of rings defines a surface which subtends a solid angle substantially identically orientated and substantially equal to that defined by said cathode means, and

(B) means for impressing a respective voltage simultaneously across diametrically opposite locations on each of said rings thereby establishing a substantially unidirectional electrostatic field transverse to the path of said beams in the regions bounded by

said rings, said diametrically opposite locations on each ring being longitudinally aligned with their corresponding diametrically opposite locations on the other rings.



3,323,001
TIME-BASE CIRCUIT ARRANGEMENT HAVING TRANSISTOR AND SCR SWITCHING ELEMENTS
John Campbell Mackellar, East Grinstead, England, assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
Filed Nov. 13, 1963, Ser. No. 323,433
Claims priority, application Great Britain, Dec. 28, 1962, 48,829/62
11 Claims. (Cl. 315—27)



6. A circuit for generating an alternating current of sawtooth waveform in an inductive load comprising, a source of direct voltage, a first series circuit connected across said voltage source comprising said inductive load and semiconductor amplifier means having a control electrode for controlling the current flow therein, a second series circuit connected across said voltage source comprising a controlled rectifier having a gate electrode and connected in series with an inductance and impedance means, said semiconductor amplifier means being poled in the forward direction with respect to said voltage source and said controlled rectifier being poled in the reverse direction with respect to said voltage source, a capacitor interconnecting said first and second series circuits to form first and second closed loop circuits, said first closed loop circuit comprising, in series, said inductive load, said controlled rectifier, said inductance and said capacitor, said second loop comprising, in series, said impedance means, said semiconductor amplifier and said capacitor, and drive means coupled to said control and gate electrodes for simultaneously applying thereto drive signals of a polarity tending to turn off current flow in said semiconductor amplifier and to turn on current flow in said controlled rectifier, respectively.

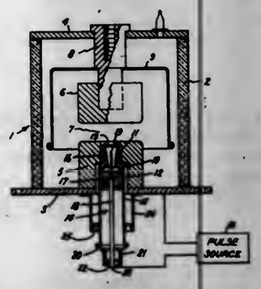
3,323,002
TRIGGERED VACUUM GAP DEVICE HAVING FIELD EMITTING TRIGGER ASSEMBLY
James M. Lafferty, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York
Filed Dec. 28, 1965, Ser. No. 516,943
5 Claims. (Cl. 315—36)

1. A field emission triggered vacuum gap device comprising:

an evacuable envelope at least one portion thereof is an insulating dielectric to provide at least two electrically insulated portions thereof;

a pair of primary arc-electrodes disposed within said envelope so as to define therebetween a primary gap, at least one of said arc-electrodes having a longitudinal cavity therein and an aperture connecting said cavity with said primary gap;

a field emission trigger electrode assembly positioned within said cavity and positioned with respect to said aperture as to inject a highly ionized plasma into said main gap when a signal pulse is received,



said assembly including an elongated filamentary central field emitting trigger cathode and a concentric trigger anode having a hollow truncated conical bore therein terminating in a pointed annular discontinuity closely surrounding the trigger cathode at a point remote from the primary gap end of said trigger cathode and in concert therewith constituting a trigger gap,

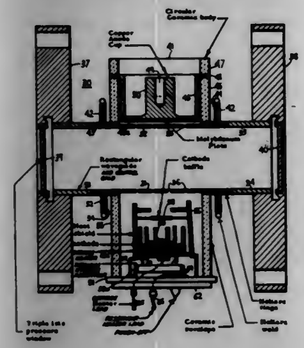
the surface of said trigger anode being coated with an active gas storing substance which is capable of maintaining a vacuum of 10^{-6} mm. Hg or less at non-operating temperature conditions;

means for connecting a primary voltage between said arc-electrodes; and

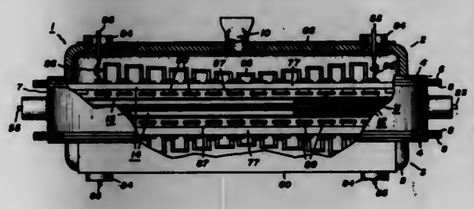
means for supplying a voltage pulse between said trigger electrodes to cause breakdown across the vacuum gap therebetween, the generation of an electron-ion plasma and injection of said plasma into said primary gap to cause the breakdown thereof.

3,323,003
THYRATRON TYPE MICROWAVE SWITCHING APPARATUS
Harry Goldie, Randallstown, Md., assignor, by mesne assignments, to the United States of America
Filed July 20, 1964, Ser. No. 383,639
1 Claim. (Cl. 315—39)

A gaseous pressure microwave switch comprising a section of rectangular wave guide having two pairs of opposed parallel walls and adapted to propagate electromagnetic waves, one pair of said walls having a plurality of holes formed therein in circular patterns and in an aligned opposed relationship, an external source of electrons disposed opposite the openings in the first wall of said walls and in aligned relationship with the openings in said pair of walls, a baffle member located between said source of electrons and the openings in the first wall of said pair of walls and in aligned relationship with the openings in said pair of walls, a first ceramic envelope for housing said external source of electrons and said baffle member, means for attaching one end of said first envelope to said first wall to form an external appendage to said wave guide that preserves the pressure within said microwave switch, an external receiver of electrons disposed opposite the openings in the second wall of said walls and in aligned relationship with the openings in said pair of walls, a plate of ion bombardment resistant conductive material mechanically affixed to said receiver of electrons located between said receiver of electrons and the openings in said second wall of said pair of walls and in aligned relationship with the openings in said pair of walls, a second ceramic envelope for housing said external receiver of electrons and said plate, means for attaching one end of said second envelope to said second wall to form an external appendage to said wave guide that preserves the pressure within said microwave switch, and a continuously heated source of gas ions located externally of said rectangular wave guide within said first envelope.



3,323,004
DISTRIBUTED AMPLIFIER WITH INDUCTANCE-CONNECTED ANODE SEGMENTS
Charles B. Mayer, Scotia, N.Y., assignor to General Electric Company, a corporation of New York
Original application July 16, 1962, Ser. No. 210,064, now Patent No. 3,247,420, dated Apr. 19, 1966. Divided and this application Sept. 24, 1965, Ser. No. 489,831
9 Claims. (315—42)



1. An electric discharge device comprising

(A) an envelope including a thermally conductive wall section,

(B) a plurality of closely spaced electrode assemblies in said envelope,

(C) said electrode assemblies comprising

(1) an elongated planar cathode,

(2) at least one elongated grid assembly, and

(3) an elongated anode assembly,

(4) said anode assembly comprising

(a) an elongated electrically insulative thermally conductive support member,

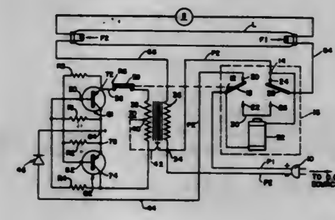
(b) a plurality of coplanar anode segments supported in a linear mutually spaced array on one side of said support member, said anode segments being interconnected by inductance means to provide a transmission line,

(c) said support member including a plurality of transverse recesses disposed between said anode segments,

(d) said recesses having greater width dimensions than the spaces between segments, and

(e) said support member being in intimate heat transferring relation with said thermally conductive wall section of said envelope.

3,323,005
FLUORESCENT LAMP CIRCUIT WHICH AUTOMATICALLY SELECTS THE PROPER VOLTAGE SUPPLY
Joseph Ladoniczki and Klara Ladoniczki, Orange City, Fla., assignors to Trak Microwave Corporation, Tampa, Fla.
Filed Aug. 14, 1964, Ser. No. 390,274
9 Claims. (Cl. 315—86)

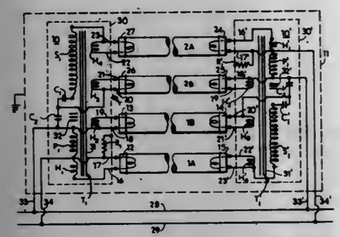


1. Automatic self-selecting circuit means adapted to energize fluorescent lamp means from both A.C. and D.C. power supplies comprising a pair of input leads adapted to be connected with a power supply, voltage responsive switch means connected across said input leads, power oscillator means selectively interconnected with said input leads by said voltage responsive switch means in response to D.C. energization from the power supply and isolated from said input leads by said voltage responsive switch means in response to A.C. energization from the power supply, transformer means including primary and secondary windings, and fluorescent lamp means connected across said secondary winding, said voltage responsive switch means selectively interconnecting said power oscillator means and said input leads with said primary winding in response to D.C. energization from the power supply and selectively isolating said power oscillator means and said input leads and interconnecting said input leads with said secondary winding and said fluorescent lamp means in response to A.C. energization from the power supply.

3,323,006
BALLAST FOR OPERATING ELECTRIC DISCHARGE LAMPS IN CONJUNCTION WITH A COMPANION BALLAST
Herbert R. Gould, Danville, Ill., assignor to General Electric Company, a corporation of New York
Filed Apr. 3, 1964, Ser. No. 357,070
14 Claims. (Cl. 315—97)

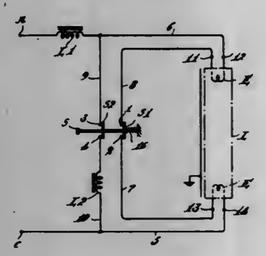
10. A ballast for use in conjunction with at least one companion ballast to start and operate a plurality of electric discharge lamps, said companion ballast including at least a means for supplying the heating current for the filaments at one end of said electric discharge lamps and including terminals for connection with an alternating current source, said ballast for use in conjunction with said companion ballast comprising: potential supply means including current limiting means for connection with an alternating source, circuit means for connection of said potential supply means in circuit with the other

ends of the electric discharge lamps for supplying lamp operating current and heating current for the filaments at said other ends of said lamps, and said potential supply means of said last mentioned ballast with the companion



ballast conjointly ballasting and providing the operating potential for said lamps without need for electrical connections to be brought out from any one of said ballasts to both ends of an electric discharge lamp.

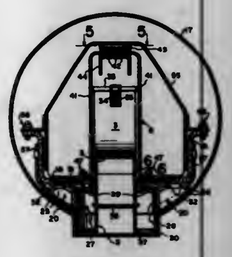
3,323,007
FLUORESCENT LAMP CIRCUIT
Raymond A. Vanasse, Marblehead, Mass., assignor to Sylvania Electric Products Inc., a corporation of Delaware
Filed Nov. 13, 1963, Ser. No. 323,481
4 Claims. (Cl. 315—99)



1. A fluorescent lamp starting circuit comprising power terminals for supplying alternating current to the lamp, first and second pairs of lamp terminals, first and second magnetically independent inductances, a first circuit connecting the first inductance only and each pair of lamp terminals in series between said power terminals, a second circuit connecting the second inductance in parallel with two lamp terminals including one lamp terminal of each pair, and switch means in each of said circuits mechanically coupled and conjointly operative to open said circuits so that at least one inductance applies a voltage pulse across the lamp to ignite the lamp.

3,323,008
ATOMIC BEAM APPARATUS WITH MEANS FOR RESILIENTLY SUPPORTING ELEMENTS IN AN EVACUATED TUBE TO PREVENT THERMAL DISTORTION
Joseph H. Holloway, Topsfield, Mass, and Joseph W. Anderson, Manor, Pa., assignors, by mesne assignments, to Hewlett-Packard Company, Palo Alto, Calif., a corporation of California
Filed Oct. 29, 1962, Ser. No. 233,573
10 Claims. (Cl. 315—111)

1. In an atomic beam tube apparatus including; a source of beam particles for forming and projecting a beam of atomic particles over a predetermined beam path, a detector disposed at the terminal end of the beam path for detecting resonance of the beam particles, state selector magnets disposed along the beam path for deflecting beam particles, means for applying microwave radiation to the beam between said state selector magnets for effecting resonance of the beam particles; an elongated rigid support structure directed along the beam path and fixedly supporting said source, detector, and state selector magnets in alignment; a separate evacuated envelope structure enclosing said support structure; suspension structure disposed between said support structure and



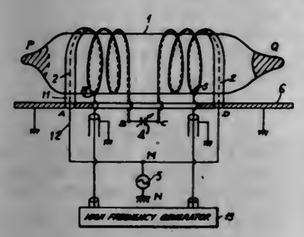
said envelope structure for suspending said support structure from said envelope structure; said suspension structure including, means providing a pair of axially spaced apart radial and torsional restraints for said suspended support structure, and means providing an axial restraint for said support structure independent of at least one of said pair of spaced radial and torsional restraint means; whereby distortion of said support structure which is encountered when the vacuum envelope is mechanically deformed during bakeout is minimized.

3,323,009
ATOMIC BEAM DEVICE HAVING MAGNETIC SHIELDS ABOUT THE RADIO FREQUENCY SECTION
Joseph H. Holloway, Topsfield, Mass., assignor, by mesne assignments, to Hewlett-Packard Company, Palo Alto, Calif., a corporation of California
Filed Apr. 1, 1963, Ser. No. 269,683
13 Claims. (Cl. 315—111)



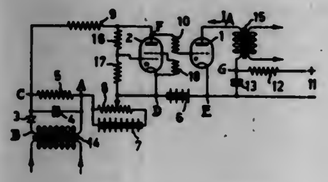
1. An atomic beam apparatus including a source of beam particles for forming and projecting a beam along a path, a deflecting magnet in said path for producing a strong magnetic field through which said beam passes, a radio frequency section aligned with said deflection magnet including means for producing a relatively weak homogeneous magnetic field through which said beam passes, a magnetic shield positioned about said ratio frequency transition section to shield said section and the weak magnetic field from the influence of external magnetic fields including the magnetic field of said deflecting magnet, said shield having an aperture therein through which said beam passes, and means extending through the aperture in said shield for producing a magnetic field across the path of said beam at the region of said aperture.

3,323,010
MONOCHROMATIC LIGHT SOURCE WITH TEMPERATURE REGULATING MEANS
Jacques Bisjak and Jean-Pierre Gourber, Paris, France, assignors to CSF—Compagnie Generale de Telegraphie Sans Fil
Filed July 31, 1963, Ser. No. 298,830
Claims priority, application France, Aug. 14, 1962, 906,919
4 Claims. (Cl. 315—115)



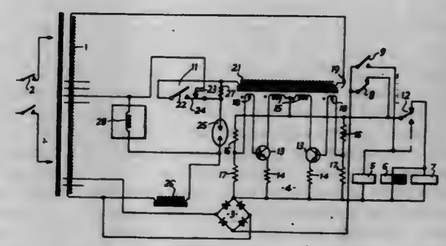
2. A source of monochromatic light comprising in combination: an elongated tight enclosure containing a low pressure gas and having two ends, two windings surrounding said two ends, each of said windings comprising a first hollow conductor and a second conductor within said first conductor; means for coupling said hollow conductors to a high frequency source; and means for coupling said second conductors to a low frequency source.

3,323,011
CIRCUIT ARRANGEMENT FOR CONTROLLING A GAS DISCHARGE TUBE
Peter Hubertus Gerardus van Vlodrop, Emmasingel, Eindhoven, Netherlands, assignor to North American Philips Company, Inc., New York, N.Y., a corporation of Delaware
Filed Aug. 6, 1963, Ser. No. 300,310
Claims priority, application Netherlands, Aug. 27, 1962, 282,548
11 Claims. (Cl. 315—166)



1. An electric circuit comprising a first gas or vapor electric discharge tube having an anode, cathode and control electrode, an output circuit connected to said anode comprising means for applying thereto a varying voltage, means for producing a discontinuous control voltage having a progressively varying leading edge, a control circuit connected to said control electrode and including input means for applying said control voltage to said control electrode to control the ignition of said tube, said control circuit further comprising a resistor, a source of direct bias voltage, a second electric discharge tube having an anode and cathode which define a current path therein, and means for connecting said resistor, said second tube and said bias voltage source in series circuit across said control electrode and cathode of the first tube with said bias voltage source connected in the reverse bias sense, and means for applying said control voltage across the current path of said second tube so as to ignite said second tube a given period of time after said first tube is ignited thereby to connect said bias voltage source to said first tube control electrode via said second tube current path and said resistor in said reverse bias sense to extinguish any discharge between said first tube cathode and control electrode.

3,323,012
SUPERPOSED HIGH FREQUENCY STARTING CIRCUIT FOR DISCHARGE LAMP
Martin Raymond Percival Selb, Hatfield, England, assignor to Caps (Research) Limited, London, England
Filed Apr. 4, 1963, Ser. No. 270,580
15 Claims. (Cl. 315—174)

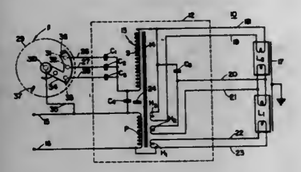


14. A high-pressure gas-discharge lamp circuit, comprising:
(a) a high-pressure, gas-discharge lamp;
(b) a ballast impedance;
(c) means connecting the said lamp in series with said ballast impedance;
(d) oscillator means which are operable from a first low voltage supply means, and whose feedback path includes an output transformer having a secondary winding connected in series with said ballast impedance and said lamp;
(e) the said oscillator means being adapted, in operation, to supply to the series circuit including said lamp and said ballast impedance a high frequency voltage of substantially constant magnitude sufficient to strike an arc in said lamp, whereby the impedance of said lamp decreases, causing the open loop gain of said oscillator means to be reduced below unity and thereby effecting damping of the voltage pulses thereof;
(f) a second low voltage supply means which comprises a first low voltage supply and a second low voltage supply;
(g) means for initially connecting said series circuit including said lamp and said ballast impedance across said first low voltage supply of said second low voltage supply means, whereby, after the striking of an arc, current through said lamp is maintained by the said first low voltage supply; and
(h) switch means adapted to disconnect said lamp and said ballast impedance from said first low voltage supply of said second low voltage supply means and connect them in series across said second low voltage supply of said second low voltage supply means a predetermined period after switching on said oscillator means to strike an arc in said lamp, which provides a voltage of smaller magnitude than the voltage from said first low voltage supply of said second low voltage supply means but sufficient to maintain current through said lamp after the electrodes thereof have become incandescent.

3,323,013
SYSTEMS AND BALLAST APPARATUS FOR OPERATING FLUORESCENT LAMPS AT PRESELECTED LEVELS OF ILLUMINATION

Harold W. Lord, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York

Filed Nov. 30, 1964, Ser. No. 414,741
7 Claims. (Cl. 315—187)

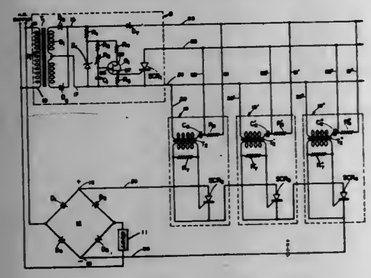


1. A ballast apparatus for use in conjunction with a switching means for operating a fluorescent lamp at different predetermined levels of illumination, said ballast apparatus comprising a housing, a high reactance transformer connected in said housing and including a primary winding and a secondary winding inductively coupled on a magnetic core, and means for applying the output of said transformer to the fluorescent lamp for operating the lamp at said predetermined levels of illumination, said means including output leads extending out of said housing for connection to the lamp, a plurality of capacitance elements positioned in said housing, and connections for placing said capacitance elements in series circuit relationship with said secondary winding across said output leads, said connections including at least one lead connection to at least one of said impedance elements and extending externally of said housing for placing said switching means in series circuit relationship with said at least one of said capacitance elements whereby said one capacitance element and said secondary winding across said output leads may be selectively placed in the circuit with said secondary winding across said output leads to vary the energy applied to said lamp and control the degree of illumination thereof.

3,323,014
CIRCUITS FOR FIRING A PLURALITY OF SOLID STATE CONTROL DEVICES

Thomas G. West, Danville, Ill., assignor to General Electric Company, a corporation of New York

Filed Dec. 17, 1962, Ser. No. 245,209
13 Claims. (Cl. 315—194)

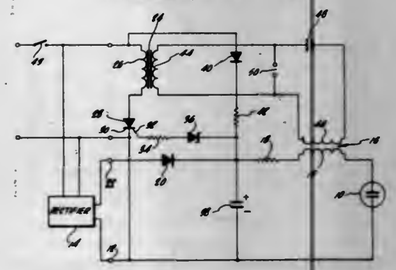


1. A firing circuit for use in conjunction with a potential source to fire a plurality of solid state control devices, said firing circuit comprising: a master control device, a plurality of slave control devices, each of said control devices having a plurality of semiconducting zones forming more than two P-N junctions, means coupled with said master control device for phase controlling said master device, a plurality of sets of serially connected capacitors and resistors, circuit means for connecting each of said serially connected capacitor and resistor sets across the potential source to supply charging current to the capacitors and connecting each of said capacitors in circuit across said master control device to provide a discharge path for the capacitors through the master control device, and means coupling each of said capacitors with at least one of said plurality of slave control devices for firing said slave control devices when the capacitors are discharged, said master control device when fired causing each of said capacitors to be discharged thereby to cause said plurality of slave control devices to be symmetrically fired.

3,323,015
POWER SUPPLY FOR A COMPACT-ARC LAMP

Charles E. Everest, Pasadena, Calif., assignor to Consolidated Electrodynamics Corporation, Pasadena, Calif., a corporation of California

Filed May 7, 1964, Ser. No. 365,710
2 Claims. (Cl. 315—289)



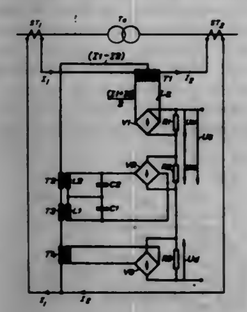
1. A self-starting power supply circuit for igniting a compact-arc lamp comprising a power transformer having a high voltage secondary, a silicon controlled rectifier connected in series with the primary of the transformer directly across an alternating current source and having a control electrode, a source of D.C. supply voltage of sufficient magnitude to sustain an arc in the lamp but substantially smaller than the voltage of the alternating current source, means including a first diode, a first resistor, and one winding of a radio frequency transformer in series connecting the lamp across the D.C. source, a storage capacitor connected across the D.C. source through the first diode, means including a second diode and a second resistor in series connecting the storage capacitor across the alternating current source, means including a series capacitor for connecting the secondary of the power transformer across the primary of the radio frequency transformer, a spark gap radio frequency generator connected across the secondary of the power transformer, and means including a zener diode connecting the control electrode of the silicon controlled rectifier to one end of the storage capacitor for turning on the silicon controlled rectifier when the storage capacitor is charged to the peak voltage of the alternating current source.

3,323,016
TRANSFORMER DIFFERENTIAL PROTECTION

Stig Gösta Lennart Andersson, Vasteras, Sweden, assignor to Allmänna Svenska Elektriska Aktiebolaget, Vasteras, Sweden, a corporation of Sweden

Filed Nov. 16, 1964, Ser. No. 411,325
Claims priority, application Sweden, Nov. 20, 1963, 12,787/63
1 Claim. (Cl. 317—15)

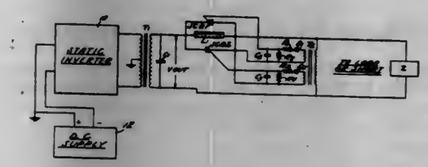
In a voltage generating device in an equipment for protecting apparatus connected in an alternating current power system, said device comprising means for deriving from said system a first varying current dependent upon the sum of the currents flowing into and out of said apparatus, means for deriving from said system a second varying current dependent upon the difference of the currents flowing into and out of said apparatus, means for generating a first and a second direct voltage dependent upon said derived currents, the combination with all said means of a filter device connected to said means for deriving from said system a second varying current dependent upon the difference between the currents flowing into and out of said apparatus, said filter device comprising a pass filter for the second harmonic and a pass filter for the fifth harmonic, a block filter for the third harmonic, said two pass filters being connected together to said block filter, means for generating a third direct voltage dependent upon the output of said filter device, means for combining said first and third voltages to form a restraint voltage, a releasing circuit connected to said voltage generating device, and means to supply to said releasing circuit a tripping voltage equal to the difference between said restraint voltage and said second voltage.



3,323,017
OVERLOAD PROTECTOR FOR A SOURCE OF ELECTRICAL ENERGY

Austen V. Powell, Broad Brook, Conn., and Robert E. Sullivan, East Longmeadow, Mass., assignors to United Aircraft Corporation, East Hartford, Conn., a corporation of Delaware

Filed Jan. 28, 1964, Ser. No. 340,747
6 Claims. (Cl. 317—20)



1. An overload protector for a source of electrical energy, adapted to be connected to a load which is to be energized thereby, comprising:

an impedance element adapted to be connected between the source of electrical energy and the load,

voltage controlled switch means connected in parallel with said impedance, said switch means being settable into a conductive state in response to a control voltage in excess of a predetermined magnitude and otherwise being in a nonconductive state;

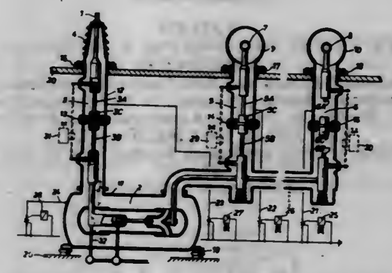
sensing means for sensing a voltage across the load, control means electrically connected to said sensing means for generating a control voltage proportional to the load voltage,

conductor means for applying said control voltage to said switch means whereby said switch means conducts at all times when said control voltage is above said predetermined magnitude thereby short circuiting said impedance element during normal operation, said impedance element being placed in series with the load when said control voltage falls below said predetermined magnitude.

3,323,018
METAL-ENCLOSED ELECTRICAL PROTECTIVE SYSTEMS

Werner A. Roth, Aargau, Switzerland, assignor to Fabrik Elektrischer Apparate Sprecher & Schuh A.-G., Aargau, Switzerland

Filed Aug. 7, 1964, Ser. No. 388,207
Claims priority, application Switzerland, Aug. 14, 1963, 10,055/63
5 Claims. (Cl. 317—60)



1. A metal-enclosed high-voltage switching system for protection against faults in an electrical distribution system, including at least one bus bar, at least one outgoing line, at least one disconnecting switch means comprising two halves joined by an electrical connection and connecting said at least one bus bar to said at least one outgoing line, at least one power switch means, an electrically conductive metal housing surrounding said at least one bus bar, disconnecting switch means and power switch means and insulated from ground, individual actuating means for operation of said at least one disconnecting switch means and said at least one power switch means, and at least one auxiliary circuit for controlling said actuating means: the improvement wherein said housing comprises a first section surrounding said at least one bus bar and the half of said at least one disconnecting switch means connected thereto, and a terminating section surrounding the other half of said at least one disconnecting switch means and the portion of the bus bar connected thereto to said outgoing line; and including means for insulating said first section from said terminating section; and a separate relay means connected between each of said first and terminating sections and ground for individually grounding a respective section when a fault occurs within the section.

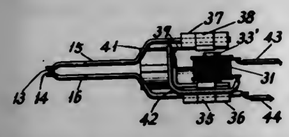
3,323,019
ELECTRIC IGNITER FOR BURNERS

Eiichi Takahashi, Ota-ku, Tokyo, Japan, assignor to Corona Electric Works, Co. Ltd., Tokyo, Japan, a corporation of Japan

Filed July 30, 1964, Ser. No. 386,131
5 Claims. (Cl. 317—93)

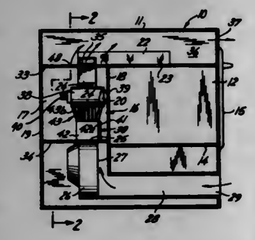
1. In a fuel burner ignition device, fixed support means, a fuel injection nozzle mounted on said support means, a first electrode rigidly secured to said support means and having a contact point adjacent said nozzle, a spring plate having a first arm secured to said fixed support means and having a magnetic second arm, a second electrode

secured on said magnetic second arm and having a contact point normally engaging said first-named contact point under the biasing force of said spring plate, an electromagnet mounted on said fixed support means in a position to exert an attractive force on said magnetic sec-



ond arm opposing said biasing force and sufficient to separate the contact points responsive to the energization of said electromagnet, a pair of terminal means adapted to be connected to a source of current, and circuit means connecting the winding of said electromagnet and said electrodes in series between said terminal means.

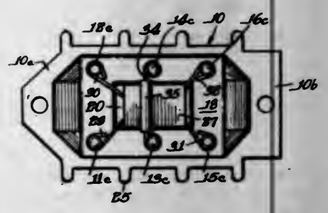
3,323,020
STRUCTURE FOR COOLING A MICROWAVE GENERATOR
Tibor Lenart, Ektorp, and Bror Gustav Roland Pettersson, Bandhagen, Sweden, assignors to Aktiebolaget Electrolux, Stockholm, Sweden, a corporation of Sweden
Filed July 10, 1964, Ser. No. 381,736
Claims priority, application Sweden, July 12, 1963, 7,803/63
12 Claims. (Cl. 317—100)



1. A generator for producing microwave energy having an anode block, permanent magnet means, means for supporting said permanent magnet means at the vicinity of said anode block, said supporting means providing a path of flow for heat from said anode block to said magnet means, and means for cooling said supporting means to block flow of heat in said path of flow and divert from said magnet means heat tending to flow thereto from said anode block, said cooling means comprising structure for cooling said supporting means without cooling said permanent magnet means.

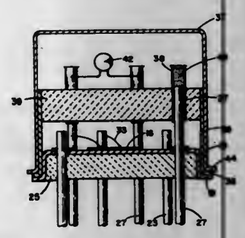
3,323,021
COMBINATION TERMINAL BLOCK AND ELECTRICAL COMPONENT ASSEMBLY
Janez Frank Sever, Cleveland, Ohio, assignor to Square D Company, Park Ridge, Ill., a corporation of Michigan
Filed Mar. 8, 1965, Ser. No. 438,013
1 Claim. (Cl. 317—101)

A combined terminal block and semiconductor assembly comprising an insulating terminal block of generally rectangular cross section, said terminal block having a generally rectangularly shaped relatively deep recess on the underside thereof defined by a pair of oppositely disposed side wall portions, an inner wall and a pair of oppositely disposed outwardly diverging end wall portions, a generally rectangular relatively shallow recess centrally disposed in said inner wall and adapted for receiving and positioning electrical components therein, said shallow recess being sized in relation to the area of said inner wall so as to define, on said inner wall surrounding said shallow recess, a peripheral marginal area of substantial width between said end wall and side wall portions and respective edges of said shallow recess, at least two pairs of electrically conductive terminal members carried by the block, each of said terminal members being provided, at an upper surface of the block, with fastening means and extending from the upper surface of the block through an associated aperture in the block and terminating in a binding post portion disposed in said recess at the peripheral marginal area of the inner wall, a semiconductor rectifier module having a set of input terminals adapted for connection to a source of alternating current and having a set of output terminals providing a source of direct current when said input terminals are connected to the source of alternating current, said module being positioned in said shallow recess and having its input terminals electrically connected to the binding post portions of



a first pair of said terminal members and its output terminals connected to the binding post portions of a second pair of terminal members, mounting supports disposed at opposite ends of the block, one of said mounting supports being bluntly shaped, and the other being pointed, and insulative encapsulating material filling said recesses and encapsulating said binding post portions and said semiconductor module, said first pair of terminal members being disposed adjacent the bluntly-shaped mounting support, and said second pair of terminal members being disposed adjacent the pointed mounting support, whereby said first and second pairs of terminal members are positively identifiable with respect to each other by their positions relative to the differently shaped mounting supports, said second pair of terminal members being thus identified as providing a source of direct current when said first pair of terminal members is connected to the source of alternating current.

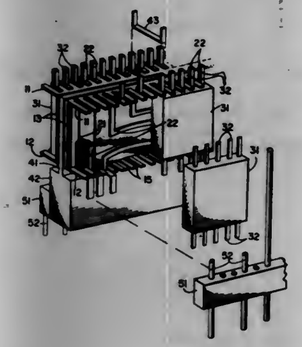
3,323,022
PACKAGE FOR DISCRETE AND INTEGRATED CIRCUIT COMPONENTS
Harry da Costa, Phoenix, Ariz., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed Aug. 23, 1965, Ser. No. 481,851
6 Claims. (Cl. 317—101)



2. An electrical device comprising
a header,
a semiconductor element mounted on said header,
an intermediate shell disposed over said header and being hermetically sealed therewith,

receptacles in association with said intermediate shell, said receptacles being hermetically sealed with said intermediate shell,
leads extending through and hermetically sealed with said header, selected of said leads extending a sufficient distance to make contact with and be hermetically sealed with said receptacles, selected of said leads being connected electrically with said semiconductor element,
non-integrated components disposed on the side of said intermediate shell opposite said header and connected electrically to said extended leads, and
means for protecting said non-integrated components.

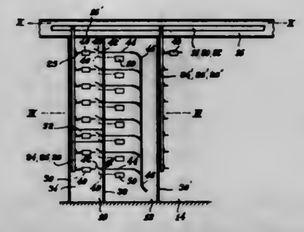
3,323,023
SEMICONDUCTOR APPARATUS
John S. Walker, Phoenix, Ariz., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed July 22, 1964, Ser. No. 384,498
8 Claims. (Cl. 317—101)



1. An inter-connected microcircuit assembly including in combination, an elongated channel having a pair of parallel sides and a central portion joining said sides, each of said sides having a plurality of openings spaced along the length thereof, a plurality of rectangular insulating layers disposed in said channel adjacent to and parallel with said central portion and forming a laminated structure, conductor means having first portions supported on said layers and insulated thereby and second portions extending beyond one pair of opposite edges of said insulating layers at predetermining locations and extending through said openings in said sides, and a plurality of microcircuit units disposed in said channel adjacent said layers and having electrical leads extending therefrom through said openings in said sides and being disposed adjacent said second portion of said conductor means exteriorly of said channel to facilitate electrical connection between said conductor means and said electrical leads.

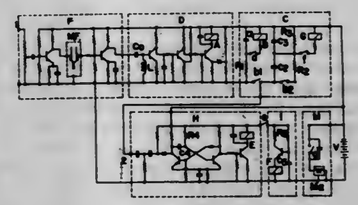
3,323,024
ELECTRIC HIGH POWER SWITCHING DEVICE
Kurt Tage Lennart Bergman, Sundsvall, Sweden, assignor to David Olof Hägglund, Ornskoldsvik, Sweden
Filed Mar. 30, 1964, Ser. No. 355,886
Claims priority, application Sweden, Aug. 1, 1963, 8,477/63
8 Claims. (Cl. 317—103)

1. An electric high power switching device, comprising, in combination, at least one trunk conduit, means forming a horizontal chamber enclosing said trunk conduit, a plurality of side conduits connected with said trunk conduit and extending substantially perpendicularly and downwardly thereto, at least three spaced side walls in parallel to each other and consisting of an insulating material with high dielectric disruptive strength extending close and parallel to said side conduits, said walls forming at least two compartments receiving said side conduits and extending substantially perpendicularly to said chamber, and a plurality of distributing units located one over the other in one of said compartments, each of said distributing units



comprising at least one switch secured to the middle one of said three walls and a melting wire fuse cooperating with said switch and connecting said switch with one of said side conduits, said fuse together with said switch providing a horizontal path for an electrical current between said one side conduit, said fuse, said switch and a distributing cable, the interior of said compartment being substantially free of magnetic material.

3,323,025
APPARATUS FOR CONTROLLING AND SYNCHRONIZING TIMEPIECES
Masashi Sugano, Nerima-ku, Tokyo-to, and Michio Yoshioka, Setagaya-ku, Tokyo-to, Japan, assignors to Kokusai Denki Kabushiki Kaisha, Tokyo-to, Japan, a joint-stock company of Japan
Filed Oct. 1, 1963, Ser. No. 313,030
Claims priority, application Japan, Apr. 15, 1963, 38/19,435
4 Claims. (Cl. 317—147)



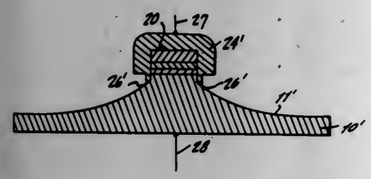
1. Apparatus for controlling and synchronizing clocks in dependence on a time-announcing signal comprising at least one warning signal of a first frequency and a correct time signal of the same or other frequency, said apparatus comprising a frequency-selecting detector circuit having means to select and rectify said warning signal and said correct time signal, a counting circuit connected to said detector circuit having means to accumulate successively, in response to each of said rectified signals, an electric charge, a control circuit connected to said counting circuit to discharge said accumulated electric charge upon the reception by said counting circuit of said correct time signal, and an electromagnetic device under control of said control circuit to drive clock time correcting means in response to said discharge of the accumulated electric charge.

3,323,026
SLUG-TYPE TITANIUM WET ELECTROLYTIC CAPACITORS
Shinichi Minami, Osaka, Koreaki Nakada, Nishinomiya-shi, and Wataru Mizushima, Neyagawa-shi, Japan, assignors to Matsushita Electric Industrial Co., Ltd., Osaka, Japan, a corporation of Japan
Filed July 29, 1964, Ser. No. 385,886
7 Claims. (Cl. 317—230)



1. A wet slug-type electrolytic capacitor comprising an electrolyte, a positive electrode made of a sintered block of titanium having thereon a titanium oxide film in a rutile type crystal structure, a negative electrode, and a container for said electrolyte and said electrodes, said electrolyte comprising an aqueous solution of potassium nitrite.

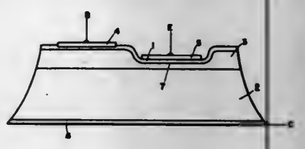
3,323,027
SEMICONDUCTOR DEVICES WITH LAYER OF SILICON MONOXIDE AND GERMANIUM MIXTURE AND METHODS OF FABRICATING THEM
Edward Leonard Braniecki, Jr., Somerville, N.J., assignor to Radio Corporation of America, a corporation of Delaware
Filed Sept. 16, 1964, Ser. No. 396,885
12 Claims. (Cl. 317—234)



1. A semiconductor device comprising a crystalline semiconductive body having at least one major face; an insulating layer on at least a portion of said one face, said insulating layer comprising a film of germanium on said one face, a layer of silicon monoxide and germanium mixture on said germanium film, and a coating of silicon monoxide on said silicon monoxide-germanium layer; and an electrode on said silicon monoxide coating, said electrode being electrically connected to said body.

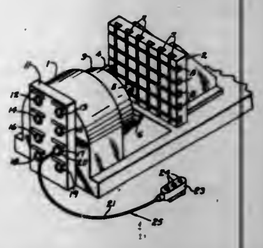
3,323,028
HIGH FREQUENCY PNIP TRANSISTOR STRUCTURE
Ernst Fröschle, Ulm (Danube), Germany, assignor to Telefunken Patentverwertungs-G.m.b.H., Ulm (Danube), Germany
Filed Aug. 7, 1961, Ser. No. 129,714
Claims priority, application Germany, Aug. 5, 1960, T 18,796
8 Claims. (Cl. 317—235)

1. A semiconductor device comprising, in combination: a semiconductor body of a first conductivity type having a collector zone extending across the entire cross section of said body and a high resistance, intrinsic conduction zone of non-uniform thickness extending into one surface of said body and contiguous with said collector zone; a semiconductor base zone of the opposite conductivity type from said body and extending into said one surface of said body to be contiguous with said intrinsic conduction zone, said base zone having at least one portion disposed adjacent a region of reduced thickness of said intrinsic conduction zone and at least another portion disposed adjacent a region of said intrinsic conduction zone removed from said



region of reduced thickness; and a semiconductor emitter zone of the same conductivity type as said body and forming a junction with said base zone, at least the emission region of said emitter zone being disposed adjacent said region of reduced thickness of said intrinsic conduction zone.

3,323,029
PORTABLE CONTROL FOR A MACHINE TOOL MOTOR SYSTEM
Daniel E. Joseph, 10306 Viscount, St. Louis, Mo. 63136
Filed June 26, 1963, Ser. No. 290,845
4 Claims. (Cl. 318—17)



1. A portable circuit control switch unit for use during set up or adjustment of a machine tool providing for selectively controlling the power supply from a source of electric power to an electric motor means for operation of particular functions of said machine tool, a control panel for said machine tool, electric outlet socket means on said panel and partial electric circuit means for each function of the machine tool connecting said source of electric power, to said outlet socket means and said motor means, said unit comprising:

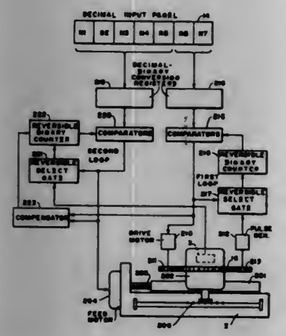
(a) a flexible electric cord attached at one end to an electric plug type connector and at the other end to a manually operated portable electric switch, said cord being of a length to provide for disposition of said switch in proximity to the operable machine tool,

said cord, plug and switch being electrically connected together to form a complementary part of an electric circuit so that when said complementary part is connected with said partial electric circuit means by inserting said plug in an outlet socket means said machine tool has at least one complete switch operated control circuit,

(b) a switch box containing said portable electric switch, said switch box having first and second flat surfaces,

a portion of said first flat surface being magnetic and a portion being non-magnetic and located juxtaposed the magnetic portion of said surface for forming a fulcrum for prying the magnetic portion loose from adherence to said machine tool, a switch button disposed through said second flat surface and provided upon its depression for energization of the complete control circuit.

3,323,030
DIGITAL FINE AND COARSE SERVO MOTOR CONTROL SYSTEM
Seiuemon Inaba and Kanryo Shimizu, Kawasaki, Tokiji Shimajiri, Mitaka-shi, and Hajime Mori, Ota-ku, Japan, assignors to Fujitsu Limited, Kawasaki, Japan, a corporation of Japan
Filed Dec. 23, 1963, Ser. No. 332,978
7 Claims. (Cl. 318—18)



1. A digital system for controlling the position along a given path of a movable structure movably mounted on a fixed structure, comprising

drive means coupled to said movable structure for displacing it;

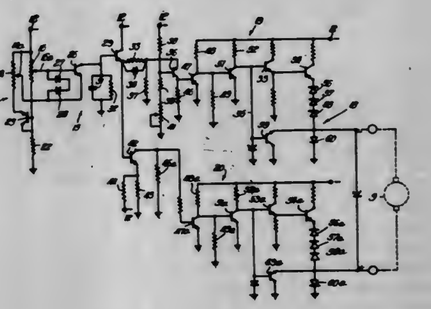
detector means mounted on said two structures for detecting positional variation of said movable structure along said path, said detector means comprising scale means affixed to one of said structures and an optical detecting element movably mounted on the other of said structures in operative proximity with said scale means;

datum setting means having a first portion selectively adjustable for setting the major amount of a desired positional datum value and having a second portion selectively adjustable for setting the residual amount of said datus value;

presetting control means coupled to said optical detecting element for moving said optical detecting element relative to said structure in accordance with said residual amount, said presetting control means comprising first register means having an output and a content equal to that of the second portion of said datum setting means, a servomotor coupled to said optical detecting element for moving said optical detecting element along said given path, a pulse generator coupled to said optical detecting element for providing pulses corresponding in number to the displacement of said optical detecting element, first counter means having an output and an input connected to said pulse generator for counting pulses generated by said pulse generator, first comparator means having an output connected to said servomotor, an input connected to the output of said first counter means and an input connected to the output of said first register means for comparing the contents of said first register means and said first counter means and for energizing said servo-motor until coincidence of the contents of said first register means and first counter means; and

drive control means coupled to said drive means, said drive control means comprising second register means having an output and a content equal to that of the first portion of said datum setting means, second counter means having an output and an input connected to said detector means for counting pulses generated by said detector means, second comparator means having an output connected to said drive means, an input connected to the output of said second counter means and an input connected to the output of said second register means for comparing the contents of said second register means and said second counter means and for energizing said drive means until coincidence of the contents of said second register means and second counter means.

3,323,031
DUAL CHANNEL SERVO-AMPLIFIER CIRCUIT
Frank S. Kasper, Hazel Crest, and Robert L. Billingsley, Elmhurst, Ill., assignors to Amtron, Inc., Midlothian, Ill., a corporation of Illinois
Filed Nov. 15, 1963, Ser. No. 323,979
3 Claims. (Cl. 318—29)



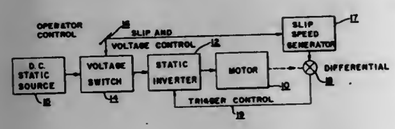
1. A servo-amplifier circuit for effecting the controlled operation of a direct current motor, which circuit comprises a bridge input network, said bridge input network including a first selectively adjustable control impedance element and a second variable impedance element responsive to the controlled operation of the motor, the selective adjustment of said first control impedance element effecting bridge unbalance and the production of an output signal by said bridge network, an amplifier connected across the output of said bridge input network, said amplifier being connected to said bridge input network so as to be in a normal conductive state when said bridge network is balanced and for producing amplified error voltage signals corresponding the output signals from said bridge network when said bridge network is unbalanced, a pair of output channels connected in circuit with the motor, said channels serving to selectively supply driving current to the motor in response to error voltage signals produced by said amplifier, each of said output channels including a normally nonconductive input circuit, each of said input circuits including means for biasing said input circuits so that the normal output of the normally conductive amplifier does not render either of said input circuits conductive, said input circuits being biased so that a dead band range of operation exists in which neither of said input circuits is rendered conductive notwithstanding unbalance of said bridge input network, only one of said normally nonconductive input circuits being rendered conductive when said bridge input network becomes sufficiently unbalanced to cause an error voltage signal to be produced by said amplifier

so as to overcome the biasing of one of said input networks, one of said output channels responding to its input circuit being rendered conductive so that said one output channel supplies driving current to said motor, said motor being selectively driven by current supplied thereto from said one output channel and concomitantly effecting a variation in said second variable impedance element to reestablish a substantially balanced condition in said bridge input network whereby the supply of driving current to said motor is cut off.

3,323,032
ELECTRIC DRIVE SYSTEM

Paul D. Agarwal, Robert B. Colten, Donald Friedman, Richard W. Johnston, and John J. Werth, Santa Barbara, Calif., assignors to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed July 18, 1963, Ser. No. 295,954
12 Claims. (Cl. 318—231)



1. A drive mechanism operable at variable speed and torque from a D.-C. voltage source, comprising in combination: an A.-C. induction motor having a rotor with a low resistance squirrel cage winding and a stator having a three phase stator winding with three phase input terminals, the motor having an optimum torque and efficiency in relation to applied voltage in a predetermined range of slip speeds; a three part inverter unit, each part defining D.-C. input terminals connected to said voltage source and an A.-C. output terminal, said inverter parts each being successively operable (a) effectively to disconnect the D.-C. input terminals from the A.-C. output terminal (b) to connect the D.-C. input terminals in positive sense to the A.-C. output terminal, and (c) to connect the D.-C. input terminals in negative sense to the A.-C. output terminal; means connecting the A.-C. output terminals of the inverter parts to the three phase terminals of the stator winding, respectively; three phase cycling means operable in response to the rotor speed of said motor to actuate said inverter parts in successive disconnect, positive sense, disconnect, and negative sense repetitive cycles having a common repetition rate for each inverter and at substantially 120 degree phase spacings in relation to each other, the disconnect, positive sense, disconnect, and negative sense periods being respectively substantially 60 degrees, 120 degrees, 60 degrees, and 120 degrees; motor speed control means operable to vary the average values of the voltages at the output terminals of said inverter units during said positive sense and negative sense conditions at will and in unison; said motor speed control means being capable of varying the voltage at the output terminals of said inverter over a predetermined range of voltage provided by said voltage source, and means effective to actuate said cycling means at a repetition rate equal to the sum of the actual speed of said rotor and a predetermined slip frequency in said predetermined slip range without regard to the setting of said speed control means, thereby driving said motor at an average voltage and hence torque selected at will and at variable frequency with substantial elimination of third harmonic components in the voltage applied to the stator winding and energizing the motor at all times with efficiency comparable to that associated with balanced polyphase sinusoidal voltages and within the range of optimum efficiency and slip.

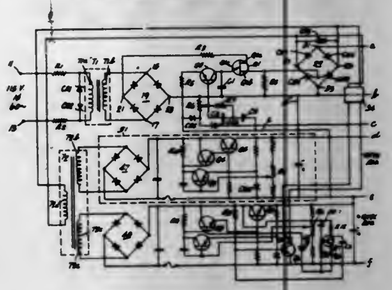
ERRATUM

For Class 318—267 see:
Patent No. 3,322,994

3,323,033
STATIC INVERTER SYSTEM

Paul E. Lorentzen, Pacific Palisades, and Darrell W. Tesdall, Los Angeles, Calif., assignors to Douglas Aircraft Company, Inc., Santa Monica, Calif.

Filed Feb. 15, 1963, Ser. No. 258,719
6 Claims. (Cl. 321—5)

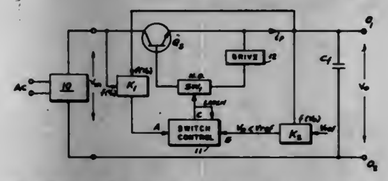


6. An inverter system comprising:
a source of direct current power;
a regulator circuit connected to said source of direct current power for obtaining a regulated direct voltage output;
sensing means including a saturable core transformer connected to sense an excessive current condition in a power lead from said source of direct current power, to produce an output signal when the excessive current condition is sensed;
control means for controlling the regulated directed voltage output of said regulator circuit, said control means being responsive to the output signal of said sensing means for causing the removal of the regulated direct voltage output from said regulator circuit for a predetermined duration;
a sequential pulse generator including a saturable, multiple core transformer having primary and feedback windings around all the cores, series connected bias windings of successively increasing ampere-turns on each of certain cores and an output winding for each core, and a pair of transistors connecting with said primary and feedback windings in a multivibrator circuit;
three pairs of driver transistors;
means connecting the output windings of said pulse generator to respective pairs of said driver transistors to apply the sequential signals from said pulse generator in three phases of output signals thereto, to control conduction of said driver transistors in a three phase sequence;
three transformers each having a center tapped primary winding and double secondary windings, said primary windings of said transformers being connected to respective pairs of said driver transistors, and said center taps and common junction between each of said pairs of driver transistors being connected to the regulated direct voltage output of said regulator circuit; and
three pairs of power transistors adapted to be supplied by said source of direct current power, said power transistors of each pair being respectively connected to said double secondary windings of a corresponding one of said three transformers and are complementary conductive and non-conductive in response to a corresponding phase of the three phases of output signals, for controlling the direct current output power from said source applied to said power transistors to produce output power to a load in accordance with variations of the three phase sequence.

3,323,034
SWITCHING TECHNIQUES IN REGULATED D.C. POWER SUPPLIES

Lester Dubin, Pelham Manor, Sol Greenberg, Port Washington, and George Gautherin, Woodside, N.Y., assignors to Lambda Electronics Corporation, Huntington, N.Y., a body corporate of New York

Filed June 5, 1963, Ser. No. 285,829
17 Claims. (Cl. 321—16)

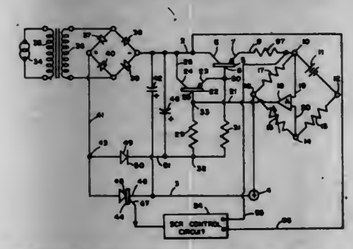


1. A switching type regulated D.C. power supply adapted to be energized from a rectified alternating current source of variable frequency, comprising an output circuit for delivering a D.C. output, semiconductive switching means having a switch circuit adapted to conduct unipolar current between said source and said output circuit for regulating said output, error sensing means operatively connected to said output circuit, synchronized wide band switch control means operatively coupled to said switching means and to said error sensing means for switching said switching means, said switch control means including reset means connected to be responsive to the amplitude of said source for conditioning said control means in synchronism with said source, said control means being responsive to said reset means and said error sensing means whereby said switch circuit is rendered conductive during the leading period of said alternating current source to regulate the amplitude of said D.C. output, said switch control means also comprising latching means having a memory characteristic and operable to periodically deactivate said control means and holding same deactivated in synchronism with the cycling of said source.

3,323,035
TRANSISTOR REGULATED POWER SUPPLY LEAKAGE CURRENT SUPPLY

Joseph R. Gately, Woodside, N.Y., assignor to Forbro Design Corp., New York, N.Y., a corporation of New York

Filed Feb. 6, 1964, Ser. No. 342,905
7 Claims. (Cl. 321—16)

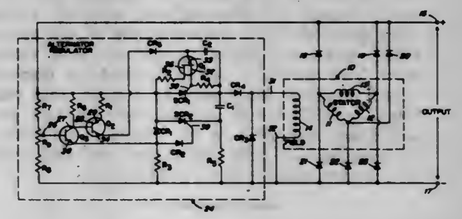


1. In a regulated power supply including in combination;
a four arm bridge including, a reference voltage arm, a reference resistor arm, a variable resistor voltage control arm, and a load resistor arm connected in a closed loop in the order named;
means for developing unregulated D.C. voltage including a line transformer connected to rectifying means providing a two terminal source of unregulated direct current;
a series pass transistor and a resistor connected in series between one of said terminals and the bridge junction which is between one end of the load resistor and one end of the reference voltage to partially control the current supplied from said unregulated source to said load;
an error amplifier with the input connected between the said bridge junction and the bridge junction which is between one end of the reference resistor and the voltage control resistor and with the output coupled in controlling relationship to said pass transistor;
a switching semiconductor connected between the other terminal of said source and the other end of the load resistor for partially controlling the current supplied from said unregulated source and said load;
a control circuit for said switching semiconductor connected across said series pass transistor and series connected resistor to provide an input circuit and output connected in controlling relationship to said switching semiconductor to provide control of said regulated D.C. in a direction to tend to keep the voltage drop across said pass transistor and series connected resistor in series combination substantially constant;
whereby the switching regulator acts to tend to keep the dissipation in said series pass transistor constant by the operation of the switching semiconductor controlled in accordance with the voltage across the series pass transistor plus a function of the current through the series pass transistor.

3,323,036
ALTERNATOR REGULATOR

Wesley G. Runyan, Marion, Iowa, assignor to Collins Radio Company, Cedar Rapids, Iowa, a corporation of Iowa

Filed May 1, 1963, Ser. No. 277,289
1 Claim. (Cl. 322—28)



A regulator for an alternator having a stator and field windings with a rectifier connected to the stator windings and output terminals connected across the rectifier, the alternator-regulator connected with its output to the field winding of the alternator, a pulse generator circuit with a detector portion connected to the output terminals to detect the output voltage level and producing pulses of equal lengh but varying in frequency such that the alternator produces a constant output voltage independent of speed of rotation of the alternator drive means, said pulse forming circuit comprising a first silicon controlled rectifier with one side connected to one of the output terminals, an RC time constant circuit comprising a resistor and condenser connected between a second terminal of the silicon controlled rectifier and the other output terminal, the field winding of the alternator connected across the RC time constant circuit, a second silicon controlled rectifier connected with one terminal to the first output

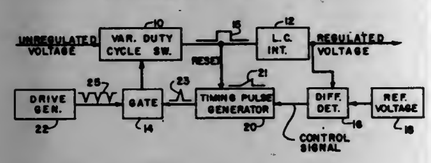
terminal and a second terminal of the second rectifier connected to the junction point between the resistor and capacitor, and means controlling the first and second silicon controlled rectifiers to produce pulses of equal lengths but which vary inversely in frequency with variations of the output voltage of the alternator.

3,323,037

VOLTAGE REGULATOR UTILIZING A CONTROLLED VARIABLE DUTY CYCLE SWITCH

Robert J. Doss, Cincinnati, Ohio, assignor to Avco Corporation, Cincinnati, Ohio, a corporation of Delaware

Filed May 4, 1964, Ser. No. 364,441
14 Claims. (Cl. 323—22)



1. A voltage regulating system including:
a source of unregulated direct voltage;
a normally open switch;
an integrator coupled to said source through said switch for producing an output voltage;
means for generating a control signal proportional to the difference between said output voltage and a predetermined voltage;
means responsive to said control signal for closing said switch for periods of time inversely proportional to the magnitude of said control signal, said last-named means comprising a drive generator for repeatedly generating square waves at a fixed rate, said square waves being coupled to said switch through said gate, said square waves serving to close said switch, and a timing pulse generator for generating a pulse for opening said gate during the periods of each of said square wave at times determined by the magnitude of said control signal; and
said timing pulse generator comprising means responsive to said control signal for generating a sawtooth voltage, the slope of said sawtooth voltage being proportional to the magnitude of said control signal, means responsive to said sawtooth voltage when said sawtooth voltage exceeds a predetermined threshold for generating a pulse, said pulse being applied to said gate for opening said gate, and means responsive to the closing of said switch for resetting said sawtooth voltage until said switch is re-opened, whereupon the cycle repeats.

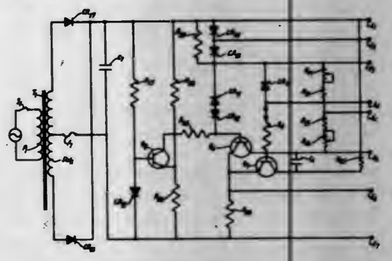
3,323,038

STABILIZED POTENTIAL AND CURRENT SOURCES

Sol Greenberg, 23 Ridge Drive, Port Washington, N.Y. 11050, and Irving Forrest, 21 Evelyn Road, Plainview, N.Y. 11803

Filed June 5, 1963, Ser. No. 285,632
12 Claims. (Cl. 323—22)

11. A substantially constant D.C. source comprising a source of unregulated D.C. energy,
a transistor including a base, emitter and collector;
circuit means connected across the emitter-base circuit of said transistor including
a diode having thermal characteristics related to the thermal characteristics of the emitter-base junction of said transistor for supplying a reference potential to the emitter-base circuit of said transistor, and
a resistance connected in series with said diode for providing a potential which compensates for the variations in said reference potential due to the dynamic impedance of said diode, and which compensates for thermal differences between said diode and said junction,
said diode and said resistance being connected in series between the emitter and base of said transistor so that the net emitter-base potential is substantially stabilized notwithstanding temperature and source voltage changes;
a first circuit branch means connected across said source and including said diode to energize said diode and develop said reference potential;
a second circuit branch means connected across said source and including said resistance for developing said compensating potential as a function of the potential across said source;



a third circuit branch means connected across said source and including the emitter-collector circuit of said transistor, said third circuit branch being characterized by a substantially constant current flow therethrough;
a second transistor including an emitter, base and collector;
a diode having temperature characteristics related to the temperature characteristics of said second transistor connected in series with the emitter base circuit of said second transistor to provide temperature stabilization;
circuit means connected across the collector-emitter circuit of said second transistor to maintain substantially constant potential thereacross; and
an output circuit including the emitter-collector circuit of said second transistor for providing a substantially constant D.C. output.

3,323,039

MAGNETIC AMPLIFIER VOLTAGE REGULATOR SYSTEM

Alexander Kusko, Newton Center, Mass., assignor to Basic Products Corporation, Milwaukee, Wis., a corporation of Wisconsin

Filed Dec. 5, 1963, Ser. No. 328,310
2 Claims. (Cl. 323—45)



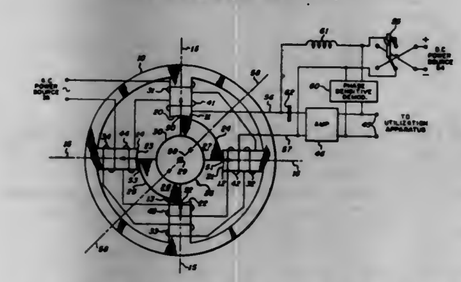
2. In a power modulating system, the combination including an A.C. power supply, an autotransformer means connected to said A.C. power supply, saturable reactor means having a gate, an auxiliary and a control winding per core and having at least two core elements, the gate and auxiliary windings of each core element having the same number of turns and being connected in series with the respective windings of the other element, so as to provide at least two sets of series connected gate and auxiliary windings, an A.C. reactor connected to the outer ends of said autotransformer means in series with the set of series connected auxiliary windings, the set of series connected gate windings being connected in series with the load and to opposite ends of said autotransformer.

3,323,040

COMBINED PICK-OFF AND TORQUER HAVING TORQUING SIGNAL SUPERIMPOSED ON EXCITATION OR PICK-OFF WINDING

Ronald H. Wright, Commack, N.Y., assignor to Sperry Rand Corporation, Great Neck, N.Y., a corporation of Delaware

Filed Jan. 24, 1964, Ser. No. 340,027
6 Claims. (Cl. 323—51)



1. A combined pick-off and torquing device comprising,
(1) stator means having excitation winding means mounted thereon for producing a periodically varying field of substantially parallel lines of magnetic flux,
(2) conductive rotor means having a substantially disc shaped permanent magnet mounted to be cooperative with said lines of flux for angular movement about an axis perpendicular to said lines of flux, said rotor means being shaped for varying the reluctance to said lines of flux in accordance with the deviation of said rotor from a predetermined preferred position,
(3) pick-off winding means mounted on said stator means for providing output signals having an amplitude and phase representative of the amount and direction of the deviation of said rotor means from said predetermined position,
(4) means for providing a variable direct current torquing input signal connected to one of said winding means for generating magnetic lines of flux cooperative with said permanent magnet for applying a torque to said rotor means representative of the magnitude and polarity of said torquing input signal, and
(5) means coupled to said one of said winding means for preventing undesirable interaction between said signals.

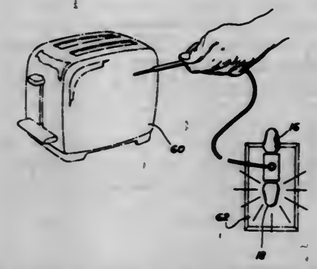
3,323,041

APPARATUS HAVING A PAIR OF LAMP INDICATORS AND TERMINAL MEANS FOR INSERTION INTO A STANDARD ELECTRICAL OUTLET TO TEST FOR LINE VOLTAGE, SHORT CIRCUITS, POLARITY AND THE LIKE

Louis A. Warner, 5223 N. Natoma, Chicago, Ill. 60656

Filed Feb. 24, 1966, Ser. No. 529,844
2 Claims. (Cl. 324—51)

1. A test light consisting of a polarized socket having a pair of bayonet type electrical terminals affixed directly to it which are adapted for insertion into standard electrical outlets, a single test probe, a pair of light bulbs, said pair of light bulbs each having a base contact and a shell contact and removably affixed wtihin said socket with said bases in end-to-end relationship, said pair of electrical terminals each being extended into said socket and engaged by respective ones of said shell contacts on said light bulbs, a test probe terminal affixed to the exterior of said socket



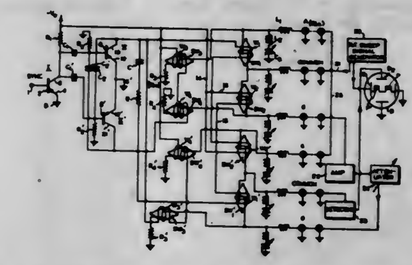
and extended into it and positoned between and directly engaged by said base contacts on both of said light bulbs to connect said light bulbs in series between said electrical terminals, and test probe means removably affixed to said test probe terminal, said light bulbs each giving an indication of a test result when said electrical terminals are inserted into an electrical outlet and said test probe is engaged with an object to be tested.

3,323,042

APPARATUS FOR SWITCHING RADIO FREQUENCY ENERGY THROUGH PLURAL CIRCUIT CONNECTIONS TO DISPLAY DEVICE

Isaac S. Blonder, West Orange, N.J., assignor to Blonder Tongue Electronics, Newark, N.J., a corporation of New Jersey

Filed Dec. 27, 1962, Ser. No. 247,569
14 Claims. (Cl. 324—57)

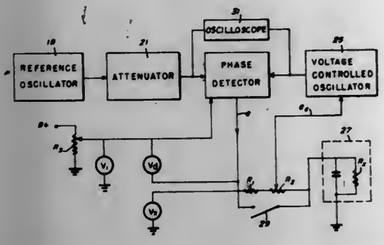


1. In combination, two pairs of two-terminal switching devices, a pair of conductors, means for producing opposite-phase switching impulses at said conductors, the switching devices of each pair having means connected to said conductors, respectively, and responsive to said switching impulses, for operating the switching devices of each pair alternately, a set of three outlet circuits associated with each pair of switching devices, a first outlet circuit of each set being connected in common to a terminal of each switching device of the associated pair, the second and third outlet circuits of each set being respectively connected to the other terminals of the associated pair of switching devices, means connecting the second outlet circuits of each set and connecting the third outlet circuits of each set, respectively, means for applying radio frequency energy to the common outlet circuit of one of the sets and means coupled to the common outlet circuit of the other set for evidencing a signal.

3,323,043
CAPACITOR TESTING DEVICE USING A PHASE LOCKED LOOP

Norris C. Hekimian, Kensington, Md., assignor to Page Communications Engineering, Inc., Washington, D.C., a corporation of Delaware

Filed May 8, 1964, Ser. No. 365,878
3 Claims. (Cl. 324—57)



3. A circuit for the measurement of the resistive components of a capacitor comprising

a reference oscillator,

a phase detector,

a voltage controlled oscillator,

a fixed and a variable resistor connected in series between said phase detector and said voltage controlled oscillator and an attenuator coupled between said reference oscillator and said phase detector,

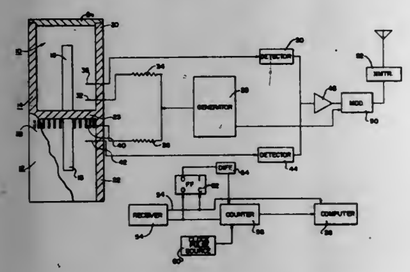
switch means connected across said resistors,

meter means coupled between the other side of said switch and ground for measuring the circuit voltage with said switch open and closed.

3,323,044
MICROWAVE REFRACTOMETER

Conrad A. Parlanti, Natick, and Bernard Manning, Waltham, Mass., Lewis B. Wetzel, Providence, R.I., and Carl H. Whittier, Sharon, Mass., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Air Force

Filed May 31, 1963, Ser. No. 284,691
2 Claims. (Cl. 324—58.5)



1. A refractometer for measurement of the index of refraction of a fluid, said refractometer comprising:

(a) a tubular outer conductor;

(b) a transverse partition within said tubular outer conductor, forming a first and second hollow section therein;

(c) a quarter wavelength stub mounted on the transverse partition within each of said sections in such a manner that one end of each of said stubs is electrically connected through said partition to said outer conductor to form a pair of coaxial type cavity resonators;

(d) said transverse partition consisting of a material of high thermal conductivity for maintaining the temperature of both stubs substantially the same;

(e) the outer conductor of each of said cavity resonators being substantially longer than the stub enclosed therein, whereby changes in length of said outer conductor will have substantially no effect on the resonant frequencies of each of said cavity resonators;

(f) the first of said pair of cavity resonators containing a dielectric having a dielectric constant which is substantially invariant with respect to temperature changes over the range of operation of said refractometer;

(g) means for sealing said first cavity resonator to prevent a change of the dielectric therein;

(h) the second of said pair of cavity resonators containing the fluid to be monitored by said refractometer;

(i) means for changing the fluid of said second cavity resonator; and

(j) means for measuring the resonant frequencies of said first and second cavity resonators.

3,323,045
DIELECTRIC MEASURING SYSTEM INCLUDING A CLAMP CIRCUIT FOR MODIFYING ONE OF TWO DETECTION SIGNALS

Clyde W. Baird, Columbus, Ohio, assignor to Industrial Nucleonics Corporation, a corporation of Ohio

Filed Oct. 21, 1963, Ser. No. 317,706
15 Claims. (Cl. 324—61)



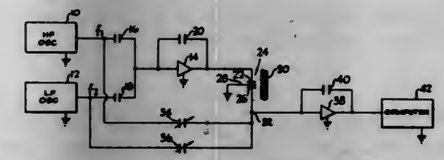
1. A system for determining a property of a dielectric material comprising: a measuring probe having spaced electrodes for coupling said probe to said material, first signal generating means for generating a high frequency signal, second signal generating means for generating a low frequency signal, means connected to said first and second signal generating means for coupling said high and low frequency signals to said measuring probe, means coupled to said measuring probe for deriving a first detection signal related to signals from said probe occasioned by said material at said high frequency and a second detection signal related to signals from said probe occasioned by said material at said low frequency, non-linear means for modifying at least one of said first and second detection signals, and means responsive to said first and second detection signals for comparing said signals to derive an indication of said property of said dielectric material, said last named means being responsive to at least one of said first and second signals as modified by said non-linear means.

3,323,046
DIELECTRIC MEASURING SYSTEM INCLUDING PHASE INVERTING MEANS AND A SUMMING AMPLIFIER

Ko-Hsin Liu, Hilliard, Ohio, assignor to Industrial Nucleonics Corporation, a corporation of Ohio

Filed Oct. 21, 1963, Ser. No. 317,426
8 Claims. (Cl. 324—61)

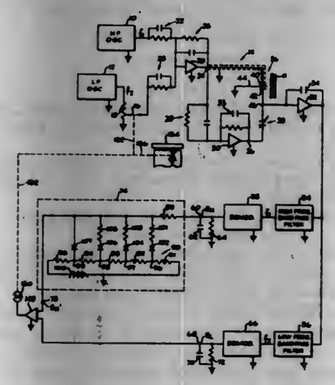
1. A system for determining a property of a dielectric material comprising: a measuring probe having first and second spaced electrodes for coupling said probe to said material, balancing impedance means coupled to said second electrode, signal generating means for generating first signals at a first frequency and second signals at a second substantially different frequency, means connected to said signal generating means for coupling said first and second signals to said balancing impedance means whereby said first and second signals are coupled to said second electrode through said balancing impedance means, phase inverting means connected to receive the signals coupled to said balancing impedance means for developing third and fourth signals at said respective first and second frequencies and substantially 180° out of phase with said respective first and second signals, means connected to said phase inverting means for coupling said third and fourth signals to said first electrode so as to apply said third and fourth signals to said second electrode through said measuring probe, the impedance of said balancing impedance means making said first and second signals passing therethrough substantially balance said third and fourth signals passing through said measuring probe in absence of material at the probe so that there are substantially no net signals developed at said second electrode at either of said first and second frequencies in the absence of said material at said probe, and output means connected to said second electrode for measuring a function of the signals developed thereat at both of said frequencies with said material at said probe as an indication of said property of said dielectric material.



3,323,047
TWO-FREQUENCY DIELECTRIC MEASURING SYSTEM INCLUDING A VARIABLE GAIN CIRCUIT FOR MODIFYING THE AMPLITUDE OF AT LEAST ONE OF TWO DETECTION SIGNALS

Robert W. Martin, Dublin, and Alan Norwich, Columbus, Ohio, assignors to Industrial Nucleonics Corporation, a corporation of Ohio

Filed Oct. 21, 1963, Ser. No. 317,445
10 Claims. (Cl. 324—61)

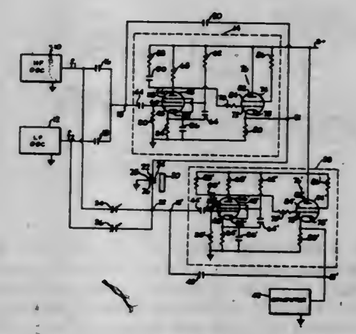


1. A system for determining a property of a dielectric material comprising: a measuring probe having spaced electrodes for coupling said probe to said material, first signal generating means for generating a high frequency signal, second signal generating means for generating a low frequency signal, means connected to said first and second-signal generating means for coupling said high and low frequency signals to said measuring probe, means coupled to said measuring probe for deriving a first detection signal related to signals from said probe occasioned by said material at said high frequency and a second detection signal related to signals from said probe occasioned by said material at said low frequency, variable gain means for modifying the amplitude of one of said first and second detection signals, and means responsive to said one signal as modified and to the other of said first and second detection signals for comparing said signals to derive an indication of said property of said dielectric material, said variable gain means having a gain gradually changing as a function of the amplitude of one of said first and second detection signals.

3,323,048
DIELECTRIC MEASURING SYSTEM INCLUDING AN AMPLIFIER HAVING A NON-AMPLIFYING CATHODE FOLLOWER CIRCUIT

Ko-Hsin Liu, Hilliard, Ohio, assignor to Industrial Nucleonics Corporation, a corporation of Ohio

Filed Oct. 21, 1963, Ser. No. 317,533
17 Claims. (Cl. 324—61)



1. In a system for determining the moisture content of a dielectric material including: a measuring probe having first and second spaced electrodes for coupling said probe to said material; balancing impedance means connected to said second electrode; means for applying a first pair of signals each at a respective one of two substantially different frequencies to said first electrode whereby said first pair of signals are coupled to said second electrode through said measuring probe, one of said frequencies being of the order of at least 100 kilocycles; means for applying a second pair of signals to said balancing impedance means so as to couple said second pair of signals to said second electrode through said balancing impedance means to balance said first pair of signals passing through said measuring probe so that there is no net signal developed at said second electrode at either of said frequencies in the absence of material at said probe, each of said second pair of signals being at a respective one of said two frequencies and substantially 180° out of phase with a respective one of said first pair of signals; and output means connected to said second electrode for measuring a function of the signals developed thereat at both of said frequencies with said material at said probe as an indication of said moisture

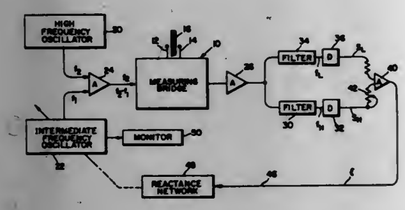
content, the improvement wherein at least one of said signal applying and output means comprises at least one amplifier including a single stage of amplification, an impedance matching circuit providing substantially no phase shift between its input and output at either of said frequencies and with its input coupled to the output of said single stage of amplification, and a feedback impedance coupled between the output of said impedance matching circuit and the input of said single stage of amplification, said amplifier amplifying signals at both of said frequencies at substantially the same gain and producing at both frequencies substantially the same phase shift between its input and output.

3,323,049

SYSTEM FOR QUANTITATIVELY MEASURING A PROPERTY OF DIELECTRIC MATERIAL BY APPLYING INPUT SIGNALS AT TWO DIFFERENT FREQUENCIES TO A CAPACITANCE PROBE AND VARYING THE FREQUENCY OF ONE INPUT SIGNAL TO MAINTAIN A CONSTANT RATIO OF OUTPUT SIGNALS FOR THE TWO FREQUENCIES

Albert F. Hanken, Atlanta, Ga., assignor to Industrial Nucleonics Corporation, a corporation of Ohio

Continuation of application Ser. No. 180,786, Mar. 19, 1962. This application Dec. 7, 1965, Ser. No. 528,667
9 Claims. (Cl. 324—61)



6. In a measuring system for determining a property of a dielectric material, a first oscillator for providing a first signal at a first frequency, a second oscillator for providing a second signal at a second frequency, means for combining said first and second signals to provide a third signal at a third frequency which is different from said first and second frequencies and resulting from the combination thereof, detecting means, a capacitive probe for coupling said third signal to at least a portion of said material and for coupling said detecting means to said portion, said detecting means including means for deriving a fourth signal which is a function of said third signal as it is modified by the dielectric properties of said material portion coupled to said probe, and means responsive to changes in said fourth signal for shifting the frequency of said second oscillator to thereby change the frequency of said third input signal coupled to said probe.

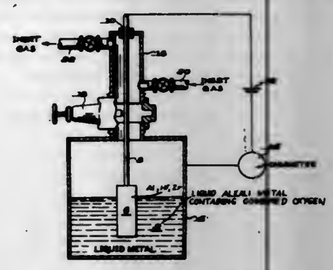
3,323,050

METHOD FOR DETERMINATION OF COMBINED OXYGEN IN LIQUID ALKALI METALS

John Wilson Mausteller, Evans City, and Sheridan J. Rodgers, Ellwood City, Pa., assignors, by mesne assignments, to Mine Safety Appliances Company, Pittsburgh, Pa., a corporation of Pennsylvania

Filed June 4, 1962, Ser. No. 199,953
5 Claims. (Cl. 324—65)

1. A method of determining the concentration of combined oxygen in liquid alkali metals comprising contacting the liquid alkali metal to be tested with an electrode of a metal that forms an oxide more stable than the oxide of the alkali metal and measuring the substantially linear rate of electrical resistance increase of said elec-



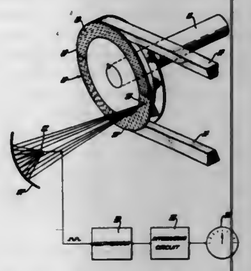
trode occurring responsive to the presence of combined oxygen in the liquid alkali metal.

3,323,051

METHOD AND APPARATUS FOR DETERMINING MOTION CHARACTERISTICS OF A BODY

Martin Woods, Warren, Mich., assignor to General Motors Corporation, Detroit, Mich., a corporation of Delaware

Filed Dec. 3, 1962, Ser. No. 241,677
10 Claims. (Cl. 324—70)



1. The method of determining the rate of cyclic motion of a body comprising the steps of modifying a moving body so that portions thereof emit different amounts of radiant energy in the infrared spectrum, sensing at a position relative to the motion path of the body the different amounts of radiant energy emitted from the body during the motion thereof, converting the sensed radiant energy into an electrical output having a frequency component corresponding to the rate at which the body portions of different amounts of radiant energy move relative to the position, and measuring the electrical output so as to determine the rate of cyclic motion of the body.

3,323,052

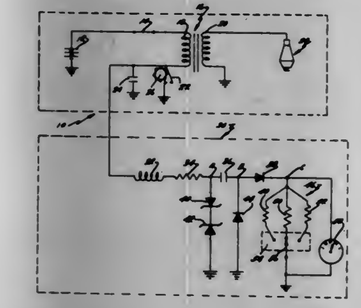
AUTOMOTIVE TACHOMETER WITH SINGLE RESISTIVE ELEMENT RANGE AND CALIBRATION DEVICE

David G. Passmore, Comstock Park, Mich., assignor to Carpenter Corporation, Muskegon, Mich., a corporation of Michigan

Filed Sept. 30, 1964, Ser. No. 400,319
3 Claims. (Cl. 324—70)

1. An electrically operated engine tachometer, comprising: a source of electrical impulses which have a known relationship to the speed of an engine and to the number of its cylinders; a filter network including a series-connected choke for initially receiving said impulses and for smoothing and shaping the same; a series circuit branch having one end coupled to said filter network and including a resistor, a capacitor, and a first unidirectionally conductive component connected to conduct impulses having a first polarity and to block impulses

having an opposite polarity; a second unidirectionally conductive component connected from a point in said series circuit branch to ground potential, to conduct impulses therebetween having a polarity opposite said first polarity; a meter connected from the end of said series circuit branch opposite said one end thereof to ground potential, for steadily indicating a value proportional to the average of impulses conducted to such meter; and a composite resistor means connected across said meter for causing a given deflection of the latter at a given engine speed, said composite resistor comprising a single resistor body having a plurality of sweep arms in spaced



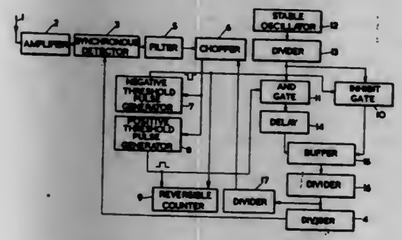
contact along such resistor body for tapping therefrom a plurality of separate and different resistance values and switching means having a movable contact for selectively connecting different ones of said resistance values in circuit with said meter, each of said values selected to produce the same current flow through said meter at a given engine speed for an engine having a given number of cylinders as the other resistance values do at that same speed for engines having other and different numbers of cylinders, whereby the speed of an engine will be correctly indicated by said meter regardless of the number of cylinders in the engine.

3,323,053

DIGITAL OUTPUT PHASE METER

David Southern, Godalming, England, assignor to Minister of Aviation, in Her Majesty's Government of the United Kingdom of Great Britain and Northern Ireland, London, England

Filed Feb. 20, 1964, Ser. No. 346,296
Claims priority, application Great Britain, Feb. 26, 1963, 7,624/63
6 Claims. (Cl. 324—83)



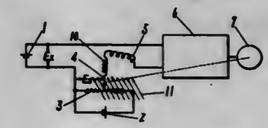
1. A phase measuring circuit comprising a first signal source; a second signal source having an output signal frequency lower than the output frequency of said first signal source; control means including a frequency divider chain connected to said first signal source for providing a signal having the same nominal frequency as said output signal from said second signal source; synchronous detector means having inputs connected to receive an output from said control means and from said second signal source; integrator means connected to the output of said synchronous detector means; first gating means connected to said divider chain for controlling the application of at least one extra pulse to a stage of said divider chain; second gating means connected to said divider chain for controlling the inhibition of at least one pulse applied to said stage; pulse generator means operatively connected to an output of said integrator means, said pulse generator means also being coupled to said first gating means and to said second gating means for controlling said first and second gating means so that at least one extra pulse is applied to, or at least one pulse is inhibited from being applied to said stage according to whether the output from said integrator means is greater than or less than a preselected threshold level; and reversible counter means operatively connected to said pulse generator means for counting in one sense each time an extra pulse is applied to said stage and for counting in the opposite sense each time a pulse is inhibited from being applied to said stage.

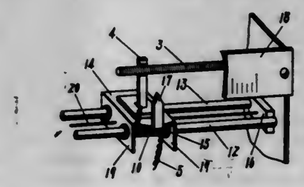
3,323,054

SELF-BALANCING MEASURING SYSTEM HAVING ANTI-HUNT MAGNETIC MEANS FOR SLIDER DAMPING

Masanori Yasui, Tokyo, Japan, assignor to Toa Electronics Limited, Tokyo, Japan

Filed Feb. 4, 1963, Ser. No. 256,004
Claims priority, application Japan, Feb. 6, 1962, 37/3,772
2 Claims. (Cl. 324—99)





1. A self-balancing graphic recording system comprising a circuit having a balancing amplifier, a balancing motor connected to said amplifier driven by the output of said amplifier, a potentiometer in said circuit having a sliding contact driven by said balancing motor so as to slide on said potentiometer so that an input to be measured may be balanced with the potentiometer voltage, a voltage-generating coil connected in series with said sliding contact and moved at the same speed as the moving speed of said sliding contact, a field producing means cooperative with said potentiometer developing a uniform magnetic field over the moving range of said voltage-generating coil so that a voltage generated by said generating coil is proportional to the speed at which balancing takes place, connections applying the last-mentioned voltage as feed back input to said balancing amplifier, said field-producing means comprising two substantially straight, guide rods disposed spaced and substantially parallel defining substantially alike and substantially parallel magnetic flux paths, magnet means disposed fixed between said two guide rods magnetically coupled

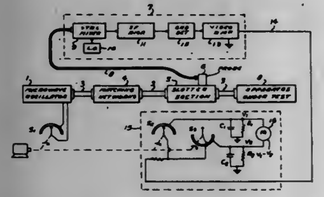
thereto and developing therebetween magnetic flux defining said substantially uniform field, said voltage-generating coil being mounted for linear travel in opposite directions on one of said guide rods, means guided for travelling in two opposite directions on at least said one guide rod operably connecting said sliding contact and said voltage-generating coil causing said coil to travel through said field at said same speed as said sliding contact thereby to develop said voltage, a first rotary switch in said circuit, a shunt resistance means connected to the potentiometer through said first rotary switch, a voltage-dividing resistance means provided with a voltage-dividing terminal connected between both ends of said voltage generating coil, and a second rotary switch electrically connected to said voltage-dividing terminal, and means provided so that said first and second rotary switches are operatively connected with each other, whereby the divided voltage of said voltage-generating coil may be fed back to said amplifier input through said second rotary switch.

3,323,055

APPARATUS FOR MEASURING THE AMPLITUDE OF A RECTANGULAR WAVE IN THE PRESENCE OF NOISE

George N. Oetzel, Palo Alto, Calif., assignor to the United States of America as represented by the Secretary of the Air Force

Filed Sept. 17, 1963, Ser. No. 309,583
1 Claim. (Cl. 324—111)



Apparatus for measuring the amplitude of a rectangular wave in the presence of noise, comprising: a pair of two-terminal integrating networks each having one terminal connected to a point of reference potential; a pair of bidirectional switching means; means for applying the rectangular wave to be measured between said point of reference potential and the other terminal of one of said integrating circuits through one of said switching means and between said point of reference potential and the other terminal of the other of said integrating means through the other of said switching means; means synchronized with said rectangular wave for alternately closing and opening each of said switching means coincidently with successive edges of said rectangular wave, with the operations of said switches oppositely phased; and a voltage responsive indicator connected between the said other terminals of the integrating circuits.

3,323,056

D.C. MEASUREMENT USING CONDUCTOR SURROUNDING CORE WITH PLURAL HALL GENERATORS HAVING INDIVIDUAL FEEDBACK COILS

Thomas L. Haley, Columbus, Ohio, assignor to Halmar Electronics, Incorporated, Columbus, Ohio, a corporation of Ohio

Filed July 5, 1963, Ser. No. 292,952
10 Claims. (Cl. 324—117)

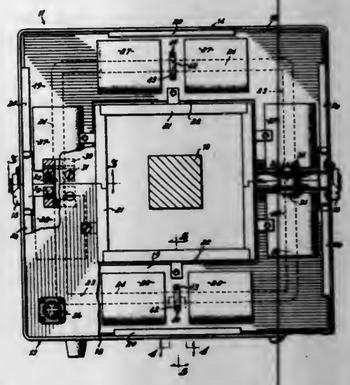
10. Apparatus for measuring direct current passing through a conductor comprising,

a magnetic core of high permeability surrounding said conductor and having at least two spaced air gaps,

at least two Hall generators, each disposed in a different one of said air gaps,

an individual coil for each Hall generator, each of said coils being wound on portions of said core closely adjacent its respective Hall generator,

a direct current source connected to each coil to create a flux in said core substantially equal to and in opposition to the flux created by the current in said conductor,



means for independently varying the magnitude of the current applied to each of said coils in direct relation to the amplitude of the output of the Hall generator associated with its respective coil, whereby the measuring apparatus is compensated for non-uniform flux density in different core portions due to said conductor not being centered in said surrounding core, and

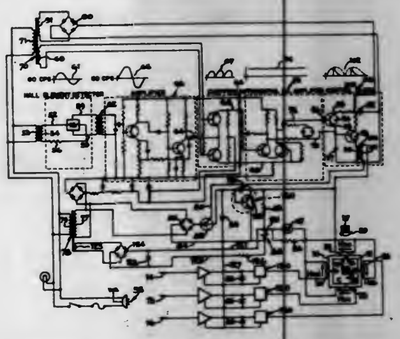
means for measuring the sum of said direct currents applied to each of said coils.

3,323,057

HALL GENERATOR CURRENT METER HAVING EXTRANEOUS FIELD COMPENSATING APPARATUS

Thomas L. Haley, deceased, late of Columbus, Ohio, by Mary Elizabeth Haley, administratrix, Columbus, Ohio, assignor to Halmar Electronics Incorporated, Columbus, Ohio, a corporation of Ohio

Filed May 2, 1966, Ser. No. 547,394
5 Claims. (Cl. 324—117)



1. Apparatus for measuring current in a bus subjected to intense stray magnetic fields generated by adjacent buses, said apparatus comprising,

a core having at least two spaced air gaps adapted to be mounted around said bus,

at least two Hall elements each having an output and disposed in a different one of said air gaps in said core,

at least two opposition windings surrounding said core said windings surrounding said core adjacent different ones of said Hall elements,

a feedback circuit connecting the outputs of said Hall elements to said respective windings to provide a negative magnetizing force in said core substantially equal and opposite to the positive magnetizing force created by the current in said bus,

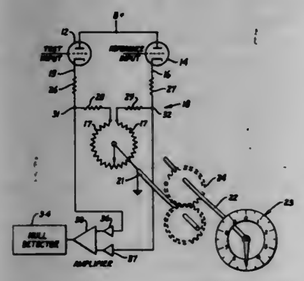
a reverse current source connected to said windings for creating a magnetizing force in said core in the same direction as the magnetizing force created by the current in said bus to effectively raise the operating level of the measuring apparatus into the positive flux range to the extent that no negative extraneous magnetic field can depress the flux into the negative range in any section of the core and measuring means associated with said windings to measure the total current flowing therein.

3,323,058

AUTOMATIC REBALANCE MEASURING SYSTEM WITH ITS INDICATOR COUPLED BY ECCENTRIC DRIVE MEANS FOR SCALE DISTRIBUTION CONTROL

Erik W. Anthon, Kensington, Calif., assignor, by mesne assignments, to Warner-Lambert Pharmaceutical Company, Morris Plains, N.J.

Filed July 12, 1963, Ser. No. 294,608
11 Claims. (Cl. 324—132)



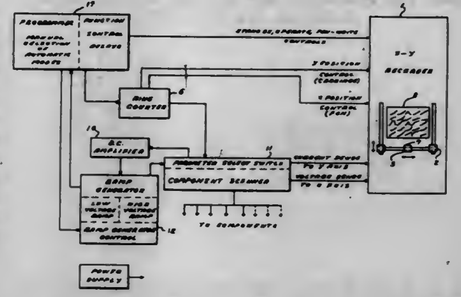
1. A system for measuring and indicating a quantity which has been sensed and converted into a ratio of a pair of electrical signals in which the logarithm of the magnitude of the ratio of signals indicates the linear magnitude of the quantity being measured, comprising a bridge circuit including a linear potentiometer, detector means electrically connected to said bridge circuit responsive to the ratio of signals and the position of the potentiometer, said detector means and bridge circuit being constructed to provide a shift and flattening of the logarithmic curve defining the relation between the quantity to be determined and the ratio of signals measured whereby both the negative and positive area of the curve are utilized in the positive scale measured, motive means responsive to said detector means for driving the potentiometer to a position determined by the ratio of signals, an indicator means, and eccentrically mounted gears drivingly connected between the potentiometer and the indicator means whereby logarithmic variations in the signal ratio being tested are converted to corresponding substantially linear variations on said indicator means.

3,323,059

AUTOMATIC TEST APPARATUS FOR DISPLAYING SEMICONDUCTOR DEVICE CHARACTERISTIC CURVES

Robert A. Erickson and Harvey N. Short, St. Paul, and Roger V. Gillette, Minneapolis, Minn., assignors, by mesne assignments, to the United States of America as represented by the Secretary of the Air Force

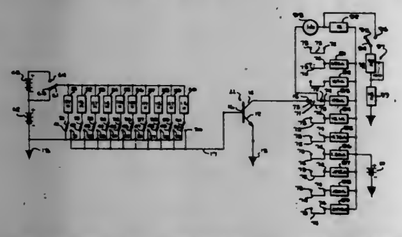
Filed Apr. 27, 1964, Ser. No. 363,030
6 Claims. (Cl. 324—158)



1. In an automatic system for measuring, plotting, and displaying the individual electrical response characteristics of a plurality of individual semiconductor electrical components, the combination comprising: individual terminal means for connecting individually to the plurality of components; voltage generating means having a ramp voltage output; a current sensing resistor; connecting means cooperating with said current sensing resistor having a voltage output proportional to current flow in said current sensing resistor; component scanning means for sequentially connecting to said individual terminal means; means connecting said voltage generating means and said current sensing resistor to said scanning means whereby said voltage output from said connecting means cooperating with said current sensing resistor will be proportional to the current flow through said semiconductor component connected by said scanning means; means for limiting to a predetermined value the magnitude of the output of said ramp voltage generating means; means cooperating with said voltage output from connecting means cooperating with said current sensing resistor whereby the slope of said ramp voltage output is reversed at a predetermined value of current flow through said current sensing resistor; programming means generating cyclic voltage pulses, each cycle consisting of a plurality of pulses having a predetermined time relationship; means for connecting said programming means and said ramp voltage generating means whereby said ramp voltage is generated in response to said cyclic voltage pulses; X-Y plotting means having a plotting area, an X position input, a Y position input, an X axis input and a Y axis input; means cooperating with said X position input and said Y position input of plotting means dividing said plotting area into a plurality of individual smaller plotting areas; connecting means cooperating with the one axis input of said plotting means and said voltage output of said current sensing means whereby said plotting means plots a response proportional to the current flowing in said current sensing resistor; connecting means cooperating with the other axis input of said plotting means and said component scanning means whereby said plotting means plots a response proportional to the voltage across said individual semiconductor electrical component; counting means cooperating with said cyclic output of said programming means and with said component scanning means and with said X and said Y position inputs of said plotting means, whereby said plotting means is sequentially advanced one posi-

tion per cycle, and said scanning means is sequentially advanced one component per cycle.

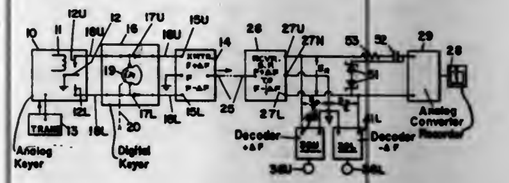
3,323,060
TRANSISTOR TEST SET HAVING INPUT CURRENTS RELATED TO $10^{n/2}$
Alexander B. Bereskin, 452 Riddle Road, Cincinnati, Ohio 45231
Continuation of application Ser. No. 201,939, June 12, 1962. This application May 6, 1966, Ser. No. 548,335
3 Claims. (Cl. 324—158)



1. In a circuit for measuring D.C. and dynamic current amplification factor of a transistor under test, and collector-emitter current with base open, the combination comprising means for connecting said transistor in common emitter operational mode in said circuit; first means for supplying direct current; a first plurality of electrical resistance elements; switch means for selectively applying current from said first direct current supply means to the base electrode of said transistor via any one or more of said resistance elements to supply incrementally variable base current to said transistor; said first means for supplying direct current including a first constant voltage source and a second constant voltage source, said voltage sources being of the same voltage values, and switch means for selectively connecting one of said constant voltage sources or both of said constant voltage sources in series to provide said current; said first plurality of resistance elements having resistance values selected to restrict incremental variation of said base current to current values within the set $10^{n/2}$ current units, where n is an integer, $0 \leq n \leq 9$; said values of voltages and resistances being such that current applied to said base electrode of said transistor has values integrally related to $10^{n/2}$; second means for supplying direct current; an ammeter having two scales reading 0–100 and 0–316, respectively, means, including a current limiting resistor connecting said ammeter to said second direct current supply means in series circuit; a second plurality of electrical resistance elements; means for selectively connecting any one of said second plurality of resistance elements in parallel circuit with said ammeter; and means for connecting said series circuit and the parallel circuit to the collector electrode of said transistor; said second plurality of resistance elements having resistance values selected to provide different full-scale deflection ranges for collector current, on each of said plurality of scales, commensurate with the incrementally variable current values to which said base current is restricted.

3,323,061
FSK SYSTEM WITH KEYING RATE CONVEYING ANALOG INFORMATION AND THE FREQUENCIES KEYED BETWEEN CONVEYING DIGITAL INFORMATION
Frederick B. Davis III, Drexel Hill, Pa., assignor to Leeds & Northrup Company, Philadelphia, Pa., a corporation of Pennsylvania
Filed Aug. 29, 1963, Ser. No. 305,259
12 Claims. (Cl. 325—30)

10. A telemetering system comprising means for producing a telemetering signal whose carrier frequency is periodically shifted between two values at a repetition frequency corresponding with the analog value of a single



condition, and means for changing one or the other of said carrier frequency values upon change in digital value of a condition.

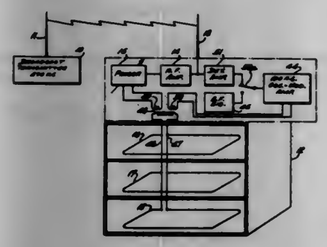
3,323,062
SIGNAL MIXING CIRCUIT INCLUDING VARACTOR DIODE
Joseph R. Ganzel, Elmhurst, and Charles N. Lynk, Jr., Chicago, Ill., assignors to Motorola, Inc., Chicago, Ill., a corporation of Illinois
Filed Nov. 12, 1963, Ser. No. 322,854
8 Claims. (Cl. 325—449)



8. In a superheterodyne receiver having radio frequency stages, intermediate frequency stages, and means for converting received carrier wave signals in the radio frequency stage to an intermediate frequency, which receiver is productive of spurious response resulting from signals of an unwanted frequency being coupled to said radio frequency stages to be converted to modulation products which may fall within the pass band of said intermediate frequency stages, the improvement comprising a varactor diode having first and second electrodes, antiresonant filter means for rejecting signals of intermediate frequency and having an input terminal and an output terminal connected to said first diode electrode, tuned circuit means coupling radio frequency signals to said input terminal, a pump oscillator, tuned circuit means for coupling the output of said pump oscillator to said input terminal, filtering means coupling said first diode electrode to said intermediate frequency stages of said receiver, resistor means connecting said first diode electrode to a reference potential, and means for applying biasing voltage to said second diode electrode, whereby said biasing voltage provides operation of said varactor diode in a given non-linear region of its voltage capacitance curve and the level of the pumping signal applied to said first diode electrode improves the intermodulation protection characteristic of said diode.

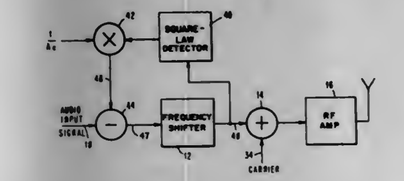
3,323,063
SYSTEM FOR RE-DIFFUSION OF RECEIVED RADIO SIGNALS
Harold R. Walker, Metuchen, N.J., and Ira Kamen, New York, N.Y., assignors to Theodore Granik, New York, N.Y.
Filed Aug. 7, 1964, Ser. No. 388,112
6 Claims. (Cl. 325—51)

1. In a system for re-diffusing within a shielded structure signals derived from a distant source which radiates a modulated radio frequency carrier of a given polarization, comprising in combination, a receiving antenna at said structure which is selective to said polarization, at least one inductive field-producing loop within said structure which is oriented to selectively produce an inductive field which is of a different polarization from said given polarization, a source of sub-radio-frequency carrier at said structure, means connected to said receiving antenna to detect the audio frequency modulations in the said radio frequency carrier, means to modulate said sub-



radio-frequency carrier by said detected signals, and means to apply the received radio frequency carrier and the said modulated sub-radio-frequency carrier simultaneously to said loop whereby the ratio of the sub-radio-frequency inductive field from said loop with respect to the radio frequency radiated field therefrom is greatly increased.

3,323,064
COMPATIBLE SINGLE-SIDEBAND TRANSMITTER
Winslow R. Remley, Bethesda, Md., assignor to International Business Machines Corporation, New York, N.Y., a corporation of New York
Filed Apr. 7, 1964, Ser. No. 357,887
2 Claims. (Cl. 325—137)



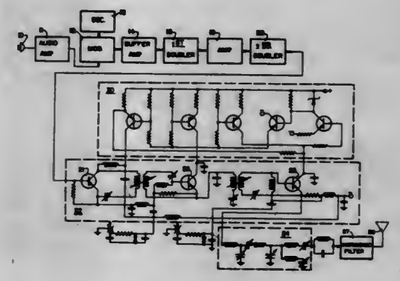
1. A transmitter for generating a modulated signal having a bandwidth equal to the bandwidth of an information-bearing modulating signal and having an envelope which reduces, through square-law detection, to an accurate replica of said modulating signal, said transmitter comprising:

a closed loop including subtraction means, frequency shifting means and square-law detection means, said subtraction means having a minuend input for receiving said modulating signal, a subtrahend input and a remainder output, said frequency shifting means being adapted to shift upwardly the frequency band of the remainder signal issuing from said output of said subtraction means, thereby producing an intermediate signal which is square law detected by said square-law detection means and passed to the subtrahend input of said subtraction means;

means for generating a carrier signal of substantially constant frequency; and

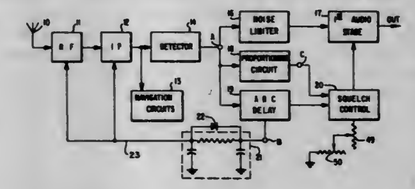
means for combining said carrier signal with said intermediate signal to adapt the latter for transmission and subsequent square-law detection.

3,323,065
TRANSISTOR PROTECTION CIRCUIT FOR RADIO TRANSMITTER
William W. O'Connor, Chicago, Ill., assignor to Motorola, Inc., Franklin Park, Ill., a corporation of Illinois
Filed May 11, 1964, Ser. No. 366,393
14 Claims. (Cl. 325—151)



13. A circuit for protecting a power supply and a variable impedance load coupled thereto from excessive current, including in combination, current limiting means including current sensing means coupling the power supply to the load for providing an operating current thereto, said operating current supplied to the load acting to increase in response to a reduction in the impedance of the load, said current limiting means being responsive to said operating current to regulate the magnitude of the power supply voltage supplied to the load whereby said operating current is limited to an amount less than a given value, voltage sensing means coupled to the load and to said current limiting means, said age sensing means being responsive to a reduction of said power supply voltage supplied to the load below a particular value to develop a control signal, said current limiting means being responsive to said control signal to disconnect the load from the power supply.

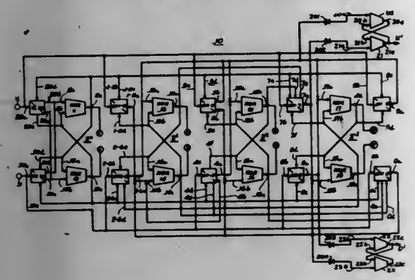
3,323,066
SQUELCH CIRCUIT
Donald P. Kurtz, Morris Plains, N.J., assignor to Aircraft Radio Corporation, Boonton, N.J., a corporation of New Jersey
Filed May 23, 1963, Ser. No. 282,683
8 Claims. (Cl. 325—403)



1. In a radio receiver having means for detecting an amplified signal and providing a delayed automatic gain control voltage, and a direct current voltage proportional to signal strength, an audio output circuit connected to said means and a squelch circuit connected to said audio output circuit for controlling said audio output circuit, the improvement which comprises,

means connected to said squelch circuit for applying thereto said delayed automatic gain control voltage and a portion of said direct current signal proportional to signal strength so as to control said squelch circuit as a function thereof.

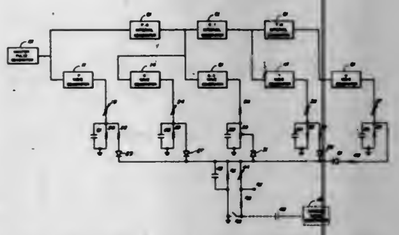
3,323,067
REVERSIBLE BINARY-CODED COUNTER USING SOLID-STATE DEVICES
James J. Eckl, Milwaukee, Wis., assignor to Square D Company, Park Ridge, Ill., a corporation of Michigan
Filed July 17, 1964, Ser. No. 383,418
12 Claims. (Cl. 328—44)



1. A circuit for counting electrical impulse signals from a source comprising; a plurality of more than two NOR flip-flop logic circuits each arranged to exist in either of two stable states and to supply an output signal indicative of its state, a transfer circuit having an input arranged to receive impulse signals from the source and an output connected to one of the NOR flip-flop circuits for changing the state of the said one flip-flop circuit from one stable state to the other stable state in response to a change in the impulse signal, a plurality of more than two multiple gated storage networks, each of said networks having at least one input connected to receive signals from the impulse signal source and an input connected to receive the output signal of said one flip-flop circuit and another input connected to receive an output from another of said flip-flop circuits, at least one of said networks having an output connected to more than one and less than all of said other flip-flop circuits and operative to change the state of said other flip-flop circuits to which said output is connected in response to a change in the signal from said impulse signal source.

8. In a counter circuit for adding the number of impulse signals received from one signal source and subtracting the number of impulse signals received from another signal source, a plurality of more than two NOR flip-flop logic circuits each arranged to exist in either of two states and to supply an output signal indicative of its state, a first transfer circuit having an input arranged to receive impulse signals from said one signal source, a second transfer circuit having an input arranged to receive impulse signals from said another signal source, said first and second transfer circuits each having an output connected to one of said flip-flop circuits for changing the state of said one flip-flop circuit in response to a change in the impulse signal from either of said sources, a first plurality of more than two multiple gated storage circuits equal in number to the number of said flip-flop circuits and each having a first input connected to be responsive to an impulse signal from said one signal source and a second input connected to be responsive to an output of at least one of said flip-flop circuits, and a second plurality of more than two multiple gated storage networks equal in number to the number of said flip-flop circuits and each having a first input connected to be responsive to an impulse signal from said another signal source and a second input connected to be responsive to an output of at least one of said flip-flop circuits, the improvement which comprises at least two of said networks of said first plurality of networks having their respective first inputs connected to be responsive to impulse signals from said one signal source and having their respective outputs connected to change the state of more than one of said other flip-flop circuits in response to a change in the signal at said one signal source, and at least two of said networks of said second plurality of networks having their first inputs connected to be responsive to impulse signals from said another signal source and having their respective outputs connected to change the state of more than one of said other flip-flop circuits in response to a change in the signal at said another signal source.

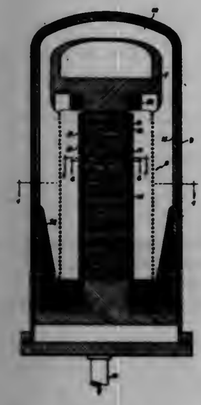
3,323,068
ELECTROCARDIOGRAM SIMULATOR
Gary J. Woods, 355 Dickens Ave., Indian River City, Fla. 32780
Filed Jan. 21, 1963, Ser. No. 253,010
12 Claims. (Cl. 328—187)



1. An electronic PQRSTU electrocardiogram simulator for generating electrocardiogram waves at a predetermined frequency comprising: means for generating P waves at said predetermined frequency; means forming QRS complexes at said predetermined frequency and at a first predetermined length of time after the beginning of said P waves; means for generating T waves at said predetermined frequency and at a second predetermined length of time after the ending of said first predetermined length of time; means for generating U waves at said predetermined frequency and at a third predetermined length of time after the ending of said second predetermined length of time wherein the sum of the said first, second, and third predetermined lengths of time is less than the reciprocal of the said predetermined frequency; and means for combining the said generated P waves, QRS complexes, T waves, and U waves to form said electrocardiogram waves.

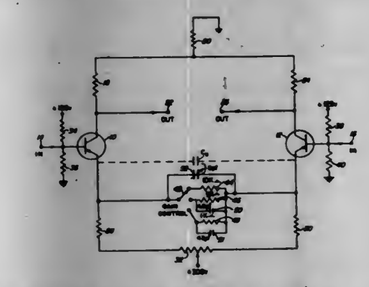
3,323,069
HIGH VOLTAGE ELECTROMAGNETIC CHARGED-PARTICLE ACCELERATOR APPARATUS HAVING AN INSULATING MAGNETIC CORE
Robert J. Van de Graaff, Lexington, Mass., assignor to High Voltage Engineering Corporation, Burlington, Mass., a corporation of Massachusetts
Original application Nov. 21, 1961, Ser. No. 154,937, now Patent No. 3,187,208, dated June 1, 1965. Divided and this application Apr. 19, 1965, Ser. No. 469,955
7 Claims. (Cl. 328—233)

1. A charged-particle accelerator comprising a cylindrical column including a series of flat conductive members, a high-voltage terminal of magnetic material and of approximately hemispherical shape supported on said column, a grounded tank enclosing said terminal and said column and being filled with an insulating gas under pressure, an evacuated acceleration tube supported with the column and comprising a multiplicity of planar electrode apertured disks separated by annular insulators, means for controlling the potentials of said electrode disks, the outer surfaces of said terminal and said column having substantially uniform curvature, a magnetic circuit including (1) said high-voltage terminal, (2) a grounded lining of magnetic material on the inner surface of said tank, (3) a first insulating magnetic path between said high-voltage terminal and said tank, and (4) a second insulating magnetic path therebetween, a plurality of coils connected in series between said high-voltage terminal and ground and linking said first insulating magnetic path, said first insulating magnetic path comprising a series of magnetic elements separated by a corresponding series of thin insulating gaps, said second insulating



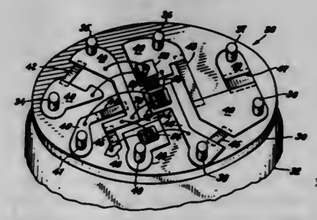
magnetic path comprising the hemispherical insulating gap between said high-voltage terminal and said lining, said high-voltage terminal having a larger outer surface area, so that the reluctance of said second insulating magnetic path is much less than the reluctance of said first insulating magnetic path, and means for producing a changing magnetic flux in said magnetic circuit.

3,323,070
VARIABLE GAIN AMPLIFIER HAVING CONSTANT FREQUENCY BAND PASS
Roy M. Hayes, Portland, Oreg., assignor to Tektronix, Inc., Beaverton, Oreg., a corporation of Oregon
Filed May 12, 1964, Ser. No. 366,705
6 Claims. (Cl. 330—15)



2. An amplifier circuit having substantially constant frequency band pass with variable gain, comprising:
- a signal translating device having emitting, collecting and control electrodes;
- means for applying input signals to said control electrode;
- means for transmitting output signals from said collector electrode;
- a plurality of different feedback impedances each including a feedback resistance and a capacitance connected in shunt across said feedback resistance, with the feedback resistances and capacitances of said impedances being of different predetermined values to vary the gain of said amplifier circuit while maintaining frequency bandwidth substantially constant; and
- switch means for selectively connecting one of said impedances to said emitting electrode so that the selected impedance provides negative current feedback, to vary the gain of said amplifier by changing the position of said switch means, said signal translating device having a stray capacitance in parallel with the selected impedance, and the capacitances of said impedances being of different predetermined values to compensate for the different feedback resistances so that the RC time constant of the selected impedance and said stray capacitance is substantially the same for each of said impedances.

3,323,071
SEMICONDUCTOR CIRCUIT ARRANGEMENT UTILIZING INTEGRATED CHOPPER ELEMENT AS ZENER-DIODE-COUPLED TRANSISTOR
Walter B. Mitchell, Danbury, Conn., assignor to National Semiconductor Corporation, Danbury, Conn.
Filed July 9, 1964, Ser. No. 381,375
1 Claim. (Cl. 330—38)

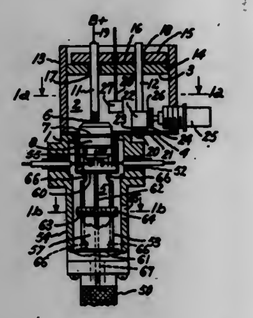


A multistage electrical amplifier comprising in combination, a ceramic insulating substrate, at least two amplifier stages constructed upon said substrate, at least one stage including an integrated chopper element, said integrated chopper circuit element comprising a die of semiconductor material having a first type of conductivity, a first region in said die, said first region having a second type of conductivity which is opposite to said first type, second and third regions in said first region, said second and third regions having said first type of conductivity, and first, second, third and fourth terminal means, said first terminal means making ohmic contact with said die, said second terminal means making ohmic contact with said first region, said third terminal means making ohmic contact with said second region, and said fourth terminal means making ohmic contact with said third region, the other of said two stages including another semiconductor die forming a transistor mounted on said substrate with two zones of one conductivity type and an intermediate region of an opposite conductivity type, said fourth terminal means being connected to one of said two zones of said transistor, a resistor connected between the other of said two zones of said transistor and said second terminal means, one of said first and third terminal means also being connected to said other zone of said transistor, and a load impedance connected between said first and third terminal means.

3,323,072
BROAD BAND CIRCUITS
Norman T. Lavoo, Latham, N.Y., assignor to General Electric Company, a corporation of New York
Filed Nov. 8, 1963, Ser. No. 322,317
6 Claims. (Cl. 330—56)

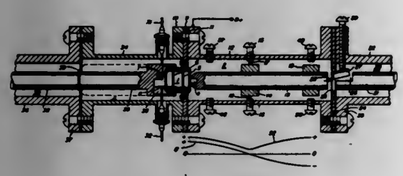
1. A broad band circuit comprising a shielded two conductor line cavity resonator including a two conductor line with a cylindrical shield thereabout and closed ends, means connecting the two conductors of said line to one end at radio frequencies, a vacuum tube including

an anode terminal, a grid terminal and a cathode terminal having its grid terminal coupled to the remaining closed end of said resonator and having its anode terminal extending into said resonator and coupled to one of said conductors, an output line, and means coupling said output line to the remaining conductor, an input circuit comprising a coaxial line extending from said tube the center conductor of which is coupled to said cathode terminal and the outer conductor of which is coupled to said grid terminal, said coaxial line having an electrical length of one-half wavelength of the operating frequency, an input line coupled to the remaining end of



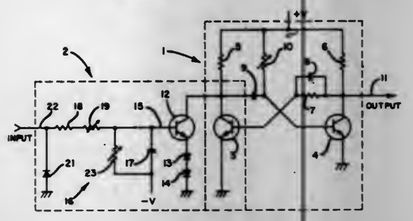
said coaxial line, the center conductor of said coaxial line being formed of a plurality of longitudinally separated segments including stationary segments and movable segments provided with threaded apertures, and translation means for moving said movable segments relative to the outer conductor of said coaxial line, said translation means comprising threaded members supported by stationary segments of said inner conductor and matingly received by said threaded apertures of movable segments of said inner conductor for adjustably supporting said movable segments of said inner conductor.

3,323,073
BROAD BAND CIRCUITS
Norman T. Lavoo, Latham, N.Y., assignor to General Electric Company, a corporation of New York
Filed Nov. 8, 1963, Ser No. 322,320
6 Claims. (Cl. 330—56)



1. A broad band circuit comprising a coaxial cavity having a length on the order of one-half wavelength at the operating frequency, a vacuum tube positioned at one end of said coaxial cavity having its anode coupled to the central conductor of said cavity and its grid coupled to the outer conductor of said cavity, inductive means separating the cavity into two separate resonant portions along the length of said cavity effective to resonate at spaced frequencies defining a pass band, and an end loading capacity between the inner conductor of said cavity and the outer conductor of said cavity at the end of said cavity remote from said vacuum tube.

3,323,074
PULSE GENERATOR PRODUCES PULSES FOR DURATION OF INPUT SIGNAL
Elmo V. Neal, San Jose, Calif., assignor to Sylvania Electric Products Inc., a corporation of Delaware
Filed Mar. 29, 1966, Ser. No. 538,276
7 Claims. (Cl. 331—111)



1. A pulse generator responsive to an input signal for generating output pulses, comprising

an oscillator comprising

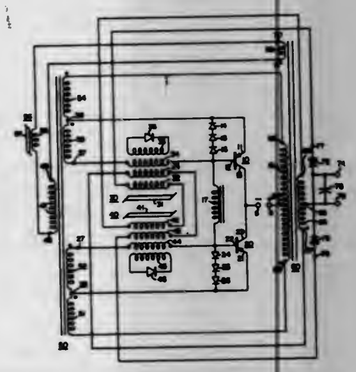
a first transistor which is cut off during a quiescent state,

an integrator having a first terminal for receiving an input signal and having a second terminal,

a second transistor having a base electrode connected to the second terminal of said integrator and having a collector electrode, said second transistor being cut off during the quiescent state,

first coupling means coupling the collector electrode of said second transistor to said first transistor, and biasing means biasing said second transistor to increase the base votage that is required to cause said second transistor to conduct such that said second transistor conducts in saturation when the voltage stored by said integrator exceed a predetermined value to cause said first transistor to conduct in saturation to reset said integrator through said second transistor and said first transistor.

3,323,075
OSCILLATOR WITH SATURABLE CORE DECOUPLING CONTROLS
John T. Lingle, Bloomington, Minn., assignor to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware
Filed Sept. 3, 1965, Ser. No. 484,824
9 Claims. (Cl. 331—113)



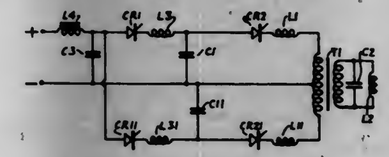
1. In a magnetic oscillator wherein first and second main switching transistors having conductive and non-conductive states are provided and switched to alternately direct current from one polarity terminal of a D.C. voltage source to its opposite polarity terminal through a first

and a second current path including an output transformer during alternate halves of the oscillator cycle, the feedback for switching said transistors being at least in part provided by a saturable timing means including a feedback transformer connected to provide bias across the base-emitter junction of each of the two main switching transistors, an improvement comprising:

a first saturable core magnetic switching means connected between the base electrode of said first transistor and said feedback transformer and to said output transformer, said switching means being operable in response to current in said output transformer to decouple the base electrode of said first transistor from said feedback transformer during the time interval when said first transistor is switching from its conductive to its non-conductive state; and

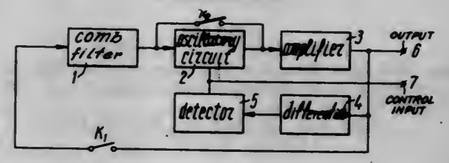
a second saturable core magnetic switching means connected between the base electrode of said second transistor and said feedback transformer and to said output transformer, said switching means being operable in response to current in said output transformer to decouple the base electrode of said second transistor from the feedback transformer during the time interval when said second transistor is switching from its conductive to its non-conductive state.

3,323,076
RELAXATION INVERTER CIRCUIT ARRANGEMENT
Brian Raymond Pelly, King's Cross, London, England, assignor to Westinghouse Brake and Signal Company, Limited, London, England
Filed Mar. 6, 1964, Ser. No. 349,967
Claims priority, application Great Britain, Mar. 26, 1963, 11,882/63
11 Claims. (Cl. 331—117)



1. An inverter or converter circuit for generating from a supply source a continuous alternating current in a load circuit including two input terminals and a storage capacitor, first switching means connected to the storage capacitor and the input terminals and intermittently operable from a high impedance condition to a low impedance condition for charging the capacitor from the input terminals, two output terminals and a resonant output circuit connected to said output terminals, second switching means being connected to said storage capacitor and to the output terminals and operable from a high impedance condition to a low impedance condition whilst the said first switching means is in a high impedance condition for providing a discharge path for the unidirectional transfer of charge from the storage capacitor to the resonant output circuit, means for controlling the condition of said switching means, the operating frequency of the first and second switching means being lower than the resonant frequency of the resonant output circuit and phased therewith to cause the maintenance of alternating current of the resonant frequency in the load circuit, the output circuit including a transformer having a push pull input winding, said output terminals being connected across one section of said input winding to induce current flow in one direction therein, the circuit including a further capacitor and further first switching means connected between said further capacitor and the input terminals, the further first switching means being operable intermittently from a high impedance condition to a low impedance condition to charge the further capacitor from the input terminals, further second switching means being connected between the further capacitor and another section of the transformer windings and operable from a high impedance condition to a low impedance condition whilst the first further switching means is in its high impedance condition to provide a discharge path from the further capacitor to the latter section of the transformer winding, the switching means being designed so that the two capacitors push pull discharge into the resonant output circuit.

3,323,077
CONTROLLABLE OSCILLATORY CIRCUIT WITH A PLURALITY OF STABLE STATES
Vitaly Petrovich Sigorsky, Leonid Semenovich Sitnikov, and Lev Lazarevich Utjakov, all of Novosibirsk, U.S.S.R., assignors to Institute Matematiki Sibirskogo Otdelenia Akademii, Nauk, U.S.S.R.
Filed May 13, 1964, Ser. No. 367,167
3 Claims. (Cl. 331—117)

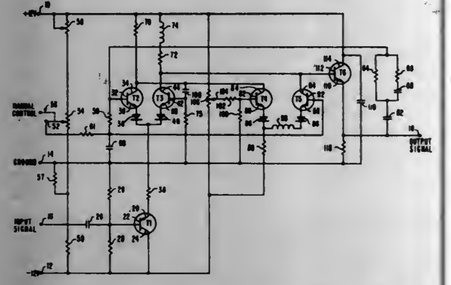


1. A device with a plurality of stable states differing in the frequency and voltage levels of the generated signals, said device comprising a comb filter including an input terminal and an output terminal, an amplifier including an input terminal, and an output terminal connected to the input terminal of said comb filter, an oscillatory circuit including an input terminal connected to the output terminal of the comb filter and an output terminal connected to the input terminal of the amplifier, said oscillatory circuit having a variable-frequency output, and including a control input terminal by which said variable-frequency output can be varied, and detector means connected to the output terminal of the amplifier and to said control input terminal of the oscillatory circuit in feedback relation for controlling the amplitude of the output of the oscillatory circuit in proportion to the frequency of the output of the oscillatory circuit.

3,323,078
TRANSISTORIZED BOUNCE COMPENSATED REMOTE VARIABLE GAIN CONTROL
Mervin L. Falk, Sunnyvale, Calif., assignor to Ampex Corporation, Redwood City, Calif., a corporation of California
Filed May 1, 1964, Ser. No. 364,205
7 Claims. (Cl. 332—31)

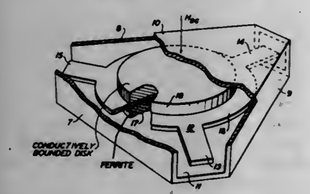
1. A bounce compensating variable gain control circuit comprising: first and second active elements each having input, control, and output electrodes, third and fourth active elements each having input, control, and output electrodes, the output electrode of the third active element being coupled to the output electrode of the first active element, the output electrode of the fourth active element being coupled to the output electrode of the second active element, a source of variable control signals operatively coupled to the control electrodes of the first active element and the fourth active element, a source of reference potential coupled to the control electrodes of said second and third active elements, bias means coupled to the output electrodes of said first, second, third, and fourth active elements and to the input

electrodes of said third and fourth active elements to bias same for conduction in accordance with said variable



control signals, and an input signal source operatively coupled to the input electrodes of the first active element and the second active element.

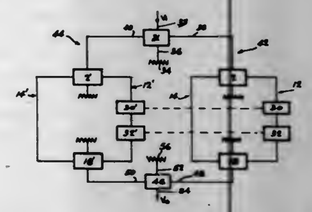
3,323,079
STRIP LINE CIRCULATOR
Donald F. Linn, Kempton, Pa., assignor to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed Aug. 13, 1965, Ser. No. 479,439
9 Claims. (Cl. 333—1.1)



1. A circulator comprising a conductively bounded cavity having at least three ports and a pair of spaced parallel surfaces, a thin conductor member disposed between and spaced in parallel relationship to said surfaces, said thin conductor member having at least three portions symmetrically extending away from a common portion toward said ports, a single magnetically polarized element of gyromagnetic material disposed between said common portion and one of said surfaces, a single conductively bounded member disposed between and conductively connecting said common portion and the other of said surfaces, said conductively bounded member being of such dimensions relative to said common portion and said parallel surfaces that magnetic field lines of electromagnetic wave energy applied to one of said ports form in the vicinity of said common portion as curves around said conductively bounded member and extend over the edge of said common portion to continue through said gyromagnetic material.
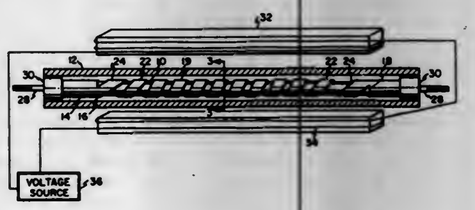
3,323,080
FINE ATTENUATOR AND PHASE SHIFTER
Otto Schwelb and John Elliott, Ottawa, Ontario, Canada, assignors to Northern Electric Company Limited, Montreal, Quebec, Canada
Filed Aug. 24, 1964, Ser. No. 391,552
5 Claims. (Cl. 333—11)

1. A microwave circuit for producing controlled incremental changes in an output signal thereof, comprising:
(a) input means for receiving and dividing an input signal,
(b) output means,
(c) a pair of transmission paths each having an input and coupled to said input means to receive a respective portion of said input signal and each having an output end coupled to said output means for the signals in said paths to combine at said output means as an output signal,
(d) each said transmission path including:
(i) first junction means coupled to said input end for dividing the signal at the input end of said transmission path,
(ii) second junction means coupled to said output end,



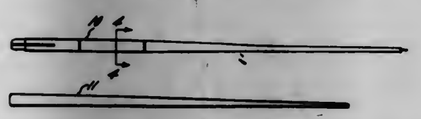
(iii) a pair of transmission limbs each having one end coupled to said first junction to receive a respective part of the signal in said transmission path and each having its other end coupled to said second junction for the signals in said limbs to combine at said second junction as a signal to the output end of said transmission path,
(iv) one of said transmission limbs containing therein attenuation means constituted by a wholly passive element and phase shifting means constituted by a wholly passive element in series with said attenuation means, at least one of said attenuation means and phase shifting means being independently variable.

3,323,081
MICROWAVE PHASE SHIFTER
Paul C. Goodman, Royal Oak, Mich., assignor to The Bendix Corporation, Southfield, Mich., a corporation of Delaware
Filed Apr. 8, 1963, Ser. No. 271,362
1 Claim. (Cl. 333—31)



A microwave phase shifter for a coaxial transmission line comprising
a conductive tubular outer member for connecting with the outer conductor of the coaxial line,
a ferrite member disposed axially within the outer member,
a conductive helix wound on the ferrite member,
means for connecting the helix in series with the inner conductor of the coaxial line,
the helix having an increased pitch at both ends to match the phase shifter to the coaxial line,
and means for applying a magnetic field to the ferrite member in a direction transverse to the axis of the member to provide for reciprocal operation of the phase shifter,
the magnetic field being applied in the same direction through the ferrite member,
the magnetic field being variable to control the magnitude of the magnetic field thereby controlling the amount of phase shift produced.

3,323,082
COSINUSOIDALLY DISTRIBUTED MICROWAVE IMPEDANCE TRANSFORMER
Daniel J. Kenneally, Rome, N.Y., assignor to the United States of America as represented by the Secretary of the Air Force
Filed Feb. 4, 1964, Ser. No. 342,575
2 Claims. (Cl. 333—34)

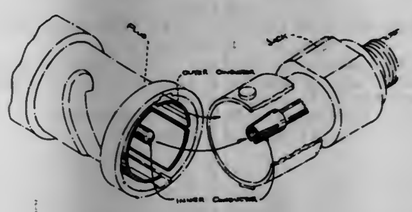


1. A coupling matching section for transforming over a wide band of operating frequencies the impedance of one coaxial conductor transmission line to the impedance of another coaxial conductor transmission line, the section having a continuously distributed impedance, comprising a tapered section having conductors r_0, the outer radius of the inner conductor, and r_1, the inner radius of the outer conductor, which satisfy the equation

$$\frac{1}{2\pi}\sqrt{\frac{\mu}{\epsilon}}\ln\left(\frac{r_0}{r_1}\right)=\frac{Z_{01}+Z_{02}}{2}+\frac{Z_{01}-Z_{02}}{2}\cos\frac{\pi x}{L}$$

in which equation the L and x denote, respectively, the length of said tapered section and a point along said section whose impedance characteristic is to be determined, the symbols μ and ϵ are the permeability and the permittivity, respectively, of the dielectric propagating medium coaxially enclosed, and the symbols Z_{01} and Z_{02} denote the characteristic impedance of the coaxial transmission line of the sending end and the receiving end, respectively, said tapered section serving to provide a line with a maximum bandwidth for a given length and with a minimum reflection coefficient.

3,323,083
MEANS AND METHOD FOR TRANSMISSION LINE COMPENSATION
George William Ziegler, Jr., Carlisle, Pa., assignor to AMP Incorporated, Harrisburg, Pa.
Filed Mar. 17, 1965, Ser. No. 440,500
9 Claims. (Cl. 333—97)

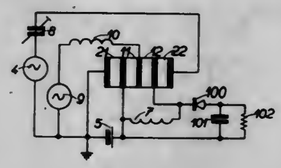


1. In a transmission line of characteristic impedance Z_0, a segment having axially extending slots therealong tending to increase the segment characteristic impedance, a compensating bead structure positioned in said segment and of a thickness and dielectric constant so that

$$Z'Z''=Z_0^2$$

where Z' is the characteristic impedance of the segment computed from the diameters of the segment conductors as if not slotted and Z'' is the characteristic impedance of the segment computed from the diameters of the segment conductors by prorating the slots.

3,323,084
ELECTRIC CIRCUIT WITH MULTIPLE NON-LINEAR DIELECTRIC ELEMENT
Antonín Glanc, Libochovice, Czechoslovakia, assignor to Ceskoslovenska akademie ved, Prague, Czechoslovakia, a corporation of Czechoslovakia
Filed Mar. 2, 1964, Ser. No. 348,689
Claims priority, application Czechoslovakia, Mar. 7, 1963, 1,298/63; Mar. 15, 1963, 1,472/63, 1,473/63
2 Claims. (Cl. 334—11)

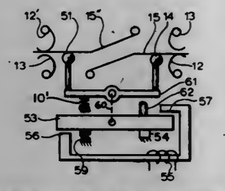


1. An electric circuit comprising four dielectric elements, each of said dielectric elements having a dielectric material the permittivity of which varies with temperature, first electrode means common to adjacent dielectric elements and connecting said elements in series, second electrode means positioned on the external ones of said dielectric elements, the internal dielectric elements forming together with said first electrode means capacitors, said external dielectric elements comprising a material with a permittivity having a dropping characteristic at temperatures above their Curie point, an alternating current heating source connected to said second electrode means for maintaining said external dielectric elements by dielectric losses at temperatures above their Curie point in a temperature autostabilized state, where dielectric losses are in equilibrium with heat dissipated into ambient space, a signal source connected to one of said common electrodes of said first electrode means between the internal dielectric elements and to one of said second electrode means, an inductor connected to two of said common electrodes of said first electrode means between said external and said internal dielectric elements, said inductor forming with said internal dielectric elements a tuned circuit, and an output connected to said tuned circuit.

3,323,085
RELAY WITH A BALANCED OPERATING MEMBER ACTUATED BY AN ENERGIZABLE ARMATURE
Thomas Ross Welch, Los Angeles, Calif., assignor to Welch Relay Company, Incorporated, Los Angeles, Calif., a corporation of California
Filed Aug. 16, 1965, Ser. No. 479,766
4 Claims. (Cl. 335—125)

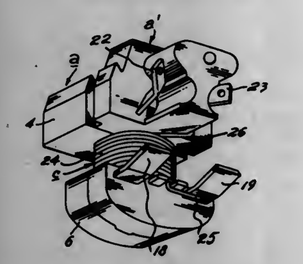
1. In a multicontact relay including at least two contact assemblies, each assembly comprising, a normally open contact, a normally closed contact and a blade, movable between the two contacts associated therewith, the improvement comprising:
a first movable blade having an end positioned between the normally open and normally closed contacts associated therewith and biased toward engagement with the normally closed contact associated therewith;
a second movable blade, having an end positioned between the normally open and normally closed contacts associated therewith and biased toward engagement with the normally open contact associated therewith;

a pivotably mounted operating member of electrically non-conductive and non-magnetic material, capable of assuming off and on positions;
a first spring coupled to said operating member to drive it to said off position, said operating member in the off position coupled to and driving said second blade to be in engagement with the normally closed contact associated therewith, while said first blade is free to be in contact with the normally closed contact associated therewith, against which it is biased, said second blade applying a first force to said operating member in a direction to pivot it to said on position, said first force alone being insufficient to change the position of said operating member from said off position, said operating member in the on position



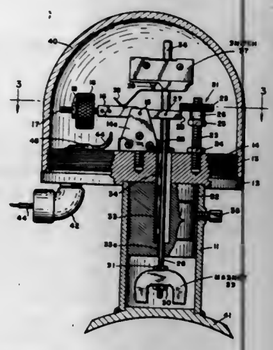
being in contact with the first blade driving it to engage the normally open contact associated therewith, and said second blade is free to engage the normally open contact associated therewith, against which it is normally biased;
a pivotably mounted armature capable of assuming off and on positions;
a second spring connected to said armature, and stop means for controlling the off position of said armature;
a driving member integrally coupled to said armature spaced apart from said operating member when said armature is in said off position; and
means for energizing said armature to assume said on position in which said driving member engages said operating member driving it to its on position.

3,323,086
SOLENOID TYPE RELAY WITH TWO PIECE HOUSING HELD TOGETHER WITH THE COIL
Daniel R. Pimentel, Seekonk, Mass., assignor to Texas Instruments Incorporated, Dallas, Tex., a corporation of Delaware
Filed May 3, 1965, Ser. No. 452,599
7 Claims. (Cl. 335—202)



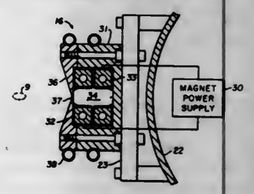
1. An electric relay housing comprising:
(a) first and second interfitting electrically insulating sections;
(b) each section defining a head portion, a neck portion and a body portion; a cavity being located in said neck portion extending from said head portion, to said body portion and extending transversely in said body portion for the reception of a plunger and contact plate assembly;
(c) terminal slots formed in said sections extending from inside said cavity through said housing;
(d) terminal means received and locked in said slots; and
(e) electrically conductive wire wound around said first and second sections holding said sections together, said wire connected to said terminal means.

3,323,087
SWITCH FOR DETECTING MAGNETIC MEMBERS
Roy D. Reed, Corpus Christi, Tex., assignor to Esso Research and Engineering Company
Filed Apr. 18, 1966, Ser. No. 543,382
5 Claims. (Cl. 335—205)



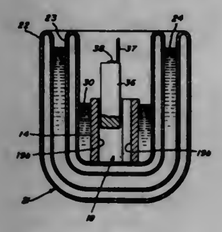
1. A detector switch which comprises:
a counterbalanced pivoted arm;
a magnet pivotally and dependingly carried adjacent one end of said pivoted arm;
a micro-switch arranged in operative relationship to said pivoted arm; and
means operatively connecting said pivoted arm to said micro-switch for actuating said micro-switch; whereby
passage of a magnetic metallic member in proximity to said magnet causes movement of said magnet from a first position to a second position and resultant relative movement of said arm to actuate said micro-switch;
said arm being provided with adjustable stop means to limit relative movement of said arm caused by movement of said magnet;
said magnet being separated from said metallic member by non-magnetic means.

3,323,088
CHARGED PARTICLE EXTRACTING MAGNET FOR AN ACCELERATOR
Glen R. Lambertson, Oakland, Calif., assignor to the United States of America as represented by the United States Atomic Energy Commission
Filed July 13, 1965, Ser. No. 471,775
5 Claims. (Cl. 335—210)



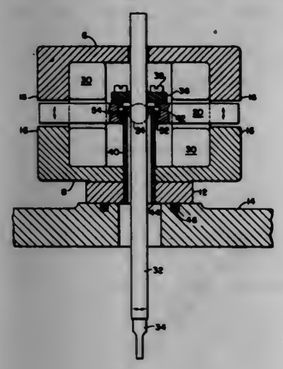
1. In a septum magnet for deflecting a beam of charged particles from the beam orbit of an accelerator, the combination comprising means forming a channel having a longitudinal beam passageway therethrough, said channel being made of a material of high permeability, said channel having a thin septum wall section adjacent said beam orbit and disposed transversely with respect to the plane of said orbit, and means providing a magnetic field within said channel which is transverse to said septum whereby said beam particles in said channel are deflected transversely with respect to said plane.

3,323,089
SUPERCONDUCTIVE DEVICES
Paul S. Swartz, Schenectady, N.Y., assignor to General Electric Company, a corporation of New York
Filed Nov. 2, 1961, Ser. No. 149,592
6 Claims. (Cl. 335—216)



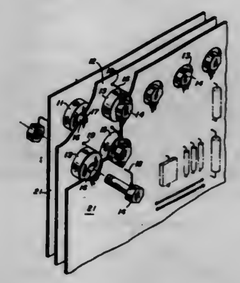
1. A high field superconductive device comprising a solid high field superconductive body having an aperture therethrough, means to produce a magnetic field generally parallel to the axis of said aperture within the aperture of said body, means to maintain the temperature of said body below its critical temperature, and means for compressing said magnetic field.

3,323,090
FLUID SEAL FOR A TORQUE MOTOR
Donald G. O'Brien, Cochituate, Mass., assignor to D. G. O'Brien, Inc., Natick, Mass., a corporation of Massachusetts
Filed June 4, 1964, Ser. No. 372,475
9 Claims. (Cl. 335—230)



1. A fluid-seal construction for a torque motor having a frame, an armature and an output member secured to said armature, said armature and output member being supported in said frame for limited rocking movement about a predetermined axis, said fluid seal construction comprising, in combination, a seal-tube surrounding the output member, and in closely-spaced relation thereto, means forming a recess in said armature on said support axis, one end of said seal tube extending into the recess in said armature, and being in closely-spaced relation thereto, and resilient sealing means located within the recess in said armature and abutting one surface of said seal-tube to permit relative rocking motion between said one end of said seal tube and said armature and to seal the interior of said torque motor from fluids within said seal tube, the other end of said seal tube being attached in sealing relation to said torque motor frame.

3,323,091
MULTICORE TRANSFORMER INCLUDING INTEGRAL MOUNTING ASSEMBLY
Forrest G. Hibbits, San Diego, Calif., assignor, by mesne assignments, to Honeywell Inc., Minneapolis, Minn., a corporation of Delaware
Filed Nov. 5, 1964, Ser. No. 409,080
1 Claim. (Cl. 336—84)

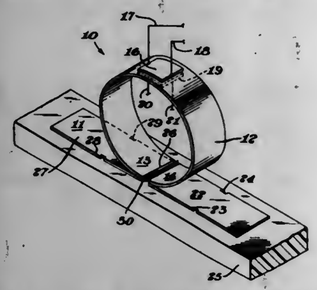


Apparatus for producing a plurality of multicore transformers comprising, a plurality of pairs of magnetic cores, said cores being generally toroidal in configuration and having a central aperture therein, electrostatic shielding means having a planar configuration and including a first plurality of apertures therein, a first plurality of electrically conductive means individually passing through said central apertures of each pair of said magnetic cores and through a separate one of said first plurality of apertures in said shielding means to mount each pair of magnetic cores in axial alignment on said electrostatic shielding means, said shielding means disposed between said magnetic cores of each said pair, a second plurality of electrically conductive means individually connected in parallel with separate ones of said first plurality of electrically conductive means and disposed external of said magnetic cores thereby to effect a plurality of multicore transformers each of which is linked by a single turn winding, said electrostatic shielding means including a further plurality of apertures therein, each of said second electrically conductive means being disposed to pass through one of said further plurality of apertures, and a plurality of circuit boards adapted for supporting electrical components thereon, said circuit boards disposed adjacent said multicore transformer apparatus to form a compact assembly which permits electrical interconnection between components of said circuit boards and said transformers thereby providing inductive coupling and electrostatic isolation therebetween.

3,323,092
STRAIN GAUGE
Conrad F. Balazs and William W. Burlew, Midland, Mich., assignors to The Dow Chemical Company, Midland, Mich., a corporation of Delaware
Filed Oct. 29, 1965, Ser. No. 505,673
5 Claims. (Cl. 338—6)

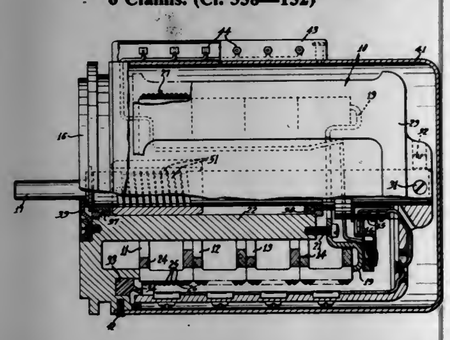
1. A strain gauge comprising in cooperative combination a first element and a second element, the second element comprising a spring member having an arched

configuration, the arched configuration having a first leg and a second leg, the first leg terminating in an edge generally directed toward the second leg, the second leg having affixed thereto means to secure the second element to a member being evaluated, the arched member having a strain measuring element responsive to the deflection of the arched member, the first element being so constructed



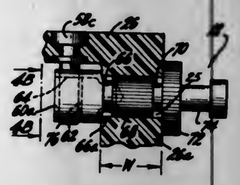
and arranged so as to mount to the sample being evaluated, the first element defining at least one lip member adapted to engage the terminal edge of the first leg of the arched member in a releasable manner and to release from the first leg when the first and second legs have been separated by a distance which does not exceed the elastic limit of the arched configuration.

3,323,093
PRECISION POTENTIOMETERS
Gilbert J. Orozco, New Rochelle, N.Y., assignor to Litton Industries, Inc., Beverly Hills, Calif.
Filed July 3, 1964, Ser. No. 380,181
6 Claims. (Cl. 338—132)



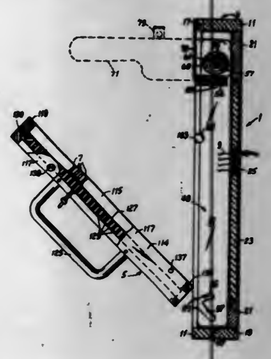
6. A multiple-element potentiometer comprising
a plurality of resistor units, each consisting of an insulating core member and a multiturn resistance element on the outer surface of said core member,
a base member on which said resistor units are mounted one behind the other,
an input shaft journaled in said base member,
a cup-shaped contact-supporting member having a substantially cylindrical wall portion surrounding said resistor units, said contact-supporting member being attached to said input shaft and having the wall portion thereof provided with a plurality of circumferential slots spaced in both axial and circumferential directions,
a plurality of contact members mounted on said contact-supporting member and engaging the respective resistor elements,
means for pivotally and adjustably mounting said contact members in the slots of said contact-supporting member, and
a plurality of terminals conductively connected to said resistance elements and said contact members, respectively.

3,323,094
POTENTIOMETER TERMINAL
Paul V. De Luca, Jackson Heights, and Harvey E. Senft, White Plains, N.Y., assignors to Markite Corporation, New York, N.Y.
Filed July 29, 1964, Ser. No. 385,847
13 Claims. (Cl. 338—162)



1. A one-piece electrical terminal adapted for insertion into an aperture wall, said terminal comprising:
(A) a first deformable tubular section having means to receive an electrically conductive member therein;
(B) a second substantially nondeformable tubular section having a small outer diameter than that of said first section, said second section extending axially from said first section and being characterized by a wall thickness less than that of said first section;
(C) a third section of greater cross sectional dimension than that of said second section and extending axially from said second section to define a juncture therebetween; and
(D) an enlarged flange portion formed proximate said third section, said flange portion being disposed in a plane transverse said second and third sections,
(E) said third section and said second section of said terminal being disposed within the wall aperture in the assembled condition.

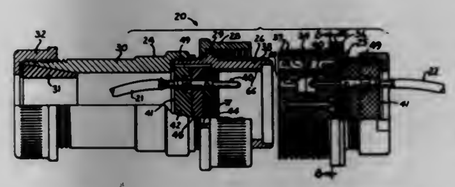
3,323,095
PLUGBOARD ASSEMBLY
Austin L. Bush, Trussville, and Charles L. Jerman, Walter R. McDurmont, Leon C. Minor, and Billy Joe Walton, Birmingham, Ala., assignors to Anderson Electric Corporation, Leeds, Ala., a corporation of Alabama
Filed Aug. 4, 1964, Ser. No. 387,465
14 Claims. (Cl. 339—18)



1. A plugboard assembly comprising a receiver having a plurality of contacts, a patch board carrying patch pins for engagement with certain of said contacts, means associated with said receiver engaging said patch board and

operable to move said patch board between a first position wherein the patch pins are out of engagement with the contacts of said receiver and a second position wherein the pins engage respective contacts, said means including a handle and cooperating latch means associated therewith operable to lock said patch board and said receiver in said second position, said latch means including a latch member on said receiver having spaced recesses therein and a pawl pivotally mounted on said handle alternately positionable in each of said recesses in said latch member.

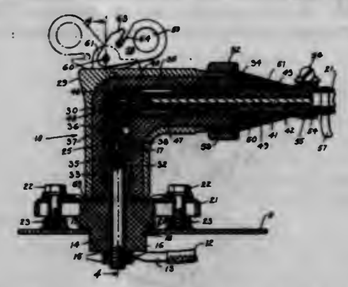
3,323,096
MULTI-CONDUCTOR CABLE CONNECTOR OF BRIDGING TYPE
Arthur I. Appleton, Northbrook, Ill.
(1713 W. Wellington Ave., Chicago, Ill. 60613)
Filed June 9, 1964, Ser. No. 373,789
11 Claims. (Cl. 339—89)



1. A multi-conductor electrical connector comprising the combination of a first member, a contact holder on said first member, a plurality of contacts in said contact holder, a second member, a contact holder on said second member, a plurality of contacts in said second member contact holder, a bridge holder attached to one of said members and adapted to receive the contacts of both said contact holders, a plurality of resilient bridge elements captive-mounted within said bridge holder, said bridge elements being disposed in electrical contact with respective aligned pairs of said contacts upon assembly of said first and second members together, the contacts of both said contact holders each comprising an inner sleeve adapted to slidably receive the conductor wire, said sleeve having inner and outer ends including an outwardly flared mouth portion at its inner end, a flange intermediate said ends and longitudinally extending slots between said outer end and said flange, an outer cap adapted to be press fit on the slotted portion of said sleeve, said cap including an enlarged portion with an axial bore therethrough for receiving said slotted sleeve and the contact extending outwardly from said enlarged portion.

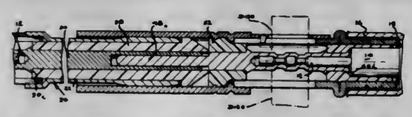
3,323,097
CONDUCTOR TERMINATION WITH STRESS DISTRIBUTION MEANS
Ledger J. Tordoff, Milwaukee, Wis., assignor to McGraw-Edison Company, Milwaukee, Wis., a corporation of Delaware
Filed Aug. 17, 1964, Ser. No. 390,145
14 Claims. (Cl. 339—91)

1. In combination with a cable having a conductor surrounded by a layer of insulation terminating back from the end of the conductor and an electrically conductive shield surrounding the layer of insulation and terminating back from the end of the layer of insulation and adapted to be grounded, a cable termination comprising a conductive connector member affixed to said cable conductor, a conductive body member, a conductive inner member disposed within said body member in spaced relation thereto and having a connector portion releasably engaging said connector member and a conductive sleeve portion surrounding said mating connector portion and connector member, a frustoconical conductive hollow stress relief member releasably engaging at its larger diameter end said body member and engaging at its smaller diameter end said cable shield, high dielectric strength insulating material within said body member and disposed between said body member and said inner member including said sleeve portion and also having an annular



portion complementary to and disposed within said stress relief member and fitting snugly over said cable insulation, whereby said stress relief and body members form a continuation of said cable shield and electric stress occurs between said body member and said sleeve portion and air adjacent said mating connector member and connector portion is not stressed electrically.

3,323,098
SUB-MINIATURE COAXIAL CONNECTOR
Michael Francis O'Keefe and Robert Stanley Stull, Mechanicsburg, Pa., assignors to AMP Incorporated, Harrisburg, Pa.
Filed Mar. 22, 1965, Ser. No. 441,626
3 Claims. (Cl. 339—177)

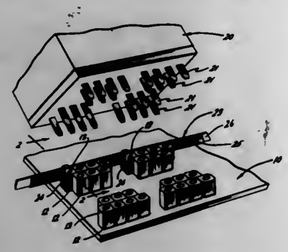


1. In a coaxial connector for interconnecting cable having an inner conductor surrounded by an insulating sheath and an outer conductor, the combination including intermating connector halves each including an outer shell terminated to the cable outer conductor and an inner contact terminated to the cable inner conductor, the inner contact of each shell being supported within the shell by insulating inserts affixed to the shell, one of the shells having an end adapted to be fitted within the other shell and including on said end a plurality of resilient fingers extending outwardly and curverd inwardly to bear against one of said inserts and form a cantilever spring action, each said shell including a pair of outward projections axially spaced apart with a pair of rectangular apertures disposed in opposing relationship between said projections, a locking spring secured to each shell between said projections said spring having an aperture aligned with one aperture of said shell to permit the entry of dies within said shell for crimping the inner contact thereof to terminate said contact to the cable inner conductor.

3,323,099
ELECTRICAL APPARATUS
Frank T. Spera, Philadelphia, Pa., assignor to Philco Corporation, Philadelphia, Pa., a corporation of Delaware
Filed July 14, 1965, Ser. No. 471,900
3 Claims. (Cl. 339—192)

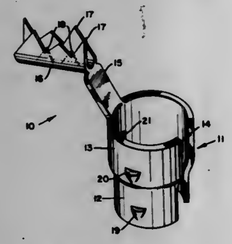
1. In combination with a panel board provided with electrical socket means having openings presented unidirectionally to one side of said board and arranged to receive terminal pins of electrical components, electrically

conductive strip means extending over and adjacent the side of said board to which said openings are presented, said strip means being provided with an electrically insulative coating in the region of its adjacency to said panel board, said strip means further including a plurality of spaced resilient contacts integrally formed therewith, each of which contacts extends into an opening of a corresponding one of said socket means and supports said strip



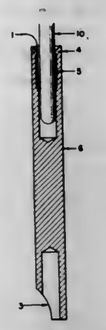
means, said contacts comprising elongate, generally U-shaped elements of electrically conductive material each having a portion frictionally engaging a wall of said socket means defining said opening, and a portion extending out of said opening and reversely bent into integral connection with said strip means, said contacts being disposed for frictional resilient engagement with such terminal pins upon insertion thereof into said openings of said socket means.

3,323,100
ELECTRICAL CONNECTOR
Walter R. Book, Bethlehem, Conn., assignor to Anaconda American Brass Company, a corporation of Connecticut
Filed May 26, 1965, Ser. No. 459,041
3 Claims. (Cl. 339—242)



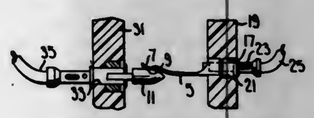
1. An electrical connector for interconnection with a plurality of similar connectors in a tandem-type arrangement so that a plurality of wires can be electrically connected to a single electric socket comprising a generally tubular member having a longitudinal slot therein, a male portion of said tubular member at one end having a first diameter, an integral female portion at the other end of said member having a second diameter larger than said first diameter, an axial bore defined in said member having a stepped diameter with the inside diameter of the bore in the female portion of sufficient diameter to receive a male portion of a second similar connector, a laterally extending wire attachment portion extending from the free end of said female portion, lug means on said male portion extending radially outward therefrom for locking engagement with a female portion of another connector and lug receiving means in said female portion circumferentially offset from said lug means on said male portion for holding two similar connectors together in locking engagement with the wire attachment portions of joined connectors circumferentially offset from each other.

3,323,101
CLOSED ENTRY SOCKET
Dorathy Anne Eickmier, 21789 Cree Trail, Chatsworth, Calif. 91311
Filed Dec. 14, 1964, Ser. No. 418,030
1 Claim. (Cl. 339—256)



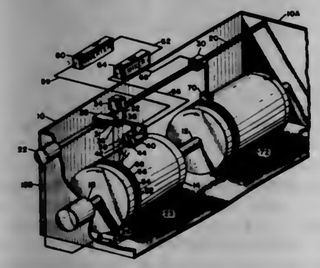
A conductive closed entry socket contact comprising:
a conductive cylindrical socket contact body having at one end a means for engagement with a conductor, at the other socket end a first longitudinal bore for receiving a mating male pin, said first bore coaxially joining a second longitudinal wider bore forming a flat annular stop between said bores, said second bore intersecting an annular chamfer extending outwardly and terminating on said other end's surface, said surface is perpendicular to the axis of the socket contact body, said other end having an annular groove on its outside opposite said second bore; and
a resilient member, for exerting pressure against said mating male pin, is generally tubular in structure and being of uniform thickness having two longitudinal tapering indentations less than 180° apart, said indentation reduce the cross-sectional area on one end of said resilient member so that said resilient member has a large end and a small end, said resilient member is disposed and retained within the said second bore of the socket contact body with said small end against said stop and said large end against an internal annular bead of the socket contact body which is formed during a contact closure procedure whereby pressure exerted parallel with the axis of the socket contact body results in an annular mass of material between the said second bore and the external annular groove being forged inwardly and reducing the opening of the said second bore by a sufficient amount thereby permanently captivating the resilient member.

3.323,102
CONTACTS
Leon C. Minor, Birmingham, Ala., assignor to Anderson Electric Corporation, Leeds, Ala., a corporation of Alabama
Filed Mar. 21, 1966, Ser. No. 536,132
3 Claims. (Cl. 339—258)



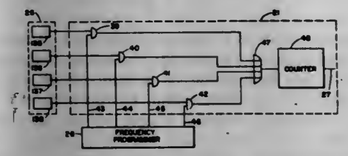
1. A contact particularly for engagement by a patch pin of a patch board, said contact comprising an elongate flexible spring arm adapted for mounting at one end thereof and having at its other and free end a tip including a contact surface engageable by the pin, said contact surface being curved concavely transverse the length of the arm and curved convexly longitudinally of the arm across the concave curve to present a saddle-shape contact surface at said tip for engagement by the pin, said contact surface including a boss of generally conical shape engageable by said pin and substantially centrally positioned on the saddle-shape surface.

3,323,103
OPTICAL CONVOLUTION OF A FIRST FUNCTION BY A SECOND FUNCTION HAVING A UNIT IMPULSE RESPONSE
Ernest K. Shaw and John E. Hogg, Calgary, Alberta, Canada, assignors, by mesne assignments, to Esso Production Research Company, Houston, Tex., a corporation of Delaware
Filed Sept. 21, 1964, Ser. No. 397,867
8 Claims. (Cl. 340—15.5)



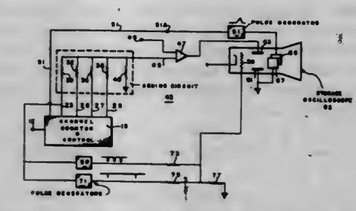
8. A method of convolving a first function by a second function having a unit impulse response which comprises:
representing the positive amplitudes of said unit impulse response by a given quantity of light of one color and the negative amplitudes of a given quantity of light of another color not contained in said first color;
impressing said light of said first color and said light of said second color on a medium whose light reflectivity is a function of sail first function;
separately detecting the light of said first color reflected by said medium to produce a first detection signal, and the light of said second color reflected by said medium to produce a second detection signal; and
inverting one detection signal and adding it to the second detection signal.

3,323,104
HYBRID COMPUTER TO MAKE DYNAMIC AND STATIC SEISMIC RECORD CORRECTIONS
Charles F. Hadley and Ralph A. Landrum, Tulsa, Okla., assignors to Pan American Petroleum Corporation, Tulsa, Okla., a corporation of Delaware
Filed Oct. 15, 1964, Ser. No. 404,055
4 Claims. (Cl. 340—15.5)



1. In apparatus for correcting a signal for time lag due to reception of said signal at a location removed from the source of said signal, said time lag being a known time function with a single rate of change at each value of time, and in which the amplitude of said signal is repeatedly sampled at substantially equal time intervals and a quantity proportional to each such sampled amplitude is temporarily and individually stored in sequence in a core storage unit, the improvement comprising
(1) a plurality of substantially fixed-frequency oscillators each of a different frequency,
(2) a frequency selector unit for connecting each of said plurality of oscillators alone and in sequence from highest to lowest frequency to said core storage unit to unload the quantities stored in said storage unit in sequence, and at a rate determined by the frequency of the connected oscillator, and
(3) means for controlling the switching sequence of said frequency selector unit as a predetermined function of time, whereby the sample rate of withdrawal is directly related to said time lag.

3,323,105
DIGITAL RECORDATION AND PLAYBACK OF SEISMIC SIGNALS
Charles J. Charske, Houston, Tex., assignor, by mesne assignments, to Esso Production Research Company, Houston, Tex., a corporation of Delaware
Filed Nov. 5, 1964, Ser. No. 409,098
2 Claims. (Cl. 340—15.5)

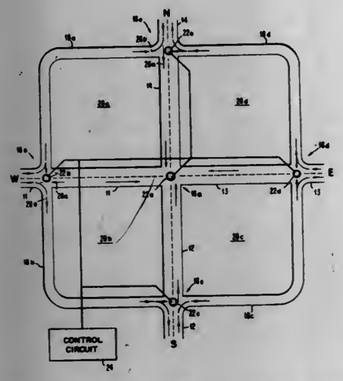


1. In a system for obtaining digital seismic data comprising a multiplexing sequencer and sampling circuit for converting a multiplicity of electrical seismic analog signals into a single electrical analog signal containing seismic intelligence, analog-to-digital conversion means for converting the single analog signal into binary-coded digital data, and recording means for recording said converted single analog signal in reproducible form, said multiplexing sequencer including a sequencing control unit for producing a plurality of binary-coded, rectangular wave digital electrical signals responsive to an actuating electrical pulse, for repetitively switching said multiplexing unit to sample said seismic analog signals in sequence, the improvement comprising:
an adding and weighting circuit for adding together said binary-coded electrical signals to produce a stair-step output signal;
a storage oscilloscope having vertical beam deflection means and horizontal beam deflection means;
means adding together the output signal of said multiplexing sequencer and the stair-step output signal of said adding and weighting circuit and applying the summed signal to the vertical deflection means of said oscilloscope to vertically deflect the oscilloscope beam;
triangular wave generating means connected to said horizontal deflection means to horizontally deflect said beam at a predetermined time rate responsive to an electrical pulse applied thereto; and
means connected to said triangular wave generating means for producing an electrical pulse for simultaneously actuating said triangular wave generating means and said sequencing control unit.

3,323,106
TRAFFIC INTERSECTION

Denos C. Gazis, Millwood, N.Y., and Renfrey B. Potts, Erindale, South Australia, Australia, assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York

Filed Apr. 29, 1964, Ser. No. 363,354
3 Claims. (Cl. 340—40)



1. The method of guiding streams of traffic through a complex of roads including two main roads crossing at a central intersection and a peripheral road surrounding said central intersection and crossing said main roads forming four exterior intersections each said main road carrying a stream of traffic to said complex, said method comprising the steps of:

dividing each of said streams of traffic entering said complex at said exterior intersections into first and second platoons;

directing all of said first platoons into said main roads with alternately timed arrivals at said central intersection permitting said first platoons to pass through said central intersection without delay;

deflecting all of said second platoons onto said peripheral road in a common direction about said central intersection, the deflection being timed to permit alternate arrival of said first and second platoons at said exterior intersections opposite their point of division; and

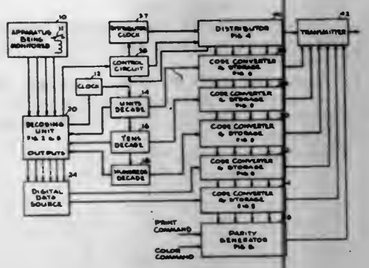
uniting the first and second platoons originating from the same stream of traffic entering said complex along one of said main roads after said first platoons have passed through said central intersection and said second platoons have passed through said exterior intersections.

3,323,107
PLURAL STATION TELEMETERING SYSTEM RESPONSIVE TO CONDITION TO INTERRUPT SCAN UNTIL STATION INFORMATION IS TRANSMITTED

Wilbur E. Du Vall, Gardena, Calif., assignor, by mesne assignments, to The Electrada Corporation, Los Angeles, Calif., a corporation of Delaware

Filed Feb. 19, 1963, Ser. No. 259,639
6 Claims. (Cl. 340—147)

1. A system for monitoring the condition of a plurality of apparatus each of which provides an inhibit signal when in an acceptable condition and does not provide an inhibit signal when in a nonacceptable condition, said system comprising a counter, means for sequencing said counter through its successive count states, a plurality of detecting circuits a different one of which is associated with a different count state and a different one of said apparatus, means for applying the inhibit signal from a different one of said apparatus to its associated detecting circuit to maintain said detecting circuit inoperative, means responsive to each count state of said counter to apply a signal to the associated detecting circuit to render said detecting circuit operative if the inhibit signal from the associated apparatus is not present, means responsive to output from an operative detecting circuit to prevent further operation of said means

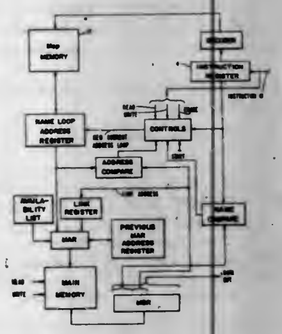


for sequencing, storage means coupled to said counter, means responsive to said operative detecting circuit output for entering the count of said counter into said storage means, means responsive to said operative detecting circuit output for sequentially deriving signals representative of said count from said storage means for transmission purposes, and means responsive to said means for sequentially deriving signals from said storage means terminating its operation for rendering said means for sequencing said counter operative again.

3,323,108
SYMBOLIC ADDRESSING

Alvin P. Mullery, Chappaqua, and Ralph F. Schauer, Hawthorne, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York

Filed June 12, 1963, Ser. No. 287,364
26 Claims. (Cl. 340—172.5)



1. A symbolic addressing system for use with a computer data storage organization including a Main Memory means for storing a plurality of data strings wherein each string is separately addressable by the memory and each string is provided with a discrete symbolic Name said Name being stored with said data string in Main Memory at a predetermined position with respect to the beginning address of said data string and wherein a special address storage location is provided in each data string for storing a complete memory address in predetermined relationship to said Name, the improvement which comprises

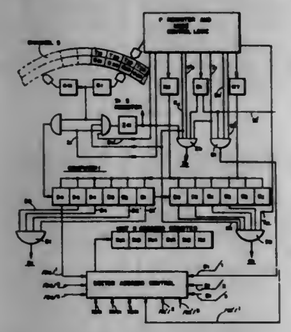
a first and second table of addresses, said first table comprising an auxiliary storage means the absolute address to which is directly derived from a characteristic portion of the symbolic data Name, said table containing at least one of one member of each of a plurality address of groups of linked data strings in the Main Memory each member of a given group having the same characteristic Name portions as that utilized to determine the address in the first table, means for accessing said first table means at an address directly relatable to a requested Name, means extending an address stored in said first table which provides for a proper entry point in Main Memory for a second level of searching through a proper Name group, said second table means comprising the combination of said linked data strings of individual Name groups which strings include the linking addresses stored with each data string connecting all of the members of a Name group together means for entering a given Name group beginning at the address of the data string stored in said first table means, means for extracting the address of the next member of said name group and,

means for continuing a search of successive data strings of said name group until a specified Name is located in one of said data strings.

3,323,109
MULTIPLE COMPUTER-MULTIPLE MEMORY SYSTEM

Lester S. Hecht, Santa Ana, and Theodore M. Hertz, Whittier, Calif., assignors to North American Aviation, Inc.

Filed Dec. 30, 1963, Ser. No. 334,346
3 Claims. (Cl. 340—172.5)



2. In a serial computer system having a recirculating-type memory where operands and instructions in said memory are addressed by channel and word address codes, each channel corresponding to a block of cyclicly acessible word locations in said memory, a device for modifying the addressing structure of said computer to permit the addition of a randomly accessible auxiliary memory unit, said device comprising

first means for sensing all address signals and for producing a first signal indicating addresses selected to represent the auxiliary memory,

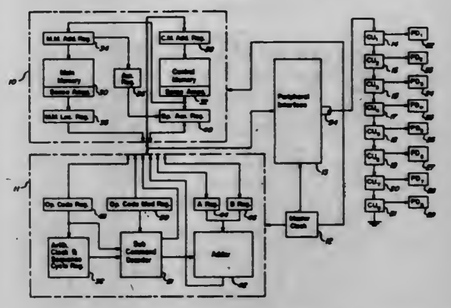
second means for modifying the instruction and operand and access control in said computer so that upon receipt of said first signal, no serial searching is performed, access being made directly to the corresponding address in the randomly accessible memory unit, and

third means for connecting the auxiliary memory unit to said computer for synchronous communication in response to said first signal.

3,323,110
INFORMATION HANDLING APPARATUS INCLUDING FREELY ASSIGNABLE READ-WRITE CHANNELS

Louis G. Oliari, Brockton, and Robert F. Fischer, Walpole, Mass., assignors to Honeywell Inc., a corporation of Delaware

Filed Apr. 6, 1964, Ser. No. 357,362
18 Claims. (Cl. 340—172.5)

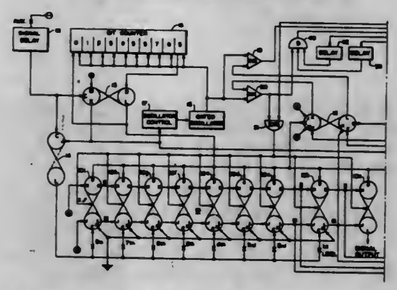


1. A data processing apparatus adapted to transfer information between a storage device and any one of a plurality of peripheral devices via a common distribution circuit comprising a memory cycle distributor having an operatve cycle consisting of a plurality of timing sub-intervals, means connecting said memory cycle distributor to said storage device, means including said common distribution circuit for connecting said memory cycle distributor to said plurality of peripheral devices, means adapted to address a particular one of said plurality of peripheral devices, and means connected to said addressed peripheral device to reserve thereto a particular one of said timing sub-intervals during succeeding operative cycles of said memory cycle distributor.

3,323,111
DISTORTION SIGNAL GENERATOR

Robert A. Waghorne, Elmwood Park, Ill., assignor to Teletype Corporation, Skokie, Ill., a corporation of Delaware

Filed June 8, 1964, Ser. No. 373,276
13 Claims. (Cl. 340—172.5)



1. A distortion signal generator comprising

means for temporarily storing a signal to be distorted,

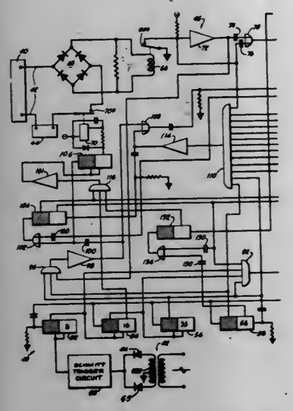
means for generating a series of pulses,

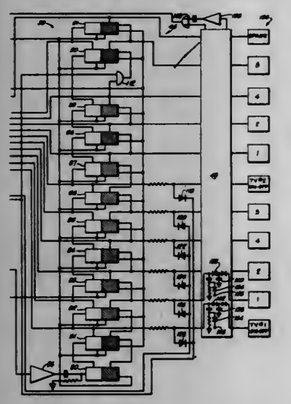
means for applying the pulses to the storage means to remove the signal from the storage means in synchronism with the applied pulses,

means for sensing predetermined conditions in the signal, and

means responsive to the output of the sensing means for repositioning selected ones of the pulses applied to the storage means to introduce a predetermined distortion in the signal.

3,323,112
DATA HANDLING SYSTEM
Donald E. Haselwood, Deerfield, and Carl M. Solar, Chicago, Ill., assignors to A. C. Nielsen Company, Chicago, Ill., a corporation of Delaware
Filed Nov. 12, 1964, Ser. No. 410,475
13 Claims. (Cl. 340—172.5)

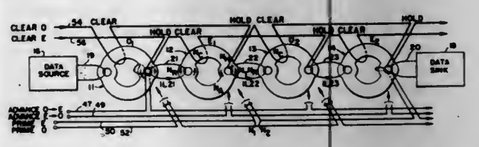




1. In a data handling system, a signaling channel providing different duration signals representing different data values, a shift register having a plurality of serially coupled stages including an input stage, means operative between successive signals on the channel for shifting stored data along the stages, timing means responsive to the different durations of the signals for storing different data values in the input stage, and means for resetting the timing means incident to each shifting operation.

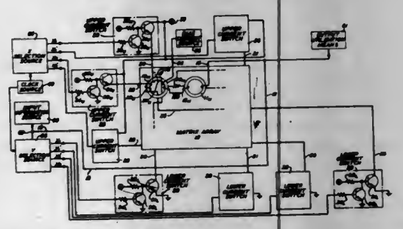
3,323,113
SHIFT REGISTER
David R. Bennion, Menlo Park, Calif., assignor to AMP Incorporated, Harrisburg, Pa., a corporation of New Jersey
Original application Nov. 25, 1959, Ser. No. 855,335, now Patent No. 3,125,747, dated Mar. 17, 1964. Divided and this application July 1, 1963, Ser. No. 291,995
7 Claims. (Cl. 340—174)

1. An improved shift register comprising a plurality of magnetic cores arranged in a sequence and being successively designated as odd and even cores in said sequence, each of said cores having a clear and a set state of magnetic remanence and being drivable therebetween, each of said cores having a main aperture and a transmit aperture, a plurality of closed loop transfer windings a different one of which inductively couples a different pair of cores and is coupled to a transferring core through its transmit aperture, means for priming those of said plurality of cores which are in their set state of magnetic remanence including priming winding means having a first priming winding inductively coupled to each odd core in said sequence, and a second priming winding inductively coupled to each even core in said sequence, said first and second priming windings each being coupled to a respective core by being passed through the transmit aperture of said core, then back through the main aperture



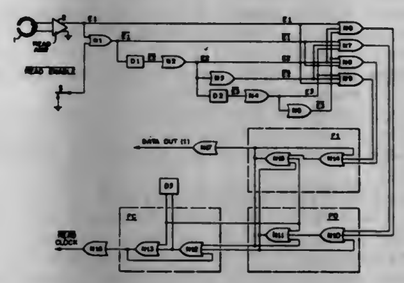
of said core, and then through the transmit aperture of said core again, means for transferring the remanence state of alternate cores in said sequence to the remaining cores in said sequence, including a first advance winding inductively coupled to all the odd cores in said sequence by their transmit apertures, and a second advance winding inductively coupled to all the even cores in said sequence by their transmit apertures; and means for driving all said cores to their clear state of magnetic remanence including a first clear winding inductively coupled to all the odd cores in said sequence by their main apertures and to all the even cores in said sequence by their transmit apertures, and a second clear winding inductively coupled to all the even cores of said sequence by their main apertures and to all the odd cores in said sequence by their transmit apertures.

3,323,114
NONDESTRUCTIVELY INTERROGATED MAGNETIC MEMORY
Robert C. Gebhardt, Parsippany, and Edwin A. Irland, Middletown, N.J., assignors to Bell Telephone Laboratories, Incorporated, New York, N.Y., a corporation of New York
Filed June 21, 1963, Ser. No. 289,541
16 Claims. (Cl. 340—174)



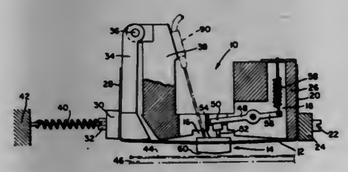
1. In combination, first and second square loop ferromagnetic cores, and impedance, a first winding coupled to each of said cores and serially including said impedance, means for switching said first core thereby supplying a magnetizing force to said second core, and resetting means responsive to said first and second cores switching state for resetting said first core at a relatively rapid rate and responsive to said first core switching and said second core not switching for resetting said first core at a relatively slow rate of speed.

3,323,115
REPRODUCING SYSTEM FOR PHASE MODULATED MAGNETICALLY RECORDED DATA
John C. Sims, Jr., Sudbury, Mass., assignor to Anelex Corporation, Boston, Mass., a corporation of New Hampshire
Filed Aug. 31, 1964, Ser. No. 393,242
7 Claims. (Cl. 340—174.1)



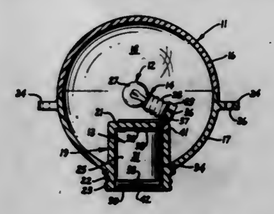
2. Apparatus for reproducing binary data from a coded signal source, comprising correlating means controlled by said source for producing a first or a second output signal for each bit of data from said source according as the bit represents a first or a second truth value, respectively, first, second and third registers each settable to a first and a second state, means responsive to said first output signal for setting said first register to its first state, means responsive to said second output signal for setting said second register to its first state, means responsive to both of said signals for setting said third register to its first state when either signal is produced, delay means controlled by said third register in its first state for producing a resetting signal after a predetermined time, and means controlled by said resetting signal for setting said register means to their second states.

3,323,116
ELECTROMAGNETIC TRANSDUCER AND METHOD OF FABRICATION
Erik R. Solyst, San Jose, Calif., assignor to Burroughs Corporation, Detroit, Mich., a corporation of Michigan
Filed May 31, 1962, Ser. No. 200,601
14 Claims. (Cl. 340—174.1)



4. Electromagnetic transducer apparatus for use with movable record media having a magnetizable recording surface thereon comprising, an elongated flexible mounting member of homogeneous material throughout its extent having an aperture therein approximately centrally located between its ends, a block of carbonaceous material disposed within said aperture, transducer apparatus including a plurality of electromagnetic recorder-reproducer members mounted in parallel spaced apart relationship within said block on said flexible member with portions of said reproducer members extending through said aperture, electrically conductive means disposed on a surface of said mounting member and extending from the transducer apparatus to at least one end of the member, each recorder-reproducer member including one or more operating windings thereon interconnected with said electrical conducting means on said flexible mounting member, means mounting said flexible mounting member solely at its opposite ends to spaced apart supports whereby the balance of the member is slung therebetween and provides a flexible suspension for the transducer apparatus, and means for varying the spacing of the supports in order to vary the tautness of the suspended portion of the member.

3,323,117
VISUAL MARKER OR BEACON
Robert P. Mason, Soda Springs, Calif. (86 Carolyn St., Auburn, Calif. 95603)
Filed June 29, 1964, Ser. No. 378,908
3 Claims. (Cl. 340—321)

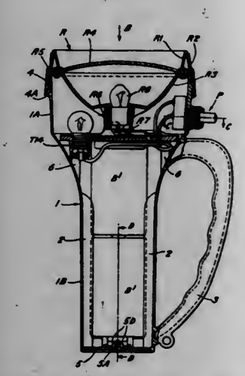


1. A device for visually marking a trail or the like, comprising a translucent housing colored to contrast with its intended environment, said housing being substantially spherical and formed from two hemispherical shells joined to form a hollow interior chamber, an electric lamp positioned in the central area of said chamber for illuminating and passing light through a major portion of said housing, an electric energy cell positioned within housing for energizing said electric lamp and having terminals at the ends thereof, a cylindrical sleeve extending radially within said housing and proportioned for holding said electric energy cell and forming a pedestal for supporting said electric lamp, said sleeve extending outwardly of said housing having threads thereon, a cap engageable with said threads to close the outward end of the sleeve wherein a readily accessible opening is provided to the interior of said housing, a connector means forming an electrical circuit between said electric energy cell and said electric lamp for transfer of energy therebetween, a flasher connected to said electrical circuit for causing said electric lamp to blink on and off, said connector means incorporating a pair of contact plates adapted to lie adjacent the terminals of the electric energy cell and make contact therewith, a removable insulating strip interposed between one of said contact plates and an electric energy cell terminal to hold said circuit open and upon removal thereof to allow said circuit to close, said electric energy cell and contact plates and insulating strip being assembled axially in said cylindrical sleeve in sandwich fashion wherein said cap will exert a clamping force thereon to assure positive contact, ears protruding from said housing and circumferentially spaced therearound, and a parachute having harness lines attached to said ears wherein said device can be safely dropped from the air.

3,323,118
WATERPROOF ELECTRIC BATTERY LANTERN
Ming Tong Chan, Kwan Tong, Kowloon, Hong Kong, assignor to Herbert J. Ashe, Stamford, Conn.
Filed June 24, 1965, Ser. No. 466,708
8 Claims. (Cl. 340—321)

4. In a waterproof electric flashlight the combination of: a tubular housing moulded of plastic translucent material and having a front cylindrical portion and a rear

portion of generally oval cross section, the latter defining a pair of battery spaces adjacent each other and having an integral closed end; a resilient, conductive terminal element secured by frictional engagement to the inside of said housing at said closed end of said oval section for establishing electrical connection to the batteries disposed in said spaces; a second terminal element of insulating material secured in said housing at the other end of said oval section and extending transversely across said housing substantially at the area where said front and rear portions merge whereby to define the front end of said battery spaces; said second terminal element formed with a pair of recesses to provide access to said battery spaces, and provided with a pair of pivotally mounted conductive terminal strips, each strip swingable from a position clear of an associated battery space to a position across such battery space to provide for the insertion of batteries and



the subsequent electrical circuit connection to the batteries; additional contact means disposed on said second terminal element for establishing electrical circuit connection with a front reflector unit; a front reflector unit which includes a bulb in threaded engagement with said cylindrical housing portion, said reflector unit closing off the front portion of said tubular housing and when fully seated, said additional contact means establishing electrical circuit connection to said bulb; a blinker light means mounted to said second terminal element in proximity to the wall of said cylindrical housing portion and adapted when energized to transmit light through said translucent housing, and a switch means having an operating member extending through said housing, said switch means being connected in circuit to establish an electrical circuit connection from the batteries to the bulb of said front reflector unit and to said blinker light means.

3,323,119
DISPLAY SYSTEM FOR A DATA PROCESSING UNIT

James G. Barcomb, Endicott, and Eugene T. Kozol, Binghamton, N.Y., assignors to International Business Machines Corporation, New York, N.Y., a corporation of New York

Filed Dec. 30, 1963, Ser. No. 334,344
6 Claims. (Cl. 340—324)

1. In a data processing system of the type having a central processing unit operating to store a plurality of data files in machine format, and one of said data files comprises a plurality of alphanumerical characters, a data retrieval system, comprising,

a plurality of first stations connected in common to said central processing unit,

second stations connected to at least certain of said first stations,

each station including a keyboard for entering a request into said processing unit for one of said data files,

a dark trace display tube associated with each of said stations and equipped with a suitable portion for displaying the requested data file,

control means including manually operable means in each of said stations for activating one of said stations and for locking out the remaining of said stations,

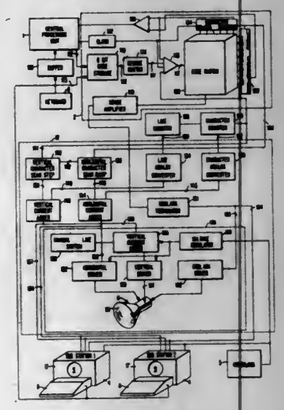
character forming means common to all of said stations and responsive to said central processor for translating said machine format of said requested data characters into a display format representative of the visual image of each of said data characters,

each of said display tubes being equipped with an electron beam forming means and a horizontal magnetic deflection yoke and a vertical magnetic deflection yoke,

unblanking means associated with each of said tubes and responsive to said control means and said character forming means for activating said beam forming means of said activated station and for producing beam operation at said activated station corsesponding to said display format,

said yokes of said activated station being operative in moving its associated beam across the display portion of its corresponding tube,

counter means connected in common to all of said stations for producing discrete first horizontal and vertical deflection signals,



means in each of said first stations responsive to said counter means for producing first horizontal deflection currents operative for moving its corresponding beam in discrete successive horizontal movements,

means in each of said first stations responsive to said counter means for producing first vertical deflection currents operative for movins its corresponding beam in discrete successive vertical movements,

ramp means in each of said first stations producing second horizontal and vertical deflection currents for continuously moving said beam between said discrete successive horizontal movements,

a first combining means in each of said first stations responsive to said first and said second horizontal deflection currents,

a second combining means in each of said first stations responsive to said first and said second vertical deflection currents,

a first driver in each of said stations connected to its associated horizontal yoke and responsive to said first combining means,

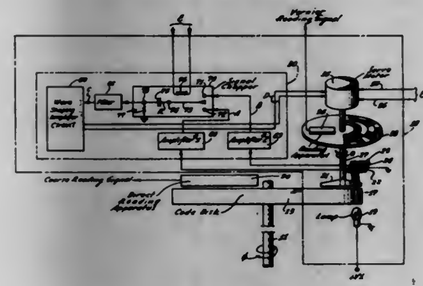
a second driver in each of said stations connected to its associated vertical yoke and responsive to said second combining means,

current switching means responsive to said control means and operative to activate said first and second driver in said activated station, whereby the deflection currents generated in said first stations are available at each of its associated second stations for writing the requested data characters at said activated stations.

3,323,120
OPTICAL VERNIER FOR ANALOG-TO-DIGITAL CONVERTERS

Robert E. Uehlin and Charles S. Bridge, Los Angeles (Northbridge), and Joseph B. Hughes, Los Angeles (Canoga Park), Calif., assignors to Litton Systems, Inc., Woodland Hills, Calif.

Filed Oct. 11, 1963, Ser. No. 315,598
15 Claims. (Cl. 340—347)



1. An optical vernier device for interpolating between a pair of predetermined points on a movable object, said vernier device comprising:

means for producing a beam of light in accordance with the position of one of the predetermined points moving with the movable object;

a sensing control means responsive to illumination by said beam of light for producing a signal in proportion to the distance separating the point of illumination of said beam of light on said sensing control means and a balance point on said sensing control means;

a movably mounted light deflection means for focusing said beam on a position of said sensing control means in accordance with the position of said one of the predetermined points;

means operative in response to said signal for moving said light deflection means to deflect said beam to focus on said balance point on said sensing control means; and

means for detecting the movement of said light deflection means.

3,323,121
DIGITAL CODE SELECTOR UNIT

John S. Burton and Everett L. Penn, Los Angeles, Calif., assignors to Monitron Manufacturing Corp., Los Angeles, Calif., a corporation of California

Filed Apr. 10, 1964, Ser. No. 358,735
13 Claims. (Cl. 340—347)

1. A digital code selector unit having;

(a) a memory comprised of a plurality of relays to accept electrically represented digital information having a plurality of bits of information for each digital character,

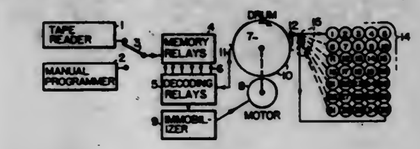
(b) the same said plurality of decoding relays as comprise said memory,

(c) plural means to individually connect each one of said decoding relays to each one of said relays of said memory,

(d) a rotatable code drum having thereon the same said plurality of series of electrically interconnected contact areas,

(e) a same said plurality of stationary contacts disposed to individually contact each of said series of contact areas,

(f) means to individually connect said plurality of said decoding relays to said plurality of said stationary



contacts,

(g) means to rotate said code drum in one direction,

(h) magnetic means to immobilize said means to rotate said code drum, and

(i) means to electrically connect said means to immobilize to all said decoding relays,

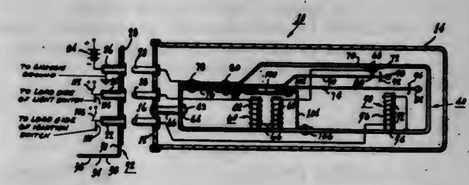
(j) whereby said drum is immobilized upon the digital information stored by the relays of said memory matching the digital equivalent of the electrical connections between said series of contact areas and said stationary contacts,

(k) to thereby open the contacts of all of said decoding relays.

3,323,122
PROTECTIVE ALARM DEVICE

Joseph J. Larkins, 325 Delaware Ave., Riverside, N.J. 08075

Filed June 24, 1965, Ser. No. 466,766
6 Claims. (Cl. 340—384)



1. A signal device for providing a signal when one of two previously energized circuits is de-energized, said device comprising:

first and second electro-magnets having first and second armatures, respectively, spaced from their respective electro-magnets,

means connecting said first electro-magnet to said one circuit to be energized when said one circuit is energized, whereby to attract said first armature, said first armature being flexible,

a pair of normally open contact points cooperatively associated with said first armature and adapted to be closed intermittently when said first armature is released by said first electro-magnet and caused to oscillate,

means including said first armature and said pair of contact points to connect said second electromagnet to the other of said two circuits intermittently to energize said second elecro-magnet intermittently when said first electro-magnet is de-energized and said first armature is released and caused to oscillate until it is damped, said second electro-magnet being energized for a portion of the time said first armature

oscillates and said contact points are closed intermittently, and

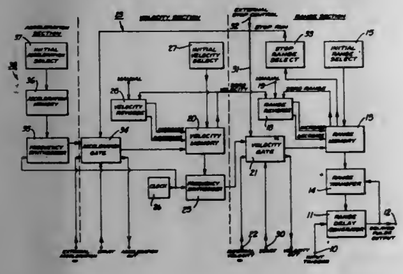
means adjacent said second armature for engagement therewith for providing said signal.

3,323,123

RANGE SIMULATOR FOR PROVIDING A CONTROLLED DELAY BETWEEN AN INPUT TRIGGER AND AN OUTPUT PULSE

James M. Hegarty, Alhambra, and Dwight S. Lord, Redondo Beach, Calif., assignors to Rutherford Electronics Co., El Segundo, Calif., a corporation of California

Filed Sept. 27, 1965, Ser. No. 490,429
9 Claims. (Cl. 343—17.7)



1. In a device for simulating radar range or the like by providing a controlled delay between an input trigger and an output pulse, the combination of:

means for generating an output pulse at a predetermined period of time after receiving an input trigger and including delay digital counter means with said predetermined period being a function of the preset state of said delay counter means;

memory means for storing a count in digital form and including memory digital counter means;

reset means for presetting said delay counter means to the count in said memory counter means after generation of an output pulse; and

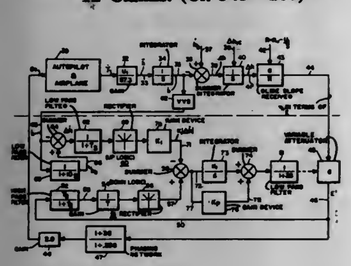
means for varying the count in said memory counter means.

3,323,124

GUIDANCE CONTROL SIGNAL DEVELOPING APPARATUS

Gordon O. Handberg, Anoka, Minn., assignor to Honeywell Inc., a corporation of Delaware

Filed Sept. 1, 1964, Ser. No. 393,649
12 Claims. (Cl. 343—108)



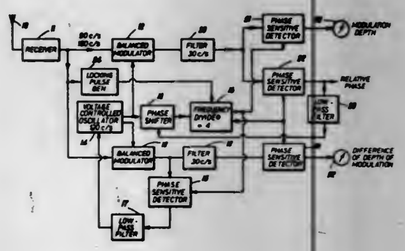
11. In combination including an instrument landing receiver responsive to radio beams and providing an electrical signal in accordance with a distance of the craft from the center of the radio beam, and a beam coupler receiving said signal and providing an output signal having components only of said electrical signal for control purposes; adjustable gain means in said coupler modifying the relationship of the coupler received and output signals, to provide a coupler output signal having a constant magnitude for various craft positions for various ranges of the craft from the radio beam transmitting station but with the same distance from the center of the beam; means adjusting the amplification factor or gain of the adjustable gain means from the output signal of the coupler; and further means providing a signal varying as a function of the distance of the craft from said beam and additionally adjusting said adjustable means.

3,323,125

APPARATUS FOR COMPARING THE AMPLITUDES OF SIGNALS OF DIFFERENT FREQUENCIES

Gerald Keith Lunn and Edward James Grisley, both of Chessington, England, assignors to The Wayne Kerr Company Limited, Chessington, England, a British company

Filed Mar. 10, 1966, Ser. No. 533,211
Claims priority, application Great Britain, Apr. 13, 1965, 15,646/65
7 Claims. (Cl. 343—109)



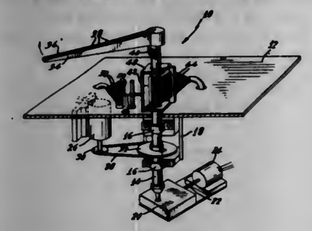
1. Apparatus for comparing the amplitudes of two input signals of different frequencies comprising a signal source providing a mean frequency reference signal of a frequency exactly mid-way between that of the two input signals, a first balanced modulator for amplitude modulating the mean frequency reference signal with the combined input signal, a first detector for detecting the amplitude of the output signal from the balanced modulator at a frequency equal to half the difference between the frequencies of the two input signals, a first phase sensitive detector fed from said first balanced modulator, means responsive to said two input signals providing first and second reference signals of frequency equal to half the difference frequency of the input signals and in phase quadrature, means for applying said first reference signal of half said difference frequency to said first phase sensitive detector as a reference signal having a phase such that the phase sensitive detector detects the component of the output of the balanced modulator arising due to phase error of the reference signal, means for automatically controlling the phase of the mean frequency reference signal in accordance with the output of said first phase sensitive detector, a further balanced modulator for amplitude modulating, with the combined input signal, a signal in phase quadrature with said mean frequency reference signal, a further phase sensitive detector for detecting the output of said further balanced modulator using said second reference signal at a frequency equal to half the difference between the frequencies of the two input signals and a phase shifter controlled by the output of said further phase sensitive detector for adjusting the phase of the both said first and said second reference signals of frequency equal to half the difference between the frequencies of the two input signals so as to minimize the output of said further phase sensitive detector.

3,323,126

TRUE SCALE THREE DIMENSIONAL DISPLAY DEVICE

Howard F. Malone, 35 3rd Ave., Massapequa Park, N.Y. 11762, and William R. Malone, 21 Healy Ave., Inwood, N.Y. 10034

Filed June 16, 1964, Ser. No. 375,596
20 Claims. (Cl. 343—112)



1. A display device comprising a member rotatable about an axis and movable therealong, means to rotate and move said member along its axis, display means extending from the axis of rotation of said member and operable to display a portion along the extent of said member, and means to operate said display means.

3,323,127

MULTIPLE TARGET TRACKING SYSTEM

George J. Vogel, Bloomvale, N.Y., assignor to the United States of America as represented by the Secretary of the Air Force

Filed Sept. 1, 1964, Ser. No. 393,796
1 Claim. (Cl. 343—113)



Apparatus for resolving a multiplicity of target locations comprising: a first crossed line array, a second crossed line array linearly displaced from said first crossed array and having its center in a physical location different from the geometric center of said first crossed array and computer means for processing data output from said arrays to identify presence or absence of targets in airspace.

3,323,128

MULTIPLE TARGET TRACKING SYSTEM

George J. Vogel, Bloomvale, N.Y., assignor to the United States of America as represented by the Secretary of the Air Force

Filed Sept. 1, 1964, Ser. No. 393,797
1 Claim. (Cl. 343—113)



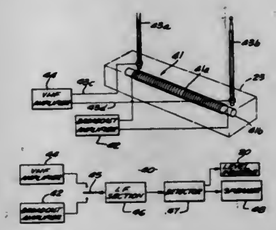
Apparatus for correlating multiple target radar echoes comprising a plurality of antenna elements capable of receiving radar echo signals from each of said targets, said antenna elements arranged in a line array, a second line array crossed at right angles with said first line array to form a first fixed set of crossed line arrays, said set having a common center antenna element, a second fixed set of crossed line arrays also having a common center element, angularly displaced from said first fixed set, and means for comparing in a predetermined manner signals, representative of all possible spatial locations of said targets, received from said first and second fixed sets to produce signals representative of the true location of each of said multiple targets.

3,323,129

RADIO DIRECTION FINDER

Sidney P. Held, El Segundo, Calif. (20810 Anza, Torrance, Calif. 90503)

Filed Apr. 10, 1964, Ser. No. 358,867
4 Claims. (Cl. 343—115)



1. A radio direction finder comprising, in combination:

a main housing having an elongated, substantially flat upper surface;

a radio receiver disposed within said main housing, said radio receiver including a VHF (very high frequency) amplifier, a broadcast amplifier, switch means for deriving input signals from a selected one of said amplifiers, and signal strength indicating means;

an antenna housing having an elongated configuration in the horizontal plane and disposed upon said upper surface of said main housing;

means mounting said antenna housing for pivotal movement in the horizontal plane relative to said main housing;

a broadcast antenna including an elongated coil disposed within said antenna housing and extending lengthwise thereof;

first circuit means coupled to the ends of said elongated coil, extending through said mounting means, and coupled to said broadcast amplifier;

a VHF antenna including a pair of vertically extending, horizontally spaced, rod-like elements whose lower ends are secured to respective ends of said antenna housing;

and second circuit means coupled to said lower ends of said rod-like elements, extending through said mounting means, and coupled to said VHF amplifier;

whereby said signal strength indicating means may be selectively used in conjunction with either one of said antennas for direction-finding purposes.

3,323,130

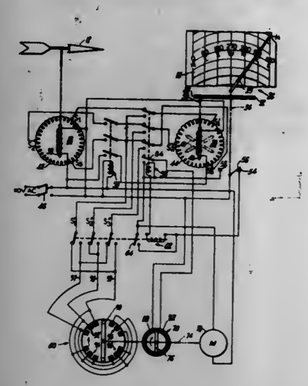
STYLUS RELOCATING CIRCUIT FOR WIND DIRECTION RECORDER

Ralph E. Bailey, 2 Mallard Drive, East Hartford, Conn. 06118

Filed Oct. 11, 1965, Ser. No. 494,369
9 Claims. (Cl. 346—8)

1. In an indicating system having an electrical synchronous motor follow-up system with a rotary transmitting synchro adapted to be rotated in accordance with the operation of an associated device and a rotary receiving synchro electrically connected to the transmitting synchro

for rotation therewith, and an indicating device driven by the receiving synchro in opposite directions between operative limits in accordance with the rotary movement of the receiving synchro in opposite angular directions respectively; resetting means for resetting the indicating device from its operative limits comprising means for



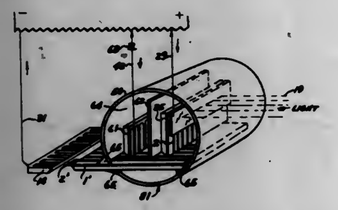
sensing when the indicating device reaches its operative limits, and an electrical switching mechanism operated by the sensing means and electrically connected to the synchronous motor follow-up system for electrically stepping the receiving synchro in opposite angular directions for resetting the indicating device in opposite directions from its operative limits respectively.

3,323,131

IMAGE CONTROL DEVICE WITH MEANS TO PRECHARGE THE PRINTING GAP

Jack E. MacGriff, Redford, Mich.
(17255 Lahser Road, Detroit, Mich. 48219)

Filed Aug. 17, 1962, Ser. No. 217,725
6 Claims. (Cl. 346—74)



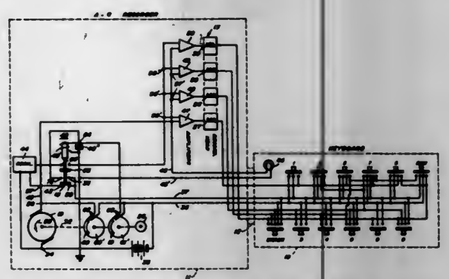
1. An electron emission control device comprising an electrically non-conductive insulating support, a multiplicity of conductors retained in spaced insulated geometric relation on said support, with the one ends of each conductor adapted to emit electrons, a means for maintaining each conductor at a constant similar minimum potential, with said conductors being retained in insulated relation to each other, light-sensitive semi-conducting junctions connected to said conductors, and means connecting a second potential to each conductor respectively through said junctions, with the resistance of said junctions respectively variable and dependent on the intensity of light displayed upon said junctions, and with the instantaneous potential on each of said conductors individually raised above said minimum potential to a value determined by the instantaneous resistance of said light sensitive junction, and an accelerating electrode spaced from and parallel to the emission ends of said conductors, with the sources of electric potential supplied to said conductors connected so that electrons which escape the emission ends of said conductors travel in the direction of said accelerating electrode.

3,323,132

PORTABLE MAGNETIC DIGITAL RECORDER FOR USE IN UTILITY METER READING

John R. Davis, Edwin D. Nuttall, and Albert M. Randolph, Shreveport, La., assignors to United Gas Corporation, a corporation of Delaware

Filed Aug. 17, 1961, Ser. No. 132,157
23 Claims. (Cl. 346—74)



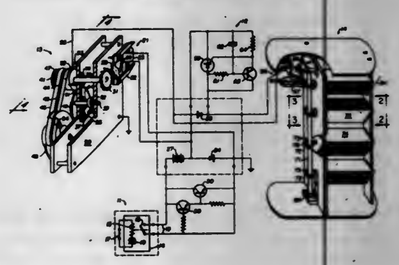
9. A magnetic digital recorder comprising a multichannel recording head, a plurality of symbol switches, means energizably responsive to closure of one of said symbol switches for moving a magnetizable member a substantially predetermined step across said recording head during an operating cycle, means for connecting each symbol switch to one or more selected channels of said recording head in accordance with the symbol represented by the respective switch and for energizing said selected channel or channels for a substantially predetermined fraction of the step of the magnetizable member for each complete operating cycle with the respective symbol switch closed, and auxiliary means for energizing said magnetizable member moving means after completion of a predetermined part of an operating cycle for thereafter assuring completion of each operating cycle regardless of the position of said symbol switches and including means for limiting energization of said moving means to a single operating cycle until all of said symbol switches are open.

3,323,133

OPERATIONS TIMING DEVICE

Rollin A. Armer and Harry H. Heckman, Jr., Berkeley, Calif., assignors to the United States of America as represented by the United States Atomic Energy Commission

Filed Sept. 7, 1965, Ser. No. 485,644
2 Claims. (Cl. 346—107)



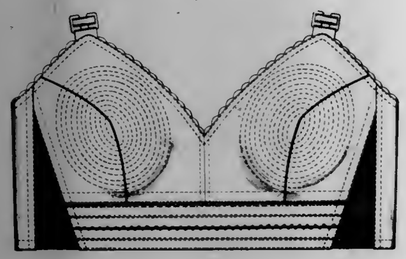
1. Apparatus for accurately timing a plurality of operations over a long time period comprising, in combination, a watch movement having means to produce a series

of first electrical signals at regular successive intervals, an escapement mechanism having electrical drive means periodically activated by said first signals, a precoded programming device operated by said escapement mechanism and having means for producing a second signal series at times which are predetermined by the coding of said programming device, a second escapement mechanism actuated by said second signals, and a shaft turned by said second escapement in response to each of said second signals for initiating said plurality of operations at the programmed times, a plurality of disc shaped elements secured to said shaft, each of said discs having a notch in the rim thereof, and a plurality of spring loaded detents each bearing against one of said discs whereby said detents operate upon turning of the notch of the associated disc into register therewith, each of said detents serving to initiate one of said plurality of operations.

DESIGNS

MAY 30, 1967

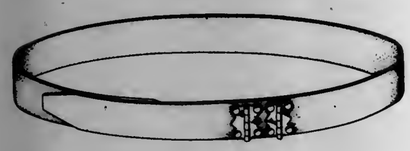
207,768
BRASSIERE
Joaquin Urrea Urrea, Medellin, Colombia, assignor to Confecciones Leonisa S.C., Medellin, Colombia, a limited partnership of Colombia
Substituted for abandoned design application Ser. No. 87,232, Sept. 30, 1965. This application July 7, 1966, Ser. No. 4,076
Term of patent 14 years
(Cl. D2—24)



207,769
HAIR TREATING CAP OR SIMILAR ARTICLE
Timothy J. O'Neill, 13400 Stevens Road 19116, and William E. Rosen, 1334 E. Cliveden 19119, both of Philadelphia, Pa.
Filed Nov. 7, 1966, Ser. No. 4,573
Term of patent 14 years
(Cl. D2—239)



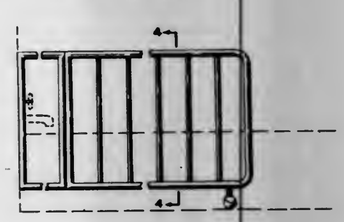
207,770
BELT
Zallo Loston, 113 S. Arnaz Drive, Beverly Hills, Calif. 90211
Filed Feb. 23, 1966, Ser. No. 1,153
Term of patent 14 years
(Cl. D2—380)



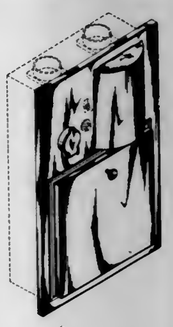
207,771
SHOE LOOP
Friedrich Aufenacker, 13 Kirchbergweg, Wuppertal-Sonnborn, Germany
Filed Dec. 1, 1965, Ser. No. 8
Term of patent 14 years
(Cl. D2—405)



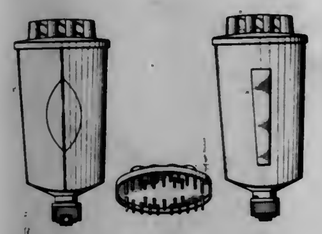
207,772
MOVEABLE SAFETY GATE TO AID INGRESS AND EGRESS FROM A BATHTUB
Roe Edith Rehr, 870 Crenshaw Blvd., Los Angeles, Calif. 90005
Filed July 14, 1966, Ser. No. 3,078
Term of patent 14 years
(Cl. D4—4)



207,773
WALL INSTALLABLE VACUUM CLEANER UNIT
James C. Hamrick, Matthews, N.C., assignor to Jet Line Products, Inc., Matthews, N.C., a corporation of North Carolina
Filed June 6, 1966, Ser. No. 2,560
Term of patent 14 years
(Cl. D9—2)



207,774
COMBINATION SHAMPOO DISPENSER AND MASSAGE BRUSH
Donald D. Brown, 2448 W. Marian Ave., Anaheim, Calif. 92804
Filed Aug. 4, 1966, Ser. No. 3,339
Term of patent 14 years
(Cl. D9—2)



207,775
VACUUM CLEANER ATTACHMENT FOR A HAIR CLIPPER
Mathew Andis, Racine, Wis., assignor to Adis Clipper Co., Racine, Wis., a corporation of Wisconsin
Original design application May 10, 1966, Ser. No. 2,244, now Patent No. 207,098, dated Mar. 7, 1967. Divided and this application Nov. 17, 1966, Ser. No. 4,711
Term of patent 14 years
(Cl. D9—2)



207,776
LEG SUPPORT FOR A CHAIR OR SIMILAR ARTICLE
Robert E. Kjer Jakobsen, Los Angeles, Calif., assignor to Schlumberger Limited (Schlumberger N.V.), Houston, Tex., a corporation of the Netherlands Antilles
Filed Feb. 9, 1966, Ser. No. 986
Term of patent 14 years
(Cl. D15—1)



207,777
CHAIR
Robert E. Kjer Jakobsen, Los Angeles, Calif., assignor to Schlumberger Limited (Schlumberger N.V.), Houston, Tex., a corporation of the Netherlands Antilles
Filed June 9, 1966, Ser. No. 2,620
Term of patent 14 years
(Cl. D15—1)



207,778
CHAIR
Willis C. Rogers, Birmingham, Ala., assignor to Birmingham Ornamental Iron Company, Inc., Birmingham, Ala., a corporation of Alabama
Filed June 16, 1966, Ser. No. 2,695
Term of patent 14 years
(Cl. D15—1)



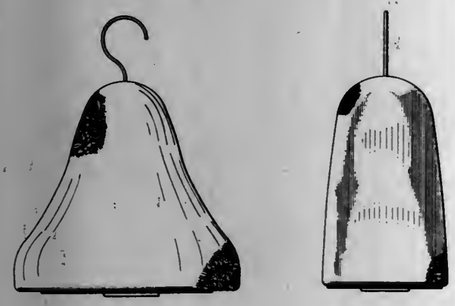
207,779
HIGHCHAIR OR THE LIKE
Robert D. Gunnell, 7768 Waterman Road, Vassar, Mich. 48768
Filed Nov. 1, 1965, Ser. No. 87,959
Term of patent 14 years
(Cl. D15—1)



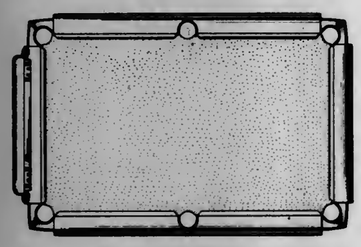
207,780
BULLETIN BOARD
Kenneth D. Kraus, 322 W. 72nd St., New York, N.Y. 10023
Filed Aug. 13, 1965, Ser. No. 86,577
Term of patent 14 years
(Cl. D25—1)



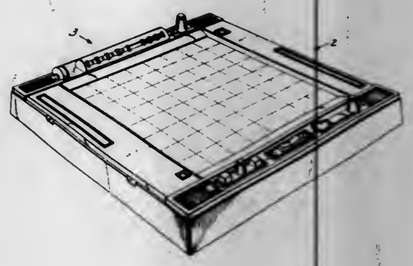
207,781
BIRD FOOD PENDANT
Henry E. Lowe, Jr., Cassopolis, Mich., assignor to Lowe's, Inc., Cassopolis, Mich., a corporation of Michigan
Filed May 10, 1965, Ser. No. 85,185
Term of patent 14 years
(Cl. D31—2)



207,782
POOL TABLE
Erwin Benkoe, New Hyde Park, N.Y., assignor to Ideal Toy Corporation, Hollis, N.Y.
Filed May 10, 1966, Ser. No. 2,241
Term of patent 7 years
(Cl. D34—3)



207,783
GAMEBOARD
Stanley A. Weston, 45 Rensen Road, Great Neck, N.Y. 11024, and Tobin Wolf, Bloomfield, N.J.; said Wolf assignor to said Weston
Filed June 21, 1966, Ser. No. 2,760
Term of patent 14 years
(Cl. D34—5)



207,784
VEHICULAR TOY OR SIMILAR ARTICLE
Jarvis W. Rockwell, Chicago, Ill., assignor to Playskool Manufacturing Company, Chicago, Ill., a corporation of Illinois
Filed July 5, 1966, Ser. No. 2,941
Term of patent 14 years
(Cl. D34—15)



207,785
VEHICULAR TOY OR SIMILAR ARTICLE
Jarvis W. Rockwell, Chicago, Ill., assignor to Playskool Manufacturing Company, Chicago, Ill., a corporation of Illinois
Filed July 5, 1966, Ser. No. 2,943
Term of patent 14 years
(Cl. D34—15)



207,786
CUP OR SIMILAR ARTICLE
Frank J. Benes, Lancaster, Ohio, assignor to Anchor Hocking Glass Corporation, Lancaster, Ohio, a corporation of Delaware
Filed Jan. 5, 1966, Ser. No. 468
Term of patent 14 years
(Cl. D44—9)



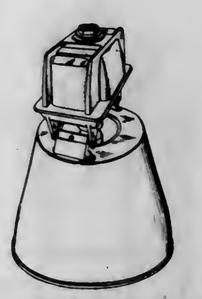
207,787
PITCHER OR SIMILAR ARTICLE
Howard S. Miller, Jr., Sierra Madre, Calif., assignor to Dispensers, Inc., Santa Barbara, Calif., a corporation of California
Filed Feb. 14, 1966, Ser. No. 1,035
Term of patent 14 years
(Cl. D44—21)



207,788
JAPANESE LANTERN OR THE LIKE
Masanori Katsumata, 3196—1 Aza-Shimoshoji, Shimokanuki, Numazu-shi, Japan
Filed July 12, 1966, Ser. No. 3,044
Term of patent 14 years
(Cl. D48—16)



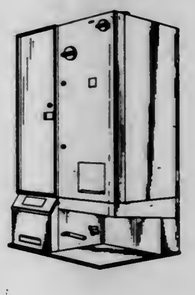
207,789
LUMINAIRE
Thomas E. Kimble, Pataskala, Ohio, assignor to Holophane Company, Inc., New York, N.Y., a corporation of Delaware
Filed Aug. 16, 1966, Ser. No. 3,491
Term of patent 14 years
(Cl. D48—23)



207,790
DRAW BOLT OR SIMILAR ARTICLE
Anthony N. D'Elia, Riverdale, and Edward M. Stolarz, Yorktown Heights, N.Y., assignors to Presto Lock Co., Inc., Garfield, N.J., a corporation of New York
Filed Aug. 11, 1966, Ser. No. 3,434
Term of patent 14 years
(Cl. D50—5)



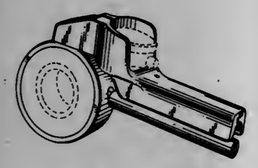
207,791
MERCHANDISE VENDING MACHINE
Elmer A. Stein, Madison, Wis., assignor to Coan Manufacturing Co., Inc., Madison, Wis., a corporation of Wisconsin
Filed Feb. 11, 1966, Ser. No. 1,010
Term of patent 14 years
(Cl. D52—3)



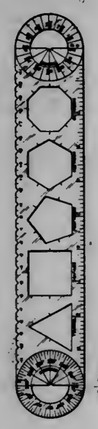
207,792
INTERNAL SPLINE INDICATOR GAGE
London T. Morawski, Detroit, Mich., assignor of one-half to John J. Parker, Van Dyke, Mich.
Filed Jan. 13, 1966, Ser. No. 588
Term of patent 14 years
(Cl. D52—6)



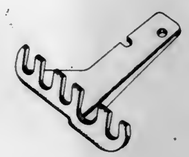
207,793
SPLINE INDICATOR GAGE
London T. Morawski, Detroit, Mich., assignor of one-half to John J. Parker, Van Dyke, Mich.
Filed Jan. 13, 1966, Ser. No. 590
Term of patent 14 years
(Cl. D52—6)



207,794
RULER USED IN MATHEMATICS
Don C. Cherrington, 862 Birdhaven Court, Lafayette, Calif. 94549
Filed May 17, 1966, Ser. No. 2,337
Term of patent 14 years
(Cl. D52—6)



207,795
FLUID CONDUIT RETAINER FOR USE IN AN AUTOMATIC TRANSMISSION OF AN AUTOMOBILE
Angelo J. Rosati, 7 Malquinn Drive, Hopedale, Mass. 01747
Filed Oct. 28, 1965, Ser. No. 87,947
Term of patent 14 years
(Cl. D54—1)



207,796
DUST GOGGLE
George R. Hoffmaster, Esterly, Reading, and Jack N. Simpson, Greenfields, Reading, Pa., assignors to The Electric Storage Battery Company, Philadelphia, Pa.
Filed Nov. 22, 1965, Ser. No. 88,173
Term of patent 14 years
(Cl. D57—1)

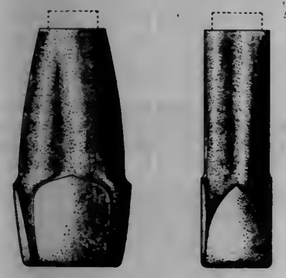
207,797
JUG
Bruce L. Roberts, Rossford, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio, a corporation of Ohio
Filed July 7, 1966, Ser. No. 2,980
Term of patent 14 years
(Cl. D58—5)



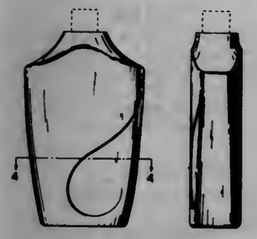
207,798
BOTTLE
James L. Linn, Jr., Maumee, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio, a corporation of Ohio
Filed June 29, 1966, Ser. No. 2,849
Term of patent 14 years
(Cl. D58—6)



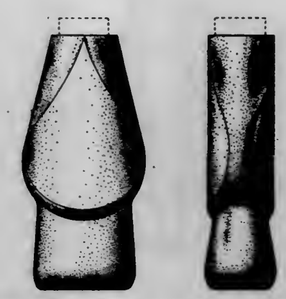
207,799
BOTTLE
Bruce L. Roberts, Rossford, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio, a corporation of Ohio
Filed July 7, 1966, Ser. No. 2,977
Term of patent 14 years
(Cl. D58—6)



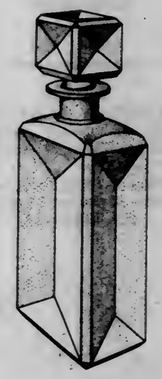
207,800
BOTTLE
Bruce L. Roberts, Rossford, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio, a corporation of Ohio
Filed July 7, 1966, Ser. No. 2,978
Term of patent 14 years
(Cl. D58—6)



207,801
BOTTLE
Bruce L. Roberts, Rossford, Ohio, assignor to Owens-Illinois, Inc., Toledo, Ohio, a corporation of Ohio
Filed July 7, 1966, Ser. No. 2,979
Term of patent 14 years
(Cl. D58—6)



207,802
COMBINED DECANTER AND CLOSURE THEREFOR
Ernest L. Du Pree, New York, N.Y., assignor to Schenley Industries, Inc., New York, N.Y., a corporation of Delaware
Filed July 29, 1966, Ser. No. 3,259
Term of patent 14 years
(Cl. D58—6)



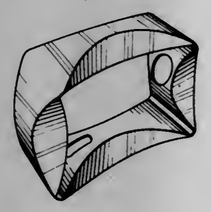
207,803
DECANTER
Ernest L. Du Pree, New York, N.Y., assignor to Schenley Industries, Inc., New York, N.Y., a corporation of Delaware
Filed July 29, 1966, Ser. No. 3,260
Term of patent 14 years
(Cl. D58—6)



207,804
BOTTLE
John W. Bisch, Dallas, Tex., assignor to Owens-Illinois, Inc., Toledo, Ohio, a corporation of Ohio
Filed June 3, 1966, Ser. No. 2,530
Term of patent 14 years
(Cl. D58—9)



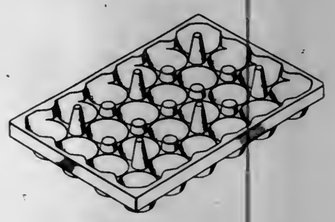
207,805
DISPLAY CARTON
William W. Nowak, Broadview Heights, Ohio, assignor to Container Corporation of America, Chicago, Ill., a corporation of Delaware
Filed May 9, 1966, Ser. No. 2,235
Term of patent 14 years
(Cl. D58—12)



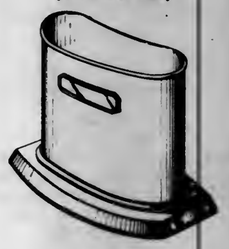
207,806
DISPLAY BOX
Samuel Braun, Rye, N.Y., assignor to B.C.N. Design Products, Inc., Amityville, N.Y., a corporation of New York
Filed Dec. 13, 1966, Ser. No. 5,018
Term of patent 14 years
(Cl. D58—12.6)



207,807
EGG CARTON FILLER
Alphonse J. Kramer, P.O. Box 15192, Sacramento, Calif. 95807
Filed Aug. 1, 1966, Ser. No. 3,274
Term of patent 14 years
(Cl. D58—13)



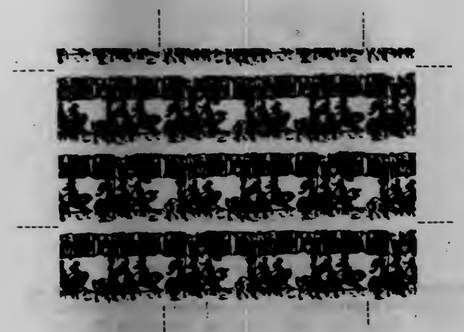
207,808
FLASK HOLDER OR SIMILAR ARTICLE
Hayden W. Coulthurst, Cranston, R.I., assignor to Textron Inc., Providence, R.I., a corporation of Rhode Island
Filed May 17, 1966, Ser. No. 2,328
Term of patent 14 years
(Cl. D58—26)



207,809
DEFLECTION CAP FOR A LIQUID ATOMIZER
Karl Flury, Dietikon, Zurich, Switzerland, assignor to Defensor, Zurich, Switzerland, a Swiss company
Filed Sept. 22, 1966, Ser. No. 3,959
Term of patent 7 years
(Cl. D58—26)



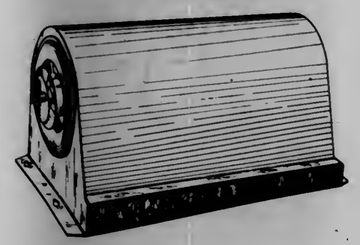
207,810
WRAPPING PAPER OR SIMILAR ARTICLE
Nathan Shapira, 555/308 Westwood Plaza, Los Angeles, Calif. 90024
Filed Jan. 7, 1966, Ser. No. 537
Claims priority, application Italy Sept. 29, 1965
Term of patent 14 years
(Cl. D59—2)



207,811
CAMERA
Acton Bjorn, Copenhagen, Denmark, assignor to Eumig Elektrizitats- und Metallwaren Industrie, Vienna, Austria, a corporation of Austria
Original design application June 23, 1965, Ser. No. 85,867. Divided and this application Sept. 1, 1966, Ser. No. 3,687
Claims priority, application Austria Apr. 16, 1965
Term of patent 14 years
(Cl. D61—1)



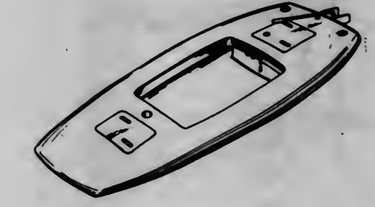
207,812
AIR CURTAIN
Mervin A. Bass, Miami, and Zelig L. Bass, North Miami, Fla., assignors to Universal Jet Industries, Inc., Hialeah, Fla., a corporation of Florida
Filed Jan. 25, 1965, Ser. No. 83,552
Term of patent 14 years
(Cl. D62—4)



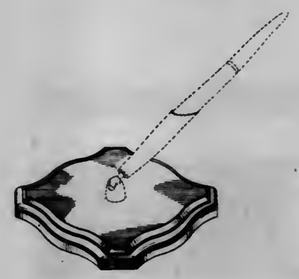
207,813
TYPEWRITER OR THE LIKE
Gerhard Dietrich, Furth, Bavaria, and Peter Heinz Meyer, Nurnberg, Germany, assignors to Triumph Werke Nuernberg A.G., Nurnberg, Germany
Filed Dec. 10, 1965, Ser. No. 136
Claims priority, application Germany Sept. 10, 1965
Term of patent 14 years
(Cl. D64—11)



207,814
MOTORIZED WATER-JET VEHICLE
Harold A. Price, Orange, Calif., assignor to Alfred S. Bloomingdale
Filed May 23, 1966, Ser. No. 2,454
Term of patent 14 years
(Cl. D71—1)



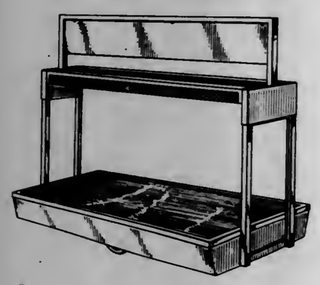
207,815
DESK SET
William Macowski, Montclair, N.J., assignor to Ketchum & McDougall, Inc., Roseland, N.J., a corporation of New Jersey
Filed Nov. 16, 1965, Ser. No. 88,119
Term of patent 14 years
(Cl. D74—5)



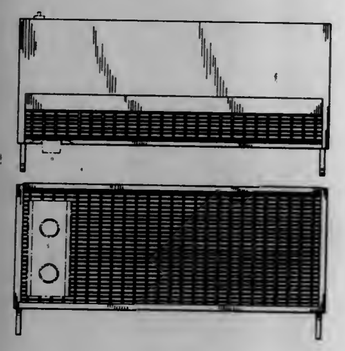
207,816
PORTABLE MERCHANDISE DISPLAY STAND
Joseph Clement, Atlanta, Ga., assignor to Modern Metal Products Company, Greensboro, N.C., a corporation of North Carolina
Filed July 29, 1966, Ser. No. 3,269
Term of patent 14 years
(Cl. D80—9)



207,817
PORTABLE MERCHANDISE DISPLAY STAND
Joseph Clement, Atlanta, Ga., assignor to Modern Metal Products Company, Greensboro, N.C., a corporation of North Carolina
Filed Oct. 21, 1966, Ser. No. 4,369
Term of patent 14 years
(Cl. D80—9)



207,818
ROOM AIR HEATER
Louis J. De La Marter, Mansfield, Ohio, assignor to Westinghouse Electric Corporation, a corporation of Pennsylvania
Filed May 3, 1966, Ser. No. 2,146
Term of patent 14 years
(Cl. D81—10)



207,819
HEATER FOR WARMING COMESTIBLES SUCH AS PRETZELS OR THE LIKE
Walter R. Reach, 588 Washington Terrace, Audubon, N.J. 08106
Filed July 29, 1966, Ser. No. 3,266
Term of patent 14 years
(Cl. D81—10)



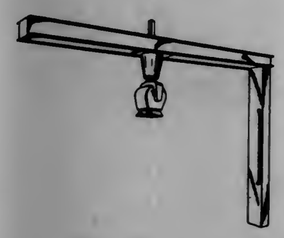
207,820
FROZEN CONFECTION
Robert J. Betschart, Sacramento, Calif., assignor to FMC Corporation, a corporation of Delaware
Filed Nov. 16, 1964, Ser. No. 32,632
Term of patent 14 years
(Cl. D82—2)



207,821
RADIOTHERAPY IRRADIATION UNIT
Peter Waine, Stockport, England, assignor to Fairey Engineering Limited, Heston, Middlesex, England, a company of Great Britain
Filed May 31, 1966, Ser. No. 2,995
Claims priority, application Great Britain Dec. 1, 1965
Term of patent 14 years
(Cl. D83—1)



207,822
RADIOTHERAPY IRRADIATION UNIT
Peter Waine, Stockport, England, assignor to Fairey Engineering Limited, Heston, Middlesex, England, a company of Great Britain
Filed May 31, 1966, Ser. No. 2,999
Claims priority, application Great Britain Dec. 1, 1965
Term of patent 14 years
(Cl. D83—1)



207,823
HOLDER FOR BOOK MATCHES OR THE LIKE
John H. Eskew, 3410A Park, St. Louis, Mo. 63104
Filed Apr. 7, 1966, Ser. No. 1,806
Term of patent 3½ years
(Cl. D85—2)

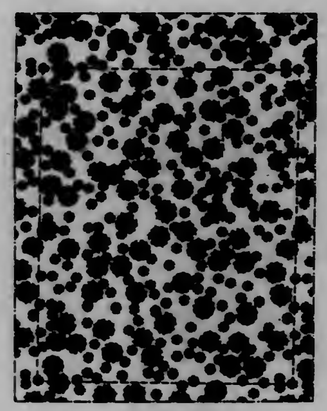
207,824
ASHTRAY
Helmer Sven Ostrand, Asbackagatan 38, and Per Bertil Schon, Granvagen 16A, both of Soderhamn, Sweden
Filed Sept. 1, 1966, Ser. No. 3,672
Term of patent 3½ years
(Cl. D85—2)



207,825
PIPE CLIP
Eugene P. Moody, 308 S. 50th St., Philadelphia, Pa. 19143
Filed Dec. 3, 1965, Ser. No. 29
Term of patent 14 years
(Cl. D85—8)



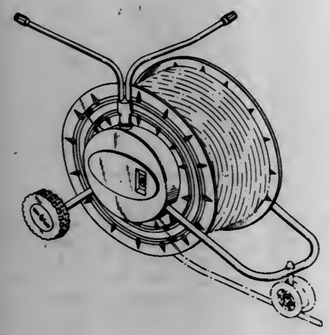
207,826
PLASTIC COATED SHEET MATERIAL
Richard A. Mazur, McFarland, Wis., assignor to Uniroyal, Inc., a corporation of New Jersey
Filed Mar. 23, 1966, Ser. No. 1,605
Term of patent 14 years
(Cl. D87—3)



207,827
FRUIT SQUEEZER OR SIMILAR ARTICLE
Ellis F. Murphy, Sr., 75 E. Lynn, 301, Seattle, Wash. 98109
Filed May 19, 1966, Ser. No. 2,356
Term of patent 7 years
(Cl. D89—1)



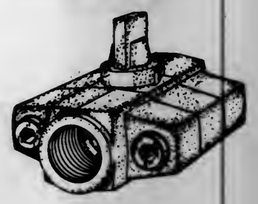
207,828
TRAVELING LAWN SPRINKLER
John D. Beinert, Babylon, N.Y., assignor to International Patent Research Corp., New York, N.Y., a corporation of New York
Filed Nov. 15, 1966, Ser. No. 4,678
Term of patent 7 years
(Cl. D91—1)



207,829
BOLTED VALVE
Domer Scaramucci, 3245 S. Hattie, Oklahoma City, Okla. 73129
Filed Aug. 25, 1966, Ser. No. 3,594
Term of patent 14 years
(Cl. D91—3)



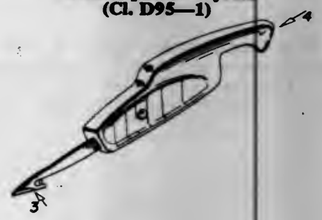
207,830
LINE VALVE
Ladd M. Adams, Norman, Okla., assignor to Balon Corporation, Oklahoma City, Okla., a corporation of Oklahoma
Filed Aug. 26, 1966, Ser. No. 3,597
Term of patent 14 years
(Cl. D91—3)



207,831
FLANGE VALVE
Ladd M. Adams, Norman, Okla., assignor to Balon Corporation, Oklahoma City, Okla., a corporation of Oklahoma
Filed Aug. 26, 1966, Ser. No. 3,600
Term of patent 14 years
(Cl. D91—3)



207,832
SEAM RIPPER OR THE LIKE
Harry Bridges, Studley, England, assignor to Needle Industries Limited, Birmingham, Warwick, England, a British company
Filed Jan. 10, 1966, Ser. No. 564
Claims priority, application Great Britain Dec. 24, 1965
Term of patent 14 years
(Cl. D95—1)



LIST OF REISSUE PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 30TH DAY OF MAY, 1967

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

Automatic Process Control, Inc.: *See*—
Kraft, August L. Re. 26,213.
Borg-Warner Corp.: *See*—
Johnson, Edward M., and Epstein, Re. 26,212.
Bundschuh, John J., to Eastman Kodak Co. Photographic flash unit. Re. 26,214, 5–30–67, Cl. 240—1.3.
Eastman Kodak Co.: *See*—
Bundeschuh, John J. Re. 26,214.
English, John B., to Reynolds Metals Co. Bright finished aluminum alloy system. Re. 26,216, 5–30–67, Cl. 148—31.5.
Epstein, Herman: *See*—
Johnson, Edward M., and Epstein, Re. 26,212.
Johnson, Edward M., and H. Epstein, to Borg-Warner Corp. Electrostatic recording head. Re. 26,212, 5–30–67, Cl. 346—74.
Kraft, August L., to Automatic Process Control, Inc. Fluid metering means. Re. 26,213, 5–30–67, Cl. 137—565.
Reynolds Metals Co.: *See*—
English, John B. Re. 26,216.
Usher, Marcella C.: *See*—
Usher, John R., J. F. and J. A. Re. 26,215.
Usher, James F.: *See*—
Usher, John R., J. F. and J. A. Re. 26,215.
Usher, John A.: *See*—
Usher, John R., J. F. and J. A. Re. 26,215.
Usher, John R., J. F. and J. A. Usher, deceased (by M. C. Usher, executrix). Collapsible structure. Re. 26,215, 5–30–67, Cl. 52—646.

LIST OF PLANT PATENTEES

McGredy, Samuel. Rose plant. 2,745, 5–30–67, Cl. 12.
Lammerts, Walter E., to General Bionomics, Inc. Lilac plant. 2,744, 5–30–67, Cl. 66.
General Bionomics, Inc.: *See*—
Lammerts, Walter E. 2,744.

LIST OF DESIGN PATENTEES

Adams, Ladd M., to Balon Corp. Line valve. 207,830, 5–30–67, Cl. D91—3.
Adams, Ladd M., to Balon Corp. Flange valve. 207,831, 5–30–67, Cl. D91—3.
Anchor Hocking Glass Corp.: *See*—
Benes, Frank J. 207,786.
Andis Clipper Co.: *See*—
Andis, Mathew. 207,775.
Andis, Mathew, to Andis Clipper Co. Vacuum cleaner attachment for a hair clipper. 207,775, 5–30–67, Cl. D9—2.
Aufenacker, Friedrich. Shoe loop. 207,771, 5–30–67, Cl D2—405.
B. C. N. Design Products, Inc.: *See*—
Braun, Samuel. 207,806.
Balon Corp.: *See*—
Adams, Ladd M. 207,830.
Adams, Ladd M. 207,831.
Bass, Marvin A., and Z. L., to Universal Jet Industries, Inc. Air curtain. 207,812, 5–30–67, Cl. D62—4.
Bass, Zelig L.: *See*—
Bass, Mervin A. and Z. L. 207,812.
Beinert, John D., to International Patent Research Corp. Traveling lawn sprinkler. 207,828, 5–30–67, Cl. D91—1.
Benes, Frank J., to Anchor Hocking Glass Corp. Cup or similar article. 207,786, 5–30–67, Cl. D44—9.
Benkoe, Erwin, to Ideal Toy Corp. Pool table. 207,782, 5–30–67, Cl. D34—3.
Betschart, Robert J., to FMC Corp. Frozen confection. 207,820, 5–30–67, Cl. D82—2.
Birmingham Ornamental Iron, Co., Inc.: *See*—
Rogers, Willis C. 207,778.
Bisch, John W., to Owens-Illinois, Inc. Bottle. 207,804, 5–30–67, Cl. D58—9.
Bjorn, Acton, to Eumig Elektrisitats- und Metallwaren, Industrie. Camera. 207,811, 5–30–67, Cl. D61—1.
Bloomingdale, Alfred S.: *See*—
Price, Harold A. 207,814.
Braun, Samuel, to B. C. N. Design Products, Inc. Display box. 207,806, 5–30–67, Cl. D58—12.6.
Bridges, Harry, to Needle Industries Ltd. Seam ripper or the like. 207,832, 5–30–67, Cl. D95—1.
Brown, Donald D. Combination shampoo dispenser and massage brush. 207,774, 5–30–67, Cl. D9—2.
Cherrington, Don C. Ruler used in mathematics. 207,794, 5–30–67, Cl. D52—6.
Clement, Joseph, to Modern Metal Products Co. Portable merchandise display stand. 207,816, 5–30–67, Cl. D80—9.
Clement, Joseph, to Modern Metal Products Co. Portable merchandise display stand. 207,817, 5–30–67, Cl. D80—9.
Coan Mfg. Co., Inc.: *See*—
Stein, Elmer A. 207,791.
Confecciones Leonisa S. C.: *See*—
Urrea, Joaquin U. 207,768.
Container Corp. of America: *See*—
Nowak, William W. 207,805.
Coulthrust, Hayden W., to Textron Inc. Flask holder or similar article. 207,808, 5–30–67, Cl. D58—26.
Defenson: *See*—
Flurry, Karl. 207,809.
De La Marter, Louis J., to Westinghouse Electric Corp. Room air heater. 207,818, 5–30–67, Cl. D81—10.
D'Elia, Anthony M. and E. M. Stolarz, to Presto Lock Co., Inc. Draw bolt or similar article. 207,790, 5–30–67, Cl. D50—5.
Dietrich, Gerhard, and P. H. Meyer, to Triump Werke Nuernberg A.G. Typewriter or the like. 207,813, 5–30–67, Cl. D64—11.
Dispensers, Inc.: *See*—
Miller, Howard S., Jr. 207,787.
Du Pree, Ernest L., to Schenley Industries, Inc. Combined decanter and closure thereof. 207,802, 5–30–67, Cl. D58—6.
Du Pree, Ernest L., to Schenley Industries, Inc. Decanter. 207,803, 5–30–67, Cl. D58—6.
Electric Storage Battery Co., The: *See*—
Hoffmaster, George R., and Simpson. 207,796.
Eskew, John H. Holder for book matches or the like. 207,823, 5–30–67, Cl. 85—2.
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Waine, Peter. 207,821.
Waine, Peter. 207,822.
Flury, Karl, to Defenson. Deflection cap for a liquid atomiser. 207,809, 5–30–67, Cl. D58—26.
Gunnell, Robert D. Highchair or the like. 207,779, 5–30–67, Cl. D15—1.
Hamrick, James C., to Jet Lines Products, Inc. Wall installable vacuum cleaner unit. 207,773, 5–30–67, Cl. D0—2.
Hoffmaster, George R., and J. N. Simpson, to The Electric Storage Battery Co. Dust goggle. 207,796, 5–30–67, Cl. D57—1.
Holophane Co., Inc.: *See*—
Kimble, Thomas E. 207,789.
Ideal Toy Corp.: *See*—
Benkoe, Erwin. 207,782.
International Patent Research Corp.: *See*—
Beinert, John D. 207,828.
Jakobsen, Robert E. K., to Schlumberger Ltd. (Schlumberger N.V.). Leg support for a chair or similar article. 207,776, 5–30–67, Cl. D15—1.
Jakobsen, Robert E. K., to Schlumberger Ltd. (Schlumberger N.V.). Chair. 207,777, 5–30–67, Cl. D15—1.
Jet Line Products, Inc.: *See*—
Hamrick, James C. 207,773.
Katsumata, Masanori. Japanese lantern or the like. 207,788, 5–30–67, Cl. D48—16.
Ketcham & McDougall, Inc.: *See*—
Macowski, William. 207,815.

Kimble, Thomas E., to Holophane Co., Inc. Luminaire. 207,789, 5–30–67, Cl. D48—23.
Kramer, Alphonse J. Egg carton filler. 207,807, 5–30–67, Cl. D58—13.
Kraus, Kenneth D. Bulletin board. 207,780, 5–30–67, Cl. D25—1.
Linn, James L., Jr., to Owens-Illinois, Inc. Bottle. 207,798, 5–30–67, Cl. D58—6.
Loston, Zallo. Belt. 207,770, 5–30–67, Cl. D2—380.
Lowe, Henry E., Jr., to Lowe's, Inc. Bird food pendant. 207,781, 5–30–67, Cl. D31—2.
Lowe's, Inc.: *See*—
Lowe, Henry E., Jr. 207,781.
Macowski, William, to Ketcham & McDougall, Inc. Desk set. 207,815, 5–30–67, Cl. D74—5.
Mazur, Richard A., to Uniroyal, Inc. Plastic coated sheet material. 207,826, 5–30–67, Cl. D87—3.
Meyer, Peter H.: *See*—
Dietrich, Gerhard, and Meyer. 207,813.
Miller, Howard S., Jr., to Dispensers, Inc. Pitcher or similar article. 207,787, 5–30–67, Cl. D44—21.
Modern Metal Products Co.: *See*—
Clement, Joseph. 207,816.
Clement, Joseph. 207,817.
Moody, Eugene P. Pipe clip. 207,825, 5–30–67, Cl. D85—8.
Morawski, London T., ½ to John J. Parker. Internal spline indicator gage. 207,792, 5–30–67, Cl. D52—6.
Morawski, London T., ½ to John J. Parker. Spline indicator gage. 207,793, 5–30–67, Cl. D52—6.
Murphy, Ellis F., Sr. Fruit squeezer or similar article. 207,827, 5–30–67, Cl. D89—1.
Needle Industries Ltd.: *See*—
Bridges, Harry. 207,832.
Nowak, William W., to Container Corp. of America. Display carton. 207,805, 5–30–67, Cl. D58—12.
O'Neill, Timothy J., and W. E. Rosen. Hair treating cap or similar article. 207,769, 5–30–67, Cl. D2—239.
Ostrand, Helmer S., and P. B. Schon. Ashtray. 207,824, 5–30–67, Cl. D85—2.
Owens-Illinois, Inc.: *See*—
Bisch, John W. 207,804.
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Roberts, Bruce L. 207,799.
Roberts, Bruce L. 207,800.
Roberts, Bruce L. 207,801.
Parker, John J.: *See*—
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Morawski, London T. 207,793.
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Rockwell, Jarvis W. 207,784.
Rockwell, Jarvis W. 207,785.
Presto Lock Co., Inc.: *See*—
D'Elia, Anthony N., and Stolarz. 207,790.
Price, Harold A., to Alfred S. Bloomingdale. Motorized water-jet vehicle. 207,814, 5–30–67, Cl. D71—1.
Reach, Walter R. Heater for warming comestibles. 207,819, 5–30–67, Cl. D81—10.
Rehr, Roe E. Moveable safety gate to aid ingress and egress from a bathtub. 207,772, 5–30–67, Cl. D4—4.
Roberts, Bruce L., to Owens-Illinois, Inc. Jug. 207,797, 5–30–67, Cl. D58—5.
Roberts, Bruce L. to Owens-Illinois, Inc. Bottle. 207,799, 5–30–67, Cl. D58—6.
Roberts, Bruce L., to Owens-Illinois, Inc. Bottle. 207,800, 5–30–67, Cl. D58—6.
Roberts, Bruce L., to Owens-Illinois, Inc. Bottle. 207,801, 5–30–67, Cl. D58—6.
Rockwell, Jarvis W., to Playskool Mfg. Co. Vehicular toy or similar article. 207,784, 5–30–67, Cl. D34—15.
Rockwell, Jarvis W., to Playskool Mfg. Co. Vehicular toy or similar article. 207,785, 5–30–67, Cl. D34—15.
Rogers, Willis C., to Birmingham Ornamental Iron Co., Inc. Chair. 207,778, 5–30–67, Cl. D15—1.
Rosati, Angelo J. Fluid conduit retainer for use in an automatic transmission of an automobile. 207,795, 5–30–67, Cl. D54—1.
Rosen, William E.: *See*—
O'Neill, Timothy J. and Rosen. 207,769.
Scaramucci, Domer. Bolted valve. 207,829, 5–30–67, Cl. D91—3.
Schenley Industries, Inc.: *See*—
Du Pree, Ernest L. 207,802.
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Schlumberger Ltd. (Schlumberger N.V.): *See*—
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Jakobsen, Robert E. k. 207,777.
Schon, Per B.: *See*—
Ostrand, Helmer S., and Schon. 207,824.
Shapira, Nathan. Wrapping paper or similar article. 207,810, 5–30–67, Cl. D59—2.
Simpson, Jack N.: *See*—
Hoffmaster, George R., and Simpson. 207,796.
Stein, Elmer A., to Coan Mfg. Co., Inc. Merchandise vending machine. 207,791, 5–30–67, Cl. D52—3.
Stolarz, Edward M.: *See*—
D'Elia, Anthony N., and Stolarz. 207,790.
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Dietrich, Gerhard, and Meyer. 207,813.
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Waine, Peter, to Fairey Engineering Ltd. Radiotherapy irradiation unit. 207,822, 5–30–67, Cl. D83—1.
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Wolf, Tobin: *See*—
Weston, Stanley A., and Wolf. 207,783.

LIST OF PATENTEES

TO WHOM

PATENTS WERE ISSUED ON THE 30TH DAY OF MAY, 1967

NOTE.—Arranged in accordance with the first significant character or word of the name (in accordance with city and telephone directory practice).

AMF International Ltd.: *See*—
Ward, Harry. 3,322,175.
AMP Inc.: *See*—
Bennion, David R. 3,323,113.
Bennion, David R., English, and Nitzan. 3,322,965.
O'Keefe, Michael F., and Stull. 3,323,098.
Polidori, Mario. 3,322,887.
Ziegler, George W., Jr. 3,323,083.
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Glaesener, Ernest. 3,322,390.
Aasen, Torulf F.: *See*—
Walter, Henry J., and Aasen. 3,322,964.
Abe, Shokichi: *See*—
Tsuruta, Shiro, Koga, Abo, and Abe. 3,322,732.
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Tsuruta, Shiro, Koga, Abo, and Abe. 3,322,732.
Abolins, Visvaldis, and R. M. Lukes, to General Electric Co. Inorganic molding compositions of the asbestos-orthophosphoric acid-type and products produced therefrom. 3,322,549, 5–30–67, Cl. 106—38.3.
Ace Glass Inc.: *See*—
DeWoody, Charles M., and Pearce. 3,322,571.
Ackroyd, Ronald T.: *See*—
Barker, Allan, Bool, and Ackroyd. 3,322,645.
Adams, Joe T.: *See*—
Kiff, Ben W., and Adams. 3,322,740.
Adams, Laddie M.: *See*—
McCay, Thomas E., Warren, and Adams. 3,322,904.
Adams, Samuel F., and E. H. Guerin, Jr., to American Paper Tube Co. Instant-wind bobbins. 3,321,901, 5–30–67, Cl. 57—131.
Addressograph-Multigraph Corp.: *See*—
Maul, John A. 3,322,062.
Adler, Meryle D. W., and R. A. Simon, to Corning Glass Works. Drawing sheet glass. 3,322,523, 5–30–67, Cl. 65—101.
Admon, Jedidiah, to Variview Reader Corp. Projection or display of still pictures and texts. 3,322,035, 5–30–67, Cl. 88—27.
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Aechter, Christian. Swingable faucet. 3,322,152, 5–30–67, Cl. 137—625.41.
Affel, John J., and J. Von Nemeth, to Stewart-Warner Corp. Meter bayonet lock. 3,322,380, 5–30–67, Cl. 248—27.
Agarwal, Paul D., R. B. Colten, D. Friedman, R. W. Johnston, and J. J. Werth, to General Motors Corp. Electric drive system. 3,323,032. 5–30–67, Cl. 318—231.
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Ahlenius, Marie A. Water purification unit. 3,322,410, 5–30–67, Cl. 261—92.
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Ahrons, Richard W., and S. Katz, to Radio Corp. of America. Flip-flop adaptable for counter comprising inverter and inhibitable gates and in cooperation with overlapping clocks for temporarily maintaining complementary outputs at same digital level. 3,322,974, 5–30–67, Cl. 307—88.5.
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Airheart Products, Inc.: *See*—
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Alexieff, Stephen T., to Armstrong Cork Co. Acoustic ceiling. 3,321,877, 5–30–67, Cl. 52—144.
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Aliphatic Research Co. Ltd., The: *See*—
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Mosby, William L., Gillham, and Sherr. 3,322,860.
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Anders, Gerhard, to Hamac-Hansella Aktiengesellschaft. Apparatus for continuous preparation of a solution containing milk, fat and sugar. 3,322,402, 5–30–67, Cl. 259—6.

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Anselin, Francois, and R. Pascard, to Commissariat a l'Energie Atomique. Process for the preparation of metallic nitrides. 3,322,510, 5–30–67, Cl. 23—347.

Anthon, Erik W., to Warner-Lambert Pharmaceutical Co. Automatic rebalance measuring system with its indicator coupled by eccentric drive means for scale distribution control. 3,323,058, 5–30–67, Cl. 324—132.

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Armer, Rollin A., and H. H. Heckman, Jr., to United States of America, Atomic Energy Commission. Operations timing device. 3,323,133, 5–30–67, Cl. 346—107.

Armijo, David A. Sanitary receptacle construction. 3,322,477, 5–30–67, Cl. 312—223.

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Armstrong, Richard L.: *See*—
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Russell, Fred J., Armstrong, and Falk. 3,322 450.

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Asahi Kasei Kogyo Kabushiki Kaisha: *See*—
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Asano, Tadashi, S. Masuda, and T. Ito, to Onoda Cement Co., Ltd. Device for distributing liquid with mechanical cleaning means. 3,322,139, 5–30–67, Cl. 137—242.

Ash, John L., II, to The Gleason Works. Adjustable-stroke slide operating mechanism. 3,321,981, 5–30–67, Cl. 74—55.

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Avilla, Thomas E.: *See*—
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Babcock & Wilcox Co., The: *See*—
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Babunovic, Morir, and V. M. Stapf, to Barry-Wehmiller Co. Separator apparatus for fluid entrained solids. 3,322,283, 5–30–67, Cl. 210—167.

Bachmann, William V., to Chrysler Corp. Swivel seat for motor vehicle. 3,322,458, 5–30–67, Cl. 296—65.

Backman, William O. Packingless in-line valve. 3,322,138, 5–30–67, Cl. 137—219.

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Baer, Donald G., A. S. Van Slyke, and R. C. Woofter, to General Motors Corp. Rectangular conductor harness means and attachments. 3,322,882, 5–30–67, Cl. 174—72.

Bahnson Co., The: *See*—
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Bailey, John S., and J. Halmson, to Varian Associates. Linear accelerator radiotherapy device and associated beam defining structure. 3,322,950, 5–30–67, Cl. 250—105.

Bailey, Ralph E. Stylus relocating circuit for wind direction recorder. 3,323,130, 5–30–67, Cl. 346—8.

Bailey, Robert L., to National Distillers and Chemical Corp. Contaminant detection apparatus. 3,321,954, 5–30–67, Cl. 73—23.

Bailey, Russell O., to Texas Instruments Inc. Rotary bin sorter. 3,322,273, 5–30–67, Cl. 209—74.

Baird, Clyde W., to Industrial Nucleonics Corp. Dielectric measuring system including a clamp circuit for modifying one of two detection signals. 3,323,045, 5–30–67, Cl. 324—61.

Baker, Eugene E., and G. M. Boehm, to Halliburton Co. Cementing plug apparatus. 3,322,197, 5–30–67, Cl. 166—75.

Balamuth, Lewis, and C. Kleesattel, to Cavitron Ultrasonics Inc. Ultrasonic cleaning methods and apparatus. 3,321,871, 5–30–67, Cl. 51—262.

Balazs, Conrad F., and W. W. Burlew, to The Dow Chemical Co. Strain gauge. 3,323,092, 5–30–67, Cl. 338—6.

Baldwin, Ann. Dress form with retractible shoulders. 3,322,309, 5–30–67, Cl. 223—68.

Baldwin, John L. E., to Rank-Bush Murphy Ltd. Voltage generator producing constant amplitude, 90° phase-displaced sawtooth waveforms over wide range of output frequencies. 3,322,973, 5–30–67, Cl. 307—88.5.

Ball, John E., to Air Reduction Co., Inc. Surface finish for continuous electrode. 3,321,944, 5–30–67, Cl. 72—46.

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Ballister, Thomas F. Lawn edge trimmer attachment. 3,322,201, 5–30–67, Cl. 172—14.

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Banker, Oscar H. Skin-puncturing unit with a collapsible protective cover. 3,322,121, 5–30–67, Cl. 128—253.

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Barefoot, Thomas L., and I. E. Martin, Jr., to Roberts Co. Viscous damping for spindle. 3,321,902, 5–30–67, Cl. 57—135.

Barker, Allan, A. G. Bool, and R. T. Ackroyd, to United Kingdom Atomic Energy Authority. Sheathed fuel plate assemblies for a nuclear reactor. 3,322,645, 5–30–67, Cl. 176—75.

Barker, John L., F. W. Hannula, and L. R. Pallat, to Laboratory for Electronics, Inc. Centralized digital traffic counting system for recording and control. 3,322,940, 5–30–67, Cl. 235—150.24.

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Barnhart, Clifford W., to Black, Sivalls & Bryson, Inc. Method for drying a fluid stream and reconcentrating the absorbent. 3,321,890, 5–30–67, Cl. 55—32.

Barnstead, John W., and R. C. Pressley, Jr., to General Electric Co. Anti-tip device. 3,322,480, 5–30–67, Cl. 312—276.

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Barrett, Wayne T., L. V. Triggiani, and J. S. Magee, to W. R. Grace & Co. Method of treating exhaust gases. 3,322,491, 5–30–67, Cl. 23—2.

Barrows, Martin R. Fluid pressure actuated tube compressor valve. 3,322,147, 5–30–67, Cl. 137—595.

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Bash, Robert P. Electrical load-measuring device for vehicles. 3,322,220, 5–30–67, Cl. 177—137.

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Bauer, Johann, and A. Zens, to J. Bauer, and B. Reisgies. Process for improving foamed polyurethane plastics by treatment with an alkali solution of a water free aliphatic monohydric alcohol. 3,322,701, 5–30–67, Cl. 260—2.5.

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Bauer, Roy C., to Canada Skate Mfg. Co. Ltd. Safety guard for skates. 3,322,437, 5–30–67, Cl. 280—11.17.

Bauman, Robert H., to General Motors Corp. Brake shoe centering device. 3,322,238, 5–30–67, Cl. 188—79.5.

Baumann, Hans D., to A. W. Cash Co. Value for low temperature service. 3,322,142, 5–30–67, Cl. 137—334.

Baur, Frits. Compensated electromagnetic balance. 3,322,222, 5–30–67, Cl. 177—210.

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Beadle, Chasse, to G. V. Forrest. Packaging container. 3,322,320, 5–30–67, Cl. 229—14.

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Stallman, Richard C., and Woodall. 3,322,338.
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Bedell, John R., and G. Messner, to Photocircuits Corp. Connection post integration for printed circuit systems. 3,322,880, 5–30–67, Cl. 174—68.5.

Beebee, Brian H., to Dunlop Rubber Co. Ltd. Extruders for injection moulding machines. 3,321,806, 5–30–67, Cl. 18—30.

Beha, Walter, and W. Bender, to Schoeller & Co. Elektrotechnische Fabrik. Jam release for cigarette dispenser. 3,322,302, 5–30–67, Cl. 221—15.

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Bell, Persa R., and C. C. Harris, to United States of America, Atomic Energy Commission. Averaging light sensor and recording system using double photocell structure. 3,322,954, 5–30–67, Cl. 250—209.

Bell Telephone Co. of Canada, The: *See*—
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Gebhardt, Robert C., and Iriand. 3,323,114.
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Pegram, Dewey W., Jr. 3,322,098.
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Winter, Harry. 3,322,900.

Benatti, Robert J., J. C. Dieselman, H. W. Rappuhn, and H. C. Vance, Jr., to Sperry Rand Corp. Gyroscopic rotor. 3,322,986, 5–30–67, Cl. 310—162.

Bender, Lloyd F. Fluid accumulator for milk line equipment. 3,322,100, 5–30–67, Cl. 119—14.46.

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Keller, Clarence, Tincher, and Wagner. 3,322,237.
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Bennion, David R., to AMP Inc. Shift register. 3,323,113, 5–30–67, Cl. 340—174.

Benson, Glendon M., to Physics International Co. Breeder nuclear reactor. 3,322,636, 5–30–67, Cl. 176—18.

Benson, Glendon M., to Physics International Co. Core element for a breeder nuclear reactor. 3,322,644, 5–30–67, Cl. 176—69.

Bentolila, Jacques, L. Dubief, and M. S. T. Price, to United Kingdom Atomic Energy Authority. Method of extruding carbon articles. 3,322,866, 5–30–67, Cl. 264—29.

Berenbaum, Morris B., to Thiokol Chemical Corp. Novel amino-polysulfide polymers and their reaction products with polyepoxides. 3,322,851, 5–30–67, Cl. 260—830.

Bereskin, Alexander B.: *See*—
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Bereskin, Alexander B. Transistor test set having input currents related to 10 s/2. 3,323,060, 5–30–67, Cl. 324—158.

Berg, Willie. Elastic mute for wind instruments. 3,322,015, 5–30–67, Cl. 84—400.

Berger, Richard S., and C. W. Schroeder, to Shell Oil Co. Polyolefin-metal salt-lubricant compositions having improved dye receptivity. 3,322,704, 5–30–67, Cl. 260—23.

Bergman, Kurt T. L., to D. O. Higglund. Electric high power switching device. 3,323,024, 5–30–67, Cl. 317—103.

Berk, Henry: *See*—
Brown, John A., and Berk. 3,322,195.

Berlin, Abe. Hat-size reducer. 3,321,775, 5–30–67, Cl. 2—183.

Bernstein, Jack, to E. R. Squibb & Sons, Inc. 2-(1-adamantyl)-5-amino lower alkyl benzothiazepins and benzoxazepins. 3,322,752, 5–30–67, Cl. 260—239.3.

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Carney, Richard W. J., Blatter, and De Stevens. 3,322,-759.
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Martin, Henry, Aebi, and Ebner. 3,322,525.
Renner, Alfred, and Widmer. 3,322,572.
Signer, Rudolf. 3,322,337.

Cie Electro-Mecanique: *See*—
Destival, Pierre. 3,322,474.

Ciganek, Englbert, and J. R. Roland, to E. I. du Pont de Nemours and Co. Process for preparing dicyanoacetylene. 3,322,816, 5–30–67, Cl. 260—465.8.

Clare, C. P., & Co.: *See*—
Chanowitz, Harry. 3,322,524.

Clark, Clayton H., and D. J. Stefanik, to SCM Corp. Line feed mechanism. 3,322,316, 5–30–67, Cl. 226—141.

Clark Equipment Co.: *See*—
Gordon, Richard O. 3,321,909.
Mindrum, Kenneth H. 3,322,454.

Clark, J. L., Mfg. Co.: *See*—
Foster, John A. 3,322,299.
Foster, John A. 3,322,308.

Clark, James L., to Plastronics, Inc. Method for making a sealed connection between a tube and a container. 3,322,590, 5–30–67, Cl. 156—273.

Clark, Jared W., to Union Carbide Corp. Catalyst composition consisting of the oxides of cobalt, iron and rare earth. 3,322,692, 5–30–67, Cl. 252—462.

Clawson, Floyd J., and De Stefano; said Clawson assor. to Unifab, Inc. Fluid flow controlling device. 3,322,146, 5–30–67, Cl. 137—576.

Clement, William H., H. M. Peters, and C. M. Selwitz, to Gulf Research & Development Co. Process for purifying a normal alpha olefin. 3,322,844, 5–30–67, Cl. 260—677.

Clendinning, William R., and F. L. Gray, to Texas Instruments Inc. Thermionic energy converter. 3,322,979, 5–30–67, Cl. 310—4.

Cleveland, Norman B.: *See*—
Gans, Daniel, Jr., Woodman, De Luca, and Cleveland. 3,322,141.

Cleverly, Robert B., to The Mosaic Tile Co. Machine and method for automatically fabricating multiple unit assemblies of individual pieces. 3,322,591, 5–30–67, Cl. 156—297.

Coaker, Antony W. M., and O. P. Cohen, Monsanto Co. Multicomponent blends containing graft copolymer of vinyl chloride onto ethylene-vinyl acetate copolymer. 3,322,858, 5–30–67, Cl. 260—876.

Coaker, Antony W. M., O. P. Cohen, and J. W. Ryan, to Monsanto Co. Polymeric blends containing a graft copolymer of vinyl chloride onto chlorinated or chlorosulfonated polyolefin. 3,322,857, 5–30–67, Cl. 260—876.

Coanda, Henri. Apparatus for transporting atomizable material. 3,321,891, 5–30–67, Cl. 55—103.

Coberly, Clarence J., Kobe, Inc. Fluid operated well pumping apparatus. 3,322,069, 5–30–67, Cl. 103—46.

Cockerham, Robert G., to The Gas Council. Process and apparatus for the gasification of ash-containing fuel. 3,322,-521, 5–30–67, Cl. 48—63.

Cofer, Daniel B., D. D. Proctor, and G. C. Ward, to Southwire Co. Thermal barrier for casting metals. 3,322,184, 5–30–67, Cl. 164—72.

Comfield, Thomas H., and R. P. M. Werner, to Ethyl Corp. Process for preparing molybdenum carbonyl complexes. 3,322,799, 5–30–67, Cl. 260—429.

Cohen, Oscar P.: *See*—
Coaker, Antony W. M., Cohen, and Ryan. 3,322,857.
Coaker, Antony W. M., and Cohen. 3,322,858.

Coker, Alfred and E. Studs for boots or shoes. 3,321,850, 5–30–67, Cl. 36—67.

Coker, Edgar: *See*—
Coker, Alfred and E. 3,321,850.

Colburn, Arthur P.: *See*—
Hansen, Arne C., Colburn, and Uebelherr. 3,322,995.

Colgate-Palmolive Co.: *See*—
Gagliardi, Domenick D. 3,322,490.

Collins Radio Co.: *See*—
Runyan, Wesley G. 3,323,036.

Collura, Peter C., to Container Corp. of America. Reclosable package. 3,322,265, 5–30–67, Cl. 206—45.31.

Colten, Robert B.: *See*—
Agarwal, Paul D., Colten, Friedman, Johnston, and Werth. 3,323,032.

Columbian Carbon Co.: *See*—
Wempe, Albert L., and Estopinal. 3,322,506.

Combustion Engineering, Inc.: *See*—
Watson, Walter T. 3,322,135.

Commissariat a l'Energie Atomique: *See*—
Anselin, Francois, and Pascard. 3,322,510.

Compagnie des Ateliers et Forges de la Loire (St. Chamond, Firminy, St. Etienne, Jacob-Holtzer): *See*—
Leroy, Pierre, and Simon. 3,322,867.

Compur-Werk Gesellschaft mit beschrankter Haftung & Co.: *See*—
Singer, Frans, and Müller. 3,322,052.

Condeco Automation, Inc.: *See*—
Whitfield, Homer G. 3,322,251.

Conradt, James C., to L. & J. Specialty Corp. Stair rail mounting post with lighting fixtures. 3,321,875, 5–30–67, Cl. 52—28.

Conradty, C.: *See*—
Koziol, Konrad, and Kiler. 3,322,446.

Consolidated Electrodynamics Corp.: *See*—
Everest, Charles E. 3,322,015.

Consolidated Paper (Bahamas) Ltd.: *See*—
Martin, Wilhelm N. 3,322,714.

Container Corp. of America: *See*—
Collura, Peter C. 3,322,265.

Conti, John D., to FMC Corp. Method and apparatus for laminating films. 3,322,593, 5–30–67, Cl. 156—307.

Continental Can Co., Inc.: *See*—
Khoury, Nick S. 3,322,296.

Continental Carbon Co.: *See*—
LeBoeuf, Joe S., and Hahn. 3,321,961.

Continental Gummi-Werke Aktiengesellschaft: *See*—
Schick, Joachim. 3,322,475.

Continental Illinois National Bank and Trust Co. of Chicago: *See*—
Voitik, Robert M. 3,322,430.

Continental Oil Co.: *See*—
Evans, Robert D., and Breathitt. 3,322,272.
McAninch, Homer C. 3,322,706.

Cook, De Orr. Two piece stabilizing and reaming tool for bore holes. 3,322,217, 5–30–67, Cl. 175—323.

Cook, Donald B., and R. F. Lange, to E. I. du Pont de Nemours and Co. Interpolymers of caprolactam, hexamethylene diamine, adipic acid and sebacic acid. 3,322,731, 5–30–67, Cl. 260—78.

Cook, Reginald M.: *See*—
Ker Shaw, Stuart W., and Cook. 3,322,534.

Cooke, Charles S., to Siliconix Inc. Integrated circuit lead positioner. 3,321,825, 5–30–67, Cl. 29—203.

Cooley, Lester M., to Seilon, Inc. Multiple planter frames. 3,322,438, 5–30–67, Cl. 280—412.

Cooper, George D. Reflector for reflecting color corrected light and heat. 3,322,946, 5–30–67, Cl. 240—41.35.

Cooper's Inc.: *See*—
Wyss, John H., and Testard. 3,322,120.

Cooper, Robert D., to Frontier Chemical Co., Division of Vulcan Materials Co. Process for treating pentachlorophenol. 3,322,839, 5–30–67, Cl. 260—623.

Copenhefer, John E.: *See*—
Weber, George K., and Copenhefer. 3,322,585.

Copland, James G., to General Electric Co. Electromagnetic brake. 3,322,242, 5–30–67, Cl. 188—171.

Coppage, Edwin J., Jr. Photographic enlarger. 3,322,028, 5–30–67, Cl. 88—24.

Coppersmith, Frederick M.: *See*—
Vahrenkamp, George J., and Coppersmith. 3,322,496.

Corbett, Herbert O., to National Distillers and Chemical Corp. Extrusion die for easily decomposable materials. 3,321,803, 5–30–67, Cl. 18—13.

Corbett, Robert B., to Metaltronics, Inc. Sintered carbides. 3,322,513, 5–30–67, Cl. 29—182.7.

Cornelius Co., The: *See*—
Cornelius, Richard T. 3,322,300.

Cornelius, Richard T., to The Cornelius Co. Vessel having stacking construction. 3,322,300, 5–30–67, Cl. 220—97.

Cornell Aeronautical Laboratory, Inc.: *See*—
Sterbutzel, Gerald A. 3,321,974.

Cornell, Richard R., to Groorfold Fabricators, Inc. Apparatus for grooving laminar sheet material. 3,322,171, 5–30–67, Cl. 144—136.

Corning Glass Works: *See*—
Adler, Meryle D. W., and Simon. 3,322,523.

Corona, Alphonse A., Jr.: *See*—
Yurko, Malvin M., Bowles, Corona, and Read. 3,322,412.

Corona Electric Works Co. Ltd.: *See*—
Takahashi, Elichi. 3,323,019.

Cote, Raymond A.: *See*—
McNair, William E., and Cote. 3,322,264.

Cox, Frank T., and W. J. Williams, to Rockwell-Standard Corp. Brake system. 3,322,241, 5–30–67, Cl. 188—170.

Cragoe, Edward J., Jr., to Merck & Co., Inc. Quaternary ammonium salts of [4-(3-amino-alkanoyl)phenoxy]alkanoic acids. 3,322,775, 5–30–67, Cl. 260—294.

Cragoe, Edward J., Jr., to Merck & Co., Inc. Process for converting [4-[2-(organosulfinylmethyl)-alkanoyl]phenoxy] alkanoic acids and [4-[2-(organosulfonylmethyl)alkanoyl] phenoxy]alkanoic acids to their [4-(2-methylenealkanoyl) phenoxy]alkanoic acid derivatives. 3,322,821, 5–30–67, Cl. 260—520.

Cragoe, Edward J., Jr., to Merck & Co., Inc. Acryloylphenols and a method for their preparation. 3,322,832, 5–30–67, Cl. 260—592.

Craiglow, Robert L., and W. C. Post, to Motorola, Inc. Temperature control oven. 3,322,982, 5–30–67, Cl. 310—8.9.

Crane Packing Co.: *See*—
Solari, Archie J. 3,322,431.

Crast, Leonard B., Jr., to Bristol-Meyers Co. Derivatives of penicillanic acid and cephalosporanic acid. 3,322,749, 5–30–67, Cl. 260—239.1.

Crast, Leonard B., Jr., to Bristol-Meyers Co. 3-Substituted-7-(4'-furazonalkanoyl) aminocephalosporanic acids and 3-substituted-6-(4'-furazanalkanoyl) aminopenicillanic acids. 3,322,750, 5–30–67, Cl. 260—239.1.

Crast, Leonard B., Jr., to Bristol-Meyers Co. 7-(3'-methyl-4'-furazanacetamido)-cephalosporanic acid and 6-(3'-methyl-4'-furazanacetamido) penicillanic acid and realted salts and derivatives. 3,322,751, 5–30–67, Cl. 260—239.1.

Craven, William J., to W. R. Grace & Co. Catalyst process and product. 3,322,691, 5–30–67, Cl. 252—458.

Crimfield, Melvin E., to General Electric Co. Control mechanism. 3,321,921, 5–30–67, Cl. 60—235.

Cripe, Maxwell, L., to The Bendix Corp. Servomotor with normally stationary valve structure. 3,321,916, 5–30–67, Cl. 60—54.5.

Crom, Russell C. W., and D. M. Williams, to International Minerals & Chemical Corp. Guidance systems for continuous mining machinery. 3,322,465, 5–30–67, Cl. 299—1.

Crompton & Knowles Corp.: *See*—
Feeman, James F. 3,322,488.

Cronheim, Richard B. Ice cream dippers. 3,322,075, 5–30–67, Cl. 107—48.

Cronheim, Richard B. Rolling pins. 3,322,076, 5–30–67, Cl. 107—50.

Crucible Steel Co. of America: *See*—
Rodwell, Stanley W. 3,322,384.

Csanky, Geza, to Motorola, Inc. High current negative resistance transistor circuits utilizing avalanche diodes. 3,322,-972, 5–30–67, Cl. 307—88.5.

Cugini, John A., and H. Haagsma, to Draper Corp. Spindle protection device. 3,321,897, 5–30–67, Cl. 57—53.

Cumberland Chemical Co.: *See*—
Lindemann, Martin K. 3,322,703.

Cummerow, Robert L.: *See*—
Forman, Ralph, Chormley, and Cummerow. 3,322,977.

Cunningham, Loyd L. Spark plug tool. 3,322,007, 5–30–67, Cl. 81—125.

Curties, Maurice C., and O. B. St. John, said Curties assor. to Ferranti Ltd. Flight aid system for indicating failure of the stabilizing system. 3,322,939, 5–30–67, Cl. 235—150.2.

Curtis & Marble Co.: *See*—
Davidson, Ralph L., and Schmidt. 3,322,363.

Curtis, Robert E. Tool for dimensional and/or angular measuring. 3,321,835, 5–30–67, Cl. 33—75.

Cutler, Hammer, Inc.: *See*—
Christensen, Paul M. 3,322,878.
Mukai, Roy A., Charbonneau, Waldorf, and Pearson. 3,322,926.
Waldorf, Joseph F., Rzepecki, and Charbonneau. 3,322,927.

Czajkowski, George J., and P. E. Liakakos, to Universal Oil Products Co. Recycle of hydrodealkylation product for hydrogen enrichment. 3,322,842, 5–30–67, Cl. 260—672.

Czepiel, Thomas P., to Scott Paper Co. Filler comprising fibrous foamed aminoplast resin. 3,322,697, 5–30–67, Cl. 260—2.5.

DaCosta, Harry, to Motorola, Inc. Package for discrete and integrated circuit components. 3,323,022, 5–30–67, Cl. 317—101.

Dahringer, Donald W., S. Spector, and J. L. Sweet, to Pittsburgh Plate Glass Co. Metal surface of improved bonding quality. 3,322,656, 5–30–67, Cl. 204—38.

Dales, Nicholas G., and R. W. Young, to John Dusenberg Co., Inc. Core spacer for differential winding machine. 3,322,359, 5–30–67, Cl. 242—68.

D'Alessandro, Alfred F., and M. B. Mueller, to Allied Chemical Corp. Hydrogenation of quinoline. 3,322,770, 5–30–67, Cl. 260—283.

Daman, Louis F., to The Singer Co. Bobbin winders for sewing machines. 3,322,084, 5–30–67, Cl. 112—218.

Danfoss ved ing. M. Clausen: *See*—
Enemark, Arne F. 3,322,134.

Daniel, Emily M. Diaper with pleat for forming a feces bag. 3,322,122, 5–30–67, Cl. 128—284.

D'Argento, Russell N., to Pannett Products Inc. Medicinal composition for treating acne and method of using same. 3,322,626, 5–30–67, Cl. 167—55.

Dary and United Engineering Co. Ltd.: *See*—
Harrison, James A., and Quartermain. 3,322,961.

Dauser, William C. Color control method. 3,322,025, 5–30–67, Cl. 88—14.

Davidson, Ian, to United Kingdom Atomic Energy Authority. Nuclear reactors. 3,322,639, 5–30–67, Cl. 176—44.

Davidson, Ralph L., and S. A. Schmidt, to Curtis & Marble Co. Apparatus for preparation of textile fabrics for processing. 3,322,363, 5–30–67, Cl. 242—58.1.

Davies, William J., R. Allen, and J. K. Rhodes, to Rolls-Royce Ltd. Gas turbine lubrication. 3,321,910, 5–30–67, Cl. 60—39.08.

Davis, Frederick B., III, to Leeds & Northrup Co. FSK system with keying rate conveying analog information and the frequencies keyed between conveying digital information. 3,323,061, 5–30–67, Cl. 325—30.

Davis, Harvey L.: *See*—
Anderson, Arvid B., Davis, and Schultz. 3,321,852.
Schultz, Roy M., Davis, and Anderson. 3,321,853.

Davis, John R., E. D. Nuttall, and A. M. Randolph, to United Gas Corp. Portable magnetic digital recorder for use in utility meter reading. 3,323,132, 5–30–67, Cl. 346—74.

Dazzi, Joachim, and E. Keller, to Geigy Chemical Corp. N,N',N''-substituted melamine derivatives. 3,322,763, 5–30–67, Cl. 260—249.6.

Deana, Albert A.: *See*—
Spraque, James M., Novello, and Deana. 3,322,631.

De Boer, Herman O., Jr., and F. J. Ritter, to Sunbeam Corp. Hair dryer curling attachment. 3,322,144, 5–30–67, Cl. 137—375.

Deering Milliken Research Corp.: *See*—
Scruggs, Lewis F. 3,321,818.

Degginger, Edward R.: *See*—
Wiles, Robert A., and Degginger. 3,322,698.

De Haan, Edward F.: *See*—
Jonkers, Johannes J. A., and de Haan. 3,322,654.

Dekker, Frank, to Minnesota Mining and Mfg. Co. Dual hub for reels. 3,322,364, 5–30–67, Cl. 242—68.3.

Della Vite, Romuald R., to Societe Anonyme dite: Societe Francaise d'Etiquetage Virey & Garnier. Labeling machine. 3,322,597, 5–30–67, Cl. 156—364.

Delly, Gilbert T.: *See*—
Giese, Elroy J., and Delly. 3,322,151.

DeLuca, Paul V., and H. E. Senft, to Markite Corp. Potentiometer terminal. 3,323,094, 5–30–67, Cl. 338—162.

De Luca, Robert A.: *See*—
Gans, Daniel, Jr., Woodman, De Luca, and Cleveland. 3,322,141.

DeMinjer, Clara H., to North American Philips Co., Inc. Method of coating p-type germanium with antimony, lead or alloys thereof by electrodeposition and product thereof. 3,322,516, 5–30–67, Cl. 29—194.

Dempsey, James F., H. M. Khelghatian, and R. P. Maloney, to Avisun Corp. Process for altering the particle size distribution of alpha mono olefin polymers. 3,322,720, 5–30–67, Cl. 260—45.85.

Dennis, John L., to Avco Corp. Noise blanker circuit comprising oppositely wound secondary windings. 3,322,968, 5–30–67, Cl. 307—88.5.

Densen, Paul: *See*—
Greene, Abbot, and Densen. 3,322,323.

Densmore, Richard M. Valve control mechanism. 3,321,990, 5–30–67, Cl. 74—471.

Dentists' Supply Co. of New York, The: *See*—
Weisberg, Alex. 3,321,832.

Depew, Harlan A.: *See*—
Quinn, Patrick D., Waitkins, and Depew. 3,322,498.

Designa G.m.b.H.: *See*—
Bubb, Max. 3,322,381.

Destival, Pierre, to Cie Electro-Mecanique. Shock absorbing bearing structure. 3,322,474, 5–30–67, Cl. 308—26.

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Clawson, Floyd J., and De Stefano. 3,322,146.

De Stevens, George: *See*—
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Desvignes, Francois, to North American Philips Co., Inc. Camera tube of the kind comprising a semi-conductive target plate to be scanned by an electron beam. 3,322,955, 5–30–67, Cl. 250—209.

Deutsche Gold- und Silber-Scheideanstalt vormals Roessler: *See*—
Thiel, Kurt, and Posselt. 3,322,758.

Dever, John A., and W. F. Newbold, to Honeywell Inc. Electrical apparatus including analog and digital control for an element. 3,322,994, 5–30–67, Cl. 318—267.

De Vries, Louis, to Chevron Research Co. Sulfur substituents of propene/butene copolymers as V.I. improvers. 3,322,669, 5–30–67, Cl. 252—47.

Dewing, Kenneth F. and M. C. Christo, to Yuba Consolidated Industries, Inc. Tainter gate hoist chain and method of providing the same. 3,321,907, 5–30–67, Cl. 59—8.

De Woody, Charles M., and R. L. Pearce, to Ace Glass Inc. Method of making an electrically conductive net-like metal coating. 3,322,571, 5–30–67, Cl. 117—212.

Dexter Corp., The: *See*—
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Diamond International Corp.: *See*—
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Diamond Power Specialty Corp.: *See*—
Chappell, Robert E., Nelson, and Saltz. 3,321,986.
Singleton, John C., and Klinck. 3,321,867.

Dichtl, Erwin O., and F. H. G. Nirschl. Relief postcard. 3,321,860, 5–30–67, Cl. 40—160.

Dickore, Karlfried: *See*—
Gompper, Rudolf, Wegler, Dickore, and Hagele. 3,322,788.

Diehl, Francis L., to The Procter & Gamble Co. Cool water detergent composition containing acylamidoalkyl pyrrolidones. 3,322,675, 5–30–67, Cl. 252—137.

Diehl K.G.: *See*—
Ley, Otto. 3,322,472.

Dielectric Products Engineering Co., Inc.: *See*—
Sewell, Donald N., and Brown. 3,322,444.

Dieselman, John C.: *See*—
Benatti, Robert J., Dieselman, Rappuhn, and Vance. 3,322,986.

Dirnberger, Georg. Rotary piston engines. 3,322,103, 5–30–67, Cl. 123—8.

Dischler, Helmut: *See*—
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Display Corp.: *See*—
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Distillers Co. Ltd., The: *See*—
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Dittrich, Ferdinand J., and A. P. Shepard, to Metco, Inc. Flame spraying exothermically reacting intermetallic compound forming composites. 3,322,515, 5–30–67, Cl. 29—191.2.

Doakley, Peter P. Method of inhibiting roach infestation in waste disposal systems with electrostatic bentonite-pesticide composition. 3,322,623, 5–30–67, Cl. 167—39.

Dobson, Alfred J., to Sperry Rand Corp. Hydraulic hammer. 3,322,038, 5–30–67, Cl. 91—291.

Dolle, Roland E., Jr., to United States of America, Air Force. High temperature oxidative degradation resistant fluids and the preparation thereof. 3,322,671, 5–30–67, Cl. 252—49.7.

Dorion, George H., G. W. Nachtigall, and J. J. Cerreta, to American Cyanamid Co. Variable transmission compositions. 3,322,678, 5–30–67, Cl. 252—300.

Dorr-Oliver Inc.: *See*—
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Dorsey, Otis J.: *See*—
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Dortmund-Horder Huttenunion Aktiengesellschaft: *See*—
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Doss, Robert J., to Avco Corp. Voltage regulator utilizing a controlled variable duty cycle switch. 3,323,037, 5–30–67, Cl. 323—22.

Dotto, Gianni A., to P. R. Mallory &o Co., Inc. Disc brake for washing machine. 3,322,240, 5–30–67, Cl. 188—163.

Doty, Vernon G.: *See*—
Gatske, Harold E., Ariens, and Doty. 3,322,080.

Douglas Aircraft Co., Inc.: *See*—
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Lorentzen, Paul E., and Tesdall. 3,323,033.
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Balass, Conrad F., and Burlew. 3,323,092.
Breidt, Peter, Jr., and Lefevre. 3,321,804.
Gardner, John B., and Harper. 3,322,712.
Gibson, Dennis L., and Chisholm. 3,322,684.
Ham, George E. 3,322,694.
Havens, Carl B., Yurcisin, and Lacy. 3,322,862.
Kangas, Donald A. 3,322,737.
Langer, Horst G. 3,322,823.
Rabourn, Warren J., and Jones. 3,322,863.
Wen, Richard Y. 3,322,780.

Dow Corning Corp.: *See*—
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Frisch, Eldon E. 3,322,840.
Hitchcock, Paul F. 3,322,873.
Weyenberg, Donald R. 3,322,511.

Dowd, Robert T., to Shell Oil Co. Method of foaming a resin composition comprising an epoxy resin, a vapor generating fluid, boron trifluoride catalyst and an ammonium halide. 3,322,700, 5–30–67, Cl. 260—2.5.

Draper Corp.: *See*—
Cugini, John A., and Haagsma. 3,321,897.
Evans, Joseph R., and Robinson. 3,322,161.

Dreier, Werner F., to Mobil Oil Corp. Thermal conversion of hydrocarbons. 3,322,846, 5–30–67, Cl. 260—679.

Drysdale, James L., to The Bell Telephone Co. of Canada. Binder. 3,322,129, 5–30–67, Cl. 129—38.

Dubief, Leon: *See*—
Bentolila, Jacques, Dubief, and Price. 3,322,866.

Dubin, Lester, S. Greenberg, and G. Gautherin, to Lambda Electronics Corp. Switching techniques in regulated D.C. power supplies. 3,323.034, 5–30–67, Cl. 321—16.

Ducanis, Paul. Mechanism for sequentially feeding bars of uniform cross section in a machine. 3,322,317, 5–30–67, Cl. 226—167.

Dudley, Joe E.: *See*—
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Dufficy, Maurice J. Truss connector plate with self-crimping tooth. 3,322,017, 5–30–67, Cl. 85—13.

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Duncan, Archie D., Jr.: *See*—
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Duncan, Robert C.: *See*—
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Kendall, Charles E., and Huke. 3,322,717.

Dunn, George L., to Smith Kline & French Laboratories. Substituted 2-(5-nitro-2-thienyl)-benzimidazoles. 3,322,783, 5–30–67, Cl. 260—309.2.

Du Pont de Nemours, E. I., and Co.: *See*—
Angelo, Rudolph J. 3,322,723.
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Ciganek, Englbert, and Roland. 3,322,816.
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Fisher, Charles F., and Fuller. 3,322,696.
Hill, Harold W., Jr., Kwolek, and Sweeny. 3,322,728.
Howard, Edward G., Jr. 3,322,721.
Johnson, Rayner S. 3,322,527.
Jung, Shee L. 3,322,607.
Koller, Charles R. 3,322,606.
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Loux, Harvey M. 3,322,526.
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Kumins, Charles A., Chase, Fine, and Messmer. 3,322,562.

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Bloom, Harry, and Jolly. 3,322,503.
Joncas, Lorenzo P., to Canadian Ingersoll-Rand Co. Ltd. Clutch shifting collar. 3,322,250, 5–30–67, Cl. 192—98.
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Krock, Richard H., Larsen, and Jones. 3,322,512.
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Rabourn, Warren J., and Jones. 3,322,863.
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Joseph, Daniel E. Portable control for a machine tool motor system. 3,323,029, 5–30–67, Cl. 318—17.
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Thompson, Charles T. 3,322,378.
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Jung, Shee Lap, to E. I. du Pont de Nemours and Co. Lubricated polypropylene polyethylene self-bonded nonwoven carpet backing. 3,322,607, 5–30–67, Cl. 161—67.
Justi, Eduard, and A. Winsel, to Varta Aktiengesellschaft, and Siemens-Schuckert-Werke A.G. Process and apparatus for removing reaction water from galvanic fuel cells. 3,322,574, 5–30–67, Cl. 136—86.
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Kalfaian, Meguer V. Means for interpreting complex information such as phonetic sounds. 3,322,898, 5–30–67, Cl. 179—1.
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Muller, Herbert. 3,322,962.
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Stolle, Ralph J., and Kaminski. 3,322,297.
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Kammer, Erhart, to Linde Aktiengesellschaft. Control mechanism for shiftable transmission system. 3,321,991, 5–30–67, Cl. 74—472.
Kan, Kliment N., and N. A. Jakovlev. Machine for automatically manufacturing a hook article from wire or strip material. 3,322,165, 5–30–67, Cl. 140—80.
Kangas, Donald A., to The Dow Chemical Co. Preparation of water-resistant polymers employing sulfonium salts. 3,322,737, 5–30–67, Cl. 260—83.7.
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Kasten, Walter, to The Bendix Corp. Filter condition indicator device. 3,322,279, 5–30–67, Cl. 210—90.
Katchalsky, Aharon, I. Z. Steinberg, A. Oplatka, and A. Kam, to Weizmann Institute of Science. Mechanochemical engine. 3,321,908, 5–30–67, Cl. 60—1.
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Kaufmann, Frank H., to Steel Heddle Mfg. Co. Heddles. 3,321,159, 5–30–67, Cl. 139—96.
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Kazan, Benjamin, to Electro-Optical Systems, Inc. Image-intensifier tube. 3,322,999, 5–30–67, Cl. 315—12.

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Zemels, Carl G. 3,322,888.

Kehr, Clifton L.: *See*—
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Keith, Emerald E., to The Magnavox Co. Horizontal oscillator for television receivers. 3,322,894, 5–30–67, Cl. 178—7.3.

Keith, Percival C.: *See*—
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Keller, Ernst: *See*—
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Kelso, James W., to Packard-Bell Electronics Corp. Indictor means. 3,322,094, 5–30–67, Cl. 116—124.4.

Kemp, Eric H.: *See*—
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Kenneally, Daniel J., to United States of America, Air Force. Cosinusoidally distributed microwave impedance transformer. 3,323,082, 5–30–67, Cl. 333—34.

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Kenny, Robert J., and D. F. White, to The Torrington Mfg. Co. Air impeller and housing units. 3,322,331, 5–30–67, Cl. 230—117.

Kerr, Wayne, Co. Ltd., The: *See*—
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Ker Shaw, Stuart W., and R. M. Cook, to The International Nickel Co., Inc. High temperature nickel-chromium base alloys. 3,322,534, 5–30–67, Cl. 75—171.

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Kogan, Mark N., and Kibirev. 3,321,868.

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Kilmer, Lauren G., to Sinclair Research, Inc. Method of improving the impulse characteristics of seismic gas exploders. 3,322,228, 5–30–67, Cl. 181—5.

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King, Charles R., to Graflex, Inc. Roll film holders. 3,322,367, 5–30–67, Cl. 242—71.4.

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King, James F., Jr. Magnetohydrodynamic propulsion apparatus. 3,322,374, 5–30–67, Cl. 244—62.

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Kingmann-White, Inc.: *See*—
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Kingston, Marjorie: *See*—
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Kirkhof Mfg. Corp.: *See*—
Kirkhof, Russell H., R. T. Hummel, Sr., R. T. Hummel, Jr., and O'Brien. 3,321,888.
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Kirkhof, Russel H., R. T. Hummel, Sr., R. J. Hummel, Jr., and R. E. O'Brien, to Kirkhof Mfg. Corp. Plastic bag forming machine 3,321,888, 5–30–67, Cl. 53—186.

Kirschner, Howard W. Ski. 3,322,435, 5–30–67, Cl. 280—11.13.

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Kitabayashi, Seiichi. Fuel feed device for gas lighter. 3,322-168, 5–30–67, Cl. 141—293.

Klaue, Hermann. Spaced building plates with embedded wire tires connected by rod means. 3,321,884, 5–30–67, Cl. 52—565.

Kleesattel, Claus: *See*—
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Klein, Hans-Christof, to Alfred Teves Maschinen-und Armaturenfabrik K.G. Ignition device. 3,322,989, 5–30–67, Cl. 313—54.

Klein, Harvey G., and H. C. Gilliham, to American Cyanamid Co. Plane retardant compositions consisting essentially of a thermoplastic material and a phosphinic acid. 3,322,716, 5–30–67, Cl. 260—45.7.

Klier, Gregor: *See*—
Koziol, Konrad, and Klier. 3,322,446.

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Singleton, John C., and Klinck. 3,321,867.

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Klinkenberg, Hubert E., and L. W. Simonson, to Warner Electric Brake & Clutch Co. Magnetic friction couplings. 3,322,249, 5–30–67, Cl. 192—18.

Klumb, Hank, and H. E. Rogers, to The Teleminder Co. Automatic telephone dialing and calling apparatus. 3,322,905, 5–30–67, Cl. 179—90.

Knapp Mfg. Co.: *See*—
Larrabee, Frank M. 3,322,385.

Knibb, Leroy H. Apparatus and system for dispensing hair preparations. 3,322,349, 5–30–67, Cl. 239—135.

Knudson, Robert F., H. N. Minick, and K. J. Hoag, to McGraw-Edison Co. Humidifier. 3,322,495, 5–30–67, Cl. 261—27.

Knuth, Eldon L., and S. F. Iacobellis, to The Regents of the University of California. Radial-flow molecular pump. 3,322,334, 5–30–67, Cl. 230—131.

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Kobetz, Paul, and F. M. Beaird, to Ethyl Corp. Catalyst for manufacture of tetramethyllead. 3,322,685, 5–30–67, Cl. 252—429.

Koch, Alan J.: *See*—
Scheitlin, Thomas G., Koch, and Hames. 3,321,933.

Koch, Clarence B.: *See*—
Griffith, George L., and Koch. 3,321,886.

Kocian, George J., to The Yoder Co. Flying punch. 3,322,011, 5–30–67, Cl. 83—285.

Koerner, Götz, to Th. Goldsmidt A.-G. Novel silanes and process for their production. 3,322,808, 5–30–67, Cl. 260—448.2.

Koga, Wataru: *See*—
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Kogan, Mark N., and S. N. Kibirev. Device for grinding a group of lens-like quartz resonators. 3,321,868, 5–30–67, Cl. 51—129.

Kohlhagen, Walter. Self-starting rotors for synchronous reaction motors. 3,322,987, 5–30–67, Cl. 310—164.

Kohls, James P., to Jervis B. Webb Co. Forward and reverse guidance control for vehiles. 3,322,225, 5–30–67, Cl. 180—79.1.

Kokusai Denki Kabushiki Kaisha: *See*—
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Kolb, Edwin R.: *See*—
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Koller, Charles R., to E. I. du Pont de Nemours and Co. Double-faced pile article. 3,322,606, 5–30–67, Cl. 161—67.

Kollsman Instrument Corp.: *See*—
Zuckerbraun, Jacob S. 3,322,953.

Komline-Sanderson Engineering Corp.: *See*—
Komline, Thomas R., and Sanderson. 3,322,079.

Komline, Thomas R., and W. H. Sanderson, to Komline-Sanderson Engineering Corp. Sludge incineration. 3,322,079, 5–30–67, Cl. 110—8.

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Kooman, Willem H., to North American Philips Co., Inc. Dynamometer pick-up. 3,321,964, 5–30–67, Cl. 73—141.

Kordt & Co.: *See*—
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Korshak, Harvey, to Scovill Mfg. Co. Blade release and switch inactivating means for power operated knife. 3,322,925, 5–30–67, Cl. 200—157.

Korte, Friedrich W. A. G. K.: *See*—
Asinger, Fell, Janssen, Zoche, Mueller, and Korte. 3,322,-806.

Kotler, Gerald R.: *See*—
Johnston, William C., Kotler, and Tiller. 3,322,183.

Kovacik, Henry. Table stand. 3,322,077, 5–30–67, Cl. 108—111.

Koziol, Konrad, and G. Klier, to C. Conradty. Method of screw connecting carbon or graphite electrodes. 3,322,446, 5–30–67, Cl. 287—127.

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Barcomb, James G., and Kozol. 3,323,119.

Kozorezov, Vladimir D.: *See*—
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Krantz, Walter M. Simplified storm door latch. 3,322,452, 5–30–67, Cl. 292—254.

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Henry, Malcolm C., and Krebs. 3.322,779.

Krebs, Jimmie M., to Display Corp. Display device. 3,321,905, 5–30–67, Cl. 58—50.

Kreighbaum, William E., to Mead Johnson & Co. 5,5-dioxodibenzo [1,2,5]thiadiazepines and process. 3,322,789, 5–30–67, Cl. 260—327.

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Kress, Ralph H.: *See*—
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Krock, Richard H., E. I. Larsen, and C. R. Jones, to P. R. Mallory & Co., Inc. Beryllium-aluminum-silver composite. 3,322,512, 5–30–67, Cl. 29—182.2.

Krock, Richard H., C. R. Jones, and E. I. Larsen, to P. R. Mallory & Co., Inc. Beryllium-silver-copper composite. 3,322,514, 5–30–67, Cl. 29—182.2.

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Kruse, Marvin A.: *See*—
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Kruse, William E., and D. Rossello, to Douglas Aircraft Co., Inc. Three dimensional reinforced structure. 3,322,868, 5–30–67, Cl. 264—45.

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Kuhle, Engelbert: *See*—
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Kumins, Charles A., V. L. Chase, J. Fine, and E. Messmer, to Interchemical Corp. Process for textile decorating and textile webs decorated thereby. 3,322,561, 5–30–67, Cl. 117—62.2.

Kumins, Charles A., V. L. Chase, J. Fine, and E. Messmer, to Interchemical Corp. Process for textile decorating and textile webs decorated thereby. 3,322,562, 5–30–67, Cl. 117—62.2.

Kumlon Crafts, Inc.: *See*—
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Kumnick, Miles C., to E. I. du Pont de Nemours and Co. Process for making calcium carbonate filled polyamide compositions. 3,322,715, 5–30–67, Cl. 260—37.

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Smith, George H., and Kun. 3,322,419.

Kunc, John F., Jr.: *See*—
Guthrie, Donald A., Black, and Kunc. 3,322,583.

Kunkle, Ralph F., Jr. Rotary auto ash tray. 3,322,886, 5–30–67, Cl. 248—206.

Kupchan, Solomon M., and A. F. Casy, to Smith Kline & French Laboratories. Novel ether derivatives of benzmorphans. 3,322,778, 5–30–67, Cl. 260—294.7.

Kurashiki Rayon Co. Ltd.: *See*—
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Kato, Shigehiko. 3,321,808.
Yasui, Takeshi, Tsuji, and Fukushima. 3,322,854.

Kurt, Ewald H., to Ingersoll-Rand Co. Anvil for percussive drill. 3,322,216, 5–30–67, Cl. 175—293.

Kurtz, Donald P., to Aircraft Radio Corp. Squelch circuit. 3,323,066, 5–30–67, Cl. 325—403.

Kurtz, Leonard D., to Sutures Inc. Sutures and method of making same. 3,322,125, 5–30–67, Cl. 128—335.5.

Kusko, Alexander, to Basic Products Corp. Magnetic amplifier voltage regulator system. 3,323,039, 5–30–67, Cl. 323—45.

Kwolek, Stephanie L.: *See*—
Hill, Harold W., Jr., Kwolek, and Sweeny. 3,322,728.

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Conradt, James C. 3,321,875.

Laboratory for Electronics, Inc.: *See*—
Barker, John L., Hannula, and Pallat. 3,322,940.

Lacy, George H.: *See*—
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Ladoniczki, Joseph and K., to Trak Microwave Corp. Fluorescent lamp circuit which automatically selects the proper voltage supply. 3,323,005, 5–30–67, Cl. 315—86.

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Ladoniczki, Joseph and K. 3,323,005.

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Burns, Robert L. 3,321,834.

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La Fleur, James K., to The La Fleur Corp. Control system for closed cycle turbine. 3,321,930, 5–30–67, Cl. 62—228.

Laing, Nikolaus, to Laing Vortex, Inc. Cross flow machine. 3,322,332, 5–30–67, Cl. 230—125.

Laing, Nikolaus, to Laing Vortex, Inc. Cross flow machine, 3,322,333, 5–30–67, Cl. 230—125.

Laing, Nikolaus. Fans. 3,322,931, 5–30–67, Cl. 219—369.

Laing, Nikolaus, to Laing Vortex, Inc. Portable electric fan heater. 3,322,932, 5–30–67, Cl. 219—370.

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Pungs, Leo, Lamberts, and Griesbach. 3,322,928.

Lambertson, Glen R., to United States of America, Atomic Energy Commission. Charged particle extracting magnet for an accelerator. 3,323,088, 5–30–67, Cl. 335—210.

Lampe, Fred W.: *See*—
Johnston, William H., and Lampe. 3.322,660.

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Landrum, Ralph A.: *See*—
Hadley, Charles F., and Landrum. 3,323,104.

Lane, Norman, to BSR Ltd. Detachable spindle for automatic record players. 3,322,428, 5–30–67, Cl. 274—10.

Langbart, R. V., Ltd.: *See*—
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Langbart, Reginald V., to R. V. Langbart, Ltd., d.b.a. F.X. Products Co. Writing pads or tablets. 3,321,849, 5–30–67, Cl. 35—61.

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Larkin, Joseph F., to International Resistance Co. Package for electrical components. 3,322,268, 5–30–67, Cl. 206—65.

Larkins, Joseph J. Protective alarm device. 3,323,122, 5–30–67, Cl. 340—384.

Larrabee, Frank M., to Knapp Mfg. Co. Phone book hanger. 3,322,385, 5–30–67, Cl. 248—207.

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Laser, Max. Device for fixing a bulb in a reflector. 3,322,945, 5–30–67, Cl. 240—41.35.

Lasswell, Tull C., and J. L. Monier, to Tri-X Corp. Stop-leak composition for automobile cooling systems and the like. 3,322,548, 5–30–67, Cl. 106—33.

Latina, Roland N., to Rawlings Sporting Goods Co. Baseball gloves. 3,321,771, 5–30–67, Cl. 2—19.

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Lavoo, Norman T., to General Electric Co. Broad band circuits. 3,323,073, 5–30–67, Cl. 330—56.

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Lawson, Shelby D., to Phillips Petroleum Co. Hydrocarbon stripping process. 3,322,667, 5–30–67, Cl. 208—356.

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Leblang, Stanley H., to Permag Corp. Magnetic hysteresis alloy made by a particular process. 3,322,579, 5–30–67, Cl. 148—31.57.

Le Boeuf, Joe S., and A. A. Hahn, to Continental Carbon Co. Specimen holder for testing machines. 3,321,961, 5–30–67, Cl. 73—103.

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Lehmkuhl, Charles C., to Whirlpool Corp. Fan structure. 3,321,931, 5–30–67, Cl. 62—281.

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Le Mmon, Carl F., ½ to A. M. Mmon. Tractor-trailer steering combination. 3,322,439, 5–30–67, Cl. 280—426.

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Gerard, Allan, Goldstein, and Lerman. 3,322,942.

Leroy, Pierre, and R. Simon, to Compagnie des Ateliers et Forges de la Loire (St. Chamond, Firminy, St. Etienne, Jacob-Holtzer). Method of making porous refractory products. 3,322,867, 5–30–67, Cl. 264—30.

Lester, Fred F., to Chemical Products Corp. Aqueous barium carbonate dispersions, process for their production, and dry prex-mix. 3,322,683, 5–30–67, Cl. 252—313.

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Linn, Donald F., to Bell Telephone Laboratories, Inc. Strip line circulator. 3,323,079, 5–30–67, Cl. 333—1.1.

Lippi, Dominic M., to A. R. Wood Mfg. Co. Ventilation device for building. 3,322,054, 5–30–67, Cl. 98—33.

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Liu, Ko-Hsin, to Industrial Nucleonics Corp. Dielectric measuring system including phase inverting means and a summing amplifier. 3,323,046, 5–30–67, Cl. 324—61.

Liu, Ko-Hsin, to Industrial Nucleonics Corp. Dielectric measuring system including an amplifier having a non-amplifying cathode follower circuit. 3,323,048, 5–30–67, Cl. 324—61.

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Trementozzi, Quirino A., Gebura, and Locke. 3,322,853.

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Lontz, John F., M. N. La Torra, and J. V. Petriello, to Kumlon Crafts, Inc. Film pack for hemodialyzing membranes. 3,322,266, 5–30–67, Cl. 206—63.2.

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Lord, Harold W., to General Electric Co. Systems and ballast apparatus for operating fluorescent lamps at preselected levels of illumination. 3,323,013, 5–30–67, Cl. 315—187.

Lorentzen, Paul E., and D. W. Tesdall, to Douglas Aircraft Co., Inc. Static inverter system. 3,323,033, 5–30–67, Cl. 321—5.

Lorenz, Jerome L., to Ranco Inc. Photoelectric level control system with lamp operated at alternate brightnesses. 3,322,959, 5–30–67, Cl. 250—218.

Lotz, Horst K., to Messer Griesheim G.m.b.H. Device for supporting the strand in the cutting area in continuous casting plants. 3,322,418, 5–30–67, Cl. 266—23.

Loughlin, Bernard D., to Haseltine Research Inc. Television receiver circuit for stabilising black level and limiting CRT beam current. 3,322,895, 5–30–67, Cl. 178—7.5.

Loux, Harvey M., to E. I. du Pont de Nemours and Co. Herbicidal composition and method. 3,322,526, 5–30–67, Cl. 71—2.5.

Loveless, Frederick C., and D. N. Matthews, to Uniroyal, Inc. Rubbery terpolymer of ethylene and propylene with cyclooctatetraene dimer. 3,322,735, 5–30–67, Cl. 260—80.5.

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Lowy, Mortimer J., to Douglas Aircraft Co., Inc. Method of making metal sandwich structures. 3,321,826, 5–30–67, Cl. 29—423.

Lucas, Malcom B., R. C. Duncan, and L. H. Sedlin, to The Procter & Gamble Co. Method of controlling the bond between a pad and a plastic sheet. 3,322,594, 5–30–67, Cl. 156—308.

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Lunn, Gerald K., and E. J. Grisley, to The Wayne Kerr Co. Ltd. Apparatus for comparing the amplitudes of signals of different frequencies. 3,323,125, 5–30–67, Cl. 343—109.

Lusk, George E., to G & W Electric Specialty Co. Prefilled cable termination system. 3,322,883, 5–30–67, Cl. 174—73.

Lutz, Friedrich, to Ruti Machinery Works Ltd., formerly Casper Honegger. Device for controlling movement of a drop box on a loom. 3,322,160, 5–30–67, Cl. 139—182.

Lux, Joseph P., to Whirlpool Corp. Method of drying and initial input control for modulated gas dryer. 3,322,415, 5–30–67, Cl. 263—10.

Luzaich, Samuel, to Twin Disc Clutch Co. Transmission and clutch with single control. 3,322,247, 5–30–67, Cl. 192—3.5.

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M.T. & D. Co., The: *See*—
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MacDonald, Norman L., to General Motors Corp. Attentiveness control. 3,322,470, 5–30–67, Cl. 303—19.

MacDuff, Stanley I., to The Bendix Corp. Braking system for vehicles. 3,321,914, 5–30–67, Cl. 60—54.5.

MacGriff, Jack E. Image control device with means to precharge the printing gap. 3,323,131, 5–30–67, Cl. 346—74.

Mackeller, John C., to North American Philips Co., Inc. Time-base circuit arrangement having transistor and SCR switching elements. 3,323,001, 5–30–67, Cl. 315—27.

Mackereth, Frederic J. H., to National Research Development Corp. Electrolytic oxygen sensor. 3,322,662, 5–30–67, Cl. 204—195.

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Mackie, John K. P., to James Mackie & Sons Ltd. Textile machines. 3,321,898, 5–30–67, Cl. 57—58.76.

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Magee, John S., to W. R. Grace & Co. Process for preparing alumina having a narrow pore size distribution. 3,322,495, 5–30–67, Cl. 23—143.

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Krock, Richard H., Jones, and Larsen. 3,322,514.
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Malnory, Madeline A. Dough mold. 3,322,074, 5–30–67, Cl. 107—46.

Malone, Howard F. and W. R. True scale three dimensional display device. 3,323,126, 5–30–67, Cl. 343—112.

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Malone, Howard F. and W. R. 3,323,126.

Maloney, Richard P.: *See*—
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Manas, Herman D., to M.R.M. Co., Inc. Method and apparatus for adding liquid fill to containers having solids therein. 3,321,887, 5–30–67, Cl. 53—37.

Mancebo, Lloyd, to United States of America, Atomic Energy Commission. Electrostatic deflection system. 3,323,000, 5–30–67, Cl. 315—26.

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Mangood Corp.: *See*—
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Mann, Charles W., to Genesco, Inc. Manufacture of shoes. 3,321,833, 5–30–67, Cl. 33—6.

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Marks, Alvin M. and M. M. Laminator for securing continuous flexible film to a base. 3,322,598, 5–30–67, Cl. 156—382.

Marks, Theodore, and J. T. Gelardi, to American Technical Machinery Corp. Brush making apparatus. 3,322,467, 5–30–67, Cl. 300—2.

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Marolda, Anthony J., to High Voltage Engineering Corp. Apparatus for generating high density plasma. 3,321,919, 5–30–67, Cl. 60—202.

Marsee, Frederick J., and R. A. Soeters, to Holley Carburetor Co. Carburetor. 3,322,406, 5–30–67, Cl. 261—34.

Marsh, Frank D., to E. I. du Pont de Nemours and Co. 1-cyano-1,2,3-triazoles, their mixtures with α-diazo-N-cyanoimines. 3,322,782, 5–30–67, Cl. 260—308.

Marshall, Richard G., and J. C. Littmann, to Chrysler Corp. Vehicle automatic speed warning and speed control device. 3,322,226, 5–30–67, Cl. 180—106.

Martin, Constant. Electro-acoustic generator adapted to produce low frequency signals transformable into musical sounds by means of any amplifiers. 3,322,876, 5–30–67, Cl. 84—1.15.

Martin, Daniel W., and A. B. Bereskin, to D. H. Baldwin Co. Pipe organ simulation circuits. 3,322,874, 5–30–67, Cl. 84—1.13.

Martin, Frederick W., to The Bendix Corp. Fluid pressure servomotor. 3,321,915, 5–30–67, Cl. 60—54.5.

Martin, Hans, to P. Henseler. Process for the production of diluted chlorine dioxide. 3,322,497, 5–30–67, Cl. 23—152.

Martin, Henry, H. Aebi, and L. Ebner, to Ciba Ltd. Method of combating weeds. 3,322,525, 5–30–67, Cl. 71—2.3.

Martin, Ivey E., Jr.: *See*—
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Martin, Robert W., and A. Norwich, to Industrial Nucleonics Corp. Two-frequency dielectric measuring system including a variable gain circuit for modifying the amplitude of at least one of two detection signals. 3,323,047, 5–30–67, Cl. 324—61.

Martin, Wayne, to William F. Jobbins Inc. Aluminum base casting alloys. 3,322,533, 5–30–67, Cl. 75—146.

Martin, Wilhelm N., to Consolidated Paper (Bahamas) Ltd. Vinyl acetate-containing compositions for splicing sheet materials. 3,322,714, 5–30–67, Cl. 260—31.8.

Martin, William J., and L. T. Harris, to Ampex Corp. Coaxial reel mount. 3,322,365, 5–30–67. Cl. 242—68.3.

Marx, Hans W., to Schloemann Aktiengesellschaft. Strip-reeling apparatus comprising a belt coiler. 3,321,949, 5–30–67, Cl. 72—148.

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Mason, John F., and R. B. Emery, to Halliburton Co. Aerating media. 3 322,608, 5–30–67, Cl. 161—87.

Mason, Robert P. Visual marker or beacon. 3,323,117, 5–30–67, Cl. 340—321.

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Minami, Shinichi, Nakada, and Mizushima. 3,323,026.
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Matta, Romeo, to Phillips Petroleum Co. Fluid transfer control system. 3,322,136, 5–30–67, Cl. 137—118.

Maul, John A., to Addressograph-Multigraph Corp. Variable data print control and interlock means in printing machines. 3,322,062, 5–30–67, Cl. 101—45.

Maunus, Aimo G., and J. E. Dudley. Intermittent drive mechanism especially for rotisseries. 3,321,982, 5–30–67, Cl. 74—84.

Mausteller, John W., and S. J. Rodgers, to Mine Safety Appliances Co. Method for determination of combined oxygen in liquid alkali metals. 3,323,050, 5–30–67, Cl. 324—65.

Maxam, Allen B., Jr. Model car wheel mounting. 3,321,863, 5–30–67, Cl. 46—221.

May, James J., and E. A. Winkowski, to General Electric Co. Electrical connection. 3,322,885, 5–30–67, Cl. 174—78.

Mayer, Albert, to Capitol Hardware Mfg. Co. Clothing display rack assembly. 3,322,288, 5–30–67, Cl. 211—176.

Mayer, Charles B., to General Electric Co. Distributed amplifier with inductance-connected anode segments. 3,323,004, 5–30–67, Cl. 315—42.

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Mayer, William J., and C. E. Nordstrom, to Teletype Corp. Method of eroding cavities by electric discharge machining. 3,322,929, 5–30–67, Cl. 219—69.

McAninch, Homer C., to Continental Oil Co. Asphalt compositions and method of improving spot testing to select asphalts. 3,322,706, 5–30–67, Cl. 260—28.5.

McCaw, Earl, to C. C. Celestre and L. Menconi. Orbit circulation activator and mount therefor. 3,322,117, 5–30–67, Cl. 128—33.

McCay, Thomas E., J. D. Warren, and L. M. Adams, to Avo Corp. Telephone dialing device. 3,322,904, 5–30–67, Cl. 179—90.

McCluer, John D., and R. C. Roy, to H. K. Porter Co. Sound control product. 3,322,233, 5–30–67, Cl. 181—33.

McClung, Jack P., and H. R. Barnes. Top jaw holders and top jaws therefor. 3,322,434, 5–30–67, Cl. 279—123.

McCulley, Howard C.: *See*—
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McEuen, John M., to Ethyl Corp. Dehydrogenation process. 3,322,849, 5–30–67, Cl. 260—683.3.

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Nurre, Thomas C., McFarland, and Ritter. 3,322,821.

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McHenry, William L. Safety hood apparatus for drilling heads. 3,322,198, 5–30–67, Cl. 166—81.

McIlvaine, Robert L., to National Engineering Co. Mixer including mulling wheel with resilient tire means to facilitate wheel rotation. 3,322,404, 5–30–67, Cl. 259—112.

McIntyre, Archibald. Equipment for augmenting the fuel supplied to internal combustion engines. 3,322,105, 5–30–67, Cl. 123—127.

McKown, William L., and M. E. Ball, to General Mills, Inc. Material applying apparatus. 3,322,073, 5–30–67, Cl. 107—1.

McLaughlin, John R.: *See*—
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McLean, Robert E., to Rival Mfg. Co. Hand operated single action can opener. 3,321,830, 5–30–67, Cl. 30—9.

McNair, William E., and R. A. Cote, to Riegel Paper Corp. Carton. 3,322,264, 5–30–67, Cl. 206—45.25.

McMullen, John J., Associates, Inc.: *See*—
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McNeils, Edward J., to Sun Oil Co. Preparation of aromatic aldehydes. 3,322,833, 5–30–67, Cl. 260—599.

McPherson, James L.: *See*—
Chiddix, Max E., and McPherson. 3,322,727.

McRae, Edwin C. Tractor hydraulic system. 3,322,040, 5–30–67, Cl. 91—447.

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Gernhardt, Paul D. 3,322,206.

O'Keefe, Michael F., and R. S. Stull, to AMP Inc. Subminiature coaxial connector. 3,323,098, 5–30–67, Cl. 339—177.

Okumura, Shinji: *See*—
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Oliari, Louis G., and R. P. Fischer, to Honeywell Inc. Information handling apparatus including freely assignable read-write channels. 3,323,110, 5–30–67, Cl. 340—172.5.

Olin, John F., to Monsanto Co. Hindered isothiocyanates, and the method of preparing the same. 3,322,810, 5–30–67, Cl. 260—454.

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Scott, John A. 3,321,829.

Ollivier, Louis A., to Fischer & Porter Co. Flow leak detector. 3,321,956, 5–30–67, Cl. 73—40.5.

Olsen, Carl E., to The New York Association for the Blind. Mop having sleeve-type mop head. 3,321,791, 5–30–67, Cl. 15—229.

Olson, Hjalmar A.: *See*—
Bradstock, Robert B., and Olson. 3,322,913.

Olson, Kalmar O.: *See*—
Garibotti, Domenick J., Olson, and Taylor. 3,322,655.

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Asano, Tadashi, Masuda, and Ito. 3,322,139.

Oplatka, Avraham: *See*—
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Oprecht, Ulrich, to Adolph Saurer, Ltd. Gas turbine plant. 3,321,912, 5–30–67, Cl. 60—39.36.

Orcinch, Chester J. Necktie. 3,321,773, 5–30–67, Cl. 2—146.

Orozco, Gilbert J., to Litton Industries, Inc. Precision potentiometers. 3,323,093, 5–30–67, Cl. 338—132.

Orphey, Robert D., Jr., 50% to R. Stewart. Ice cube tray for producing substantially clear ice cubes. 3,321,932, 5–30–67, Cl. 62—340.

Orth, William H., to The Glidden Co. Furnaces for fast-firing ceramic ware, and fast-firing process. 3,322,413, 5–30–67, Cl. 263—6.

Osborne, Fay H., to The Dexter Corp. Paper making apparatus to form paper with a simulated woven texture. 3,322,617, 5–30–67, Cl. 162—296.

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Seiferth, Oscar E., Grindrod, Hamm, Goller, and Gifford. 3,322,614.

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Brooks, Lester A., and O'Shaughnessy. 3,322,802.

O'Shea, Francis X., to Uniroyal, Inc. Protection of organic material from oxidative deterioration with bis-(3,5-dihydrocarbyl-4-hydroxybenzyl) sulfoxides. 3,322,649, 5–30–67, Cl. 252—404.

Ostberg, Werner, to Dundee Cement Co. Device for removing clinker from thermocouple probe. 3,322,416, 5–30–67, Cl. 263—33.

Ostensen, Ralph G., to SCM Corp. Duplicating apparatus. 3,322,031, 5–30–67, Cl. 88—24.

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Ostermann, Milton D. and A. C. Aggregate processing plant. 3,322,354, 5–30–67, Cl. 241—81.

Ostrander, William S., to Carrier Corp. Heating and cooling apparatus and method. 3,322,188, 5–30–67, Cl. 165—2.

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Owens-Corning Fiberglas Corp.: *See*—
Smucker, Clayton A., and Stalego. 3,322,702.

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Baak, Nils T. E. A., and Simmons. 3,322,948.
Meiresonne, Arthur C. 3,322,522.
Rottmann, Hans R. 3,322,023.
Schelhorn, Frederick B. 3,322,588.

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Ozawa, Kazuo: *See*—
Ashikawa, Mikio, Umezawa, and Ozawa. 3,322,570.

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Packard-Bell Electronics Corp.: *See*—
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Page Communications Engineering, Inc.: *See*—
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Pages, Jacques H. L., to Rhone-Poulenc S.A. Intermittently operated controller for maintaining a regulated parameter at a desired value. 3,322,963, 5–30–67, Cl. 250—219.

Palella, Gloria. Drapery and drapery hanging device. 3,322,182, 5–30–67, Cl. 160—344.

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Barker, John L., Hannula, and Pallat. 3,322,940.

Palmquist, Marvin E., and A. C. Haggstrom, to Cherry Valley Mfg. Corp. Photographic enlarger and printer. 3,322,029, 5–30–67, Cl. 88—24.

Pals, Raimond, to FMC Corp. Sodium tripolyphosphate product. 3,322,493, 5–30–67, Cl. 23—106.

Palyi, Leslie, to Toronto Grinding & Milling Machinery Ltd. Pulverizer. 3,322,353, 5–30–67, Cl. 241—40.

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Pantasote Co. of New York, Inc., The: *See*—
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Paquet, Jean L., to Aluminium Laboratories Ltd. Treating of electrolytic aluminum reduction cell gases to recover fluorine values. 3,322,659, 5–30–67, Cl. 204—67.

Parker, Edward M., and R. E. Ginter, to Penn Keystone Corp. Resin encapsulated lamp assembly. 3,322,992, 5–30–67, Cl. 313—111.

Parker-Hannifin Corp.: *See*—
Madland, Rolf A. 3,322,039.

Parkes, John F. A., and G. Radford, to Elliott Brothers (London) Ltd. Apparatus for controlling or measuring fluid pressures. 3,321,975, 5–30–67, Cl. 73—401.

Parlanti, Conrad A., B. Manning, L. B. Wetzel, and C. H. Whittier, to United States of America, Air Force. Microwave refractometer. 3,323,044, 5–30–67, Cl. 324—58.5.

Parr, William G.: *See*—
Wood, Derek J., Parr, and Sanders. 3,321,802.

Parrella, Alfred T., and G. R. Gagliard, to Farrel Corp. Machine tool. 3,321,869, 5–30–67, Cl. 51—165.

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Pascard, Roger: *See*—
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Pascucci, Michael, Brick veneer support structure. 3,321,883, 5–30–67, Cl. 52—502.

Passmore, David G., to Carpenter Corp. Automotive tachometer with single resistive element range and calibration device. 3,323,052, 5–30–67, Cl. 324—70.

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Payton, Don E., and W. S. Pattison, to General Electric Co. Rack system for automatic dishwasher. 3,322,479, 5–30–67, Cl. 312—269.

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Pearson, Robert: *See*—
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Peck, Walter R., and R. R. Higgins, to Stencel Aero Engineering Corp. Parachute deployment apparatus. 3,322,109, 5–30–67, Cl. 124—11.

Peczkowski, Joseph L., and D. C. Thoman, to The Bendix Corp. Temperature sensor having rate of change of temperature sensing means. 3,322,344, 5–30–67, Cl. 236—86.

Pedersen, Harry, to The Gleason Works. Apparatus for measuring surface finish of pinion tooth and like curved surfaces. 3,321,840, 5–30–67, Cl. 33—179.5.

Peek, Sandford C., to Sylvania Electric Products Inc. Electrical insect killer. 3,321,862, 5–30–67, Cl. 43—112.

Pegram, Dewey W., Jr., to Bell Telephone Laboratories, Inc. Electrostatic apparatus. 3,322,098, 5–30–67, Cl. 118—637.

Peilstocker, Gunter, to Farbenfabriken Bayer Aktiengesellschaft. Polycarbonates stabilized by adding a benzophenone or a benzotriazole to acidified polymer. 3,322,719, 5–30–67, Cl. 260—45.8.

Pelly, Brian R., to Westinghouse Brake and Signal Co., Ltd. Relaxation inverter circuit arrangement. 3,323,076, 5–30–67, Cl. 331—117.

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Penning, Ernst: *See*—
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Pentesco, Walter J., to American Flange & Mfg. Co., Inc. Method and apparatus for forming screw threads. 3,322,086, 5–30–67, Cl. 113—1.

Peras, Lucien, to Regie Nationale des Usines Renault. Antivibration elastic transmission devices. 3,321,988, 5–30–67, Cl. 74—411.

Perdue, Jack: *See*—
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Neilson, Christopher B. V., and Perdue. 3,322,393.

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Perrella, Guido, and F. Picker, to Dynacast Ltd. Indexing attachment for sewing machines. 3,322,083, 5–30–67, Cl. 112—67.

Perry, Eli, to Monsanto Co. Polymerization of α-cyanostyrene using anionic catalysts. 3,322,742, 5–30–67, Cl. 260—88.7.

Perry, Walter M., to Johns-Manville Corp. Burner apparatus. 3,322,180, 5–30–67, Cl. 158—116.

Persson, Gustaf A. Gang saws. 3,322,170, 5–30–67, Cl. 143—81.

Persson, Karl R., to Sprinter-Pack AB. Carton tray. 3,322,322, 5–30–67, Cl. 229—34.

Persson, Karl R., to Sprinter-Pack AB. Blank for making a cardboard box and box erected therefrom. 3,322,324, 5–30–67, Cl. 229—38.

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Peterson, Palmer G.: *See*—
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Peterson, Robert C. Load equalizer. 3,321,997, 5–30–67, Cl. 74—573.

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Pfarrwaller, Erwin, to Sulzer Bros. Ltd. Method and means for actuating an element of a weaving machine. 3,322,158, 5–30–67, Cl. 139—1.

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Phelon, R. E., Co., Inc.: *See*—
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Pittsburgh Plate Glass Co.: *See*—
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Plastronics, Inc.: *See*—
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Polarized Panel Corp.: *See*—
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Popow, Anatolly, and G. A. Porter. Vise jaw cover plate. 3,322,423, 5–30–67, Cl. 269—274.

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Pratt, Clifford W. Screen frame and corner construction. 3,321,885, 5–30–67, Cl. 52—657.

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Puente, Jose R., to Leaming Plastics, Inc. Moisture-tight container. 3,322,262, 5–30–67, Cl. 206—1.

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Pungs, Leo, K. Lamberts, and B. Griesbach, said Griesbach assor, to said Pungs and said Lamberts. Continuous dielectric heating of electrically nonconductive material. 3,22,928, 5–30–67, Cl. 219—10.53.

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Rasmussen, Edwin W. Catamaran type of water craft. 3,321,784, 5–30–67, Cl. 9—1.

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Redington, Rowland W., to General Electric Co. Electrophotographic process. 3,322,539, 5–30–67, Cl. 96—1.1.

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Reich, Jerome, to The General Tire & Rubber Co. Shower closure. 3,321,781. 5–30–67, Cl. 4—154.

Richel, Maximilian K., to Azoplate Corp. Light sensitive coatings with tanning properties. 3,322,541, 5–30–67, Cl. 96—32.

Reimer, Borge R., to Hayes-Dana Ltd. Ratchet type torque overload device. 3,321,936, 5–30–67, Cl. 64—29.

Reimers, Richard M.: *See*—
Miner, Claire E., and Reimers. 3,322,330.

Remley, Winslow R., to International Business Machines Corp. Compatible single-sideband transmitter. 3,323,064, 5–30–67, Cl. 325—137.

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Renner, Alfred, and F. R. Widmer, to Ciba Ltd. Process for applying an olegomeric bis(cyclopentadienyl) resin on a wire. 3,322,572, 5–30–67, Cl. 117—232.

Renner, Eduard. Apparatus for taking composite pictures by photography with background projection and illumination of the object. 3,322,487, 5–30–67, Cl. 352—89.

Rentschler, John H., to Minnesota Rubber Co. Sealing ring and method of making same. 3,322,433, 5–30–67, Cl. 277—228.

Rentschler, Waldemar T., to Alfred Gauthier, G.m.b.H. Photographic camera with built-in or attached exposure meter and a manual or automatically adjustable diaphragm. 3,322,051, 5–30–67, Cl. 95—10.

Renwick, Erle B., Jr. Simulating stereophonic sound reproduction. 3,322,899, 5–30–67, Cl. 179—1.

Reyes, Robert M. Key safe. 3,321,943, 5–30–67, Cl. 70—456.

Reynolds Metals Co.: *See*—
Brown, Donald L., and Barker. 3,321,876.
Gettig, Allen D. 3,321,950.
Grogel, Merrill A. 3,322,003.
Wilson, John B. 3,322,304.

Rezanov, Gennady K.: *See*—
Alabuzhev, Petr M., Zuev, Rezanov, and Talvinsky. 3,322,211.

Rhodes, John K.: *See*—
Davies, William J., Allen, and Rhodes. 3,321,910.

Rhone-Poulenc S.A.: *See*—
Pages, Jacques H. L. 3,322,963.

Richards, Joseph M., to Medco Products Co., Inc. Achilles reflex test apparatus. 3,322,115, 5–30–67, Cl. 128—2.

Richardson Mfg. Co., Inc.: *See*—
Van Sickle, James D., and Symmonds. 3,322,202.

Richardson, Randel E. Paint rolling apparatus. 3,321,795, 5–30–67, Cl. 15—510.

Riebel, Alexander: *See*—
Himmelmann, Wolfgang, Krauss, and Riebel. 3,322,555.

Riede, John R., and J. L. Hill, to Ramsey Engineering Co. Interface control system for hydroseparators. 3,322,276, 5–30–67, Cl. 209—158.

Rieder, Paul A., J. M. Lindsley, and J. E. Edkins, to J. M. Nash Co., Inc. Loading dock shelter. 3,322,132, 5–30–67, Cl. 135—5.

Riegel Paper Corp.: *See*—
Bailey, Ernest L. 3,321,858.
Frech, Everett B. 3,322,605.
McNair, William E., and Cote. 3,322,264.

Rigrod, William W., to Bell Telephone Laboratories, Inc. Attenuation measuring device using an optical maser. 3,322,026, 5–30–67, Cl. 88—14.

Ringold, Howard J., E. Batres, G. Rosenkranz, O. Mancera, and A. Bowers, to Syntex Corp. 6a-chloro-17a-hydroxy progesterone and intermediates obtained in the production thereof. 3,322,796, 5–30–67, Cl. 260—397.4.

Ritter, Dale L.: *See*—
Nurre, Thomas C., McFarland, and Ritter. 3,322,321.

Ritter, Frederick J.: *See*—
De Boer, Herman O., Jr., and Ritter. 3,322,144.

Rival Mfg. Co.: *See*—
McLean, Robert E. 3,321,830.

Riviana Foods Inc.: *See*—
Lynn, Lawrence, and Anderson. 3,322,293.

Roach, Gay H. Bale conveyor with bale orientating means. 3,322,256, 5–30–67, Cl. 198—33.

Roberts, George L., Jr., and J. A. Chopoorian, to American Cyanamid Co. Inorganic photochromic materials and process for producing same. 3,322,552, 5–30–67, Cl. 106—288.

Roberts, William J., to Celanese Corp. of America. Compositions containing a polyterephthalamide and a hydrocarbon-substituted sulfonic acid, and process utilizing the same in making shaped articles. 3,322,824, 5–30–67, Cl. 260—30.8.

Robbins, Jim, Seat Belt Co.: *See*—
Smith, Lawrence H., and Partridge. 3,321,817.

Roberts Co.: *See*—
Barefoot, Thomas L., and Martin. 3,321,902.

Robertshaw Controls Co.: *See*—
Genbauffe, Francis S. 3,322,922.

Robertson, H. H., Co.: *See*—
Ferrell, Russell A., and Howell. 3,321,880.

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Eagles, Robert P., and Southward. 3,322,101.

Robinson, Gordon S.: *See*—
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Roch, Josef, and H. Scheffler, to Boehringer Ingelheim G.m.b.H. Basic-substituted 1,2,3,4-tetrahydropyrimido[5,4-d]-pyrimidines. 3,322,755, 5–30–67, Cl. 260—246.

Rochte, Jerry E., to Beckman Instruments, Inc. Bistable pneumatic logic element and valves. 3,322,148, 5–30–67, Cl. 137—596.14.

Rockwell-Standard Corp.: *See*—
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Mausteller, John W., and Rodgers. 3,323,050.

Rodwell, Stanley W., to Crucible Steel Co. of America. Furniture-leg construction. 3,322,384, 5–30–67, Cl. 248—188.

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Tanzman, Daniel P., and Rogers. 3,322,546.

Rogers. Claude G.: *See*—
Kays, David D., Rogers, and Akerlow. 3,322,648.

Rogers. Henry E.: *See*—
Klumb, Hank, and Rogers. 3,322,905.

Rohrbach, Bernd. Elongated, upright supporting element. 3 322,382, 5–30–67, Cl. 248—159.

Roland, John R.: *See*—
Ciganek, Engelbert, and Roland. 3,322,816.

Roll, John B., and J. A. Herr. Harmonics electronic amplification. 3,322,875, 5–30–67, Cl. 84—1.14.

Rolland. Robert C. Structural element and joining means therefor. 3,322,448, 5–30–67, Cl. 287—189.36.

Rolls-Royce Ltd.: *See*—
Davies, William J., Allen, and Rhodes. 3,321,910.

Rolseth. Harold C.: *See*—
Arnold, Cornelius S., and Rolseth. 3,322,213.

Rosen. Sidney. High speed straight line filling machine. 3,322,167, 5–30–67, Cl. 141—131.

Rosenbaum, Aaron: *See*—
Kauder, Otto S., and Rosenbaum. 3,322,705.

Rosenblatt, Maurice C. Hung luminous ceiling with air conditioning ducts. 3,322,057, 5–30–67, Cl. 98—40.

Rosendahl, Guenter K., to Illinois Tool Works Inc. Apparatus for gear burnishing. 3,321,820, 5–30–67, Cl. 29—90.

Rosenfeld, Myer, to United States of America, Army. Ethylenediamine-anisole paint-stripping compositions. 3,322,677, 5–30–67, Cl. 252—153.

Rosenkranz, George: *See*—
Ringold, Howard J., Batres, Rosenkranz, Mancera, and Bowers. 3,322,796.

Ross, Irvine E., to General Electric Co. Dynamoelectric machine with improved winding protection arrangement. 3,322,983, 5–30–67, Cl. 310—68.

Rossello, Dante: *See*—
Kruse, William E., and Rossello. 3,322,868.

Roth, Werner A., to Fabrik Elektrischer Apparate Sprecher & Schuk A.-G. Metal-enclosed electrical protective systems. 3,323,018, 5–30–67, Cl. 317—60.

Rothman, Jules A., to Automatic Radio Mfg. Co., Inc. Magazine utilizing internal tape drive means. 3,322,906, 5–30–67, Cl. 179—100.2.

Rottmann, Hans R., to Owens-Illinois, Inc. Detection of chips in syringe cartridges. 3,322,023, 5–30–67, Cl. 88—14.

Rouanet, Michel. Spinning reel with friction brake. 3,322,371, 5–30–67, Cl. 242—84.5.

Routon, Joseph. Moisturizing tapes. 3,321,865, 5–30–67, Cl. 47—55.

Roveti, Denes, ⅛ to W. Grobman. Apparatus for thermal testing transistors in situ. 3,321,953, 5–30–67, Cl. 73—15.

Rowell, Douglas W., to Anaconda American Brass Co. Method and apparatus for extrusion of tubes. 3,321,951, 5–30–67, Cl. 72—265.

Roy, Robert C.: *See*—
McCluer, John D., and Roy. 3,322,233.

Royal Typewriter Co.: *See*—
Frechette, Leo P., and Lizotte. 3,322,254.

Roys, Henry E., to Radio Corp. of America. Endless tape cartridge. 3,322,360, 5–30–67, Cl. 242—55.19.

Ruehrwein, Robert A., to Monsanto Co. Graded energy gap photoelectromagnetic cell. 3,322,575, 5–30–67, Cl. 136—89.

Runyan, Wesley G., to Collins Radio Co. Alternator regulator. 3,323,036, 5–30–67, Cl. 322—28.

Rüsch, Heinz: *See*—
Rüsch, Werner and H. 3,322,126.

Rüsch, Werner and H., to Firma Willy Rusch. Endotracheal catheter. 3,322,126, 5–30–67, Cl. 128—351.

Ruschig, Heinrich, and H. Hilmer, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. 2-aminoalkyl-3-hydrocarbon quinazolones-(4). 3,322,756, 5–30–67, Cl. 260—247.2.

Russell, Fred J., R. L. Armstrong, and F. L. Jennie; said Armstrong and Jennie assors. to said Russell. Bush button actuated lock. 3,321,942, 5–30–67, Cl. 70—146.

Russell, Fred J., R. L. Armstrong, and H. W. Falk; said Armstrong and Falk assors. to said Russell. Adjustable roller latch. 3,322,450, 5–30–67, Cl. 292—75.

Rutherford Electronics Co.: *See*—
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Lutz, Friedrich. 3,322,160.

Ruyle, William V.: *See*—
Shen, Tsung-Ying, and Ruyle. 3,322,747.

Ryan, John W.: *See*—
Coaker, Antony W. M., Cohen, and Ryan. 3,322,857.

Rydborn, Sten-Ake O. Loom weft stop motion devices. 3,322,162, 5–30–67, Cl. 139—371.

Rydell, Edmund W. F. Self-adjusting wrench. 3,322,009, 5–30–67, Cl. 81—359.

Ryer, Damond V.: *See*—
Wyke, Albert A., and Ryer. 3,322,935.

Rzepecki, Marian M.: *See*—
Waldorf, Joseph F., Rzepecki, and Charbonneau. 3,322,927.

SCM Corp.: *See*—
Clark, Clayton H., and Stefanik. 3,322,316.
Ostensen, Ralph G. 3,322.031.

Sachs, Charles M., to International Playtex Corp. Anti-creep brassiere. 3,322,127, 5–30–67. Cl. 128—483.

Sacks, William, to Union Carbide Corp. Method of producing clear, crystalline, high-gloss thermoplastic film. 3,322,870, 5–30–67, Cl. 264—95.

Saint-Jacques, Eugene C. Dust filter apparatus. 3,321,892, 5–30–67. Cl. 55—299.

St. John, Oliver B.: *See*—
Curtiss, Maurice C. and St. John. 3,322,939.

Sakaki, Yasuhiro: *See*—
Hammamoto, Masao, and Sakaki. 3,322,528.

Sakurada, Yutaka: *See*—
Fukushima, Osamu, and Sakurada. 3,322,855.

Salatiello, Peter P.: *See*—
Nudenberg, Walter, Goldstein, and Salatiello. 3,322,746.

Salem, Alexander N.: *See*—
Erikson, J. Alden, and Salem. 3,322,762.

Saltz, John R.: *See*—
Chappell, Robert E., Nelson, and Saltz. 3,321,986.

Sanders, Peter C. C.: *See*—
Wood, Derek J., Parr, and Sanders. 3,321,802.

Sanderson, Walter H.: *See*—
Komline, Thomas R., and Sanderson. 3,322,079.

Sandoz Ltd. (Sandoz A.G.): *See*—
Jucker, Ernst, Lindenmann, and Gmunder. 3,322,774.

Sanko Co., Inc.: *See*—
Kawai, Yoshio, Uemura, Kawai, and Okumura. 3,322,646.

Sargent & Co.: *See*—
Filia, George J. 3,322,008.

Sassenroth, Karl-Wilhelm, G. Jansen, and R. Brugger, to Langbein-Pfanhauser Werke A.G. Electrodeposition of bright copper. 3,322,657, 5–30–67, Cl. 204—52.

Saurer, Adolph, Ltd.: *See*—
Oprecht, Ulrich. 3,321,912.

Sawyer, Albert K., to M & T Chemicals Inc. Method of preparing novel organotin compounds. 3,322,801, 5–30–67, Cl. 260—429.7.

Sawyers, James D., and O. J. Dorsey. Cattle guard. 3,322,399, 5–30–67, Cl. 256—17.

Schanhals, Louis R., to The O. M. Scott & Sons Co. Process for the manufacture of lower alkyl arsinic acids and alkali metal salts thereof. 3,322,805, 5–30–67, Cl. 260—442.

Schauer, Ralph F.: *See*—
Mullery, Alvin P., and Schauer. 3,323,108.

Scheemaeker, Emile. Safety pin. 3,321,812, 5–30–67, Cl. 24—159.

Scheffler, Heinz: *See*—
Roch, Josef, and Scheffler. 3,322,755.

Scheitlin, Thomas G., A. J. Koch, and W. A. Hames, to Whirlpool Corp. Refrigeration apparatus. 3,321,933, 5–30–67, Cl. 62—419.

Schelhorn, Frederick B., to Owens-Illinois, Inc. Method for making heavy gauge plastic sheets. 3,322,588, 5–30–67, Cl. 156—244.

Schick, Joachim, to Continental Gummi-Werke Aktiengesellschaft. Bearing bushing. 3,322,475, 5–30–67, Cl. 308—36.1.

Schipper, Edgar S., to Shulton, Inc. 3-β-(4-pyridyl)ethyl-2,3-dihydro-4(1H)-quinazolinones. 3,322,766, 5–30–67, Cl. 260—256.4

Schlichting, Hans L.: *See*—
Weil, Edward D., and Schlichting. 3,322,837.

Schloemann Aktiengesellschaft: *See*—
Marx, Hans W. 3,321,949.

Schlumberger Technology Corp.: *See*—
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Schmid, Bruce K.: *See*—
Beuther, Harold, Peake, and Schmid. 3,322,666.

Schmidt, Albert S., Sr.: *See*—
Irving, Frank M., Jr., Schmidt, and Potter. 3,322,314.

Schmidt, Hans-Joachim: *See*—
Fernholz, Hans, Neu, and Schmidt. 3,322,825.

Schmidt, Stanley A.: *See*—
Davidson, Ralph L., and Schmidt. 3,322,363.

Schneble, Frederick W., Jr., J. Polichette, and E. J. Leech. Multilayer printed circuit assemblies. 3,322,881, 5–30–67, Cl. 174—68.5.

Schneider, Gerald W.: *See*—
Boragina, Vincent, Schneider, and Stramaglia. 3,322,014.

Schneider, Kurt R., to Eureka-Carlisle Co. Article delivering machine. 3,322,602, 5–30–67, Cl. 156—571.

Schnell, Hermann, H. H. Schwarz, and A. M. Gemassmer, to Farbenfabriken Bayer Aktiengesellschaft. Recovery process for polycarbonates. 3,322,724, 5–30–67, Cl. 260—47.

Schnider, Otto: *See*—
Erlemann, Gustav, Guex, and Schnider. 3,322,635.

Schoeller & Co. Elektrotechnische Fabrik: *See*—
Beha, Walter, and Bender. 3,322,302.

Schorr, Manfred, R. Fussgänger, G. Mesemann, and F. Bauer, to Farbwerke Hoechst Aktiengesellschaft vormals Meister Lucius & Bruning. Aralkyl piperazines and salts thereof, 3,322,768, 5–30–67, Cl. 260—268.

Schott, Charles M., Jr., to Gloucester Engineering Co., Inc. Machine for altering moving webs. 3,322,604, 5–30–67, Cl. 156—583.

Schrader, Gerhard, to Farbenfabriken Bayer Aktiengesellschaft. Thionophosphoric acid esters. 3,322,864, 5–30–67, Cl. 260—954.

Schrager, Hubert I., to Varian Associates. Electron discharge devices and molybdenum slow wave structures, the molybdenum slow wave structures having grain alignment transverse to the electron path. 3,322,996, 5–30–67, Cl. 315—3.5.

Schreyer, Ralph C., to E. I. du Pont de Nemours and Co. Hydrodimerization of methacrylic acid esters. 3,322,819, 5–30–67, Cl. 260—485.

Schroeder, Carl W.: *See*—
Berger, Richard S., and Schroeder. 3,322,704.

Schroer, Carl E. Automated sign. 3,321,857, 5–30–67, Cl. 40—37.

Schubring, Allin W., to Square D Co. Reversible rotary switch unit. 3,322,910, 5–30–67, Cl. 200—50.

Schultz, Roy M.: *See*—
Anderson, Arvid B., Davis, and Schultz. 3,321,852.

Schultz, Roy M., H. L. Davis, and A. B. Anderson, to Bishop Freeman Co. Press plate seal. 3,321,853, 5–30–67, Cl. 38—66.

Schwab, Helmut, to National Cash Register Co. Thermo-copy system. 3,322,557, 5–30–67, Cl. 117—36.2.

Schwartz, Arthur: *See*—
Grosser, Frederick, Hort, and Schwartz. 3,322,729.
Grosser, Frederick, Hort, and Schwartz. 3,322,730.

Schwarz, Hans H.: *See*—
Schnell, Hermann, Schwarz, and Gemassmer. 3,322,724.

Schweinsberg, Hans: *See*—
Schwick, Hans G., and Schweinsberg. 3,322,632.

Schweib, Otto, and J. Elliott, to Northern Electric Co. Ltd. Fine attenuator and phase shifter. 3,323,080, 5–30–67, Cl. 333—11.

Schwenzfeier, Otto K. Balanced vibratory parts feeder. 3,322,260, 5–30–67, Cl. 198—220.

Schwick, Hans G., and H. Schweinsberg, to Behringwerke Aktiengesellschaft. Process for stabilizing biologically active materials with modified collagen hydrolyzate. 3,322,632, 5–30–67, Cl. 167—78.

Schwoyer, William L. K.: *See*—
Griffith, George L., Schwoyer, and Mayer. 3,322,066.

Sciaky, David, to Welding Research, Inc. Protective shield for electron gun. 3,322,930, 5–30–67, Cl. 219—121.

Scoggin, Jack S., to Phillips Petroleum Co. Device with photoelectric failure alarm. 3,322,957, 5–30–67, Cl. 250—218.

Scope Inc.: *See*—
Williams, Richard E. 3,322,891.

Scott, John A., to Olin Mathieson Chemical Corp. Brazing flux and method of brazing with same. 3,321,829, 5–30–67, Cl. 29—495.

Scott, John N., Jr., to Phillips Petroleum Co. Process and apparatus for making multiwalled article. 3,322,869, 5–30–67, Cl. 264—90.

Scott, O. M. & Sons Co., The: *See*—
Schanhals, Louis R. 3,322,805.

Scott Paper Co.: *See*—
Czepiel, Thomas P. 3,322,697.

Scott, Paul R., to Shell Oil Co. Pipeline capsule launcher. 3,322,140, 5–30–67, Cl. 137—268.

Scovill Mfg. Co.: *See*—
Heermans, Thomas W. 3,322,358.
Korshak, Harvey. 3,322,925.

Screw and Bolt Corp. of America: *See*—
Lovisek, Louis J. 3,322,019.

Scruggs, Lewis F., to Deering Milliken Research Corp. Slub catcher. 3,321,818, 5–30–67, Cl. 28—64.

Searle, G. D. & Co.: *See*—
Pappo, Raphael. 3,322,760.

Searles, John J., to Ford Motor Co. Compound fluid pressure governor valve assembly. 3,322,133, 5–30–67, Cl. 137—56.

Sebulsky, Raynor T.: *See*—
Giannetti, Joseph P., Henke, Kline, Sebulsky. 3,322,689.

Sedlin, Leonard H.: *See*—
Lucas, Malcom B., Duncan, and Sedlin. 3,322,594.

Seedorf, Robert R., to The Roy M. Moffitt Co. Heat transfer device for tubular material. 3,321,844, 5–30–67, Cl. 34—160.

Seely, Douglas D., Jr. Ruler. 3,321,836, 5–30–67, Cl. 33—107.

Segovia, Julio S.: *See*—
Chapman, Franklin. 3,322,346.

Seib, Martin R. P., to Caps (Research) Ltd. Superposed high frequency starting circuit for discharge lamp. 3,323,012, 5–30–67, Cl. 315—174.

Seiferth, Oscar E., P. E. Grindrod, F. D. Hamm, R. L. Goller, and M. J. Gifford, to Oscar Mayer & Co., Inc. Laminated packaging material and method of forming same. 3,322,-614, 5–30–67, Cl. 161—254.

Seifried, Walter, H. Braunisch, and H. Enhart, to Kalle Aktiengesellschaft. Continuous process for coating thermoplastic polyester films with vinylidene halide copolymers. 3,322,553, 5–30–67, Cl. 117—7.

Seilon, Inc.: *See*—
Cooley, Lester M. 3,322,438.

Seki, Shigeo, B. Nomiya, and H. Ogawa, to Meiji Seika Kaisha, Ltd. Halopropargyl aryl ether compounds. 3,322,-813, 5–30–67, Cl. 260—465.

Selas Corp. of America: *See*—
Turner, Charles A., Jr. 3,322,558.
Williams, Arthur. 3,322,181.

Selectivend Corp.: *See*—
Grindinger, Robert E., and Waas. 3,322,303.

Selfix, Inc.: *See*—
Ragir, Meyer J. 3,322,287.

Sellet, Lucien, to Nopco Chemical Co. Amphoteric resinous condensation products prepared by reacting HCHO with the reaction product of a water-soluble anionic linear copolymer and dicyan diamide compounds. 3,322,726, 5–30–67, Cl. 260—69.

Selman, Stanley, to Ethicon, Inc. Preparation of optically active lactides. 3,322,791, 5–30–67, Cl. 260—340.2.

Selwitz, Charles M.: *See*—
Clement, William H., Peters, and Selwitz. 3,322,844.

Sem, Mathias O., to Electrokemisk A/S. Aluminum electrolytic cell and method of use. 3,322,658, 5–30–67, Cl. 204—67.

Senft, Harvey E.: *See*—
De Luca, Paul V., and Senft. 3,323,094.

Senkewich, Alexander M., 5% to J. M. Heilman, and 5% to M. Kingston. Windshield wiper with hot air. 3,321,792, 5–30–67, Cl. 15—250.04.

Servco Co., The: *See*—
Van Note, Charles O., Jr. 3,322,199.

Sever, Janes F., to Square D Co. Combination terminal block and electrical component assembly. 3,323,021, 5–30–67, Cl. 317—101.

Sewell, Donald N., and C. D. Brown, to Dielectric Products Engineering Co., Inc. Electrical transmission line coupling structure. 3,322,444, 5–30–67, Cl. 285—352.

Shah, Ramesh M. Method and apparatus for photoelectrically measuring and recording the growth of microorganisms in bacterial preparations. 3,322,956, 5–30–67, Cl. 250—218.

Shaw, Clarence W., to J. Ray McDermott and Co., Inc. Deep water lay barge and method. 3,321,925, 5–30–67, Cl. 61—72.3.

Shaw, Don W.: *See*—
Hendrickson, Gene R., Shaw, and Mehal. 3,322,581.

Shaw, Ernest K., and J. E. Hogg, to Esso Production Research Co. Optical convolution of a first function by a second function having a unit impulse response. 3,323,103, 5–30–67, Cl. 340—15.5.

Shell Oil Co.: *See*—
Asinger, Friedrich, Fell, Janssen, Zoche, Mueller, and Korte. 3,322,806.
Berger, Richard S., and Schroeder. 3,322,704.
Bozak, Richard E. 3,322,793.
Bullard, Billy J. 3,322,191.
Dowd, Robert T. 3,322,700.
Holden, Geoffrey, and Milkovich. 3,322,856.
Holm, Roy T. 3 322,797.
Hunter, Leon, and Nixon. 3.322,725.
Johnson, Henry W., Jr. 3,322,936.
Scott, Paul R. 3,322,140.

Shelton, Robert C.: *See*—
Llewellyn, Peter M., and Shelton. 3,321,971.

Shen, Tsung-Ying, to Merck & Co., Inc. Method of treating Herpes Simplex infections with 5-methylamino-2′-deoxyuridine, and compositions therefor. 3,322,627, 5–30–67, Cl. 167—59.

Shen, Tsung-Ying, and W. V. Ruyle, to Merck & Co., Inc. Thionocarbonate nucleosides. 3,322,747, 5–30–67, Cl. 260—211.5.

Shepard, Arthur P.: *See*—
Dittrich, Ferdinand J., and Shepard. 3,322,515.

Sheps, Martin I., to The Black and Decker Mfg. Co. Translatory mechanical member with molded hinge portion for use in electric switches and other applications. 3,322,924, 5–30–67, Cl. 200—157.

Sherr, Allan E.: *See*—
Mosby, William L., Gillham, and Sherr. 3,322,860.
Gillham, Helen C., and Sherr. 3,322,861.

Sherr, Allan E., and H. C. Gillham, to American Cyanamid Co. Thermoplastic resinous products containing flame retardants. 3,322,859, 5–30–67, Cl. 260—893.

Shibe, William J., Jr., and M. Sittenfield, to Hollichem Corp. Method for imparting antistatic properties to electrically non-conductive substance and resulting product. 3,322,567, 5–30–67, Cl. 117—121.

Shibe, William J., Jr., and M. Sittenfield, to Hollichem Corp. Thixotropic quaternary ammonium aromatic cyclic imides. 3.322,621, 5–30–67, Cl. 167—33.

Shibukawa, Takashi, and A. Uchida, to American Cyanamid Co. Monomer recovery from chlorate/sulfoxy catalysed systems comprising adding an oxidizing agent and adjusting the pH. 3,322,743, 5–30–67, Cl. 260—88.7.

Shikoku Kasei Kogyo Co. Ltd.: *See*—
Tokimatsu, Kenji, and Yamashita. 3,322,748.

Shimajiri, Tokiji: *See*—
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CLASSIFICATION OF PATENTS

ISSUED MAY 30, 1967

NOTE.—First number, class; second number, subclass; third number, patent number

2– 19	3,321,771	30– 45	3,321,831	60– 54.5	3,321,917	74–763	3,321,999	103– 2	3,322,068	133– 1	3,322,131
68	3,321,772	32– 32	3,321,832	54.6	3,321,913	75– .5	3,322,529	46	3,322,069	134– 1	3,322,573
146	3,321,773	33– 6	3,321,833		3,321,918	53	3,322,530	103	3,322,070	135– 5	3,322,132
181	3,321,774	74	3,321,834	202	3,321,919	66	3,322,531	113	3,322,071	136– 86	3,322,574
183	3,321,775	75	3,321,835	211	3,321,920	108	3,322,532	105–422	3,322,072	89	3,322,675
4–154	3,321,781	107	3,321,836	235	3,321,921	146	3,322,533	106– 1	3,322,546	121	3,322,576
5– 8	3,321,776	148	3,321,837	260	3,321,922	171	3,322,534		3,322,547	137– 56	3,322,133
13	3,321,777	174	3,321,838	61– 1	3,321,923	201	3,322,535	33	3,322,548	108	3,322,134
17	3,321,778	178	3,321,839	54	3,321,924	212	3,322,536	38.3	3,322,549	113	3,322,135
93	3,321,779	179.5	3,321,840	72.3	3,321,925	76– 36	3,322,000	56	3,322,550	118	3,322,136
122	3,321,780	226	3,321,841	62– 6	3,321,926	89.1	3,322,002	58	3,322,551	155	3,322,137
334	3,321,782	34– 15	3,321,842	55.5	3,321,927	107	3,322,003	288	3,322,552	219	3,322,138
7– 8.1	3,321,783	133	3,321,843	140	3,321,928		3,322,004	107– 1	3,322,073	242	3,322,139
8–115.5	3,322,488	160	3,321,844	181	3,321,929	77– 62	3,322,001	46	3,322,074	268	3,322,140
116	3,322,489	164	3,321,845	228	3,321,930	81– 3	3,322,005	48	3,322,075	312	3,322,141
116.3	3,322,490	181	3,321,846	281	3,321,931	57	3,322,006	50	3,322,076	334	3,322,142
9– 1	3,321,784	35– 1	3,321,847	340	3,321,932	125	3,322,007	108–111	3,322,077	375	3,322,143
316	3,321,785	45	3,321,848	419	3,321,933	313	3,322,008	109– 31	3,322,078		3,322,144
11– 1	3,321,786	61	3,321,849	63– 1	3,321,934	359	3,322,009	110– 8	3,322,079	517	3,322,145
15– 1.7	3,321,787	36– 67	3,321,850	64– 9	3,321,935	83–170	3,322,010	111– 1	3,322,080	565	Re.26,213
3.16	3,321,788	37– 25	3,321,851	29	3,321,936	285	3,322,011	112– 2	3,322,081	576	3,322,146
38	3,321,789	38– 66	3,321,852	65– 40	3,322,522	341	3,322,012	38	3,322,082	595	3,322,147
104	3,321,790		3,321,853	101	3,322,523	387	3,322,013	67	3,322,083	596.14:	3,322,148
182	3,321,799	40– 5	3,321,854	110	3,322,524	468	3,322,014	218	3,322,084	625.12:	3,322,149
229	3,321,791	16	3,321,855	67– 7.1	3,321,937	84– 1.13:	3,322,874	222	3,322,085	625.38:	3,322,150
250.04:	3,321,792	33	3,321,856	55	3,321,938	1.14:	3,322,875	113– 1	3,322,086	625.4 :	3,322,151
302	3,321,793	37	3,321,857	68– 22	3,321,939	1.15:	3,322,876	114– .5	3,322,087	625.41:	3,322,152
337	3,321,794	70	3,321,858	23	3,321,940	1.16:	3,322,877	54	3,322,088	630.19:	3,322,153
510	3,321,795	106.54:	3,321,859	24	3,321,941	400	3,322,015	66.5	3,322,089	138– 30	3,322,154
605	3,321,796	160	3,321,860	70–146	3,321,942	457	3,322,016	125	3,322,090		3,322,155
16– 87.4	3,321,797	332	3,321,861	456	3,321,943	85– 13	3,322,017	235	3,322,091	143	3,322,156
114	3,321,798	43–112	3,321,862	71– 2.3	3,322,525		3,322,018	115– 18	3,322,092	172	3,322,157
190	3,321,800	44– 7	3,322,518	2.5	3,322,526	46	3,322,019	116– 63	3,322,093	139– 1	3,322,158
17– 4	3,321,801	56	3,322,519		3,322,527	86– 19	3,322,020	124.4	3,322,094	96	3,322,159
18– 8	3,321,802	74	3,322,520	29	3,322,528	87– 1	3,322,021	117– 7	3,322,553	182	3,322,160
13	3,321,803	46–221	3,321,863	72– 46	3,321,944	88– 2.3	3,322,022	17	3,322,554	187	3,322,161
	3,321,804	47– 19	3,321,864	51	3,321,945	14	3,322,023	33.3	3,322,555	371	3,322,162
14	3,321,805	55	3,321,865	56	3,321,946		3,322,024	34	3,322,556	383	3,322,163
30	3,321,806		3,321,866	130	3,321,948		3,322,025	36.2	3,322,557	140– 71.5	3,322,164
35	3,321,807	48– 63	3,322,521	148	3,321,949		3,322,026	46	3,322,558	80	3,322,165
19– 65	3,321,808	51– 11	3,321,867	255	3,321,950	24	3,322,027	47	3,322,559	105	3,322,166
66	3,321,809	129	3,321,868	265	3,321,951		3,322,028	51	3,322,560	141–131	3,322,167
107	3,321,810	165	3,321,869	377	3,321,947		3,322,029	62.2	3,322,561	293	3,322,168
23– 2	3,322,491	235	3,321,870	418	3,321,952		3,322,030		3,322,562	143– 6	3,322,169
46	3,322,492	262	3,321,871	73– 15	3,321,953		3,322,031	100	3,322,563	81	3,322,170
106	3,322,493	283	3,321,872	23	3,321,954		3,322,032	102	3,322,564	144–136	3,322,171
143	3,322,494	316	3,321,873	30	3,321,955		3,322,033	106	3,322,565	145– 36	3,322,172
	3,322,495	324	3,321,874	40.5	3,321,956		3,322,034	119.8	3,322,566	146– 47	3,322,173
146	3,322,496	52– 28	3,321,875		3,321,957	27	3,322,035	121	3,322,567	102	3,322,174
152	3,322,497	66	3,321,876	49.5	3,321,958	89– 45	3,322,036	135.5	3,322,568	121	3,322,175
182	3,322,498	144	3,321,877	67.7	3,321,959	90– 11	3,322,037	139.4	3,322,569	148– 6.3	3,322,577
201	3,322,502	211	3,321,878	71.4	3,321,960	91–291	3,322,038	211	3,322,570	9.5	3,322,578
202	3,322,499	232	3,321,879	103	3,321,961	405	3,322,039	212	3,322,571	31.5	Re.26,216
204	3,322,501	235	3,321,880	134	3,321,962	447	3,322,040	232	3,322,572	31.57:	3,322,579
223.5	3,322,503	276	3,321,881	141	3,321,963	93– 35	3,322,041	118– 2	3,322,095	142	3,322,580
230	3,322,504	484	3,321,882		3,321,964	36	3,322,042	105	3,322,096	175	3,322,581
253	3,322,500	502	3,321,883	155	3,321,965	36.01:	3,322,043	227	3,322,097	149– 5	3,322,582
259.1	3,322,505	565	3,321,884	168	3,321,966	39.1	3,322,044	637	3,322,098	19	3,322,583
259.5	3,322,506	646	Re.26,215	178	3,321,967		3,322,045	642	3,322,099	150– 1.7	3,322,176
267	3,322,507	657	3,321,885	179	3,321,968		3,322,046	119– 14.46:	3,322,100	151– 41.76:	3,322,177
277	3,322,508	53– 30	3,321,886	187	3,321,969	94– 4	3,322,047	72.5	3,322,101	156– 82	3,322,584
325	3,322,509	37	3,321,887	211	3,321,970	95– 1.7	3,322,048	96	3,322,102	174	3,322,585
347	3,322,510	186	3,321,888	304	3,321,971	10	3,322,049	123– 8	3,322,103	201	3,322,586
366	3,322,511	393	3,321,889	322.5	3,321,972		3,322,050	90	3,322,104	216	3,322,587
24– 20	3,321,811	55– 32	3,321,890	359	3,321,973		3,322,051	127	3,322,105	244	3,322,588
73	3,321,813	103	3,321,891		3,321,974	63	3,322,052	148	3,322,106	250	3,322,589
84	3,321,814	299	3,321,892	401	3,321,975	89	3,322,053		3,322,107	273	3,322,590
119	3,321,815	56–202	3,321,893	421.5	3,321,976	96– 1.1	3,322,537	124– 8	3,322,108	297	3,322,591
130	3,321,816	295	3,321,894	422	3,321,977		3,322,538	11	3,322,109		3,322,592
158	3,321,812	377	3,321,895	425.4	3,321,978		3,322,539	125– 11	3,322,110	307	3,322,593
230	3,321,817	57– 53	3,321,896	74– 5	3,321,979		3,322,540	126– 21	3,322,111	308	3,322,594
28– 64	3,321,818		3,321,897		3,321,980	33	3,322,541	41	3,322,112	351	3,322,595
72.6	3,321,819	58.76:	3,321,898	55	3,321,981	90	3,322,542	390	3,322,113	363	3,322,596
29– 90	3,321,820	120	3,321,899	84	3,321,982	99	3,322,543	128– 2	3,322,114	364	3,322,597
155.5	3,321,821		3,321,900	100	3,321,983	98– 33	3,322,054		3,322,115	382	3,322,598
155.57:	3,321,822	131	3,321,901	117	3,321,984	39	3,322,055	33	3,322,116	417	3,322,599
156.4	3,321,823	135	3,321,902	325	3,321,985	40	3,322,056		3,322,117	461	3,322,600
156.5	3,321,824	140	3,321,903	368	3,321,986		3,322,057	149	3,322,118	499	3,322,601
182.2	3,322,512	157	3,321,904	388	3,321,987	94	3,322,058	156	3,322,119	571	3,322,602
	3,322,514	58– 50	3,321,905	411	3,321,988	99– 3	3,322,544	159	3,322,120	579	3,322,603
182.7	3,322,513	88	3,321,906	443	3,321,989	148	3,322,545	253	3,322,121	583	3,322,604
191.2	3,322,515	59– 8	3,321,907	471	3,321,990	249	3,322,059	284	3,322,122	158– 7	3,322,178
194	3,322,516	60– 1	3,321,908	472	3,321,991	421	3,322,060	285	3,322,123	99	3,322,179
197.5	3,322,517	6	3,321,909		3,321,992		3,322,061	303	3,322,124	116	3,322,180
203	3,321,825	39.08:	3,321,910	491	3,321,993	101– 45	3,322,062	335.5	3,322,125	159– 4	3,322,181
423	3,321,826	39.35:	3,321,911	519	3,321,994	93	3,322,063	351	3,322,126	160–344	3,322,182
469	3,321,827	39.36:	3,321,912	547	3,321,998		3,322,064	483	3,322,127	161– 5	3,322,609
488	3,321,828	54.5	3,321,914	552	3,321,995	132.5	3,322,065	129– 12	3,322,128	6	3,322,605
495	3,321,829		3,321,915		3,321,996	102– 24	3,322,066	38	3,322,129	67	3,322,606
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56 : 3,320,820

DESIGN PATENTS

6	207,702	6	207,764	17	207,721	34	207,728	39	207,712	39	207,743
	207,707		207,766		207,751		207,729		207,713		207,745
	207,714	9	207,747		207,752		207,730		207,718		207,758
	207,715		207,748		207,760		207,731		207,719	47	207,757
	207,724	13	207,746	20	207,704		207,741		207,722	48	207,723
	207,733		207,754	25	207,698		207,753		207,725	50	207,705
	207,734	17	207,700		207,711	36	207,716		207,727	53	207,738
	207,736		207,701	26	207,699		207,750		207,732	55	207,726
	207,739		207,706		207,765		207,756		207,735		207,762
	207,744		207,708	27	207,697	37	207,737		207,742		207,763
	207,759		207,720	29	207,703						

U.S. DEPARTMENT OF COMMERCE
OFFICIAL GAZETTE of the UNITED STATES PATENT OFFICE
May 30, 1967 Volume 838 Number 5

TRADEMARKS

NOTICES

Trademark Suits

Notices under 15 U.S.C. 1116; Trademark Act of July 5, 1946

Reg. No. 569,070 (SPEIDEL in script), Speidel Corporation, Jewelry, not including watches—namely, bracelets, neck chains, watch chains, key chains, etc., filed Apr. 14, 1967, D.C., S.D.N.Y., Doc. 67/1496, *Textron, Inc.* v. *Spi-Dell Watch & Jewelry Co., Inc. et ano.*

Reg. No. 513,462 (S. KIRK & SON), Samuel Kirk & Son, Incorporated, Flatware and hollow ware composed wholly or in part of precious metal, filed Sept. 16, 1966, D.C. Conn. (New Haven), Doc. 11590, *Samuel Kirk & Son, Inc.* v. *Kirk's Ltd. et al.* Final consent judgment; injunction issued Feb. 28, 1967.

Reg. No. 599,751 (SANTA CLARA), Pratt-Low Preserving Company, Canned fruits and vegetables, filed Mar. 24, 1967, D.C., S.D.N.Y., Doc. 67/1167, *Duffy-Mott Company, Inc.* v. *Fruitcrest Corp.*

Reg. No. 604,932 (FASHION WAVE in script), Helene Curtis Industries, Inc., Cold hair waving solutions, filed Oct. 7, 1965, D.C., S.D.N.Y., Doc. 65/3012, *Sybil Ives, Inc.* v. *Helene Curtis Industries, Inc.* Cause dismissed Feb. 2, 1967.

Reg. No. 612,427 (BROIL-A-FOIL), Metal Foil Products Manufacturing Company, Inc., Metal foil broiler pans, filed Apr. 3, 1967, D.C., S.D.N.Y., Doc. 67/1288, *Metal Foil Products Mfg. Co. et ano.* v. *Reynolds Metals Company et ano.*

Reg. No. 613,277 (CAREER GIRL), Sales Affiliates, Inc., Hair waving lotion and neutralizer, filed Aug. 19, 1965, D.C., C.D. Calif. (Los Angeles), Doc. 65–1260–TC, *Sales Affiliates, Inc.* v. *Career Girl Cosmetics, Inc.* Stipulation for entry of injunction; defendant enjoined; trademark held valid and infringed Jan. 5, 1967.

Reg. No. 626,234 (WOOD WORKING DIGEST AND DESIGN), Hitchcock Publishing Company, Publication issued monthly, filed Mar. 13, 1967, D.C., W.D. Wis. (Madison), Doc. 67–C–22(S), *Hitchcock Publishing Company* v. *Lake Publications, Inc. et al.*

Reg. No. 632,445 (FAST-FOLD in script), Thayer, Inc., Children's play-yards, filed Dec. 27, 1965, D.C., S.D.N.Y., Doc. 65/3919, *Thayer, Inc.* v. *Grow-Rite Corporation et al.* Consent judgment; defendants enjoined Mar. 1, 1966.

Reg. No. 634,514 ("AQUATEX"), Rarolite Chemical Co., Inc., Resinous printing inks and colored water dyes for printing on textiles, filed Dec. 14, 1966, D.C.N.J. (Newark), Doc. 1240–66, *Fusecolor Corporation, formerly known as Rarolite Chemical Co.* v. *Dyetex Corporation.* Consent judgment; injunction issued Mar. 4, 1967.

Reg. No. 635,311 (FRED HARVEY in script), Fred Harvey, Whiskey, filed July 13, 1966, D.C.N.J. (Camden), Doc. 705–66,

CONDITION OF TRADEMARK APPLICATIONS AS OF APRIL 30, 1967

Total number of applications awaiting action [excluding renewals and Sec. 12 (c)]	17,947
Date of oldest new application	Jan. 26, 1966
Date of oldest amended application (filing date)	July 16, 1964

C. M. WENDT, Director, Trademark Examining Operation

TRADEMARK EXAMINING DIVISIONS, EXAMINERS AND TRADEMARK CLASSES UNDER EXAMINATION	Oldest Application: New	Oldest Application: Amended
(I) L. J. BETTENDORF, Classes 2, 4, 5, 8, 11, 12, 13, 14, 15, 16, 17, 19, 20, 21, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 39, 41, 42, 43, 44	1–26–66	2–15–65
(II) F. H. WETHERBEE, Classes 1, 3, 6, 7, 9, 10, 18, 22, 38, 40, 45, 46, 47, 48, 49, 50, 51, 52; Service Marks, Classes 100, 101, 102, 103, 104, 105, 106, 107; Collective Membership Marks, Class 200; Certification Marks, Classes A and B	2–28–66	7–16–64
Renewals (All Classes)	3–28–67	
Sec. 12 (c) Publications (All Classes)	4–5–67	

Applications filed during the month of April 1967—2,349

Registrations Issued ---------- 277—No. 829,318 to No. 829,594
Renewals Issued ---------- 90

The TRADEMARK SECTION of the OFFICIAL GAZETTE, issued weekly, is mailed under the direction of the Superintendent of Documents, Government Printing Office, Washington, D.C., 20402 to whom all subscriptions should be made payable and all communications addressed; subscription price, $12.00 per annum, foreign mailing $4.00 additional; single copies, 25 cents each.

PRINTED COPIES OF TRADEMARK REGISTRATIONS are furnished by the Patent Office for 20 cents each. Address orders to the Commissioner of Patents, Washington, D.C., 20231.

Fred Harvey v. *The Harvey House.* Consent judgment; injunction issued (notice Apr. 19, 1967).

Reg. No. 643,146 (ANYSTREAM), Speakman Company, Shower heads, filed Sept. 30, 1966, D.C., E.D.N.Y. (Brooklyn), Doc. 66C-933, *Speakman Co.* v. *Rainbow Plumbing & Heating.* Consent judgment for injunction Jan. 9, 1967.

Reg. No. 643,627 (SEBASTIAN in script), Robert Slayton, Ladies' and men's sportswear—namely, ladies' sweaters, jackets, coats, pants, etc., filed May 11, 1964, D.C., S.D.N.Y., Doc. 64/1455, *Robert Slayton et al.* v. *House of Sebastian.* Consent judgment, defendant enjoined Feb. 6, 1967.

Reg. No. 643,740 (MATCHBOX SERIES AND DESIGN), J. Kohnstam, Ltd., Toy model vehicles and toy model machines, filed Feb. 28, 1966, D.C., S.D.N.Y., Doc. 66/570, *Mattel, Inc.* v. *Fred Bronner Corp. et ano.* Stipulation and order of discontinuance Mar. 8, 1967.

PROPOSED INTERNATIONAL NON-PROPRIETARY NAMES (PROP. INN) LIST 17[1]

In accordance with article 3 of the Procedure for the Selection of Recommended International Non-Proprietary Names for Pharmaceutical Preparations,[2] notice is hereby given that the following names are under consideration by the World Health Organization as Proposed International Non-Proprietary Names.

Comments on, or formal objections to the proposed names may be forwarded by any person to the Pharmaceuticals Unit of the World Health Organization within four months of the date of their publication in *WHO Chronicle.*

The inclusion of a name in the lists of proposed international non-proprietary names does not imply any recommendation for the use of the preparation in medicine or pharmacy.

PROPOSED INTERNATIONAL NON-PROPRIETARY NAME (*Latin, English*)	CHEMICAL NAME OR DESCRIPTION AND MOLECULAR FORMULA
acefurtiaminum acefurtiamine	*S*-ester of thio-2-furioc acid with *N*[(4-amino-2-methyl-5-pyrimidinyl)methyl]-*N*-(4-hydroxy-2-mercapto-1-methyl-1-butenyl)formamide *O*-glycolate acetate $C_{21}H_{24}N_4O_7S$
acetorphinum acetorphine	tetrahydro-7*a*-(1-hydroxy-1-methylbutyl)-6,14-*endo*-ethenooripavine 3-acetate $C_{27}H_{37}NO_5$
acevaltratum acevaltrate	3a,4-dihydro-3,4-dihydroxyspiro[benzofuran-2(3*H*)-2′-oxirane]-6-methanol 6-acetate 3-(or 4)-isovalerate 4(or 3)-(3-hydroxy-3-methylbutyrate, acetate) $C_{24}H_{32}O_{10}$
acidum clamidoxicum clamidoxic acid	3,4-dichloro-*a*-phenoxyhippuric acid $C_{15}H_{11}Cl_2NO_4$
acidum meclofenamicum meclofenamic acid	*N*-(2,6-dichloro-*m*-tolyl)anthranilic acid $C_{14}H_{11}Cl_2NO_2$
acidum niflumicum niflumic acid	2-[3-(trifluoromethyl)anilino]nicotinic acid $C_{13}H_9F_3N_2O_2$
acidum nixylicum nixylic acid	2-(2,3-xylidino)nicotinic acid $C_{14}H_{14}N_2O_2$
alcuronii chloridum alcuronium chloride	*N,N′*-diallylnortoxiferinium dichloride $C_{44}H_{50}Cl_2N_4O_2$
amantocillinum amantocillin	6-(3-amino-1-adamantanecarboxamido)-3,3-dimethyl-7-oxo-4-thia-1-azabicyclo[3.2.0]heptane-2-carboxylic acid $C_{19}H_{27}N_3O_4S$
amicibonum amicibone	1-[2-(hexahydro-1*H*-azepin-1-yl)ethyl]-2-oxocyclohexanecarboxylate $C_{15}H_{25}NO_3$
amiquinsinum amiquinsin	4-amino-6,7-dimethoxyquinoline $C_{11}H_{12}N_2O_2$
antramycinum antramycin	5,10,11,11a-tetrahydro-9,11-dihydroxy-8-methyl-5-oxo-1*H*-pyrrolo[2,1-*c*][1,4]benzodiazepine-2-acrylamide $C_{18}H_{17}N_3O_4$
antrydonii chloridum antridonium chloride	8-[3-(*m*-amidinophenyl)-2-triazeno]-3-amino-5-ethyl-6-phenylphenanthridinium chloride $C_{28}H_{25}ClN_7$
apicyclinum apicycline	*a*-[4-(dimethylamino)-1,4,4a,5,5a,6,11,12a-octahydro-3,6,10,12,12a-pentahydroxy-6-methyl-1,11-dioxo-2-naphthacenecarboxamido]-4-(2-hydroxyethyl)-1-piperazineacetic acid $C_{30}H_{36}N_4O_{13}$
beclometasoni dipropionas beclometasone dipropionate	9-chloro-11*β*,17,21-trihydroxy-16*β*-methylpregna-1,4-dione-3,20-dione 17,21-dipropionate $C_{28}H_{37}ClO_7$
beclotiaminum beclotiamine	3-[(4-amino-2-methyl-5-pyrimidinyl)methyl]-5-(2-chloroethyl)-4-methylthiazolium chloride $C_{12}H_{16}Cl_2N_4S$
broquinaldolum broquinaldol	5,7-dibromo-2-methyl-8-quinolinol $C_{10}H_7Br_2NO$
bucolomum bucolome	5-butyl-1-cyclohexylbarbituric acid $C_{14}H_{22}N_2O_3$
buforminum buformin	1-butylbiguanide $C_6H_{15}N_5$
bupivacainum bupivacaine	1-butyl-2′,6′-pipecoloxylidide $C_{18}H_{28}N_2O$
butetamatum butetamate	2-(diethylamino)ethyl 2-phenylbutyrate $C_{18}H_{29}NO_2$
carbocloralum carbocloral	ethyl (2,2,2-trichloro-1-hydroxyethyl)carbamate $C_5H_8Cl_3NO_3$
cetotiaminum cetotiamine	the *S*-ester of *O*-ethyl thiocarbonate with *N*-[4-amino-2-methyl-5-pyrimidinyl)methyl]-*N*-(4-hydroxy-2-mercapto-1-methyl-1-butenyl)formamide ethyl carbonate $C_{15}H_{23}N_4O_4S$
cidoxepinum cidoxepin	*N-N*-dimethyldibenz[b,e]oxepin-*cis*-Δ11(6*H*),γ-propylamine $C_{19}H_{21}NO$
cimemoxinum cimemoxin	(cyclohexylmethyl)hydrazine $C_7H_{16}N_2$
cinanserinum cinanserin	2′-[[3-(dimethylamino)propyl]thio]cinnamanilide $C_{20}H_{24}N_2OS$
cinnopentazonum cinnopentazone	2-pentyl-6-phenyl-1*H*-pyrazolo[1,2-*a*]cinnoline-1,3(2*H*)-dione $C_{23}H_{22}N_2O_2$
cinnopropazonum cinnopropazone	5-(dimethylamino)-9-methyl-2-propyl-1*H*-pyrazolo[1,2-*a*][1,2,4]benzotriazine-1,3(2*H*)-dione $C_{16}H_{20}N_4O_2$
citicolinum citicoline	choline cytidine 5′-pyrophosphate ester $C_{14}H_{26}N_4O_{11}P_2$
clinolamidum clinolamide	*N*-cyclohexyllinoleamide $C_{24}H_{43}NO$
clofaziminum clofazimine	3-(*p*-chloroanilino)-10-(*p*-chlorophenyl)-2,10-dihydro-2-(isopropylimino)phenazine $C_{27}H_{22}Cl_2N_4$
clofencicianum clofencician	2-[[1-(*p*-chlorophenyl)cyclohexyl]oxy]triethylamine hydrochloride $C_{18}H_{29}ClNO$

[1] Other lists of proposed international non-proprietary names can be found in *Chron. Wld Hlth Org.*, 1953, *7*, 299; 1954, *8*, 216, 313; 1956, *10*, 28; 1957, *11*, 231; 1958, *12*, 102; 1959, *13*, 105; *WHO Chronicle*, 1959, *13*, 152; 1960, *14*, 168, 244; 1961, *15*, 314; 1962, *16*, 385; 1963, *17*, 389; 1964, *18*, 433; 1965, *19*, 446; 1966, *20*, 216

Lists of recommended international non-proprietary names were published in *Chron. Wld Hlth Org.*, 1955, *9*, 185; 1959, *13*, 106; *WHO Chronicle*, 1959, *13*, 463; 1962, *16*, 101; 1965, *19*, 165, 206, 249; 1966, *20*, 421.

[2] *Off Rec. Wld Hlth Org.*, *60*, 3 and 55 (resolution EB15.R7).

PROPOSED INTERNATIONAL NON-PROPRIETARY NAME (*Latin, English*)	CHEMICAL NAME OR DESCRIPTION AND MOLECULAR FORMULA
clofezonum clofezone	equimolar combination of clofexamide and phenylbutazone $C_{14}H_{21}ClN_2O_2.C_{19}H_{20}N_2O_2.H_2O$
clomipraminum clomipramine	3-chloro-5-[3-(dimethylamino)propyl]-10,11-dihydro-5*H*-dibenz[*b*,*f*]azepine $C_{19}H_{23}ClN_2$
cloperidonum cloperidone	3-[3-[4-(*m*-chlorophenyl)-1-piperazinyl]propyl]-2,4(1*H*,3*H*)-quinazolinedione $C_{21}H_{23}ClN_4O_2$
cloquinozinum cloquinozine	3-(*p*-chlorobenzyl)octahydroquinolizine $C_{16}H_{22}ClN$
clormecainum clormecaine	2-(dimethylamino)ethyl 3-amino-4-chlorobenzoate ester $C_{11}H_{15}ClN_2O_2$
cyclazodonum cyclazodone	2-(cyclopropylamino)-5-phenyl-2-oxazolin-4-one $C_{12}H_{12}N_2O_2$
cyclofenilum cyclofenil	4,4′-(cyclohexylidenemethylene)diphenol diacetate ester $C_{23}H_{24}O_4$
cycotiaminum cycotiamine	*N*-[1-(2-oxo-1,3-oxathian-4-ylidene)ethyl]-*N*-[(4-amino-2-methyl-5-pyrimidinyl)methyl]formamide $C_{12}H_{16}N_4O_2S$
cyheptamidum cyheptamide	10,11-dihydro-5*H*-dibenzo[*a*,*d*]cycloheptene-5-carboxamide $C_{16}H_{15}NO$
cyprenorphinum cyprenorphine	*N*-(cyclopropylmethyl)tetrahydro-7*a*-(1-hydroxy-1-methylethyl)-6,14-*endo*-ethenonororipavine $C_{28}H_{35}NO_4$
cyprodenatum cyprodenate	2-(dimethylamino)ethyl cyclohexanepropionate $C_{13}H_{25}NO_2$
dantrolenum dantrolene	1-[[5-(*p*-nitrophenyl)furfurylidene]amino]hydantoin $C_{14}H_{10}N_4O_5$
demelverinum demelverine	*N*-methyldiphenethylamine $C_{17}H_{21}N$
descinolonum descinolone	9-fluoro-11β,16α,17-trihydroxypregna-1,4-diene-3,20-dione $C_{21}H_{27}FO_5$
dextriferronum dextriferron	a colloidal solution of ferric hydroxide in complex with partially hydrolysed dextrin
dibupyronum dibupyrone	sodium(antipyrinylisobutylamino)methanesulfonate $C_{16}H_{23}N_3NaO_4S$
dicarfenum dicarfen	2-(diethylamino)ethyl diphenylcarbamate ester $C_{19}H_{24}N_2O_2$
didrovaltratum didrovaltrate	3a,4,5,6-tetrahydro-3,4-dihydroxyspiro[benzofuran-2(3*H*),2′-oxirane]-6-methanol 6-acetate 3,4-diisovalerate $C_{28}H_{42}O_8$
difemerinum difemerine	2-(dimethylamino)-2-methylpropyl benzilate ester $C_{20}H_{25}NO_3$
dikalii clorazepas dipotassium clorazepate clorazepate dipotassique	[(3-carboxy-7-chloro-2,3-dihydro-2-hydroxy-5-phenyl-1*H*-1,4-benzodiazepin-2-yl)oxy]potassium $C_{16}H_{11}ClK_2N_2O_4$
dimetotiazinum dimetotiazine	10-[2-(dimethylamino)propyl]-*N*,*N*-dimethylphenothiazine-2-sulfonamide $C_{19}H_{25}N_3O_2S_2$
dimetridazolum dimitridazole	1,2-dimethyl-5-nitroimidazole $C_5H_7N_3O_2$
dinsedum dinsed	*N*,*N*′-ethylenebis[3-nitrobenzenesulfonamide] $C_{14}H_{14}N_4O_8S_2$
drotaverinum drotaverine	1-(3,4-diethoxybenzylidene)-6,7-diethoxy-1,2,3,4-tetrahydroisoquinoline $C_{24}H_{31}NO_4$
etabenzaronum etabenzarone	*p*-[2-(diethylamino)ethoxy]phenyl 2-ethyl-3-benzofuranyl ketone $C_{33}H_{37}NO_3$
etaqualonum etaqualone	3-(*o*-ethylphenyl)-2-methyl-4(3*H*)-quinazolinone $C_{17}H_{16}N_2O$
ethyneronum ethynerone	21-chloro-17-hydroxy-19-nor-17α-pregna-4,9-dien-20-yn-3-one $C_{20}H_{23}ClO_2$
etorphinum etorphine	tetrahydro-7α-(1-hydroxy-1-methylbutyl)-6,14-*endo*-ethenooripavine $C_{25}H_{33}NO_4$
fenpipramidum fenpipramide	α,α-diphenyl-1-piperidinebutyramide $C_{21}H_{26}N_2O$
fenpipranum fenpiprane	1-(3,3-diphenylpropyl)piperidine $C_{20}H_{25}N$
fenproporexum fenproporex	(±)-3-[(α-methylphenethyl)amino]propionitrile $C_{13}H_{18}N_2$
flavaminum flavamine	6-[(diethylamino)methyl]-3-methylflavone $C_{21}H_{23}NO_2$
flucloxacillinum flucloxacillin	6-[3-(2-chloro-6-fluorophenyl)-5-methyl-4-isoxazolecarboxamido]-3,3-dimethyl-7-oxo-4-thia-1-azabicyclo[3.2.0]heptane-2-carboxylic acid $C_{19}H_{17}ClFN_3O_5S$
flumetramidum flumetramide	6-(α,α,α-trifluoro-*p*-tolyl)-3-morpholinone $C_{11}H_{10}F_3NO_2$
ftalofynum ftalofyne	1-ethyl-1-methyl-2-propynyl phthalate $C_{14}H_{14}O_4$
furaltadonum furaltodone	(±)-5-(morpholinomethyl)-3-[(5-nitrofurfurylidene)amino]-2-oxazolidinone $C_{13}H_{18}N_4O_6$
fursultiaminum fursultiamine	*N*-[(4-amino-2-methyl-5-pyrimidinyl)methyl]-*N*-[4-hydroxy-1-methyl-2-[(tetrahydrofurfuryl)dithio]-1-butenyl]formamide $C_{17}H_{28}N_4O_3S_2$
gamfexinum gamfexine	*N*,*N*-dimethyl-γ-phenylcyclohexanepropylamine $C_{17}H_{27}N$
glyclopyramidum glyclopyramide	1-[(*p*-chlorophenyl)sulfonyl]-3-(1-pyrrolidinyl)urea $C_{11}H_{14}ClN_3O_3S$
haloproginum haloprogin	3-iodo-2-propynyl 2,4,5-trichlorophenyl ether $C_9H_4Cl_3IO$
hexacypronum hexacyprone	1-benzyl-2-oxocyclohexanepropionic acid $C_{16}H_{20}O_3$
hycanthonum hycanthone	1-[[2-diethylamino)ethyl]amino1-4-(hydroxymethyl)thioxanthen-9-one $C_{20}H_{24}N_2O_2S$
idoxuridinum idoxuridine	2′-deoxy-5-iodouridine $C_9H_{11}IN_2O_5$
indoxolum indoxole	2,3-bis(*p*-methoxyphenyl)indole $C_{24}H_{21}NO_2$

PROPOSED INTERNATIONAL NON-PROPRIETARY NAME (*Latin, English*)	CHEMICAL NAME OR DESCRIPTION AND MOLECULAR FORMULA
kalii nitrazepas potassium nitrazepate	potassium 2,3-dihydro-7-nitro-2-oxo-5-phenyl-1*H*-1,4-benzodiazepine-3-carboxylate $C_{15}H_{10}KN_3O_5$
ketimipraminum ketimipramine	5-[3-(dimethylamino)propyl]-5,11-dihydro-10*H*-dibenz[*b*,*f*]azepin-10-one $C_{19}H_{22}N_2O$
leptaclinum leptacline	1-(cyclohexylmethyl)piperidine $C_{12}H_{23}N$
leucinocainum leucinocaine	2-(diethylamino)-4-methyl-1-pentanol *p*-aminobenzoate (ester) $C_{17}H_{28}N_2O_2$
levofuraltadonum levofuraltadone	(−)5-(morpholinomethyl)-3-[(5-nitrofurfurylidene)amino]-2-oxazolidinona $C_{13}H_{18}N_4O_6$
meclastinum meclastine	(+)-2-[2-[(*p*-chloro-α-methyl-α-phenylbenzyl)oxy]ethyl]-1-methylpyrrolidine $C_{21}H_{26}ClNO$
medazomidum medazomide	1,4,5,6-tetrahydro-1-methyl-6-oxo-3-pyridazinecarboxamide $C_6H_9N_3O_2$
menbutonum menbutone	3-[4-methoxy-1-naphthoyl]propionic acid $C_{15}H_{14}O_4$
metomidatum metomidate	methyl 1-(α-methylbenzyl)imidazole-5-carboxylate $C_{13}H_{14}N_2O_2$
metopimazinum metopimazine	1-[3-[2-(methylsulfonyl)phenothiazin-10-yl]propyl]isonipecotamide $C_{24}H_{27}N_3O_3S_2$
metoquizinum metoquizine	3,5-dimethyl-*N*-(4,6,6a,7,8,9,10,10a-octahydro-4,7-dimethylindolo[4,3-*fg*]quinolin-9-yl)pyrazole-1-carboxamide $C_{20}H_{27}N_5O$
metribolonum metribolone	17β-hydroxy-17-methylestra-4,9,11-trien-3-one $C_{19}H_{24}O_2$
mikamycinum mikamycin	an antibiotic obtained from cultures of *Streptomyces mitakaensis*, or the same substance obtained by any other means.
mitogillinum mitogillin	an antibiotic obtained from cultures of *Aspergillus restrictus*, or the same substance obtained by any other means.
mitopodozidum mitopodozide	podophyllic acid 2-ethylhydrazide $C_{24}H_{30}N_2O_8$
mitotenaminum mitotenamine	5-bromo-*N*-(2-chloroethyl)-*N*-ethylbenzo[*b*]thiophene-3-methylamine $C_{13}H_{15}BrClNS$
myfadolum myfadol	2-[3-(*m*-hydroxyphenyl)-2,3-dimethylpiperidino]acetophenone $C_{23}H_{29}NO_2$
natrii aurotiosulfas sodium aurotiosulfate	sodium dithiosulfatoaurate(I) $AuNa_3O_6S_4$
natrii glucaspaldras sodium glucaspaldrate	sodium bis(acetate)tetrakis[gluconato(2-)]bis[salicylato(2-)]dialuminate dihydrate $C_{36}H_{54}Al_2Na_2O_{32}.2H_2O$
natrii picosulfas sodium picosulfate	4,4′-(2-pyridylmethylene)diphenol bis(hydrogen sulfate) disodium salt $C_{18}H_{13}NNa_2O_8S_2$
natrii stibocaptas sodium stibocaptate	hexasodium salt of the *S*,*S*-diester of the cyclic thioantimonate(III) of 2,3-dimercaptosuccinic acid $C_{12}H_6Na_6O_{12}S_6Sb_2$
nifuraldezonum nifuraldezone	5-nitro-2-furaldehyde semioxamazone $C_7H_6N_4O_5$
nifuratel nifuratel	5-[(methylthio)methyl]-3-[(5-nitrofurfurylidene)amino]-2-oxazolidinone $C_{10}H_{11}N_3O_6S$
nifurvidinum nifurvidine	2-methyl-6-[2-(5-nitro-2-furyl)vinyl]-4-pyrimidinol $C_{11}H_9N_3O_4$
niridazolum niridazole	1-(5-nitro-2-thiazolyl)-2-imidazolidinone $C_6H_6N_4O_3S$
nitarsonum nitarsone	*p*-nitrobenzenearsonic acid $C_6H_6AsNO_5$
nonoxynolum nonoxynol	poly(ethylene glycol)*p*-nonylphenyl ether
norbudrinum norbudrine	α-[(cyclobutylamino)methyl]-3,4-dihydroxybenzyl alcohol $C_{12}H_{17}NO_3$
norgestrelum norgestrel	13-ethyl-17-hydroxy-18,19-dinor-17α-pregn-4-en-20-yn-3-one $C_{21}H_{28}O_2$
orestratum orestrate	17β(cyclohexen-1-yloxy)-estra-1,3,5(10)-trien-3-ol propionate $C_{27}H_{36}O_3$
oxafiumazinum oxafiumazine	10-3-[4-(2-*m*-dioxanylethyl)-1-piperazinyl]propyl-2-(trifluoromethyl)phenothiazine $C_{26}H_{32}F_3N_3O_2S$
oxyridazinum oxyridazine	2-methoxy-10-[2-(1-methyl-2-piperidyl)ethyl]phenothiazine $C_{21}H_{26}N_2OS$
pipamperonum pipamperone	1′-[3-(*p*-fluorobenzoyl)propyl][1,4′-bipiperidine]-4′-carboxamide $C_{21}H_{30}FN_3O_2$
poloxalenum poloxalene	liquid nonionic surfactant polymer of the polyoxypropylene polyoxyethylene type, having a molecular weight of approximately 3000, of which approximately 67 percent is polyoxypropylene
primaperonum primaperone	4′-fluoro-4-piperidinobutyrophenone $C_{21}H_{26}FNO$
proclonolum proclonol	bis(*p*-chlorophenyl)cyclopropylmethanol $C_{16}H_{14}Cl_2O$
proquinolatum proquinolate	methyl 4-hydroxy-6,7-diisopropoxy-3-quinolinecarboxylate $C_{17}H_{23}NO_5$
proscillaridinum proscillaridin	14-hydroxy-3β-(rhamnosyloxy)bufa-4,20,22-trienolide $C_{36}H_{52}O_8$
pyrantelum pyrantel	1,4,5,6-tetrahydro-1-methyl-2[*trans*-2-(2-thienyl)vinyl]pyrimidine $C_{11}H_{14}N_2S$
pyrrolnitrinum pyrrolnitrin	3-chloro-4-(3-chloro-2-nitrophenyl)pyrrole $C_{10}H_6Cl_2N_2O_2$
quinaldinum coeruleum quinaldine blue	1-ethyl-2-[3-(1-ethyl-2(1*H*)-quinolylidene)propenyl]quinolinium chloride $C_{25}H_{25}ClN_2$
quinazosinum quinazosin	2-(4-allyl-1-piperazinyl)-4-amino-6,7-dimethoxyquinazoline dihydrochloride $C_{17}H_{23}N_5O_2$
quinprenalinum quinprenaline	8-hydroxy-α-[(isopropylamino)methyl]-5-quinolinemethanol $C_{14}H_{18}N_2O_2$
quipazinum quipazine	2-(1-piperazinyl)quinoline $C_{13}H_{15}N_3$

PROPOSED INTERNATIONAL NON-PROPRIETARY NAME (*Latin, English*)	CHEMICAL NAME OR DESCRIPTION AND MOLECULAR FORMULA
rifampicinum rifampicin	3-{[(4-methyl-1-piperazinyl(imino]methyl}rifomycin SV $C_{43}H_{58}N_4O_{12}$
rimantadinum rimantadine	α-methyl-1-adamantanemethylamine $C_{12}H_{21}N$
roletamidum roletamide	3',4',5'-trimethoxy-3-(3-pyrrolin-1-yl)acrylophenone $C_{16}H_{19}NO_4$
roxarsonum roxarsone	4-hydroxy-3-nitrobenzenearsonic acid $C_6H_6AsNO_6$
roxoperonum roxoperone	8-[3-(*p*-fluorobenzoyl)propyl]-2-methyl-2,8-diazaspiro[4.5]-1,3-dione $C_{18}H_{23}FN_2O_3$
simetridum simetride	1,4-bis[(2-methoxy-4-propylphenoxy)acetyl]piperazine $C_{36}H_{54}N_2O_8$
spiperonum spiperone	8-[3-(*p*-fluorobenzoyl)propyl]-1-phenyl-1,3,8-triazaspiro[4.5]decan-4-one $C_{23}H_{26}FN_3O_2$
stenbolonum stenbolone	17β-hydroxy-2-methyl-5α-androst-1-en-3-one $C_{20}H_{30}O_2$
sulfabenzum sulfabenz	sulfanilanilide $C_{12}H_{12}N_2O_2S$
sulfaclomidum sulfaclomide	*N*¹-(5-chloro-2,6-dimethyl-4-pyrimidinyl)sulfanilamide $C_{12}H_{13}ClN_4O_2S$
talbutalum talbutal	5-allyl-5-*sec*-butylbarbituric acid $C_{11}H_{16}O_3N_2$
teroxalenum teroxalene	1-(3-chloro-*p*-tolyl)-4-[6-(*p*-*tert*-pentylphenoxy)hexyl]piperazine $C_{28}H_{41}ClN_2O$
tetrazepamum tetrazepam	7-chloro-5-(cyclohexen-1-yl)-1,3-dihydro-1-methyl-2*H*-1,4-benzodiazepin-2-one $C_{16}H_{17}ClN_2O$
tetroquinonum tetroquinone	tetrahydroxy-*p*-benzoquinone $C_6H_4O_6$
tiazesimum tiazesim	5-[2-(dimethylamino)ethyl]-2,3-dihydro-2-phenyl-1,5-benzothiazepin-4(5*H*)-one $C_{19}H_{22}N_2OS$
toloconii methylsulfas toloconium methylsulfate	trimethyl(1-*p*-tolyldodecyl)ammonium methyl sulfate $C_{20}H_{35}NO_4S$
toquizinum toquizine	N-(4-ethyl-4,6,6a,7,8,9,10,10a-octahydro-7-methylindolo[4,3-*fg*]quinolin-9-yl)-3,5-dimethylpyrazole-1-carboxamide $C_{20}H_{28}N_4O$
trimoxaminum trimoxamine	α-allyl-3,4,5-trimethoxy-*N*-methylphenethylamine $C_{15}H_{23}NO_3$
troxerutinum troxerutin	3',4',7-tris(hydroxyethyl)rutin $C_{33}H_{42}O_{19}$
valtratum valtrate	3a,4-dihydro-3,4-dihydroxyspiro[benzofuran-2(3*H*),2'-oxirano]-6-methanol 6-acetate 3,4-diisovalerate $C_{25}H_{36}O_8$
xylamidini tosulas xylamidine tosylate	*N*-[2-(3-methoxyphenoxy)propyl]-2-*m*-tolylacetamidine p-toluenesulfonate $C_{18}H_{24}N_2O_2.C_7H_8O_3S$
zinci pyrithionum zinc pyrithione	bis(1-hydroxy-2(1*H*)-pyridinethionato)zinc $C_{10}H_8N_2O_2S_2Zn$
zolertinum zolertine	1-phenyl-4-(2-tetrazol-5-ylethyl)piperazine $C_{13}H_{18}N_6$

MARKS PUBLISHED FOR OPPOSITION

SECTION 1

The following marks are published in compliance with section 12(a) of the Trademark Act of 1946. Application for the registration of these marks in more than one class has been filed as provided in section 30 of said act as amended by Public Law 772, 87th Congress, approved Oct. 9, 1962, 76 Stat. 769. Opposition under section 13 may be filed within thirty days of this publication. See Rules 2.101 to 2.105.

A separate fee of twenty-five dollars for each class opposed must accompany the opposition.

[NOTE: For publication of marks presented in applications for registration in one class, see section 2.]

SN 226,701. Lear Siegler, Inc., Santa Monica, Calif. Filed Aug. 30, 1965.

LEAR SIEGLER, INC. / LSi

Class 21—Electrical Apparatus, Machines, and Supplies

For Transducers; Scanners; Motors; Generators; Regulators; Amplifiers; Radio Communication Systems and Components; Intercom Systems and Components; Telephones and Telephone Components; Closed Circuit Ground and Airborne Video Systems; Paging, Alarm, and Public Address Systems and Equipment; Radio Telescopes and Antennas; Electrical and Electro-Mechanical Actuators for Use in Marine, Land, and Aerospace Vehicles; Electrical Converters; Micro-Circuit Modules; and Television Sets and Apparatus.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

For Manual and Mechanical Actuators for Use in Marine, Land, and Aerospace Vehicles; and Material Handling Equipment—Namely, Vacuum Gripping Equipment and Hydraulic Hoist, Tilt, and Turn Equipment.

Class 26—Measuring and Scientific Appliances

For Artificial Horizon Indicating Apparatus for Use in Marine, Land, and Aerospace Vehicles; Tracking Systems; Computers; Data Acquisition, Reduction, and Processing Systems for Use in Marine, Land, and Aerospace Vehicles; Stabilization, Guidance, Rate and Dynamic Controls for Marine and Airborne Vehicles; Lasers; Masers; Sonar; Radar; Cameras; Telemetering Apparatus; Electronic and Instrumentation Test Equipment—Namely, Telephone Test Equipment and Test Equipment for Gyroscopic Equipment; Electrical and Optical Analyzers; Optical Lenses; and Reference Instruments for Aircraft, Missiles, Fire Control and Surveying—Namely, Gyroscopes, Turn and Bank Indicators, Automatic Pilots, Aircraft Instruments, and Attitude and Heading Reference Systems.

Class 34—Heating, Lighting, and Ventilating Apparatus

For Heating and Air Conditioning Equipment—Namely, Room Heaters, Wall Furnaces, Baseboard Heaters, Infra-Red Heaters, Space Heaters, Central Heaters, Central Air Conditioning Units and Heat Pumps.

First use at least as early as 1962.

Owner of Reg. No. 609,296.

Class 100—Miscellaneous

For Designing of Chemical, Petrochemical, and Fertilizer Plants and Installations.

Class 101—Advertising and Business

For Supervising the Construction and Installation, and Initial Operation and Maintenance of Chemical, Petrochemical, and Fertilizer Plants and Installations for Others.

Class 103—Construction and Repair

For Constructing, Manufacturing, Installing and Maintenance of Chemical, Petrochemical, and Fertilizer Plants and Installations for Others.

Class 107—Education and Entertainment

For Preparing and Furnishing Instructions for, and Training Employees of Others in the Operation and Maintenance of Chemical, Petrochemical, and Fertilizer Plants.

First use at least as early as September 1963.

SN 250,258. Enterprise Paint Manufacturing Company, Chicago, Ill. Filed July 14, 1966.

PARIS

Class 16—Protective and Decorative Coatings

For Interior and Exterior Paints, and Paint and Varnish Thinners and Removers.

Class 52—Detergents and Soaps

For Paint Brush Cleaner.

First use November 1961.
Subj. to Intf. with SN 248,398.

SN 253,770. Merck & Co. Inc., Rahway, N.J. Filed Sept. 2, 1966.

TOP FORM

Class 18—Medicines and Pharmaceutical Preparations

For Wormer, Vitamin and Mineral Preparation, Hoof Dressing, Liniment and Antiseptic Ointment, All for Horses.

Class 52—Detergents and Soaps

For Antiseptic Shampoo and Coat Conditioner for Horses.
First use Aug. 1, 1966.

SN 263,865. Solofabriken A/S, Copenhagen, Denmark. Filed Feb. 3, 1967.

DRONNINGHOLM

"Dronningholm" is a Danish word meaning "the home or castle of a queen." Owner of U.S. Reg. No. 811,433.

Class 45—Soft Drinks and Carbonated Waters

For Fruit Flavoured Soft Drink Concentrates.
First use May 11, 1966; in commerce May 11, 1966.

Class 46—Foods and Ingredients of Foods

For Fruit Sauces and Marmalade.
First use Apr. 22, 1966; in commerce Apr. 22, 1966.

SECTION 2

The following marks are published in compliance with section 12(a) of the Trademark Act of 1946. Opposition under section 13 may be filed within thirty days of publication. See Rules 2.101 to 2.105.
A fee of twenty-five dollars must accompany the opposition.
[NOTE: For publication of marks presented in a combined application for registration in more than one class, see section 1.]

Class 1—Raw or Partly Prepared Materials

SN 244,409. Gulf Oil Corporation, Pittsburgh, Pa. Filed Apr. 27, 1966.

OPTI-THENE

For Plastic Film.
First use Mar. 21, 1966.

SN 250,544. H. W. Walcott & Co., Inc., San Mateo, Calif. Filed July 18, 1966.

COLUMBIA "67"

For Alfalfa Seed.
First use on or about Apr. 13, 1966.

SN 253,112. Armour and Company, Chicago, Ill. Filed Aug. 25, 1966.

GLADIATOR

For Leather.
First use on or prior to May 27, 1966.

SN 253,652. Johns-Manville Corporation, New York, N.Y. Filed Sept. 1, 1966.

VITRO-STRAND

For Short Fiber Glass Strands, for Reinforcement of Plastics.
First use Feb. 25, 1966.

SN 256,062. Burton-Dixie Corporation, Chicago, Ill. Filed Oct. 10, 1966.

RESITON

For Resinated Cotton Fibers Used as Upholstery Filling.
First use Sept. 18, 1966.

SN 256,063. Burton-Dixie Corporation, Chicago, Ill. Filed Oct. 10, 1966.

RESODEL

For Resinated Polyester Fibers Used as Upholstery Filling.
First use Sept. 18, 1966.

SN 266,624. Kroy Tanning Company, Incorporated, Salem, Mass. Filed Mar. 14, 1967.

Miracle Suede

No claim is made to the exclusive right to the word "Suede" apart from the mark as shown.
For Soft, Loose Fibered Suede Leather for Use in the Manufacture of Men's and Women's Outer Coats and Jackets.
First use at least as early as Dec. 31, 1955.

Class 2—Receptades

SN 225,010. Haskon, Inc., Long Island City, N.Y., assignee of Crystal Preforming and Packaging, Inc., Warsaw, Ind. Filed Aug. 5, 1965.

CRYSTAL-PAK

For Blow-Molded Plastic Bottles or Jugs Having Pouring Spouts and Handle Means on the Upper Portions Thereof.
First use Apr. 28, 1965.
Subj. to Intf. with SN 232,338.

SN 225,875. Lerner Manufacturing, Inc., Melville, N.Y. Filed Aug. 17, 1965.

THE HAMILTON LINE

No claim is made to the word "The" apart from the mark as shown.
For Utility Storage Containers Made of Plastic.
First use July 24, 1965.

SN 232,317. Brown Company, New York, N.Y., assignee of KVP Sutherland Paper Company, Kalamazoo, Mich. Filed Nov. 8, 1965.



The word "Brand" is disclaimed apart from the mark as shown.
For Receptacles—Namely, Cartons, Sheets of Paperboard Formed To Enable Them To Be Set Up Into Trays for Packaging of Food and Trays for Packaging of Food.
First use Mar. 4, 1965.

SN 235,002. Brown Company, New York, N.Y., assignee of KVP Sutherland Paper Company, Kalamazoo, Mich. Filed Dec. 21, 1965.

①BRAND

The word "Brand" is disclaimed apart from the mark as shown.
For Receptacles—Namely, Cartons, Sheets of Paperboard Formed for Ready Erection Into Trays for Packaging of Food and Trays for Packaging of Food.
First use Mar. 4, 1965.

SN 240,530. Olinkraft, Inc., West Monroe, La., assignee of Olin Mathieson Chemical Corporation. New York, N.Y. Filed Mar. 9, 1966.

DUBL SHUR

For Paper Bags.
First use July 2, 1965.

SN 244,396. Colgate-Palmolive Company, New York, N.Y. Filed Apr. 27, 1966.

DOUBLE-BOILERS

For Bags Made of Flexible Transparent Sheeting, for General Utility Wrapping, Storing, and Cooking Purposes.
First use Apr. 15, 1966.

Class 6—Chemicals and Chemical Compositions

SN 246,288. Dermik Pharmacal Co., Inc., Syosset, N.Y. Filed May 23, 1966.

PREENOL

For Synthetic Preen Gland Oil Marketed as an Ingredient of Pharmaceutical and Cosmetic Creams.
First use Feb. 18, 1963.

SN 247,301. Allied Chemical Corporation, New York, N.Y. Filed June 6, 1966.

DOUBLE-M

For Fungicide-Insecticide.
First use Apr. 4, 1966.

SN 252,141. Westwood Chemical Co., Inc., Baltimore, Md. Filed Aug. 10, 1966.



nursery mist

Applicant disclaims exclusive right to use of the word "Mist" apart from the mark as shown.
For Deodorant for Babies' Cribs, Diaper Pails, and Rooms.
First use Mar. 6, 1963.

SN 252,566. Gulf Oil Corporation, Pittsburgh, Pa. Filed Aug. 17, 1966.

Gulf

The drawing is lined for the colors orange and blue.
Owner of Reg. Nos. 621,650, 614,688, and others.
For Insecticides and Insect Repellents.
First use in or about July 1925.

SN 253,421. Chemische Fabrik Pfersee, G.m.b.H., Augsburg, Germany. Filed Aug. 30, 1966.

KNITTEX

Owner of German Reg. No. 546,025, dated Dec. 16, 1940; and U.S. Reg. No. 800,867.
For Chemical Preparations for Crease and Shrink Resisting Textiles.

SN 253,504. The Dow Chemical Company, Midland, Mich. Filed Aug. 31, 1966.

CHEMAPLY

For Herbicide.
First use Aug. 19, 1966.

SN 255,423. The Drackett Company, Cincinnati, Ohio. Filed Sept. 29, 1966.

RESERVE-POWER

For Disinfectant.
First use July 23, 1965.

SN 256,436. The Dow Chemical Company, Midland, Mich. Filed Oct. 14, 1966.

PLICTRAN

For Miticide.
First use Sept. 13, 1966.

SN 256,963. Organon Inc., West Orange, N.J. Filed Oct. 21, 1966.

C.F.-NOSTICON

Owner of Reg. Nos. 721,497 and 807,999.
For Laboratory Test Kit for the Detection of Certain Substances Associated With the Presence of Cystic Fibrosis.
First use Oct. 12, 1966.

SN 258,512. The Dow Chemical Company, Midland, Mich. Filed Nov. 14, 1966.

PLONDREL

For Fungicide.
First use Sept. 14, 1966.

Class 8—Smokers' Artides, Not Including Tobacco Products

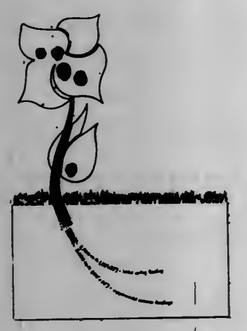
SN 249,878. Rem-Art Product's, Detroit, Mich. Filed July 8, 1966.

Tra·On.

For Wall Mountable Ash Receptacles.
First use Mar. 30, 1966.

Class 10—Fertilizers

SN 252,492. Red Barn Chemicals, Inc., Shreveport, La. Filed Aug. 16, 1966.



All wording on the mark is disclaimed apart from the mark as shown.
For Lawn and Garden Fertilizers.
First use on or about Dec. 1, 1965.

SN 258,419. Plantsmith, Palo Alto, Calif. Filed Nov. 10, 1966.

SPOONIT

For Chemical Fertilizers for Plants.
First use at least as early as August 1939.

SN 259,862. St. Paul Ammonia Products, Inc., South St. Paul, Minn. Filed Dec. 1, 1966.

Northern

The drawing is lined for the color green.
For Fertiliser.
First use Sept. 26, 1966.

Class 12—Construction Materials

SN 240,514. Freelight Mfg. & National Sales, Inc., Largo, Fla. Filed Mar. 9, 1966.

Freelight

For Aluminum Doors and Windows.
First use Nov. 10, 1965.

SN 245,259. Trus-Joist Corporation, Boise, Idaho. Filed May 9, 1966.



For Structural Trusses.
First use Nov. 5, 1965.

SN 248,495. Los Angeles Tile Jobbers, Inc., Los Angeles, Calif. Filed June 20, 1966.

"VENEZICO"

For Ceramic Tile.
First use Mar. 8, 1960.

SN 248,740. Rowland Products, Incorporated, Kensington, Conn. Filed June 22, 1966.

PROLITE

For Synthetic Plastic-Glass Fiber Laminated Sheets for Use in Fabrication of Chemical Processing Equipment, Fume Handling Equipment and Like Structures.
First use on or before June 8, 1966.

SN 251,935. Los Angeles Tile Jobbers, Inc., Los Angeles, Calif. Filed Aug. 8, 1966.

CANDY STICK

For Ceramic Tile.
First use Mar. 8, 1960.

SN 252,182. E. J. Lavino and Company, Philadelphia, Pa. Filed Aug. 11, 1966.

LAV-K-SPRAY

For Refractory Gunning Mix.
First use Nov. 7, 1961.

Class 13—Hardware and Plumbing and Steam-Fitting Supplies

SN 237,555. Hans Grohe K.G., Schiltach, Black Forest, Germany. Filed Jan. 28, 1966.



For Showers and Flexible Metallic Pipes; Fixtures for Sanitary Apparatus and Utensils.
First use 1954; in commerce Nov. 28, 1957.

SN 242,975. Roger L. Gower, Canaan, Maine. Filed Apr. 8, 1966.

COBRAHOOK

For Chain-Connector Hooks.
First use Oct. 22, 1965.

SN 245,190. The General Tire & Rubber Company, Akron, Ohio. Filed May 9, 1966.

DELUXE LAWN

For Automatic Traveler Sprinklers.
First use May 2, 1966.

SN 267,292. La Mere Industries, Inc., Walworth, Wis. Filed Mar. 22, 1967.

RAIL-HEAD

For Combustion Toilet.
First use Mar. 3, 1967.

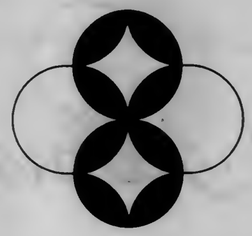
Class 14—Metals and Metal Castings and Forgings

SN 224,564. Aluminum Extrusions, Inc., Charlotte, Mich., assignee of Structural Products, Inc., Charlotte, Mich. Filed July 29, 1965.

OMNI

For Metal in the Form of Extrusions, Sheets, Rods, and the Like, for General Use in the Industrial Arts.
First use Sept. 25, 1958.

SN 244,838. Mercer Alloys Corporation (California corporation), Los Angeles, Calif., assignee of Mercer Alloys Corporation (Pennsylvania corporation), Greenville, Pa. Filed May 3, 1966.



For Metals and Metal Alloys in the Form of Pigs, Ingots, Billets, Shot, and Granules.
First use Mar. 17, 1966.

Class 15—Oils and Greases

SN 265,020. Halo Sales Corporation, d.b.a. The Party People, San Francisco, Calif. Filed Feb. 20, 1967.

KIT CAN

No claim is made to the word "Can" apart from the mark as shown.
For Canned Kitchen and Bath Deodorizing Candles.
First use Dec. 21, 1966.

SN 265,023. Halo Sales Corporation, d.b.a. The Party People, San Francisco, Calif. Filed Feb. 20, 1967.

POP SCENT

No claim is made to the word "Scent" apart from the mark as shown.
For Canned Scented Candles.
First use Dec. 21, 1966.

SN 267,296. General Motors Corporation, Detroit, Mich. Filed Mar. 22, 1967.

DEXRON

For Automatic Transmission Fluid.
First use Mar. 10, 1967.

Class 16—Protective and Decorative Coatings

SN 249,601. The Wickes Corporation, Saginaw, Mich. Filed June 27, 1966.

WIXSAVE

For Interior and Exterior Wall and Trim Paints.
First use May 13, 1966.

SN 252,715. Allpro Corporation, Maplewood, N.J. Filed Aug. 19, 1966.

Allpro

Owner of Reg. Nos. 725,343, 746,120, and 766,177.
For Paints Comprising Texture Paints and Industrial Paints, Varnishes, Lacquers, Enamels, and Driers.
First use July 1, 1966; on or about Feb. 1, 1960, as to "Allpro" in another form.

SN 266,971. Danacolors, Inc., San Francisco, Calif. Filed Mar. 17, 1967.

Acrycolor

For Paint—Namely, Acrylic Polymer Artist Colors.
First use Sept. 1, 1964.

SN 267,111. General Coatings Corporation, d.b.a. General Coatings Corp., Chicago, Ill. Filed Mar. 20, 1967.



For Industrial Finishes—Namely, Paints, Varnishes, Lacquers, and Enamels.
First use May 1, 1950.

Class 17—Tobacco Products

SN 197,859. United States Tobacco Company, New York, N.Y. Filed July 14, 1964.



The drawing is lined for the colors green, yellow, brown, red, and blue. Color is claimed as a feature of the mark.
For Snuff.
First use Sept. 9, 1959; Feb. 12, 1912, as to "Old Mill" in a different display.

SN 249,664. F. Palicio & Co., Inc., Tampa, Fla. Filed July 6, 1966.

PUNCH

Owner of Reg. No. 261,894.
For Cigars.
First use 1850.

SN 252,020. Murray Sons & Company Limited, Belfast, Northern Ireland. Filed Aug. 9, 1966.



The drawing is not lined for color. Owner of U.S. Reg. No. 350,932; and British Reg. No. 862,931, dated Apr. 15, 1964.
For Manufactured Tobacco.

SN 263,877. Manuel Caballero, Miami, Fla. Filed Feb. 3, 1967.

CABALLERO

For Cigars.
First use 1930.

Class 18—Medicines and Pharmaceutical Preparations

SN 186,138. American Cyanamid Company, Wayne, N.J. Filed Feb. 6, 1964.

PROTEX

For Vaccine for Canine Distemper, Hepatitis and Leptospirosis, for Sale to Veterinarians.
First use Jan. 29, 1964.

SN 246,298. Etablissements Schmitt-Jourdan, Societe Anonyme, Boulogne-sur-Seine, Hauts-de-Seine, France. Filed May 23, 1966.

CALPYRODIL

Priority claimed under Sec. 44(d) on French Reg. No. 705,275, dated Feb. 4, 1966.
For Pharmaceutical and Veterinary Preparations—Namely, a Salt of Pyrrolidone Carboxylic Acid.

SN 248,514. The National Laboratories Corporation, Kansas City, Mo. Filed June 20, 1966.

BOL-O-TABS

For Veterinary Boli for Treatment of Intestinal Disturbances.
First use Aug. 26, 1960.

SN 252,058. F.L.N., Incorporated, Youngstown, Ohio. Filed Aug. 10, 1966.

REDUCASE

For Medicinal Preparation Used in the Management of Obesity.
First use May 27, 1966.

SN 253,278. Bristol-Myers Company, New York, N.Y. Filed Aug. 29, 1966.

CONTRABETIS

Owner of Reg. No. 812,422.
For Pharmaceutical Preparation for Treatment of Hyperglycemia.
First use May 14, 1965.

SN 256,314. Societe des Usines Chimiques Rhone-Poulenc, Paris, France. Filed Oct. 12, 1966.

VOGALENE

Owner of French Reg. No. 526,234, dated Dec. 10, 1964.
For Medicines and Pharmaceutical Preparations for the Relief of Chronic Headaches, Vertigo, and Nausea.

Class 21—Electrical Apparatus, Machines, and Supplies

SN 188,448. L'Air Liquide, Societe Anonyme pour l'Etude et l'Exploitation des Procedes Georges Claude, Paris, France. Filed Mar. 11, 1964.



The mark is a stylized version of the letters "AL." Owner of French Reg. No. 142,566, dated Apr. 8, 1960; and U.S. Reg. Nos. 777,625 and 777,652.
For Welding Current Generators, Transformers, Welding Rectifiers, and Electric Torches.

SN 216,612. Northern Electric Company Limited, Montreal, Quebec, Canada. Filed Apr. 15, 1965.

Northern Electric

Priority claimed under Sec. 44(d) on Canadian application filed Jan. 11, 1965; Reg. No. 141,255, dated July 23, 1965.
For Wires and Cables.

SN 232,728. G. T. Schjeldahl Company, Northfield, Minn. Filed Nov. 15, 1965.



Owner of Reg. No. 766,315.
For Electrical Connectors.
First use Oct. 1, 1965.

SN 232,808. The Arrow-Hart & Hegeman Electric Company, Hartford, Conn. Filed Nov. 17, 1965.

NU-JUNIOR QUIETTE

Owner of Reg. No. 592,861.
For Electric Switches.
First use July 13, 1965; Apr. 17, 1953, as to "Quiette."

SN 232,958. Air Reduction Company, Incorporated, New York, N.Y. Filed Nov. 19, 1965.

INTERNATIONAL GRAPHITE

No registration rights are claimed for the word "Graphite" apart from the mark as shown, but applicant waives none of its common law rights in the mark or any feature thereof.
For Electro-Graphitic Products, in Rod, Bar, Tube, Strip, Block, or Plate Form, Used as Furnace Electrodes, Electrolytic Anodes, and Electric Furnace Lining Blocks.
First use at least as early as October 1933.

SN 233,156. Whitaker Cable Corporation, Kansas City, Mo. Filed Nov. 22, 1965.

WCC

For Ignition Sets for Internal Combustion Engines and Parts of Said Sets; Battery Cables and Terminals, Service Lights, Battery Holddowns, Service Power Conductor Cable, Wiring Harnesses, Cable Assemblies, Ignition Cable Sets, and Ignition Cable.
First use during July 1952.

SN 233,157. Whitaker Cable Corporation, Kansas City, Mo. Filed Nov. 22, 1965.

WHITAKER

Owner of Reg. No. 587,664.
For Ignition Sets for Internal Combustion Engines and Parts of Said Sets; Battery Cables and Terminals, Service Lights, Battery Holddowns, Service Power Conductor Cable, Battery Booster Cables, Wiring Harnesses, Cable Assemblies, Ignition Cable Sets and Ignition Cable, and Tools Sold in Connection With Such Electrical Items for Use in Installing and Servicing the Same.
First use during 1921 on ignition sets for internal combustion engines.

SN 235,294. The Edwin F. Guth Company, St. Louis, Mo. Filed Dec. 27, 1965.

MERCOLUX

For Electric Lighting Fixtures.
First use Aug. 9, 1965.

SN 236,352. Automatic Switch Co., Florham Park, N.J. Filed Jan. 13, 1966.

Red-Hat

The drawing is lined for the color red.
For Magnet and Solenoid Operated Valves for Controlling Fluid Flow Through Conduits.
First use Dec. 23, 1965.

SN 241,168. Northern Electric Company Limited, Montreal, Quebec, Canada. Filed Mar. 16, 1966.

DIGITONE

Priority claimed under Sec. 44(d) on Canadian application filed Dec. 31, 1965; Reg. No. 146,122, dated July 8, 1966.
For Telephone Sets Having Push-Button Dialing.

SN 242,327. The Carbone Corporation, Boonton, N.J. Filed Mar. 31, 1966.

HOLE IN THE HEAD MOTOR BRUSHES

The wording "Motor Brushes" is disclaimed apart from the mark as shown.
For Motor Brushes.
First use Aug. 31, 1965.

SN 242,421. James Betesh Import Co., New York, N.Y. Filed Apr. 1, 1966.

TIGER

For Dry Cell Batteries for Transistor Radios.
First use March 1966.
Subj. to Intf. with SN 251,108.

SN 242,948. The J. B. Williams Company, Inc., Thomaston, Conn. Filed Apr. 7, 1966.

NAUGATUCK

For Electrically Operated Table Lamps.
First use on or about Nov. 9, 1965.

SN 245,789. Qualtronics Corporation, Fullerton, Calif. Filed May 16, 1966.

Q/C

For Fuses and Overload Switches.
First use Mar. 2, 1963.

SN 246,107. Sprague Electric Company, North Adams, Mass. Filed May 19, 1966.

DUET

For Dual Emitter Transistors.
First use Aug. 25, 1964.

SN 246,622. The Tappan Company, Mansfield, Ohio. Filed May 25, 1966.

REVERSA-JET

For Electric Dishwashers.
First use on or about Sept. 28, 1964.

SN 246,705. Olin Mathieson Chemical Corporation, New York, N.Y. Filed May 26, 1966.

ASTRO-GREY

For Covered Aluminum Conductor Wires and Cables.
First use at least as early as Sept. 9, 1965.

SN 247,029. Kay-Townes Antenna Company, Inc., Rome, Ga. Filed June 1, 1966.

BIG JACK

For Television Antennas.
First use at least as early as January 1953.

SN 247,571. Bobst Champlain, Inc., Roseland, N.J. Filed June 8, 1966.

REGISTRON

Owner of Reg. No. 435,722.
For Electrical Apparatus for Controlling a Web for Proper Registration of Printing Thereon and/or Cutting of the Web.
First use Apr. 27, 1966.

SN 249,013. I-T-E Circuit Breaker Company, Philadelphia, Pa. Filed June 27, 1966.

CORDONET

Owner of Reg. No. 647,761.
For Electrical Switches—Namely, Circuit Breakers, and Circuit Interrupters.
First use May 5, 1966.

SN 253,712. Ballistics Control Corporation, Long Island City, N.Y. Filed Sept. 2, 1966.

TELEMERGENCY

For Devices for the Automatic Dialing of Pre-Recorded Messages to Police, and Fire Departments, and the Like.
First use Aug. 4, 1966.

SN 258,962. Sterling Products Corporation, Greensboro, N.C. Filed Nov. 18, 1966.

PLEEZER

For Furniture Vibrating Devices.
First use Oct. 25, 1966.

SN 262,992. General Battery and Ceramic Corp., Reading, Pa. Filed Jan. 23, 1967.

GBC

For Storage Batteries.
First use Nov. 1, 1966; Sept. 17, 1963, in another form.

Class 22—Games, Toys, and Sporting Goods

SN 166,688. Blazon, Inc., Akron, Ohio. Filed Apr. 15, 1963.

ROCKY

For Animal Figures Adapted To Be Ridden by Children.
First use Feb. 1, 1963.

SN 230,421. Woodstream Corporation, Lititz, Pa., assignee of Old Pal Inc., Lititz, Pa. Filed Oct. 18, 1965.

Trappe

The pictorial representation of the skis and ski poles is disclaimed apart from the mark as shown.
For Ski Boot Cases.
First use July 28, 1965.

SN 238,040. Brunswick Corporation, Chicago, Ill. Filed Feb. 4, 1966.



The mark consists of the letters "MC."
For Golf Clubs.
First use Nov. 10, 1965.

SN 248,024. Cypress Gardens Skis, Inc., Cypress Gardens, Fla. Filed June 14, 1966.

Lil' Monster

For Water Skis.
First use Oct. 1, 1961.

SN 248,383. Wilson Sporting Goods Co., River Grove, Ill. Filed June 17, 1966.

FALCON

For Tennis Rackets.
First use May 7, 1966.

SN 248,542. Rexall Drug and Chemical Company, d.b.a. The Seamless Rubber Company, Los Angeles, Calif. Filed June 20, 1966.

COMANDO

For Spearguns.
First use Feb. 14, 1966.

SN 249,503. Cordell Tackle, Inc., Hot Springs, Ark. Filed July 5, 1966.

RED-FIN

For Fishing Lure.
First use June 7, 1964.

SN 249,504. Cortland Line Company, Cortland, N.Y. Filed July 5, 1966.

PRO-CREST

For Fly Fishing Rods, Fly Tying Kits, and Coils of Floating Taper Fly Line.
First use Nov. 4, 1965.

SN 249,543. E. S. Lowe Company, Inc., New York, N.Y. Filed July 5, 1966.

ROSE BOWL

For Equipment Sold as a Unit for Playing a Parlor Type Football Game.
First use Jan. 22, 1945.

SN 249,639. Gil-O Lures, Inc., Chippewa Falls, Wis. Filed July 6, 1966.

GIL-O

For Fishing Lures.
First use June 14, 1966.

SN 249,712. American Model Car Racing Congress, Beverly Hills, Calif. Filed July 7, 1966.

LOK

For Slot-Engaging Guide for Slot-Racing Model Car.
First use May 26, 1966.

SN 249,713. American Model Car Racing Congress, Beverly Hills, Calif. Filed July 7, 1966.

AMERICANA

For Slot-Racing Model Car.
First use May 26, 1966.

SN 266,832. Mattel, Inc., Hawthorne, Calif. Filed Mar. 16, 1967.

LILAC

For Stuffed Animal Toys and Accessories Therefor.
First use Feb. 14, 1967.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

SN 236,587. Fisher Gauge Works Limited, Peterborough, Ontario, Canada. Filed Jan. 17, 1966.



For Precision Die Cast Machine Parts.
First use July 18, 1962; in commerce July 18, 1962.

SN 237,738. Borg-Warner Corporation, Chicago, Ill., assignee of Precision Automotive Components Company, Ballwin, Mo. Filed Feb. 1, 1966.

PACCON

For Resilient-Tip Needle and Seat Assemblies for Carburetors.
First use May 23, 1962.

SN 241,622. American-Lincoln Corporation, Toledo, Ohio. Filed Mar. 23, 1966.

AMER-VAC

For Commercial Vacuum Cleaners.
First use Feb. 4, 1966.

SN 244,410. Wirth W. Kanode, d.b.a. W. W. Kanode Company, Mansfield, Ohio. Filed Apr. 27, 1966.

UNIKIX

For Knockout Pin.
First use June 24, 1963.

SN 245,941. Misceramic Tile, Inc., Cleveland, Miss. Filed May 18, 1966.

BAND-O-MATIC

Owner of Reg. No. 789,645.
For Edging Machine.
First use at least as early as July 1964.

SN 247,948. The New Britain Machine Company, New Britain, Conn. Filed June 13, 1966.

RHEODYNE

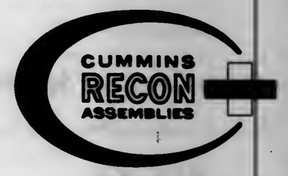
For Injection-Molding Machines for Plastics.
First use Apr. 12, 1966.

SN 249,008. The Hartford Special Machinery Company, Simsbury, Conn. Filed June 27, 1966.

POINT FORMER

For Pinch Pointers.
First use on or about May 16, 1966.

SN 250,645. Cummins Engine Company, Inc., Columbus, Ind. Filed July 20, 1966.



Owner of Reg. Nos. 519,912, 802,635, and others.
For Rebuilt Clutches for Motor Vehicles.
First use Nov. 19, 1965.

SN 250,646. Cummins Engine Company, Inc., Columbus, Ind. Filed July 20, 1966.

RECON

Owner of Reg. Nos. 519,912, 802,635, and others.
For Rebuilt Clutches for Motor Vehicles.
First use Nov. 19, 1965.

SN 266,833. Yard-Man of Illinois, Incorporated, Sullivan, Ill. Filed Mar. 16, 1967.

EARTHBIRD

For Power Rotary Tiller.
First use Feb. 10, 1959.

SN 266,838. Merchandise Selectors, Inc., Beverly Hills, Calif. Filed Mar. 16, 1967.

RUTHE ROBBIN

For Stainless Steel Flatware; Carving Sets Consisting of a Fork, Knife and Knife Sharpener; Steak Knife Sets; Kitchen Cutlery Set Consisting of Two Paring Knives, a Bread Knife, a Ham Slicer, and a Roast Slicer.
First use June 3, 1963.

Class 26—Measuring and Scientific Appliances

SN 202,139. Fairchild Camera and Instrument Corporation, Syosset, N.Y. Filed Sept. 18, 1964.

FAIRCHILD

Owner of Reg. Nos. 270,477 and 609,552.
For Sound Motion Picture Cameras and Projectors, Film Cassettes, Audio-Visual Projection Machines and Accessories, Cameras, Oscilloscope Cameras, Identification Cameras, Aerial Cameras and Systems, Lenses, Shutters, Film Processors, Exposure Control Systems and Components, Mapping and Photogrammetric Apparatus and Systems, Camera Stabilizer Systems, Stereoscopes, Visual Imaging Systems, Data Storage, Recording, Retrieval, Readout and Processing Equipment, Facsimile Transmitting and Receiving Equipment, Underwater Exploration Equipment, Flight Analyzing Equipment and Systems, Oscilloscopes, Frequency Meters, Electronic Measuring and Test Equipment, Accelerometers, Pressure Transducers and Sensing Equipment, Gyroscope Apparatus and Systems, Printing Plate Processing Equipment, Color Analyzing and Masking Systems, Printing Tone Control Apparatus, Photoelectric Engraving Equipment, Tape Control Apparatus for Line Casting Machines and Parts Thereof, Photocomposing Machines, Computers, Radar and Television Mapping Systems, Potentiometers, Perforated Control Tapes, Tape Perforating and Re-Perforating Machines, Electronic Distance-Measuring Equipment, Voltage Reference Diodes, Mat Detectors, and Newspaper Counter, and Motion Picture Sound Film.
First use Oct. 15, 1961.

SN 230,374. Sydney W. Fields and Margaret E. Fields (joint owners), d.b.a. Photographic Enterprises Guild Co., Sherman Oaks, Calif. Filed Oct. 18, 1965.



For Holders for Photographic Transparencies.
First use on or about May 5, 1962.

SN 230,375. Sydney W. Fields and Margaret E. Fields (joint owners), d.b.a. Photographic Enterprises Guild Co., Sherman Oaks, Calif. Filed Oct. 18, 1965.

EASYMASK

For Holders for Photographic Transparencies.
First use Oct. 6, 1965.

SN 234,876. Bron Elektronik AG., Allschwil, Basel-Land, Switzerland. Filed Dec. 20, 1965.

BRONCOLOR

Owner of Swiss Reg. No. 174,669, dated Mar. 10, 1959.
For Lighting Devices for Photographic and Graphic Art Reproduction—Namely, Electronic Flash Devices, Lamps, Normal Lamps, Spotlight Lamps, Background Projection Units and Controls, Parts and Accessories Therefor.

SN 235,421. Optische Werke G. Rodenstock, Munich, Germany. Filed Dec. 28, 1965.

GRANDAGON

Owner of German Reg. No. 702,397, dated Aug. 19, 1955.
For Photographic and Projection Lenses.
First use 1955; in commerce 1957.

SN 242,135. Kinex, Narodny Podnik, Bytca, Czechoslovakia. Filed Mar. 29, 1966.

KINEX

Owner of Czechoslovakian Reg. No. 151,889, dated Dec. 16, 1954.
For Drawing Instruments—Namely, Rulers, Triangles, Calibrated Rules, Calculating Rules, Slide Rules, Meter Rules; and Measuring Instruments and Measuring Tools—Namely, Levels, Gauges, and Water Level Indicators.

SN 244,021. Pix-O-Scope, Inc., Greenwood, Ind. Filed Apr. 21, 1966.

PIX-O-SCOPE

For Television Testing Jig Which Is Portable.
First use Apr. 13, 1966.

SN 244,807. De Jur-Amsco Corporation, Long Island City, N.Y. Filed May 3, 1966.

VERSATILE

Owner of Reg. Nos. 383,896 and 424,330.
For Motion Picture Projectors.
First use May 1, 1965.

SN 247,042. Merriman, Inc., Hingham, Mass. Filed June 1, 1966.

MAGELLAN

For Compasses for Sailboats and Powerboats.
First use Jan. 6, 1966.

SN 247,239. Merriman, Inc., Hingham, Mass. Filed June 3, 1966.

LASALLE

For Compasses for Sailboats and Powerboats.
First use Jan. 6, 1966.

SN 260,982. Ing. C. Olivetti & C., S.p.A., Ivrea, Italy. Filed July 18, 1966.

LOGOS

For Office Machines—Namely, Adding and Calculating Machines and Parts Thereof.
First use September 1965; in commerce October 1965.

SN 260,986. Ing. C. Olivetti & C., S.p.A., Ivrea, Italy. Filed July 18, 1966.

QUANTA

For Office Machines—Namely, Adding and Calculating Machines and Parts Thereof.
First use December 1961; in commerce December 1961.

Class 27—Horological Instruments

SN 244,143. Mido G. Schaeren & Co., S.A., Bienne, Switzerland. Filed Apr. 22, 1966.

DATODAY

Owner of Swiss Reg. No. 311,649, dated July 24, 1965.
For Watches and Parts of Watches.

SN 245,117. Edward Trauner, Inc., New York, N.Y. Filed May 6, 1966.

VALIANT

For Watches, Watch Movements, and Parts Therefor.
First use Apr. 22, 1966.

SN 245,179. Endura Time Corporation, New York, N.Y. Filed May 9, 1966.

ULTIMA

For Clocks and Watches and Parts Thereof.
First use Apr. 28, 1966.

SN 245,180. Endura Time Corporation, New York, N.Y. Filed May 9, 1966.

VENTURA

For Clocks and Watches and Parts Thereof.
First use Apr. 28, 1966.

SN 245,255. General Time Corporation, New York, N.Y. Filed Feb. 8, 1966.

MAGIC TOUCH

For Clocks.
First use Dec. 2, 1965.

SN 245,556. Benrus Watch Company, Inc., New York, N.Y. Filed May 13, 1966.

UN

For Watches.
First use May 5, 1966.

SN 246,300. Fabrique Ebel, Société Anonyme, La Chaux-de-Fonds, Switzerland. Filed May 23, 1966.

EBEL

Owner of Swiss Reg. No. 190,836, dated Mar. 6, 1962.
For Watches and Parts Thereof.
First use Mar. 6, 1962; in commerce Mar. 6, 1962.

SN 246,641. Baldwin Bracelet Corporation, New York, N.Y. Filed May 26, 1966.

BALDWIN

Owner of Reg. Nos. 509,164 and 685,124.
For Watches and Parts Thereof.
First use Feb. 1, 1947.

SN 246,829. Joseph Waldman & Sons, Irvington, N.J. Filed May 27, 1966.

VALVIC

For Watch Crowns.
First use Nov. 18, 1965.

SN 247,187. Benrus Watch Company, Inc., New York, N.Y. Filed June 3, 1966.

ROMAN HOLIDAY

For Watches.
First use May 6, 1966.

SN 247,188. Benrus Watch Company, Inc., New York, N.Y. Filed June 3, 1966.

HOLIDAY

For Watches.
First use Sept. 15, 1964.

SN 247,628. Sheffield Watch, Inc., New York, N.Y. Filed June 8, 1966.

SLIDE RULER

For Watches and Clocks.
First use May 11, 1966.

SN 247,629. Sheffield Watch, Inc., New York, N.Y. Filed June 8, 1966.

COMPUTER

For Watches and Clocks.
First use May 11, 1966.

SN 248,245. Movado Watch Agency, Inc., New York, N.Y. Filed June 16, 1966.

DATRON

For Watches.
First use May 25, 1966.

SN 248,586. Benrus Watch Company, Inc., New York, N.Y. Filed June 21, 1966.

MOD

For Watches.
First use June 3, 1966.

SN 248,639. Sheffield Watch, Inc., New York, N.Y. Filed June 21, 1966.

BIBAS

For Watches and Clocks.
First use May 26, 1966.

SN 249,318. Forum Trading Corporation, New York, N.Y. Filed June 30, 1966.

ARNTIME

For Watches.
First use Apr. 1, 1966.

SN 249,352. Girard Perregaux & Cie, S.A., La Chaux-de-Fonds, Switzerland. Filed June 30, 1966.

GP

Owner of U.S. Reg. No. 637,432.
For Watches and Components Thereof.
First use May 11, 1966; in commerce May 11, 1966.

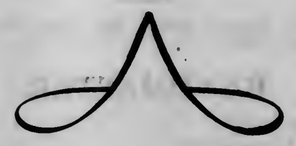
SN 249,642. R. Gsell & Co., Inc., New York, N.Y. Filed July 6, 1966.

GAZELLE

For Watches and Parts Thereof, Watch Cases, and Watch Movements.
First use in or about 1950.

Class 28—Jewelry and Precious-Metal Ware

SN 247,982. Astratek International, Ltd., Chicago, Ill. Filed June 13, 1966.



For Rings, Cufflinks, Earrings, Necklaces, Pendants, Key-Chains, and Bracelets.
First use June 2, 1966.

SN 249,099. Harry Wright, d.b.a. Wright Industries, La Mesa, Calif. Filed June 27, 1966.

EAR-JOY

For Earring Holder.
First use on or about Mar. 16, 1966.

SN 249,595. Textron Inc., Providence, R.I. Filed July 5, 1966.

MAN OF ELEGANCE

Owner of Reg. Nos. 612,512, 809,547, and others.
For Expansion Bracelets, Including Watch Bracelets.
First use June 21, 1966.

SN 249,596. Textron Inc., Providence, R.I. Filed July 5, 1966.

MAN OF FASHION

Owner of Reg. Nos. 788,487 and 809,547.
For Expansion Bracelets, Including Watch Bracelets.
First use June 21, 1966.

SN 249,809. Textron Inc., Providence, R.I. Filed July 7, 1966.

MAN OF THE WORLD

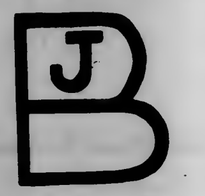
Owner of Reg. No. 809,547.
For Expansion Bracelets, Including Watch Bracelets.
First use June 21, 1966.

SN 249,810. Textron Inc., Providence, R.I. Filed July 7, 1966.

HER GRACE

For Expansion Bracelets, Including Watch Bracelets.
First use June 21, 1966.

SN 249,832. Joseph M. Brown, d..b.a. J. Brown's Jewelry Mfg. Co., New York, N.Y. Filed July 8, 1966.



For Precious Jewelry for Personal Wear or Adornment.
First use Apr. 18, 1966.

SN 249,850. Duchess Jewelry Mfg. Corp., Hoboken, N.J. Filed July 8, 1966.

BANDMASTER

For Watch Bands.
First use September 1947.

SN 250,017. Vern McKinley, Stuttgart, Ark. Filed July 11, 1966.



For Wedding Bands, Stone and Diamond Set Finger Rings, and Stone and Diamond Set Pendants.
First use on or about Jan. 25, 1966.

SN 250,818. Philip H. Bassoff, Woodside, N.Y. Filed July 22, 1966.

LADY OF SPAIN

For Simulated Pearls and Costume Jewelry.
First use June 22, 1966.

SN 250,937. W. R. Cobb Company, Cranston, R.I. Filed July 25, 1966.



For Ring Guards.
First use July 1, 1966.

SN 251,185. Hattie Carnegie, Inc., New York, N.Y. Filed July 28, 1966.

Diamond-lite

For Jewelry—Namely, Buckles and Buttons Made in Whole or in Part of Imitation Gem Stones Mounted on Precious Metal or Plated With the Same, Bracelets, Bracelet Chains and Links, Brooaches and Pins, Earrings, Pendants, Finger and Scarf Rings, Lockets, Lavallieres, Breast Pins, Necklaces, Jewelled Hair Ornaments, Jewelled Shoe Buckles, and Jewelled Cases and Holders.
First use Apr. 1, 1966.

SN 252,033. Sandawana Emeralds, S.A., New York, N.Y. Filed Aug. 9, 1966.



For Precious and Semi-Precious Gems, Including Emeralds, Rubies, and Chrysoprase.
First use in or about 1958.

Class 29—Brooms, Brushes, and Dusters

SN 258,681. Farbwerke Hoechst Aktiengesellschaft, vormals Meister Lucius & Bruning, Frankfurt am Main, Germany. Filed Nov. 15, 1966.

KALLE

Owner of German Reg. No. 818,635, dated Dec. 21, 1965.
For Sponges, Sponge Cloths of Regenerated Cellulose or Plastic.

SN 258,804. M. Grumbacher, Inc., New York, N.Y. Filed Nov. 16, 1966.

HYPLAR

For Artists' Brushes.
First use Oct. 19, 1966.

SN 258,952. F. W. Woolworth Co., New York, N.Y. Filed Nov. 17, 1966.

HOME-COTE

Owner of Reg. Nos. 532,977 and 803,696.
For Paint Brushes.
First use Sept. 23, 1966.

SN 258,966. American Home Products Corporation, New York, N.Y. Filed Nov. 18, 1966.

TUDOR

For Floor and Dust Mops.
First use Apr. 14, 1950.

SN 259,555. Alexander Kelly Miller, Lubbock, Tex. Filed Nov. 28, 1966.



For Disposable Toothbrush.
First use Oct. 15, 1966.

Class 30—Crockery, Earthenware, and Porcelain

SN 145,770. Castleton China, Inc., New Castle, Pa. Filed May 31, 1962.

INDEPENDENCE WHITE

Owner of Reg. Nos. 383,991 and 760,354.
For China Dinnerware.
First use Feb. 12, 1962.

SN 212,599. Shenango Ceramics, Inc., New Castle, Pa. Filed Feb. 23, 1965.

AMY

For China Dinnerware.
First use Nov. 3, 1964.

SN 236,560. Castleton China, Inc., New Castle, Pa. Filed Jan. 17, 1966.

WOODSPRITE

For China Dinnerware.
First use July 22, 1957.

SN 238,454. Shenango Ceramics, Inc., New Castle, Pa. Filed Feb. 9, 1966.

ROUEN

For China Dinnerware.
First use Nov. 8, 1965.

Class 32—Furniture and Upholstery

SN 243,927. Systems Manufacturing Corporation, Binghamton, N.Y. Filed Apr. 20, 1966.

HI-STYLE 400

For Metal Computer Accessory Units—Namely, Tables With and Without Drawers, Desks, Cabinets, and Storage Credenza Units.
First use November 1961.

SN 250,363. Drexel Enterprises, Inc., Drexel, N.C. Filed July 15, 1966.

JUDICIAL

For Office Furniture—Namely, Desks, Credenzas, and Chairs.
First use April 1965.

SN 250,364. Drexel Enterprises, Inc., Drexel, N.C. Filed July 15, 1966.

LEGISLATIVE

For Office Furniture—Namely, Desks, Credenzas, and Chairs.
First use February 1966.

SN 252,463. California Furniture Shops, Ltd., Los Angeles, Calif. Filed Aug. 16, 1966.

CAL SHOPS

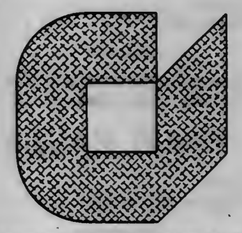
For Household Wood Furniture.
First use during 1957.

SN 252,464. California Furniture Shops, Ltd., Los Angeles, Calif. Filed Aug. 16, 1966.



For Household Wood Furniture.
First use during 1957.

SN 253,209. Contract Interiors, Inc., Boston, Mass. Filed Aug. 26, 1966.



The mark consists of a fanciful design of the letters "CI." The drawing is lined for the color orange, but color is not claimed as a feature of the mark. Owner of Reg. No. 734,535.
For Furniture—Namely, Chairs, Sofas, Tables, Coat Racks, Day Beds, and Desks.
First use July 1966.

Class 34—Heating, Lighting, and Ventilating Apparatus

SN 241,182. Rasmussen Iron Works, Whittier, Calif. Filed Mar. 16, 1966.



The word "Flame" is disclaimed as a part of the mark.
For Gas Appliances—Namely, Burners, Logs and Ember Material for Fireplaces.
First use June 18, 1965; September 1961 as to "Modern Flame."

SN 243,782. Harvestall Industries, Inc., New Hampton, Iowa. Filed Apr. 19, 1966.



For Grain Storage Bins Equipped With Fans and Blowers for Drying, and Parts Thereof.
First use July 31, 1960.

SN 249,806. Slant/Fin Corporation, Greenvale, N.Y. Filed July 7, 1966.

FINE/LINE

For Baseboard Radiators.
First use in or about December 1958.

Class 35—Belting, Hose, Machinery Packing, and Nonmetallic Tires

SN 239,596. Continental Oil Company, d.b.a. Thompson Apex Company, Pawtucket, R.I. Filed Feb. 25, 1966.

REGAL EAGLE

For Tread Rubber.
First use January 1939.

SN 239,597. Continental Oil Company, d.b.a. Thompson Apex Company, Pawtucket, R.I. Filed Feb. 25, 1966.

GOLD EAGLE

For Tread Rubber.
First use at least as early as 1953.

SN 244,414. The Kelly-Springfield Tire Company, Cumberland, Md. Filed Apr. 27, 1966.

REGAL

For Tires.
First use Mar. 28, 1966.

SN 244,415. The Kelly-Springfield Tire Company, Cumberland, Md. Filed Apr. 27, 1966.

CHARGER

For Tires.
First use Mar. 28, 1966.

SN 244,984. The Goodyear Tire & Rubber Company, Akron, Ohio. Filed May 5, 1966.

ULTRA-GRIP

For Tires.
First use Jan. 31, 1966.

SN 245,189. The General Tire & Rubber Company, Akron, Ohio. Filed May 9, 1966.

DELUXE LAWN

For Garden Hose.
First use May 2, 1966.

SN 245,548. Advance Tire Corp., New York, N.Y. Filed May 13, 1966.

DRAG KING

For Automobile Tires.
First use Apr. 21, 1966.

Class 36—Musical Instruments and Supplies

SN 239,088. Synthetic Plastics Company, Newark, N.J. Filed Feb. 17, 1966.

SUNSET STRINGS

No claim is made to the word "Strings" apart from the mark as shown.
For Grooved Phonograph Records.
First use Aug. 4, 1965.

SN 243,107. The Elektra Corporation, New York, N.Y. Filed Apr. 11, 1966.

elektra

For Phonograph Records and Pre-Recorded Tapes.
First use Mar. 11, 1966.

SN 243,986. The Fred. Gretsch Mfg. Co., Brooklyn, N.Y. Filed Apr. 21, 1966.

COUNTRY GENTLEMAN

For Guitar and Amplifier Therefor.
First use Oct. 23, 1957.

Class 37—Paper and Stationery

SN 220,690. L. D. Sherman Co., Inc., Oakland, Calif. Filed June 8, 1965.

SPECIFIED

For Pencils and Ball Point Pens.
First use Oct. 14, 1958, on pencils.

SN 244,592. KSM Corporation, Seattle, Wash. Filed Apr. 29, 1966.

CARIOCA

For Writing Pens and Pencils.
First use on or about Mar. 17, 1966.

SN 252,870. Milprint, Inc., Milwaukee, Wis. Filed Aug. 22, 1966.

SUPEREL

For Coated Films for Use as Packaging Material.
First use June 23, 1966.

SN 257,062. Max-Smith Company, Houston, Tex. Filed Oct. 24, 1966.

DIALIST

For Telephone Index.
First use at least as early as Oct. 1, 1964.

Class 38—Prints and Publications

SN 221,858. Scholastic Magazines, Inc., New York, N.Y. Filed June 23, 1965.

For Books.
First use June 3, 1965.

SN 226,737. John H. Gerard, d.b.a. Nature Press, Alton, Ill. Filed Aug. 30, 1965.

NATURE PRESS

For Picture Post Cards.
First use Feb. 3, 1960.

SN 238,777. One Alone, Inc., Cleveland, Ohio. Filed Feb. 14, 1966.

ALONE

For Magazine Published Monthly or From Time to Time.
First use on or about Jan. 21, 1966.

SN 239,487. Bennett Brothers, Inc., New York, N.Y. Filed Feb. 24, 1966.

BENNETT BLUE BOOK

Owner of Reg. Nos. 752,940 and 769,509.
For Catalogue of General Merchandise.
First use Sept. 1, 1927.

SN 242,913. The Overseas Mission Society, Inc., Washington, D.C. Filed Apr. 7, 1966.

PROMOTING THE WORLD MISSION OF THE CHURCH COMPASS

For Monthly Religious Newsletter.
First use January 1963.

SN 243,856. Cortex F. Enloe, Inc., New York, N.Y. Filed Apr. 20, 1966.

NUTRITION TODAY

For Magazine.
First use Apr. 5, 1966.

Class 39—Clothing

SN 229,751. Morris J. Bricken, d.b.a. Dan-Mar Manufacturing Co., Baltimore, Md. Filed Oct. 11, 1965.

College Park CLOTHES

The word "Clothes" is disclaimed apart from the mark as shown.
For Men's and Boys' Suits, Sport Coats, Slacks, Trousers, Walking Shorts, and Swim Trunks.
First use in or about 1946.

SN 235,096. Hanae Mori, Tokyo, Japan. Filed Dec. 22, 1965.

HANAE MORI

For Ladies' and Misses' Clothing—Namely, Dresses, Gowns, Scarfs, Coats, Skirts, Slacks, Pajamas, Pajama Suits, Pants Suits, Sleep Wear, and Stoles, Shirts, Jackets, Tunics, and Blouses.
First use Feb. 23, 1965; in commerce Feb. 23, 1965.

SN 236,360. Exer-Shoe Corporation, Washington, D.C. Filed Jan. 13, 1966.

For Weighted Shoe.
First use Aug. 15, 1965.

SN 239,808. Schuhfabrik Kößach F. Herunter O.H.G., Vienna, Austria. Filed Feb. 28, 1966.

GOLD STAR

For Skiing Boots.
First use 1961; in commerce 1961.

SN 250,437. Allied Stores Corporation, New York, N.Y. Filed July 18, 1966.

LOUNGETIQUE

For Loungewear and Sleepwear—Namely, Pajamas, Robes, and Nightgowns.
First use May 19, 1966.

SN 253,014. Clark Shoe Company, Inc., Boston, Mass. Filed Aug. 24, 1966.

FEMINIQUE

For Ladies' Shoes.
First use Feb. 2, 1966.
Subj. to Intf. with SN 264,343.

SN 254,462. North Shore Manufacturing Company, d.b.a. Trundle Bundle Products Co., Duluth, Minn. Filed Sept. 14, 1966.

Puss-in-Boots

Owner of Reg. No. 310,835.
For Infants' Snow Suits.
First use in the summer of 1950.

SN 254,472. Schuessler Knitting Mills, Chicago, Ill. Filed Sept. 14, 1966.

SCHUSS

For Ski Headwear.
First use on or before Feb. 2, 1965.

SN 254,476. Sprouse-Reitz Co., Inc., Portland, Oreg. Filed Sept. 14, 1966.

ROSE QUEEN

Owner of Reg. No. 779,497.
For Girls' and Ladies' Undergarments—Namely, Briefs.
First use June 2, 1966.

SN 256,503. Haggar Company, Dallas, Tex. Filed Oct. 17, 1966.

HAGGAR "THEY JUST FIT BETTER NATURALLY" TROPHY

Owner of Reg. Nos. 524,051, 819,130, and others.
For Men's and Boys' Clothing—Namely, Slacks.
First use on or about Aug. 15, 1966.

SN 257,971. Mandarin Textiles Limited, Kowloon, Hong Kong. Filed Nov. 4, 1966.

DYNASTY

Owner of U.S. Reg. Nos. 578,869, 740,082, and others.
For Articles of Apparel—Namely, Men's Suits, Sport Coats, and Slacks; Men's Underwear, Including Shirts and Under Shorts; Men's and Women's Raincoats and Bathing Suits; and Ladies' Hosiery.
First use Sept. 26, 1966; in commerce Sept. 26, 1966.

SN 260,910. The Lovable Company, Atlanta, Ga. Filed Dec. 16, 1966.

DUALIFT

Owner of Reg. No. 567,264.
For Brassieres.
First use July 9, 1951.

SN 264,343. Irving D. Singer, Chicago, Ill. Filed Feb. 9, 1967.

Feminique Furs

The applicant disclaims the word "Furs" except as it is used in conjunction with the term "Feminique" as shown.
For Clothing, More Specifically Fur Coats, Jackets, Stoles, Capelets, Scarves, Shrugs, Collars, Hats, and Boas Which Are Made From Various Animal Furs and Pelts, Including Mink, Sable, Chinchilla, Lamb, and Fox.
First use Feb. 1, 1966.
Subj. to Intf. with SN 253,014.

Class 40—Fancy Goods, Furnishings, and Notions

SN 250,059. Valmor Products Co., Chicago, Ill. Filed July 11, 1966.

VAL MOR

Owner of Reg. No. 218,299.
For Wigs.
First use Jan. 4, 1965.

SN 255,031. Trimtex, Inc., Williamsport, Pa. Filed Sept. 23, 1966.

PERMA-TRIM

Owner of Reg. Nos. 411,230, 740,076, and others.
For Narrow Fabric Braids and Tapes.
First use Sept. 16, 1966.

SN 257,189. Koh-I-Noor, Spojene Kovopramyslove Zavody, Narodni Podnik, Prague-Vrsovice, Czechoslovakia. Filed Oct. 25, 1966.

SUPER-VAL

Owner of Czechoslovakian Reg. No. 154,032, dated Sept. 8, 1959.
For Closures and Fasteners for Wearing Apparel Made From Non-Precious Metals and/or From Plastics—Namely, Buttons, Snap Fasteners, Slide Fasteners, Buckles, Hook and Eye Fasteners, Shoe Rings, Crochet Hooks and Crochet Needles, Hand Knitting and Netting Needles, Mending and Darning Needles, Needles for Hand-Sewing, Bodkins, Thimbles, Combs, Collar Studs, Pins and Clips Made From Non-Precious Metals, Namely, Safety Pins, Hair Pins, Scarf Pins, Bobby Pins, Barrettes, and Hair Grips.

SN 259,233. Fashion Tress, Inc., Miami Beach, Fla. Filed Nov. 22, 1966.

MAHARANEE

For Ladies' Wigs and Hair Pieces.
First use on or about Nov. 1, 1966.

SN 259,234. Fashion Tress, Inc., Miami Beach, Fla. Filed Nov. 22, 1966.

STAR OF INDIA

For Ladies' Wigs and Hair Pieces.
First use on or about Nov. 1, 1966.

SN 259,235. Fashion Tress, Inc., Miami Beach, Fla. Filed Nov. 22, 1966.

MAHARANI

For Ladies' Wigs and Hair Pieces.
First use on or about Nov. 1, 1966.

SN 259,236. Fashion Tress, Inc., Miami Beach, Fla. Filed Nov. 22, 1966.

EUROPA

For Ladies' Wigs and Hair Pieces.
First use on or about Nov. 1, 1966.

SN 261,960. Wyomissing Corporation, Reading, Pa. Filed Jan. 5, 1967.

Sustain

For Narrow Elastics for Use in Clothing.
First use Dec. 9, 1966.

Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

SN 243,738. Walker & Zanger, Inc., New York, N.Y. Filed Apr. 18, 1966.

WEL-WEB

For Webbing Made of Synthetic and/or Natural Materials.
First use on or about Feb. 3, 1966.

SN 256,075. Dan River Mills, Incorporated, Danville, Va. Filed Oct. 10, 1966.

THE WRINKLE IS DEAD

For Textile Fabrics in the Piece of Cotton or Synthetic Fibers or Any Combinations Thereof.
First use Sept. 2, 1966.

SN 257,396. S. S. Kresge Company, Detroit, Mich. Filed Oct. 27, 1966.

Kmart

Owner of Reg. Nos. 774,794, 813,610, and others.
For Bed Sheets and Pillow Cases.
First use on or before May 6, 1966.

SN 257,600. Fieldcrest Mills, Inc., Spray, N.C. Filed Oct. 31, 1966.

Fieldcrest

Owner of Reg. No. 500,882.
For Shower Curtains and Lid Covers.
First use January 1959.

SN 257,931. A. Leon Capel & Sons, Incorporated, Troy, N.C. Filed Nov. 4, 1966.

HEARTHSIDE

For Braided Rugs.
First use 1930.

SN 257,938. Concord Fabrics Inc., New York, N.Y. Filed Nov. 4, 1966.

STRAW HAT

For Textile Fabrics Made of Cotton and/or Synthetic Fibers.
First use June 1, 1966.

SN 258,292. Dan River Mills, Incorporated, Danville, Va. Filed Nov. 9, 1966.

DANTREL

For Textile Fabrics in the Piece of Cotton or Synthetic Fibers or Any Combinations Thereof.
First use Feb. 1, 1965.

SN 258,322. Oxford Drapery Company, Boston, Mass. Filed Nov. 9, 1966.

PLAY-A-GAME

For Bedspreads.
First use Nov. 2, 1966.

SN 263,723. Weblon, Inc., White Plains, N.Y. Filed Feb. 1, 1967.

RAIN-KLEEN

For Fabrics With a Finish Which Is Self-Cleaning, Resists Dust, Dirt, and Stains, and Improves Weathering Properties, Said Fabrics Being Intended for Awnings, Tents, and Canopies, for Boat Covers, Boat Curtains, Boat Equipment Covers, for Marine Uses and Industrial Uses.
First use Jan. 27, 1967.

SN 266,976. Western Textile Co. Inc., Chicago, Ill. Filed Mar. 17, 1967.

SATALENE

For Drapery Linings.
First use Mar. 9, 1967.

SN 266,978. Western Textile Co. Inc., Chicago, Ill. Filed Mar. 17, 1967.

SUSSEX P.V.R.

For Drapery Linings.
First use Mar. 15, 1962.

SN 266,980. Western Textile Co. Inc., Chicago, Ill. Filed Mar. 17, 1967.

SUSSEX RAINSAFE

For Drapery Linings.
First use Dec. 16, 1966.

Class 43—Thread and Yarn

SN 239,444. Reynolds Yarns, Inc., Plainview, N.Y. Filed Feb. 23, 1966.

REYNOLDS PALOMA

Owner of Reg. Nos. 730,165, 801,405, and others.
For Hand Knitting Yarns.
First use Jan. 15, 1965.

SN 257,701. Filatures Prouvost & Cie, La Lainiere de Roubaix, Roubaix, Nord, France. Filed Nov. 1, 1966.

JOROPO

Owner of French Reg. No. 8,650, dated Jan. 14, 1961 (Roubaix).
For Yarns and Threads.

SN 265,144. United Yarn Products Company, Inc., Paterson, N.J. Filed Feb. 21, 1967.



The mark consists of the letters "U" and "Y."
For Synthetic Yarns.
First use Jan. 3, 1967.

Class 44—Dental, Medical, and Surgical Appliances

SN 251,338. Stowen Scientific Company, Wilmington, Del. Filed July 29, 1966.

AMNIOLET

For Body Cavity Examining Equipment and Surgical Instruments—Namely, a Lance Formed With Cavity Examining, Measuring, and Treating Portions.
First use June 30, 1965.

Class 45—Soft Drinks and Carbonated Waters

SN 253,539. Mayflower Food Services Inc., New York, N.Y. Filed Aug. 31, 1966.

mayCola

For Cola-Type Soft Drink.
First use Aug. 9, 1966.

Class 46—Foods and Ingredients of Foods

SN 198,447. John Wagner & Sons Inc., Ivyland, Pa. Filed July 23, 1964.

Wagner's

Owner of Reg. Nos. 605,922, 762,826, and others.
For Preserves, Jellies, and Marmalades.
First use April 1964.

SN 203,950. East Coast Enterprises, Inc., Boston, Mass. Filed Oct. 14, 1964.

VIRGINIA



For Vegetable Oils.
First use 1935.

SN 210,764. Gallina Blanca, S.A., Barcelona, Spain. Filed Jan. 27, 1965.

AVECREM

The mark is fanciful and not translatable.
For Dehydrated Preparations for Making Soups, Broths, and Purees.
First use March 1954; in commerce January 1962.

SN 234,690. Universal Food Products, Inc., Lakeland, Fla. Filed Dec. 15, 1965.

GOLDEN DIET

For Fresh Citrus Fruit Flavored Food Beverages.
First use Oct. 18, 1965.

SN 234,723. Peter Hand Foundation, Inc., Waukegan, Ill., by change of name from Blatchford Calf Meal Company, Waukegan, Ill. Filed Dec. 16, 1965.



For Calf Feeds for Both Mixing and Feeding Unmixed.
First use on or about Apr. 18, 1917.

SN 241,329. Duffy-Mott Company, Inc., New York, N.Y. Filed Mar. 18, 1966.

MOTT'S STEAK HOUSE SAUCE

The word "Sauce" is disclaimed apart from the mark as shown. Owner of Reg. Nos. 160,454, 802,871, and others.
For Apple Based Condiment Sauce for Meats.
First use Mar. 7, 1966.

SN 241,655. Frigid Food Products, Incorporated, Detroit, Mich. Filed Mar. 23, 1966.

PINK DOLL

Applicant disclaims any exclusive rights in the word "Pink" apart from the mark as shown.
For Canned Apple Sauce.
First use Mar. 15, 1966.

SN 242,352. First Spice Mixing Co., Inc., Long Island City, N.Y. Filed Mar. 31, 1966.

IMPERIAL

For Seasoning Used in the Manufacturing of Meat Products.
First use Mar. 1, 1966.
Subj. to Intf. with SN 259,737.

SN 243,968. Duffy-Mott Company, Inc., New York, N.Y. Filed Apr. 21, 1966.

COTTAGE

For Canned Vegetables—Namely, Mixed Vegetables, Cut Green Beans, Carrots and Peas, Lima Beans, Peas, Wax Beans, Tomatoes, Garbanzos, Carrot Slices, and Potato Slices.
First use December 1939.

SN 243,969. Duffy-Mott Company, Inc., New York, N.Y. Filed Apr. 21, 1966.

AUNT BETSY'S

For Canned Green Black Eye Peas.
First use July 1926.

SN 246,924. National Biscuit Company, New York, N.Y. Filed May 31, 1966.

PIK-CHICKS

For Biscuits and Crackers.
First use May 13, 1966.

SN 246,926. National Molasses Company, Willow Grove, Pa. Filed May 31, 1966.

MOL-MIX

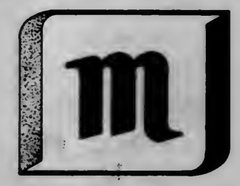
For Liquid Livestock Feed.
First use Apr. 27, 1966.

SN 246,955. Santa Cruz Farms, Eloy, Ariz. Filed May 31, 1966.



For Fresh Vegetables.
First use Apr. 8, 1966.

SN 247,046. The Morrison Milling Co., Denton, Tex. Filed June 1, 1966.



For Flour, Corn Meal, and Prepared Baking Mixes, Including Corn Bread Mix and Biscuit Mix.
First use December 1964.

SN 247,382. Anthony J. Gambina, Berwyn, Ill., assignee of Matador Food Products, Inc., d.b.a. Matador Food Products Co., Chicago, Ill. Filed June 6, 1966.



The representation of the goods is disclaimed apart from the mark as shown.
For Food Products—Namely, Frozen Tamales.
First use Dec. 19, 1963.
Subj. to Intf. with SN 256,044 and SN 258,142.

SN 249,203. Suni-Citrus Products Company, Haines City, Fla. Filed June 29, 1966.

Suni-Citrus

Owner of Reg. Nos. 353,341, 699,085, and others.
For Frozen Concentrated Orange Juice.
First use June 23, 1952.

SN 249,625. DCA Food Industries Inc., New York, N.Y. Filed July 6, 1966.

DOUBLE DOZEN

For Stick-Mounted Flavored Frozen Confections.
First use May 5, 1966.

SN 256,044. Aktieselskabet Matador Food and Export Company, Ringsted, Denmark. Filed Oct. 10, 1966.

MATADOR

For Canned Ham and Luncheon Meat.
First use Oct. 10, 1952; in commerce Mar. 1, 1953.
Subj. to Intf. with SN 247,382 and SN 258,142.

SN 256,266. Caruso Products Distributing Corporation, Pelham Manor, N.Y. Filed Oct. 12, 1966.



The name is that of the famous singer "Enrico Caruso," deceased. Owner of Reg. No. 811,818.
For Edible Oils of Vegetable Origin; Tomatoes in Cans and Glass; Meatless Pizza Sauce; Canned Tomato Puree and Paste; Catsup; Chile Sauce; Prepared Meatless Sauces of a Vegetable Nature; Vegetables and Mushrooms in Cans and Glass; Fish and Shellfish in Cans and Glass; Pickles; Egg Plants in Cans and Glass; Olives; Pimentos; Capers; Meatless Antipasto in Glass and Cans; Meatless Stuffed Peppers and Meatless Stuffed Egg Plants in Cans and Glass; Salads of a Vegetable Nature in Cans and Glass; Roasted Peppers in Cans and Glass; Vegetable Cocktail Mix in Glass and Cans; Mixed Vegetables in Vinegar; Bread Crumbs; Vinegar; Spices; Dried Vegetables and Beans; Dried Nuts; Jams and Jellies; Dried Fruits; Coffee and Tea.
First use Aug. 8, 1921.

SN 256,267. Caruso Products Distributing Corporation, Pelham Manor, N.Y. Filed Oct. 12, 1966.

ENRICO CARUSO

The name is that of the famous singer "Enrico Caruso," deceased. Owner of Reg. No. 811,818.
For Edible Oils of Vegetable Origin; Tomatoes in Cans and Glass; Meatless Pizza Sauce; Canned Tomato Puree and Paste; Catsup; Chile Sauce; Prepared Meatless Sauces of a Vegetable Nature; Vegetables and Mushrooms in Cans and Glass; Fish and Shellfish in Cans and Glass; Pickles; Egg Plants in Cans and Glass; Olives; Pimentos; Capers; Meatless Antipasto in Glass and Cans; Meatless Stuffed Peppers and Meatless Stuffed Egg Plants in Cans and Glass; Salads of a Vegetable Nature in Cans and Glass; Roasted Peppers in Cans and Glass; Vegetable Cocktail Mix in Glass and Cans; Mixed Vegetables in Vinegar; Bread Crumbs; Vinegar; Spices; Dried Vegetables and Beans; Dried Nuts; Jams and Jellies; Dried Fruits; Coffee and Tea.
First use Aug. 8, 1921.

SN 259,737. Kadison Laboratories, Inc., Chicago, Ill. Filed Nov. 30, 1966.

IMPERIAL

For Meat Curing Compositions and Seasoning.
First use on or about Oct. 22, 1962.
Subj. to Intf. with SN 242,352.

SN 263,095. Mars, Incorporated, d.b.a. M & M Candies, Wilmington, Del. Filed Jan. 23, 1967.

BLAZE

For Candy.
First use Jan. 12, 1967.

SN 264,472. Vita Food Products, Inc., New York, N.Y. Filed Feb. 13, 1967.

MAVEN

The word "Maven" is the Hebrew equivalent of the word "connoisseur."
For Herring, Gefilte Fish, and Dill Pickles.
First use Feb. 2, 1967.

SN 264,478. Golden Nugget Candy Company, San Francisco, Calif. Filed Feb. 13, 1967.

CHARLESTON CHEW!

Applicant claims the area comprising that part of the United States west of an imaginary line drawn between and beyond El Paso, Tex., and Great Falls, Mont.
For Candy.
First use Apr. 1, 1924.
Subj. to Concurrent Use Proceeding with Reg. No. 771,180.

SN 265,019. Halo Sales Corporation, d.b.a. The Party People, San Francisco, Calif. Filed Feb. 20, 1967.

SWEET'N'EASY

No claim is made to the word "Sweet" apart from the mark as shown.
For Edible Cake Decorations.
First use Dec. 14, 1966.

SN 266,292. Allied Mills, Inc., Chicago, Ill. Filed Mar. 9, 1967.



The drawing is lined for red and yellow.
For Frozen and Fresh Turkeys, Frozen Rock Cornish Roasting Chickens and Fresh Frying Chickens.
First use Nov. 16, 1966, on frozen turkeys.

Class 47 — Wines

SN 253,359. The Taylor Wine Company, Inc., Hammondsport, N.Y. Filed Aug. 29, 1966.

LAKE COUNTRY RED

The word "Red" is disclaimed apart from the mark as shown.
For Wine.
First use May 27, 1966.

SN 253,360. The Taylor Wine Company, Inc., Hammondsport, N.Y. Filed Aug. 29, 1966.

TAYLOR
NEW YORK STATE
Lake Country Red

The terms "New York State" and "Red" are disclaimed apart from the mark as shown. Owner of Reg. Nos. 373,137, 734,363, and others.
For Wine.
First use May 27, 1966.

SN 254,192. Schenley Distillers, Inc., d.b.a. Weston Winery, New York, N.Y. Filed Sept. 9, 1966.

COPENKA

For Wine.
First use July 21, 1966.

SN 254,269. Franzia Brothers Winery, d.b.a. Old Chateau Wine Co., Ripon, Calif. Filed Sept. 12, 1966.

Bon Maison

The mark consists of the French equivalent of the words "good house." Owner of Reg. No. 780,689.
For Champagnes and Sparkling Wines.
First use Sept. 2, 1966.

Class 49 — Distilled Alcoholic Liquors

SN 254,807. H. Stenham Limited, d.b.a. Metropolitan Scotch Whisky Blenders, London, England. Filed Sept. 20, 1966.

HIGHLAND STAR

Owner of British Reg. No. 822,139, dated June 21, 1961.
For Scotch Whisky.

Class 50 — Merchandise Not Otherwise Classified

SN 259,630. Allsop Automatic Inc., Bellingham, Wash. Filed Nov. 29, 1966.

BOOT-IN

For Automatic Boot and Shoe Tree.
First use Feb. 1, 1966.

Class 51 — Cosmetics and Toilet Preparations

SN 225,275. John H. Breck, Inc., Springfield, Mass. Filed Aug. 9, 1965.

BLONDE AGAIN

The word "Blonde" is disclaimed apart from the mark as shown.
For Hair Lightener.
First use July 23, 1965.

SN 231,539. Chemway Corporation, Wayne, N.J. Filed Oct. 24, 1965.

BRUSH OFF

For Depilatory.
First use Sept. 17, 1965.

SN 235,885. John H. Breck, Inc., Springfield, Mass. Filed Jan. 6, 1966.

SILVER AGAIN

The word "Silver" is disclaimed apart from the mark as shown.
For Hair Coloring Preparation.
First use Dec. 14, 1965.

SN 242,113. Colgate-Palmolive Company, New York, N.Y. Filed Mar. 29, 1966.



Applicant disclaims exclusive rights to the word "Toothpaste" and to the representation of a toothbrush and toothpaste, apart from the mark as shown. The drawing is lined for the colors blue, grey, and green. It represents a chromatic photographic rendering of a green toothbrush, showing shaded highlights, with white toothpaste, surrounded by an halation effect, against a blue background. Owner of Reg. No. 815,139.
For Dentifrice.
First use Mar. 1, 1966.

SN 243,346. Chas. Pfizer & Co., Inc., New York, N.Y. Filed Apr. 13, 1966.

BEARD BUSTER

The term "Beard" is disclaimed apart from the mark as a whole.
For Shave Cream.
First use Oct. 12, 1965.

SN 243,708. Person & Covey, Inc., Glendale, Calif. Filed Apr. 18, 1966.

SOLBAR

For Skin Lotion for Preventing Sunburn.
First use Mar. 16, 1961.

SN 245,234. Revlon, Inc., New York, N.Y. Filed May 9, 1966.

'FASHION PLATE'

Owner of Reg. No. 688,466.
For Cosmetic Cake Make-Up.
First use Apr. 1, 1966.

SN 245,327. Maradel Products, Inc., Farmingdale, N.Y. Filed May 10, 1966.

"UNDERCOVER"

For Blemish Cream.
First use Apr. 1, 1966.

SN 245,671. Beauty Counselors, Inc., Grosse Pointe, Mich. Filed May 16, 1966.

PICK-UP

Owner of Reg. No. 350,068.
For Face Cream and Face Powder.
First use Apr. 10, 1937.

SN 247,057. Chas. Pfizer & Co., Inc., New York, N.Y. Filed June 1, 1966.

"2001"

For Perfume, Lipstick, and Face Cream.
First use Apr. 13, 1966.

SN 247,775. Clairol Incorporated, New York, N.Y. Filed June 10, 1966.

KINDNESS

Owner of Reg. No. 819,240.
For Cosmetic and Toilet Preparations—Namely, a Hair Conditioner.
First use July 15, 1964.

SN 249,059. Neiman-Marcus Company, Dallas, Tex. Filed June 27, 1966.



For Toilet Preparation—Namely, After Shave Towelette.
First use Dec. 1, 1965.

SN 250,060. Valmor Products Co., Chicago, Ill. Filed July 11, 1966.

VAL MOR

Owner of Reg. No. 218,299.
For Wig Spray and Wig Oil.
First use Jan. 4, 1965.

SN 259,287. Shulton, Inc., Clifton, N.J. Filed Nov. 23, 1966.

BURLEY

For After Shave Lotion and Cologne for Men.
First use Nov. 11, 1966.

SN 262,571. Eff & Gee Company, Chicago, Ill. Filed Jan. 16, 1967.

BOOZE 'N BROADS

For After Shave Lotion.
First use Jan. 12, 1967.

Class 52 — Detergents and Soaps

SN 240,106. Mey-Line Products, Inc., Royal Oak, Mich. Filed Mar. 3, 1966.



The word "Klen" is disclaimed apart from the mark as shown.
For Liquid Concentrate for Mixture With Water To Form a Household Cleansing Solution.
First use Jan. 19, 1966.

SN 252,069. John H. Breck, Inc., Springfield, Mass. Filed Aug. 10, 1966.

NEW IMAGE

Owner of Reg. Nos. 799,630 and 799,629.
For Hair Shampoo.
First use Aug. 26, 1965.

SN 254,176. Roy Kenneth Monson, d.b.a. The Diamon Products Company, Westminster, Colo. Filed Sept. 9, 1966.

STARLITE

For Jewelry and Watch Cleaning Fluid.
First use Nov. 12, 1959.

SN 254,435. Chem-T Laboratories, Inc., Greenville, S.C. Filed Sept. 14, 1966.

HANOLIN

For Hand Cleaning Cream.
First use Apr. 1, 1962.

SN 263,513. Calgon Corporation, Pittsburgh, Pa. Filed Jan. 30, 1967.



The word "Wash" is disclaimed apart from the mark as shown. The drawing is lined for the color yellow.
For Detergents for Vehicles.
First use July 6, 1966.

SERVICE MARKS

Class 100 — Miscellaneous

SN 236,251. Geochron Laboratories, Inc., Cambridge, Mass. Filed Jan. 12, 1966.

GEOCHRON

For Service Offered to Geologists, Archeologists, Petrologists, Petroleum Companies and Others—Namely, the Determination of the Age of Rocks, Minerals, Fossils and Other Similar Matter (Insofar as Such Service Might Be Said To Have a "Common, Usual or Ordinary Name" Such Name Would Be "Geological Dating Service").
First use on or about Oct. 1, 1960.

SN 238,042. Burger Farms of America, Inc., Evansville, Ind. Filed Feb. 4, 1966.

BURGER FARM

Applicant disclaims the word "Burger" apart from the mark as shown.
For Restaurant Services.
First use Oct. 2, 1965.

SN 245,824. W. Earl Hawkins, d.b.a. Pac-Out Drive-In, Boise, Idaho. Filed May 17, 1966.

PAC-OUT

For Carry-Out Restaurant Services.
First use June 18, 1955.

SN 245,827. Heliodyne Corporation, Van Nuys, Calif. Filed May 17, 1966.

HELIODYNE

For Engineering and Consulting Services Rendered to Others in Theoretical and Applied Mathematics, Theoretical and Applied Physics, Flight Dynamics, Chemical Kinetics, Gas Dynamics, Data Correlation, Spectroscopy and Radiation Kinetics, Electromagnetic Phenomena, Plasmas and Turbulent Flows, Materials Research, Bio-Engineering Research, Data Storage and Retrieval, Computer Programming, Statistical Analysis, and Economic Analysis.
First use in or about May 1962.

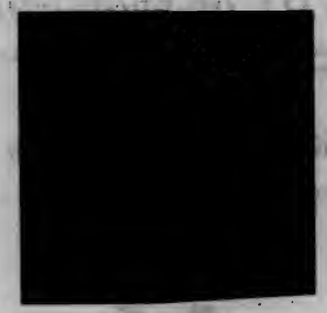
SN 249,623. Columbia Broadcasting System, Inc., New York, N.Y. Filed July 6, 1966.

VPA

For Analyzing and Reporting Voting Trends Over Television and Radio, Said Trends Being Computed and Projected by Electronic Methods, Based on Early Electronic Returns From Various Precincts.
First use on or before Nov. 9, 1962.

Class 101 — Advertising and Business

SN 216,211. South East Furniture, Salt Lake City, Utah. Filed Apr. 9, 1965.



The drawing is lined for the colors blue and green.
For Retail Furniture Store Services.
First use Feb. 1, 1965.

SN 242,751. Scooper Dooper Ice Cream Shoppes, Inc., Pennsauken, N.J. Filed Apr. 5, 1966.

SCOOPER DOOPER

For Rendering Technical Assistance in All Phases of the Business to Operators of Ice Cream Stores Serving Hand-Dipped Ice Cream.
First use Oct. 31, 1965.

SN 250,169. Mister Donut of America, Inc., Westwood, Mass. Filed July 13, 1966.



The word "Donut" is disclaimed apart from the mark as shown. Owner of Reg. Nos. 427,509, 668,784, and 683,370.
For Restaurant Services.
First use Dec. 15, 1964.

SN 265,777. Impact Advertising Associates, Inc., King of Prussia, Pa. Filed Mar. 2, 1967.



The drawing is lined for the color gold. The mark consists of the letters "IAA" and design.
For Services of a General Advertising Agency.
First use Oct. 15, 1963.

Class 102 — Insurance and Financial

SN 246,710. Nationwide Mutual Insurance Company, Columbus, Ohio. Filed May 26, 1966.

WALL OF PROTECTION

For Underwriting and Selling All Lines of Insurance.
First use May 3, 1966.

Class 103 — Construction and Repair

SN 235,690. Marshall Maintenance, Trenton, N.J. Filed Jan. 3, 1966.



For Construction of Machinery, Production Line Equipment, Welding, Repairing and Maintenance of Machinery and Production Line Equipment.
First use Oct. 1, 1965.

Class 104 — Communication

SN 237,074. Artson Answering Co., San Francisco, Calif. Filed Jan. 24, 1966.

ON CALL SERVICE

Applicant disclaims the word "Service" apart from the mark as a whole.
For Telephone Answering Service.
First use Jan. 2, 1966.

SN 244,803. Communications Satellite Corporation, Washington, D.C. Filed May 3, 1966.



For Transmitting, Relaying, and Receiving Communications Via Satellites.
First use Mar. 28, 1966.

Class 105 — Transportation and Storage

SN 245,449. Air Express International Corp., New York, N.Y. Filed May 12, 1966.



Owner of Reg. Nos. 547,316 and 773,387.
For Air Cargo Transportation Services Performed as an Indirect Air Carrier.
First use on or about Aug. 13, 1965.

SN 245,488. Hubler Rentals, Inc., Allentown, Pa. Filed May 12, 1966.

HUBLER

For Truck Leasing and Rental Service.
First use July 1957.

SN 264,686. Seatrain Lines, Inc., Edgewater, N.J. Filed Feb. 14, 1967.



The drawing is lined for the color blue.
For Transportation of Cargo, Principally by Sea, and Incidentally, by Motor Vehicles Used in Connection With Ocean-Borne Commerce.
First use Nov. 21, 1965.

Class 106 — Material Treatment

SN 244,428. Rykon Specialised Plating, Inc., Avon Lake, Ohio. Filed Apr. 27, 1966.



The outer rectangular portion of the mark is lined for gray, but no claim is made to color as a feature of the mark. The lining in the loop portion of the letters "R" and "K" is a part of the mark and is not intended to signify color.
For Commercial and Custom Metal Plating (Especially Gold, Silver, and Precious Metals), on Surfaces of Material.
First use at least as early as Jan. 8, 1965.

Class 107 — Education and Entertainment

SN 230,603. George N. Battis, St. Paul, Minn. Filed Oct. 20, 1965.

BARNABY BEAR

For Entertainment Services in the Form of Television and Radio Programs.
First use Sept. 23, 1965.

SN 238,129. United Business Schools Association, Washington, D.C. Filed Feb. 4, 1966.



For Association Service—Namely, Evaluating and Indicating Accreditation and Approval of Business Schools, Institutions of Business Learning, and Courses Relating Thereto.
First use January 1960.

SN 239,765. Golden Gate College, San Francisco, Calif. Filed Feb. 28, 1966.



For College Education Services.
First use May 28, 1965.

SN 244,725. Morty Nevins and Artie Dunn (joint owners), New York, N.Y. Filed May 2, 1966.

THE THREE SUNS

For Musical Entertainment Rendered by an Orchestra.
First use Feb. 9, 1939.

SN 245,302. The Four Coins, Canonsburg, Pa. Filed May 10, 1966.

THE FOUR COINS

For Entertainment Services in the Form of Singing Rendered by a Male Quartet.
First use June 30, 1954.

SN 256,552. Gulf Coast Broadcasting Company, Corpus Christi, Tex. Filed Oct. 17, 1966.



For Entertainment Services Rendered Through the Medium of Television, Including Motion Pictures, Puppets, and Living Persons.
First use Mar. 28, 1966.

CERTIFICATION MARKS

Class A — Goods

SN 247,614. The National Wool Textile Export Corporation, Bradford, England. Filed June 8, 1966.



The mark certifies that the textile piece goods have been woven in the United Kingdom of Great Britain and Northern Ireland and where applicable dye or finished in the United Kingdom from yarns which have been spun in the United Kingdom, from fibres or filaments, the processing of which into slivers has been carried out in the United Kingdom and that the textile piece goods are made in accordance with standards of content promulgated by the applicant. Owner of British Reg. No. 844,939, dated Feb. 11, 1966.

For Textile Piece Goods Made of Wool and/or Animal Fibre.

TRADEMARK REGISTRATIONS ISSUED

PRINCIPAL REGISTER

Class 1 — Raw or Partly Prepared Materials

829,318. SILVERCONE. Gladen Enterprises, Inc. MULTIPLE CLASS (Classes 1 and 23). SN 217,535. Pub. 3–14–67. Filed 4–28–65.

829,319. RAM'S HEAD (DESIGN). Western Felt Works. MULTIPLE CLASS (Classes 1, 12, 23, 31, 34, 35, 42, and 44). SN 232,262. Pub. 3–14–67. Filed 11–8–65.

Class 2 — Receptacles

829,320. COOL KING AND DESIGN. General Foam Plastics Corporation. SN 230,817. Pub. 3–14–67. Filed 10–21–65.

829,321. MARKSMAN LIGHT-TITE. Olinkraft, Inc., assignee of Olin Mathieson Chemical Corporation. SN 232,758. Pub. 3–14–67. Filed 11–15–65.

829,322. TEXAS-WARE. Plastics Manufacturing Company. SN 236,777. Pub. 3–14–67. Filed 1–18–66.

829,323. RODO-PAK AND DESIGN. Rodo Enterprises, Inc. MULTIPLE CLASS (Classes 2 and 37). SN 238,010. Pub. 3–14–67. Filed 2–3–66.

829,324. GALAXEE CENTURY 21. Bennett Industries, Inc. SN 249,112. Pub. 3–14–67. Filed 6–28–66.

829,325. MOTIF. Gotham Industries, Inc. SN 257,737. Pub. 3–14–67. Filed 11–2–66.

Class 3 — Baggage, Animal Equipments, Portfolios, and Pocketbooks

829,326. FEW POUNDER. Hers Specialty Products, Inc. SN 236,188. Pub. 3–14–67. Filed 1–11–66.

Class 4 — Abrasives and Polishing Materials

829,327. ACRI-LUSTRE. American-Lincoln Corporation. SN 235,479. Pub. 3–14–67. Filed 12–29–65.

829,328. PRONTO. S. C. Johnson & Son, Inc. MULTIPLE CLASS (Classes 4 and 52). SN 253,702. Pub. 3–14–67. Filed 9–2–66.

Class 6 — Chemicals and Chemical Compositions

829,329. CAROL. The Sinclair Manufacturing Company. SN 227,345. Pub. 4–19–66. Filed 9–7–65.

829,330. BORON AND DESIGN. Boron Oil Company. SN 232,520. Pub. 3–14–67. Filed 11–12–65.

829,331. DEE-TO-SPERSE. Frank D. Davis Company. SN 248,439. Pub. 3–14–67. Filed 6–20–66.

Class 7 — Cordage

829,332. MAN SIZE. Norcross, Inc. SN 254,309. Pub. 3–14–67. Filed 9–12–66.

Class 8 — Smokers' Articles, Not Including Tobacco Products

829,333. CONSUL ROYAL AND DESIGN. Gebruder Kollisch Aktiengesellschaft, assignee of Bernhard Köllisch, d.b.a. Gebruder Kollisch. SN 180,100. Pub. 12–20–66. Filed 10–30–63.

829,334. CONSUL ROYAL. Gebruder Kollisch Aktiengesellschaft, assignee of Bernhard Köllisch, d.b.a. Gebruder Kollisch. SN 181,551. Pub. 12–20–66. Filed 11–29–63.

Class 11 — Inks and Inking Materials

829,335. EXCLUSIVELY YOURS AND DESIGN. Distinguished Brands, Inc. SN 247,902. Pub. 3–14–67. Filed 6–13–66.

Class 12 — Construction Materials

829,319. (See Class 1 for this trademark.)

829,336. PERMA-PIPE. Midwesco-Enterprise, Inc. SN 205,315. Pub. 3–14–67. Filed 11–2–64.

829,337. MISCELLANEOUS DESIGN. Formica Corporation. SN 234,557. Pub. 3–14–67. Filed 12–14–65.

829,338. LEVEL DECK. Bird & Son, Inc. SN 236,175. Pub. 3–14–67. Filed 1–11–66.

829,339. GOLD STRIPE (DESIGN). Vistron Corporation, assignee, by mesne assignment, of Filon Corporation. SN 242,001. Pub. 3–14–67. Filed 3–28–66.

829,340. POTLATCH COMPONENT CENTER AND DESIGN. Potlatch Forests, Inc. SN 242,484. Pub. 3–14–67. Filed 4–1–66.

829,341. FALL-SAFE. Charles A. Owen, d.b.a. Owen Safety First Company. SN 242,642. Pub. 3–14–67. Filed 4–4–66.

829,342. PLASTI-COVE. Wilbur W. Raab, d.b.a. D & R Fabricators. SN 245,791. Pub. 3–14–67. Filed 5–16–66.

829,343. PERMACOLOR. United States Plywood Corporation. SN 254,644. Pub. 3–14–67. Filed 9–19–66.

Class 13 — Hardware and Plumbing and Steam-Fitting Supplies

829,344. AVEX. Aerpat A.G. MULTIPLE CLASS (Classes 13 and 23). SN 220,053. Pub. 3–14–67. Filed 6–1–65.

829,345. TAB LOCK. The Stocker Hinge Mfg. Co. SN 229,886. Pub. 3–14–67. Filed 10–11–65.

829,346. ROLL OUT AND DESIGN. George W. Goodson, d.b.a. Delta Products Co. SN 231,416. Pub. 3–14–67. Filed 10–23–65.

829,347. CARFLEX. Continental Oil Company. SN 231,545. Pub. 3–14–67. Filed 10–24–65.

829,348. FIGURE OF A BOWMAN. Associated Spring Corporation. MULTIPLE CLASS (Classes 13, 19, 21, 22, 23, and 35). SN 233,035. Pub. 3–14–67. Filed 11–22–65.

829,349. BOWMAN AND DESIGN. Associated Spring Corporation. MULTIPLE CLASS (Classes 13, 19, 21, 22, 23, and 35). SN 233,666. Pub. 3–14–67. Filed 12–1–65.

829,350. DUO-SERT. FMC Corporation. SN 233,706. Pub. 3–14–67. Filed 12–1–65.

829,351. H–5000. Hartwell Corporation. SN 234,565. Pub. 3–14–67. Filed 12–14–65.

829,352. AGRI-SPRAY. Wm. Steinen Mfg. Co. SN 235,352. Pub. 3–14–67. Filed 12–27–65.

829,353. AGRI-JET. Wm. Steinen Mfg. Co. SN 235,353. Pub. 3–14–67. Filed 12–27–65.

829,354. AERO-JAVA. Nordskog Company, Inc. SN 236,280. Pub. 3–14–67. Filed 1–12–66.

829,355. SAFETY CROWN AND DESIGN. Continental Disc Corporation. SN 236,973. Pub. 3–14–67. Filed 1–21–66.

829,356. WAYNE-WARE. Wayne Manufacturing Company. SN 237,897. Pub. 3–14–67. Filed 2–2–66.

829,357. FONTANA. Ray Control Corp. SN 238,788. Pub. 3–14–67. Filed 2–14–66.

829,358. KINGLEY. Kings Langley Engineering Company Limited. SN 243,286. Pub. 3–14–67. Filed 1–26–66.

829,359. DIAL-TROL. Bridgeport Brass Company. SN 245,155. Pub. 3–14–67. Filed 5–9–66.

829,360. SPANGRID. Armco Steel Corporation. SN 258,447. Pub. 3–14–67. Filed 11–14–66.

Class 15—Oils and Greases

829,361. SOCIA LITE. A-Try Corporation. SN 232,441. Pub. 3–14–67. Filed 11–10–65.

829,362. ALL–12. Energy Research Group, Inc., assignee of Fuels Research Corporation. SN 239,040. Pub. 3–14–67. Filed 2–17–66.

829,363. SINCOPRIME. Sinclair Refining Company. SN 245,859. Pub. 3–14–67. Filed 5–17–66.

829,364. SINCOLUX. Sinclair Refining Company. SN 245,860. Pub. 3–14–67. Filed 5–17–66.

829,365. SINCO-TECH. Sinclair Refining Company. SN 245,861. Pub. 3–14–67. Filed 5–17–66.

829,366. DUOTREAT. Sinclair Refining Company. SN 245,862. Pub. 3–14–67. Filed 5–17–66.

829,367. FREE 'N KLEEN. Matrix Laboratories, Inc., d.b.a. Perkiomen Laboratories. SN 261,002. Pub. 3–14–67. Filed 12–19–66.

Class 16—Protective and Decorative Coatings

829,368. S AND DESIGN. Schmitt Paint and Chemical-Equipment Corp. SN 231,599. Pub. 3–14–67. Filed 10–24–65.

829,369. JAMBOREE. Purton, Inc. SN 246,364. Pub. 3–14–67. Filed 5–23–66.

Class 17—Tobacco Products

829,370. HOLLCO. Wally Frank, Ltd. SN 244,817. Pub. 3–14–67. Filed 5–3–66.

829,371. PERC. Philip Morris Incorporated. SN 260,498. Pub. 3–14–67. Filed 12–12–66.

Class 18—Medicines and Pharmaceutical Preparations

829,372. NAUSEX. Philips Roxane, Inc. SN 170,859. Pub. 7–20–65. Filed 6–12–63.

829,373. SYMASUL. American Cyanamid Company. SN 210,728. Pub. 3–14–67. Filed 1–27–65.

829,374. CYMASUL. American Cyanamid Company. SN 210,729. Pub. 3–14–67. Filed 1–27–65.

829,375. DONNAMYCIN-PG. A. H. Robins Company, Incorporated. SN 215,145. Pub. 3–14–67. Filed 3–30–65.

829,376. TROPAX. Mead Johnson & Company. SN 228,259. Pub. 4–12–66. Filed 9–21–65.

829,377. NOXCEL. Noxell Corporation. SN 254,708. Pub. 3–14–67. Filed 9–19–66.

829,378. LENEVA LAB INC AND DESIGN. Leneva Laboratories, Inc. SN 255,677. Pub. 3–14–67. Filed 10–4–66.

829,379. PATITON AND DESIGN. Leneva Laboratories, Inc. SN 255,678. Pub. 3–14–67. Filed 10–4–66.

Class 19—Vehicles

829,348. (See Class 13 for this trademark.)

829,349. (See Class 13 for this trademark.)

829,380. SHELLER. Sheller Manufacturing Corporation. SN 201,973. Pub. 3–14–67. Filed 9–15–64.

829,381. JET FISH. Alfred Bloomingdale. SN 205,035. Pub. 3–14–67. Filed 10–29–64.

829,382. NYCOPAC. The New York Air Brake Company. SN 245,604. Pub. 3–14–67. Filed 5–13–66.

829,383. NI (DESIGN). Namco Industries, Inc. SN 245,740. Pub. 3–14–67. Filed 5–16–66.

829,384. NAMCO. Namco Industries, Inc. SN 245,741. Pub. 3–14–67. Filed 5–16–66.

829,385. THE ESCORT. Travelhome, Inc. SN 245,876. Pub. 3–14–67. Filed 5–4–66.

829,386. PATRICE. Chickasha Mobile Homes of Missouri, Inc. SN 245,910. Pub. 3–14–67. Filed 5–18–66.

829,387. TRI-TAPER. General Body Sales Corporation. SN 246,304. Pub. 3–14–67. Filed 5–23–66.

829,388. REMCO-MATIC. Republic Engineering & Manufacturing Co. SN 246,367. Pub. 3–14–67. Filed 5–23–66.

829,389. TOTE-ABOUT. Plasti-Craft Inc., of California. SN 254,716. Pub. 3–14–67. Filed 9–19–66.

Class 20—Linoleum and Oiled Cloth

829,390. POLYKRYSTALON AND DESIGN. The Poly-Krystalon Co., Inc., assignee of B. V. Ballard. MULTIPLE CLASS (Classes 20 and 32). SN 212,483. Pub. 3–14–67. Filed 2–23–65.

Class 21—Electrical Apparatus, Machines, and Supplies

829,348. (See Class 13 for this trademark.)

829,349. (See Class 13 for this trademark.)

829,391. U-D-F. Ajax Magnethermic Corporation. MULTIPLE CLASS (Classes 21 and 34). SN 222,442. Pub. 3–14–67. Filed 7–1–65.

829,392. WHAT'S NEW FOR TOMORROW IS AT SINGER TODAY! The Singer Company. MULTIPLE CLASS (Classes 21, 23, 32, 36, and 50). SN 223,937. Pub. 3–14–67. Filed 7–22–65.

829,393. CONRAE. Conrae Interiors, Inc. MULTIPLE CLASS (Classes 21, 32, and 42). SN 229,208. Pub. 3–14–67. Filed 10–4–65.

829,394. BOZAK. The R. T. Bozak Manufacturing Company. SN 229,490. Pub. 3–14–67. Filed 10–7–65.

829,395. AEROMET AND DESIGN. Aerovox Corporation. SN 230,747. Pub. 1–31–67. Filed 10–21–65.

829,396. INFINITRON. Bourns, Inc. SN 238,701. Pub. 3–14–67. Filed 2–14–66.

829,397. BLINKY. Tech Plastics Corporation. SN 239,674. Pub. 3–14–67. Filed 2–25–66.

829,398. ANTENNACRAFT AND DESIGN. Antennacraft Company. SN 240,494. Pub. 3–14–67. Filed 3–9–66.

829,399. BCA AND DESIGN. Battery Corporation of America. SN 240,499. Pub. 3–14–67. Filed 3–9–66.

829,400. SEDIVER. Societe Anonyme Société Européenne d'Isolateurs en Verre. SN 240,968. Pub. 3–14–67. Filed 3–14–66.

829,401. AMECO. Ameco, Inc. SN 245,539. Pub. 3–14–67. Filed 5–13–66.

829,402. BOSE. Bose Corporation. SN 255,691. Pub. 3–14–67. Filed 10–4–66.

Class 22—Games, Toys, and Sporting Goods

829,348. (See Class 13 for this trademark.)

829,349. (See Class 13 for this trademark.)

829,403. KF AND DESIGN. K-F Industries, Inc. SN 225,774. Pub. 3–14–67. Filed 8–16–65.

829,404. WI AND DESIGN. Western Import Inc. SN 234,980. Pub. 3–14–67. Filed 12–20–65.

829,405. CHAPARRAL. Chaparral Cars. SN 239,011. Pub. 3–14–67. Filed 2–17–66.

829,406. SWINGING SAM. Totem Manufacturing Company. SN 240,806. Pub. 3–14–67. Filed 3–11–66.

829,407. NO. 68. The United States Playing Card Company. SN 241,101. Pub. 3–14–67. Filed 3–15–66.

829,408. MONOKOTE. Top Flite Models, Inc. SN 242,686. Pub. 3–14–67. Filed 4–4–66.

829,409. DR. NIM. E.S.R., Inc. SN 242,807. Pub. 3–14–67. Filed 4–6–66.

829,410. BOWL-TRU. Jolor Enterprises. SN 242,988. Pub. 3–14–67. Filed 4–8–66.

829,411. OVER-SPIN. Victor Comptometer Corporation. SN 243,048. Pub. 3–14–67. Filed 4–8–66.

829,412. BOD-E-GUARD. Jeffers & Bailey, Inc. SN 243,139. Pub. 3–14–67. Filed 4–11–66.

829,413. SOMERSET AND DESIGN. Milton Bradley Company. SN 243,540. Pub. 3–14–67. Filed 4–15–66.

829,414. TOP-SPIN AND DESIGN. Victor Comptometer Corporation. SN 243,607. Pub. 3–14–67. Filed 4–15–66.

829,415. FOAMPETS. Colonial Latex Cushion Inc. SN 253,281. Pub. 3–14–67. Filed 8–29–66.

829,416. THUNDERCOLT. Louis Marx & Co., Inc. SN 259,372. Pub. 3–14–67. Filed 11–25–66.

829,417. MR. MURDER. Gudebrod Bros. Silk Co., Inc. SN 259,504. Pub. 3–14–67. Filed 11–28–66.

829,418. MAVERICK. Gudebrod Bros. Silk Co., Inc. SN 259,505. Pub. 3–14–67. Filed 11–28–66.

829,419. 44. The United States Playing Card Company. SN 259,626. Pub. 3–14–67. Filed 11–29–66.

829,420. FUZBY. Mattel, Inc. SN 260,208. Pub. 3–14–67. Filed 12–7–66.

829,421. KISSIN' KUZZINS. Mattel, Inc. SN 260,210. Pub. 3–14–67. Filed 12–7–66.

Class 23—Cutlery, Machinery, and Tools, and Parts Thereof

829,318. (See Class 1 for this trademark.)

829,319. (See Class 1 for this trademark.)

829,344. (See Class 13 for this trademark.)

829,348. (See Class 13 for this trademark.)

829,349. (See Class 13 for this trademark.)

829,392. (See Class 21 for this trademark.)

829,422. TORQUEON. H. A. Waldrich G.m.b.H. SN 202,198. Pub. 3–14–67. Filed 9–2–64.

829,423. COIN CAR WASH AND DESIGN. Weben Products, Inc. SN 207,927. Pub. 3–14–67. Filed 12–10–64.

829,424. PENDANT WASH AND DESIGN. Thomas B. Ballard. SN 210,734. Pub. 3–14–67. Filed 1–27–65.

829,425. IMPERIAL. Brant Sewing Machine Co., Inc. SN 214,417. Pub. 3–14–67. Filed 3–18–65.

829,426. POLYCOM. Polycom Corporation. SN 225,060. Pub. 3–14–67. Filed 8–5–65.

829,427. VAM. Polycom Corporation. SN 225,064. Pub. 3–14–67. Filed 8–5–65.

829,428. DITTMER AND DESIGN. Borg-Warner Corporation. SN 228,001. Pub. 3–14–67. Filed 9–17–65.

829,429. THE HUSTLER AND DESIGN. Mobile Aerial Towers, Inc. SN 229,991. Pub. 3–14–67. Filed 10–12–65.

829,430. WEDCO. William R. Van Deburg, d.b.a. Wedco Manufacturing Company. SN 231,318. Pub. 3–14–67. Filed 10–22–65.

829,431. REELSHAV. Eversharp, Inc. SN 232,772. Pub. 3–14–67. Filed 11–16–65.

829,432. INSTAMATIC. Eversharp, Inc. SN 232,773. Pub. 3–14–67. Filed 11–16–65.

829,433. SCUTTLE-BOARD. Ernest W. Miller, d.b.a. Scuttle-Board. SN 234,221. Pub. 3–14–67. Filed 12–8–65.

829,434. ELEPHANT (DESIGN). Sté Anonyme des Ets Thiers-Issard & Fils. SN 234,474. Pub. 3–21–67. Filed 12–13–65.

829,435. CUSHION QUIET. Bimba Manufacturing Company. SN 234,329. Pub. 3–14–67. Filed 12–10–65.

829,436. UTEX. U.S. Textile Machine Company. SN 234,787. Pub. 3–14–67. Filed 12–16–65.

829,437. NAVAHO AND DESIGN. New Jersey Machine Corporation. SN 234,834. Pub. 3–14–67. Filed 12–17–65.

829,438. RAPID-PLY. RJS Products Company, Inc. SN 235,338. Pub. 3–14–67. Filed 12–27–65.

829,439. PARKER. The Parker Pen Company. SN 235,792. Pub. 3–14–67. Filed 1–4–66.

829,440. GBC. Genbearco International Corporation. SN 236,084. Pub. 3–14–67. Filed 1–10–66.

829,441. UNI-CASE. United Engineering and Foundry Company. SN 239,349. Pub. 3–14–67. Filed 2–21–66.

829,442. STARSWEEP. Wayne Manufacturing Co. SN 239,845. Pub. 3–14–67. Filed 2–28–66.

829,443. SPOONULET. Fisher Scientific Company. SN 239,887. Pub. 3–14–67. Filed 3–1–66.

829,444. GIANT G. Portable Elevator Manufacturing Company. SN 243,264. Pub. 3–14–67. Filed 4–12–66.

829,445. XEL. William A. Moore, d.b.a. Bell Rubber Company. SN 243,468. Pub. 3–14–67. Filed 4–14–66.

829,446. HOG-DOG. William J. Hayden, d.b.a. Hayden Mfg. Co. SN 243,558. Pub. 3–14–67. Filed 4–15–66.

829,447. MISCELLANEOUS DESIGN. Embassy Overseas Corp. SN 244,893. Pub. 3–14–67. Filed 5–4–66.

829,448. MARSHALLMATIC. Eaton Yale & Towne Inc. SN 245,695. Pub. 3–14–67. Filed 5–16–66.

829,449. CATCH VAC. Tarrant Manufacturing Company. SN 249,190. Pub. 3–14–67. Filed 6–28–66.

829,450. RO-LO. Continental Exchange Ltd. of California, d.b.a. Robert Louis, Ltd. SN 255,566. Pub. 3–14–67. Filed 10–3–66.

829,451. LEGION EXTRANJERA AND DESIGN. Legion Extranjera, Fabrica de Hojas de Afeitar, Industrial y Comercial, Sociedad Anonima. SN 256,748. Pub. 3–14–67. Filed 10–19–66.

Class 24—Laundry Appliances and Machines

829,452. E AND B FRESHAIRE AND DESIGN. E and B Manufacturing Co., Inc. SN 238,411. Pub. 3–14–67. Filed 2–9–66.

Class 25—Locks and Safes

829,453. PORTA-VAULT. Industries Plus, Inc. SN 235,105. Pub. 3–14–67. Filed 12–22–65.

829,454. CNC-KEYMETAL. Curtis Noll Corporation. SN 237,430. Pub. 3–14–67. Filed 1–27–66.

Class 26—Measuring and Scientific Appliances

829,455. COPY MINDER. Addressograph Multigraph Corporation. SN 231,875. Pub. 3–14–67. Filed 11–1–65.

829,456. MEASURE-ZUM. Hyde Manufacturing Company. SN 232,836. Pub. 3–14–67. Filed 11–17–65.

829,457. BIRD. Bird Electronic Corporation. SN 237,295–A. Pub. 8–9–66. Filed 3–7–67.

829,458. TELEMUX. Computer Test Corporation, assignee of Anelex Corporation. SN 237,914. Pub. 1–3–67. Filed 2–3–66.

829,459. BILINE. Computer Test Corporation, assignee of Anelex Corpbration. SN 237,916. Pub. 1–10–67. Filed 2–3–66.

829,460. CALIBAIRE. Integron, Inc. SN 237,974. Pub. 3–14–67. Filed 2–3–66.

829,461. TWIN READER AN EDROY PRODUCT AND DESIGN. Edroy Products Company, Inc. SN 238,060. Pub. 3–14–67. Filed 2–4–66.

829,462. DEMODULE AND DESIGN. Sams Technical Institute, Inc. SN 252,625. Pub. 3–14–67. Filed 8–18–66.

Class 27—Horological Instruments

829,463. THREE POINTED STAR IN RING (DESIGN). Daimler-Benz Aktiengesellschaft. SN 234,807. Pub. 3–14–67. Filed 12–17–65.

Class 28—Jewelry and Precious-Metal Ware

829,464. AZURLITE. Stein & Ellbogen Company. SN 241,283. Pub. 3–14–67. Filed 3–17–66.

Class 29—Brooms, Brushes, and Dusters

829,465. T.A.B. Bill G. Blount, d.b.a. School Products Co. SN 241,630. Pub. 3–14–67. Filed 3–23–66.

Class 31—Filters and Refrigerators

829,319. (See Class 1 for this trademark.)

Class 32—Furniture and Upholstery

829,390. (See Class 20 for this trademark.)

829,392. (See Class 21 for this trademark.)

829,393. (See Class 21 for this trademark.)

829,466. LI (DESIGN). Litton Industries, Inc. SN 236,102. Pub. 3–14–67. Filed 1–10–66.

829,467. ECON-O-STAK. Fixtures Manufacturing Corporation. SN 246,550. Pub. 3–14–67. Filed 5–25–66.

829,468. ULTRAMA. Modern Upholstered Chair Co., Inc. SN 246,583. Pub. 3–14–67. Filed 5–25–66.

829,469. KAMPAMAT. Thomas Black & Sons, Inc. SN 260,378. Pub. 3–14–67. Filed 12–9–66.

Class 34—Heating, Lighting, and Ventilating Apparatus

829,319. (See Class 1 for this trademark.)

829,391. (See Class 21 for this trademark.)

829,470. PTX. Engelhard Industries, Inc. SN 235,093. Pub. 3–14–67. Filed 12–22–65.

829,471. ELECTROTUBE. Crane Co. SN 235,494. Pub. 3–14–67. Filed 12–29–65.

829,472. PRINCESS. Eldon Industries, Inc. SN 260,497. Pub. 3–14–67. Filed 12–12–66.

829,473. VULCAN. The Vulcan Radiator Company. SN 260,633. Pub. 3–14–67. Filed 12–13–66.

Class 35—Belting, Hose, Machinery Packing, and Nonmetallic Tires

829,319. (See Class 1 for this trademark.)

829,348. (See Class 13 for this trademark.)

829,349. (See Class 13 for this trademark.)

Class 36—Musical Instruments and Supplies

829,392. (See Class 21 for this trademark.)

829,474. ST. GEORGE AND DESIGN. George's Import-Export, Ltd. SN 227,280. Pub. 3–14–67. Filed 9–7–65.

829,475. PEMCO AND DESIGN. Pacific Electro Magnetics Co., Inc. SN 232,473. Pub. 3–14–67. Filed 11–10–65.

Class 37—Paper and Stationery

829,323. (See Class 2 for this trademark.)

829,476. TRIANGLE (DESIGN). The Allen Pen Company, Inc. SN 230,750. Pub. 3–14–67. Filed 10–21–65.

829,477. LIMITED EDITION. Paper Mate Manufacturing Company. SN 233,195. Pub. 3–14–67. Filed 11–23–65.

829,478. GLIDER. Wallace Pencil Company. SN 234,094. Pub. 3–14–67. Filed 12–6–65.

829,479. SPEED-E-SIGN AND DESIGN. Speedrite Products, Inc. SN 235,347. Pub. 3–14–67. Filed 12–27–65.

829,480. DRAWRITE. Lakeside Central Company. SN 236,098. Pub. 3–14–67. Filed 1–10–66.

829,481. KREILOY-POINT. Jacques Kreisler Manufacturing Corporation. SN 254,449. Pub. 3–14–67. Filed 9–14–66.

Class 38—Prints and Publications

829,482. CONCAST-NEWS. Concast AG (Concast SA) (Concast Co., Ltd). SN 159,209. Pub. 4–21–64. Filed 12–17–62.

829,483. GOLDEN KITCHENS. Food Fair Stores, Inc. SN 213,664. Pub. 3–14–67. Filed 3–9–65.

829,484. HOSPITAL PHYSICIAN. Medical Economics, Inc. SN 234,922. Pub. 3–14–67. Filed 12–21–65.

Class 39—Clothing

829,485. MAN-ABOUT-TOWN. Durban Clothing Manufacturers Limited. SN 204,776. Pub. 3–14–67. Filed 10–26–64.

829,486. MALLORY NOKABOUT. John B. Stetson Company (Delaware corporation), by merger from John B. Stetson Company (Pennsylvania corporation). SN 225,828. Pub. 3–14–67. Filed 8–16–65.

829,487. BONDSET. Bond Stores, Incorporated. SN 228,804. Pub. 3–14–67. Filed 12–13–66.

829,488. EXMOOR. Exmoor Knitwear Co., Inc. SN 231,083. Pub. 3–14–67. Filed 10–22–65.

829,489. VEILSTEP. W. S. Peebles & Company, Incorporated. SN 232,026. Pub. 3–14–67. Filed 11–2–65.

829,490. TEMPO TEENS. Puritan Fashions Corporation. SN 233,528. Pub. 3–14–67. Filed 11–29–65.

829,491. WALKER HILL. International Seaway Trading Corp. SN 234,567. Pub. 3–14–67. Filed 12–14–65.

829,492. YOUNG COUNTRY BY PADDLE AND SADDLE. Puritan Fashions Corporation. SN 234,610. Pub. 3–14–67. Filed 12–13–65.

829,493. PARCRAFT. Harold A. Candland. SN 244,187. Pub. 3–14–67. Filed 4–25–66.

829,494. MANCHESTER. Manchester Shoe Stores, Inc. SN 245,598. Pub. 1–17–67. Filed 5–13–66.

829,495. TECKLA. Robert Hall Plimpton, d.b.a. Teckla Garment Company. SN 246,196. Pub. 3–14–67. Filed 5–20–66.

829,496. SLOPPY JOE'S. The Williams Manufacturing Company. SN 246,218. Pub. 3–14–67. Filed 5–20–66.

829,497. WIPPETTE. Wipette Sportswear, Inc. SN 246,976. Pub. 3–14–67. Filed 5–31–66.

829,498. WORSTED-TEX AND LETTERS WT. House of Worsted-Tex, Inc. SN 248,137. Pub. 3–14–67. Filed 6–15–66.

829,499. LETTER W DESIGN WITH LETTER T. House of Worsted-Tex, Inc. SN 248,138. Pub. 3–14–67. Filed 6–15–66.

829,500. PANTOPS. Phil Rose of California, Inc. SN 248,739. Pub. 3–14–67. Filed 6–22–66.

829,501. NAROBIA. Jalkoff Furs Inc. SN 250,159. Pub. 3–14–67. Filed 7–13–66.

829,502. THE HAT BOX AND DESIGN. Mercantile Stores Company, Inc. SN 250,287. Pub. 3–14–67. Filed 7–14–66.

829,503. LUSTERLOOM AND DESIGN. Eagle Clothes, Inc. SN 250,568. Pub. 3–14–67. Filed 7–19–66.

829,504. DRIDOCS. Harlemark International, Inc. SN 250,842. Pub. 3–14–67. Filed 7–22–66.

829,505. PIRATES COVE. New York Mackintosh, Inc. SN 257,721. Pub. 3–14–67. Filed 11–1–66.

829,506. TALBOTT. U.S. Industries, Inc. SN 260,501. Pub. 3–14–67. Filed 12–12–66.

829,507. SPINDLE SHELL. Maidenform, Inc. SN 260,801. Pub. 3–14–67. Filed 12–15–66.

829,508. STAR SHELL. Maidenform, Inc. SN 260,802. Pub. 3–14–67. Filed 12–15–66.

829,509. SILVER SHELL. Maidenform, Inc. SN 260,803. Pub. 3–14–67. Filed 12–15–66.

829,510. LIMPET SHELL. Maidenform, Inc. SN 260,804. Pub. 3–14–67. Filed 12–15–66.

Class 40—Fancy Goods, Furnishings, and Notions

829,511. THE ROMAN WIG. Majestic Electronics, Inc. SN 223,809. Pub. 3–14–67. Filed 7–20–65.

Class 41—Canes, Parasols, and Umbrellas

829,512. CARICATURE OF CHICKEN WITH UMBRELLA (DESIGN). Aberdeen Manufacturing Corporation. SN 250,811. Pub. 3–14–67. Filed 7–22–66.

Class 42—Knitted, Netted, and Textile Fabrics, and Substitutes Therefor

829,319. (See Class 1 for this trademark.)

829,393. (See Class 21 for this trademark.)

829,513. PERCASE. Percase, Inc., assignee of Arnold L. Mills. SN 200,112. Pub. 3–14–67. Filed 8–18–64.

829,514. DUPLEXX INTERNATIONAL LTD. Duplex International, Ltd. SN 234,737. Pub. 3–14–67. Filed 12–16–65.

829,515. DUPLEXX-SHANNON. Duplex International, Ltd. SN 234,738. Pub. 3–14–67. Filed 12–16–65.

829,516. INDIASTAN. India Merchandise Ltd. SN 247,600. Pub. 3–14–67. Filed 6–8–66.

829,517. CLIFF CRAFT. The Whitecliff Corporation. SN 248,381. Pub. 3–14–67. Filed 6–17–66.

829,518. BEAUTI-PRESS. J. P. Stevens & Co., Inc. SN 251,012. Pub. 3–14–67. Filed 7–25–66.

829,519. SKIER (DESIGN). Waumbec Mills Incorporated. SN 251,027. Pub. 3–14–67. Filed 7–25–66.

829,520. TRAVELSET. Abney Mills. SN 251,040. Pub. 3–14–67. Filed 7–26–66.

829,521. EDGAL. Edgar Fabrics Inc. SN 251,125. Pub. 3–14–67. Filed 7–27–66.

829,522. BUNNY ESMOND AND DESIGN. Chatham Manufacturing Company. SN 251,188. Pub. 3–14–67. Filed 7–28–66.

829,523. AVISLON. FMC Corporation. SN 251,807. Pub. 3–14–67. Filed 8–5–66.

829,524. SPACE. National Research Corporation. SN 253,811. Pub. 3–14–67. Filed 8–15–66.

Class 43—Thread and Yarn

829,525. BEBE PINGOUIN. Filatures Prouvost & Cie La Lainiere de Roubaix. SN 235,649. Pub. 3–14–67. Filed 1–3–66.

829,526. WISHING WOOL. Emile Bernat & Sons Co. SN 237,209. Pub. 3–14–67. Filed 1–25–66.

829,527. CHADOLOFT. Chadbourn Gotham, Inc. SN 251,515. Pub. 3–14–67. Filed 8–2–66.

829,528. AVISLON. FMC Corporation. SN 251,806. Pub. 3–14–67. Filed 8–5–66.

Class 44—Dental, Medical, and Surgical Appliances

829,319. (See Class 1 for this trademark.)

829,529. WL. Walker Industries. SN 172,440. Pub. 3–14–67. Filed 7–3–63.

829,530. CUSHION-AIR. Modern Denture Research Co. SN 223,700. Pub. 3–14–67. Filed 7–19–65.

829,531. OXY. Drägerwerk, Heinr. & Bernh. Drager. SN 247,492. Pub. 3–14–67. Filed 6–7–66

829,532. INHIBAND. American Home Products Corporation. SN 260,376. Pub. 3–14–67. Filed 12–8–66.

Class 45—Soft Drinks and Carbonated Waters

829,533. COME ALIVE! YOU'RE IN THE PEPSI GENERATION! PepsiCo, Inc. SN 254,101. Pub. 11-29-66. Filed 9-9-66.

Class 46—Foods and Ingredients of Foods

829,534. SCOTCH CHASERS. Educator Biscuit Company, Incorporated. SN 210,758. Pub. 8-3-65. Filed 1-27-65.

829,535. HORSE-SHOE. Thibault Milling Co. SN 211,942. Pub. 3-8-66. Filed 2-12-65.

829,536. PENNANT AND DESIGN. Union Starch & Refining Co., Inc. SN 214,040. Pub. 3-14-67. Filed 3-12-65.

829,537. PENNANT. Union Starch & Refining Co., Inc. SN 214,042. Pub. 3-14-67. Filed 3-12-65.

829,538. PENNANT. Union Starch & Refining Co., Inc. SN 214,043. Pub. 3-14-67. Filed 3-12-65.

829,539. CHICKEN UNLIMITED. Chicken Unlimited Inc. SN 224,718. Pub. 3-14-67. Filed 8-2-65.

829,540. VAN-AROMA. Henry H. Ottens Mfg. Co., Inc. SN 232,022. Pub. 3-14-67. Filed 11-2-65.

829,541. BUTTERIN. Henry H. Ottens Mfg. Co., Inc. SN 232,023. Pub. 3-14-67. Filed 11-2-65.

829,542. BUTTER-CREME. Henry H. Ottens Mfg. Co., Inc. SN 232,024. Pub. 3-14-67. Filed 11-2-65.

829,543. DELTA. Humboldt Foods, Inc. SN 237,348. Pub. 10-4-66. Filed 1-26-66.

829,544. HARVEST OF EDEN. Rema Foods, Inc. SN 238,294. Pub. 3-14-67. Filed 2-7-66.

829,545. PURNELL'S PRIDE. Purnell's Pride, Inc. SN 239,541. Pub. 3-14-67. Filed 2-24-66.

829,546. YE OLD CHESHIRE INN. Calumet Cheese Co., Inc. SN 239,589. Pub. 3-14-67. Filed 2-25-66.

829,547. SADY. Universal Foods Corporation. SN 240,221. Pub. 3-14-67. Filed 3-4-66.

829,548. MATERNALAC. The Purdue Frederick Company. SN 240,476. Pub. 3-14-67. Filed 3-8-66.

829,549. WILD ONE. National Biscuit Company. SN 242,036. Pub. 3-14-67. Filed 3-28-66.

829,550. OLD-PRO AND DESIGN. Botkins Grain & Feed Co. SN 246,875. Pub. 3-14-67. Filed 5-31-66.

829,551. HILO HONEY. Heggblade-Margueleas Co. SN 246,904. Pub. 3-14-67. Filed 5-31-66.

829,552. DIAMOND E. Horn's Poultry, Inc. SN 257,630. Pub. 3-14-67. Filed 10-31-66.

829,553. TOWN & COUNTRY. Plus Poultry, Inc. SN 260,504. Pub. 3-14-67. Filed 12-12-66.

Class 48—Malt Beverages and Liquors

829,554. JAGUAR. Standard Rochester Brewing Co., Inc. SN 229,885. Pub. 7-19-66. Filed 10-11-65.

Class 49—Distilled Alcoholic Liquors

829,555. ROYAL REGIMENT. Sazerac Company, Inc., d.b.a. James Ferguson. SN 219,617. Pub. 2-1-66. Filed 5-24-65.

829,556. GOLD COACH. Double Springs Distillers, Inc., d.b.a. Greenbrier, Bardstown Distilling Co. SN 232,297. Pub. 3-14-67. Filed 11-8-65.

Class 50—Merchandise Not Otherwise Classified

829,392. (See Class 21 for this trademark.)

829,557. IMAGINET! AND DESIGN. Stater Westport Incorporated. SN 242,515. Pub. 3-14-67. Filed 4-1-66.

829,558. KURLPAK. The Arpax Company. SN 249,211. Pub. 3-14-67. Filed 6-29-66.

Class 51—Cosmetics and Toilet Preparations

829,559. BARBIE. Mattel, Inc. SN 131,294. Pub. 11-6-62. Filed 11-3-61.

829,560. CHAP-O-LENE. Chap-O-Lene, Inc. SN 167,798. Pub. 7-13-65. Filed 4-30-63.

829,561. FROST-LUCENT. Hi-Fashion, Inc. SN 238,527. Pub. 3-14-67. Filed 2-10-66.

829,562. FORMAGEL. Samuel Bonat & Bro., Inc. SN 244,458. Pub. 3-14-67. Filed 4-28-66.

829,563. BU-TO. Biometica Limited. SN 244,798. Pub. 3-14-67. Filed 5-3-66.

829,564. ACCORD. The Wella Corporation. SN 247,428. Pub. 3-14-67. Filed 6-6-66.

829,565. ALL-COOL. Chesebrough-Pond's Inc. SN 257,767. Pub. 3-14-67. Filed 11-2-66.

829,566. GAG. Ed Pinaud Inc. SN 260,219. Pub. 3-14-67. Filed 12-7-66.

Class 52—Detergents and Soaps

829,328. (See Class 4 for this trademark.)

829,567. BARBIE. Mattel, Inc. SN 131,295. Pub. 11-6-62. Filed 11-3-61.

829,568. WHITE MULE BRAND AND DESIGN. Chemical Supplies Inc. SN 238,492. Pub. 3-14-67. Filed 2-10-66.

829,569. GUSTO. Colgate-Palmolive Company. SN 248,120. Pub. 3-14-67. Filed 6-15-66.

829,570. HOUSE POW'R. Standard International Corporation. SN 248,551. Pub. 3-14-67. Filed 6-20-66.

829,571. COMFY-PET ETC. AND DESIGN. F. W. Woolworth Co. SN 248,689. Pub. 3-14-67. Filed 6-22-66.

829,572. DIP-IT. Economics Laboratory, Inc. SN 249,313. Pub. 3-14-67. Filed 6-30-66.

829,573. MEDI-SOFT. Economics Laboratory, Inc. SN 249,517. Pub. 3-14-67. Filed 7-5-66.

829,574. WISHING. Avon Products, Inc. SN 251,273. Pub. 3-14-67. Filed 7-29-66.

829,575. CP AND DESIGN. Deltrol Corp., d.b.a. Campbell Products Co. SN 260,221. Pub. 3-14-67. Filed 12-7-66.

Service Marks

Class 100—Miscellaneous

829,576. CORK 'N CLEAVER. Cork 'n Cleaver, Inc. SN 225,286. Pub. 3-14-67. Filed 8-9-65.

829,577. CORK 'N CLEAVER AND DESIGN OF STEER HEAD. Cork 'n Cleaver, Inc. SN 225,288. Pub. 3-14-67. Filed 8-9-65.

829,578. MEDICO RENTS AND DESIGN. Abbey Rents, d.b.a. Medico Rents. SN 228,866. Pub. 3-14-67. Filed 9-29-65.

829,579. WATERMATION. Bataille, Kane & McKie, Inc. SN 233,672. Pub. 3-14-67. Filed 12-1-65.

829,580. NFCA AND DESIGN. National Fraternal Congress of America. SN 237,015. Pub. 3-14-67. Filed 1-21-66.

829,581. DYNOTRAAC. Holmes Tire and Supply Co., Inc. SN 237,839. Pub. 3-14-67. Filed 2-2-66.

Class 101—Advertising and Business

829,582. ODESSA CHUCK WAGON GANG. Odessa Chamber of Commerce Corporation. SN 197,164. Pub. 3-14-67. Filed 7-6-64.

829,583. GUARDIAN. Guardian Nursing Homes, Inc. SN 222,147. Pub. 3-14-67. Filed 6-28-65.

829,584. UNIVERSAL SURVEY. Universal Publicizers, Inc. SN 231,608. Pub. 3-14-67. Filed 10-24-65.

829,585. CHANNEL CHOICE. Schwerin Research Corporation. SN 236,655. Pub. 3-14-67. Filed 1-17-66.

Class 102—Insurance and Financial

829,586. MISCELLANEOUS DESIGN. Grand Prairie State Bank. SN 243,865. Pub. 3-14-67. Filed 4-20-66.

829,587. GRANT-A-CHARGE. W. T. Grant Company. SN 246,903. Pub. 3-14-67. Filed 5-31-66.

Class 103—Construction and Repair

829,588. STEP-TAPER. Raymond International Inc. SN 195,711. Pub. 3-14-67. Filed 6-15-64.

829,589. U. Union Tank Car Company. SN 232,428. Pub. 3-14-67. Filed 11-9-65.

829,590. UNION. Union Tank Car Company. SN 232,429. Pub. 3-14-67. Filed 11-9-65.

829,591. UNION U. Union Tank Car Company. SN 232,430. Pub. 3-14-67. Filed 11-9-65.

Class 105—Transportation and Storage

829,592. HOME-PACK. Home-Pack Transport Inc. SN 243,872. Pub. 3-14-67. Filed 4-20-66.

829,593. THE SEVEN BROTHERS. Santini Bros. Inc. SN 243,902. Pub. 3-14-67. Filed 4-20-66.

Class 107—Education and Entertainment

829,594. THE MONKEES. Screen Gems, Inc. SN 257,340. Pub. 3-7-67. Filed 10-27-66.

TRADEMARK REGISTRATIONS RENEWED

59,036. ECONOMY. Cl. 32. 1-1-07.
59,574. MISCELLANEOUS DESIGN. Cl. 6. 1-8-07.
61,633. LEVER'S. Cl. 52. 4-2-07.
61,660. WALLACE. Cl. 46. 4-2-07.
61,664. AERTEX. Cl. 39. 4-2-07.
61,670. GLORIA. Cl. 46. 4-2-07.
61,880. THERMIT AND DESIGN. Cl. 14. 4-9-07.
61,906. CINDERELLA. Cl. 46. 4-9-07.
61,974. P & V LEATHERS AND DESIGN. Cl. 1. 4-16-07.
61,988. SHARPSHOOTER. Cl. 9. 4-16-07.
62,589. KID FINISH. Cl. 37. 5-14-07.
62,706. THE ACME QUALITY KIND AND DESIGN. Cl. 16. 5-21-07.
62,783. SILICA GRAPHITE. Cl. 16. 5-28-07.
62,801. SPENCER. Cl. 23. 5-28-07.
62,816. ORGOBLO. Cl. 23. 5-28-07.
62,960. PENINSULAR. Cl. 16. 6-4-07.
63,286. PREMIUM. Cl. 46. 6-11-07.
64,335. ENDWELL. Cl. 39. 8-6-07.
222,560. OLD HICKORY. Cl. 46. 1-4-27.
223,037. ECKERSON'S FIRST PRIZE AND DESIGN. Cl. 46. 1-11-27.
223,740. TRAVELER. Cl. 39. 2-8-27.
223,781. STAFLEX. Cl. 5. 2-8-27.
224,639. SCHICK AND DESIGN. Cl. 23. 3-1-27.
225,080. NEO-SAL. Cl. 18. 3-8-27.
225,329. PINK TOP AND DESIGN. Cl. 45. 3-15-27.
225,824. DANIEL WEBSTER AND DESIGN. Cl. 46. 3-29-27.
225,845. TOTEM AND DESIGN. Cl. 46. 3-29-27.
225,966. MULSOLITE. Cl. 52. 3-29-27.
226,182. MISCELLANEOUS DESIGN. Cl. 37. 4-5-27.
226,191. TOM-BIG-BEE. Cl. 39. 4-5-27.
226,248. FRANZ STENGEL AND DESIGN. Cl. 36. 4-5-27.
226,417. FRUIT AND DESIGN. Cl. 46. 4-5-27.
226,537. LAKEROL. Cl. 51. 4-12-27.
226,823. GREEN CORE. Cl. 37. 4-19-27.
227,045. M & R SIMILAC AND DESIGN. Cl. 46. 4-26-27.
227,193. CALOBAR. Cl. 26. 5-3-27.
227,757. PARASOL. Cl. 46. 5-17-27.
227,851. COMET. Cl. 21. 5-17-27.
228,598. TRANSO. Cl. 37. 6-7-27.
229,157. LA CONCHA AND DESIGN. Cl. 46. 6-21-27.
229,493. MON PARFUM. Cl. 52. 6-28-27.
229,532. DULESCO AND DESIGN. Cl. 43. 6-28-27.
229,809. GREEN CORE. Cl. 37. 7-5-27.
229,813. HM. Cl. 13. 7-5-27.
229,914. SUMMIT. Cl. 22. 7-12-27.
230,238. CORAZON DE ORO AND DESIGN. Cl. 46. 7-19-27.
230,778. SOUTHLAND. Cl. 2. 8-2-27.
231,249. PLASTOID. Cl. 12. 8-16-27.
231,322. HM AND DESIGN. Cl. 13. 8-16-27.
231,327. NU-WAY. Cl. 34. 8-16-27.
231,625. LAKEROL. Cl. 46. 8-23-27.
231,871. OLD COLONY. Cl. 45. 8-30-27.
231,890. PROTECTORELAY. Cl. 21. 8-30-27.
231,891. PYROSTAT. Cl. 21. 8-30-27.
231,920. YELLOW LABEL AND DESIGN. Cl. 46. 8-30-27.
232,295. LOOMFIBRE AND DESIGN. Cl. 1. 9-6-27.
232,907. THE SCHOOL ARTS. Cl. 38. 9-20-27.
233,242. STAR AND DESIGN. Cl. 23. 9-27-27.
426,544. WATERBUG AND DESIGN. Cl. 19. 12-31-46.
426,812. MAYROSE. Cl. 46. 1-14-47.
427,312. PARD. Cl. 46. 2-4-47.
428,662. DIAMONITE AND DESIGN. Cl. 13. 4-1-47.
428,685. FLOWER FACE. Cl. 51. 4-1-47.
428,707. ML (DESIGN). Cl. 4. 4-1-47.
428,749. STYLEMANOR. Cl. 39. 4-1-47.
428,763. BEAUTY IN LUXURY. Cl. 51. 4-1-47.
428,764. BACO. Cl. 6. 4-1-47.
428,885. CHEMFIBRE ETC. AND DESIGN. Cl. 37. 4-8-47.
428,907. CE AND DESIGN. Cl. 21. 4-8-47.
428,977. WOODITE. Cl. 21. 4-15-47.
429,133. ATOMIC. Cl. 46. 4-22-47.
429,457. KODAK. Cl. 5. 4-29-47.
429,543. WHAM. Cl. 46. 5-6-47.
429,545. PRO-IRON. Cl. 14. 5-6-47.
430,077. PT AND DESIGN. Cl. 4. 6-10-47.
430,251. INDONEX. Cl. 6. 6-10-47.
430,645. ETIQUETTE. Cl. 39. 6-17-47.
430,715. HD AND DESIGN. Cl. 26. 6-24-47.
430,931. NIVAQUINE. Cl. 18. 7-1-47.
430,933. SPECILLINE. Cl. 18. 7-1-47.
430,962. POWDALATOR. Cl. 18. 7-1-47.
431,236. LASSY. Cl. 46. 7-15-47.
432,055. AMMOGAS. Cl. 21. 8-19-47.
432,207. MORNING STAR. Cl. 46. 8-26-47.
432,222. WATERNYMPH. Cl. 27. 8-26-47.
432,278. HUSCO AND DESIGN. Cl. 23. 8-26-47.
432,400. ALCO AND DESIGN. Cl. 26. 9-2-47.
432,472. VETROPHIN. Cl. 18. 9-2-47.
432,866. TRISANITE. Cl. 52. 9-16-47.
432,941. HIL-SEAL. Cl. 16. 9-23-47.

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Section 8

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713,703. PITTCOR. Cl. 1.
713,709. COROPLAST. Cl. 1.
713,710. HYLOX. Cl. 1.
713,711. TERRINAP. Cl. 1.
713,717. KEYSTONE. Cl. 3.
713,718. NU COAT. Cl. 4.
713,719. SPRAYEX. Cl. 4.
713,720. FABRASIVE. Cl. 4.
713,721. FOAM-BRITE. Cl. 4.
713,722. PINK PAY DIRT. Cl. 4.
713,724. SUPPERFIX. Cl. 4.
713,727. COROTHENE. Cl. 5.
713,730. SINCLAIR AND DINOSAUR IN CIRCLE (DESIGN). Cl. 6.
713,732. D AND DESIGN. Cl. 6.
713,733. REPRESENTATION OF A TREE. Cl. 6.
713,736. LOH. Cl. 6.
713,738. SEAMAG. Cl. 6.
713,754. WATER-COTE. Cl. 12.
713,756. CUSTOM CAMP. Cl. 12.
713,762. HARD-WEAR. Cl. 12.
713,765. PYRESTOS. Cl. 12.
713,766. "SCHJELEVATOR." Cl. 12.
713,767. PORTA-GREEN. Cl. 12.
713,780. CORE LUB AND DESIGN. Cl. 15.
713,784. AMERCRYL. Cl. 16.
713,787. SYL-LEN. Cl. 18.
713,788. PARATAC. Cl. 18.
713,792. PYRIDATE. Cl. 18.
713,794. VIOSIL. Cl. 18.
713,797. NEO-DIHYDRO-DUST. Cl. 18.
713,802. LUSTIKA. Cl. 18.
713,806. SINACHEK. Cl. 18.
713,807. ELECTROGRO. Cl. 18.
713,808. DIROZIDE. Cl. 18.
713,809. FURAZETS. Cl. 18.
713,813. RUE DE LA PAIX. Cl. 19.
713,814. MONACO. Cl. 19.
713,819. M & T. Cl. 21.
713,820. RAY-FIN. Cl. 21.
713,823. HANK GOWDY'S WHIRL-E-BIRD. Cl. 22.
713,824. JOLLY CHOLLY. Cl. 22.
713,830. MIRANDA. Cl. 23.
713,832. GRAF-TONE. Cl. 23.
713,833. SAVEX. Cl. 23.
713,834. WORLD'S FINEST MASTERBILT AND DESIGN. Cl. 23.
713,840. VEN-PAR. Cl. 23.
713,844. XL. Cl. 23.
713,849. DISPENS-A-COLOR AND DESIGN. Cl. 26.
713,850. WHISK-IT AND DESIGN. Cl. 29.
713,853. FARMINGTON. Cl. 32.
713,854. CIRCLE SEATING ETC. AND DESIGN. Cl. 32.
713,855. UCC AND DESIGN. Cl. 32.
713,856. E-Z-RECT. Cl. 32.
713,860. FEMETTE. Cl. 34.
713,861. AERONETT. Cl. 34.
713,862. COPPER QUEEN AND CROWN DESIGN. Cl. 34.
713,864. WING SEAL. Cl. 35.
713,870. ROBERT LAWRENCE. Cl. 36.
713,872. GEMARK. Cl. 36.
713,890. FURAMA AND DESIGN. Cl. 39.
713,891. MARGHAB. Cl. 39.
713,893. SUN-LON. Cl. 39.
713,894. JELLY BEAN. Cl. 39.
713,896. MARKET TIME. Cl. 39.
713,897. AQUA-DEXTROUS. Cl. 39.
713,903. PINK CLOUD. Cl. 40.
713,904. PINK CLOUD. Cl. 40.
713,908. DOMINIQUE BY LEBANDALE. Cl. 42.
713,909. STOFFEL'S TINY-DOT. Cl. 42.
713,914. MAN-SET. Cl. 42.
713,916. DERMA-MAGIC. Cl. 44.
713,918. KORTESS. Cl. 45.
713,922. SUPER-TRIM. Cl. 46.
713,924. CARACRISP. Cl. 46.
713,925. YILDIZ. Cl. 46.
713,928. CANAPE CAPERS. Cl. 46.
713,931. OLLIE ORBIT. Cl. 46.
713,939. ALI BABA. Cl. 46.
713,941. SLENDER-CAL. Cl. 46.
713,942. WUNDERWURST. Cl. 46.
713,943. C AND DESIGN. Cl. 49.
713,947. DARLING BRAT. Cl. 50.
713,952. SHEER DELIGHT. Cl. 51.
713,959. SIEH REGISTRY PLAN OF LICENSED CHILD CARE. Cl. 101.
713,960. COSMOPOLITAN HOTELS AND DESIGN. Cl. 101.
713,966. ECONOMIZER. Cl. 102.
713,967. AACRONN. Cl. 103.
713,971. BP AA ETC. AND DESIGN. Cl. 107.
713,972. CLAREMONT QUALITY FLOCK AND DESIGN. Cl. 1.
713,977. LITER-METER. Cl. 26.
713,978. LOOK-OVER. Cl. 26.
713,983. STYLE AND SET. Cl. 44.
713,989. HONNY-POP. Cl. 46.
713,991. HONEY BEAR. Cl. 51.
714,004. PSYCHOLOGICAL PINK. Cl. 51.
714,011. CHILD'S PLAY IS OUR LIFE'S WORK. Cl. 101.

TRADEMARK REGISTRATIONS AMENDED, DISCLAIMED, CORRECTED, ETC.

93,475. PALM AND DESIGN. Cl. 15. 9–16–13. Standard Oil Company. Standard Oil Company of California, San Francisco, Calif. Amended to appear:

PALM

225,536. SUPER-SUDS AND DESIGN. Cl. 52. 3–22–27. Colgate & Company. Colgate-Palmolive Company, New York, N.Y. In the statement, column 1, line 8, "soap chips" is deleted and *laundry detergent* is inserted, and the drawing is amended to appear:

SUPER SUDS

591,752. SAU-SEA. Cl. 46. 6–22–54. Sau-Sea Foods, Inc., Yonkers, N.Y. Amended to appear:

SAU-SEA

632,805. MR. 'DOWN UNDER'. Cl. 46. 8–14–56. Ledward. Bibby & Co., Inc. Gilman International, Inc., New York, N.Y. Amended to appear:

"Mr. Down-Under"

634,286. DAVISET. Cl. 12. 9–11–56. The Sivad Ceramic Corporation, Oak Hill, Ohio. Corrected: In the statement, column 1, line 1, before "Sivad" *The* should be inserted.

713,644. PAR AND DESIGN. Cl. 51. 4–4–61. Erwin J. Merar, doing business as Merit Products Co. Colgate-Palmolive Company, New York, N.Y. Amended to appear:

PAR

726,046. THERMALITE. Cl. 44. 1–2–62. American Thermocraft Corp., Bloomfield, N.J. Corrected: In the statement, column 2, lines 1 through 5, the description of goods should be deleted and *a kit for use for making oral prosthesis such as porcelain fused to metal bridges, which kit includes porcelain powder to be applied to bridges, and a bonding agent for the bridge and porcelain powder* should be inserted.

817,146. STORECAST. Cl. 101. 10–18–66. Storecast Systems, Inc., New York, N.Y. Corrected: In the statement, column 2, line 6, "1964" should be deleted and *1946* should be inserted.

825,349. GEPNER. Cl. 39. 3–7–67. Foremost Knitting Mills, Inc., Atlanta, Ga. Corrected: In the statement, column 2, line 1, "skirts" should be deleted and *shirts* should be inserted.

825,393. SHAPE. Cl. 46. 3–7–67. Mead Johnson & Company, Evansville, Ind. Corrected: In the statement, column 2, line 6 should be deleted.

826,494. QUIK-ALIGN. Cl. 50. 3–28–67. W. H. Brady Co., Milwaukee, Wis. Corrected to appear:

QUIK-ALIGN

826,776. TOS. Cl. 18. 4–4–67. Chas. Pfizer & Co., Inc., New York, N.Y. Corrected: In the statement, column 2, line 3, "Oct. 14" should be deleted and *Oct. 4* should be inserted.

826,928. MISTY. Cl. 39. 4–4–67. Gaylord Products, Incorporated, Chicago, Ill. Corrected: In the statement, column 1, line 1, "Gaylor" should be deleted and *Gaylord* should be inserted.

826,986. TEEM AND DESIGN. Cl. 45. 4–4–67. PepsiCo, Inc., New York, N.Y. Corrected: In the statement, column 1, line 1, "PepsiCo.," should be deleted and *PepsiCo,* should be inserted.

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MAY 30, 1967

(Registered ; Renewed ; Canceled ; Amended, Disclaimed, Corrected, etc. ; New Certificates ; 12c Publications.)

Aacronn Co., Inc., The, Philadelphia, Pa. 713,967, canc. Cl. 103.
Abbey, Rents, d.b.a. Medico Rents, Los Angeles, Calif. 829,578, pub. 3–14–67. Cl. 100.
Abbott Laboratories: *See*—
Moores & Ross, Inc.
Abbott Laboratories, North Chicago, Ill. 432,472, ren. 5–30–67. Cl. 18.
Abbott Laboratories, North Chicago, Ill. 430,962, ren. 5–30–67. Cl. 18.
Aberdeen Mfg. Corp., New York, N.Y. 829,512, pub. 3–14–67. Cl. 41.
Abney Mills, Greenwood, S.C. 829,520, pub. 3–14–67. Cl. 42.
Acme Quality Paints, Inc.: *See*—
Acme White Lead & Color Works.
Peninsular Paint and Varnish Co., Ltd.
Acme White Lead & Color Works, to Acme Quality Paints, Inc., Detroit, Mich. 62,706, ren. 5–30–67. Cl. 16.
Addressograph Multigraph Corp., Cleveland, Ohio. 829,455, pub. 3–14–67. Cl. 26.
Aerovox Corp., New Bedford, Mass. 829,395, pub. 1–31–67. Cl. 21.
Aerpat A.G., Garus, Switzerland. 829,344, pub. 3–14–67. Multiple Class (Classes 13 and 23).
Aertex Ltd.: *See*—
Cellular Clothing Co., Ltd.
Ahlgrens, F., Tekniska Fabrik Aktiebolag: *See*—
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Ajax Magnethermic Corp., Warren, Ohio. 829,391, pub. 3–14–67. Multiple Class (Classes 21 and 34).
Aktiebolaget Pastill, Gefle, to F. Ahlgrens Tekniska Fabrik Aktiebolag, Gavle, Sweden. 226,537, ren. 5–30–67. Cl. 51.
Aktiebolaget Pastill, Gefle, to F. Ahlgrens Tekniska Fabrik Aktiebolag, Gavle, Sweden. 231,625, ren. 5–30–67. Cl. 46.
Aktiebolaget Svenska Flaktfabriken, Nacka, Sweden. 713,860–1, canc. Cl. 34.
Alco Controls Corp.: *See*—
Alco Valve Co.
Alco Valve Co., University City, to Alco Controls Corp., St. Louis, Mo. 432,400, ren. 5–30–67. Cl. 26.
Alicraft Mfg. Co., Inc., Cambridge, Mass. 713,862, canc. Cl. 34.
Allen Pen Co., Inc., The, Needham Heights, Mass. 829,476, pub. 3–14–67. Cl. 37.
Allison, Donald K., Albuquerque, N. Mex. 713,820, canc. Cl. 21.
Ameco, Inc., Phoenix, Ariz. 829,401, pub. 3–14–67. Cl. 21.
American Cyanamid Co., Wayne, N.J. 829,373–4, pub. 3–14–67. Cl. 18.
American Home Products Corp., New York, N.Y. 829,532, pub. 3–14–67. Cl. 44.
American-Lincoln Corp., Toledo, Ohio. 829,327, pub. 3–14–67. Cl. 4.
American-Marietta Co., Chicago, Ill. 713,784, canc. Cl. 16.
American Oil Co., The: *See*—
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American Optical Co., Southbridge, Mass. 227,193, ren. 5–30–67. Cl. 26.
American Thermocraft Corp., Bloomfield, N.J. 726,046, cor. Cl. 44.
Anelex Corp.: *See*—
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Antennacraft Co., Burlington, Iowa. 829,398, pub. 3–14–67. Cl. 21.
Aprax Co., The, Chagrin Falls, Ohio. 829,558, pub. 3–14–67. Cl. 50.
Armco Steel Corp., Middletown, Ohio. 829,360, pub. 3–14–67. Cl. 13.
Armour and Co., from Armour and Co., Chicago, Ill. 713,702, canc. Cl 1.
Armour and Co., from Armour and Co., Chicago, Ill. 713,802, canc. Cl. 18.
Armour and Co., from Armour and Co., Chicago, Ill. 713,925, canc. Cl. 46.
Arvey Corp.: *See*—
Transo Envelope Co.
Associated Spring Corp., Bristol, Conn. 829,348–9, pub. 3–14–67. Multiple Class (Classes 13, 19, 21, 22, 23, and 35).
A-Try Corp., Chicago, Ill. 829,361, pub. 3–14–67. Cl. 15.
Avon Products, Inc., New York, N.Y. 829,574, pub. 3–14–67. Cl. 52.
Bachmeier & Co., Inc., New York, N.Y. 428,764, ren. 5–30–67. Cl. 6.
Bacon, Lou, New York, N.Y. 526,641, canc. Cl. 39.
Ballard, B. V.: *See*—
PolyKrystalon Co., Inc., The.
Ballard, Thomas B., Highland Park, Mich. 829,424, pub. 3–14–67. Cl. 23.
Bataille, Kane & McKie, Inc., Barrington, Ill. 829,579, pub. 3–14–67. Cl. 100.
Battery Corp. of America, Fort Lauderdale, Fla. 829,399, pub. 3–14–67. Cl. 21.
Bear Brand Hosiery Co., Chicago, Ill. 713,893, canc. Cl. 39.
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Bennett Industries, Inc., Peotone, Ill. 829,324, pub. 3–14–67. Cl. 2.
Bernat, Emile, & Sons Co., Uxbridge, Mass. 829,526, pub. 3–14–67. Cl. 43.
Bimba Mfg. Co., Monee, Ill. 829,435, pub. 3–14–67. Cl. 23.
Biometica Ltd., Boreham Wood, England. 829,563, pub. 3–14–67. Cl. 51.
Bird Electronic Corp., Solon, Ohio. 829,457, pub. 3–9–66. Cl. 26.
Bird & Son, Inc., East Walpole, Mass. 829,338, pub. 3–14–67. Cl. 12.
Black, Thomas & Sons, Inc., Ogdensburg, N.Y. 829,469, pub. 3–14–67. Cl. 32.
Bloomingdale, Alfred, Los Angeles, Calif. 829,381, pub. 3–14–67. Cl. 19.
Blount, Bill G., d.b.a. School Products Co., Irving, Tex. 829,465, pub. 3–14–67. Cl. 29.
Bonat, Samuel, & Bro., Inc., West Paterson, N.J. 829,562, pub. 3–14–67. Cl. 51.
Bond Stores, Inc., New York, N.Y. 829,487, pub. 3–14–67. Cl. 39.
Bond Stores, Inc., New York, N.Y. 428,749, ren. 5–30–67. Cl. 39.
Borg-Warner Corp., Chicago, Ill. 829,428, pub. 3–14–67. Cl. 23.
Boron Oil Co., Cleveland, Ohio. 829,330, pub. 3–14–67. Cl. 6.
Bose Corp., Natick, Mass. 829,402, pub. 3–14–67. Cl. 21.
Boston & Lockport Block Co., East Boston, Mass. 233,242, ren. 5–30–67. Cl. 23.
Botkins Grain & Feed Co., Botkins, Ohio. 829,550, pub. 3–14–67. Cl. 46.
Bourjois, Inc., New York, N.Y. 229,493, ren. 5–30–67. Cl. 52.
Bourns, Inc., Riverside, Calif. 829,396, pub. 3–14–67. Cl. 21.
Bowling Proprietors' Assn. of America, Inc., Chicago, Ill. 718,971, canc. Cl. 107.
Bozak, R. T., Mfg. Co., The, South Norwalk, Conn. 829,394, pub. 3–14–67. Cl. 21.
Bradley, Milton, Co., Springfield, Mass. 829,413, pub. 3–14–67. Cl. 22.
Brady, W. H., Co., Milwaukee, Wis. 826,494, cor. Cl. 50.
Brant Sewing Machine Co., Inc., Cincinnati, Ohio. 829,425, pub. 3–14–67. Cl. 23.
Bridgeport Brass Co., Bridgeport, Conn. 829,359, pub. 3–14–67. Cl. 13.
Brown-Saltman Furniture Co., South Gate, Calif. 713,854, canc. Cl. 32.
Brush Beryllium Co., The, Cleveland, Ohio. 713,736, canc. Cl. 6.
Calumet Cheese Co., Inc., Hilbert, Wis. 829,546, pub. 3–14–67. Cl. 46.
Candland, Harold A., Evanston, Ill. 829,493, pub. 3–14–67. Cl. 39.
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Carnegie Of Welwyn Ltd., Welwyn Garden City, England. 713,733, canc. Cl. 6.
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Chadbourn Gotham, Inc., Charlotte, N.C. 829,527, pub. 3–14–67. Cl. 43.
Chaparral Cars, Midland, Tex. 829,405, pub. 3–14–67. Cl. 22.
Chap-o-Lene, Inc., St. James, Minn. 829,560, pub. 7–13–65. Cl. 51.
Chatham Mfg. Co., Elkin, N.C. 829,522, pub. 3–14–67. Cl. 42.
Chattanooga Boiler & Tank Co., Chattanooga, Tenn. 230,778, ren. 5–30–67. Cl. 2.
Chemical Supplies Inc., Massillon, Ohio. 829,568, pub. 3–14–67. Cl. 52.
Chesebrough-Pond's Inc., New York, N.Y. 829,565, pub. 3–14–67. Cl. 51.
Chickasha Mobile Homes of Missouri, Inc., North Kansas City, Mo. 829,386, pub. 3–14–67. Cl. 19.
Chicken Unlimited, Inc., Chicago, Ill. 829,539, pub. 3–14–67. Cl. 46.
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Colgate & Co., to Colgate-Palmolive Co., New York, N.Y. 225,536, Am. 7(d), Cl. 52.
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Colonial Latex Cushion, Inc., Buffalo, N.Y. 829,415, pub. 3–14–67. Cl. 22.
Computer Test Corp., Cherry Hill, N.J., from Anelex Corp., Boston, Mass. 829,458, pub. 1–3–67. Cl. 26.

Computer Test Corp., Cherry Hill, N.J., from Anelex Corp., Boston, Mass. 829,459, pub. 1–10–67. Cl. 26.
Concast AG (Concast SA) (Concast Co., Ltd.), Zurich, Switzerland. 829,482, pub. 4–21–64. Cl. 38.
Conrae Interiors, Inc., Reno, Nev. 829,393, pub. 3–14–67. Multiple Class (Classes 21, 32, and 42).
Continental Disc Corp., Kansas City, Mo. 829,355, pub. 3–14–67. Cl. 13.
Continental Electric Co., to Cetron Electronic Corp., Geneva, Ill. 428,907, ren. 5–30–67. Cl. 21.
Continental Exchange Ltd. of Calif. d.b.a. Robert Louis, Ltd., Los Angeles, Calif. 829,450, pub. 3–14–67. Cl. 23.
Continental Oil Co., Ponca City, Okla. 829,347, pub. 3–14–67. Cl. 13.
Core-Libe, Inc., Danville, Ill. 713,780, canc. Cl. 15.
Cork 'N Cleaver, Inc., Scottsdale, Ariz. 829,576–7, pub. 3–14–67. Cl. 100.
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Custom Camp: *See*—
Lee, A. D.
D & R Fabricators: *See*—
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Daimler-Benz Aktiengesellschaft, Stuttgart-Untertuerkheim, Germany. 829,463, pub. 3–14–67. Cl. 27.
Davis, Frank D., Los Angeles, Calif. 829,331, pub. 3–14–67. Cl. 6.
Davis Press, Inc., The, to Davis Publications, Inc., Worcester, Mass. 232,907, ren. 5–30–67. Cl. 38.
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Delaware Poultry Laboratories, Inc., Millsboro, Del. 713,797, canc. Cl. 18.
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Deltrol Corp., d.b.a. Campbell Products Co., Bellwood, Ill. 829,575, pub. 3–14–67. Cl. 52.
Diametal Ag, Biel, Switzerland. 713,724, canc. Cl. 4.
Distinguished Brands, Inc., Plainview, N.Y. 829,335, pub. 3–14–67. Cl. 11.
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Dixon, Joseph, Crucible Co., Jersey City, N.J. 226,182, ren. 5–30–67. Cl. 37.
Double Springs Distillers, Inc., d.b.a. Greenbrier, Bardstown Distilling Co., Louisville, Ky. 829,556, pub. 3–14–67. Cl. 49.
Dragerwerk, Heinr., & Bernh. Drager, Lubeck, Germany. 829,531, pub. 3–14–67. Cl. 44.
Draper Corp., Hopedale, Mass. 713,844, canc. Cl. 23.
Dreyfus, L. A., Co., South Plainfield, N.J. 713,732, canc. Cl. 0.
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Dunlap & Co., to Hat Corp. of America, New York, N.Y. 223,740, ren. 5–30–67. Cl. 39.
Duplex International, Ltd., New York, N.Y. 829,514–15, pub. 3–14–67. Cl. 42.
Durban Clothing Manufacturers, Ltd., Durban, Natal, Republic of South Africa. 829,485, pub. 3–14–67. Cl. 39.
Dyckman Hotel Co., Minneapolis, Minn. 713,960, canc. Cl. 101.
E and B Mfg. Co., Inc., Romulus, Mich. 829,452, pub. 3–14–67. Cl. 24.
E.S.R., Inc., Montclair, N.J. 829,409, pub. 3–14–67. Cl. 22.
E-Z Coat, Inc., Clearwater, Fla. 713,718, canc. Cl. 4.
Eagle Clothes, Inc., New York, N.Y. 829,503, pub. 3–14–67. Cl. 39.
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Eastman Kodak Co., Rochester, N.Y. 429,457, ren. 5–30–67. Cl. 5.
Eaton Yale & Towne, Inc., Cleveland, Ohio. 829,448, pub. 3–14–67. Cl. 23.
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Economics Laboratory, Inc., St. Paul, Minn. 829,572–3, pub. 3–14–67. Cl. 52.
Edgar Fabrics, Inc., New York, N.Y. 829,521, pub. 3–14–67. Cl. 42.
Edroy Products Co., Inc., New York, N.Y. 829,461, pub. 3–14–67. Cl. 26.
Educator Biscuit Co., Inc., Lowell, Mass. 829,534, pub 8–3–65. Cl. 46.
Eldon Industries, Inc., Hawthorne, Calif. 829,472, pub. 3–14–67. Cl. 34.
Embassy Overseas Corp., Farmingdale, N.Y. 829,447, pub. 3–14–67. Cl. 23.
Emerson Electric Co.: *See*—
Nu-Way Corp., The.
Endicott-Johnson Co., to Endicott-Johnson Corp., Endicott, N.Y. 64,385, ren. 5–30–67. Cl. 39.
Endicott-Johnson Corp.: *See*—
Endicott-Johnson Co.
Energy Research Group, Inc., from Fuels Research Corp., Denver, Colo. 829,362, pub. 3–14–67. Cl. 15.
Engelhard Industries, Inc., Newark, N.J. 829,470, pub. 3–14–67. Cl. 34.
Enterprise Mfg. Co., The, to Pflueger Corp., Akron, Ohio. 229,914, ren. 5–30–67. Cl. 22.
Eversharp, Inc.: *See*—
Magazine Repeating Razor Co.
Eversharp, Inc., Milford, Conn. 829,431–2, pub. 3–14–67. Cl. 23.
Exmoor Knitwear Co., Inc., Haverstraw, N.Y. 829,488, pub. 3–14–67. Cl. 39.
FMC Corp.: *See*—
Viscose Co., The.
FMC Corp., San Jose, Calif. 829,350, pub. 3–14–67. Cl. 13.
FMC Corp., Philadelphia, Pa. 829,523, pub. 3–14–67. Cl. 42.
FMC Corp., Philadelphia, Pa. 829,528, pub. 3–14–67. Cl. 43.
Farr, John F., Rice-Farr Music House, Inc., Anderson, S.C. 713,947, canc. Cl. 50.
Federal Sweets & Biscuit Co., Inc., Clifton, N.J. 713,939, canc. Cl 46.
Ferguson, James: *See*—
Sazerac Co., Inc.
Filatures Prouvost & Cie La Lainiere de Roubaix, Roubaix, Nord, France. 829,525, pub. 3–14–67. Cl. 43.
Filon Corp.: *See*—
Vistron Corp.
Fisher Flouring Mills Co.: *See*—
Gallatin Valley Milling Co.
Fisher Flouring Mills, Co., Seattle, Wash. 229,157, ren. 5–30–67. Cl. 46.
Fisher Flouring Mills Co., Seattle, Wash. 429,543, ren. 5–30–67. Cl. 46.
Fisher Flouring Mills Co., Seattle, Wash. 227,757, ren. 5–30–67. Cl. 46.
Fisher Flouring Mills C., Seattle, Wash. 225,845, ren. 5–30–67. Cl. 46.
Fisher Scientific Co., Pittsburgh, Pa. 829,443, pub. 3–14–67. Cl. 23
Five Guys From Boston, Inc., d.b.a. Ollie Orbit, Boston, Mass. 713,931, canc. Cl. 46.
Fixtures Mfg. Corp., Kansas City, Mo. 829,467, pub. 3–14–67. Cl. 32.
Food Fair Stores, Inc., Philadelphia, Pa. 829,483, pub. 3–14–67. Cl. 38.
Food Machinery and Chemical Corp., New York, N.Y. 713,738, canc. Cl. 6.
Foremost Knitting Mills, Inc., Atlanta, Ga. 825,349, cor. Cl. 39.
Formica Corp., Cincinnati, Ohio. 829,337, pub. 3–14–67. Cl. 12.
Frank, Wally, Ltd., New York, N.Y. 829,370, pub. 3–14–67. Cl. 17.
Fuels Research Corp.: *See*—
Energy Research Group, Inc.
Gallatin Valley Milling Co., to Fisher Flouring Mills Co., Seattle, Wash. 226,417, ren. 5–30–67. Cl. 46.
Gaylord Products, Inc., Chicago, Ill. 826,923, cor. Cl. 39.
Genbearco International Corp., West Nyack, N.Y. 829,440, pub. 3–14–67. Cl. 23.
General Body Sales Corp., Chicago, Ill. 829,387, pub. 3–14–67. Cl. 19.
General Foam Plastics Corp., Portsmouth, Va. 829,320, pub. 3–14–67. Cl. 2.
General Magnetics & Electronics, Inc., Flushing, N.Y. 713,872, canc. Cl. 36.
George's Import-Export, Ltd., Hollywood, Calif. 829,474, pub. 3–14–67. Cl. 36.
Gibson-Homans Co., The: *See*—
Plastic Products Co.
Gladen Enterprises, Inc., Bay City, Mich. 829,318, pub. 3–14–67. Multiple Class (Classes 1 and 23).
Goldschmidt Thermit Co., New York, N.Y., to Thermex Metallurigical, Inc., Lakehurst, N.J. 61,880, ren. 5–30–67. Cl. 14.
Goodson, George W., d.b.a. Delta Products Co., Glendale, Calif. 829,346, pub. 3–14–67. Cl. 13.
Gotham Industries, Inc., Chicago, Ill. 829,325, pub. 3–14–67. Cl. 2.
Gowdy, George H., St. Petersburg, Fla. 713,823, canc. Cl. 22.
Grand Pop Bottling Co., The, to Grand Pop Bottling Co., Cincinnati, Ohio. 225,329, ren. 5–30–67. Cl. 45.
Grand Prairie State Bank, Grand Prairie, Tex. 829,586, pub. 3–14–67. Cl. 102.
Grant, W. T., Co., New York, N.Y. 829,587, pub. 3–14–67. Cl. 102.
Graphic Supply Co., Inc., New York, N.Y. 713,832, canc. Cl. 23.
Graves, E. Selman, to James E. Graves, Inc., Marblehead, Mass. 426,544, ren. 5–30–67. Cl. 19.
Graves, James E., Inc.: *See*—
Graves, E. Selman.
Great American Insurance Co., New York, N.Y. 713,966, canc. Cl. 102.
Greenbrier, Bardstown Distilling Co.: *See*—
Double Springs Distillers, Inc.
Greiner, William, Co., Chicago, Ill. 713,711, canc. Cl. 1.
Guarantee Meat Market of Hackensack, Inc., d.b.a. Guarantee Super Markets, Hackensack, N.J. 713,922, canc. Cl. 46.
Guarantee Super Markets: *See*—
Guarantee Meat Market of Hackensack, Inc.
Gudebrod Bros. Silk Co., Inc., Philadelphia, Pa. 829,417–18, pub. 3–14–67. Cl. 22.
Guardian Nursing Homes, Inc., Bay City, Mich. 829,583, pub. 3–14–67. Cl. 101.
Guttman, Joseph, & Bros., New York, N.Y. 713,894, canc. Cl. 39.
Halco Research Corp., New York, N.Y. 713,941, canc. Cl. 46.
Hamilton Mfg. Co.: *See*—
Manning, Rollo G.
Hammel-Dahl Co., Providence, R.I., to International Telephone and Telegraph Corp., New York, N.Y. 430,715, ren. 5–30–67. Cl. 26.
Harlemark International, Inc., Framingham, Mass. 829,504, pub. 3–14–67. Cl. 39.

Hartwell Corp., Los Angeles, Calif. 829,351, pub. 3–14–67. Cl. 13.
Hat Corp. of America: *See*—
Dunlap & Co.
Haver-Lockhart Laboratories, Inc., Kansas City, Mo. 713,807, canc. Cl. 18.
Hayden Mfg. Co.: *See*—
Hayden, William J.
Hayden, William J., d.b.a. Hayden Mfg. Co., Marshall, Mo. 829,446, pub. 3–14–67. Cl. 23.
Heggblade-Margulcas Co., San Francisco, Calif. 829,551, pub. 3–14–67. Cl. 46.
Henderson, John M., Co., Inc., Los Angeles, Calif. 323,013, canc. Cl. 51.
Hercules Inc.: *See*—
Laflin & Rand Powder Co.
Hers Specialty Products, Inc., Long Island City, N.Y. 829,326, pub. 3–14–67. Cl. 3.
Hickson's Timber Impregnation Co., (G.B.) Ltd., Castleford, England. 713,765, canc. Cl. 12.
Hi-Fashion, Inc., Atlanta, Ga. 829,561, pub. 3–14–67. Cl. 51.
Hillyard Chemical Co., to Hillyard Enterprises, Inc., St. Joseph, Mo. 432,941, ren. 5–30–67. Cl. 16.
Hillyard Enterprises, Inc.: *See*—
Hillyard Chemical Co.
Holmes Tire and Supply Co., Inc., Madison, Wis. 829,581, pub. 3–14–67. Cl. 100.
Home-Pack Transport Inc., Maspeth, N.Y. 829,592, pub. 3–14–67. Cl. 105.
Honeywell, Inc.: *See*—
Minneapolis Heat Regulator Co.
Horn's Poultry, Inc., Matteon, Ill. 829,552, pub. 3–14–67. Cl. 46.
House of Worsted-Tex, Inc., Philadelphia, Pa. 829,498–9, pub. 3–14–67. Cl. 39.
Hudnut, Richard, Morris Plains, N.J. 714,004, canc. Cl. 51.
Hudnut, Richard, Morris Plains, N.J. 428,685, ren. 5–30–67. Cl. 51.
Hudnut, Richard, Morris Plains, N.J. 428,763, ren. 5–30–67. Cl. 51.
Hudnut, Richard, Morris Plains, N.J. 713,983, canc. Cl. 44.
Hudnut, Richard, Morris Plains, N.J. 713,991, canc. Cl. 51.
Humboldt Foods, Inc., Humboldt, Tenn. 829,543, pub. 10–4–66. Cl. 46.
Hyde Mfg. Co., Southbridge, Mass. 829,456, pub. 3–14–67. Cl. 26.
Hydraulic Unit Specialties Co.: *See*—
Schneider, Dana J.
India Merchandise Ltd., New York, N.Y. 829,516, pub. 3–14–67. Cl. 42.
Industries Plus, Inc., Brooklyn, N.Y. 829,453, pub. 3–14–67. Cl 25.
Integron, Inc., Burlington, Mass. 829,460, pub. 3–14–67. Cl. 26.
International Milling Co., Inc.: *See*—
Eagle Roller Mill Co.
New Prague Flouring Mill Co.
International Paper Co., New York, N.Y. 428,885, ren. 5–30–67. Cl. 37.
International Seaway Trading Corp., Cleveland, Ohio. 829,491, pub. 3–14–67. Cl. 39.
International Talc Co., Inc.: *See*—
Loomis, W. H., Talc Corp.
International Telephone & Telegraph Corp.: *See*—
Hammel-Dahl Co.
Jalkoff Furs Inc., New York, N.Y. 829,501, pub. 3–14–67. Cl. 39.
Jeffers & Bailey, Inc., Fresno, Calif. 829,412, pub. 3–14–67. Cl. 22.
Jensen-Hastings Products, Inc., Seattle, Wash. 713,977, canc. Cl. 26.
Johns-Manville Corp., New York, N.Y. 713,754, canc. Cl. 12.
Johnson, S. C., & Son, Inc., Racine, Wis. 829,328, pub. 3–14–67. Multiple Class (Classes 4 and 52).
Jolee, Inc., New York, N.Y. 713,897, canc. Cl. 39.
Jolor Enterprises, Dearborn, Mich. 829,410, pub. 3–14–67. Cl. 22.
K-F Industries, Inc., Philadelphia, Pa. 829,403, pub. 3–14–67. Cl. 22.
Kayser-Roth Corp.: *See*—
Roth, Chester H., Co., Inc.
Kings Langley Engineering Co., Ltd., Kings Langley, England. 829,358, pub. 3–14–67. Cl. 13.
Kissinger, Henry W., d.b.a. Kissinger-Masterbilt Co., Chicago, Ill. 713,834, canc. Cl. 23.
Kissinger-Masterbilt Co.: *See*—
Kissinger, Henry W.
Klosterbrennerei A.G. Erste Badische Wein- und Edelbranntweinbrennerei, Emmendingen, Germany. 713,943, canc. Cl. 49.
Kollisch, Gebruder, Aktiengesellschaft, from B. Kollisch, d.b.a. Gebruder Kollisch, Nurnberg, Germany. 829,333–4, pub. 12–20–66. Cl. 8.
Kollisch, Gebruder: *See*—
Kollisch, Bernhard.
Kreisler, Jacques, Mfg. Corp., North Bergen, N.J. 829,481, pub. 3–14–67. Cl. 37.
Laclede Stoker Co., St. Louis, Mo. 429,545, ren. 5–30–67. Cl. 14.
Laflin & Rand Powder Co., New York, N.Y., to Hercules Inc., Wilmington, Del. 61,988, ren. 5–30–67. Cl. 9.
Lakeside Central Co., Chicago, Ill. 829,480, pub. 3–14–67. Cl. 37.
Lawports Co., The, Cleveland, Ohio. 713,720, canc. Cl. 4.
Lebanon Woolen Mills, Inc., Lebanon, N.H. 713,908, canc. Cl. 42.
Ledward, Bibby & Co., Inc., New York, N.Y. 632,805. Am. 7(d). Cl. 46.
Lee, A. D., d.b.a. Custom Camp, Houston, Tex. 713,756, canc. Cl. 12.
Legion Extranjera, Fabrica de Hojas de Afeitar, Industrial y Comercial, Sociedad Anonima, Buenos Aires, Argentina. 829,451, pub. 3–14–67. Cl. 28.
Leneva Laboratories, Inc., Omaha, Nebr. 829,378–9, pub. 3–14–67. Cl. 18.
Levenson Co., The, Boston, Mass. 713,890, canc. Cl. 39.
Lever Bros. Co., New York, N.Y. 61,633, ren. 5–30–67. Cl. 52.
Lewy, Archie, Philadelphia, Pa. 713,856, canc. Cl. 32.
Litton Industries, Inc., Beverly Hills, Calif. 829,466, pub. 3–14–67. Cl. 32.
Loomis, W. H., Talc Corp., Gouverneur, to International Talc Co., Inc., New York, N.Y. 232,295, ren. 5–30–67. Cl. 1.
Louis, Robert, Ltd.: *See*—
Continental Exchange Ltd. of California.
Mackintosh, John, & Sons Ltd., Yorkshire, England. 713,924, canc. Cl. 46.
Magazine Repeating Razor Co., New York, N.Y., to Eversharp, Inc., Milford, Conn. 224,639, ren. 5–30–67. Cl. 23.
Maidenform, Inc., New York, N.Y. 829,507–10, pub. 3–14–67. Cl. 39.
Majestic Electronics, Inc., Los Angeles, Calif. 829,511, pub. 3–14–67. Cl. 40.
Manchester Shoe Stores, Inc., Baltimore, Md. 829,494, pub. 1–17–67. Cl. 39.
Manning, Rollo G., Toledo, Ohio, to Hamilton Mfg. Co., Two Rivers, Wis. 59,036, ren. 5–30–67. Cl. 32.
Manor Morsels, Inc., Briarcliff Manor, N.Y. 713,928, canc. Cl. 46.
Marghab, Emile, Inc., New York, N.Y. 713,891, canc. Cl. 39.
Marx, Louis, & Co., Inc., New York, N.Y. 829,416, pub. 3–14–67. Cl. 22.
Matrix Laboratories, Inc., d.b.a. Perkiomen Laboratories, Collegeville, Pa. 829,367, pub. 3–14–67. Cl. 15.
Mattel, Inc., Hawthorne, Calif. 829,420–1, pub. 3–14–67. Cl. 22.
Mattel, Inc., Hawthorne, Calif. 829,559, pub. 11–6–62. Cl. 51.
Mattel, Inc., Hawthorne, Calif. 829,567, pub. 3–14–67. Cl. 52.
Mead Johnson & Co., Evansville, Ind. 829,376, pub. 4–12–66. Cl. 18.
Mead Johnson & Co., Evansville, Ind. 825,898. Cl. 46.
McGuire, Mrs., Luella W., d.b.a. McGuire Enterprises, Gary, Ind. 713,722, canc. Cl. 4.
McGuire Enterprises: *See*—
McGuire, Luella W., Mrs.
Medical Economics, Inc., Oradell, N.J. 829,484, pub. 3–14–67. Cl. 38.
Medico Rents: *See*—
Abbey Rents.
Meisel, C., Inc., New York, N.Y., to C. Meisel Music Co., Inc., Union, N.J. 226,248, ren. 5–30–67. Cl. 36.
Meisel, C., Music Co., Inc.: *See*—
Meisel, C., Inc.
Merar, Erwin J., d.b.a. Merit Products Co., to Colgate-Palmolive Co., New York, N.Y. 713,644, cor. Cl. 51.
Mercantile Stores Co., Inc., New York, N.Y. 829,502, pub. 3–14–67. Cl. 39.
Merck & Co., Inc., Rahway, N.J. 713,808, canc. Cl. 18.
Metal & Thermit Corp., Middesex County, N.J. 713,819, canc. Cl. 21.
Midland Laboratories, Dubuque, Iowa. 428,707, ren. 5–30–67. Cl. 4.
Mido Societe Anonyme, to Mido G. Schaeren & Co., S.A., Bienne, Switzerland. 432,222, ren. 5–30–67. Cl. 27.
Mid-States Gummed Paper Co., Chicago, Ill., to Minnesota Mining and Mfg. Co., St. Paul, Minn. 229,809, ren. 5–30–67. Cl. 37.
Mid-States Gummed Paper Co., Chicago, Ill., to Minnesota Mining and Mfg. Co., St. Paul, Minn. 226,823, ren. 5–30–67. Cl. 37.
Midwesco-Enterprise, Inc., Chicago, Ill. 829,336, pub. 3–14–67. Cl. 12.
Miller, Ernest W., d.b.a. Scuttle-Board, Redwood City, Calif. 829,433, pub. 3–14–67. Cl. 28.
Mills, Arnold L.: *See*—
Percase, Inc.
Millville Mfg. Co., The, Philadelphia, Pa. 713,914, canc. Cl. 42.
Minneapolis Heat Regulator Co., to Honeywell, Inc., Minneapolis, Minn. 231,890, ren. 5–30–67. Cl. 21.
Minneapolis Heat Regulator Co., to Honeywell, Inc., Minneapolis, Minn. 231,891, ren. 5–30–67. Cl. 21.
Minnesota Mining and Mfg. Co.: *See*—
Mid-States Gummed Paper Co.
Mobile Aerial Towers, Inc., Fort Wayne, Ind. 829,429, pub. 3–14–67. Cl. 23.
Modern Denture Research Co., Santa Monica, Calif. 829,530, pub. 3–14–67. Cl. 44.
Modern Upholstered Chair Co., Inc., Morristown, Tenn. 829,468, pub. 3–14–67. Cl. 32.
Mohawk Condensed Milk Co., Rochester, N.Y., to Carnation Co., Los Angeles, Calif. 61,670, ren. 5–30–67. Cl. 46.
Moore, William A., d.b.a. Bell Rubber Co., Dallas, Tex. 829,445, pub. 3–14–67. Cl. 23.
Moores & Ross, Inc., Columbus, Ohio, to Abbott Laboratories, d.b.a. Ross Laboratories, North Chicago, Ill. 227,045, ren. 5–30–67. Cl. 46.
Morris, Philip, Inc., New York, N.Y. 829,371, pub. 3–14–67. Cl. 17.
Moscrip Inc., Lima, Ohio. 713,762, canc. Cl. 12.
Mueller Co., Decatur, Ill. 231,322, ren. 5–30–67. Cl. 13.
Mueller Co., Decatur, Ill. 229,813, ren. 5–30–67. Cl. 13.
Muller, Fritz, "Coroplast" K.G., Wuppertal-Nachsterbreck, Germany. 713,709, canc. Cl. 1.

Muller, Frits, "Coroplast" K.G., Wuppertal-Nachstebreck, Germany. 713,727, canc. Cl. 5.
Namco Industries, Inc., Elkhart, Ind. 829,383, pub. 3–14–67. Cl. 19.
Namco Industries, Inc., Elkhart, Ind. 829,384, pub. 3–14–67. Cl. 19.
National Biscuit Co., New York, N.Y. 63,286, ren. 5–30–67. Cl. 46.
National Biscuit Co., New York, N.Y. 829,549, pub. 3–14–67. Cl. 46.
National Fraternal Congress of America, Chicago, Ill. 829,580, pub. 3–14–67. Cl. 100.
National Research Corp., Cambridge, Mass. 829,524, pub. 3–14–67. Cl. 42.
Necchi Societa per Azioni, Pavia, Italy. 713,830, canc. Cl. 23.
Neuhoff Packing Co., Nashville, Tenn., to Swift & Co., Chicago, Ill. 222,560, ren. 5–30–67. Cl. 46.
New Jersey Machine Corp., Hoboken, N.J. 829,437, pub. 3–14–67. Cl. 23.
Newman, Louis, d.b.a. Podiatry Laboratories, New York, N.Y. 713,719, canc. Cl. 4.
New Prague Flouring Mill Co., New Prague, to International Milling Co., Inc., Minneapolis, Minn. 61,906, ren. 5–30–67. Cl. 46.
New York Air Brake Co., The, New York, N.Y. 829,382, pub. 3–14–67. Cl. 19.
New York Mackintosh, Inc., New York, N.Y. 829,505, pub. 3–14–67. Cl. 39.
Nicholas International Ltd., Toronto, Ontario, Canada. 713,788, canc. Cl. 18.
Noll, Curtis, Corp., Cleveland, Ohio. 829,454, pub. 3–14–67. Cl. 25.
Norcross, Inc., New York, N.Y. 829,332, pub. 3–14–67. Cl. 7.
Nordskog Co., Inc., Van Nuys, Calif. 829,354, pub. 3–14–67. Cl. 13.
Norwich Pharmacal Co., The, Norwich, N.Y. 713,809, canc. Cl. 18.
Noxell Corp., Baltimore, Md. 829,377, pub. 3–14–67. Cl. 18.
Nu-Way Corp., The, Rock Island, Ill., to Emerson Electric Co., St. Louis, Mo. 231,327, ren. 5–30–67. Cl. 34.
Oakite Products, Inc., New York, N.Y. 432,866, ren. 5–30–67. Cl. 52.
Odessa Chamber of Commerce Corp., Odessa, Tex. 829,582, pub. 3–14–67. Cl. 101.
O'Donnell, John E., d.b.a. O"Donnell Research Laboratories, Seattle, Wash. 713,792, canc. Cl. 18.
O'Donnell Research Laboratories: *See*—
O'Donnell, John E.
Olin Mathieson Chemical Corp.: *See*—
Olinkraft, Inc.
Olinkraft, Inc., West Monroe, La., from Olin Mathieson Chemical Corp., New York, N.Y. 829,321, pub. 3–14–67. Cl. 2.
Optical Development Corp., Chicago, Ill. 713,978, canc. Cl. 26.
Orange Crush Co., Chicago, to Crush International, Inc., Evanston, Ill. 231,871, ren. 5–30–67. Cl. 45.
Orbit, Ollie: *See*—
Five Guys From Boston, Inc.
Organ Power Corp., The, to The Spencer Turbine Co., Hartford, Conn. 62,801, ren. 5–30–67. Cl. 23.
Organ Power Corp., The, to The Spencer Turbine Co., Hartford, Conn. 62,816, ren. 5–30–67. Cl. 23.
Ottens, Henry H., Mfg. Co., Inc., Philadelphia, Pa. 829,540, pub. 3–14–67. Cl. 46.
Ottens, Henry H., Mfg. Co., Inc., Philadelphia, Pa. 829,541, pub. 3–14–67. Cl. 46.
Ottens, Henry H., Mfg. Co., Inr., Philadelphia, Pa. 829,542, pub. 3–14–67. Cl. 46.
Owen, Charles A., d.b.a. Owen Safety First Co., San Mateo, Calif. 829,341, pub. 3–14–67. Cl. 12.
Owen Safety First Co.: *See*—
Owen, Charles A.
Pacific Electro Magnetics Co., Inc., Palo Alto, Calif. 829,475, pub. 3–14–67. Cl. 36.
Pack, Valeria C.: *See*—
Western Pharmacal Co.
Paper Mate Mfg. Co., Santo Monica, Calif. 829,477, pub. 3–14–67. Cl. 37.
Parker-Hannifin Corp., Cleveland, Ohio. 713,864, canc. Cl. 35.
Parker Pen Co., The, Janesville, Wis. 829,439, pub. 3–14–67. Cl. 23.
Peavey Co.: *See*—
Russell-Miller Milling Co.
Peebles, W. S., & Co., Inc., Lawrenceville, Va. 829,489, pub. 3–14–67. Cl. 39.
Peerless Playthings Co., Inc., Ridgefield Park, N.J. 713,824, canc. Cl. 22.
Peninsular Paint and Varnish Co., Ltd., to Acme Quality Paints, Inc., Detroit, Mich 62,960, ren. 5–30–67. Cl. 16.
PepsiCo, Inc., New York, N.Y. 829,533, pub. 11–29–66. Cl. 45.
PepsiCo, Inc., New York, N.Y. 826,986, cor. Cl. 45.
Percase, Inc., from A. L. Mills, Brockton, Mass. 829,513, pub. 3–14–67. Cl. 42.
Perkiomen Laboratories: *See*—
Matrix Laboratories, Inc.
Pfister & Vogel Leather Co., to Pfister & Vogel Tanning Co., Milwaukee, Wis. 61,974, ren. 5–30–67. Cl. 1.
Pfister & Vogel Tanning Co.: *See*—
Pfister & Vogel Leather Co.
Pfizer, Chas., & Co., Inc., New York, N.Y. 826,776, cor. Cl. 18.
Pflueger Corp.: *See*—
Enterprise Mfg. Co., The.
Pierre, Jon, Cosmetics, Inc., New York, N.Y. 713,952, canc. Cl. 51.
Pillsbury Mills, Inc., to The Pillsbury Co., Minneapolis, Minn. 429,133, ren. 5–30–67. Cl. 46.
Pillsbury Co., The: *See*—
Pillsbury Mills, Inc.
Pinaud, Ed, Inc., New York, N.Y. 829,566, pub. 3–14–67. Cl. 51.
Pittsburgh Garter Co., Pittsburgh, Pa. 713,717, canc. Cl. 3.
Pittsburgh Plate Glass Co., Pittsburgh, Pa. 713,703, canc. Cl. 1.
Plastic Products Co., Detroit, Mich., to The Gibson-Homans Co., Cleveland, Ohio. 231,249, ren. 5–30–67. Cl. 12.
Plasti-Craft, Inc., of California, San Gabriel, Calif. 829,389, pub. 3–14–67. Cl. 19.
Plastics Mfg. Co., Dallas, Tex. 829,322, pub. 3–14–67. Cl. 2.
Plimpton, Robert H., d.b.a. Teckla Garment Co., Worcester, Mass. 829,495, pub. 3–14–67. Cl. 39.
Plus Poultry, Inc., Siloam Springs, Ark. 829,553, pub. 3–14–67. Cl. 46.
Podiatry Laboratories: *See*—
Newman, Louis.
Polycom Corp., Winsted, Conn. 829,426, pub. 3–14–67. Cl. 23.
Polycom Corp., Winsted, Conn. 829,427, pub. 3–14–67. Cl. 23.
PolyKrystalon Co., Inc., The, from B. V. Ballard, Houston, Tex. 829,390, pub. 3–14–67. Multiple Class (Classes 20 and 32).
Portable Elevator Mfg. Co., Bloomington, Ill. 829,444, pub. 3–14–67. Cl. 23.
Potlatch Forests, Inc., San Francisco, Calif. 829,340, pub. 3–14–67. Cl. 12.
Precision Diamond Tool Co.: *See*—
Taeyaerts, Jan.
Purdue Frederick Co., The, Yonkers, N.Y. 829,548, pub. 3–14–67. Cl. 46.
Puritan Fashions Corp., New York, N.Y. 829,490, pub. 3–14–67. Cl. 39.
Puritan Fashion Corp., New York, N.Y. 829,492, pub. 3–14–67. Cl. 39.
Purnell's Pride, Inc., Tupelo, Miss. 829,545, pub. 3–14–67. Cl. 46.
Purton, Inc., Sycamore, Ill. 829,369, pub. 3–14–67. Cl. 10.
RJS Products Co., Inc., Akron, Ohio. 829,438, pub. 3–14–67. Cl. 23.
Raab, Wilbur W., d.b.a. D & R Fabricators, Grand Rapids, Mich. 829,342, pub. 3–14–67. Cl. 12.
Ray Control Corp., New York, N.Y. 829,357, pub. 3–14–67. Cl. 13.
Raymond International Inc., New York, N.Y. 829,588, pub. 3–14–67. Cl. 103.
Reed Brothers, Inc., Tupelo, Miss. 226,191, ren. 5–30–67. Cl. 39.
Rema Foods, Inc., New York, N.Y. 829,544, pub. 3–14–67. Cl. 46.
Republic Engineering & Mfg. Co., St. Louis, Mo. 829,388, pub. 3–14–67. Cl. 19.
Rexall Drug and Chemical Co.: *See*—
Syracuse Ornamental Co.
Reynolds, John E., Leamington, Ontario, Canada. 713,767, canc. Cl. 12.
Robins, A. H., Co., Inc., Richmond, Va. 829,375, pub. 3–14–67. Cl. 18.
Rocket Jet Engineering Corp., Glendale, Calif. 713,849, canc. Cl. 26.
Rodo Enterprises, Inc., Baltimore, Md. 829,323, pub. 3–14–67. Multiple Class (Classes 2 and 37).
Rose, Phil, of Calif., Inc., Los Angeles, Calif. 829,500, pub. 3–14–67. Cl. 39.
Ross Laboratories: *See*—
Moores & Ross, Inc.
Roth, Chester H., Co., Inc., to Kayser-Roth Corp., New York, N.Y. 430,645, ren. 5–30–67. Cl. 39.
Roxane, Philips, Inc., New York, N.Y. 829,372, pub. 7–20–65. Cl. 18.
Russell-Miller Milling Co., to Peavey Co., Minneapolis, Minn. 230,238, ren. 5–30–67. Cl. 46.
Safeway Stores, Inc., Oakland, Calif. 432,207, ren. 5–30–67. Cl. 46.
St. Louis Independent Packing Co., St. Louis, Mo., to Swift & Co., Chicago, Ill. 426,812, ren. 5–30–67. Cl. 46.
Salant & Salant, Inc., New York, N.Y. 713,896, canc. Cl. 39.
Sams Technical Institute, Inc., Indianapolis, Ind. 829,462, pub. 3–14–67. Cl. 26.
Sand, Haakon, South Gate, Calif. 713,833, canc. Cl. 23.
Santini Bros. Inc., Bronx, N.Y. 829,593, pub. 3–14–67. Cl. 105.
Sau-Sea Foods, Inc., Yonkers, N.Y. 591,752. Am. 7(d). Cl. 46.
Sazerac Co., Inc., d.b.a. James Ferguson, New Orleans, La. 829,555, pub. 2–1–66. Cl. 49.
Schaeren, Mido G., & Co., S.A.: *See*—
Mido Societe Anonyme.
Schjeldahl, G. T., Co., Northfield, Minn. 713,766, canc. Cl. 12.
Schmitt Paint and Chemical-Equipment Corp., Fort Wayne, Ind. 829,368, pub. 3–14–67. Cl. 16.
Schneider, Dana J., d.b.a. Hydraulic Unit Specialties Co., Painesville, Ohio, to Hydraulic Unit Specialties Co., Waukesha, Wis. 432,278, ren. 5–30–67. Cl. 23.
School Products Co.: *See*—
Blount, Bill G.
Schrafft, W. F., & Sons Corp.: *See*—
Wallace & Co.
Schreiber Milling & Grain Co., to Schreiber Mills, Inc., St. Joseph, Mo. 431,236, ren. 5–30–67. Cl. 46.
Schreiber Mills, Inc.: *See*—
Schreiber Milling & Grain Co.
Schwerin Research Corp., New York, N.Y. 829,585, pub. 3–14–67. Cl. 101.
Screen Gems, Inc., New York, N.Y. 829,594, pub. 3–7–67. Cl. 107.

Scuttle-Board: *See*—
Miller, Ernest W.
Sheller Mfg. Corp., Detroit, Mich. 829,380, pub. 3–14–67. Cl. 19.
Sieh, Alberta, d.b.a. Sieh Registry Plan of Licensed Child Care, Topeka, Kans. 713,959, canc. Cl. 101.
Sieh Registry Plan of Licensed Child Care: *See*—
Sieh, Alberta.
Silo, Inc., Philadelphia, Pa. 713,870, canc. Cl. 36.
Simca French Corp., Paris, France. 713,813–14, canc. Cl. 19.
Sinclair Mfg. Co., The, Toledo, Ohio. 829,329, pub. 4–19–66. Cl. 6.
Sinclair Refining Co., New York, N.Y. 829,363, pub. 3–14–67. Cl. 15.
Sinclair Refining Co., New York, N.Y. 713,730, canc. Cl. 6.
Sinclair Refining Co., New York, N.Y. 829,364, pub. 3–14–67. Cl. 15.
Sinclair Refining Co., New York, N.Y. 829,365, pub. 3–14–67. Cl. 15.
Sinclair Refining Co., New York, N.Y. 829,366, pub. 3–14–67. Cl. 15.
Singer Co., The, New York, N.Y. 829,392, pub. 3–14–67. Multiple Class (Classes 21, 23, 32, 36, and 50).
Sivad Ceramic Corp., The, Oak Hill, Ohio. 634,286, cor. Cl. 12.
Societe Anonyme Societe Europeenne, d'Isolateurs en Verre, Paris, France. 829,400, pub. 3–14–67. Cl. 21.
Societe des Usiness Chimiques Rhone-Poulenc, Paris, France. 430,931, ren. 5–30–67. Cl. 18.
Societe des Usiness Chimiques Rhone-Poulenc, Paris, France. 430,933, ren. 5–30–67. Cl. 18.
Speedrite Products, Inc., Wichita, Kans. 829,749, pub. 3–14–67. Cl. 37.
Spencer Turbine Co., The: *See*—
Organ Power Corp., The.
Standard International Corp., Andover, Mass. 829,570, pub. 3–14–67. Cl. 52.
Standard Oil Co., Whiting, Ind., and Chicago, Ill., to The American Oil Co., Chicago, Ill. 430,251, ren. 5–30–67. Cl. 6.
Standard Oil Co., to Standard Oil Co., San Francisco, Calif. 93,475. Am. 7(d). Cl. 15.
Standard Rochester Brewing Co., Inc., Rochester, N.Y. 829,554, pub. 7–19–66. Cl. 48.
Staver Westport, Inc., Westport, N.Y. 829,557, pub. 3–14–67. Cl. 50.
Ste Anonyme des Ets Thiers-Issard & Fils, Thiers, Puy-de-Dome, France. 829,434, pub. 3–21–67. Cl. 23.
Stein & Ellbogen Co., Chicago, Ill. 829,464, pub. 3–14–67. Cl. 28.
Steinen, Wm., Mfg. Co., Parsippany, N.J. 829,352–3, pub. 3–14–67. Cl. 13.
Stetson, John B., Co., from John B. Stetson Co., Philadelphia, Pa. 829,486, pub. 3–14–67. Cl. 39.
Stevens, J. P., & Co., Inc., New York, N.Y. 829,518, pub. 3–14–67. Cl. 42.
Stocker Hinge Mfg. Co., The, Brookfield, Ill. 829,345, pub. 3–14–67. Cl. 13.
Stoffel & Co., Inc., New York, N.Y. 713,909, canc. Cl. 42.
Storecast Systems, Inc., New York, N.Y. 817,146, cor. Cl. 101.
Straub, W. F., & Co., Chicago, Ill. 713,989, canc. Cl. 46.
Street, R. R., & Co., Inc., Chicago, Ill. 225,966, ren. 5–30–67. Cl. 52.
Sugardale Provision Co., The, Canton, Ohio. 713,942, canc. Cl. 46.
Sunbeam Equipment Corp.: *See*—
Westinghouse Electric & Mfg. Co.
Sun Drop Sale Corp. of America, St. Louis, Mo. 782,157, canc. Cl. 45.
Swift & Co.: *See*—
Eckerson Co.
Neuhoff Packing Co.
St. Louis Independent Packing Co.
Swift & Co., Chicago, Ill. 427,312, ren. 5–30–67. Cl. 46.
Swift and Co., to Swift & Co., Chicago, Ill. 223,781, ren. 5–30–67. Cl. 5.
Syl-Len: *See*—
Wolfson, Leonard G.
Syracuse Ornamental Co., Syracuse, N.Y., to Rexall Drug and Chemical Co., d.b.a. Syroco, Los Angeles, Calif. 428,977, ren. 5–30–67. Cl. 21.
Syroco: *See*—
Syracuse Ornamental Co.
Taeyaerts, Jan, d.b.a. Precision Diamond Tool Co., Chicago, to Precision Diamond Tool Co., Elgin, Ill. 430,077, ren. 5–30–67. Cl. 4.
Tarrant Mfg. Co., Saratoga Springs, N.Y. 829,449, pub. 3–14–67. Cl. 23.
Taylor-Bell Co., Inc., New York, N.Y. 713,903–4, canc. Cl. 40.
Tech Plastics Corp., New York, N.Y. 829,397, pub. 3–14–67. Cl. 21.
Teckla Garment Co.: *See*—
Plimpton, Robert H.
Thermex Metallurgical, Inc.: *See*—
Goldschmidt Thermit Co.
Thibault Milling Co., Little Rock, Ark. 829,535, pub. 3–8–66. Cl. 46.
Top Flite Models, Inc., Chicago, Ill. 829,408, pub. 3–14–67. Cl. 22.
Totem Mfg. Co., Kent Wash. 829,406, pub. 3–14–67. Cl. 22.
Toy Guidance Council, Inc., New York, N.Y. 714,011, canc. Cl. 101.
Transo Envelope Co., to Arvey Corp., Chicago, Ill. 228,598, ren. 5–30–67. Cl. 37.
Travelhome, Inc., Grinnell, Iowa. 829,385, pub. 3–14–67. Cl. 19.
Union Carbide Corp., New York, N.Y. 713,710, canc. Cl. 1.
Union Starch & Refining Co., Inc., Columbus, Ind. 829,536–8, pub. 3–14–67. Cl. 46.
Union Tank Car Co., Chicago, Ill. 829,589–91, pub. 3–14–67. Cl. 103.
United Engineering and Foundry Co., Pittsburgh, Pa. 829,441, pub. 3–14–67. Cl. 23.
United States Ceramic Tile Co.: *See*—
United States Quarry Tile Co.
U.S. Industries, Inc., New York, N.Y. 829,506, pub. 3–14–67. Cl. 39.
United States Playing Card Co., The, Cincinnati, Ohio. 829,407, pub. 3–14–67. Cl. 22.
United States Playing Card Co., The, Cincinnati, Ohio. 829,419, pub. 3–14–67. Cl. 22.
United States Plywood Corp., New York, N.Y. 829,343, pub. 3–14–67. Cl. 12.
United States Quarry Tile Co., Canton and East Sparta, Ohio, to United States Ceramic Tile Co., Canton, Ohio. 428,662, ren. 5–30–67. Cl. 13.
United States Textile Machine Co., Scranton, Pa. 829,430, pub. 3–14–67. Cl. 23.
Universal Foods Corp., Milwaukee, Wis. 829,547, pub. 3–14–67. Cl. 46.
Universal Publicizers, Inc., Chicago, Ill. 829,584, pub. 3–14–67. Cl. 101.
Urethane Corp. of California, San Francisco, Calif. 713,855, canc. Cl. 32.
Van Deburg, William R., d.b.a. Wedco Mfg. Co., Jackson, Wyo. 829,430, pub. 3–14–67. Cl. 23.
Vendo Co., The, Kansas City, Mo. 713,840, canc. Cl. 23.
Victor Comptometer Corp., Chicago, Ill. 829,411, pub. 3–14–67. Cl. 22.
Victor Comptometer Corp., Chicago, Ill. 829,414, pub. 3–14–67. Cl. 22.
Viobin Corp., Monticello, Ill. 713,794, canc. Cl. 18.
Viscose Co., The, Marcus Hook, to FMC Corp., Philadelphia, Pa. 229,532, ren. 5–30–67. Cl. 43.
Vistron Corp., Cleveland, Ohio, from Filon Corp., Hawthorne, Calif. 829,339, pub. 3–14–67. Cl. 12.
Vulcan Radiator Co., The, Hartford, Conn. 829,473, pub. 3–14–67. Cl. 34.
Waldrich, H. A., G.m.b.H., Siegen, Westphalia, Germany. 829,422, pub. 3–14–67. Cl. 23.
Wallace Pencil Co., Maplewood, Mo. 829,478, pub. 3–14–67. Cl. 37.
Walker Industries, San Francisco, Calif. 829,529, pub. 3–14–67. Cl. 44.
Wallace & Co., New York, N.Y., to W. F. Schrafft & Sons Corp., Boston, Mass. 61,660, ren. 5–30–67. Cl. 46.
Waumbec Mills, Inc., New York, N.Y. 829,519, pub. 3–14–67. Cl. 42.
Wayne Mfg. Co., Staatsburg, N.Y. 829,356, pub. 3–14–67. Cl. 13.
Wayne Mfg. Co., Pomona, Calif. 829,442, pub. 3–14–67. Cl. 23.
Weben Products, Inc., Dallas, Tex. 829,423, pub. 3–14–67. Cl. 23.
Wedco Mfg. Co.: *See*—
Van Deburg, William R.
Wella Corp., The, Englewood, N.J. 829,564, pub. 3–14–67. Cl. 51.
Western Felt Works, Chicago, Ill. 829,319, pub. 3–14–67. Multiple Class (Classes 1 and 12).
Western Import, Inc., Portland, Oreg. 829,404, pub. 3–14–67. Cl. 22.
Western Pharmacal Co., to V. C. Pack, d.b.a. Western Pharmacal Co., Salt Lake City, Utah. 225,080, ren. 5–30–67. Cl. 18.
Westinghouse Electric Corp.: *See*—
Westinghouse Electric & Mfg. Co.
Westinghouse Electric & Mfg. Co., now by change of name Westinghouse Electric Corp., East Pittsburgh, to Sunbeam Equipment Corp., Meadville, Pa. 432,055, ren. 5–30–67. Cl. 21.
Whitecliff Corp., The, Niota, Tenn. 829,517, pub. 3–14–67. Cl. 42.
Willett, Consider H., Inc., Louisville, Ky. 713,853, canc. Cl. 32.
Williams Mfg. Co., The, Portsmouth, Ohio. 829,496, pub. 3–14–67. Cl. 39.
Williams, Stacy, Co., The, to The Stacy Williams Co., Inc., Birmingham, Ala. 231,920, ren. 5–30–67. Cl. 46.
Williams, Stacy, Co., Inc., The: *See*—
Williams, Stacy, Co., The.
Wilson, Felix, New York, N.Y. 713,918, canc. Cl. 45.
Wipette Sportswear, Inc., New York, N.Y. 829,497, pub. 3–14–67. Cl. 39.
Wolfson, Leonard G., d.b.a. Syl-Len, Boston, Mass. 713,787, canc. Cl. 18.
Woolworth, F. W., Co., New York, N.Y. 829,571, pub. 3–14–67. Cl. 52.
Ziegler Electronics, Inc., Gardena, Calif. 713,916, canc. Cl. 44.

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